

City of Colton

MEDICAL OFFICE AND HOTEL MIXED-USE PROJECT TRAFFIC IMPACT ANALYSIS

JUNE 17, 2025

Prepared for:
City of Colton
160 South 10th Street,
Colton, CA 92324

Prepared by:



333 S. Anita Drive, Suite 800
Orange, CA 92868
T: 714.573.0317 | F: 714.573.9584
www.koacorp.com

000023450

TABLE OF CONTENTS

1.0 INTRODUCTION & ANALYSIS METHODOLOGY	1
1.1 Project Description.....	1
1.2 Project Study Area.....	2
1.3 Study Scenarios.....	2
1.4 Analysis Methodology.....	4
2.0 EXISTING CONDITIONS	8
2.1 Existing Roadway System.....	8
2.2 Existing Bicycle Facilities.....	11
2.3 Existing Pedestrian Facilities	11
2.4 Existing Transit Service.....	11
2.5 Existing Traffic Volumes.....	11
2.6 Existing Intersection Levels of Service.....	16
3.0 PROJECT TRAFFIC	17
3.1 Project Trip Generation.....	17
3.2 Project Trip Distribution.....	18
3.3 Project Trip Assignment.....	18
4.0 OPENING YEAR - WITH NO PROJECT CONDITIONS.....	22
4.1 Ambient Traffic Growth.....	22
4.2 Cumulative Project Traffic Growth.....	22
4.3 Opening Year With No Project Traffic Volumes.....	22
4.4 Opening Year With No Project – Intersection Levels of Service.....	25
5.0 OPENING YEAR - WITH PROJECT CONDITIONS	26
5.1 Opening Year With Project Traffic Volumes	26
5.2 Opening Year With Project – Intersection Levels of Service	26
6.0 GENERAL PLAN BUILDOUT YEAR – WITH NO PROJECT CONDITIONS.....	29
6.1 General Plan Buildout With No Project Traffic Volumes.....	29
6.2 General Plan Buildout With no Project Intersection Levels of Service	32
7.0 GENERAL PLAN BUILDOUT YEAR - WITH PROJECT CONDITIONS	33
7.1 General Plan Buildout With Project Traffic Volumes.....	33
7.2 General Plan Buildout With Project Intersection Levels of Service.....	33
8.0 VEHICLE QUEUING ANALYSIS	37

9.0 VEHICLE MILES TRAVELLED SCREENING ANALYSIS..... 40

10.0 SUMMARY AND CONCLUSIONS.....41

APPENDICES

- Appendix A – Traffic Scoping Agreement
- Appendix B – Traffic Count Data Sheets
- Appendix C – Level of Service Worksheets for Existing Conditions
- Appendix D – Cumulative Projects
- Appendix E – Level of Service Worksheets for Opening Year (2027) With No Project Conditions
- Appendix F – Level of Service Worksheets for Opening Year (2027) With Project Conditions
- Appendix G – Level of Service Worksheets for General Plan Buildout Year With No Project Conditions
- Appendix H – Level of Service Worksheets for General Plan Buildout Year With Project Conditions
- Appendix I – Vehicle Queuing Analysis Worksheets

LIST OF FIGURES

Figure 1.1 – Project Vicinity Map.....	1
Figure 1.2 – Conceptual Project Site Plan.....	3
Figure 1.3 – Study Intersection Locations.....	4
Figure 2.1 – Existing Intersection Geometry.....	9
Figure 2.2 - City of Colton Roadway Classification.....	10
Figure 2.3 - City of Colton Existing and Proposed Bikeway Network.....	12
Figure 2.4 – City of Colton Transit Plan.....	13
Figure 2.5 – Existing Intersection Traffic Volumes (AM and PM Peak Hours).....	14
Figure 2.6 – Existing Intersection Traffic Volumes (Midday Peak Hour).....	15
Figure 3.1 – Project Trip Distribution.....	19
Figure 3.2 – Project Traffic Volumes (AM and PM Peak Hours).....	20
Figure 3.3 – Project Traffic Volumes (Midday Peak Hour).....	21
Figure 4.1 – Opening Year With No Project Traffic Volumes (AM and PM Peak Hours).....	23
Figure 4.2 – Opening Year With No Project Traffic Volumes (Midday Peak Hour).....	24
Figure 5.1 – Opening Year With Project Traffic Volumes (AM and PM Peak Hours).....	27
Figure 5.2 – Opening Year With Project Traffic Volumes (Midday Peak Hour).....	28
Figure 6.1 – General Plan Buildout Year With No Project Traffic Volumes (AM and PM Peak Hours).....	30
Figure 6.2 – General Plan Buildout Year With No Project Traffic Volumes (Midday Peak Hour).....	31
Figure 7.1 – General Plan Buildout Year With Project Traffic Volumes (AM and PM Peak Hours).....	35
Figure 7.2 – General Plan Buildout Year With Project Traffic Volumes (Midday Peak Hour).....	36

LIST OF TABLES

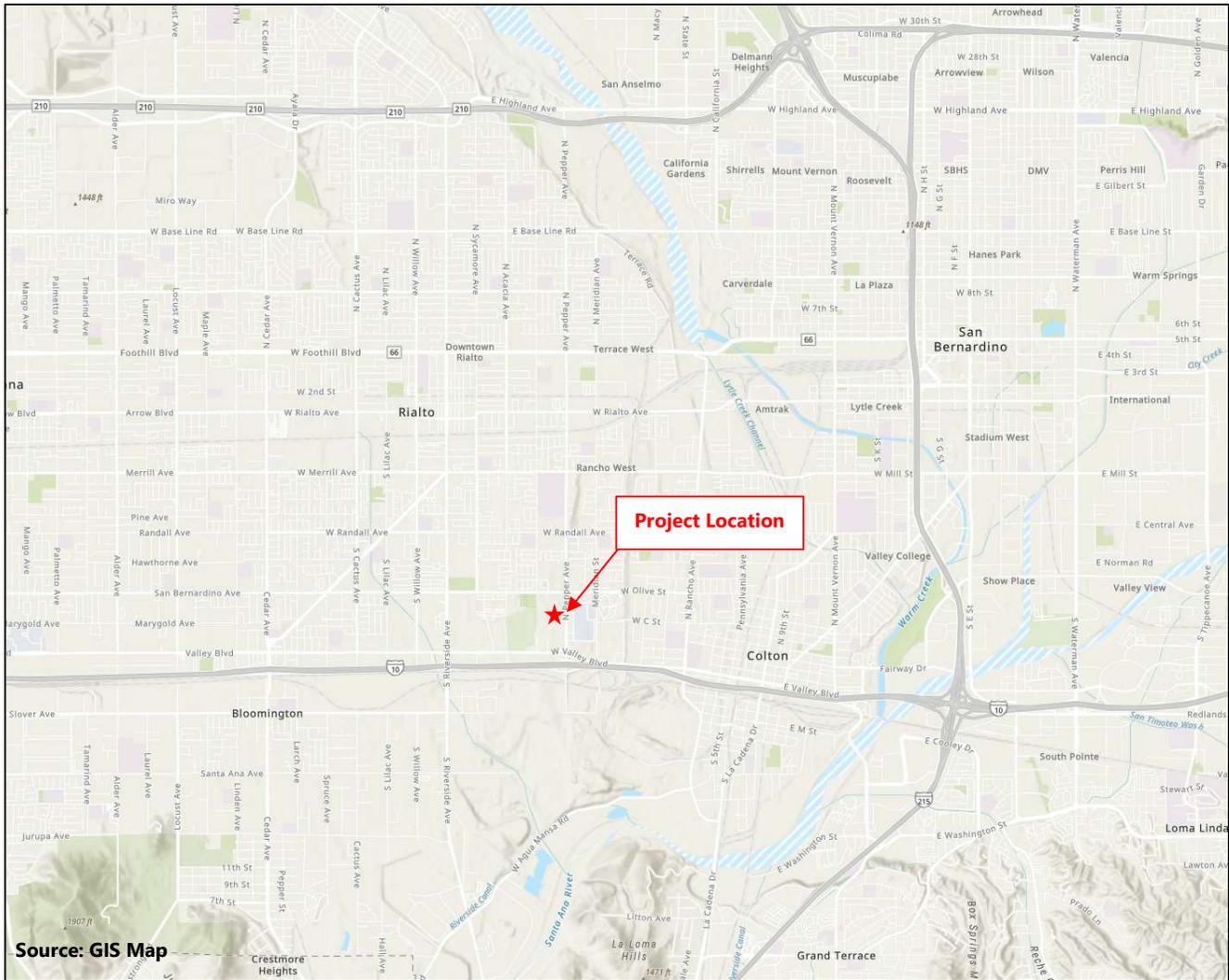
Table 1.1 – Study Intersections.....	2
Table 1.2 – HCM Level of Service Definitions for Intersections.....	5
Table 2.1 – Intersection Performance - Existing Conditions.....	16
Table 3.1 – Project Trip Generation Rates.....	17
Table 3.2 – Project Trip Generation.....	17
Table 4.1 – Intersection Performance – Opening Year With No Project Conditions.....	25
Table 5.1 – Intersection Performance – Opening Year With Project Conditions.....	26
Table 6.1 – Intersection Performance – General Plan Buildout Year With No Project Conditions.....	32
Table 7.1 – Intersection Performance – General Plan Buildout Year With Project Conditions.....	33
Table 8.1 – Vehicle Queuing Analysis for Intersection 1.....	38
Table 8.2 – Vehicle Queuing Analysis for Intersections 5 to 7.....	39

1.0 INTRODUCTION & ANALYSIS METHODOLOGY

1.1 PROJECT DESCRIPTION

The proposed project is located on an approximately 9-acre (389,336 square feet) vacant parcel in the City of Colton in San Bernardino County, California. The proposed project is located on the west side of North Pepper Avenue and approximately 625 feet south of West San Bernardino Avenue. **Figure 1.1** depicts the Project Vicinity Map.

FIGURE 1.1 – PROJECT VICINITY MAP



The proposed project includes a three-story 60,000 sf medical office clinic and a five-story 71,095 sf, 112-room commercial hotel. The project site will provide 321 parking stalls via a parking structure and surface parking areas, which would serve both the medical office clinic and the hotel. About 5.1 acres in the western portion of the project parcel will be a dedicated conservation area for the Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) consistent with the conservation strategy identified within the West Valley Habitat Conservation Plan (City of Colton, 201). Vehicular access will be provided on North Pepper Avenue via two project driveways. Both driveways will be restricted to right-turn inbound and outbound

only. The project is anticipated to be completed by Year 2027.

The Conceptual Project Site Plan is shown in **Figure 1.2**.

1.2 PROJECT STUDY AREA

The project study area was determined by evaluating the existing street network to identify the key intersections that would likely provide access for the proposed project. The project study area includes a total of seven study intersections, which were selected in coordination with and approved by the City of Colton as summarized in the Traffic Scoping Agreement found in **Appendix A** of this report.

The study intersections are listed below in **Table 1.1** and depicted in **Figure 1.3**. Out of the seven study intersections that have been identified for analysis, six intersections currently exist, and the remaining intersection (i.e., North Pepper Avenue and Project Driveway) will be a future intersection upon completion of the proposed project.

Table 1.1 – Study Intersections

No.	Intersection	Control
1	N. Pepper Avenue & San Bernardino Avenue	Signalized
2	N. Pepper Avenue & Violet Street	Signalized
3	N. Pepper Avenue & North Project Driveway (Future Intersection)	Unsignalized
4	N. Pepper Avenue & Blue Drive	Signalized
5	N. Pepper Avenue & W. Valley Boulevard	Signalized
6	N. Pepper Avenue & I-10 Fwy WB On/Off Ramps	Signalized
7	N. Pepper Avenue & I-10 Fwy EB On/Off Ramps	Signalized

1.3 STUDY SCENARIOS

Traffic impacts associated with the development of the proposed project were analyzed for the weekday AM, Midday, and PM peak hours. The analysis scenarios included within this study are listed below:

- Existing Conditions
- Project Opening Year 2027 with No Project Conditions
- Project Opening Year 2027 with Project Conditions
- General Plan Buildout with No Project Conditions
- General Plan Buildout with Project Conditions

The long-term General Plan Buildout Year provides the worst-case scenario in terms of traffic volumes and was therefore selected for the purpose of this analysis.

FIGURE 1.2 – CONCEPTUAL PROJECT SITE PLAN

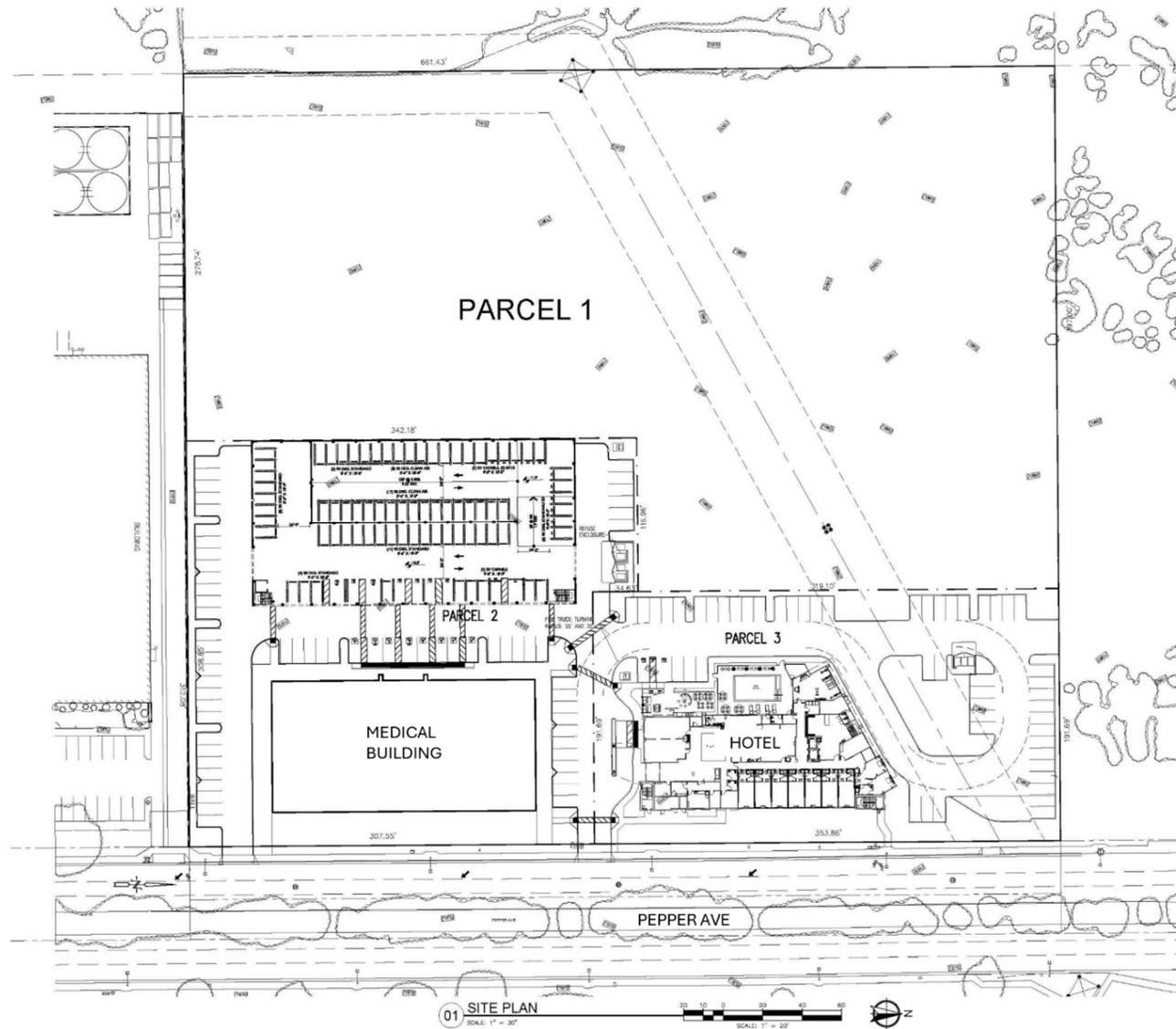
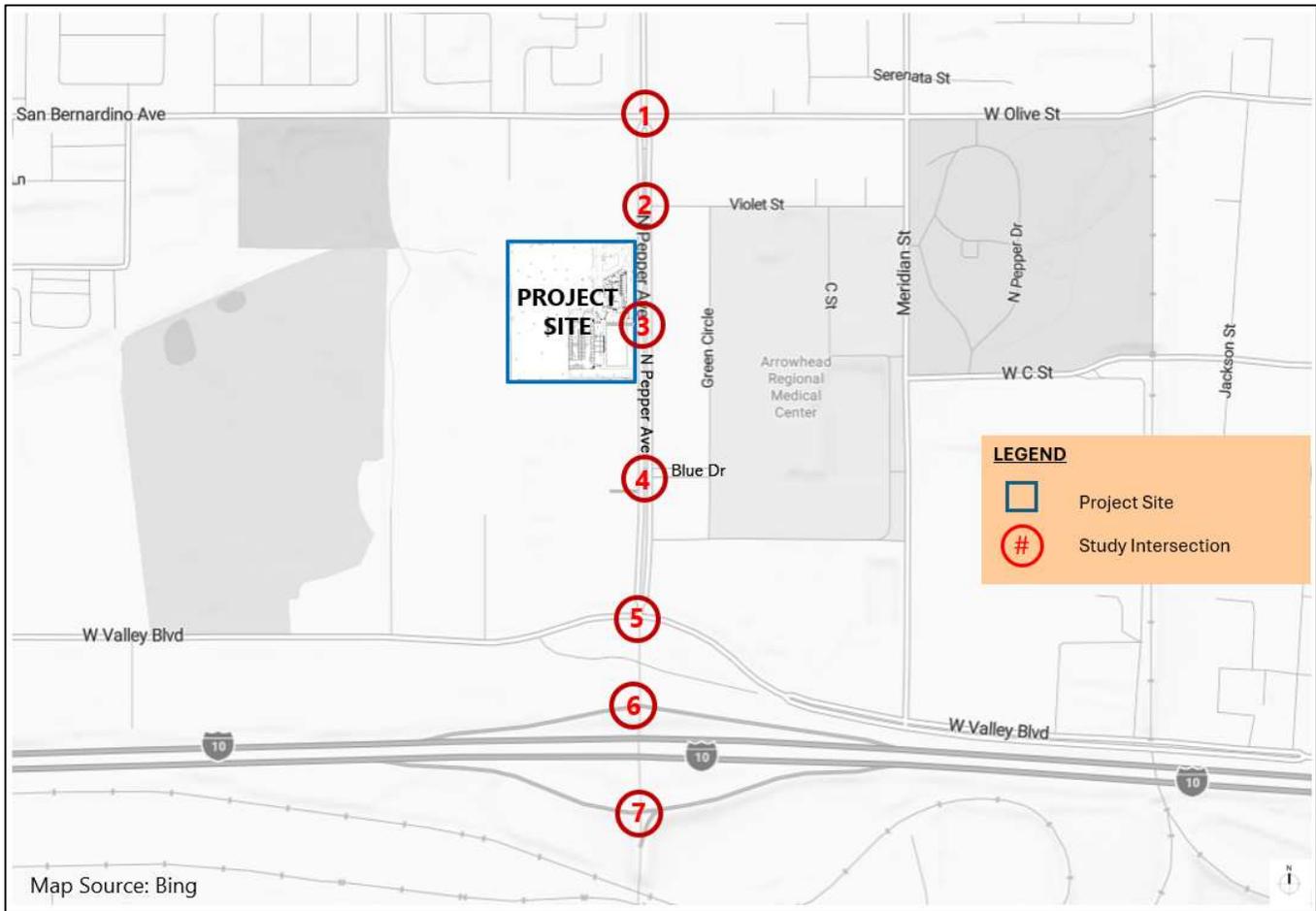


FIGURE 1.3 – STUDY INTERSECTION LOCATIONS



1.4 ANALYSIS METHODOLOGY

This study addresses the operational analysis conducted for street intersections. The study intersections were evaluated by following the *San Bernardino County Transportation Authority - Congestion Management Program (SBCTA CMP) guidelines* and *City of Colton General Plan Mobility Element for Level of Service and City of Colton VMT (Vehicle Miles Traveled) Guidelines (June 2, 2020) for VMT Analysis*.

Intersection Level of Service Definition

This section presents a brief overview of traffic analysis methodologies and concepts used in this study. Street system operating conditions are typically described in terms of “level of service (LOS)”. LOS is a report-card scale used to indicate the quality of traffic flow at intersections and on roadway segments. LOS values of A through C indicate excellent to decent traffic flow conditions. LOS D corresponds with fair conditions that may experience substantial delays during portions of the peak hours, but without excessive backups. LOS E represents poor conditions, with volumes at or near the capacity of the intersection and long lines of vehicles that may have to wait through several signal cycles. LOS F is characteristic of failure (i.e., the intersection is overloaded, vehicular movements may be restricted or prevented, and delays and queue lengths become increasingly longer).

Traffic conditions on most roadway facilities are analyzed using the principles of the specific analysis methods contained in the *Highway Capacity Manual, 6th Edition (HCM)*, a publication of the Transportation Research Board, a research agency affiliated with the Federal Government. **Table 1.2** identifies LOS definitions for intersections using the HCM methodology.

Table 1.2 – HCM Level of Service Definitions for Intersections

Level of Service	Definition	Signalized Intersection Average Delay (Seconds per Vehicle)	Unsignalized Intersection Average Stop Delay (Seconds per Vehicle)
A	EXCELLENT. No Vehicle waits longer than one red light and no approach phase is fully used.	<10	<10
B	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.	>10 and <20	>10 and <15
C	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.	>20 and <35	>15 and <25
D	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.	>35 and <55	>25 and <35
E	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.	>55 and <80	>35 and <50
F	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.	>80	>50

SOURCE: Transportation Research Board, *Highway Capacity Manual* (6th Edition)

The methodology in the *HCM* for signalized intersections is based upon measurements or forecasts of the overall average control delay for traffic utilizing all approaches to the intersection. For an unsignalized intersection, the average delay for the Stop-controlled turning movements and the left turn movements of the uncontrolled approaches are reported.

An analysis of intersection conditions for the weekday AM, Midday, and PM peak hour conditions was conducted using the Synchro (Version 11) software program. It should be noted that the peak-hour-factors (PHF) based on traffic counts were utilized for the analysis of existing conditions. For the Project Opening Year conditions and General Plan Buildout conditions, a PHF of 0.95 was used in accordance to the County guidelines. Results are displayed in terms of average control delay in seconds per vehicle and an equivalent LOS shown in **Table 1.2**.

Intersection Level of Service Threshold

According to the City of Colton General Plan Mobility Element, the City identifies LOS D as the acceptable

level-of-service standard within the City. Therefore, LOS D was considered as the minimum level of service criterion for all study intersections. For study intersections under the jurisdiction of the City, an operational deficiency is determined based on the impact criteria described in the SBCTA CMP guidelines; the guidelines state that a significant project impact occurs when the peak hour level-of-service falls below the Cities' level-of-service standard from LOS D to LOS E or F, or when the project contributes to an existing deficiency.

Vehicle Queuing Analysis

Vehicle queuing was analyzed for the study intersection of North Pepper Avenue and San Bernardino Avenue to determine if the proposed project will have adverse queuing implications associated with project trips making a U-Turn from North Pepper Avenue in the northbound direction. The analysis shows the 95th percentile vehicle queuing length for the northbound left-turn movement during the AM, Midday, and PM peak hours for Opening Year and General Plan Buildout Year scenarios. Potential modification to the signal timing at this intersection in order to allow "U-turn" from northbound Pepper Ave into the southbound direction was modeled using SimTraffic to compare the queuing demand and storage length.

Similarly, a vehicle queuing analysis was also conducted at the three intersections along Pepper Avenue at Valley Boulevard, I-10 Freeway Westbound On/Off-Ramps, and I-10 Freeway Eastbound On/Off-Ramps (Intersections 5 to 7) as required by the City. The 95th percentile vehicle queuing lengths were compared to the lane capacities by turning movement. The analysis shows the impact in terms of vehicle queues at these locations with the addition of the proposed project traffic.

Traffic Count Data

Existing traffic count data at the study intersections were collected on a typical weekday on Thursday, November 7, 2024 during the morning peak period from 7:00 AM to 9:00 AM, the lunch peak period from 11:00 AM to 1:00 PM, and the afternoon peak period from 4:00 PM to 6:00 PM. The AM, Midday, and PM peak hour counts were determined by summing the highest four consecutive 15-minute counts during the three count periods for each intersection. The existing traffic count data is provided in **Appendix B** of this report.

Project Trip Generation and Distribution

The project trip generation was calculated based on trip generation rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition). Trip rates were used for Hotel (ITE code 310) and Medical Office (ITE code 720). The project trip generation is described in greater detail in Section 3 of this report.

The project trip generation was then multiplied by the project trip distribution percentages to determine the project volumes added to turning movements at the study intersections. The project trip distribution percentages were derived based on the roadway network in the vicinity of the site and the locations of residential and commercial uses in the surrounding area.

Long Range Traffic Volume Forecasts

The traffic volume forecast for the Opening Year scenario was derived by applying an annual one percent ambient growth rate to the existing traffic volumes, as well as by adding trips associated with approved

and pending planned developments (i.e. cumulative projects from the cities of Colton, Rialto, and San Bernardino, and the County of San Bernardino) that are located in the surrounding area.

The General Plan Buildout without project traffic volumes forecast was derived based on forecast volumes obtained from the latest version of the San Bernardino Transportation Analysis Model Plus (SBTAM+) and using the SBCTA recommended procedures for post-processing of modeled traffic volumes. An ambient growth rate was calculated by comparing link-level trips within the City of Colton between the model base and future years.

2.0 EXISTING CONDITIONS

2.1 EXISTING ROADWAY SYSTEM

This section documents the existing roadway conditions in the study area. The discussion presented here is limited to specific roadways in the project's vicinity that provide key access for the proposed project.

Freeway

Interstate 10 (I-10), located approximately one-third mile south of the Project site, is an eight-lane freeway in the study area. On and off-ramps for both westbound and eastbound are provided at North Pepper Avenue. The I-10 Freeway stretches west-east from the Pacific Ocean at State Route 1 in the City of Santa Monica to the California-Arizona border and beyond.

Surface Streets

North Pepper Avenue, which generally provides two to three lanes in each direction, is classified as a Major Arterial within the study area according to the City of Colton Mobility Element. The road extends north-south approximately five miles from E Highland Avenue on the north in the City of Rialto to Slover Avenue on the south in the City of Colton. North Pepper Avenue forms the eastern boundary of the project site, with direct site access via two proposed project driveways. Near the project site, a raised median island is provided. On-street parking is not permitted. The posted speed limit is 45 miles per hour (mph).

San Bernardino Avenue, a two-lane road at North Pepper Avenue, is classified as a Secondary Arterial in the project vicinity according to the City of Colton Mobility Element. The road extends east-west approximately 10 miles, starting as Olive Street before becoming San Bernardino Avenue at its intersection with North Meridian Avenue in the City of Colton on the east, and extending to Etiwanda Avenue on the west where it becomes Fourth Street in the City of Fontana. In the project vicinity, on-street parking is not permitted. The posted speed limit is 35 miles per hour east of North Pepper Avenue and 40 miles per hour west of North Pepper Avenue.

Valley Boulevard is a four-lane road near the project site and classified as a Major Arterial according to the City of Colton Mobility Element. The road extends east-west approximately 10 miles, starting from North Sperry Drive on the east to Etiwanda Avenue in the City of Ontario where it becomes Ontario Mills Parkway. In the project vicinity, on-street parking is not permitted. Class III bike routes are provided on Valley Boulevard at North Pepper Avenue. The posted speed limit is 45 miles per hour.

Violet Street is a two-lane street classified as a Local Street according to the City of Colton Mobility Element. The road extends east-west approximately 1,300 feet from North Meridian Avenue to North Pepper Avenue. On-street parking is not allowed. The prima facie speed limit is 25 mph.

Blue Drive is a four-lane Local street that extends east-west approximately 250 feet from Green Circle on the east to North Pepper Avenue on the west in the City of Colton. On-street parking is not allowed. The prima facie speed limit is 25 mph.

Information pertaining to the study intersection characteristics such as traffic control devices and approach lane configurations was identified. **Figure 2.1** illustrates the existing traffic controls and approach lane geometries at the study intersections. **Figure 2.2** shows the General Plan Mobility Element Roadway Classification for the City of Colton.

FIGURE 2.1 – EXISTING INTERSECTION GEOMETRY

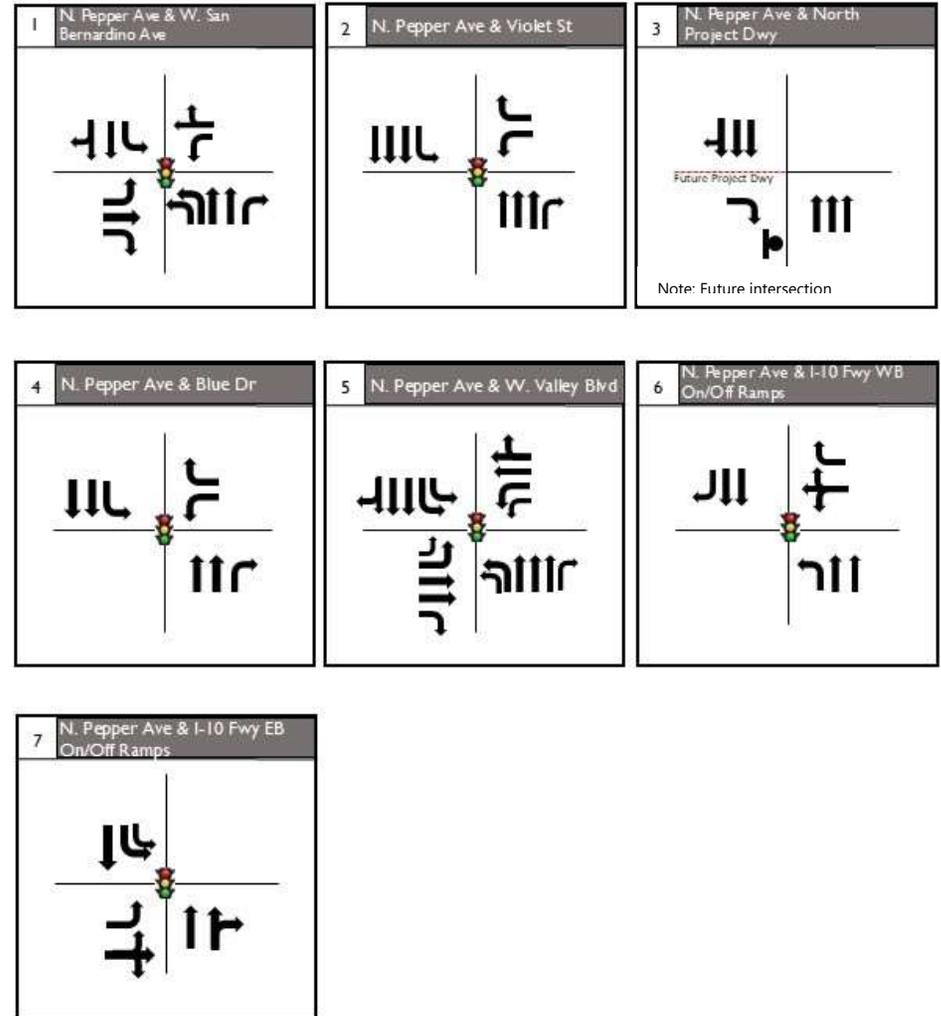
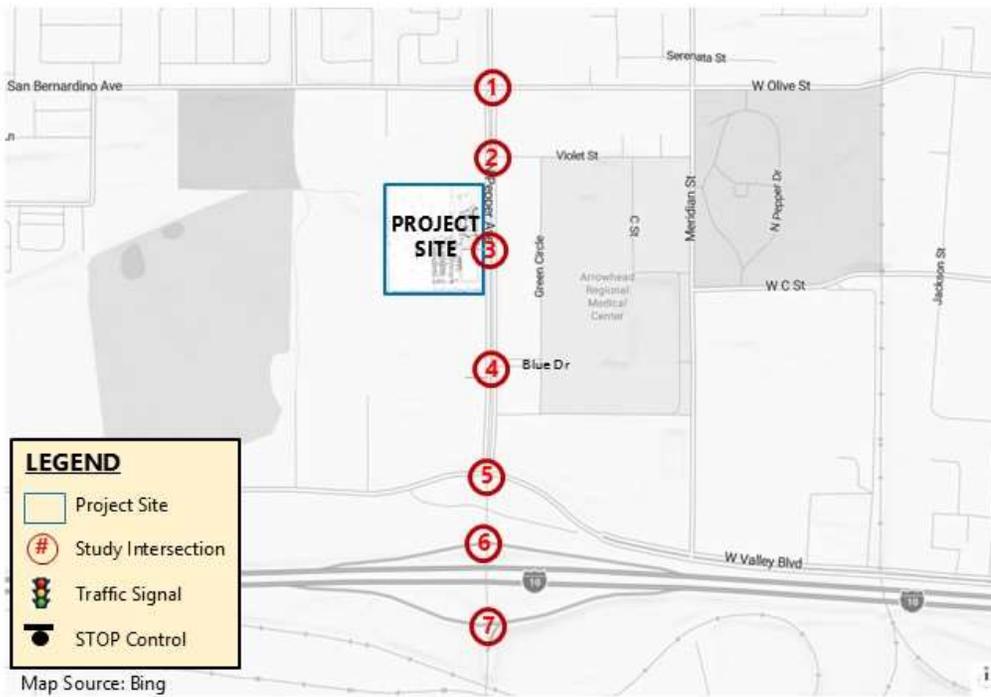


FIGURE 2.2 - CITY OF COLTON ROADWAY CLASSIFICATION

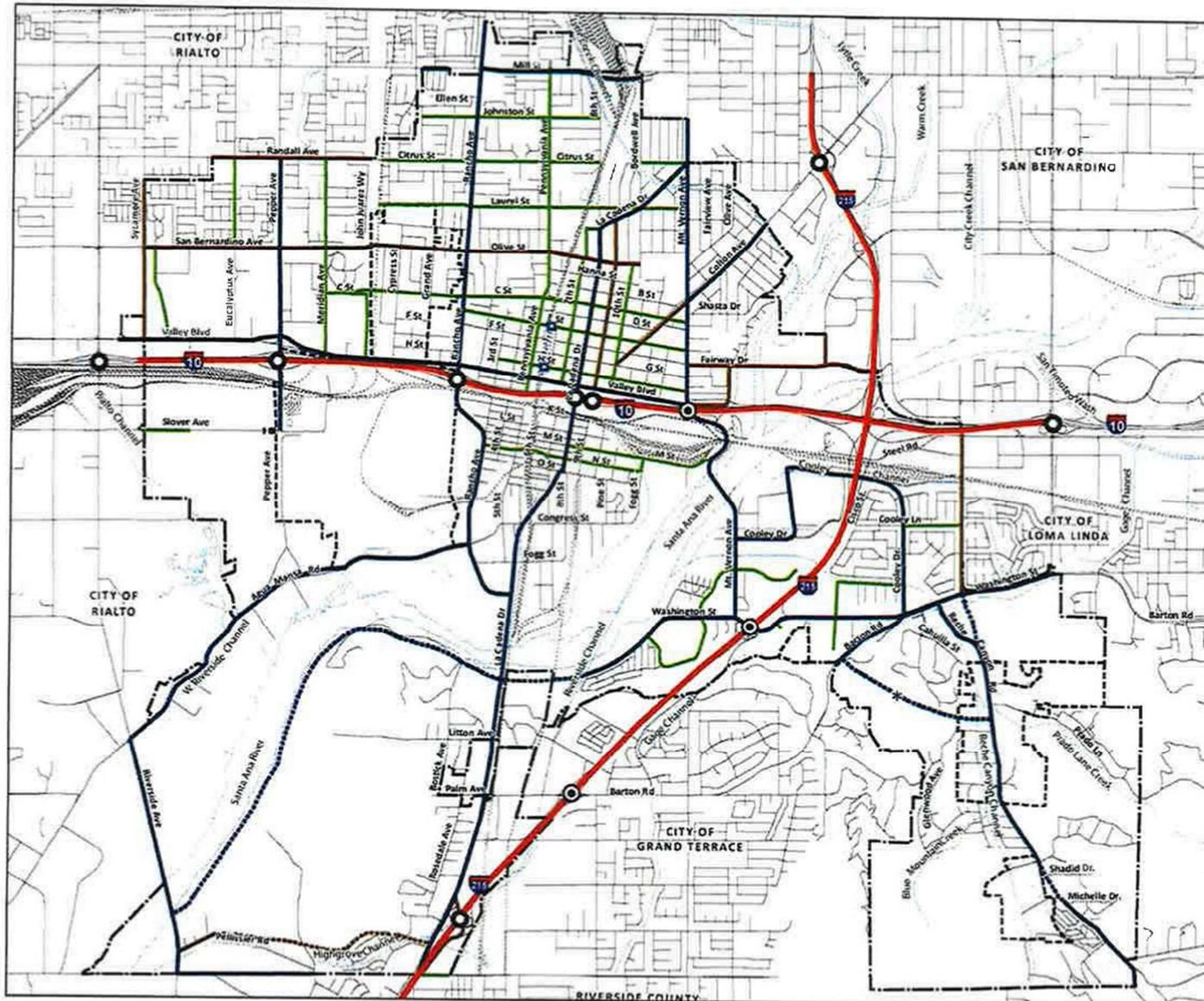
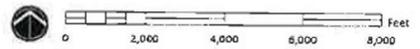


Figure M-2:
Street Classification
Plan

- Circulation Plan**
- Freeway
 - Major Arterial
 - Planned Arterial
 - Secondary Arterial
 - - - Planned Secondary
 - Collector Street
 - - - Planned Collector
 - - - - - Planned Roadway Located in Another City
- * Conceptual roadway location. Final roadway location to be determined on proposed subdivision design.
- Freeway Interchanges**
- Interchanges
 - Interchanges w/tn Planned Improvements
- Street Closure**
- Street Closure (BSNF Quiet Zone Project)
- Boundary/ies**
- - - City Boundary
 - - - - - Sphere of Influence
 - - - - - Railroad Tracks
 - - - - - Waterscourse

Date: January 5, 2012
Prepared by: Hagle-Ireland, Inc.
Source: San Bernardino County Assessor, 2010 and City of Colton, 2013



2.2 EXISTING BICYCLE FACILITIES

The City of Colton encourages alternative modes of transportation such as bicycling to support physical activity and an overall higher quality of life. It is a goal of the City that residents are able to bike to work, school, parks, libraries and other local destinations using convenient routes.

In accordance with the mobility element of the City's General Plan, the bikeway network within the City is classified into three categories: Class I – Bike Paths, Class II – Bike Lanes, and Class III – Bike Routes. Class I bikeways provide bicycle travel on a paved right-of-way completely separated from all streets and highways. Class II bikeways provide a striped and stenciled lane for one-way travel on a street or highway. Class III bikeways provide for shared use with motor vehicle traffic and are identified through signing.

Within the study area, Valley Boulevard is classified as a Class III bike facility and San Bernardino Avenue west of North Pepper Avenue is classified as a Class II bike facility in the City's General Plan Mobility Elements. **Figure 2.3** illustrates the existing and proposed bike lanes within the City.

2.3 EXISTING PEDESTRIAN FACILITIES

A combined pedestrian linkage and comprehensive trails system links commercial centers, residential areas, schools, and parks so that pedestrians can safely travel within the community without driving. Sidewalks are generally provided on both sides of the streets throughout the City, in addition to standard paved trails and non-standard unpaved trails. These amenities are frequently used by bicyclists and pedestrians and help to improve accessibility, safety, and walkability throughout the City. In the study area, paved sidewalks are present on both sides of Pepper Avenue, San Bernardino Avenue, and Valley Boulevard.

2.4 EXISTING TRANSIT SERVICE

OmniTrans is the transportation service agency within the County of San Bernardino responsible for providing transit service within its service area. Within the study area, OmniTrans Route 1, Route 19, and Route 22 provide transit services along Valley Boulevard, Pepper Avenue, and San Bernardino Avenue. These bus routes connect the study area with the neighboring local jurisdictions and major transit hubs. **Figure 2.4** illustrates the Transit Plan within the City, which is from the City's General Plan.

2.5 EXISTING TRAFFIC VOLUMES

Existing traffic volumes for the weekday AM, Midday, and PM peak hours were determined for each study intersection as described above in Section 1. The existing intersection traffic volumes are shown in **Figure 2.5** for the AM and PM peak hours and in **Figure 2.6** for the midday peak hour.

FIGURE 2.3 - CITY OF COLTON EXISTING AND PROPOSED BIKEWAY NETWORK

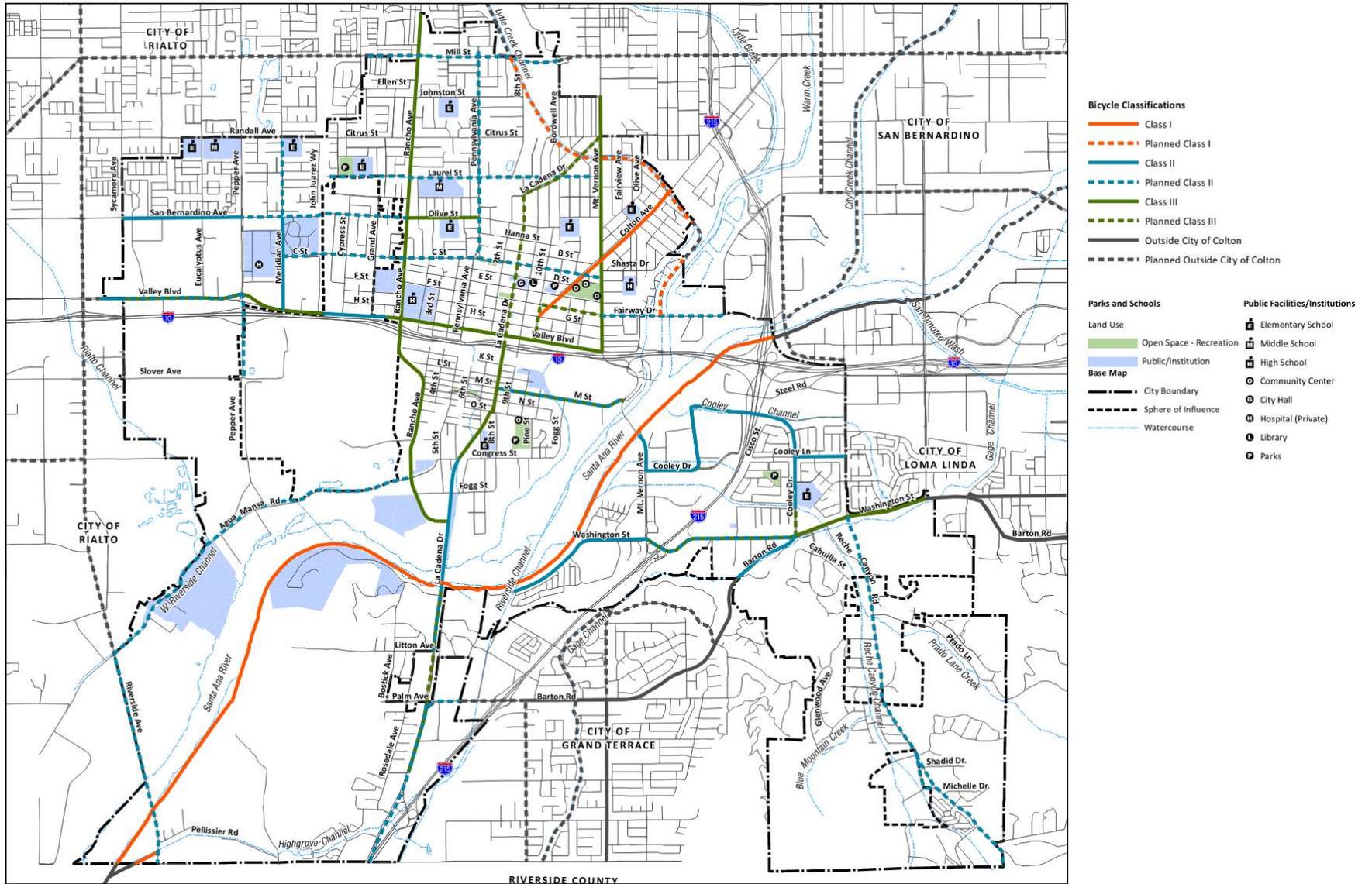


FIGURE 2.4 – CITY OF COLTON TRANSIT PLAN

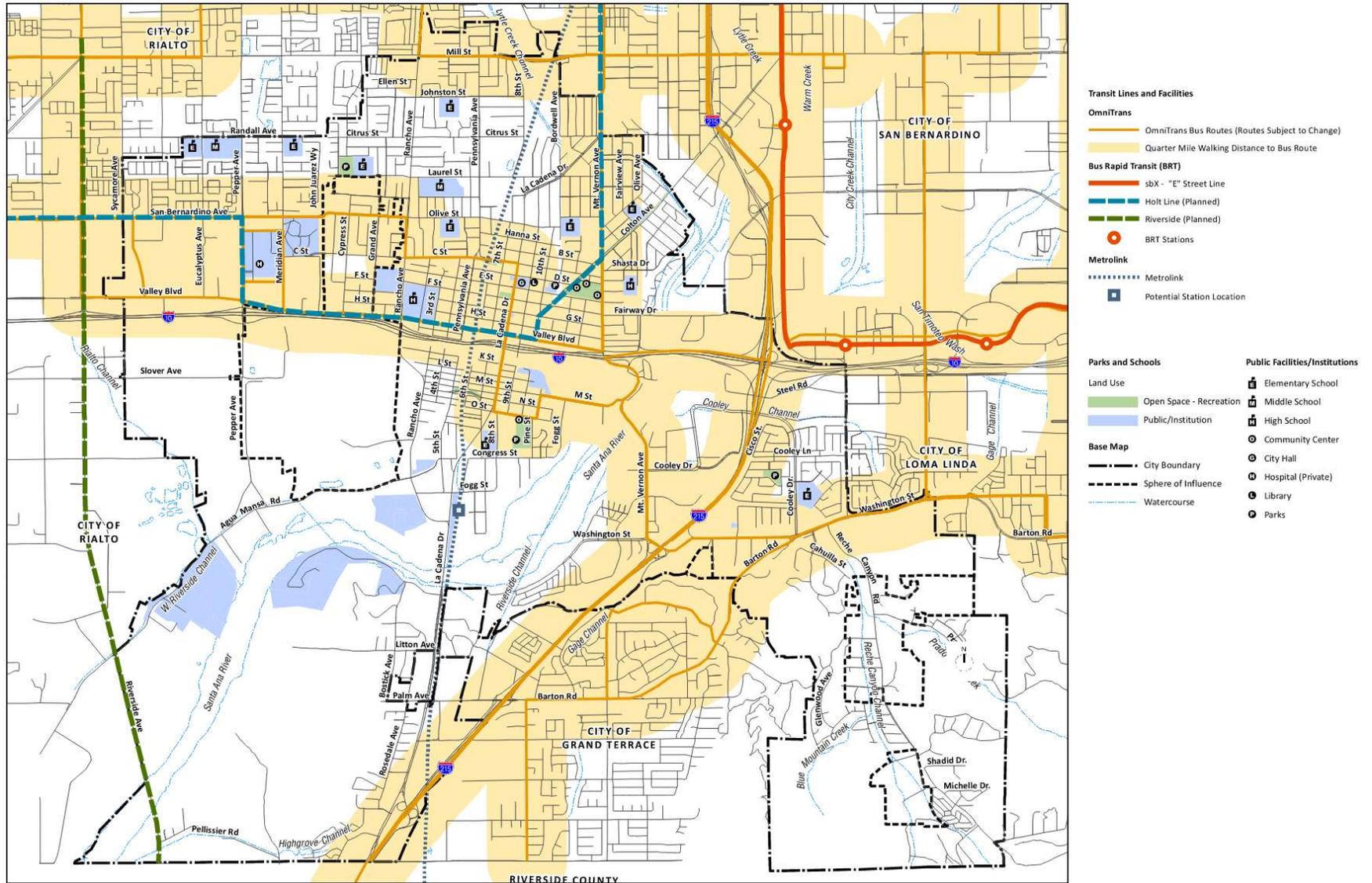


FIGURE 2.5 – EXISTING INTERSECTION TRAFFIC VOLUMES (AM AND PM PEAK HOURS)

