All Peoples Church
City of San Diego (PTS 636444)
Northeast corner of College Ave at Interstate 8
August 12, 2020
Revised March 2, 2022

Local Mobility Analysis Report

Prepared for:

All Peoples Church
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Table of Contents

List of Figures

List of Tables

Appendices

Executive Summary
All Peoples Church

All Peoples Church is proposed on the northeast corner of I-8 and College Avenue with a sanctuary capacity of 900 seats (587 fixed seats and 3,690 s.f. of non-fixed seats). The site with residential zoning RS-1-7 on approximately 6 acres is vacant. The project site currently has no vehicular access and frontage only along College Avenue. Project access is proposed from a signalized main driveway and a secondary right-in/right-out driveway, both on College Avenue. Project opening is forecasted to occur in 2022. The following discretionary approvals are required as part of the project:

1) Community Plan Amendment
2) Planned Development Permit
3) Site Development Permit
4) Vacation of Easements and Slope Rights

This Local Mobility Analysis (LMA) determines if there are any traffic effects caused by the project traffic that would trigger roadway and other multi-modal improvements or a fair share participation. The LMA is based on the City of San Diego *Transportation Study Manual*, September 29, 2020 and includes the analysis of pedestrian, bicycle, transit, and vehicular facilities.

Pedestrian facilities within the ½ mile walking distance from the project were evaluated. Intersection curb ramps were missing at the following locations:

1) Chrismark Ave/Wenrich Dr
2) Rockhurst Ct/Rockhurst Dr
3) Rockhurst Dt/Lambda Dr
4) Rockhurst Dr/Romany Dr (N. and E. Corners only)
5) Theta Pl/Romany Dr
6) Arno Dr/Capri Dt
7) Arno Dr/ Helena Pl

There were missing sidewalks at the following locations:

1) College Ave along the western side of the roadway from approximately 150 feet south of Del Cerro Blvd to Canyon Crest Dr/Alvarado Rd. There are no pedestrian access points to the adjacent parcels along this segment. Additionally, the College Ave bridge over I-8 does not have a sidewalk on the western side of the roadway.
2) Alvarado Rd extending east of College Ave.

As part of the project, the following pedestrian improvements will be constructed along the project's frontage on College Avenue. From the northern project boundary down to the proposed signalized main project driveway, a non-contiguous sidewalk will be installed with a transition to the existing contiguous sidewalk north of the project. From the proposed signalized main project driveway down to the southern project boundary, a 12-foot shared path consisting of a 6-foot bike path and a 6-foot pedestrian path will be installed outside of the vehicular traveled way.

Bicycle facilities within a ½ mile bicycling distance from the project were evaluated. No bike lanes nor bike routes were observed within ½ mile of the project access points. As part of the

project, the following bicycle improvements will be constructed along the project's frontage on College Avenue. From the northern project boundary down to the proposed signalized main project driveway, a buffered Class II bike lane will be installed. From the proposed signalized main project driveway down to the southern project boundary, a 12-foot shared path consisting of a 6-foot bike path and a 6-foot pedestrian path will be installed outside of the vehicular traveled way.

Transit facilities within a ½ mile walking distance which included four bus stops were evaluated. Two on College Avenue just north of Del Cerro Boulevard and two on College Ave just south of Alvarado Road. Metropolitan Transit System (MTS) lists Bus Routes 14 and 115 within ½ mile walking distance from the project access. Bus Route 14 has 60-minute headways listed for the AM and PM peak hours and Bus Route 115 has 30-minute headways listed for the AM and PM peak hours. On Sunday, Bus Route 14 does not have service and Bus Route 115 has 60-minute headways through the day. The San Diego State University trolley station is approximately 5,000 feet (just under 1 mile) walking distance from the project pedestrian access point.

Vehicular facilities included the analysis of four (4) intersections, and three (3) roadway segments under Near-Term Opening Day (Year 2022) and Horizon Year 2050 conditions for weekday conditions. For the Sunday scenario, five (5) intersections and three (3) roadway segments were analyzed under near-term and horizon year conditions. A horizon year 2050 analysis is included because the project is proposing a Community Plan Amendment.

The City of San Diego Vision Zero policy promotes safe roadway design with a goal toward preventing collisions. As part of that goal, a systemic safety review provides an assessment of hotspots and possible countermeasures to align with Vision Zero. City staff identified the intersection of College Ave and Del Cerro Blvd as appearing on the City's hot spot map for pedestrians. A review of the accident history for the latest available five years (2015-2019) at the intersection of College Ave and Del Cerro Blvd concluded that no specific pattern of pedestrian-vehicle accidents was found for the study period; therefore, the project proposes no changes at this location.

The 95th percentile vehicle queues were calculated at the following locations using SimTraffic 10 software.

The freeway westbound off-ramp at College Ave under Sunday conditions was calculated to have a 95th percentile queue of 164 feet under near-term + project conditions and 171 feet under horizon year + project conditions that can be accommodated within the existing off-ramp storage length of approximately 1,220 feet.

The freeway eastbound off-ramp at College Ave under Sunday conditions was calculated to have a 95th percentile queue of 421 feet under near-term + project conditions and 624 feet under horizon year + project conditions that can be accommodated within the existing off-ramp storage length of approximately 750 feet.

The proposed signalized Main Access on College Ave has a 95th percentile southbound left turn queue calculated between 10 feet and 47 feet (depending on the scenario) that can be accommodated within the proposed left turn lane with a storage length of 130 feet. The 95th percentile northbound right turn queue was calculated at 157 feet under Sunday AM conditions that can be accommodated within the proposed right turn lane with a storage length of 360 feet. The northbound through lane has a 95th percentile queue calculated between 19

feet and 242 feet (depending on the scenario) that does not spill back to the adjacent intersection approximately 650 feet away. The southbound through lane has a 95th percentile queue calculated between 110 feet and 359 feet (depending on the scenario) that does not spill back to the adjacent intersection approximately 500 feet away.

The intersection of College Ave at Del Cerro Blvd has a 95th percentile northbound left turn queue of 118 feet under Sunday near-term + project conditions and 132 feet under Sunday horizon year + project conditions, which exceed the available storage length of approximately 75 feet. However, the addition of project traffic does not cause the forecasted 95th percentile queue to exceed the available storage. The addition of Sunday project traffic is calculated to extend the northbound left turn queue by 0 feet under near-term conditions and 5 feet under horizon year conditions. The northbound through lanes 95th percentile with project queues are calculated between 197 feet and 305 feet (depending on the scenario) that can be accommodated within the available storage of approximately 550 feet from the stop bar at Del Cerro Blvd and the proposed main signalized Church driveway.

The project's forecasted traffic generation was based on the higher trip generation rates between the City of San Diego *Trip Generation Manual*, May 2003 and site-specific trip generation rates calculated from the existing All Peoples Church currently operating at 5555 University Avenue in San Diego. The weekday trip generation is calculated at 280 ADT with 31 AM peak hour trips (31 inbound and 0 outbound) and 107 PM peak hour trips (76 inbound and 31 outbound). The Sunday trip generation (based on a maximum occupancy of 900 seats) is calculated at 1,976 ADT with 690 Sunday peak hour trips (378 outbound after the 10 AM service) and 312 inbound (from the 11:30 AM service).

Under Near-Term Opening Day (Year 2022) with Project Conditions, the project would add more than 50 peak hour turn moves or more than 500 daily trips to the study locations forecasted to operate at LOS E/F at the following locations:

1) College Ave/Main Project Access (LOS F Weekday PM and Sunday AM). The project would add more than 50 peak hour trips to this intersection and the applicant proposes to install a traffic signal to provide acceptable LOS.

2) College Ave between Project Main Access and I-8 WB Ramps (LOS E Sunday). The project would add more than 500 Sunday only trips to this segment and less than 500 Weekday trips; therefore, no roadway improvements are proposed because this additional Sunday project traffic would not be added during typical Monday through Friday commuter periods.

3) College Ave between I-8 WB and EB Ramps (LOS F Sunday). The project would add more than 500 Sunday only trips to this segment and less than 500 Weekday trips; therefore, no roadway improvements are proposed because this additional Sunday project traffic would not be added during typical Monday through Friday commuter periods.

Under Horizon Year 2050 with Project Conditions, the project would add more than 50 peak hour turn moves or more than 500 daily trips to the study locations forecasted to operate at LOS E/F:

1) College Ave/Main Project Access (LOS F Weekday PM and Sunday AM). The project would add more than 50 peak hour trips to this intersection and the applicant proposes to install a traffic signal to provide acceptable LOS.

2) College Ave between Project Main Access and I-8 WB Ramp (LOS E Sunday). The project would add more than 500 Sunday only trips to this segment and less than 500 Weekday trips; therefore, no roadway improvements are proposed because the Sunday project traffic would not be added during typical Monday through Friday commuter periods.

3) College Ave between I-8 WB and EB Ramps (LOS F Sunday). The project would add more than 500 Sunday only trips to this segment and less than 500 Weekday trips; therefore, no roadway improvements are proposed because the Sunday project traffic would not be added during typical Monday through Friday commuter periods.

As part of the project, the Owner/Permittee will install a traffic signal and associated median improvements at the Project Main Access on College Ave. The California MUTCD rev5 Warrant 3, Part B (Peak Hour) warrant is satisfied under Opening Day (Year 2022) Plus Project Sunday conditions. Prior to issuance of the first building permit, Owner/Permittee shall assure by permit and bond the construction of a traffic signal and associated communication equipment, satisfactory to the City Engineer. All Improvements shall be completed and operational prior to first occupancy.

1.0 Introduction

All Peoples Church is proposed on the northeast corner of I-8 and College Avenue with a sanctuary capacity of 900 seats (587 fixed seats and 3,690 s.f. of non-fixed seats). The site with residential zoning RS-1-7 on approximately 6 acres is vacant. The project site currently has no vehicular access and frontage only along College Avenue. The location of the project is shown in **Figure 1** with a preliminary site plan shown in **Figure 2**. Project access is from a proposed signalized main driveway and a proposed secondary right-in/right-out driveway, both on College Avenue. Project opening is forecasted to occur in 2022. The following discretionary approvals are required as part of the project:

1) Community Plan Amendment
2) Planned Development Permit
3) Site Development Permit
4) Vacation of Easements and Slope Rights

This Local Mobility Analysis (LMA) determines if there are any traffic effects caused by the project traffic that would justify roadway improvements or fair share participation. The format of this study includes the following chapters:

1.0 Introduction
2.0 Project Description
3.0 Local Mobility Analysis Methodology
4.0 Pedestrian Analysis
5.0 Bicycle Analysis
6.0 Transit Analysis
7.0 Systemic Safety Review
8.0 Traffic Analysis
9.0 Conclusions

Figure 1: Project Location

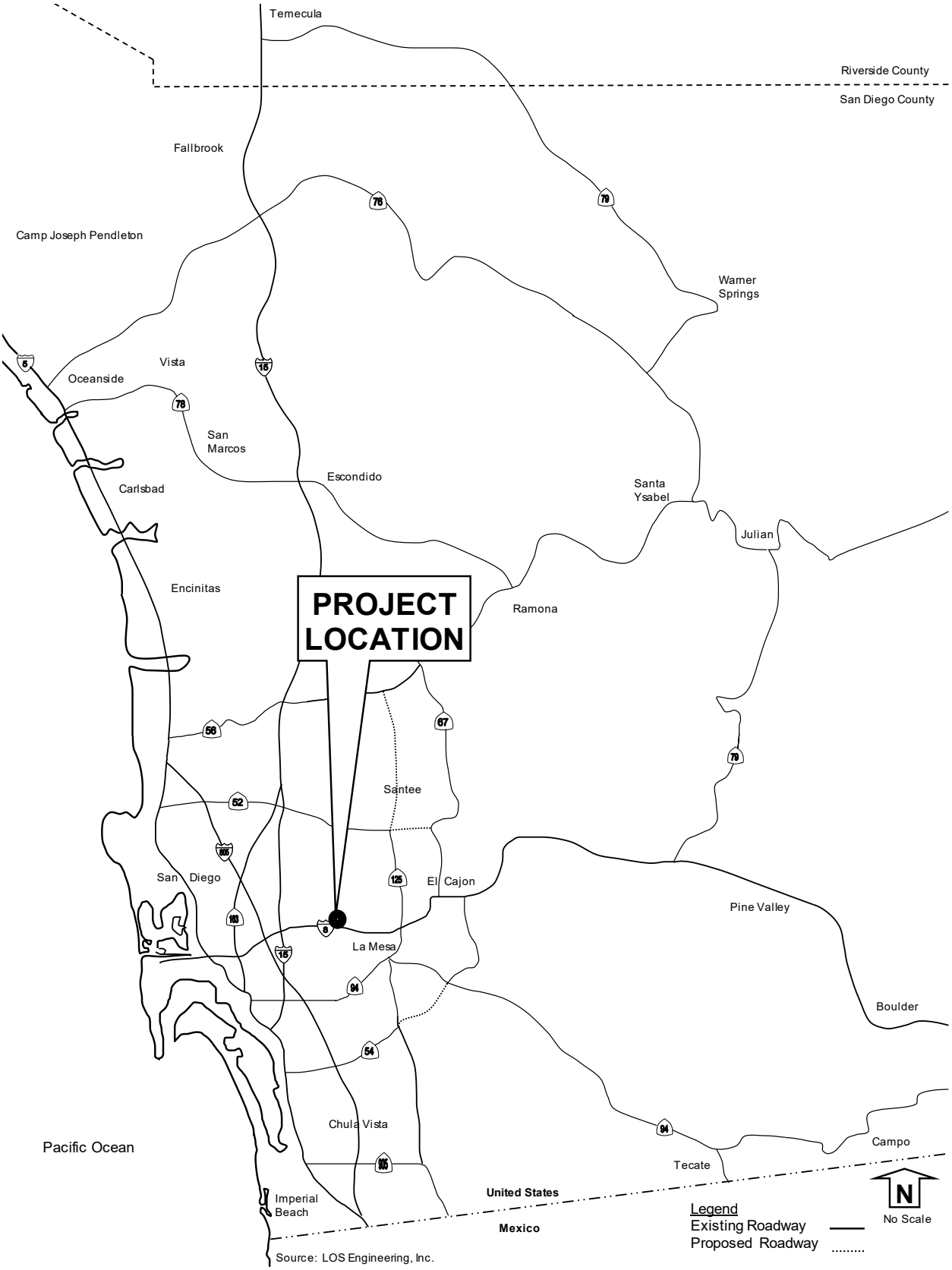
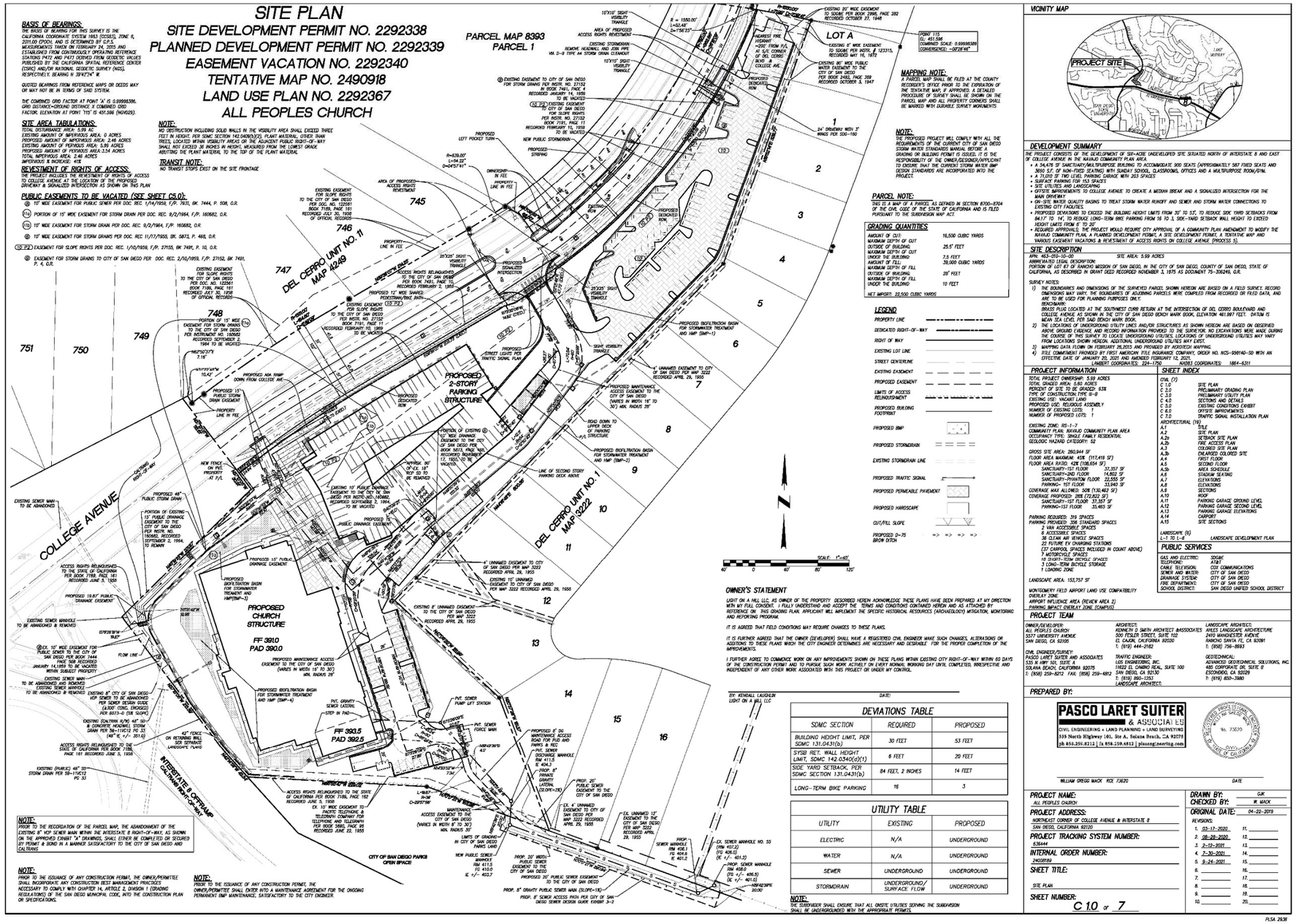


Figure 2: Site Plan



Source: PLSA

2.0 Project Description

All Peoples Church is proposed on the northeast corner of I-8 and College Avenue with a sanctuary capacity of 900 seats (587 fixed seats and 3,690 s.f. of non-fixed seats). The site with residential zoning RS-1-7 on approximately 6 acres is vacant.

The project site currently has no vehicular access and frontage only along College Avenue. Project access is from a proposed signalized main driveway and a proposed secondary right-in/right-out driveway, both on College Avenue.

The following discretionary approvals are required as part of the project:

1) Community Plan Amendment
2) Planned Development Permit
3) Site Development Permit
4) Vacation of Easements and Slope Rights

3.0 Local Mobility Analysis Methodology

The City of San Diego *Transportation Study Manual* states that all projects must complete a Local Mobility Analysis (LMA) unless they meet the following trip generation screening criteria:

1) Land uses consistent with the Community Plan/Zoning Designation: Generate less than 1,000 daily unadjusted driveway vehicle trips,

2) Land uses inconsistent with the Community Plan/Zoning Designation: Generate less than 500 daily unadjusted driveway vehicle trips, or

3) Projects in the Downtown Community Planning Area that generate less than 2,400 daily unadjusted trips.

The project requires a Planned Development Permit because the proposed Church is not allowed by the existing RS-1-7 zone, but would be an allowed use upon approval of a Community Plan amendment (CP). Thus, the LMA criteria is applied for projects inconsistent with CP (500 or more daily trips). As shown in Section 8.4.2, the Church is calculated to generate 1,976 daily Sunday trips; therefore, an LMA is required.

The extent of the LMA is based on each mode as follows:

1) Pedestrian: Documentation of pedestrian facilities and basic deficiencies (missing sidewalk, curb ramps, and major obstructions) within ½ walking distance measured from each pedestrian access point to a public street.

2) Bicycle: Documentation of bicycle facilities and basic deficiencies (bike lane gaps, obstructions) within ½ mile bicycling distance measured from the center of the intersection formed by each project driveway.

3) Transit: Identification of the closest transit routes and stops to the project. If the transit stops are within ½ mile walking distance of each pedestrian access point, the condition of the stop amenities must be described/evaluated.

4) Intersection Operations (projects with < 2,400 daily final driveway trips):

    a. Signalized intersections within ½ mile path of travel from the project driveway AND the project will add 50 or more peak hour trips to any TURNING movement.

    b. Un-signalized intersections within ½ mile path of travel from the project driveway AND the project will add 50 or more peak hour trips to any EITHER direction.

    c. Freeway ramp intersections where a project adds 50 or more peak hour trips regardless of their distance from the project site.

5) Roadway Segments: The study area should include any roadway segments where the project adds > 1,000 daily final driveway trips if consistent with the Community Plan, or > 500 daily final driveway trips if inconsistent with the Community Plan AND: the segment has improvements identified in the Community Plan; OR the segment is not built to the Community Plan ultimate classification (including planned new circulation element roadways).

3.1 Local Mobility Analysis Study Area

The study area is based on a ½ mile walking, biking, or driving distance from the project driveway and access points on College Avenue. The study elements and areas included:

Pedestrian Facilities

All public streets within ½ mile walking distance of the project pedestrian access points on College Ave.

Bicycle Facilities

1) College Ave approximately ½ mile north of project northerly driveway and ½ south of main project driveway.
2) Del Cerro Blvd approximately ½ mile east and west of project northerly driveway.

Transit Facilities

1) The transit study included four bus stops within ½ mile walking distance. Two are on College Avenue just north of Del Cerro Boulevard and two are on College Ave just south of Alvarado Road.

Systemic Safety Review Facilities

The study area included the following intersection on the City Hotspot Map for pedestrians:

1) College Ave/Del Cerro Blvd

Vehicular Facilities

The study area included the following intersections:

1) College Ave/Del Cerro Blvd for the weekday and Sunday analysis. While the project is not expected to add >50 peak hour project turning movements for either a weekday or Sunday at this location, it was included due to its location relative to the project.
2) College Ave/North Project Access for the weekday and Sunday analysis. This location was included to ensure all project access points were analyzed.
3) College Ave/Main Project Access for the weekday and Sunday analysis (project forecasted to add > 50 peak hour turning movements).
4) College Ave/I-8 WB Ramps for the weekday and Sunday analysis (project forecasted to add > 50 peak hour turning movements only on Sunday; however, weekday peak hours included to support the project review).
5) College Ave/I-8 EB Ramps for the Sunday analysis (project forecasted to add > 50 peak hour turning movements).

The study area included the following street segments for the weekday analysis:

1) College between Del Cerro Blvd and Project Main Access (location relative to the project)
2) College between Project Main Access and I-8 WB Ramps (location relative to the project)
3) College between I-8 WB Ramps and I-8 EB Ramps (location relative to the project)

The study area included the following street segments for the Sunday analysis:

1) College between Del Cerro Blvd and Project Main Access (location relative to the project)
2) College between Project Main Access and I-8 WB Ramps (>500 ADT)
3) College between I-8 WB Ramps and I-8 EB Ramps (> 500 ADT)

The study area included the following freeway off-ramps for queuing analysis where the project added > 50 peak hour trips:

1) College Ave at I-8 WB Off-Ramp during the Sunday AM peak hour.
2) College Ave at I-8 EB Off-Ramp during the Sunday AM peak hour.

The study included a queuing analysis for the proposed signalized Main Access at College Ave during Weekday AM, Weekday PM, and Sunday AM peak hour scenarios under with project conditions. At the request of City staff, queueing was analyzed for the intersection of College Ave/Del Cerro Blvd even though the project adds well under the typical 50 peak hour trips used to determine a study location.

The Local Mobility Analysis study area is shown in **Figure 3**.

Figure 3: Local Mobility Analysis Study Area

Legend

- Approximate ½ mile extent from project access points
- Sunday and Weekday Study Segments
- Sunday Study Intersections
- Weekday and Sunday Study Intersections
- (B) Bus Stops
- (P) Project Pedestrian Access

4.0 Pedestrian Analysis

The pedestrian analysis consists of documenting existing pedestrian facilities and basic deficiencies such as missing sidewalk sections, curb ramps, and major obstructions within ½ mile walking distance from the project access.

Intersection curb ramps were missing at the following locations:

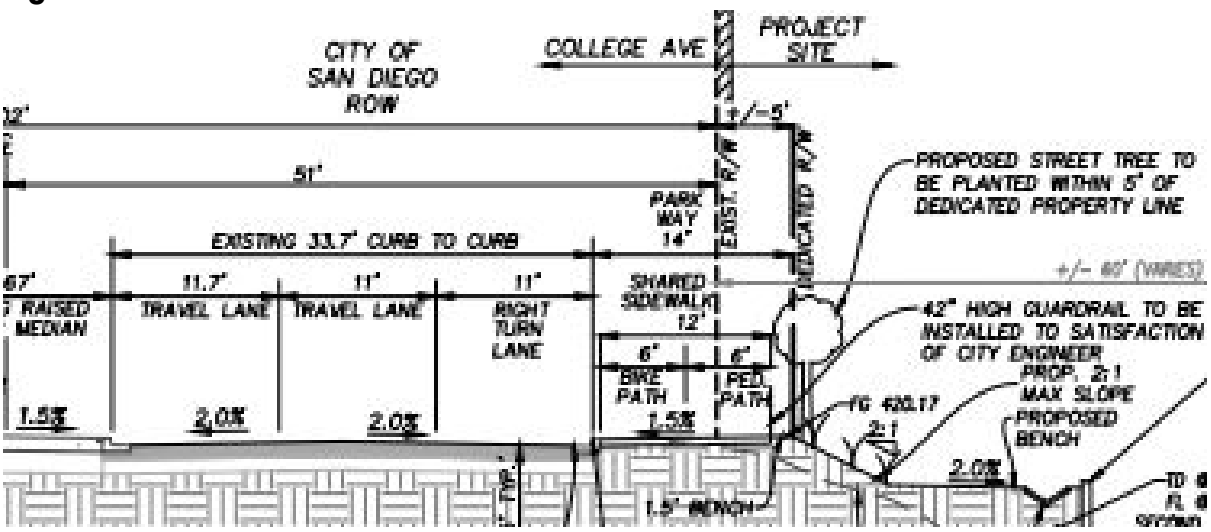
1) Chrismark Ave/Wenrich Dr
2) Rockhurst Ct/Rockhurst Dr
3) Rockhurst Dt/Lambda Dr
4) Rockhurst Dr/Romany Dr (N. and E. Corners only)
5) Theta Pl/Romany Dr
6) Arno Dr/Capri Dt
7) Arno Dr/ Helena Pl

There were missing sidewalks at the following locations:

1) College Ave along the western side of the roadway from approximately 150 feet south of Del Cerro Blvd to Canyon Crest Dr/Alvarado Rd. There are no pedestrian access points to the adjacent parcels along this segment. Additionally, the College Ave bridge over I-8 does not have a sidewalk on the western side of the roadway.
2) Alvarado Rd extending east of College Ave.

As part of the project, the following pedestrian improvements will be constructed along the project's frontage on College Avenue. From the northern project boundary down to the proposed signalized main project driveway, a non-contiguous sidewalk will be installed with a transition to the existing contiguous sidewalk north of the project. From the proposed signalized main project driveway down to the southern project boundary, a 12-foot shared path consisting of a 6-foot bike path and a 6-foot pedestrian path will be installed. A cross section of the shared path is shown in **Figure 4.**

Figure 4: Shared Path Cross Section



The existing pedestrian facility study area and deficiencies are shown in **Figure 5**.

Figure 5: Pedestrian Local Mobility Analysis Conditions

Legend

Approximate ½ mile extent from project access points

P Project Pedestrian Access

5.0 Bicycle Analysis

The bicycle analysis consists of documenting existing bicycle facilities and basic deficiencies such bike lane gaps or obstructions within a ½ mile bicycling distance from the project access along the study roadways.

Existing Bicycle Lanes and Routes

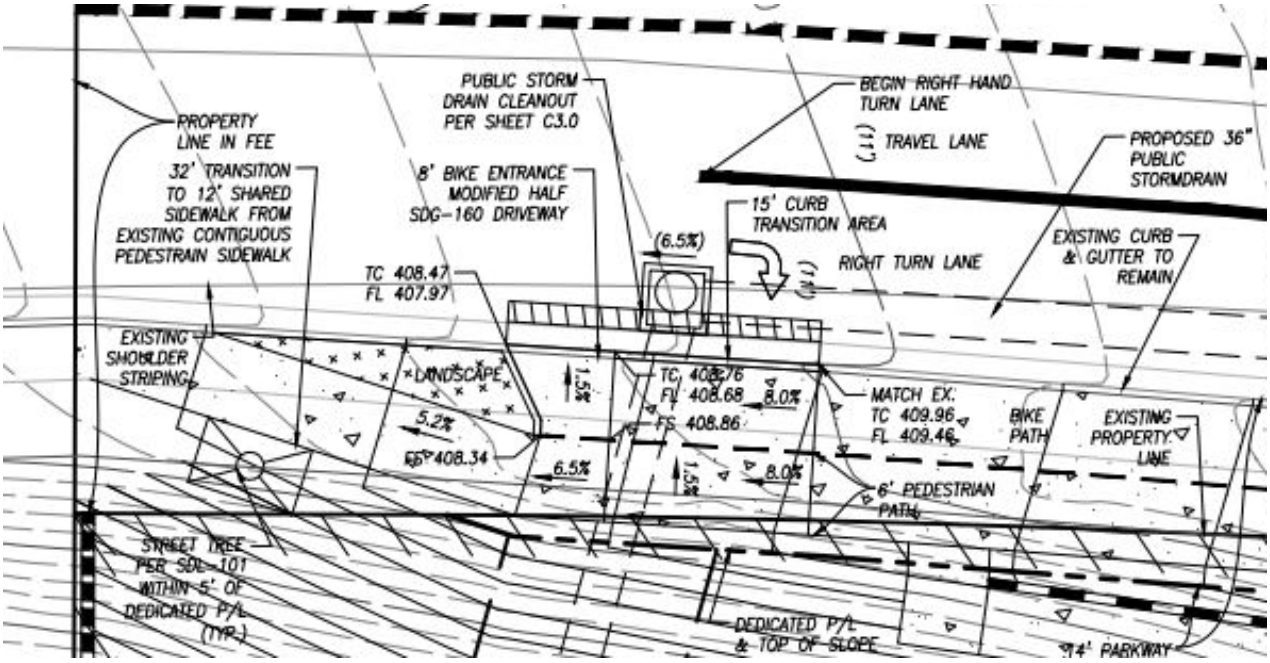
No bike lanes nor bike routes were observed within ½ mile of the project access points.

Proposed Bicycle Lanes and Routes

According to the City of San Diego *Bicycle Master Plan Update*, July 2013, there are proposed Class II or Class III bike network classifications on College Avenue within a ½ mile of the project access points. The Navajo Community Plan describes a proposed Class III bike route along Del Cerro and a Class II bike route along College Ave within a ½ mile of the proposed project access points. Excerpts from the City of San Diego *Bicycle Master Plan Update* and the Navajo Community Plan are included in **Appendix A**.

As part of the project, the following bicycle improvements will be constructed along the project's frontage on College Avenue. From the northern project boundary down to the proposed signalized main project driveway, a buffered Class II bike lane will be installed. From the proposed signalized main project driveway down to the southern project boundary, a 12-foot shared path consisting of a 6-foot bike path and a 6-foot pedestrian path will be installed. The transition of the bicycle path to the shared path is shown in **Figure 6.**

Figure 6: Shared Path Bicycle Transition



The proposed bike lanes and route are shown in **Figure 7**.

Figure 7: Bicycle Local Mobility Analysis Conditions

LEGEND

Proposed Class III – Bike Route

Proposed Class II or III

6.0 Transit Analysis

The transit analysis includes identifying the closest transit routes and stops to the project. If the stops are within ½ mile walking distance of the project access, the condition of the stop amenities must be describe/evaluated.

Metropolitan Transit System (MTS) lists Bus Routes 14 and 115 within ½ mile walking distance from the project access. There are four bus stops within the ½ mile walking distance, of which two are on College Avenue just north of Del Cerro Boulevard and two are on College Ave just south of Alvarado Road.

> Route 14 has Monday through Friday service starting around 6:00 AM and ending around 7:00 PM with headways of approximately 60 minutes. Route 14 does not have Saturday nor Sunday service.
>
> Route 115 has Monday through Friday service starting around 6:15 AM and ending around 10:00 PM with approximately 30-minute headways. Saturday service starts around 7:00 AM and ends around 9:00 PM with approximately headways of 60 minutes. Sunday service starts around 7:00 AM and ends around 6:30 PM with approximately headways of 60 minutes.

The San Diego State University trolley station is approximately 5,000 feet (just under 1 mile) walking distance from the project pedestrian access point.

A summary of the service times is shown in **Table 1** for weekdays and **Table 2** for Saturday and Sunday. A map showing the nearby transit routes and bus schedules are included in **Appendix B**.

TABLE 1: WEEKDAY BUS SERVICE OPERATIONS AND FREQUENCY

Bus Route	Weekday (Mon-Fri) Service Operations (Off-Peak Service Frequency Range)	7-9 AM Peak Hour Service Frequency	4-6 PM Peak Hour Service Frequency
Route 14	≈ 6:00 AM to ≈ 7:00 PM (≈ 60 minutes)	60 minutes	60 minutes
Route 115	≈ 6:15 AM to ≈ 10:00 PM (≈ 30 minutes)	30 minutes	30 minutes

TABLE 2: WEEKEND BUS SERVICE OPERATIONS AND FREQUENCY

Bus Route	Saturday Service Operations (Service Frequency Range)	Sunday Service Operations (Service Frequency Range)
Route 14	No Service	No Service
Route 115	≈ 7:00 AM to ≈ 9:00 PM (≈ 60 min.)	≈ 7:00 AM to ≈ 6:30 PM (≈ 60 min.)

7.0 Systemic Safety Review

The City of San Diego Vision Zero policy promotes safe roadway design with a goal toward preventing collisions. As part of that goal, a systemic safety review provides an assessment of hotspots and possible countermeasures to align with Vision Zero.

City staff identified the intersection of College Ave and Del Cerro Blvd for analysis as appearing on the City's hot spot map for pedestrians. A review of the accident history for the latest available five years (2015-2019) at the intersection of College Ave and Del Cerro Blvd concluded that no specific pattern of pedestrian-vehicle accidents was found for the study period; therefore, the project proposes no changes at this location. The systemic hotspot summary is shown in **Table 3**.

TABLE 3: SYSTEMIC HOTSPOT SUMMARY

Intersection Crieria for Analysis	College Ave at Del Cerro Blvd
Pedestrian-vehicle crashes (2015-2019)	No specific pattern of pedestrian-vehicle accidents was found; therefore, no changes are recommended.

8.0 Traffic Analysis

The Local Mobility Analysis includes the analysis of specific study scenarios, methodology for the analysis of roadway operations, and determination of potential off-site improvements. Details for each of these parameters are include herein.

8.1 Study Scenarios

The number of study scenarios is dependent on the required permits and project zoning. For this project, the following scenarios were analyzed:

1) Existing Conditions
2) Near-Term Opening Day (Year 2022) without Project Conditions
3) Near-Term Opening Day (Year 2022) with Project Conditions
4) Horizon Year 2050 without Project Conditions
5) Horizon Year 2050 with Project Conditions

8.2 Traffic Analysis Methodology

The traffic analysis prepared for this study was based on the *6th Edition Highway Capacity Manual* (HCM) operations analysis using Level of Service (LOS) evaluation criteria. The operating conditions of the study intersections, street segments, and freeway segments were measured using the HCM LOS designations, which ranges from A through F. LOS A represents the best operating condition and LOS F denotes the worst operating condition. The individual LOS criteria for each roadway component are described below.

8.2.1 Intersections

The study intersections were analyzed based on the **operational analysis** outlined in the 6th Edition HCM. This process defines LOS in terms of **average control delay** per vehicle, which is measured in seconds. LOS at the intersections were calculated using the computer software program Synchro 10 (Trafficware Corporation). The 6th Edition HCM LOS for the range of delay by seconds for intersections is shown in **Table 4**.

TABLE 4: INTERSECTION LEVEL OF SERVICE DEFINITIONS (6TH EDITION HCM)

Level of Service	Un-Signalized Control Delay for TWSC, AWSC, and Roundabout (sec/veh where v/c ≤ 1)	Signalized Control Delay (sec/veh where v/c ≤ 1)
A	0-10	≤ 10
B	> 10-15	> 10-20
C	> 15-25	> 20-35
D	> 25-35	> 35-55
E	> 35-50	> 55-80
F	> 50	> 80

Source: 6th Edition HCM. TWSC: Two Way Stop Control. AWSC: All Way Stop Control. For unsignalized intersections, the control delay is the worst movement delay in seconds/vehicle.

Please note that the 6th Edition computation algorithm does not support turning movement with shared lanes nor non-NEMA phasing; therefore, the intersections of College Avenue at Del Cerro Blvd, College Ave at I-8 WB Ramp, and College Ave at I-8 EB Ramp were analyzed using HCM 2000. The 2000 HCM LOS for un-signalized and signalized intersections is shown in **Table 5**.

TABLE 5: INTERSECTION LEVEL OF SERVICE (HCM 2000)

Level of Service	Un-Signalized Average Control Delay (seconds/vehicle)	Signalized Average Control Delay (seconds/vehicle)
A	0-10	0-10
B	> 10-15	> 10-20
C	> 15-25	> 20-35
D	> 25-35	> 35-55
E	> 35-50	> 55-80
F	> 50	> 80

Source: Highway Capacity Manual 2000. For unsignalized intersections, the control delay is the worst movement delay in seconds/vehicle.

8.2.2 Street Segments

The study street segments were analyzed based on the functional classification of the roadway using the City of San Diego *Roadway Segment LOS by Classification and Average Daily Traffic* capacity lookup table (**Appendix C**). The roadway segment capacity and LOS standards used to analyze street segments are summarized in **Table 6**.

TABLE 6: STREET SEGMENT DAILY CAPACITY AND LOS (CITY OF SAN DIEGO)

Circulation Element Road Classification	LOS A	LOS B	LOS C	LOS D	LOS E
Prime Arterial – 6 Lanes	<25,000	<35,000	<50,000	<55,000	<60,000
Prime Arterial – 5 Lanes	<20,000	<28,000	<40,000	<45,000	<50,000
Prime Arterial – 4 Lanes	<17,500	<24,500	<35,000	<40,000	<45,000
Major Arterial – 6 Lanes	<20,000	<28,000	<40,000	<45,000	<50,000
Major Arterial – 5 Lanes	<17,500	<24,500	<35,000	<40,000	<45,000
Major Arterial – 4 Lanes	<15,000	<21,000	<30,000	<35,000	<40,000
Collector (with TWLTL) – 5 Lanes	<12,500	<17,500	<25,000	<30,750	<37,500
Collector (with TWLTL) – 4 Lanes	<10,000	<14,000	<20,000	<25,000	<30,000
Collector (without TWLTL) – 4 Lanes Collector (with TWLTL) – 2 Lanes	<5,000	<7,000	<10,000	<13,000	<15,000
Collector – 2 Lanes (no fronting property)	<4,000	<5,500	<7,500	<9,000	<10,000
Collector (without TWLTL) – 2 Lanes	<2,500	<3,500	<5,000	<6,500	<8,000
Sub-Collector – 2 Lanes (Single-family)	-	-	<2,200	-	-

Source: City of San Diego *Transportation Study Manual* 9/29/2020.

8.2.3 Freeway Off-Ramp Queuing

The 95th percentile queues for both locations at Interstate 8/College Avenue eastbound and westbound off-ramps were evaluated using SimTraffic 10 software. The queue was calculated running ten 60-minute simulations runs with a ten-minute seeding time. The 95th percentile queue was compared to the off-ramp storage that is measured from the ramp gore to the off-ramp intersection stop bar.

8.2.4 Intersection Queuing

The 95th percentile queue for intersections located within the study area were evaluated using SimTraffic 10 software. The queue was calculated running ten 60-minute simulations runs with a ten-minute seeding time. The 95th percentile queue was compared to the turn pocket storage that is generally measured from the intersection stop bar to the end of the turn pocket strip or where there is a consistent lane width of 12 feet.

8.2.5 Project Traffic Effects

A project Owner/Permittee should consider an improvement if the project traffic effect triggers the need for an improvement per the City of San Diego *Transportation Study Manual* (TSM) defined effects as shown in **Table 7** (TSM excerpts included in **Appendix D**).

TABLE 7: CITY OF SAN DIEGO TRAFFIC EFFECT TRIGGERS FOR POTENTIAL ROADWAY IMPROVEMENTS

Facility	Triggers for Considering an Improvement
Signalized Intersection	No Existing Left-Turn Lane: If the project adds traffic to an individual left turn movement causing the total number of peak hour left turns to exceed 100, consider adding a left turn lane. Existing Single Left-Turn Lane: If the project adds traffic to an individual left turn movement causing the total number of peak hour left turns to exceed 300, consider adding a second left turn lane. No Existing Right Turn-Lane: If the addition of a right turn lane will not negatively affect other roadway users, will maintain a comfortable roadway environment, AND the project adds traffic to an individual right turn movement causing the total number of peak hour right turns to exceed 500, consider adding a right turn lane. Existing Single Right-Turn Lane: If the addition of a right turn lane will not negatively affect other roadway users, will maintain a comfortable roadway environment, AND the project adds traffic to an individual right turn movement causing the total number of peak hour right turns to exceed 800, consider adding a second right turn lane. Lengthening a Turn Pocket: If the project adds traffic to a turning movement and causes the 95th percentile queue to exceed the available turn pocket length, consider lengthening the turn pocket.
Un-Signalized Intersection	An Intersection Control Evaluation should be prepared if: All Way Stop Control: Within a ½ mile path of travel of a Major Transit Stop, if the project causes intersection to degrade to LOS F, or if the project adds traffic to an intersection already operating at LOS F. All Way Stop Control: Outside of a ½ mile path of travel of a Major Transit Stop, if the project causes intersection to degrade to LOS E or F, or if the project adds traffic to an intersection already operating at LOS E or F. Side Street Stop Control: Within a ½ mile path of travel of a Major Transit Stop, if the project causes the worst movement to degrade to LOS F, or if the project adds traffic to an intersection already operating at LOS F. Side Street Stop Control: Outside a ½ mile path of travel of a Major Transit Stop, if the project causes the worst movement to degrade to LOS E or F, or if the project adds traffic to an intersection already operating at LOS E or F.
Roadway Segment	If the project adds greater than 50% of total daily vehicle trips on the segment, the project should consider implementing the improvements as identified in the community plan. If the project adds less than or equal to 50% of total daily vehicle trips on the segment, the project should evaluate its fair share toward the improvement.

Source: City of San Diego Transportation Study Manual, 9/29/2020.

8.3 Existing Conditions

This section describes the study area street system, peak hour intersection volumes, daily roadway volumes, existing LOS, and left turn bay queuing.

8.3.1 Existing Street System

Within the LMA study area, the following roadway was analyzed as part of this study.

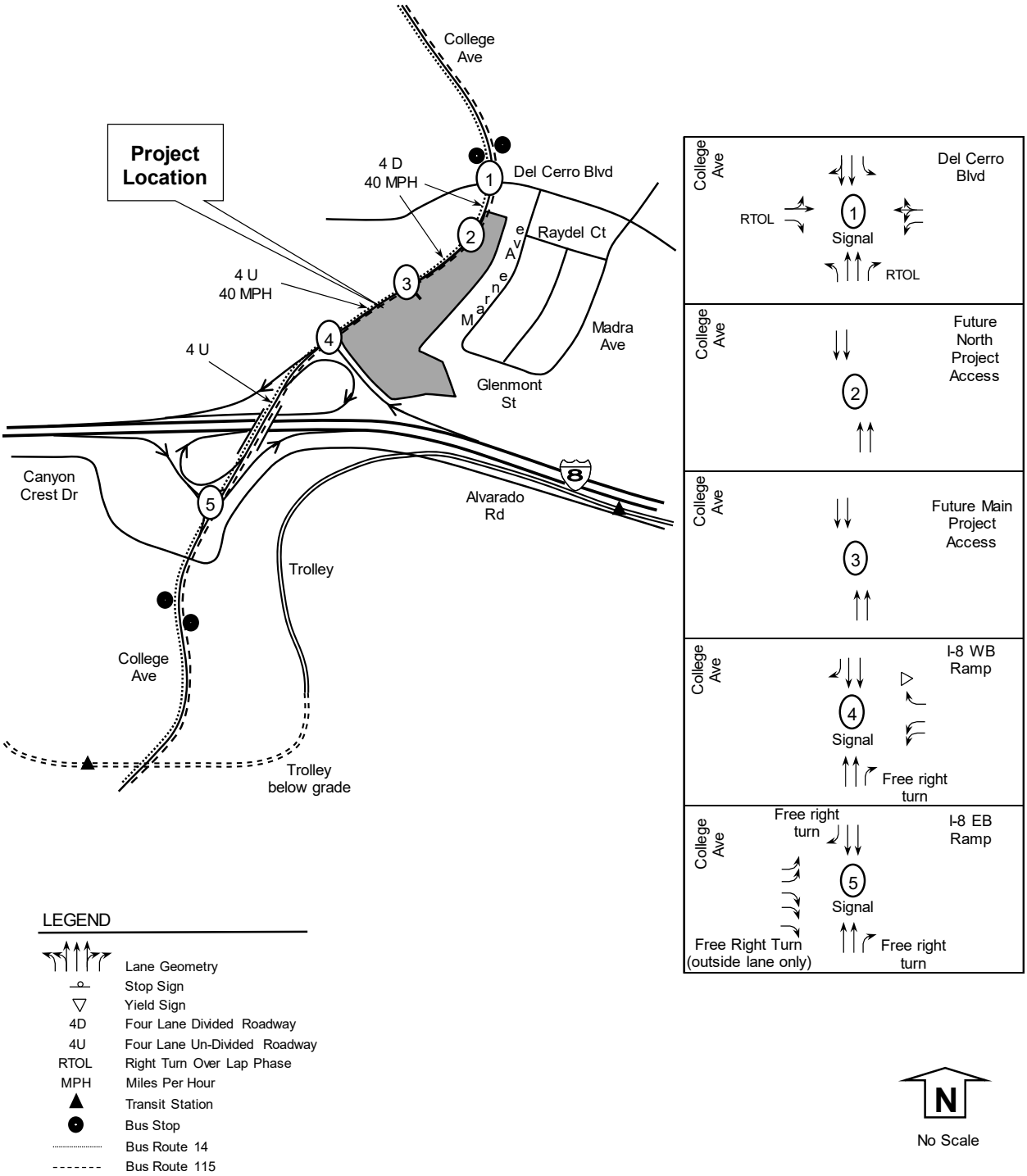
College Avenue from Del Cerro Blvd to I-8 EB Ramp is classified as a *4-Lane Major* in the City of San Diego *Navajo Community Plan* (excerpts included in **Appendix E**).

College Avenue from Del Cerro Blvd to I-8 WB Ramp is constructed as a four-lane roadway with a raised median from Del Cerro Blvd extending south for about 900 feet and then transitions to center double-double yellow markings. For the purpose of this analysis, a capacity of 40,000 at LOS E (Major) is applied for the raised median segment while 30,000 at LOS E (Collector) is applied for the center double-double yellow segment. The posted speed limit along this segment is 40 Miles Per Hour (MPH). A contiguous sidewalk exists along the eastern side of the roadway. There is no sidewalk along the western side of the roadway. No bike lanes nor marking were observed along this segment.

College Avenue from I-8 WB Ramp to I-8 EB Ramp is constructed as a four-lane roadway with center double-double yellow markings. For the purpose of this analysis, a capacity of 30,000 at LOS E (Collector) is applied for this segment with center double-double yellow markings. The posted speed limit is 40 MPH. A contiguous sidewalk exists along the eastern side of the roadway. There is no sidewalk along the western side of the roadway. No bike lanes nor marking were observed along this segment.

The existing conditions are shown in **Figure 8**.

Figure 8: Existing Conditions



8.3.2 Existing Traffic Volumes and LOS Analyses

Existing counts were collected between 7:00 AM and 9:00 AM for the AM commuter period and from 4:00 PM to 6:00 PM for the PM commuter period on Tuesday, April 16, 2019, and from 10:45-11:45 AM on Sunday, April 28, 2019 to capture the time period between the two historically highest attended services. Nearby elementary schools and San Diego State University were in session during the weekday counts. Counts were collected for the following intersections within the study area:

1) College Ave/Del Cerro Blvd
2) *College Ave/Project North Access (DNE – not analyzed under Existing Conditions)*
3) *College Ave/Project Main Access (DNE – not analyzed under Existing Conditions)*
4) College Ave/I-8 WB Ramps
5) College Ave/I-8 EB Ramps (Sunday only because the project is not forecasted to add 50 or more peak hour trips to any turning movement under weekday conditions)

Existing street segmentdaily volumes were collected on Tuesday, April 16, 2019 and Sunday, April 14, 2019 at the following locations:

1) College Ave between Del Cerro Blvd and I-8 WB Ramps
2) College Ave between I-8 WB Ramps and I-8 EB Ramps

A queuing analysis was performed at freeway off-ramps where the project added 50 or more peak hour trips based on TSM study criteria. The ramps and scenarios included:

1) College Ave at I-8 WB Off-Ramp during the Sunday AM peak hour.
2) College Ave at I-8 EB Off-Ramp during the Sunday AM peak hour.

The existing AM, PM, and daily volumes are shown on **Figure 9**, with count data included in **Appendix F**. The intersection LOS is shown in **Table 8**. The freeway off-ramp 95th percentile queues are shown in **Table 9** with documentation of ramp storage lengths shown in **Appendix G**. The segment LOS is shown in **Table 10**. The intersections were analyzed based on existing signal timing. The signal timing sheets are included in **Appendix H**. The intersection LOS and queueing worksheets are included in **Appendix I**.

TABLE 8: EXISTING INTERSECTION LOS

Intersection and (Analysis)[1]	Approach	Study Period	Existing Delay[2]	Existing LOS[3]
1) College Ave	All	Weekday AM	44.9	D
at Del Cerro	All	Weekday PM	26.8	C
Blvd (S)	All	Sunday AM	24.8	C
2) College Ave	WB	Weekday AM	DNE	NA
at Project N.	WB	Weekday PM	DNE	NA
Access (U)	WB	Sunday AM	DNE	NA
3) College Ave	WB	Weekday AM	DNE	NA
at Project Main	WB	Weekday PM	DNE	NA
Access (U)	WB	Sunday AM	DNE	NA
4) College Ave	All	Weekday AM	10.9	B
at I-8 WB	All	Weekday PM	11.3	B
Ramp (S)	All	Sunday AM	10.8	B
5) College Ave at I-8 EB Ramps (S)	All	Sunday AM	11.4	B

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. DNE: Does Not Exist. NA: Not Applicable.

