



May 9, 2007

Brad Werdick  
University of California, San Diego  
9500 Gilman Drive  
La Jolla, California 92093

**Re: Venter Institute Site Access Study**

Dear Mr. Werdick:

The report summarizes the transportation impacts associated with the development of the Venter Institute, a scientific research and development center, on Parcel 4 of the Scripps Upper Mesa neighborhood. This site is located at the University of California, San Diego within the Scripps Institution of Oceanography. The currently vacant Parcel 4 is located at the southwest corner of the Torrey Pines Road/La Jolla Village Drive intersection. The potential off-site impacts of the project were analyzed at key intersections in the project vicinity under existing with project conditions. In addition, safety, sight distance, and project access were evaluated.

The analysis and recommendations presented in this report reflect opinions of City of San Diego Development Services Department transportation staff. In a meeting on September 25, 2006, City staff indicated they were not supportive of either a left-turn ingress or left-turn egress from Torrey Pines Road into and out of the project site. Preliminary analysis results were presented to the City and they found no reason to depart from City standards by allowing left-turn ingress. In addition, the City commented on the amount of on-street parking to be removed to provide adequate sight distance for egress vehicles. Their comments are reflected in this report; however, we have presented the results of our analysis with and without the left-turn ingress as a reference for how adjacent intersections would be affected with the movement allowed.

**RECOMMENDATIONS**

The key findings and recommendations of our analysis are summarized below.

***Existing Conditions***

- The Torrey Pines Road/La Jolla Village Drive intersection currently operates at level of service (LOS) B conditions during the AM peak hour and LOS C conditions during the PM peak hour.
- The Torrey Pines Road/Glenbrook Way intersection currently operates at LOS A conditions during the AM peak hour and LOS B conditions during the PM peak hour.
- The existing westbound left-turn queue at the Torrey Pines Road/La Jolla Village Drive intersection extends beyond the storage pocket during the PM peak hour.

***Existing With Project Conditions***

- The proposed project is estimated to generate approximately 60 AM peak hour, 50 PM peak hour, and 360 daily trips.
- With the proposed project, the Torrey Pines Road/La Jolla Village Drive intersection would continue to operate at LOS B during the AM peak hour and LOS C during the PM peak hour.

- The Torrey Pines Road/Glenbrook Way intersection would continue to operate at LOS A and LOS B conditions during the AM and PM peak hour, respectively, with the proposed project.
- Maximum vehicle queues would not measurably increase.

### ***Evaluation of Project Access***

- Access to the project should be provided by a right-in and right-out driveway on Torrey Pines Road.
- The left-turn ingress from Torrey Pines Road would not adversely affect adjacent intersection operations. However, City of San Diego staff indicated they were not supportive of left-turn ingress from Torrey Pines Road because it is designated as a major arterial with limited access.
- The project driveway should be located on the north end of Parcel 4, approximately 300 feet south of the Torrey Pines Road/La Jolla Village Drive intersection (measured from the curb-return of the intersection).
- The internal intersection between Parcel 3 and 4 should be configured as a traditional "T" intersection. The side approaches should be controlled by stop signs while vehicles entering the site from Torrey Pines Road should not stop.
- The project driveway should be 24-30 feet in width.
- A raised median should be constructed on Torrey Pines Road from La Jolla Village Drive to the southern edge of Parcel 4 to prevent left turn in/out movements.
- Red curb on Torrey Pines Road should be extended (approximately 210 feet) from its current terminus south of La Jolla Village Drive to the proposed project driveway to ensure clear corner sight distance.

## INTRODUCTION

The scope of this study was developed by UCSD with consultation from City of San Diego Development Services Department transportation staff.

### **Study Area**

The vacant Scripps Upper Mesa area is bordered by Torrey Pines Road to the east, Expedition Way to the west, and La Jolla Village Drive to the north. The area is comprised of four parcels (Parcels 1-4) on approximately seven acres which the University plans to develop as projects are identified in the future. The first proposed development is the Venter Institute on Parcel 4, which is bordered by Torrey Pines Road and Allen Field.

Access to the project site will be via a driveway on Torrey Pines Road. Project impacts were analyzed at the following two study intersections during the AM and PM peak hour:

- Torrey Pines Road/La Jolla Village Drive
- Torrey Pines Road/Glenbrook Way

### **Analysis Methodology**

Level of service (LOS) is a quantitative measure describing the operating condition of intersections and roadways. LOS ranges from A through F, where A represents the best driving conditions and F the worst. In general, LOS A represents free-flow conditions with no congestion, and LOS F represents severe congestion and delay under stop-and-go conditions.

The study intersections were analyzed using methodology contained in *Highway Capacity Manual 2000* (Transportation Research Board, 2000), consistent with City of San Diego standards. This methodology determines intersection level of service by comparing the average control delay per vehicle to the thresholds shown in Table 1.

Level of Service	Description	Signalized Intersection (Average Vehicle Delay) <sup>1</sup>
A	Represents free flow. Individual users are virtually unaffected by others in the traffic stream.	≤ 10.0
B	Stable flow, but the presence of other users in the traffic stream begins to be noticeable.	10.1 - 20.0
C	Stable flow, but the operation of individual users becomes significantly affected by interactions with others in the traffic stream.	20.1 - 35.0
D	Represents high-density, but stable flow.	35.1 - 55.0
E	Represents operating conditions at or near the capacity level.	55.1 - 80.0
F	Represents forced or breakdown flow.	> 80.0

Source: <sup>1</sup> *Highway Capacity Manual – Special Report 209* (Transportation Research Board, 2000).

*Highway Capacity Manual* methodologies include pedestrian factors which affect intersection operations. This is especially important in university settings as pedestrian activity is not typical of most areas. The elevated level of pedestrian activity has been accounted for in the level of service analysis by assuming a significant amount of pedestrians cross each intersection approach (where crosswalks are provided). To do this, we accounted for the pedestrians' effect on the right-turning flow rates (left-turns where applicable) and we assumed that a pedestrian pushes a call button at a traffic signal for the majority of the cycles during the peak hour.

### **Level of Service Standards**

The City of San Diego has LOS policies relating to operations of signalized intersections. These policies were considered in the development of the following criteria for this study. The project would have a significant impact if it would:

- Worsen an intersection from LOS D or better to LOS E or worse; or
- Worsen an intersection already operating at LOS E, or F by more than two seconds of delay.

### **EXISTING CONDITIONS**

This section describes the existing roadway network in the vicinity of the project site including operations at the study intersections. Existing bicycle, pedestrian, and transit facilities in the project vicinity are also discussed.

#### **Roadway System**

Figure 1 (located in Attachment A) displays the proposed project's location and the study intersections. The roadways that would provide access to the project are described below:

**Torrey Pines Road** borders the project to the east and would provide the primary project access. Torrey Pines Road is classified in the City's La Jolla Community Plan as a four lane major arterial and is the main access between the downtown La Jolla area and the UCSD campus. Adjacent to the project, this roadway has two travel lanes in each direction and a striped median. The roadway has a posted speed limit of 45 miles per hour (MPH). Sidewalks and on-street bike lanes exist along both sides of Torrey Pines Road adjacent to the project site. Pedestrian and bicycle access to/from UCSD is provided at the Torrey Pines Road/La Jolla Village Drive intersection.

**North Torrey Pines Road** is the primary route to/from the north of the project. It forms part of the campus' west border as it extends north-south from Genesee Avenue to La Jolla Village Drive. North Torrey Pines Road is classified as a four lane (two in each direction) major arterial. It has a posted speed limit of 45 MPH. Sidewalks exist along both sides of North Torrey Pines Road adjacent to the project site.

**La Jolla Village Drive** extends easterly from North Torrey Pines Road at Torrey Pines Road and provides access to/from the east, including the most direct access to Interstate 5. The roadway is classified as a major arterial with a varying number of travel lanes as it crosses Gilman Drive, Villa La Jolla Drive, and Interstate 5.

#### **Traffic Volumes**

Fehr & Peers conducted AM (7 – 9) and PM (4 – 6) peak period traffic counts at the study intersections while classes at UCSD were in session. The counts were conducted in 2006 and 2007, as part of data collection for nearby University-related projects. Traffic counts were

compared to counts used in the University's *2004 Long Range Development Plan*. The recently collected counts during the PM peak hour match closely with those previously published.

Figure 1 displays the AM and PM peak hour traffic volumes, lane configurations, and traffic control devices at the study intersections.<sup>1</sup>

### ***Levels of Service and Queues***

The traffic volumes displayed on Figure 1 were used to analyze existing traffic operations at the study intersections. The study intersections currently operate acceptably, according to City standards, at LOS B conditions during the AM peak hour and LOS C conditions during the PM peak hour. Technical calculations are included in Attachment B.

The calculated 95<sup>th</sup> percentile westbound left-turn queue at North Torrey Pines Road/La Jolla Village Drive is 580 feet. This exceeds the storage provided by the left-turn pocket and extends beyond the adjacent intersection, with La Jolla Scenic Drive, which is approximately 330 feet to the east. During the peak hours, left-turn queues can fill the storage area between the two intersections. In the field, the left-turn queue can only be 330 feet before it becomes a queuing issue of the adjacent intersection. For the remainder of this report we have presented the calculated queues (580 feet) regardless of the distance to the adjacent intersection. The calculated queue was reported because it allowed for direct comparison between the calculated queues of the with project scenarios. This allowed us to determine if the proposed project would worsen an existing queuing problem.

### **EXISTING WITH PROJECT CONDITIONS**

This section describes the potential near-term traffic impacts of the proposed project on the surrounding roadway system.

#### ***Project Description***

According to the Scripps Upper Mesa Neighborhood Planning Study and University staff, the long term or planned development for Parcels 1-4 will be comprised of 135,200 square feet of scientific research and development uses. The Venter project on Parcel 4 is the first project to be proposed in this portion of campus and would consist of 45,000 gross square feet of scientific research and development facilities. The development schedule for Parcels 1-3 is unknown.

Figure 2 in Attachment A shows the Parcel 4 site plan. Access to Parcel 4 would be provided by an unsignalized driveway on Torrey Pines Road. Evaluations of this driveway are described in greater detail in the Evaluation of Project Access section of this report.

The only proposed access to Parcel 4 is the driveway on Torrey Pines Road; however, with the development of Parcels 1-3 a full access driveway would be constructed at some point in the future on Expedition Way. This connection is not assumed with development of Parcel 4 only.

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<sup>1</sup> Attachment D contains the raw traffic count sheets. The volumes shown in the figures have been manually balanced between adjacent intersections as part of nearby University-related projects.

**Trip Generation**

We estimated the trip generation of the proposed project for AM and PM peak hour conditions using trip rates and percentages published in *Trip Generation Manual*, City of San Diego Municipal Code, May 2003 and site information obtained from University staff. The City's trip generation rates closely match estimates for the research and development center land use category from *Trip Generation 7<sup>th</sup> Edition*, Institute of Transportation Engineers, 2003, which is a well documented resource and typically used in traffic engineering throughout the country. The rates used in this analysis are consistent with the University's Long Range Development Plan. Table 2 summarizes the estimated trip generation for Parcels 1-4 of the proposed project.

Parcel	Land Use	Amount (KSF)	Trip Rates <sup>1</sup>			Trips						
			Daily (ADT/KSF)	AM (% of ADT)	PM (% of ADT)	Daily	AM Peak Hour			PM Peak Hour		
							In	Out	Total	In	Out	Total
1	Research and Development	32.5	8.0	16% (90/10)	14% (10/90)	260	38	4	42	4	32	36
2	Research and Development	32.1	8.0	16% (90/10)	14% (10/90)	257	37	4	41	4	32	36
3	Research and Development	25.6	8.0	16% (90/10)	14% (10/90)	205	30	3	33	3	26	29
4	Research and Development	45.0	8.0	16% (90/10)	14% (10/90)	360	52	6	58	5	45	50
<b>Total Land Use</b>		<b>135.2</b>	<b>Total New Trips</b>		<b>1,082</b>	<b>157</b>	<b>17</b>	<b>174</b>	<b>16</b>	<b>135</b>	<b>151</b>	

Notes: <sup>1</sup> Rounded trip rates shown based on actual rates and percentages from *Trip Generation Manual*, City of San Diego Municipal Code, May 2003.  
 KSF – thousand square feet

As shown, the Venter project (Parcel 4) is expected to generate 360 daily trips, including approximately 60 AM peak hour trips and 50 PM peak hour trips. These trips were assigned to the project driveway and adjacent study intersections.

**Trip Distribution**

We determined the expected distribution of project trips onto the adjacent roadway network based on existing traffic volumes, the location of complementary land uses, and previous development studies from the University. The following is the expected trip distribution:

<u>Directionality</u>	<u>Percent</u>
To/from the east on La Jolla Village Drive	50%
To/from the west/north on North Torrey Pines Road	20%
To/from the west/south on Torrey Pines Road	30%
<i>Total</i>	<i>100%</i>

### ***Trip Assignment***

We assigned project trips to the study intersections in accordance with the trip distribution percentages and permitted driveway turning movements. All of the trips departing the site and traveling on North Torrey Pines Road or La Jolla Village Drive were assumed to exit onto Torrey Pines Road and make a u-turn at Glenbrook Way. U-turns are permitted at this intersection as this movement is identical to that of vehicles exiting Allen Field on Torrey Pines Road. Figure 3 summarizes the project-only trips assuming only right-turn ingress and egress on Torrey Pines Road.

Parcel 4 project trips were added to the existing volumes to yield the Existing With Project volumes shown on Figures 4 and 5 (including volumes at the project driveway). Trips estimated with buildout of Parcels 1-4 were added to the existing volumes and are shown in Figures 6 and 7. All figures are included in Attachment A.

### ***Level of Service and Queues***

We analyzed traffic operations at the study intersections and project driveway access under the following Existing With Project scenarios:

- Parcel 4 buildout with left-in access from Torrey Pines Road
- Parcel 4 buildout with right-in/right-out access only from Torrey Pines Road
- Parcels 1-4 buildout with left-in access from Torrey Pines Road
- Parcels 1-4 buildout with right-in/right-out access only from Torrey Pines Road

A full access driveway onto Expedition Way would be constructed at some point in the future corresponding with the buildout of Parcels 1-3. This connection was assumed in our "Parcels 1-4" buildout analysis scenarios.

In a September 2006 meeting, City of San Diego staff indicated they were not supportive of the left-turn ingress from Torrey Pines Road due to the classification of the roadway as a four lane major arterial, which should have limited access to maintain/achieve the planned capacity (described below). The analysis of this movement has been included in the report to show what the effects on adjacent intersections would be if the left-turn ingress were allowed.

The LOS and queuing results are summarized separately for the two study intersections. Table 3 summarizes the results for the Torrey Pines Road/La Jolla Village Drive intersection under all of the previously discussed scenarios. Refer to Attachment B for technical calculations.

Table 3 indicates that the project would not worsen the LOS from existing conditions. The northbound left-turn queue at the Torrey Pines Road/La Jolla Village Drive intersection would not increase enough to cause spillback out of the turn pocket. The westbound left-turn queue would not be expected to increase with the addition of project-related traffic with any of the four scenarios analyzed.

<b>TABLE 3</b>						
<b>TORREY PINES RD/LA JOLLA VILLAGE DR – PEAK HOUR INTERSECTION LEVELS OF SERVICE AND QUEUES</b>						
Scenario		AM Peak Hour		PM Peak Hour		Queues <sup>2</sup>
		Delay <sup>1</sup>	LOS	Delay	LOS	
<b>Existing</b>	-	15.6	B	34.6	C	<b>WBL - 580<sup>3</sup></b> NBL - 110
<b>Existing With Parcel 4</b>	Left-in on Torrey Pines Rd.	15.7	B	34.9	C	<b>WBL - 580<sup>3</sup></b> NBL - 110
	Right-in/Right out on Torrey Pines Rd.	15.9	B	35.0	C	<b>WBL - 580<sup>3</sup></b> NBL - 120
<b>Existing With Parcels 1-4<sup>4</sup></b>	Left-in on Torrey Pines Rd.	15.9	B	34.7	C	<b>WBL - 580<sup>3</sup></b> NBL - 110
	Right-in/Right out on Torrey Pines Rd.	15.8	B	34.7	C	<b>WBL - 580<sup>3</sup></b> NBL - 130

Notes: <sup>1</sup> Average control delay reported in seconds per vehicle.  
<sup>2</sup> Reported 95<sup>th</sup> percentile queue (in feet) is longest from AM and PM peak hours.  
<sup>3</sup> Calculated queue exceeds the storage provided by the left-turn pocket and extends beyond the adjacent intersection, with La Jolla Scenic Drive, which is approximately 330 feet to the west. The calculated queue is reported because it allows for direct comparison between the calculated queues of the buildout scenarios.  
<sup>4</sup> Access to Expedition Way will be built as part of Parcels 1-3 buildout and is assumed in the "Existing With Parcels 1-4" analysis.  
**Bold** indicates queue exceeds storage length.  
 LOS - level of service

The project would add u-turn traffic to the Torrey Pines Road/La Jolla Village Drive intersection without left-turn ingress from Torrey Pines Road. This intersection currently accommodates a northbound left-turn movement and has sufficient capacity to handle the additional vehicles estimated to access the site.

Table 4 summarizes the LOS and queuing results at the Torrey Pines Road/Glenbrook Way intersection. Queuing analysis was performed for the southbound left-turn movement only, as this is the turning movement that would be affected by project-related traffic. Refer to Attachment B for technical calculations.



As shown below, this study intersection would operate at LOS A conditions during the AM peak hour and LOS B conditions during the PM peak hour with the proposed project and with Parcels 1-4 in place.

Scenario		AM Peak Hour		PM Peak Hour		Queues <sup>2</sup>
		Delay <sup>1</sup>	LOS	Delay	LOS	
<b>Existing</b>	-	9.6	A	13.7	B	SBL - 50
<b>Existing With Parcel 4</b>	Left-in on Torrey Pines Rd.	9.7	A	13.9	B	SBL - 70
	Right-in/Right out on Torrey Pines Rd.	9.7	A	13.8	B	SBL - 70
<b>Existing With Parcels 1-4<sup>3</sup></b>	Left-in on Torrey Pines Rd.	9.6	A	13.0	B	SBL - 50
	Right-in/Right out on Torrey Pines Rd.	9.6	A	12.9	B	SBL - 50

Notes: <sup>1</sup> Average control delay reported in seconds per vehicle.  
<sup>2</sup> Reported 95<sup>th</sup> percentile queue (in feet) is longest from AM and PM peak hours.  
<sup>3</sup> Access to Expedition Way will be built as part of Parcels 1-3 buildout and is assumed in the "Existing With Parcels 1-4" analysis.  
 LOS - level of service

The project is not proposing a left-turn egress onto Torrey Pines Road; therefore, northbound project-related traffic exiting the site would add to the u-turn movement at the Torrey Pines Road/Glenbrook Way intersection. Queues for the southbound left-turn (and u-turn) movement would modestly increase with the Buildout of Parcel 4, due to the addition of u-turn traffic, but are not expected to extend beyond the existing 150 foot storage pocket. A connection to Expedition Way would be built with the development of Parcels 1-3 and would provide a secondary ingress/egress point for motorists traveling to the north or east.

**EVALUATION OF PROJECT ACCESS**

This section includes an evaluation of the consistency of the project driveway with applicable City standards, sight distance, driveway throat depth, and bicycle and pedestrian facilities. Recommendations in this section reflect comments received from City staff in September 2006.

Based on our review of the current site plan (dated January 2007 and shown in Figure 2), all of the recommendations presented in this section have been incorporated, with the exception of the desired throat depth. The proposed project site plan, the Venter Institute on Parcel 4, meets the desired throat depth by restricting internal drive aisle intersections to at least 100 feet from the Torrey Pines driveway. However, the portion of the Parcel 3 site plan shows an internal intersection within the recommended 100 foot clear distance. We recommend reconfiguring the internal intersection between Parcel 3 and 4 from an offset alignment to a traditional "T" intersection. The side approaches should be controlled by stop signs. Vehicles entering the site from Torrey Pines Road should not stop.

### ***Driveway Access***

According to the City of San Diego's design standards, a left-turn ingress movement at the driveway on Torrey Pines Road would not be allowed because of the roadway classification. The multiple factors required by the City to allow a median break on the major arterial are not met. Without a left-in movement from Torrey Pines Road, vehicles entering the site from northbound Torrey Pines Road would make a u-turn at the Torrey Pines Road/La Jolla Village Drive intersection. The queues and level of service at the intersection would not be adversely affected by the additional u-turns.

### ***Driveway Placement and Sizing***

In addition to the design standards, the City of San Diego Municipal Code provides general regulations on driveway placement and sizing. The following relevant regulations are from the chapter on Development and Design Regulations for Parking Facilities, §142.0560 (j):

- For properties with no access to an alley, there shall be at least one driveway opening permitted per street frontage with a maximum of one driveway opening for each 100 feet of street frontage.
- Nonresidential driveways shall have a minimum width of 24 feet and a maximum width of 30 feet.
- Driveways that traverse a sidewalk should be at least 20 feet long.

The first regulation allows Parcel 4 to have at least one driveway on Torrey Pines Road. The recommended design of this driveway is discussed later in this section.