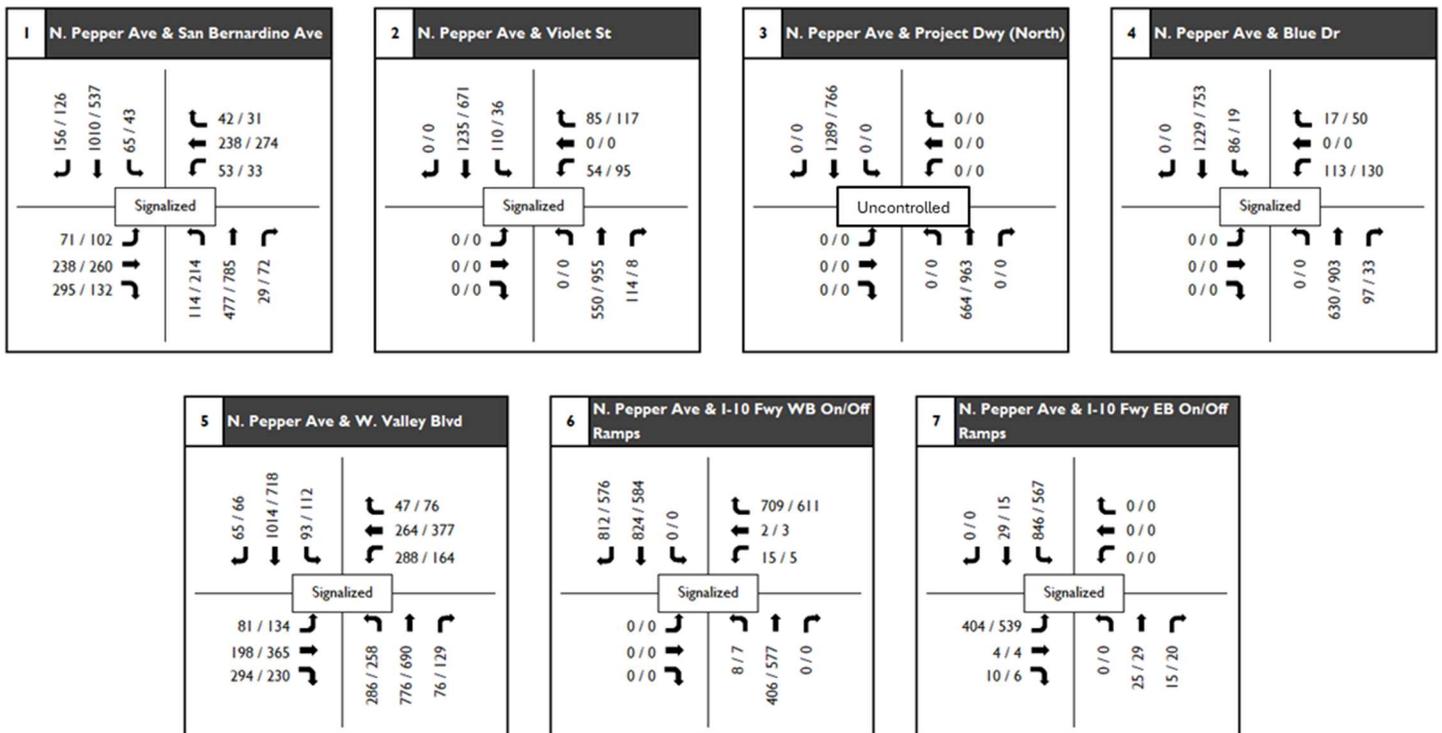
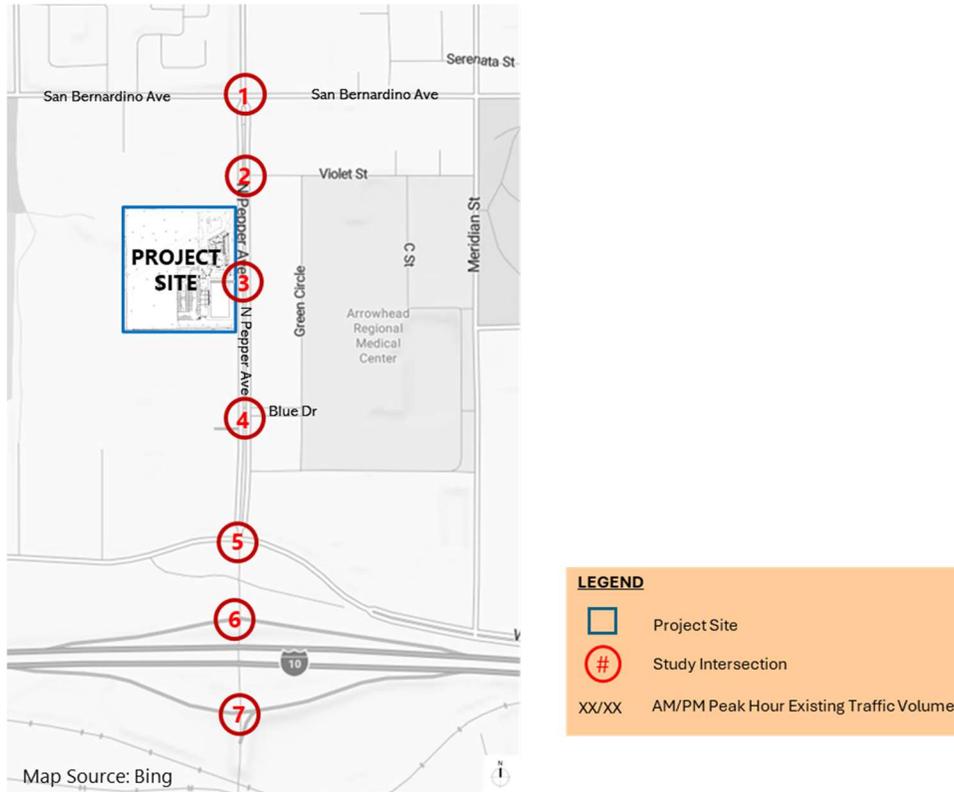
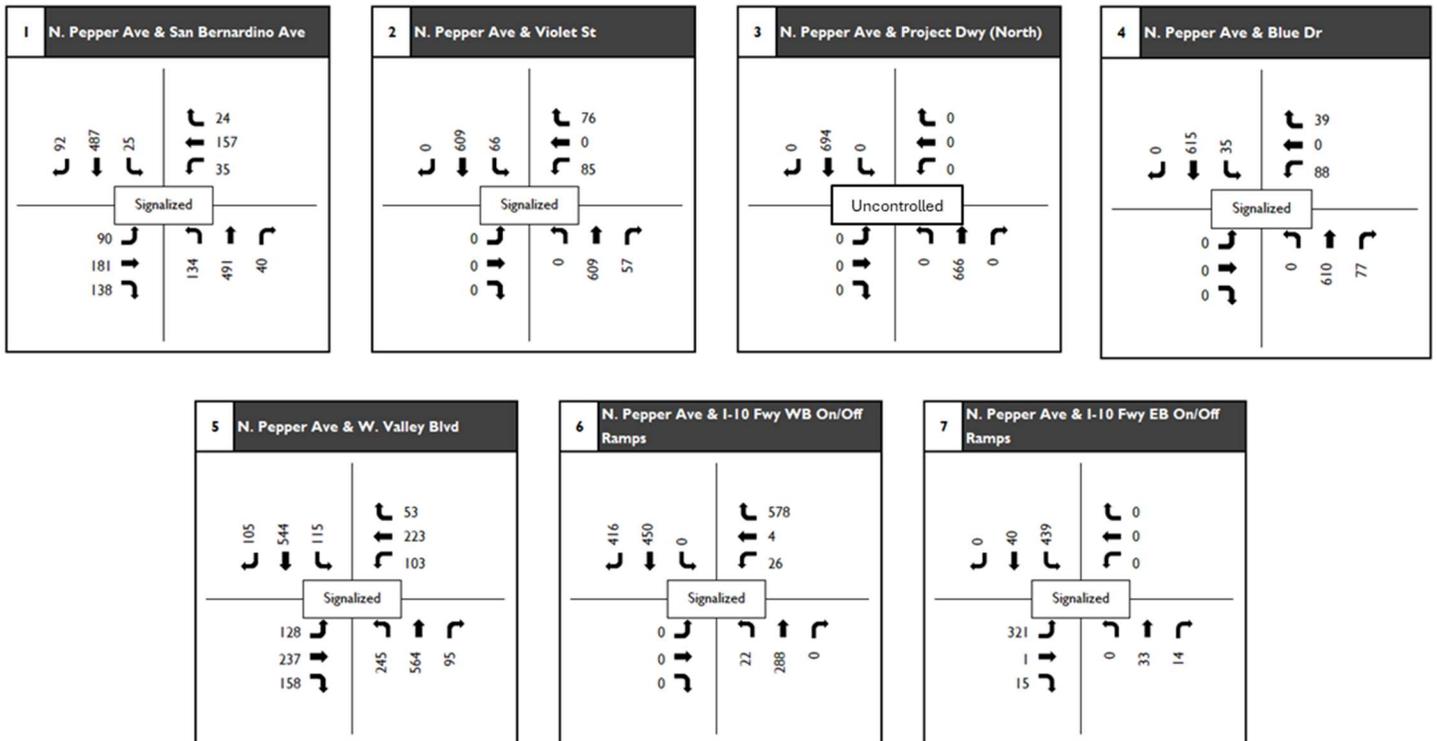
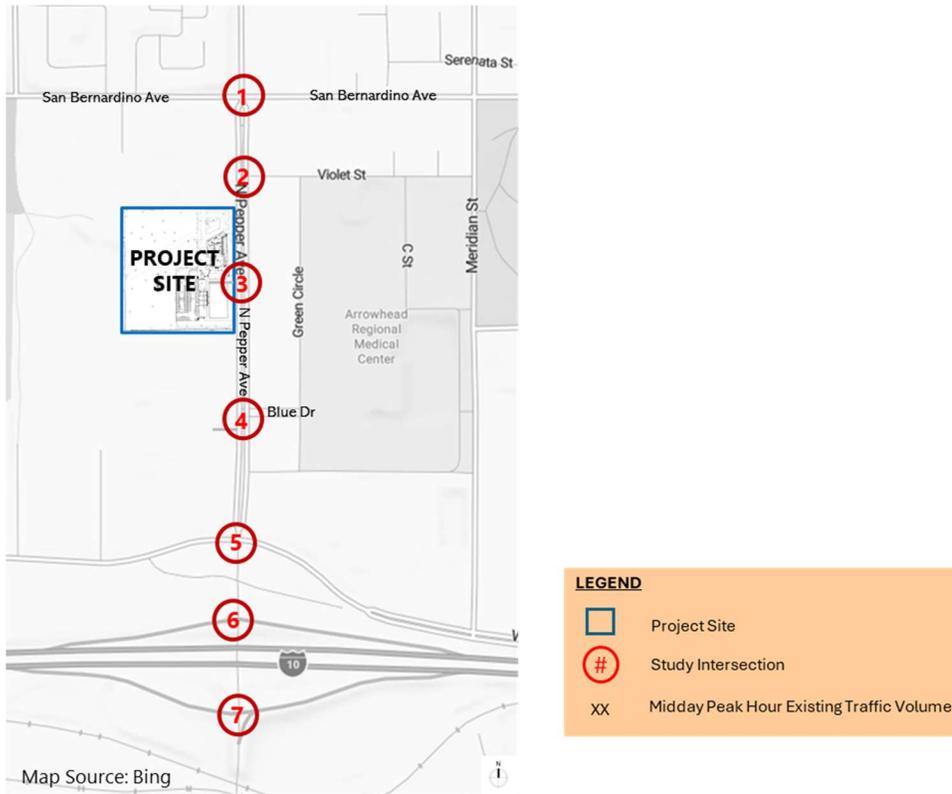


FIGURE 2.6 – EXISTING INTERSECTION TRAFFIC VOLUMES (MIDDAY PEAK HOUR)



2.6 EXISTING INTERSECTION LEVELS OF SERVICE

Based on the intersection lane geometries depicted in **Figure 2.1** and the existing traffic volumes illustrated in **Figures 2.5 and 2.6**, the existing intersection delay and level of service (LOS) values were determined for the study intersections during the weekday AM, Midday and PM peak hours. The level of service worksheets are provided in **Appendix C** of this report. **Table 2.1** summarizes the analysis results for the existing conditions.

Table 2.1 – Intersection Performance - Existing Conditions

Study Intersection		Control Type	AM Peak Hour		Midday Peak Hour		PM Peak Hour	
			Delay (Secs) [1]	LOS	Delay (Secs) [1]	LOS	Delay (Secs) [1]	LOS
1	N. Pepper Avenue & San Bernardino Avenue	Signalized	30.7	C	22.1	C	21.0	C
2	N. Pepper Avenue & Violet Street	Signalized	6.2	A	7.5	A	8.6	A
3	N. Pepper Avenue & North Project Driveway (Future Intersection) [2]	Unsignalized	-	-	-	-	-	-
4	N. Pepper Avenue & Blue Drive	Signalized	10.1	B	7.2	A	14.5	B
5	N. Pepper Avenue & W. Valley Boulevard	Signalized	31.9	C	22.2	C	27.3	C
6	N. Pepper Avenue & I-10 Fwy WB On/Off Ramps	Signalized	26.8	C	11.8	B	15.6	B
7	N. Pepper Avenue & I-10 Fwy EB On/Off Ramps	Signalized	30.1	C	23.4	C	27.7	C

Notes:

LOS = Level-of-Service

[1] Delay is the average delay in seconds for all vehicles at a signalized intersection.

[2] Intersection 3 is a future intersection with development of the Project.

As shown in **Table 2.1**, all of the existing study intersections are currently operating at LOS C or better during the weekday AM, Midday and PM peak hours.

3.0 PROJECT TRAFFIC

Project-related traffic consists of trips on any portion of the street system that will begin or end at the project site as a result of the proposed project. Project-related traffic is a function of the extent and type of development proposed for the site. This information is used to establish traffic generation for the site.

3.1 PROJECT TRIP GENERATION

Trip generation is a measure or forecast of the number of trips that will be made to or from the project. It is generally equal to the traffic volume expected at the project entrances. The project encompasses two land uses including hotel and medical office, each containing unique trip rates to estimate the anticipated volume of traffic that will be generated by the project. The project trip generation has been calculated in accordance with the Institute of Transportation Engineers (ITE) publication Trip Generation (11th Edition, 2021). **Table 3.1** summarizes the ITE trip generation rates that were used to derive the project trip generation.

Table 3.1 – Project Trip Generation Rates

ITE Trip Rate ^[1]		Unit	Weekday									
			Daily (2-Way)	AM Peak Hour			Midday Peak Hour ^[2]			PM Peak Hour		
				In	Out	Total	In	Out	Total	In	Out	Total
310	Hotel	Trips/Room	7.99	56%	44%	0.46	56%	44%	0.57	51%	49%	0.59
720	Medical Office	Trips/1,000 sq. ft.	31.86	81%	19%	2.68	51%	49%	3.56	25%	75%	2.84

[1] Source: Institute of Transportation Engineers Trip Generation Manual, 11th Edition

[2] The ITE Trip Generation Manual, 11th Edition, does not provide weekday Midday Peak Hour trip rates for Hotel and Medical Office land uses. The Midday Peak Hour trip rates and trip directional percentages were assumed based on the average of the Weekday AM and PM Peak Hour of Generator trip rates/percentages.

The trip generation rates in **Table 3.1** were used to derive the project vehicle trip generation as summarized in **Table 3.2**. As shown in **Table 3.2**, the proposed project is estimated to generate approximately 2,807 daily two-way trips including 213 trips (159 inbound and 54 outbound) during the AM peak hour, 278 trips (145 inbound and 133 outbound) during the Midday peak hour, and 236 trips (77 inbound and 159 outbound) during the PM peak hour.

Table 3.2 – Project Trip Generation

Project Land Use	Size	Daily (2-Way)	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total	In	Out	Total
Hotel (71,095 sq. ft.)	112 Rooms	895	29	23	52	36	28	64	34	32	66
Medical Office	60,000 sq. ft.	1,912	130	31	161	109	105	214	43	127	170
Total		2,807	159	54	213	145	133	278	77	159	236

3.2 PROJECT TRIP DISTRIBUTION

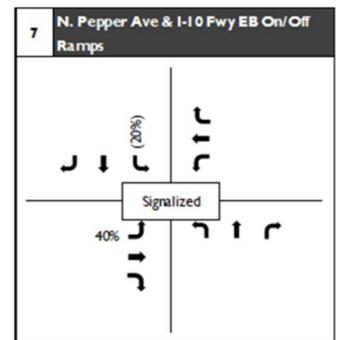
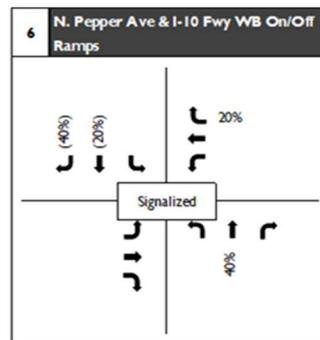
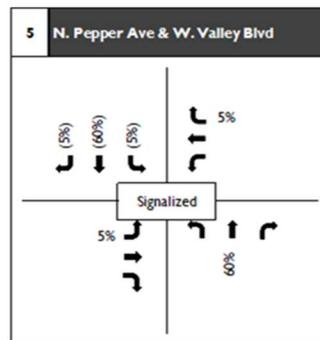
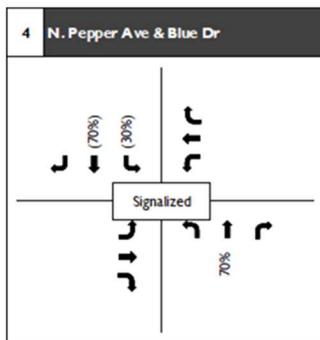
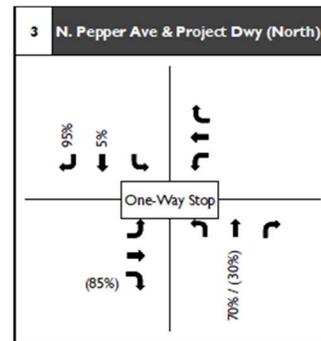
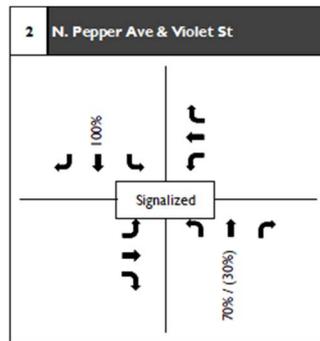
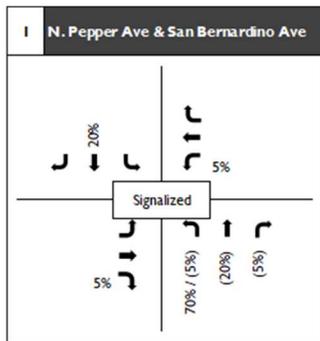
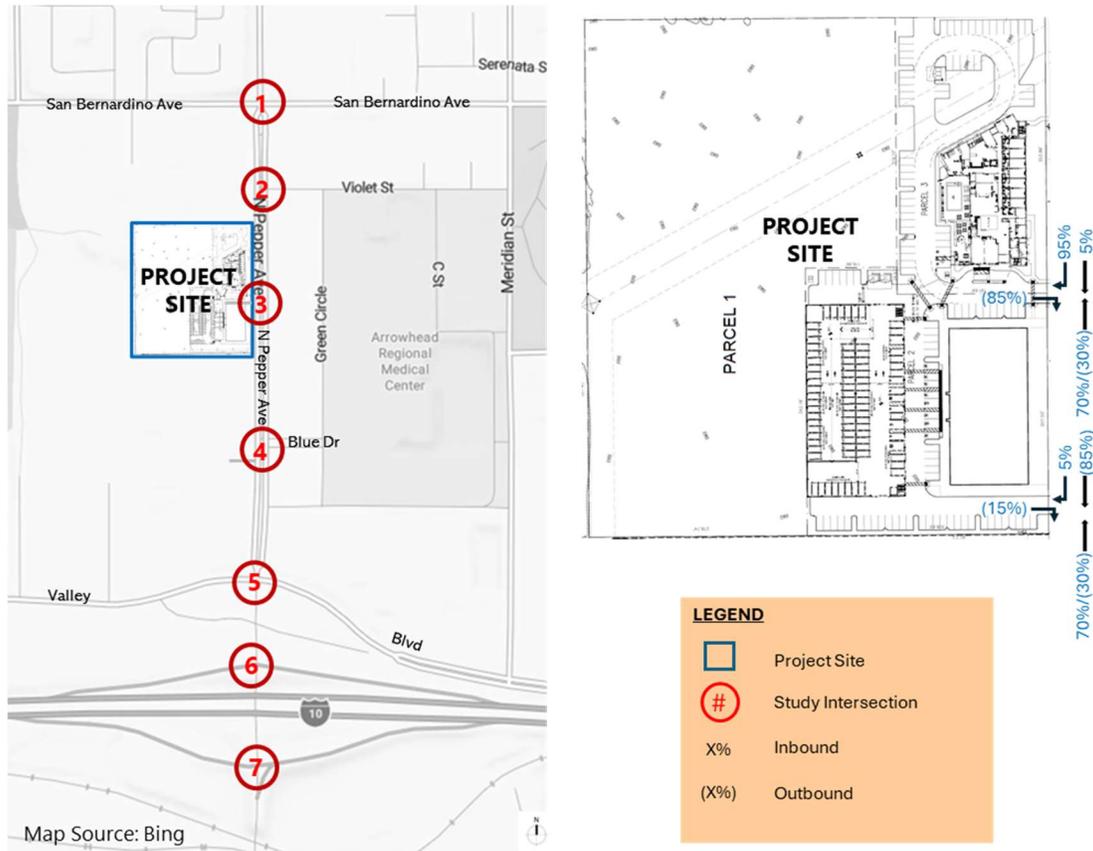
Trip distribution refers to the inbound and outbound travel patterns of the proposed project in the project area. The project trip distribution percentages were derived based on the roadway network in the vicinity of the site and the locations of residential and commercial uses in the surrounding area. **Figure 3.1** illustrates the anticipated project trip distribution for the project.

It should be noted that the City intends to maintain the existing raised median island on North Pepper Avenue from Blue Drive to Violet Street. Therefore, no direct left-turn ingress access from North Pepper Avenue in the northbound direction adjacent to the project site is allowed. Project traffic heading northbound on North Pepper Avenue will instead need to make a U-turn at San Bernardino Avenue, head southbound on North Pepper Avenue, and then turn right into the project site. As the U-turn movement is currently not allowed, the U-turn restriction is recommended to be removed as a project improvement.

3.3 PROJECT TRIP ASSIGNMENT

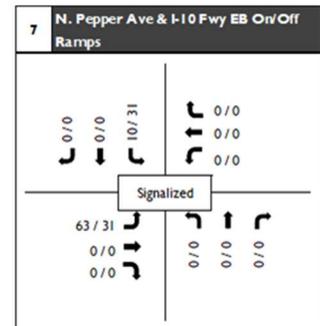
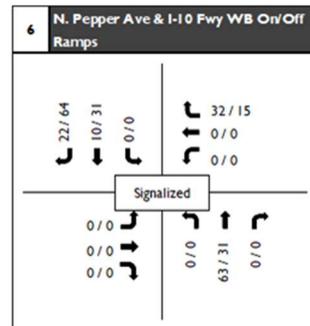
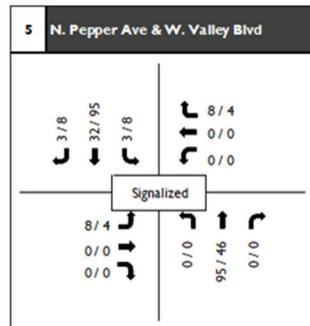
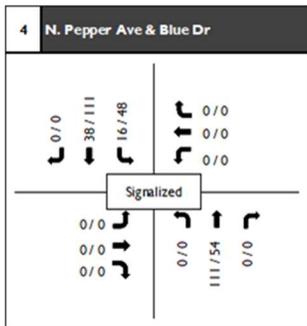
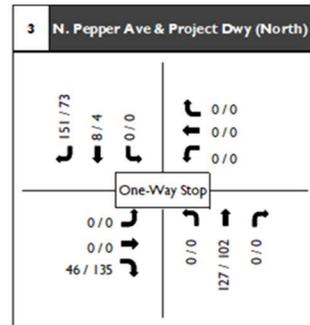
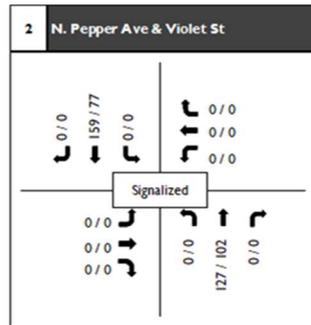
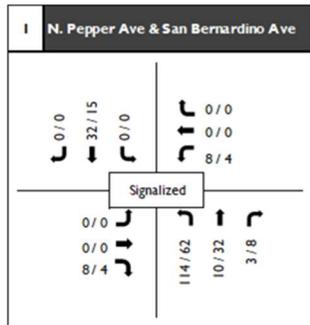
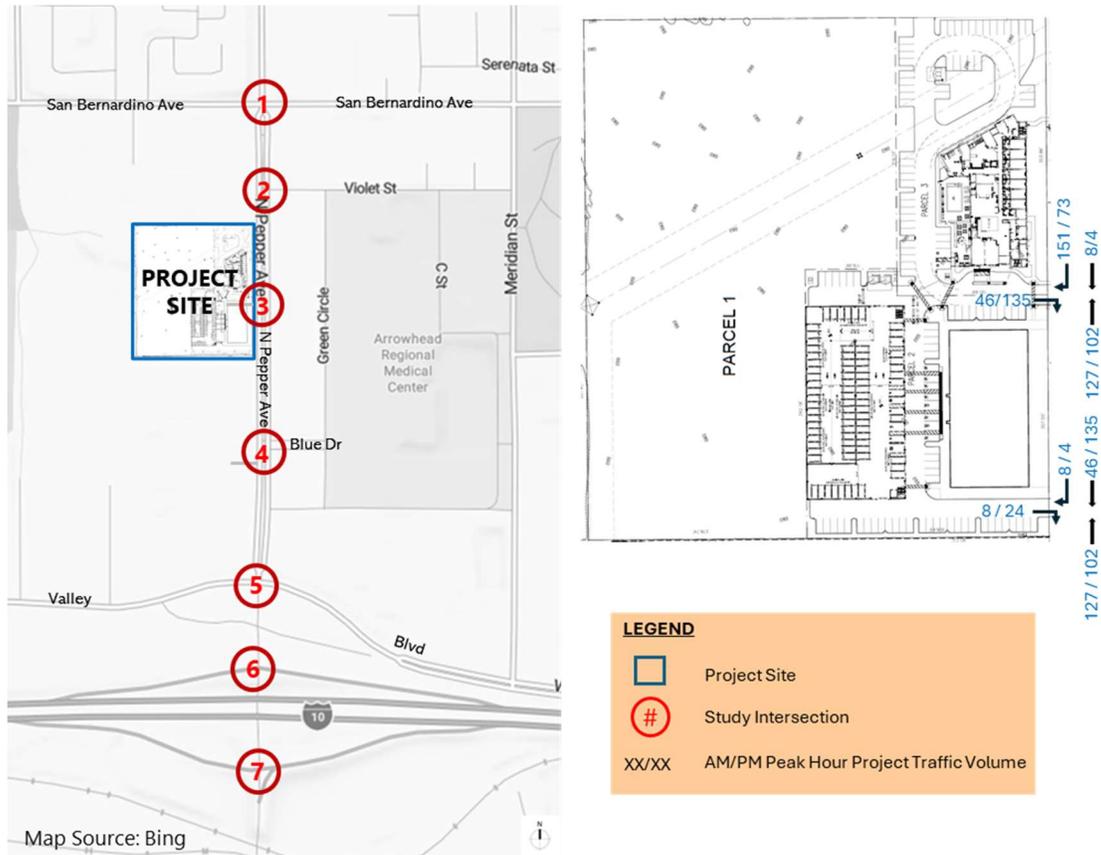
The trip generation and trip distribution parameters described above were used to derive the project traffic volumes at the study intersections within the study area. The project traffic volumes are shown in **Figure 3.2** for the AM and PM peak hours and in **Figure 3.3** for the Midday peak hour.

FIGURE 3.1 – PROJECT TRIP DISTRIBUTION



Notes: xx% = Inbound; (xx%) = Outbound

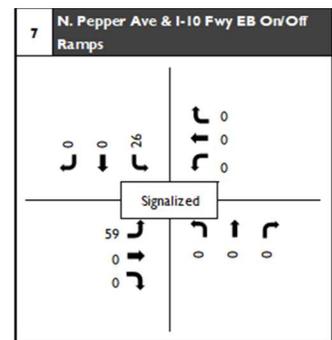
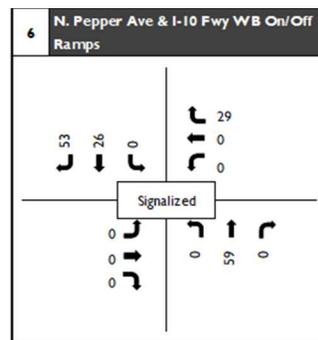
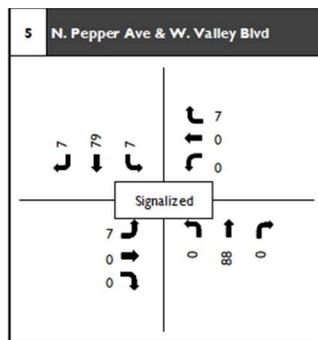
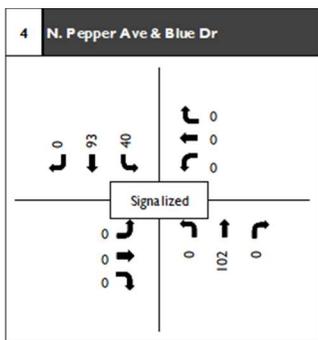
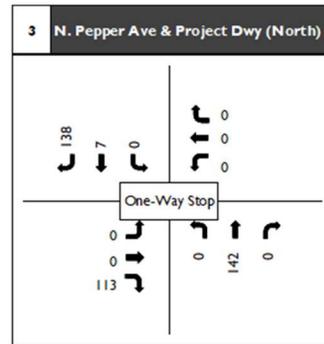
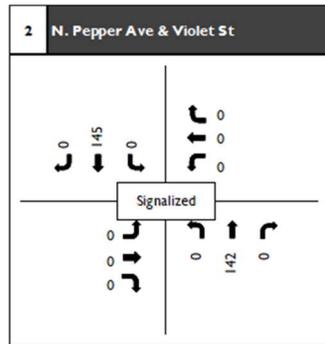
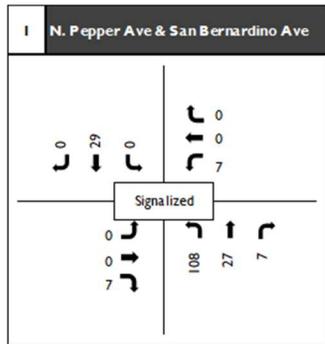
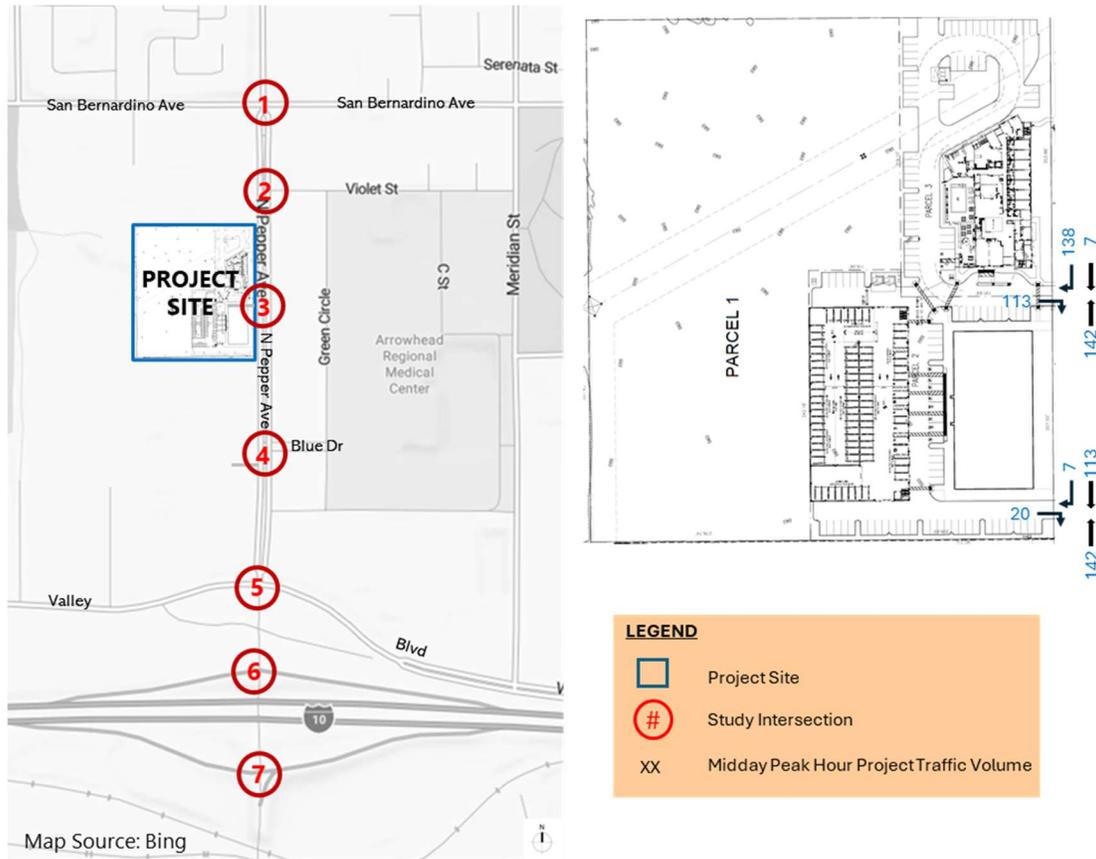
FIGURE 3.2 – PROJECT TRAFFIC VOLUMES (AM AND PM PEAK HOURS)



Notes:

xx/xx = AM/PM Peak Hour Traffic Volume

FIGURE 3.3 – PROJECT TRAFFIC VOLUMES (MIDDAY PEAK HOUR)



4.0 OPENING YEAR - WITH NO PROJECT CONDITIONS

This section provides an analysis of opening year traffic conditions in the study area with background traffic growth added but without the proposed project traffic. The year 2027 was selected for analysis of Opening Year conditions since the proposed project is anticipated to be completed by the end of 2027.

4.1 AMBIENT TRAFFIC GROWTH

In order to acknowledge regional population and employment growth in the study area, an ambient/background traffic growth rate of one percent per year was applied to the existing traffic volumes, as agreed with the City. As there are three years until the project opening year, an ambient/background growth factor of 1.03 was used.

4.2 CUMULATIVE PROJECT TRAFFIC GROWTH

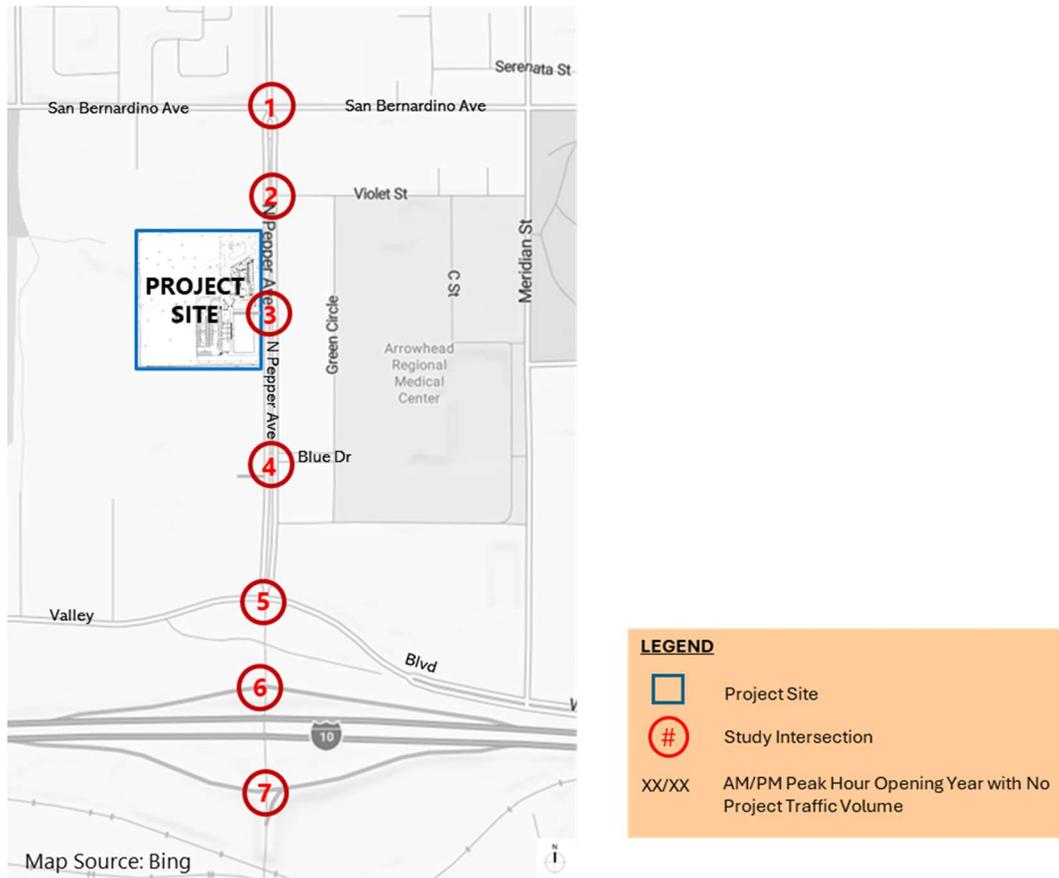
There are 24 'cumulative projects' in the project vicinity that are planned, approved, or under construction based on information provided by the City. **Appendix D** provides a map displaying the location of the cumulative projects, cumulative project descriptions, and corresponding trip generation levels for the weekday AM, Midday, and PM peak hour periods.

The cumulative projects' traffic was assigned to the study area roadway network based on the land use characteristics of each project, the local and regional roadway network, and the general location of other land uses to which the cumulative project trips would originate or terminate. The total cumulative project traffic volumes for the weekday AM, Midday, and PM peak hour periods are provided in **Appendix D** of this report.

4.3 OPENING YEAR WITH NO PROJECT TRAFFIC VOLUMES

The Opening Year with no project traffic volumes were determined by multiplying the existing peak hour volumes by the ambient growth rate per annum to 2027, and adding traffic volumes associated with the cumulative projects. The Opening Year with no project intersection traffic volumes are shown in **Figure 4.1** for the AM and PM peak hours and in **Figure 4.2** for the Midday peak hour.

FIGURE 4.1 – OPENING YEAR WITH NO PROJECT TRAFFIC VOLUMES (AM AND PM PEAK HOURS)



1 N. Pepper Ave & San Bernardino Ave	
161 / 130	43 / 32
1050 / 564	264 / 309
67 / 44	55 / 34
Signalized	
73 / 105	117 / 220
267 / 291	496 / 823
304 / 136	30 / 74

2 N. Pepper Ave & Violet St	
0 / 0	88 / 121
1281 / 702	0 / 0
113 / 37	56 / 98
Signalized	
0 / 0	572 / 998
0 / 0	117 / 8
0 / 0	

3 N. Pepper Ave & Project Dwy (North)	
0 / 0	0 / 0
1337 / 800	0 / 0
0 / 0	0 / 0
Uncontrolled	
0 / 0	689 / 1006
0 / 0	0 / 0
0 / 0	

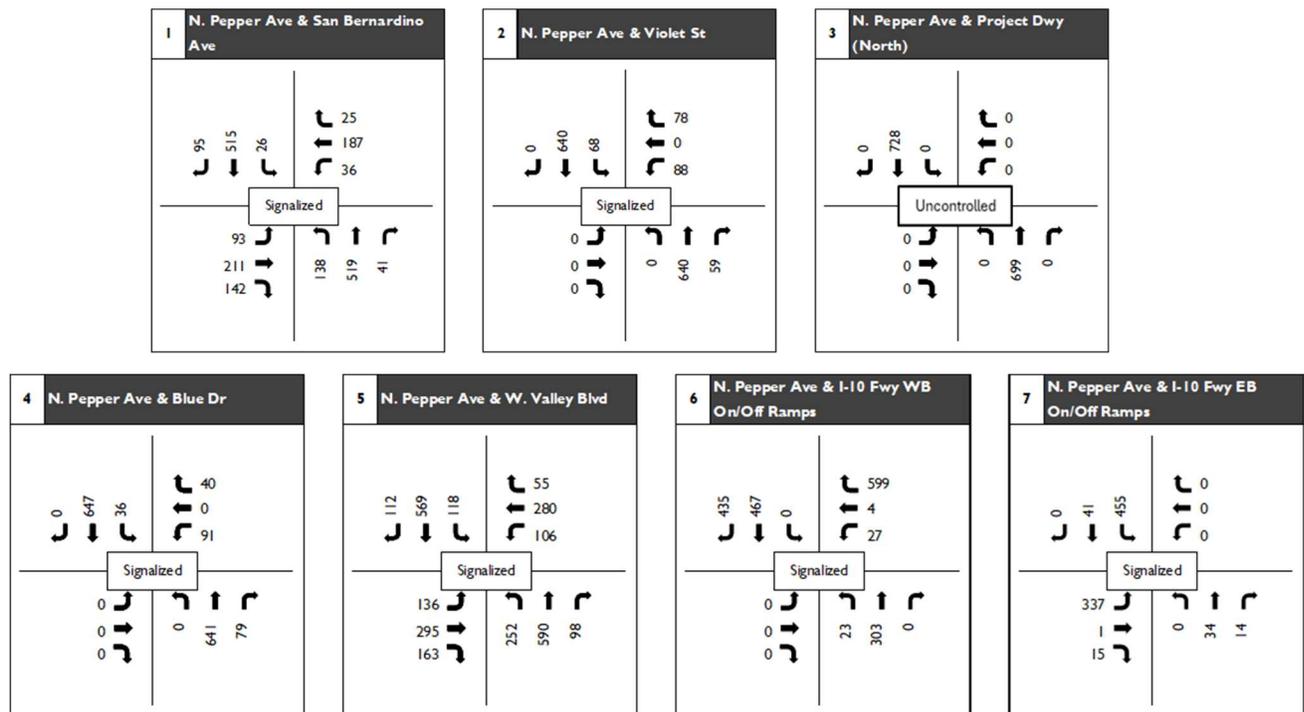
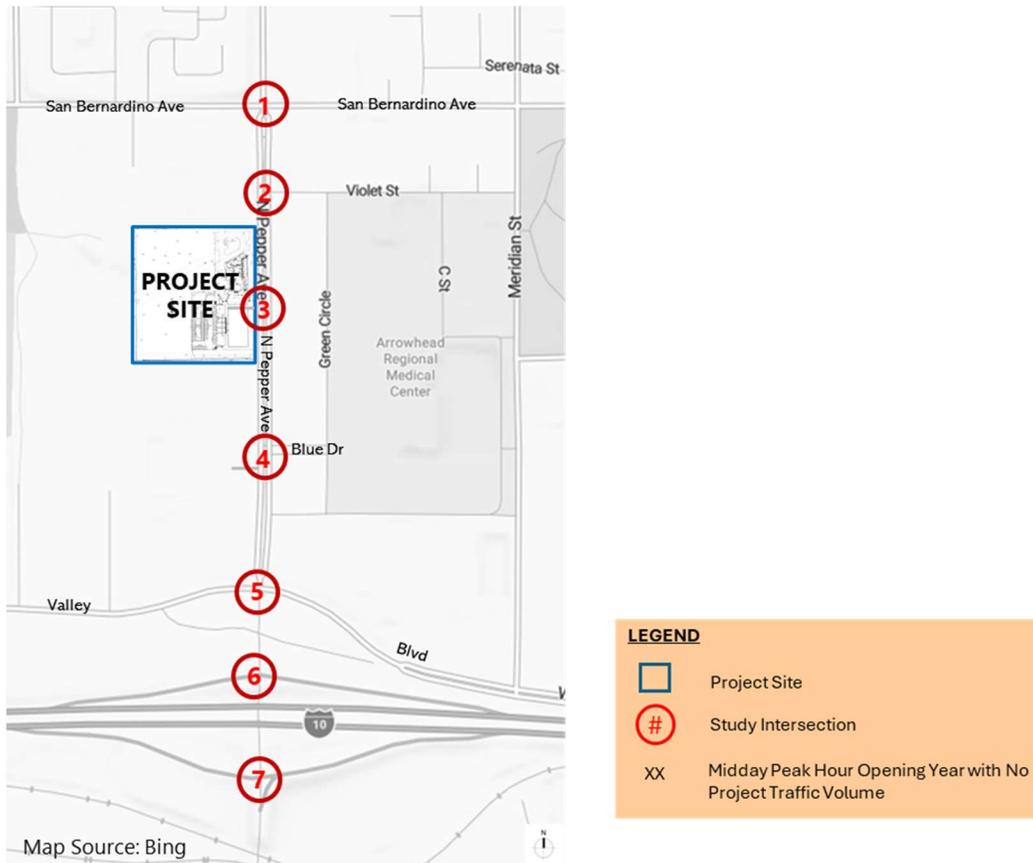
4 N. Pepper Ave & Blue Dr	
0 / 0	18 / 52
1275 / 787	0 / 0
89 / 20	116 / 134
Signalized	
0 / 0	654 / 944
0 / 0	100 / 34
0 / 0	

5 N. Pepper Ave & W. Valley Blvd	
70 / 70	48 / 78
1051 / 748	308 / 444
96 / 115	297 / 169
Signalized	
84 / 142	295 / 266
251 / 418	804 / 721
303 / 237	78 / 133

6 N. Pepper Ave & I-10 Fwy WB On/Off Ramps	
841 / 599	731 / 633
851 / 604	2 / 3
0 / 0	15 / 5
Signalized	
0 / 0	8 / 7
0 / 0	421 / 601
0 / 0	0 / 0

7 N. Pepper Ave & I-10 Fwy EB On/Off Ramps	
0 / 0	0 / 0
30 / 15	0 / 0
874 / 586	0 / 0
Signalized	
419 / 562	0 / 0
4 / 4	26 / 30
10 / 6	15 / 21

FIGURE 4.2 – OPENING YEAR WITH NO PROJECT TRAFFIC VOLUMES (MIDDAY PEAK HOUR)



4.4 OPENING YEAR WITH NO PROJECT – INTERSECTION LEVELS OF SERVICE

Based on the intersection lane geometries depicted in **Figure 2.1** and the Opening Year with no project traffic volumes illustrated in **Figures 4.1 and 4.2**, the Opening Year with no project delay and level of service (LOS) values were determined for the study intersections during the weekday AM, Midday and PM peak hours. The level of service worksheets are provided in **Appendix E** of this report.

Table 4.1 summarizes the analysis results for the opening year with no project conditions. As shown in this table, all of the study intersections are projected to operate at LOS C or better during the weekday AM, Midday and PM peak hours.

Table 4.1 – Intersection Performance – Opening Year With No Project Conditions

Study Intersection		Control Type	AM Peak Hour		Midday Peak Hour		PM Peak Hour	
			Delay (Secs) [1]	LOS	Delay (Secs) [1]	LOS	Delay (Secs) [1]	LOS
1	N. Pepper Avenue & San Bernardino Avenue	Signalized	28.0	C	22.1	C	21.2	C
2	N. Pepper Avenue & Violet Street	Signalized	6.3	A	7.5	A	8.5	A
3	N. Pepper Avenue & North Project Driveway (Future Intersection) [2]	Unsignalized	-	-	-	-	-	-
4	N. Pepper Avenue & Blue Drive	Signalized	10.3	B	7.2	A	13.7	B
5	N. Pepper Avenue & W. Valley Boulevard	Signalized	33.4	C	22.8	C	28.2	C
6	N. Pepper Avenue & I-10 Fwy WB On/Off Ramps	Signalized	27.3	C	11.8	B	15.3	B
7	N. Pepper Avenue & I-10 Fwy EB On/Off Ramps	Signalized	29.6	C	23.8	C	27.8	C

Notes:

LOS = Level-of-Service

[1] Delay is the average delay in seconds for all vehicles at a signalized intersection.

[2] Intersection 3 is a future intersection with development of the Project.

5.0 OPENING YEAR - WITH PROJECT CONDITIONS

5.1 OPENING YEAR WITH PROJECT TRAFFIC VOLUMES

The Opening Year with project traffic volumes were determined by multiplying the existing peak hour volumes by the ambient growth rate per annum to 2027, and adding traffic volumes associated with the cumulative projects as well as the proposed project. The Opening Year with project intersection traffic volumes are shown in **Figure 5.1** for the AM and PM peak hours and in **Figure 5.2** for the Midday peak hour.

As described previously in **Section 3.2**, there is an existing raised median island adjacent to the project site on North Pepper Avenue. Therefore, there is no direct left-turn ingress access from North Pepper Avenue in the northbound direction adjacent to the project site. Project traffic heading northbound on North Pepper Avenue will instead need to make a U-turn at San Bernardino Avenue, head southbound on North Pepper Avenue, and then turn right into the project site. As the U-turn movement is currently not allowed, the U-turn restriction is recommended to be removed as a project improvement.

5.2 OPENING YEAR WITH PROJECT – INTERSECTION LEVELS OF SERVICE

Based on the intersection lane geometries depicted in **Figure 2.1** and the Opening Year with project traffic volumes illustrated in **Figures 5.1 and 5.2**, the delay and level of service (LOS) values for the Opening Year With Project conditions were determined for the study intersections during the weekday AM, Midday and PM peak hours. The level of service worksheets are provided in **Appendix F** of this report. The analysis results are summarized in **Table 5.1**. As shown in this table, all of the study intersections are projected to operate at LOS C or better during the weekday AM, Midday and PM peak hours.

Table 5.1 – Intersection Performance – Opening Year With Project Conditions

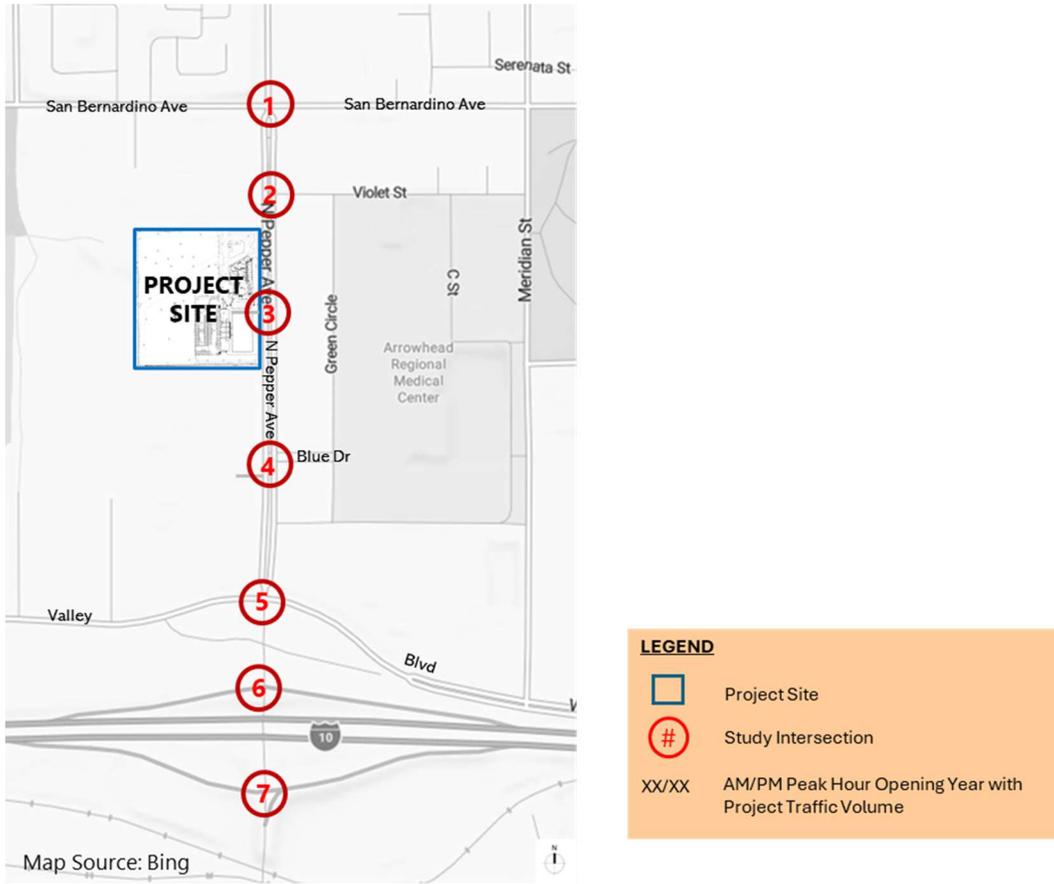
Study Intersection		Control Type	AM Peak Hour		Midday Peak Hour		PM Peak Hour	
			Delay (Secs) [1]	LOS	Delay (Secs) [1]	LOS	Delay (Secs) [1]	LOS
1	N. Pepper Avenue & San Bernardino Avenue	Signalized	30.0	C	22.0	C	21.8	C
2	N. Pepper Avenue & Violet Street	Signalized	6.4	A	7.3	A	8.5	A
3	N. Pepper Avenue & North Project Driveway	One-Way Stop	20.1	C	15.3	C	16.0	C
4	N. Pepper Avenue & Blue Drive	Signalized	11.3	B	7.8	A	14.2	B
5	N. Pepper Avenue & W. Valley Boulevard	Signalized	33.1	C	23.2	C	29.4	C
6	N. Pepper Avenue & I-10 Fwy WB On/Off Ramps	Signalized	28.7	C	12.2	B	18.4	B
7	N. Pepper Avenue & I-10 Fwy EB On/Off Ramps	Signalized	30.8	C	24.7	C	28.8	C

Notes:

LOS = Level-of-Service

[1] Delay is the average delay in seconds for all vehicles at a signalized intersection and the average delay in seconds for the critical Stop-controlled turning movement for a one-way Stop-controlled intersection.