Figure 9: Existing Volumes

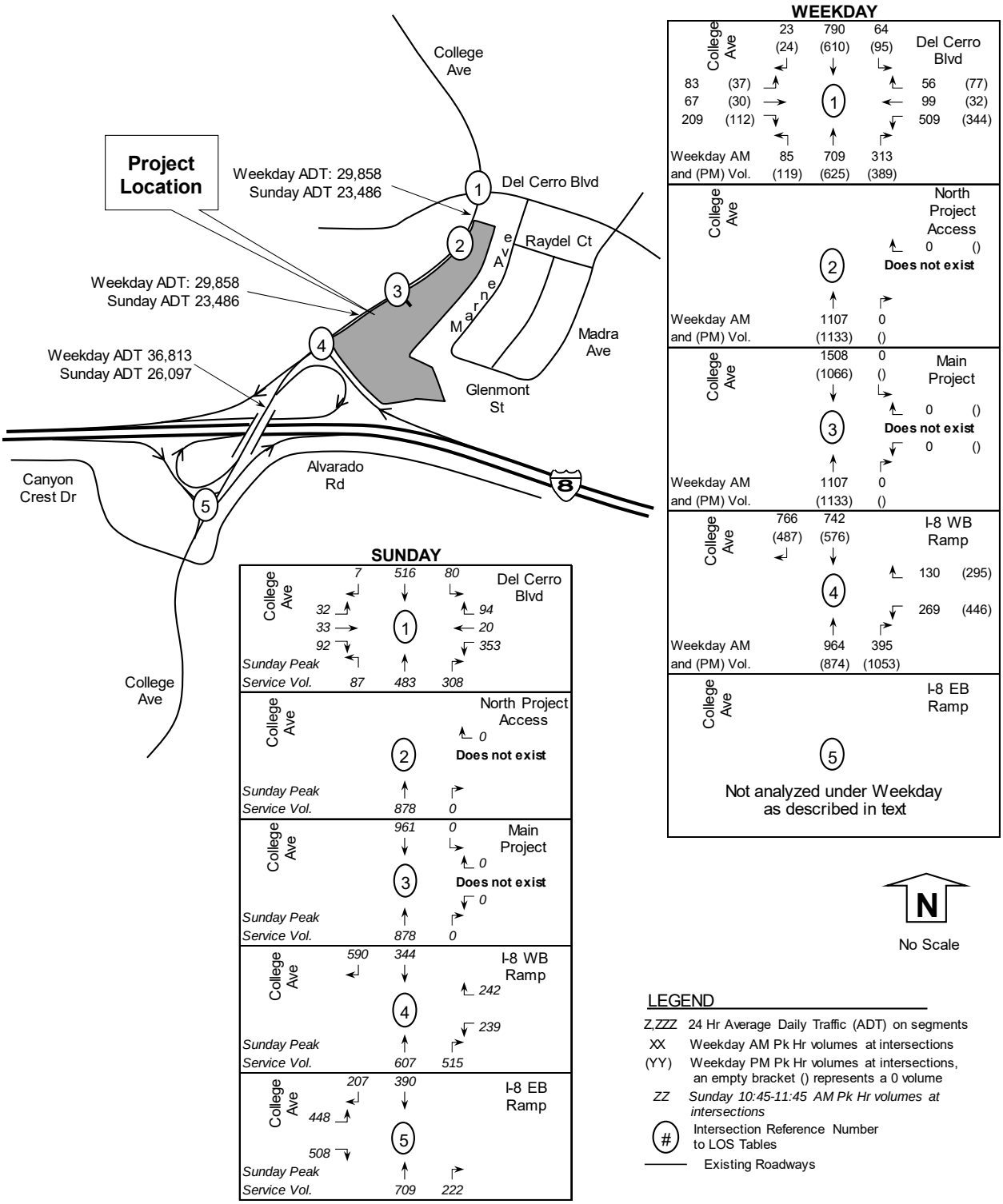


TABLE 9: EXISTING FREEWAY OFF-RAMP INTERSECTION QUEUING

Ramp	Existing Sunday AM Peak Hour
I-8 Westbound Off-Ramp at College Ave	
95th Percentile Off-Ramp Queue	105 Feet
Off-Ramp Storage from Exit Gore to Stop Bar	1,220 Feet
Queue Exceeds Storage?	No
I-8 Eastbound Off-Ramp at College Ave	
95th Percentile Off-Ramp Queue	383 Feet
Off-Ramp Storage from Exit Gore to Stop Bar	750 Feet
Queue Exceeds Storage?	No

Notes: 95th percentile off-ramp queue calculated using SimTraffic 10 software.

TABLE 10: EXISTING SEGMENT ADT VOLUMES AND LOS

Segment	Functional Classification	Existing			
		Daily Volume	LOS E Capacity	V/C	LOS
WEEKDAY					
College Ave					
Del Cerro to Project Main Access	4 Lane Major	29,858	40,000	0.75	C
Project Main Access to I-8 WB Ramps	4 Lane Collector	29,858	30,000	1.00	**E**
I-8 WB Ramp to I-8 EB Ramps	4 Lane Collector	36,813	30,000	1.23	**F**
SUNDAY					
College Ave					
Del Cerro to Project Main Access	4 Lane Major	23,486	40,000	0.59	C
Project Main Access to I-8 WB Ramps	4 Lane Collector	23,486	30,000	0.78	D
I-8 WB Ramps to I-8 EB Ramps	4 Lane Collector	26,097	30,000	0.87	**E**

Notes: Daily volume is a 24 hour volume. LOS: Level of Service.

Under Existing Conditions, the following deficiencies were calculated:

Weekday segments:

1) College Ave between Project Main Access and I-8 WB Ramps (LOS E)
2) College Ave between I-8 WB and EB Ramps (LOS F)

Sunday segments:

1) College Ave between I-8 WB and EB Ramps (LOS E)

8.4 Project Trip Generation

The project's expected trip generation was calculated using rates from the City of San Diego *Trip Generation Manual*, May 2003 and site-specific Sunday trip generation data calculated from the existing All Peoples Church currently operating at 5555 University Avenue in San Diego.

8.4.1 Weekday Trip Generation

Weekday trip generation was based on the higher generation between City rates and historical with projected uses by Church staff. The proposed Church will not offer a day care or a children's school during weekdays, thus the City's House of Worship without school or day care rate was applied for this comparison. The City of San Diego trip rate was applied based on the total building size of 54,476 square feet.

The site-specific trip generation is based on the existing and forecasted weekday use of the Church facilities. Existing Pastoral offices located at 5555 University Avenue are open Monday-Thursday from 9AM to 6PM and closed on Fridays with a current staff of 8 to 25 persons. The proposed Pastoral offices are to be open Monday-Thursday from 9AM to 6PM and closed on Fridays with 25 to 30 anticipated staff. For trip generation purposes, the AM inbound is assumed to occur just before 9 AM with a total of 30 inbound trips. The PM outbound is assumed to have 30 outbound trips. The ADT was taken at double the peak hours (60 x 2 = 120 ADT) to account lunch and/or errands. There are various proposed group bible studies of youth, college, married couples, etc. from 6 PM to 10 PM Monday - Thursday. These range from 30-50 for some groups and 50-100 for the highest anticipated gatherings. An average of 75 attendees was used for the weekday gathering trip generation (0 AM and 75 inbound PM). The basketball gym is proposed to be open during Pastoral office hours anticipated to have between 0 and 10 users (with an average of 5 gym users assigned for the trip generation resulting in 10 ADT with 1 AM trip and 2 PM trips).

The higher weekday project traffic volume was based on the applicant forecasted uses and was calculated at 280 ADT with 31 AM peak hour trips (31 inbound and 0 outbound) and 107 PM peak hour trips (76 inbound and 31 outbound) as shown in **Table 11**.

TABLE 11: WEEKDAY PROJECT TRIP GENERATION

WEEKDAY (Mon-Thur, Pastoral offices closed Friday)	Rate, Size & Units		ADT	Weekday AM Peak Hr % & Total	Weekday AM Peak Hr Split IN	Weekday AM Peak Hr Split OUT	Weekday PM Peak Hr % & Total	Weekday PM Peak Hr Split IN	Weekday PM Peak Hr Split OUT
City of San Diego Trip Rate									
House of Worship	5	/KSF		4%	0.8	0.2	8%	0.5	0.5
	54.476	KSF	272	11	9	2	22	11	11
Applicant Forcasted Uses									
Staff 9am-6pm (up to 30)			120		30	0		0	30
Highest weekday bible study (avg. 75)			150		0	0		75	0
Basketball gym (avg. 5 users)			10		1	0		1	1
			280	31	**31**	**0**	107	**76**	**31**
Highest volumes used for analysis:			**280**	31	**31**	**0**	107	**76**	**31**

Source: City of San Diego Trip Generation for weekday and site specific data for forecasted use. ADT - Average Daily Traffic; Split-percent inbound & outbound. Excel rounding may cause values to be slightly higher or lower than whole number.

8.4.2 Sunday Trip Generation

Sunday trip generation was based on the higher generation between City rates and historical with projected uses by Church staff.

The proposed Church will offer a Sunday day care/school during Sunday services, thus the City's House of Worship with school or day care rate was applied for this comparison. The City's peak hour rates do not specify the hours for a Sunday; therefore, the AM rate was applied for the first service and the PM rate was applied for the services that typically occurs around 10 AM and around noon.

The Sunday site specific trip generation was calculated from current Church operations at 5555 University Avenue based on current service times, attendance variation between services, and vehicle occupancy. Vehicle occupancy data are included in **Appendix J**. The existing service times occur at 8:30 AM, 10:00 AM, and 11:30 AM with the higher attendance typically occurring at 10:00 AM. Using current attendance and vehicle occupancy, a peak hour and daily vehicle forecasted was determined for the maximum seating capacity of 900 seats as shown in **Table 12**.

TABLE 12: EXISTING AND FORECASTED SUNDAY ATTENDANCE FOR 900 SEAT OCCUPANCY

SUNDAY Service Times	Average November 2018 Attendees (Adults + Children)	Attendance % of Nov. 2018 Attendees	Normalized to 100% attendance for 10 AM service	Attendee Forecast based on full use of 900 Seats	10 AM serivce typically has one bus* of 35 attendees	Attendees that drive	Inbound ADT based on a vehicle occupancy of 2.30**	Inbound ADT based on a vehicle occupancy of 2.30**
8:30-9:30 AM	255	26%	63%	569	No bus	569	248	248
10:00-11:00 AM	403	41%	100%	900	35	865	376	376
11:30 AM -12:30	321	33%	80%	717	No bus	717	312	312
Totals	979	100%		2,186			936	936
							Inbound ADT	Outbound ADT
						TOTAL ADT:	1,872	

*Bus is from Point Loma Nazarene University (with average 35 students) that will drop off and leave the parking lot to return for pickup.
**Vehicle occupancy average from data collected by LOS Engineering, Inc. during services on Sun 12/2/18, Sun 12/9/18, Sun 11/10/19, and Sun 11/17/19 (Appendix J).

The higher Sunday project traffic volume between City rates and site-specific rates (based on a maximum occupancy of 900 seats during the historically highest attended 10 AM service) is calculated at 1,976 ADT with 690 Sunday peak hour trips (378 outbound after the 10 AM service and 312 inbound for the 11:30 AM service) as shown in **Table 13**.

TABLE 13: SUNDAY TRIP GENERATION

SUNDAY	Rate, Size & Units		ADT	Sunday 8:30 AM Service			Sunday 10:00 AM Service			Sunday 11:30 AM Service		
					IN	OUT		IN	OUT		IN	OUT
City of San Diego Trip Rates				% & Total			% & Total			% & Total		
House of Worship	20	/KSF		4%	0.8	0.2	8%	0.5	0.5	8%	0.5	0.5
	52.585	KSF	1,052	42	34	8	42	21	21	42	21	21
Trips Rates based on Historical Data												
House of Worship	900	Seats	1,872 *		248	248		376	376		312	312
Volunteers**	50	People	100		0	0		0	0		0	0
One Bus*** x 2 PCE	1	Bus	4		0	0		2	2		0	0
Higher volumes used for analysis:		*Totals*	***1,976***		*248*	*248*		*378*	***378***		***312***	*312*
Sunday Pk Hr (10:45-11:45) between two largest services (10am out+11:30am in):									*378*	*Out*	*312*	*In*
											Peak Hour = 690	

Source: Site specific data for Sunday use. ADT - Average Daily Traffic. Excel rounding may cause values to be slightly higher or lower than whole number. *ADT calculated by adding individual attendee inbound and outbound volumes from columns to the right. **Volunteers typcially arrive before first service and leave after last service, thus peak hour for the 8:30am, 10am, and 11:30am services are zero (0). ***Bus brings in approximately 35 students from Point Loma Nazarene University only for 10 AM service, thus no buses during other service times. PCE: Passenger Car Equivalent.

8.5 Project Distribution and Assignment

Church attendees come from a larger area than immediately surrounding to the Church. Over 100 different zip codes represent the current congregation. Attendees living in the same zip code as the Church only account for approximately 5% of the congregation.

The distribution was based on the percentage of Church attendees by zip codes to which the majority (85%) are forecasted to use I-8 (i.e. 45% to/from the west and 40% to/from the east). Currently, the proposed site of the Church (zip code 92120) represents about 2% of the congregation. Access to the Church to/from College Ave north of the site is estimated at 5% to account for potential increase of members and access from immediately adjacent areas. The remaining 10% is forecasted to arrive/depart using College Avenue south of I-8. Zip code data are included in **Appendix K**.

The project distribution is shown in **Figure 10**. The project assignment is shown in **Figure 11**.

Figure 10: Project Distribution

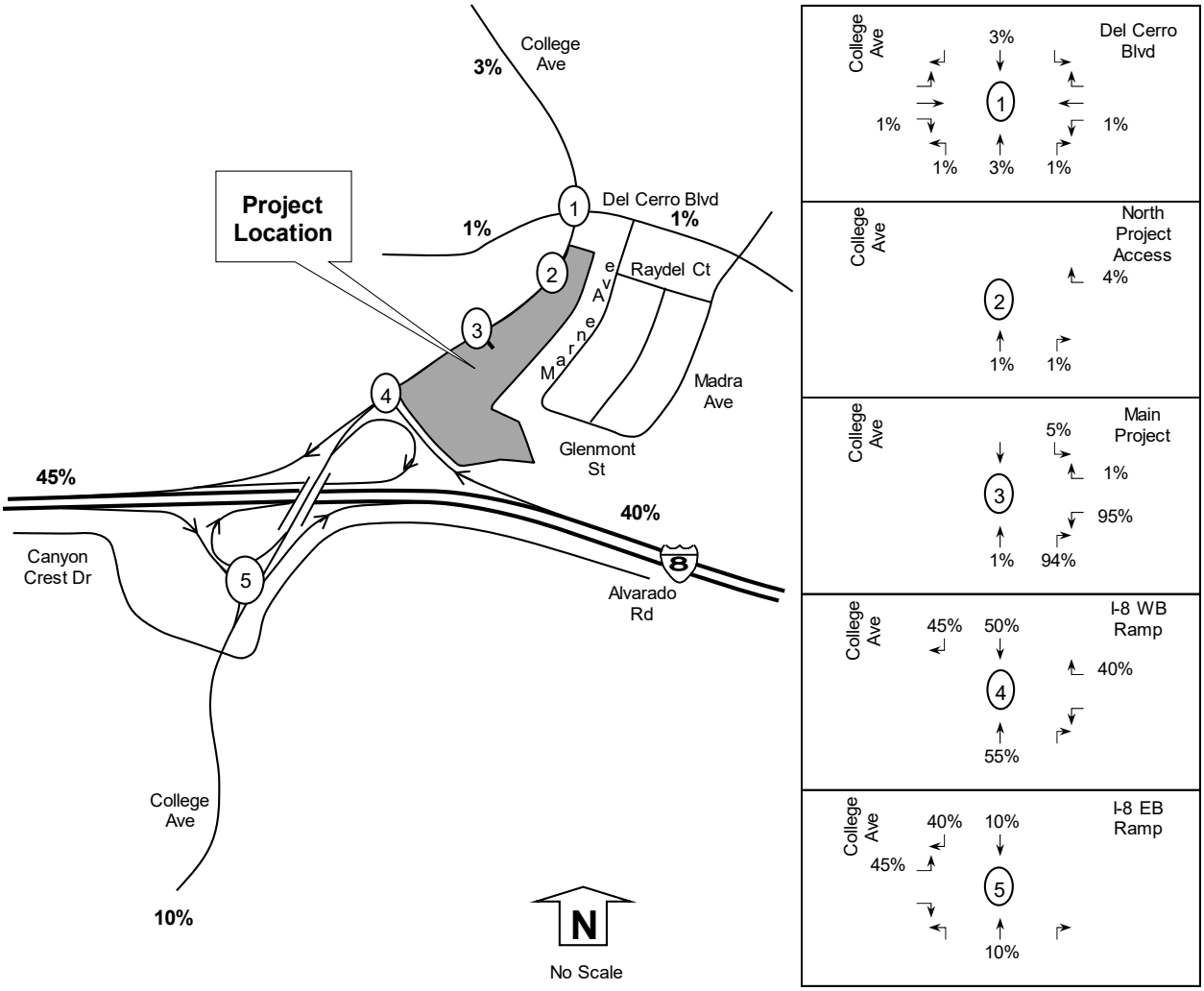
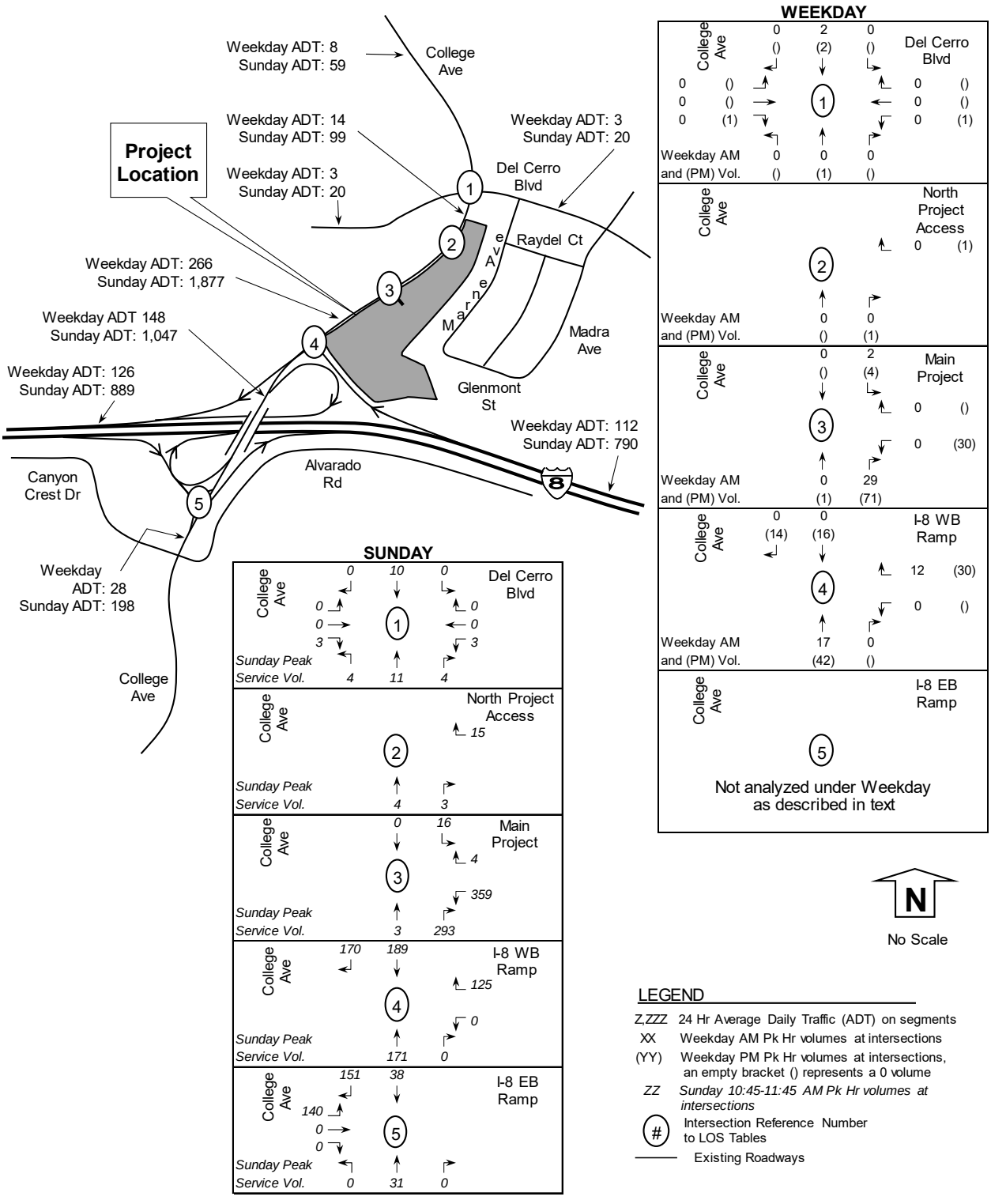


Figure 11: Project Assignment



8.6 Project Access and Parking

The project site currently has no vehicular points of access with frontage only on College Avenue. Project access is proposed from a signalized main driveway and a secondary right-in/right-out driveway, both on College Avenue.

The project main access is approximately 630 feet (curb return to curb return) north of the Caltrans I-8 WB Ramp. According to Caltrans, the minimum distance (curb return to curb return) between a ramp intersection and local road intersections shall be 400 feet with a preferred distance of 500 feet. The project main access is located beyond the Caltrans minimum and preferred distance (Caltrans correspondence is included in **Appendix L**).

8.6.1 Main Access Traffic Signal Warrant and Sight Distance

The project main access, with a proposed traffic signal, was analyzed to determine if signal warrants were satisfied. The California MUTCD rev5 Warrant 3, Part B (Peak Hour) warrant is satisfied under Sunday conditions based on Opening Day (Year 2022) + Project volumes. Signal warrant calculations are included in **Appendix M**.

Intersection sight distance details for the main access and secondary right-in/right-out driveway are included on the Civil drawings under separate cover. The proposed traffic signal design with median break at the main project access on College Avenue is shown in **Appendix N**. This appendix also includes an aerial with the main driveway overlay and several cross-sections. The main project access cross-section will have a consistent cross-slope of the pavement that is linear across the entire intersection that then ties into the project driveway.

8.6.2 On-Site Vehicular and Pedestrian Circulation

On-site vehicular circulation is provided through two project driveways and on-site drive aisles.

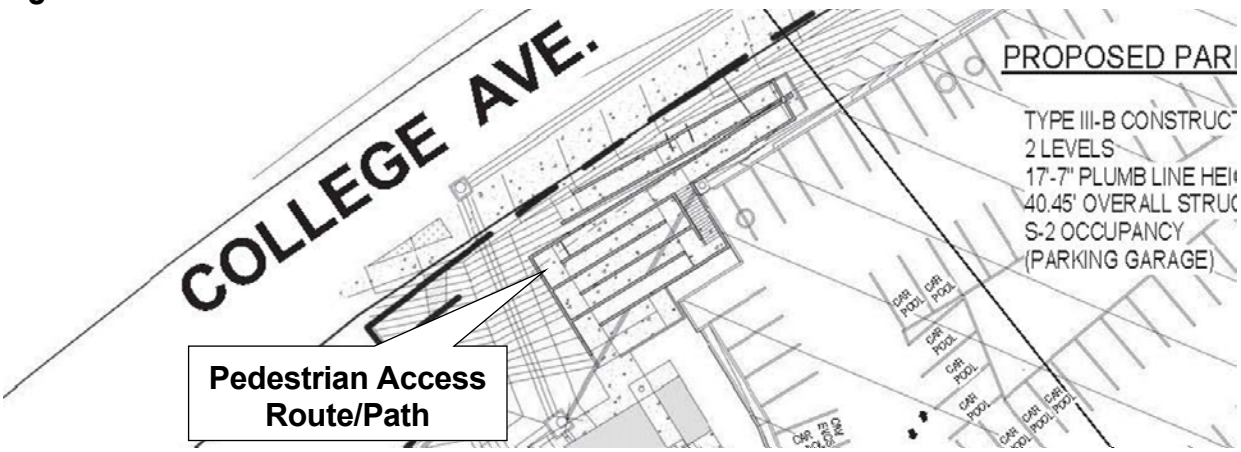
Pedestrian access is provided from one accessible route near the southwest corner of project site. No sidewalks are proposed along the project driveways due to:

1) The driveways and much of the parking area has slopes that exceed ADA requirements, and
2) The proposed separate pedestrian accessible route fulfills the building code requirements.

The single pedestrian accessible route fulfills building code 11B-206.2.1 requirement of at least one accessible route shall be provided between a public sidewalk and the accessible building entrance. The same building code also notes an exception as follows "An accessible route shall not be required between site arrival points and the building or facility entrance if the only means of access between them is a vehicular way not providing pedestrian access."

For the above noted reasons, sidewalks along the vehicular access point are not provided nor required. The accessible route is shown in **Figure 12**.

Figure 12: Pedestrian Access



8.6.3 On-Site Parking

The project's minimum required parking is 319 spaces based on 587 fixed seats (requiring 196 parking spaces) and 3,690 sf of non-fixed seating (requiring 123 parking spaces for non-fixed). The provided parking includes 319 standard spaces, 2 van accessible spaces, 6 accessible spaces, and 29 clean air vehicle standard spaces for a total of 356 automobile parking spaces. There are 17 short term bicycle spaces and 2 long term bicycle spaces. Seven motorcycle parking spaces are proposed. There is also one loading zone space. A summary of the parking is shown in **Table 14**.

TABLE 14: PROJECT PARKING SUMMARY

Project Component	Minimum Required Parking by Code	Provided Parking
Church (587 fixed seating plus 3,690 sf of non-fixed seating for about 900 seats in total)	319 Automobile Spaces 7 Motorcycle Spaces 16 Short Term Bicycle Spaces 16 Long Term Bicycle Spaces	356 Automobile Spaces 7 Motorcycle Spaces 17 Short Term Bicycle Spaces 2* Long Term Bicycle Spaces

*Requesting deviation from LDC where 16 bike spaces are required, while 2 spaces provided.

The parking structure has two levels. Level one is shown in **Figure 13** and level two in **Figure 14**.

Figure 13: Parking Structure Lower Level

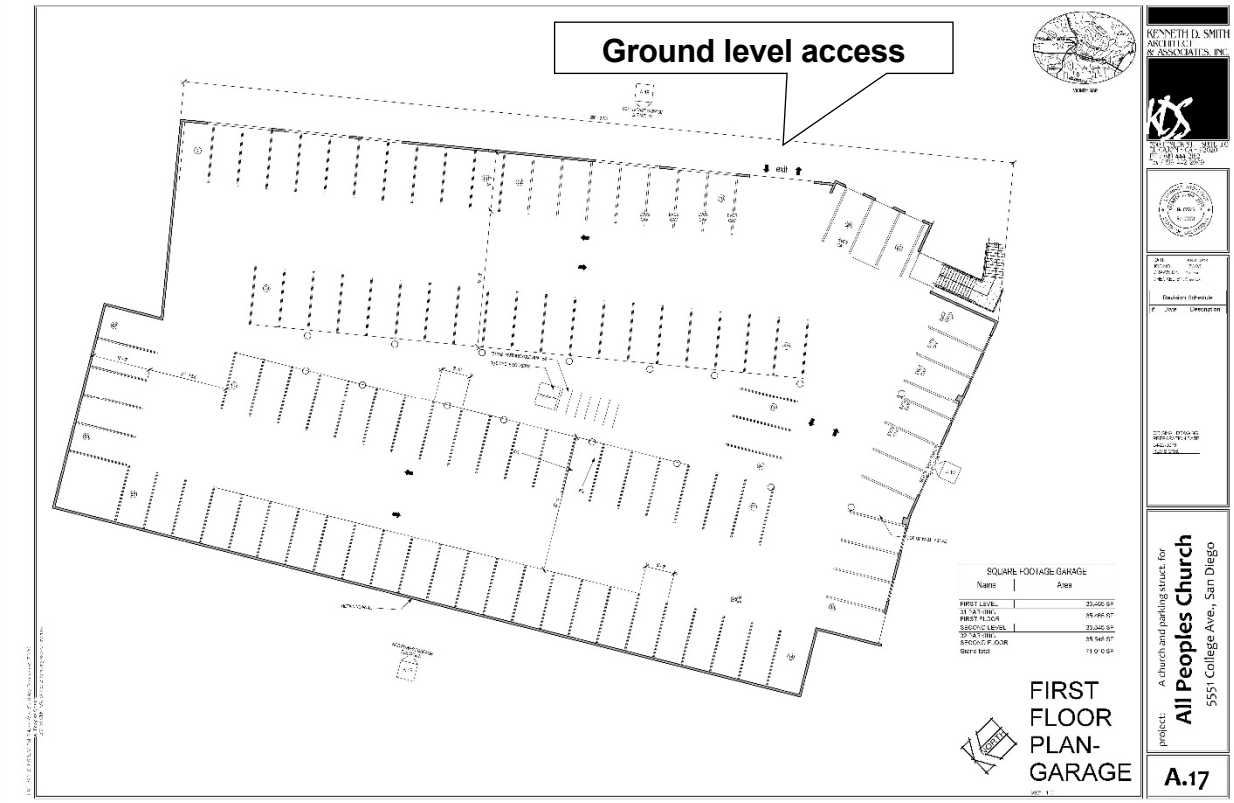
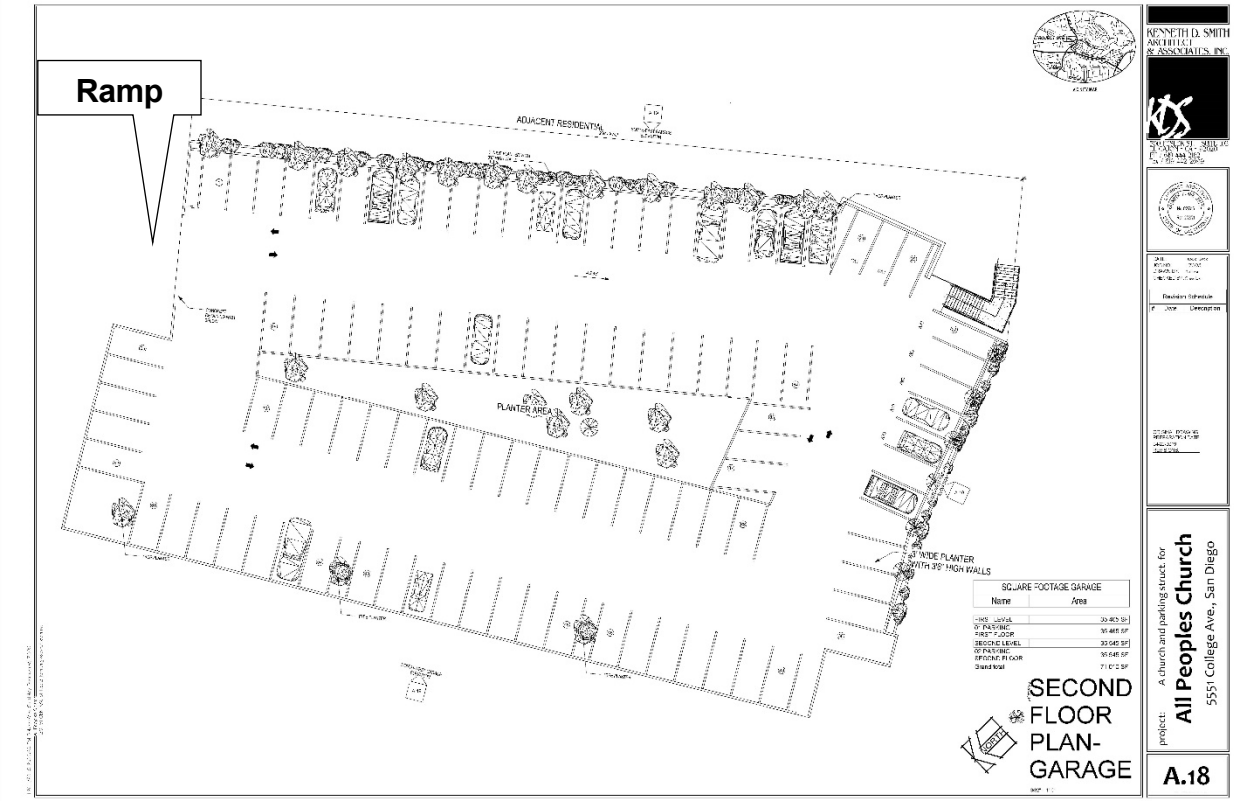


Figure 14: Parking Structure Upper Level



8.7 Near-Term Opening Day (Year 2022) without Project Conditions

The Near-Term without project conditions describe the anticipated roadway operations during the opening day of the project anticipated to be in in the year 2022. Upon review of available cumulative project information, the following reasonably foreseeable projects were identified that are anticipated to add traffic to the study area roadways by the year 2022:

1) *Capstone* – A multi-family project with 94 units located at 5030 College Avenue (PTS 431026). Approved and completed; however, traffic counts were collected while this project was under construction, thus it is included in this cumulative analysis.

2) *Montezuma Multi-Family* – A multi-family project with 40 multi-family units located at 6195 Montezuma Road (PTS 593021). Approved but not yet constructed.

3) *Montezuma PDP/CUP/SDP* – A multi-family project with 128 multi-family units located at 6213 Montezuma Road (PTS 501449). Approved but not yet constructed.

4) *Montezuma PDP/RZ/Amend* – A multi-family project with 39 multi-family units located at 6253 Montezuma Road (PTS 623199). This project is under City review.

5) *San Diego State University Master Plan* – A master plan to include student headcount increase, Adobe Falls facility/staff housing, and a hotel generally located on the San Diego State University grounds or nearby. Approved by California State University Board of Trustees in May 2018. Project has yet to be constructed.

Cumulative project trip assignments that are anticipated to add traffic to the study area roadways are included in **Appendix O**. The cumulative project trip generation is summarized below in **Table 15**.

TABLE 15: CUMULATIVE PROJECT TRIP GENERATION

Cumulative Project	City PTS #	Average Daily Trips	Status
Capstone 5030 College Ave 94 MF Units	431026	752	Approved and completed
6195 Montezuma Rd 40 MF Units	593021	320	Approved not constructed
6213 Montezuma Rd 128 MF Units	501449	1,024	Approved not constructed
6253 Montezuma Rd 39 MF Units	623199	312	Under City review
San Diego State University Master Plan	No PTS, SDSU EIR State Clearinghouse No. 2007021020	5,607	Not constructed

PTS: Project Tracking System

The cumulative project information did not include Sunday traffic; Therefore, a 0.5% annual growth rate per year (1.5% total) was applied to existing Sunday counts (peak hour and daily) to represent Sunday cumulative volumes.

A map showing the cumulative project locations are shown on **Figure 15**. The combined cumulative project traffic volumes are shown on **Figure 16**. Near-term (2022) traffic volumes (existing + cumulative) without the project are shown on **Figure 17**.

Figure 15: Cumulative Project Locations

Google Maps

Figure 16: Cumulative Project Volumes

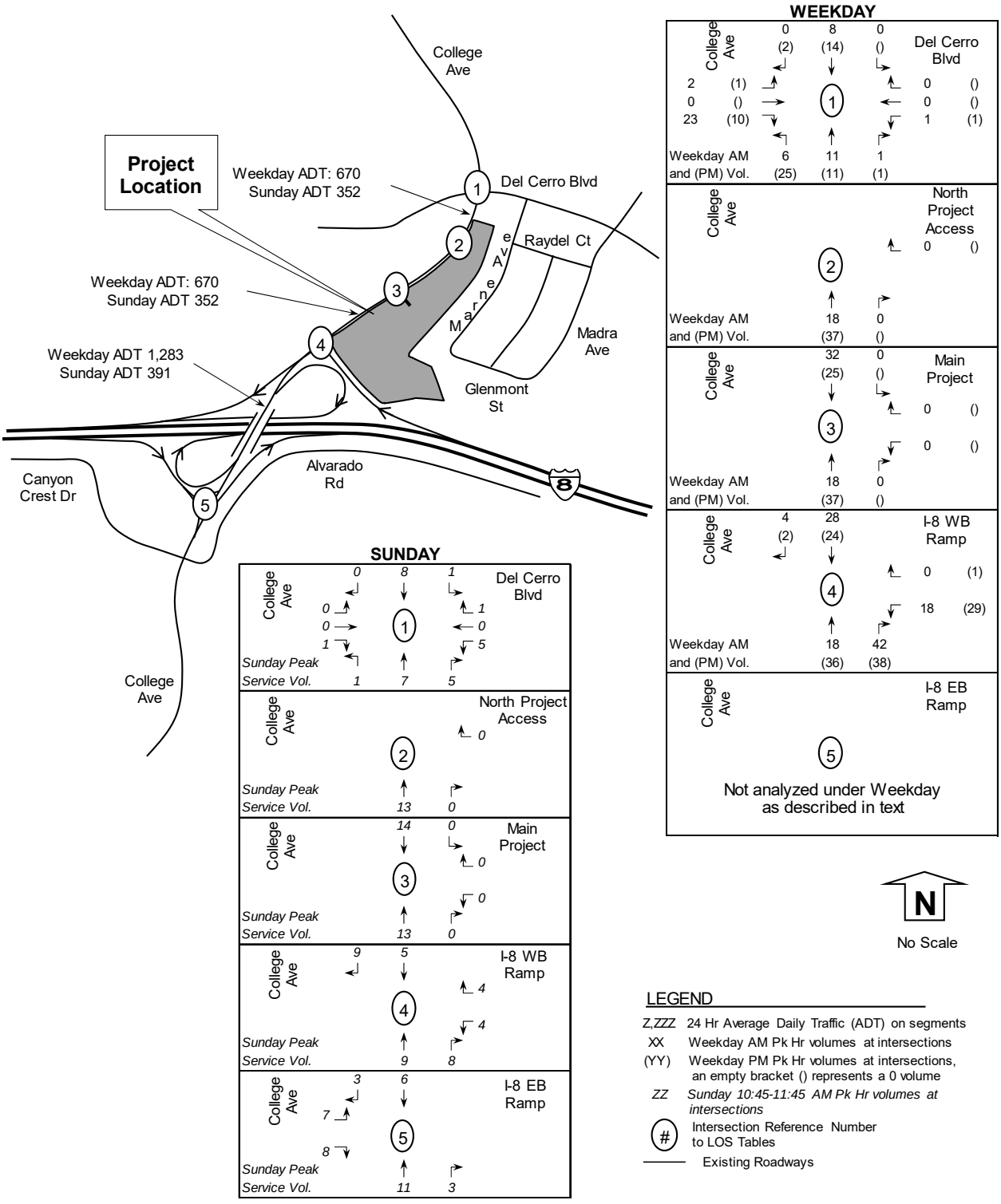
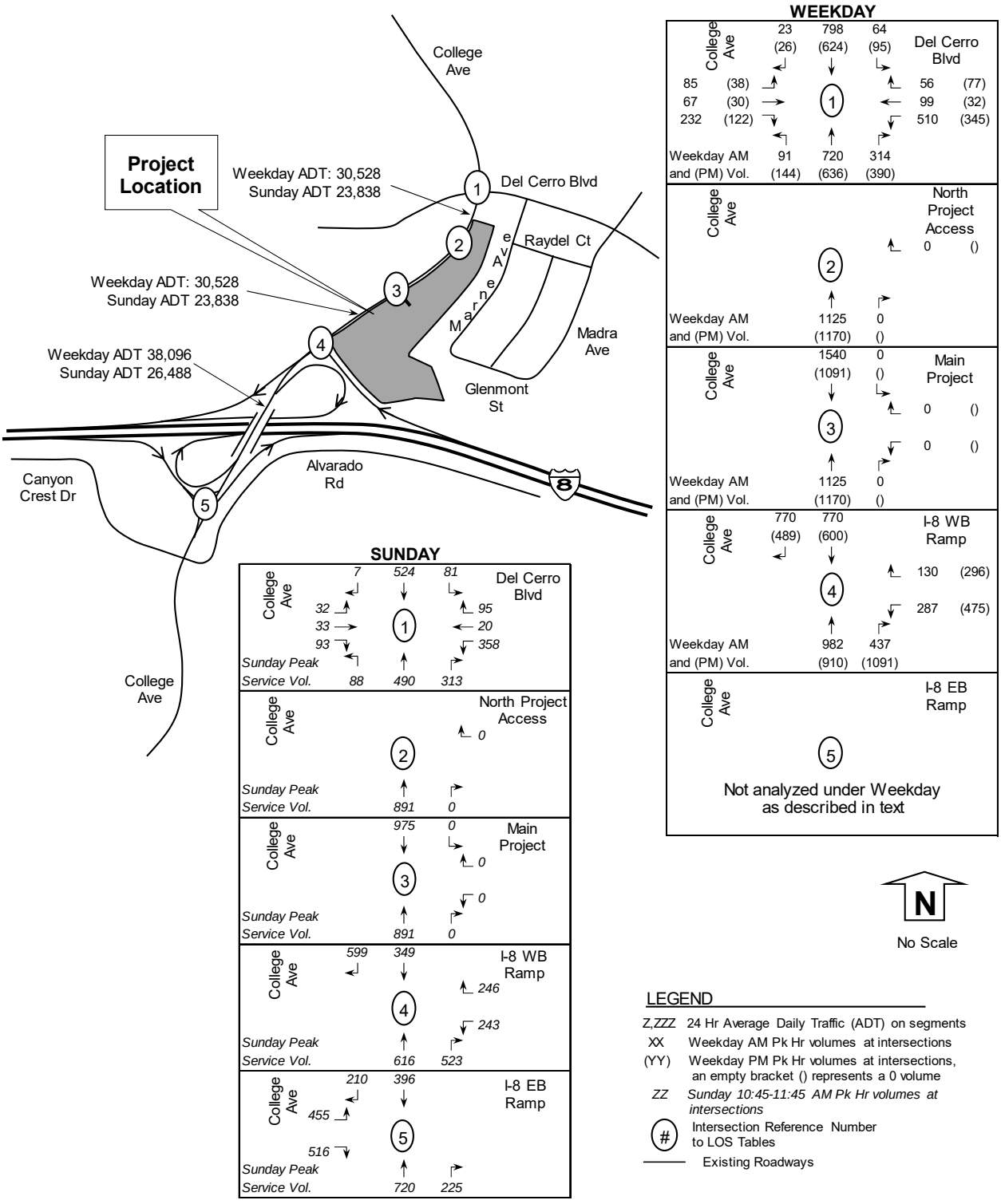


Figure 17: Near-Term Opening Day (Year 2022) without Project Volumes



The intersection LOS is shown in **Table 16**. The freeway off-ramp 95th percentile queues are shown in **Table 17**. The segment LOS is shown in **Table 18**. The intersection LOS and queueing output are included in **Appendix P**.

TABLE 16: NEAR-TERM OPENING DAY (YEAR 2022) WITHOUT PROJECT INTERSECTION LOS

Intersection and (Analysis)[1]	Approach	Study Period	Near-Term Opening Day (Year 2022) Delay[2]	LOS[3]
1) College Ave	All	Weekday AM	46.7	D
at Del Cerro	All	Weekday PM	27.7	C
Blvd (S)	All	Sunday AM	25.1	C
2) College Ave	WB	Weekday AM	Does Not Exist	Not Applicable
at Project N.	WB	Weekday PM	Does Not Exist	Not Applicable
Access (U)	WB	Sunday AM	Does Not Exist	Not Applicable
3) College Ave	WB	Weekday AM	Does Not Exist	Not Applicable
at Project Main	WB	Weekday PM	Does Not Exist	Not Applicable
Access (U)	WB	Sunday AM	Does Not Exist	Not Applicable
4) College Ave	All	Weekday AM	10.8	B
at I-8 WB	All	Weekday PM	11.4	B
Ramp (S)	All	Sunday AM	10.9	B
5) College Ave at				
I-8 EB Ramps (S)	All	Sunday AM	11.5	B

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service.

TABLE 17: NEAR-TERM OPENING DAY (YEAR 2022) WITHOUT PROJECT FREEWAY OFF-RAMP INTERSECTION QUEUING

Ramp	Near-Term Sunday AM Peak Hour
I-8 Westbound Off-Ramp at College Ave	
95th Percentile Off-Ramp Queue	119 Feet
Off-Ramp Storage from Exit Gore to Stop Bar	1,220 Feet
Queue Exceeds Storage?	No
I-8 Eastbound Off-Ramp at College Ave	
95th Percentile Off-Ramp Queue	338 Feet
Off-Ramp Storage from Exit Gore to Stop Bar	750 Feet
Queue Exceeds Storage?	No

Notes: 95th percentile off-ramp queue calculated using SimTraffic 10 software.

TABLE 18: NEAR-TERM OPENING DAY (YEAR 2022) WITHOUT PROJECT SEGMENT ADT VOLUMES AND LOS

Segment	Functional Classification	Near-Term Opening Day (Year 2022) Daily Volume	LOS E Capacity	V/C	LOS
WEEKDAY					
College Ave					
Del Cerro to Project Main Access	4 Lane Major	30,528	40,000	0.763	D
Project Main Access to I-8 WB Ramps	4 Lane Collector	30,528	30,000	1.018	**F**
I-8 WB Ramp to I-8 EB Ramps	4 Lane Collector	38,096	30,000	1.270	**F**
SUNDAY					
College Ave					
Del Cerro to Project Main Access	4 Lane Major	23,838	40,000	0.596	C
Project Main Access to I-8 WB Ramps	4 Lane Collector	23,838	30,000	0.795	D
I-8 WB Ramps to I-8 EB Ramps	4 Lane Collector	26,488	30,000	0.883	**E**

Notes: Daily volume is a 24 hour volume. LOS: Level of Service.

Under Near-Term Opening Day (Year 2022) without Project Conditions, the following deficiencies are forecasted:

Weekday segments:

1) College Ave between Project Main Access and I-8 WB Ramps (LOS F)
2) College Ave between I-8 WB and EB Ramps (LOS F)

Sunday segments:

1) College Ave between I-8 WB and EB Ramps (LOS E)

8.8 Near-Term Opening Day (Year 2022) with Project Conditions

This scenario documents the addition of project traffic onto Near-Term Opening Day (Year 2022) conditions with volumes shown in **Figure 18**. The intersection LOS is shown in **Table 19.** The freeway off-ramp 95th percentile queues are shown in **Table 20**. The segment LOS is shown in **Table 21**. The intersection LOS and queueing output are included in **Appendix Q**.

TABLE 19: NEAR-TERM OPENING DAY (YEAR 2022) WITH PROJECT INTERSECTION LOS

Intersection and	Approach	Study	Near-Term		Near-Term + Project		
(Analysis)[1]		Period	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delta[4]
1) College Ave	All	Weekday AM	46.7	D	46.7	D	0.0
at Del Cerro	All	Weekday PM	27.7	C	27.8	C	0.1
Blvd (S)	All	Sunday AM	25.1	C	25.3	C	0.2
2) College Ave	WB	Weekday AM	DNE	NA	0.0	A	NA
at Project N.	WB	Weekday PM	DNE	NA	13.6	B	NA
Access (U)	WB	Sunday AM	DNE	NA	12.1	B	NA
3) College Ave	WB	Weekday AM	DNE	NA	0.0	A	NA
at Project Main	WB	Weekday PM	DNE	NA	124.4	**F**	>1
Access (U)	WB	Sunday AM	DNE	NA	BRD	**F**	>1
4) College Ave	All	Weekday AM	10.8	B	11.0	B	0.2
at I-8 WB	All	Weekday PM	11.4	B	11.4	B	0.0
Ramp (S)	All	Sunday AM	10.9	B	11.8	B	0.9
5) College Ave at							
I-8 EB Ramps (S)	All	Sunday AM	11.5	B	12.4	B	0.9

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. 4) Delta is the increase in delay from project. DNE: Does Not Exist. NA: Not Applicable. BOLD indicated unacceptable LOS and/or impact. BRD: Beyond Reasonable Delay (>180 sec.).

TABLE 20: NEAR-TERM OPENING DAY (YEAR 2022) WITH PROJECT FREEWAY OFF-RAMP INTERSECTION QUEUING

Ramp	Near-Term Sunday AM Peak Hour	Near-Term + Project Sunday AM Peak Hour
I-8 Westbound Off-Ramp at College Ave		
95th Percentile Off-Ramp Queue	119 Feet	164 Feet
Off-Ramp Storage from Exit Gore to Stop Bar	1,220 Feet	1,220 Feet
Queue Exceeds Storage?	No	No
I-8 Eastbound Off-Ramp at College Ave		
95th Percentile Off-Ramp Queue	338 Feet	421 Feet
Off-Ramp Storage from Exit Gore to Stop Bar	750 Feet	750 Feet
Queue Exceeds Storage?	No	No

Notes: 95th percentile off-ramp queue calculated using SimTraffic 10 software.