### ***Stopping Sight Distance Requirements***

Stopping sight distance requires use of the roadway's design speed. The sight distance standards assume a constant "design speed," which would be 45 MPH in this case, the posted speed limit on Torrey Pines Road; however, because Torrey Pines Road/La Jolla Village Drive is a "T" intersection vehicle speeds are lower than the posted speed limit during a portion of the segment. For example, vehicles traveling southbound on Torrey Pines Road have either made a left- or right-turn at the La Jolla Village Drive intersection. Vehicles turning at the intersection are not traveling at 45 MPH as they must slow to make the turn. It can be assumed that the turning speed at the intersection is 25 MPH and that the travel speed at the southern edge of Parcel 4 is 45 MPH (located approximately 450 feet south of the intersection). Therefore, the average speed in this section of roadway can be assumed as 35 MPH. This is the speed that was used to calculate the sight distance.

The City's *Street Design Manual* (2002) states that minimum corner sight distance be provided for driveways to ensure that exiting drivers have a clear view of oncoming traffic. Corner sight distance is applied using methodology published in *Geometric Design of Highways and Streets* (American Association of State Highway and Transportation Officials, 2004). For a design speed of 35 MPH the corner sight distance is 335 feet from the exiting lane of the driveway. Red curb on Torrey Pines Road should be extended (approximately 210 feet) from its current terminus south of La Jolla Village Drive to the proposed project driveway to ensure clear corner sight distance.

### ***Minimum Desired Throat Depth and Turn Pocket Storage***

It is important that driveways be designed to provide adequate throat depth so that outbound traffic has sufficient storage to prevent blocking of the first on-site circulation aisle and parking. We estimated throat depth for weekday AM and PM peak hour conditions at the project driveway

based on the projected driveway volumes and volumes on the adjacent street. Estimated throat depths for the project access were based on the methodology presented in *Estimation of Maximum Queue Lengths at Unsignalized Intersections* (ITE Journal, November 2001).

Table 5 shows the results of the throat depth analysis. Refer to Attachment C for detailed throat depth queue calculations.

<b>TABLE 5</b>		
<b>MINIMUM DESIRED THROAT DEPTH</b>		
<b>Buildout</b>	<b>Scenario</b>	<b>Minimum Recommended Throat Depth<sup>1</sup></b>
Parcel 4	Left-in on Torrey Pines Rd.	100 ft.
	Right-in/Right out on Torrey Pines Rd.	100 ft.
Parcels 1-4	Left-in on Torrey Pines Rd.	100 ft.
	Right-in/Right out on Torrey Pines Rd.	100 ft.
Notes: <sup>1</sup> Estimated based on the methodology presented in <i>Estimation of Maximum Queue Lengths at Unsignalized Intersections</i> (ITE Journal, November 2001).		

We recommend the project driveway provide 100 feet of throat depth. This recommendation will accommodate estimated trips associated with buildout of Parcels 1-4.

***Bicycle/Pedestrian Facilities***

Bicycle and pedestrian facilities along the project frontage should be preserved with the project, namely sidewalks and on-street bike lanes. The project driveway on Torrey Pines Road should be designed to support the safe and efficient travel of bicyclists and pedestrians.

***Transit Facilities***

Transit facilities in the vicinity of the project would be preserved with the development. No bus routes would be displaced with the proposed project and the existing transit stop on Torrey Pines Road south of La Jolla Village Drive would not be affected with the buildout of Parcel 4.

***Median Type on Torrey Pines Road***

A raised median should be constructed to replace the striped median that exists on Torrey Pines Road. The median should extend from the Torrey Pines Road/La Jolla Village Drive intersection to the southern edge of Parcel 4. A raised median would prevent illegal left- and u-turns on this section of the roadway.

Figure 8 (see Attachment A) shows the location of the recommended median, project driveway, and sight distance recommendations.

The photo below was taken on Torrey Pines Road near the intersection with La Jolla Village Drive. It shows a downed roadway sign in the middle of Torrey Pines Road. A raised median would prevent similar problems from occurring.



Image 1. Roadway Sign in the Center of Torrey Pines Road

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We hope that this information was helpful. If you have any questions or comments, please contact us in the Irvine office of Fehr & Peers at 949.859.3200 or by e-mail at [j.gulden@fehrandpeers.com](mailto:j.gulden@fehrandpeers.com).

Sincerely,

FEHR & PEERS



Jeff Gulden  
Transportation Engineer

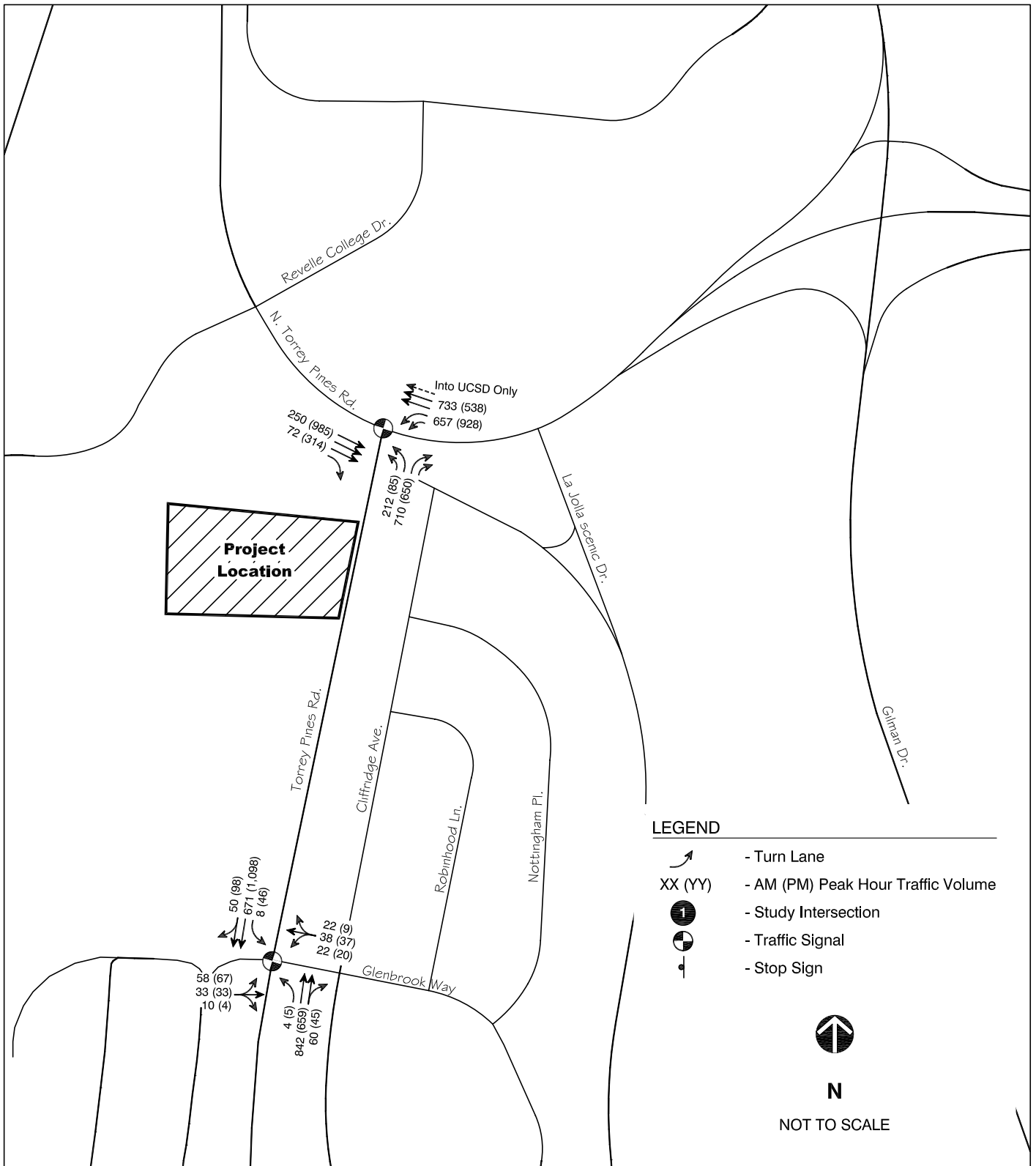


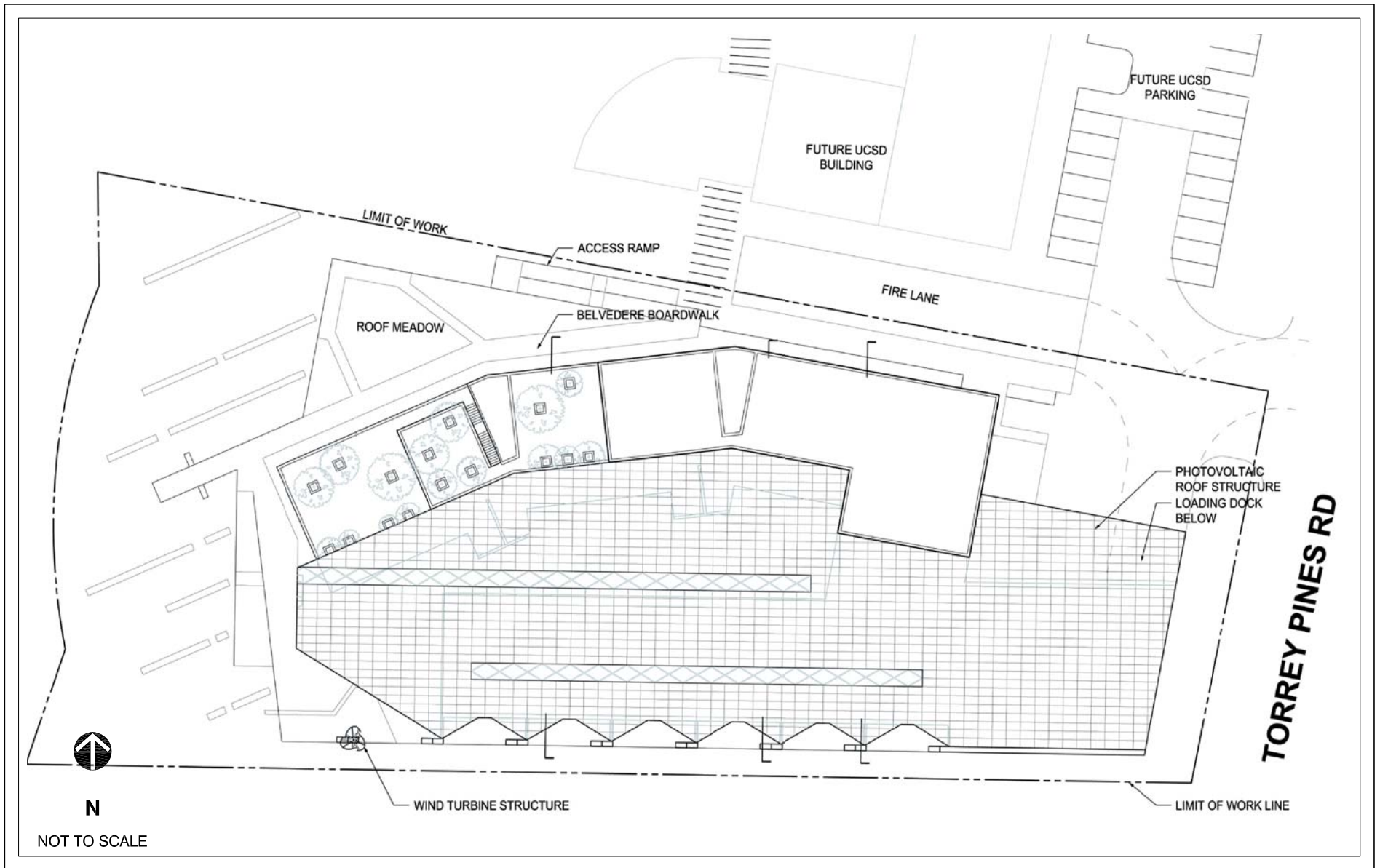
Steve Brown, PE  
Principal

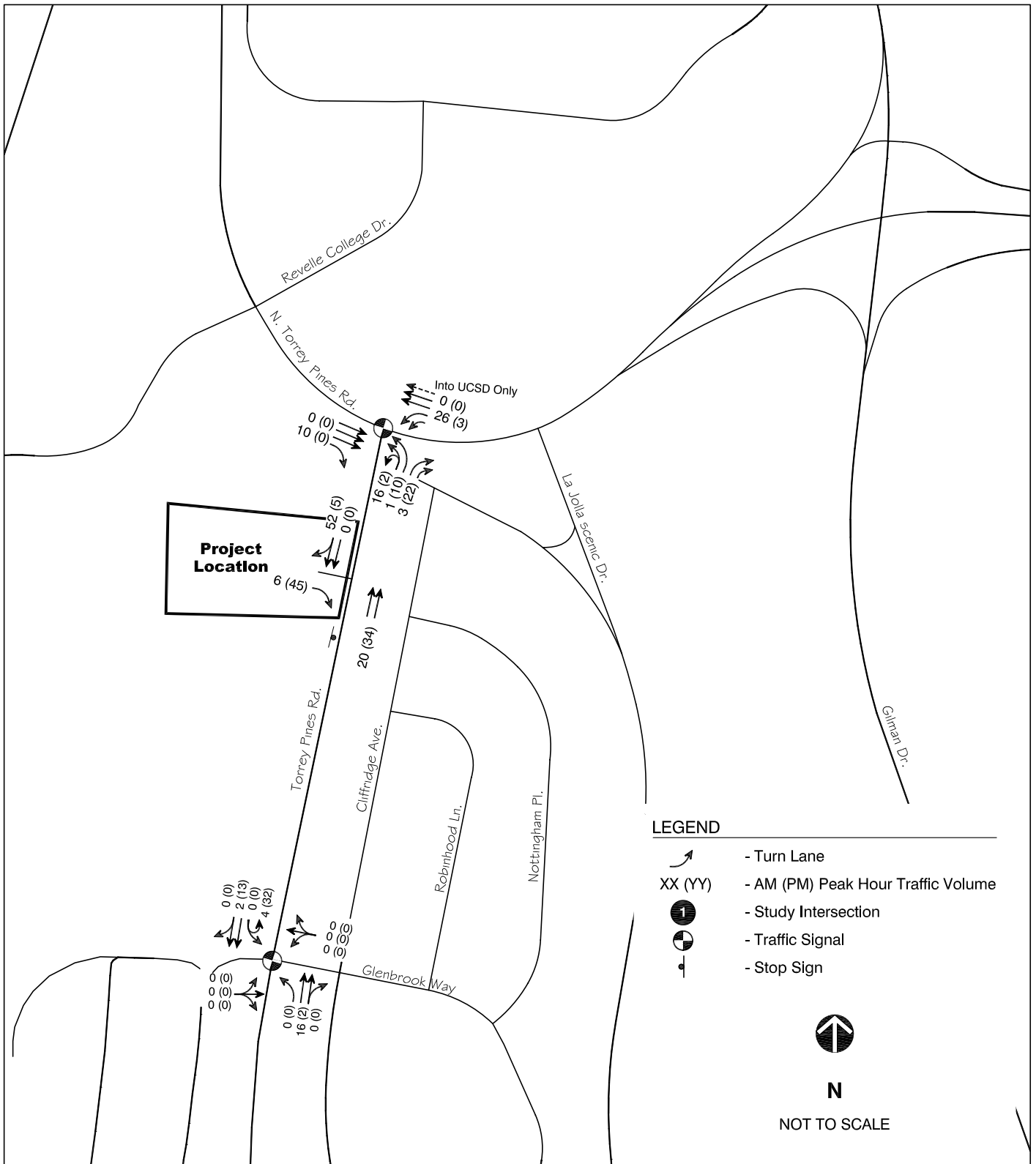
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**Attachment A**