FIGURE 5.1 – OPENING YEAR WITH PROJECT TRAFFIC VOLUMES (AM AND PM PEAK HOURS)



1 N. Pepper Ave & San Bernardino Ave	
161 / 130	43 / 32
082 / 579	264 / 309
67 / 44	63 / 38
Signalized	
73 / 105	231 / 282
267 / 291	506 / 855
312 / 140	33 / 82

2 N. Pepper Ave & Violet St	
0 / 0	88 / 121
1440 / 779	0 / 0
113 / 37	56 / 98
Signalized	
0 / 0	699 / 1100
0 / 0	117 / 8
0 / 0	

3 N. Pepper Ave & Project Dwy (North)	
151 / 73	0 / 0
1345 / 804	0 / 0
0 / 0	0 / 0
One-Way Stop	
0 / 0	0 / 0
0 / 0	816 / 1108
46 / 135	0 / 0

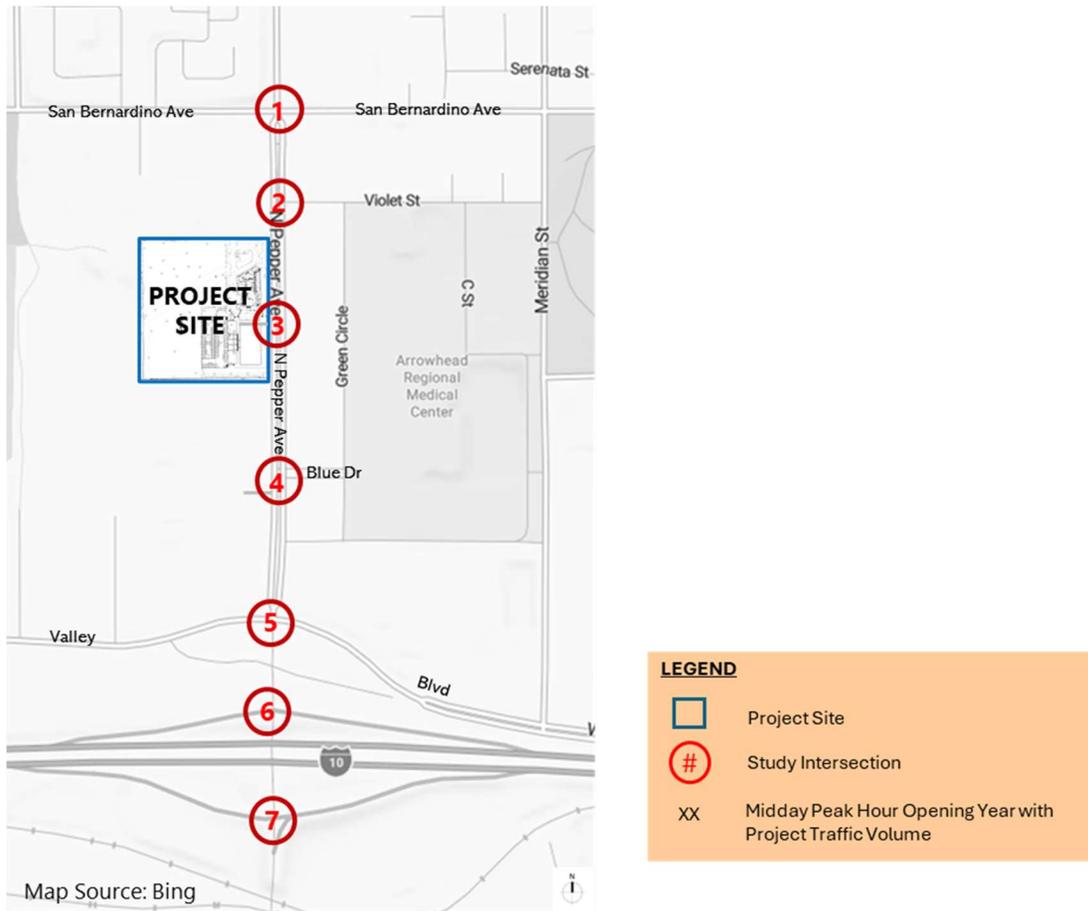
4 N. Pepper Ave & Blue Dr	
0 / 0	18 / 52
1313 / 898	0 / 0
105 / 68	116 / 134
Signalized	
0 / 0	0 / 0
0 / 0	765 / 998
0 / 0	100 / 34

5 N. Pepper Ave & W. Valley Blvd	
73 / 78	56 / 82
083 / 843	308 / 444
99 / 123	297 / 169
Signalized	
92 / 146	295 / 266
251 / 418	899 / 767
303 / 237	78 / 133

6 N. Pepper Ave & I-10 Fwy WB On/Off Ramps	
863 / 663	763 / 648
861 / 635	2 / 3
0 / 0	15 / 5
Signalized	
0 / 0	8 / 7
0 / 0	484 / 632
0 / 0	0 / 0

7 N. Pepper Ave & I-10 Fwy EB On/Off Ramps	
0 / 0	0 / 0
30 / 15	0 / 0
884 / 617	0 / 0
Signalized	
482 / 593	0 / 0
4 / 4	26 / 30
10 / 6	15 / 21

FIGURE 5.2 – OPENING YEAR WITH PROJECT TRAFFIC VOLUMES (MIDDAY PEAK HOUR)



1	N. Pepper Ave & San Bernardino Ave	
95	544	26
25	187	43
Signalized		
93	211	149
246	546	48

2	N. Pepper Ave & Violet St	
0	785	68
78	0	88
Signalized		
0	0	0
0	782	59

3	N. Pepper Ave & Project Dwy (North)	
138	735	0
0	0	0
One-Way Stop		
0	0	113
0	841	0

4	N. Pepper Ave & Blue Dr	
0	740	76
40	0	91
Signalized		
0	0	0
0	743	79

5	N. Pepper Ave & W. Valley Blvd	
119	648	125
62	280	106
Signalized		
143	295	163
252	678	98

6	N. Pepper Ave & I-10 Fwy WB On/Off Ramps	
488	493	0
628	4	27
Signalized		
0	0	0
23	362	0

7	N. Pepper Ave & I-10 Fwy EB On/Off Ramps	
0	41	481
0	0	0
Signalized		
396	15	0
0	34	14

6.0 GENERAL PLAN BUILDOUT YEAR – WITH NO PROJECT CONDITIONS

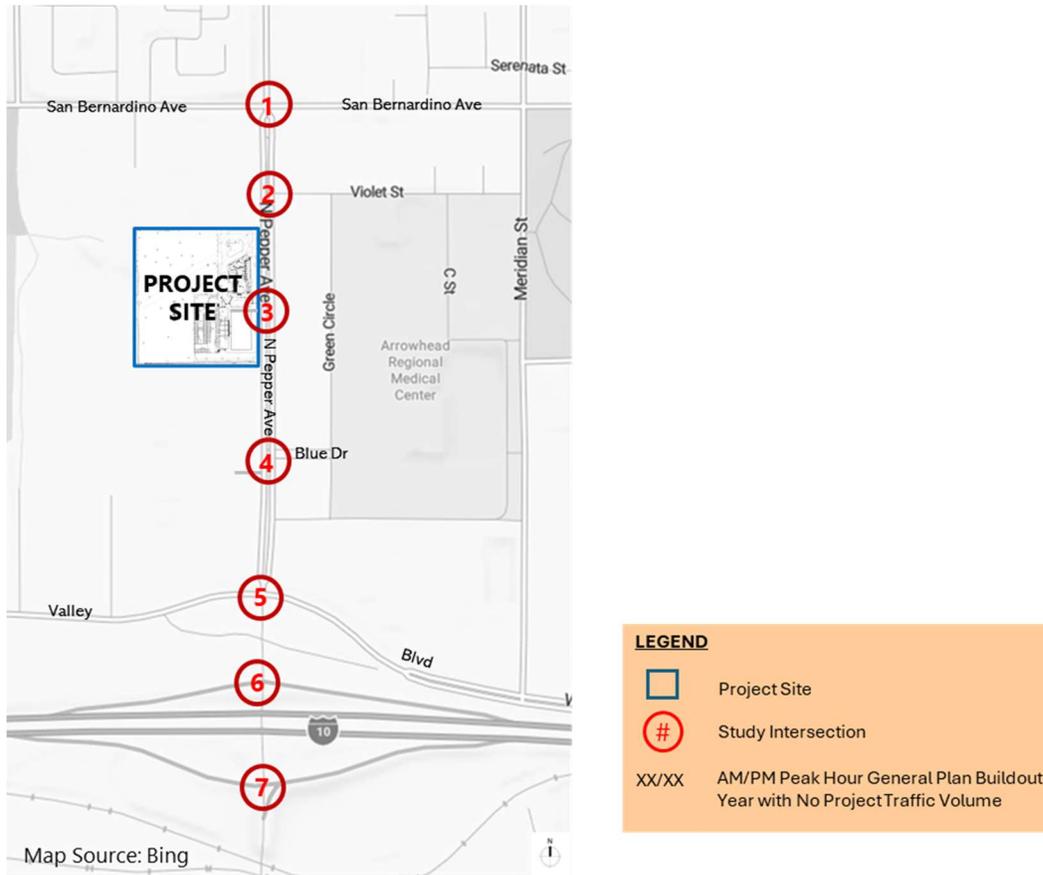
This section develops the General Plan Buildout Year (2040) traffic conditions in the study area, without the proposed project. It includes development of the buildout traffic conditions in the study area based on the proposed traffic network and traffic growth projections provided by the San Bernardino Transportation Analysis Model Plus (SBTAM+).

6.1 GENERAL PLAN BUILDOUT WITH NO PROJECT TRAFFIC VOLUMES

To forecast traffic growth conditions for General Plan Buildout Year 2040, SBTAM+ was used as a basis for determining a reasonable ambient growth rate for the City of Colton. Link-level volumes were collected among all roadway segments within City limits. An exponential growth was assumed between the SBTAM+ Base Year (2019) and Future Year (2050). Using these values, an annual growth rate of 0.9% was determined, which has been rounded to 1% as a conservative estimate. This growth rate was used and applied as a compounding growth to determine turning movement volumes in the year 2040. In addition, these turning movement volumes were adjusted, where necessary, to ensure that the General Plan Buildout Year 2040 with no project traffic volumes were not lower than the Opening Year 2027 with no project traffic volumes.

Traffic volumes for the General Plan Buildout Year (2040) With No Project conditions are shown in **Figure 6.1** for the AM and PM peak hours, and in **Figure 6.2** for the Midday peak hour.

FIGURE 6.1 – GENERAL PLAN BUILDOUT YEAR WITH NO PROJECT TRAFFIC VOLUMES (AM AND PM PEAK HOURS)



1 N. Pepper Ave & San Bernardino Ave	
183 / 148 1184 / 630 76 / 150	49 / 36 279 / 321 62 / 39
Signalized	
83 / 120 279 / 305 346 / 155	134 / 251 559 / 920 34 / 84

2 N. Pepper Ave & Violet St	
0 / 0 1448 / 787 129 / 42	100 / 137 0 / 0 63 / 111
Signalized	
0 / 0 0 / 0 0 / 0	0 / 0 645 / 1120 134 / 9

3 N. Pepper Ave & Project Dwy (North)	
0 / 0 1511 / 898 0 / 0	0 / 0 0 / 0 0 / 0
Uncontrolled	
0 / 0 0 / 0 0 / 0	0 / 0 779 / 1129 0 / 0

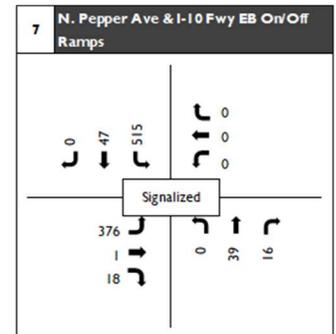
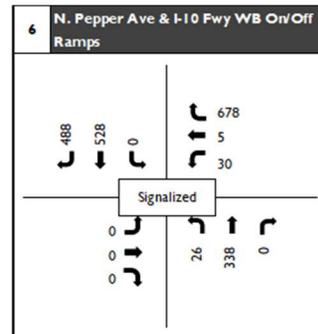
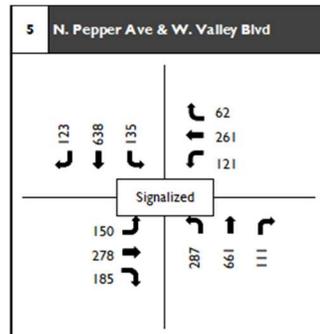
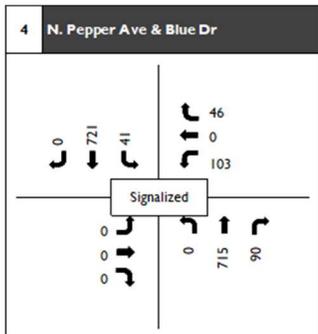
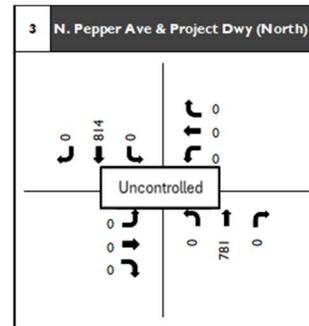
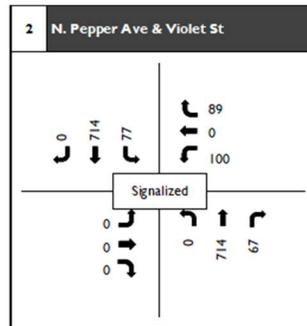
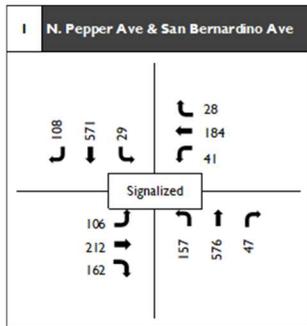
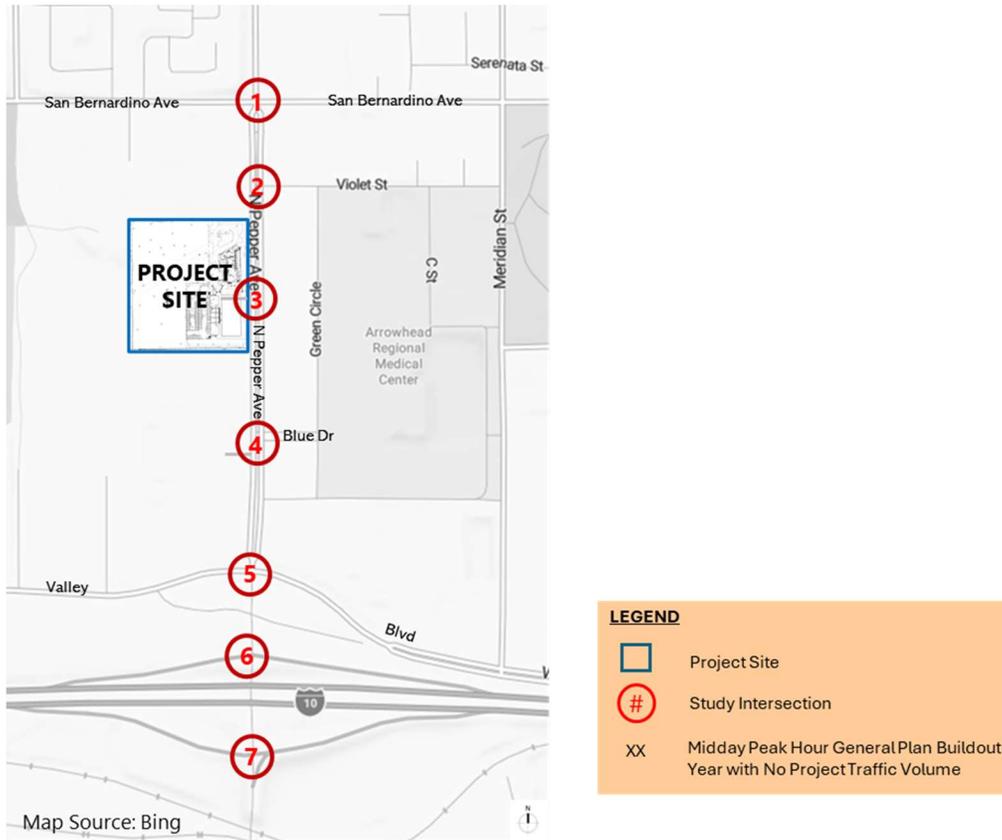
4 N. Pepper Ave & Blue Dr	
0 / 0 1441 / 883 101 / 22	20 / 59 0 / 0 133 / 152
Signalized	
0 / 0 0 / 0 0 / 0	0 / 0 739 / 1059 114 / 39

5 N. Pepper Ave & W. Valley Blvd	
76 / 77 1189 / 842 109 / 131	55 / 89 310 / 442 338 / 192
Signalized	
95 / 157 232 / 428 345 / 270	335 / 303 910 / 809 89 / 151

6 N. Pepper Ave & I-10 Fwy WB On/Off Ramps	
952 / 675 966 / 685 0 / 0	831 / 716 2 / 4 18 / 6
Signalized	
0 / 0 0 / 0 0 / 0	9 / 8 476 / 677 0 / 0

7 N. Pepper Ave & I-10 Fwy EB On/Off Ramps	
0 / 0 34 / 18 992 / 665	0 / 0 0 / 0 0 / 0
Signalized	
474 / 632 5 / 5 12 / 7	0 / 0 29 / 34 18 / 23

FIGURE 6.2 – GENERAL PLAN BUILDOUT YEAR WITH NO PROJECT TRAFFIC VOLUMES (MIDDAY PEAK HOUR)



6.2 GENERAL PLAN BUILDOUT WITH NO PROJECT INTERSECTION LEVELS OF SERVICE

Based on the intersection lane geometries depicted in **Figure 2.1** and the General Plan Buildout Year with no project traffic volumes illustrated in **Figures 6.1 and 6.2**, the average delay and level of service (LOS) values were determined for the study intersections during the weekday AM, Midday and PM peak hours. The level of service worksheets are provided in **Appendix G** of this report. **Table 6.1** summarizes the analysis results for the General Plan Buildout Year with no project conditions.

Table 6.1 – Intersection Performance – General Plan Buildout Year With No Project Conditions

Study Intersection		Control Type	AM Peak Hour		Midday Peak Hour		PM Peak Hour	
			Delay (Secs) [1]	LOS	Delay (Secs) [1]	LOS	Delay (Secs) [1]	LOS
1	N. Pepper Avenue & San Bernardino Avenue	Signalized	34.9	C	22.4	C	23.0	C
2	N. Pepper Avenue & Violet Street	Signalized	6.6	A	7.7	A	9.1	A
3	N. Pepper Avenue & North Project Driveway (Future Intersection) [2]	Unsignalized	-	-	-	-	-	-
4	N. Pepper Avenue & Blue Drive	Signalized	11.3	B	7.6	A	15.7	B
5	N. Pepper Avenue & W. Valley Boulevard	Signalized	41.1	D	24.0	C	31.0	C
6	N. Pepper Avenue & I-10 Fwy WB On/Off Ramps	Signalized	32.5	C	12.3	B	19.9	B
7	N. Pepper Avenue & I-10 Fwy EB On/Off Ramps	Signalized	34.2	C	25.2	C	30.4	C

Notes:

LOS = Level-of-Service

[1] Delay is the average delay in seconds for all vehicles at a signalized intersection.

[2] Intersection 3 is a future intersection with development of the Project.

As shown in **Table 6.1**, all of the study intersections are projected to operate at LOS D or better during the weekday AM, Midday and PM peak hours.

7.0 GENERAL PLAN BUILDOUT YEAR - WITH PROJECT CONDITIONS

7.1 GENERAL PLAN BUILDOUT WITH PROJECT TRAFFIC VOLUMES

The General Plan Buildout with project traffic volumes were determined by adding the traffic volumes associated with the proposed project to the General Plan Buildout with no project traffic volumes. The General Plan Buildout Year (2040) with project intersection traffic volumes are shown in **Figure 7.1** for the AM and PM peak hours and in **Figure 7.2** for the Midday peak hour.

As described previously in **Section 3.2**, there is an existing raised median island adjacent to the project site on North Pepper Avenue. Therefore, there is no direct left-turn ingress access from North Pepper Avenue in the northbound direction adjacent to the project site. Project traffic heading northbound on North Pepper Avenue will instead need to make a U-turn at San Bernardino Avenue, head southbound on North Pepper Avenue, and then turn right into the project site. As the U-turn movement is currently not allowed, the U-turn restriction is recommended to be removed as a project improvement.

7.2 GENERAL PLAN BUILDOUT WITH PROJECT INTERSECTION LEVELS OF SERVICE

Based on the intersection lane geometries depicted in **Figure 2.1** and the General Plan Buildout Year With Project traffic volumes illustrated in **Figures 7.1 and 7.2**, the average delay and level of service (LOS) values for the General Plan Buildout Year With Project conditions were determined for the study intersections during the weekday AM, Midday and PM peak hours. The level of service worksheets are provided in **Appendix H** of this report. The analysis results are summarized in **Table 7.1**.

Table 7.1 – Intersection Performance – General Plan Buildout Year With Project Conditions

Study Intersection		Control Type	AM Peak Hour		Midday Peak Hour		PM Peak Hour	
			Delay (Secs) [1]	LOS	Delay (Secs) [1]	LOS	Delay (Secs) [1]	LOS
1	N. Pepper Avenue & San Bernardino Avenue	Signalized	37.8	D	22.4	C	23.9	C
2	N. Pepper Avenue & Violet Street	Signalized	6.7	A	7.6	A	9.3	A
3	N. Pepper Avenue & North Project Driveway	One-Way Stop	22.8	C	16.2	C	17.3	C
4	N. Pepper Avenue & Blue Drive	Signalized	12.5	B	8.2	A	16.8	B
5	N. Pepper Avenue & W. Valley Boulevard	Signalized	41.0	D	24.6	C	31.4	C
6	N. Pepper Avenue & I-10 Fwy WB On/Off Ramps	Signalized	38.0	D	12.7	B	24.0	C
7	N. Pepper Avenue & I-10 Fwy EB On/Off Ramps	Signalized	35.9	D	26.3	C	32.0	C

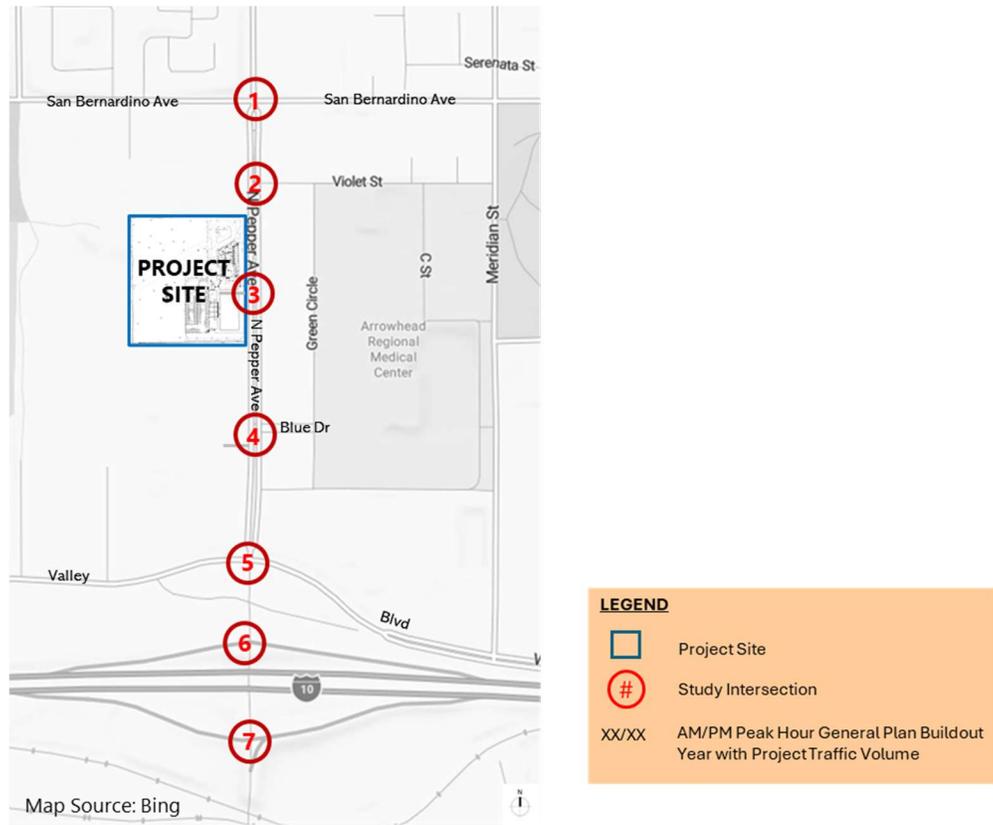
Notes:

LOS = Level-of-Service

[1] Delay is the average delay in seconds for all vehicles at a signalized intersection and the average delay in seconds for the critical Stop-controlled turning movement for a one-way Stop-controlled intersection.

As shown in **Table 7.1**, all of the study intersections are projected to operate at LOS D or better during the weekday AM, Midday and PM peak hours.

FIGURE 7.1 – GENERAL PLAN BUILDOUT YEAR WITH PROJECT TRAFFIC VOLUMES (AM AND PM PEAK HOURS)



1 N. Pepper Ave & San Bernardino Ave	
183 / 148	49 / 36
1216 / 645	279 / 321
76 / 50	70 / 43
Signalized	
83 / 120	248 / 313
279 / 305	569 / 952
354 / 159	37 / 92

2 N. Pepper Ave & Violet St	
0 / 0	100 / 137
1607 / 864	0 / 0
129 / 42	63 / 111
Signalized	
0 / 0	772 / 1222
0 / 0	134 / 9
0 / 0	

3 N. Pepper Ave & Project Dwy (North)	
151 / 73	0 / 0
1519 / 902	0 / 0
0 / 0	0 / 0
One-Way Stop	
0 / 0	906 / 1231
0 / 0	0 / 0
46 / 135	

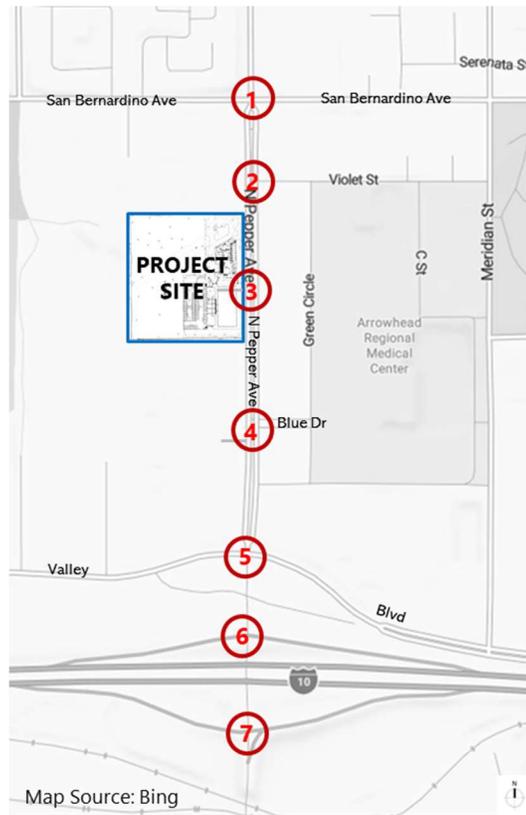
4 N. Pepper Ave & Blue Dr	
0 / 0	20 / 59
1479 / 994	0 / 0
117 / 70	133 / 152
Signalized	
0 / 0	850 / 1113
0 / 0	114 / 39
0 / 0	

5 N. Pepper Ave & W. Valley Blvd	
79 / 85	63 / 93
1221 / 937	310 / 442
112 / 139	338 / 192
Signalized	
103 / 161	335 / 303
232 / 428	1005 / 855
345 / 270	89 / 151

6 N. Pepper Ave & I-10 Fwy WB On/Off Ramps	
974 / 739	863 / 731
976 / 716	2 / 4
0 / 0	18 / 6
Signalized	
0 / 0	9 / 8
0 / 0	539 / 708
0 / 0	0 / 0

7 N. Pepper Ave & I-10 Fwy EB On/Off Ramps	
0 / 0	0 / 0
34 / 18	0 / 0
1002 / 696	0 / 0
Signalized	
537 / 663	0 / 0
5 / 5	29 / 34
12 / 7	18 / 23

FIGURE 7.2 – GENERAL PLAN BUILDOUT YEAR WITH PROJECT TRAFFIC VOLUMES (MIDDAY PEAK HOUR)



LEGEND

- Project Site
- # Study Intersection
- XX MIDDAY PEAK HOUR GENERAL PLAN BUILDOUT YEAR WITH PROJECT TRAFFIC VOLUME

1 N. Pepper Ave & San Bernardino Ave	
108 ↓ 600 ↓ 29 ↓	28 ↑ 184 ↑ 48 ↑
Signalized	
106 ↓ 212 ↓ 169 ↓	265 ↓ 603 ↓ 54 ↓

2 N. Pepper Ave & Violet St	
0 ↓ 859 ↓ 77 ↓	89 ↑ 0 ↑ 100 ↑
Signalized	
0 ↓ 0 ↓ 0 ↓	0 ↓ 856 ↓ 67 ↓

3 N. Pepper Ave & Project Dwy (North)	
138 ↓ 821 ↓ 0 ↓	0 ↑ 0 ↑ 0 ↑
One-Way Stop	
0 ↓ 0 ↓ 113 ↓	0 ↓ 923 ↓ 0 ↓

4 N. Pepper Ave & Blue Dr	
0 ↓ 814 ↓ 81 ↓	46 ↑ 0 ↑ 103 ↑
Signalized	
0 ↓ 0 ↓ 0 ↓	0 ↓ 817 ↓ 90 ↓

5 N. Pepper Ave & W. Valley Blvd	
130 ↓ 717 ↓ 142 ↓	69 ↑ 261 ↑ 121 ↑
Signalized	
157 ↓ 278 ↓ 185 ↓	287 ↓ 749 ↓ 111 ↓

6 N. Pepper Ave & I-10 Fwy WB On/Off Ramps	
541 ↓ 554 ↓ 0 ↓	707 ↑ 5 ↑ 30 ↑
Signalized	
0 ↓ 0 ↓ 0 ↓	26 ↓ 397 ↓ 0 ↓

7 N. Pepper Ave & I-10 Fwy EB On/Off Ramps	
0 ↓ 47 ↓ 541 ↓	0 ↑ 0 ↑ 0 ↑
Signalized	
435 ↓ 18 ↓	0 ↓ 39 ↓ 16 ↓

8.0 VEHICLE QUEUING ANALYSIS

A vehicle queuing analysis was conducted at the intersection of North Pepper Avenue and San Bernardino Avenue (Intersection 1), as required by the City. The purpose of the queuing analysis is to determine if the proposed project will have adverse queuing implications associated with project trips making a U-Turn from North Pepper Avenue in the northbound direction and then head southbound to access the project site. An analysis for both the Opening Year and General Plan Buildout Year was conducted to show vehicle queuing lengths for the northbound left-turn movement during the AM, Midday, and PM peak hours. Potential modification to the signal timing at this intersection was modeled using SimTraffic to compare the queuing demands and lane storage length. The queuing analysis worksheets for Intersection 1 are provided in **Appendix I** of this report. The vehicle queuing results are summarized in **Table 8.1**.

As shown in **Table 8.1**, the 95th percentile vehicle queue in feet for the northbound left-turn movement at the intersection of North Pepper Avenue and San Bernardino Avenue would be less than the existing storage lane capacity for Opening Year Without Project and With Project conditions as well as for the General Plan Buildout Year Without Project and With Project conditions. Therefore, the proposed project traffic is not anticipated to adversely impact the northbound left-turn pocket at Intersection 1.

Additionally, a vehicle queuing analysis was conducted at the three intersections along Pepper Avenue at Valley Boulevard, I-10 Freeway Westbound On/Off-Ramps, and I-10 Freeway Eastbound On/Off-Ramps (Intersections 5 to 7, respectively) as required by the City. This analysis was conducted to determine the impact of the proposed project traffic in terms of vehicle queues at these locations.

As shown in **Table 8.2**, the 95th percentile vehicle queue would be less than the existing storage lane capacity for all turning movements at Intersections 5 to 7 during the AM, Midday, and PM peak periods, except for the westbound left turn movement of Intersection 5 during the AM peak hour under the General Plan Buildout With No Project and General Plan Buildout With Project conditions. It is important to note that the 95th percentile queue length is less than the existing storage lane capacity for the westbound left turn movement at Intersection 5 under the Opening Year With Project conditions; therefore, the proposed project is not anticipated to result in an adverse impact in terms of queuing at this turning movement. Under the General Plan Buildout conditions, the 95th percentile queue exceeds the existing storage lane capacity by 38 to 46 feet, which is only two cars or less assuming 25 feet per car. It is recommended that the City re-optimize the traffic signal timing at Intersection 5 to provide sufficient green time and reduce the maximum queue to within the lane storage capacity for the westbound left turn movement.

Table 8.1 – Vehicle Queuing Analysis for Intersection 1

No.	Intersection	Turn Movement	Storage Lane Capacity (Ft)	95th Percentile Queue (Ft)											
				Opening Year With No Project			Opening Year With Project			General Plan Buildout With No Project			General Plan Buildout With Project		
				AM Pk Hr	Midday Pk Hr	PM Pk Hr	AM Pk Hr	Midday Pk Hr	PM Pk Hr	AM Pk Hr	Midday Pk Hr	PM Pk Hr	AM Pk Hr	Midday Pk Hr	PM Pk Hr
1	N. Pepper Ave & San Bernardino Ave	NL	165	73	84	91	127	100	126	89	77	99	130	96	118

Table 8.2 – Vehicle Queuing Analysis for Intersections 5 to 7

No.	Intersection	Peak Hour	Turn Movement	Storage Lane Capacity (ft)	95th Percentile Queue (ft)			
					Opening Year With No Project	Opening Year With Project	General Plan Buildout With No Project	General Plan Buildout With Project
5	N. Pepper Ave & W. Valley Blvd	AM	EBL	220	88	103	94	94
			EBT	3080	134	129	160	138
			EBR	320	182	192	263	218
			WBL	210	204	191	256	248
			WBT	1360	163	167	433	467
			NBL	205	158	162	175	190
			NBT	330	179	200	197	214
			NBR	150	82	82	103	101
			SBL	210	80	131	107	123
		SBT	600	396	403	379	395	
		MD	EBL	220	117	116	125	125
			EBT	3080	116	123	116	121
			EBR	320	82	82	90	96
			WBL	210	76	83	80	90
			WBT	1360	117	112	116	108
			NBL	205	118	115	124	121
			NBT	330	133	148	147	158
			NBR	150	55	66	77	77
			SBL	210	81	92	79	83
		SBT	600	314	360	244	438	
		PM	EBL	220	117	104	114	116
			EBT	3080	167	165	180	173
			EBR	320	120	131	132	142
			WBL	210	130	128	132	128
			WBT	1360	178	184	174	184
			NBL	205	135	138	158	168
			NBT	330	199	199	224	215
NBR	150		92	85	97	91		
SBL	210		85	91	90	127		
SBT	600	370	438	455	429			
6	N. Pepper Ave & I-10 WB On/Off Ramps	AM	WBT	1140	250	313	393	388
			WBR	300	211	228	256	262
			NBL	130	33	31	34	35
			NBT	440	23	23	23	28
			SBT	330	189	231	329	297
			SBR	330	190	204	252	212
		MD	WBT	1140	220	202	226	273
			WBR	300	161	149	176	205
			NBL	130	54	50	52	57
			NBT	440	42	43	47	96
			SBT	330	80	80	86	63
			SBR	330	96	103	105	113
		PM	WBT	1140	218	225	264	292
			WBR	300	170	186	214	237
			NBL	130	24	33	30	28
7	N. Pepper Ave & I-10 EB On/Off Ramps	AM	NBT	440	47	48	51	58
			SBT	330	123	133	153	152
			SBR	330	136	145	149	159
			EBL	830	176	214	208	252
			EBT	1160	199	237	231	282
		NBT	1690	37	37	42	47	
MD	SBL	410	340	360	351	361		
	SBT	470	25	16	49	15		
	EBL	830	126	151	135	149		
	EBT	1160	148	164	161	173		
	NBT	1690	36	38	42	42		
	SBL	410	163	191	220	253		
	SBT	470	24	21	22	19		
	PM	EBL	830	183	204	217	226	
		EBT	1160	214	218	231	244	
		NBT	1690	44	43	44	48	
SBL		410	260	301	311	347		
SBT		470	11	16	8	10		

Notes:

NB = Northbound; SB = Southbound; WB = Westbound; EB = Eastbound; L = Left-turn; T = Through; R = Right-turn; MD = Mid Day
Bold queue length indicates that the queue exceeds turn-pocket or through lane capacity.

9.0 VEHICLE MILES TRAVELLED SCREENING ANALYSIS

Per the updated CEQA Guidelines, transportation impacts must now be determined based on an analysis of a development project's VMT impact. As of July 1, 2020, all land use projects within the State of California are required to prepare a VMT analysis.

The City of Colton Vehicle Miles Traveled Guidelines, June 2, 2020, provide criteria for projects that would be considered to have a less-than significant impact on VMT and therefore could be screened out for further analysis. A VMT screening analysis was prepared and submitted to the City as a part of the Traffic Scoping Agreement, which is included in **Appendix A** of this report and was approved by the City.

Per the City's VMT Guidelines, additional VMT analysis is not required when a project meets one or more of the following screening criteria: Project Trip Generation Screening, Land Use Type Screening, High-Quality Transit Area Screening, or Low VMT Area Screening. Given that the proposed project fulfills the High-Quality Transit Area Screening criteria, further VMT analysis of transportation impacts is not required.

10.0 SUMMARY AND CONCLUSIONS

Project Background

The project site is located on the west side of North Pepper Avenue and approximately 625 feet south of West San Bernardino Avenue on an approximately 9-acre (389,336 square feet) vacant parcel in the City of Colton in San Bernardino County, California.

The proposed project includes a three-story 60,000 sf medical office clinic and a five-story 71,095 sf, 112-room commercial hotel. The project site will provide 321 parking stalls via a parking structure and surface parking areas, which would serve both the medical office clinic and the hotel. About 5.1 acres in the western portion of the project parcel will be a dedicated conservation area for the Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) consistent with the conservation strategy identified within the West Valley Habitat Conservation Plan (City of Colton, 201).

Vehicular access will be provided on North Pepper Avenue via two project driveways. Both driveways will be restricted to right-turn inbound and outbound only.

The project is anticipated to be completed by Year 2027.

Study Area

The project study area includes a total of seven study intersections, which were selected in coordination with and approved by the City of Colton. The study intersections are listed in **Table 1.1** and depicted in **Figure 1.3**.

Study Scenarios

Traffic impacts associated with the development of the proposed project were analyzed for the weekday AM, Midday, and PM peak hours as required by the City of Colton. The analysis scenarios included within this study are listed below:

- Existing Conditions
- Project Opening Year 2027 with No Project Conditions
- Project Opening Year 2027 with Project Conditions
- General Plan Buildout with No Project Conditions
- General Plan Buildout with Project Conditions

Analysis Methodology

Study Intersection Level of Service

The study intersection performance in terms of level-of-service (LOS) was determined based on the *Highway Capacity Manual, 6th Edition (HCM)* methodology.

According to the City of Colton General Plan Mobility Element, the City identifies LOS D as the acceptable level-of-service standard within the City. Therefore, LOS D was considered as the minimum level of service criterion for all study intersections. For study intersections under the jurisdiction of the City, an operational deficiency is determined based on the impact criteria described in the SBCTA CMP guidelines; the guidelines state that a significant project impact occurs when the peak hour level-of-service falls

below the Cities' level-of-service standard from LOS D to LOS E or F, or when the project contributes to an existing deficiency.

Vehicle Queuing Analysis

Vehicle queuing was analyzed for the study intersection of North Pepper Avenue and San Bernardino Avenue to determine if the proposed project will have adverse queuing implications associated with project trips making a U-Turn from North Pepper Avenue in the northbound direction. The analysis shows the 95th percentile vehicle queuing length for the northbound left-turn movement during the AM, Midday, and PM peak hours for Opening Year and General Plan Buildout Year scenarios. Potential modification to the signal timing at this intersection in order to allow "U-turn" from northbound Pepper Ave into the southbound direction was modeled using SimTraffic to compare the queuing demand and storage length.

Similarly, a vehicle queuing analysis was also conducted at the three study intersections along Pepper Avenue at Valley Boulevard, I-10 Freeway Westbound On/Off-Ramps, and I-10 Freeway Eastbound On/Off-Ramps (Intersections 5 to 7) as required by the City. The 95th percentile vehicle queuing lengths were compared to the lane capacities by turning movement. The analysis shows the impact in terms of vehicle queues at these locations with the addition of the proposed project traffic.

Traffic Count Data

Existing traffic count data at the study intersections were collected on a typical weekday on Thursday, November 7, 2024, during the morning peak period from 7:00 AM to 9:00 AM, the lunch peak period from 11:00 AM to 1:00 PM, and the afternoon peak period from 4:00 PM to 6:00 PM. The existing peak hour traffic volumes were determined based on these recent count data for the purpose of the traffic analysis at the study intersections.

Project Trip Generation

The proposed project is estimated to generate approximately 2,807 daily two-way trips including 213 trips (159 inbound and 54 outbound) during the AM peak hour, 278 trips (145 inbound and 133 outbound) during the Midday peak hour, and 236 trips (77 inbound and 159 outbound) during the PM peak hour.

Study Intersection Performance

Based on the intersection analysis methodology described within this report, the level-of-service performance at the study intersections for the weekday AM, Midday, and PM peak hours are summarized below.

No.	Intersection	Existing			Opening Year with No Project			Opening Year With Project			General Plan Buildout with No Project			General Plan Buildout With Project		
		AM	Midday	PM	AM	Midday	PM	AM	Midday	PM	AM	Midday	PM	AM	Midday	PM
1	N. Pepper Ave & San Bernardino Ave	C	C	C	C	C	C	C	C	C	C	C	C	D	C	C
2	N. Pepper Ave & Violet St	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
3	N. Pepper Ave & Project Dwy (North) *	-	-	-	-	-	-	C	C	C	-	-	-	C	C	C
4	N. Pepper Ave & Blue Dr	B	A	B	B	A	B	B	A	B	B	A	B	B	A	B
5	N. Pepper Ave & W. Valley Blvd	C	C	C	C	C	C	C	C	C	D	C	C	D	C	C
6	N. Pepper Ave & I-10 Fwy WB On/Off Ramps	C	B	B	C	B	B	C	B	B	C	B	B	D	B	C
7	N. Pepper Ave & I-10 Fwy EB On/Off Ramps	C	C	C	C	C	C	C	C	C	C	C	C	D	C	C

* Intersection 3 is a future intersection with development of the Project.

All of the study intersections currently operate at an acceptable level of service (i.e., LOS D or better).

All of the study intersections are also anticipated to operate at an acceptable level of service (i.e., LOS D or better) for the Opening Year and General Plan Buildout conditions.

Vehicle Queuing Analysis

The vehicle queuing analysis shows that the 95th percentile vehicle queue in feet for the northbound left-turn movement at the intersection of North Pepper Avenue and San Bernardino Avenue (Intersection 1) would be less than the existing storage lane capacity for Opening Year Without Project and With Project conditions as well as for the General Plan Buildout Year Without Project and With Project conditions. Therefore, the proposed project traffic is not anticipated to adversely impact the northbound left-turn pocket at Intersection 1.

Additionally, the vehicle queuing analysis shows that the 95th percentile vehicle queue is less than the existing storage lane capacity for all turning movements at Intersections 5 to 7, except for the westbound left turn movement of Intersection 5 during the AM peak hour under the General Plan Buildout With No Project and General Plan Buildout With Project conditions. It is important to note that the 95th percentile queue length is less than the existing storage lane capacity for the westbound left turn movement at Intersection 5 under the Opening Year With Project conditions; therefore, the proposed project is not anticipated to result in an adverse impact in terms of queuing at this turning movement. Under the General Plan Buildout conditions, the 95th percentile queue exceeds the existing storage lane capacity by 38 to 46 feet, which is only two cars or less assuming 25 feet per car. It is recommended that the City re-optimize the traffic signal timing at Intersection 5 to provide sufficient green time and reduce the maximum queue to within the lane storage capacity for the westbound left turn movement.

Recommended Project Improvement

The City intends to maintain the existing raised median island on North Pepper Avenue from Blue Drive to Violet Street. Therefore, no direct left-turn ingress access from North Pepper Avenue in the northbound direction adjacent to the project site is allowed. Project traffic heading northbound on North Pepper Avenue will instead need to make a U-turn at San Bernardino Avenue, head southbound on North Pepper Avenue, and then turn right into the project site. As the northbound U-turn movement at the intersection

of North Pepper Avenue and San Bernardino Avenue is currently not allowed, the U-turn restriction is recommended to be removed as a project improvement.

Vehicle Miles Travelled Screening Analysis

Per the updated CEQA Guidelines, transportation impacts must now be determined based on an analysis of a development project's VMT impact. As of July 1, 2020, all land use projects within the State of California are required to prepare a VMT analysis.

Based on the City's VMT Guidelines, the proposed project fulfills one of the screening criteria (i.e., High-Quality Transit Area Screening criteria) that would be considered to have a less-than significant impact on VMT. Therefore, further VMT analysis of transportation impacts is not required.

Appendix A – Traffic Scoping Agreement



MINAGAR & ASSOCIATES, INC.

Traffic Engineering – Transportation Planning – Intelligent Transportation Systems (ITS) – Civil/Electrical Engineering & CEM Consultants



November 19, 2024

Mr. Moises Peralta
Associate Engineer
City of Colton
Public Works Department
160 S. 10th Street
Colton, CA 92324

Subject: TO#366 – 2nd Review of the Traffic Scoping Agreement for the Proposed ARMC Medical Office & Hotel Mixed-use at West of N. Pepper & 600' South of W. San Bernardino Ave., Colton, CA

Dear Moises,

We have completed our 2nd review of the subject project's Revised Scoping dated November 6, 2024 and have the following comments:

A. Scoping Agreement

1. The Revised Scoping Agreement is approved and the consultant can proceed with the TMCs and field data collection subject to the following conditions:
 - The field data cannot be collected on Monday, Nov. 25th, Wed/Thurs./Fri, Nov. 27th-29th and Mon., Dec. 2nd. It goes without saying that all the field data must be collected before Friday, Dec. 20th or after Jan. 7th, 2025.

B. VMT Analysis

2. Per the Attachment 6 of the submitted documents dated 9/24/24, we do concur with and conclude that the proposed project does screen out under Criteria 3 – High Quality Transit Area Screening and therefore, no further CEQA VMT analysis will be required.

C. Site Plan & Traffic Circulation

3. The same condition(s)/restriction(s) as noted on October 29, 2024 Tech Memo for the 1st review shall remain.



MINAGAR & ASSOCIATES, INC.

Traffic Engineering – Transportation Planning – Intelligent Transportation Systems (ITS) – Civil/Electrical Engineering & CEM Consultants



Should you have any questions, I can be contacted conveniently via e-mail at minagarf@minagrinc.com.

Thank you.

Sincerely,

MINAGAR & ASSOCIATES, INC.
(A California Corporation)

Fred Minagar, MS, RCE, PE, FITE
President/Contract City Traffic Engineer

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This form acknowledges the City of Colton Engineering Division requirements for traffic impact analysis of the following project. The analysis must comply with SBCTA CMP TIA Guidelines, as applicable.

Case No. _____

Related Cases: _____

APN(S): 0254-071-10

Project Name: Medical Office and Hotel Mixed-Use Project

Project Address: West side of North Pepper Avenue and approximately 625 feet south of West San Bernardino Avenue

Project Description: Three-story 60,000 square-foot medical office clinic and five-story 71,000 square-foot 112-room commercial hotel with approximately 321 parking stalls would be provided via a parking structure and surface parking areas

(About 5.1 acres in the western portion of the Project parcel will be a dedicated conservation area for the Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) consistent with the conservation strategy identified within the West Valley Habitat Conservation Plan (City of Colton, 2014).)

Project Size: Approximately 9 acres (389,336 square feet)

Traffic Consultant

Developer

Name: Jonathan Louie

Philip Lee, Project Manager

Address: 333 S. Anita Drive, Suite 800
Orange, CA 92868

17777 Center Court Dr. N. 725
Cerritos, CA 90703

Telephone: General: (714) 573-0317
Direct: (714) 923-6269

(408)-219-6266

E-mail: JLouie@hwlochner.com

plee@exdev.com

A. Technical Methodology

Technical methodology to comply with SBCTA CMP guidelines. However, mitigation on nonstate facilities to maintain Vehicle Miles Traveled (VMT) threshold. Traffic count data must be current or within the previous 12 months. Provide traffic count dates. [Note: Traffic counts will be collected after City approves Scoping Agreement.]

B. Trip Generation Source: ITE Trip Generation Manual, 11th Edition

Current GP Land Use: Office/Mixed Use per the City’s Colton Hub City Centre Specific Plan (CHCCSP)

Proposed Land Use: Medical Office, Hotel

Current Zoning: CHCCSP

Proposed Zoning: CHCCSP

	Current Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips:	<u>0</u>	<u>0</u>	<u>0</u>	<u>159</u>	<u>54</u>	<u>213</u>
Midday Trips:	<u>0</u>	<u>0</u>	<u>0</u>	<u>145</u>	<u>133</u>	<u>278</u>
PM Trips:	<u>0</u>	<u>0</u>	<u>0</u>	<u>77</u>	<u>159</u>	<u>236</u>

Internal Trip Allowance: N/A

Pass-By Trip Allowance: N/A

[See **ATTACHMENT 1 - PROJECT TRIP GENERATION**]

Traffic impact study to quantify change in project trip generation in comparison with pre-existing uses on project site when fully occupied.

C. Trip Geographic Distribution: To be submitted for approval by city staff. Cite source. Attach exhibit of detailed assignment.

[Note: The project trip distribution will be based on the regional roadway network and the location of residential and commercial centers relative to the project location.]

[See **ATTACHMENT 2 - PROJECT TRIP DISTRIBUTION** and **ATTACHMENT 3 - PROJECT TRAFFIC VOLUMES**]

D. Scenario Analysis

Project Year of Completion: 2027

Phase Year(s): N/A

Annual Ambient Growth rate: 1.0%

Cumulative background projects list and locations: See **ATTACHMENT 4**

Scenarios:

- Existing Conditions
- Project Opening Year with No Project Conditions
- Project Opening Year with Project Conditions
- General Plan Buildout with No Project Conditions
- General Plan Buildout with Project Conditions

E. Preliminary Study Intersections: (See SBCTA CMP guidelines or comments from other agencies.)

- | | |
|--|---|
| 1. <u>San Bernardino Ave & Pepper Ave</u> | 5. <u>Valley Blvd & Pepper Ave</u> |
| 2. <u>Violet St & Pepper Ave</u> | 6. <u>I-10 Fwy WB On/Off Ramps & Pepper Ave</u> |
| 3. <u>Project Dwy (North) & Pepper Ave</u> | 7. <u>I-10 Fwy EB On/Off Ramps & Pepper Ave</u> |
| 4. <u>Blue Drive & Pepper Ave</u> | 8. _____ |

F. Preliminary Study Roadway Segments: (See SBCTA CMP guidelines or comments from other agencies.)

- | | |
|----------|-----------|
| 1. _____ | 6. _____ |
| 2. _____ | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

G. Freeways - See SBCTA CMP guidelines.

According to the SBCTA CMP guidelines, if the project would add 50 or more 2-way peak-hour trips to a CMP arterial within another jurisdiction or 100 2-way peak-hour trips to a freeway, that jurisdiction (and Caltrans, if a state highway) shall be provided a copy of the TIA Report.

It should be noted that the proposed project is expected to add more than 100 2-way peak-hour trips to the I-10 Freeway Mainline west of Pepper Avenue during the midday peak-hour period. Therefore, the TIA Report shall be provided to Caltrans for review.