Figure 18: Near-Term Opening Day (Year 2022) with Project Volumes

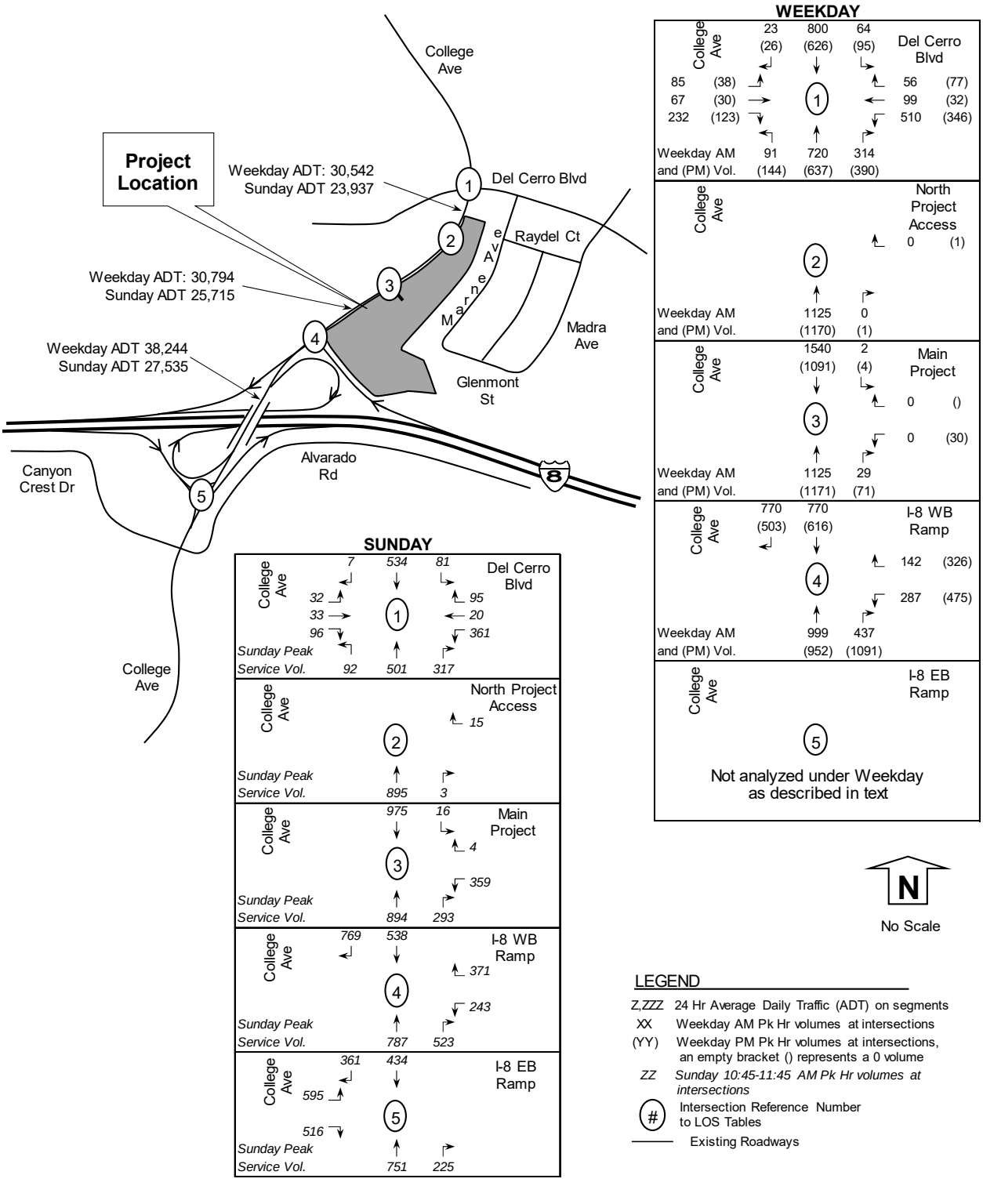


TABLE 21: NEAR-TERM OPENING DAY (YEAR 2022) WITH PROJECT SEGMENT ADT VOLUMES AND LOS

Segment	Functional Classification	Near-Term				Project	Near-Term + Project				
		Daily Volume	LOS E Capacity	V/C	LOS	Daily Volume	Daily Volume	LOS E Capacity	V/C	LOS	Δ in V/C
WEEKDAY											
College Ave											
Del Cerro to Project Main Access	4 Lane Major	30,528	40,000	0.763	D	14	30,542	40,000	0.764	D	0.000
Project Main Access to I-8 WB Ramps	4 Lane Collector	30,528	30,000	1.018	**F**	266	30,794	30,000	1.026	**F**	0.009
I-8 WB Ramp to I-8 EB Ramps	4 Lane Collector	38,096	30,000	1.270	**F**	148	38,244	30,000	1.275	**F**	0.005
SUNDAY											
College Ave											
Del Cerro to Project Main Access	4 Lane Major	23,838	40,000	0.596	C	99	23,937	40,000	0.598	C	0.002
Project Main Access to I-8 WB Ramps	4 Lane Collector	23,838	30,000	0.795	D	1,877	25,715	30,000	0.857	**E**	0.063
I-8 WB Ramps to I-8 EB Ramps	4 Lane Collector	26,488	30,000	0.883	**E**	1,047	27,535	30,000	0.918	**E**	0.035

Notes: Daily volume is a 24 hour volume. LOS: Level of Service.

Under Near-Term Opening Day (Year 2022) with Project Conditions, the project adds more than 50 peak hour turn moves or more than 500 daily trips to study locations forecasted to operate at LOS E/F that include:

1) College Ave/Main Project Access (LOS F Weekday PM and Sunday AM). The project adds more than 50 peak hour trips to this intersection and the applicant proposes to install a traffic signal to provide acceptable LOS as shown below in **Table 22** (LOS calculation are included in **Appendix R**).

2) College Ave between Project Main Access and I-8 WB Ramps (LOS E Sunday). The project adds more than 500 Sunday only trips to this segment and less than 500 Weekday trips; therefore, no roadway improvements are proposed because the Sunday traffic is not added during typical Monday through Friday commuter periods.

3) College Ave between I-8 WB and EB Ramps (LOS F Sunday). The project adds more than 500 Sunday only trips to this segment and less than 500 Weekday trips; therefore, no roadway improvements are proposed because the Sunday traffic is not added during typical Monday through Friday commuter periods.

TABLE 22: NEAR-TERM OPENING DAY (YEAR 2022) WITH PROJECT MAIN ACCESS LOS WITH IMPROVEMENT

Intersection and (Analysis)[1]	Movement	Study Period	Near-Term + Project without Traffic Signal	
			Delay[2]	LOS[3]
3) College Ave at	WB	Weekday PM	158.4	F
Project Main Access (U)	WB	Sunday AM	BRD	F
			Near-Term + Project with Traffic Signal	
3) College Ave at	All	Weekday PM	18.5	B
Project Main Access (S)	All	Sunday AM	10.4	B

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. BRD: Beyond Reasonable Delay (>180 sec.).

8.9 Horizon Year 2050 without Project Conditions

The Horizon Year 2050 growth forecast was based on a formula provided by City of San Diego staff to calculate future year traffic volumes. Calculations of the Series 12 growth forecasts are included in **Appendix S**.

The compound growth rate was calculated by segment using SANDAG Series 12 unadjusted regional travel demand model volumes as follows:

$$\text{Compound growth} = (\text{2050 unadjusted ADT} / \text{2008 unadjusted ADT})^{1/N} - 1$$

Where N = number of years (2050 – 2008 = 42 years)

The compound growth rate was applied for a period of 31 years to existing segment counts collected in 2019 to represent year 2050 daily traffic volumes (2050 – 2019 = 31). This was applied to both the weekday and Sunday volumes.

Intersection turning movement forecasts were based on applying the Series 12 average annual growth rate of 0.53% per year. The compounded growth rate factor to year 2050 is 1.178.

Horizon Year 2050 conditions showing the study area roadway conditions, which were assumed as the same as existing conditions, are shown in **Figure 19**. The Horizon Year 2050 volumes without the project are shown in **Figure 20.**

The intersection LOS is shown in **Table 23**. The freeway off-ramp 95th percentile queues are shown in **Table 24**. The segment LOS is shown in **Table 25**. The intersection LOS and queueing output are included in **Appendix T**.

TABLE 23: HORIZON YEAR 2050 WITHOUT PROJECT INTERSECTION LOS

Intersection and (Analysis)[1]	Approach	Study Period	Horizon Year 2050 Delay[2]	Horizon Year 2050 LOS[3]
1) College Ave	All	Weekday AM	48.8	D
at Del Cerro	All	Weekday PM	31.0	C
Blvd (S)	All	Sunday AM	27.9	C
2) College Ave	WB	Weekday AM	DNE	NA
at Project N.	WB	Weekday PM	DNE	NA
Access (U)	WB	Sunday AM	DNE	NA
3) College Ave	WB	Weekday AM	DNE	NA
at Project Main	WB	Weekday PM	DNE	NA
Access (U)	WB	Sunday AM	DNE	NA
4) College Ave	All	Weekday AM	14.3	B
at I-8 WB	All	Weekday PM	12.9	B
Ramp (S)	All	Sunday AM	10.8	B
5) College Ave at I-8 EB Ramps (S)	All	Sunday AM	11.8	B

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. DNE: Does Not Exist. NA: Not Applicable.

Figure 19: Horizon Year 2050 Roadway Conditions

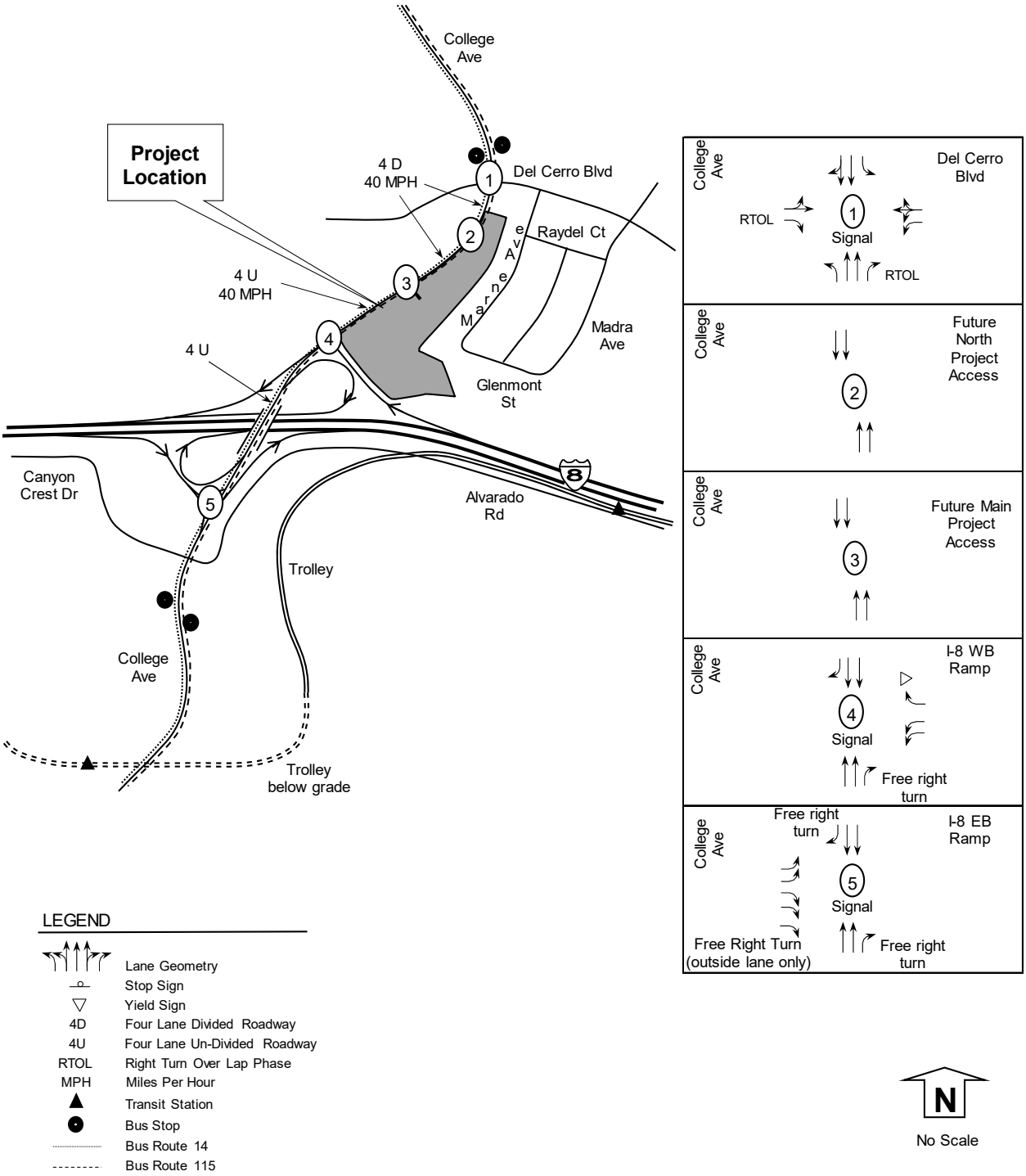


Figure 20: Horizon Year 2050 without Project Volumes

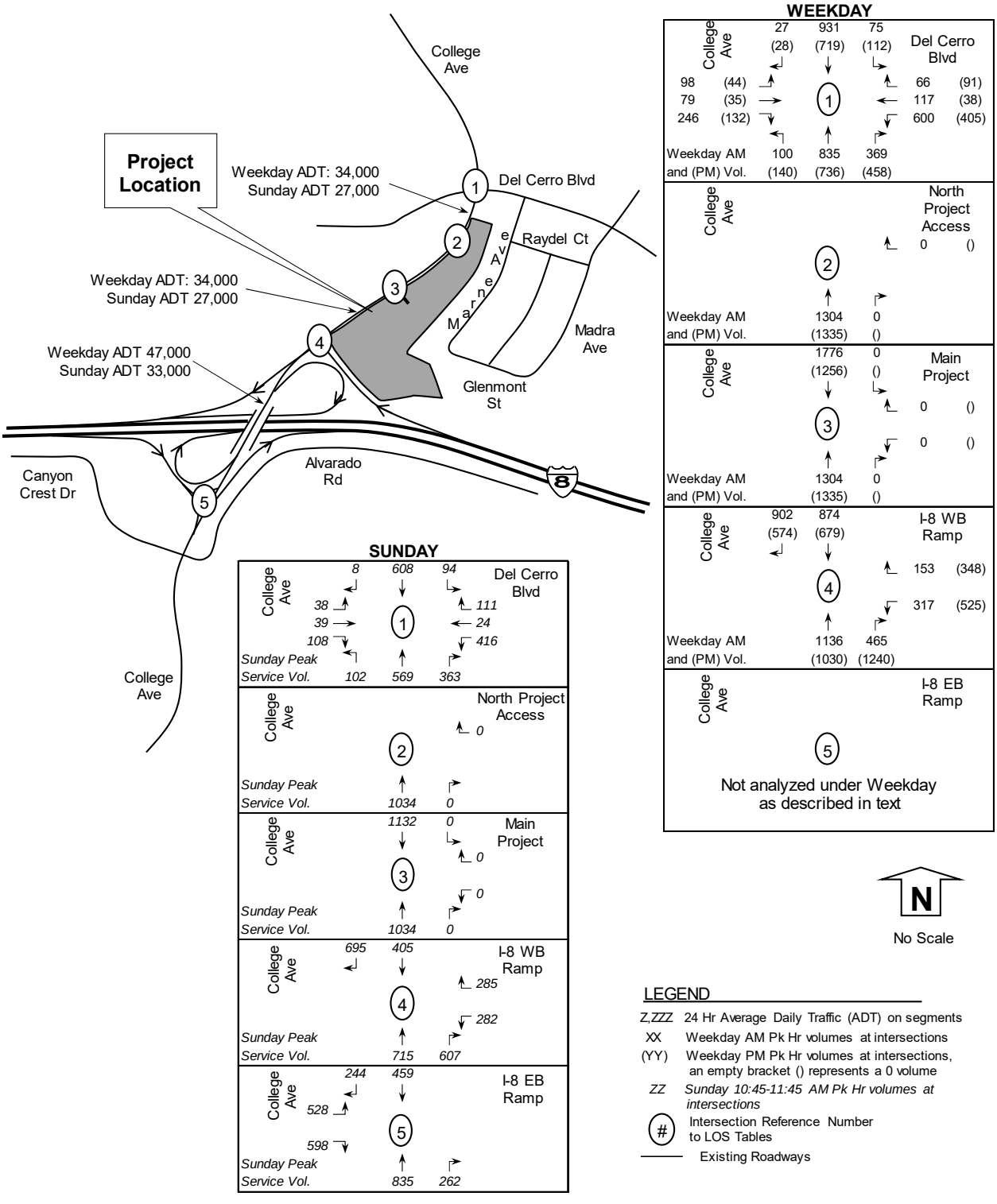


TABLE 24: HORIZON YEAR 2050 WITHOUT PROJECT FREEWAY OFF-RAMP INTERSECTION QUEUING

Ramp	Horizon Year 2050 Sunday AM Peak Hour
I-8 Westbound Off-Ramp at College Ave	
95th Percentile Off-Ramp Queue	144 Feet
Off-Ramp Storage from Exit Gore to Stop Bar	1,220 Feet
Queue Exceeds Storage?	No
I-8 Eastbound Off-Ramp at College Ave	
95th Percentile Off-Ramp Queue	462 Feet
Off-Ramp Storage from Exit Gore to Stop Bar	750 Feet
Queue Exceeds Storage?	No

Notes: 95th percentile off-ramp queue calculated using SimTraffic 10 software.

TABLE 25: HORIZON YEAR 2050 WITHOUT PROJECT SEGMENT ADT VOLUMES AND LOS

Segment	Functional Classification	Horizon Year 2050 Daily Volume	LOS E Capacity	V/C	LOS
WEEKDAY					
College Ave					
Del Cerro to Project Main Access	4 Lane Major	34,000	40,000	0.850	D
Project Main Access to I-8 WB Ramps	4 Lane Collector	34,000	30,000	1.133	**F**
I-8 WB Ramp to I-8 EB Ramps	4 Lane Collector	47,000	30,000	1.567	**F**
SUNDAY					
College Ave					
Del Cerro to Project Main Access	4 Lane Major	27,000	40,000	0.675	C
Project Main Access to I-8 WB Ramps	4 Lane Collector	27,000	30,000	0.900	**E**
I-8 WB Ramps to I-8 EB Ramps	4 Lane Collector	33,000	30,000	1.100	**F**

Notes: Daily volume is a 24 hour volume. LOS: Level of Service.

Under Horizon Year 2050 without Project Conditions, the following deficiencies are forecasted:

Weekday segments:

1) College Ave between Project Main Access and I-8 WB Ramps (LOS F)
2) College Ave between I-8 WB and EB Ramps (LOS F)

Sunday segments:

1) College Ave between Project Main Access and I-8 WB Ramps (LOS E)
2) College Ave between I-8 WB and EB Ramps (LOS F)

8.10 Horizon Year 2050 with Project Conditions

The Horizon Year 2050 with the Project Conditions were analyzed by adding the project traffic onto Horizon Year 2050 volumes. The Horizon Year 2050 volumes with project traffic are shown in **Figure 21.**

The intersection LOS is shown in **Table 26**. The freeway off-ramp 95th percentile queues are shown in **Table 27**. The segment LOS is shown in **Table 28**. The intersection LOS and queueing output are included in **Appendix U**.

TABLE 26: HORIZON YEAR 2050 WITH PROJECT INTERSECTION LOS

Intersection and (Analysis)[1]	Approach	Study Hour	Horizon Year (2050) Delay[2]	Horizon Year (2050) LOS[3]	Horizon Year (2050) + Project Delay[2]	Horizon Year (2050) + Project LOS[3]	Horizon Year (2050) + Project Delta[4]
1) College Ave	All	Weekday AM	48.8	D	48.9	D	0.1
at Del Cerro	All	Weekday PM	31.0	C	31.0	C	0.0
Blvd (S)	All	Sunday AM	27.9	C	28.2	C	0.3
2) College Ave	WB	Weekday AM	DNE	NA	0.0	A	0.0
at Project N.	WB	Weekday PM	DNE	NA	14.9	B	14.9
Access (U)	WB	Sunday AM	DNE	NA	13.0	B	13.0
3) College Ave	WB	Weekday AM	DNE	NA	0.0	A	0.0
at Project Main	WB	Weekday PM	DNE	NA	BRD	F	>1
Access (U)	WB	Sunday AM	DNE	NA	BRD	F	>1
4) College Ave	All	Weekday AM	14.3	B	14.3	B	0.0
at I-8 WB	All	Weekday PM	12.9	B	13.2	B	0.3
Ramp (S)	All	Sunday AM	10.8	B	12.1	B	1.3
5) College Ave at I-8 EB Ramps (S)	All	Sunday AM	11.8	B	13.2	B	1.4

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. 4) Delta is the increase in delay from project. 5) Direct impact if project traffic exceeds threshold. DNE: Does Not Exist. NA: Not Applicable. BRD: Beyond Reasonable Delay (>180 sec.)

TABLE 27: HORIZON YEAR 2050 WITH PROJECT FREEWAY OFF-RAMP INTERSECTION QUEUING

Ramp	Horizon Year 2050 Sunday AM Peak Hour	Horizon Year 2050 + Project Sunday AM Peak Hour
I-8 Westbound Off-Ramp at College Ave		
95th Percentile Off-Ramp Queue	144 Feet	171 Feet
Off-Ramp Storage from Exit Gore to Stop Bar	1,220 Feet	1,220 Feet
Queue Exceeds Storage?	No	No
I-8 Eastbound Off-Ramp at College Ave		
95th Percentile Off-Ramp Queue	462 Feet	624 Feet
Off-Ramp Storage from Exit Gore to Stop Bar	750 Feet	750 Feet
Queue Exceeds Storage?	No	No

Notes: 95th percentile off-ramp queue calculated using SimTraffic 10 software.

Figure 21: Horizon Year 2050 with Project Volumes

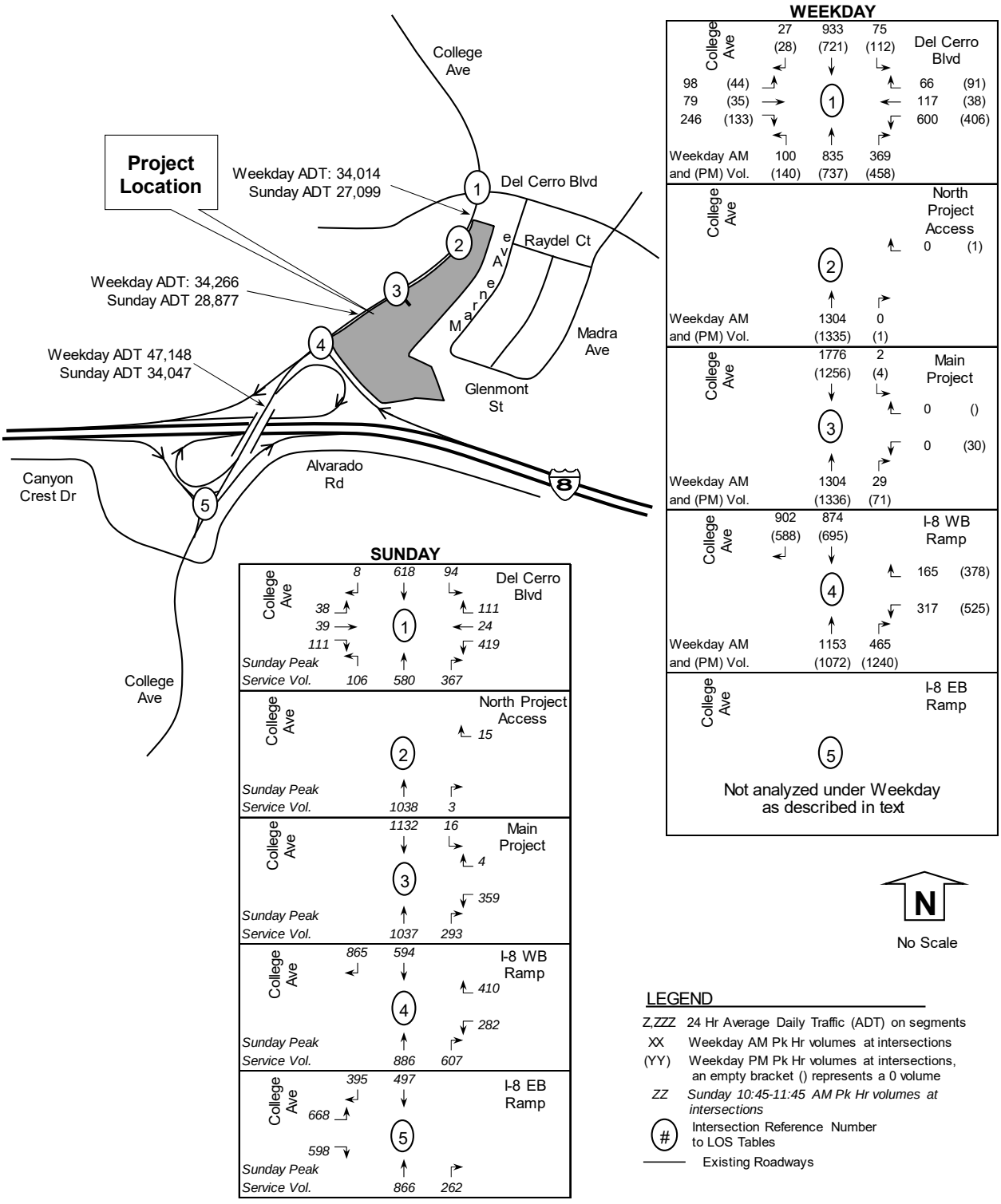


TABLE 28: HORIZON YEAR 2050 WITH PROJECT SEGMENT ADT VOLUMES AND LOS

Segment	Functional Classification	Horizon Year 2050				Project	Horizon Year 2050 + Project					
		Daily Volume	LOS E Capacity	V/C	LOS	Daily Volume	Daily Volume	LOS E Capacity	V/C	LOS	Δ in V/C	Project % of total ADT
WEEKDAY												
College Ave												
Del Cerro to Project Main Access	4 Lane Major	34,000	40,000	0.850	D	14	34,014	40,000	0.850	D	0.000	0.04%
Project Main Access to I-8 WB Ramps	4 Lane Coll.	34,000	30,000	1.133	**F**	266	34,266	30,000	1.142	**F**	0.009	0.78%
I-8 WB Ramp to I-8 EB Ramps	4 Lane Coll.	47,000	30,000	1.567	**F**	148	47,148	30,000	1.572	**F**	0.005	0.31%
SUNDAY												
College Ave												
Del Cerro to Project Main Access	4 Lane Major	27,000	40,000	0.675	C	99	27,099	40,000	0.677	C	0.002	0.37%
Project Main Access to I-8 WB Ramps	4 Lane Coll.	27,000	30,000	0.900	**E**	1,877	28,877	30,000	0.963	**E**	0.063	6.50%
I-8 WB Ramps to I-8 EB Ramps	4 Lane Coll.	33,000	30,000	1.100	**F**	1,047	34,047	30,000	1.135	**F**	0.035	3.08%

Notes: Daily volume is a 24 hour volume. LOS: Level of Service. Coll. = Collector.

Under Horizon Year 2050 with Project Conditions, the project adds more than 50 peak hour turn moves or more than 500 daily trips to study locations forecasted to operate at LOS E/F that include:

1) College Ave/Main Project Access (LOS F Weekday PM and Sunday AM). The project adds more than 50 peak hour trips to this intersection and the applicant proposes to install a traffic signal to provide acceptable LOS as shown below in **Table 29** (LOS calculation are included in **Appendix V**).

2) College Ave between Project Main Access and I-8 WB Ramp (LOS E Sunday). The project adds more than 500 Sunday only trips to this segment and less than 500 Weekday trips; therefore, no roadway improvements are proposed because the Sunday traffic is not added during typical Monday through Friday commuter periods.

3) College Ave between I-8 WB and EB Ramps (LOS F Sunday). The project adds more than 500 Sunday only trips to this segment and less than 500 Weekday trips; therefore, no roadway improvements are proposed because the Sunday traffic is not added during typical Monday through Friday commuter periods.

TABLE 29: HORIZON YEAR 2050 WITH PROJECT MAIN ACCESS INTERSECTION LOS WITH IMPROVEMENT

Intersection and (Analysis)[1]	Approach	Study Period	Horizon Year + Project without Traffic Signal	
			Delay[2]	LOS[3]
3) College Ave at	WB	Weekday PM	BRD	**F**
Project Main Access (U)	WB	Sunday AM	BRD	**F**
			Horizon Year + Project with Traffic Signal	
3) College Ave at	All	Weekday PM	19.5	B
Project Main Access (S)	All	Sunday AM	12.0	B

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. BRD: Beyond Reasonable Delay (>180 sec.).

8.11 Queuing at College Ave/Main Project Access Signalized Intersection

As part of the project, the Owner/Permittee is proposing a traffic signal and associated median improvements at the Project Main Access on College Ave. The 95th percentile queue was analyzed using SimTraffic 10 software at this location. The queue was calculated running ten 60-minute simulations runs with a ten-minute seeding time.

The 95th percentile queue was compared to the turn pocket storage length. For this intersection, the storage length is the from the stop bar to the end of the lane stripe as shown on the civil plans. For through movements, the storage was taken as the distance from the intersection stop bar to the upstream intersection curb return. The 95th percentile queues for the main access are shown in **Table 30** with calculations included in **Appendix W**.

TABLE 30: PROJECT MAIN ACCESS QUEUING

College Ave at Main Project Access	Near-Term + Project			Horizon Year 2050 + Project		
	Weekday AM	Weekday PM	Sunday AM	Weekday AM	Weekday PM	Sunday AM
Northbound Through Lanes 95th %ile Queue (ft)	19	105	226	33	124	242
Lane storage between intersections in feet (a)	650	650	650	650	650	650
Exceeds Storage?	No	No	No	No	No	No
Northbound Right Turn Lane 95th %ile Queue (ft)	0	23	88	0	26	157
Turn Pocket Storage Length (ft)	360	360	360	360	360	360
Exceeds Storage?	No	No	No	No	No	No
Southbound Left Turn Lane 95th %ile Queue (ft)	10	21	44	18	18	47
Turn Pocket Storage Length (ft)	130	130	130	130	130	130
Exceeds Storage?	No	No	No	No	No	No
Southbound Through Lanes 95th %ile Queue (ft)	0 (c)	110	313	0 (c)	143	359
Lane storage between intersections in feet (b)	500	500	500	500	500	500
Exceeds Storage?	No	No	No	No	No	No

Notes: (a) Approximately 650 ft from proposed intersection stop bar back to I-8 WB off-ramp intersection northside curb return. (b) Approximately 500 ft from proposed intersection stop bar back to Del Cerro intersection southside curb return. (c) No southbound queue reported because project does not have forecasted AM trips leaving the site; therefore, traffic signal is not forecasted to trigger a red light for southbound vehciles, thus no reported southbound queue.

8.12 Queuing at College Ave/Del Cerro Blvd Signalized Intersection

At the request of City staff, queueing was analyzed for the intersection of College Ave/Del Cerro Blvd even though the project adds well under the typical 50 peak hour project trips used to determine a study location. The 95th percentile queue was analyzed using SimTraffic 10 software at this location. The queue was calculated running ten 60-minute simulations runs with a ten-minute seeding time.

The 95th percentile queue was compared to the available storage. For this intersection, the northbound left turn pocket storage length is 75 feet while the storage is approximately 550 for each northbound through travel lane. The 95th percentile queues under near-term conditions are shown in **Table 31** and **Table 32** for horizon year conditions. Calculations are included in **Appendix X**.

TABLE 31: COLLEGE AVE/DEL CERRO BLVD NEAR-TERM QUEUING

College Ave at Del Cerro Blvd	Near-Term 95th % Queue (ft)			Near-Term + Project 95th % Queue (ft)			Change in 95th % Queue (ft)		
	WD AM	WD PM	Sun AM	WD AM	WD PM	Sun AM	WD AM	WD PM	Sun AM
NB LT 95th Percentile Queue (ft)	NA (1)	NA (1)	118	NA (1)	NA (1)	118	NA (1)	NA (1)	0
Available Storage (ft)	75	75	75	75	75	75	Increase in queue		
Queue Exceeds Storage?	NA (1)	NA (1)	Yes	NA (1)	NA (1)	Yes	(feet) due to		
Distance Exceeding Storage (ft)	NA (1)	NA (1)	43	NA (1)	NA (1)	43	project traffic		
NB Through Lanes 95th Percentile Queue (ft)	NA (1)	294	178	NA (1)	303	197	NA (1)	9	19
Available Storage between intersections(a) (ft)	550	550	550	550	550	550	Increase in queue		
Queue Exceeds Storage?	NA (1)	No	No	NA (1)	No	No	(feet) due to		
Amount Exceeding Available Storage (ft)	NA (1)	0	0	NA (1)	0	0	project traffic		

Notes: WD: Weekday. Sun: Sunday. Ft: Feet. (a) Approximately 550 ft from northbound stop bar at Del Cerro intersection south to proposed Church main driveway signalized intersection. NA (1) Not Applicable because project does not add peak hour traffic to this movement under the referenced scenario.

TABLE 32: COLLEGE AVE/DEL CERRO BLVD HORIZON YEAR QUEUING

College Ave at Del Cerro Blvd	Horizon Year 2050 95th % Queue (ft)			Horizon Year + Project 95th % Queue (ft)			Change in 95th % Queue (ft)		
	WD AM	WD PM	Sun AM	WD AM	WD PM	Sun AM	WD AM	WD PM	Sun AM
NB LT 95th %ile Queue (ft)	NA (1)	NA (1)	127	NA (1)	NA (1)	132	NA (1)	NA (1)	5
Available Storage (ft)	75	75	75	75	75	75	Increase in queue		
Queue Exceeds Storage?	NA (1)	NA (1)	Yes	NA (1)	NA (1)	Yes	(feet) due to		
Distance Exceeding Storage (ft)	NA (1)	NA (1)	52	NA (1)	NA (1)	57	project traffic		
NB Through Lanes 95th percentile Queue (ft)	NA (1)	285	262	NA (1)	305	298	NA (1)	20	36
Available Storage between intersections(a) (ft)	550	550	550	550	550	550	Increase in queue		
Queue Exceeds Storage?	NA (1)	No	No	NA (1)	No	No	(feet) due to		
Amount Exceeding Available Storage (ft)	NA (1)	0	0	NA (1)	0	0	project traffic		

Notes: WD: Weekday. Sun: Sunday. Ft: Feet. (a) Approximately 550 ft from northbound stop bar at Del Cerro intersection south to proposed Church main driveway signalized intersection. NA (1) Not Applicable because project does not add peak hour traffic to this movement under the referenced scenario.

9.0 Conclusions

All Peoples Church is proposed on the northeast corner of I-8 and College Avenue with a sanctuary capacity of 900 seats (587 fixed seats and 3,690 s.f. of non-fixed seats). The site with residential zoning RS-1-7 on approximately 6 acres is vacant. The project site currently has no vehicular access and frontage only along College Avenue. Project access is proposed from a signalized main driveway and a secondary right-in/right-out driveway, both on College Avenue. Project opening is forecasted to occur in 2022. The following discretionary approvals are required as part of the project:

1) Community Plan Amendment
2) Planned Development Permit
3) Site Development Permit
4) Vacation of Easements and Slope Rights

This Local Mobility Analysis (LMA) determines if there are any traffic effects caused by the project traffic that would trigger roadway and other multi-modal improvements or a fair share participation. The LMA is based on the City of San Diego *Transportation Study Manual*, September 29, 2020 and includes the analysis of pedestrian, bicycle, transit, and vehicular facilities.

Pedestrian facilities within the ½ mile walking distance from the project were evaluated. Intersection curb ramps were missing at the following locations:

1) Chrismark Ave/Wenrich Dr
2) Rockhurst Ct/Rockhurst Dr
3) Rockhurst Dt/Lambda Dr
4) Rockhurst Dr/Romany Dr (N. and E. Corners only)
5) Theta Pl/Romany Dr
6) Arno Dr/Capri Dt
7) Arno Dr/ Helena Pl

There were missing sidewalks at the following locations:

1) College Ave along the western side of the roadway from approximately 150 feet south of Del Cerro Blvd to Canyon Crest Dr/Alvarado Rd. There are no pedestrian access points to the adjacent parcels along this segment. Additionally, the College Ave bridge over I-8 does not have a sidewalk on the western side of the roadway.
2) Alvarado Rd extending east of College Ave.

As part of the project, the following pedestrian improvements will be constructed along the project's frontage on College Avenue. From the northern project boundary down to the proposed signalized main project driveway, a non-contiguous sidewalk will be installed with a transition to the existing contiguous sidewalk north of the project. From the proposed signalized main project driveway down to the southern project boundary, a 12-foot shared path consisting of a 6-foot bike path and a 6-foot pedestrian path will be installed outside of the vehicular traveled way.

Bicycle facilities within a ½ mile bicycling distance from the project were evaluated. No bike lanes nor bike routes were observed within ½ mile of the project access points. As part of the project, the following bicycle improvements will be constructed along the project's frontage on

College Avenue. From the northern project boundary down to the proposed signalized main project driveway, a buffered Class II bike lane will be installed. From the proposed signalized main project driveway down to the southern project boundary, a 12-foot shared path consisting of a 6-foot bike path and a 6-foot pedestrian path will be installed outside of the vehicular traveled way.

Transit facilities within a ½ mile walking distance which included four bus stops were evaluated. Two on College Avenue just north of Del Cerro Boulevard and two on College Ave just south of Alvarado Road. Metropolitan Transit System (MTS) lists Bus Routes 14 and 115 within ½ mile walking distance from the project access. Bus Route 14 has 60-minute headways listed for the AM and PM peak hours and Bus Route 115 has 30-minute headways listed for the AM and PM peak hours. On Sunday, Bus Route 14 does not have service and Bus Route 115 has 60-minute headways through the day. The San Diego State University trolley station is approximately 5,000 feet (just under 1 mile) walking distance from the project pedestrian access point.

Vehicular facilities included the analysis of four (4) intersections, and three (3) roadway segments under Near-Term Opening Day (Year 2022) and Horizon Year 2050 conditions for weekday conditions. For the Sunday scenario, five (5) intersections and three (3) roadway segments were analyzed under near-term and horizon year conditions. A horizon year 2050 analysis is included because the project is proposing a Community Plan Amendment.

The City of San Diego Vision Zero policy promotes safe roadway design with a goal toward preventing collisions. As part of that goal, a systemic safety review provides an assessment of hotspots and possible countermeasures to align with Vision Zero. City staff identified the intersection of College Ave and Del Cerro Blvd as appearing on the City's hot spot map for pedestrians. A review of the accident history for the latest available five years (2015-2019) at the intersection of College Ave and Del Cerro Blvd concluded that no specific pattern of pedestrian-vehicle accidents was found for the study period; therefore, the project proposes no changes at this location.

The 95th percentile vehicle queues were calculated at the following locations using SimTraffic 10 software.

The freeway westbound off-ramp at College Ave under Sunday conditions was calculated to have a 95th percentile queue of 164 feet under near-term + project conditions and 171 feet under horizon year + project conditions that can be accommodated within the existing off-ramp storage length of approximately 1,220 feet.

The freeway eastbound off-ramp at College Ave under Sunday conditions was calculated to have a 95th percentile queue of 421 feet under near-term + project conditions and 624 feet under horizon year + project conditions that can be accommodated within the existing off-ramp storage length of approximately 750 feet.

The proposed signalized Main Access on College Ave has a 95th percentile southbound left turn queue calculated between 10 feet and 47 feet (depending on the scenario) that can be accommodated within the proposed left turn lane with a storage length of 130 feet. The 95th percentile northbound right turn queue was calculated at 157 feet under Sunday AM conditions that can be accommodated within the proposed right turn lane with a storage length of 360 feet. The northbound through lane has a 95th percentile queue calculated between 19 feet and 242 feet (depending on the scenario) that does not spill back to the adjacent intersection approximately 650 feet away. The southbound through lane has a 95th percentile

queue calculated between 110 feet and 359 feet (depending on the scenario) that does not spill back to the adjacent intersection approximately 500 feet away.

The intersection of College Ave at Del Cerro Blvd has a 95th percentile northbound left turn queue of 118 feet under Sunday near-term + project conditions and 132 feet under Sunday horizon year + project conditions, which exceed the available storage length of approximately 75 feet. However, the addition of project traffic does not cause the forecasted 95th percentile queue to exceed the available storage. The addition of Sunday project traffic is calculated to extend the northbound left turn queue by 0 feet under near-term conditions and 5 feet under horizon year conditions. The northbound through lanes 95th percentile with project queues are calculated between 197 feet and 305 feet (depending on the scenario) that can be accommodated within the available storage of approximately 550 feet from the stop bar at Del Cerro Blvd and the proposed main signalized Church driveway.

The project's forecasted traffic generation was based on the higher trip generation rates between the City of San Diego *Trip Generation Manual*, May 2003 and site-specific trip generation rates calculated from the existing All Peoples Church currently operating at 5555 University Avenue in San Diego. The weekday trip generation is calculated at 280 ADT with 31 AM peak hour trips (31 inbound and 0 outbound) and 107 PM peak hour trips (76 inbound and 31 outbound). The Sunday trip generation (based on a maximum occupancy of 900 seats) is calculated at 1,976 ADT with 690 Sunday peak hour trips (378 outbound after the 10 AM service) and 312 inbound (from the 11:30 AM service).

Under Near-Term Opening Day (Year 2022) with Project Conditions, the project would add more than 50 peak hour turn moves or more than 500 daily trips to the study locations forecasted to operate at LOS E/F at the following locations:

1) College Ave/Main Project Access (LOS F Weekday PM and Sunday AM). The project would add more than 50 peak hour trips to this intersection and the applicant proposes to install a traffic signal to provide acceptable LOS.

2) College Ave between Project Main Access and I-8 WB Ramps (LOS E Sunday). The project would add more than 500 Sunday only trips to this segment and less than 500 Weekday trips; therefore, no roadway improvements are proposed because this additional Sunday project traffic would not be added during typical Monday through Friday commuter periods.

3) College Ave between I-8 WB and EB Ramps (LOS F Sunday). The project would add more than 500 Sunday only trips to this segment and less than 500 Weekday trips; therefore, no roadway improvements are proposed because this additional Sunday project traffic would not be added during typical Monday through Friday commuter periods.

Under Horizon Year 2050 with Project Conditions, the project would add more than 50 peak hour turn moves or more than 500 daily trips to the study locations forecasted to operate at LOS E/F:

1) College Ave/Main Project Access (LOS F Weekday PM and Sunday AM). The project would add more than 50 peak hour trips to this intersection and the applicant proposes to install a traffic signal to provide acceptable LOS.

2) College Ave between Project Main Access and I-8 WB Ramp (LOS E Sunday). The project would add more than 500 Sunday only trips to this segment and less than 500 Weekday trips; therefore, no roadway improvements are proposed because the Sunday project traffic would not be added during typical Monday through Friday commuter periods.

3) College Ave between I-8 WB and EB Ramps (LOS F Sunday). The project would add more than 500 Sunday only trips to this segment and less than 500 Weekday trips; therefore, no roadway improvements are proposed because the Sunday project traffic would not be added during typical Monday through Friday commuter periods.

As part of the project, the Owner/Permittee will install a traffic signal and associated median improvements at the Project Main Access on College Ave. The California MUTCD rev5 Warrant 3, Part B (Peak Hour) warrant is satisfied under Opening Day (Year 2022) Plus Project Sunday conditions. Prior to issuance of the first building permit, Owner/Permittee shall assure by permit and bond the construction of a traffic signal and associated communication equipment, satisfactory to the City Engineer. All Improvements shall be completed and operational prior to first occupancy.

# # #

Appendix A

Excerpts from City of San Diego Bicycle Master Plan Update and Community Plan

City of San Diego Bicycle Master Plan

San Diego, California

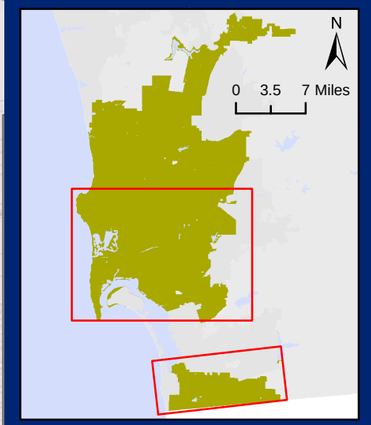
FINAL DRAFT – July 8, 2013

PREPARED BY:
Alta Planning + Design
PREPARED FOR:
The City of San Diego

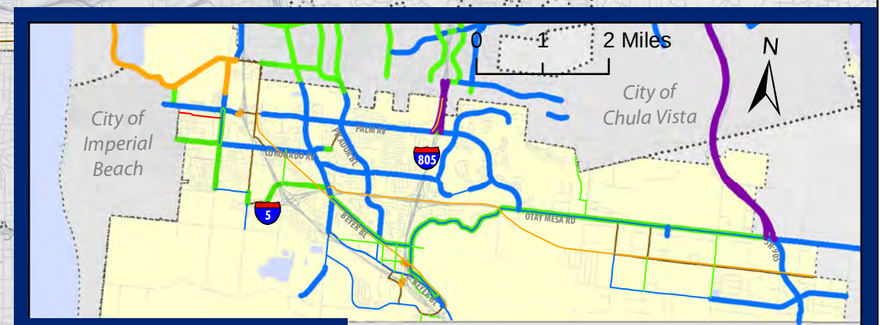
alta PLANNING + DESIGN

Figure 6-2: Proposed Bicycle Network with Classifications (South)

SOUTH SAN DIEGO



SAN YSIDRO INSET



Proposed Bicycle Network Classifications

Existing	Proposed	
		Class I - Bike Path
		Class II - Bike Lane
		Class III - Bike Route
		Freeway Shoulder
		Class II or III
		Bicycle Boulevard
		Cycle Track

N

0 0.5 1 Miles

Source: SANDAG (2009)
Alta Planning + Design (June 25, 2010)

BICYCLES

INTRODUCTION

Today across the United States the bicycle boom continues. People of all ages are riding bicycles as never before. People have turned to bicycles for exercise, recreation and transportation. Schools within a community often generate a high demand for bicycle facilities. Bikes do not pollute, are energy efficient, and they offer an opportunity to bypass congested streets.

The City has design standards for the construction of bikeways and an ongoing program of providing a comprehensive bikeway system for City residents that will connect to a regional bikeway network. Bikeways fall into three categories based on the degree or extent of their improvements: bicycle paths (Class I), lanes (Class II) and routes (Class III). Four such bikeways have been constructed in Navajo, and are noted on the bikeways map. They are described in the following section along with the proposed routes.

PROPOSALS

- **Regional Bikeway**

  A regional bike route is proposed from the ocean through Mission Valley to Mission Gorge Road and northeasterly along Mission Gorge Road. This route will also continue east parallel to the north side of I-8 from Mission Gorge Road to the vicinity of College Avenue.

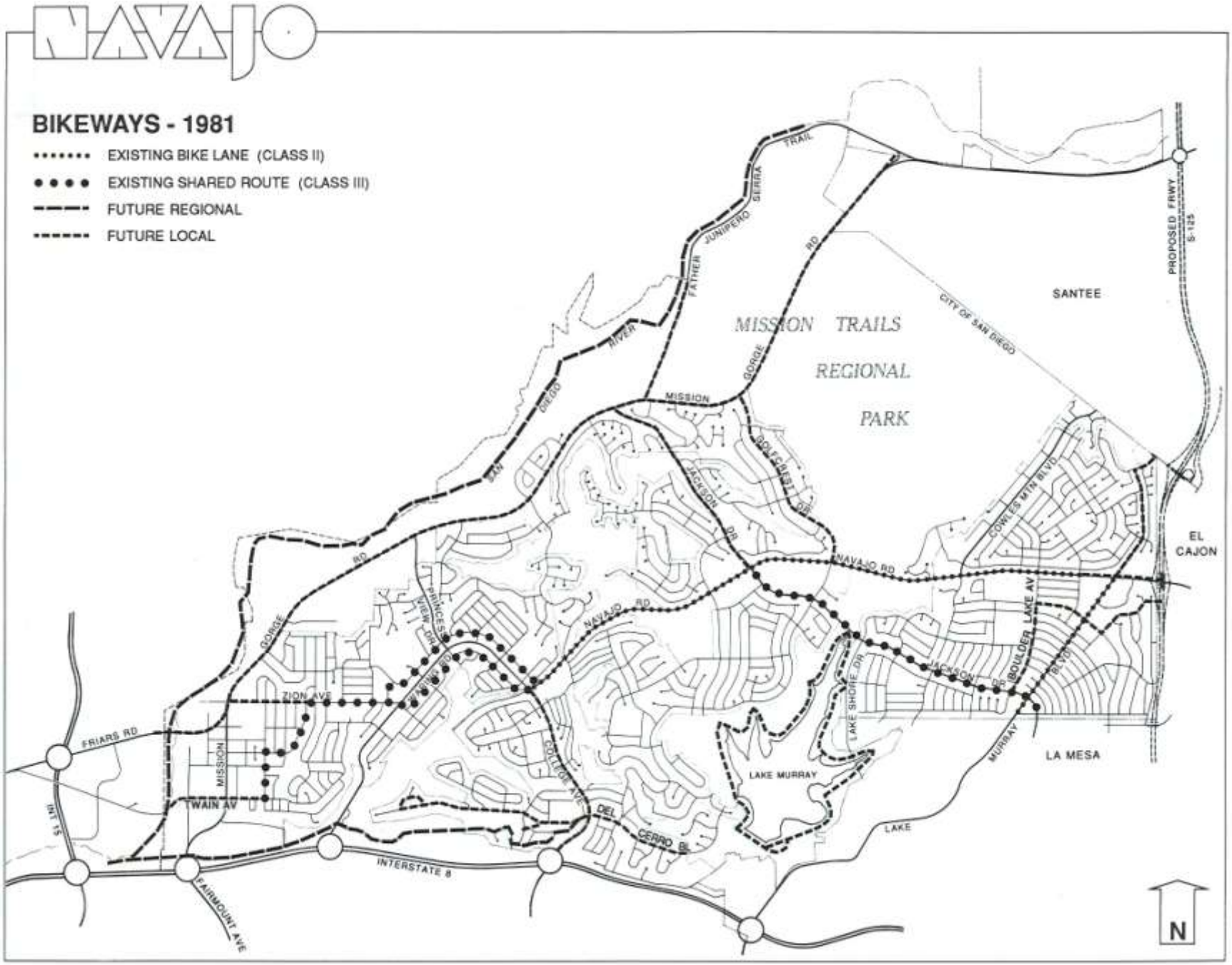
- **Del Cerro Route**

  This route would be oriented to the Del Cerro area and would utilize Del Cerro Boulevard from Trinity Way on the west to Linfield Avenue on the east. The intended alignment would provide a scenic overlook of Mission Valley. Length: 2.0 miles.