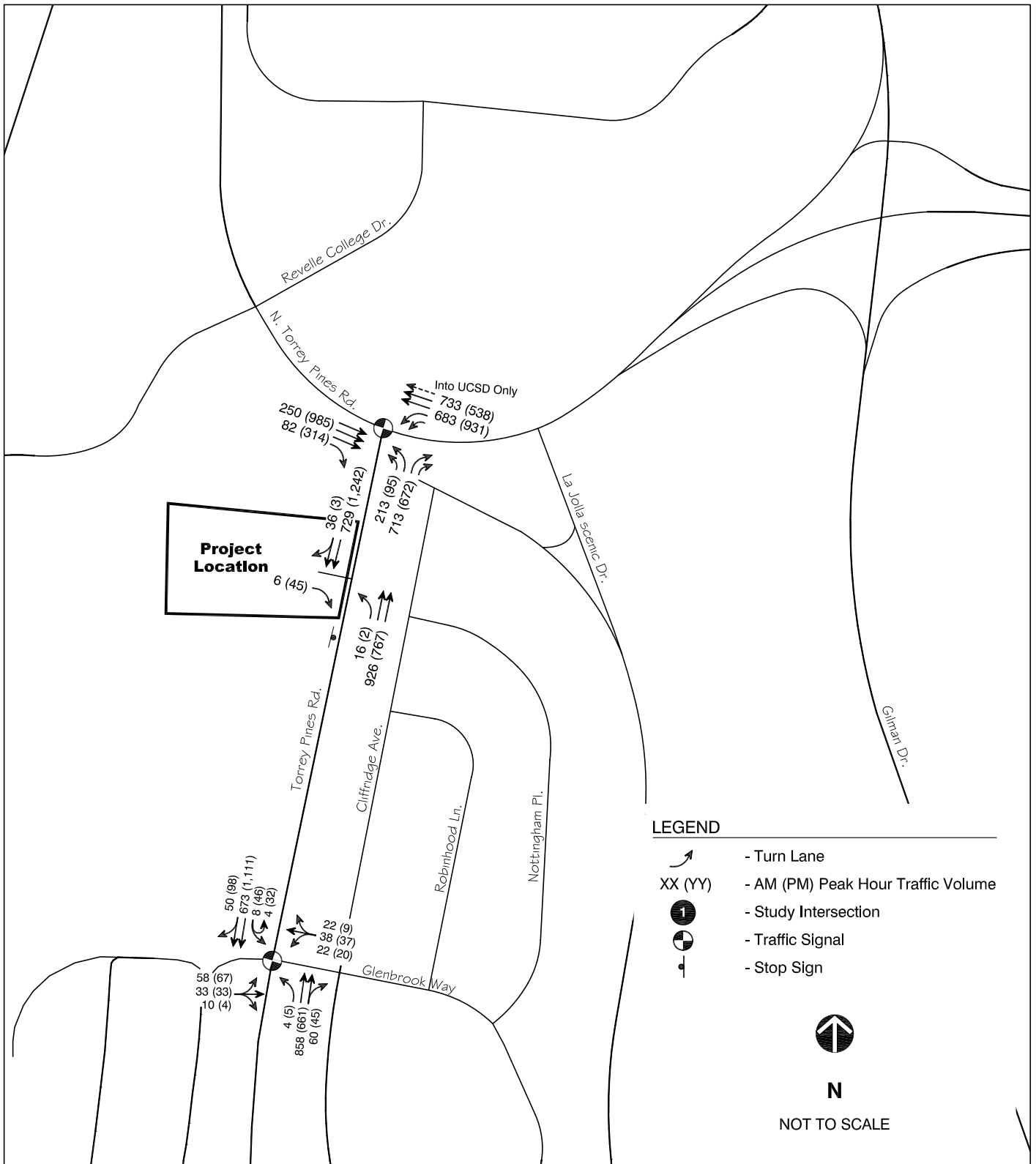
Figures

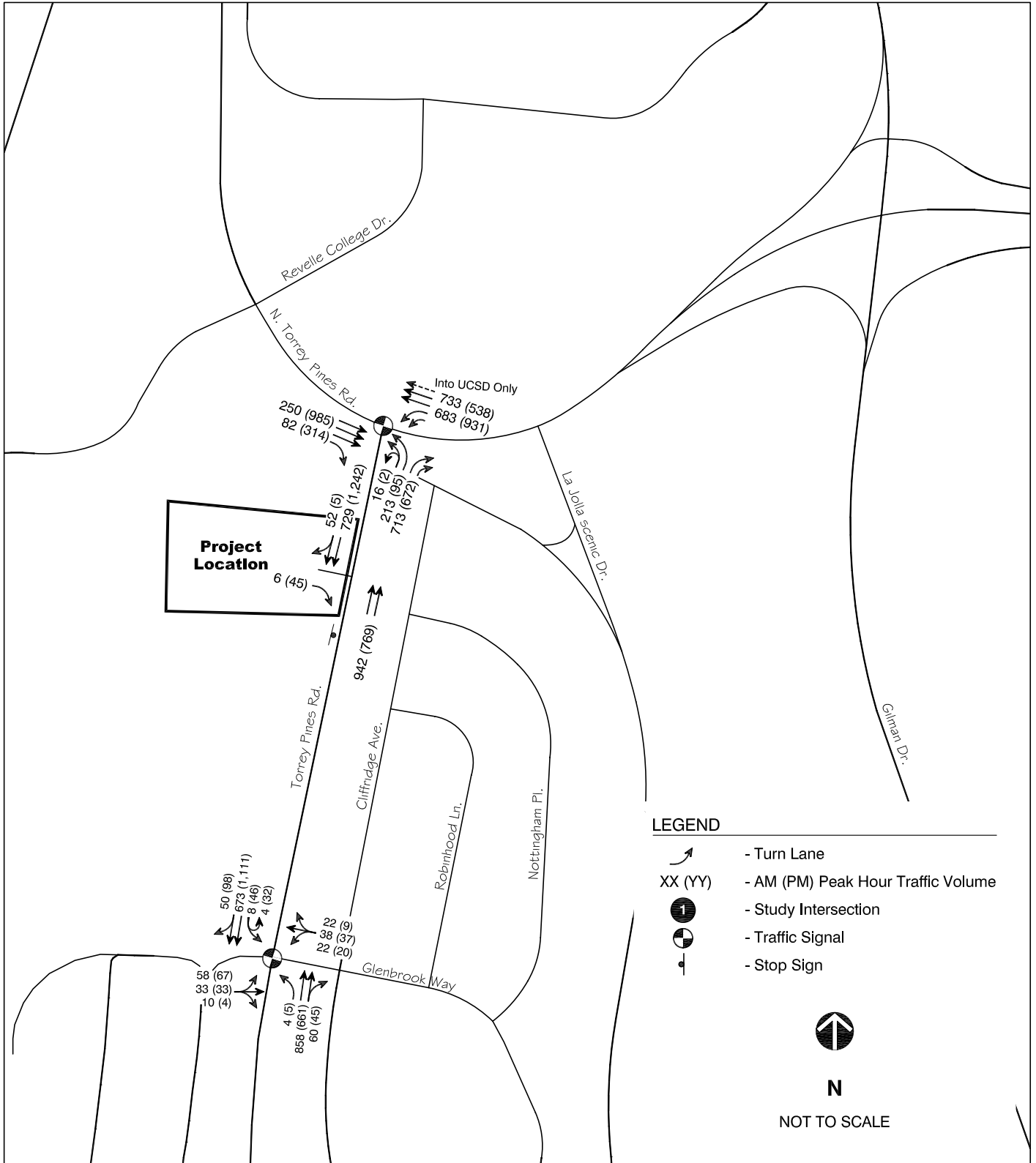


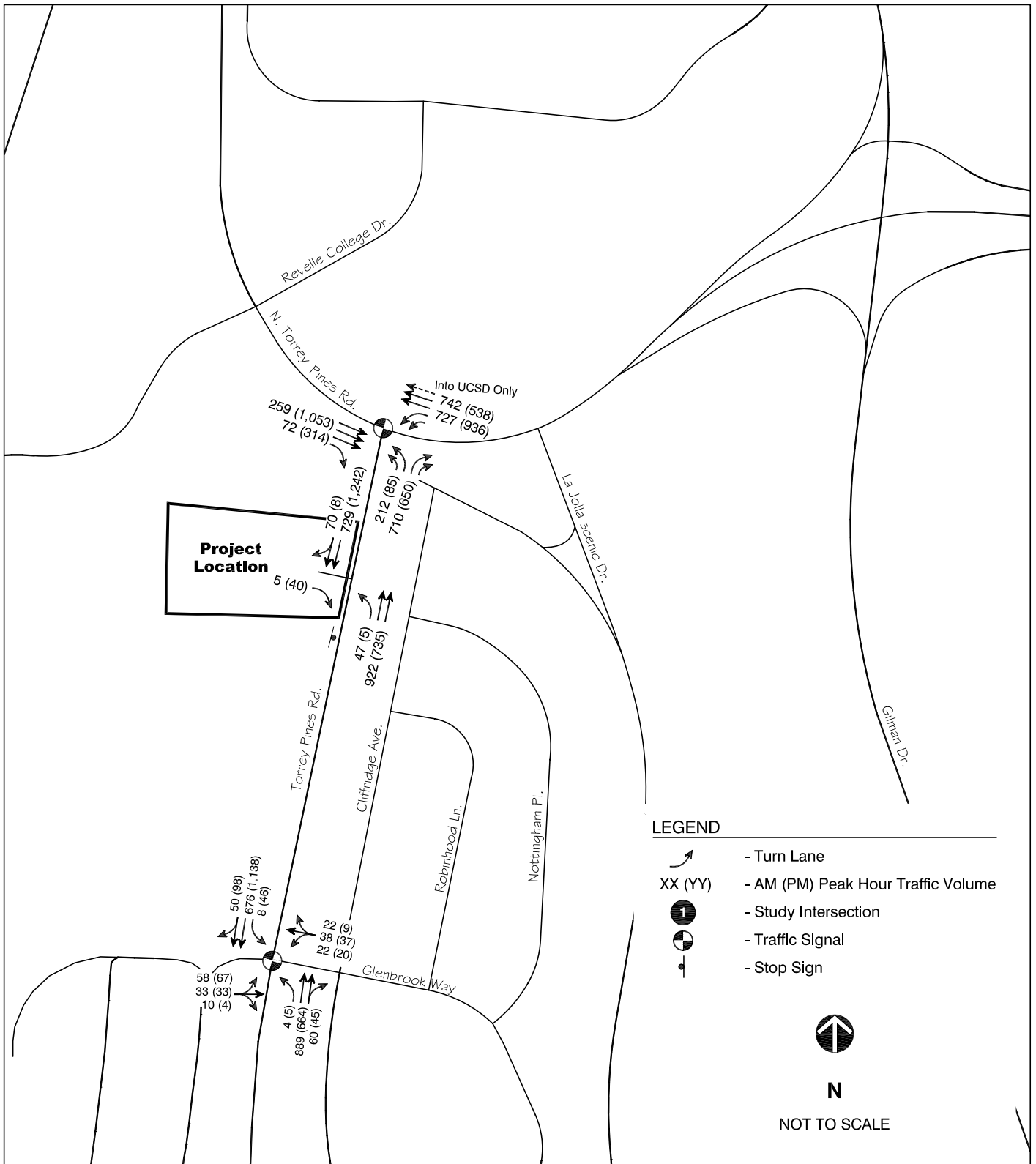


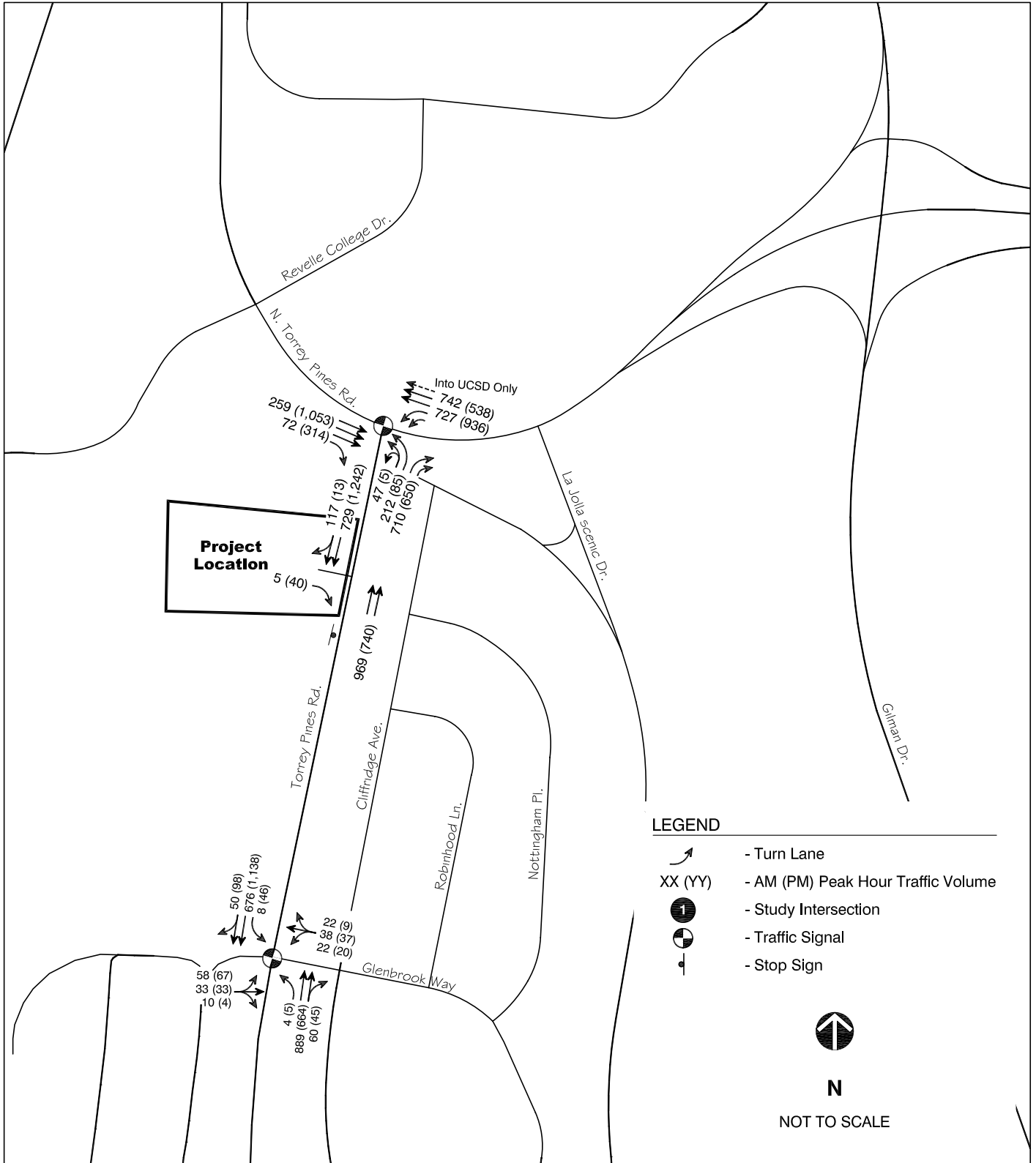






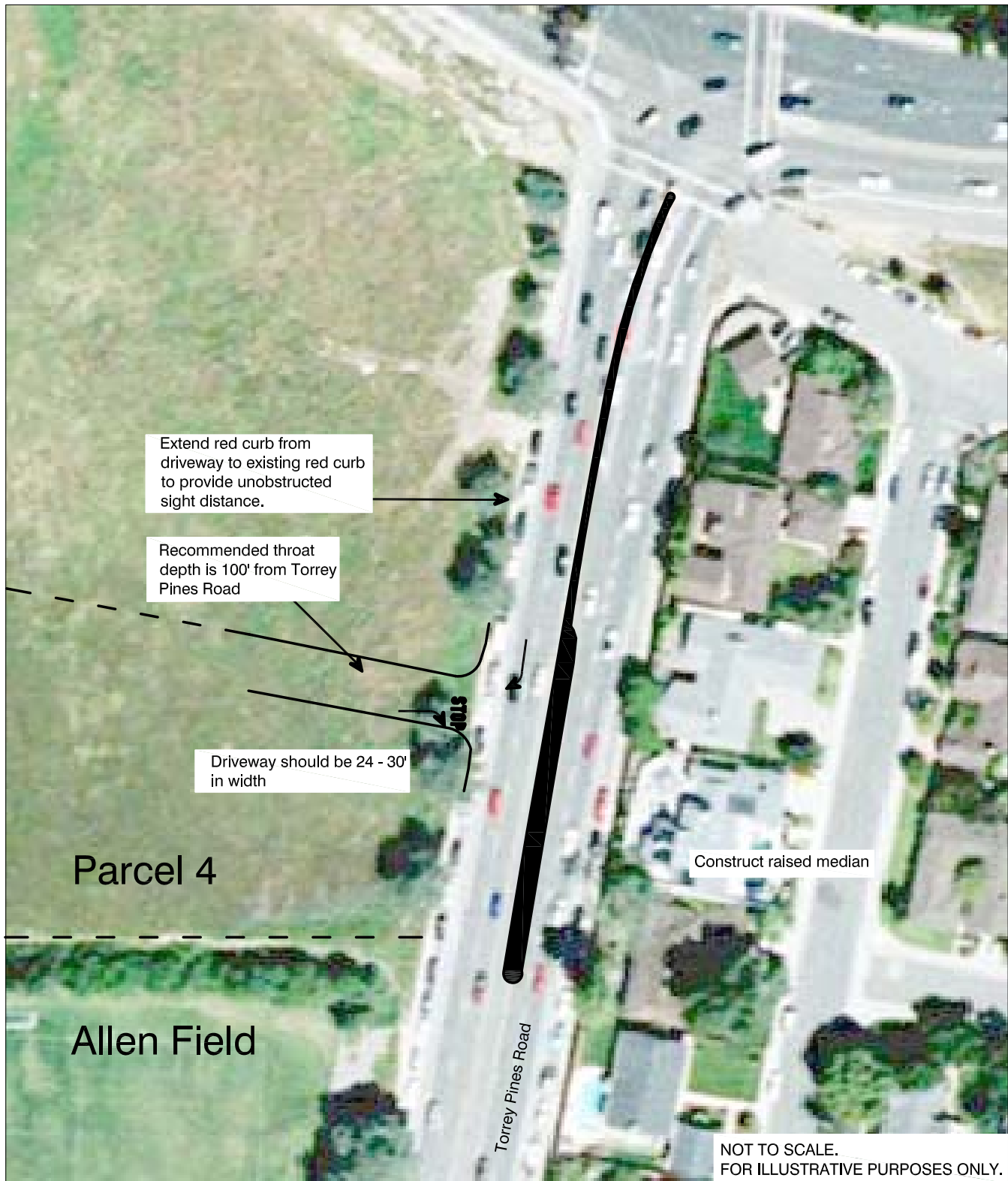






**PEAK HOUR TRAFFIC VOLUMES  
 AND LANE CONFIGURATIONS -  
 EXISTING PLUS PARCEL 1-4 BUILDOUT  
 NO LEFT-TURN ACCESS**

**FIGURE 7**



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**Attachment B**

Level of Service Technical Calculations

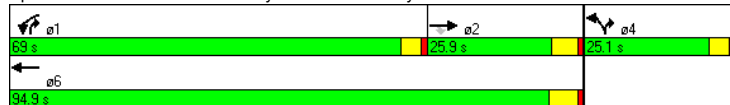
Venter Inst. Site Access Study  
101: N Torrey Pines Rd & Torrey Pines Road

Existing Conditions  
AM PEAK HOUR

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↖↗	↑↑↑	↖↗	↑↑↑
Volume (vph)	250	72	657	733	212	710
Turn Type	Perm		Prot	pt+ov		
Protected Phases	2		1	6	4	4 1
Permitted Phases	2					
Detector Phases	2	2	1	6	4	4 1
Minimum Initial (s)	10.0	10.0	4.0	10.0	4.0	
Minimum Split (s)	32.2	32.2	8.4	15.7	37.4	
Total Split (s)	25.9	25.9	69.0	94.9	25.1	94.1
Total Split (%)	21.6%	21.6%	57.5%	79.1%	20.9%	78.4%
Yellow Time (s)	4.3	4.3	3.4	4.7	3.4	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	Min	Min	C-Min	C-Min	None	
Act Effct Green (s)	18.9	18.9	64.6	87.5	24.5	93.1
Actuated g/C Ratio	0.16	0.16	0.54	0.73	0.20	0.78
v/c Ratio	0.33	0.25	0.38	0.24	0.32	0.35
Control Delay	44.2	9.4	20.3	6.7	39.6	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	9.4	20.3	6.7	39.6	5.4
LOS	D	A	C	A	D	A
Approach Delay	36.4		13.1		13.3	
Approach LOS	D		B		B	

Intersection Summary	
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	50 (42%), Referenced to phase 1:WBL and 6:WBT, Start of Yellow
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.38
Intersection Signal Delay:	16.0
Intersection LOS:	B
Intersection Capacity Utilization:	53.2%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 101: N Torrey Pines Rd & Torrey Pines Road



Venter Inst. Site Access Study  
101: N Torrey Pines Rd & Torrey Pines Road

Existing Conditions  
AM PEAK HOUR

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	266	77	699	780	226	755
v/c Ratio	0.33	0.25	0.38	0.24	0.32	0.35
Control Delay	44.2	9.4	20.3	6.7	39.6	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	9.4	20.3	6.7	39.6	5.4
Queue Length 50th (ft)	71	0	167	97	70	64
Queue Length 95th (ft)	87	39	270	120	103	159
Internal Link Dist (ft)	359		798		294	
Turn Bay Length (ft)			150	340	200	
Base Capacity (vph)	1036	376	2088	3536	815	2356
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.20	0.33	0.22	0.28	0.32

Intersection Summary

Venter Inst. Site Access Study  
101: N Torrey Pines Rd & Torrey Pines Road

Existing Conditions  
AM PEAK HOUR

	→	↖	↗	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↖	↖	↑↑↑	↖	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	*0.80	0.97	0.88
Frbp, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1544	3433	4471	3433	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1544	3433	4471	3433	2787
Volume (vph)	250	72	657	733	212	710
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	266	77	699	780	226	755
RTOR Reduction (vph)	0	65	0	0	0	0
Lane Group Flow (vph)	266	12	699	780	226	755
Confl. Peds. (#/hr)		10				10
Turn Type	Perm		Prot		pt+ov	
Protected Phases	2		1	6	4	4
Permitted Phases	2					
Actuated Green, G (s)	17.6	17.6	64.2	85.8	24.1	92.7
Effective Green, g (s)	18.9	18.9	64.6	87.5	24.5	93.1
Actuated g/C Ratio	0.16	0.16	0.54	0.73	0.20	0.78
Clearance Time (s)	5.3	5.3	4.4	5.7	4.4	
Vehicle Extension (s)	4.2	4.2	2.0	3.6	2.0	
Lane Grp Cap (vph)	801	243	1848	3260	701	2162
v/s Ratio Prot	c0.05		c0.20	0.17	0.07	c0.27
v/s Ratio Perm	0.01					
v/c Ratio	0.33	0.05	0.38	0.24	0.32	0.35
Uniform Delay, d1	44.9	42.9	16.1	5.3	40.7	4.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.6	0.2	0.1	0.0
Delay (s)	45.3	43.1	16.6	5.5	40.8	4.2
Level of Service	D	D	B	A	D	A
Approach Delay (s)	44.8		10.8	12.6		
Approach LOS	D		B	B		

Intersection Summary			
HCM Average Control Delay	15.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

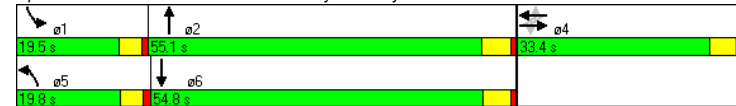
Venter Inst. Site Access Study  
102: Glenbrook Way & Torrey Pines Road

Existing Conditions  
AM PEAK HOUR

	↖	→	↗	←	↖	↑	↗	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕	↖	↖	↖	↖
Volume (vph)	58	33	22	38	4	842	8	671
Turn Type	Perm		Perm		Prot		Prot	
Protected Phases	4		4		5	2	1	6
Permitted Phases	4		4					
Detector Phases	4	4	4	4	5	2	1	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	10.0	4.0	17.0
Minimum Split (s)	36.9	36.9	36.9	36.9	8.4	22.5	8.4	22.2
Total Split (s)	33.4	33.4	33.4	33.4	19.8	55.1	19.5	54.8
Total Split (%)	30.9%	30.9%	30.9%	30.9%	18.3%	51.0%	18.1%	50.7%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	4.5	3.4	4.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)		14.6		14.6	5.2	83.3	5.4	83.4
Actuated g/C Ratio		0.14		0.14	0.05	0.77	0.05	0.77
v/c Ratio		0.53		0.38	0.05	0.36	0.10	0.29
Control Delay		40.8		32.6	49.0	6.2	49.0	5.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		40.8		32.6	49.0	6.2	49.0	5.5
LOS		D		C	D	A	D	A
Approach Delay		40.8		32.6		6.3		6.0
Approach LOS		D		C		A		A

Intersection Summary	
Cycle Length: 108	
Actuated Cycle Length: 108	
Offset: 98 (91%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 9.3	Intersection LOS: A
Intersection Capacity Utilization 47.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 102: Glenbrook Way & Torrey Pines Road





Venter Inst. Site Access Study  
102: Glenbrook Way & Torrey Pines Road

Existing Conditions  
AM PEAK HOUR



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	108	89	4	970	9	776
v/c Ratio	0.53	0.38	0.05	0.36	0.10	0.29
Control Delay	40.8	32.6	49.0	6.2	49.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	32.6	49.0	6.2	49.0	5.5
Queue Length 50th (ft)	69	47	3	68	6	51
Queue Length 95th (ft)	104	80	14	257	22	191
Internal Link Dist (ft)	200	226		276		322
Turn Bay Length (ft)					150	
Base Capacity (vph)	403	457	259	2694	254	2698
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.19	0.02	0.36	0.04	0.29

Intersection Summary

Venter Inst. Site Access Study  
102: Glenbrook Way & Torrey Pines Road

Existing Conditions  
AM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.99			0.96		1.00	0.99		1.00	0.99	
Flt Protected		0.97			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1773			1757		1770	3492		1770	3490	
Flt Permitted		0.73			0.91		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1324			1614		1770	3492		1770	3490	
Volume (vph)	58	33	10	22	38	22	4	842	60	8	671	50
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	62	35	11	24	41	24	4	905	65	9	722	54
RTOR Reduction (vph)	0	4	0	0	15	0	0	2	0	0	3	0
Lane Group Flow (vph)	0	104	0	0	74	0	4	968	0	9	773	0
Confl. Peds. (#/hr)	10		10	10		10			10			10
Turn Type		Perm			Perm			Prot			Prot	
Protected Phases		4			4			5	2		1	6
Permitted Phases		4			4							
Actuated Green, G (s)		13.7			13.7		1.1	78.3		1.2	78.7	
Effective Green, g (s)		14.6			14.6		1.5	79.8		1.6	79.9	
Actuated g/C Ratio		0.14			0.14		0.01	0.74		0.01	0.74	
Clearance Time (s)		4.9			4.9		4.4	5.5		4.4	5.2	
Vehicle Extension (s)		2.0			2.0		2.0	5.4		2.0	5.9	
Lane Grp Cap (vph)		179			218		25	2580		26	2582	
v/s Ratio Prot							0.00	c0.28		c0.01	0.22	
v/s Ratio Perm		c0.08			0.05							
v/c Ratio		0.58			0.34		0.16	0.38		0.35	0.30	
Uniform Delay, d1		43.8			42.3		52.6	5.1		52.7	4.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.8			0.3		1.1	0.4		2.9	0.3	
Delay (s)		46.6			42.7		53.7	5.5		55.6	5.0	
Level of Service		D			D		D	A		E	A	
Approach Delay (s)		46.6			42.7			5.7			5.6	
Approach LOS		D			D			A			A	