H. Other Jurisdictional Impacts

Is this project within a one-mile radius of City or County boundaries? Yes No

If so, name of City Jurisdiction: City of Rialto, City of San Bernardino, County of San Bernardino

I. Site Plan (please see **ATTACHMENT 5**)

J. Specific issues to be addressed in the Study

- CEQA VMT Screening Analysis (**See ATTACHMENT 6**)
- Non-CEQA LOS Traffic Impact Analysis (The study intersections will be analyzed based on HCM 6 methodology using Synchro 11. In addition, potential modification to the existing signalized intersection of San Bernardino Ave and Pepper Ave in order to allow “u-turns” from northbound Pepper Ave into the southbound direction will be modeled using SimTraffic to compare the queuing and storage lengths.)
- Intersection turning movement counts to be collected on one typical weekday (Tuesday, Wednesday, or Thursday) from 7AM to 9AM, 11AM to 1PM, and 4PM to 6PM

Recommended by:

Approved Scoping Agreement:

Jonathan Louie

11/05/2024

Consultant’s Representative

Date

City of Colton
Engineering Division

Date

ATTACHMENT 1 PROJECT TRIP GENERATION

Project Trip Rates

ITE Code	ITE Trip Rate		Daily (2-Way)	AM Peak Hour			Mid-Day Peak Hour*			PM Peak Hour		
				In	Out	Total	In	Out	Total	In	Out	Total
310	Hotel	Trips/Room	7.99	56%	44%	0.46	56%	44%	0.57	51%	49%	0.59
720	Medical Office	Trips/1,000 sq. ft.	31.86	81%	19%	2.68	51%	49%	3.56	25%	75%	2.84

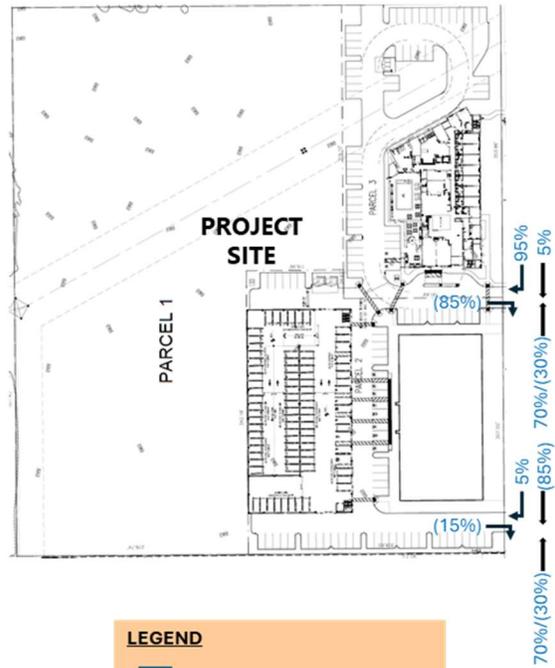
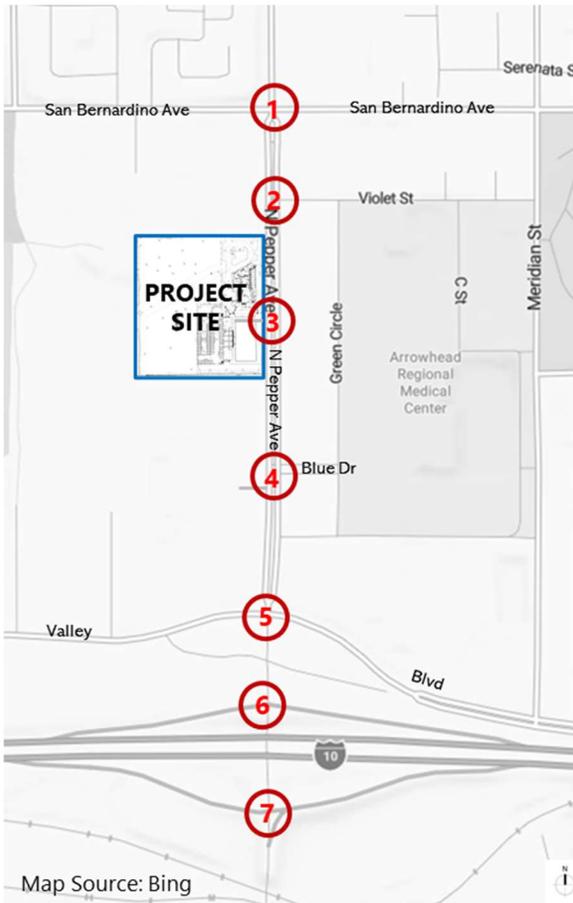
Source: Institute of Transportation Engineers Trip Generation Manual, 11th Edition

*ITE Trip Generation Manual, 11th Edition does not provide weekday Mid-Day Peak Hour trip rates for Hotel and Medical Office land uses. The Mid-Day Peak Hour trip rates and trip directional percentages were assumed based on the average of the Weekday AM and PM Peak Hour of Generator trip rates/percentages.

Project Trip Generation

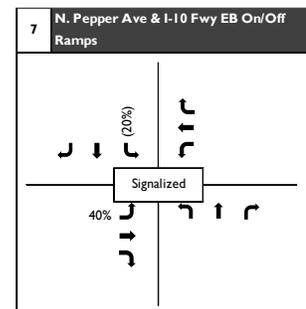
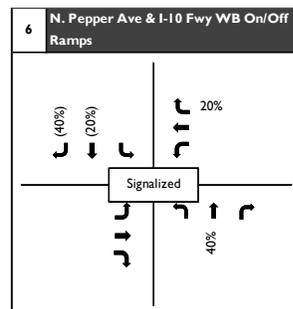
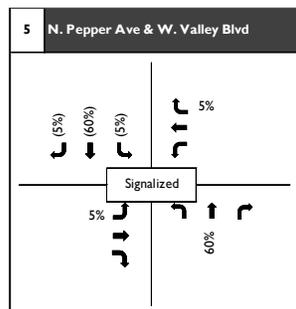
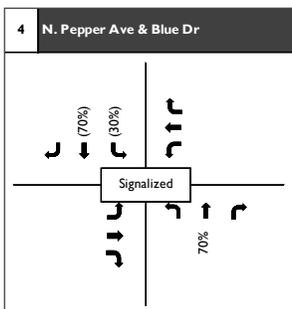
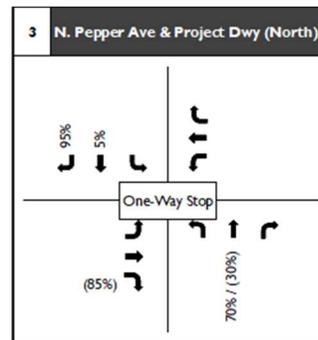
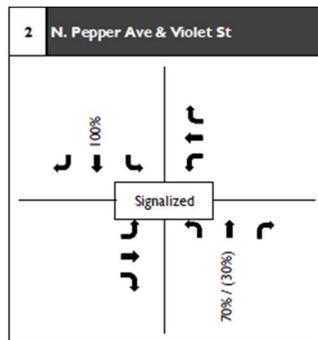
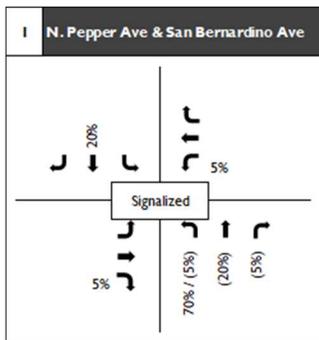
Land Use	Size		Daily (2-Way)	AM Peak Hour			Mid-Day Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total	In	Out	Total
Proposed Land Uses												
Hilton Home2 Suites Hotel (71,000 sq. ft.)	112	Rooms	895	29	23	52	36	28	64	34	32	66
Medical Office	60,000	sq. ft.	1,912	130	31	161	109	105	214	43	127	170
Total			2,807	159	54	213	145	133	278	77	159	236

ATTACHMENT 2 PROJECT TRIP DISTRIBUTION

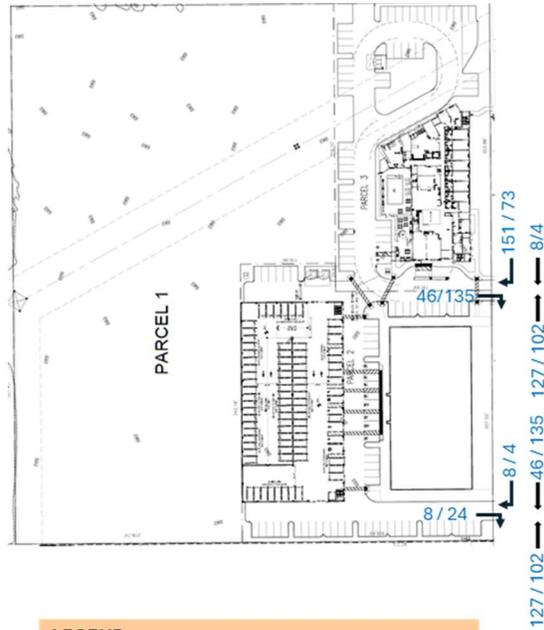
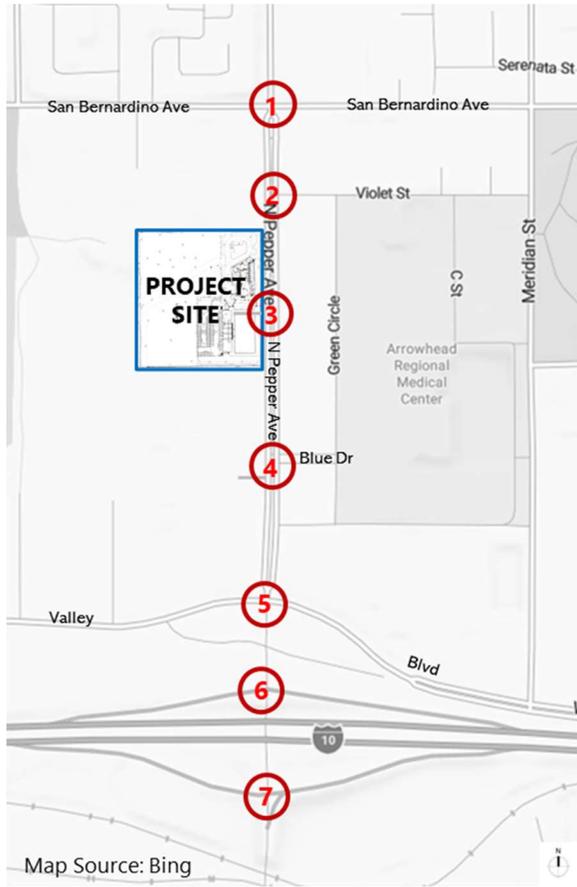


LEGEND

- Project Site
- # Study Intersection
- X% Inbound
- (X%) Outbound

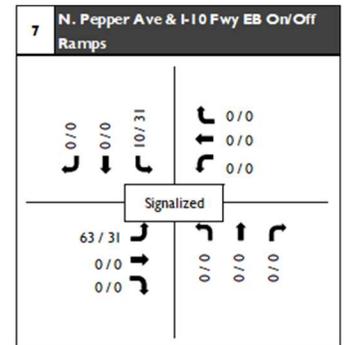
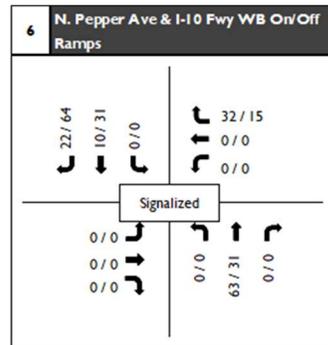
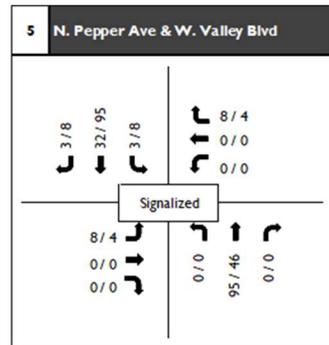
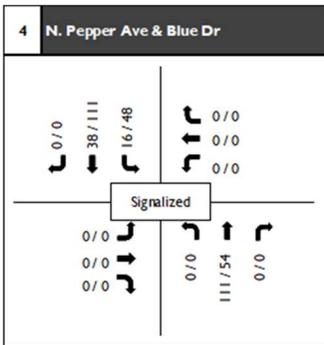
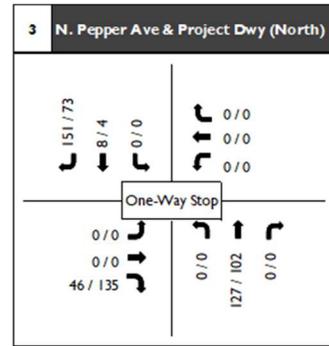
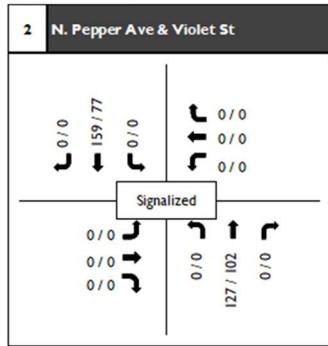
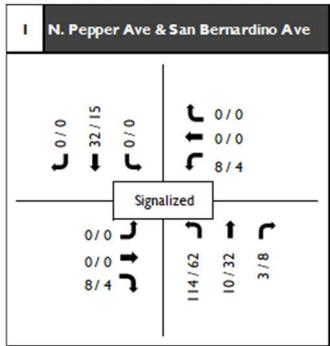


ATTACHMENT 3 PROJECT TRAFFIC VOLUMES – AM & PM PEAK HOURS

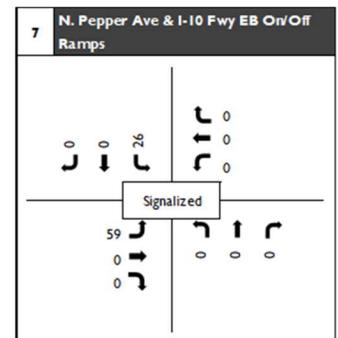
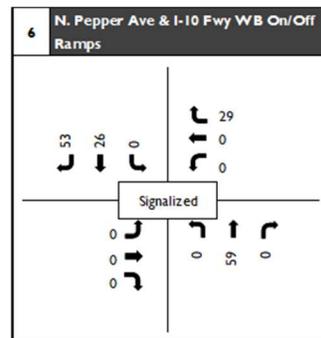
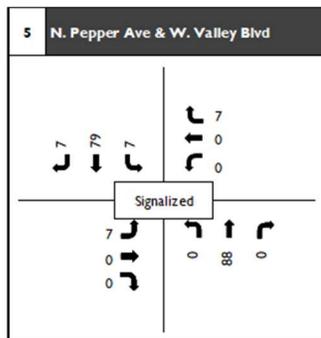
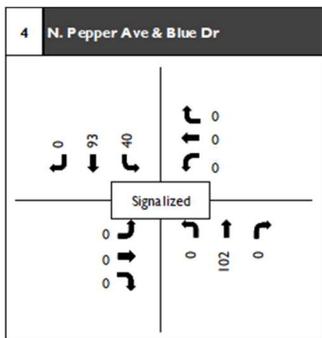
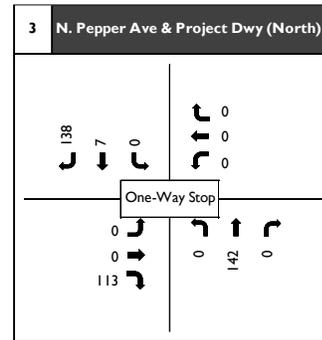
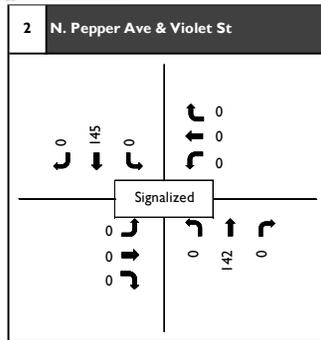
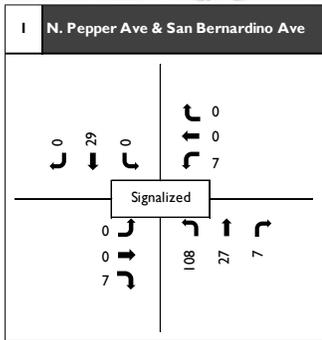
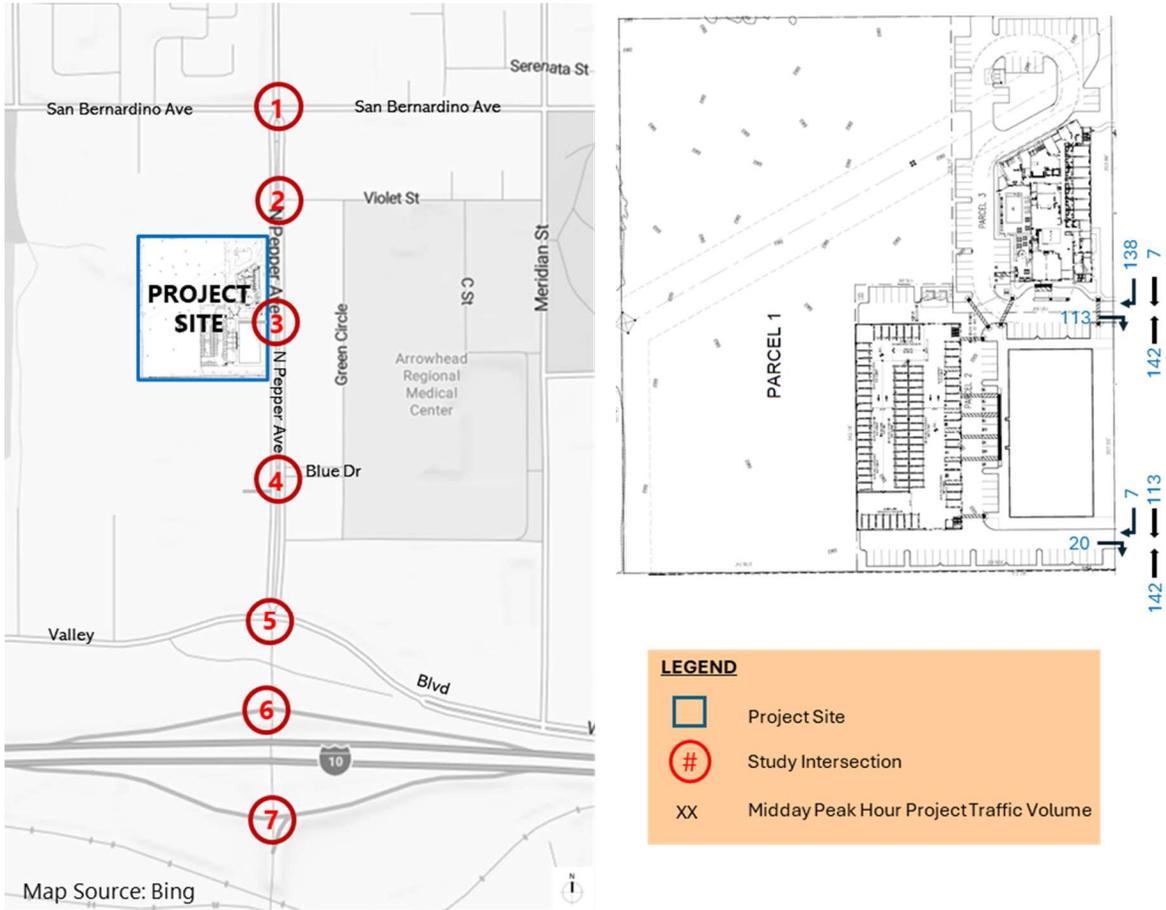


LEGEND

- Project Site
- # Study Intersection
- XX/XX AM/PM Peak Hour Project Traffic Volume



ATTACHMENT 3 PROJECT TRAFFIC VOLUMES - MIDDAY PEAK HOUR

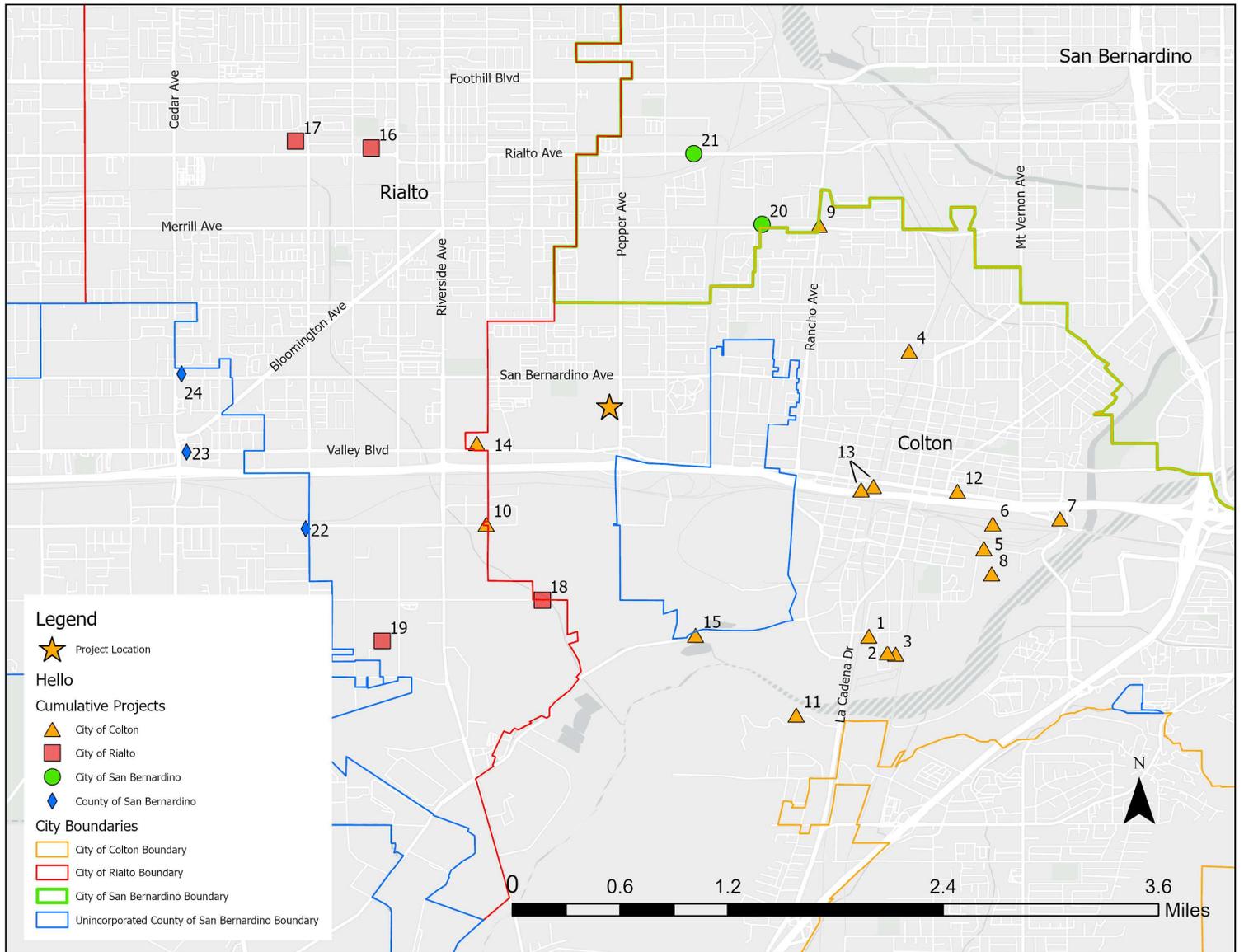


ATTACHMENT 4 CUMULATIVE PROJECTS

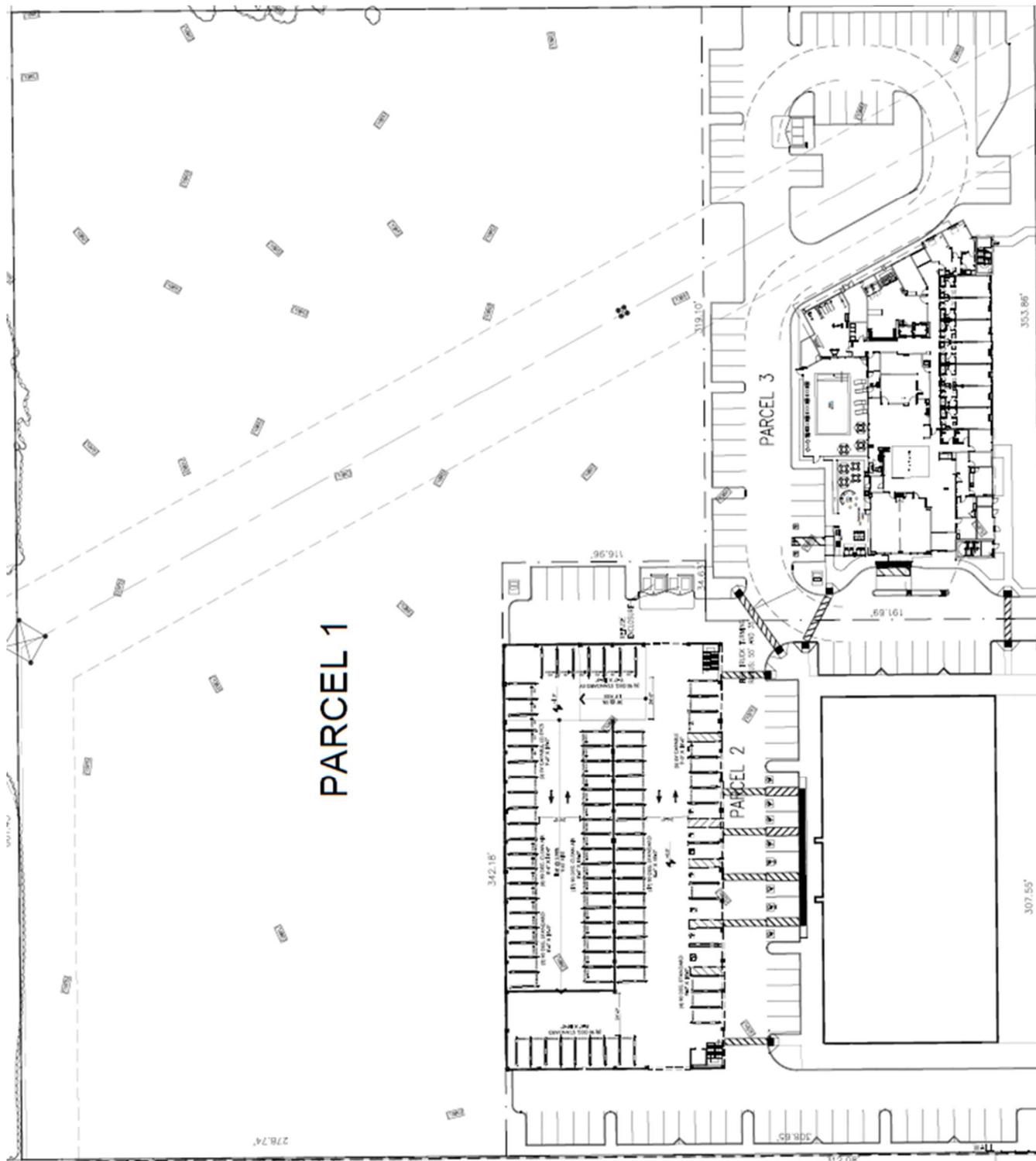
No.	Project Name/Description	Jurisdiction	Address/Location	Land Use
1	Industrial Tow Yard Project	Colton	280 Fogg St	2,400 sf building with 33,000 sf of outdoor storage area
2	Truck/Tractor Repair Dealership Project	Colton	1201 Jefferson Ln	CUP to allow truck/tractor dealership on 1.76 acres
3	Contractor's Storage Yard Project	Colton	1200 Jefferson Ln	4,692 sf office building 5,264 sf storage building
4	3 Warehouses Project	Colton	220 Laurel St	104,700 sf warehouse/manufacturing industrial building 91,910 sf industrial building 112,800 sf industrial building <i>Existing Land Use (To Be Removed)</i> 295,000 sf industrial buildings
5	Truck and Trailer Parking, Storage and Transloading Use Project	Colton	685 E. M St	8.52 acre site used for truck/trailer parking, storage, and transloading use. Currently an industrial lot
6	Swift Transportation Project	Colton	205 Mission St	12 acre storage site used for intermodal trailers, cargo containers, and chassis
7	Dhillon Truck and Trailer Repair Shop Project	Colton	201 Mission St	5,000 sf truck repair shop
8	Truck and Trailer Repair Project	Colton	790 E. M St	53,076 sf truck repair shop
9	Sunny Express Car Wash Project	Colton	2015 N. Rancho Ave	4,965 sf self service automatic car wash
10	Contractor's Storage Yard Project	Colton	Northwest Corner of Slover Ave and Sycamore Ave	11,761 sf contractor's storage yard
11	Truck Driving School Project	Colton	302 W. Tropica Rancho Rd	2,015 sf truck driving school <i>Existing Land Use (To Be Converted)</i> 2,015 sf industrial building
12	Private Transportation (Bus) Yard Project	Colton	363 E. Valley Blvd	73,616 sf bus service headquarters including administrative office, dispatch, quality control, and parking
13	AMKO Recycling Facility Revitalization Project	Colton	115 N. Pennsylvania Ave and 340 W. Valley Blvd	11,000 sf additional storage area (340 W. Valley Blvd) 10,114 sf new recycling facility (115 N. Pennsylvania Ave)
14	Business Park Project	Colton	2245 W. Valley Blvd	186,505 sf Business Park buildings
15	Agua Mansa Logistics Center Project	Colton	1400-1500 Agua Mansa Road	930021 sf warehouse
16	436 West Rialto Ave Warehouse	Rialto	436 W. Rialto Ave	299,780 sf warehouse <i>Existing Land Use (To Be Removed)</i> Lumber storage and processing plant
17	160 North Cactus Ave Project	Rialto	160 N. Cactus Ave	159,700 sf warehouse
18	Santa Ana Truck Terminal	Rialto	249 E. Santa Ana Ave	172,443 sf truck terminal building and 18,780 sf maintenance building
19	South Willow Industrial Project	Rialto	2720 S. Willow Ave	118,000 sf warehouse including 7,000 sf office
20	12 Single-Family Residences Project	City of San Bernardino	North of W. Mills Street, between N. Macy Street and N. Iris St	12 detached single-family residences
21	32 Single-Family Residences Project	City of San Bernardino	2578 W. Rialto Ave	32 single family homes
22	Slover/Cactus Ave Warehouse Project	County of San Bernardino	Southwest Corner of Slover Ave and Cactus Ave	257,855 sf warehouse facility
23	Bloomington Fuel Station Project	County of San Bernardino	18745 Valley Blvd	2,200 sf gas station/convenience store
24	Bloomington Gas Station, Restaurant, and Commercial Center Project	County of San Bernardino	Northeast Corner of Cedar Ave and San Bernardino Ave	5200 sf convenience store 1,458 sf car wash 5,740 sf drive-thru restaurant 15,350 sf retail/office building

Source: City of Colton, City of Rialto, City of San Bernardino, and County of San Bernardino websites.

ATTACHMENT 4 CUMULATIVE PROJECTS (CONT.)



ATTACHMENT 5
PROJECT SITE PLAN



N. PEPPER AVE



**ATTACHMENT 6
VMT SCREENING ASSESSMENT**

ATTACHMENT 6 – CEQA VMT SCREENING ANALYSIS

Senate Bill (SB) 743 was signed by Governor Brown in 2013 and required the Governor’s Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative to LOS for evaluating Transportation impacts. SB743 specified that the new criteria should promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks and a diversity of land uses. The bill also specified that delay-based level of service could no longer be considered an indicator of a significant impact on the environment. In response, Section 15064.3 was added to the CEQA Guidelines beginning January 1, 2019. Section 15064.3 - Determining the Significance of Transportation Impacts states that Vehicle Miles Traveled (VMT) is the most appropriate measure of transportation impacts and provides lead agencies with the discretion to choose the most appropriate methodology and thresholds for evaluating VMT.

City of Colton VMT Screening

The City of Colton Vehicle Miles Traveled Guidelines (the “VMT Guidelines” - June 2, 2020) provide criteria for projects that would be considered to have a less-than significant impact on VMT and therefore could be screened out for further analysis. If a project meets one of the following criteria, then the VMT impact of the project is considered less-than significant and no further analysis of VMT would be required:

1. The project generates fewer than 110 daily vehicle trips.
2. The project is a local-serving land use.
3. The project is located within a High-Quality Transit Area (HQTA).
4. The project is in a low VMT area.

The applicability of each criterion to the proposed project is discussed below.

SCREENING CRITERIA 1 - PROJECT TRIP GENERATION SCREENING

The VMT Guidelines consider a project to have a less-than-significant VMT impact if the project generates fewer than 110 average daily trips. As indicated in the ‘Project Trip generation’ selection above, the project would generate approximately 2,807 net daily trips. As a result, the project does not screen out of VMT analysis through this criterion.

SCREENING CRITERIA 2 - LAND USE TYPE SCREENING

The City of Colton VMT Guidelines provide a list of project types that can be considered to not have a significant impact upon transportation. The final determination is to be made by City staff. Project types falling under this screening criteria include the following:

- K-12 Schools
- Local-serving retail less than 50,000 square feet
- Local parks
- Day care centers
- Local serving gas stations
- Local serving banks
- Student housing projects
- Local serving community colleges

The project does not meet any of the above criteria related to “Land Use Type screening”.

SCREENING CRITERIA 3 - HIGH QUALITY TRANSIT AREA SCREENING

Per the VMT Guidelines, projects located within a 'High Quality Transit Area' (HQTA) may be presumed to have a less-than-significant VMT impact based on their access to transit options. The City of Colton uses SCAG definitions for a HQTA. Projects which are located within half (1/2) of a mile from an existing major transit stop or within half (1/2) of a mile from an existing stop along a high-quality transit corridor. The criteria use the assumption that the project service population's primary mode of transportation will be the existing City transportation infrastructure and is therefore excluded from generating additional VMT for the project. The OPR lists exceptions to this criterion as listed below where specific projects were found to generate significant amounts of VMT regardless of being located near an existing major transit stop / existing stop along a high quality transit corridor:

- The project must have Floor-to-Area Ratio (FAR) of 0.75 or higher,
- Constructs a smaller number of moderate or high-income residential units than the existing number of affordable residential units.

Per the SBCTA VMT Screening Tool, the project is located in a HQTA. A map depicting HQTA locations, based on SBCTA VMT Screening Tool data, is presented in **Exhibit A**.

The FAR of the project, based on the Site Plan shown in **Attachment 1**, is approximately 0.79, which would meet the minimum FAR of 0.75 as stated in the VMT Guidelines. The project is also consistent with the SCAG RTP/SCS and does not replace existing affordable housing. The project therefore meets the High-Quality Transit Area screening criteria.

SCREENING CRITERIA 4 - LOW VMT AREA SCREENING

A similar region dependent threshold is used for the identification of low VMT areas, where the project's VMT generation, due to being located in an already low VMT area, is assumed to be negligible. The threshold for consideration of "low" VMT is determined to be 15% below the City of Colton's average from the 2016 Baseline of 23.30 VMT, however some TAZs within the City of Colton are not under the jurisdiction of the City and will use a 15% threshold for the dictating City.

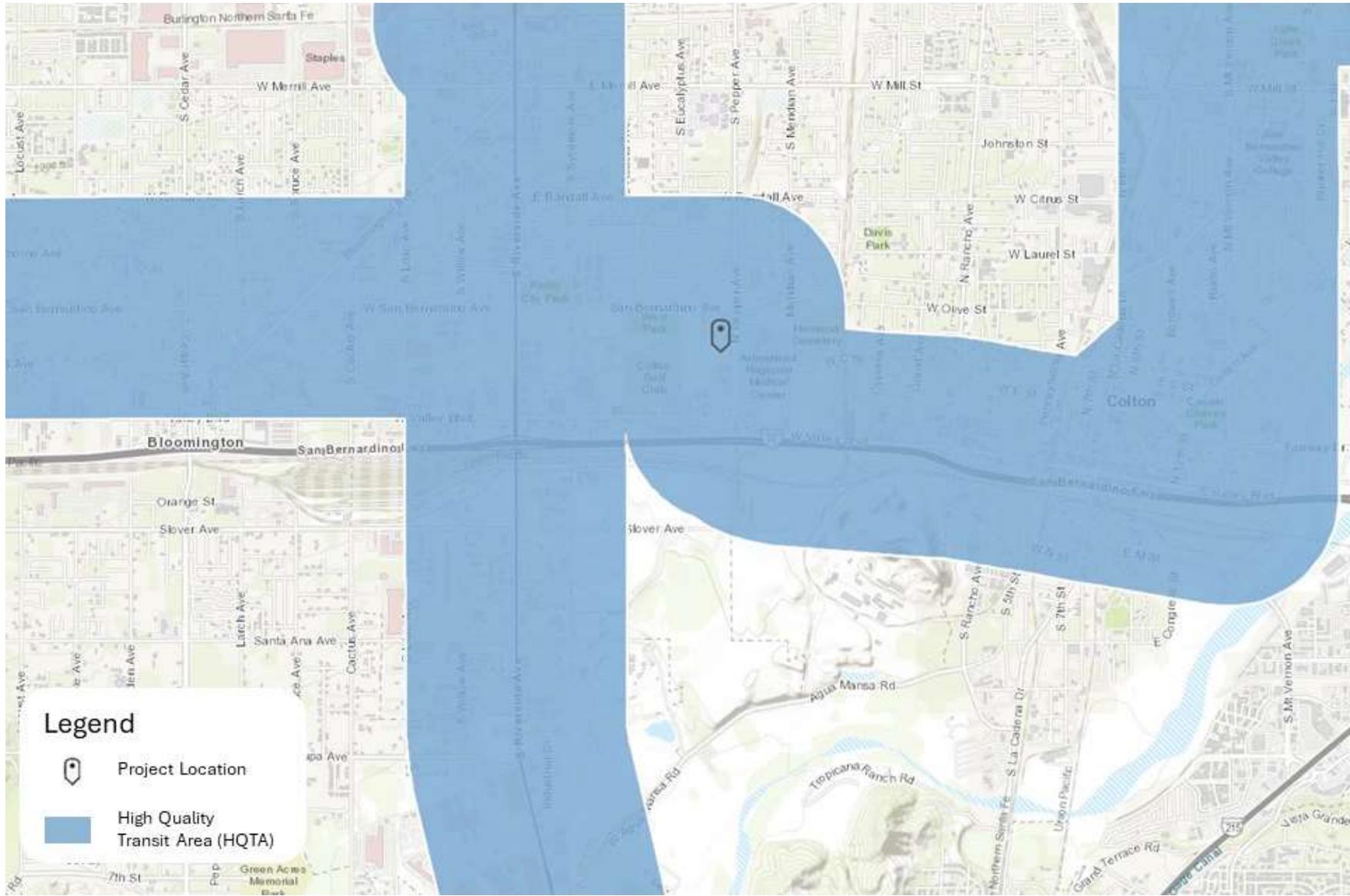
The VMT Guidelines define a Low-VMT Area as an individual traffic analysis zone (TAZ) where total daily Origin/Destination (OD) VMT per service population is 15% lower than the County-average total daily OD VMT per service population. The SBCTA VMT Screening Tool was used to determine if these conditions are met.

A map depicting low-VMT generating Transportation Analysis Zones (TAZs), based on SBCTA VMT Screening Tool data, is presented in **Exhibit B**. The project TAZ is expected to have a VMT per service population of 88.2 during the Opening Year. The County-wide VMT per service population is 29.6, leading to a threshold of 25.2 (15% below). These numbers are depicted in the screenshot of the SBCTA VMT Screening Tool in **Exhibit C**. As shown, the project TAZ does not qualify as a Low-VMT Area and therefore cannot be presumed to have a less-than-significant VMT impact based on the low-VMT area screening criteria.

CONCLUSIONS

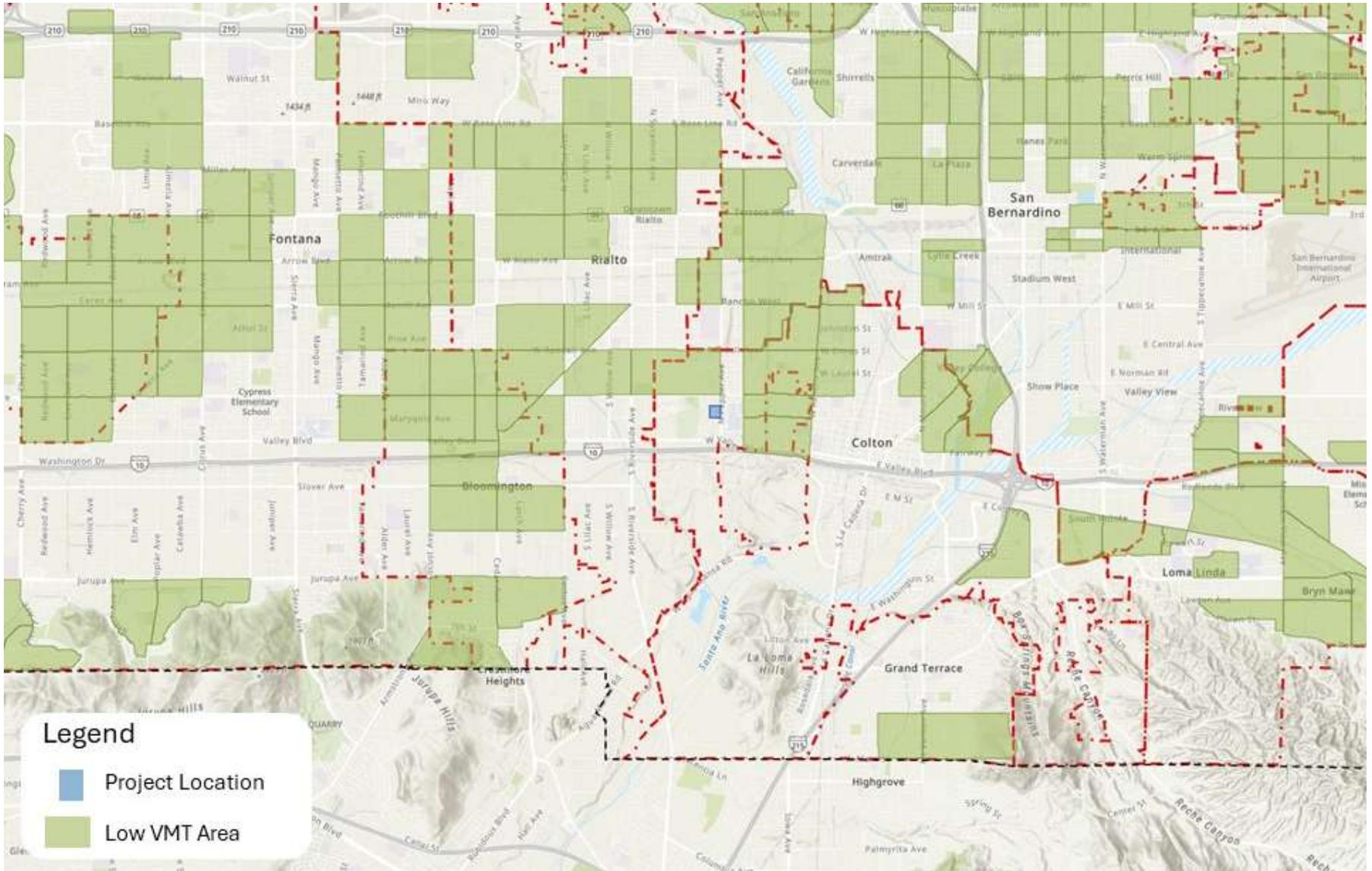
Per the City's VMT Guidelines, additional VMT analysis is not required when a project meets one or more of the following screening criteria: Project Trip Generation Screening, Land Use Type Screening, High-Quality Transit Area Screening, or Low VMT Area Screening. Given that the project fulfills the High-Quality Transit Area Screening criteria, further VMT analysis of transportation impacts is not required.

EXHIBIT A – TRANSIT PRIORITY AREA SCREENING MAP



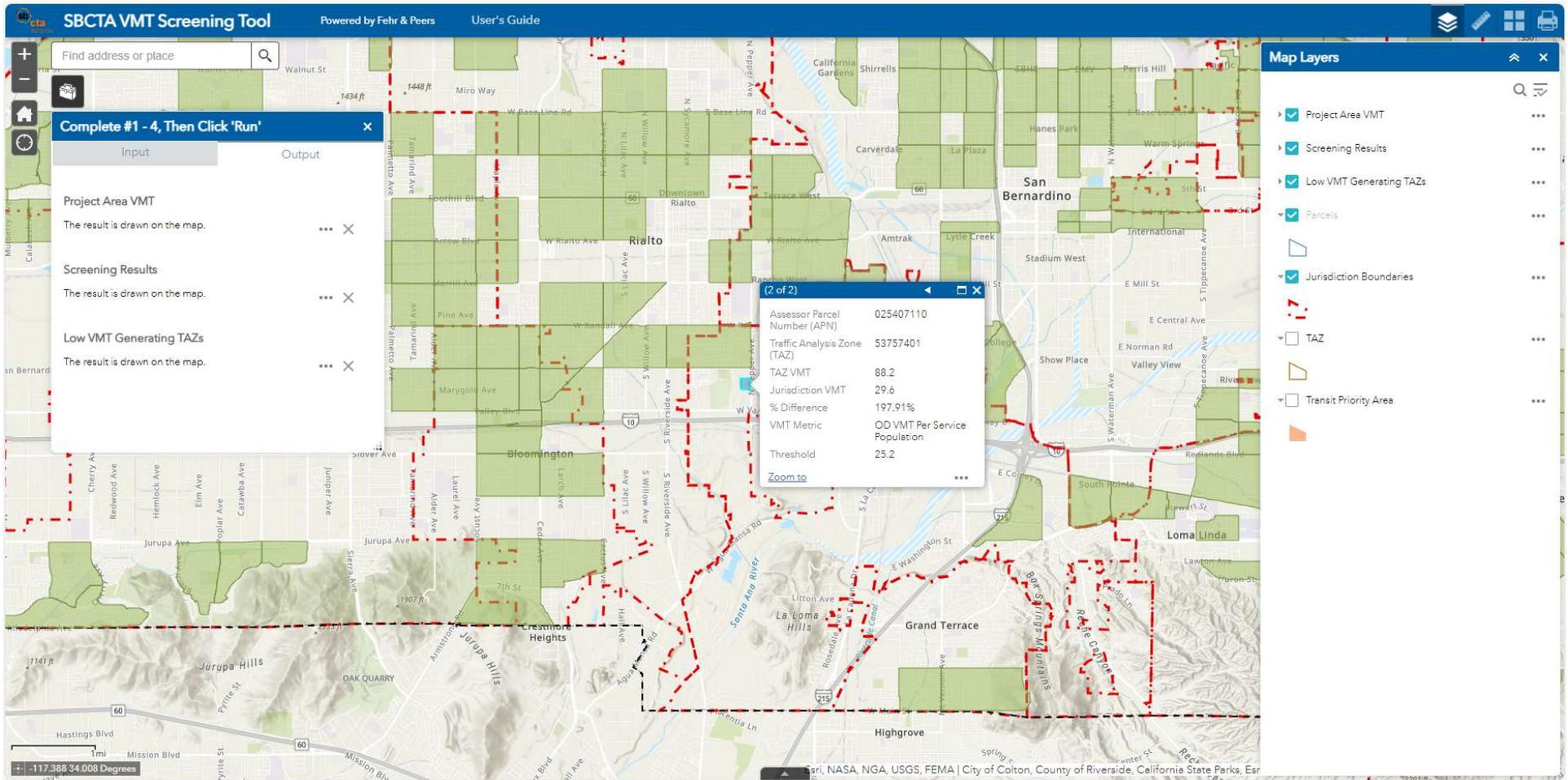
Source: SBCTA VMT Screening Tool

EXHIBIT B – LOW-VMT AREA SCREENING MAP



Source: SBCTA VMT Screening Tool

EXHIBIT C – SBCTA VMT SCREENING TOOL SCREENSHOT



Source: SBCTA VMT Screening Tool

Appendix B – Traffic Count Data Sheets

City of Colton
 N/S: N Pepper Avenue
 E/W: W San Bernardino Avenue
 Weather: Clear

File Name : 01_COL_Pep_SB AM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

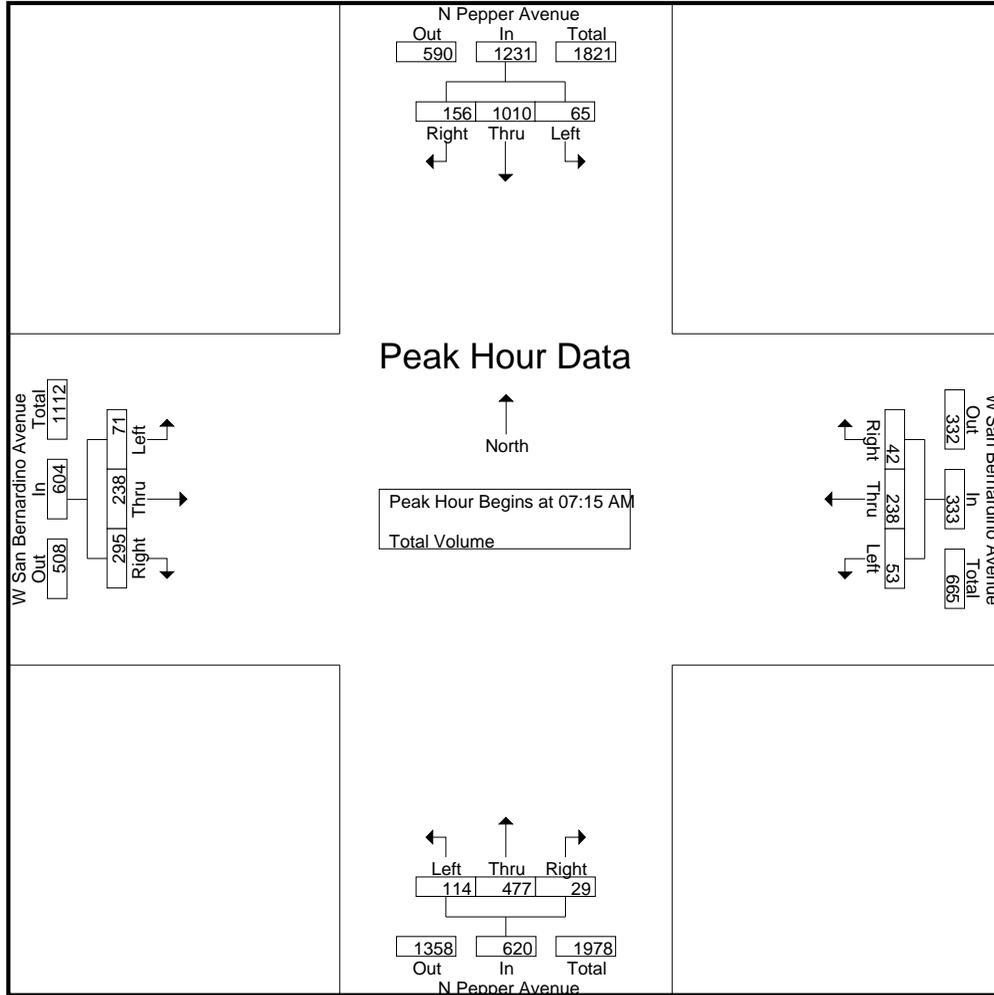
Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound				W San Bernardino Avenue Westbound				N Pepper Avenue Northbound				W San Bernardino Avenue Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	7	216	14	237	10	30	3	43	14	94	7	115	13	24	48	85	480
07:15 AM	8	240	17	265	7	39	6	52	21	108	4	133	17	49	64	130	580
07:30 AM	19	264	44	327	13	71	13	97	41	125	5	171	21	64	67	152	747
07:45 AM	24	262	55	341	13	88	15	116	28	130	9	167	17	79	87	183	807
Total	58	982	130	1170	43	228	37	308	104	457	25	586	68	216	266	550	2614
08:00 AM	14	244	40	298	20	40	8	68	24	114	11	149	16	46	77	139	654
08:15 AM	7	187	24	218	11	37	2	50	23	112	4	139	22	39	66	127	534
08:30 AM	10	233	34	277	8	36	3	47	17	108	4	129	23	48	45	116	569
08:45 AM	5	167	33	205	6	30	1	37	16	102	7	125	16	19	48	83	450
Total	36	831	131	998	45	143	14	202	80	436	26	542	77	152	236	465	2207
Grand Total	94	1813	261	2168	88	371	51	510	184	893	51	1128	145	368	502	1015	4821
Apprch %	4.3	83.6	12		17.3	72.7	10		16.3	79.2	4.5		14.3	36.3	49.5		
Total %	1.9	37.6	5.4	45	1.8	7.7	1.1	10.6	3.8	18.5	1.1	23.4	3	7.6	10.4	21.1	

Start Time	N Pepper Avenue Southbound				W San Bernardino Avenue Westbound				N Pepper Avenue Northbound				W San Bernardino Avenue Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	8	240	17	265	7	39	6	52	21	108	4	133	17	49	64	130	580
07:30 AM	19	264	44	327	13	71	13	97	41	125	5	171	21	64	67	152	747
07:45 AM	24	262	55	341	13	88	15	116	28	130	9	167	17	79	87	183	807
08:00 AM	14	244	40	298	20	40	8	68	24	114	11	149	16	46	77	139	654
Total Volume	65	1010	156	1231	53	238	42	333	114	477	29	620	71	238	295	604	2788
% App. Total	5.3	82	12.7		15.9	71.5	12.6		18.4	76.9	4.7		11.8	39.4	48.8		
PHF	.677	.956	.709	.902	.663	.676	.700	.718	.695	.917	.659	.906	.845	.753	.848	.825	.864