- **Allied Gardens Route**

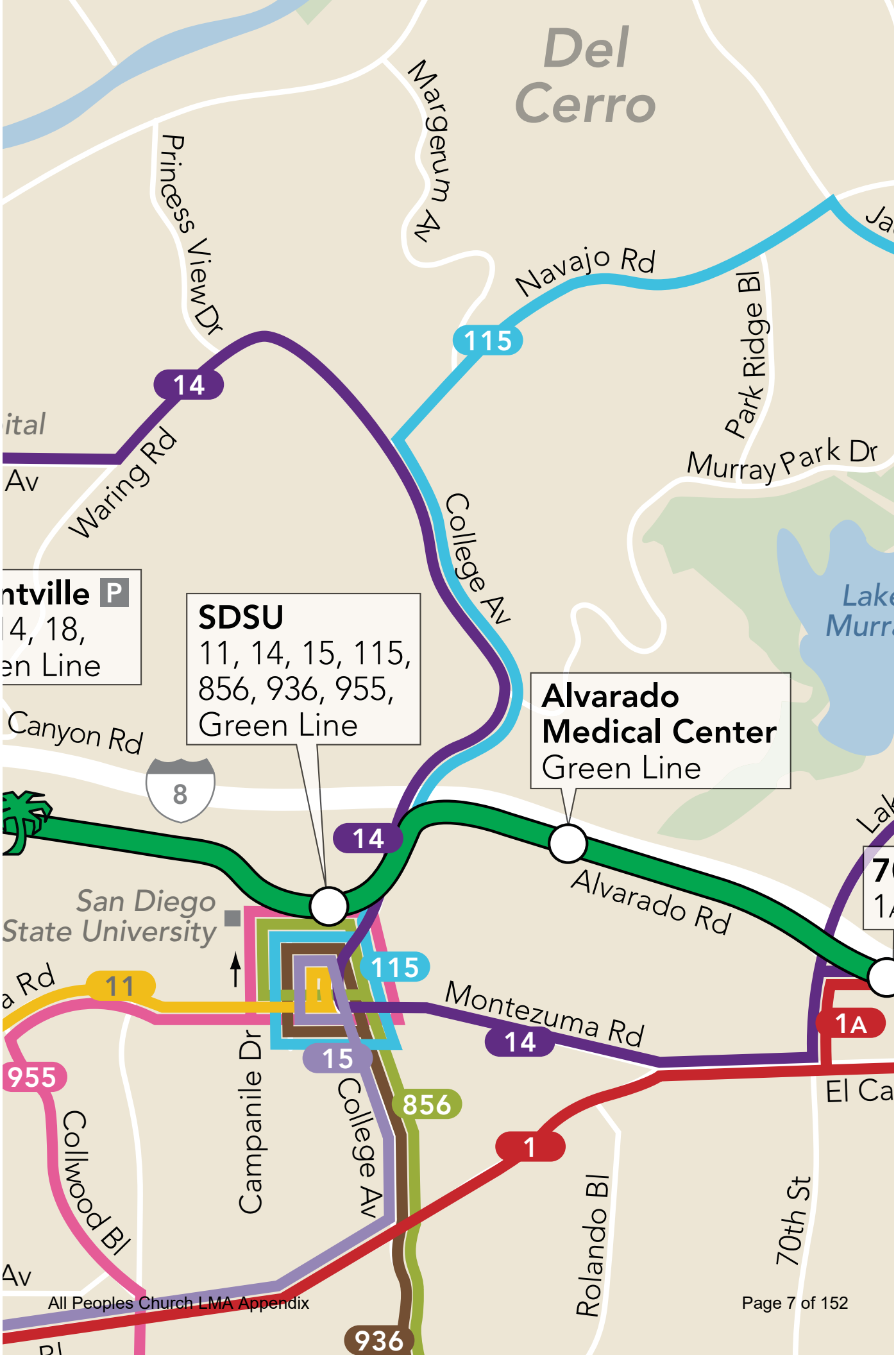
  This route would be oriented to Allied Gardens and also provide for the extension of bicycling opportunities from that community easterly to the Del Cerro area. This existing route utilizes Barclay Avenue and Brunswick Avenue between Galewood Street and Zion Avenue. Both streets run through attractive residential areas. College Avenue, the link to Del Cerro, would provide scenic overlooks of San Diego. Length: 2.0 miles.

  Connector - This route provides a connection between the Allied Gardens route and the proposed San Diego River route in the vicinity of Zion Avenue. The route is aligned along Zion Avenue, Delbarton Street, Crawford Street, and Twain Avenue. Except for Twain Avenue, this route exists. Length: 2.0 miles.


NAVAJO
BIKEWAYS - 1981
EXISTING BIKE LANE (CLASS II)
EXISTING SHARED ROUTE (CLASS III)
FUTURE REGIONAL
FUTURE LOCAL
MISSION TRAILS REGIONAL PARK
SANTEE
EL CAJON
LA MESA
LAKE MURRAY
FATHER JUNIPERO SERRA TRAIL
SAN DIEGO RIVER
MISSION GORGE RD
CITY OF SAN DIEGO
PROPOSED FRWY S-125
GOLFCREST DR
JACKSON DR
COWLES MTN BLVD
NAVAJO RD
LAKE AV
BOULDER
LAKE SHORE DR
MURRAY
PRINCESS VIEW DR
ZION AVE
FRIARS RD
MISSION
WAIN AV
COLLEGE AVE
DEL CERRO BL
INTERSTATE 8
FAIRMOUNT AVE
I-15
N
CITY OF SAN DIEGO • PLANNING DEPARTMENT

Appendix B

Transit Map and Schedules


Del Cerro
Margerum Av
Princess View Dr
Navajo Rd
115
Park Ridge Bl
Murray Park Dr
14
Waring Rd
College Av
ntville P
4, 18,
en Line
SDSU
11, 14, 15, 115,
856, 936, 955,
Green Line
Alvarado
Medical Center
Green Line
Canyon Rd
8
14
Alvarado Rd
San Diego
State University
11
115
Montezuma Rd
14
1A
955
15
856
Collwood Bl
Campanile Dr
College Av
1
Rolando Bl
70th St
936

CASH FARES / *Tarifas en efectivo*

Exact fare, please / *Favor de pagar la cantidad exacta*

Day Pass (Regional) / *Pase diario (Regional)* Compass Card required ($2) / *Se requiere un Compass Card ($2)*	$5.00
One-Way Fare / *Tarifa de una direccíon*	$2.25
Senior (60+)/Disabled/Medicare *Mayores de 60 años/Discapacitados/Medicare*	$1.10*
Children 5 & under / *Niños de 5 años o menos* Up to two children ride free per paying adult / *Máximo dos niños viajan gratis por cada adulto*	FREE / *GRATIS*

MONTHLY PASSES / *Pases mensual*

Adult / *Adulto*	$72.00
Senior (60+)/Disabled/Medicare *Mayores de 60 años/Discapacitados/Medicare*	$18.00*
Youths (18 and under) *Jóvenes (18 años o menos)*	$36.00*

*I.D. required for discount fare or pass.
**Se requiere identificación para tarifas o pases de descuento.*

DAY PASS (REGIONAL) / *Pase diario (Regional)*

All passes are sold on Compass Card, which can be reloaded and reused for up to five years. Compass Cards are available for $2 at select outlets. A $5 Day Pass requires a Compass Card. A paper Day Pass can be purchased on board buses for an additional $2 fee.

Todos los pases se venden en el Compass Card, el cual puede ser recargado y reutilizado por hasta cinco años. Compass Cards están disponibles por $2 en selectas sucursales. Un pase de un día por $5 requiere un Compass Card. Un pase de un día de papel se puede obtener a bordo los autobuses por un costo adicional de $2.

DIRECTORY / *Directorio*

Regional Transit Information *Información de transporte público regional*	**511** or/ó **(619) 233-3004**
TTY/TDD (teletype for hearing impaired) *Teletipo para sordos*	**(619) 234-5005** or/ó **(888) 722-4889**
InfoExpress (24-hour info via Touch-Tone phone) *Información las 24 horas (via teléfono de teclas)*	**(619) 685-4900**
Customer Service / Suggestions *Servicio al cliente / Sugerencias*	**(619) 557-4555**
SafeWatch	**(619) 557-4500**
Lost & Found *Objetos extraviados*	**(619) 557-4555**
Transit Store	**(619) 234-1060** 12th & Imperial Transit Center M–F 8am–5pm
For MTS online trip planning *Planificación de viajes por Internet*	**sdmts.com**

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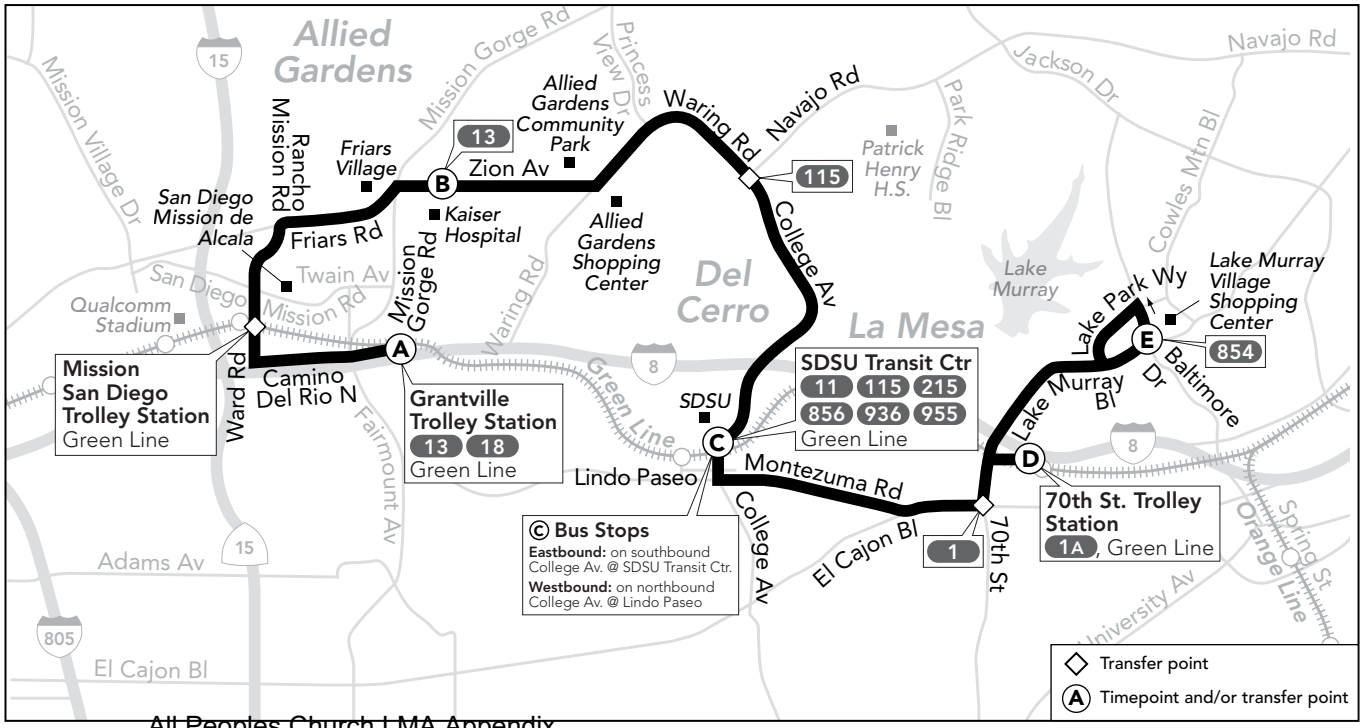
Thank you for riding MTS! ***¡Gracias por viajar con MTS!***



Effective JANUARY 27, 2019

14

Grantville Trolley – Lake Murray Bl.

via Kaiser Hospital / SDSU

DESTINATIONS

- Allied Gardens Community Park
- Kaiser Hospital
- SD Mission de Alcala
- SDSU

TROLLEY CONNECTIONS

Grantville
Mission San Diego
SDSU
70th St.

MTS Metropolitan Transit System

01/19

compass card

S/D/M and Youth Compass Card

All riders using reduced fares must comply with one of the following options:

Option 1 *(Recommended by MTS)*

MTS offers a picture ID on a Compass Card to eliminate the need to carry multiple identifications for proof of eligibility.

Option 2

Riders using a standard S/D/M or Youth Compass Card or a one-way ticket must carry supporting identification to prove eligibility.

For additional benefits of ***Option 1*** *and or list of valid forms of ID for* ***Option 2*** *go to:* ***www.sdmts.com/fares_discounted.asp.***

Alternative formats available upon request. Please call: (619) 557-4555 ***Formato alternativo disponible al preguntar. Favor de llamar: (619) 557-4555***

Route 14 – Monday through Friday / *lunes a viernes*

Grantville ➡ La Mesa

Ⓐ Grantville Trolley Station **DEPART**	Ⓑ Kaiser Hospital	Ⓒ SDSU Transit Center (College Av.)	Ⓓ 70th Street Trolley Station	Ⓔ Baltimore Dr. & Lake Murray Bl. **ARRIVE**
5:43a	5:53a	6:05a	6:16a	6:23a
6:40	6:51	7:04	7:16	7:24
7:40	7:51	8:04	8:16	8:24
8:40	8:51	9:04	9:16	9:24
9:40	9:51	10:03	10:14	10:22
10:40	10:51	11:03	11:14	11:22
11:40	11:51	**12:04p**	**12:16p**	**12:24p**
12:40p	**12:51p**	**1:04**	**1:16**	**1:24**
1:40	**1:51**	**2:04**	**2:16**	**2:24**
2:40	**2:51**	**3:04**	**3:16**	**3:24**
3:39	**3:50**	**4:04**	**4:17**	**4:25**
4:39	**4:50**	**5:04**	**5:17**	**5:25**
5:39	**5:50**	**6:04**	**6:17**	**6:25**
6:40	**6:50**	**7:03**	**7:15**	**7:22**

La Mesa ➡ Grantville

Ⓔ Baltimore Dr. & Lake Murray Bl. **DEPART**	Ⓓ 70th Street Trolley Station	Ⓒ SDSU (College Av. & Lindo Paseo)	Ⓑ Kaiser Hospital	Ⓐ Grantville Trolley Station **ARRIVE**
6:38a	6:46a	6:57a	7:10a	7:21a
7:36	7:44	7:56	8:09	8:21
8:36	8:44	8:56	9:09	9:21
9:38	9:46	9:58	10:10	10:21
10:38	10:46	10:58	11:10	11:21
11:38	11:46	11:58	**12:10p**	**12:21p**
12:35p	**12:43p**	**12:56p**	**1:09**	**1:21**
1:35	**1:43**	**1:56**	**2:09**	**2:21**
2:35	**2:43**	**2:56**	**3:09**	**3:21**
3:35	**3:43**	**3:56**	**4:09**	**4:21**
4:35	**4:43**	**4:56**	**5:09**	**5:21**
5:37	**5:45**	**5:58**	**6:10**	**6:21**

Route 14 does not operate on weekends or on the following holidays and observed holidays >>> New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas

La ruta 14 no ofrece servicio durante el fin de semana ó durante los siguientes días festivos y feriados observados

The schedules and other information shown in this timetable are subject to change. MTS does not assume responsibility for errors in timetables nor for any inconvenience caused by delayed buses.
Los horarios e información que se indican en este itinerario están sujetos a cambios. MTS no asume responsabilidad por errores en los itinerarios, ni por ningún perjuicio que se origine por los autobuses demorados.

CASH FARES / *Tarifas en efectivo*

Exact fare, please / *Favor de pagar la cantidad exacta*

Day Pass (Regional) / *Pase diario (Regional)* Compass Card required ($2) / *Se requiere un Compass Card ($2)*	$5.00
One-Way Fare / *Tarifa de una direccíon*	$2.25
Senior (60+)/Disabled/Medicare *Mayores de 60 años/Discapacitados/Medicare*	$1.10*
Children 5 & under / *Niños de 5 años o menos* Up to two children ride free per paying adult / *Máximo dos niños viajan gratis por cada adulto*	FREE / *GRATIS*

MONTHLY PASSES / *Pases mensual*

Adult / *Adulto*	$72.00
Senior (60+)/Disabled/Medicare *Mayores de 60 años/Discapacitados/Medicare*	$18.00*
Youths (18 and under) *Jóvenes (18 años o menos)*	$36.00*

*I.D. required for discount fare or pass.
**Se requiere identificación para tarifas o pases de descuento.*

DAY PASS (REGIONAL) / *Pase diario (Regional)*

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DIRECTORY / *Directorio*

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TTY/TDD (teletype for hearing impaired) *Teletipo para sordos*	**(619) 234-5005** or/ó **(888) 722-4889**
InfoExpress (24-hour info via Touch-Tone phone) *Información las 24 horas (via teléfono de teclas)*	**(619) 685-4900**
Customer Service / Suggestions *Servicio al cliente / Sugerencias*	**(619) 557-4555**
SafeWatch	**(619) 557-4500**
Lost & Found *Objetos extraviados*	**(619) 557-4555**
Transit Store	**(619) 234-1060** 12th & Imperial Transit Center M–F 8am–5pm
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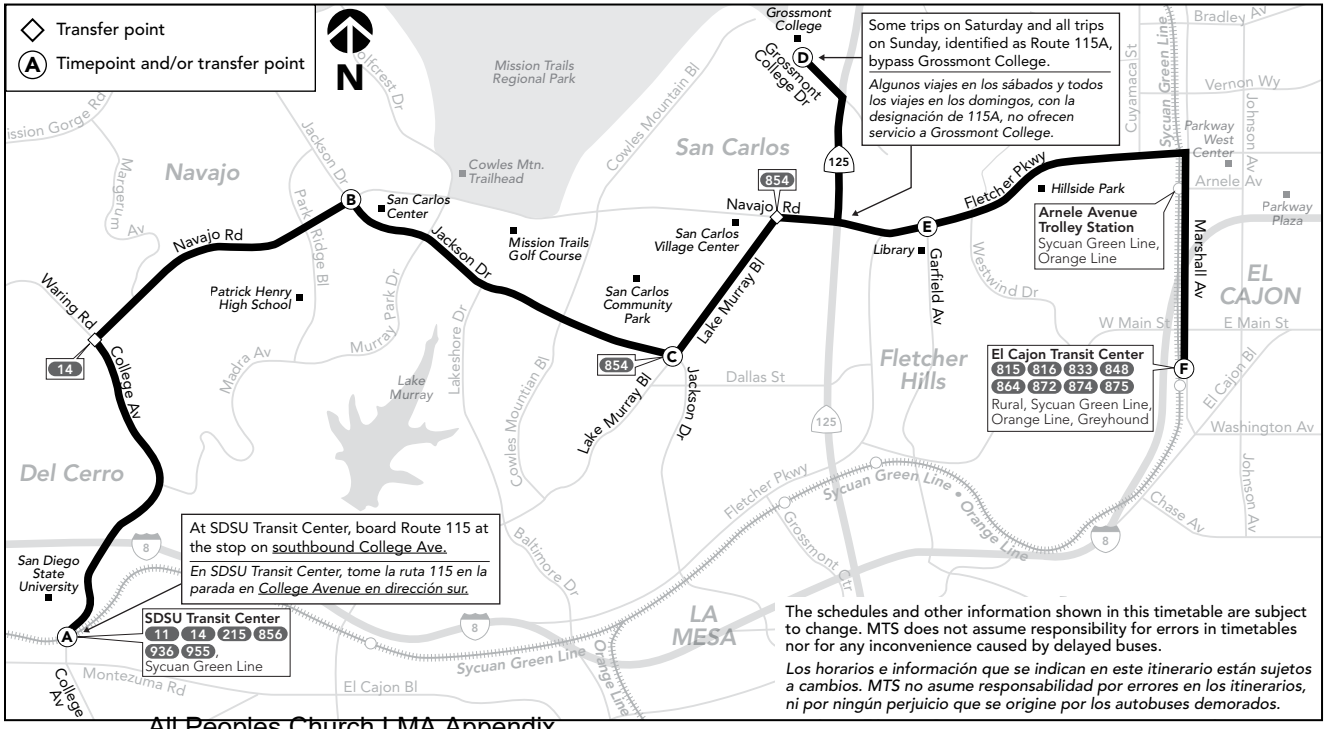
Thank you for riding MTS! ***¡Gracias por viajar con MTS!***



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Effective JANUARY 27, 2019

115

SDSU – El Cajon Transit Center

via Del Cerro / Grossmont College

DESTINATIONS

- Grossmont College
- San Carlos Center
- San Carlos Village Center
- SDSU

TROLLEY CONNECTIONS

SDSU
Arnele
El Cajon

MTS Metropolitan Transit System

01/19

Alternative formats available upon request.
Please call: (619) 557-4555

Formato alternativo disponible al preguntar.
Favor de llamar: (619) 557-4555

Route 115 – Monday through Friday / *lunes a viernes*

SDSU ➡ Navajo ➡ San Carlos ➡ El Cajon

Ⓐ SDSU Transit Center* **DEPART**	Ⓑ Jackson Dr. & Navajo Rd.	Ⓒ Lake Murray Bl. & Jackson Dr.	Ⓓ Grossmont College	Ⓔ Fletcher Pkwy. & Garfield Av.	Ⓕ El Cajon Transit Center **ARRIVE**
—	—	6:17a	6:26a	6:32a	6:39a
6:28a	6:41a	6:47	6:56	7:02	7:09
6:58	7:13	7:19	7:29	7:35	7:42
7:33	7:48	7:54	8:05	8:12	8:19
8:08	8:23	8:29	8:40	8:47	8:54
8:38	8:53	8:59	9:10	9:17	9:24
9:08	9:22	9:28	9:39	9:45	9:52
9:38	9:52	9:58	10:09	10:15	10:22
10:08	10:22	10:28	10:39	10:45	10:52
10:38	10:53	10:59	11:10	11:16	11:24
11:08	11:23	11:29	11:40	11:46	11:54
11:38	11:53	11:59	**12:10p**	**12:16p**	**12:24p**
12:08p	**12:23p**	**12:29p**	**12:40**	**12:46**	**12:54**
12:38	**12:53**	**12:59**	**1:10**	**1:16**	**1:24**
1:08	**1:23**	**1:29**	**1:40**	**1:46**	**1:54**
1:38	**1:53**	**1:59**	**2:10**	**2:16**	**2:24**
2:08	**2:23**	**2:29**	**2:40**	**2:46**	**2:54**
2:36	**2:52**	**2:58**	**3:10**	**3:16**	**3:24**
3:06	**3:22**	**3:28**	**3:40**	**3:46**	**3:54**
3:36	**3:52**	**3:58**	**4:10**	**4:16**	**4:24**
4:08	**4:23**	**4:29**	**4:40**	**4:46**	**4:54**
4:38	**4:53**	**4:59**	**5:10**	**5:16**	**5:24**
5:08	**5:23**	**5:29**	**5:40**	**5:46**	**5:54**
5:40	**5:54**	**6:00**	**6:10**	**6:16**	**6:23**
6:10	**6:24**	**6:30**	**6:40**	**6:46**	**6:53**
6:57	**7:11**	**7:17**	**7:27**	**7:33**	**7:40**
7:57	**8:09**	**8:14**	**8:23**	**8:28**	**8:35**
8:57	**9:09**	**9:14**	**9:23**	**9:28**	**9:35**
9:57	**10:09**	**10:14**	**10:22**	**10:27**	**10:33**

El Cajon ➡ San Carlos ➡ Navajo ➡ SDSU

Ⓕ El Cajon Transit Center **DEPART**	Ⓔ Fletcher Pkwy. & Garfield Av.	Ⓓ Grossmont College	Ⓒ Lake Murray Bl. & Jackson Dr.	Ⓑ Navajo Rd. & Jackson Dr.	Ⓐ SDSU Transit Center **ARRIVE**
—	—	—	6:02a	6:08a	6:18a
6:11a	6:19a	6:25a	6:32	6:38	6:48
6:39	6:47	6:54	7:02	7:10	7:21
7:09	7:18	7:26	7:34	7:42	7:54
7:39	7:48	7:56	8:04	8:12	8:24
8:09	8:18	8:26	8:34	8:42	8:54
8:39	8:48	8:56	9:04	9:11	9:22
9:10	9:19	9:26	9:34	9:40	9:51
9:40	9:49	9:56	10:04	10:10	10:21
10:10	10:19	10:26	10:34	10:40	10:51
10:40	10:49	10:56	11:04	11:10	11:21
11:10	11:19	11:26	11:34	11:40	11:51
11:40	11:49	11:56	**12:04p**	**12:10p**	**12:21p**
12:10p	**12:20p**	**12:27p**	**12:36**	**12:42**	**12:54**
12:40	**12:50**	**12:57**	**1:06**	**1:12**	**1:24**
1:10	**1:20**	**1:27**	**1:36**	**1:42**	**1:54**
1:40	**1:50**	**1:57**	**2:06**	**2:12**	**2:24**
2:10	**2:20**	**2:27**	**2:36**	**2:42**	**2:54**
2:40	**2:50**	**2:57**	**3:06**	**3:12**	**3:24**
3:10	**3:20**	**3:27**	**3:36**	**3:42**	**3:54**
3:40	**3:50**	**3:57**	**4:06**	**4:12**	**4:24**
4:10	**4:20**	**4:27**	**4:36**	**4:42**	**4:54**
4:40	**4:50**	**4:57**	**5:06**	**5:12**	**5:24**
5:10	**5:20**	**5:27**	**5:35**	**5:41**	**5:52**
5:40	**5:49**	**5:56**	**6:03**	**6:09**	**6:19**
6:10	**6:19**	**6:26**	**6:33**	**6:39**	**6:49**
7:11	**7:19**	**7:26**	**7:32**	**7:38**	**7:47**
8:11	**8:19**	**8:26**	**8:32**	**8:38**	**8:47**
9:13	**9:21**	**9:27**	**9:33**	**9:39**	**9:47**

Route 115 – Saturday / *sábado*

SDSU ➡ Navajo ➡ San Carlos ➡ El Cajon

Ⓐ SDSU Transit Center* **DEPART**	Ⓑ Jackson Dr. & Navajo Rd.	Ⓒ Lake Murray Bl. & Jackson Dr.	Ⓓ Grossmont College	Ⓔ Fletcher Pkwy. & Garfield Av.	Ⓕ El Cajon Transit Center **ARRIVE**
7:22a	7:33a	7:38a	7:47a	7:52a	7:58a
8:22	8:33	8:38	8:47	8:52	8:58
9:21	9:33	9:38	9:47	9:52	9:59
10:21	10:33	10:38	10:47	10:52	10:59
11:21	11:33	11:38	11:47	11:52	11:59
12:21p	**12:33p**	**12:38p**	**12:47p**	**12:52p**	**12:59p**
1:21	**1:33**	**1:39**	**1:48**	**1:54**	**2:01**
2:21	**2:33**	**2:39**	**2:48**	**2:54**	**3:01**
3:21	**3:33**	**3:39**	**3:48**	**3:54**	**4:01**
4:21	**4:33**	**4:39**	**4:48**	**4:54**	**5:01**
A 5:23	**5:35**	**5:41**	**—**	**5:48**	**5:54**
A 6:23	**6:35**	**6:41**	**—**	**6:48**	**6:54**
A 7:25	**7:37**	**7:42**	**—**	**7:48**	**7:54**
A 8:25	**8:37**	**8:42**	**—**	**8:48**	**8:54**

El Cajon ➡ San Carlos ➡ Navajo ➡ SDSU

Ⓕ El Cajon Transit Center **DEPART**	Ⓔ Fletcher Pkwy. & Garfield Av.	Ⓓ Grossmont College	Ⓒ Lake Murray Bl. & Jackson Dr.	Ⓑ Navajo Rd. & Jackson Dr.	Ⓐ SDSU Transit Center **ARRIVE**
A 6:33a	6:41a	—	6:47a	6:52a	7:01a
7:30	7:38	7:44a	7:51	7:56	8:05
8:27	8:36	8:42	8:50	8:56	9:06
9:27	9:36	9:42	9:50	9:56	10:06
10:27	10:36	10:42	10:50	10:56	11:06
11:27	11:36	11:42	11:50	11:56	**12:06p**
12:27p	**12:36p**	**12:42p**	**12:50p**	**12:56p**	**1:06**
1:27	**1:36**	**1:42**	**1:50**	**1:56**	**2:06**
2:27	**2:36**	**2:42**	**2:50**	**2:56**	**3:06**
3:27	**3:36**	**3:42**	**3:50**	**3:56**	**4:06**
4:27	**4:36**	**4:42**	**4:50**	**4:56**	**5:06**
A 5:33	**5:42**	**—**	**5:49**	**5:55**	**6:05**
A 6:33	**6:41**	**—**	**6:48**	**6:54**	**7:03**
A 7:33	**7:41**	**—**	**7:48**	**7:54**	**8:03**
A 8:39	**8:47**	**—**	**8:53**	**8:59**	**9:07**

Route 115A – Sunday / *domingo*

SDSU ➡ Navajo ➡ San Carlos ➡ El Cajon

Ⓐ SDSU Transit Center* **DEPART**	Ⓑ Jackson Dr. & Navajo Rd.	Ⓒ Lake Murray Bl. & Jackson Dr.	Ⓓ Grossmont College	Ⓔ Fletcher Pkwy. & Garfield Av.	Ⓕ El Cajon Transit Center **ARRIVE**
A 7:26a	7:37a	7:42a	—	7:48a	7:54a
A 8:26	8:37	8:42	—	8:48	8:54
A 9:23	9:35	9:40	—	9:47	9:54
A 10:23	10:35	10:40	—	10:47	10:54
A 11:23	11:35	11:40	—	11:47	11:54
A 12:23p	**12:35p**	**12:40p**	**—**	**12:47p**	**12:54p**
A 1:22	**1:34**	**1:40**	**—**	**1:47**	**1:54**
A 2:22	**2:34**	**2:40**	**—**	**2:47**	**2:54**
A 3:22	**3:34**	**3:40**	**—**	**3:47**	**3:54**
A 4:22	**4:34**	**4:40**	**—**	**4:47**	**4:54**
A 5:23	**5:35**	**5:41**	**—**	**5:48**	**5:54**
A 6:23	**6:35**	**6:41**	**—**	**6:48**	**6:54**

El Cajon ➡ San Carlos ➡ Navajo ➡ SDSU

Ⓕ El Cajon Transit Center **DEPART**	Ⓔ Fletcher Pkwy. & Garfield Av.	Ⓓ Grossmont College	Ⓒ Lake Murray Bl. & Jackson Dr.	Ⓑ Navajo Rd. & Jackson Dr.	Ⓐ SDSU Transit Center **ARRIVE**
A 6:33a	6:41a	—	6:47a	6:52a	7:01a
A 7:33	7:42	—	7:49	7:55	8:04
A 8:33	8:42	—	8:49	8:55	9:05
A 9:33	9:42	—	9:49	9:55	10:05
A 10:33	10:42	—	10:49	10:55	11:05
A 11:33	11:42	—	11:49	11:55	**12:05p**
A 12:33p	**12:42p**	**—**	**12:49p**	**12:55p**	**1:05**
A 1:33	**1:42**	**—**	**1:49**	**1:55**	**2:05**
A 2:33	**2:42**	**—**	**2:49**	**2:55**	**3:05**
A 3:33	**3:42**	**—**	**3:49**	**3:55**	**4:05**
A 4:33	**4:42**	**—**	**4:49**	**4:55**	**5:05**
A 5:33	**5:42**	**—**	**5:49**	**5:55**	**6:05**

A = Route 115A: Trip does not serve Grossmont College. / *Ruta 115A: No ofrece servicio a Grossmont College.*
★ = Board at bus stop on Southbound College Av. / *Suba en la parada de autobús en College Av. en dirección sur.*

A Saturday or Sunday schedule will be operated on the following holidays and observed holidays
Se operará con horario de sábado o domingo durante los siguientes días festivos y feriados observados

>>> New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas

Appendix C

City of San Diego Segment Capacities

The City of SAN DIEGO

Transportation Study Manual (TSM)

DATE: 09/29/2020

Roadway Segment LOS by Classification and Average Daily Traffic (ADT)

Table Appendix F-1 provides street classifications and associated LOS thresholds dependent on the roadway's average daily traffic (ADT).

TABLE APPENDIX F-1

ROADWAY CLASSIFICATIONS, LOS, AND AVERAGE DAILY TRAFFIC (ADT)

STREET CLASSIFICATION	LANES	LEVEL OF SERVICE				
		A	B	C	D	E
Expressway	8 lanes	40,000	56,000	80,000	93,500	107,000
Expressway	7 lanes	35,000	49,000	70,000	82,000	93,500
Expressway	6 lanes	30,000	42,000	60,000	70,000	80,000
Prime Arterial[1]	8 lanes	35,000	50,000	70,000	75,000	80,000
Prime Arterial[1]	7 lanes	30,000	42,500	60,000	65,000	70,000
Prime Arterial	6 lanes	25,000	35,000	50,000	55,000	60,000
Prime Arterial[10]	5 lanes	20,000	28,000	40,000	45,000	50,000
Prime Arterial[11]	4 lanes	17,500	24,500	35,000	40,000	45,000
Major Arterial[2]	7 lanes	22,500	31,500	45,000	50,000	55,000
Major Arterial	6 lanes	20,000	28,000	40,000	45,000	50,000
Major Arterial[3]	5 lanes	17,500	24,500	35,000	40,000	45,000
Major Arterial	4 lanes	15,000	21,000	30,000	35,000	40,000
Major Arterial	3 lanes	11,250	15,750	22,500	26,250	30,000
Major Arterial	2 lanes	7,500	10,500	15,000	17,500	20,000
Major Arterial *(one-way)*[4]	3 lanes	12,500	16,500	22,500	25,000	27,500
Major Arterial *(one-way)*[5]	2 lanes	10,000	13,000	17,500	20,000	22,500

STREET CLASSIFICATION	LANES	LEVEL OF SERVICE				
		A	B	C	D	E
Collector *(with two-way left turn lane)*	5 lanes	12,500	17,500	25,000	30,750	37,500
Collector *(with two-way left turn lane)*	4 lanes	10,000	14,000	20,000	25,000	30,000
Collector *(with two-way left turn lane)*	3 lanes	7,500	10,500	15,000	18,750	22,500
Collector *(with two-way left turn lane)*	2 lanes	5,000	7,000	10,000	13,000	15,000
Collector *(without two-way left turn lane)*	4 lanes	5,000	7,000	10,000	13,000	15,000
Collector *(without two-way left turn lane)*[6]	3 lanes	4,000	5,000	7,500	10,000	11,000
Collector *(without two-way left turn lane)*	2 lanes	2,500	3,500	5,000	6,500	8,000
Collector *(with no fronting property)*	2 lanes	4,000	5,500	7,500	9,000	10,000
Collector *(one-way)*[7]	3 lanes	11,000	14,000	19,000	22,500	26,000
Collector *(one-way)*[8]	2 lanes	7,500	9,500	12,500	15,000	17,500
Collector *(one-way)*[9]	1 lane	2,500	3,500	5,000	6,500	7,500
Sub-Collector *(Single-family)*	2 lanes	--	--	2,200	--	--

Notes:

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

[1]Calculated assuming that each additional lane above a 6-Ln Arterial adds 5,000 ADT for LOS A, 7,500 ADT for LOS B and 10,000 ADT for LOS C, D, and E

[2]Calculated assuming that ADT is 1/2 way between steps of a 6-Ln Major Arterial & 6 Ln Prime Arterial

[3]Calculated assuming that ADT is 1/2 way between steps of a 4-Ln Major Arterial & 6 Ln Major Arterial

[4]Calculated using: Capacity = 0.5 (6-Ln Major (2-way) + Added Capacity of 2,500 ADT)

[5]Calculated using: Capacity = 0.5 (4-Ln Major (2-way) + Added Capacity of 2,500 ADT)

[6]Calculated using: Capacity = 4-Ln Collector (no center lane) * (3/4)

[7]Calculated using: Capacity = 2-Ln Collector (one-way) * (3/2)

[8]Calculated using: Capacity = 0.5 (4-Ln Collector w/continuous left turn lane) + Added Capacity of 2,500 ADT)

[9]Calculated using: Capacity = 0.5 (2-Ln Collector w/ continuous left turn lane). Capacity took into account parking friction from both sides of roadway

[10] Calculated by applying same differences between 8-Ln Prime & 7-Ln Prime & 7-Ln Prime & 6-Ln Prime

[11] Calculated assuming ratio between 6-Ln Prime & 6-Ln Major applied to 4-Ln Major

Appendix D

Excerpts from City of San Diego TSM Roadway Improvement Criteria

The City of SAN DIEGO

Transportation Study Manual (TSM)

DATE: 09/29/2020

Roadway Segment Analysis

Roadway segment analysis should be evaluated for any roadway segment that has identified improvements (including planned new circulation element roadways) in the Community Plan and the project is expected to add 1,000 or more daily final primary trips (cumulative trips) if consistent with the Community Plan, or 500 or more daily final primary trips (cumulative trips) if inconsistent with the Community Plan. Roadways should be evaluated using **Appendix F**: Roadway Segment LOS by Classification and Average Daily Traffic (ADT). The intent of this analysis is to determine if the project results in the need to implement roadway improvements as identified in the Community Plan. The functional classification of the roadway segment should be evaluated in this analysis.

Freeway Interchange Analysis

Freeway analysis should focus on off-ramp queuing spillbacks onto freeway mainline. Studies should normally document changes in off-ramp maximum queues and propose mitigation for queues that spill back onto mainline (or exacerbate conditions already or projected to be) occurring. Freeway interchange analysis should be coordinated with Caltrans.

Identifying Off-Site Improvements

Off-site improvements to accommodate project traffic that address access, circulation and safety for all modes should be determined using the following analysis methods for each type of improvement:

Pedestrian Facilities

- Closing Sidewalk Gaps/Removing Obstructions:
  - The project should construct sidewalks to close sidewalk gaps adjacent to the project site.
  - The project should remove sidewalk obstructions that constrain pedestrian access route to less than four feet adjacent to the project site.
  - The project should construct curb ramps/meet accessibility standards for any intersections adjacent to the project site.
- Accommodating Pedestrian Demand:
  - The project should consider adding traffic calming and pedestrian-related signal timing changes (such as pedestrian hybrid beacons, leading pedestrian interval signal timing, etc.) to accommodate an increase in pedestrian demand on roadways and intersections adjacent to the project site.

Bicycle Facilities

- Accommodating Bicycle Demand:
  - The project should construct (or reserve space for) any planned bicycle facility per the Community Plan or Bicycle Master Plan.
  - The project should consider upgrading adjacent bicycle facilities by adding upgraded treatments (such as green bike lane paint, buffers, etc. where appropriate) to accommodate an increase in bicycle demand.

Transit Facilities

- Transit Priority Treatments/Improvements
  - The project should consider transit priority treatments when operational analysis determines a transit movement would experience LOS E or worse.
  - The project should consider transit priority treatments identified within the Community Plan for the study area.
- Proposed Transit Stops:
  - The project should consider accommodating transit stops to serve existing or proposed transit services, including those identified in the Community Plan, RTIP and/or RTP within the study area. The project should coordinate any identified transit stops with SANDAG, the Metropolitan Transit System (MTS) and/or the North County Transit District (NCTD).
- Transit Stop Amenities:
  - The project should coordinate with MTS and/or the NCTD, as applicable, to determine additional or upgraded transit stop amenities.

Signalized Intersections

- Adding or lengthening a turn lane:
  - Considerations for intersection improvements:

    When considering intersection improvements for circulation, access, and safety for all modes, factors that should be considered include, but are not limited to, conflicting pedestrian movements, existing and proposed bicycle facilities, transit priority, protected or permissive turn movement phasing, number of lanes, speed of prevailing traffic and expected queue lengths.
  - Left Turn Lane:

- No Existing Left-Turn Lane: If the project adds traffic to an individual left turn movement causing the total number of peak hour left turns to exceed 100, consider adding a left turn lane.[8]
- Existing Single Left-Turn Lane: If the project adds traffic to an individual left turn movement causing the total number of peak hour left turns to exceed 300, consider adding a second left turn lane.

- Right Turn Lane:
  - No Existing Right-Turn Lane: If the addition of a right turn lane will not negatively affect other roadway users, will maintain a comfortable roadway environment, AND the project adds traffic to an individual right turn movement causing the total number of peak hour right turns to exceed 500, consider adding a right turn lane.
  - Existing Single Right-Turn Lane: If the addition of a right turn lane will not negatively affect other roadway users, will maintain a comfortable roadway environment, AND the project adds traffic to an individual right turn movement causing the total number of peak hour right turns to exceed 800, consider adding a second right turn lane. In addition to the considerations previously stated, dual-right turn (or more) treatments may require supplementary improvements including but not limited to no right-turn on red with blank-out signs, lead pedestrian intervals (LPIs) for pedestrians and cycle track treatment for bicyclists.
- Lengthening a Turn Pocket:
  - If the project adds traffic to a turning movement and causes the 95th percentile queue to exceed the available turn pocket length, consider lengthening the turn pocket.

- Signal Timing Improvements/Signal Modifications:
  - Determined based on intersection operations analysis as follows:

[8] FHWA, *Signalized Intersections: Informational Guide*, August 2004. This source also provides additional factors which can be used to determine the need of a single left turn lane or additional left turn lanes including, left-turn volumes on the major and minor approaches, number of lanes, and vehicles per hour.

        - Within a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes an intersection to degrade to LOS F, or if the project adds traffic to a signal already operating at LOS F.
        - Outside of a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes an intersection to degrade to LOS E or F, or if the project adds traffic to a signal already operating at LOS E or F.
    - Types of signal improvements that can be considered are:
        - Updating signal split times
        - Transit signal priority improvements
        - Right turn overlap phasing
        - Signal phasing changes
        - Intelligent Transportation Systems (ITS) improvements

Unsignalized Intersections

- Considerations for intersection improvements:
    - When considering intersection improvements for circulation, access, and safety for all modes, factors that should be considered include, but are not limited to, conflicting pedestrian movements, existing and proposed bicycle facilities, transit priority, protected or permissive turn movement phasing, number of lanes, speed of prevailing traffic and expected queue lengths.
- Constructing a Roundabout or Traffic Signal at an all-way stop-controlled intersection: If the project causes the operations at an all-way stop-controlled intersection to degrade (see below), perform an intersection control evaluation that includes a signal warrant analysis and a roundabout LOS analysis. Prepare a roundabout conceptual layout (prepared by a consultant qualified/experienced in roundabout design) to determine the geometric impact of a roundabout. Coordinate with Development Services Department Transportation Development Section staff on appropriate intersection control improvement. Staff may request additional lifecycle safety and mobility
    - The intersection control evaluation should be prepared If the project causes an all-way stop-controlled intersection to degrade as follows:
        - Within a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes an all-way stop-controlled intersection located to degrade to LOS F, or if the project adds traffic to an all-way stop-controlled intersection already operating at LOS F.

        - Outside of a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes an all-way stop-controlled intersection to degrade to LOS E or F, or if the project adds traffic to a adds traffic to an all-way stop controlled intersection already operating at LOS E or F.

- Constructing a Roundabout or Traffic Signal at a side-street stop-controlled intersection: If the project causes the operations at a side-street stop-controlled intersection to degrade (see below), perform an intersection control evaluation that includes a signal warrant analysis and a roundabout LOS analysis. Prepare a roundabout conceptual layout (prepared by a consultant qualified/experienced in roundabout design) to determine the geometric impact of a roundabout. Coordinate with Development Services Department Transportation Development Section staff on appropriate intersection control improvement. Staff may request additional lifecycle safety and mobility
    - The intersection control evaluation should be prepared If the project causes a side-street stop-controlled intersection to degrade as follows:
        - Within a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes the **worst movement** of a side-street stop-controlled intersection to degrade to LOS F, or if the project adds traffic to the **worst movement** of a side-street stop-controlled intersection that is already operating at LOS F.
        - Outside of a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes the **worst movement** of a side-street stop-controlled intersection to degrade to LOS E or F, or if the project adds traffic to the **worst movement** of a side-street stop-controlled intersection that is already operating at LOS E or F.
- Improvements to a Roundabout Intersection
    - If the project causes a roundabout intersection to degrade determined based on operations analysis as follows:
        - Within a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes an intersection to degrade to LOS F, or if the project adds traffic to a roundabout already operating at LOS F.
        - Outside of a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes an intersection to degrade to LOS E or F, or if the project adds traffic to a roundabout already operating at LOS E or F.
        - Determine improvements to the roundabout to reduce vehicle delay, such as metering traffic during peak hours or other geometric improvements - such

as adding a right turn bypass lane or multilane segments within the roundabout.

Roadway Segments

- Improvements identified in the community plan (including upgrading to ultimate classification):
    - If the project adds greater than 50% of total daily vehicle trips on the segment, the project should consider implementing the improvement as identified in the community plan.
    - If the project adds less than or equal to 50% of total daily vehicle trips on the segment, the project should evaluate its fair share towards the improvement.
- Planned new circulation element roadways:
    - If the project adds greater than 50% of total daily vehicle trips on the segment, the project should consider implementing the improvement as identified in the community plan.
    - If the project adds less than or equal to 50% of total daily vehicle trips on the segment, the project should evaluate its fair share towards the improvement.

In addition, the project should make improvements to study intersections and roadways to preserve consistency with Community Plan/PFFP/IFS identified improvements. The project applicant will have responsibility for the implementation of identified improvements.

The improvement types listed above are typical mobility improvements. Other types of mobility improvements may be proposed by the applicant or considered thorough coordination with the Development Services Departments Transportation Development Section staff.

Appendix E

City of San Diego Community Roadway Classification Map

NAVAJO COMMUNITY PLAN

Prepared by the
NAVAJO COMMUNITY PLANNERS
and
THE CITY OF SAN DIEGO

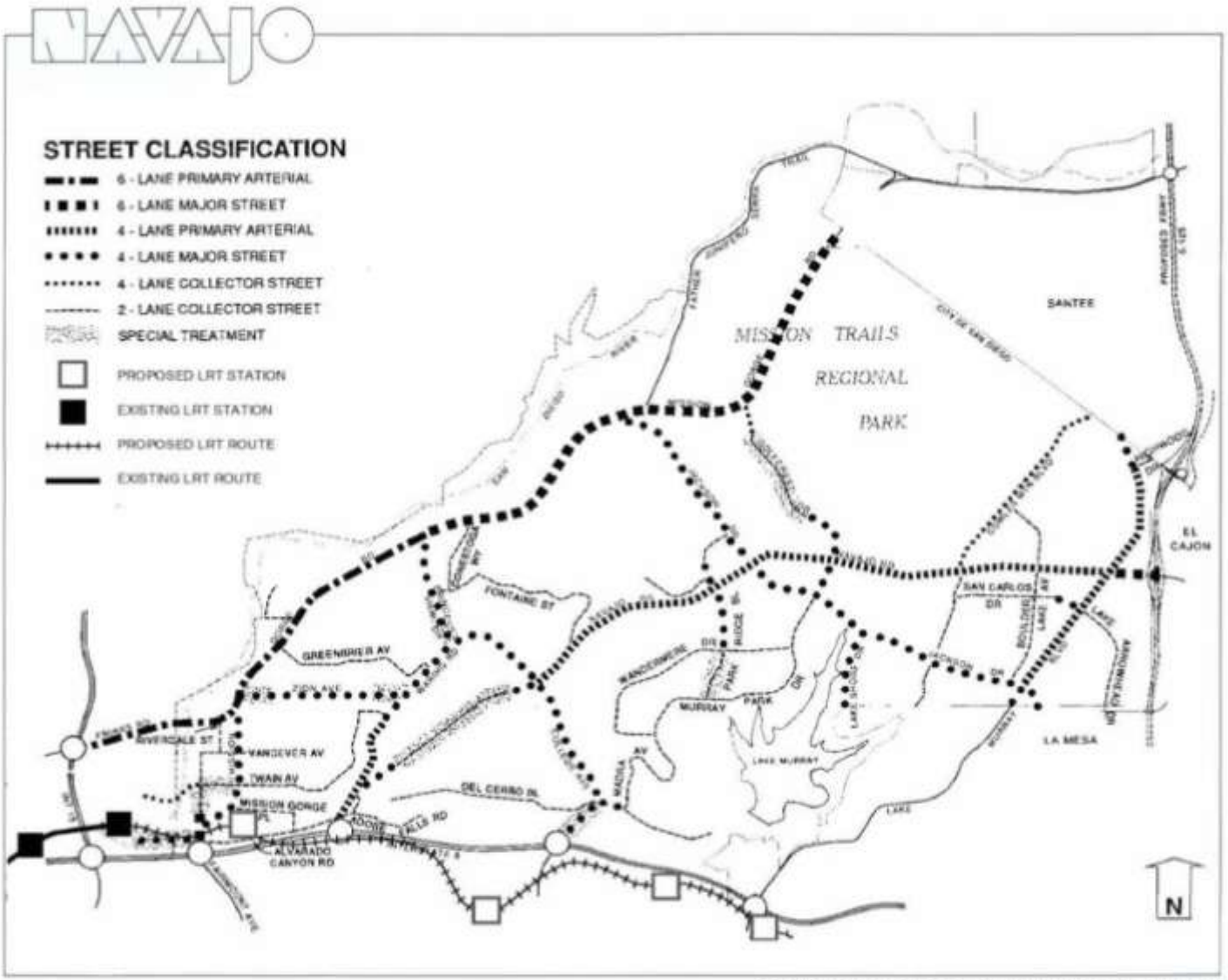
City of San Diego Planning Department
202 C Street, MS 4A
San Diego, CA 92101

Printed on recycled paper.