Intersection Summary

HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

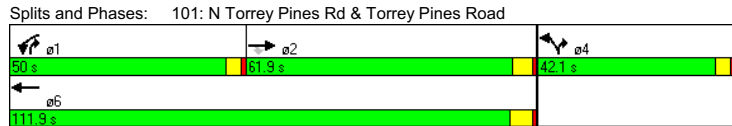
c Critical Lane Group

Venter Inst. Site Access Study  
101: N Torrey Pines Rd & Torrey Pines Road

Existing Conditions  
PM Peak Hour

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑↑	↑↑
Volume (vph)	985	314	928	538	85	650
Turn Type	Perm		Prot	pt+ov		
Protected Phases	2		1	6	4	4 1
Permitted Phases	2					
Detector Phases	2	2	1	6	4	4 1
Minimum Initial (s)	10.0	10.0	4.0	10.0	4.0	
Minimum Split (s)	32.3	32.3	8.4	15.7	37.4	
Total Split (s)	61.9	61.9	50.0	111.9	42.1	92.1
Total Split (%)	40.2%	40.2%	32.5%	72.7%	27.3%	59.8%
Yellow Time (s)	4.3	4.3	3.4	4.7	3.4	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	Min	C-Min	None	
Act Effct Green (s)	58.9	58.9	52.0	114.9	31.1	87.1
Actuated g/C Ratio	0.38	0.38	0.34	0.75	0.20	0.57
v/c Ratio	0.54	0.46	0.85	0.17	0.13	0.44
Control Delay	39.0	13.6	55.0	6.0	49.7	24.8
Queue Delay	1.0	0.7	0.0	0.0	0.0	0.0
Total Delay	40.0	14.2	55.0	6.0	49.7	24.8
LOS	D	B	E	A	D	C
Approach Delay	33.8		37.0			27.7
Approach LOS	C		D			C

Intersection Summary	
Cycle Length:	154
Actuated Cycle Length:	154
Offset:	115 (75%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle:	100
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.85
Intersection Signal Delay:	33.9
Intersection LOS:	C
Intersection Capacity Utilization	69.2%
ICU Level of Service	C
Analysis Period (min)	15



Venter Inst. Site Access Study  
101: N Torrey Pines Rd & Torrey Pines Road

Existing Conditions  
PM Peak Hour

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1048	334	987	572	90	691
v/c Ratio	0.54	0.46	0.85	0.17	0.13	0.44
Control Delay	39.0	13.6	55.0	6.0	49.7	24.8
Queue Delay	1.0	0.7	0.0	0.0	0.0	0.0
Total Delay	40.0	14.2	55.0	6.0	49.7	24.8
Queue Length 50th (ft)	316	76	462	67	36	209
Queue Length 95th (ft)	351	164	571	82	66	246
Internal Link Dist (ft)	366		798		314	
Turn Bay Length (ft)	150		340		200	
Base Capacity (vph)	2027	751	1165	3335	849	1581
Starvation Cap Reductn	652	167	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.57	0.85	0.17	0.11	0.44

Intersection Summary

Venter Inst. Site Access Study  
101: N Torrey Pines Rd & Torrey Pines Road

Existing Conditions  
PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↓	↑↑↑	↑↓	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	*0.80	0.97	0.88
Frbp, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1538	3433	4471	3433	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1538	3433	4471	3433	2787
Volume (vph)	985	314	928	538	85	650
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1048	334	987	572	90	691
RTOR Reduction (vph)	0	141	0	0	0	0
Lane Group Flow (vph)	1048	193	987	572	90	691
Confl. Peds. (#/hr)	10		10			
Turn Type	Perm		Prot		pt+ov	
Protected Phases	2		1	6	4	4
Permitted Phases	2					
Actuated Green, G (s)	57.6	57.6	51.6	113.2	30.7	86.7
Effective Green, g (s)	58.9	58.9	52.0	114.9	31.1	87.1
Actuated g/C Ratio	0.38	0.38	0.34	0.75	0.20	0.57
Clearance Time (s)	5.3	5.3	4.4	5.7	4.4	
Vehicle Extension (s)	4.2	4.2	2.0	3.6	2.0	
Lane Grp Cap (vph)	1945	588	1159	3336	693	1576
v/s Ratio Prot	c0.21		c0.29	0.13	0.03	c0.25
v/s Ratio Perm	0.13					
v/c Ratio	0.54	0.33	0.85	0.17	0.13	0.44
Uniform Delay, d1	37.0	33.6	47.4	5.7	50.4	19.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.26
Incremental Delay, d2	1.1	1.5	6.0	0.1	0.0	0.1
Delay (s)	38.1	35.1	53.4	5.8	50.2	24.4
Level of Service	D	D	D	A	D	C
Approach Delay (s)	37.3		35.9		27.3	
Approach LOS	D		D		C	

Intersection Summary			
HCM Average Control Delay	34.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

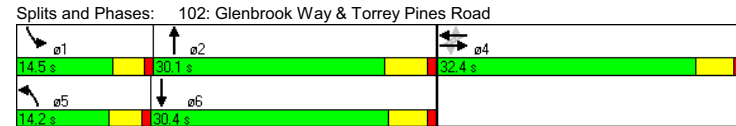
c Critical Lane Group

Venter Inst. Site Access Study  
102: Glenbrook Way & Torrey Pines Road

Existing Conditions  
PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↑↓		↑↓		↑↑	↑↓	↑↑
Volume (vph)	67	33	20	37	5	659	46	1098
Turn Type	Perm		Perm		Prot		Prot	
Protected Phases	4		4		5		2	
Permitted Phases	4		4		5		2	
Detector Phases	4	4	4	4	5	2	1	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	10.0	4.0	17.0
Minimum Split (s)	36.9	36.9	36.9	36.9	8.4	22.5	8.4	22.2
Total Split (s)	32.4	32.4	32.4	32.4	14.2	30.1	14.5	30.4
Total Split (%)	42.1%	42.1%	42.1%	42.1%	18.4%	39.1%	18.8%	39.5%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	4.5	3.4	4.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag			Lead		Lag	Lead	Lag	
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	12.8		12.8		5.2	51.8	6.8	56.9
Actuated g/C Ratio	0.17		0.17		0.07	0.67	0.09	0.74
v/c Ratio	0.43		0.24		0.04	0.31	0.30	0.48
Control Delay	26.2		22.0		33.6	9.6	34.8	16.1
Queue Delay	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay	26.2		22.0		33.6	9.6	34.8	16.1
LOS	C		C		C	A	C	B
Approach Delay	26.2		22.0		9.8		16.8	
Approach LOS	C		C		A		B	

Intersection Summary	
Cycle Length: 77	
Actuated Cycle Length: 77	
Offset: 76 (99%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 15.1	Intersection LOS: B
Intersection Capacity Utilization 60.5%	ICU Level of Service B
Analysis Period (min) 15	



Venter Inst. Site Access Study  
102: Glenbrook Way & Torrey Pines Road

Existing Conditions  
PM Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	68	5	725	47	1233
v/c Ratio	0.43	0.24	0.04	0.31	0.30	0.48
Control Delay	26.2	22.0	33.6	9.6	34.8	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	22.0	33.6	9.6	34.8	16.1
Queue Length 50th (ft)	47	26	2	74	31	521
Queue Length 95th (ft)	68	44	12	198	m37	703
Internal Link Dist (ft)	339	332		281		304
Turn Bay Length (ft)				150		
Base Capacity (vph)	551	623	234	2355	241	2580
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.11	0.02	0.31	0.20	0.48

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Venter Inst. Site Access Study  
102: Glenbrook Way & Torrey Pines Road

Existing Conditions  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.99			0.98		1.00	0.99		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787			1794		1770	3496		1770	3484	
Flt Permitted		0.81			0.91		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1502			1660		1770	3496		1770	3484	
Volume (vph)	67	33	4	20	37	9	5	659	45	46	1098	98
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	69	34	4	21	38	9	5	679	46	47	1132	101
RTOR Reduction (vph)	0	3	0	0	8	0	0	4	0	0	4	0
Lane Group Flow (vph)	0	104	0	0	60	0	5	721	0	47	1229	0
Confl. Peds. (#/hr)	10		10	10		10			10			10
Turn Type		Perm		Perm		Prot		Prot		Prot		Prot
Protected Phases		4		4		4		5	2	1		6
Permitted Phases		4		4								
Actuated Green, G (s)		11.0			11.0		1.1	46.7		4.5		50.4
Effective Green, g (s)		11.9			11.9		1.5	48.2		4.9		51.6
Actuated g/C Ratio		0.15			0.15		0.02	0.63		0.06		0.67
Clearance Time (s)		4.9			4.9		4.4	5.5		4.4		5.2
Vehicle Extension (s)		2.0			2.0		2.0	5.4		2.0		5.9
Lane Grp Cap (vph)		232			257		34	2188		113		2335
v/s Ratio Prot							0.00	0.21		c0.03		c0.35
v/s Ratio Perm		c0.07			0.04							
v/c Ratio		0.45			0.23		0.15	0.33		0.42		0.53
Uniform Delay, d1		29.6			28.6		37.1	6.8		34.7		6.5
Progression Factor		1.00			1.00		1.00	1.00		1.04		2.11
Incremental Delay, d2		0.5			0.2		0.7	0.4		0.6		0.6
Delay (s)		30.1			28.7		37.8	7.2		36.7		14.2
Level of Service		C			C		D	A		D		B
Approach Delay (s)		30.1			28.7			7.4				15.1
Approach LOS		C			C			A				B

Intersection Summary

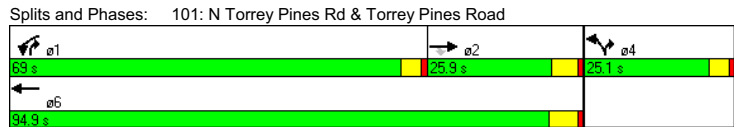
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
 101: N Torrey Pines Rd & Torrey Pines Road AM PEAK HOUR

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↖↗	↑↑↑	↖↗	↑↑↑
Volume (vph)	250	82	683	733	213	713
Turn Type	Perm		Prot	pt+ov		
Protected Phases	2		1	6	4	4 1
Permitted Phases	2					
Detector Phases	2	2	1	6	4	4 1
Minimum Initial (s)	10.0	10.0	4.0	10.0	4.0	
Minimum Split (s)	32.2	32.2	8.4	15.7	37.4	
Total Split (s)	25.9	25.9	69.0	94.9	25.1	94.1
Total Split (%)	21.6%	21.6%	57.5%	79.1%	20.9%	78.4%
Yellow Time (s)	4.3	4.3	3.4	4.7	3.4	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	Min	Min	C-Min	C-Min	None	
Act Effct Green (s)	18.9	18.9	64.6	87.5	24.5	93.1
Actuated g/C Ratio	0.16	0.16	0.54	0.73	0.20	0.78
v/c Ratio	0.33	0.28	0.39	0.24	0.32	0.35
Control Delay	44.2	9.1	20.6	6.7	39.6	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	9.1	20.6	6.7	39.6	5.4
LOS	D	A	C	A	D	A
Approach Delay	35.5		13.4		13.3	
Approach LOS	D		B		B	

Intersection Summary	
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	50 (42%), Referenced to phase 1:WBL and 6:WBT, Start of Yellow
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.39
Intersection Signal Delay:	16.1
Intersection LOS:	B
Intersection Capacity Utilization:	54.0%
ICU Level of Service:	A
Analysis Period (min):	15



Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
 101: N Torrey Pines Rd & Torrey Pines Road AM PEAK HOUR

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	266	87	727	780	227	759
v/c Ratio	0.33	0.28	0.39	0.24	0.32	0.35
Control Delay	44.2	9.1	20.6	6.7	39.6	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	9.1	20.6	6.7	39.6	5.4
Queue Length 50th (ft)	71	0	175	97	70	65
Queue Length 95th (ft)	87	42	284	120	104	160
Internal Link Dist (ft)	360		798		294	
Turn Bay Length (ft)			150	340	200	
Base Capacity (vph)	1036	384	2087	3535	815	2356
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.23	0.35	0.22	0.28	0.32

Intersection Summary

Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
101: N Torrey Pines Rd & Torrey Pines Road AM PEAK HOUR

	→	↖	↙	←	↘	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↖	↖	↑↑↑	↖	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	*0.80	0.97	0.88
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1544	3433	4471	3433	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1544	3433	4471	3433	2787
Volume (vph)	250	82	683	733	213	713
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	266	87	727	780	227	759
RTOR Reduction (vph)	0	73	0	0	0	0
Lane Group Flow (vph)	266	14	727	780	227	759
Confl. Peds. (#/hr)		10				10
Turn Type	Perm		Prot		pt+ov	
Protected Phases	2		1	6	4	4
Permitted Phases	2					
Actuated Green, G (s)	17.6	17.6	64.2	85.8	24.1	92.7
Effective Green, g (s)	18.9	18.9	64.6	87.5	24.5	93.1
Actuated g/C Ratio	0.16	0.16	0.54	0.73	0.20	0.78
Clearance Time (s)	5.3	5.3	4.4	5.7	4.4	
Vehicle Extension (s)	4.2	4.2	2.0	3.6	2.0	
Lane Grp Cap (vph)	801	243	1848	3260	701	2162
v/s Ratio Prot	c0.05		c0.21	0.17	0.07	c0.27
v/s Ratio Perm	0.01					
v/c Ratio	0.33	0.06	0.39	0.24	0.32	0.35
Uniform Delay, d1	44.9	43.0	16.2	5.3	40.7	4.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.6	0.2	0.1	0.0
Delay (s)	45.3	43.1	16.9	5.5	40.8	4.2
Level of Service	D	D	B	A	D	A
Approach Delay (s)	44.8		11.0	12.6		
Approach LOS	D		B	B		

Intersection Summary			
HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

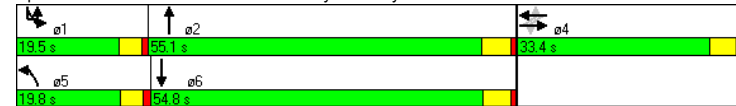
c Critical Lane Group

Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
102: Glenbrook Way & Torrey Pines Road AM PEAK HOUR

	↖	→	↙	←	↘	↑	↖	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↖		↖	↖	↑↑	↖	↑↑
Volume (vph)	58	33	22	38	4	858	8	673
Turn Type	Perm		Perm		Prot		Prot	
Protected Phases		4		4	5	2	1	6
Permitted Phases	4		4					
Detector Phases	4	4	4	4	5	2	1	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	10.0	4.0	17.0
Minimum Split (s)	36.9	36.9	36.9	36.9	8.4	22.5	8.4	22.2
Total Split (s)	33.4	33.4	33.4	33.4	19.8	55.1	19.5	54.8
Total Split (%)	30.9%	30.9%	30.9%	30.9%	18.3%	51.0%	18.1%	50.7%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	4.5	3.4	4.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)		14.6		14.6	5.2	83.1	5.6	83.4
Actuated g/C Ratio		0.14		0.14	0.05	0.77	0.05	0.77
v/c Ratio		0.53		0.38	0.05	0.37	0.14	0.29
Control Delay		40.8		32.6	49.0	6.3	49.0	5.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		40.8		32.6	49.0	6.3	49.0	5.5
LOS		D		C	D	A	D	A
Approach Delay		40.8		32.6		6.5		6.2
Approach LOS		D		C		A		A

Intersection Summary	
Cycle Length: 108	
Actuated Cycle Length: 108	
Offset: 98 (91%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 9.4	Intersection LOS: A
Intersection Capacity Utilization 47.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 102: Glenbrook Way & Torrey Pines Road



Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
102: Glenbrook Way & Torrey Pines Road AM PEAK HOUR

	→	←	↖	↗	↑	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	108	89	4	988	13	778
v/c Ratio	0.53	0.38	0.05	0.37	0.14	0.29
Control Delay	40.8	32.6	49.0	6.3	49.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	32.6	49.0	6.3	49.0	5.5
Queue Length 50th (ft)	69	47	3	70	9	51
Queue Length 95th (ft)	104	80	14	267	28	191
Internal Link Dist (ft)	200	226		276		322
Turn Bay Length (ft)					150	
Base Capacity (vph)	403	457	259	2690	254	2698
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.19	0.02	0.37	0.05	0.29

Intersection Summary

Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
102: Glenbrook Way & Torrey Pines Road AM PEAK HOUR

	↖	→	↗	↖	←	↖	↗	↑	↖	↗	↓	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↕			↕		↕	↕			↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95			1.00	0.95
Frpb, ped/bikes		1.00			0.99		1.00	1.00			1.00	1.00
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	1.00
Frt		0.99			0.96		1.00	0.99			1.00	0.99
Flt Protected		0.97			0.99		0.95	1.00			0.95	1.00
Satd. Flow (prot)		1773			1757		1770	3493			1770	3490
Flt Permitted		0.73			0.91		0.95	1.00			0.95	1.00
Satd. Flow (perm)		1324			1614		1770	3493			1770	3490
Volume (vph)	58	33	10	22	38	22	4	858	60	4	8	673
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.95	0.93	0.93
Adj. Flow (vph)	62	35	11	24	41	24	4	923	65	4	9	724
RTOR Reduction (vph)	0	4	0	0	15	0	0	2	0	0	0	3
Lane Group Flow (vph)	0	104	0	0	74	0	4	986	0	0	13	775
Confl. Peds. (#/hr)	10		10	10		10			10			
Turn Type	Perm			Perm			Prot			Prot	Prot	
Protected Phases		4			4		5	2		1	1	6
Permitted Phases	4			4								
Actuated Green, G (s)		13.7			13.7		1.1	78.1			1.4	78.7
Effective Green, g (s)		14.6			14.6		1.5	79.6			1.8	79.9
Actuated g/C Ratio		0.14			0.14		0.01	0.74			0.02	0.74
Clearance Time (s)		4.9			4.9		4.4	5.5			4.4	5.2
Vehicle Extension (s)		2.0			2.0		2.0	5.4			2.0	5.9
Lane Grp Cap (vph)		179			218		25	2574			30	2582
v/s Ratio Prot							0.00	c0.28			c0.01	0.22
v/s Ratio Perm		c0.08			0.05							
v/c Ratio		0.58			0.34		0.16	0.38			0.43	0.30
Uniform Delay, d1		43.8			42.3		52.6	5.2			52.6	4.7
Progression Factor		1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2		2.8			0.3		1.1	0.4			3.6	0.3
Delay (s)		46.6			42.7		53.7	5.6			56.2	5.0
Level of Service		D			D		D	A			E	A
Approach Delay (s)		46.6			42.7			5.8				5.8
Approach LOS		D			D			A				A

Intersection Summary

HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



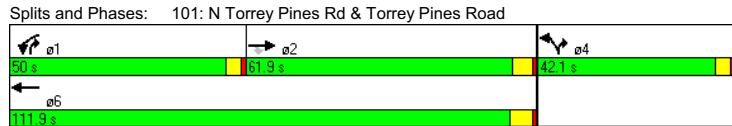
<b>Movement</b>		SBR
<b>Lane Configurations</b>		
Ideal Flow (vphpl)	1900	
Total Lost time (s)		
Lane Util. Factor		
Frbp, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Volume (vph)	50	
Peak-hour factor, PHF	0.93	
Adj. Flow (vph)	54	
RTOR Reduction (vph)	0	
Lane Group Flow (vph)	0	
Confl. Peds. (#/hr)	10	
<b>Turn Type</b>		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		
<b>Intersection Summary</b>		



Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
 101: N Torrey Pines Rd & Torrey Pines Road PM Peak Hour

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑↑	↑↑
Volume (vph)	985	314	931	538	95	672
Turn Type	Perm		Prot	pt+ov		
Protected Phases	2		1	6	4	4 1
Permitted Phases	2					
Detector Phases	2	2	1	6	4	4 1
Minimum Initial (s)	10.0	10.0	4.0	10.0	4.0	
Minimum Split (s)	32.3	32.3	8.4	15.7	37.4	
Total Split (s)	61.9	61.9	50.0	111.9	42.1	92.1
Total Split (%)	40.2%	40.2%	32.5%	72.7%	27.3%	59.8%
Yellow Time (s)	4.3	4.3	3.4	4.7	3.4	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	Min	C-Min	None	
Act Effct Green (s)	57.7	57.7	52.0	113.8	32.2	88.3
Actuated g/C Ratio	0.37	0.37	0.34	0.74	0.21	0.57
v/c Ratio	0.55	0.46	0.85	0.17	0.14	0.45
Control Delay	39.8	13.7	55.3	6.3	48.7	24.5
Queue Delay	1.0	0.7	0.0	0.0	0.0	0.0
Total Delay	40.9	14.4	55.3	6.3	48.7	24.5
LOS	D	B	E	A	D	C
Approach Delay	34.5		37.4		27.5	
Approach LOS	C		D		C	