City of Colton
 N/S: N Pepper Avenue
 E/W: W San Bernardino Avenue
 Weather: Clear

File Name : 01_COL_Pep_SB AM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:30 AM				07:15 AM			
+0 mins.	8	240	17	265	7	39	6	52	41	125	5	171	17	49	64	130
+15 mins.	19	264	44	327	13	71	13	97	28	130	9	167	21	64	67	152
+30 mins.	24	262	55	341	13	88	15	116	24	114	11	149	17	79	87	183
+45 mins.	14	244	40	298	20	40	8	68	23	112	4	139	16	46	77	139
Total Volume	65	1010	156	1231	53	238	42	333	116	481	29	626	71	238	295	604
% App. Total	5.3	82	12.7		15.9	71.5	12.6		18.5	76.8	4.6		11.8	39.4	48.8	
PHF	.677	.956	.709	.902	.663	.676	.700	.718	.707	.925	.659	.915	.845	.753	.848	.825

City of Colton
 N/S: N Pepper Avenue
 E/W: W San Bernardino Avenue
 Weather: Clear

File Name : 01_COL_Pep_SB MD
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

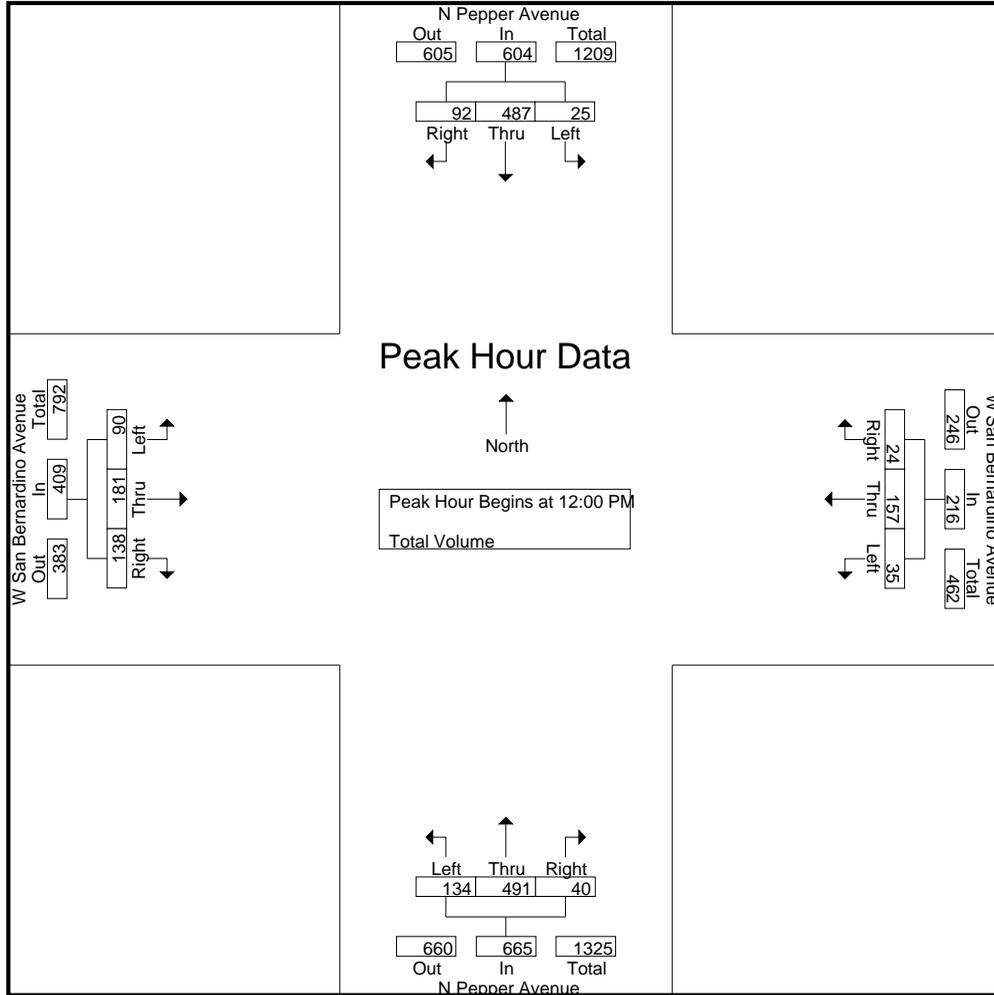
Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound				W San Bernardino Avenue Westbound				N Pepper Avenue Northbound				W San Bernardino Avenue Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
11:00 AM	5	115	22	142	10	35	1	46	29	105	12	146	20	39	41	100	434
11:15 AM	6	117	25	148	6	36	6	48	38	98	5	141	30	41	38	109	446
11:30 AM	9	134	21	164	8	33	8	49	25	130	7	162	17	42	44	103	478
11:45 AM	6	120	19	145	12	31	3	46	28	131	9	168	23	46	35	104	463
Total	26	486	87	599	36	135	18	189	120	464	33	617	90	168	158	416	1821
12:00 PM	6	132	21	159	9	33	3	45	32	90	16	138	22	45	34	101	443
12:15 PM	6	103	20	129	11	39	7	57	30	115	4	149	25	42	30	97	432
12:30 PM	5	134	26	165	7	35	7	49	36	150	6	192	20	38	44	102	508
12:45 PM	8	118	25	151	8	50	7	65	36	136	14	186	23	56	30	109	511
Total	25	487	92	604	35	157	24	216	134	491	40	665	90	181	138	409	1894
Grand Total	51	973	179	1203	71	292	42	405	254	955	73	1282	180	349	296	825	3715
Apprch %	4.2	80.9	14.9		17.5	72.1	10.4		19.8	74.5	5.7		21.8	42.3	35.9		
Total %	1.4	26.2	4.8	32.4	1.9	7.9	1.1	10.9	6.8	25.7	2	34.5	4.8	9.4	8	22.2	

Start Time	N Pepper Avenue Southbound				W San Bernardino Avenue Westbound				N Pepper Avenue Northbound				W San Bernardino Avenue Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	6	132	21	159	9	33	3	45	32	90	16	138	22	45	34	101	443
12:15 PM	6	103	20	129	11	39	7	57	30	115	4	149	25	42	30	97	432
12:30 PM	5	134	26	165	7	35	7	49	36	150	6	192	20	38	44	102	508
12:45 PM	8	118	25	151	8	50	7	65	36	136	14	186	23	56	30	109	511
Total Volume	25	487	92	604	35	157	24	216	134	491	40	665	90	181	138	409	1894
% App. Total	4.1	80.6	15.2		16.2	72.7	11.1		20.2	73.8	6		22	44.3	33.7		
PHF	.781	.909	.885	.915	.795	.785	.857	.831	.931	.818	.625	.866	.900	.808	.784	.938	.927

City of Colton
 N/S: N Pepper Avenue
 E/W: W San Bernardino Avenue
 Weather: Clear

File Name : 01_COL_Pep_SB MD
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	11:15 AM				12:00 PM				12:00 PM				11:15 AM			
+0 mins.	6	117	25	148	9	33	3	45	32	90	16	138	30	41	38	109
+15 mins.	9	134	21	164	11	39	7	57	30	115	4	149	17	42	44	103
+30 mins.	6	120	19	145	7	35	7	49	36	150	6	192	23	46	35	104
+45 mins.	6	132	21	159	8	50	7	65	36	136	14	186	22	45	34	101
Total Volume	27	503	86	616	35	157	24	216	134	491	40	665	92	174	151	417
% App. Total	4.4	81.7	14		16.2	72.7	11.1		20.2	73.8	6		22.1	41.7	36.2	
PHF	.750	.938	.860	.939	.795	.785	.857	.831	.931	.818	.625	.866	.767	.946	.858	.956

City of Colton
 N/S: N Pepper Avenue
 E/W: W San Bernardino Avenue
 Weather: Clear

File Name : 01_COL_Pep_SB PM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound				W San Bernardino Avenue Westbound				N Pepper Avenue Northbound				W San Bernardino Avenue Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	13	134	26	173	7	70	9	86	58	201	21	280	24	77	39	140	679
04:15 PM	8	122	32	162	10	58	6	74	45	202	14	261	29	58	25	112	609
04:30 PM	9	148	36	193	12	64	12	88	64	213	27	304	28	74	38	140	725
04:45 PM	13	133	32	178	4	82	4	90	47	169	10	226	21	51	30	102	596
Total	43	537	126	706	33	274	31	338	214	785	72	1071	102	260	132	494	2609
05:00 PM	8	124	27	159	4	56	6	66	41	164	14	219	31	79	28	138	582
05:15 PM	7	143	23	173	7	52	8	67	32	203	13	248	22	72	35	129	617
05:30 PM	10	166	25	201	7	52	7	66	52	195	13	260	35	63	33	131	658
05:45 PM	12	121	33	166	5	55	5	65	36	230	16	282	27	52	30	109	622
Total	37	554	108	699	23	215	26	264	161	792	56	1009	115	266	126	507	2479
Grand Total	80	1091	234	1405	56	489	57	602	375	1577	128	2080	217	526	258	1001	5088
Apprch %	5.7	77.7	16.7		9.3	81.2	9.5		18	75.8	6.2		21.7	52.5	25.8		
Total %	1.6	21.4	4.6	27.6	1.1	9.6	1.1	11.8	7.4	31	2.5	40.9	4.3	10.3	5.1	19.7	

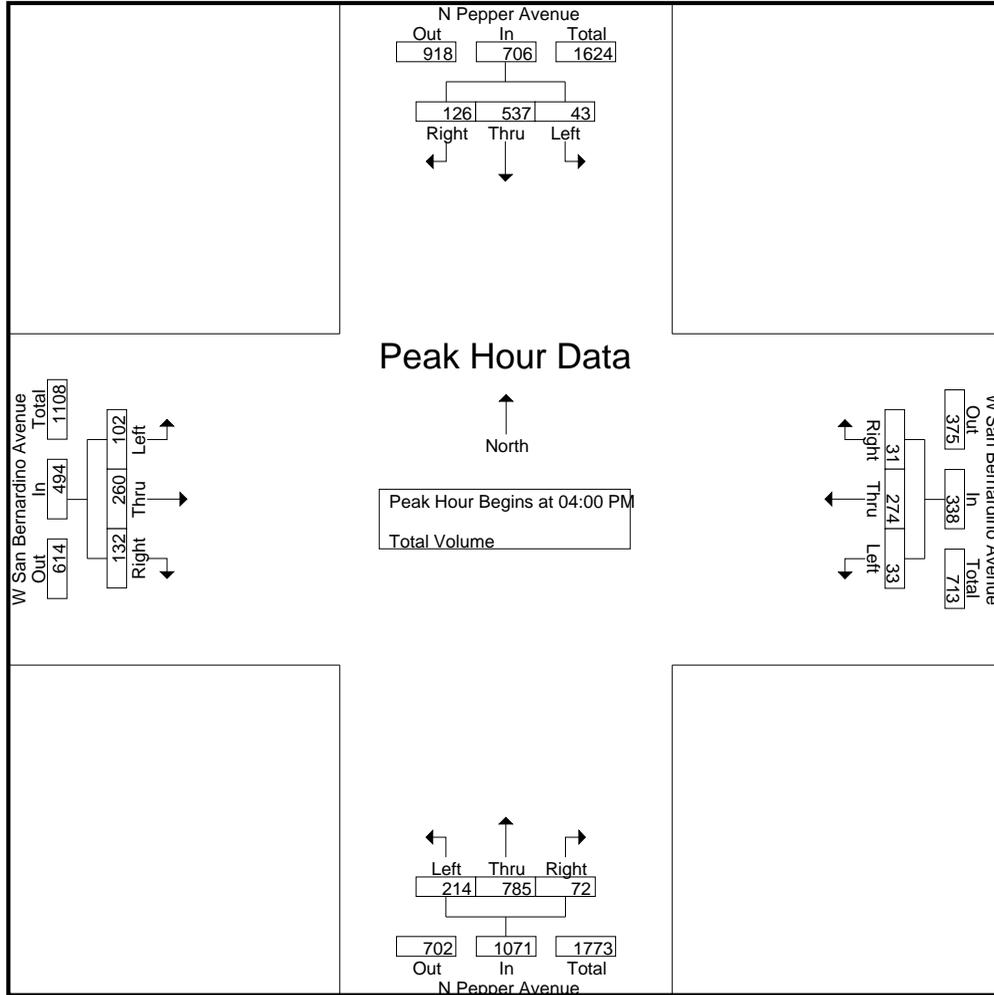
Start Time	N Pepper Avenue Southbound				W San Bernardino Avenue Westbound				N Pepper Avenue Northbound				W San Bernardino Avenue Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	13	134	26	173	7	70	9	86	58	201	21	280	24	77	39	140	679
04:15 PM	8	122	32	162	10	58	6	74	45	202	14	261	29	58	25	112	609
04:30 PM	9	148	36	193	12	64	12	88	64	213	27	304	28	74	38	140	725
04:45 PM	13	133	32	178	4	82	4	90	47	169	10	226	21	51	30	102	596
Total Volume	43	537	126	706	33	274	31	338	214	785	72	1071	102	260	132	494	2609
% App. Total	6.1	76.1	17.8		9.8	81.1	9.2		20	73.3	6.7		20.6	52.6	26.7		
PHF	.827	.907	.875	.915	.688	.835	.646	.939	.836	.921	.667	.881	.879	.844	.846	.882	.900

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

City of Colton
 N/S: N Pepper Avenue
 E/W: W San Bernardino Avenue
 Weather: Clear

File Name : 01_COL_Pep_SB PM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM				04:00 PM				04:00 PM				04:30 PM			
+0 mins.	13	133	32	178	7	70	9	86	58	201	21	280	28	74	38	140
+15 mins.	8	124	27	159	10	58	6	74	45	202	14	261	21	51	30	102
+30 mins.	7	143	23	173	12	64	12	88	64	213	27	304	31	79	28	138
+45 mins.	10	166	25	201	4	82	4	90	47	169	10	226	22	72	35	129
Total Volume	38	566	107	711	33	274	31	338	214	785	72	1071	102	276	131	509
% App. Total	5.3	79.6	15		9.8	81.1	9.2		20	73.3	6.7		20	54.2	25.7	
PHF	.731	.852	.836	.884	.688	.835	.646	.939	.836	.921	.667	.881	.823	.873	.862	.909

City of Colton
 N/S: N Pepper Avenue
 E/W: Violet Street
 Weather: Clear

File Name : 02_COL_Pep_Violet AM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound			Violet Street Westbound			N Pepper Avenue Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
07:00 AM	29	249	278	4	7	11	106	38	144	433
07:15 AM	18	279	297	15	19	34	121	20	141	472
07:30 AM	32	314	346	22	39	61	140	30	170	577
07:45 AM	27	332	359	9	17	26	150	33	183	568
Total	106	1174	1280	50	82	132	517	121	638	2050
08:00 AM	33	310	343	8	10	18	139	31	170	531
08:15 AM	28	230	258	6	10	16	140	18	158	432
08:30 AM	22	268	290	6	7	13	121	23	144	447
08:45 AM	19	206	225	2	12	14	119	34	153	392
Total	102	1014	1116	22	39	61	519	106	625	1802
Grand Total	208	2188	2396	72	121	193	1036	227	1263	3852
Apprch %	8.7	91.3		37.3	62.7		82	18		
Total %	5.4	56.8	62.2	1.9	3.1	5	26.9	5.9	32.8	

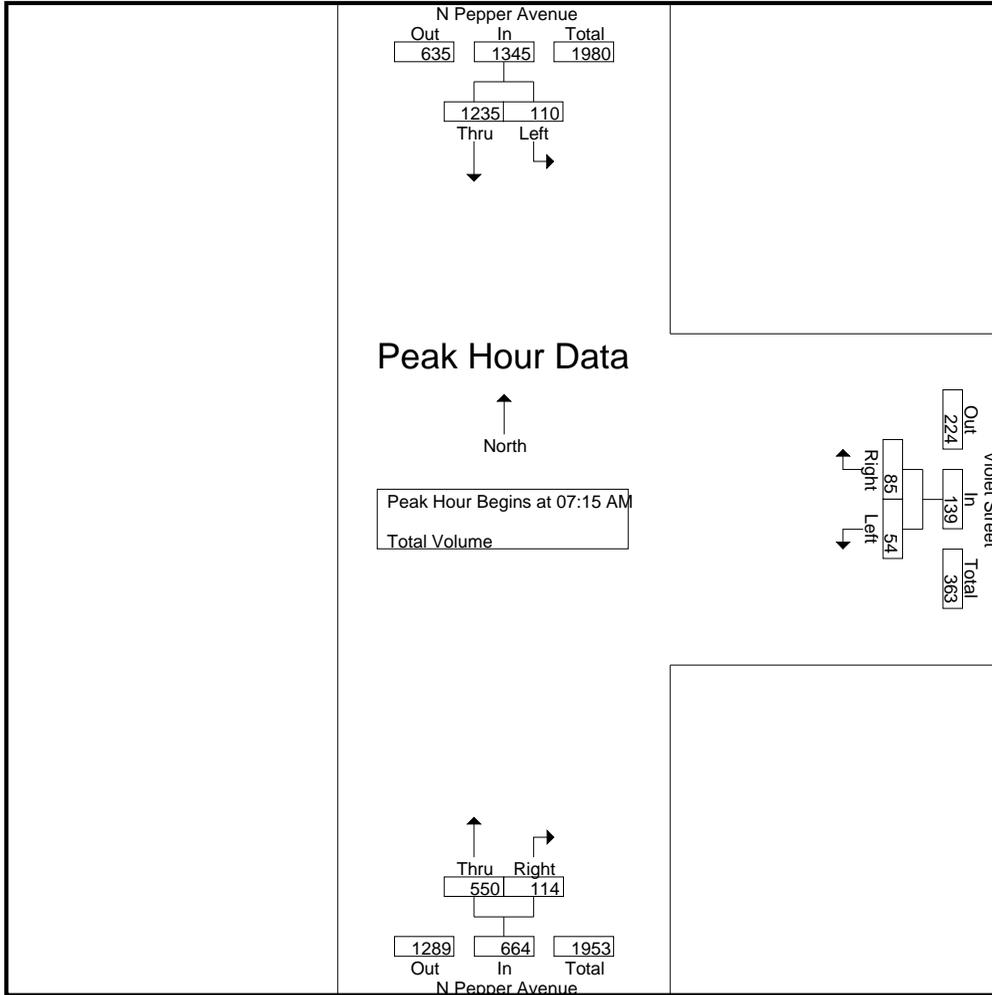
Start Time	N Pepper Avenue Southbound			Violet Street Westbound			N Pepper Avenue Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
07:15 AM	18	279	297	15	19	34	121	20	141	472
07:30 AM	32	314	346	22	39	61	140	30	170	577
07:45 AM	27	332	359	9	17	26	150	33	183	568
08:00 AM	33	310	343	8	10	18	139	31	170	531
Total Volume	110	1235	1345	54	85	139	550	114	664	2148
% App. Total	8.2	91.8		38.8	61.2		82.8	17.2		
PHF	.833	.930	.937	.614	.545	.570	.917	.864	.907	.931

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

City of Colton
 N/S: N Pepper Avenue
 E/W: Violet Street
 Weather: Clear

File Name : 02_COL_Pep_Violet AM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:30 AM		
+0 mins.	18	279	297	15	19	34	140	30	170
+15 mins.	32	314	346	22	39	61	150	33	183
+30 mins.	27	332	359	9	17	26	139	31	170
+45 mins.	33	310	343	8	10	18	140	18	158
Total Volume	110	1235	1345	54	85	139	569	112	681
% App. Total	8.2	91.8		38.8	61.2		83.6	16.4	
PHF	.833	.930	.937	.614	.545	.570	.948	.848	.930

City of Colton
 N/S: N Pepper Avenue
 E/W: Violet Street
 Weather: Clear

File Name : 02_COL_Pep_Violet MD
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound			Violet Street Westbound			N Pepper Avenue Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
11:00 AM	16	150	166	15	22	37	131	8	139	342
11:15 AM	14	154	168	11	22	33	131	6	137	338
11:30 AM	15	168	183	13	26	39	138	3	141	363
11:45 AM	10	152	162	12	18	30	139	11	150	342
Total	55	624	679	51	88	139	539	28	567	1385
12:00 PM	12	172	184	20	22	42	119	12	131	357
12:15 PM	19	127	146	22	18	40	139	9	148	334
12:30 PM	12	174	186	16	18	34	172	18	190	410
12:45 PM	23	136	159	27	18	45	179	18	197	401
Total	66	609	675	85	76	161	609	57	666	1502
Grand Total	121	1233	1354	136	164	300	1148	85	1233	2887
Apprch %	8.9	91.1		45.3	54.7		93.1	6.9		
Total %	4.2	42.7	46.9	4.7	5.7	10.4	39.8	2.9	42.7	

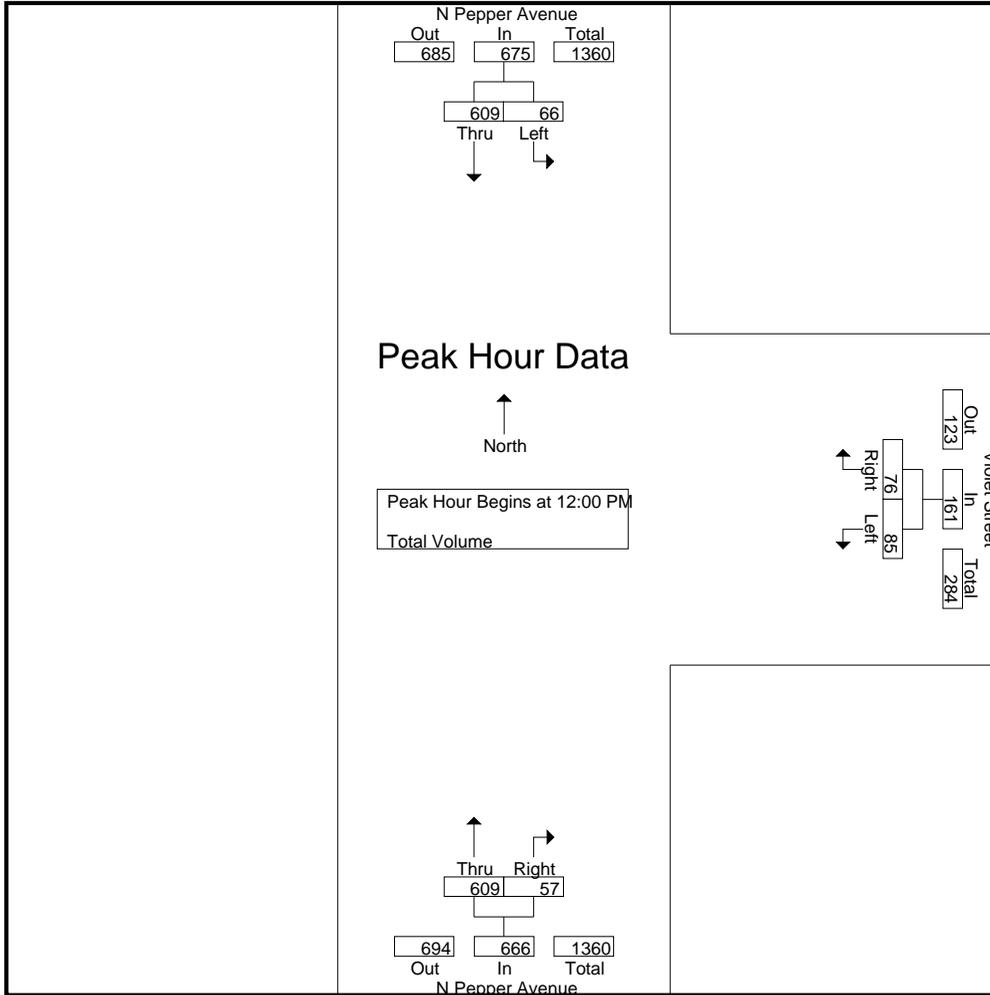
Start Time	N Pepper Avenue Southbound			Violet Street Westbound			N Pepper Avenue Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
12:00 PM	12	172	184	20	22	42	119	12	131	357
12:15 PM	19	127	146	22	18	40	139	9	148	334
12:30 PM	12	174	186	16	18	34	172	18	190	410
12:45 PM	23	136	159	27	18	45	179	18	197	401
Total Volume	66	609	675	85	76	161	609	57	666	1502
% App. Total	9.8	90.2		52.8	47.2		91.4	8.6		
PHF	.717	.875	.907	.787	.864	.894	.851	.792	.845	.916

Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 12:00 PM

City of Colton
 N/S: N Pepper Avenue
 E/W: Violet Street
 Weather: Clear

File Name : 02_COL_Pep_Violet MD
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	11:15 AM			12:00 PM			12:00 PM		
+0 mins.	14	154	168	20	22	42	119	12	131
+15 mins.	15	168	183	22	18	40	139	9	148
+30 mins.	10	152	162	16	18	34	172	18	190
+45 mins.	12	172	184	27	18	45	179	18	197
Total Volume	51	646	697	85	76	161	609	57	666
% App. Total	7.3	92.7		52.8	47.2		91.4	8.6	
PHF	.850	.939	.947	.787	.864	.894	.851	.792	.845

City of Colton
 N/S: N Pepper Avenue
 E/W: Violet Street
 Weather: Clear

File Name : 02_COL_Pep_Violet PM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound			Violet Street Westbound			N Pepper Avenue Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:00 PM	12	174	186	34	34	68	248	3	251	505
04:15 PM	9	143	152	26	19	45	246	2	248	445
04:30 PM	7	196	203	19	37	56	264	1	265	524
04:45 PM	8	158	166	16	27	43	197	2	199	408
Total	36	671	707	95	117	212	955	8	963	1882
05:00 PM	7	158	165	27	20	47	207	5	212	424
05:15 PM	9	171	180	12	23	35	225	4	229	444
05:30 PM	8	199	207	11	11	22	253	1	254	483
05:45 PM	11	148	159	14	17	31	268	5	273	463
Total	35	676	711	64	71	135	953	15	968	1814
Grand Total	71	1347	1418	159	188	347	1908	23	1931	3696
Apprch %	5	95		45.8	54.2		98.8	1.2		
Total %	1.9	36.4	38.4	4.3	5.1	9.4	51.6	0.6	52.2	

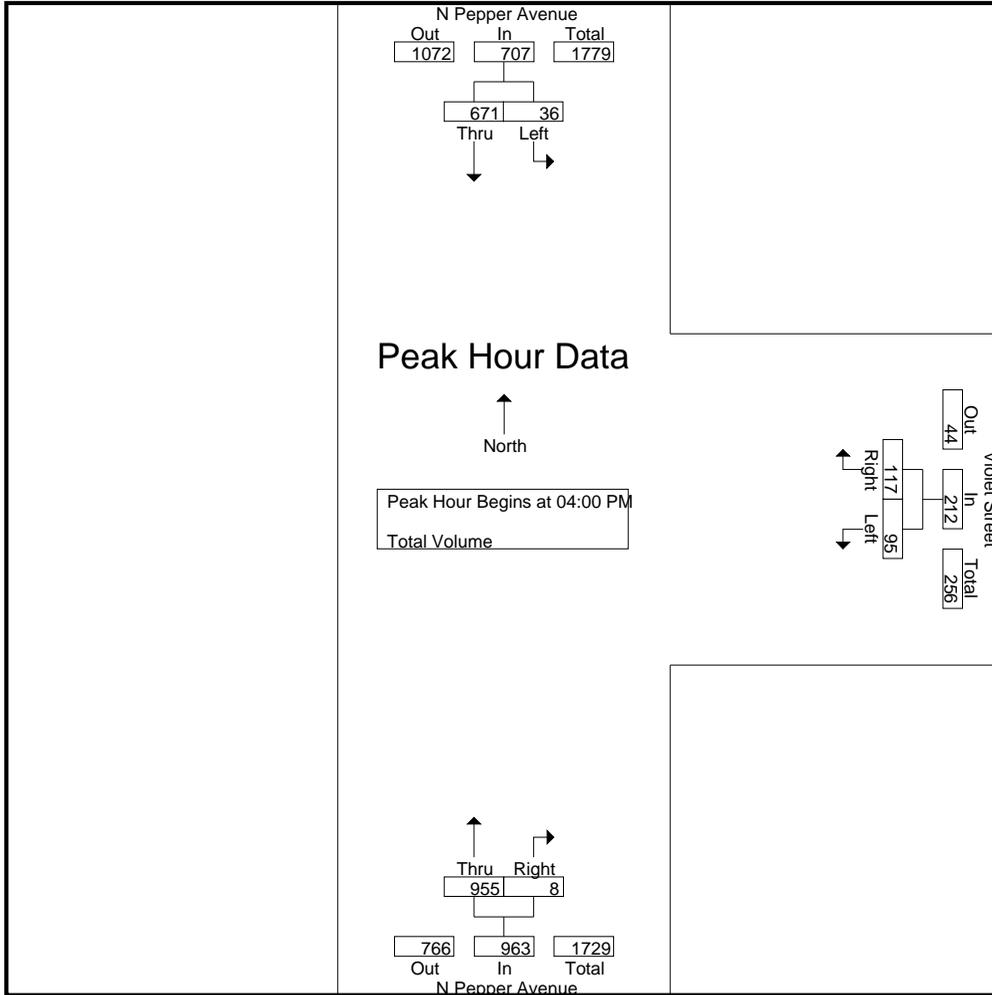
Start Time	N Pepper Avenue Southbound			Violet Street Westbound			N Pepper Avenue Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:00 PM	12	174	186	34	34	68	248	3	251	505
04:15 PM	9	143	152	26	19	45	246	2	248	445
04:30 PM	7	196	203	19	37	56	264	1	265	524
04:45 PM	8	158	166	16	27	43	197	2	199	408
Total Volume	36	671	707	95	117	212	955	8	963	1882
% App. Total	5.1	94.9		44.8	55.2		99.2	0.8		
PHF	.750	.856	.871	.699	.791	.779	.904	.667	.908	.898

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

City of Colton
 N/S: N Pepper Avenue
 E/W: Violet Street
 Weather: Clear

File Name : 02_COL_Pep_Violet PM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM			04:00 PM			05:00 PM		
+0 mins.	8	158	166	34	34	68	207	5	212
+15 mins.	7	158	165	26	19	45	225	4	229
+30 mins.	9	171	180	19	37	56	253	1	254
+45 mins.	8	199	207	16	27	43	268	5	273
Total Volume	32	686	718	95	117	212	953	15	968
% App. Total	4.5	95.5		44.8	55.2		98.5	1.5	
PHF	.889	.862	.867	.699	.791	.779	.889	.750	.886

City of Colton
 N/S: N Pepper Avenue
 E/W: Blue Drive
 Weather: Clear

File Name : 03_COL_Pep_Blue AM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound			Blue Drive Westbound			N Pepper Avenue Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
07:00 AM	7	242	249	10	1	11	146	34	180	440
07:15 AM	9	299	308	14	2	16	139	20	159	483
07:30 AM	15	292	307	56	7	63	167	25	192	562
07:45 AM	29	314	343	22	2	24	164	26	190	557
Total	60	1147	1207	102	12	114	616	105	721	2042
08:00 AM	33	324	357	21	6	27	160	26	186	570
08:15 AM	23	223	246	19	1	20	159	24	183	449
08:30 AM	15	252	267	18	5	23	137	21	158	448
08:45 AM	20	196	216	18	7	25	143	26	169	410
Total	91	995	1086	76	19	95	599	97	696	1877
Grand Total	151	2142	2293	178	31	209	1215	202	1417	3919
Apprch %	6.6	93.4		85.2	14.8		85.7	14.3		
Total %	3.9	54.7	58.5	4.5	0.8	5.3	31	5.2	36.2	

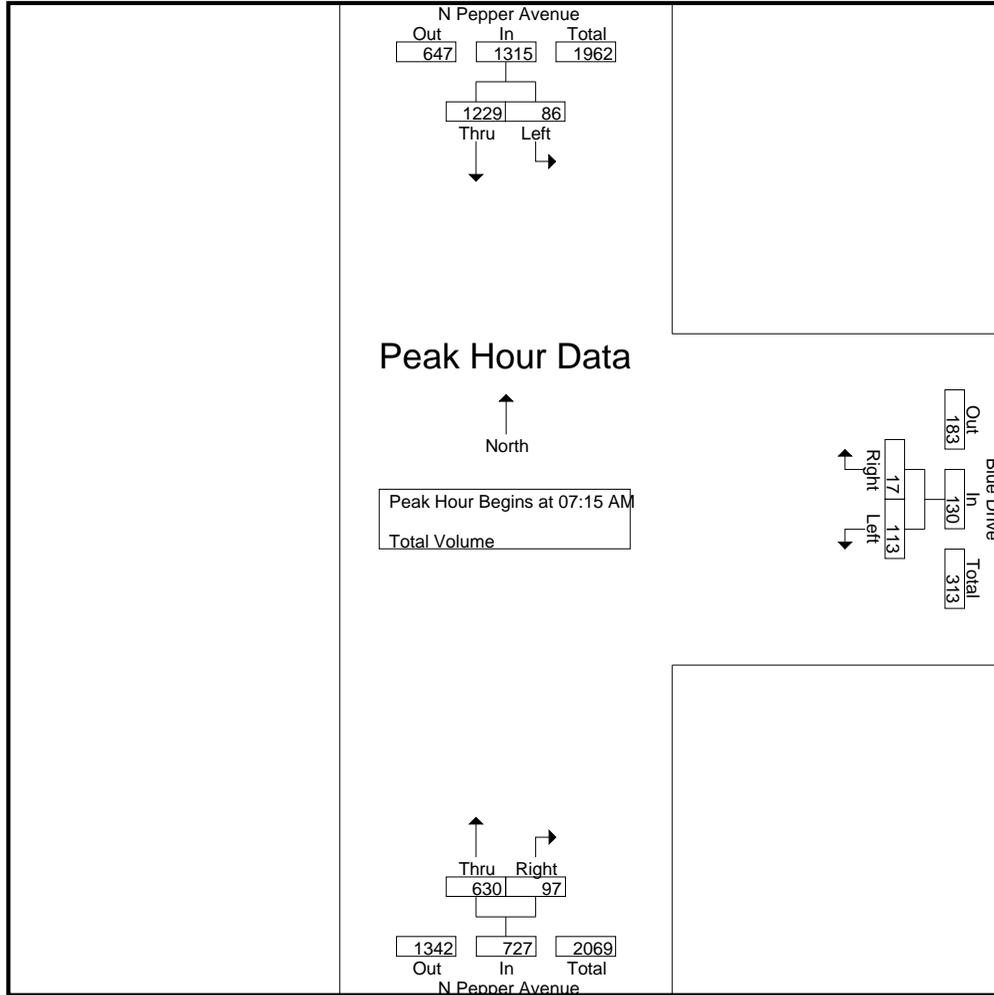
Start Time	N Pepper Avenue Southbound			Blue Drive Westbound			N Pepper Avenue Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
07:15 AM	9	299	308	14	2	16	139	20	159	483
07:30 AM	15	292	307	56	7	63	167	25	192	562
07:45 AM	29	314	343	22	2	24	164	26	190	557
08:00 AM	33	324	357	21	6	27	160	26	186	570
Total Volume	86	1229	1315	113	17	130	630	97	727	2172
% App. Total	6.5	93.5		86.9	13.1		86.7	13.3		
PHF	.652	.948	.921	.504	.607	.516	.943	.933	.947	.953

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

City of Colton
 N/S: N Pepper Avenue
 E/W: Blue Drive
 Weather: Clear

File Name : 03_COL_Pep_Blue AM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM			07:30 AM			07:30 AM		
+0 mins.	9	299	308	56	7	63	167	25	192
+15 mins.	15	292	307	22	2	24	164	26	190
+30 mins.	29	314	343	21	6	27	160	26	186
+45 mins.	33	324	357	19	1	20	159	24	183
Total Volume	86	1229	1315	118	16	134	650	101	751
% App. Total	6.5	93.5		88.1	11.9		86.6	13.4	
PHF	.652	.948	.921	.527	.571	.532	.973	.971	.978

City of Colton
 N/S: N Pepper Avenue
 E/W: Blue Drive
 Weather: Clear

File Name : 03_COL_Pep_Blue MD
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound			Blue Drive Westbound			N Pepper Avenue Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
11:00 AM	4	156	160	19	5	24	131	17	148	332
11:15 AM	11	149	160	25	10	35	125	18	143	338
11:30 AM	12	157	169	23	4	27	134	12	146	342
11:45 AM	11	148	159	31	8	39	145	16	161	359
Total	38	610	648	98	27	125	535	63	598	1371
12:00 PM	10	171	181	20	12	32	113	10	123	336
12:15 PM	6	143	149	29	7	36	144	26	170	355
12:30 PM	10	155	165	17	9	26	171	22	193	384
12:45 PM	9	146	155	22	11	33	182	19	201	389
Total	35	615	650	88	39	127	610	77	687	1464
Grand Total	73	1225	1298	186	66	252	1145	140	1285	2835
Apprch %	5.6	94.4		73.8	26.2		89.1	10.9		
Total %	2.6	43.2	45.8	6.6	2.3	8.9	40.4	4.9	45.3	

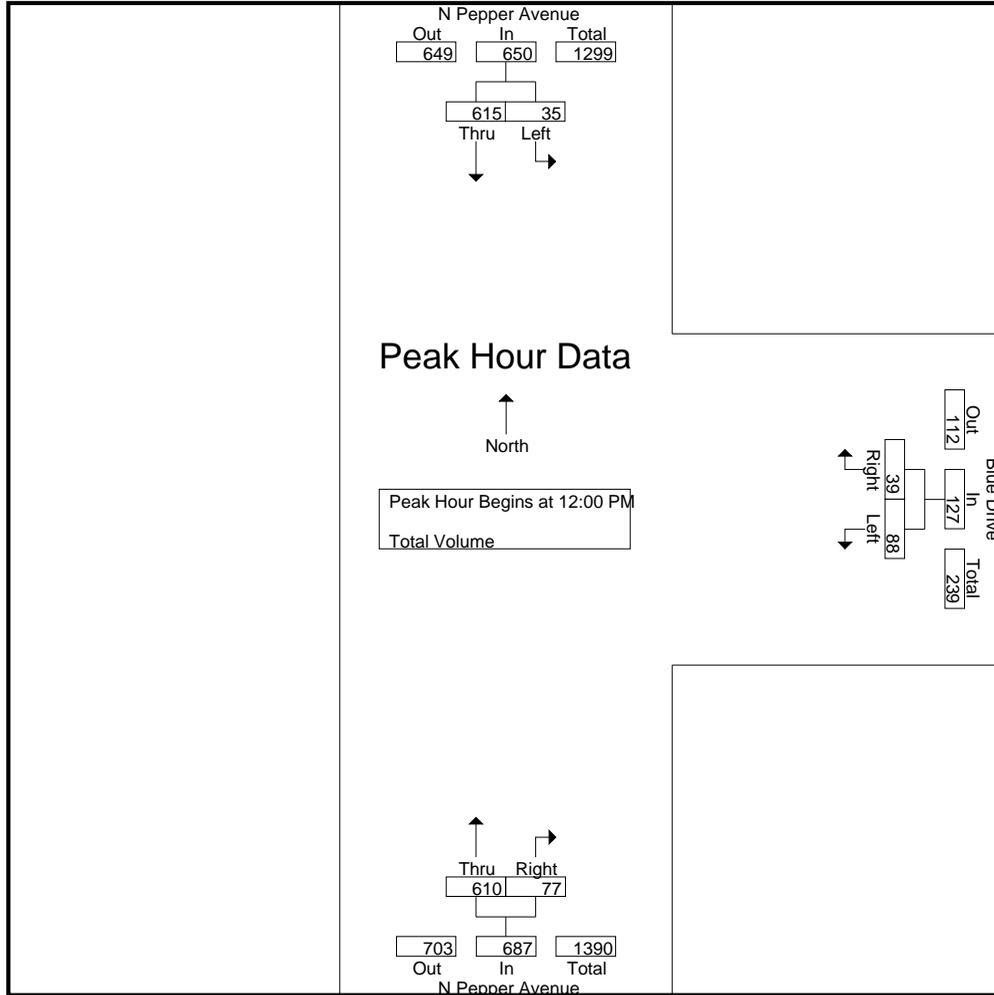
Start Time	N Pepper Avenue Southbound			Blue Drive Westbound			N Pepper Avenue Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
12:00 PM	10	171	181	20	12	32	113	10	123	336
12:15 PM	6	143	149	29	7	36	144	26	170	355
12:30 PM	10	155	165	17	9	26	171	22	193	384
12:45 PM	9	146	155	22	11	33	182	19	201	389
Total Volume	35	615	650	88	39	127	610	77	687	1464
% App. Total	5.4	94.6		69.3	30.7		88.8	11.2		
PHF	.875	.899	.898	.759	.813	.882	.838	.740	.854	.941

Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 12:00 PM

City of Colton
 N/S: N Pepper Avenue
 E/W: Blue Drive
 Weather: Clear

File Name : 03_COL_Pep_Blue MD
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	11:15 AM			11:30 AM			12:00 PM		
+0 mins.	11	149	160	23	4	27	113	10	123
+15 mins.	12	157	169	31	8	39	144	26	170
+30 mins.	11	148	159	20	12	32	171	22	193
+45 mins.	10	171	181	29	7	36	182	19	201
Total Volume	44	625	669	103	31	134	610	77	687
% App. Total	6.6	93.4		76.9	23.1		88.8	11.2	
PHF	.917	.914	.924	.831	.646	.859	.838	.740	.854

City of Colton
 N/S: N Pepper Avenue
 E/W: Blue Drive
 Weather: Clear

File Name : 03_COL_Pep_Blue PM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound			Blue Drive Westbound			N Pepper Avenue Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:00 PM	9	193	202	30	12	42	226	8	234	478
04:15 PM	5	168	173	26	12	38	232	8	240	451
04:30 PM	2	219	221	46	19	65	256	9	265	551
04:45 PM	3	173	176	28	7	35	189	8	197	408
Total	19	753	772	130	50	180	903	33	936	1888
05:00 PM	2	182	184	42	11	53	193	3	196	433
05:15 PM	4	184	188	11	10	21	221	5	226	435
05:30 PM	3	214	217	15	0	15	257	7	264	496
05:45 PM	7	154	161	21	3	24	275	13	288	473
Total	16	734	750	89	24	113	946	28	974	1837
Grand Total	35	1487	1522	219	74	293	1849	61	1910	3725
Apprch %	2.3	97.7		74.7	25.3		96.8	3.2		
Total %	0.9	39.9	40.9	5.9	2	7.9	49.6	1.6	51.3	

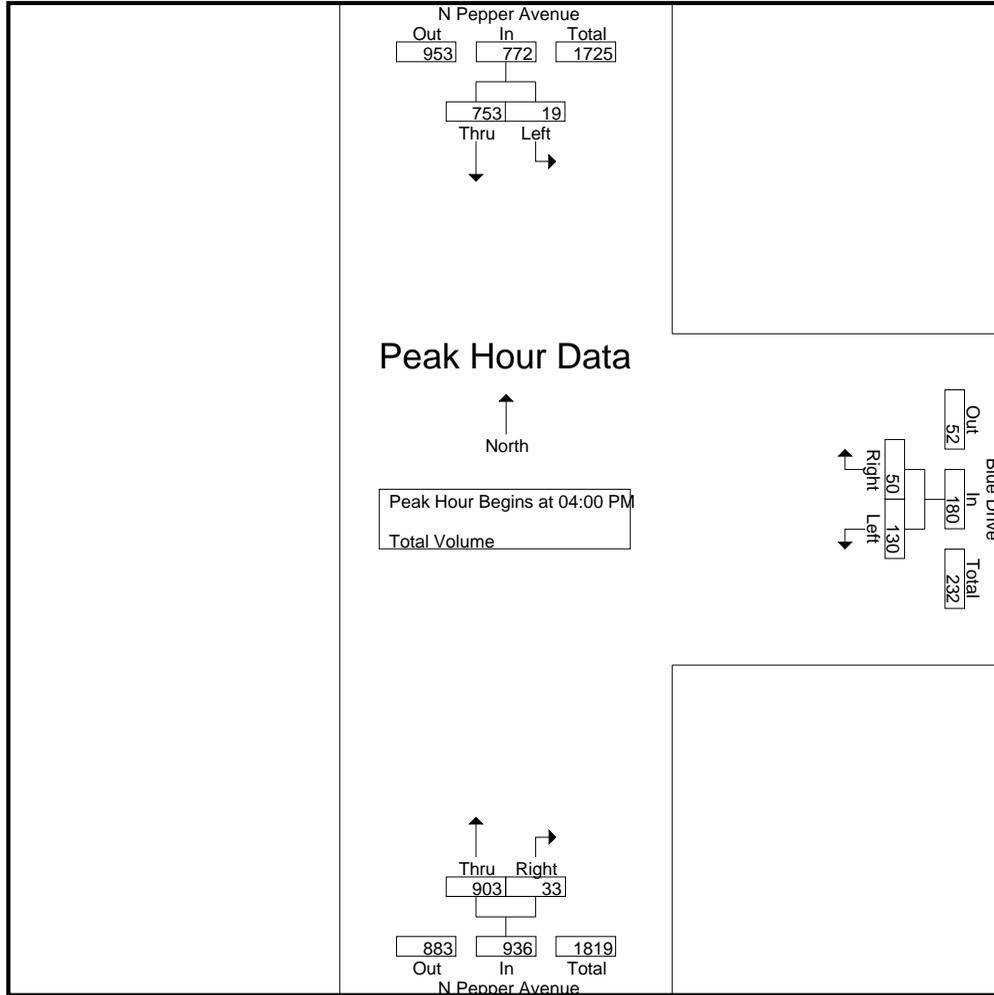
Start Time	N Pepper Avenue Southbound			Blue Drive Westbound			N Pepper Avenue Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:00 PM	9	193	202	30	12	42	226	8	234	478
04:15 PM	5	168	173	26	12	38	232	8	240	451
04:30 PM	2	219	221	46	19	65	256	9	265	551
04:45 PM	3	173	176	28	7	35	189	8	197	408
Total Volume	19	753	772	130	50	180	903	33	936	1888
% App. Total	2.5	97.5		72.2	27.8		96.5	3.5		
PHF	.528	.860	.873	.707	.658	.692	.882	.917	.883	.857

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

City of Colton
 N/S: N Pepper Avenue
 E/W: Blue Drive
 Weather: Clear

File Name : 03_COL_Pep_Blue PM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:00 PM			04:15 PM			05:00 PM		
+0 mins.	9	193	202	26	12	38	193	3	196
+15 mins.	5	168	173	46	19	65	221	5	226
+30 mins.	2	219	221	28	7	35	257	7	264
+45 mins.	3	173	176	42	11	53	275	13	288
Total Volume	19	753	772	142	49	191	946	28	974
% App. Total	2.5	97.5		74.3	25.7		97.1	2.9	
PHF	.528	.860	.873	.772	.645	.735	.860	.538	.845

City of Colton
 N/S: N Pepper Avenue
 E/W: W Valley Boulevard
 Weather: Clear

File Name : 04_COL_Pep_Valley AM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound				W Valley Boulevard Westbound				N Pepper Avenue Northbound				W Valley Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	12	187	10	209	71	55	13	139	63	203	15	281	14	24	38	76	705
07:15 AM	17	263	16	296	61	58	6	125	80	185	19	284	17	33	47	97	802
07:30 AM	19	265	11	295	98	71	11	180	60	198	18	276	21	39	87	147	898
07:45 AM	34	233	12	279	75	79	14	168	74	204	18	296	18	67	89	174	917
Total	82	948	49	1079	305	263	44	612	277	790	70	1137	70	163	261	494	3322
08:00 AM	23	253	26	302	54	56	16	126	72	189	21	282	25	59	71	155	865
08:15 AM	32	225	19	276	60	44	21	125	59	156	18	233	41	61	41	143	777
08:30 AM	33	204	18	255	34	45	11	90	52	141	12	205	32	48	33	113	663
08:45 AM	33	153	17	203	40	68	13	121	49	154	30	233	19	46	40	105	662
Total	121	835	80	1036	188	213	61	462	232	640	81	953	117	214	185	516	2967
Grand Total	203	1783	129	2115	493	476	105	1074	509	1430	151	2090	187	377	446	1010	6289
Apprch %	9.6	84.3	6.1		45.9	44.3	9.8		24.4	68.4	7.2		18.5	37.3	44.2		
Total %	3.2	28.4	2.1	33.6	7.8	7.6	1.7	17.1	8.1	22.7	2.4	33.2	3	6	7.1	16.1	

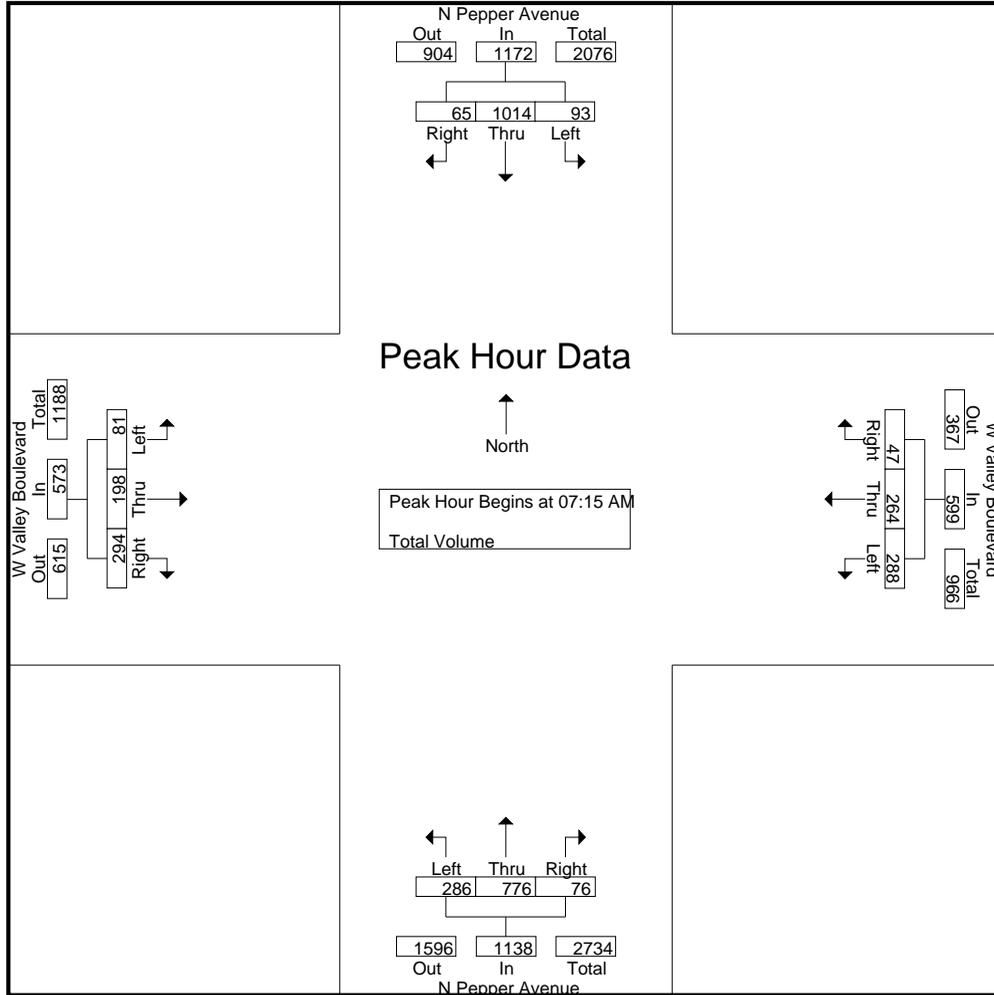
Start Time	N Pepper Avenue Southbound				W Valley Boulevard Westbound				N Pepper Avenue Northbound				W Valley Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:15 AM	17	263	16	296	61	58	6	125	80	185	19	284	17	33	47	97	802
07:30 AM	19	265	11	295	98	71	11	180	60	198	18	276	21	39	87	147	898
07:45 AM	34	233	12	279	75	79	14	168	74	204	18	296	18	67	89	174	917
08:00 AM	23	253	26	302	54	56	16	126	72	189	21	282	25	59	71	155	865
Total Volume	93	1014	65	1172	288	264	47	599	286	776	76	1138	81	198	294	573	3482
% App. Total	7.9	86.5	5.5		48.1	44.1	7.8		25.1	68.2	6.7		14.1	34.6	51.3		
PHF	.684	.957	.625	.970	.735	.835	.734	.832	.894	.951	.905	.961	.810	.739	.826	.823	.949