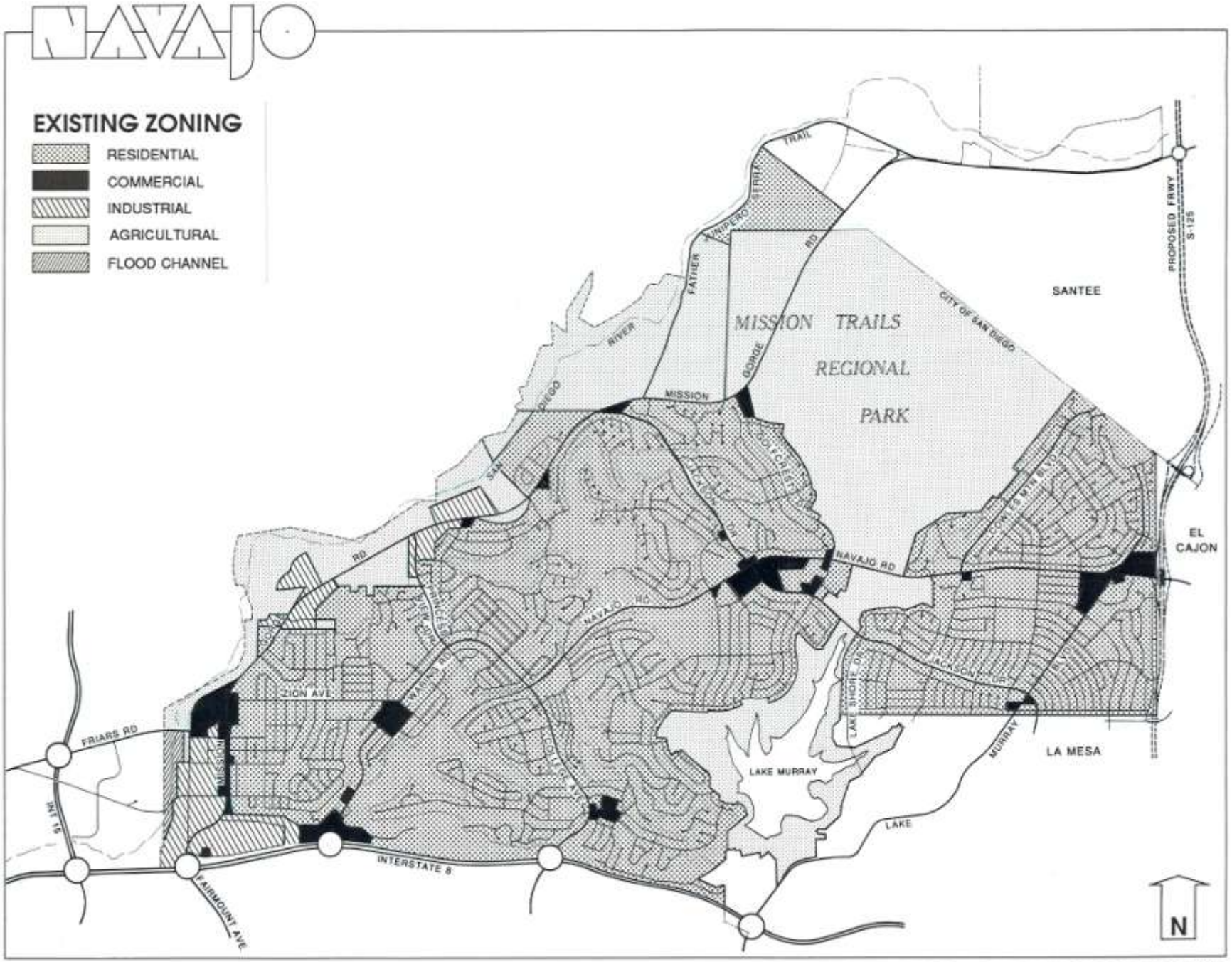
NAVAJO COMMUNITY PLAN AMENDMENTS

The following amendments have been incorporated into this February 2008 posting of this plan:

Amendment	Date Adopted by City Council	Resolution Number
Navajo Community Plan adopted	December 7, 1982	R-257606
Grantville Amendment-updates existing conditions, provides design guidelines, and establishes supplemental development regulations	April 4, 1989	R-273164
The Circulation and Public Transportation Element was added	August 5, 2002	R-296956
Centerpoint at Grantville	May 15, 2007	R-302636
Archstone at Mission Gorge	November 18, 2008	R-304443
Pasatiempo	February 6, 2012	R-307260
Shawnee – Riverbend	October 2, 2012	R-307718
Village at Zion	February 26, 2013	R-308010
San Diego River Park Subdistrict	May 20, 2013	R-308199



CITY OF SAN DIEGO • PLANNING DEPARTMENT



CITY OF SAN DIEGO • PLANNING DEPARTMENT

Appendix F

Count Data

PO Box 1178
Corona, CA 92880
951-268-6268

Location: San Diego
N/S: College Avenue
E/W: Del Cerro Boulevard

Date: 4/16/19
Day: TUESDAY
Project # 143-19242

TURNING MOVEMENT COUNT

Count Period: **7:00 AM to 9:00 AM**
Peak Hour: **7:00 AM to 8:00 AM**

Vehicle Counts

	College Avenue Northbound			College Avenue Southbound			Del Cerro Boulevard Eastbound			Del Cerro Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	14	248	142	11	183	3	20	11	30	125	8	15	810
7:15 AM	20	156	94	14	206	4	9	7	39	157	14	14	734
7:30 AM	33	137	35	20	204	8	26	22	66	129	63	18	761
7:45 AM	18	168	42	19	197	8	28	27	74	98	14	9	702
8:00 AM	16	127	46	18	186	5	16	6	46	86	3	11	566
8:15 AM	17	113	48	14	170	0	13	5	33	82	5	16	516
8:30 AM	21	97	39	8	112	2	8	6	38	92	2	10	435
8:45 AM	27	95	55	18	149	9	10	2	26	93	5	10	499
TOTAL VOLUMES:	166	1141	501	122	1407	39	130	86	352	862	114	103	5023

AM Peak Hr Begins at: 700 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	85	709	313	64	790	23	83	67	209	509	99	56	3007

PEAK HR FACTOR:	0.685	0.945	0.696	0.790	0.928

Bicycle Counts

	College Avenue Northbound			College Avenue Southbound			Del Cerro Boulevard Eastbound			Del Cerro Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian Counts

	College Avenue North Leg	College Avenue South Leg	Del Cerro Boulevard East Leg	Del Cerro Boulevard West Leg	TOTAL
7:00 AM	1	0	0	0	1
7:15 AM	8	0	0	0	8
7:30 AM	32	0	3	0	35
7:45 AM	17	0	1	0	18
8:00 AM	3	0	1	0	4
8:15 AM	0	0	2	0	2
8:30 AM	2	0	1	0	3
8:45 AM	4	0	1	0	5
TOTAL VOLUMES:	67	0	9	0	76

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	58	0	4	0	62

PO Box 1178
Corona, CA 92880
951-268-6268

Location: San Diego
N/S: College Avenue
E/W: Del Cerro Boulevard

Date: 4/16/19
Day: TUESDAY
Project # 143-19242

TURNING MOVEMENT COUNT

Count Period: **4:00 PM to 6:00 PM**
Peak Hour: **4:45 PM to 5:45 PM**

Vehicle Counts

	College Avenue Northbound			College Avenue Southbound			Del Cerro Boulevard Eastbound			Del Cerro Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	21	157	92	29	159	6	12	8	25	95	14	12	630
4:15 PM	40	120	83	23	140	6	8	15	37	79	11	28	590
4:30 PM	33	158	83	23	131	5	14	13	27	77	8	22	594
4:45 PM	31	146	101	24	154	8	6	11	31	97	6	14	629
5:00 PM	26	156	88	27	145	5	13	6	42	77	9	22	616
5:15 PM	34	172	105	23	162	6	11	7	22	79	7	23	651
5:30 PM	28	151	95	21	149	5	7	6	17	91	10	18	598
5:45 PM	22	144	91	17	118	3	16	9	19	69	7	23	538
TOTAL VOLUMES:	235	1204	738	187	1158	44	87	75	220	664	72	162	4846

PM Peak Hr Begins at: 445 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	119	625	389	95	610	24	37	30	112	344	32	77	2494

PEAK HR FACTOR:	0.911	0.954	0.734	0.952	0.958

Bicycle Counts

	College Avenue Northbound			College Avenue Southbound			Del Cerro Boulevard Eastbound			Del Cerro Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	0	0	0	0	0	1	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	0	0	0	0	0	0	0	1	0	3

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	1	0	0	0	0	0	0	0	0	1	0	2

Pedestrian Counts

	College Avenue North Leg	College Avenue South Leg	Del Cerro Boulevard East Leg	Del Cerro Boulevard West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	2	0	2
4:30 PM	0	0	2	0	2
4:45 PM	1	0	0	0	1
5:00 PM	1	0	0	0	1
5:15 PM	1	0	1	0	2
5:30 PM	1	0	2	0	3
5:45 PM	2	0	1	0	3
TOTAL VOLUMES:	6	0	8	0	14

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	4	0	3	0	7

PO Box 1178
Corona, CA 92880
951-268-6268

Location: San Diego
N/S: College Avenue
E/W: Del Cerro Boulevard

Date: 4/28/19
Day: SUNDAY
Project # 143-19242

TURNING MOVEMENT COUNT

Count Period: **10:45 AM to 11:45 AM**
Peak Hour: **10:45 AM to 11:45 AM**

Vehicle Counts

	College Avenue Northbound			College Avenue Southbound			Del Cerro Boulevard Eastbound			Del Cerro Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
10:45 AM	19	124	78	13	137	2	12	8	22	80	5	16	516
11:00 AM	22	133	84	23	149	0	9	8	22	93	6	24	573
11:15 AM	21	118	67	19	122	4	3	9	17	85	6	29	500
11:30 AM	25	108	79	25	108	1	8	8	31	95	3	25	516
TOTAL VOLUMES:	87	483	308	80	516	7	32	33	92	353	20	94	2105

AM Peak Hr Begins at: 1045 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	87	483	308	80	516	7	32	33	92	353	20	94	2105

PEAK HR FACTOR:	0.918	0.876	0.835	0.949	0.918

Bicycle Counts

	College Avenue Northbound			College Avenue Southbound			Del Cerro Boulevard Eastbound			Del Cerro Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian Counts

	College Avenue North Leg	College Avenue South Leg	Del Cerro Boulevard East Leg	Del Cerro Boulevard West Leg	TOTAL
10:45 AM	0	0	0	0	0
11:00 AM	0	0	0	0	0
11:15 AM	0	0	0	0	0
11:30 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	0	0	0	0

PO Box 1178
Corona, CA 92880
951-268-6268

Location: San Diego
N/S: College Avenue
E/W: I-8 WB Ramps

Date: 4/16/19
Day: TUESDAY
Project # 143-19242

TURNING MOVEMENT COUNT

Count Period: **7:00 AM to 9:00 AM**
Peak Hour: **7:00 AM to 8:00 AM**

Vehicle Counts

	College Avenue Northbound			College Avenue Southbound			I-8 WB Ramps Eastbound			I-8 WB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	368	90	0	124	210	0	0	0	42	0	29	863
7:15 AM	0	235	113	0	187	214	0	0	0	50	0	26	825
7:30 AM	0	207	103	0	221	184	0	0	0	79	0	28	822
7:45 AM	0	154	89	0	210	158	0	0	0	98	0	47	756
8:00 AM	0	148	78	0	168	151	0	0	0	78	0	47	670
8:15 AM	0	125	81	0	140	144	0	0	0	81	0	60	631
8:30 AM	0	115	92	0	114	127	0	0	0	110	0	47	605
8:45 AM	0	133	106	0	139	129	0	0	0	143	0	52	702
TOTAL VOLUMES:	0	1485	752	0	1303	1317	0	0	0	681	0	336	5874

AM Peak Hr Begins at: 700 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	964	395	0	742	766	0	0	0	269	0	130	3266

PEAK HR FACTOR:	0.742	0.931	0.000	0.688	0.946

Bicycle Counts

	College Avenue Northbound			College Avenue Southbound			I-8 WB Ramps Eastbound			I-8 WB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

Pedestrian Counts

	College Avenue North Leg	College Avenue South Leg	I-8 WB Ramps East Leg	I-8 WB Ramps West Leg	TOTAL
7:00 AM	0	0	1	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	1	0	1
7:45 AM	0	0	2	0	2
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	4	0	4

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	0	4	0	4

PO Box 1178
Corona, CA 92880
951-268-6268

Location: San Diego
N/S: College Avenue
E/W: I-8 WB Ramps

Date: 4/16/19
Day: TUESDAY
Project # 143-19242

TURNING MOVEMENT COUNT

Count Period: **4:00 PM to 6:00 PM**
Peak Hour: **4:30 PM to 5:30 PM**

Vehicle Counts

	College Avenue Northbound			College Avenue Southbound			I-8 WB Ramps Eastbound			I-8 WB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	194	233	0	147	131	0	0	0	91	0	68	864
4:15 PM	0	186	215	0	128	137	0	0	0	84	0	82	832
4:30 PM	0	214	276	0	122	119	0	0	0	109	0	70	910
4:45 PM	0	211	265	0	167	123	0	0	0	120	0	67	953
5:00 PM	0	232	255	0	159	105	0	0	0	118	0	74	943
5:15 PM	0	217	257	0	128	140	0	0	0	99	0	84	925
5:30 PM	0	207	258	0	136	119	0	0	0	99	0	79	898
5:45 PM	0	201	241	0	109	95	0	0	0	122	0	68	836
TOTAL VOLUMES:	0	1662	2000	0	1096	969	0	0	0	842	0	592	7161

PM Peak Hr Begins at: 430 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	874	1053	0	576	487	0	0	0	446	0	295	3731

PEAK HR FACTOR:	0.983	0.916	0.000	0.965	0.979

Bicycle Counts

	College Avenue Northbound			College Avenue Southbound			I-8 WB Ramps Eastbound			I-8 WB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	3	0	0	0	0	0	0	0	0	0	0	3

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian Counts

	College Avenue North Leg	College Avenue South Leg	I-8 WB Ramps East Leg	I-8 WB Ramps West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	1	0	1
4:30 PM	0	0	1	0	1
4:45 PM	0	0	0	0	0
5:00 PM	0	0	1	0	1
5:15 PM	0	0	1	0	1
5:30 PM	0	0	4	0	4
5:45 PM	0	0	1	0	1
TOTAL VOLUMES:	0	0	9	0	9

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	0	3	0	3

PO Box 1178
Corona, CA 92880
951-268-6268

Location: San Diego
N/S: College Avenue
E/W: I-8 WB Ramps

Date: 4/28/19
Day: SUNDAY
Project # 143-19242

TURNING MOVEMENT COUNT

Count Period: **10:45 AM to 11:45 AM**
Peak Hour: **10:45 AM to 11:45 AM**

Vehicle Counts

	College Avenue Northbound			College Avenue Southbound			I-8 WB Ramps Eastbound			I-8 WB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
10:45 AM	0	151	118	0	85	146	0	0	0	48	0	62	610
11:00 AM	0	159	120	0	90	162	0	0	0	64	0	66	661
11:15 AM	0	137	134	0	86	134	0	0	0	59	0	69	619
11:30 AM	0	160	143	0	83	148	0	0	0	68	0	45	647
TOTAL VOLUMES:	0	607	515	0	344	590	0	0	0	239	0	242	2537

AM Peak Hr Begins at: 1045 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	607	515	0	344	590	0	0	0	239	0	242	2537

PEAK HR FACTOR:	0.926	0.927	0.000	0.925	0.960

Bicycle Counts

	College Avenue Northbound			College Avenue Southbound			I-8 WB Ramps Eastbound			I-8 WB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

Pedestrian Counts

	College Avenue North Leg	College Avenue South Leg	I-8 WB Ramps East Leg	I-8 WB Ramps West Leg	TOTAL
10:45 AM	0	0	0	0	0
11:00 AM	0	0	1	0	1
11:15 AM	0	0	0	0	0
11:30 AM	0	0	5	0	5
TOTAL VOLUMES:	0	0	6	0	6

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	0	6	0	6

PO Box 1178
Corona, CA 92880
951-268-6268

Location: San Diego
N/S: College Avenue
E/W: I-8 EB Ramps

Date: 4/28/19
Day: SUNDAY
Project # 143-19242

TURNING MOVEMENT COUNT

Count Period: **10:45 AM to 11:45 AM**
Peak Hour: **10:45 AM to 11:45 AM**

Vehicle Counts

	College Avenue Northbound			College Avenue Southbound			I-8 EB Ramps Eastbound			I-8 EB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
10:45 AM	0	164	61	0	82	59	121	2	129	0	0	0	618
11:00 AM	0	164	48	0	101	53	114	0	108	0	0	0	588
11:15 AM	0	190	53	0	101	48	90	0	150	0	0	0	632
11:30 AM	0	191	60	0	106	47	123	0	121	0	0	0	648
TOTAL VOLUMES:	0	709	222	0	390	207	448	2	508	0	0	0	2486

AM Peak Hr Begins at: 1045 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	709	222	0	390	207	448	2	508	0	0	0	2486

PEAK HR FACTOR:	0.927	0.969	0.950	0.000	0.959

Bicycle Counts

	College Avenue Northbound			College Avenue Southbound			I-8 EB Ramps Eastbound			I-8 EB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

Pedestrian Counts

	College Avenue North Leg	College Avenue South Leg	I-8 EB Ramps East Leg	I-8 EB Ramps West Leg	TOTAL
10:45 AM	0	0	0	0	0
11:00 AM	1	0	1	0	1
11:15 AM	3	0	0	0	3
11:30 AM	2	0	0	0	2
TOTAL VOLUMES:	6	0	0	0	6

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	6	0	0	0	6

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

City of San Diego
College Avenue
B/ Del Cerro Boulevard - Interstate 8 Westbound

File Name: 001
Site Code: 143-19252
24 Hour Directional Volume Count

Date:	Northbound				Southbound					
4/14/2019	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	60	215			38	280				
12:15	47	233			41	273				
12:30	35	259			25	277				
12:45	33	216	175	923	18	270	122	1100	297	2023
1:00	27	248			12	245				
1:15	33	248			13	241				
1:30	28	220			12	227				
1:45	24	233	112	949	13	205	50	918	162	1867
2:00	24	218			4	227				
2:15	17	219			9	223				
2:30	14	194			12	198				
2:45	14	253	69	884	11	180	36	828	105	1712
3:00	14	203			6	190				
3:15	11	213			10	193				
3:30	5	229			5	198				
3:45	11	238	41	883	10	177	31	758	72	1641
4:00	11	237			10	202				
4:15	6	239			15	188				
4:30	10	219			9	189				
4:45	17	247	44	942	13	194	47	773	91	1715
5:00	17	226			9	218				
5:15	12	220			15	209				
5:30	19	226			33	194				
5:45	19	195	67	867	29	185	86	806	153	1673
6:00	24	209			37	185				
6:15	22	168			56	176				
6:30	40	211			69	173				
6:45	48	175	134	763	70	145	232	679	366	1442
7:00	54	175			72	149				
7:15	64	161			68	139				
7:30	55	158			109	121				
7:45	68	174	241	668	130	121	379	530	620	1198
8:00	78	152			149	131				
8:15	86	130			142	107				
8:30	113	123			212	107				
8:45	162	131	439	536	219	72	722	417	1161	953
9:00	138	103			157	88				
9:15	150	86			201	65				
9:30	170	79			251	48				
9:45	200	88	658	356	267	45	876	246	1534	602
10:00	190	62			261	60				
10:15	173	67			221	39				
10:30	183	55			234	55				
10:45	201	47	747	231	203	22	919	176	1666	407
11:00	201	35			214	29				
11:15	174	39			238	25				
11:30	202	40			250	18				
11:45	245	30	822	144	271	15	973	87	1795	231
Totals	3549	8146			4473	7318				
Combined Totals		11695				11791				
ADT										23486
AM Peak Hour	1100	AM			930	AM				
Volume	822				1000					
P.H.F.	0.839				0.936					
PM Peak Hour		1230	PM			1200	PM			
Volume		971				1100				
P.H.F.		0.937				0.982				
Percentage	30.3%	69.7%			37.9%	62.1%				

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

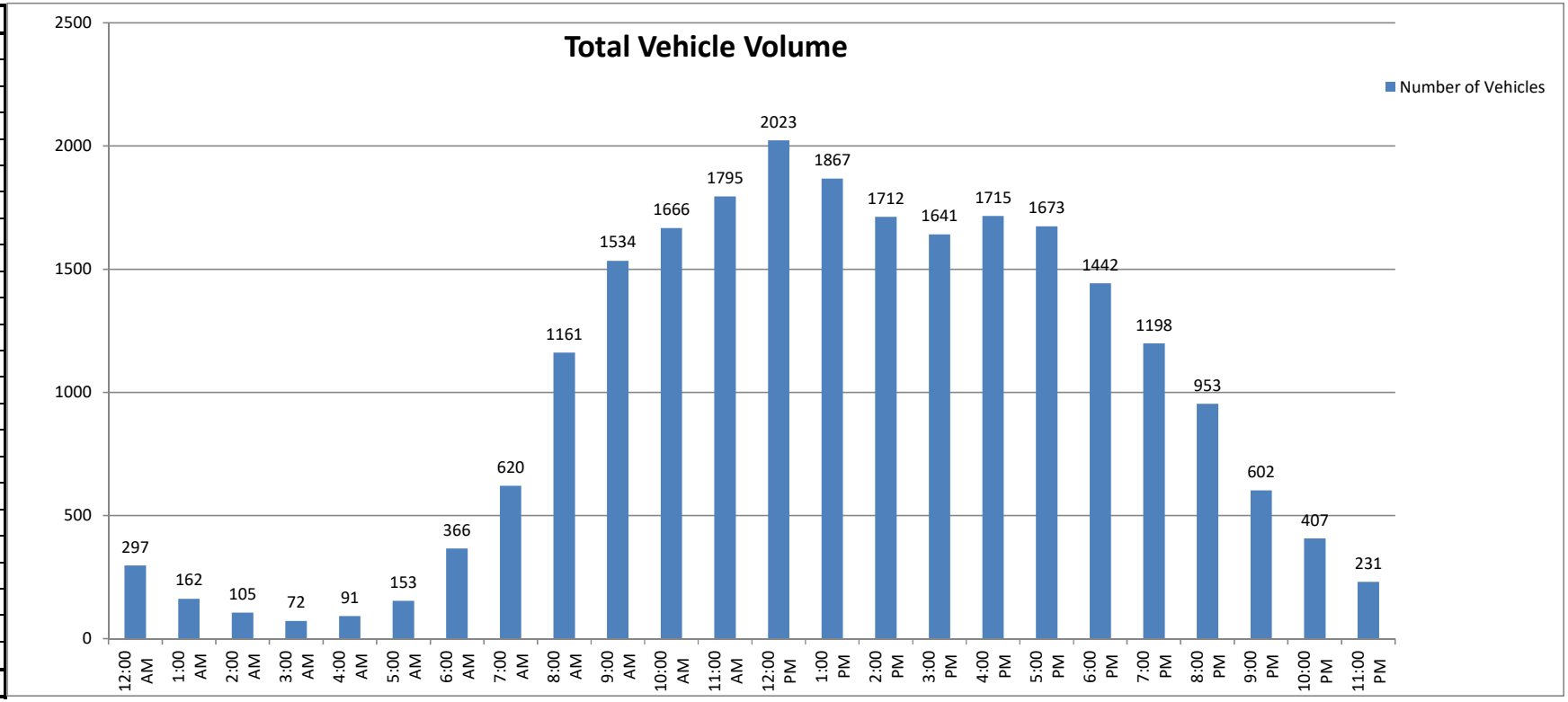
24 Hour Volume Plot

College Avenue

B/ Del Cerro Boulevard - Interstate 8 Westbound

4/14/2019

Start Time	4/14/2019
12:00 AM	297
1:00 AM	162
2:00 AM	105
3:00 AM	72
4:00 AM	91
5:00 AM	153
6:00 AM	366
7:00 AM	620
8:00 AM	1161
9:00 AM	1534
10:00 AM	1666
11:00 AM	1795
12:00 PM	2023
1:00 PM	1867
2:00 PM	1712
3:00 PM	1641
4:00 PM	1715
5:00 PM	1673
6:00 PM	1442
7:00 PM	1198
8:00 PM	953
9:00 PM	602
10:00 PM	407
11:00 PM	231
Total	23486



Volumes represent the combined totals for both directions

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

City of San Diego
College Avenue
B/ Del Cerro Boulevard - Interstate 8 Westbound

File Name: 001
Site Code: 143-19252
24 Hour Directional Volume Count

Date:	Northbound				Southbound					
4/16/2019	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	24	242			16	227				
12:15	22	211			11	208				
12:30	12	251			13	221				
12:45	16	217	74	921	7	217	47	873	121	1794
1:00	11	195			6	180				
1:15	13	206			6	213				
1:30	11	232			6	245				
1:45	8	291	43	924	4	239	22	877	65	1801
2:00	5	322			11	216				
2:15	6	312			3	284				
2:30	2	298			7	404				
2:45	4	294	17	1226	4	340	25	1244	42	2470
3:00	7	271			4	272				
3:15	8	285			9	295				
3:30	5	247			5	275				
3:45	6	272	26	1075	18	288	36	1130	62	2205
4:00	11	279			15	263				
4:15	12	256			15	272				
4:30	10	279			27	244				
4:45	16	286	49	1100	59	288	116	1067	165	2167
5:00	30	283			56	266				
5:15	28	320			81	262				
5:30	28	269			100	260				
5:45	42	268	128	1140	117	220	354	1008	482	2148
6:00	51	266			124	195				
6:15	62	237			154	199				
6:30	116	244			249	165				
6:45	228	227	457	974	266	176	793	735	1250	1709
7:00	399	254			318	152				
7:15	265	212			379	153				
7:30	238	175			425	119				
7:45	205	208	1107	849	356	119	1478	543	2585	1392
8:00	201	144			316	132				
8:15	174	158			286	91				
8:30	172	161			248	81				
8:45	185	143	732	606	272	80	1122	384	1854	990
9:00	180	170			277	77				
9:15	154	132			256	62				
9:30	173	104			262	58				
9:45	143	117	650	523	268	55	1063	252	1713	775
10:00	173	104			238	56				
10:15	186	93			268	43				
10:30	162	70			257	29				
10:45	195	54	716	321	242	28	1005	156	1721	477
11:00	200	43			201	21				
11:15	195	34			217	19				
11:30	182	48			209	22				
11:45	192	31	769	156	239	17	866	79	1635	235
Totals	4768	9815			6927	8348				
Combined Totals		14583				15275				
ADT										29858
AM Peak Hour	645	AM			700	AM				
Volume	1130				1478					
P.H.F.	0.708				0.869					
PM Peak Hour		200	PM			230	PM			
Volume		1226				1311				
P.H.F.		0.952				0.811				
Percentage	32.7%	67.3%			45.3%	54.7%				

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

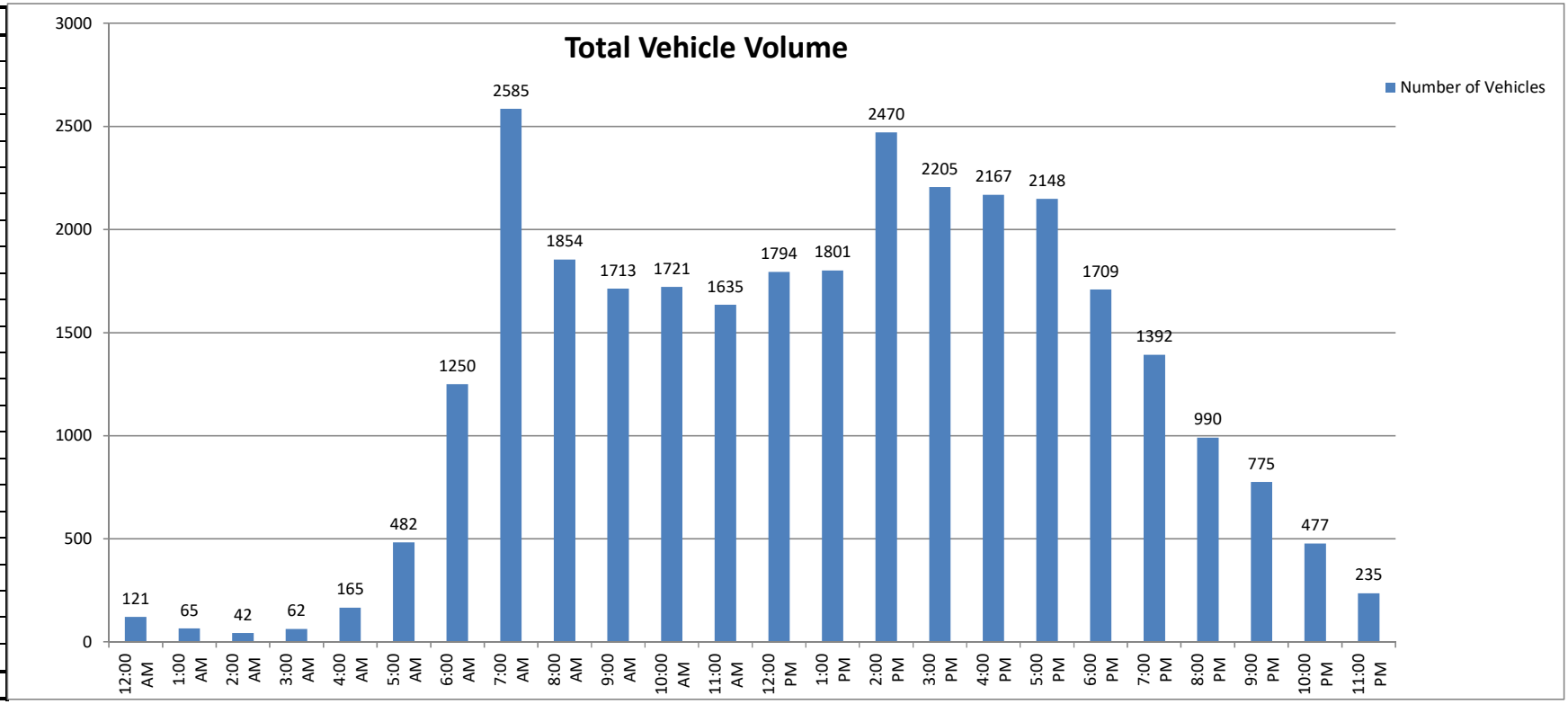
24 Hour Volume Plot

College Avenue

B/ Del Cerro Boulevard - Interstate 8 Westbound

4/16/2019

Start Time	4/16/2019
12:00 AM	121
1:00 AM	65
2:00 AM	42
3:00 AM	62
4:00 AM	165
5:00 AM	482
6:00 AM	1250
7:00 AM	2585
8:00 AM	1854
9:00 AM	1713
10:00 AM	1721
11:00 AM	1635
12:00 PM	1794
1:00 PM	1801
2:00 PM	2470
3:00 PM	2205
4:00 PM	2167
5:00 PM	2148
6:00 PM	1709
7:00 PM	1392
8:00 PM	990
9:00 PM	775
10:00 PM	477
11:00 PM	235
Total	29858



Volumes represent the combined totals for both directions

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

City of San Diego
College Avenue
B/ Interstate 8 Westbound - Interstate 8 Eastbound

File Name: 001
Site Code: 143-19252
24 Hour Directional Volume Count

Date:	Northbound				Southbound					
4/14/2019	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	66	321			23	176				
12:15	80	334			25	190				
12:30	66	304			22	176				
12:45	58	305	270	1264	15	176	85	718	355	1982
1:00	57	326			8	159				
1:15	55	278			19	166				
1:30	39	292			10	180				
1:45	37	303	188	1199	17	163	54	668	242	1867
2:00	34	299			13	135				
2:15	46	283			13	161				
2:30	37	316			19	149				
2:45	24	306	141	1204	6	173	51	618	192	1822
3:00	25	249			3	147				
3:15	20	341			6	165				
3:30	29	286			15	156				
3:45	20	289	94	1165	18	159	42	627	136	1792
4:00	16	290			10	156				
4:15	16	311			7	161				
4:30	21	332			10	188				
4:45	25	290	78	1223	6	187	33	692	111	1915
5:00	24	277			14	163				
5:15	35	287			13	150				
5:30	39	271			15	159				
5:45	53	260	151	1095	22	165	64	637	215	1732
6:00	60	251			26	163				
6:15	67	294			38	152				
6:30	80	271			39	157				
6:45	76	218	283	1034	45	153	148	625	431	1659
7:00	85	229			55	124				
7:15	99	220			72	148				
7:30	95	213			88	127				
7:45	106	206	385	868	116	119	331	518	716	1386
8:00	142	201			117	110				
8:15	175	182			133	81				
8:30	172	206			108	90				
8:45	181	170	670	759	137	81	495	362	1165	1121
9:00	213	147			157	77				
9:15	238	167			156	63				
9:30	256	296			169	74				
9:45	242	278	949	888	161	50	643	264	1592	1152
10:00	275	220			138	47				
10:15	242	108			144	32				
10:30	271	76			157	32				
10:45	302	90	1090	494	147	23	586	134	1676	628
11:00	286	63			149	31				
11:15	293	72			170	24				
11:30	336	49			188	17				
11:45	300	46	1215	230	169	17	676	89	1891	319
Totals	5514	11423			3208	5952				
Combined Totals		16937				9160				
ADT										26097
AM Peak Hour	1045	AM			1100	AM				
Volume	1217				676					
P.H.F.	0.906				0.899					
PM Peak Hour		1215	PM			1200	PM			
Volume		1269				718				
P.H.F.		0.950				0.945				
Percentage	32.6%	67.4%			35.0%	65.0%				

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

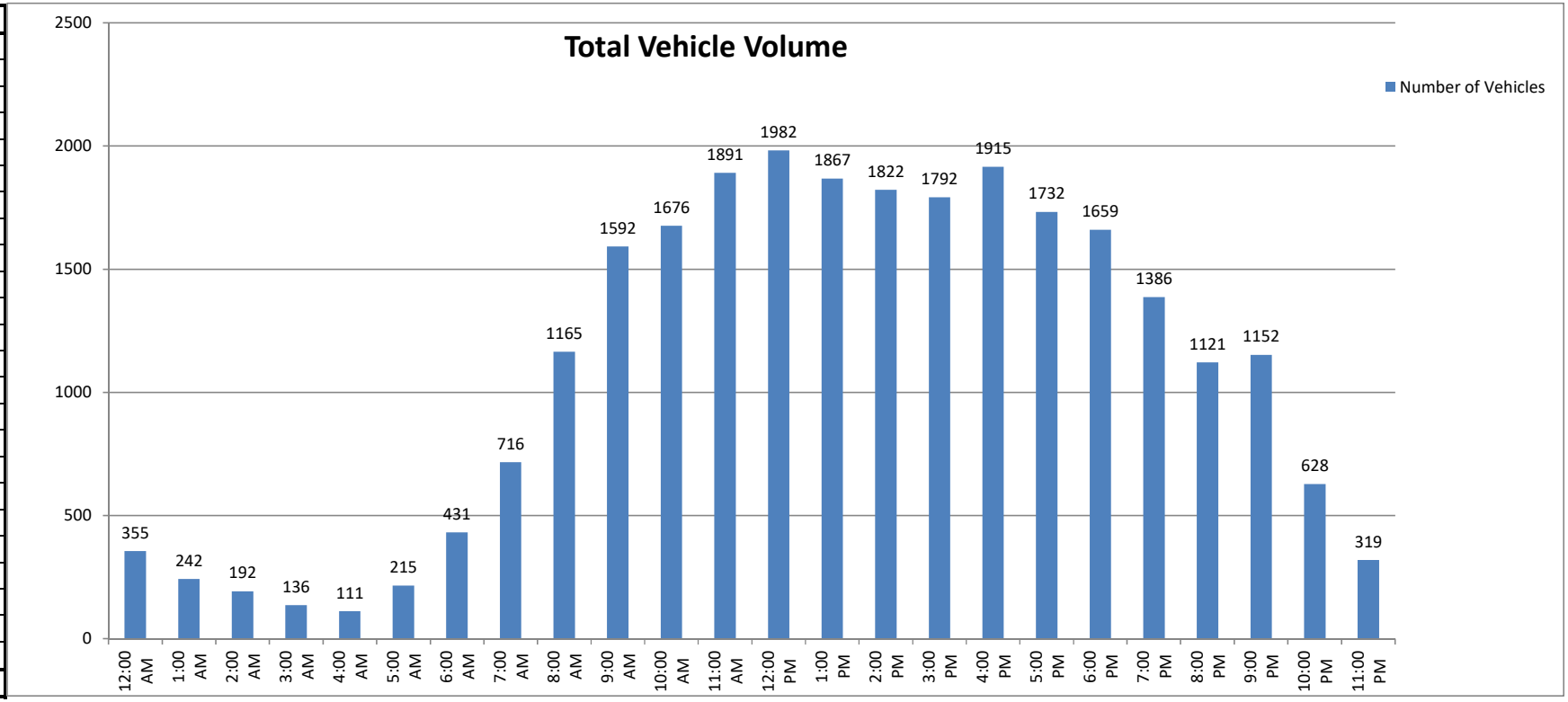
24 Hour Volume Plot

College Avenue

B/ Interstate 8 Westbound - Interstate 8 Eastbound

4/14/2019

Start Time	4/14/2019
12:00 AM	355
1:00 AM	242
2:00 AM	192
3:00 AM	136
4:00 AM	111
5:00 AM	215
6:00 AM	431
7:00 AM	716
8:00 AM	1165
9:00 AM	1592
10:00 AM	1676
11:00 AM	1891
12:00 PM	1982
1:00 PM	1867
2:00 PM	1822
3:00 PM	1792
4:00 PM	1915
5:00 PM	1732
6:00 PM	1659
7:00 PM	1386
8:00 PM	1121
9:00 PM	1152
10:00 PM	628
11:00 PM	319
Total	26097



Volumes represent the combined totals for both directions

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

City of San Diego
College Avenue
B/ Interstate 8 Westbound - Interstate 8 Eastbound

File Name: 001
Site Code: 143-19252
24 Hour Directional Volume Count

Date:	Northbound				Southbound					
4/16/2019	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	38	436			17	172				
12:15	31	425			14	191				
12:30	27	342			14	176				
12:45	34	303	130	1506	6	197	51	736	181	2242
1:00	22	332			9	227				
1:15	22	380			3	232				
1:30	17	449			13	203				
1:45	13	515	74	1676	4	250	29	912	103	2588
2:00	14	445			9	285				
2:15	17	442			3	287				
2:30	13	412			8	252				
2:45	11	423	55	1722	8	278	28	1102	83	2824
3:00	14	472			7	280				
3:15	24	437			12	231				
3:30	25	442			6	224				
3:45	27	416	90	1767	9	227	34	962	124	2729
4:00	26	388			15	215				
4:15	31	456			25	271				
4:30	38	462			24	277				
4:45	57	460	152	1766	38	214	102	977	254	2743
5:00	66	454			64	227				
5:15	114	442			63	219				
5:30	119	424			56	181				
5:45	151	458	450	1778	73	197	256	824	706	2602
6:00	159	417			69	183				
6:15	240	458			93	183				
6:30	333	455			165	153				
6:45	430	468	1162	1798	234	135	561	654	1723	2452
7:00	328	334			291	135				
7:15	301	299			296	128				
7:30	238	321			236	137				
7:45	207	275	1074	1229	215	115	1038	515	2112	1744
8:00	201	281			231	102				
8:15	191	295			264	96				
8:30	246	244			285	83				
8:45	220	288	858	1108	242	86	1022	367	1880	1475
9:00	271	270			210	57				
9:15	267	240			190	85				
9:30	244	249			176	44				
9:45	251	193	1033	952	217	48	793	234	1826	1186
10:00	262	138			271	34				
10:15	299	120			234	38				
10:30	371	116			168	35				
10:45	343	93	1275	467	158	30	831	137	2106	604
11:00	292	92			181	39				
11:15	281	79			222	22				
11:30	330	62			246	26				
11:45	369	64	1272	297	209	12	858	99	2130	396
Totals	7625	16066			5603	7519				
Combined Totals		23691				13122				
ADT										36813
AM Peak Hour	630	AM			645	AM				
Volume	1392				1057					
P.H.F.	0.809				0.893					
PM Peak Hour		130	PM			200	PM			
Volume		1851				1102				
P.H.F.		0.899				0.960				
Percentage	32.2%	67.8%			42.7%	57.3%				

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

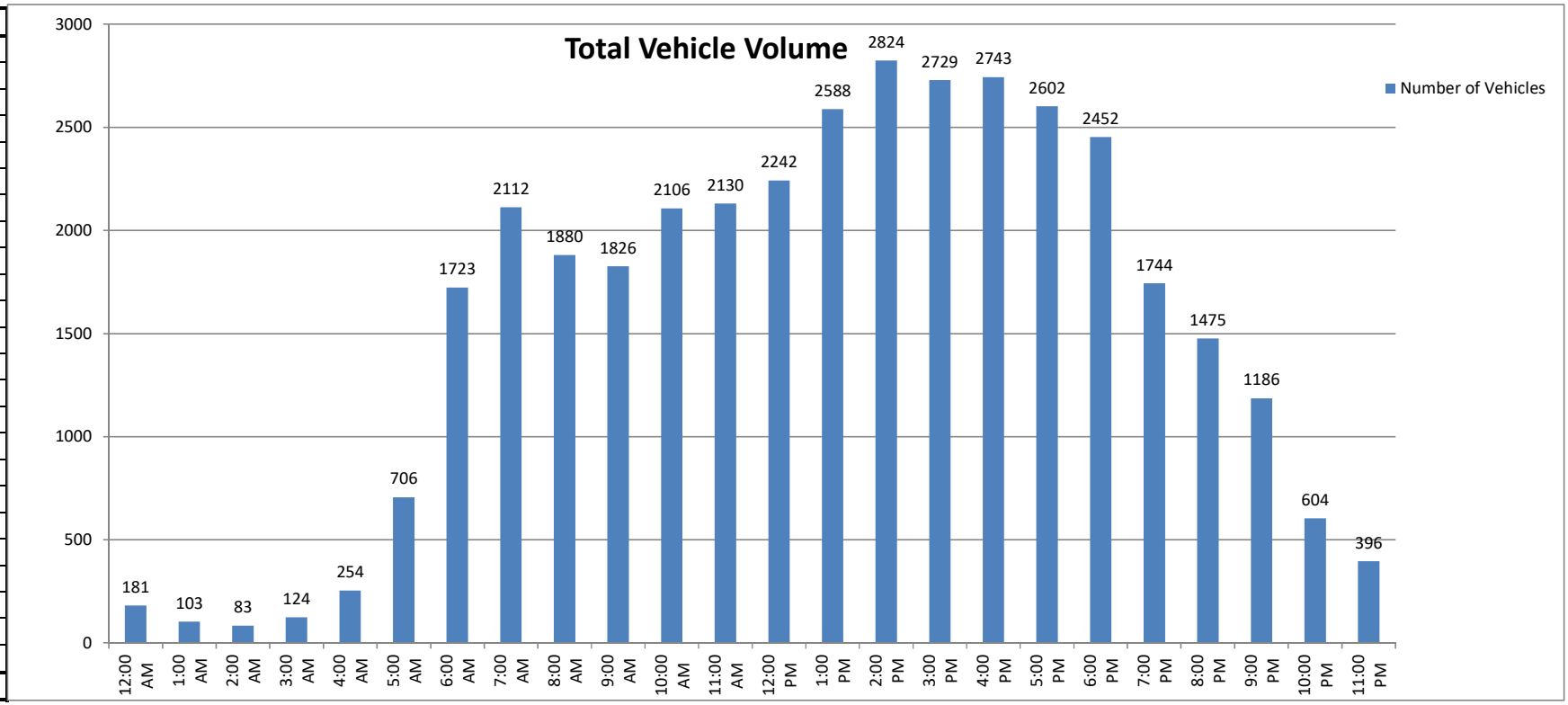
24 Hour Volume Plot

College Avenue

B/ Interstate 8 Westbound - Interstate 8 Eastbound

4/16/2019

Start Time	4/16/2019
12:00 AM	181
1:00 AM	103
2:00 AM	83
3:00 AM	124
4:00 AM	254
5:00 AM	706
6:00 AM	1723
7:00 AM	2112
8:00 AM	1880
9:00 AM	1826
10:00 AM	2106
11:00 AM	2130
12:00 PM	2242
1:00 PM	2588
2:00 PM	2824
3:00 PM	2729
4:00 PM	2743
5:00 PM	2602
6:00 PM	2452
7:00 PM	1744
8:00 PM	1475
9:00 PM	1186
10:00 PM	604
11:00 PM	396
Total	36813

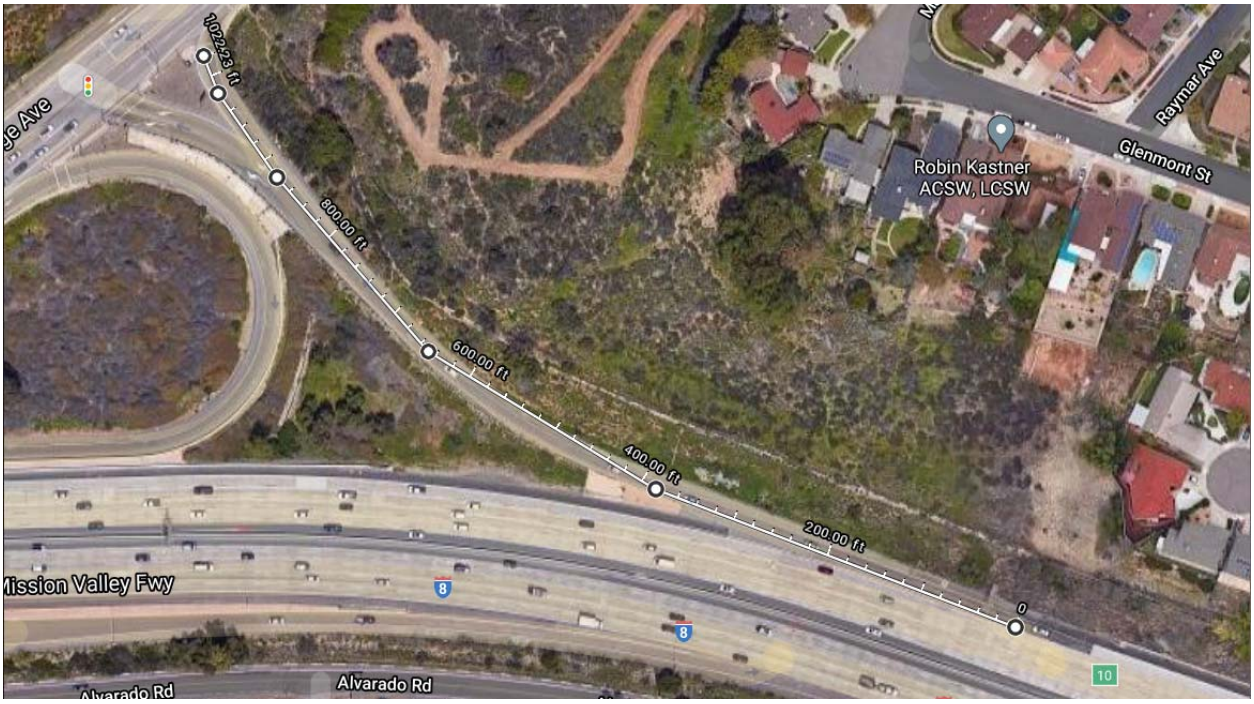


Volumes represent the combined totals for both directions

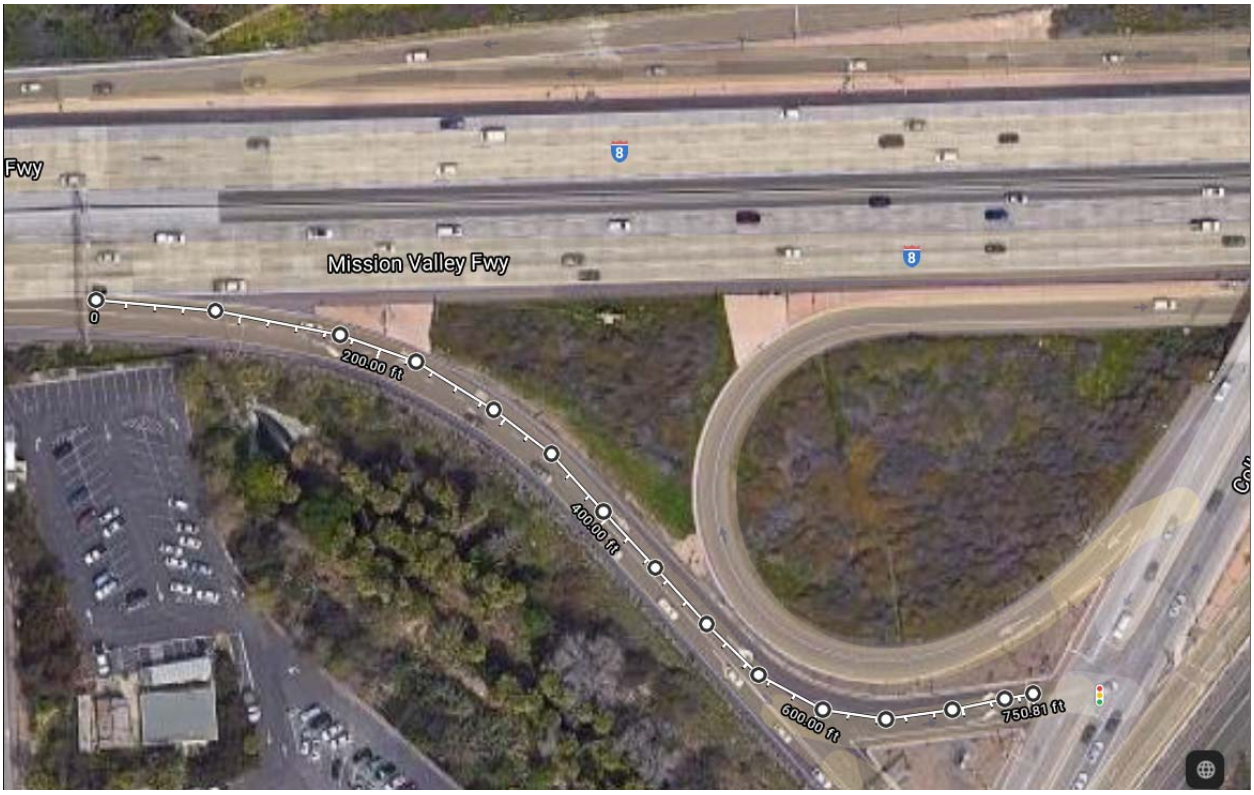
Appendix G

Freeway Off-Ramp Storage Documentation

College Ave at I-8 WB Off-Ramp storage distance of approximately 1,020 feet



College Ave at I-8 EB Off-Ramp storage distance of approximately 750 feet.



Appendix H

Signal Timing Sheets

INTERSECTION: COLLEGE AV & DEL CERRO BL

223 Progra

Group Assignment: None
Field Master Assignment: None

N/S Street Name: COLLEGE AV
E/W Street Name: DEL CERRO BL

Last Change:
Timing Sheet By: EFF
Approved By: EFF

Drawing Number:
System Ref. Num.:
Timing implemented on: 9/5/02

N

Row	Column # ---->	1	2	3	4	5	6	7	8
	Phase # ---->	1	2	3	4	5	6	7	8
			COLLEGE	DEL CERRO			COLLEGE		
0	Ped Walk		7	7			7		
1	Ped FDW		23	21			22		
2	Min Green	4	7	4	4	4	7		
3	Type 3 Limit								
4	Add/Veh								
5	Veh Extn	2.0	4.6 ~~3.9~~	2.0	2.0	2.0	4.9 ~~3.5~~		
6	Max Gap	2.0	4.6 ~~3.9~~	2.0	2.0	2.0	4.9 ~~3.5~~		
7	Min Gap	2.0	0.2	2.0	2.0	2.0	0.2		
8	Max Limit	15	30	30	30	15	30		
9	Max Limit 2			40	20				
A	Bus Adv								
B	Call to Phs								
C	Reduce By		0.1				0.1		
D	Every		0.7 ~~0.8~~				0.6 ~~0.9~~		
E	Yellow	3.4 ~~3.0~~	4.1	3.9 ~~3.3~~	4.1	3.4 ~~3.0~~	5.6		
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0		

EFF 10/26/11

WH 12/15/04

Phase Timing - Bank 1
F + Phase + Row
<F Page>

Row		E
0	RR-1 Delay	
1	RR-1 Clear	
2	EV-A Delay	0
3	EV-A Clear	0
4	EV-B Delay	
5	EV-B Clear	
6	EV-C Delay	0
7	EV-C Clear	0
8	EV-D Delay	
9	EV-D Clear	
A	RR-2 Delay	
B	RR-2 Clear	
C	View EV Delay	---
D	View EV Clear	---
E	View RR Delay	---
F	View RR Clear	---

Preempt Timing
F + E + Row

Row		F
0	Permit	123456
1	Red Lock	
2	Yellow Lock	
3	Min Recall	2 6
4	Ped Recall	
5	Peds (View)	23 6
6	Rest In Walk	
7	Red Rest	
8	Dbl Entry	
9	Max Recall	
A	Soft Recall	
B	Max 2	
C	Cond Serv	
D	Ped Lock	12345678
E	Yellow Start	2 6
F	1st Phases	4

Phase Functions <F Page>
F + F + Row

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

Start / Revert Times

Drop Number	(C + 0 + 0)
Zone Number	(C + 0 + 1)
Area Number	(C + 0 + 2)
Area Address	(C + 0 + 3)
QuicNet Channel	(QuicNet)

Communication Addresses

C + F + O

Free Lag	F	Row
	2 4 6	0

Lag Phases <C Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A				
B	Overlap B				
C	Overlap C				
D	Overlap D				

Overlap Timing <F Page> <D Page>
F + COLOR + D + 0 + OVERLAP

Manual Plan	14 (C + A + 1)
Manual Offset	0 (C + B + 1)

Manual Selection

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

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

Downtime Flash	255 (minutes)

Downtime Before Auto Manual Flash
F + 0 + 8

Disable Ports	234

Disable Communications Ports
D + D + 9

NOTE: PHASE 2+3 OVERLAP INSTALLED ON 7/16/1991.