Intersection Summary	
Cycle Length:	154
Actuated Cycle Length:	154
Offset:	115 (75%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle:	100
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.85
Intersection Signal Delay:	34.2
Intersection LOS:	C
Intersection Capacity Utilization:	69.2%
ICU Level of Service:	C
Analysis Period (min):	15



Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
 101: N Torrey Pines Rd & Torrey Pines Road PM Peak Hour

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1048	334	990	572	101	715
v/c Ratio	0.55	0.46	0.85	0.17	0.14	0.45
Control Delay	39.8	13.7	55.3	6.3	48.7	24.5
Queue Delay	1.0	0.7	0.0	0.0	0.0	0.0
Total Delay	40.9	14.4	55.3	6.3	48.7	24.5
Queue Length 50th (ft)	319	77	462	68	39	219
Queue Length 95th (ft)	351	164	573	82	73	263
Internal Link Dist (ft)	358		798		314	
Turn Bay Length (ft)	150		340		200	
Base Capacity (vph)	1995	742	1163	3303	849	1599
Starvation Cap Reductn	637	163	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.58	0.85	0.17	0.12	0.45

Intersection Summary

Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
 101: N Torrey Pines Rd & Torrey Pines Road PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↓	↑↑↑	↑↓	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	*0.80	0.97	0.88
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1538	3433	4471	3433	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1538	3433	4471	3433	2787
Volume (vph)	985	314	931	538	95	672
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1048	334	990	572	101	715
RTOR Reduction (vph)	0	142	0	0	0	0
Lane Group Flow (vph)	1048	192	990	572	101	715
Confl. Peds. (#/hr)	10					
Turn Type	Perm		Prot		pt+ov	
Protected Phases	2		1	6	4	4
Permitted Phases	2					
Actuated Green, G (s)	56.5	56.5	51.6	112.1	31.8	87.8
Effective Green, g (s)	57.8	57.8	52.0	113.8	32.2	88.2
Actuated g/C Ratio	0.38	0.38	0.34	0.74	0.21	0.57
Clearance Time (s)	5.3	5.3	4.4	5.7	4.4	
Vehicle Extension (s)	4.2	4.2	2.0	3.6	2.0	
Lane Grp Cap (vph)	1909	577	1159	3304	718	1596
v/s Ratio Prot	c0.21		c0.29	0.13	0.03	c0.26
v/s Ratio Perm	0.12					
v/c Ratio	0.55	0.33	0.85	0.17	0.14	0.45
Uniform Delay, d1	37.8	34.3	47.5	6.0	49.6	18.9
Progression Factor	1.00	1.00	1.00	1.00	0.99	1.26
Incremental Delay, d2	1.1	1.5	6.1	0.1	0.0	0.1
Delay (s)	39.0	35.9	53.5	6.1	48.9	23.9
Level of Service	D	D	D	A	D	C
Approach Delay (s)	38.2		36.2		27.0	
Approach LOS	D		D		C	

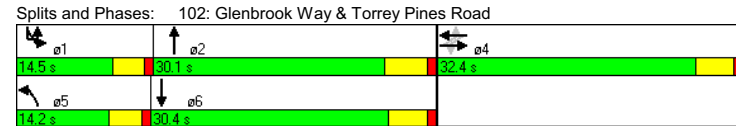
Intersection Summary			
HCM Average Control Delay	34.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
 102: Glenbrook Way & Torrey Pines Road PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↑↓		↑↓		↑↑	↑↓	↑↑
Volume (vph)	67	33	20	37	5	661	46	1111
Turn Type	Perm		Perm		Prot		Prot	
Protected Phases	4		4		5		2	
Permitted Phases	4		4		5		2	
Detector Phases	4	4	4	4	5	2	1	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	10.0	4.0	17.0
Minimum Split (s)	36.9	36.9	36.9	36.9	8.4	22.5	8.4	22.2
Total Split (s)	32.4	32.4	32.4	32.4	14.2	30.1	14.5	30.4
Total Split (%)	42.1%	42.1%	42.1%	42.1%	18.4%	39.1%	18.8%	39.5%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	4.5	3.4	4.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	12.8		12.8		5.2	48.8	7.9	56.9
Actuated g/C Ratio	0.17		0.17		0.07	0.63	0.10	0.74
v/c Ratio	0.43		0.24		0.04	0.33	0.45	0.48
Control Delay	26.2		22.0		33.6	11.0	35.7	15.1
Queue Delay	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay	26.2		22.0		33.6	11.0	35.7	15.1
LOS	C		C		C	B	D	B
Approach Delay	26.2		22.0		11.1			16.4
Approach LOS	C		C		B			B

Intersection Summary	
Cycle Length: 77	
Actuated Cycle Length: 77	
Offset: 76 (99%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 15.3	Intersection LOS: B
Intersection Capacity Utilization 62.8%	ICU Level of Service B
Analysis Period (min) 15	



Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
 102: Glenbrook Way & Torrey Pines Road PM Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	68	5	727	81	1246
v/c Ratio	0.43	0.24	0.04	0.33	0.45	0.48
Control Delay	26.2	22.0	33.6	11.0	35.7	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	22.0	33.6	11.0	35.7	15.1
Queue Length 50th (ft)	47	26	2	79	53	512
Queue Length 95th (ft)	68	44	12	204	m61	702
Internal Link Dist (ft)	339	332		281		304
Turn Bay Length (ft)				150		
Base Capacity (vph)	551	623	234	2219	241	2580
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.11	0.02	0.33	0.34	0.48

**Intersection Summary**

m Volume for 95th percentile queue is metered by upstream signal.

Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
 102: Glenbrook Way & Torrey Pines Road PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↕			↕		↕	↕			↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95			1.00	0.95
Frpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	1.00
Frt		0.99			0.98		1.00	0.99			1.00	0.99
Flt Protected		0.97			0.98		0.95	1.00			0.95	1.00
Satd. Flow (prot)		1787			1794		1770	3496			1770	3484
Flt Permitted		0.81			0.91		0.95	1.00			0.95	1.00
Satd. Flow (perm)		1502			1660		1770	3496			1770	3484
Volume (vph)	67	33	4	20	37	9	5	661	45	32	46	1111
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.95	0.97	0.97
Adj. Flow (vph)	69	34	4	21	38	9	5	681	46	34	47	1145
RTOR Reduction (vph)	0	3	0	0	8	0	0	4	0	0	0	4
Lane Group Flow (vph)	0	104	0	0	60	0	5	723	0	0	81	1242
Confl. Peds. (#/hr)	10		10	10		10			10			
Turn Type		Perm		Perm		Prot		Prot		Prot		Prot
Protected Phases		4		4		4		5	2		1	1
Permitted Phases		4		4								6
Actuated Green, G (s)		11.0			11.0		1.1	44.6			6.6	50.4
Effective Green, g (s)		11.9			11.9		1.5	46.1			7.0	51.6
Actuated g/C Ratio		0.15			0.15		0.02	0.60			0.09	0.67
Clearance Time (s)		4.9			4.9		4.4	5.5			4.4	5.2
Vehicle Extension (s)		2.0			2.0		2.0	5.4			2.0	5.9
Lane Grp Cap (vph)		232			257		34	2093			161	2335
v/s Ratio Prot							0.00	0.21			c0.05	c0.36
v/s Ratio Perm		c0.07			0.04							
v/c Ratio		0.45			0.23		0.15	0.35			0.50	0.53
Uniform Delay, d1		29.6			28.6		37.1	7.8			33.3	6.5
Progression Factor		1.00			1.00		1.00	1.00			1.04	1.97
Incremental Delay, d2		0.5			0.2		0.7	0.5			0.6	0.6
Delay (s)		30.1			28.7		37.8	8.3			35.3	13.4
Level of Service		C			C		D	A			D	B
Approach Delay (s)		30.1			28.7			8.5				14.8
Approach LOS		C			C			A				B

**Intersection Summary**

HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



<b>Movement</b>		SBR
<b>Lane Configurations</b>		
Ideal Flow (vphpl)	1900	
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Volume (vph)	98	
Peak-hour factor, PHF	0.97	
Adj. Flow (vph)	101	
RTOR Reduction (vph)	0	
Lane Group Flow (vph)	0	
Confl. Peds. (#/hr)	10	
<b>Turn Type</b>		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		
<b>Intersection Summary</b>		

Venter Inst. Site Access Study Existing With Project Conditions - Right-Turn Inbound Only  
101: N Torrey Pines Rd & Torrey Pines Road AM PEAK HOUR

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↖↗	↑↑↑	↖↗	↑↑↑
Volume (vph)	250	82	683	733	213	713
Turn Type	Perm		Prot	pt+ov		
Protected Phases	2		1	6	4	4 1
Permitted Phases	2					
Detector Phases	2	2	1	6	4	4 1
Minimum Initial (s)	10.0	10.0	4.0	10.0	4.0	
Minimum Split (s)	32.2	32.2	8.4	15.7	37.4	
Total Split (s)	25.9	25.9	69.0	94.9	25.1	94.1
Total Split (%)	21.6%	21.6%	57.5%	79.1%	20.9%	78.4%
Yellow Time (s)	4.3	4.3	3.4	4.7	3.4	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	Min	Min	C-Min	C-Min	None	
Act Effct Green (s)	18.9	18.9	64.6	87.5	24.5	93.1
Actuated g/C Ratio	0.16	0.16	0.54	0.73	0.20	0.78
v/c Ratio	0.33	0.28	0.39	0.24	0.35	0.35
Control Delay	44.2	9.1	20.6	6.7	40.0	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	9.1	20.6	6.7	40.0	5.4
LOS	D	A	C	A	D	A
Approach Delay	35.5		13.4			
Approach LOS	D		B			

Intersection Summary	
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	50 (42%), Referenced to phase 1:WBL and 6:WBT, Start of Yellow
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.39
Intersection Signal Delay:	16.3
Intersection LOS:	B
Intersection Capacity Utilization	54.3%
ICU Level of Service	A
Analysis Period (min)	15



Venter Inst. Site Access Study Existing With Project Conditions - Right-Turn Inbound Only  
101: N Torrey Pines Rd & Torrey Pines Road AM PEAK HOUR

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	266	87	727	780	244	759
v/c Ratio	0.33	0.28	0.39	0.24	0.35	0.35
Control Delay	44.2	9.1	20.6	6.7	40.0	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	9.1	20.6	6.7	40.0	5.4
Queue Length 50th (ft)	71	0	175	97	75	65
Queue Length 95th (ft)	87	42	284	120	111	160
Internal Link Dist (ft)	345		798		294	
Turn Bay Length (ft)			150	340	200	
Base Capacity (vph)	1036	384	2087	3535	815	2356
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.23	0.35	0.22	0.30	0.32

Intersection Summary

Venter Inst. Site Access Study Existing With Project Conditions - Right-Turn Inbound Only  
101: N Torrey Pines Rd & Torrey Pines Road AM PEAK HOUR

Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↓	↑↑↑		↑↓	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	*0.80	0.97	0.88	
Frbp, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	0.85	
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	5085	1544	3433	4471	3433	2787	
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	5085	1544	3433	4471	3433	2787	
Volume (vph)	250	82	683	733	16	213	713
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.95	0.94	0.94
Adj. Flow (vph)	266	87	727	780	17	227	759
RTOR Reduction (vph)	0	73	0	0	0	0	0
Lane Group Flow (vph)	266	14	727	780	0	244	759
Confl. Peds. (#/hr)		10				10	
Turn Type	Perm	Prot	Split	pt+ov			
Protected Phases	2	1	6	4	4	4	1
Permitted Phases	2						
Actuated Green, G (s)	17.6	17.6	64.2	85.8	24.1	92.7	
Effective Green, g (s)	18.9	18.9	64.6	87.5	24.5	93.1	
Actuated g/C Ratio	0.16	0.16	0.54	0.73	0.20	0.78	
Clearance Time (s)	5.3	5.3	4.4	5.7	4.4		
Vehicle Extension (s)	4.2	4.2	2.0	3.6	2.0		
Lane Grp Cap (vph)	801	243	1848	3260	701	2162	
v/s Ratio Prot	c0.05		c0.21	0.17	0.07	c0.27	
v/s Ratio Perm	0.01						
v/c Ratio	0.33	0.06	0.39	0.24	0.35	0.35	
Uniform Delay, d1	44.9	43.0	16.2	5.3	40.9	4.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.1	0.6	0.2	0.1	0.0	
Delay (s)	45.3	43.1	16.9	5.5	41.0	4.2	
Level of Service	D	D	B	A	D	A	
Approach Delay (s)	44.8		11.0		13.1		
Approach LOS	D		B		B		

Intersection Summary			
HCM Average Control Delay	15.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

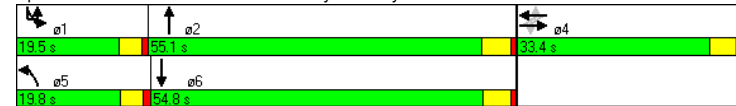
c Critical Lane Group

Venter Inst. Site Access Study Existing With Project Conditions - Right-Turn Inbound Only  
102: Glenbrook Way & Torrey Pines Road AM PEAK HOUR

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↑	↑↓	↑↓	↑↓	↑↑	↑↓	↑↑
Volume (vph)	58	33	22	38	4	858	8	673
Turn Type	Perm	Perm	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases		4		4	5	2	1	6
Permitted Phases	4		4					
Detector Phases	4	4	4	4	5	2	1	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	10.0	4.0	17.0
Minimum Split (s)	36.9	36.9	36.9	36.9	8.4	22.5	8.4	22.2
Total Split (s)	33.4	33.4	33.4	33.4	19.8	55.1	19.5	54.8
Total Split (%)	30.9%	30.9%	30.9%	30.9%	18.3%	51.0%	18.1%	50.7%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	4.5	3.4	4.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)		14.6		14.6	5.2	83.1	5.6	83.4
Actuated g/C Ratio		0.14		0.14	0.05	0.77	0.05	0.77
v/c Ratio		0.53		0.38	0.05	0.37	0.14	0.29
Control Delay		40.8		32.6	49.0	6.3	49.0	5.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		40.8		32.6	49.0	6.3	49.0	5.5
LOS		D		C	D	A	D	A
Approach Delay		40.8		32.6		6.5		6.2
Approach LOS		D		C		A		A

Intersection Summary	
Cycle Length: 108	
Actuated Cycle Length: 108	
Offset: 98 (91%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 9.4	Intersection LOS: A
Intersection Capacity Utilization 47.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 102: Glenbrook Way & Torrey Pines Road



Venter Inst. Site Access Study Existing With Project Conditions - Right-Turn Inbound Only  
102: Glenbrook Way & Torrey Pines Road AM PEAK HOUR



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	108	89	4	988	13	778
v/c Ratio	0.53	0.38	0.05	0.37	0.14	0.29
Control Delay	40.8	32.6	49.0	6.3	49.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	32.6	49.0	6.3	49.0	5.5
Queue Length 50th (ft)	69	47	3	70	9	51
Queue Length 95th (ft)	104	80	14	267	28	191
Internal Link Dist (ft)	200	226		276		322
Turn Bay Length (ft)					150	
Base Capacity (vph)	403	457	259	2690	254	2698
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.19	0.02	0.37	0.05	0.29

Intersection Summary

Venter Inst. Site Access Study Existing With Project Conditions - Right-Turn Inbound Only  
102: Glenbrook Way & Torrey Pines Road AM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕			↕		↕	↕		↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95
Frpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00
Frt		0.99			0.96		1.00	0.99		1.00	0.99
Flt Protected		0.97			0.99		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1773			1757		1770	3493		1770	3490
Flt Permitted		0.73			0.91		0.95	1.00		0.95	1.00
Satd. Flow (perm)		1324			1614		1770	3493		1770	3490
Volume (vph)	58	33	10	22	38	22	4	858	60	4	8
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.95	0.93
Adj. Flow (vph)	62	35	11	24	41	24	4	923	65	4	9
RTOR Reduction (vph)	0	4	0	0	15	0	0	2	0	0	0
Lane Group Flow (vph)	0	104	0	0	74	0	4	986	0	0	13
Confl. Peds. (#/hr)	10		10	10		10			10		
Turn Type		Perm		Perm		Prot		Prot		Prot	Prot
Protected Phases		4		4		4		5	2	1	1
Permitted Phases		4		4							6
Actuated Green, G (s)		13.7		13.7		1.1	78.1			1.4	78.7
Effective Green, g (s)		14.6		14.6		1.5	79.6			1.8	79.9
Actuated g/C Ratio		0.14		0.14		0.01	0.74			0.02	0.74
Clearance Time (s)		4.9		4.9		4.4	5.5			4.4	5.2
Vehicle Extension (s)		2.0		2.0		2.0	5.4			2.0	5.9
Lane Grp Cap (vph)		179		218		25	2574			30	2582
v/s Ratio Prot						0.00	c0.28			c0.01	0.22
v/s Ratio Perm		c0.08		0.05							
v/c Ratio		0.58		0.34		0.16	0.38			0.43	0.30
Uniform Delay, d1		43.8		42.3		52.6	5.2			52.6	4.7
Progression Factor		1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2		2.8		0.3		1.1	0.4			3.6	0.3
Delay (s)		46.6		42.7		53.7	5.6			56.2	5.0
Level of Service		D		D		D	A			E	A
Approach Delay (s)		46.6		42.7		5.8				5.8	
Approach LOS		D		D		A				A	

Intersection Summary

HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



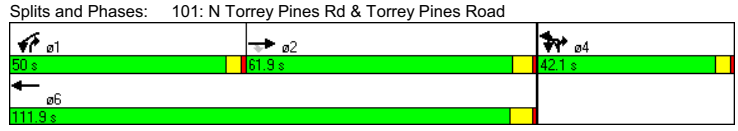
Movement		SBR
Lane Configurations		
Ideal Flow (vphpl)	1900	
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Volume (vph)	50	
Peak-hour factor, PHF	0.93	
Adj. Flow (vph)	54	
RTOR Reduction (vph)	0	
Lane Group Flow (vph)	0	
Confl. Peds. (#/hr)	10	
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		
Intersection Summary		



Venter Inst. Site Access Study Existing With Project Conditions - Right-Turn Inbound Only  
101: N Torrey Pines Rd & Torrey Pines Road PM Peak Hour

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑↑	↑↑
Volume (vph)	985	314	931	538	95	672
Turn Type	Perm		Prot	pt+ov		
Protected Phases	2		1	6	4	4 1
Permitted Phases	2					
Detector Phases	2	2	1	6	4	4 1
Minimum Initial (s)	10.0	10.0	4.0	10.0	4.0	
Minimum Split (s)	32.3	32.3	8.4	15.7	37.4	
Total Split (s)	61.9	61.9	50.0	111.9	42.1	92.1
Total Split (%)	40.2%	40.2%	32.5%	72.7%	27.3%	59.8%
Yellow Time (s)	4.3	4.3	3.4	4.7	3.4	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	Min	C-Min	None	
Act Effct Green (s)	57.7	57.7	52.0	113.8	32.2	88.3
Actuated g/C Ratio	0.37	0.37	0.34	0.74	0.21	0.57
v/c Ratio	0.55	0.46	0.85	0.17	0.14	0.45
Control Delay	39.8	13.7	55.3	6.3	48.8	24.5
Queue Delay	1.0	0.7	0.0	0.0	0.0	0.0
Total Delay	40.9	14.4	55.3	6.3	48.8	24.5
LOS	D	B	E	A	D	C
Approach Delay	34.5		37.4			27.5
Approach LOS	C		D			C

Intersection Summary	
Cycle Length:	154
Actuated Cycle Length:	154
Offset:	115 (75%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle:	100
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.85
Intersection Signal Delay:	34.2
Intersection LOS:	C
Intersection Capacity Utilization:	69.2%
ICU Level of Service:	C
Analysis Period (min):	15



Venter Inst. Site Access Study Existing With Project Conditions - Right-Turn Inbound Only  
101: N Torrey Pines Rd & Torrey Pines Road PM Peak Hour

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1048	334	990	572	103	715
v/c Ratio	0.55	0.46	0.85	0.17	0.14	0.45
Control Delay	39.8	13.7	55.3	6.3	48.8	24.5
Queue Delay	1.0	0.7	0.0	0.0	0.0	0.0
Total Delay	40.9	14.4	55.3	6.3	48.8	24.5
Queue Length 50th (ft)	319	77	462	68	40	219
Queue Length 95th (ft)	351	164	573	82	74	263
Internal Link Dist (ft)	352		798		314	
Turn Bay Length (ft)	150		340		200	
Base Capacity (vph)	1995	742	1163	3303	849	1599
Starvation Cap Reductn	637	163	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.58	0.85	0.17	0.12	0.45