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

City of Colton
 N/S: N Pepper Avenue
 E/W: W Valley Boulevard
 Weather: Clear

File Name : 04_COL_Pep_Valley AM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:00 AM				07:15 AM				07:30 AM			
+0 mins.	17	263	16	296	71	55	13	139	80	185	19	284	21	39	87	147
+15 mins.	19	265	11	295	61	58	6	125	60	198	18	276	18	67	89	174
+30 mins.	34	233	12	279	98	71	11	180	74	204	18	296	25	59	71	155
+45 mins.	23	253	26	302	75	79	14	168	72	189	21	282	41	61	41	143
Total Volume	93	1014	65	1172	305	263	44	612	286	776	76	1138	105	226	288	619
% App. Total	7.9	86.5	5.5		49.8	43	7.2		25.1	68.2	6.7		17	36.5	46.5	
PHF	.684	.957	.625	.970	.778	.832	.786	.850	.894	.951	.905	.961	.640	.843	.809	.889

City of Colton
 N/S: N Pepper Avenue
 E/W: W Valley Boulevard
 Weather: Clear

File Name : 04_COL_Pep_Valley MD
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

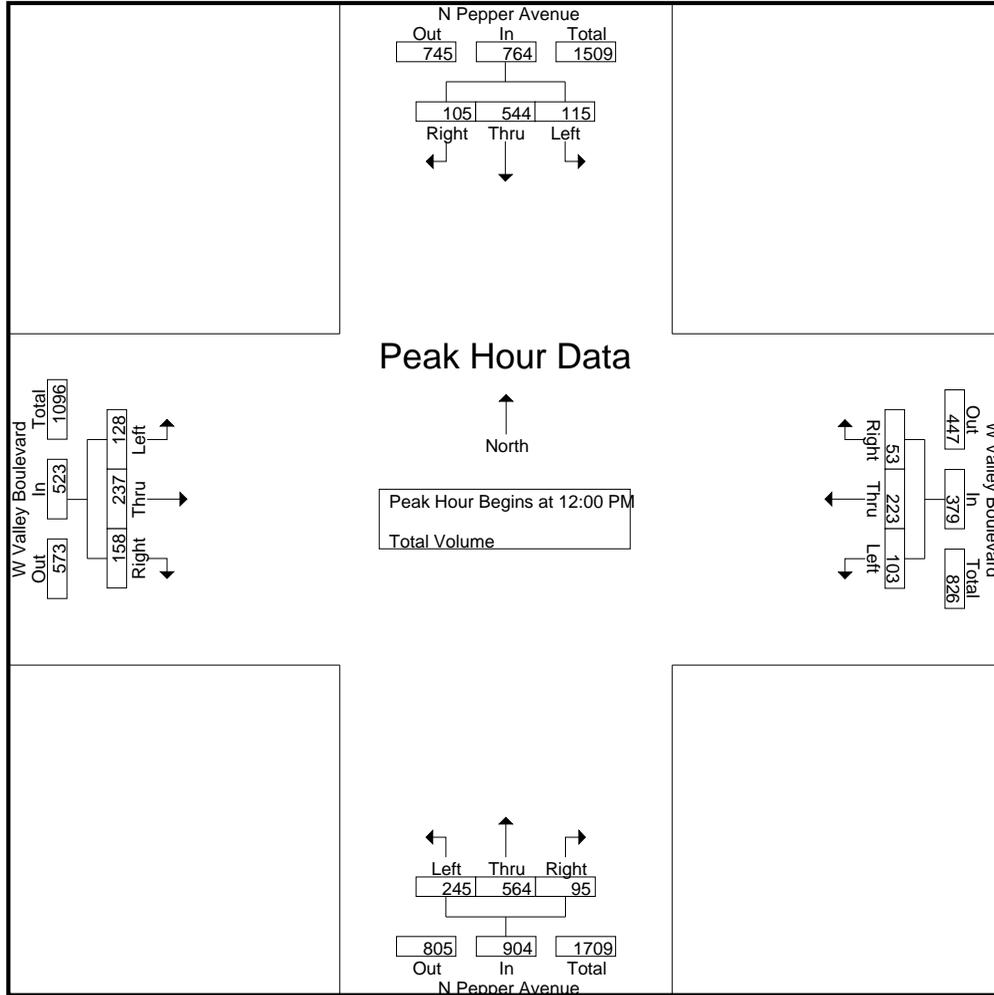
Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound				W Valley Boulevard Westbound				N Pepper Avenue Northbound				W Valley Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
11:00 AM	26	137	19	182	23	57	21	101	54	123	19	196	28	51	36	115	594
11:15 AM	26	145	23	194	35	45	15	95	47	119	14	180	16	54	38	108	577
11:30 AM	26	142	23	191	36	49	25	110	53	103	17	173	22	47	52	121	595
11:45 AM	20	144	17	181	32	38	9	79	48	129	18	195	27	44	36	107	562
Total	98	568	82	748	126	189	70	385	202	474	68	744	93	196	162	451	2328
12:00 PM	39	145	32	216	21	48	9	78	52	96	22	170	31	67	43	141	605
12:15 PM	27	145	23	195	23	58	8	89	63	148	25	236	33	56	37	126	646
12:30 PM	24	122	24	170	35	70	18	123	58	155	21	234	39	56	30	125	652
12:45 PM	25	132	26	183	24	47	18	89	72	165	27	264	25	58	48	131	667
Total	115	544	105	764	103	223	53	379	245	564	95	904	128	237	158	523	2570
Grand Total	213	1112	187	1512	229	412	123	764	447	1038	163	1648	221	433	320	974	4898
Apprch %	14.1	73.5	12.4		30	53.9	16.1		27.1	63	9.9		22.7	44.5	32.9		
Total %	4.3	22.7	3.8	30.9	4.7	8.4	2.5	15.6	9.1	21.2	3.3	33.6	4.5	8.8	6.5	19.9	

Start Time	N Pepper Avenue Southbound				W Valley Boulevard Westbound				N Pepper Avenue Northbound				W Valley Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	39	145	32	216	21	48	9	78	52	96	22	170	31	67	43	141	605
12:15 PM	27	145	23	195	23	58	8	89	63	148	25	236	33	56	37	126	646
12:30 PM	24	122	24	170	35	70	18	123	58	155	21	234	39	56	30	125	652
12:45 PM	25	132	26	183	24	47	18	89	72	165	27	264	25	58	48	131	667
Total Volume	115	544	105	764	103	223	53	379	245	564	95	904	128	237	158	523	2570
% App. Total	15.1	71.2	13.7		27.2	58.8	14		27.1	62.4	10.5		24.5	45.3	30.2		
PHF	.737	.938	.820	.884	.736	.796	.736	.770	.851	.855	.880	.856	.821	.884	.823	.927	.963

City of Colton
 N/S: N Pepper Avenue
 E/W: W Valley Boulevard
 Weather: Clear

File Name : 04_COL_Pep_Valley MD
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	11:30 AM				11:00 AM				12:00 PM				12:00 PM			
+0 mins.	26	142	23	191	23	57	21	101	52	96	22	170	31	67	43	141
+15 mins.	20	144	17	181	35	45	15	95	63	148	25	236	33	56	37	126
+30 mins.	39	145	32	216	36	49	25	110	58	155	21	234	39	56	30	125
+45 mins.	27	145	23	195	32	38	9	79	72	165	27	264	25	58	48	131
Total Volume	112	576	95	783	126	189	70	385	245	564	95	904	128	237	158	523
% App. Total	14.3	73.6	12.1		32.7	49.1	18.2		27.1	62.4	10.5		24.5	45.3	30.2	
PHF	.718	.993	.742	.906	.875	.829	.700	.875	.851	.855	.880	.856	.821	.884	.823	.927

City of Colton
 N/S: N Pepper Avenue
 E/W: W Valley Boulevard
 Weather: Clear

File Name : 04_COL_Pep_Valley PM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

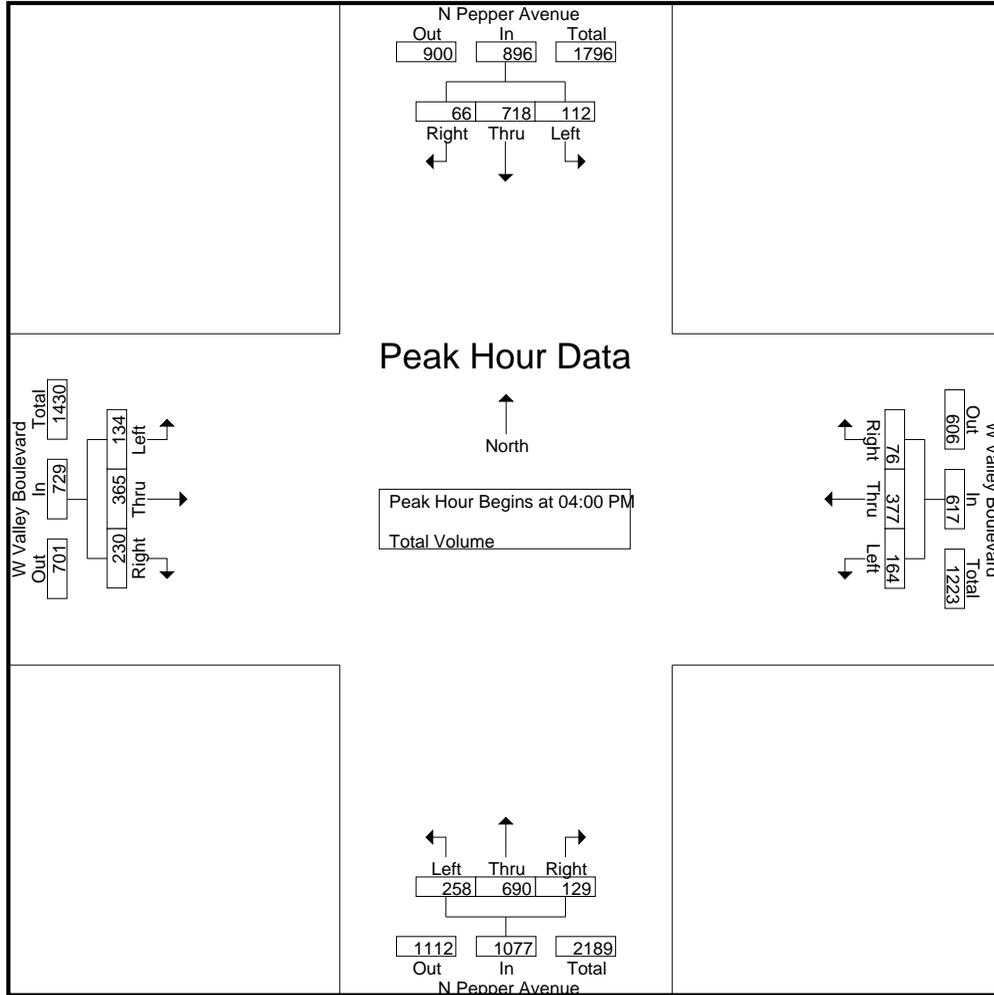
Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound				W Valley Boulevard Westbound				N Pepper Avenue Northbound				W Valley Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	23	190	18	231	47	112	23	182	70	159	21	250	41	89	45	175	838
04:15 PM	26	160	16	202	31	71	19	121	62	200	32	294	31	89	62	182	799
04:30 PM	30	210	24	264	42	90	17	149	63	184	41	288	39	91	59	189	890
04:45 PM	33	158	8	199	44	104	17	165	63	147	35	245	23	96	64	183	792
Total	112	718	66	896	164	377	76	617	258	690	129	1077	134	365	230	729	3319
05:00 PM	25	153	18	196	37	95	24	156	63	144	33	240	34	119	61	214	806
05:15 PM	31	180	12	223	37	86	22	145	66	172	36	274	30	84	50	164	806
05:30 PM	25	189	19	233	31	73	19	123	60	225	48	333	29	98	42	169	858
05:45 PM	18	137	11	166	26	81	26	133	66	237	36	339	28	58	37	123	761
Total	99	659	60	818	131	335	91	557	255	778	153	1186	121	359	190	670	3231
Grand Total	211	1377	126	1714	295	712	167	1174	513	1468	282	2263	255	724	420	1399	6550
Apprch %	12.3	80.3	7.4		25.1	60.6	14.2		22.7	64.9	12.5		18.2	51.8	30		
Total %	3.2	21	1.9	26.2	4.5	10.9	2.5	17.9	7.8	22.4	4.3	34.5	3.9	11.1	6.4	21.4	

Start Time	N Pepper Avenue Southbound				W Valley Boulevard Westbound				N Pepper Avenue Northbound				W Valley Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	23	190	18	231	47	112	23	182	70	159	21	250	41	89	45	175	838
04:15 PM	26	160	16	202	31	71	19	121	62	200	32	294	31	89	62	182	799
04:30 PM	30	210	24	264	42	90	17	149	63	184	41	288	39	91	59	189	890
04:45 PM	33	158	8	199	44	104	17	165	63	147	35	245	23	96	64	183	792
Total Volume	112	718	66	896	164	377	76	617	258	690	129	1077	134	365	230	729	3319
% App. Total	12.5	80.1	7.4		26.6	61.1	12.3		24	64.1	12		18.4	50.1	31.6		
PHF	.848	.855	.688	.848	.872	.842	.826	.848	.921	.863	.787	.916	.817	.951	.898	.964	.932

City of Colton
 N/S: N Pepper Avenue
 E/W: W Valley Boulevard
 Weather: Clear

File Name : 04_COL_Pep_Valley PM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				05:00 PM				04:15 PM			
+0 mins.	23	190	18	231	47	112	23	182	63	144	33	240	31	89	62	182
+15 mins.	26	160	16	202	31	71	19	121	66	172	36	274	39	91	59	189
+30 mins.	30	210	24	264	42	90	17	149	60	225	48	333	23	96	64	183
+45 mins.	33	158	8	199	44	104	17	165	66	237	36	339	34	119	61	214
Total Volume	112	718	66	896	164	377	76	617	255	778	153	1186	127	395	246	768
% App. Total	12.5	80.1	7.4		26.6	61.1	12.3		21.5	65.6	12.9		16.5	51.4	32	
PHF	.848	.855	.688	.848	.872	.842	.826	.848	.966	.821	.797	.875	.814	.830	.961	.897

City of Colton
 N/S: N Pepper Avenue
 E/W: I-10 Westbound Ramps
 Weather: Clear

File Name : 05_COL_Pep_10W AM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound				I-10 Westbound Off Ramp Westbound				N Pepper Avenue Northbound				I-10 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	112	180	292	2	0	146	148	1	98	0	99	0	0	0	0	539
07:15 AM	0	158	209	367	2	1	173	176	3	92	0	95	0	0	0	0	638
07:30 AM	0	226	230	456	5	0	187	192	1	102	0	103	0	0	0	0	751
07:45 AM	0	220	212	432	4	0	171	175	3	106	0	109	0	0	0	0	716
Total	0	716	831	1547	13	1	677	691	8	398	0	406	0	0	0	0	2644
08:00 AM	0	220	161	381	4	1	178	183	1	106	0	107	0	0	0	0	671
08:15 AM	0	187	152	339	4	4	170	178	3	92	0	95	0	0	0	0	612
08:30 AM	0	156	135	291	5	0	157	162	2	84	0	86	0	0	0	0	539
08:45 AM	0	146	116	262	4	0	143	147	9	83	0	92	0	0	0	0	501
Total	0	709	564	1273	17	5	648	670	15	365	0	380	0	0	0	0	2323
Grand Total	0	1425	1395	2820	30	6	1325	1361	23	763	0	786	0	0	0	0	4967
Apprch %	0	50.5	49.5		2.2	0.4	97.4		2.9	97.1	0		0	0	0		
Total %	0	28.7	28.1	56.8	0.6	0.1	26.7	27.4	0.5	15.4	0	15.8	0	0	0	0	

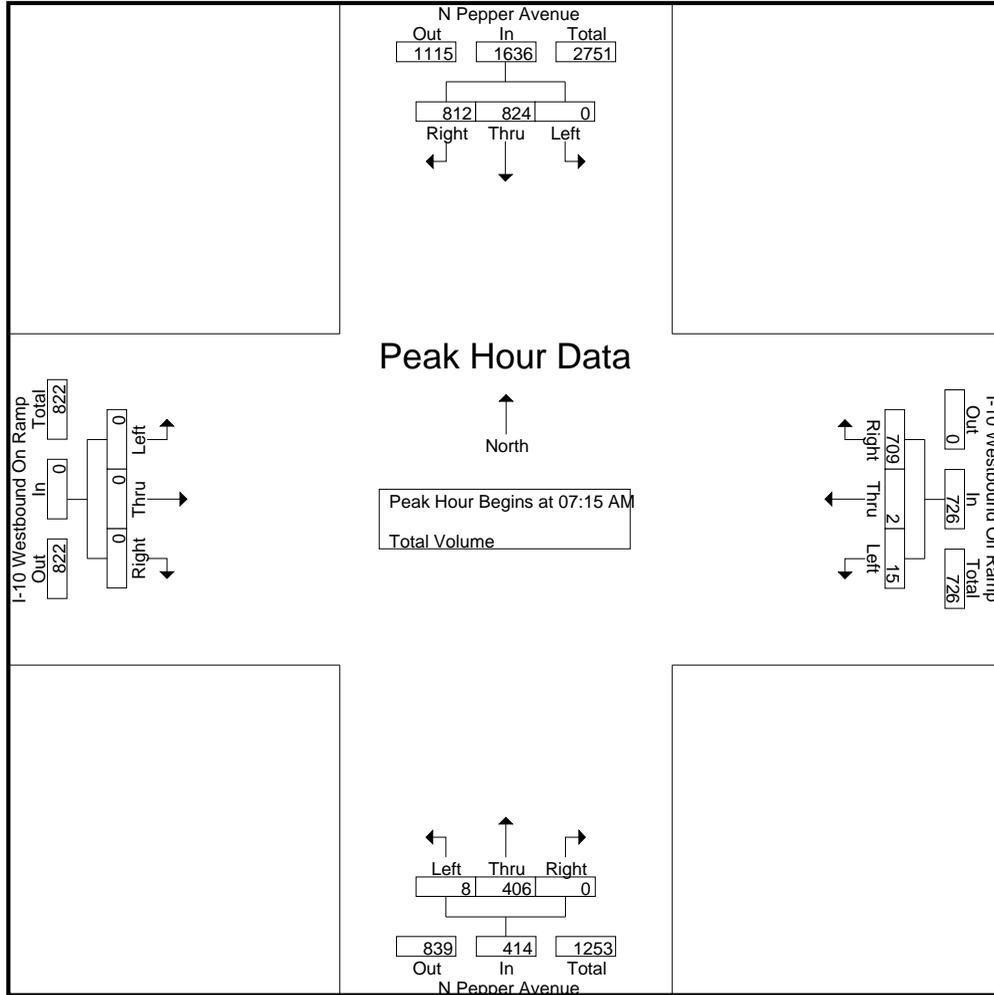
Start Time	N Pepper Avenue Southbound				I-10 Westbound Off Ramp Westbound				N Pepper Avenue Northbound				I-10 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:15 AM	0	158	209	367	2	1	173	176	3	92	0	95	0	0	0	0	638
07:30 AM	0	226	230	456	5	0	187	192	1	102	0	103	0	0	0	0	751
07:45 AM	0	220	212	432	4	0	171	175	3	106	0	109	0	0	0	0	716
08:00 AM	0	220	161	381	4	1	178	183	1	106	0	107	0	0	0	0	671
Total Volume	0	824	812	1636	15	2	709	726	8	406	0	414	0	0	0	0	2776
% App. Total	0	50.4	49.6		2.1	0.3	97.7		1.9	98.1	0		0	0	0		
PHF	.000	.912	.883	.897	.750	.500	.948	.945	.667	.958	.000	.950	.000	.000	.000	.000	.924

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

City of Colton
 N/S: N Pepper Avenue
 E/W: I-10 Westbound Ramps
 Weather: Clear

File Name : 05_COL_Pep_10W AM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:30 AM				07:15 AM				07:00 AM			
+0 mins.	0	158	209	367	5	0	187	192	3	92	0	95	0	0	0	0
+15 mins.	0	226	230	456	4	0	171	175	1	102	0	103	0	0	0	0
+30 mins.	0	220	212	432	4	1	178	183	3	106	0	109	0	0	0	0
+45 mins.	0	220	161	381	4	4	170	178	1	106	0	107	0	0	0	0
Total Volume	0	824	812	1636	17	5	706	728	8	406	0	414	0	0	0	0
% App. Total	0	50.4	49.6		2.3	0.7	97		1.9	98.1	0		0	0	0	
PHF	.000	.912	.883	.897	.850	.313	.944	.948	.667	.958	.000	.950	.000	.000	.000	.000

City of Colton
 N/S: N Pepper Avenue
 E/W: I-10 Westbound Ramps
 Weather: Clear

File Name : 05_COL_Pep_10W MD
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound				I-10 Westbound Off Ramp Westbound				N Pepper Avenue Northbound				I-10 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
11:00 AM	0	109	100	209	6	2	133	141	3	65	0	68	0	0	0	0	418
11:15 AM	0	104	109	213	8	1	113	122	0	76	0	76	0	0	0	0	411
11:30 AM	0	113	85	198	4	1	123	128	5	94	0	99	0	0	0	0	425
11:45 AM	0	119	109	228	4	1	114	119	4	71	0	75	0	0	0	0	422
Total	0	445	403	848	22	5	483	510	12	306	0	318	0	0	0	0	1676
12:00 PM	0	108	116	224	10	1	153	164	5	63	0	68	0	0	0	0	456
12:15 PM	0	120	92	212	3	0	133	136	5	69	0	74	0	0	0	0	422
12:30 PM	0	123	110	233	8	1	160	169	6	68	0	74	0	0	0	0	476
12:45 PM	0	99	98	197	5	2	132	139	6	88	0	94	0	0	0	0	430
Total	0	450	416	866	26	4	578	608	22	288	0	310	0	0	0	0	1784
Grand Total	0	895	819	1714	48	9	1061	1118	34	594	0	628	0	0	0	0	3460
Apprch %	0	52.2	47.8		4.3	0.8	94.9		5.4	94.6	0		0	0	0		
Total %	0	25.9	23.7	49.5	1.4	0.3	30.7	32.3	1	17.2	0	18.2	0	0	0	0	

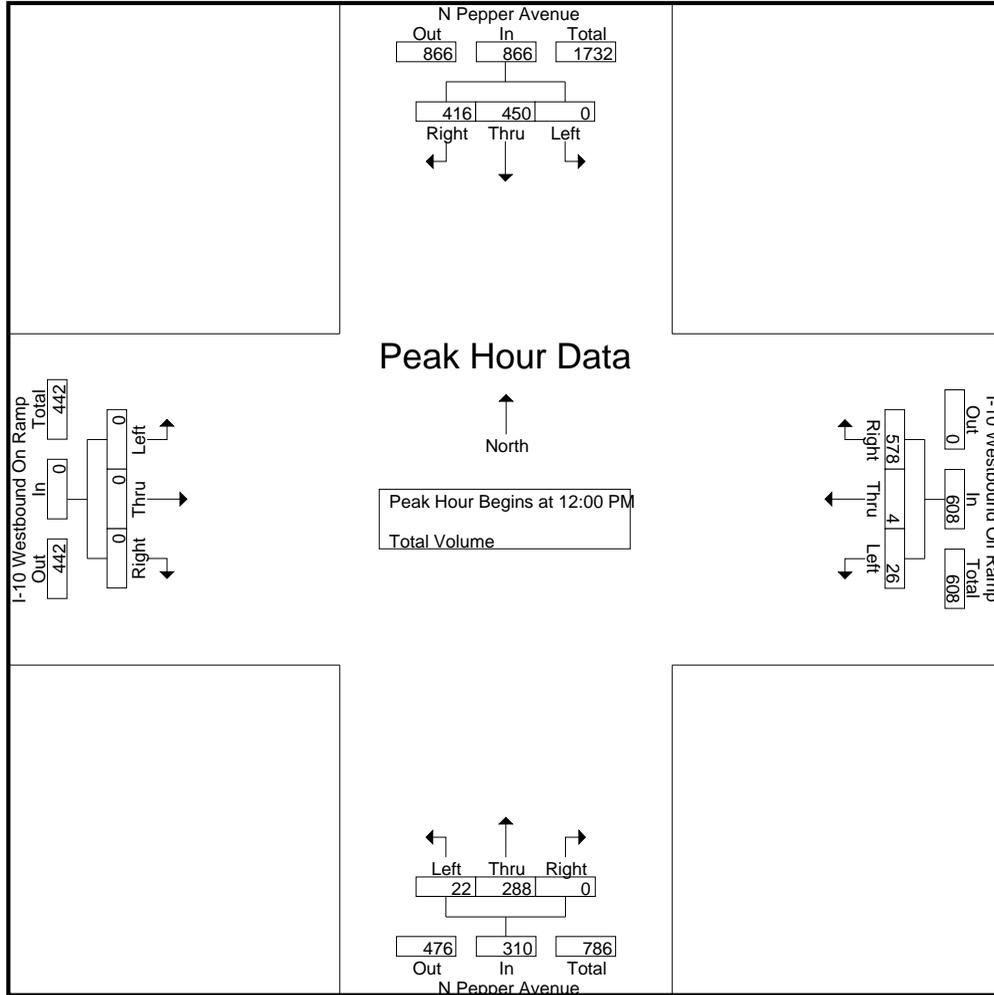
Start Time	N Pepper Avenue Southbound				I-10 Westbound Off Ramp Westbound				N Pepper Avenue Northbound				I-10 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
12:00 PM	0	108	116	224	10	1	153	164	5	63	0	68	0	0	0	0	456
12:15 PM	0	120	92	212	3	0	133	136	5	69	0	74	0	0	0	0	422
12:30 PM	0	123	110	233	8	1	160	169	6	68	0	74	0	0	0	0	476
12:45 PM	0	99	98	197	5	2	132	139	6	88	0	94	0	0	0	0	430
Total Volume	0	450	416	866	26	4	578	608	22	288	0	310	0	0	0	0	1784
% App. Total	0	52	48		4.3	0.7	95.1		7.1	92.9	0		0	0	0		
PHF	.000	.915	.897	.929	.650	.500	.903	.899	.917	.818	.000	.824	.000	.000	.000	.000	.937

Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 12:00 PM

City of Colton
 N/S: N Pepper Avenue
 E/W: I-10 Westbound Ramps
 Weather: Clear

File Name : 05_COL_Pep_10W MD
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	11:45 AM				12:00 PM				11:00 AM				11:00 AM			
+0 mins.	0	119	109	228	10	1	153	164	3	65	0	68	0	0	0	0
+15 mins.	0	108	116	224	3	0	133	136	0	76	0	76	0	0	0	0
+30 mins.	0	120	92	212	8	1	160	169	5	94	0	99	0	0	0	0
+45 mins.	0	123	110	233	5	2	132	139	4	71	0	75	0	0	0	0
Total Volume	0	470	427	897	26	4	578	608	12	306	0	318	0	0	0	0
% App. Total	0	52.4	47.6		4.3	0.7	95.1		3.8	96.2	0		0	0	0	
PHF	.000	.955	.920	.962	.650	.500	.903	.899	.600	.814	.000	.803	.000	.000	.000	.000

City of Colton
 N/S: N Pepper Avenue
 E/W: I-10 Westbound Ramps
 Weather: Clear

File Name : 05_COL_Pep_10W PM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound				I-10 Westbound Off Ramp Westbound				N Pepper Avenue Northbound				I-10 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	130	126	256	1	1	163	165	4	111	0	115	0	0	0	0	536
04:15 PM	0	139	129	268	0	0	141	141	1	148	0	149	0	0	0	0	558
04:30 PM	0	171	166	337	3	2	168	173	2	149	0	151	0	0	0	0	661
04:45 PM	0	135	129	264	2	1	150	153	4	137	0	141	0	0	0	0	558
Total	0	575	550	1125	6	4	622	632	11	545	0	556	0	0	0	0	2313
05:00 PM	0	139	152	291	0	0	152	152	0	143	0	143	0	0	0	0	586
05:15 PM	0	120	132	252	1	0	152	153	2	146	0	148	0	0	0	0	553
05:30 PM	0	136	118	254	0	1	155	156	0	178	0	178	0	0	0	0	588
05:45 PM	0	117	96	213	2	0	129	131	0	163	0	163	0	0	0	0	507
Total	0	512	498	1010	3	1	588	592	2	630	0	632	0	0	0	0	2234
Grand Total	0	1087	1048	2135	9	5	1210	1224	13	1175	0	1188	0	0	0	0	4547
Apprch %	0	50.9	49.1		0.7	0.4	98.9		1.1	98.9	0		0	0	0		
Total %	0	23.9	23	47	0.2	0.1	26.6	26.9	0.3	25.8	0	26.1	0	0	0	0	

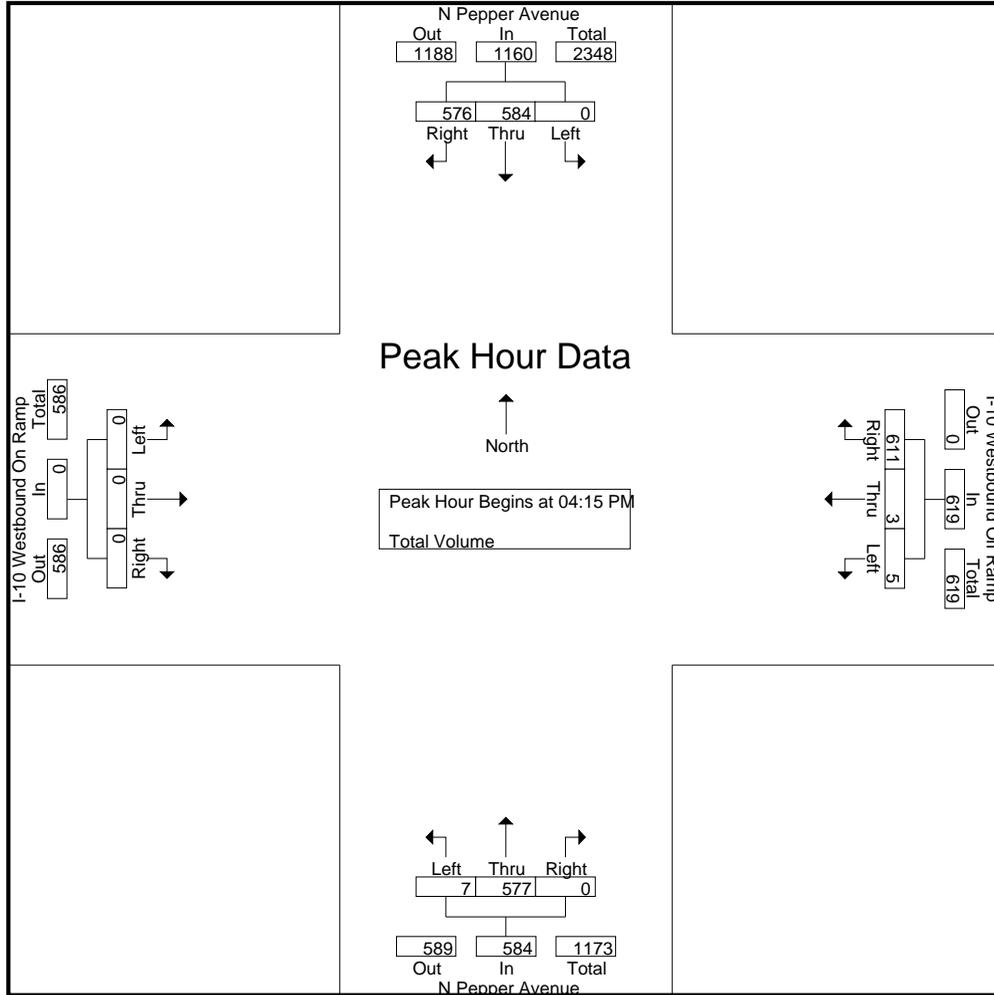
Start Time	N Pepper Avenue Southbound				I-10 Westbound Off Ramp Westbound				N Pepper Avenue Northbound				I-10 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:15 PM	0	139	129	268	0	0	141	141	1	148	0	149	0	0	0	0	558
04:30 PM	0	171	166	337	3	2	168	173	2	149	0	151	0	0	0	0	661
04:45 PM	0	135	129	264	2	1	150	153	4	137	0	141	0	0	0	0	558
05:00 PM	0	139	152	291	0	0	152	152	0	143	0	143	0	0	0	0	586
Total Volume	0	584	576	1160	5	3	611	619	7	577	0	584	0	0	0	0	2363
% App. Total	0	50.3	49.7		0.8	0.5	98.7		1.2	98.8	0		0	0	0		
PHF	.000	.854	.867	.861	.417	.375	.909	.895	.438	.968	.000	.967	.000	.000	.000	.000	.894

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:15 PM

City of Colton
 N/S: N Pepper Avenue
 E/W: I-10 Westbound Ramps
 Weather: Clear

File Name : 05_COL_Pep_10W PM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:15 PM				04:00 PM				05:00 PM				04:00 PM			
+0 mins.	0	139	129	268	1	1	163	165	0	143	0	143	0	0	0	0
+15 mins.	0	171	166	337	0	0	141	141	2	146	0	148	0	0	0	0
+30 mins.	0	135	129	264	3	2	168	173	0	178	0	178	0	0	0	0
+45 mins.	0	139	152	291	2	1	150	153	0	163	0	163	0	0	0	0
Total Volume	0	584	576	1160	6	4	622	632	2	630	0	632	0	0	0	0
% App. Total	0	50.3	49.7		0.9	0.6	98.4		0.3	99.7	0		0	0	0	
PHF	.000	.854	.867	.861	.500	.500	.926	.913	.250	.885	.000	.888	.000	.000	.000	.000

City of Colton
 N/S: N Pepper Avenue
 E/W: I-10 Eastbound Ramps
 Weather: Clear

File Name : 06_COL_Pep_10E AM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound				I-10 Eastbound On Ramp Westbound				N Pepper Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	112	3	0	115	0	0	0	0	0	2	0	2	95	0	11	106	223
07:15 AM	162	2	0	164	0	0	0	0	0	2	2	4	89	2	4	95	263
07:30 AM	233	8	0	241	0	0	0	0	0	4	3	7	85	1	2	88	336
07:45 AM	228	8	0	236	0	0	0	0	0	8	2	10	120	0	4	124	370
Total	735	21	0	756	0	0	0	0	0	16	7	23	389	3	21	413	1192
08:00 AM	223	11	0	234	0	0	0	0	0	11	8	19	110	1	0	111	364
08:15 AM	172	6	0	178	0	0	0	0	0	2	0	2	77	2	0	79	259
08:30 AM	135	2	0	137	0	0	0	0	0	6	2	8	67	0	2	69	214
08:45 AM	137	4	0	141	0	0	0	0	0	3	6	9	86	3	0	89	239
Total	667	23	0	690	0	0	0	0	0	22	16	38	340	6	2	348	1076
Grand Total	1402	44	0	1446	0	0	0	0	0	38	23	61	729	9	23	761	2268
Apprch %	97	3	0		0	0	0		0	62.3	37.7		95.8	1.2	3		
Total %	61.8	1.9	0	63.8	0	0	0	0	0	1.7	1	2.7	32.1	0.4	1	33.6	

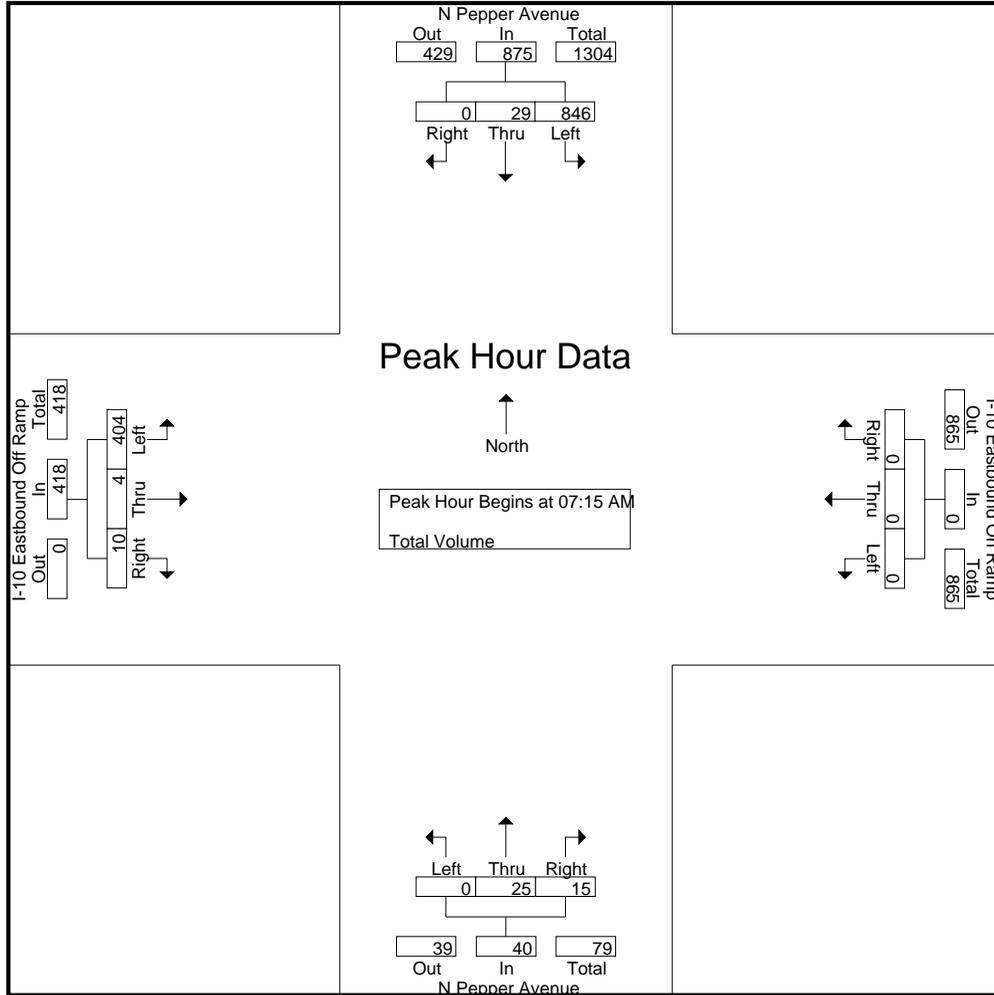
Start Time	N Pepper Avenue Southbound				I-10 Eastbound On Ramp Westbound				N Pepper Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:15 AM	162	2	0	164	0	0	0	0	0	2	2	4	89	2	4	95	263
07:30 AM	233	8	0	241	0	0	0	0	0	4	3	7	85	1	2	88	336
07:45 AM	228	8	0	236	0	0	0	0	0	8	2	10	120	0	4	124	370
08:00 AM	223	11	0	234	0	0	0	0	0	11	8	19	110	1	0	111	364
Total Volume	846	29	0	875	0	0	0	0	0	25	15	40	404	4	10	418	1333
% App. Total	96.7	3.3	0		0	0	0		0	62.5	37.5		96.7	1	2.4		
PHF	.908	.659	.000	.908	.000	.000	.000	.000	.000	.568	.469	.526	.842	.500	.625	.843	.901

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

City of Colton
 N/S: N Pepper Avenue
 E/W: I-10 Eastbound Ramps
 Weather: Clear

File Name : 06_COL_Pep_10E AM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM				07:00 AM				07:15 AM				07:15 AM			
+0 mins.	233	8	0	241	0	0	0	0	0	2	2	4	89	2	4	95
+15 mins.	228	8	0	236	0	0	0	0	0	4	3	7	85	1	2	88
+30 mins.	223	11	0	234	0	0	0	0	0	8	2	10	120	0	4	124
+45 mins.	172	6	0	178	0	0	0	0	0	11	8	19	110	1	0	111
Total Volume	856	33	0	889	0	0	0	0	0	25	15	40	404	4	10	418
% App. Total	96.3	3.7	0		0	0	0	0	0	62.5	37.5		96.7	1	2.4	
PHF	.918	.750	.000	.922	.000	.000	.000	.000	.000	.568	.469	.526	.842	.500	.625	.843

City of Colton
 N/S: N Pepper Avenue
 E/W: I-10 Eastbound Ramps
 Weather: Clear

File Name : 06_COL_Pep_10E MD
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound				I-10 Eastbound On Ramp Westbound				N Pepper Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
11:00 AM	96	14	0	110	0	0	0	0	0	9	3	12	54	1	6	61	183
11:15 AM	115	9	0	124	0	0	0	0	0	11	4	15	52	0	2	54	193
11:30 AM	133	8	0	141	0	0	0	0	0	8	5	13	58	0	1	59	213
11:45 AM	108	6	0	114	0	0	0	0	0	7	1	8	60	0	3	63	185
Total	452	37	0	489	0	0	0	0	0	35	13	48	224	1	12	237	774
12:00 PM	99	14	0	113	0	0	0	0	0	12	7	19	62	0	3	65	197
12:15 PM	114	11	0	125	0	0	0	0	0	3	1	4	81	0	6	87	216
12:30 PM	109	4	0	113	0	0	0	0	0	10	0	10	98	0	2	100	223
12:45 PM	117	11	0	128	0	0	0	0	0	8	6	14	80	1	4	85	227
Total	439	40	0	479	0	0	0	0	0	33	14	47	321	1	15	337	863
Grand Total	891	77	0	968	0	0	0	0	0	68	27	95	545	2	27	574	1637
Apprch %	92	8	0		0	0	0		0	71.6	28.4		94.9	0.3	4.7		
Total %	54.4	4.7	0	59.1	0	0	0	0	0	4.2	1.6	5.8	33.3	0.1	1.6	35.1	

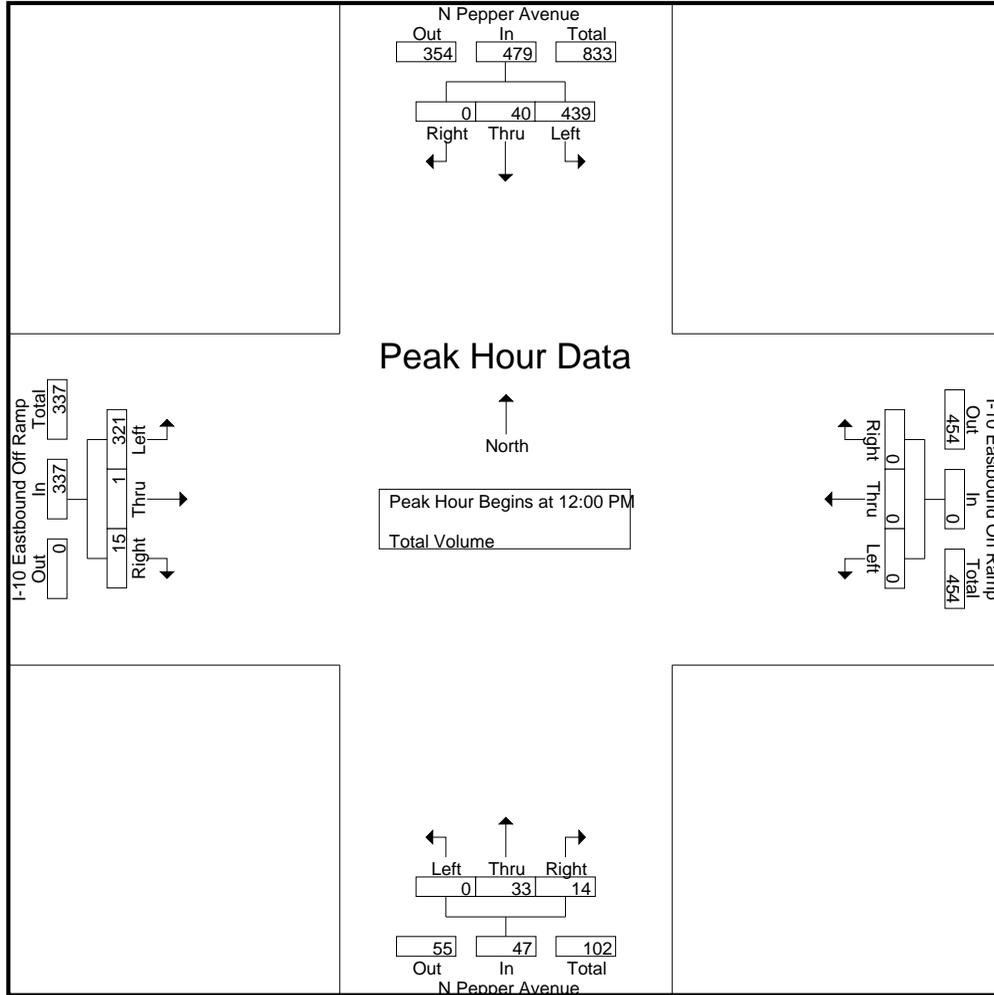
Start Time	N Pepper Avenue Southbound				I-10 Eastbound On Ramp Westbound				N Pepper Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
12:00 PM	99	14	0	113	0	0	0	0	0	12	7	19	62	0	3	65	197
12:15 PM	114	11	0	125	0	0	0	0	0	3	1	4	81	0	6	87	216
12:30 PM	109	4	0	113	0	0	0	0	0	10	0	10	98	0	2	100	223
12:45 PM	117	11	0	128	0	0	0	0	0	8	6	14	80	1	4	85	227
Total Volume	439	40	0	479	0	0	0	0	0	33	14	47	321	1	15	337	863
% App. Total	91.6	8.4	0		0	0	0		0	70.2	29.8		95.3	0.3	4.5		
PHF	.938	.714	.000	.936	.000	.000	.000	.000	.000	.688	.500	.618	.819	.250	.625	.843	.950

Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 12:00 PM

City of Colton
 N/S: N Pepper Avenue
 E/W: I-10 Eastbound Ramps
 Weather: Clear

File Name : 06_COL_Pep_10E MD
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	11:30 AM				11:00 AM				11:15 AM				12:00 PM			
+0 mins.	133	8	0	141	0	0	0	0	0	11	4	15	62	0	3	65
+15 mins.	108	6	0	114	0	0	0	0	0	8	5	13	81	0	6	87
+30 mins.	99	14	0	113	0	0	0	0	0	7	1	8	98	0	2	100
+45 mins.	114	11	0	125	0	0	0	0	0	12	7	19	80	1	4	85
Total Volume	454	39	0	493	0	0	0	0	0	38	17	55	321	1	15	337
% App. Total	92.1	7.9	0		0	0	0	0	0	69.1	30.9		95.3	0.3	4.5	
PHF	.853	.696	.000	.874	.000	.000	.000	.000	.000	.792	.607	.724	.819	.250	.625	.843

City of Colton
 N/S: N Pepper Avenue
 E/W: I-10 Eastbound Ramps
 Weather: Clear

File Name : 06_COL_Pep_10E PM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 1

Groups Printed- Total Volume

Start Time	N Pepper Avenue Southbound				I-10 Eastbound On Ramp Westbound				N Pepper Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	141	3	0	144	0	0	0	0	0	1	8	9	115	0	0	115	268
04:15 PM	152	4	0	156	0	0	0	0	0	14	6	20	141	1	2	144	320
04:30 PM	155	5	0	160	0	0	0	0	0	5	7	12	148	1	1	150	322
04:45 PM	123	1	0	124	0	0	0	0	0	5	4	9	126	2	3	131	264
Total	571	13	0	584	0	0	0	0	0	25	25	50	530	4	6	540	1174
05:00 PM	137	5	0	142	0	0	0	0	0	5	3	8	124	0	0	124	274
05:15 PM	137	1	0	138	0	0	0	0	0	7	1	8	125	0	1	126	272
05:30 PM	138	2	0	140	0	0	0	0	0	0	4	4	197	1	1	199	343
05:45 PM	102	3	0	105	0	0	0	0	0	2	5	7	161	1	1	163	275
Total	514	11	0	525	0	0	0	0	0	14	13	27	607	2	3	612	1164
Grand Total	1085	24	0	1109	0	0	0	0	0	39	38	77	1137	6	9	1152	2338
Apprch %	97.8	2.2	0		0	0	0		0	50.6	49.4		98.7	0.5	0.8		
Total %	46.4	1	0	47.4	0	0	0	0	0	1.7	1.6	3.3	48.6	0.3	0.4	49.3	

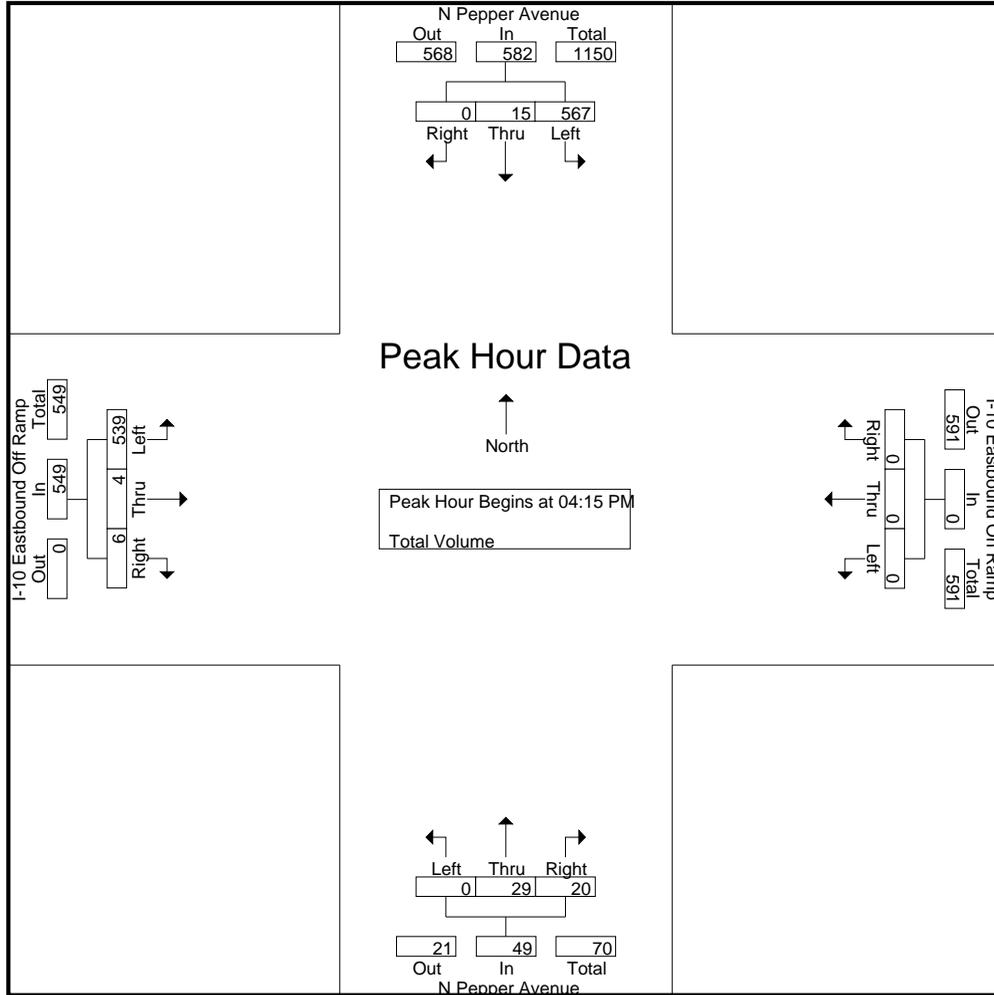
Start Time	N Pepper Avenue Southbound				I-10 Eastbound On Ramp Westbound				N Pepper Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:15 PM	152	4	0	156	0	0	0	0	0	14	6	20	141	1	2	144	320
04:30 PM	155	5	0	160	0	0	0	0	0	5	7	12	148	1	1	150	322
04:45 PM	123	1	0	124	0	0	0	0	0	5	4	9	126	2	3	131	264
05:00 PM	137	5	0	142	0	0	0	0	0	5	3	8	124	0	0	124	274
Total Volume	567	15	0	582	0	0	0	0	0	29	20	49	539	4	6	549	1180
% App. Total	97.4	2.6	0		0	0	0		0	59.2	40.8		98.2	0.7	1.1		
PHF	.915	.750	.000	.909	.000	.000	.000	.000	.000	.518	.714	.613	.910	.500	.500	.915	.916