INTERSECTION: COLLEGE AV & DEL CERRO BL

223 Program

Row	Time	Function	Day of Week	Column F Phases/Bits
0	06:30	B	_23456_	__34____
1	08:30	B	_23456_	
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Function

7 + ROW

<D Page>

D + F + ROW

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

Row		F
0		
1	RR Overlap A - Phases	
2	RR Overlap B - Phases	
3	RR Overlap C - Phases	
4	RR Overlap D - Phases	
5	Ped 2P	_2_____
6	Ped 6P	_____6__
7	Ped 4P	
8	Ped 8P	__3_____
9	Yellow Flash Phases	
A	Overlap A - Phases	_23____
B	Overlap B - Phases	___45___
C	Overlap C - Phases	
D	Overlap D - Phases	
E	Restricted Phases	
F	Assign 5 Outputs	1_____

Configuration

E + F + ROW

<E Page>

Row		E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	_2_____
6	Overlap B - Green Omit	___4____
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	_2__5___
B	EV-B Phases	
C	EV-C Phases	1____6__
D	EV-D Phases	
E	Extra 1 Config. Bits	1_345___
F	IC Select (Interconnect)	_2_____

Configuration

For access, set F + 9 + E = 1

E + E + ROW

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

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

Day of Week

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

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

Time and Date

8-0 Hour, Minute, Day-of-Week

8-1 Day-of-Month, Year, Month

8-F Seconds

Disable Parity	0	D+B+0

Dial-Up Telephone Communications

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

(This parameter is NOT downloaded)

Program Information

C + C + 0 = program

C + C + F = version

Remote Download

C + 0 + 4 = 1 -255

w/ E + E + E bit 5 on

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

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

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

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

Detector Delay & Carryover <D Page>

D + X (across) + ROW

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

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

System Detectors <D Page>

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

Detector Failure Monitor

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

Advance Warning Beacon - Sign 1

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

Advance Warning Beacon - Sign 2

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

Power Cycle Correction (Default = 0.5)

(These parameters are NOT downloaded.)

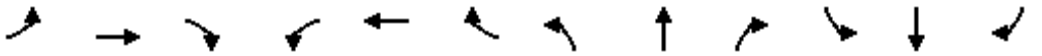
Appendix I

Existing LOS and Queuing Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	67	209	509	99	56	85	709	313	64	790	23
Future Volume (vph)	83	67	209	509	99	56	85	709	313	64	790	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.97	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1795	1553	1665	1640		1752	3505	1539	1752	3487	
Flt Permitted		0.97	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1795	1553	1665	1640		1752	3505	1539	1752	3487	
Peak-hour factor, PHF	0.70	0.70	0.70	0.79	0.79	0.79	0.69	0.69	0.69	0.95	0.95	0.95
Adj. Flow (vph)	119	96	299	644	125	71	123	1028	454	67	832	24
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	132	0	1	0
Lane Group Flow (vph)	0	215	299	419	415	0	123	1028	322	67	855	0
Confl. Peds. (#/hr)						58			5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	3	3		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		15.6	27.5	33.1	33.1		11.9	41.3	74.4	5.5	33.4	
Effective Green, g (s)		15.6	27.5	33.1	33.1		11.9	41.3	74.4	5.5	33.4	
Actuated g/C Ratio		0.14	0.24	0.29	0.29		0.10	0.36	0.65	0.05	0.29	
Clearance Time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		243	371	479	472		181	1258	995	83	1012	
v/s Ratio Prot		c0.12	c0.08	0.25	c0.25		0.07	c0.29	0.09	0.04	0.25	
v/s Ratio Perm			0.11						0.12			
v/c Ratio		0.88	0.81	0.87	0.88		0.68	0.82	0.32	0.81	0.84	
Uniform Delay, d1		48.8	41.2	39.0	39.0		49.7	33.4	9.1	54.2	38.4	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		29.3	12.0	16.2	16.7		9.7	4.2	0.2	41.7	6.6	
Delay (s)		78.2	53.3	55.1	55.7		59.4	37.7	9.3	95.9	44.9	
Level of Service		E	D	E	E		E	D	A	F	D	
Approach Delay (s)		63.7			55.4			31.3			48.6	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	44.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	269	0	130	0	964	395	0	742	766
Future Volume (vph)	0	0	0	269	0	130	0	964	395	0	742	766
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5		5.5		5.5	4.0		5.5	5.5
Lane Util. Factor				0.97		1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes				1.00		0.97		1.00	0.97		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	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		1529		3505	1526		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		1529		3505	1526		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.69	0.69	0.69	0.74	0.74	0.74	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	390	0	188	0	1303	534	0	798	824
RTOR Reduction (vph)	0	0	0	0	0	31	0	0	0	0	0	407
Lane Group Flow (vph)	0	0	0	390	0	157	0	1303	534	0	798	417
Confl. Peds. (#/hr)						10			10			
Confl. Bikes (#/hr)			5			5			5			5
Turn Type				Perm		Perm		NA	Free		NA	Prot
Protected Phases								8			4	4
Permitted Phases				6		6			Free			
Actuated Green, G (s)				18.6		18.6		30.4	60.0		30.4	30.4
Effective Green, g (s)				18.6		18.6		30.4	60.0		30.4	30.4
Actuated g/C Ratio				0.31		0.31		0.51	1.00		0.51	0.51
Clearance Time (s)				5.5		5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				1054		473		1775	1526		1775	794
v/s Ratio Prot								c0.37			0.23	0.27
v/s Ratio Perm				0.11		0.10			c0.35			
v/c Ratio				0.37		0.33		0.73	0.35		0.45	0.53
Uniform Delay, d1				16.1		15.9		11.6	0.0		9.5	10.0
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				1.0		1.9		1.6	0.6		0.2	0.6
Delay (s)				17.1		17.8		13.2	0.6		9.6	10.6
Level of Service				B		B		B	A		A	B
Approach Delay (s)		0.0			17.3			9.6			10.1	
Approach LOS		A			B			A			B	

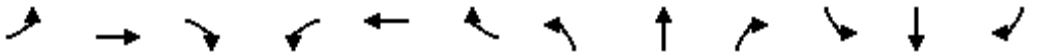
Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	30	112	344	32	77	119	625	389	95	610	24
Future Volume (vph)	37	30	112	344	32	77	119	625	389	95	610	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.97	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1795	1558	1665	1608		1752	3505	1539	1752	3481	
Flt Permitted		0.97	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1795	1558	1665	1608		1752	3505	1539	1752	3481	
Peak-hour factor, PHF	0.73	0.73	0.73	0.95	0.95	0.95	0.91	0.91	0.91	0.95	0.95	0.95
Adj. Flow (vph)	51	41	153	362	34	81	131	687	427	100	642	25
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	172	0	2	0
Lane Group Flow (vph)	0	92	153	243	218	0	131	687	255	100	665	0
Confl. Peds. (#/hr)						5			5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	3	3		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		8.4	21.3	21.6	21.6		12.9	32.2	53.8	8.4	26.2	
Effective Green, g (s)		8.4	21.3	21.6	21.6		12.9	32.2	53.8	8.4	26.2	
Actuated g/C Ratio		0.09	0.24	0.24	0.24		0.14	0.36	0.60	0.09	0.29	
Clearance Time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		167	368	399	385		250	1252	918	163	1012	
v/s Ratio Prot		c0.05	0.06	c0.15	0.14		c0.07	0.20	0.07	0.06	c0.19	
v/s Ratio Perm			0.04						0.10			
v/c Ratio		0.55	0.42	0.61	0.57		0.52	0.55	0.28	0.61	0.66	
Uniform Delay, d1		39.0	29.1	30.5	30.1		35.8	23.1	8.8	39.3	28.0	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		3.9	0.8	2.6	1.9		2.0	0.5	0.2	6.7	1.6	
Delay (s)		42.9	29.9	33.1	32.0		37.7	23.6	8.9	46.0	29.6	
Level of Service		D	C	C	C		D	C	A	D	C	
Approach Delay (s)		34.8			32.6			20.1			31.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	90.1	Sum of lost time (s)	21.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

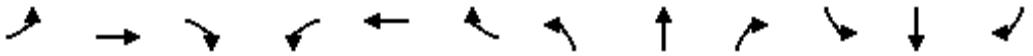
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	446	0	295	0	874	1053	0	576	487
Future Volume (vph)	0	0	0	446	0	295	0	874	1053	0	576	487
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5		5.5		5.5	4.0		5.5	5.5
Lane Util. Factor				0.97		1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes				1.00		0.99		1.00	0.98		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	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		1545		3505	1530		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		1545		3505	1530		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.97	0.97	0.98	0.98	0.98	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	460	0	304	0	892	1074	0	626	529
RTOR Reduction (vph)	0	0	0	0	0	40	0	0	0	0	0	332
Lane Group Flow (vph)	0	0	0	460	0	264	0	892	1074	0	626	197
Confl. Peds. (#/hr)									5			
Confl. Bikes (#/hr)						5			5			5
Turn Type				Perm		Perm		NA	Free		NA	Prot
Protected Phases								8			4	4
Permitted Phases				6		6			Free			
Actuated Green, G (s)				26.7		26.7		22.3	60.0		22.3	22.3
Effective Green, g (s)				26.7		26.7		22.3	60.0		22.3	22.3
Actuated g/C Ratio				0.44		0.44		0.37	1.00		0.37	0.37
Clearance Time (s)				5.5		5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				1513		687		1302	1530		1302	582
v/s Ratio Prot								0.25			0.18	0.13
v/s Ratio Perm				0.14		0.17			c0.70			
v/c Ratio				0.30		0.38		0.69	0.70		0.48	0.34
Uniform Delay, d1				10.7		11.1		15.9	0.0		14.4	13.5
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				0.5		1.6		1.5	2.7		0.3	0.3
Delay (s)				11.2		12.8		17.4	2.7		14.7	13.9
Level of Service				B		B		B	A		B	B
Approach Delay (s)		0.0			11.8			9.4			14.3	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

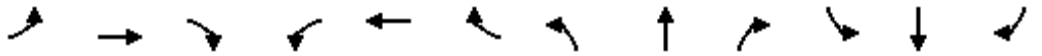
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	33	92	353	20	94	87	483	308	80	516	7
Future Volume (vph)	32	33	92	353	20	94	87	483	308	80	516	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1800	1557	1665	1590		1752	3505	1541	1752	3496	
Flt Permitted		0.98	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1800	1557	1665	1590		1752	3505	1541	1752	3496	
Peak-hour factor, PHF	0.84	0.84	0.84	0.95	0.95	0.95	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	38	39	110	372	21	99	95	525	335	91	586	8
RTOR Reduction (vph)	0	0	0	0	21	0	0	0	143	0	1	0
Lane Group Flow (vph)	0	77	110	253	218	0	95	525	192	91	593	0
Confl. Peds. (#/hr)						5			5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	3	3		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		7.4	18.1	20.2	20.2		10.7	26.7	46.9	8.0	22.5	
Effective Green, g (s)		7.4	18.1	20.2	20.2		10.7	26.7	46.9	8.0	22.5	
Actuated g/C Ratio		0.09	0.22	0.25	0.25		0.13	0.33	0.57	0.10	0.28	
Clearance Time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		162	344	411	392		229	1144	883	171	961	
v/s Ratio Prot		c0.04	0.04	c0.15	0.14		0.05	c0.15	0.05	c0.05	c0.17	
v/s Ratio Perm			0.03						0.07			
v/c Ratio		0.48	0.32	0.62	0.56		0.41	0.46	0.22	0.53	0.62	
Uniform Delay, d1		35.4	26.7	27.4	26.9		32.7	21.8	8.5	35.1	25.9	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		2.2	0.5	2.7	1.7		1.2	0.3	0.1	3.2	1.2	
Delay (s)		37.5	27.2	30.1	28.6		33.9	22.1	8.6	38.3	27.1	
Level of Service		D	C	C	C		C	C	A	D	C	
Approach Delay (s)		31.5			29.4			18.6			28.6	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	81.8	Sum of lost time (s)	21.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

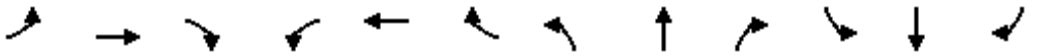
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	239	0	242	0	607	515	0	344	590
Future Volume (vph)	0	0	0	239	0	242	0	607	515	0	344	590
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5		5.5		5.5	4.0		5.5	5.5
Lane Util. Factor				0.97		1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes				1.00		0.99		1.00	0.97		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	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		1546		3505	1526		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		1546		3505	1526		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	257	0	260	0	653	554	0	370	634
RTOR Reduction (vph)	0	0	0	0	0	85	0	0	0	0	0	433
Lane Group Flow (vph)	0	0	0	257	0	175	0	653	554	0	370	201
Confl. Peds. (#/hr)									10			
Confl. Bikes (#/hr)						5			5			5
Turn Type				Perm		Perm		NA	Free		NA	Prot
Protected Phases								8			4	4
Permitted Phases				6		6			Free			
Actuated Green, G (s)				30.0		30.0		19.0	60.0		19.0	19.0
Effective Green, g (s)				30.0		30.0		19.0	60.0		19.0	19.0
Actuated g/C Ratio				0.50		0.50		0.32	1.00		0.32	0.32
Clearance Time (s)				5.5		5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				1700		773		1109	1526		1109	496
v/s Ratio Prot								c0.19			0.11	0.13
v/s Ratio Perm				0.08		0.11			c0.36			
v/c Ratio				0.15		0.23		0.59	0.36		0.33	0.40
Uniform Delay, d1				8.1		8.5		17.2	0.0		15.7	16.1
Progression Factor				1.00		1.00		0.70	1.00		1.00	1.00
Incremental Delay, d2				0.2		0.7		0.7	0.6		0.2	0.5
Delay (s)				8.3		9.1		12.8	0.6		15.8	16.6
Level of Service				A		A		B	A		B	B
Approach Delay (s)		0.0			8.7			7.2			16.3	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	448	0	508	0	0	0	0	709	222	0	390	207
Future Volume (vph)	448	0	508	0	0	0	0	709	222	0	390	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0					5.0	5.0		5.0	4.0
Lane Util. Factor	0.97		0.76					0.95	1.00		0.95	1.00
Frpb, ped/bikes	1.00		1.00					1.00	0.97		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	0.85		1.00	0.85
Flt Protected	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (prot)	3400		3575					3505	1526		3505	1568
Flt Permitted	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (perm)	3400		3575					3505	1526		3505	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.92	0.92	0.92	0.93	0.93	0.93	0.97	0.97	0.97
Adj. Flow (vph)	472	0	535	0	0	0	0	762	239	0	402	213
RTOR Reduction (vph)	0	0	119	0	0	0	0	0	82	0	0	0
Lane Group Flow (vph)	472	0	416	0	0	0	0	762	157	0	402	213
Confl. Peds. (#/hr)									5			
Confl. Bikes (#/hr)									5			
Turn Type	Prot		Prot					NA	Perm		NA	Free
Protected Phases	1		6					2 4			8	
Permitted Phases									2 4			Free
Actuated Green, G (s)	12.6		36.0					39.4	39.4		15.0	60.0
Effective Green, g (s)	12.6		36.0					39.4	39.4		15.0	60.0
Actuated g/C Ratio	0.21		0.60					0.66	0.66		0.25	1.00
Clearance Time (s)	4.0		4.0								5.0	
Vehicle Extension (s)	3.0		3.0								3.0	
Lane Grp Cap (vph)	714		2145					2301	1002		876	1568
v/s Ratio Prot	c0.14		0.12					c0.22			c0.11	
v/s Ratio Perm									0.10			0.14
v/c Ratio	0.66		0.19					0.33	0.16		0.46	0.14
Uniform Delay, d1	21.7		5.4					4.5	3.9		19.1	0.0
Progression Factor	1.00		1.00					1.00	1.00		1.36	1.00
Incremental Delay, d2	2.3		0.2					0.1	0.1		1.7	0.2
Delay (s)	24.0		5.6					4.6	4.0		27.7	0.2
Level of Service	C		A					A	A		C	A
Approach Delay (s)		14.3			0.0			4.5			18.1	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 14: College Ave & I-8 WB Ramp

Movement	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	R	T	T	T	T
Maximum Queue (ft)	46	120	80	174	160	112	155
Average Queue (ft)	14	63	3	66	72	55	57
95th Queue (ft)	38	105	26	127	132	95	109
Link Distance (ft)			1098	1059	1059	1034	1034
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150	150					
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 15: College Ave & I-8 EB Ramp

Movement	EB	EB	EB	EB	NB	NB	SB	SB
Directions Served	L	L	R	R	T	T	T	T
Maximum Queue (ft)	142	154	386	318	118	139	113	116
Average Queue (ft)	115	148	158	48	70	64	71	82
95th Queue (ft)	188	168	383	226	112	117	104	118
Link Distance (ft)			920	920	672	672	1059	1059
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	130	130						
Storage Blk Time (%)	1	25				0		
Queuing Penalty (veh)	2	43				0		

Network Summary

Network wide Queuing Penalty: 45

Appendix J

All Peoples Church Vehicle Occupancy Data

Vehicle Occupancy Summary from All Peoples Church at 5555 University Avenue, San Diego
Data on the next few pages

Sunday 12/2/18 11:30 AM service

Vehicles	39
People	85
Occupancy	2.18

Sunday 12/9/18 10 AM service

Vehicles	94
People	202
Occupancy	2.15

Sunday 11/10/19 8:30 AM service

Vehicles	61
People	130
Occupancy	2.13

Sunday 11/10/19 10:00 AM service

Vehicles	61
People	152
Occupancy	2.49

Sunday 11/17/19 8:30 AM service

Vehicles	73
People	184
Occupancy	2.52

Weighted Average

Vehicles	328
People	753
Avg Occupancy	**2.30**

Vehicle Occupancy from All Peoples Church at 5555 University Avenue, San Diego

Sunday 12/2/18 11:30 AM service			Sunday 12/9/18 10 AM service				
Vehicle	**Occupancy**		**Vehicle**	**Occupancy**	**Vehicle**	**Occupancy**	
1	1		1	3	53	2	
2	3		2	4	54	2	
3	3		3	2	55	2	
4	2		4	2	56	2	
5	4		5	4	57	2	
6	1		6	4	58	2	
7	2		7	3	59	1	
8	2		8	2	60	1	
9	3		9	3	61	2	
10	2		10	2	62	1	
11	2		11	2	63	2	
12	1		12	2	64	1	
13	2		13	2	65	2	
14	3		14	3	66	2	
15	2		15	1	67	2	
16	1		16	4	68	1	
17	2		17	2	69	1	
18	2		18	2	70	1	
19	3		19	3	71	2	
20	2		20	2	72	3	
21	6		21	3	73	1	
22	1		22	3	74	2	
23	2		23	2	75	1	
24	1		24	1	76	1	
25	2		25	4	77	1	
26	1		26	3	78	3	
27	2		27	2	79	1	
28	2		28	1	80	3	
29	1		29	4	81	1	
30	2		30	2	82	2	
31	6		31	2	83	2	
32	1		32	2	84	1	
33	2		33	1	85	3	
34	2		34	2	86	5	
35	1		35	6	87	3	
36	4		36	1	88	4	
37	3		37	1	89	1	
38	1		38	2	90	2	
39	2		39	3	91	3	
	85	Total Persons	40	2	92	2	
	2.18	**Avg Veh Occupancy**	41	1	93	2	
			42	1	94	3	
			43	6		202	Total Persons
			44	1		**2.15**	**Avg Veh Occupancy**
			45	1			
			46	3			
			47	1			
			48	1			
			49	1			
			50	1			
			51	2			
			52	3			

Vehicle Occupancy from All Peoples Church at 5555 University Avenue, San Diego

Sunday 11/10/19 8:30 AM service					Sunday 11/10/19 10:00 AM service				
Vehicle	**Occupancy**	**Vehicle**	**Occupancy**		**Vehicle**	**Occupancy**	**Vehicle**	**Occupancy**	
1	1	53	2		1	5	53	2	
2	3	54	4		2	3	54	3	
3	1	55	1		3	2	55	3	
4	4	56	2		4	2	56	1	
5	1	57	1		5	3	57	1	
6	1	58	3		6	2	58	1	
7	2	59	2		7	2	59	2	
8	3	60	3		8	1	60	5	
9	5	61	1		9	3	61	3	
10	3		130	People	10	2		152	People
11	2		**2.13**	**Occupancy**	11	3		**2.49**	**Occupancy**
12	1				12	1			
13	3				13	2			
14	1				14	3			
15	2				15	1			
16	2				16	5			
17	2				17	5			
18	3				18	2			
19	3				19	3			
20	2				20	2			
21	4				21	3			
22	2				22	2			
23	1				23	1			
24	7				24	1			
25	3				25	2			
26	1				26	1			
27	6				27	2			
28	1				28	2			
29	1				29	5			
30	1				30	4			
31	2				31	4			
32	1				32	2			
33	1				33	2			
34	4				34	3			
35	2				35	4			
36	3				36	3			
37	1				37	2			
38	2				38	1			
39	3				39	2			
40	1				40	2			
41	1				41	5			
42	1				42	2			
43	2				43	1			
44	1				44	2			
45	2				45	4			
46	2				46	3			
47	2				47	2			
48	4				48	2			
49	1				49	2			
50	1				50	1			
51	1				51	4			
52	1				52	3			

Vehicle Occupancy from All Peoples Church at 5555 University Avenue, San Diego

Sunday 11/17/19 8:30 AM service

Vehicle	Occupancy	Vehicle	Occupancy	
1	1	53	2	
2	1	54	4	
3	2	55	2	
4	1	56	2	
5	2	57	3	
6	2	58	1	
7	5	59	2	
8	1	60	1	
9	2	61	3	
10	4	62	3	
11	1	63	1	
12	3	64	2	
13	3	65	1	
14	1	66	4	
15	1	67	1	
16	5	68	3	
17	5	69	6	
18	2	70	2	
19	1	71	4	
20	1	72	5	
21	6	73	4	
22	1		184	People
23	2		**2.52**	**Occupancy**
24	6			
25	3			
26	5			
27	3			
28	1			
29	2			
30	2			
31	1			
32	3			
33	1			
34	2			
35	6			
36	2			
37	2			
38	3			
39	2			
40	3			
41	2			
42	2			
43	4			
44	2			
45	2			
46	5			
47	1			
48	3			
49	2			
50	2			
51	1			
52	2			

Appendix K

All Peoples Church Zip Code Data

Zip Code	Church Attendees	Percentage
91901	18	1.7%
91902	8	0.7%
91903	2	0.2%
91910	2	0.2%
91911	5	0.5%
91913	4	0.4%
91914	2	0.2%
91915	7	0.6%
91916	11	1.0%
91932	11	1.0%
91935	9	0.8%
91941	53	4.9%
91942	74	6.8%
91945	11	1.0%
91950	4	0.4%
91977	43	4.0%
91978	24	2.2%
92019	25	2.3%
92020	41	3.8%
92021	42	3.9%
92024	4	0.4%
92027	4	0.4%
92037	22	2.0%
92040	21	1.9%
92064	10	0.9%
92065	3	0.3%
92069	2	0.2%
92071	28	2.6%
92092	3	0.3%
92101	10	0.9%
92102	8	0.7%
92103	18	1.7%
92104	19	1.7%
92105	58	5.3%
92106	61	5.6%
92107	15	1.4%
92108	8	0.7%
92109	13	1.2%
92110	18	1.7%
92111	26	2.4%
92114	5	0.5%
92115	110	10.1%
92116	13	1.2%
92117	17	1.6%
92118	7	0.6%
92119	20	1.8%
92120	27	2.5%
92122	16	1.5%
92123	14	1.3%
92124	21	1.9%
92126	9	0.8%
92127	3	0.3%
92129	7	0.6%
92130	5	0.5%
92131	10	0.9%
92139	3	0.3%
92154	11	1.0%
92173	3	0.3%
	1048	96%
Remaining Zip Codes:	39	4%
Totals:	**1087**	**100%**

Current Church Location

Remaining Zip Codes with one or two persons who attend service

90018	92026	92175
90274	92029	92178
90630	92054	92346
90706	92072	92675
91006	92078	92806
91104	92081	92867
91944	92112	92879
92008	92113	92977
92015	92121	93111
92016	92128	93427
	92145	95032
	92165	95037
		95135
		95662
		95991

Appendix L

Caltrans Intersection Spacing Correspondence

RE: Signal distance from ramp criteria question

Armstrong, Jacob M@DOT <jacob.armstrong@dot.ca.gov>
Mon 12/10/2018 3:28 PM

To: Justin Rasas <Justin@losengineering.com>
Cc: Will Mack <wmack@plsaengineering.com>; Mccumsey, Mark@DOT <mark.mccumsey@dot.ca.gov>

Hi Justin,

Thanks for reaching out to us on this project. Our HDM Ch. 500, states that "the minimum distance (curb return to curb return) between ramp intersections and local road intersections shall be 400 feet. The preferred minimum distance should be 500 feet. Where intersections are closely spaced, traffic operations are often inhibited by short weave distance, storage lengths, and signal phasing". You should also consider the off-ramp is a free right move. The main thing we would want to see is your traffic analysis with the new signal and any potential operational issues it may present with the off-ramp. We also could look at signal coordination with our ramp signals, but you still have the free right move from the off-ramp. I would recommend you provide us an early review of your traffic study and we can take a look, and if needed coordinate with the City. Thanks

Jacob Armstrong, Branch Chief
District 11 Planning Dept.
CA Dept. of Transportation
4050 Taylor Street MS-240
San Diego, CA 92110
ph: (619) 688-6960
cell: (619) 709-4345

From: Justin Rasas <Justin@losengineering.com>
Sent: Friday, December 7, 2018 3:04 PM
To: Armstrong, Jacob M@DOT <jacob.armstrong@dot.ca.gov>
Cc: Will Mack <wmack@plsaengineering.com>
Subject: Signal distance from ramp criteria question

Hi Jacob,

Happy Friday!

Here's a question for next week. My client is proposing a Church on the northeast corner of I-8 at College Avenue. This site is the slender L shaped parcel between College Ave and homes along Marne Ave. Access is planned to be signalized and is located approximately 840 feet (center line to center line) from the off-ramp. It's closer to Del Cerro (approx. 550 feet).

What is the criteria for Caltrans to either require an interconnect or specific spacing from an interchange intersection? If you could point me in the right direction it would be great.

Thanks,
Justin Rasas, P.E. (RCE 60690), PTOE
Principal

LOS Engineering, Inc.
11622 El Camino Real, Suite 100
San Diego, CA 92130

Appendix M

Signal Warrant Calculations

SUNDAY

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More	Hour			
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐ No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐ No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☐**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐ No ☐
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐ No ☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☐ No ☐

PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	10 AM Hour
Both Approaches - Major Street		✓	2178
Higher Approach - Minor Street	✓		363

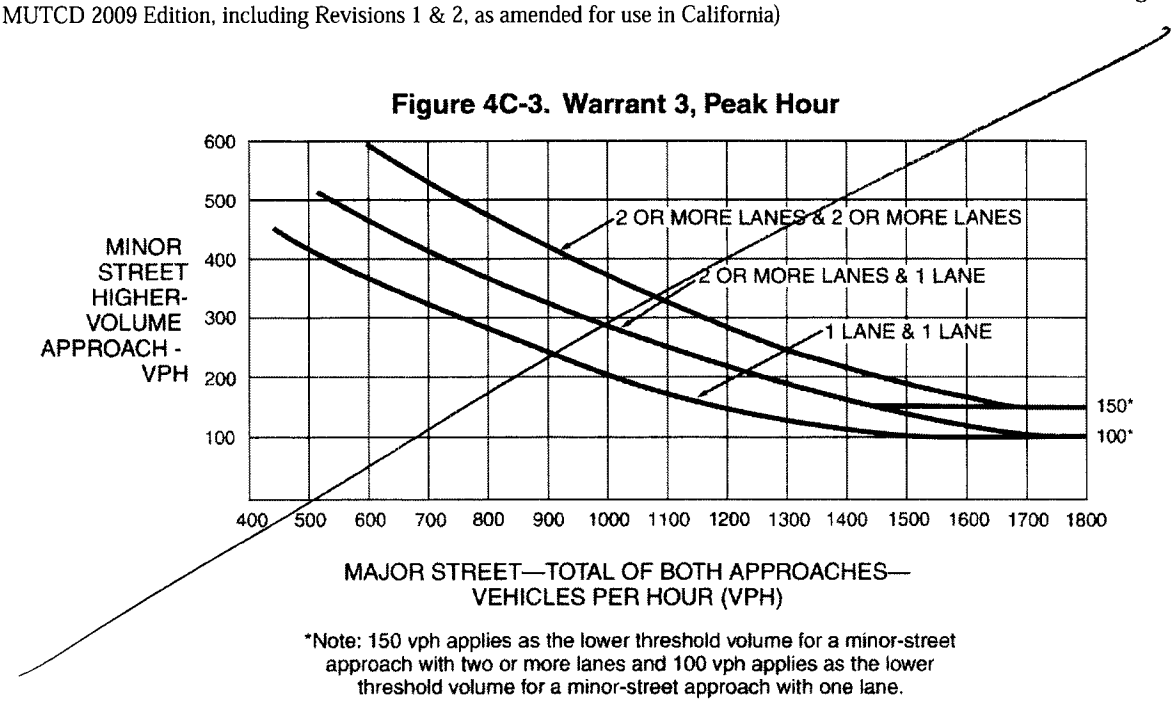
} OPENING YEAR + PROJECT VOLUMES.

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐ No ☐	NA
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☒ No ☐	

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

SUNDAY

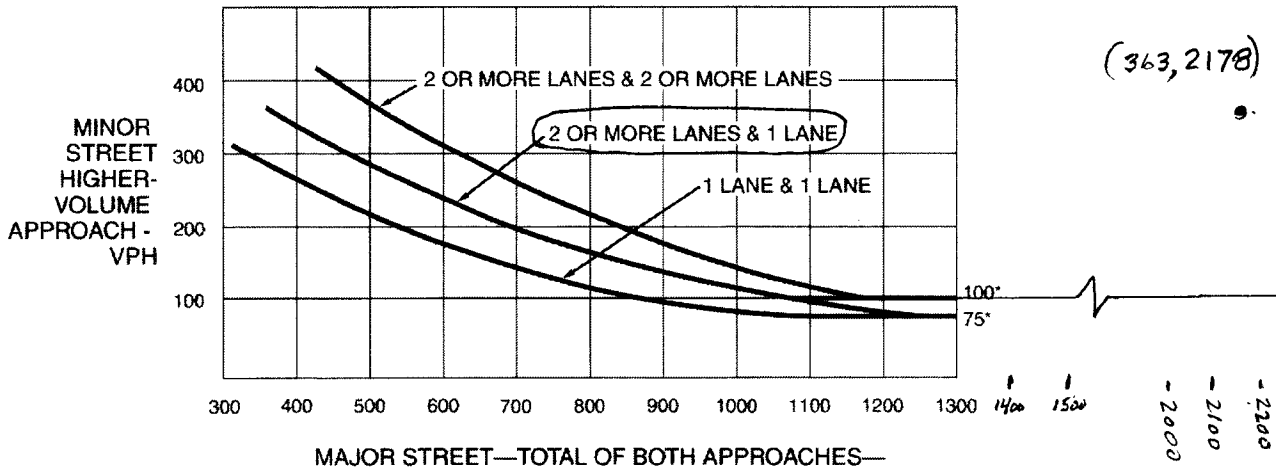
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



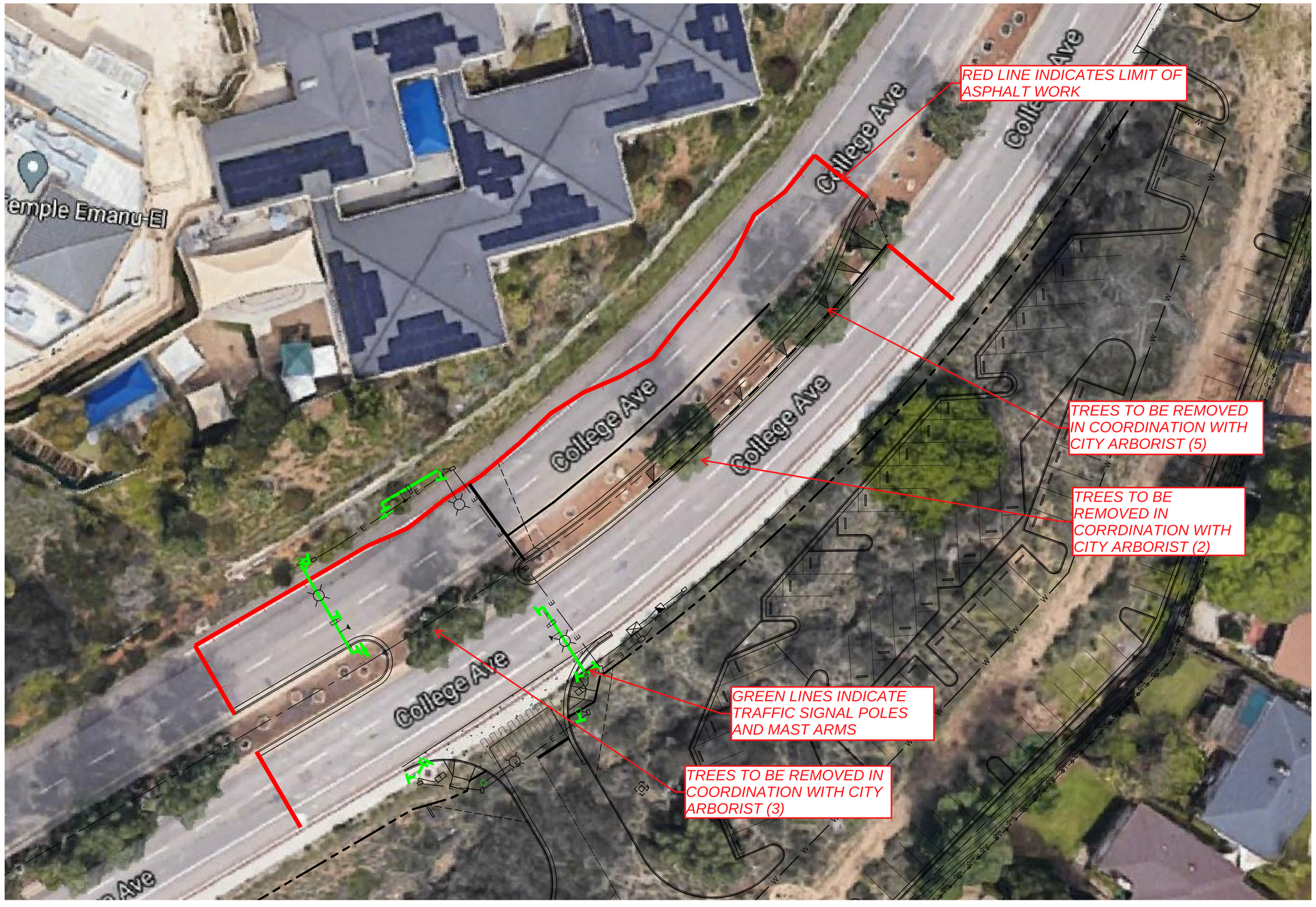
(363, 2178)

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Appendix N

College Ave/Project Main Access Preliminary Signal Design

ALL PEOPLES CHURCH
SATELLITE OVERLAY OF PROPOSED SIGNALIZED INTERSECTION



ALL PEOPLES CHURCH
INTERSECTION EXHIBT

SAN DIEGO, CA
PROJECT NUMBER: PLSA 2936
SCALE: 1" = 20'
DATE: NOVEMBER 5, 2020
SHEET 1 OF 1

PASCO LARET SUITER & ASSOCIATES
CIVIL ENGINEERING + LAND PLANNING + LAND SURVEYING
535 North Highway 101, Ste A, Solana Beach, CA 92075
ph 858.259.8212 | fx 858.259.4812 | plsaengineering.com

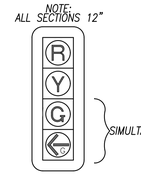
TRAFFIC SIGNAL INSTALLATION PLAN

SITE DEVELOPMENT PERMIT NO. 92338
PLANNED DEVELOPMENT PERMIT NO. 92339
EASEMENT VACATION NO. 92340
TENTATIVE MAP NO._____
ALL PEOPLES CHURCH

TRAFFIC SIGNAL GENERAL NOTES *

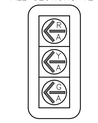
1. PULL BOXES SHALL BE NO. 6 AND CONDUIT 3"UNLESS NOTED OTHERWISE.
2. LOCATIONS OF ALL UNDERGROUND UTILITIES ARE APPROXIMATE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE AND VERIFY THE EXACT LOCATIONS AND CONDITIONS ON THE JOB SITE.
3. THE TRAFFIC SIGNAL CONTRACTOR SHALL OBTAIN A TRAFFIC CONTROL PLAN PERMIT FROM THE CITY OF SAN DIEGO DEVELOPMENT SERVICES DEPARTMENT PERMIT CENTER A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
4. ALL TRAFFIC SIGNAL POLE FOUNDATIONS SHALL HAVE A 3" CONDUIT INSTALLED TO THE ADJACENT NO. 6 PULL BOX. THE CONTROLLER FOUNDATION SHALL HAVE A SPARE 3"CONDUIT INSTALLED TO THE ADJACENT NO. 6 PULL BOX FOR FUTURE USE AS SHOWN ON CONDUIT SCHEDULE. (NEEDS TO BE ADDED AS A NOTE AT THE BOTTOM OF THE CONDUIT SCHEDULE)
   A. ALL CONDUIT CROSSINGS SHALL INCLUDE A MINIMUM OF TWO (2) 3" CONDUITS.
5. THE TRAFFIC SIGNAL CONTRACTOR IS RESPONSIBLE FOR THE LAYOUT AND INSTALLATION OF LOOP DETECTORS, TRAFFIC STRIPING, PAVEMENT MARKINGS, PARKING REMOVAL AND TRAFFIC SIGNING (EXCEPT "G" SERIES STREET NAME SIGNS) AS SHOWN ON THESE PLANS.
   A. THE TRAFFIC SIGNAL CONTRACTOR SHALL OBTAIN THE APPROVAL OF CITY RESIDENT TRAFFIC ENGINEER (ETS DIVISION) OF THE LOOP LOCATIONS PRIOR TO CUTTING, AS WELL AS, PRIOR TO ANY INSTALLATION AND/OR REMOVAL OF STRIPING, PAVEMENT MARKING, PARKING REMOVAL AND SIGN LOCATIONS.
   B. THE TRAFFIC SIGNAL CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF ALL UNNECESSARY AND CONFLICTING STRIPING AND PAVEMENT MARKINGS.
   C. THE TRAFFIC SIGNAL CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL PAVEMENT MARK-OUTS.
6. THE TRAFFIC SIGNAL CONTRACTOR SHALL NOT ERECT ANY SIGNAL STANDARDS MORE THAN THREE (3) WEEKS PRIOR TO SCHEDULED TRAFFIC SIGNAL TURN-ON.
7. CONTRACTOR SHALL PROVIDE ALL CABLING AND CONDUCTORS NECESSARY TO PERFORM ALL FUNCTIONS SHOWN ON THESE PLANS.
8. ALL POLES, CONDUIT, PULL BOXES, STRIPING AND LOOP DETECTOR LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE. ACTUAL LOCATIONS SHALL BE DETERMINED BY FIELD CONDITIONS AT THE TIME ON CONSTRUCTION AND AS DIRECTED BY THE CITY OF SAN DIEGO.
9. ROUTING AND LOCATIONS OF UNDERGROUND ELECTRICAL SYSTEM IS DIAGRAMMATIC AND SUBJECT TO APPROVAL OF THE CITY ELECTRICAL ENGINEER. UNDERGROUND ELECTRICAL LINES AND SUBSURFACE STRUCTURES MAY BE RELOCATED IF NECESSARY TO CLEAR OTHER EXISTING UNDERGROUND FACILITIES.
10. ALL TREES AND SHRUBS SHALL BE TRIMMED OR REMOVED AS DETERMINED BY THE CITY RESIDENT ENGINEER AS REQUIRED TO MAINTAIN SIGNAL HEAD VISIBILITY AND SIGHT DISTANCE.
11. ALL VEHICLE HEADS SHALL BE 12" L.E.D. WITH AN INCANDESCENT LOOK AND BACKPLATES.
12. ALL VEHICLE DETECTOR LOOPS SHALL BE TYPE "E" AS SHOWN ON THIS PLAN.
    A. DETECTOR LOOPS SHALL BE 6' DIAMETER WITH 10' SPACING AND POSITIONED IN CENTER OF LANE UNLESS OTHERWISE SHOWN.
    B. FRONT DETECTOR LOOPS SHALL BE TYPE "E" MODIFIED LOOPS PER SDE – 104.
    C. ALL LOOP LAYOUTS SHALL INCLUDE LAYOUT OF HOMERUN LINES, WHICH MUST BE APPROVED PRIOR TO INSTALLATION.
    D. BICYCLE DETECTOR LOOPS SHALL BE TYPE Q.
13. PEDESTRIAN SIGNAL INDICATIONS AND PUSH BUTTONS SHALL BE INTERNATIONAL SYMBOLS. PEDESTRIAN SIGNAL INDICATIONS SHALL BE 16"X18" L.E.D. COUNTDOWN TIMER WITH AN INCANDESCENT LOOK. PEDESTRIAN PUSH BUTTONS SHALL BE 2" PER ADA REQ.
14. ALL CROSSWALKS SHALL BE CONTINENTAL TYPE PER SDM-116.
15. PEDESTRIAN PUSH BUTTON HOUSING COLOR SHALL MATCH COLOR NO. 33538 OF FED-STD-595 WHEN PEDESTRIAN PUSH BUTTONS ARE PLACED ON A TRAFFIC SIGNAL POLE.
16. PEDESTRIAN PUSH BUTTON LOCATIONS SHALL FOLLOW THE CA MUTCD STANDARDS AND THE THE ADA REQUIREMENTS.

NOTE: ALL SECTIONS 12"



DETAIL "B"

NOTE: ALL SECTIONS 12"



DETAIL "A"

POLE SCHEDULE *

	STANDARD				LUMINARE	PLACEMENT		SIGNAL MOUNTING		PEDESTRIAN		QUAD	REMARKS
NO.	TYPE	HGT	SIG. M.A.	LUM. M.A.	LED	A	B	VEHICLE		SIGNAL	PED		
(A)	15 TS	30'	-	15'	ZI4	-	-	-	-	-	Ø2	8	
(B)	1A	10'	-	-	-	-	-	-	TV-2-T	SP-1-T	-	-	4
(C)	26-5-100	30'	40'	15'	ZI4	-	4'	2-MAS	SV-2-T	–	-	-	ALL PEOPLE'S CHURCH
(D)	26-3-100	30'	25'	15'	ZI4	-	4'	MAS	SV-2-T	-	-	-	COLLEGE AVE.
(E)	19-4-100	30'	30'	15'	ZI4	-	-	MAS	SV-2-T	SP-1-T	-	-	ALL PEOPLE'S CHURCH 4
(F)	1A	10'	–	–	–	-	-	–	TV-1-T	–	Ø2	8	

ALL VEHICLE HEADS SHALL BE 12" WITH BACKPLATES AND GLASS LENSES. ANCHOR BOLT NUT COVERS SHALL BE PROVIDED.

1. PED PUSH BUTTONS SHALL BE 2-WIRE ACCESSIBLE PEDESTRIAN SIGNALS (APS) PER CITY SPECIFICATIONS.

CONDUCTOR TABLE *

AWG SIZE OR CABLE TYPE	PHASE	POLE OR CIRCUIT	CONDUIT SIZE & RUN									
			3" (A)	4" (A)	4" (A)	4" (A)	4" (A)	2-3" (A)	2-3" (A)	3" (A)	3" (A)	2-3" (A)
CONDUCTORS: PPB 3 / 12	COMMON	POLE - A	–	–	–	–	–	–	–	–	–	–
		POLE - B	–	–	–	–	–	–	–	–	–	–
		POLE - C	–	–	–	–	–	–	–	–	–	–
		POLE - D	–	–	–	–	–	–	–	–	–	–
		POLE - E	–	–	–	–	–	–	–	–	–	–
		POLE - F	–	–	–	–	–	–	–	–	–	–
		-	–	–	–	–	–	–	–	–	–	–
		-	–	–	–	–	–	–	–	–	–	–
TOTAL CABLES		3 CONDUCTOR/12 CONDUCTOR	–	–	–	–	–	–	–	–	–	–
NO 6		SIGNAL SERVICE	–	–	–	–	–	–	–	–	–	–
NO 8		GROUND	–	–	–	–	–	–	–	–	–	–
NO 10		LIGHTING	–	–	–	–	–	–	–	–	–	–
6 PAIR NO.22		INTERCONNECT CABLE	–	–	–	–	–	–	–	–	–	–
TYPE "B" DLC	1	LOOP DETECTOR	–	–	–	–	–	–	–	–	–	–
	2	" "	–	–	–	–	–	–	–	–	–	–
	3	" "	–	–	–	–	–	–	–	–	–	–
	4	" "	–	–	–	–	–	–	–	–	–	–
	5	" "	–	–	–	–	–	–	–	–	–	–
	6	" "	–	–	–	–	–	–	–	–	–	–
	7	" "	–	–	–	–	–	–	–	–	–	–
	8	" "	–	–	–	–	–	–	–	–	–	–
TOTAL DLC			–	–	–	–	–	–	–	–	–	–
EMERGENCY VEHICLE DETECTOR (EV-DLC)			–	–	–	–	–	–	–	–	–	–
TOTAL			–	–	–	–	–	–	–	–	–	–
PERCENT FILL			–	–	–	–	–	–	–	–	–	–

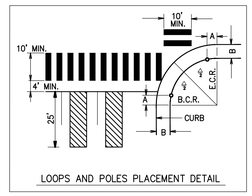
NOTES:
1. USE ALL NEW SIGNAL CABLE AND/OR CONDUCTORS.
2. INSTALL 1 UNBROKEN GROUND FROM MP TO CONTROLLER.

LEGEND

– VIDEO DETECTION CAMERA

– VIDEO DETECTION ZONE (SIZE AND LOCATION TO BE DETERMINED IN FIELD)

PPB LOCATION



LOOPS AND POLES PLACEMENT DETAIL

SIGN LEGEND

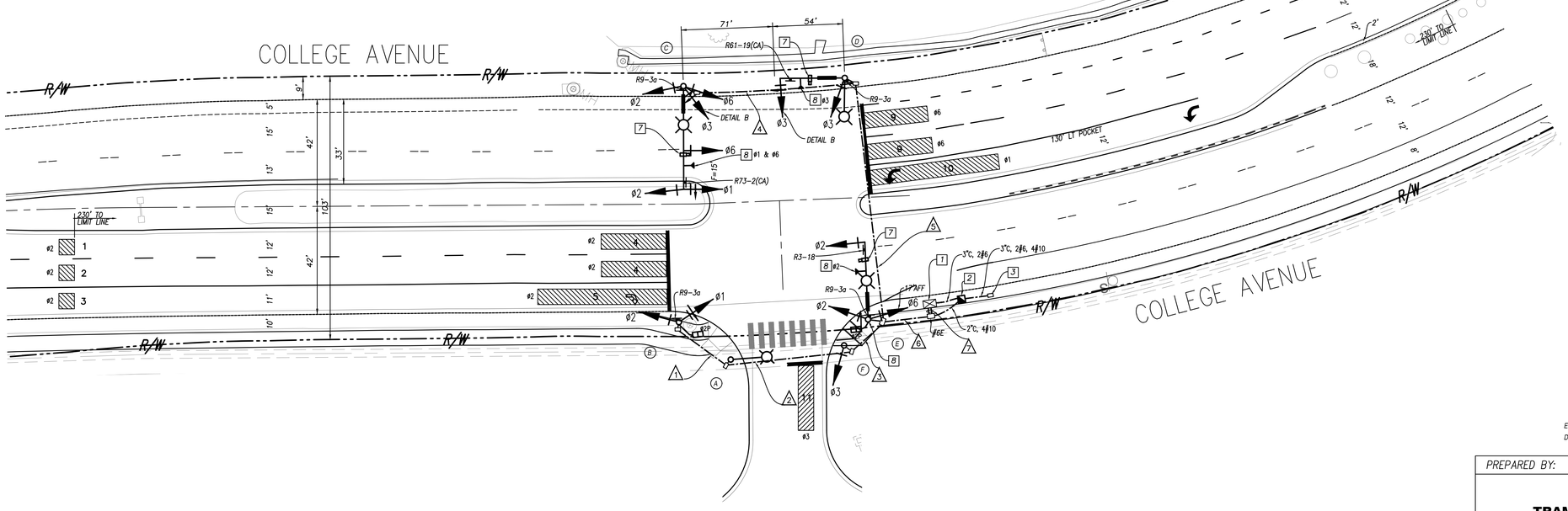

R9-3a


R3-4


R73-2(CA)

R61-19(CA)

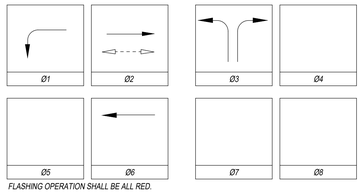

R3-18



SCALE: 1"=20'

20 10 0 20 40 60

PHASE DIAGRAM *



FLASHING OPERATION SHALL BE ALL RED.