Intersection Summary

Venter Inst. Site Access Study Existing With Project Conditions - Right-Turn Inbound Only  
101: N Torrey Pines Rd & Torrey Pines Road PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↓	↑↑↑		↑↓	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	*0.80		0.97	0.88
Frpb, ped/bikes	1.00	0.97	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	1.00	1.00		1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (prot)	5085	1538	3433	4471		3433	2787
Flt Permitted	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (perm)	5085	1538	3433	4471		3433	2787
Volume (vph)	985	314	931	538	2	95	672
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.95	0.94	0.94
Adj. Flow (vph)	1048	334	990	572	2	101	715
RTOR Reduction (vph)	0	142	0	0	0	0	0
Lane Group Flow (vph)	1048	192	990	572	0	103	715
Confl. Peds. (#/hr)		10				10	
Turn Type	Perm	Prot		Split		pt+ov	
Protected Phases	2		1	6	4	4	4
Permitted Phases	2						
Actuated Green, G (s)	56.5	56.5	51.6	112.1		31.8	87.8
Effective Green, g (s)	57.8	57.8	52.0	113.8		32.2	88.2
Actuated g/C Ratio	0.38	0.38	0.34	0.74		0.21	0.57
Clearance Time (s)	5.3	5.3	4.4	5.7		4.4	
Vehicle Extension (s)	4.2	4.2	2.0	3.6		2.0	
Lane Grp Cap (vph)	1909	577	1159	3304		718	1596
v/s Ratio Prot	c0.21		c0.29	0.13		0.03	c0.26
v/s Ratio Perm	0.12						
v/c Ratio	0.55	0.33	0.85	0.17		0.14	0.45
Uniform Delay, d1	37.8	34.3	47.5	6.0		49.7	18.9
Progression Factor	1.00	1.00	1.00	1.00		0.99	1.26
Incremental Delay, d2	1.1	1.5	6.1	0.1		0.0	0.1
Delay (s)	39.0	35.9	53.5	6.1		49.0	23.9
Level of Service	D	D	D	A		D	C
Approach Delay (s)	38.2		36.2		27.1		
Approach LOS	D		D		C		

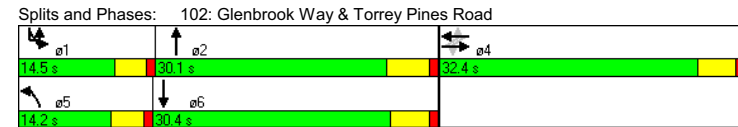
Intersection Summary			
HCM Average Control Delay	35.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Venter Inst. Site Access Study Existing With Project Conditions - Right-Turn Inbound Only  
102: Glenbrook Way & Torrey Pines Road PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↑↓		↑↓	↑↓	↑↑	↑↓	↑↑
Volume (vph)	67	33	20	37	5	661	46	1111
Turn Type	Perm		Perm		Prot		Prot	
Protected Phases	4		4		5	2	1	6
Permitted Phases	4		4					
Detector Phases	4	4	4	4	5	2	1	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	10.0	4.0	17.0
Minimum Split (s)	36.9	36.9	36.9	36.9	8.4	22.5	8.4	22.2
Total Split (s)	32.4	32.4	32.4	32.4	14.2	30.1	14.5	30.4
Total Split (%)	42.1%	42.1%	42.1%	42.1%	18.4%	39.1%	18.8%	39.5%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	4.5	3.4	4.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)		12.8		12.8	5.2	48.8	7.9	56.9
Actuated g/C Ratio		0.17		0.17	0.07	0.63	0.10	0.74
v/c Ratio		0.43		0.24	0.04	0.33	0.45	0.48
Control Delay		26.2		22.0	33.6	11.0	35.7	15.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		26.2		22.0	33.6	11.0	35.7	15.1
LOS		C		C	C	B	D	B
Approach Delay	26.2		22.0		11.1		16.3	
Approach LOS	C		C		B		B	

Intersection Summary	
Cycle Length: 77	
Actuated Cycle Length: 77	
Offset: 76 (99%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 15.3	Intersection LOS: B
Intersection Capacity Utilization 62.8%	ICU Level of Service B
Analysis Period (min) 15	



Venter Inst. Site Access Study Existing With Project Conditions - Right-Turn Inbound Only  
102: Glenbrook Way & Torrey Pines Road PM Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	68	5	727	81	1246
v/c Ratio	0.43	0.24	0.04	0.33	0.45	0.48
Control Delay	26.2	22.0	33.6	11.0	35.7	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	22.0	33.6	11.0	35.7	15.1
Queue Length 50th (ft)	47	26	2	79	52	511
Queue Length 95th (ft)	68	44	12	204	m61	700
Internal Link Dist (ft)	339	332		281		304
Turn Bay Length (ft)				150		
Base Capacity (vph)	551	623	234	2219	241	2580
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.11	0.02	0.33	0.34	0.48

**Intersection Summary**

m Volume for 95th percentile queue is metered by upstream signal.

Venter Inst. Site Access Study Existing With Project Conditions - Right-Turn Inbound Only  
102: Glenbrook Way & Torrey Pines Road PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↕			↕		↕	↕			↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95			1.00	0.95
Frpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	1.00
Frt		0.99			0.98		1.00	0.99			1.00	0.99
Flt Protected		0.97			0.98		0.95	1.00			0.95	1.00
Satd. Flow (prot)		1787			1794		1770	3496			1770	3484
Flt Permitted		0.81			0.91		0.95	1.00			0.95	1.00
Satd. Flow (perm)		1502			1660		1770	3496			1770	3484
Volume (vph)	67	33	4	20	37	9	5	661	45	32	46	1111
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.95	0.97	0.97
Adj. Flow (vph)	69	34	4	21	38	9	5	681	46	34	47	1145
RTOR Reduction (vph)	0	3	0	0	8	0	0	4	0	0	0	4
Lane Group Flow (vph)	0	104	0	0	60	0	5	723	0	0	81	1242
Confl. Peds. (#/hr)	10		10	10		10			10			
Turn Type		Perm			Perm			Prot			Prot	Prot
Protected Phases		4			4			5	2		1	1
Permitted Phases		4			4							6
Actuated Green, G (s)		11.0			11.0			1.1	44.6		6.6	50.4
Effective Green, g (s)		11.9			11.9			1.5	46.1		7.0	51.6
Actuated g/C Ratio		0.15			0.15			0.02	0.60		0.09	0.67
Clearance Time (s)		4.9			4.9			4.4	5.5		4.4	5.2
Vehicle Extension (s)		2.0			2.0			2.0	5.4		2.0	5.9
Lane Grp Cap (vph)		232			257			34	2093		161	2335
v/s Ratio Prot							0.00	0.21			c0.05	c0.36
v/s Ratio Perm		c0.07			0.04							
v/c Ratio		0.45			0.23			0.15	0.35		0.50	0.53
Uniform Delay, d1		29.6			28.6			37.1	7.8		33.3	6.5
Progression Factor		1.00			1.00			1.00	1.00		1.04	1.97
Incremental Delay, d2		0.5			0.2			0.7	0.5		0.6	0.6
Delay (s)		30.1			28.7			37.8	8.3		35.3	13.4
Level of Service		C			C			D	A		D	B
Approach Delay (s)		30.1			28.7			8.5				14.7
Approach LOS		C			C			A				B

**Intersection Summary**

HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



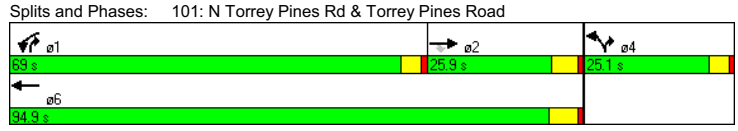
<b>Movement</b>		SBR
<b>Lane Configurations</b>		
Ideal Flow (vphpl)	1900	
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Volume (vph)	98	
Peak-hour factor, PHF	0.97	
Adj. Flow (vph)	101	
RTOR Reduction (vph)	0	
Lane Group Flow (vph)	0	
Confl. Peds. (#/hr)	10	
<b>Turn Type</b>		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		
<b>Intersection Summary</b>		

Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Left-Turn Inbound  
 101: N Torrey Pines Rd & Torrey Pines Road AM PEAK HOUR

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑↑	↑↑
Volume (vph)	259	72	727	742	212	710
Turn Type	Perm		Prot	pt+ov		
Protected Phases	2		1	6	4	4 1
Permitted Phases	2					
Detector Phases	2	2	1	6	4	4 1
Minimum Initial (s)	10.0	10.0	4.0	10.0	4.0	
Minimum Split (s)	32.2	32.2	8.4	15.7	37.4	
Total Split (s)	25.9	25.9	69.0	94.9	25.1	94.1
Total Split (%)	21.6%	21.6%	57.5%	79.1%	20.9%	78.4%
Yellow Time (s)	4.3	4.3	3.4	4.7	3.4	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	Min	Min	C-Min	C-Min	None	
Act Effct Green (s)	19.0	19.0	64.5	87.5	24.5	93.0
Actuated g/C Ratio	0.16	0.16	0.54	0.73	0.20	0.78
v/c Ratio	0.34	0.25	0.42	0.24	0.32	0.35
Control Delay	44.2	9.4	21.0	6.7	39.6	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	9.4	21.0	6.7	39.6	5.5
LOS	D	A	C	A	D	A
Approach Delay	36.6		13.8		13.3	
Approach LOS	D		B		B	

**Intersection Summary**

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 50 (42%), Referenced to phase 1:WBL and 6:WBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.42  
 Intersection Signal Delay: 16.4 Intersection LOS: B  
 Intersection Capacity Utilization 55.2% ICU Level of Service B  
 Analysis Period (min) 15



Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Left-Turn Inbound  
 101: N Torrey Pines Rd & Torrey Pines Road AM PEAK HOUR

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	276	77	773	789	226	755
v/c Ratio	0.34	0.25	0.42	0.24	0.32	0.35
Control Delay	44.2	9.4	21.0	6.7	39.6	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	9.4	21.0	6.7	39.6	5.5
Queue Length 50th (ft)	74	0	190	97	70	65
Queue Length 95th (ft)	90	39	305	121	103	159
Internal Link Dist (ft)	357		798		294	
Turn Bay Length (ft)			150	340	200	
Base Capacity (vph)	1036	376	2085	3535	815	2354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.20	0.37	0.22	0.28	0.32

**Intersection Summary**

Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Left-Turn Inbound  
101: N Torrey Pines Rd & Torrey Pines Road AM PEAK HOUR

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↓	↑↑↑	↑↓	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	*0.80	0.97	0.88
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1544	3433	4471	3433	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1544	3433	4471	3433	2787
Volume (vph)	259	72	727	742	212	710
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	276	77	773	789	226	755
RTOR Reduction (vph)	0	65	0	0	0	0
Lane Group Flow (vph)	276	12	773	789	226	755
Confl. Peds. (#/hr)		10				10
Turn Type	Perm		Prot		pt+ov	
Protected Phases	2		1	6	4	4
Permitted Phases	2					
Actuated Green, G (s)	17.7	17.7	64.1	85.8	24.1	92.6
Effective Green, g (s)	19.0	19.0	64.5	87.5	24.5	93.0
Actuated g/C Ratio	0.16	0.16	0.54	0.73	0.20	0.78
Clearance Time (s)	5.3	5.3	4.4	5.7	4.4	
Vehicle Extension (s)	4.2	4.2	2.0	3.6	2.0	
Lane Grp Cap (vph)	805	244	1845	3260	701	2160
v/s Ratio Prot	c0.05		c0.23	0.18	0.07	c0.27
v/s Ratio Perm	0.01					
v/c Ratio	0.34	0.05	0.42	0.24	0.32	0.35
Uniform Delay, d1	44.9	42.8	16.6	5.3	40.7	4.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.7	0.2	0.1	0.0
Delay (s)	45.3	43.0	17.3	5.5	40.8	4.2
Level of Service	D	D	B	A	D	A
Approach Delay (s)	44.8		11.3	12.6		
Approach LOS	D		B	B		

Intersection Summary			
HCM Average Control Delay	15.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

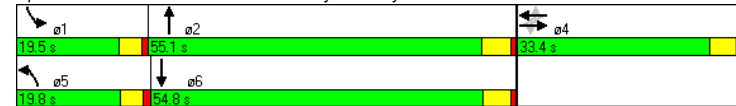
c Critical Lane Group

Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Left-Turn Inbound  
102: Glenbrook Way & Torrey Pines Road AM PEAK HOUR

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↑↓		↑↓		↑↑	↑↓	↑↑
Volume (vph)	58	33	22	38	4	889	8	676
Turn Type	Perm		Perm		Prot		Prot	
Protected Phases		4		4	5	2	1	6
Permitted Phases	4		4					
Detector Phases	4	4	4	4	5	2	1	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	10.0	4.0	17.0
Minimum Split (s)	36.9	36.9	36.9	36.9	8.4	22.5	8.4	22.2
Total Split (s)	33.4	33.4	33.4	33.4	19.8	55.1	19.5	54.8
Total Split (%)	30.9%	30.9%	30.9%	30.9%	18.3%	51.0%	18.1%	50.7%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	4.5	3.4	4.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)		14.6		14.6	5.2	83.3	5.4	83.4
Actuated g/C Ratio		0.14		0.14	0.05	0.77	0.05	0.77
v/c Ratio		0.53		0.38	0.05	0.38	0.10	0.29
Control Delay		40.8		32.6	49.0	6.3	49.0	5.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		40.8		32.6	49.0	6.3	49.0	5.5
LOS		D		C	D	A	D	A
Approach Delay		40.8		32.6		6.5		6.0
Approach LOS		D		C		A		A

Intersection Summary	
Cycle Length: 108	
Actuated Cycle Length: 108	
Offset: 98 (91%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 9.3	Intersection LOS: A
Intersection Capacity Utilization 48.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 102: Glenbrook Way & Torrey Pines Road



Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Left-Turn Inbound  
102: Glenbrook Way & Torrey Pines Road AM PEAK HOUR



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	108	89	4	1021	9	781
v/c Ratio	0.53	0.38	0.05	0.38	0.10	0.29
Control Delay	40.8	32.6	49.0	6.3	49.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	32.6	49.0	6.3	49.0	5.5
Queue Length 50th (ft)	69	47	3	74	6	51
Queue Length 95th (ft)	104	80	14	275	22	192
Internal Link Dist (ft)	200	226		276		322
Turn Bay Length (ft)					150	
Base Capacity (vph)	403	457	259	2694	254	2698
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.19	0.02	0.38	0.04	0.29

Intersection Summary

Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Left-Turn Inbound  
102: Glenbrook Way & Torrey Pines Road AM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.99			0.96		1.00	0.99		1.00	0.99	
Flt Protected		0.97			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1773			1757		1770	3494		1770	3490	
Flt Permitted		0.73			0.91		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1324			1614		1770	3494		1770	3490	
Volume (vph)	58	33	10	22	38	22	4	889	60	8	676	50
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	62	35	11	24	41	24	4	956	65	9	727	54
RTOR Reduction (vph)	0	4	0	0	15	0	0	2	0	0	3	0
Lane Group Flow (vph)	0	104	0	0	74	0	4	1019	0	9	778	0
Confl. Peds. (#/hr)	10		10	10		10			10			10
Turn Type		Perm			Perm			Prot			Prot	
Protected Phases		4			4			5	2		1	6
Permitted Phases		4			4							
Actuated Green, G (s)		13.7			13.7			1.1	78.3		1.2	78.7
Effective Green, g (s)		14.6			14.6			1.5	79.8		1.6	79.9
Actuated g/C Ratio		0.14			0.14			0.01	0.74		0.01	0.74
Clearance Time (s)		4.9			4.9			4.4	5.5		4.4	5.2
Vehicle Extension (s)		2.0			2.0			2.0	5.4		2.0	5.9
Lane Grp Cap (vph)		179			218			25	2582		26	2582
v/s Ratio Prot								0.00	c0.29		c0.01	0.22
v/s Ratio Perm		c0.08			0.05							
v/c Ratio		0.58			0.34			0.16	0.39		0.35	0.30
Uniform Delay, d1		43.8			42.3			52.6	5.2		52.7	4.7
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		2.8			0.3			1.1	0.5		2.9	0.3
Delay (s)		46.6			42.7			53.7	5.6		55.6	5.0
Level of Service		D			D			D	A		E	A
Approach Delay (s)		46.6			42.7			5.8			5.6	
Approach LOS		D			D			A			A	

Intersection Summary

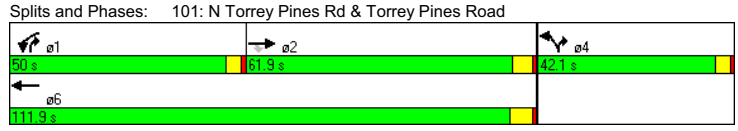
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
 101: N Torrey Pines Rd & Torrey Pines Road PM Peak Hour

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↖↗	↑↑↑	↖↗	↖↗
Volume (vph)	1053	314	936	538	85	650
Turn Type	Perm		Prot	pt+ov		
Protected Phases	2		1	6	4	4 1
Permitted Phases	2					
Detector Phases	2	2	1	6	4	4 1
Minimum Initial (s)	10.0	10.0	4.0	10.0	4.0	
Minimum Split (s)	32.3	32.3	8.4	15.7	37.4	
Total Split (s)	61.9	61.9	50.0	111.9	42.1	92.1
Total Split (%)	40.2%	40.2%	32.5%	72.7%	27.3%	59.8%
Yellow Time (s)	4.3	4.3	3.4	4.7	3.4	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	Min	C-Min	None	
Act Effct Green (s)	59.0	59.0	51.9	114.9	31.1	87.0
Actuated g/C Ratio	0.38	0.38	0.34	0.75	0.20	0.56
v/c Ratio	0.58	0.46	0.86	0.17	0.13	0.44
Control Delay	39.6	14.8	56.2	6.0	49.4	22.0
Queue Delay	1.3	0.7	0.0	0.0	0.0	0.0
Total Delay	40.9	15.5	56.2	6.0	49.4	22.0
LOS	D	B	E	A	D	C
Approach Delay	35.1		37.9			25.2
Approach LOS	D		D			C

Intersection Summary	
Cycle Length:	154
Actuated Cycle Length:	154
Offset:	115 (75%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle:	100
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.86
Intersection Signal Delay:	34.2
Intersection LOS:	C
Intersection Capacity Utilization:	69.4%
ICU Level of Service:	C
Analysis Period (min):	15



Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
 101: N Torrey Pines Rd & Torrey Pines Road PM Peak Hour

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1120	334	996	572	90	691
v/c Ratio	0.58	0.46	0.86	0.17	0.13	0.44
Control Delay	39.6	14.8	56.2	6.0	49.4	22.0
Queue Delay	1.3	0.7	0.0	0.0	0.0	0.0
Total Delay	40.9	15.5	56.2	6.0	49.4	22.0
Queue Length 50th (ft)	347	90	463	67	35	166
Queue Length 95th (ft)	378	176	580	82	64	247
Internal Link Dist (ft)	353		798			314
Turn Bay Length (ft)	150		340			200
Base Capacity (vph)	2008	737	1157	3335	849	1575
Starvation Cap Reductn	626	163	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.58	0.86	0.17	0.11	0.44

Intersection Summary



Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
 101: N Torrey Pines Rd & Torrey Pines Road PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↓	↑↑↑	↑↓	↑↓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	*0.80	0.97	0.88
Frbp, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1538	3433	4471	3433	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1538	3433	4471	3433	2787
Volume (vph)	1053	314	936	538	85	650
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1120	334	996	572	90	691
RTOR Reduction (vph)	0	132	0	0	0	0
Lane Group Flow (vph)	1120	202	996	572	90	691
Confl. Peds. (#/hr)	10		10			
Turn Type	Perm		Prot		pt+ov	
Protected Phases	2		1	6	4	4
Permitted Phases	2					
Actuated Green, G (s)	57.7	57.7	51.5	113.2	30.7	86.6
Effective Green, g (s)	59.0	59.0	51.9	114.9	31.1	87.0
Actuated g/C Ratio	0.38	0.38	0.34	0.75	0.20	0.56
Clearance Time (s)	5.3	5.3	4.4	5.7	4.4	
Vehicle Extension (s)	4.2	4.2	2.0	3.6	2.0	
Lane Grp Cap (vph)	1948	589	1157	3336	693	1574
v/s Ratio Prot	c0.22		c0.29	0.13	0.03	c0.25
v/s Ratio Perm	0.13					
v/c Ratio	0.57	0.34	0.86	0.17	0.13	0.44
Uniform Delay, d1	37.6	33.7	47.7	5.7	50.4	19.4
Progression Factor	1.00	1.00	1.00	1.00	0.99	1.10
Incremental Delay, d2	1.2	1.6	6.5	0.1	0.0	0.1
Delay (s)	38.8	35.3	54.2	5.8	50.0	21.4
Level of Service	D	D	D	A	D	C
Approach Delay (s)	38.0		36.5		24.7	
Approach LOS	D		D		C	

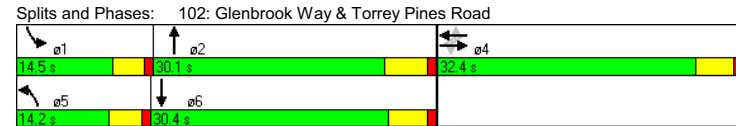
Intersection Summary			
HCM Average Control Delay	34.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
 102: Glenbrook Way & Torrey Pines Road PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↑↓		↑↓		↑↑	↑↓	↑↑
Volume (vph)	67	33	20	37	5	664	46	1138
Turn Type	Perm		Perm		Prot		Prot	
Protected Phases	4		4		5		2	
Permitted Phases	4		4		5		2	
Detector Phases	4	4	4	4	5	2	1	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	10.0	4.0	17.0
Minimum Split (s)	36.9	36.9	36.9	36.9	8.4	22.5	8.4	22.2
Total Split (s)	32.4	32.4	32.4	32.4	14.2	30.1	14.5	30.4
Total Split (%)	42.1%	42.1%	42.1%	42.1%	18.4%	39.1%	18.8%	39.5%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	4.5	3.4	4.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag			Lead		Lag	Lead	Lag	
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	12.8		12.8		5.2	51.8	6.8	56.9
Actuated g/C Ratio	0.17		0.17		0.07	0.67	0.09	0.74
v/c Ratio	0.43		0.24		0.04	0.31	0.30	0.49
Control Delay	26.2		22.0		33.6	9.7	36.0	14.6
Queue Delay	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay	26.2		22.0		33.6	9.7	36.0	14.6
LOS	C		C		C	A	D	B
Approach Delay	26.2		22.0		9.8			15.4
Approach LOS	C		C		A			B