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:15 PM

City of Colton
 N/S: N Pepper Avenue
 E/W: I-10 Eastbound Ramps
 Weather: Clear

File Name : 06_COL_Pep_10E PM
 Site Code : 04124996
 Start Date : 11/7/2024
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				05:00 PM			
+0 mins.	141	3	0	144	0	0	0	0	0	1	8	9	124	0	0	124
+15 mins.	152	4	0	156	0	0	0	0	0	14	6	20	125	0	1	126
+30 mins.	155	5	0	160	0	0	0	0	0	5	7	12	197	1	1	199
+45 mins.	123	1	0	124	0	0	0	0	0	5	4	9	161	1	1	163
Total Volume	571	13	0	584	0	0	0	0	0	25	25	50	607	2	3	612
% App. Total	97.8	2.2	0		0	0	0	0	0	50	50		99.2	0.3	0.5	
PHF	.921	.650	.000	.913	.000	.000	.000	.000	.000	.446	.781	.625	.770	.500	.750	.769

Appendix C

Level of Service Worksheets for Existing Conditions

HCM 6th Signalized Intersection Summary

1: San Bernardino Ave & N. Pepper Ave

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	238	295	53	238	42	114	477	29	65	1010	156
Future Volume (veh/h)	71	238	295	53	238	42	114	477	29	65	1010	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1575	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	83	277	343	62	277	49	133	555	34	76	1174	181
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	154	432	366	165	357	63	309	1735	774	115	1408	216
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.11	0.52	0.52	0.07	0.48	0.48
Sat Flow, veh/h	943	1772	1502	719	1466	259	2910	3367	1502	1594	2925	449
Grp Volume(v), veh/h	83	277	343	62	0	326	133	555	34	76	674	681
Grp Sat Flow(s),veh/h/ln	943	1772	1502	719	0	1725	1455	1683	1502	1594	1683	1691
Q Serve(g_s), s	5.4	11.2	17.9	6.8	0.0	14.1	3.4	7.7	0.9	3.7	27.7	28.0
Cycle Q Clear(g_c), s	19.5	11.2	17.9	18.0	0.0	14.1	3.4	7.7	0.9	3.7	27.7	28.0
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	154	432	366	165	0	421	309	1735	774	115	810	814
V/C Ratio(X)	0.54	0.64	0.94	0.38	0.00	0.78	0.43	0.32	0.04	0.66	0.83	0.84
Avail Cap(c_a), veh/h	154	432	366	165	0	421	309	1735	774	201	810	814
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	27.1	29.6	35.2	0.0	28.2	33.5	11.2	9.6	36.2	17.9	18.0
Incr Delay (d2), s/veh	3.8	3.2	31.3	1.4	0.0	8.8	0.9	0.5	0.1	6.4	9.7	10.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	4.8	9.1	1.2	0.0	6.5	1.2	2.5	0.3	1.6	11.1	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	30.3	61.0	36.6	0.0	37.0	34.4	11.7	9.7	42.5	27.7	28.0
LnGrp LOS	D	C	E	D	A	D	C	B	A	D	C	C
Approach Vol, veh/h		703			388			722			1431	
Approach Delay, s/veh		46.6			36.9			15.8			28.6	
Approach LOS		D			D			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		24.0	13.0	43.0		24.0	10.3	45.7				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.5	8.5	38.5		19.5	10.1	36.9				
Max Q Clear Time (g_c+I1), s		21.5	5.4	30.0		20.0	5.7	9.7				
Green Ext Time (p_c), s		0.0	0.1	5.1		0.0	0.0	3.6				
Intersection Summary												
HCM 6th Ctrl Delay			30.7									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

2: N. Pepper Ave & Violet St

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	54	85	550	114	110	1235	
Future Volume (veh/h)	54	85	550	114	110	1235	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	58	91	591	123	118	1328	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	177	167	2286	710	185	3332	
Arrive On Green	0.11	0.11	0.47	0.47	0.12	0.69	
Sat Flow, veh/h	1594	1502	4997	1502	1594	4997	
Grp Volume(v), veh/h	58	91	591	123	118	1328	
Grp Sat Flow(s),veh/h/ln	1594	1502	1612	1502	1594	1612	
Q Serve(g_s), s	1.5	2.6	3.3	0.9	3.2	5.3	
Cycle Q Clear(g_c), s	1.5	2.6	3.3	0.9	3.2	5.3	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	177	167	2286	710	185	3332	
V/C Ratio(X)	0.33	0.55	0.26	0.17	0.64	0.40	
Avail Cap(c_a), veh/h	195	184	2286	710	266	3332	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.56	0.56	
Uniform Delay (d), s/veh	18.4	18.9	7.1	1.1	19.0	3.0	
Incr Delay (d2), s/veh	1.1	2.8	0.3	0.5	2.0	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	0.6	2.3	0.7	2.0	1.1	0.2	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	19.5	21.7	7.4	1.7	21.0	3.2	
LnGrp LOS	B	C	A	A	C	A	
Approach Vol, veh/h			714			1446	
Approach Delay, s/veh			6.4			4.7	
Approach LOS			A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				35.5	9.5	9.7	25.8
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				30.5	5.5	7.5	18.5
Max Q Clear Time (g_c+I1), s				7.3	4.6	5.2	5.3
Green Ext Time (p_c), s				9.5	0.0	0.1	3.4
Intersection Summary							
HCM 6th Ctrl Delay			6.2				
HCM 6th LOS			A				

HCM 6th Signalized Intersection Summary

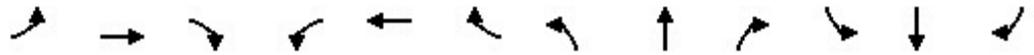
4: Blue Dr & N. Pepper Ave

06/12/2025

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations			 			 	
Traffic Volume (veh/h)	113	17	630	97	86	1229	
Future Volume (veh/h)	113	17	630	97	86	1229	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	119	18	663	102	91	1294	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	175	164	1173	523	505	2493	
Arrive On Green	0.11	0.11	0.35	0.35	0.32	0.74	
Sat Flow, veh/h	1594	1502	3455	1502	1594	3455	
Grp Volume(v), veh/h	119	18	663	102	91	1294	
Grp Sat Flow(s),veh/h/ln	1594	1502	1683	1502	1594	1683	
Q Serve(g_s), s	4.3	0.6	9.6	1.7	2.5	9.7	
Cycle Q Clear(g_c), s	4.3	0.6	9.6	1.7	2.5	9.7	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	175	164	1173	523	505	2493	
V/C Ratio(X)	0.68	0.11	0.57	0.20	0.18	0.52	
Avail Cap(c_a), veh/h	478	450	1173	523	505	2493	
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	25.7	24.1	15.9	5.0	14.8	3.3	
Incr Delay (d2), s/veh	4.6	0.3	2.0	0.8	0.2	0.8	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.8	0.6	3.3	2.5	0.8	1.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	30.3	24.4	17.8	5.8	15.0	4.1	
LnGrp LOS	C	C	B	A	B	A	
Approach Vol, veh/h	137		765			1385	
Approach Delay, s/veh	29.6		16.2			4.8	
Approach LOS	C		B			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				48.9	11.1	23.5	25.4
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	7.6	20.9
Max Q Clear Time (g_c+I1), s				11.7	6.3	4.5	11.6
Green Ext Time (p_c), s				9.2	0.3	0.0	3.0
Intersection Summary							
HCM 6th Ctrl Delay			10.1				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary
 5: N. Pepper Ave & W. Valley Blvd

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↗	↑↔		↖↗	↑↑↑	↖	↖↗	↑↑↑	
Traffic Volume (veh/h)	81	198	294	288	264	47	286	776	76	93	1014	65
Future Volume (veh/h)	81	198	294	288	264	47	286	776	76	93	1014	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1772	1772	1575	1772	1772	1575	1772	1772	1575	1772	1772
Adj Flow Rate, veh/h	85	208	309	303	278	49	301	817	80	98	1067	68
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	677	302	365	726	126	357	1790	556	301	1630	104
Arrive On Green	0.07	0.20	0.20	0.13	0.25	0.25	0.25	0.74	0.74	0.10	0.35	0.35
Sat Flow, veh/h	2910	3367	1502	2910	2867	499	2910	4837	1502	2910	4648	296
Grp Volume(v), veh/h	85	208	309	303	162	165	301	817	80	98	740	395
Grp Sat Flow(s),veh/h/ln	1455	1683	1502	1455	1683	1682	1455	1612	1502	1455	1612	1719
Q Serve(g_s), s	2.5	4.7	13.1	9.1	7.1	7.3	8.9	6.0	1.4	2.8	17.4	17.4
Cycle Q Clear(g_c), s	2.5	4.7	13.1	9.1	7.1	7.3	8.9	6.0	1.4	2.8	17.4	17.4
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	213	677	302	365	426	426	357	1790	556	301	1131	603
V/C Ratio(X)	0.40	0.31	1.02	0.83	0.38	0.39	0.84	0.46	0.14	0.33	0.65	0.66
Avail Cap(c_a), veh/h	252	677	302	404	426	426	404	1790	556	301	1131	603
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.8	30.6	18.7	38.4	27.8	27.8	33.1	8.1	7.6	37.4	24.6	24.6
Incr Delay (d2), s/veh	1.2	1.2	57.9	12.5	2.6	2.7	12.5	0.8	0.5	0.6	3.0	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.9	9.0	3.7	3.0	3.1	3.2	1.6	0.5	1.0	6.5	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.0	31.8	76.6	50.9	30.3	30.5	45.6	8.9	8.0	38.1	27.6	30.1
LnGrp LOS	D	C	F	D	C	C	D	A	A	D	C	C
Approach Vol, veh/h		602			630			1198			1233	
Approach Delay, s/veh		56.1			40.3			18.1			29.2	
Approach LOS		E			D			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.8	22.6	15.5	36.1	11.1	27.3	13.8	37.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.5	18.1	12.5	28.9	7.8	22.8	8.1	33.3				
Max Q Clear Time (g_c+l1), s	11.1	15.1	10.9	19.4	4.5	9.3	4.8	8.0				
Green Ext Time (p_c), s	0.2	0.7	0.2	4.6	0.1	1.4	0.1	5.8				
Intersection Summary												
HCM 6th Ctrl Delay			31.9									
HCM 6th LOS			C									

HCM Signalized Intersection Capacity Analysis
 6: N. Pepper Ave & I-10 WB On/Off-Ramps

06/12/2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	15	2	709	8	406	0	0	824	812	
Future Volume (vph)	0	0	0	15	2	709	8	406	0	0	824	812	
Ideal Flow (vphpl)	1900	1900	1900	1800	1800	1800	1700	1800	1800	1800	1800	1800	
Total Lost time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Lane Util. Factor					0.95	0.95	1.00	0.95			0.95	1.00	
Frt					0.86	0.85	1.00	1.00			1.00	0.85	
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)					1434	1425	1583	3353			3353	1500	
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)					1434	1425	1583	3353			3353	1500	
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	16	2	771	9	441	0	0	896	883	
RTOR Reduction (vph)	0	0	0	0	325	338	0	0	0	0	0	313	
Lane Group Flow (vph)	0	0	0	0	71	55	9	441	0	0	896	570	
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm	
Protected Phases					6		3	8			4		
Permitted Phases				6		6						4	
Actuated Green, G (s)					12.7	12.7	5.7	68.3			58.1	58.1	
Effective Green, g (s)					12.7	12.7	5.7	68.3			58.1	58.1	
Actuated g/C Ratio					0.14	0.14	0.06	0.76			0.65	0.65	
Clearance Time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)					202	201	100	2544			2164	968	
v/s Ratio Prot							0.01	c0.13			0.27		
v/s Ratio Perm					0.05	0.04						c0.38	
v/c Ratio					0.35	0.28	0.09	0.17			0.41	0.59	
Uniform Delay, d1					34.9	34.5	39.7	3.0			7.7	9.1	
Progression Factor					1.00	1.00	1.56	0.05			0.36	5.89	
Incremental Delay, d2					1.1	0.7	0.3	0.1			0.4	2.0	
Delay (s)					36.0	35.3	62.3	0.3			3.2	55.7	
Level of Service					D	D	E	A			A	E	
Approach Delay (s)		0.0			35.6			1.5			29.3		
Approach LOS		A			D			A			C		
Intersection Summary													
HCM 2000 Control Delay			26.8		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.52										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						13.5		
Intersection Capacity Utilization			99.4%		ICU Level of Service						F		
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 7: N. Pepper Ave & I-10 EB On/Off-Ramps

06/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	404	4	10	0	0	0	0	25	15	846	29	0
Future Volume (veh/h)	404	4	10	0	0	0	0	25	15	846	29	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				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	1673	1772	1772				0	1772	1772	1575	1772	0
Adj Flow Rate, veh/h	462	0	0				0	28	17	940	32	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	761	423	0				0	429	238	1180	1171	0
Arrive On Green	0.24	0.00	0.00				0.00	0.21	0.21	0.41	0.66	0.00
Sat Flow, veh/h	3188	1772	0				0	2177	1158	2910	1772	0
Grp Volume(v), veh/h	462	0	0				0	22	23	940	32	0
Grp Sat Flow(s),veh/h/ln	1594	1772	0				0	1683	1563	1455	1772	0
Q Serve(g_s), s	11.6	0.0	0.0				0.0	0.9	1.1	25.5	0.6	0.0
Cycle Q Clear(g_c), s	11.6	0.0	0.0				0.0	0.9	1.1	25.5	0.6	0.0
Prop In Lane	1.00		0.00				0.00		0.74	1.00		0.00
Lane Grp Cap(c), veh/h	761	423	0				0	346	321	1180	1171	0
V/C Ratio(X)	0.61	0.00	0.00				0.00	0.06	0.07	0.80	0.03	0.00
Avail Cap(c_a), veh/h	761	423	0				0	346	321	1180	1171	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.5	0.0	0.0				0.0	28.8	28.8	23.5	5.3	0.0
Incr Delay (d2), s/veh	3.6	0.0	0.0				0.0	0.4	0.4	5.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	0.0				0.0	0.4	0.4	8.8	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.1	0.0	0.0				0.0	29.1	29.3	29.1	5.3	0.0
LnGrp LOS	C	A	A				A	C	C	C	A	A
Approach Vol, veh/h		462						45			972	
Approach Delay, s/veh		34.1						29.2			28.3	
Approach LOS		C						C			C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				64.0		26.0	41.0	23.0				
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s				59.5		21.5	36.5	18.5				
Max Q Clear Time (g_c+I1), s				2.6		13.6	27.5	3.1				
Green Ext Time (p_c), s				0.1		1.1	2.6	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			30.1									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary

1: San Bernardino Ave & N. Pepper Ave

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	181	138	35	157	24	134	491	40	25	487	92
Future Volume (veh/h)	90	181	138	35	157	24	134	491	40	25	487	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1575	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	97	195	148	38	169	26	144	528	43	27	524	99
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	412	349	248	349	54	876	1546	690	133	683	129
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.30	0.46	0.46	0.08	0.24	0.24
Sat Flow, veh/h	1063	1772	1502	928	1500	231	2910	3367	1502	1594	2828	532
Grp Volume(v), veh/h	97	195	148	38	0	195	144	528	43	27	311	312
Grp Sat Flow(s),veh/h/ln	1063	1772	1502	928	0	1730	1455	1683	1502	1594	1683	1676
Q Serve(g_s), s	5.2	5.7	5.0	2.2	0.0	5.8	2.2	6.0	1.0	0.9	10.3	10.4
Cycle Q Clear(g_c), s	11.1	5.7	5.0	7.9	0.0	5.8	2.2	6.0	1.0	0.9	10.3	10.4
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	263	412	349	248	0	402	876	1546	690	133	407	405
V/C Ratio(X)	0.37	0.47	0.42	0.15	0.00	0.48	0.16	0.34	0.06	0.20	0.77	0.77
Avail Cap(c_a), veh/h	335	532	450	310	0	519	876	1546	690	154	561	559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	19.9	19.6	23.3	0.0	19.9	15.4	10.4	9.0	25.6	21.2	21.2
Incr Delay (d2), s/veh	0.9	0.8	0.8	0.3	0.0	0.9	0.1	0.6	0.2	0.7	12.8	13.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.2	1.6	0.5	0.0	2.2	0.6	1.8	0.3	0.3	4.9	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	20.7	20.4	23.6	0.0	20.8	15.5	11.0	9.2	26.4	34.0	34.4
LnGrp LOS	C	C	C	C	A	C	B	B	A	C	C	C
Approach Vol, veh/h		440			233			715			650	
Approach Delay, s/veh		21.7			21.3			11.8			33.9	
Approach LOS		C			C			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		18.4	22.6	19.0		18.4	9.5	32.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	8.5	20.0		18.0	5.8	22.7				
Max Q Clear Time (g_c+I1), s		13.1	4.2	12.4		9.9	2.9	8.0				
Green Ext Time (p_c), s		0.9	0.1	2.1		0.7	0.0	2.9				
Intersection Summary												
HCM 6th Ctrl Delay				22.1								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary

2: N. Pepper Ave & Violet St

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	↶	↷	↑↑↑	↷	↶	↑↑↑	
Traffic Volume (veh/h)	85	76	609	57	66	609	
Future Volume (veh/h)	85	76	609	57	66	609	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	92	83	662	62	72	662	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	177	167	2311	717	177	3332	
Arrive On Green	0.11	0.11	0.48	0.48	0.11	0.69	
Sat Flow, veh/h	1594	1502	4997	1502	1594	4997	
Grp Volume(v), veh/h	92	83	662	62	72	662	
Grp Sat Flow(s),veh/h/ln	1594	1502	1612	1502	1594	1612	
Q Serve(g_s), s	2.5	2.3	3.7	1.0	1.9	2.2	
Cycle Q Clear(g_c), s	2.5	2.3	3.7	1.0	1.9	2.2	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	177	167	2311	717	177	3332	
V/C Ratio(X)	0.52	0.50	0.29	0.09	0.41	0.20	
Avail Cap(c_a), veh/h	230	217	2311	717	195	3332	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.92	0.92	
Uniform Delay (d), s/veh	18.9	18.8	7.1	6.4	18.6	2.5	
Incr Delay (d2), s/veh	2.3	2.3	0.3	0.2	1.4	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	0.9	2.1	0.8	1.2	0.6	0.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.2	21.1	7.4	6.6	20.0	2.6	
LnGrp LOS	C	C	A	A	B	A	
Approach Vol, veh/h	175		724			734	
Approach Delay, s/veh	21.2		7.4			4.3	
Approach LOS	C		A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				35.5	9.5	9.5	26.0
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				29.5	6.5	5.5	19.5
Max Q Clear Time (g_c+I1), s				4.2	4.5	3.9	5.7
Green Ext Time (p_c), s				4.3	0.1	0.0	3.6
Intersection Summary							
HCM 6th Ctrl Delay			7.5				
HCM 6th LOS			A				

HCM 6th Signalized Intersection Summary

4: Blue Dr & N. Pepper Ave

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	88	39	610	77	35	615	
Future Volume (veh/h)	88	39	610	77	35	615	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	94	41	649	82	37	654	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	151	142	2010	897	133	2543	
Arrive On Green	0.09	0.09	0.60	0.60	0.08	0.76	
Sat Flow, veh/h	1594	1502	3455	1502	1594	3455	
Grp Volume(v), veh/h	94	41	649	82	37	654	
Grp Sat Flow(s),veh/h/ln	1594	1502	1683	1502	1594	1683	
Q Serve(g_s), s	3.4	1.5	5.8	1.4	1.3	3.5	
Cycle Q Clear(g_c), s	3.4	1.5	5.8	1.4	1.3	3.5	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	151	142	2010	897	133	2543	
V/C Ratio(X)	0.62	0.29	0.32	0.09	0.28	0.26	
Avail Cap(c_a), veh/h	478	450	2010	897	173	2543	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	26.1	25.3	6.0	5.2	25.8	2.2	
Incr Delay (d2), s/veh	4.2	1.1	0.4	0.2	1.1	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.4	1.3	1.4	2.0	0.5	0.3	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	30.3	26.4	6.5	5.4	26.9	2.5	
LnGrp LOS	C	C	A	A	C	A	
Approach Vol, veh/h			731			691	
Approach Delay, s/veh			6.3			3.8	
Approach LOS			A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				49.8	10.2	9.5	40.3
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	6.5	22.0
Max Q Clear Time (g_c+I1), s				5.5	5.4	3.3	7.8
Green Ext Time (p_c), s				4.3	0.3	0.0	3.7
Intersection Summary							
HCM 6th Ctrl Delay			7.2				
HCM 6th LOS			A				

HCM 6th Signalized Intersection Summary
 5: N. Pepper Ave & W. Valley Blvd

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	237	158	103	223	53	245	564	95	115	544	105
Future Volume (veh/h)	128	237	158	103	223	53	245	564	95	115	544	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1772	1772	1575	1772	1772	1575	1772	1772	1575	1772	1772
Adj Flow Rate, veh/h	133	247	165	107	232	55	255	588	99	120	567	109
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	224	885	395	208	697	162	399	1417	440	337	1109	209
Arrive On Green	0.08	0.26	0.26	0.07	0.26	0.26	0.27	0.59	0.59	0.12	0.27	0.27
Sat Flow, veh/h	2910	3367	1502	2910	2712	630	2910	4837	1502	2910	4086	772
Grp Volume(v), veh/h	133	247	165	107	142	145	255	588	99	120	445	231
Grp Sat Flow(s),veh/h/ln	1455	1683	1502	1455	1683	1658	1455	1612	1502	1455	1612	1633
Q Serve(g_s), s	3.1	4.1	6.4	2.5	4.8	5.0	5.4	4.7	2.2	2.7	8.2	8.4
Cycle Q Clear(g_c), s	3.1	4.1	6.4	2.5	4.8	5.0	5.4	4.7	2.2	2.7	8.2	8.4
Prop In Lane	1.00		1.00	1.00		0.38	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	224	885	395	208	433	426	399	1417	440	337	875	443
V/C Ratio(X)	0.59	0.28	0.42	0.51	0.33	0.34	0.64	0.42	0.23	0.36	0.51	0.52
Avail Cap(c_a), veh/h	229	885	395	212	433	426	399	1417	440	337	875	443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	20.5	21.4	31.3	21.1	21.2	23.9	11.2	10.7	28.5	21.6	21.6
Incr Delay (d2), s/veh	3.9	0.8	3.2	2.0	2.0	2.2	3.2	0.8	1.1	0.6	2.1	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.5	2.3	0.9	1.9	2.0	1.7	1.4	0.7	0.9	3.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.2	21.3	24.6	33.4	23.1	23.3	27.0	12.1	11.8	29.2	23.7	26.0
LnGrp LOS	D	C	C	C	C	C	C	B	B	C	C	C
Approach Vol, veh/h		545			394			942			796	
Approach Delay, s/veh		25.7			26.0			16.1			25.2	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	22.9	14.1	23.5	9.9	22.5	12.6	25.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	18.4	9.5	19.0	5.5	18.0	8.0	20.5				
Max Q Clear Time (g_c+I1), s	4.5	8.4	7.4	10.4	5.1	7.0	4.7	6.7				
Green Ext Time (p_c), s	0.0	1.4	0.2	2.6	0.0	1.0	0.1	3.3				
Intersection Summary												
HCM 6th Ctrl Delay				22.2								
HCM 6th LOS				C								

HCM Signalized Intersection Capacity Analysis
 6: N. Pepper Ave & I-10 WB On/Off-Ramps

06/12/2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	26	4	578	22	288	0	0	450	416	
Future Volume (vph)	0	0	0	26	4	578	22	288	0	0	450	416	
Ideal Flow (vphpl)	1900	1900	1900	1800	1800	1800	1700	1800	1800	1800	1800	1800	
Total Lost time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Lane Util. Factor					0.95	0.95	1.00	0.95			0.95	1.00	
Frt					0.86	0.85	1.00	1.00			1.00	0.85	
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)					1443	1425	1583	3353			3353	1500	
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)					1443	1425	1583	3353			3353	1500	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	0	0	0	28	4	615	23	306	0	0	479	443	
RTOR Reduction (vph)	0	0	0	0	248	269	0	0	0	0	0	194	
Lane Group Flow (vph)	0	0	0	0	79	51	23	306	0	0	479	249	
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm	
Protected Phases					6		3	8			4		
Permitted Phases				6		6						4	
Actuated Green, G (s)					11.2	11.2	5.9	49.8			39.4	39.4	
Effective Green, g (s)					11.2	11.2	5.9	49.8			39.4	39.4	
Actuated g/C Ratio					0.16	0.16	0.08	0.71			0.56	0.56	
Clearance Time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)					230	228	133	2385			1887	844	
v/s Ratio Prot							0.01	c0.09			0.14		
v/s Ratio Perm					0.05	0.04						c0.17	
v/c Ratio					0.34	0.22	0.17	0.13			0.25	0.30	
Uniform Delay, d1					26.1	25.6	29.8	3.2			7.8	8.0	
Progression Factor					1.00	1.00	1.03	0.25			0.33	0.70	
Incremental Delay, d2					0.9	0.5	0.6	0.1			0.3	0.8	
Delay (s)					27.0	26.1	31.3	0.9			2.9	6.5	
Level of Service					C	C	C	A			A	A	
Approach Delay (s)		0.0			26.6			3.0			4.6		
Approach LOS		A			C			A			A		
Intersection Summary													
HCM 2000 Control Delay			11.8		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.29										
Actuated Cycle Length (s)			70.0		Sum of lost time (s)						13.5		
Intersection Capacity Utilization			56.9%		ICU Level of Service						B		
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 7: N. Pepper Ave & I-10 EB On/Off-Ramps

06/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	321	1	15	0	0	0	0	33	14	439	40	0
Future Volume (veh/h)	321	1	15	0	0	0	0	33	14	439	40	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				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	1673	1772	1772				0	1772	1772	1575	1772	0
Adj Flow Rate, veh/h	354	0	0				0	35	15	462	42	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	842	468	0				0	653	262	769	1076	0
Arrive On Green	0.26	0.00	0.00				0.00	0.28	0.28	0.26	0.61	0.00
Sat Flow, veh/h	3188	1772	0				0	2432	942	2910	1772	0
Grp Volume(v), veh/h	354	0	0				0	24	26	462	42	0
Grp Sat Flow(s),veh/h/ln	1594	1772	0				0	1683	1602	1455	1772	0
Q Serve(g_s), s	6.4	0.0	0.0				0.0	0.7	0.8	9.7	0.7	0.0
Cycle Q Clear(g_c), s	6.4	0.0	0.0				0.0	0.7	0.8	9.7	0.7	0.0
Prop In Lane	1.00		0.00				0.00		0.59	1.00		0.00
Lane Grp Cap(c), veh/h	842	468	0				0	469	446	769	1076	0
V/C Ratio(X)	0.42	0.00	0.00				0.00	0.05	0.06	0.60	0.04	0.00
Avail Cap(c_a), veh/h	842	468	0				0	469	446	769	1076	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.3	0.0	0.0				0.0	18.5	18.5	22.5	5.5	0.0
Incr Delay (d2), s/veh	1.5	0.0	0.0				0.0	0.2	0.2	3.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0				0.0	0.3	0.3	3.3	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.9	0.0	0.0				0.0	18.7	18.8	26.0	5.6	0.0
LnGrp LOS	C	A	A				A	B	B	C	A	A
Approach Vol, veh/h		354						50			504	
Approach Delay, s/veh		22.9						18.7			24.3	
Approach LOS		C						B			C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				47.0		23.0	23.0	24.0				
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s				42.5		18.5	18.5	19.5				
Max Q Clear Time (g_c+I1), s				2.7		8.4	11.7	2.8				
Green Ext Time (p_c), s				0.2		0.9	1.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			23.4									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary

1: San Bernardino Ave & N. Pepper Ave

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	260	132	33	274	31	214	785	72	43	537	126
Future Volume (veh/h)	102	260	132	33	274	31	214	785	72	43	537	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1575	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	113	289	147	37	304	34	238	872	80	48	597	140
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	546	463	268	483	54	412	1417	632	73	880	206
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.14	0.42	0.42	0.05	0.32	0.32
Sat Flow, veh/h	933	1772	1502	852	1565	175	2910	3367	1502	1594	2708	633
Grp Volume(v), veh/h	113	289	147	37	0	338	238	872	80	48	371	366
Grp Sat Flow(s),veh/h/ln	933	1772	1502	852	0	1740	1455	1683	1502	1594	1683	1658
Q Serve(g_s), s	7.1	8.1	4.5	2.3	0.0	10.0	4.6	12.1	2.0	1.8	11.4	11.5
Cycle Q Clear(g_c), s	17.1	8.1	4.5	10.3	0.0	10.0	4.6	12.1	2.0	1.8	11.4	11.5
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	252	546	463	268	0	537	412	1417	632	73	547	539
V/C Ratio(X)	0.45	0.53	0.32	0.14	0.00	0.63	0.58	0.62	0.13	0.66	0.68	0.68
Avail Cap(c_a), veh/h	252	546	463	268	0	537	412	1417	632	133	547	539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	0.85	0.85	0.85	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	17.1	15.9	21.4	0.0	17.8	24.1	13.6	10.6	28.2	17.5	17.5
Incr Delay (d2), s/veh	5.7	3.6	1.8	1.1	0.0	5.5	1.7	1.7	0.4	9.6	6.6	6.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	3.4	1.5	0.5	0.0	4.4	1.5	3.9	0.6	0.8	4.6	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.8	20.8	17.7	22.5	0.0	23.3	25.8	15.3	11.0	37.7	24.1	24.3
LnGrp LOS	C	C	B	C	A	C	C	B	B	D	C	C
Approach Vol, veh/h		549			375			1190			785	
Approach Delay, s/veh		22.0			23.3			17.1			25.1	
Approach LOS		C			C			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.0	13.0	24.0		23.0	7.3	29.7				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.5	8.5	19.5		18.5	5.0	23.0				
Max Q Clear Time (g_c+I1), s		19.1	6.6	13.5		12.3	3.8	14.1				
Green Ext Time (p_c), s		0.0	0.1	2.1		1.1	0.0	3.8				
Intersection Summary												
HCM 6th Ctrl Delay			21.0									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

2: N. Pepper Ave & Violet St

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	↶	↶	↷↷↷	↷	↶	↷↷↷	
Traffic Volume (veh/h)	95	117	955	8	36	671	
Future Volume (veh/h)	95	117	955	8	36	671	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	106	130	1061	9	40	746	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	207	195	2220	689	177	3242	
Arrive On Green	0.13	0.13	0.46	0.46	0.11	0.67	
Sat Flow, veh/h	1594	1502	4997	1502	1594	4997	
Grp Volume(v), veh/h	106	130	1061	9	40	746	
Grp Sat Flow(s),veh/h/ln	1594	1502	1612	1502	1594	1612	
Q Serve(g_s), s	2.8	3.7	6.8	0.1	1.0	2.7	
Cycle Q Clear(g_c), s	2.8	3.7	6.8	0.1	1.0	2.7	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	207	195	2220	689	177	3242	
V/C Ratio(X)	0.51	0.67	0.48	0.01	0.23	0.23	
Avail Cap(c_a), veh/h	266	250	2220	689	195	3242	
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	0.78	0.78	
Uniform Delay (d), s/veh	18.2	18.6	8.4	6.6	18.2	2.9	
Incr Delay (d2), s/veh	2.0	4.4	0.7	0.0	0.5	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	1.0	3.3	1.6	0.2	0.3	0.2	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.2	23.1	9.2	6.7	18.7	3.0	
LnGrp LOS	C	C	A	A	B	A	
Approach Vol, veh/h			1070			786	
Approach Delay, s/veh	21.8		9.2			3.8	
Approach LOS	C		A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				34.7	10.3	9.5	25.2
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				28.5	7.5	5.5	18.5
Max Q Clear Time (g_c+I1), s				4.7	5.7	3.0	8.8
Green Ext Time (p_c), s				4.9	0.1	0.0	4.6
Intersection Summary							
HCM 6th Ctrl Delay			8.6				
HCM 6th LOS			A				

HCM 6th Signalized Intersection Summary

4: Blue Dr & N. Pepper Ave

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	130	50	903	33	19	753	
Future Volume (veh/h)	130	50	903	33	19	753	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	151	58	1050	38	22	876	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	210	197	1319	588	401	2419	
Arrive On Green	0.13	0.13	0.39	0.39	0.25	0.72	
Sat Flow, veh/h	1594	1502	3455	1502	1594	3455	
Grp Volume(v), veh/h	151	58	1050	38	22	876	
Grp Sat Flow(s),veh/h/ln	1594	1502	1683	1502	1594	1683	
Q Serve(g_s), s	5.5	2.1	16.5	0.5	0.6	5.9	
Cycle Q Clear(g_c), s	5.5	2.1	16.5	0.5	0.6	5.9	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	210	197	1319	588	401	2419	
V/C Ratio(X)	0.72	0.29	0.80	0.06	0.05	0.36	
Avail Cap(c_a), veh/h	478	450	1319	588	401	2419	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	25.0	23.5	16.1	3.3	17.0	3.2	
Incr Delay (d2), s/veh	4.6	0.8	5.1	0.2	0.1	0.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.2	1.8	5.9	0.9	0.2	0.8	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	29.6	24.4	21.2	3.5	17.1	3.6	
LnGrp LOS	C	C	C	A	B	A	
Approach Vol, veh/h			1088			898	
Approach Delay, s/veh			20.6			4.0	
Approach LOS			C			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				47.6	12.4	19.6	28.0
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s				7.9	7.5	2.6	18.5
Green Ext Time (p_c), s				6.0	0.4	0.0	2.8
Intersection Summary							
HCM 6th Ctrl Delay			14.5				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary
 5: N. Pepper Ave & W. Valley Blvd

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑		↔↔	↑↑↑	↗	↔↔	↑↑↑	
Traffic Volume (veh/h)	134	365	230	164	377	76	258	690	129	112	718	66
Future Volume (veh/h)	134	365	230	164	377	76	258	690	129	112	718	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1772	1772	1575	1772	1772	1575	1772	1772	1575	1772	1772
Adj Flow Rate, veh/h	144	392	247	176	405	82	277	742	139	120	772	71
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	215	757	338	252	663	133	350	1639	509	363	1549	142
Arrive On Green	0.07	0.22	0.22	0.09	0.24	0.24	0.16	0.45	0.45	0.12	0.34	0.34
Sat Flow, veh/h	2910	3367	1502	2910	2794	561	2910	4837	1502	2910	4510	413
Grp Volume(v), veh/h	144	392	247	176	243	244	277	742	139	120	551	292
Grp Sat Flow(s),veh/h/ln	1455	1683	1502	1455	1683	1671	1455	1612	1502	1455	1612	1698
Q Serve(g_s), s	3.9	8.2	8.5	4.7	10.3	10.4	7.3	8.5	4.6	3.0	10.8	10.9
Cycle Q Clear(g_c), s	3.9	8.2	8.5	4.7	10.3	10.4	7.3	8.5	4.6	3.0	10.8	10.9
Prop In Lane	1.00		1.00	1.00		0.34	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	215	757	338	252	400	397	350	1639	509	363	1107	583
V/C Ratio(X)	0.67	0.52	0.73	0.70	0.61	0.62	0.79	0.45	0.27	0.33	0.50	0.50
Avail Cap(c_a), veh/h	273	757	338	309	400	397	455	1639	509	363	1107	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	27.2	14.1	35.5	27.2	27.2	32.7	16.9	15.8	32.0	20.8	20.8
Incr Delay (d2), s/veh	4.3	2.5	13.1	5.2	6.7	7.0	6.4	0.8	1.2	0.5	1.6	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	3.3	5.0	1.7	4.5	4.6	2.6	2.7	1.6	1.0	3.9	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.4	29.7	27.2	40.7	33.9	34.2	39.1	17.7	17.0	32.5	22.4	23.9
LnGrp LOS	D	C	C	D	C	C	D	B	B	C	C	C
Approach Vol, veh/h		783			663			1158			963	
Approach Delay, s/veh		30.9			35.8			22.7			24.1	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.4	22.5	14.1	32.0	10.4	23.5	14.5	31.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	18.0	12.5	23.0	7.5	19.0	8.4	27.1				
Max Q Clear Time (g_c+I1), s	6.7	10.5	9.3	12.9	5.9	12.4	5.0	10.5				
Green Ext Time (p_c), s	0.1	1.9	0.3	3.6	0.1	1.4	0.1	4.7				

Intersection Summary												
HCM 6th Ctrl Delay				27.3								
HCM 6th LOS				C								

HCM Signalized Intersection Capacity Analysis
 6: N. Pepper Ave & I-10 WB On/Off-Ramps

06/12/2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	5	3	611	7	577	0	0	584	576	
Future Volume (vph)	0	0	0	5	3	611	7	577	0	0	584	576	
Ideal Flow (vphpl)	1900	1900	1900	1800	1800	1800	1700	1800	1800	1800	1800	1800	
Total Lost time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Lane Util. Factor					0.95	0.95	1.00	0.95			0.95	1.00	
Frt					0.85	0.85	1.00	1.00			1.00	0.85	
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)					1430	1425	1583	3353			3353	1500	
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)					1430	1425	1583	3353			3353	1500	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	
Adj. Flow (vph)	0	0	0	6	3	687	8	648	0	0	656	647	
RTOR Reduction (vph)	0	0	0	0	227	227	0	0	0	0	0	256	
Lane Group Flow (vph)	0	0	0	0	119	123	8	648	0	0	656	391	
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm	
Protected Phases					6		3	8			4		
Permitted Phases				6		6						4	
Actuated Green, G (s)					13.1	13.1	5.1	57.9			48.3	48.3	
Effective Green, g (s)					13.1	13.1	5.1	57.9			48.3	48.3	
Actuated g/C Ratio					0.16	0.16	0.06	0.72			0.60	0.60	
Clearance Time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)					234	233	100	2426			2024	905	
v/s Ratio Prot							0.01	c0.19			0.20		
v/s Ratio Perm					0.08	c0.09						c0.26	
v/c Ratio					0.51	0.53	0.08	0.27			0.32	0.43	
Uniform Delay, d1					30.5	30.6	35.2	3.8			7.8	8.5	
Progression Factor					1.00	1.00	1.01	0.17			0.46	2.66	
Incremental Delay, d2					1.7	2.1	0.3	0.2			0.4	1.3	
Delay (s)					32.2	32.7	35.9	0.9			4.0	23.9	
Level of Service					C	C	D	A			A	C	
Approach Delay (s)		0.0			32.5			1.3			13.9		
Approach LOS		A			C			A			B		
Intersection Summary													
HCM 2000 Control Delay			15.6		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.45										
Actuated Cycle Length (s)			80.0		Sum of lost time (s)						13.5		
Intersection Capacity Utilization			80.3%		ICU Level of Service						D		
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 7: N. Pepper Ave & I-10 EB On/Off-Ramps

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	539	4	6	0	0	0	0	29	20	567	15	0
Future Volume (veh/h)	539	4	6	0	0	0	0	29	20	567	15	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				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	1673	1772	1772				0	1772	1772	1575	1772	0
Adj Flow Rate, veh/h	595	0	0				0	32	22	616	16	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	956	532	0				0	453	282	884	1041	0
Arrive On Green	0.30	0.00	0.00				0.00	0.23	0.23	0.30	0.59	0.00
Sat Flow, veh/h	3188	1772	0				0	2081	1240	2910	1772	0
Grp Volume(v), veh/h	595	0	0				0	27	27	616	16	0
Grp Sat Flow(s),veh/h/ln	1594	1772	0				0	1683	1549	1455	1772	0
Q Serve(g_s), s	12.9	0.0	0.0				0.0	1.0	1.1	15.0	0.3	0.0
Cycle Q Clear(g_c), s	12.9	0.0	0.0				0.0	1.0	1.1	15.0	0.3	0.0
Prop In Lane	1.00		0.00				0.00		0.80	1.00		0.00
Lane Grp Cap(c), veh/h	956	532	0				0	383	352	884	1041	0
V/C Ratio(X)	0.62	0.00	0.00				0.00	0.07	0.08	0.70	0.02	0.00
Avail Cap(c_a), veh/h	956	532	0				0	383	352	884	1041	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.1	0.0	0.0				0.0	24.3	24.3	24.6	6.9	0.0
Incr Delay (d2), s/veh	3.0	0.0	0.0				0.0	0.3	0.4	4.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	0.0				0.0	0.4	0.4	5.2	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.1	0.0	0.0				0.0	24.6	24.7	29.1	6.9	0.0
LnGrp LOS	C	A	A				A	C	C	C	A	A
Approach Vol, veh/h		595						54			632	
Approach Delay, s/veh		27.1						24.7			28.6	
Approach LOS		C						C			C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				51.5		28.5	28.8	22.7				
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s				47.0		24.0	24.3	18.2				
Max Q Clear Time (g_c+I1), s				2.3		14.9	17.0	3.1				
Green Ext Time (p_c), s				0.0		1.6	1.4	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			27.7									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

Appendix D

Cumulative Projects

Appendix D

Cumulative Project Descriptions and Trip Generation

No.	Project Name/Description	Jurisdiction	Address/Location	Land Use	Daily	AM Peak Hour			Midday Peak Hour			PM Peak Hour			ITE Code	Notes
						In	Out	Total	In	Out	Total	In	Out	Total		
1	Industrial Tow Yard Project	Colton	280 Fogg St	2,400 sf building with 33,000 sf of outdoor storage area	106	6	5	11	6	6	12	6	6	12		[A]
2	Truck/Tractor Repair Dealership Project	Colton	1201 Jefferson Ln	CUP to allow truck/tractor dealership on 1.76 acres	519	31	10	41	36	36	72	34	38	72	841	
3	Contractor's Storage Yard Project	Colton	1200 Jefferson Ln	4,692 sf office building	51	6	1	7	4	3	7	1	6	7	710	
				5,264 sf storage building	9	1	0	1	1	0	1	0	1	1	150	
				Total	60	7	1	8	5	3	8	1	7	8		
4	3 Warehouses Project	Colton	220 Laurel St	104,700 sf warehouse/manufacturing industrial building	179	14	4	18	10	9	19	5	14	19	150	
				91,910 sf industrial building	448	60	8	68	34	34	68	8	52	60	110	
				112,800 sf industrial building	549	73	10	83	42	41	83	10	63	73	110	
				<i>Existing Land Use (To Be Removed)</i> 295,000 sf industrial buildings	(1437)	(192)	(26)	(218)	(96)	(96)	(192)	(27)	(165)	(192)		
				Total	(261)	(45)	(4)	(49)	(10)	(12)	(22)	(4)	(36)	(40)		
5	Truck and Trailer Parking, Storage and Transloading Use Project	Colton	685 E. M St	8.52 acre site used for truck/trailer parking, storage, and transloading use. Currently an industrial lot	617	19	19	38	20	20	40	23	17	40	-	[B]
6	Swift Transportation Project	Colton	205 Mission St	12 acre storage site used for intermodal trailers, cargo containers, and chassis	869	27	26	53	28	28	56	32	24	56		[B]
7	Dhillon Truck and Trailer Repair Shop Project	Colton	201 Mission St	5,000 sf truck repair shop	109	10	2	12	7	6	13	4	9	13	-	[C]
8	Truck and Trailer Repair Project	Colton	790 E. M St	53,076 sf truck repair shop	187	16	6	22	15	15	30	2	28	30	-	[D]
9	Sunny Express Car Wash Project	Colton	2015 N. Rancho Ave	4,965 sf self service automatic car wash	720	14	14	28	33	33	66	33	33	66	-	[E]
10	Contractor's Storage Yard Project	Colton	Northwest Corner of Slover Ave and Sycamore Ave	11,761 sf contractor's storage yard	29	11	3	14	7	7	14	4	10	14	-	[F]
11	Truck Driving School Project	Colton	302 W. Tropica Rancho Rd	2,015 sf truck driving school	43	2	2	4	4	3	7	4	3	7		[G]
12	Private Transportation (Bus) Yard Project	Colton	363 E. Valley Blvd	73,616 sf bus service headquarters including administrative office, dispatch, quality control, and parking	585	100	7	107	54	53	107	9	87	96	714	
13	AMKO Recycling Facility Revitalization Project	Colton	115 N. Pennsylvania Ave and 340 W. Valley Blvd	11,000 sf additional storage area (340 W. Valley Blvd)	204	9	7	16	8	8	16	4	7	11	895	[H]
				10,114 sf new recycling facility (115 N. Pennsylvania Ave)	188	8	7	15	8	7	15	4	6	10	-	[I]
				Total	392	17	14	31	16	15	31	8	13	21		
14	Business Park Project	Colton	2245 W. Valley Blvd	186,505 sf Business Park buildings	447	34	10	44	24	23	47	13	34	47	-	[J]
15	Agua Mansa Logistics Center Project	Colton	1400-1500 Agua Mansa Road	930,021 sf warehouse	2733	114	39	153	84	84	168	48	120	168	-	[K]
16	436 West Rialto Ave Warehouse	Rialto	436 W. Rialto Ave	299,780 sf warehouse	689	57	17	74	46	46	92	26	66	92	150	[L]

Appendix D

Cumulative Project Descriptions and Trip Generation (cont.)

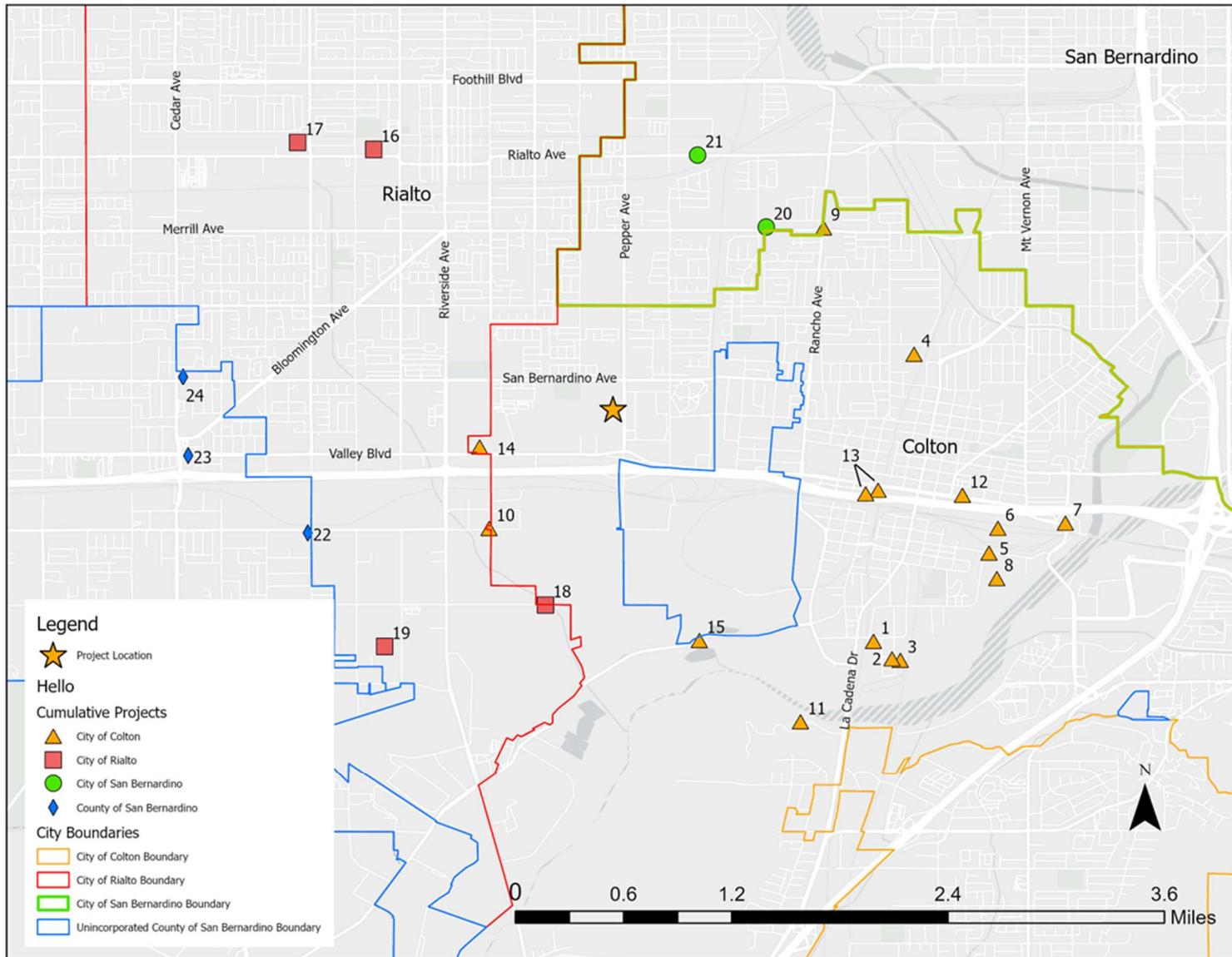
17	160 North Cactus Ave Project	Rialto	160 N. Cactus Ave	159,700 sf warehouse	247	21	12	32	18	17	35	16	19	35	-	[M]
18	Santa Ana Truck Terminal	Rialto	249 E. Santa Ana Ave	172,443 sf truck terminal building and 18,780 sf maintenance building	1922	52	74	126	114	114	228	136	92	228	-	[N]
19	South Willow Industrial Project	Rialto	2720 S. Willow Ave	118,000 sf warehouse including 7,000 sf office	205	15	5	20	11	11	22	6	16	22	-	[O]
20	12 Single-Family Residences Project	City of San Bernardino	North of W. Mills Street, between N. Macy Street and N. Iris St	12 detached single-family residences	113	2	6	8	6	5	11	7	4	11	210	
21	32 Single-Family Residences Project	City of San Bernardino	2578 W. Rialto Ave	32 single family homes	302	6	16	22	15	15	30	19	11	30	210	
22	Slover/Cactus Ave Warehouse Project	County of San Bernardino	Southwest Corner of Slover Ave and Cactus Ave	257,855 sf warehouse facility	587	44	13	57	32	32	64	17	47	64	-	[P]
23	Bloomington Fuel Station Project	County of San Bernardino	18745 Valley Blvd	2,200 sf gas station/convenience store	1848	29	28	57	37	37	74	38	36	74	-	[Q]
24	Bloomington Gas Station, Restaurant, and Commercial Center Project	County of San Bernardino	Northeast Corner of Cedar Ave and San Bernardino Ave	5200 sf convenience store 1,458 sf car wash 5,740 sf drive-thru restaurant 15,350 sf retail/office building	9,247	142	135	277	159	158	317	162	155	317		[R]

Source: City of Colton, City of Rialto, City of San Bernardino, and County of San Bernardino websites.

Note: Trip generation for the AM and PM peak hours are either based on the Institute of Transportation Engineers Manual, 11th Edition or from technical studies and documents found on the cities' websites. The trip generation for the Midday peak hour was not available from the ITE Trip Generation Manual and the cities' websites. For purpose of the traffic study, the total trip generation for the Midday peak hour was assumed to be the maximum of the trip generation from either the AM or PM peak hour periods; the directional splits were assumed to be 50% inbound and 50% outbound.