TRAFFIC SIGNAL CONSTRUCTION NOTES *

1. FURNISH AND INSTALL 2770 CONTROLLER IN A TYPE 332 CABINET, EQUIPPED WITH ONE MODEL 412C SYSTEM MEMORY MODULE, ONE MODEL 404 MODEM FOR 8-PHASE CAPABILITY AND CITY APPROVED BATTERY BACKUP.
2. FURNISH AND INSTALL TYPE III SERVICE PEDESTAL AND CABINET WITH 50A-1P CIRCUIT BREAKER AND 30A-1P BREAKER FOR STREET LIGHTS.
3. CONTRACTOR TO VERIFY SERVICE REQUIREMENTS WITH SDG&E.
4. FURNISH AND INSTALL COUNTDOWN PEDESTRIAN SIGNAL HEADS PER CITY OF SAN DIEGO REQUIREMENTS.
5. FURNISH AND INSTALL CCTV CAMERA ON POLE G WITH ALL APPURTENANT EQUIPMENT, CONTRACTOR SHALL SUPPLY ALL NECESSARY HARDWARE PER CITY REQUIREMENTS.
6. INSTALL #6 PULL BOX. NO SPLICING IN HANDHOLE.
7. FURNISH AND INSTALL VIDEO DETECTION CAMERA ON TELSPAR WITH ALL EQUIPMENT, CONTRACTOR SHALL SUPPLY ALL NECESSARY HARDWARE PER CITY REQUIREMENTS.
8. FURNISH AND INSTALL 5228I-DIRECTIONAL DUAL CHANNEL EVPE DETECTOR PER CITY OF SAN DIEGO REQUIREMENTS.

DETECTOR ASSIGNMENT *

DETECTOR	PHASE	SLOT	FIELD TERMINAL
PPB	2P	I12U	T8-4 & COM 6
EVA	2	J12U	T9-4 & COM 6
EVC	1+6	J12L	T9-5 & COM 6
EVD	8	J14U	T9-8 & COM 9
FLASH SENSE		I14U	T8-10 & COM 12
STOP TIMING		I14L	T8-11 & COM 12
RR1 FLASH		J14U	T9-10 & COM 12
RR2 LTD OPE		J14L	T9-11 & COM 12

THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE. THERE MAY BE OTHER UNDERGROUND UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

ENGINEERING PERMIT NO:_____

DISCRETIONARY PERMIT NO:_____

The City of SAN DIEGO
DEVELOPMENT SERVICES DEPARTMENT

STREET DATA TABLE

STREET NAME	CLASSIFICATION	SPEED (MPH)	ADT (VEHICLES)	R/W (FT)
COLLEGE AVENUE	4 LANE MAJOR	40	????	102
PRIVATE DRIVE	2 LANE LOCAL	25	????	0

PRELIMINARY
NOT FOR CONSTRUCTION

PREPARED BY:

TRAMES SOLUTIONS INC.
4225 OCEANSIDE BLVD, #354 H
OCEANSIDE, CA 92056
TEL: 760-291-1400
TRAFFIC DESIGN ● TRAFFIC IMPACT ANALYSIS ● TRANSPORTATION PLANNING

REGISTERED PROFESSIONAL ENGINEER SOROUSH KHADEM No. 72472 CIVIL STATE OF CALIFORNIA

SOROUSH KHADEM R.C.E. 72472 DATE
EXPIRATION: 6/30/2023

PROJECT NAME: ALL PEOPLES CHURCH

PROJECT ADDRESS: NORTHEAST CORNER OF COLLEGE AVENUE & INTERSTATE 8, SAN DIEGO, CALIFORNIA 92120

PROJECT TRACKING SYSTEM NUMBER: 636444

INTERNAL ORDER NUMBER: PENDING

SHEET TITLE: TRAFFIC SIGNAL INSTALLATION PLAN

SHEET NUMBER: _____ OF 7

DRAWN BY: BEW
CHECKED BY: .

ORIGINAL DATE: 3-17-20

REVISIONS:
1. 03-17-2020
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

3-17-2020

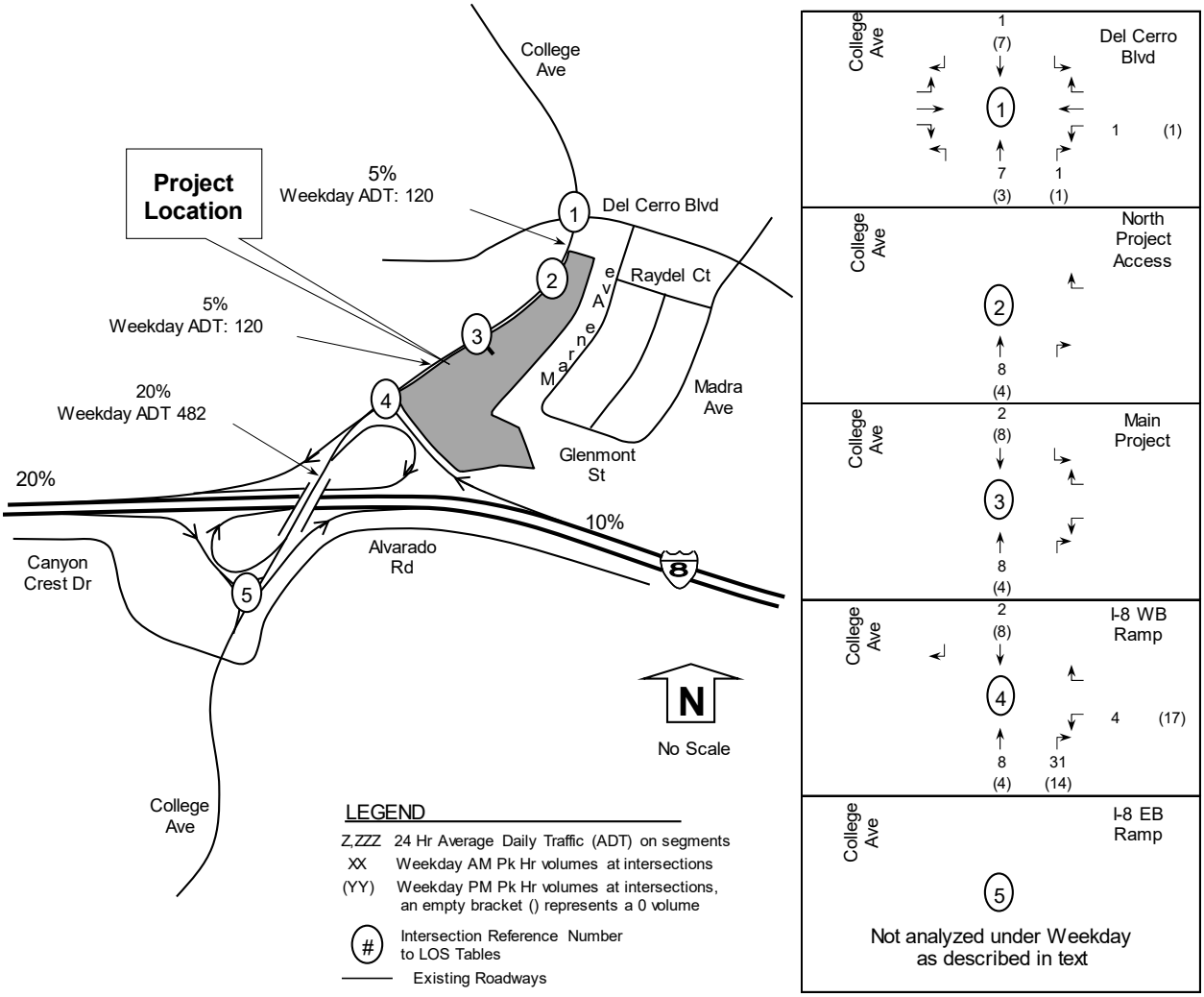
Appendix O

Cumulative Project Information

Cumulative Trip Generation and Assignment for PTS 431026, 593021, 501449, and 623199

								AM					PM	
Cumulative Project	**Rate**	**Size & Units**		**ADT**	**%**	**Split**		**IN**	**OUT**	**%**	**Split**		**IN**	**OUT**
Capstone PTS 431026	8 /DU	94	DU	**752**	8%	0.2	0.8	**12**	**48**	10%	0.7	0.3	**53**	**23**
Montezuma MF PTS 593021	8 /DU	40	DU	**320**	8%	0.2	0.8	**5**	**20**	10%	0.7	0.3	**22**	**10**
Montezuma PDP/CUP PTS 501449	8 /DU	128	DU	**1,024**	8%	0.2	0.8	**16**	**66**	10%	0.7	0.3	**72**	**31**
Montezuma PDP/RZ PTS 623199	8 /DU	39	DU	**312**	8%	0.2	0.8	**5**	**20**	10%	0.7	0.3	**22**	**9**
			TOTAL	**2,408**				**39**	**154**				**169**	**72**

Combined Cumulative Assignment for PTS 431026, 593021, 501449, and 623199



TRANSPORTATION IMPACT ANALYSIS

SDSU MASTER PLAN UPDATE

San Diego, California
January 9, 2018

LLG Ref. 3-16-2604

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
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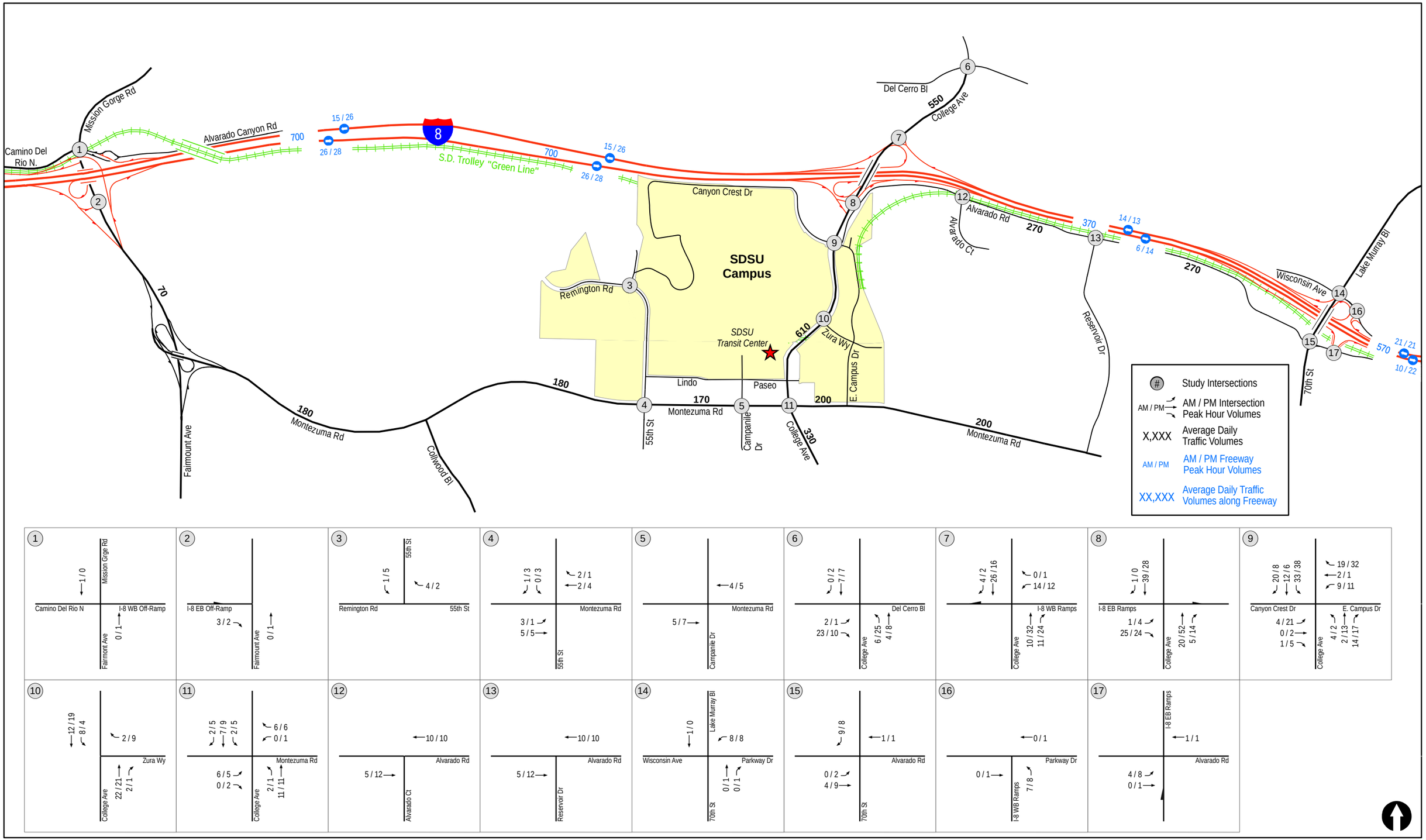


LINSCOTT LAW & GREENSPAN engineers

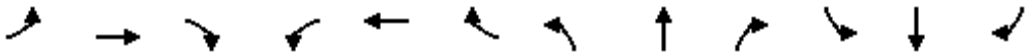
N:\2604\Figures
Date: 11/29/17

Figure 8-4

Near-Term (Year 2022) Total Project Traffic Volumes

Appendix P

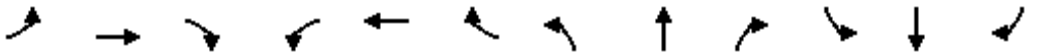
Near Term Opening Day (Year 2022) without Project LOS and Queueing Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	67	232	510	99	56	91	720	314	64	798	23
Future Volume (vph)	85	67	232	510	99	56	91	720	314	64	798	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.97	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1795	1553	1665	1640		1752	3505	1539	1752	3487	
Flt Permitted		0.97	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1795	1553	1665	1640		1752	3505	1539	1752	3487	
Peak-hour factor, PHF	0.70	0.70	0.70	0.79	0.79	0.79	0.69	0.69	0.69	0.95	0.95	0.95
Adj. Flow (vph)	121	96	331	646	125	71	132	1043	455	67	840	24
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	131	0	1	0
Lane Group Flow (vph)	0	217	331	420	416	0	132	1043	324	67	863	0
Confl. Peds. (#/hr)						58			5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	3	3		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		15.7	27.9	33.2	33.2		12.2	41.8	75.0	5.5	33.6	
Effective Green, g (s)		15.7	27.9	33.2	33.2		12.2	41.8	75.0	5.5	33.6	
Actuated g/C Ratio		0.14	0.24	0.29	0.29		0.11	0.36	0.65	0.05	0.29	
Clearance Time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		243	374	477	470		184	1266	997	83	1012	
v/s Ratio Prot		c0.12	c0.09	0.25	c0.25		0.08	c0.30	0.09	0.04	0.25	
v/s Ratio Perm			0.12						0.12			
v/c Ratio		0.89	0.89	0.88	0.88		0.72	0.82	0.32	0.81	0.85	
Uniform Delay, d1		49.2	42.4	39.4	39.4		50.1	33.6	9.1	54.6	38.7	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		31.0	21.2	17.1	17.7		12.5	4.5	0.2	41.7	7.1	
Delay (s)		80.2	63.6	56.4	57.1		62.6	38.1	9.3	96.3	45.8	
Level of Service		F	E	E	E		E	D	A	F	D	
Approach Delay (s)		70.1			56.7			32.0			49.4	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	46.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	115.7	Sum of lost time (s)	21.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	287	0	130	0	982	437	0	770	770
Future Volume (vph)	0	0	0	287	0	130	0	982	437	0	770	770
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5		5.5		5.5	4.0		5.5	5.5
Lane Util. Factor				0.97		1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes				1.00		0.97		1.00	0.97		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	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		1528		3505	1526		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		1528		3505	1526		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.69	0.69	0.69	0.74	0.74	0.74	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	416	0	188	0	1327	591	0	828	828
RTOR Reduction (vph)	0	0	0	0	0	31	0	0	0	0	0	404
Lane Group Flow (vph)	0	0	0	416	0	157	0	1327	591	0	828	424
Confl. Peds. (#/hr)						10			10			
Confl. Bikes (#/hr)			5			5			5			5
Turn Type				Perm		Perm		NA	Free		NA	Prot
Protected Phases								8			4	4
Permitted Phases				6		6			Free			
Actuated Green, G (s)				18.3		18.3		30.7	60.0		30.7	30.7
Effective Green, g (s)				18.3		18.3		30.7	60.0		30.7	30.7
Actuated g/C Ratio				0.31		0.31		0.51	1.00		0.51	0.51
Clearance Time (s)				5.5		5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				1037		466		1793	1526		1793	802
v/s Ratio Prot								c0.38			0.24	0.27
v/s Ratio Perm				0.12		0.10			c0.39			
v/c Ratio				0.40		0.34		0.74	0.39		0.46	0.53
Uniform Delay, d1				16.5		16.1		11.5	0.0		9.4	9.8
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				1.2		1.9		1.7	0.7		0.2	0.6
Delay (s)				17.7		18.1		13.2	0.7		9.6	10.4
Level of Service				B		B		B	A		A	B
Approach Delay (s)		0.0			17.8			9.4			10.0	
Approach LOS		A			B			A			A	

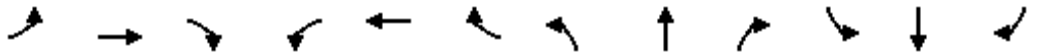
Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	30	122	345	32	77	144	636	390	95	624	26
Future Volume (vph)	38	30	122	345	32	77	144	636	390	95	624	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.97	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1794	1558	1665	1608		1752	3505	1538	1752	3479	
Flt Permitted		0.97	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1794	1558	1665	1608		1752	3505	1538	1752	3479	
Peak-hour factor, PHF	0.73	0.73	0.73	0.95	0.95	0.95	0.91	0.91	0.91	0.95	0.95	0.95
Adj. Flow (vph)	52	41	167	363	34	81	158	699	429	100	657	27
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	170	0	2	0
Lane Group Flow (vph)	0	93	167	243	219	0	158	699	259	100	682	0
Confl. Peds. (#/hr)						5			5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	3	3		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		8.6	22.8	21.9	21.9		14.2	34.1	56.0	8.5	26.9	
Effective Green, g (s)		8.6	22.8	21.9	21.9		14.2	34.1	56.0	8.5	26.9	
Actuated g/C Ratio		0.09	0.25	0.24	0.24		0.15	0.37	0.60	0.09	0.29	
Clearance Time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		166	383	393	380		268	1290	930	160	1010	
v/s Ratio Prot		c0.05	0.07	c0.15	0.14		c0.09	0.20	0.07	0.06	c0.20	
v/s Ratio Perm			0.04						0.10			
v/c Ratio		0.56	0.44	0.62	0.58		0.59	0.54	0.28	0.62	0.68	
Uniform Delay, d1		40.2	29.5	31.6	31.2		36.5	23.1	8.7	40.5	29.0	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		4.3	0.8	2.9	2.1		3.3	0.5	0.2	7.4	1.8	
Delay (s)		44.5	30.3	34.5	33.4		39.8	23.6	8.9	47.9	30.8	
Level of Service		D	C	C	C		D	C	A	D	C	
Approach Delay (s)		35.3			33.9			20.6			33.0	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	92.6	Sum of lost time (s)	21.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

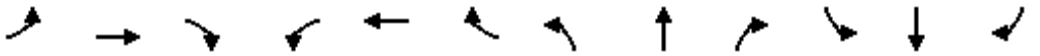
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	475	0	296	0	910	1091	0	600	489
Future Volume (vph)	0	0	0	475	0	296	0	910	1091	0	600	489
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5		5.5		5.5	4.0		5.5	5.5
Lane Util. Factor				0.97		1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes				1.00		0.99		1.00	0.98		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	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		1545		3505	1530		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		1545		3505	1530		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.97	0.97	0.98	0.98	0.98	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	490	0	305	0	929	1113	0	652	532
RTOR Reduction (vph)	0	0	0	0	0	36	0	0	0	0	0	328
Lane Group Flow (vph)	0	0	0	490	0	269	0	929	1113	0	652	204
Confl. Peds. (#/hr)									5			
Confl. Bikes (#/hr)						5			5			5
Turn Type				Perm		Perm		NA	Free		NA	Prot
Protected Phases								8			4	4
Permitted Phases				6		6			Free			
Actuated Green, G (s)				26.0		26.0		23.0	60.0		23.0	23.0
Effective Green, g (s)				26.0		26.0		23.0	60.0		23.0	23.0
Actuated g/C Ratio				0.43		0.43		0.38	1.00		0.38	0.38
Clearance Time (s)				5.5		5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				1473		669		1343	1530		1343	601
v/s Ratio Prot								0.27			0.19	0.13
v/s Ratio Perm				0.14		0.17			c0.73			
v/c Ratio				0.33		0.40		0.69	0.73		0.49	0.34
Uniform Delay, d1				11.3		11.7		15.5	0.0		14.0	13.1
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				0.6		1.8		1.6	3.1		0.3	0.3
Delay (s)				11.9		13.5		17.1	3.1		14.3	13.5
Level of Service				B		B		B	A		B	B
Approach Delay (s)		0.0			12.5			9.4			13.9	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		

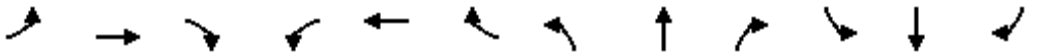
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	33	93	358	20	95	88	490	313	81	524	7
Future Volume (vph)	32	33	93	358	20	95	88	490	313	81	524	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1800	1557	1665	1590		1752	3505	1541	1752	3496	
Flt Permitted		0.98	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1800	1557	1665	1590		1752	3505	1541	1752	3496	
Peak-hour factor, PHF	0.84	0.84	0.84	0.95	0.95	0.95	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	38	39	111	377	21	100	96	533	340	92	595	8
RTOR Reduction (vph)	0	0	0	0	21	0	0	0	144	0	1	0
Lane Group Flow (vph)	0	77	111	256	221	0	96	533	196	92	602	0
Confl. Peds. (#/hr)						5			5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	3	3		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		7.5	18.3	20.4	20.4		10.8	27.2	47.6	8.1	23.0	
Effective Green, g (s)		7.5	18.3	20.4	20.4		10.8	27.2	47.6	8.1	23.0	
Actuated g/C Ratio		0.09	0.22	0.25	0.25		0.13	0.33	0.58	0.10	0.28	
Clearance Time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		163	344	410	392		228	1152	886	171	972	
v/s Ratio Prot		c0.04	0.04	c0.15	0.14		0.05	c0.15	0.05	c0.05	c0.17	
v/s Ratio Perm			0.03						0.07			
v/c Ratio		0.47	0.32	0.62	0.56		0.42	0.46	0.22	0.54	0.62	
Uniform Delay, d1		35.7	27.0	27.7	27.3		33.1	22.0	8.5	35.5	26.0	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		2.2	0.5	3.0	1.9		1.3	0.3	0.1	3.2	1.2	
Delay (s)		37.9	27.6	30.7	29.1		34.3	22.3	8.7	38.8	27.2	
Level of Service		D	C	C	C		C	C	A	D	C	
Approach Delay (s)		31.8			29.9			18.7			28.7	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	82.7	Sum of lost time (s)	21.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

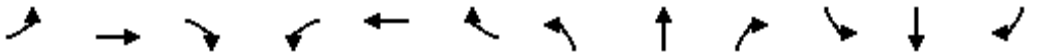
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	243	0	246	0	616	523	0	349	599
Future Volume (vph)	0	0	0	243	0	246	0	616	523	0	349	599
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5		5.5		5.5	4.0		5.5	5.5
Lane Util. Factor				0.97		1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes				1.00		0.99		1.00	0.97		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	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		1546		3505	1526		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		1546		3505	1526		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	261	0	265	0	662	562	0	375	644
RTOR Reduction (vph)	0	0	0	0	0	83	0	0	0	0	0	439
Lane Group Flow (vph)	0	0	0	261	0	182	0	662	562	0	375	205
Confl. Peds. (#/hr)									10			
Confl. Bikes (#/hr)						5			5			5
Turn Type				Perm		Perm		NA	Free		NA	Prot
Protected Phases								8			4	4
Permitted Phases				6		6			Free			
Actuated Green, G (s)				29.9		29.9		19.1	60.0		19.1	19.1
Effective Green, g (s)				29.9		29.9		19.1	60.0		19.1	19.1
Actuated g/C Ratio				0.50		0.50		0.32	1.00		0.32	0.32
Clearance Time (s)				5.5		5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				1694		770		1115	1526		1115	499
v/s Ratio Prot								c0.19			0.11	0.13
v/s Ratio Perm				0.08		0.12			c0.37			
v/c Ratio				0.15		0.24		0.59	0.37		0.34	0.41
Uniform Delay, d1				8.2		8.6		17.2	0.0		15.6	16.0
Progression Factor				1.00		1.00		0.70	1.00		1.00	1.00
Incremental Delay, d2				0.2		0.7		0.8	0.6		0.2	0.6
Delay (s)				8.4		9.3		12.9	0.6		15.8	16.6
Level of Service				A		A		B	A		B	B
Approach Delay (s)		0.0			8.8			7.2			16.3	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	455	0	516	0	0	0	0	720	225	0	396	210
Future Volume (vph)	455	0	516	0	0	0	0	720	225	0	396	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0					5.0	5.0		5.0	4.0
Lane Util. Factor	0.97		0.76					0.95	1.00		0.95	1.00
Frpb, ped/bikes	1.00		1.00					1.00	0.97		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	0.85		1.00	0.85
Flt Protected	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (prot)	3400		3575					3505	1526		3505	1568
Flt Permitted	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (perm)	3400		3575					3505	1526		3505	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.92	0.92	0.92	0.93	0.93	0.93	0.97	0.97	0.97
Adj. Flow (vph)	479	0	543	0	0	0	0	774	242	0	408	216
RTOR Reduction (vph)	0	0	116	0	0	0	0	0	83	0	0	0
Lane Group Flow (vph)	479	0	427	0	0	0	0	774	159	0	408	216
Confl. Peds. (#/hr)									5			
Confl. Bikes (#/hr)									5			
Turn Type	Prot		Prot					NA	Perm		NA	Free
Protected Phases	1		6					2 4			8	
Permitted Phases									2 4			Free
Actuated Green, G (s)	12.7		36.0					39.3	39.3		15.0	60.0
Effective Green, g (s)	12.7		36.0					39.3	39.3		15.0	60.0
Actuated g/C Ratio	0.21		0.60					0.65	0.65		0.25	1.00
Clearance Time (s)	4.0		4.0								5.0	
Vehicle Extension (s)	3.0		3.0								3.0	
Lane Grp Cap (vph)	719		2145					2295	999		876	1568
v/s Ratio Prot	c0.14		0.12					c0.22			c0.12	
v/s Ratio Perm									0.10			0.14
v/c Ratio	0.67		0.20					0.34	0.16		0.47	0.14
Uniform Delay, d1	21.7		5.5					4.6	4.0		19.1	0.0
Progression Factor	1.00		1.00					1.00	1.00		1.35	1.00
Incremental Delay, d2	2.3		0.2					0.1	0.1		1.8	0.2
Delay (s)	24.0		5.7					4.7	4.1		27.6	0.2
Level of Service	C		A					A	A		C	A
Approach Delay (s)		14.3			0.0			4.5			18.1	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 14: College Ave & I-8 WB Ramp

Movement	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	R	T	T	R	T	T
Maximum Queue (ft)	106	137	88	152	155	21	209	216
Average Queue (ft)	19	66	6	76	79	1	64	66
95th Queue (ft)	65	119	42	125	132	21	166	168
Link Distance (ft)			1098	1059	1059		1034	1034
Upstream Blk Time (%)								0
Queuing Penalty (veh)								0
Storage Bay Dist (ft)	150	150				200		
Storage Blk Time (%)	0	0			0			
Queuing Penalty (veh)	0	1			0			

Intersection: 15: College Ave & I-8 EB Ramp

Movement	EB	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	L	R	R	T	T	R	T	T
Maximum Queue (ft)	142	154	394	279	123	136	34	130	150
Average Queue (ft)	105	139	113	27	62	69	1	76	89
95th Queue (ft)	188	173	338	169	105	116	24	119	133
Link Distance (ft)			920	920	672	672		1059	1059
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	130	130					150		
Storage Blk Time (%)	1	18	0			0			
Queuing Penalty (veh)	1	30	1			0			

Network Summary

Network wide Queuing Penalty: 34

Appendix Q

Near Term Opening Day (Year 2022) with Project LOS and Queueing Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	67	232	510	99	56	91	720	314	64	800	23
Future Volume (vph)	85	67	232	510	99	56	91	720	314	64	800	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.97	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1795	1553	1665	1640		1752	3505	1539	1752	3487	
Flt Permitted		0.97	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1795	1553	1665	1640		1752	3505	1539	1752	3487	
Peak-hour factor, PHF	0.70	0.70	0.70	0.79	0.79	0.79	0.69	0.69	0.69	0.95	0.95	0.95
Adj. Flow (vph)	121	96	331	646	125	71	132	1043	455	67	842	24
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	131	0	1	0
Lane Group Flow (vph)	0	217	331	420	416	0	132	1043	324	67	865	0
Confl. Peds. (#/hr)						58			5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	3	3		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		15.7	27.9	33.2	33.2		12.2	41.9	75.1	5.5	33.7	
Effective Green, g (s)		15.7	27.9	33.2	33.2		12.2	41.9	75.1	5.5	33.7	
Actuated g/C Ratio		0.14	0.24	0.29	0.29		0.11	0.36	0.65	0.05	0.29	
Clearance Time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		243	374	477	470		184	1268	998	83	1014	
v/s Ratio Prot		c0.12	c0.09	0.25	c0.25		0.08	c0.30	0.09	0.04	0.25	
v/s Ratio Perm			0.12						0.12			
v/c Ratio		0.89	0.89	0.88	0.88		0.72	0.82	0.32	0.81	0.85	
Uniform Delay, d1		49.2	42.4	39.4	39.5		50.1	33.6	9.1	54.6	38.7	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		31.0	21.2	17.1	17.7		12.5	4.4	0.2	41.7	7.1	
Delay (s)		80.2	63.6	56.5	57.1		62.7	38.0	9.2	96.3	45.8	
Level of Service		F	E	E	E		E	D	A	F	D	
Approach Delay (s)		70.2			56.8			32.0			49.4	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	46.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	115.8	Sum of lost time (s)	21.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1125	0	0	32
Future Vol, veh/h	0	0	1125	0	0	32
Conflicting Peds, #/hr	0	5	0	5	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	1223	0	0	35

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	622	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	427	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	423	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1125	29	2	1540
Future Vol, veh/h	0	0	1125	29	2	1540
Conflicting Peds, #/hr	0	0	0	5	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	1223	32	2	1674

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2085	633	0	0	1260	0
Stage 1	1244	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	45	420	-	-	542	-
Stage 1	233	-	-	-	-	-
Stage 2	381	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	45	418	-	-	540	-
Mov Cap-2 Maneuver	45	-	-	-	-	-
Stage 1	232	-	-	-	-	-
Stage 2	379	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	540	-
HCM Lane V/C Ratio	-	-	-	0.004	-
HCM Control Delay (s)	-	-	0	11.7	-
HCM Lane LOS	-	-	A	B	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	287	0	142	0	999	437	0	770	770
Future Volume (vph)	0	0	0	287	0	142	0	999	437	0	770	770
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5		5.5		5.5	4.0		5.5	5.5
Lane Util. Factor				0.97		1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes				1.00		0.97		1.00	0.97		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	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		1528		3505	1526		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		1528		3505	1526		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.69	0.69	0.69	0.74	0.74	0.74	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	416	0	206	0	1350	591	0	828	828
RTOR Reduction (vph)	0	0	0	0	0	31	0	0	0	0	0	404
Lane Group Flow (vph)	0	0	0	416	0	175	0	1350	591	0	828	424
Confl. Peds. (#/hr)						10			10			
Confl. Bikes (#/hr)			5			5			5			5
Turn Type				Perm		Perm		NA	Free		NA	Prot
Protected Phases								8			4	4
Permitted Phases				6		6			Free			
Actuated Green, G (s)				18.3		18.3		30.7	60.0		30.7	30.7
Effective Green, g (s)				18.3		18.3		30.7	60.0		30.7	30.7
Actuated g/C Ratio				0.31		0.31		0.51	1.00		0.51	0.51
Clearance Time (s)				5.5		5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				1037		466		1793	1526		1793	802
v/s Ratio Prot								c0.39			0.24	0.27
v/s Ratio Perm				0.12		0.11			c0.39			
v/c Ratio				0.40		0.37		0.75	0.39		0.46	0.53
Uniform Delay, d1				16.5		16.4		11.6	0.0		9.4	9.8
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				1.2		2.3		1.8	0.7		0.2	0.6
Delay (s)				17.7		18.7		13.5	0.7		9.6	10.4
Level of Service				B		B		B	A		A	B
Approach Delay (s)		0.0			18.0			9.6			10.0	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	30	123	346	32	77	144	637	390	95	626	26
Future Volume (vph)	38	30	123	346	32	77	144	637	390	95	626	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.97	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1794	1558	1665	1608		1752	3505	1538	1752	3479	
Flt Permitted		0.97	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1794	1558	1665	1608		1752	3505	1538	1752	3479	
Peak-hour factor, PHF	0.73	0.73	0.73	0.95	0.95	0.95	0.91	0.91	0.91	0.95	0.95	0.95
Adj. Flow (vph)	52	41	168	364	34	81	158	700	429	100	659	27
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	169	0	2	0
Lane Group Flow (vph)	0	93	168	244	219	0	158	700	260	100	684	0
Confl. Peds. (#/hr)						5			5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	3	3		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		8.6	22.8	22.0	22.0		14.2	34.2	56.2	8.5	27.0	
Effective Green, g (s)		8.6	22.8	22.0	22.0		14.2	34.2	56.2	8.5	27.0	
Actuated g/C Ratio		0.09	0.25	0.24	0.24		0.15	0.37	0.61	0.09	0.29	
Clearance Time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		166	382	394	381		268	1291	931	160	1012	
v/s Ratio Prot		c0.05	0.07	c0.15	0.14		c0.09	0.20	0.07	0.06	c0.20	
v/s Ratio Perm			0.04						0.10			
v/c Ratio		0.56	0.44	0.62	0.57		0.59	0.54	0.28	0.62	0.68	
Uniform Delay, d1		40.3	29.6	31.7	31.3		36.6	23.1	8.7	40.6	29.0	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		4.3	0.8	2.9	2.1		3.3	0.5	0.2	7.4	1.8	
Delay (s)		44.6	30.4	34.5	33.4		39.9	23.6	8.8	48.0	30.8	
Level of Service		D	C	C	C		D	C	A	D	C	
Approach Delay (s)		35.5			34.0			20.7			33.0	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	92.8	Sum of lost time (s)	21.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	1170	1	0	25
Future Vol, veh/h	0	1	1170	1	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	1	1272	1	0	27

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	637	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	418	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	418	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	418	-
HCM Lane V/C Ratio	-	-	0.003	-
HCM Control Delay (s)	-	-	13.6	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

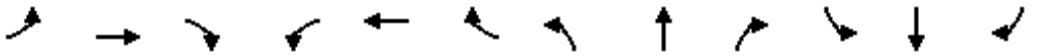
Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	0	1171	71	4	1091
Future Vol, veh/h	30	0	1171	71	4	1091
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	33	0	1273	77	4	1186

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1913	675	0	0	1350	0
Stage 1	1312	-	-	-	-	-
Stage 2	601	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	59	394	-	-	501	-
Stage 1	214	-	-	-	-	-
Stage 2	507	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	59	394	-	-	501	-
Mov Cap-2 Maneuver	59	-	-	-	-	-
Stage 1	214	-	-	-	-	-
Stage 2	503	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	124.4	0	0
HCM LOS	F		

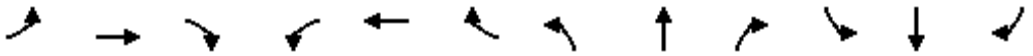
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	59	501	-
HCM Lane V/C Ratio	-	-	0.553	0.009	-
HCM Control Delay (s)	-	-	124.4	12.2	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	2.2	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	475	0	326	0	952	1091	0	616	503
Future Volume (vph)	0	0	0	475	0	326	0	952	1091	0	616	503
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5		5.5		5.5	4.0		5.5	5.5
Lane Util. Factor				0.97		1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes				1.00		0.99		1.00	0.98		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	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		1545		3505	1530		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		1545		3505	1530		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.97	0.97	0.98	0.98	0.98	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	490	0	336	0	971	1113	0	670	547
RTOR Reduction (vph)	0	0	0	0	0	32	0	0	0	0	0	331
Lane Group Flow (vph)	0	0	0	490	0	304	0	971	1113	0	670	216
Confl. Peds. (#/hr)									5			
Confl. Bikes (#/hr)						5			5			5
Turn Type				Perm		Perm		NA	Free		NA	Prot
Protected Phases								8			4	4
Permitted Phases				6		6			Free			
Actuated Green, G (s)				25.3		25.3		23.7	60.0		23.7	23.7
Effective Green, g (s)				25.3		25.3		23.7	60.0		23.7	23.7
Actuated g/C Ratio				0.42		0.42		0.39	1.00		0.39	0.39
Clearance Time (s)				5.5		5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				1433		651		1384	1530		1384	619
v/s Ratio Prot								0.28			0.19	0.14
v/s Ratio Perm				0.14		0.20			c0.73			
v/c Ratio				0.34		0.47		0.70	0.73		0.48	0.35
Uniform Delay, d1				11.7		12.5		15.2	0.0		13.6	12.7
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				0.7		2.4		1.6	3.1		0.3	0.3
Delay (s)				12.4		14.9		16.8	3.1		13.8	13.1
Level of Service				B		B		B	A		B	B
Approach Delay (s)		0.0			13.4			9.5			13.5	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	33	96	361	20	95	92	501	317	81	534	7
Future Volume (vph)	32	33	96	361	20	95	92	501	317	81	534	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1800	1557	1665	1591		1752	3505	1540	1752	3496	
Flt Permitted		0.98	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1800	1557	1665	1591		1752	3505	1540	1752	3496	
Peak-hour factor, PHF	0.84	0.84	0.84	0.95	0.95	0.95	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	38	39	114	380	21	100	100	545	345	92	607	8
RTOR Reduction (vph)	0	0	0	0	20	0	0	0	145	0	1	0
Lane Group Flow (vph)	0	77	114	255	226	0	100	545	200	92	614	0
Confl. Peds. (#/hr)						5			5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	3	3		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		7.5	18.5	20.5	20.5		11.0	27.8	48.3	8.1	23.4	
Effective Green, g (s)		7.5	18.5	20.5	20.5		11.0	27.8	48.3	8.1	23.4	
Actuated g/C Ratio		0.09	0.22	0.25	0.25		0.13	0.33	0.58	0.10	0.28	
Clearance Time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		161	345	409	391		231	1168	891	170	980	
v/s Ratio Prot		c0.04	0.04	c0.15	0.14		0.06	c0.16	0.06	c0.05	c0.18	
v/s Ratio Perm			0.03						0.07			
v/c Ratio		0.48	0.33	0.62	0.58		0.43	0.47	0.22	0.54	0.63	
Uniform Delay, d1		36.1	27.2	28.0	27.6		33.3	21.9	8.5	35.9	26.2	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		2.2	0.6	3.0	2.1		1.3	0.3	0.1	3.5	1.3	
Delay (s)		38.3	27.8	31.0	29.7		34.6	22.2	8.6	39.4	27.5	
Level of Service		D	C	C	C		C	C	A	D	C	
Approach Delay (s)		32.1			30.3			18.7			29.0	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	83.4	Sum of lost time (s)	21.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	15	895	3	0	14
Future Vol, veh/h	0	15	895	3	0	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	16	973	3	0	15

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	488	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	523	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	523	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	523	-
HCM Lane V/C Ratio	-	-	0.031	-
HCM Control Delay (s)	-	-	12.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	263.7

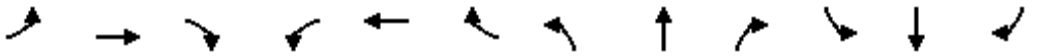
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	359	4	894	293	16	975
Future Vol, veh/h	359	4	894	293	16	975
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	390	4	972	318	17	1060

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1695	645	0	0	1290	0
Stage 1	1131	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	~ 83	413	-	-	528	-
Stage 1	~ 268	-	-	-	-	-
Stage 2	530	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 80	413	-	-	528	-
Mov Cap-2 Maneuver	~ 80	-	-	-	-	-
Stage 1	~ 268	-	-	-	-	-
Stage 2	513	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 1845.7	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	81	528	-
HCM Lane V/C Ratio	-	-	4.871	0.033	-
HCM Control Delay (s)	-	-	$ 1845.7	12.1	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	42.7	0.1	-

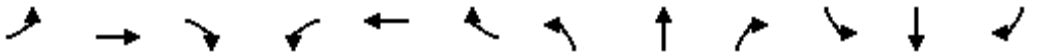
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	243	0	371	0	787	523	0	538	769
Future Volume (vph)	0	0	0	243	0	371	0	787	523	0	538	769
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5		5.5		5.5	4.0		5.5	5.5
Lane Util. Factor				0.97		1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes				1.00		0.99		1.00	0.97		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	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		1545		3505	1526		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		1545		3505	1526		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	261	0	399	0	846	562	0	578	827
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	0	0	0	509
Lane Group Flow (vph)	0	0	0	261	0	344	0	846	562	0	578	318
Confl. Peds. (#/hr)									10			
Confl. Bikes (#/hr)						5			5			5
Turn Type				Perm		Perm		NA	Free		NA	Prot
Protected Phases								8			4	4
Permitted Phases				6		6			Free			
Actuated Green, G (s)				25.9		25.9		23.1	60.0		23.1	23.1
Effective Green, g (s)				25.9		25.9		23.1	60.0		23.1	23.1
Actuated g/C Ratio				0.43		0.43		0.39	1.00		0.39	0.39
Clearance Time (s)				5.5		5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				1467		666		1349	1526		1349	603
v/s Ratio Prot								c0.24			0.16	0.20
v/s Ratio Perm				0.08		c0.22			0.37			
v/c Ratio				0.18		0.52		0.63	0.37		0.43	0.53
Uniform Delay, d1				10.5		12.5		15.0	0.0		13.6	14.2
Progression Factor				1.00		1.00		0.83	1.00		1.00	1.00
Incremental Delay, d2				0.3		2.8		0.8	0.6		0.2	0.8
Delay (s)				10.8		15.3		13.2	0.6		13.8	15.1
Level of Service				B		B		B	A		B	B
Approach Delay (s)		0.0			13.5			8.2			14.6	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	595	0	516	0	0	0	0	751	225	0	434	361
Future Volume (vph)	595	0	516	0	0	0	0	751	225	0	434	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0					5.0	5.0		5.0	4.0
Lane Util. Factor	0.97		0.76					0.95	1.00		0.95	1.00
Frpb, ped/bikes	1.00		1.00					1.00	0.97		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	0.85		1.00	0.85
Flt Protected	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (prot)	3400		3575					3505	1526		3505	1568
Flt Permitted	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (perm)	3400		3575					3505	1526		3505	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.92	0.92	0.92	0.93	0.93	0.93	0.97	0.97	0.97
Adj. Flow (vph)	626	0	543	0	0	0	0	808	242	0	447	372
RTOR Reduction (vph)	0	0	93	0	0	0	0	0	87	0	0	0
Lane Group Flow (vph)	626	0	450	0	0	0	0	808	155	0	447	372
Confl. Peds. (#/hr)									5			
Confl. Bikes (#/hr)									5			
Turn Type	Prot		Prot					NA	Perm		NA	Free
Protected Phases	1		6					2 4			8	
Permitted Phases									2 4			Free
Actuated Green, G (s)	13.6		36.0					38.4	38.4		15.0	60.0
Effective Green, g (s)	13.6		36.0					38.4	38.4		15.0	60.0
Actuated g/C Ratio	0.23		0.60					0.64	0.64		0.25	1.00
Clearance Time (s)	4.0		4.0								5.0	
Vehicle Extension (s)	3.0		3.0								3.0	
Lane Grp Cap (vph)	770		2145					2243	976		876	1568
v/s Ratio Prot	c0.18		0.13					c0.23			c0.13	
v/s Ratio Perm									0.10			0.24
v/c Ratio	0.81		0.21					0.36	0.16		0.51	0.24
Uniform Delay, d1	22.0		5.5					5.1	4.3		19.3	0.0
Progression Factor	1.00		1.00					1.00	1.00		1.21	1.00
Incremental Delay, d2	6.6		0.2					0.1	0.1		2.1	0.3
Delay (s)	28.6		5.7					5.2	4.4		25.4	0.3
Level of Service	C		A					A	A		C	A
Approach Delay (s)		17.9			0.0			5.0			14.0	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 14: College Ave & I-8 WB Ramp

Movement	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	R	T	T	T	T
Maximum Queue (ft)	162	172	196	168	161	141	160
Average Queue (ft)	29	88	22	79	79	76	90
95th Queue (ft)	104	164	101	129	128	126	142
Link Distance (ft)			1098	1059	1059	1034	1034
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150	150					
Storage Blk Time (%)	0	1					
Queuing Penalty (veh)	0	3					

Intersection: 15: College Ave & I-8 EB Ramp

Movement	EB	EB	EB	EB	NB	NB	SB	SB
Directions Served	L	L	R	R	T	T	T	T
Maximum Queue (ft)	142	154	438	315	132	123	178	191
Average Queue (ft)	118	144	171	66	64	64	92	97
95th Queue (ft)	187	170	421	265	109	105	158	155
Link Distance (ft)			920	920	672	672	1059	1059
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	130	130						
Storage Blk Time (%)	2	28	0					0
Queuing Penalty (veh)	3	47	0					0

Network Summary

Network wide Queuing Penalty: 54

Appendix R

Near Term Opening Day (Year 2022) with Project Improvement LOS Worksheets

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	0	1237	71	4	1146
Future Volume (veh/h)	30	0	1237	71	4	1146
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1900	1856	1856	1856	1856
Adj Flow Rate, veh/h	141265000064514368		1345	77	4	1246
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3	3	3	3
Cap, veh/h	9999	9999	2249	1003	8	2579
Arrive On Green	0.09	0.09	0.64	0.64	0.00	0.73
Sat Flow, veh/h	24979369[illegible]421935616		3618	1572	1767	3618
Grp Volume(v), veh/h	141265000064514368		1345	77	4	1246
Grp Sat Flow(s),veh/h/ln	1767	1610	1763	1572	1767	1763
Q Serve(g_s), s	0.0	0.0	10.0	0.8	0.1	6.6
Cycle Q Clear(g_c), s	0.0	0.0	10.0	0.8	0.1	6.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	22347420[illegible]491435520		2249	1003	8	2579
V/C Ratio(X)	0.01	0.01	0.60	0.08	0.52	0.48
Avail Cap(c_a), veh/h	10056338[illegible]2711443456		6624	2954	237	7412
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.5	18.5	4.7	3.1	22.2	2.5
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.0	45.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.8	0.1	0.1	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.5	18.5	5.0	3.1	67.9	2.6
LnGrp LOS	B	B	A	A	E	A
Approach Vol, veh/h	1078640896		1422			1250
Approach Delay, s/veh	18.5		4.9			2.8
Approach LOS	B		A			A

Timer - Assigned Phs	1	2	6	8
Phs Duration (G+Y+Rc), s	4.2	32.5	36.7	8.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	84.0	94.0	18.0
Max Q Clear Time (g_c+I1), s	2.1	12.0	8.6	2.0
Green Ext Time (p_c), s	0.0	16.5	14.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	359	4	894	293	16	975	
Future Volume (veh/h)	359	4	894	293	16	975	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1856	1856	1856	1856	
Adj Flow Rate, veh/h	390	4	972	318	17	1060	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	0	0	3	3	3	3	
Cap, veh/h	479	5	1632	728	30	1980	
Arrive On Green	0.27	0.27	0.46	0.46	0.02	0.56	
Sat Flow, veh/h	1743	18	3618	1572	1767	3618	
Grp Volume(v), veh/h	395	0	972	318	17	1060	
Grp Sat Flow(s),veh/h/ln	1765	0	1763	1572	1767	1763	
Q Serve(g_s), s	10.2	0.0	10.0	6.7	0.5	9.2	
Cycle Q Clear(g_c), s	10.2	0.0	10.0	6.7	0.5	9.2	
Prop In Lane	0.99	0.01		1.00	1.00		
Lane Grp Cap(c), veh/h	485	0	1632	728	30	1980	
V/C Ratio(X)	0.81	0.00	0.60	0.44	0.57	0.54	
Avail Cap(c_a), veh/h	1698	0	3896	1738	253	4689	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	16.6	0.0	9.7	8.8	23.8	6.7	
Incr Delay (d2), s/veh	3.4	0.0	0.4	0.4	16.0	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	4.0	0.0	3.0	1.8	0.3	2.4	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	19.9	0.0	10.1	9.3	39.8	6.9	
LnGrp LOS	B	A	B	A	D	A	
Approach Vol, veh/h	395		1290			1077	
Approach Delay, s/veh	19.9		9.9			7.5	
Approach LOS	B		A			A	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	4.8	26.6			31.4	17.4
Change Period (Y+Rc), s	4.0	4.0			4.0	4.0
Max Green Setting (Gmax), s	7.0	54.0			65.0	47.0
Max Q Clear Time (g_c+I1), s	2.5	12.0			11.2	12.2
Green Ext Time (p_c), s	0.0	10.6			10.3	1.3