Intersection Summary	
Cycle Length: 77	
Actuated Cycle Length: 77	
Offset: 76 (99%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.49	
Intersection Signal Delay: 14.3	Intersection LOS: B
Intersection Capacity Utilization 60.5%	ICU Level of Service B
Analysis Period (min) 15	



Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
102: Glenbrook Way & Torrey Pines Road PM Peak Hour

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	68	5	731	47	1274
v/c Ratio	0.43	0.24	0.04	0.31	0.30	0.49
Control Delay	26.2	22.0	33.6	9.7	36.0	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	22.0	33.6	9.7	36.0	14.6
Queue Length 50th (ft)	47	26	2	75	34	512
Queue Length 95th (ft)	68	44	12	200	m38	#722
Internal Link Dist (ft)	339	332		281		304
Turn Bay Length (ft)				150		
Base Capacity (vph)	551	623	234	2357	241	2580
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.11	0.02	0.31	0.20	0.49

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Venter Inst. Site Access Study Existing With Project Conditions - Left-Turn Inbound  
102: Glenbrook Way & Torrey Pines Road PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.99			0.98		1.00	0.99		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787			1794		1770	3497		1770	3485	
Flt Permitted		0.81			0.91		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1502			1660		1770	3497		1770	3485	
Volume (vph)	67	33	4	20	37	9	5	664	45	46	1138	98
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	69	34	4	21	38	9	5	685	46	47	1173	101
RTOR Reduction (vph)	0	3	0	0	8	0	0	4	0	0	4	0
Lane Group Flow (vph)	0	104	0	0	60	0	5	727	0	47	1270	0
Confl. Peds. (#/hr)	10		10	10		10			10			10
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4			4								
Actuated Green, G (s)		11.0			11.0		1.1	46.7		4.5	50.4	
Effective Green, g (s)		11.9			11.9		1.5	48.2		4.9	51.6	
Actuated g/C Ratio		0.15			0.15		0.02	0.63		0.06	0.67	
Clearance Time (s)		4.9			4.9		4.4	5.5		4.4	5.2	
Vehicle Extension (s)		2.0			2.0		2.0	5.4		2.0	5.9	
Lane Grp Cap (vph)		232			257		34	2189		113	2335	
v/s Ratio Prot							0.00	0.21		c0.03	c0.36	
v/s Ratio Perm	c0.07				0.04							
v/c Ratio	0.45				0.23		0.15	0.33		0.42	0.54	
Uniform Delay, d1	29.6				28.6		37.1	6.8		34.7	6.6	
Progression Factor	1.00				1.00		1.00	1.00		1.08	1.89	
Incremental Delay, d2	0.5				0.2		0.7	0.4		0.6	0.6	
Delay (s)	30.1				28.7		37.8	7.2		37.9	13.1	
Level of Service	C				C		D	A		D	B	
Approach Delay (s)	30.1				28.7			7.4			13.9	
Approach LOS	C				C			A			B	

Intersection Summary

HCM Average Control Delay	13.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Right-Turn Inbound Only  
101: N Torrey Pines Rd & Torrey Pines Road AM PEAK HOUR

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑↑	↑↑
Volume (vph)	259	72	727	742	212	710
Turn Type	Perm		Prot	pt+ov		
Protected Phases	2		1	6	4	4 1
Permitted Phases	2					
Detector Phases	2	2	1	6	4	4 1
Minimum Initial (s)	10.0	10.0	4.0	10.0	4.0	
Minimum Split (s)	32.2	32.2	8.4	15.7	37.4	
Total Split (s)	25.9	25.9	69.0	94.9	25.1	94.1
Total Split (%)	21.6%	21.6%	57.5%	79.1%	20.9%	78.4%
Yellow Time (s)	4.3	4.3	3.4	4.7	3.4	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	Min	Min	C-Min	C-Min	None	
Act Effct Green (s)	19.0	19.0	68.0	91.0	21.0	93.0
Actuated g/C Ratio	0.16	0.16	0.57	0.76	0.18	0.78
v/c Ratio	0.34	0.25	0.40	0.23	0.46	0.35
Control Delay	44.2	9.4	19.0	5.6	44.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	9.4	19.0	5.6	44.0	5.5
LOS	D	A	B	A	D	A
Approach Delay	36.6		12.2		15.7	
Approach LOS	D		B		B	

Intersection Summary	
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	50 (42%), Referenced to phase 1:WBL and 6:WBT, Start of Yellow
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.46
Intersection Signal Delay:	16.4
Intersection LOS:	B
Intersection Capacity Utilization:	56.2%
ICU Level of Service:	B
Analysis Period (min):	15



Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Right-Turn Inbound Only  
101: N Torrey Pines Rd & Torrey Pines Road AM PEAK HOUR

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	276	77	773	789	275	755
v/c Ratio	0.34	0.25	0.40	0.23	0.46	0.35
Control Delay	44.2	9.4	19.0	5.6	44.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	9.4	19.0	5.6	44.0	5.5
Queue Length 50th (ft)	74	0	125	47	106	65
Queue Length 95th (ft)	90	39	305	121	124	159
Internal Link Dist (ft)	353		798		294	
Turn Bay Length (ft)	150		340		200	
Base Capacity (vph)	1036	376	2159	3572	745	2334
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.20	0.36	0.22	0.37	0.32

Intersection Summary

Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Right-Turn Inbound Only  
101: N Torrey Pines Rd & Torrey Pines Road AM PEAK HOUR

Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↓	↑↑↑	↑	↑↓	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	*0.80	0.97	0.88	
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	0.85	
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	5085	1544	3433	4471	3433	2787	
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	5085	1544	3433	4471	3433	2787	
Volume (vph)	259	72	727	742	47	212	710
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.95	0.94	0.94
Adj. Flow (vph)	276	77	773	789	49	226	755
RTOR Reduction (vph)	0	65	0	0	0	0	0
Lane Group Flow (vph)	276	12	773	789	0	275	755
Confl. Peds. (#/hr)		10				10	
Turn Type	Perm	Prot		Split		pt+ov	
Protected Phases	2		1	6	4	4	4 1
Permitted Phases		2					
Actuated Green, G (s)	17.7	17.7	67.6	89.3		20.6	92.6
Effective Green, g (s)	19.0	19.0	68.0	91.0		21.0	93.0
Actuated g/C Ratio	0.16	0.16	0.57	0.76		0.18	0.78
Clearance Time (s)	5.3	5.3	4.4	5.7		4.4	
Vehicle Extension (s)	4.2	4.2	2.0	3.6		2.0	
Lane Grp Cap (vph)	805	244	1945	3391		601	2160
v/s Ratio Prot	c0.05		c0.23	0.18		c0.08	0.27
v/s Ratio Perm		0.01					
v/c Ratio	0.34	0.05	0.40	0.23		0.46	0.35
Uniform Delay, d1	44.9	42.8	14.5	4.3		44.4	4.2
Progression Factor	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.4	0.1	0.6	0.2		0.2	0.0
Delay (s)	45.3	43.0	15.2	4.4		44.6	4.2
Level of Service	D	D	B	A		D	A
Approach Delay (s)	44.8			9.7		15.0	
Approach LOS	D			A		B	

Intersection Summary			
HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

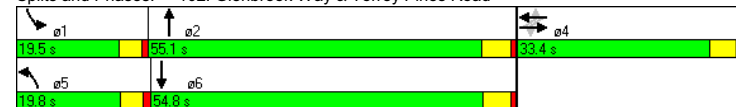
c Critical Lane Group

Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Right-Turn Inbound Only  
102: Glenbrook Way & Torrey Pines Road AM PEAK HOUR

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↑↓		↑↓		↑↑	↑↓	↑↑
Volume (vph)	58	33	22	38	4	889	8	676
Turn Type	Perm		Perm		Prot		Prot	
Protected Phases		4		4	5	2	1	6
Permitted Phases	4		4					
Detector Phases	4	4	4	4	5	2	1	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	10.0	4.0	17.0
Minimum Split (s)	36.9	36.9	36.9	36.9	8.4	22.5	8.4	22.2
Total Split (s)	33.4	33.4	33.4	33.4	19.8	55.1	19.5	54.8
Total Split (%)	30.9%	30.9%	30.9%	30.9%	18.3%	51.0%	18.1%	50.7%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	4.5	3.4	4.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)		14.6		14.6	5.2	83.3	5.4	83.4
Actuated g/C Ratio		0.14		0.14	0.05	0.77	0.05	0.77
v/c Ratio		0.53		0.38	0.05	0.38	0.10	0.29
Control Delay		40.8		32.6	49.0	6.3	49.0	5.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		40.8		32.6	49.0	6.3	49.0	5.5
LOS		D		C	D	A	D	A
Approach Delay		40.8		32.6		6.5		6.0
Approach LOS		D		C		A		A

Intersection Summary	
Cycle Length: 108	
Actuated Cycle Length: 108	
Offset: 98 (91%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 9.3	Intersection LOS: A
Intersection Capacity Utilization 48.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 102: Glenbrook Way & Torrey Pines Road



Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Right-Turn Inbound Only  
102: Glenbrook Way & Torrey Pines Road AM PEAK HOUR

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	108	89	4	1021	9	781
v/c Ratio	0.53	0.38	0.05	0.38	0.10	0.29
Control Delay	40.8	32.6	49.0	6.3	49.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	32.6	49.0	6.3	49.0	5.5
Queue Length 50th (ft)	69	47	3	74	6	51
Queue Length 95th (ft)	104	80	14	275	22	192
Internal Link Dist (ft)	200	226		276		322
Turn Bay Length (ft)				150		
Base Capacity (vph)	403	457	259	2694	254	2698
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.19	0.02	0.38	0.04	0.29

Intersection Summary

Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Right-Turn Inbound Only  
102: Glenbrook Way & Torrey Pines Road AM PEAK HOUR

	↖	→	↘	↙	←	↗	↖	↑	↘	↓	↙	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.99			0.96		1.00	0.99		1.00	0.99	
Flt Protected		0.97			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1773			1757		1770	3494		1770	3490	
Flt Permitted		0.73			0.91		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1324			1614		1770	3494		1770	3490	
Volume (vph)	58	33	10	22	38	22	4	889	60	8	676	50
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	62	35	11	24	41	24	4	956	65	9	727	54
RTOR Reduction (vph)	0	4	0	0	15	0	0	2	0	0	3	0
Lane Group Flow (vph)	0	104	0	0	74	0	4	1019	0	9	778	0
Confl. Peds. (#/hr)	10		10	10		10			10			10
Turn Type		Perm			Perm			Prot			Prot	
Protected Phases		4			4			5	2		1	6
Permitted Phases		4			4							
Actuated Green, G (s)		13.7			13.7			1.1	78.3		1.2	78.7
Effective Green, g (s)		14.6			14.6			1.5	79.8		1.6	79.9
Actuated g/C Ratio		0.14			0.14			0.01	0.74		0.01	0.74
Clearance Time (s)		4.9			4.9			4.4	5.5		4.4	5.2
Vehicle Extension (s)		2.0			2.0			2.0	5.4		2.0	5.9
Lane Grp Cap (vph)		179			218			25	2582		26	2582
v/s Ratio Prot								0.00	c0.29		c0.01	0.22
v/s Ratio Perm		c0.08			0.05							
v/c Ratio		0.58			0.34			0.16	0.39		0.35	0.30
Uniform Delay, d1		43.8			42.3			52.6	5.2		52.7	4.7
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		2.8			0.3			1.1	0.5		2.9	0.3
Delay (s)		46.6			42.7			53.7	5.6		55.6	5.0
Level of Service		D			D			D	A		E	A
Approach Delay (s)		46.6			42.7			5.8			5.6	
Approach LOS		D			D			A			A	

Intersection Summary

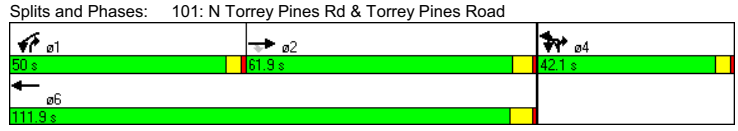
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Right-Turn Inbound Only  
101: N Torrey Pines Rd & Torrey Pines Road PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↘	↑↑↑	↘	↑↑
Volume (vph)	1053	314	936	538	85	650
Turn Type	Perm		Prot	pt+ov		
Protected Phases	2		1	6	4	4 1
Permitted Phases	2					
Detector Phases	2	2	1	6	4	4 1
Minimum Initial (s)	10.0	10.0	4.0	10.0	4.0	
Minimum Split (s)	32.3	32.3	8.4	15.7	37.4	
Total Split (s)	61.9	61.9	50.0	111.9	42.1	92.1
Total Split (%)	40.2%	40.2%	32.5%	72.7%	27.3%	59.8%
Yellow Time (s)	4.3	4.3	3.4	4.7	3.4	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	Min	C-Min	None	
Act Effct Green (s)	59.0	59.0	51.9	114.8	31.2	87.0
Actuated g/C Ratio	0.38	0.38	0.34	0.75	0.20	0.56
v/c Ratio	0.58	0.46	0.86	0.17	0.14	0.44
Control Delay	39.6	14.8	56.2	6.0	49.5	22.0
Queue Delay	1.3	0.7	0.0	0.0	0.0	0.0
Total Delay	40.9	15.5	56.2	6.0	49.5	22.0
LOS	D	B	E	A	D	C
Approach Delay	35.1		37.9			25.3
Approach LOS	D		D			C

Intersection Summary	
Cycle Length:	154
Actuated Cycle Length:	154
Offset:	115 (75%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle:	100
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.86
Intersection Signal Delay:	34.2
Intersection LOS:	C
Intersection Capacity Utilization:	69.4%
ICU Level of Service:	C
Analysis Period (min):	15



Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Right-Turn Inbound Only  
101: N Torrey Pines Rd & Torrey Pines Road PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1120	334	996	572	95	691
v/c Ratio	0.58	0.46	0.86	0.17	0.14	0.44
Control Delay	39.6	14.8	56.2	6.0	49.5	22.0
Queue Delay	1.3	0.7	0.0	0.0	0.0	0.0
Total Delay	40.9	15.5	56.2	6.0	49.5	22.0
Queue Length 50th (ft)	347	90	463	67	37	166
Queue Length 95th (ft)	378	176	580	82	69	247
Internal Link Dist (ft)	353		798		314	
Turn Bay Length (ft)	150		340		200	
Base Capacity (vph)	2008	737	1157	3334	849	1575
Starvation Cap Reductn	626	163	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.58	0.86	0.17	0.11	0.44

Intersection Summary

Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Right-Turn Inbound Only  
101: N Torrey Pines Rd & Torrey Pines Road PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↓	↑↑↑		↑↓	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	*0.80		0.97	0.88
Frpb, ped/bikes	1.00	0.97	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	1.00	1.00		1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (prot)	5085	1538	3433	4471		3433	2787
Flt Permitted	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (perm)	5085	1538	3433	4471		3433	2787
Volume (vph)	1053	314	936	538	5	85	650
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.95	0.94	0.94
Adj. Flow (vph)	1120	334	996	572	5	90	691
RTOR Reduction (vph)	0	132	0	0	0	0	0
Lane Group Flow (vph)	1120	202	996	572	0	95	691
Confl. Peds. (#/hr)		10				10	
Turn Type	Perm	Prot		Split		pt+ov	
Protected Phases	2		1	6	4	4	4
Permitted Phases		2					
Actuated Green, G (s)	57.6	57.6	51.5	113.1		30.8	86.7
Effective Green, g (s)	58.9	58.9	51.9	114.8		31.2	87.1
Actuated g/C Ratio	0.38	0.38	0.34	0.75		0.20	0.57
Clearance Time (s)	5.3	5.3	4.4	5.7		4.4	
Vehicle Extension (s)	4.2	4.2	2.0	3.6		2.0	
Lane Grp Cap (vph)	1945	588	1157	3333		696	1576
v/s Ratio Prot	c0.22		c0.29	0.13		0.03	c0.25
v/s Ratio Perm		0.13					
v/c Ratio	0.58	0.34	0.86	0.17		0.14	0.44
Uniform Delay, d1	37.7	33.8	47.7	5.7		50.4	19.3
Progression Factor	1.00	1.00	1.00	1.00		0.99	1.10
Incremental Delay, d2	1.2	1.6	6.5	0.1		0.0	0.1
Delay (s)	38.9	35.4	54.2	5.8		49.8	21.4
Level of Service	D	D	D	A		D	C
Approach Delay (s)	38.1			36.6		24.8	
Approach LOS	D			D		C	

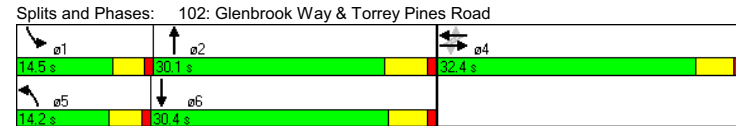
Intersection Summary			
HCM Average Control Delay	34.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Right-Turn Inbound Only  
102: Glenbrook Way & Torrey Pines Road PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↑↓		↑↓		↑↑	↑↓	↑↑
Volume (vph)	67	33	20	37	5	664	46	1138
Turn Type	Perm		Perm		Prot		Prot	
Protected Phases		4		4	5	2	1	6
Permitted Phases	4		4					
Detector Phases	4	4	4	4	5	2	1	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	10.0	4.0	17.0
Minimum Split (s)	36.9	36.9	36.9	36.9	8.4	22.5	8.4	22.2
Total Split (s)	32.4	32.4	32.4	32.4	14.2	30.1	14.5	30.4
Total Split (%)	42.1%	42.1%	42.1%	42.1%	18.4%	39.1%	18.8%	39.5%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	4.5	3.4	4.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)		12.8		12.8	5.2	51.8	6.8	56.9
Actuated g/C Ratio		0.17		0.17	0.07	0.67	0.09	0.74
v/c Ratio		0.43		0.24	0.04	0.31	0.30	0.49
Control Delay		26.2		22.0	33.6	9.7	36.0	14.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		26.2		22.0	33.6	9.7	36.0	14.5
LOS		C		C	C	A	D	B
Approach Delay		26.2		22.0		9.8		15.3
Approach LOS		C		C		A		B

Intersection Summary	
Cycle Length: 77	
Actuated Cycle Length: 77	
Offset: 76 (99%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.49	
Intersection Signal Delay: 14.2	Intersection LOS: B
Intersection Capacity Utilization 60.5%	ICU Level of Service B
Analysis Period (min) 15	



Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Right-Turn Inbound Only  
102: Glenbrook Way & Torrey Pines Road PM Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	68	5	731	47	1274
v/c Ratio	0.43	0.24	0.04	0.31	0.30	0.49
Control Delay	26.2	22.0	33.6	9.7	36.0	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	22.0	33.6	9.7	36.0	14.5
Queue Length 50th (ft)	47	26	2	75	33	488
Queue Length 95th (ft)	68	44	12	200	m37	#721
Internal Link Dist (ft)	339	332		281		304
Turn Bay Length (ft)				150		
Base Capacity (vph)	551	623	234	2357	241	2580
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.11	0.02	0.31	0.20	0.49

**Intersection Summary**

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Venter Inst. Site Access Study Existing With Parcels 1-4 Conditions - Right-Turn Inbound Only  
102: Glenbrook Way & Torrey Pines Road PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.99			0.98		1.00	0.99		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787			1794		1770	3497		1770	3485	
Flt Permitted		0.81			0.91		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1502			1660		1770	3497		1770	3485	
Volume (vph)	67	33	4	20	37	9	5	664	45	46	1138	98
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	69	34	4	21	38	9	5	685	46	47	1173	101
RTOR Reduction (vph)	0	3	0	0	8	0	0	4	0	0	4	0
Lane Group Flow (vph)	0	104	0	0	60	0	5	727	0	47	1270	0
Confl. Peds. (#/hr)	10			10			10			10		10
Turn Type		Perm			Perm			Prot			Prot	
Protected Phases		4			4			5	2		1	6
Permitted Phases		4			4							
Actuated Green, G (s)		11.0			11.0			1.1	46.7		4.5	50.4
Effective Green, g (s)		11.9			11.9			1.5	48.2		4.9	51.6
Actuated g/C Ratio		0.15			0.15			0.02	0.63		0.06	0.67
Clearance Time (s)		4.9			4.9			4.4	5.5		4.4	5.2
Vehicle Extension (s)		2.0			2.0			2.0	5.4		2.0	5.9
Lane Grp Cap (vph)		232			257			34	2189		113	2335
v/s Ratio Prot								0.00	0.21		c0.03	c0.36
v/s Ratio Perm		c0.07			0.04							
v/c Ratio		0.45			0.23			0.15	0.33		0.42	0.54
Uniform Delay, d1		29.6			28.6			37.1	6.8		34.7	6.6
Progression Factor		1.00			1.00			1.00	1.00		1.08	1.87
Incremental Delay, d2		0.5			0.2			0.7	0.4		0.6	0.6
Delay (s)		30.1			28.7			37.8	7.2		38.0	12.9
Level of Service		C			C			D	A		D	B
Approach Delay (s)		30.1			28.7			7.4			13.8	
Approach LOS		C			C			A			B	

**Intersection Summary**

HCM Average Control Delay 12.9 HCM Level of Service B

HCM Volume to Capacity ratio 0.53

Actuated Cycle Length (s) 77.0 Sum of lost time (s) 12.0

Intersection Capacity Utilization 60.5% ICU Level of Service B

Analysis Period (min) 15

c Critical Lane Group



---

**Attachment C**

Minimum Required Throat Depth Technical Calculations



Project No OC06-0030 Page No \_\_\_\_\_  
 Subject UCSD  
La Jolla, CA  
 Date 7/27/2006

Computed by ML

### Maximum Queue Estimation for: Minor Street Right-Turn

**Movement:** Egress from Parcel 4 onto SB Torrey Pines Rd.  
**Major Street:** Torrey Pines Rd.  
**Minor Street:** Parcel 4 Driveway  
**Conditions:** Parcel 4 Buildout - Left Turn In, Right Out - AM

#### Input Data

Subject Approach	
Traffic Volume (vph) =	6
PHF =	0.94

Major Street	
Conflicting Traffic Volume (vph) =	765
PHF =	0.94
Conflicting Number of Through Lanes	1
Posted Speed Limit (mph) =	45

Is a Traffic Signal Located on Major Street Within 1/4 mi of intersection? (Enter 1 if yes; 0 if no)	1
---	---

#### Output

Estimated Maximum Queue	2	vehicles
Estimated Maximum Storage Length	50	feet



Project No OC06-0030 Page No \_\_\_\_\_  
 Subject UCSD  
La Jolla, CA  
 Date 7/27/2006

Computed by ML

### Maximum Queue Estimation for: Minor Street Right-Turn

**Movement:** Egress from Parcel 4 to SB Torrey Pines Rd.  
**Major Street:** Torrey Pines Rd.  
**Minor Street:** Parcel 4 Driveway  
**Conditions:** Parcel 4 Buildout - Right In, Right Out - AM

#### Input Data

Subject Approach	
Traffic Volume (vph) =	6
PHF =	0.94

Major Street	
Conflicting Traffic Volume (vph) =	781
PHF =	0.94
Conflicting Number of Through Lanes	1
Posted Speed Limit (mph) =	45

Is a Traffic Signal Located on Major Street Within 1/4 mi of intersection? (Enter 1 if yes; 0 if no)	1
---	---

#### Output

Estimated Maximum Queue	2	vehicles
Estimated Maximum Storage Length	50	feet



Project No OC06-0030 Page No \_\_\_\_\_  
 Subject UCSD  
La Jolla, CA  
 Date 7/27/2006

Computed by ML

### Maximum Queue Estimation for: Minor Street Right-Turn

**Movement:** Egress onto SB Torrey Pines Rd.  
**Major Street:** Torrey Pines Rd.  
**Minor Street:** Parcel 4 Driveway  
**Conditions:** Parcels 1-4 Buildout - Left Turn In, Right Out - AM

#### Input Data

Subject Approach	
Traffic Volume (vph) =	5
PHF=	0.94

Major Street	
Conflicting Traffic Volume (vph) =	799
PHF=	0.94
Conflicting Number of Through Lanes	1
Posted Speed Limit (mph)=	45

Is a Traffic Signal Located on Major Street Within 1/4 mi of intersection? (Enter 1 if yes; 0 if no)	1
---	---

#### Output

Estimated Maximum Queue	2	vehicles
Estimated Maximum Storage Length	50	feet



Project No OC06-0030 Page No \_\_\_\_\_  
 Subject UCSD  
La Jolla, CA  
 Date 7/27/2006

Computed by ML

### Maximum Queue Estimation for: Minor Street Right-Turn

**Movement:** Egress onto SB Torrey Pines Rd.  
**Major Street:** Torrey Pines Rd.  
**Minor Street:** Parcel 4 Driveway  
**Conditions:** Parcels 1-4 Buildout - Right In, Right Out - AM

#### Input Data

Subject Approach	
Traffic Volume (vph) =	5
PHF=	0.94

Major Street	
Conflicting Traffic Volume (vph) =	846
PHF=	0.94
Conflicting Number of Through Lanes	1
Posted Speed Limit (mph)=	45

Is a Traffic Signal Located on Major Street Within 1/4 mi of intersection? (Enter 1 if yes; 0 if no)	1
---	---

#### Output

Estimated Maximum Queue	2	vehicles
Estimated Maximum Storage Length	50	feet



Project No OC06-0030 Page No \_\_\_\_\_  
 Subject UCSD  
La Jolla, CA  
 Date 7/27/2006

Computed by ML

### Maximum Queue Estimation for: Minor Street Right-Turn

**Movement:** Egress from Parcel 4 onto SB Torrey Pines Rd.  
**Major Street:** Torrey Pines Rd.  
**Minor Street:** Parcel 4 Driveway  
**Conditions:** Parcel 4 Buildout - Left Turn In, Right Out - PM

#### Input Data

Subject Approach	
Traffic Volume (vph) =	45
PHF =	0.94

Major Street	
Conflicting Traffic Volume (vph) =	1245
PHF =	0.94
Conflicting Number of Through Lanes	1
Posted Speed Limit (mph) =	45

Is a Traffic Signal Located on Major Street Within 1/4 mi of intersection? (Enter 1 if yes; 0 if no)	1
---	---

#### Output

Estimated Maximum Queue	4	vehicles
Estimated Maximum Storage Length	100	feet



Project No OC06-0030 Page No \_\_\_\_\_  
 Subject UCSD  
La Jolla, CA  
 Date 7/27/2006

Computed by ML

### Maximum Queue Estimation for: Minor Street Right-Turn

**Movement:** Egress from Parcel 4 to SB Torrey Pines Rd.  
**Major Street:** Torrey Pines Rd.  
**Minor Street:** Parcel 4 Driveway  
**Conditions:** Parcel 4 Buildout - Right In, Right Out - PM

#### Input Data

Subject Approach	
Traffic Volume (vph) =	45
PHF =	0.94

Major Street	
Conflicting Traffic Volume (vph) =	1247
PHF =	0.94
Conflicting Number of Through Lanes	1
Posted Speed Limit (mph) =	45

Is a Traffic Signal Located on Major Street Within 1/4 mi of intersection? (Enter 1 if yes; 0 if no)	1
---	---

#### Output

Estimated Maximum Queue	4	vehicles
Estimated Maximum Storage Length	100	feet



Project No OC06-0030 Page No \_\_\_\_\_  
 Subject UCSD  
La Jolla, CA  
 Date 7/27/2006

Computed by ML

### Maximum Queue Estimation for: Minor Street Right-Turn

**Movement:** Egress onto SB Torrey Pines Rd.  
**Major Street:** Torrey Pines Rd.  
**Minor Street:** Parcel 4 Driveway  
**Conditions:** Parcels 1-4 Buildout - Left Turn In, Right Out - PM

#### Input Data

Subject Approach	
Traffic Volume (vph) =	40
PHF =	0.94

Major Street	
Conflicting Traffic Volume (vph) =	1250
PHF =	0.94
Conflicting Number of Through Lanes	1
Posted Speed Limit (mph) =	45

Is a Traffic Signal Located on Major Street Within 1/4 mi of intersection? (Enter 1 if yes; 0 if no)	1
---	---

#### Output

Estimated Maximum Queue	4	vehicles
Estimated Maximum Storage Length	100	feet



Project No OC06-0030 Page No \_\_\_\_\_  
 Subject UCSD  
La Jolla, CA  
 Date 7/27/2006

Computed by ML

### Maximum Queue Estimation for: Minor Street Right-Turn

**Movement:** Egress onto SB Torrey Pines Rd.  
**Major Street:** Torrey Pines Rd.  
**Minor Street:** Parcel 4 Driveway  
**Conditions:** Parcels 1-4 Buildout - Right In, Right Out - PM

#### Input Data

Subject Approach	
Traffic Volume (vph) =	40
PHF =	0.94

Major Street	
Conflicting Traffic Volume (vph) =	1255
PHF =	0.94
Conflicting Number of Through Lanes	1
Posted Speed Limit (mph) =	45

Is a Traffic Signal Located on Major Street Within 1/4 mi of intersection? (Enter 1 if yes; 0 if no)	1
---	---

#### Output

Estimated Maximum Queue	4	vehicles
Estimated Maximum Storage Length	100	feet

---

## **Attachment D**

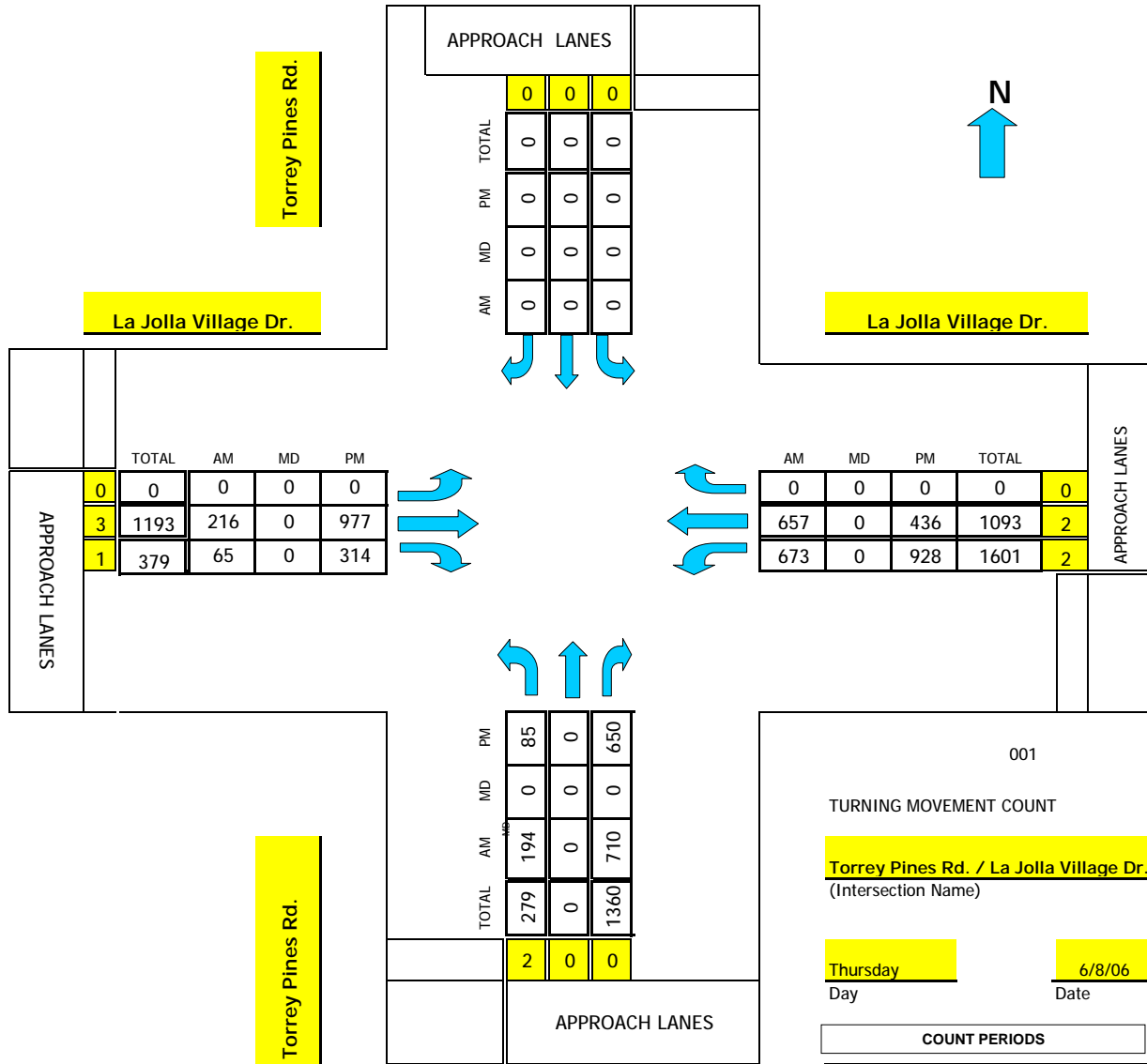
### Intersection Traffic Counts

**Note:**

Attachment D contains the raw traffic count sheets. The volumes shown in the figures have been manually balanced between adjacent intersections as part of nearby University-related projects.

**TMC Summary of Torrey Pines Rd./La Jolla Village Dr.**

Project #: 06-4132-004



AM PEAK HOUR 800 AM  
 NOON PEAK HOUR 0 AM  
 PM PEAK HOUR 430 PM

# Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Torrey Pines Rd.

DATE: 06/08/2006

LOCATION: City of La Jolla

E-W STREET: La Jolla Village Dr.

DAY: THURSDAY

PROJECT# 06-4132-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	18		93					25	14	227	84		461
7:15 AM	22		179					38	13	148	113		513
7:30 AM	45		198					35	9	125	138		550
7:45 AM	63		192					51	10	168	170		654
8:00 AM	45		157					46	16	170	162		596
8:15 AM	41		188					37	12	178	144		600
8:30 AM	54		207					57	18	145	172		653
8:45 AM	54		158					76	19	180	179		666
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	342	0	1372	0	0	0	0	365	111	1341	1162	0	4693

AM Peak Hr Begins at: 800 AM

PEAK VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	194	0	710	0	0	0	0	216	65	673	657	0	2515
PEAK HR. FACTOR:	0.866				0.000			0.739		0.926			0.944

CONTROL: Signalized



# Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: **Torrey Pines Rd.**

DATE: **06/08/2006**

LOCATION: **City of La Jolla**

E-W STREET: **La Jolla Village Dr.**

DAY: **THURSDAY**

PROJECT# **06-4132-004**

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	2	0	0	0	0	0	0	3	1	2	2	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	19		160					198	69	214	124		784
4:15 PM	19		166					190	68	245	110		798
4:30 PM	25		158					222	73	236	123		837
4:45 PM	22		150					223	89	206	103		793
5:00 PM	19		187					273	74	228	123		904
5:15 PM	19		155					259	78	258	87		856
5:30 PM	19		206					202	70	213	118		828
5:45 PM	25		165					172	75	224	126		787
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	167	0	1347	0	0	0	0	1739	596	1824	914	0	6587

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	85	0	650	0	0	0	0	977	314	928	436	0	3390
PEAK HR. FACTOR:		0.892			0.000			0.930			0.950		0.938

CONTROL: **Signalized**

City: SAN DIEGO  
 N-S Direction: TORREY PINES ROAD  
 E-W Direction: GLENBROOK WAY

File Name : H0702013  
 Site Code : 00003871  
 Start Date : 2/7/2007  
 Page No : 1

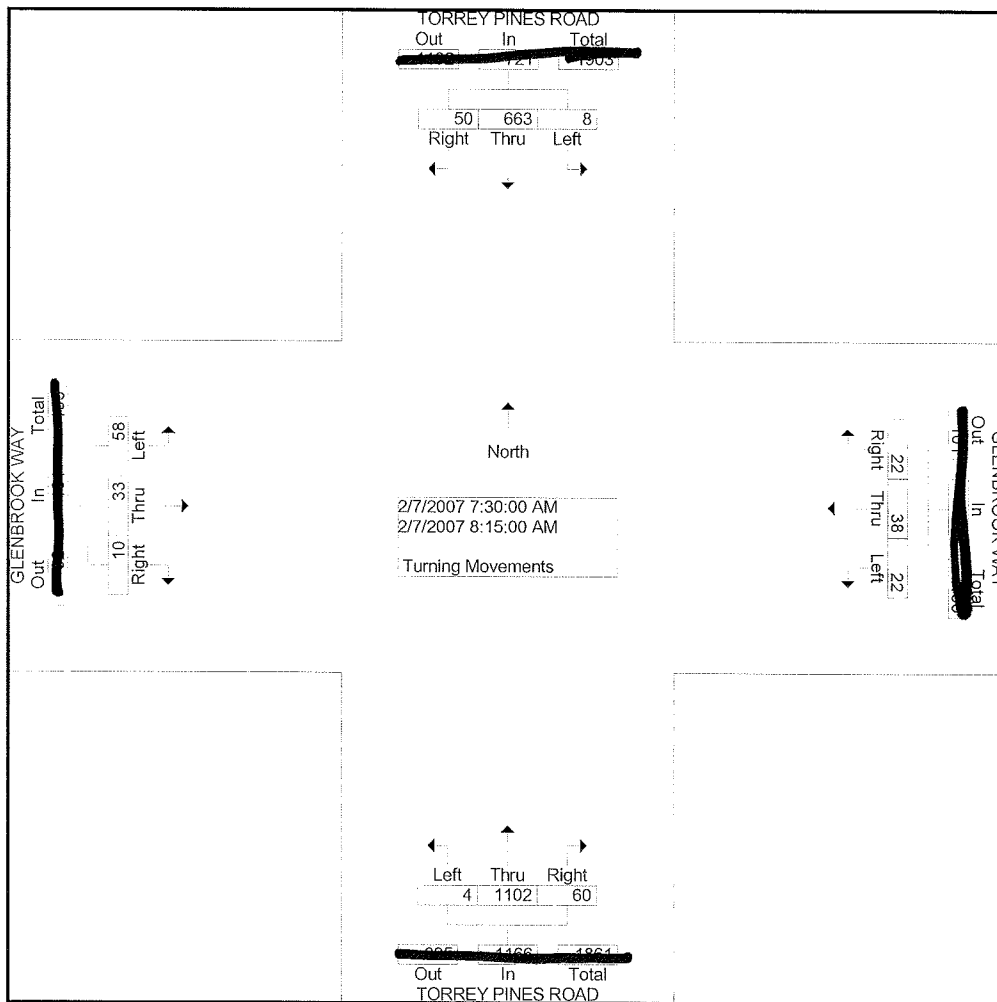
Groups Printed- Turning Movements

Start Time	TORREY PINES ROAD Southbound			GLENBROOK WAY Westbound			TORREY PINES ROAD Northbound			GLENBROOK WAY Eastbound			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	9	247	3	3	8	12	5	147	0	2	2	9	447
07:15 AM	8	145	4	5	4	7	12	205	3	1	4	13	411
07:30 AM	10	147	3	5	7	4	18	297	1	2	16	16	526
07:45 AM	10	162	2	9	14	6	16	309	1	1	9	18	557
Total	37	701	12	22	33	29	51	958	5	6	31	56	1941
08:00 AM	15	155	0	7	4	7	13	234	1	2	4	15	457
08:15 AM	15	199	3	1	13	5	13	262	1	5	4	9	530
08:30 AM	7	166	4	8	7	6	20	250	0	4	5	16	493
08:45 AM	9	166	4	4	8	12	32	239	2	2	17	14	509
Total	46	686	11	20	32	30	78	985	4	13	30	54	1989
*** BREAK ***													
04:00 PM	19	217	8	5	8	4	11	188	1	3	8	20	492
04:15 PM	11	250	7	3	9	3	5	164	1	4	9	19	485
04:30 PM	11	263	5	3	4	2	11	218	2	1	11	13	544
04:45 PM	22	300	15	4	9	5	12	162	1	1	8	16	555
Total	63	1030	35	15	30	14	39	732	5	9	36	68	2076
05:00 PM	22	277	8	1	10	5	15	143	1	2	9	15	508
05:15 PM	27	302	9	2	9	6	6	156	0	1	8	24	550
05:30 PM	27	306	14	2	9	4	12	166	3	0	8	12	563
05:45 PM	12	263	1	5	9	6	6	168	3	1	5	21	500
Total	88	1148	32	10	37	21	39	633	7	4	30	72	2121
Grand Total	234	3565	90	67	132	94	207	3308	21	32	127	250	8127
Apprch %	6.0	91.7	2.3	22.9	45.1	32.1	5.9	93.6	0.6	7.8	31.1	61.1	
Total %	2.9	43.9	1.1	0.8	1.6	1.2	2.5	40.7	0.3	0.4	1.6	3.1	

AM 2070/2028  
 PHF = 0.93

PM 2176/2252 = 0.97  
 PHF = 0.97

Start Time	TORREY PINES ROAD Southbound				GLENBROOK WAY Westbound				TORREY PINES ROAD Northbound				GLENBROOK WAY Eastbound				Int. Total	
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total		
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																		
Intersection	07:30 AM																	
Volume	50	663	8	721	22	38	22	82	60	1102	4	1166	10	33	58	101	2070	
Percent	6.9	92.0	1.1		26.8	46.3	26.8		5.1	94.5	0.3		9.9	32.7	57.4			
07:45																		
Volume	10	162	2	174	9	14	6	29	16	309	1	326	1	9	18	28	557	
Peak Factor	0.929																	
High Int.	08:15 AM																	
Volume	15	199	3	217	07:45 AM				07:45 AM				07:30 AM					
Peak Factor	0.831								0.707				0.894				0.743	



Start Time	TORREY PINES ROAD Southbound				GLENBROOK WAY Westbound				TORREY PINES ROAD Northbound				GLENBROOK WAY Eastbound				Int. Total			
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total				
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																				
Intersection	04:45 PM																			
Volume	98	1185	46	1329	9	37	20	66	45	627	5	677	4	33	67	104	2176			
Percent	7.4	89.2	3.5		13.6	56.1	30.3		6.6	92.6	0.7		3.8	31.7	64.4					
05:30																				
Volume	27	306	14	347	2	9	4	15	12	166	3	181	0	8	12	20	563			
Peak Factor																				
High Int.	05:30 PM																			
Volume	27	306	14	347	4	9	5	18	12	166	3	181	1	8	24	33	0.966			
Peak Factor	0.957								0.917				0.935				0.788			