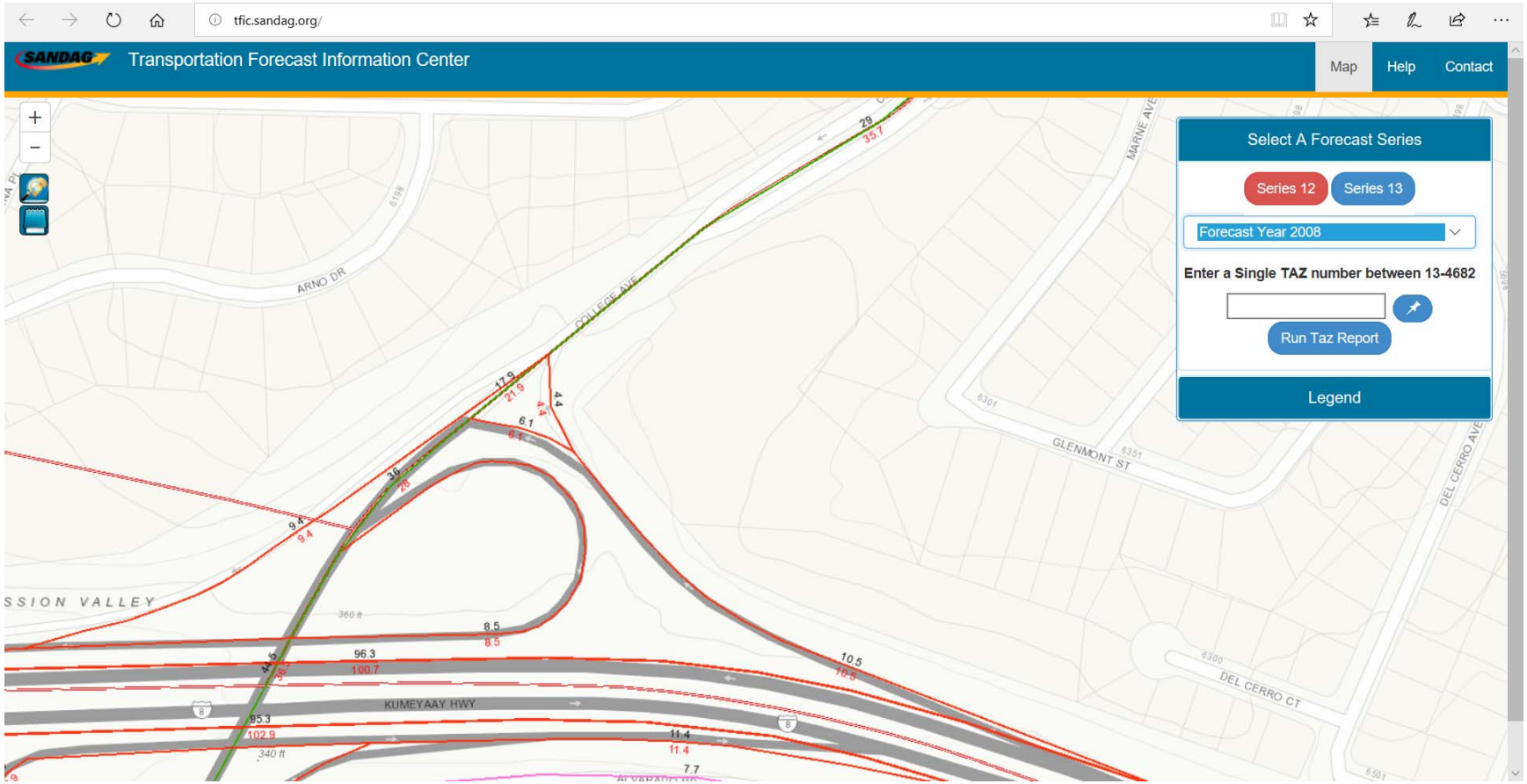
Intersection Summary			
HCM 6th Ctrl Delay		10.4	
HCM 6th LOS		B	

Appendix S

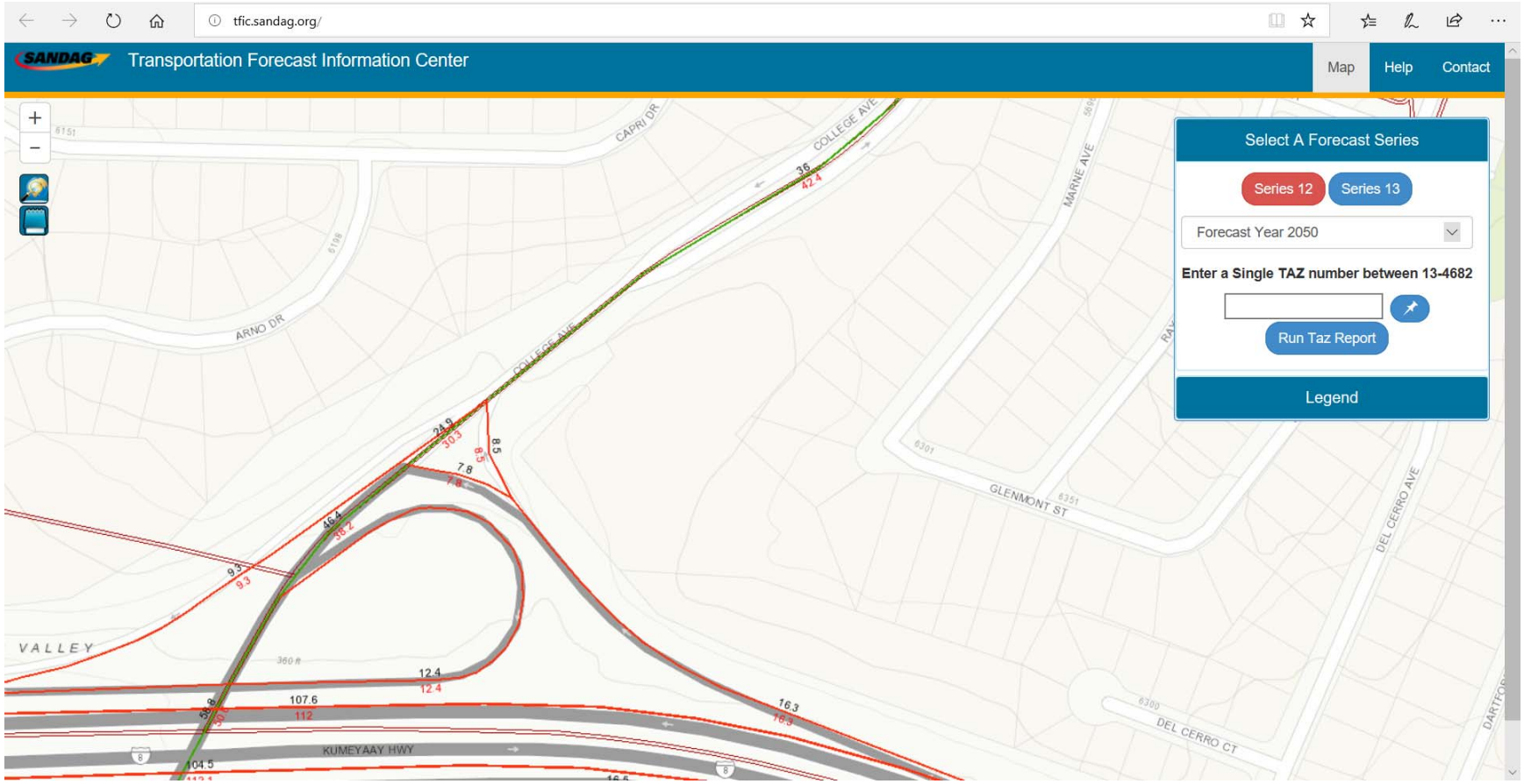
Year 2050 Compound Growth Worksheets

Segment	Existing Year 2019 Volume	SANDAG S12 Yr 2008 Unadj. Vol.	SANDAG S12 Yr 2050 Unadj. Vol.	Annual Growth Rate over 42 years (2050 - 2008 = 42)	Forecasted Year 2050 (2050 - 2019 = 31)	Adjustments (rounded)
WEEKDAY						
College Ave						
Del Cerro to Project Main Access	29,858	35,700	42,400	0.41%	33,900	34,000
Project Main Access to I-8 WB Ramp	29,858	35,700	42,400	0.41%	33,900	34,000
I-8 WB Ramp to I-8 EB Ramp	36,813	36,500	50,600	0.78%	46,850	47,000
SUNDAY						
College Ave						
Del Cerro to Project Main Access	23,486	No Sunday SANDAG volumes		0.41%	26,665	27,000
Project Main Access to I-8 WB Ramp	23,486	available, therefore, above week-		0.41%	26,665	27,000
I-8 WB Ramp to I-8 EB Ramp	26,097	day rates were used for Sunday.		0.78%	33,212	33,000
			Average Annual Growth Rate:	0.53%		
			Average Growth Rate to Year 2050:	1.178		

Series 12 Year 2008 Unadjusted Volumes

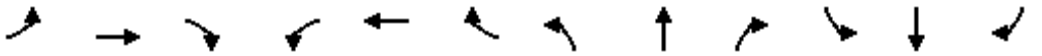


Series 12 Year 2050 Unadjusted Volumes



Appendix T

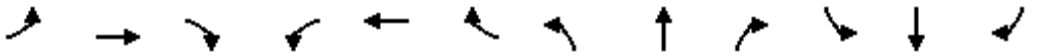
Horizon Year 2050 without Project LOS and Queueing Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	79	246	600	117	66	100	835	369	75	931	27
Future Volume (vph)	98	79	246	600	117	66	100	835	369	75	931	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.98		1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.97	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1795	1552	1665	1638		1752	3505	1521	1752	3488	
Flt Permitted		0.97	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1795	1552	1665	1638		1752	3505	1521	1752	3488	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	86	267	652	127	72	109	908	401	82	1012	29
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	133	0	2	0
Lane Group Flow (vph)	0	193	267	424	419	0	109	908	268	82	1039	0
Confl. Peds. (#/hr)						45			10			
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	3	3		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		9.9	17.7	23.1	23.1		7.8	32.8	55.9	5.5	29.0	
Effective Green, g (s)		9.9	17.7	23.1	23.1		7.8	32.8	55.9	5.5	29.0	
Actuated g/C Ratio		0.11	0.19	0.25	0.25		0.09	0.36	0.62	0.06	0.32	
Clearance Time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		195	302	423	416		150	1266	936	106	1114	
v/s Ratio Prot		c0.11	c0.08	0.25	c0.26		0.06	0.26	0.07	0.05	c0.30	
v/s Ratio Perm			0.10						0.10			
v/c Ratio		0.99	0.88	1.00	1.01		0.73	0.72	0.29	0.77	0.93	
Uniform Delay, d1		40.4	35.6	33.8	33.8		40.5	25.0	8.1	42.0	30.0	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		60.8	24.9	44.3	45.8		16.0	2.0	0.2	28.8	13.7	
Delay (s)		101.2	60.4	78.2	79.7		56.5	27.0	8.3	70.9	43.6	
Level of Service		F	E	E	E		E	C	A	E	D	
Approach Delay (s)		77.5			78.9			24.0			45.6	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	48.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	90.8	Sum of lost time (s)	21.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

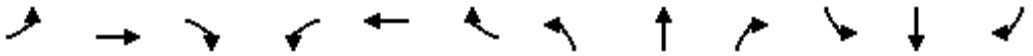
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	317	0	153	0	1136	465	0	874	902
Future Volume (vph)	0	0	0	317	0	153	0	1136	465	0	874	902
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5		5.5		5.5	4.0		5.5	5.5
Lane Util. Factor				0.97		1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes				1.00		1.00		1.00	0.98		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	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		1568		3505	1530		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		1568		3505	1530		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	345	0	166	0	1235	505	0	950	980
RTOR Reduction (vph)	0	0	0	0	0	56	0	0	0	0	0	454
Lane Group Flow (vph)	0	0	0	345	0	110	0	1235	505	0	950	526
Confl. Peds. (#/hr)									5			
Confl. Bikes (#/hr)									5			
Turn Type				Perm		Perm		NA	Free		NA	Prot
Protected Phases								8			4	4
Permitted Phases				6		6			Free			
Actuated Green, G (s)				30.7		30.7		48.3	90.0		48.3	48.3
Effective Green, g (s)				30.7		30.7		48.3	90.0		48.3	48.3
Actuated g/C Ratio				0.34		0.34		0.54	1.00		0.54	0.54
Clearance Time (s)				5.5		5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				1159		534		1881	1530		1881	841
v/s Ratio Prot								c0.35			0.27	0.34
v/s Ratio Perm				0.10		0.07			c0.33			
v/c Ratio				0.30		0.21		0.66	0.33		0.51	0.63
Uniform Delay, d1				21.7		21.0		14.9	0.0		13.3	14.5
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				0.7		0.9		0.8	0.6		0.2	1.5
Delay (s)				22.4		21.9		15.8	0.6		13.5	16.0
Level of Service				C		C		B	A		B	B
Approach Delay (s)		0.0			22.2			11.3			14.8	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

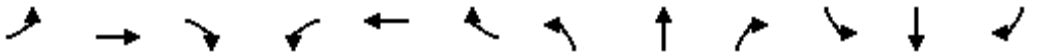
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	35	132	405	38	91	140	736	458	112	719	28
Future Volume (vph)	44	35	132	405	38	91	140	736	458	112	719	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.97	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1795	1558	1665	1608		1752	3505	1540	1752	3481	
Flt Permitted		0.97	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1795	1558	1665	1608		1752	3505	1540	1752	3481	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	38	143	440	41	99	152	800	498	122	782	30
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	203	0	2	0
Lane Group Flow (vph)	0	86	143	295	269	0	152	800	295	122	810	0
Confl. Peds. (#/hr)						5			5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	3	3		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		8.4	22.0	25.0	25.0		13.6	32.8	57.8	12.0	29.7	
Effective Green, g (s)		8.4	22.0	25.0	25.0		13.6	32.8	57.8	12.0	29.7	
Actuated g/C Ratio		0.09	0.23	0.26	0.26		0.14	0.34	0.59	0.12	0.30	
Clearance Time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		154	350	426	411		243	1176	911	215	1058	
v/s Ratio Prot		c0.05	0.06	c0.18	0.17		c0.09	0.23	0.08	0.07	c0.23	
v/s Ratio Perm			0.04						0.11			
v/c Ratio		0.56	0.41	0.69	0.66		0.63	0.68	0.32	0.57	0.77	
Uniform Delay, d1		42.9	32.3	32.9	32.5		39.6	27.9	10.1	40.4	30.8	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		4.3	0.8	4.8	3.7		5.0	1.6	0.2	3.4	3.4	
Delay (s)		47.2	33.1	37.7	36.2		44.6	29.6	10.3	43.8	34.2	
Level of Service		D	C	D	D		D	C	B	D	C	
Approach Delay (s)		38.4			37.0			24.5			35.5	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	97.7	Sum of lost time (s)	21.0
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

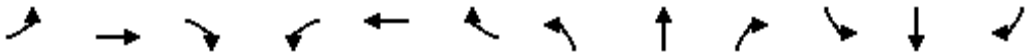
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	525	0	348	0	1030	1240	0	679	574
Future Volume (vph)	0	0	0	525	0	348	0	1030	1240	0	679	574
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5		5.5		5.5	4.0		5.5	5.5
Lane Util. Factor				0.97		1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes				1.00		0.99		1.00	0.98		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	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		1545		3505	1530		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		1545		3505	1530		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	571	0	378	0	1120	1348	0	738	624
RTOR Reduction (vph)	0	0	0	0	0	27	0	0	0	0	0	361
Lane Group Flow (vph)	0	0	0	571	0	351	0	1120	1348	0	738	263
Confl. Peds. (#/hr)									5			
Confl. Bikes (#/hr)						5			5			5
Turn Type				Perm		Perm		NA	Free		NA	Prot
Protected Phases								8			4	4
Permitted Phases				6		6			Free			
Actuated Green, G (s)				23.7		23.7		25.3	60.0		25.3	25.3
Effective Green, g (s)				23.7		23.7		25.3	60.0		25.3	25.3
Actuated g/C Ratio				0.39		0.39		0.42	1.00		0.42	0.42
Clearance Time (s)				5.5		5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				1343		610		1477	1530		1477	661
v/s Ratio Prot								0.32			0.21	0.17
v/s Ratio Perm				0.17		0.23			c0.88			
v/c Ratio				0.43		0.58		0.76	0.88		0.50	0.40
Uniform Delay, d1				13.2		14.2		14.8	0.0		12.7	12.1
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				1.0		3.9		2.3	7.6		0.3	0.4
Delay (s)				14.2		18.1		17.0	7.6		13.0	12.5
Level of Service				B		B		B	A		B	B
Approach Delay (s)		0.0			15.8			11.9			12.7	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

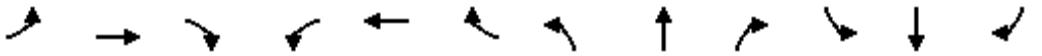
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	39	108	416	24	111	102	569	363	94	608	8
Future Volume (vph)	38	39	108	416	24	111	102	569	363	94	608	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1800	1557	1665	1590		1752	3505	1541	1752	3496	
Flt Permitted		0.98	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1800	1557	1665	1590		1752	3505	1541	1752	3496	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	42	117	452	26	121	111	618	395	102	661	9
RTOR Reduction (vph)	0	0	0	0	21	0	0	0	158	0	1	0
Lane Group Flow (vph)	0	83	117	307	271	0	111	618	237	102	669	0
Confl. Peds. (#/hr)						5			5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	3	3		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		7.9	19.7	23.7	23.7		11.8	30.4	54.1	8.6	25.7	
Effective Green, g (s)		7.9	19.7	23.7	23.7		11.8	30.4	54.1	8.6	25.7	
Actuated g/C Ratio		0.09	0.22	0.26	0.26		0.13	0.34	0.60	0.10	0.29	
Clearance Time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		157	340	437	418		229	1182	925	167	997	
v/s Ratio Prot		c0.05	0.05	c0.18	0.17		0.06	c0.18	0.07	c0.06	c0.19	
v/s Ratio Perm			0.03						0.09			
v/c Ratio		0.53	0.34	0.70	0.65		0.48	0.52	0.26	0.61	0.67	
Uniform Delay, d1		39.3	29.7	30.0	29.5		36.3	24.0	8.5	39.1	28.5	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		3.2	0.6	5.1	3.5		1.6	0.4	0.1	6.5	1.8	
Delay (s)		42.5	30.4	35.1	33.0		37.9	24.4	8.6	45.6	30.3	
Level of Service		D	C	D	C		D	C	A	D	C	
Approach Delay (s)		35.4			34.0			20.2			32.3	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.1	Sum of lost time (s)	21.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

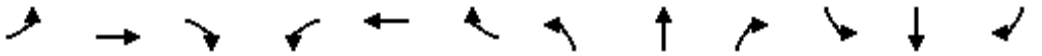
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	282	0	285	0	715	607	0	405	695
Future Volume (vph)	0	0	0	282	0	285	0	715	607	0	405	695
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5		5.5		5.5	4.0		5.5	5.5
Lane Util. Factor				0.97		1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes				1.00		0.99		1.00	0.97		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	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		1545		3505	1526		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		1545		3505	1526		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	307	0	310	0	777	660	0	440	755
RTOR Reduction (vph)	0	0	0	0	0	69	0	0	0	0	0	486
Lane Group Flow (vph)	0	0	0	307	0	241	0	777	660	0	440	269
Confl. Peds. (#/hr)									10			
Confl. Bikes (#/hr)						5			5			5
Turn Type				Perm		Perm		NA	Free		NA	Prot
Protected Phases								8			4	4
Permitted Phases				6		6			Free			
Actuated Green, G (s)				27.6		27.6		21.4	60.0		21.4	21.4
Effective Green, g (s)				27.6		27.6		21.4	60.0		21.4	21.4
Actuated g/C Ratio				0.46		0.46		0.36	1.00		0.36	0.36
Clearance Time (s)				5.5		5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				1564		710		1250	1526		1250	559
v/s Ratio Prot								c0.22			0.13	0.17
v/s Ratio Perm				0.09		0.16			c0.43			
v/c Ratio				0.20		0.34		0.62	0.43		0.35	0.48
Uniform Delay, d1				9.6		10.4		16.0	0.0		14.2	15.0
Progression Factor				1.00		1.00		0.73	1.00		1.00	1.00
Incremental Delay, d2				0.3		1.3		0.8	0.8		0.2	0.7
Delay (s)				9.9		11.7		12.5	0.8		14.4	15.6
Level of Service				A		B		B	A		B	B
Approach Delay (s)		0.0			10.8			7.1			15.2	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	528	0	598	0	0	0	0	835	262	0	459	244
Future Volume (vph)	528	0	598	0	0	0	0	835	262	0	459	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0					5.0	5.0		5.0	4.0
Lane Util. Factor	0.97		0.76					0.95	1.00		0.95	1.00
Frpb, ped/bikes	1.00		1.00					1.00	0.97		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	0.85		1.00	0.85
Flt Protected	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (prot)	3400		3575					3505	1526		3505	1568
Flt Permitted	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (perm)	3400		3575					3505	1526		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	574	0	650	0	0	0	0	908	285	0	499	265
RTOR Reduction (vph)	0	0	70	0	0	0	0	0	104	0	0	0
Lane Group Flow (vph)	574	0	580	0	0	0	0	908	181	0	499	265
Confl. Peds. (#/hr)									5			
Confl. Bikes (#/hr)									5			
Turn Type	Prot		Prot					NA	Perm		NA	Free
Protected Phases	1		6					2 4			8	
Permitted Phases									2 4			Free
Actuated Green, G (s)	13.9		36.0					38.1	38.1		15.0	60.0
Effective Green, g (s)	13.9		36.0					38.1	38.1		15.0	60.0
Actuated g/C Ratio	0.23		0.60					0.64	0.64		0.25	1.00
Clearance Time (s)	4.0		4.0								5.0	
Vehicle Extension (s)	3.0		3.0								3.0	
Lane Grp Cap (vph)	787		2145					2225	969		876	1568
v/s Ratio Prot	c0.17		0.16					c0.26			c0.14	
v/s Ratio Perm									0.12			0.17
v/c Ratio	0.73		0.27					0.41	0.19		0.57	0.17
Uniform Delay, d1	21.3		5.7					5.4	4.5		19.7	0.0
Progression Factor	1.00		1.00					1.00	1.00		1.20	1.00
Incremental Delay, d2	3.4		0.3					0.1	0.1		2.6	0.2
Delay (s)	24.7		6.0					5.5	4.6		26.2	0.2
Level of Service	C		A					A	A		C	A
Approach Delay (s)		14.8			0.0			5.3			17.2	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 14: College Ave & I-8 WB Ramp

Movement	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	R	T	T	T	T
Maximum Queue (ft)	156	172	203	166	168	117	1047
Average Queue (ft)	34	91	22	84	84	61	104
95th Queue (ft)	96	144	97	133	143	109	396
Link Distance (ft)			1098	1059	1059	1034	1034
Upstream Blk Time (%)							0
Queuing Penalty (veh)							0
Storage Bay Dist (ft)	150	150					
Storage Blk Time (%)	0	1					
Queuing Penalty (veh)	0	3					

Intersection: 15: College Ave & I-8 EB Ramp

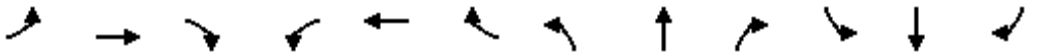
Movement	EB	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	L	R	R	T	T	R	T	T
Maximum Queue (ft)	142	154	576	472	154	164	169	146	168
Average Queue (ft)	125	147	197	85	72	90	11	89	99
95th Queue (ft)	182	172	462	313	116	143	80	133	142
Link Distance (ft)			920	920	672	672		1059	1059
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	130	130					150		
Storage Blk Time (%)	2	27		0		0	0		
Queuing Penalty (veh)	3	53		0		1	0		

Network Summary

Network wide Queuing Penalty: 61

Appendix U

Horizon Year 2050 with Project Intersection LOS and Queueing Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	79	246	600	117	66	100	835	369	75	933	27
Future Volume (vph)	98	79	246	600	117	66	100	835	369	75	933	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.98		1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.97	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1795	1552	1665	1638		1752	3505	1521	1752	3488	
Flt Permitted		0.97	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1795	1552	1665	1638		1752	3505	1521	1752	3488	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	86	267	652	127	72	109	908	401	82	1014	29
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	133	0	2	0
Lane Group Flow (vph)	0	193	267	424	419	0	109	908	268	82	1041	0
Confl. Peds. (#/hr)						45			10			
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	3	3		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		9.9	17.7	23.1	23.1		7.8	32.8	55.9	5.5	29.0	
Effective Green, g (s)		9.9	17.7	23.1	23.1		7.8	32.8	55.9	5.5	29.0	
Actuated g/C Ratio		0.11	0.19	0.25	0.25		0.09	0.36	0.62	0.06	0.32	
Clearance Time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		195	302	423	416		150	1266	936	106	1114	
v/s Ratio Prot		c0.11	c0.08	0.25	c0.26		0.06	0.26	0.07	0.05	c0.30	
v/s Ratio Perm			0.10						0.10			
v/c Ratio		0.99	0.88	1.00	1.01		0.73	0.72	0.29	0.77	0.93	
Uniform Delay, d1		40.4	35.6	33.8	33.8		40.5	25.0	8.1	42.0	30.0	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		60.8	24.9	44.3	45.8		16.0	2.0	0.2	28.8	13.9	
Delay (s)		101.2	60.4	78.2	79.7		56.5	27.0	8.3	70.9	43.9	
Level of Service		F	E	E	E		E	C	A	E	D	
Approach Delay (s)		77.5			78.9			24.0			45.8	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	48.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	90.8	Sum of lost time (s)	21.0
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1304	0	0	0
Future Vol, veh/h	0	0	1304	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	1417	0	0	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	709	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	374	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	374	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-

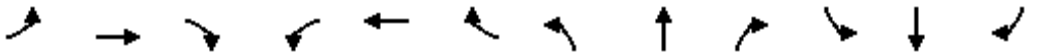
Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1304	29	2	1776
Future Vol, veh/h	0	0	1304	29	2	1776
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	1417	32	2	1930

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2402	725	0	0	1449	0
Stage 1	1433	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	27	365	-	-	458	-
Stage 1	184	-	-	-	-	-
Stage 2	326	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	27	365	-	-	458	-
Mov Cap-2 Maneuver	27	-	-	-	-	-
Stage 1	184	-	-	-	-	-
Stage 2	325	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	458	-
HCM Lane V/C Ratio	-	-	-	0.005	-
HCM Control Delay (s)	-	-	0	12.9	-
HCM Lane LOS	-	-	A	B	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	317	0	165	0	1153	465	0	874	902
Future Volume (vph)	0	0	0	317	0	165	0	1153	465	0	874	902
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5		5.5		5.5	4.0		5.5	5.5
Lane Util. Factor				0.97		1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes				1.00		1.00		1.00	0.98		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	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		1568		3505	1530		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		1568		3505	1530		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	345	0	179	0	1253	505	0	950	980
RTOR Reduction (vph)	0	0	0	0	0	54	0	0	0	0	0	453
Lane Group Flow (vph)	0	0	0	345	0	125	0	1253	505	0	950	527
Confl. Peds. (#/hr)									5			
Confl. Bikes (#/hr)									5			
Turn Type				Perm		Perm		NA	Free		NA	Prot
Protected Phases								8			4	4
Permitted Phases				6		6			Free			
Actuated Green, G (s)				30.6		30.6		48.4	90.0		48.4	48.4
Effective Green, g (s)				30.6		30.6		48.4	90.0		48.4	48.4
Actuated g/C Ratio				0.34		0.34		0.54	1.00		0.54	0.54
Clearance Time (s)				5.5		5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				1156		533		1884	1530		1884	843
v/s Ratio Prot								c0.36			0.27	0.34
v/s Ratio Perm				0.10		0.08			c0.33			
v/c Ratio				0.30		0.23		0.67	0.33		0.50	0.63
Uniform Delay, d1				21.8		21.3		15.0	0.0		13.2	14.5
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				0.7		1.0		0.9	0.6		0.2	1.5
Delay (s)				22.5		22.3		15.9	0.6		13.4	15.9
Level of Service				C		C		B	A		B	B
Approach Delay (s)		0.0			22.4			11.5			14.7	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	35	133	406	38	91	140	737	458	112	721	28
Future Volume (vph)	44	35	133	406	38	91	140	737	458	112	721	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.97	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1795	1558	1665	1608		1752	3505	1540	1752	3481	
Flt Permitted		0.97	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1795	1558	1665	1608		1752	3505	1540	1752	3481	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	38	145	441	41	99	152	801	498	122	784	30
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	203	0	2	0
Lane Group Flow (vph)	0	86	145	295	270	0	152	801	295	122	812	0
Confl. Peds. (#/hr)						5			5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	3	3		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		8.4	22.0	25.0	25.0		13.6	32.8	57.8	12.0	29.7	
Effective Green, g (s)		8.4	22.0	25.0	25.0		13.6	32.8	57.8	12.0	29.7	
Actuated g/C Ratio		0.09	0.23	0.26	0.26		0.14	0.34	0.59	0.12	0.30	
Clearance Time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		154	350	426	411		243	1176	911	215	1058	
v/s Ratio Prot		c0.05	0.06	c0.18	0.17		c0.09	0.23	0.08	0.07	c0.23	
v/s Ratio Perm			0.04						0.11			
v/c Ratio		0.56	0.41	0.69	0.66		0.63	0.68	0.32	0.57	0.77	
Uniform Delay, d1		42.9	32.3	32.9	32.5		39.6	27.9	10.1	40.4	30.9	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		4.3	0.8	4.8	3.8		5.0	1.6	0.2	3.4	3.4	
Delay (s)		47.2	33.1	37.7	36.3		44.6	29.6	10.3	43.8	34.3	
Level of Service		D	C	D	D		D	C	B	D	C	
Approach Delay (s)		38.4			37.0			24.5			35.5	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	97.7	Sum of lost time (s)	21.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	1335	1	0	0
Future Vol, veh/h	0	1	1335	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	1	1451	1	0	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	726	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	365	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	365	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	365	-
HCM Lane V/C Ratio	-	-	0.003	-
HCM Control Delay (s)	-	-	14.9	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

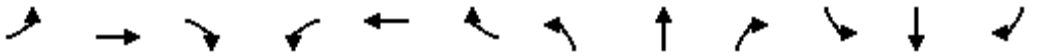
Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	0	1336	71	4	1256
Future Vol, veh/h	30	0	1336	71	4	1256
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	33	0	1452	77	4	1365

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2182	765	0	0	1529	0
Stage 1	1491	-	-	-	-	-
Stage 2	691	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	39	344	-	-	427	-
Stage 1	171	-	-	-	-	-
Stage 2	456	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	39	344	-	-	427	-
Mov Cap-2 Maneuver	39	-	-	-	-	-
Stage 1	171	-	-	-	-	-
Stage 2	452	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	250.4	0	0
HCM LOS	F		

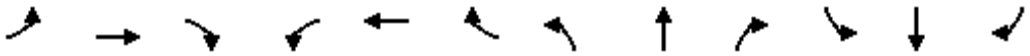
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	39	427	-
HCM Lane V/C Ratio	-	-	0.836	0.01	-
HCM Control Delay (s)	-	-	250.4	13.5	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	3.1	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	525	0	378	0	1072	1240	0	695	588
Future Volume (vph)	0	0	0	525	0	378	0	1072	1240	0	695	588
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5		5.5		5.5	4.0		5.5	5.5
Lane Util. Factor				0.97		1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes				1.00		0.99		1.00	0.98		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	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		1545		3505	1530		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		1545		3505	1530		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	571	0	411	0	1165	1348	0	755	639
RTOR Reduction (vph)	0	0	0	0	0	28	0	0	0	0	0	365
Lane Group Flow (vph)	0	0	0	571	0	383	0	1165	1348	0	755	274
Confl. Peds. (#/hr)									5			
Confl. Bikes (#/hr)						5			5			5
Turn Type				Perm		Perm		NA	Free		NA	Prot
Protected Phases								8			4	4
Permitted Phases				6		6			Free			
Actuated Green, G (s)				23.3		23.3		25.7	60.0		25.7	25.7
Effective Green, g (s)				23.3		23.3		25.7	60.0		25.7	25.7
Actuated g/C Ratio				0.39		0.39		0.43	1.00		0.43	0.43
Clearance Time (s)				5.5		5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				1320		599		1501	1530		1501	671
v/s Ratio Prot								0.33			0.22	0.17
v/s Ratio Perm				0.17		0.25			c0.88			
v/c Ratio				0.43		0.64		0.78	0.88		0.50	0.41
Uniform Delay, d1				13.5		14.9		14.7	0.0		12.5	11.9
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				1.0		5.2		2.6	7.6		0.3	0.4
Delay (s)				14.5		20.1		17.3	7.6		12.8	12.3
Level of Service				B		C		B	A		B	B
Approach Delay (s)		0.0			16.9			12.1			12.5	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	39	111	419	24	111	106	580	367	94	618	8
Future Volume (vph)	38	39	111	419	24	111	106	580	367	94	618	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1800	1557	1665	1590		1752	3505	1541	1752	3496	
Flt Permitted		0.98	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1800	1557	1665	1590		1752	3505	1541	1752	3496	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	42	121	455	26	121	115	630	399	102	672	9
RTOR Reduction (vph)	0	0	0	0	21	0	0	0	158	0	1	0
Lane Group Flow (vph)	0	83	121	309	272	0	115	630	241	102	680	0
Confl. Peds. (#/hr)						5			5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	3	3		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		8.0	20.1	23.9	23.9		12.1	31.0	54.9	8.6	26.0	
Effective Green, g (s)		8.0	20.1	23.9	23.9		12.1	31.0	54.9	8.6	26.0	
Actuated g/C Ratio		0.09	0.22	0.26	0.26		0.13	0.34	0.60	0.09	0.29	
Clearance Time (s)		5.1	4.4	4.9	4.9		4.4	5.1	4.9	4.4	6.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		158	343	437	417		232	1194	929	165	998	
v/s Ratio Prot		c0.05	0.05	c0.19	0.17		0.07	c0.18	0.07	c0.06	c0.19	
v/s Ratio Perm			0.03						0.09			
v/c Ratio		0.53	0.35	0.71	0.65		0.50	0.53	0.26	0.62	0.68	
Uniform Delay, d1		39.7	30.0	30.4	29.9		36.6	24.1	8.5	39.6	28.8	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		3.1	0.6	5.2	3.7		1.7	0.4	0.1	6.7	1.9	
Delay (s)		42.8	30.6	35.5	33.5		38.3	24.5	8.6	46.4	30.8	
Level of Service		D	C	D	C		D	C	A	D	C	
Approach Delay (s)		35.6			34.6			20.4			32.8	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	91.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	15	1038	3	0	0
Future Vol, veh/h	0	15	1038	3	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	16	1128	3	0	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	566	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	465	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	465	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	465	-
HCM Lane V/C Ratio	-	-	0.035	-
HCM Control Delay (s)	-	-	13	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	365.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	359	4	1037	293	16	1132
Future Vol, veh/h	359	4	1037	293	16	1132
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	390	4	1127	318	17	1230

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1935	723	0	0	1445	0
Stage 1	1286	-	-	-	-	-
Stage 2	649	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	~ 57	366	-	-	460	-
Stage 1	~ 221	-	-	-	-	-
Stage 2	479	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 55	366	-	-	460	-
Mov Cap-2 Maneuver	~ 55	-	-	-	-	-
Stage 1	~ 221	-	-	-	-	-
Stage 2	461	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 2862.9	0	0.2
HCM LOS	F		

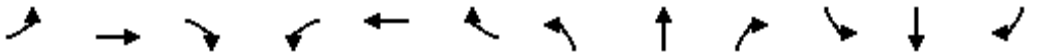
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	56	460	-
HCM Lane V/C Ratio	-	-	7.046	0.038	-
HCM Control Delay (s)	-	-	$ 2862.9	13.1	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	45.6	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	282	0	410	0	886	607	0	594	865
Future Volume (vph)	0	0	0	282	0	410	0	886	607	0	594	865
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5		5.5		5.5	4.0		5.5	5.5
Lane Util. Factor				0.97		1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes				1.00		0.99		1.00	0.97		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	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		1545		3505	1526		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		1545		3505	1526		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	307	0	446	0	963	660	0	646	940
RTOR Reduction (vph)	0	0	0	0	0	46	0	0	0	0	0	542
Lane Group Flow (vph)	0	0	0	307	0	400	0	963	660	0	646	398
Confl. Peds. (#/hr)									10			
Confl. Bikes (#/hr)						5			5			5
Turn Type				Perm		Perm		NA	Free		NA	Prot
Protected Phases								8			4	4
Permitted Phases				6		6			Free			
Actuated Green, G (s)				23.6		23.6		25.4	60.0		25.4	25.4
Effective Green, g (s)				23.6		23.6		25.4	60.0		25.4	25.4
Actuated g/C Ratio				0.39		0.39		0.42	1.00		0.42	0.42
Clearance Time (s)				5.5		5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				1337		607		1483	1526		1483	663
v/s Ratio Prot								c0.27			0.18	0.25
v/s Ratio Perm				0.09		c0.26			0.43			
v/c Ratio				0.23		0.66		0.65	0.43		0.44	0.60
Uniform Delay, d1				12.1		14.9		13.8	0.0		12.2	13.4
Progression Factor				1.00		1.00		0.89	1.00		1.00	1.00
Incremental Delay, d2				0.4		5.5		0.8	0.7		0.2	1.5
Delay (s)				12.5		20.4		13.0	0.7		12.4	14.9
Level of Service				B		C		B	A		B	B
Approach Delay (s)		0.0			17.2			8.0			13.9	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	668	0	598	0	0	0	0	866	262	0	497	395
Future Volume (vph)	668	0	598	0	0	0	0	866	262	0	497	395
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0					5.0	5.0		5.0	4.0
Lane Util. Factor	0.97		0.76					0.95	1.00		0.95	1.00
Frpb, ped/bikes	1.00		1.00					1.00	0.97		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	0.85		1.00	0.85
Flt Protected	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (prot)	3400		3575					3505	1526		3505	1568
Flt Permitted	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (perm)	3400		3575					3505	1526		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	726	0	650	0	0	0	0	941	285	0	540	429
RTOR Reduction (vph)	0	0	55	0	0	0	0	0	108	0	0	0
Lane Group Flow (vph)	726	0	595	0	0	0	0	941	177	0	540	429
Confl. Peds. (#/hr)									5			
Confl. Bikes (#/hr)									5			
Turn Type	Prot		Prot					NA	Perm		NA	Free
Protected Phases	1		6					2 4			8	
Permitted Phases									2 4			Free
Actuated Green, G (s)	14.8		36.0					37.2	37.2		15.0	60.0
Effective Green, g (s)	14.8		36.0					37.2	37.2		15.0	60.0
Actuated g/C Ratio	0.25		0.60					0.62	0.62		0.25	1.00
Clearance Time (s)	4.0		4.0								5.0	
Vehicle Extension (s)	3.0		3.0								3.0	
Lane Grp Cap (vph)	838		2145					2173	946		876	1568
v/s Ratio Prot	c0.21		0.17					c0.27			c0.15	
v/s Ratio Perm									0.12			0.27
v/c Ratio	0.87		0.28					0.43	0.19		0.62	0.27
Uniform Delay, d1	21.7		5.8					5.9	4.9		19.9	0.0
Progression Factor	1.00		1.00					1.00	1.00		1.07	1.00
Incremental Delay, d2	9.4		0.3					0.1	0.1		3.1	0.4
Delay (s)	31.0		6.1					6.1	5.0		24.5	0.4
Level of Service	C		A					A	A		C	A
Approach Delay (s)		19.2			0.0			5.8			13.9	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 14: College Ave & I-8 WB Ramp

Movement	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	L	R	T	T	T	T	R
Maximum Queue (ft)	162	172	251	205	195	185	271	235
Average Queue (ft)	45	91	50	104	104	77	92	8
95th Queue (ft)	132	171	146	174	171	128	173	77
Link Distance (ft)			1098	1059	1059	1034	1034	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150	150						210
Storage Blk Time (%)	0	3	0		0		0	0
Queuing Penalty (veh)	0	12	0		0		3	0

Intersection: 15: College Ave & I-8 EB Ramp

Movement	EB	EB	EB	EB	NB	NB	SB	SB
Directions Served	L	L	R	R	T	T	T	T
Maximum Queue (ft)	142	154	662	602	156	125	174	176
Average Queue (ft)	139	154	428	281	82	82	101	104
95th Queue (ft)	159	155	624	576	134	119	156	160
Link Distance (ft)			920	920	672	672	1059	1059
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	130	130						
Storage Blk Time (%)	4	50		0				
Queuing Penalty (veh)	8	99		1				

Network Summary

Network wide Queuing Penalty: 124

Appendix V

Horizon Year 2050 with Project Improvement LOS Worksheets

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	0	1336	71	4	1256
Future Volume (veh/h)	30	0	1336	71	4	1256
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1900	1856	1856	1856	1856
Adj Flow Rate, veh/h	14126500	0645	14368	1452	77	4	1365
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3	3	3	3
Cap, veh/h	9999	9999	2300	1026	8	2618
Arrive On Green	0.09	0.09	0.65	0.65	0.00	0.74
Sat Flow, veh/h	24979369	1	32440064	3618	1572	1767	3618
Grp Volume(v), veh/h	14126500	0645	14368	1452	77	4	1365
Grp Sat Flow(s),veh/h/ln	1767	1610	1763	1572	1767	1763
Q Serve(g_s), s	0.0	0.0	11.3	0.8	0.1	7.6
Cycle Q Clear(g_c), s	0.0	0.0	11.3	0.8	0.1	7.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	21432003	86	697759744	2300	1026	8	2618
V/C Ratio(X)	0.01	0.01	0.63	0.08	0.52	0.52
Avail Cap(c_a), veh/h	85728020	4487	91006208	4386	1956	152	4991
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.5	19.5	4.8	3.0	23.2	2.5
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.0	45.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	2.1	0.1	0.1	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.5	19.5	5.1	3.0	69.0	2.7
LnGrp LOS	B	B	A	A	E	A
Approach Vol, veh/h	1078640896		1529			1369
Approach Delay, s/veh	19.5		5.0			2.9
Approach LOS	B		A			A

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	4.2	34.4				38.6	8.0
Change Period (Y+Rc), s	4.0	4.0				4.0	4.0
Max Green Setting (Gmax), s	4.0	58.0				66.0	16.0
Max Q Clear Time (g_c+I1), s	2.1	13.3				9.6	2.0
Green Ext Time (p_c), s	0.0	17.1				15.8	0.0

Intersection Summary	
HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	359	4	1037	293	16	1132	
Future Volume (veh/h)	359	4	1037	293	16	1132	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1856	1856	1856	1856	
Adj Flow Rate, veh/h	390	4	1127	318	17	1230	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	0	0	3	3	3	3	
Cap, veh/h	464	5	1726	770	29	2052	
Arrive On Green	0.27	0.27	0.49	0.49	0.02	0.58	
Sat Flow, veh/h	1743	18	3618	1572	1767	3618	
Grp Volume(v), veh/h	395	0	1127	318	17	1230	
Grp Sat Flow(s),veh/h/ln	1765	0	1763	1572	1767	1763	
Q Serve(g_s), s	12.5	0.0	14.2	7.7	0.6	13.3	
Cycle Q Clear(g_c), s	12.5	0.0	14.2	7.7	0.6	13.3	
Prop In Lane	0.99	0.01		1.00	1.00		
Lane Grp Cap(c), veh/h	470	0	1726	770	29	2052	
V/C Ratio(X)	0.84	0.00	0.65	0.41	0.58	0.60	
Avail Cap(c_a), veh/h	1296	0	3361	1499	194	4016	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	20.6	0.0	11.3	9.7	28.9	8.0	
Incr Delay (d2), s/veh	4.1	0.0	0.4	0.4	17.2	0.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	5.2	0.0	4.7	2.3	0.4	3.9	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	24.7	0.0	11.8	10.0	46.1	8.2	
LnGrp LOS	C	A	B	B	D	A	
Approach Vol, veh/h	395		1445			1247	
Approach Delay, s/veh	24.7		11.4			8.8	
Approach LOS	C		B			A	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	5.5	33.5			39.0	20.3
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	6.5	56.5			67.5	43.5
Max Q Clear Time (g_c+I1), s	2.6	16.2			15.3	14.5
Green Ext Time (p_c), s	0.0	12.8			13.1	1.3

Intersection Summary		
HCM 6th Ctrl Delay	12.0	
HCM 6th LOS	B	

Appendix W

Main Access Queuing Worksheets

Intersection: 3: College Ave & Project Main Access

Movement	NB	NB	SB
Directions Served	T	T	L
Maximum Queue (ft)	57	31	31
Average Queue (ft)	2	1	1
95th Queue (ft)	19	10	10
Link Distance (ft)	646	646	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			120
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: College Ave & Project Main Access

Movement	WB	NB	NB	NB	SB	SB	SB
Directions Served	LR	T	T	R	L	T	T
Maximum Queue (ft)	59	127	120	31	31	52	143
Average Queue (ft)	16	22	39	5	4	12	38
95th Queue (ft)	39	75	105	23	21	41	110
Link Distance (ft)	255	646	646			588	588
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)				360	120		
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 13: College Ave & Project Main Access

Movement	WB	NB	NB	NB	SB	SB	SB
Directions Served	LR	T	T	R	L	T	T
Maximum Queue (ft)	272	225	259	104	49	252	377
Average Queue (ft)	154	97	131	49	15	73	178
95th Queue (ft)	253	186	226	88	44	172	313
Link Distance (ft)	255	646	646			588	588
Upstream Blk Time (%)	2						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)				360	120		
Storage Blk Time (%)						1	
Queuing Penalty (veh)						0	

Intersection: 3: College Ave & Project Main Access

Movement	NB	NB	SB
Directions Served	T	T	L
Maximum Queue (ft)	58	76	32
Average Queue (ft)	3	3	3
95th Queue (ft)	26	33	18
Link Distance (ft)	646	646	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			120
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: College Ave & Project Main Access

Movement	WB	NB	NB	NB	SB	SB	SB
Directions Served	LR	T	T	R	L	T	T
Maximum Queue (ft)	55	112	152	41	31	104	186
Average Queue (ft)	16	25	44	5	3	18	51
95th Queue (ft)	40	84	124	26	18	66	143
Link Distance (ft)	255	646	646			588	588
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)				360	120		
Storage Blk Time (%)						0	
Queuing Penalty (veh)						0	

Intersection: 13: College Ave & Project Main Access

Movement	WB	NB	NB	NB	SB	SB	SB
Directions Served	LR	T	T	R	L	T	T
Maximum Queue (ft)	270	225	272	200	69	334	415
Average Queue (ft)	157	114	152	80	15	93	212
95th Queue (ft)	257	199	242	157	47	216	359
Link Distance (ft)	255	646	646			588	588
Upstream Blk Time (%)	1						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)				300	75		
Storage Blk Time (%)			0		0	5	
Queuing Penalty (veh)			0		0	1	

Appendix X

College Ave at Del Cerro Blvd Queuing Worksheets

Intersection: 11: College Ave & Del Cerro Blvd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	LTR	L	T	T	R	L	T	TR
Maximum Queue (ft)	96	138	215	393	115	241	218	150	114	257	315
Average Queue (ft)	41	61	112	203	64	90	98	64	59	109	161
95th Queue (ft)	81	115	246	316	118	172	178	156	108	193	239
Link Distance (ft)	479			472		1292	1292			588	588
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)		175	190		90			125	90		
Storage Blk Time (%)			0	13	4	10	4	1	3	5	
Queuing Penalty (veh)			1	23	11	9	13	2	8	4	

Intersection: 11: College Ave & Del Cerro Blvd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	LTR	L	T	T	R	L	T	TR
Maximum Queue (ft)	109	104	214	368	114	217	244	150	114	263	222
Average Queue (ft)	51	40	118	202	66	99	104	68	73	158	104
95th Queue (ft)	96	78	240	312	118	179	197	153	132	234	187
Link Distance (ft)	479			471		284	284			588	588
Upstream Blk Time (%)				0		0	0				
Queuing Penalty (veh)				0		0	1				
Storage Bay Dist (ft)		175	190		90			125	90		
Storage Blk Time (%)	0		0	11	6	10	4	1	4	27	
Queuing Penalty (veh)	0		1	20	14	9	12	1	12	22	

Intersection: 1: College Ave & Del Cerro Blvd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	LTR	L	T	T	R	L	T	TR
Maximum Queue (ft)	128	175	214	344	115	283	299	150	115	371	318
Average Queue (ft)	54	76	112	196	93	159	170	101	89	223	170
95th Queue (ft)	106	140	239	300	138	270	294	192	141	331	281
Link Distance (ft)	479			471		284	284			588	588
Upstream Blk Time (%)				0		1	1				
Queuing Penalty (veh)				0		3	7				
Storage Bay Dist (ft)		175	190		90			125	90		
Storage Blk Time (%)		0	0	10	22	19	13	1	14	37	
Queuing Penalty (veh)		0	1	17	69	27	51	3	44	36	

Intersection: 1: College Ave & Del Cerro Blvd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	LTR	L	T	T	R	L	T	TR
Maximum Queue (ft)	115	118	214	284	115	291	300	150	115	293	294
Average Queue (ft)	44	49	121	202	93	153	162	97	89	184	137
95th Queue (ft)	90	85	233	293	138	289	303	192	132	270	237
Link Distance (ft)	479			471		284	284			588	588
Upstream Blk Time (%)						1	1				
Queuing Penalty (veh)						6	4				
Storage Bay Dist (ft)		175	190		90			125	90		
Storage Blk Time (%)			0	10	16	18	11	1	11	33	
Queuing Penalty (veh)			1	19	54	26	47	2	35	34	

Intersection: 11: College Ave & Del Cerro Blvd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	LTR	L	T	T	R	L	T	TR
Maximum Queue (ft)	142	155	215	455	115	266	283	150	114	325	285
Average Queue (ft)	62	72	148	244	79	136	150	89	88	204	151
95th Queue (ft)	115	130	263	379	127	230	262	180	139	299	251
Link Distance (ft)	479			471		284	284			588	588
Upstream Blk Time (%)				0		0	1				
Queuing Penalty (veh)				0		1	3				
Storage Bay Dist (ft)		175	190		90			125	90		
Storage Blk Time (%)	0	0	1	19	10	19	10	1	12	36	
Queuing Penalty (veh)	0	0	2	39	27	19	35	3	36	34	

Intersection: 11: College Ave & Del Cerro Blvd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	LTR	L	T	T	R	L	T	TR
Maximum Queue (ft)	166	149	215	444	115	287	305	150	114	318	273
Average Queue (ft)	62	67	157	257	81	141	158	93	87	208	153
95th Queue (ft)	121	126	263	401	132	268	298	191	139	294	252
Link Distance (ft)	479			471		284	284			588	588
Upstream Blk Time (%)				1		1	2				
Queuing Penalty (veh)				0		4	8				
Storage Bay Dist (ft)		175	190		90			125	90		
Storage Blk Time (%)	0	0	1	21	14	18	10	2	10	36	
Queuing Penalty (veh)	0	0	3	44	39	19	38	5	32	34	

Intersection: 1: College Ave & Del Cerro Blvd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	LTR	L	T	T	R	L	T	TR
Maximum Queue (ft)	94	160	214	380	115	286	296	150	114	358	361
Average Queue (ft)	51	82	160	233	81	162	177	111	92	226	177
95th Queue (ft)	89	145	235	334	128	272	285	202	141	321	298
Link Distance (ft)	479			471		284	284			588	588
Upstream Blk Time (%)						0	1				
Queuing Penalty (veh)						3	4				
Storage Bay Dist (ft)		175	190		90			125	90		
Storage Blk Time (%)		0	1	17	19	23	15	2	19	35	
Queuing Penalty (veh)		0	2	34	71	32	70	6	67	39	

Intersection: 1: College Ave & Del Cerro Blvd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	LTR	L	T	T	R	L	T	TR
Maximum Queue (ft)	114	76	215	347	115	290	287	150	115	318	308
Average Queue (ft)	48	42	157	216	73	158	169	106	92	217	177
95th Queue (ft)	89	65	245	311	127	292	305	193	147	309	275
Link Distance (ft)	479			471		284	284			588	588
Upstream Blk Time (%)						1	1				
Queuing Penalty (veh)						3	9				
Storage Bay Dist (ft)		175	190		90			125	90		
Storage Blk Time (%)			1	17	6	18	11	3	20	41	
Queuing Penalty (veh)			2	34	20	26	51	11	72	46	