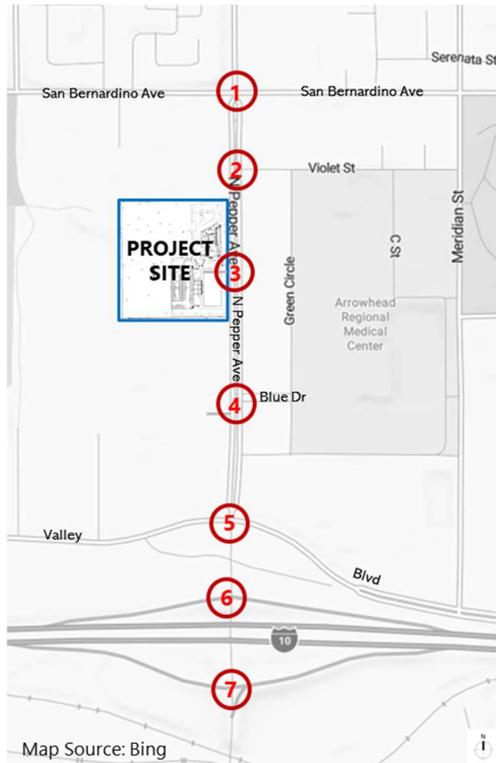
- [A] Trip Generation Source: Planning Commission Staff Report for Industrial Tow Yard Project, July 2024, City of Colton. The in and out splits were not available in the staff report. A 50% in and 50% out was assumed.
- [B] Trip Generation based on empirical trip rates in passenger-car-equivalent per acre derived from Truck Parking Center Trip Generation Assessment, July 13, 2023, Urban Crossroads.
- [C] Trip Generation Source: Dhillon Truck and Trailer Repair Shop Project Trip Generation Report, April 2021, Minagar & Associates
- [D] Trip Generation Source: Colton Truck and Trailer Repair Project Trip Generation Report, December 2023, LLG Engineers
- [E] Net Trip Generation Source: Sunny Express Car Wash Traffic and Queue Analysis, December 2023, TJW Engineers
- [F] Trip Generation Source: Slover and Sycamore Contractor's Storage Yard Project Trip Generation Report, June 2024, Minagar & Associates. The in and out splits were not available in the Trip Generation Report. Therefore, the in and out splits were assumed based on the in and out percentages for Warehouse use from ITE Trip Generation Manual, 11th Edition.
- [G] Trip Generation Source: Planning Commission Staff Report for Truck Driving School Project, August 2024, City of Colton. Note: The inbound and outbound splits were not available in the staff report. A 50% inbound and 50% outbound were assumed.
- [H] The additional storage area is assumed to be under the same operations as the 10,114 sf new recycling facility. The trip generation for the additional storage area is assumed to be proportional to the trip generation for the new recycling facility based on building size.
- [I] Trip Generation Source: AMKO Recycling Facility Revitalization Project Trip Generation Assessment, February 2023, Urban Crossroads
- [J] Trip Generation Source: 2245 W. Valley Ave Project Traffic Study, November 2022, KHA
- [K] Trip Generation Source: Agua Mansa Logistics Center Project Traffic Analysis, July 2022, Urban Crossroads
- [L] Net Trip Generation Source: Rialto & Lilac Center Project Traffic Analysis, April 2022, Urban Crossroads
- [M] Net Trip Generation Source: Traffic Analysis for 160 N. Cactus Avenue (MCN 2022-0059), May 16, 2023, Urban Crossroads
- [N] Trip Generation Source: Traffic Study for 249 Santa Ana Avenue Truck Terminal, April 2023, KHA
- [O] Trip Generation Source: 2720 S. Willow Avenue Development Project Draft Initial Study and Mitigated Negative Declaration, February 2024, KHA
- [P] Net Trip Generation Source: Slover and Cactus Warehouse Project Traffic Impact analysis, May 2019, Urban Crossroads
- [Q] Trip Generation Source: 18745 Valley Boulevard Gas Station With Convenience Store Project Traffic Analysis, July 2021, LLG Engineers
- [R] Trip Generation Source: San Bernardino County Initial Study/Mitigated Negative Declaration Environmental Checklist Form, December 2023, County of San Bernardino

Appendix D - Cumulative Project Locations



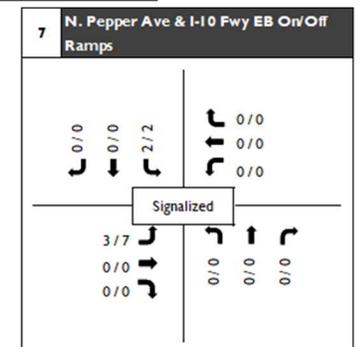
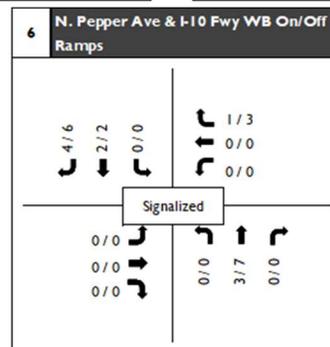
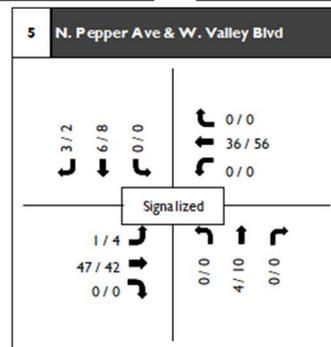
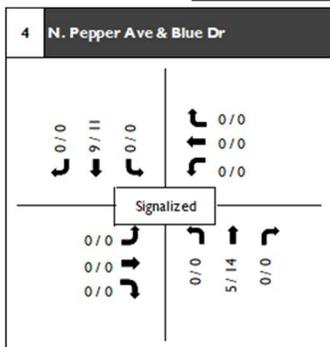
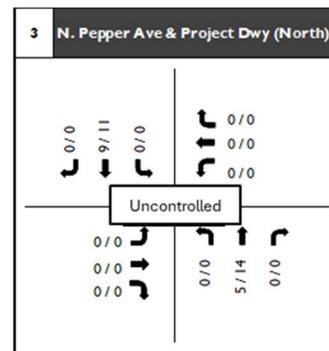
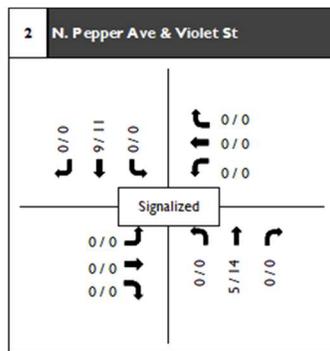
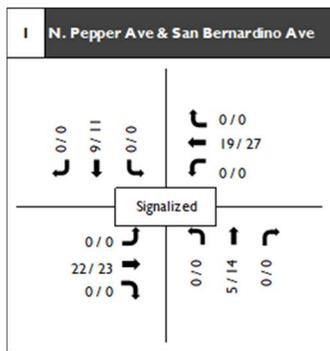
Appendix D

Cumulative Projects Traffic Volumes (AM and PM Peak Hours)



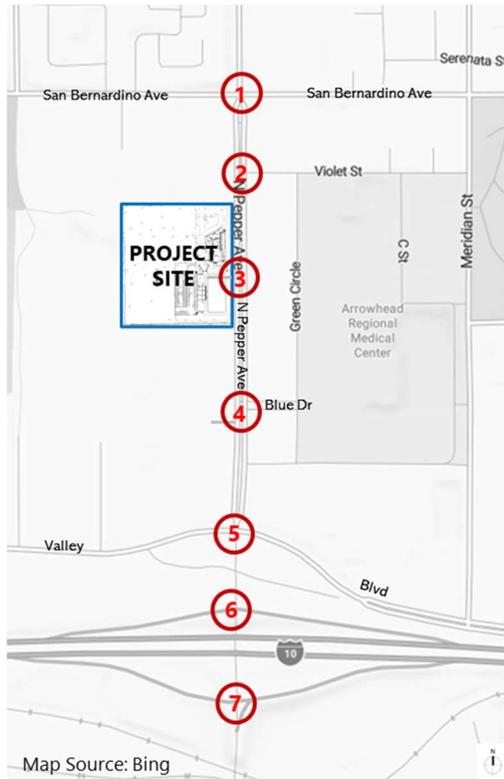
LEGEND

- Project Site
- Study Intersection
- XX/XX AM/PM Peak Hour Cumulative Projects Traffic Volume



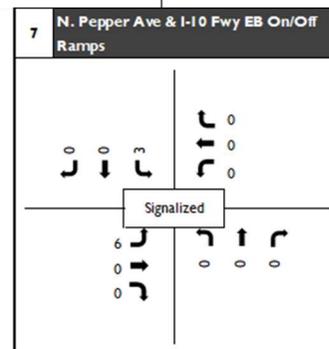
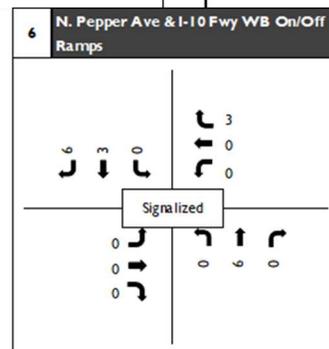
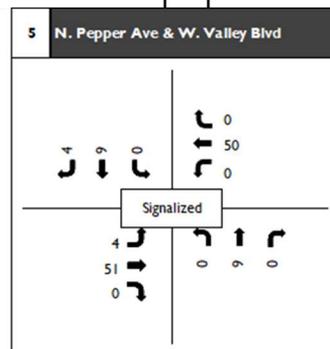
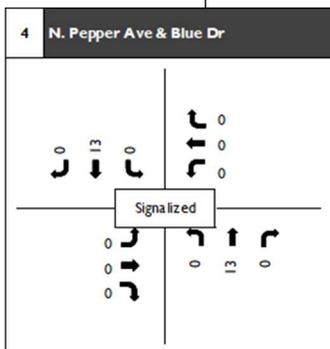
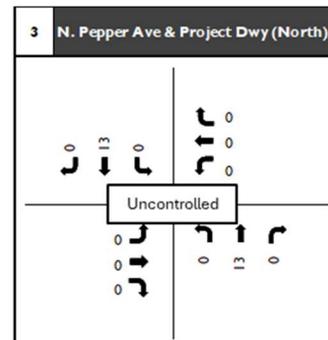
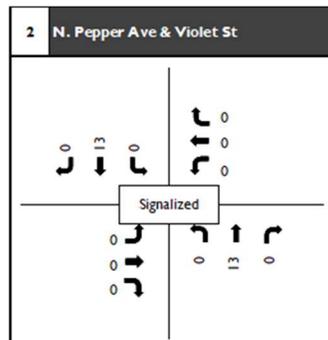
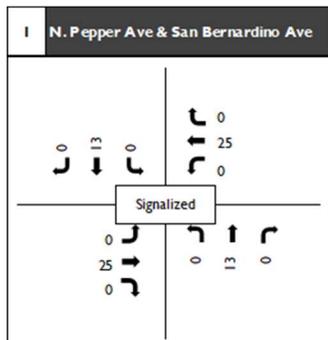
Appendix D

Cumulative Projects Traffic Volumes (Midday Peak Hour)



LEGEND

- Project Site
- Study Intersection
- XX Midday Peak Hour Cumulative Projects Traffic Volume



Appendix E
Level of Service Worksheets for
Opening Year (2027) With No Project Conditions

HCM 6th Signalized Intersection Summary

1: San Bernardino Ave & N. Pepper Ave

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	267	304	55	264	43	117	496	30	67	1050	161
Future Volume (veh/h)	73	267	304	55	264	43	117	496	30	67	1050	161
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1575	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	77	281	320	58	278	45	123	522	32	71	1105	169
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	432	366	164	363	59	309	1746	779	110	1409	215
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.11	0.52	0.52	0.07	0.48	0.48
Sat Flow, veh/h	946	1772	1502	732	1488	241	2910	3367	1502	1594	2928	447
Grp Volume(v), veh/h	77	281	320	58	0	323	123	522	32	71	634	640
Grp Sat Flow(s),veh/h/ln	946	1772	1502	732	0	1729	1455	1683	1502	1594	1683	1692
Q Serve(g_s), s	5.6	11.4	16.4	6.2	0.0	13.9	3.2	7.1	0.8	3.5	25.1	25.3
Cycle Q Clear(g_c), s	19.5	11.4	16.4	17.6	0.0	13.9	3.2	7.1	0.8	3.5	25.1	25.3
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	156	432	366	164	0	421	309	1746	779	110	810	814
V/C Ratio(X)	0.49	0.65	0.87	0.35	0.00	0.77	0.40	0.30	0.04	0.65	0.78	0.79
Avail Cap(c_a), veh/h	156	432	366	164	0	421	309	1746	779	201	810	814
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.6	27.2	29.1	35.1	0.0	28.1	33.4	11.0	9.5	36.3	17.3	17.3
Incr Delay (d2), s/veh	2.4	3.4	20.2	1.3	0.0	8.2	0.8	0.4	0.1	6.2	7.4	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	4.9	7.4	1.1	0.0	6.4	1.1	2.3	0.3	1.5	9.8	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.0	30.6	49.3	36.4	0.0	36.4	34.2	11.4	9.6	42.5	24.7	24.9
LnGrp LOS	D	C	D	D	A	D	C	B	A	D	C	C
Approach Vol, veh/h		678			381			677			1345	
Approach Delay, s/veh		40.5			36.4			15.4			25.7	
Approach LOS		D			D			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		24.0	13.0	43.0		24.0	10.0	46.0				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.5	8.5	38.5		19.5	10.1	36.9				
Max Q Clear Time (g_c+I1), s		21.5	5.2	27.3		19.6	5.5	9.1				
Green Ext Time (p_c), s		0.0	0.1	5.8		0.0	0.0	3.4				
Intersection Summary												
HCM 6th Ctrl Delay			28.0									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
 2: N. Pepper Ave & Violet St

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	↵	↵	↑↑↑	↵	↵	↑↑↑	
Traffic Volume (veh/h)	56	88	572	117	113	1281	
Future Volume (veh/h)	56	88	572	117	113	1281	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	59	93	602	123	119	1348	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	177	167	2283	709	186	3332	
Arrive On Green	0.11	0.11	0.47	0.47	0.12	0.69	
Sat Flow, veh/h	1594	1502	4997	1502	1594	4997	
Grp Volume(v), veh/h	59	93	602	123	119	1348	
Grp Sat Flow(s),veh/h/ln	1594	1502	1612	1502	1594	1612	
Q Serve(g_s), s	1.5	2.6	3.4	0.9	3.2	5.4	
Cycle Q Clear(g_c), s	1.5	2.6	3.4	0.9	3.2	5.4	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	177	167	2283	709	186	3332	
V/C Ratio(X)	0.33	0.56	0.26	0.17	0.64	0.40	
Avail Cap(c_a), veh/h	195	184	2283	709	266	3332	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.63	0.63	
Uniform Delay (d), s/veh	18.5	19.0	7.2	1.2	19.0	3.0	
Incr Delay (d2), s/veh	1.1	3.0	0.3	0.5	2.3	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	0.6	2.3	0.8	2.0	1.1	0.3	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	19.6	22.0	7.4	1.7	21.3	3.3	
LnGrp LOS	B	C	A	A	C	A	
Approach Vol, veh/h			725			1467	
Approach Delay, s/veh	21.0		6.5			4.7	
Approach LOS	C		A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				35.5	9.5	9.8	25.7
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				30.5	5.5	7.5	18.5
Max Q Clear Time (g_c+I1), s				7.4	4.6	5.2	5.4
Green Ext Time (p_c), s				9.7	0.0	0.1	3.4
Intersection Summary							
HCM 6th Ctrl Delay			6.3				
HCM 6th LOS			A				

HCM 6th Signalized Intersection Summary

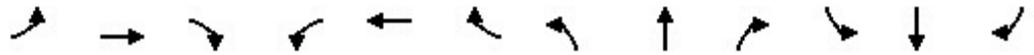
4: Blue Dr & N. Pepper Ave

06/12/2025

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations			 			 	
Traffic Volume (veh/h)	116	18	654	100	89	1275	
Future Volume (veh/h)	116	18	654	100	89	1275	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	122	19	688	105	94	1342	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	178	167	1173	523	502	2486	
Arrive On Green	0.11	0.11	0.35	0.35	0.32	0.74	
Sat Flow, veh/h	1594	1502	3455	1502	1594	3455	
Grp Volume(v), veh/h	122	19	688	105	94	1342	
Grp Sat Flow(s),veh/h/ln	1594	1502	1683	1502	1594	1683	
Q Serve(g_s), s	4.4	0.7	10.0	1.8	2.6	10.4	
Cycle Q Clear(g_c), s	4.4	0.7	10.0	1.8	2.6	10.4	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	178	167	1173	523	502	2486	
V/C Ratio(X)	0.69	0.11	0.59	0.20	0.19	0.54	
Avail Cap(c_a), veh/h	478	450	1173	523	502	2486	
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	25.6	24.0	16.0	4.9	14.9	3.4	
Incr Delay (d2), s/veh	4.6	0.3	2.2	0.9	0.2	0.8	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.8	0.6	3.5	2.6	0.8	1.2	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	30.3	24.3	18.2	5.8	15.1	4.3	
LnGrp LOS	C	C	B	A	B	A	
Approach Vol, veh/h	141		793			1436	
Approach Delay, s/veh	29.5		16.5			5.0	
Approach LOS	C		B			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				48.8	11.2	23.4	25.4
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	7.6	20.9
Max Q Clear Time (g_c+I1), s				12.4	6.4	4.6	12.0
Green Ext Time (p_c), s				9.5	0.3	0.0	3.1
Intersection Summary							
HCM 6th Ctrl Delay			10.3				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary
 5: N. Pepper Ave & W. Valley Blvd

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑		↔↔	↑↑↑	↗	↔↔	↑↑↑	
Traffic Volume (veh/h)	84	251	303	297	308	48	295	804	78	96	1051	70
Future Volume (veh/h)	84	251	303	297	308	48	295	804	78	96	1051	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1772	1772	1575	1772	1772	1575	1772	1772	1575	1772	1772
Adj Flow Rate, veh/h	88	264	319	313	324	51	311	846	82	101	1106	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	677	302	374	739	115	366	1790	556	292	1596	107
Arrive On Green	0.08	0.20	0.20	0.13	0.25	0.25	0.25	0.74	0.74	0.10	0.34	0.34
Sat Flow, veh/h	2910	3367	1502	2910	2919	455	2910	4837	1502	2910	4631	310
Grp Volume(v), veh/h	88	264	319	313	185	190	311	846	82	101	770	410
Grp Sat Flow(s),veh/h/ln	1455	1683	1502	1455	1683	1690	1455	1612	1502	1455	1612	1716
Q Serve(g_s), s	2.6	6.1	13.0	9.5	8.3	8.5	9.2	6.3	1.4	2.9	18.5	18.5
Cycle Q Clear(g_c), s	2.6	6.1	13.0	9.5	8.3	8.5	9.2	6.3	1.4	2.9	18.5	18.5
Prop In Lane	1.00		1.00	1.00		0.27	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	222	677	302	374	426	428	366	1790	556	292	1111	591
V/C Ratio(X)	0.40	0.39	1.06	0.84	0.43	0.44	0.85	0.47	0.15	0.35	0.69	0.69
Avail Cap(c_a), veh/h	252	677	302	404	426	428	404	1790	556	292	1111	591
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	31.2	18.5	38.3	28.2	28.3	32.9	8.2	7.6	37.7	25.4	25.4
Incr Delay (d2), s/veh	1.1	1.7	67.4	13.4	3.2	3.3	13.4	0.8	0.5	0.7	3.6	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.5	9.7	3.9	3.5	3.6	3.4	1.7	0.5	1.0	7.0	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.7	32.9	85.9	51.7	31.4	31.6	46.3	9.0	8.1	38.4	29.0	32.0
LnGrp LOS	D	C	F	D	C	C	D	A	A	D	C	C
Approach Vol, veh/h		671			688			1239			1281	
Approach Delay, s/veh		59.1			40.7			18.3			30.7	
Approach LOS		E			D			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.1	22.6	15.8	35.5	11.4	27.3	13.5	37.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.5	18.1	12.5	28.9	7.8	22.8	8.1	33.3				
Max Q Clear Time (g_c+I1), s	11.5	15.0	11.2	20.5	4.6	10.5	4.9	8.3				
Green Ext Time (p_c), s	0.1	0.9	0.2	4.4	0.1	1.5	0.1	6.0				
Intersection Summary												
HCM 6th Ctrl Delay			33.4									
HCM 6th LOS			C									

HCM Signalized Intersection Capacity Analysis

6: N. Pepper Ave & I-10 WB On/Off-Ramps

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↗	↖	↑↑			↑↑	↗
Traffic Volume (vph)	0	0	0	15	2	731	8	421	0	0	851	841
Future Volume (vph)	0	0	0	15	2	731	8	421	0	0	851	841
Ideal Flow (vphpl)	1900	1900	1900	1800	1800	1800	1700	1800	1800	1800	1800	1800
Total Lost time (s)					4.5	4.5	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	0.95	1.00	0.95			0.95	1.00
Frt					0.86	0.85	1.00	1.00			1.00	0.85
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					1434	1425	1583	3353			3353	1500
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					1434	1425	1583	3353			3353	1500
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	16	2	769	8	443	0	0	896	885
RTOR Reduction (vph)	0	0	0	0	324	337	0	0	0	0	0	314
Lane Group Flow (vph)	0	0	0	0	71	55	8	443	0	0	896	571
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					6		3	8			4	
Permitted Phases				6		6						4
Actuated Green, G (s)					12.7	12.7	5.7	68.3			58.1	58.1
Effective Green, g (s)					12.7	12.7	5.7	68.3			58.1	58.1
Actuated g/C Ratio					0.14	0.14	0.06	0.76			0.65	0.65
Clearance Time (s)					4.5	4.5	4.5	4.5			4.5	4.5
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					202	201	100	2544			2164	968
v/s Ratio Prot							0.01	c0.13			0.27	
v/s Ratio Perm					0.05	0.04						c0.38
v/c Ratio					0.35	0.28	0.08	0.17			0.41	0.59
Uniform Delay, d1					34.9	34.5	39.7	3.0			7.7	9.1
Progression Factor					1.00	1.00	1.57	0.05			0.34	6.12
Incremental Delay, d2					1.1	0.7	0.3	0.1			0.4	1.8
Delay (s)					36.0	35.3	62.7	0.3			3.1	57.7
Level of Service					D	D	E	A			A	E
Approach Delay (s)		0.0			35.6			1.4			30.2	
Approach LOS		A			D			A			C	

Intersection Summary

HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	102.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 7: N. Pepper Ave & I-10 EB On/Off-Ramps

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	419	4	10	0	0	0	0	26	15	874	30	0
Future Volume (veh/h)	419	4	10	0	0	0	0	26	15	874	30	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				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	1673	1772	1772				0	1772	1772	1575	1772	0
Adj Flow Rate, veh/h	454	0	0				0	27	16	920	32	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	761	423	0				0	433	235	1180	1171	0
Arrive On Green	0.24	0.00	0.00				0.00	0.21	0.21	0.41	0.66	0.00
Sat Flow, veh/h	3188	1772	0				0	2195	1143	2910	1772	0
Grp Volume(v), veh/h	454	0	0				0	21	22	920	32	0
Grp Sat Flow(s),veh/h/ln	1594	1772	0				0	1683	1566	1455	1772	0
Q Serve(g_s), s	11.4	0.0	0.0				0.0	0.9	1.0	24.7	0.6	0.0
Cycle Q Clear(g_c), s	11.4	0.0	0.0				0.0	0.9	1.0	24.7	0.6	0.0
Prop In Lane	1.00		0.00				0.00		0.73	1.00		0.00
Lane Grp Cap(c), veh/h	761	423	0				0	346	322	1180	1171	0
V/C Ratio(X)	0.60	0.00	0.00				0.00	0.06	0.07	0.78	0.03	0.00
Avail Cap(c_a), veh/h	761	423	0				0	346	322	1180	1171	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.4	0.0	0.0				0.0	28.8	28.8	23.3	5.3	0.0
Incr Delay (d2), s/veh	3.4	0.0	0.0				0.0	0.3	0.4	5.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	0.0				0.0	0.4	0.4	8.4	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.8	0.0	0.0				0.0	29.1	29.2	28.4	5.3	0.0
LnGrp LOS	C	A	A				A	C	C	C	A	A
Approach Vol, veh/h		454						43			952	
Approach Delay, s/veh		33.8						29.2			27.6	
Approach LOS		C						C			C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				64.0		26.0	41.0	23.0				
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s				59.5		21.5	36.5	18.5				
Max Q Clear Time (g_c+l1), s				2.6		13.4	26.7	3.0				
Green Ext Time (p_c), s				0.1		1.1	2.7	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			29.6									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary

1: San Bernardino Ave & N. Pepper Ave

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	211	142	36	187	25	138	519	41	26	515	95
Future Volume (veh/h)	93	211	142	36	187	25	138	519	41	26	515	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1575	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	98	222	149	38	197	26	145	546	43	27	542	100
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	439	372	247	380	50	815	1494	666	133	701	129
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.28	0.44	0.44	0.08	0.25	0.25
Sat Flow, veh/h	1036	1772	1502	905	1533	202	2910	3367	1502	1594	2839	522
Grp Volume(v), veh/h	98	222	149	38	0	223	145	546	43	27	321	321
Grp Sat Flow(s),veh/h/ln	1036	1772	1502	905	0	1735	1455	1683	1502	1594	1683	1678
Q Serve(g_s), s	5.4	6.5	5.0	2.3	0.0	6.7	2.3	6.5	1.0	0.9	10.6	10.7
Cycle Q Clear(g_c), s	12.1	6.5	5.0	8.7	0.0	6.7	2.3	6.5	1.0	0.9	10.6	10.7
Prop In Lane	1.00		1.00	1.00		0.12	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	262	439	372	247	0	430	815	1494	666	133	416	414
V/C Ratio(X)	0.37	0.51	0.40	0.15	0.00	0.52	0.18	0.37	0.06	0.20	0.77	0.78
Avail Cap(c_a), veh/h	316	532	450	294	0	521	815	1494	666	154	561	559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	19.4	18.8	23.1	0.0	19.5	16.4	11.1	9.6	25.6	21.0	21.0
Incr Delay (d2), s/veh	0.9	0.9	0.7	0.3	0.0	1.0	0.1	0.7	0.2	0.7	13.0	13.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.4	1.6	0.5	0.0	2.5	0.7	2.0	0.3	0.3	5.1	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	20.3	19.5	23.4	0.0	20.4	16.5	11.7	9.7	26.4	34.0	34.4
LnGrp LOS	C	C	B	C	A	C	B	B	A	C	C	C
Approach Vol, veh/h		469			261			734			669	
Approach Delay, s/veh		21.2			20.9			12.6			33.9	
Approach LOS		C			C			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		19.4	21.3	19.3		19.4	9.5	31.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	8.5	20.0		18.0	5.8	22.7				
Max Q Clear Time (g_c+I1), s		14.1	4.3	12.7		10.7	2.9	8.5				
Green Ext Time (p_c), s		0.8	0.1	2.1		0.8	0.0	2.9				
Intersection Summary												
HCM 6th Ctrl Delay				22.1								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary

2: N. Pepper Ave & Violet St

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	↶	↷	↑↑↑	↷	↶	↑↑↑	
Traffic Volume (veh/h)	88	78	640	59	68	640	
Future Volume (veh/h)	88	78	640	59	68	640	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	93	82	674	62	72	674	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	177	167	2311	717	177	3332	
Arrive On Green	0.11	0.11	0.48	0.48	0.11	0.69	
Sat Flow, veh/h	1594	1502	4997	1502	1594	4997	
Grp Volume(v), veh/h	93	82	674	62	72	674	
Grp Sat Flow(s),veh/h/ln	1594	1502	1612	1502	1594	1612	
Q Serve(g_s), s	2.5	2.3	3.8	1.0	1.9	2.3	
Cycle Q Clear(g_c), s	2.5	2.3	3.8	1.0	1.9	2.3	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	177	167	2311	717	177	3332	
V/C Ratio(X)	0.53	0.49	0.29	0.09	0.41	0.20	
Avail Cap(c_a), veh/h	230	217	2311	717	195	3332	
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	0.91	0.91	
Uniform Delay (d), s/veh	18.9	18.8	7.1	6.4	18.6	2.5	
Incr Delay (d2), s/veh	2.4	2.2	0.3	0.2	1.4	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	0.9	2.0	0.8	1.2	0.6	0.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.3	21.0	7.4	6.6	20.0	2.7	
LnGrp LOS	C	C	A	A	B	A	
Approach Vol, veh/h			736			746	
Approach Delay, s/veh			7.4			4.3	
Approach LOS			A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				35.5	9.5	9.5	26.0
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				29.5	6.5	5.5	19.5
Max Q Clear Time (g_c+I1), s				4.3	4.5	3.9	5.8
Green Ext Time (p_c), s				4.4	0.1	0.0	3.7
Intersection Summary							
HCM 6th Ctrl Delay			7.5				
HCM 6th LOS			A				

HCM 6th Signalized Intersection Summary

4: Blue Dr & N. Pepper Ave

06/12/2025

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations			 			 	
Traffic Volume (veh/h)	91	40	641	79	36	647	
Future Volume (veh/h)	91	40	641	79	36	647	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	96	42	675	83	38	681	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	153	144	2006	895	133	2539	
Arrive On Green	0.10	0.10	0.60	0.60	0.08	0.75	
Sat Flow, veh/h	1594	1502	3455	1502	1594	3455	
Grp Volume(v), veh/h	96	42	675	83	38	681	
Grp Sat Flow(s),veh/h/ln	1594	1502	1683	1502	1594	1683	
Q Serve(g_s), s	3.5	1.6	6.1	1.4	1.3	3.7	
Cycle Q Clear(g_c), s	3.5	1.6	6.1	1.4	1.3	3.7	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	153	144	2006	895	133	2539	
V/C Ratio(X)	0.63	0.29	0.34	0.09	0.29	0.27	
Avail Cap(c_a), veh/h	478	450	2006	895	173	2539	
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	26.1	25.2	6.1	5.2	25.8	2.3	
Incr Delay (d2), s/veh	4.2	1.1	0.5	0.2	1.2	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	1.4	1.4	1.5	2.0	0.5	0.3	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	30.3	26.3	6.6	5.4	27.0	2.5	
LnGrp LOS	C	C	A	A	C	A	
Approach Vol, veh/h			758			719	
Approach Delay, s/veh			6.5			3.8	
Approach LOS			A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				49.7	10.3	9.5	40.2
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	6.5	22.0
Max Q Clear Time (g_c+I1), s				5.7	5.5	3.3	8.1
Green Ext Time (p_c), s				4.5	0.3	0.0	3.8
Intersection Summary							
HCM 6th Ctrl Delay			7.2				
HCM 6th LOS			A				

HCM 6th Signalized Intersection Summary
 5: N. Pepper Ave & W. Valley Blvd

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	  		 	  	
Traffic Volume (veh/h)	136	295	163	106	280	55	252	590	98	118	569	112
Future Volume (veh/h)	136	295	163	106	280	55	252	590	98	118	569	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1772	1772	1575	1772	1772	1575	1772	1772	1575	1772	1772
Adj Flow Rate, veh/h	143	311	172	112	295	58	265	621	103	124	599	118
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	224	885	395	208	723	140	399	1417	440	337	1104	214
Arrive On Green	0.08	0.26	0.26	0.07	0.26	0.26	0.27	0.59	0.59	0.12	0.27	0.27
Sat Flow, veh/h	2910	3367	1502	2910	2812	545	2910	4837	1502	2910	4067	788
Grp Volume(v), veh/h	143	311	172	112	175	178	265	621	103	124	473	244
Grp Sat Flow(s),veh/h/ln	1455	1683	1502	1455	1683	1674	1455	1612	1502	1455	1612	1630
Q Serve(g_s), s	3.3	5.3	6.7	2.6	6.0	6.2	5.7	5.0	2.3	2.8	8.8	9.0
Cycle Q Clear(g_c), s	3.3	5.3	6.7	2.6	6.0	6.2	5.7	5.0	2.3	2.8	8.8	9.0
Prop In Lane	1.00		1.00	1.00		0.33	1.00		1.00	1.00		0.48
Lane Grp Cap(c), veh/h	224	885	395	208	433	430	399	1417	440	337	875	442
V/C Ratio(X)	0.64	0.35	0.44	0.54	0.40	0.41	0.66	0.44	0.23	0.37	0.54	0.55
Avail Cap(c_a), veh/h	229	885	395	212	433	430	399	1417	440	337	875	442
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	21.0	21.5	31.4	21.6	21.6	24.0	11.3	10.7	28.6	21.8	21.9
Incr Delay (d2), s/veh	5.6	1.1	3.5	2.6	2.8	2.9	3.8	0.9	1.1	0.7	2.4	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.0	2.5	0.9	2.5	2.5	1.8	1.4	0.8	0.9	3.2	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.0	22.1	25.0	34.0	24.3	24.5	27.8	12.2	11.9	29.3	24.2	26.7
LnGrp LOS	D	C	C	C	C	C	C	B	B	C	C	C
Approach Vol, veh/h		626			465			989			841	
Approach Delay, s/veh		26.3			26.7			16.3			25.7	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	22.9	14.1	23.5	9.9	22.5	12.6	25.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	18.4	9.5	19.0	5.5	18.0	8.0	20.5				
Max Q Clear Time (g_c+I1), s	4.6	8.7	7.7	11.0	5.3	8.2	4.8	7.0				
Green Ext Time (p_c), s	0.0	1.7	0.2	2.6	0.0	1.3	0.1	3.5				
Intersection Summary												
HCM 6th Ctrl Delay				22.8								
HCM 6th LOS				C								

HCM Signalized Intersection Capacity Analysis

6: N. Pepper Ave & I-10 WB On/Off-Ramps

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↗	↘	↑↑			↑↑	↗
Traffic Volume (vph)	0	0	0	27	4	599	23	303	0	0	467	435
Future Volume (vph)	0	0	0	27	4	599	23	303	0	0	467	435
Ideal Flow (vphpl)	1900	1900	1900	1800	1800	1800	1700	1800	1800	1800	1800	1800
Total Lost time (s)					4.5	4.5	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	0.95	1.00	0.95			0.95	1.00
Frt					0.86	0.85	1.00	1.00			1.00	0.85
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					1443	1425	1583	3353			3353	1500
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					1443	1425	1583	3353			3353	1500
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	28	4	631	24	319	0	0	492	458
RTOR Reduction (vph)	0	0	0	0	254	275	0	0	0	0	0	202
Lane Group Flow (vph)	0	0	0	0	81	53	24	319	0	0	492	256
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					6		3	8			4	
Permitted Phases				6		6						4
Actuated Green, G (s)					11.4	11.4	5.9	49.6			39.2	39.2
Effective Green, g (s)					11.4	11.4	5.9	49.6			39.2	39.2
Actuated g/C Ratio					0.16	0.16	0.08	0.71			0.56	0.56
Clearance Time (s)					4.5	4.5	4.5	4.5			4.5	4.5
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					235	232	133	2375			1877	840
v/s Ratio Prot							0.02	c0.10			0.15	
v/s Ratio Perm					0.06	0.04						c0.17
v/c Ratio					0.35	0.23	0.18	0.13			0.26	0.31
Uniform Delay, d1					26.0	25.5	29.8	3.3			7.9	8.2
Progression Factor					1.00	1.00	1.02	0.24			0.32	0.75
Incremental Delay, d2					0.9	0.5	0.6	0.1			0.3	0.8
Delay (s)					26.9	26.0	31.1	0.9			2.8	7.0
Level of Service					C	C	C	A			A	A
Approach Delay (s)		0.0			26.4			3.0			4.8	
Approach LOS		A			C			A			A	

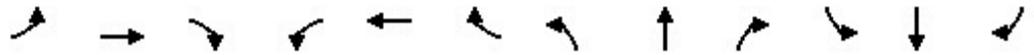
Intersection Summary

HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 7: N. Pepper Ave & I-10 EB On/Off-Ramps

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	337	1	15	0	0	0	0	34	14	455	41	0
Future Volume (veh/h)	337	1	15	0	0	0	0	34	14	455	41	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				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	1673	1772	1772				0	1772	1772	1575	1772	0
Adj Flow Rate, veh/h	371	0	0				0	36	15	479	43	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	842	468	0				0	658	258	769	1076	0
Arrive On Green	0.26	0.00	0.00				0.00	0.28	0.28	0.26	0.61	0.00
Sat Flow, veh/h	3188	1772	0				0	2452	925	2910	1772	0
Grp Volume(v), veh/h	371	0	0				0	25	26	479	43	0
Grp Sat Flow(s),veh/h/ln	1594	1772	0				0	1683	1605	1455	1772	0
Q Serve(g_s), s	6.8	0.0	0.0				0.0	0.8	0.8	10.1	0.7	0.0
Cycle Q Clear(g_c), s	6.8	0.0	0.0				0.0	0.8	0.8	10.1	0.7	0.0
Prop In Lane	1.00		0.00				0.00		0.58	1.00		0.00
Lane Grp Cap(c), veh/h	842	468	0				0	469	447	769	1076	0
V/C Ratio(X)	0.44	0.00	0.00				0.00	0.05	0.06	0.62	0.04	0.00
Avail Cap(c_a), veh/h	842	468	0				0	469	447	769	1076	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.4	0.0	0.0				0.0	18.5	18.5	22.7	5.5	0.0
Incr Delay (d2), s/veh	1.7	0.0	0.0				0.0	0.2	0.2	3.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.0				0.0	0.3	0.3	3.5	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.1	0.0	0.0				0.0	18.7	18.8	26.5	5.6	0.0
LnGrp LOS	C	A	A				A	B	B	C	A	A
Approach Vol, veh/h		371						51			522	
Approach Delay, s/veh		23.1						18.7			24.7	
Approach LOS		C						B			C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				47.0		23.0	23.0	24.0				
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s				42.5		18.5	18.5	19.5				
Max Q Clear Time (g_c+I1), s				2.7		8.8	12.1	2.8				
Green Ext Time (p_c), s				0.2		1.0	1.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
 1: San Bernardino Ave & N. Pepper Ave

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	291	136	34	309	32	220	823	74	44	564	130
Future Volume (veh/h)	105	291	136	34	309	32	220	823	74	44	564	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1575	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	111	306	143	36	325	34	232	866	78	46	594	137
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	238	546	463	258	486	51	412	1421	634	71	883	203
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.14	0.42	0.42	0.04	0.32	0.32
Sat Flow, veh/h	915	1772	1502	842	1577	165	2910	3367	1502	1594	2717	625
Grp Volume(v), veh/h	111	306	143	36	0	359	232	866	78	46	367	364
Grp Sat Flow(s),veh/h/ln	915	1772	1502	842	0	1742	1455	1683	1502	1594	1683	1659
Q Serve(g_s), s	7.2	8.7	4.4	2.2	0.0	10.8	4.5	12.0	1.9	1.7	11.3	11.4
Cycle Q Clear(g_c), s	18.0	8.7	4.4	10.9	0.0	10.8	4.5	12.0	1.9	1.7	11.3	11.4
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	238	546	463	258	0	537	412	1421	634	71	547	539
V/C Ratio(X)	0.47	0.56	0.31	0.14	0.00	0.67	0.56	0.61	0.12	0.65	0.67	0.67
Avail Cap(c_a), veh/h	238	546	463	258	0	537	412	1421	634	133	547	539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	17.3	15.9	21.9	0.0	18.1	24.0	13.5	10.6	28.2	17.5	17.5
Incr Delay (d2), s/veh	6.4	4.1	1.7	1.1	0.0	6.5	1.5	1.7	0.3	9.5	6.4	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	3.6	1.5	0.5	0.0	4.8	1.4	3.9	0.6	0.8	4.6	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	21.5	17.6	23.0	0.0	24.5	25.5	15.2	10.9	37.7	23.9	24.1
LnGrp LOS	C	C	B	C	A	C	C	B	B	D	C	C
Approach Vol, veh/h		560			395			1176			777	
Approach Delay, s/veh		22.6			24.4			16.9			24.8	
Approach LOS		C			C			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.0	13.0	24.0		23.0	7.2	29.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.5	8.5	19.5		18.5	5.0	23.0				
Max Q Clear Time (g_c+I1), s		20.0	6.5	13.4		12.9	3.7	14.0				
Green Ext Time (p_c), s		0.0	0.2	2.2		1.1	0.0	3.8				
Intersection Summary												
HCM 6th Ctrl Delay			21.2									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

2: N. Pepper Ave & Violet St

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	98	121	998	8	37	702	
Future Volume (veh/h)	98	121	998	8	37	702	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	103	127	1051	8	39	739	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	204	192	2230	692	177	3251	
Arrive On Green	0.13	0.13	0.46	0.46	0.11	0.67	
Sat Flow, veh/h	1594	1502	4997	1502	1594	4997	
Grp Volume(v), veh/h	103	127	1051	8	39	739	
Grp Sat Flow(s),veh/h/ln	1594	1502	1612	1502	1594	1612	
Q Serve(g_s), s	2.7	3.6	6.7	0.1	1.0	2.7	
Cycle Q Clear(g_c), s	2.7	3.6	6.7	0.1	1.0	2.7	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	204	192	2230	692	177	3251	
V/C Ratio(X)	0.50	0.66	0.47	0.01	0.22	0.23	
Avail Cap(c_a), veh/h	266	250	2230	692	195	3251	
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	0.79	0.79	
Uniform Delay (d), s/veh	18.3	18.7	8.4	6.6	18.2	2.9	
Incr Delay (d2), s/veh	1.9	4.0	0.7	0.0	0.5	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	1.0	3.2	1.6	0.2	0.3	0.2	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.2	22.7	9.1	6.6	18.7	3.0	
LnGrp LOS	C	C	A	A	B	A	
Approach Vol, veh/h			1059			778	
Approach Delay, s/veh	21.6		9.1			3.8	
Approach LOS	C		A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				34.7	10.3	9.5	25.2
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				28.5	7.5	5.5	18.5
Max Q Clear Time (g_c+I1), s				4.7	5.6	3.0	8.7
Green Ext Time (p_c), s				4.8	0.1	0.0	4.6
Intersection Summary							
HCM 6th Ctrl Delay			8.5				
HCM 6th LOS			A				

HCM 6th Signalized Intersection Summary

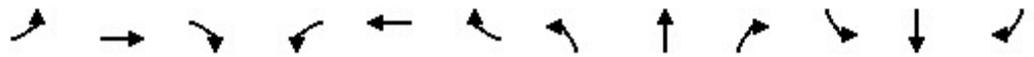
4: Blue Dr & N. Pepper Ave

06/12/2025

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations			 			 	
Traffic Volume (veh/h)	134	52	944	34	20	787	
Future Volume (veh/h)	134	52	944	34	20	787	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	141	55	994	36	21	828	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	199	188	1319	588	412	2441	
Arrive On Green	0.13	0.13	0.39	0.39	0.26	0.72	
Sat Flow, veh/h	1594	1502	3455	1502	1594	3455	
Grp Volume(v), veh/h	141	55	994	36	21	828	
Grp Sat Flow(s),veh/h/ln	1594	1502	1683	1502	1594	1683	
Q Serve(g_s), s	5.1	2.0	15.3	0.5	0.6	5.4	
Cycle Q Clear(g_c), s	5.1	2.0	15.3	0.5	0.6	5.4	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	199	188	1319	588	412	2441	
V/C Ratio(X)	0.71	0.29	0.75	0.06	0.05	0.34	
Avail Cap(c_a), veh/h	478	450	1319	588	412	2441	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	25.2	23.8	15.8	3.4	16.7	3.0	
Incr Delay (d2), s/veh	4.6	0.9	4.0	0.2	0.1	0.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.1	1.8	5.4	0.8	0.2	0.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	29.8	24.7	19.8	3.6	16.8	3.4	
LnGrp LOS	C	C	B	A	B	A	
Approach Vol, veh/h	196		1030			849	
Approach Delay, s/veh	28.3		19.2			3.7	
Approach LOS	C		B			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				48.0	12.0	20.0	28.0
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s				7.4	7.1	2.6	17.3
Green Ext Time (p_c), s				5.6	0.4	0.0	3.2
Intersection Summary							
HCM 6th Ctrl Delay			13.7				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary
 5: N. Pepper Ave & W. Valley Blvd

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↗	↑↑		↖↗	↑↑↑	↖	↖↗	↑↑↑	
Traffic Volume (veh/h)	142	418	237	169	444	78	266	721	133	115	748	70
Future Volume (veh/h)	142	418	237	169	444	78	266	721	133	115	748	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1772	1772	1575	1772	1772	1575	1772	1772	1575	1772	1772
Adj Flow Rate, veh/h	149	440	249	178	467	82	280	759	140	121	787	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	220	757	338	256	680	119	352	1639	509	358	1534	143
Arrive On Green	0.08	0.22	0.22	0.09	0.24	0.24	0.16	0.45	0.45	0.12	0.34	0.34
Sat Flow, veh/h	2910	3367	1502	2910	2865	500	2910	4837	1502	2910	4500	421
Grp Volume(v), veh/h	149	440	249	178	273	276	280	759	140	121	563	298
Grp Sat Flow(s),veh/h/ln	1455	1683	1502	1455	1683	1682	1455	1612	1502	1455	1612	1696
Q Serve(g_s), s	4.0	9.3	8.6	4.8	11.8	12.0	7.4	8.7	4.7	3.0	11.2	11.2
Cycle Q Clear(g_c), s	4.0	9.3	8.6	4.8	11.8	12.0	7.4	8.7	4.7	3.0	11.2	11.2
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	220	757	338	256	400	399	352	1639	509	358	1099	578
V/C Ratio(X)	0.68	0.58	0.74	0.69	0.68	0.69	0.79	0.46	0.28	0.34	0.51	0.52
Avail Cap(c_a), veh/h	273	757	338	309	400	399	455	1639	509	358	1099	578
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.0	27.6	14.1	35.4	27.8	27.8	32.6	16.9	15.8	32.1	21.1	21.1
Incr Delay (d2), s/veh	4.8	3.2	13.4	5.1	9.1	9.4	6.7	0.9	1.2	0.6	1.7	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.8	5.1	1.8	5.4	5.4	2.7	2.8	1.6	1.0	4.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.8	30.9	27.5	40.6	36.9	37.2	39.3	17.8	17.0	32.6	22.8	24.4
LnGrp LOS	D	C	C	D	D	D	D	B	B	C	C	C
Approach Vol, veh/h		838			727			1179			982	
Approach Delay, s/veh		31.6			37.9			22.8			24.5	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	22.5	14.2	31.8	10.6	23.5	14.3	31.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	18.0	12.5	23.0	7.5	19.0	8.4	27.1				
Max Q Clear Time (g_c+I1), s	6.8	11.3	9.4	13.2	6.0	14.0	5.0	10.7				
Green Ext Time (p_c), s	0.1	2.0	0.3	3.6	0.1	1.4	0.1	4.8				
Intersection Summary												
HCM 6th Ctrl Delay			28.2									
HCM 6th LOS			C									

HCM Signalized Intersection Capacity Analysis
 6: N. Pepper Ave & I-10 WB On/Off-Ramps

06/12/2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	5	3	633	7	601	0	0	604	599	
Future Volume (vph)	0	0	0	5	3	633	7	601	0	0	604	599	
Ideal Flow (vphpl)	1900	1900	1900	1800	1800	1800	1700	1800	1800	1800	1800	1800	
Total Lost time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Lane Util. Factor					0.95	0.95	1.00	0.95			0.95	1.00	
Frt					0.85	0.85	1.00	1.00			1.00	0.85	
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)					1430	1425	1583	3353			3353	1500	
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)					1430	1425	1583	3353			3353	1500	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0	0	0	5	3	666	7	633	0	0	636	631	
RTOR Reduction (vph)	0	0	0	0	236	236	0	0	0	0	0	245	
Lane Group Flow (vph)	0	0	0	0	98	104	7	633	0	0	636	386	
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm	
Protected Phases					6		3	8			4		
Permitted Phases				6		6						4	
Actuated Green, G (s)					12.5	12.5	5.1	58.5			48.9	48.9	
Effective Green, g (s)					12.5	12.5	5.1	58.5			48.9	48.9	
Actuated g/C Ratio					0.16	0.16	0.06	0.73			0.61	0.61	
Clearance Time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)					223	222	100	2451			2049	916	
v/s Ratio Prot							0.00	c0.19			0.19		
v/s Ratio Perm					0.07	c0.07						c0.26	
v/c Ratio					0.44	0.47	0.07	0.26			0.31	0.42	
Uniform Delay, d1					30.6	30.7	35.2	3.6			7.5	8.1	
Progression Factor					1.00	1.00	0.99	0.14			0.43	2.73	
Incremental Delay, d2					1.4	1.6	0.2	0.2			0.3	1.2	
Delay (s)					31.9	32.3	35.3	0.7			3.6	23.4	
Level of Service					C	C	D	A			A	C	
Approach Delay (s)		0.0			32.1			1.1			13.5		
Approach LOS		A			C			A			B		
Intersection Summary													
HCM 2000 Control Delay			15.3		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.43										
Actuated Cycle Length (s)			80.0		Sum of lost time (s)					13.5			
Intersection Capacity Utilization			83.5%		ICU Level of Service					E			
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 7: N. Pepper Ave & I-10 EB On/Off-Ramps

06/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	562	4	6	0	0	0	0	30	21	586	15	0
Future Volume (veh/h)	562	4	6	0	0	0	0	30	21	586	15	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				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	1673	1772	1772				0	1772	1772	1575	1772	0
Adj Flow Rate, veh/h	600	0	0				0	32	22	617	16	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	956	532	0				0	453	282	884	1041	0
Arrive On Green	0.30	0.00	0.00				0.00	0.23	0.23	0.30	0.59	0.00
Sat Flow, veh/h	3188	1772	0				0	2081	1240	2910	1772	0
Grp Volume(v), veh/h	600	0	0				0	27	27	617	16	0
Grp Sat Flow(s),veh/h/ln	1594	1772	0				0	1683	1549	1455	1772	0
Q Serve(g_s), s	13.0	0.0	0.0				0.0	1.0	1.1	15.0	0.3	0.0
Cycle Q Clear(g_c), s	13.0	0.0	0.0				0.0	1.0	1.1	15.0	0.3	0.0
Prop In Lane	1.00		0.00				0.00		0.80	1.00		0.00
Lane Grp Cap(c), veh/h	956	532	0				0	383	352	884	1041	0
V/C Ratio(X)	0.63	0.00	0.00				0.00	0.07	0.08	0.70	0.02	0.00
Avail Cap(c_a), veh/h	956	532	0				0	383	352	884	1041	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.1	0.0	0.0				0.0	24.3	24.3	24.6	6.9	0.0
Incr Delay (d2), s/veh	3.1	0.0	0.0				0.0	0.3	0.4	4.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	0.0				0.0	0.4	0.4	5.2	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.3	0.0	0.0				0.0	24.6	24.7	29.2	6.9	0.0
LnGrp LOS	C	A	A				A	C	C	C	A	A
Approach Vol, veh/h		600						54			633	
Approach Delay, s/veh		27.3						24.7			28.6	
Approach LOS		C						C			C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				51.5		28.5	28.8	22.7				
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s				47.0		24.0	24.3	18.2				
Max Q Clear Time (g_c+I1), s				2.3		15.0	17.0	3.1				
Green Ext Time (p_c), s				0.0		1.6	1.4	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			27.8									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

Appendix F

Level of Service Worksheets for

Opening Year (2027) With Project Conditions

HCM 6th Signalized Intersection Summary

1: San Bernardino Ave & N. Pepper Ave

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	267	312	63	264	43	231	506	33	67	1082	161
Future Volume (veh/h)	73	267	312	63	264	43	231	506	33	67	1082	161
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1575	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	77	281	328	66	278	45	243	533	35	71	1139	169
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	432	366	164	363	59	309	1746	779	110	1416	209
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.11	0.52	0.52	0.07	0.48	0.48
Sat Flow, veh/h	946	1772	1502	726	1488	241	2910	3367	1502	1594	2942	435
Grp Volume(v), veh/h	77	281	328	66	0	323	243	533	35	71	650	658
Grp Sat Flow(s),veh/h/ln	946	1772	1502	726	0	1729	1455	1683	1502	1594	1683	1694
Q Serve(g_s), s	5.6	11.4	16.9	7.2	0.0	13.9	6.5	7.2	0.9	3.5	26.1	26.3
Cycle Q Clear(g_c), s	19.5	11.4	16.9	18.6	0.0	13.9	6.5	7.2	0.9	3.5	26.1	26.3
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	156	432	366	164	0	421	309	1746	779	110	810	815
V/C Ratio(X)	0.49	0.65	0.90	0.40	0.00	0.77	0.79	0.31	0.04	0.65	0.80	0.81
Avail Cap(c_a), veh/h	156	432	366	164	0	421	309	1746	779	201	810	815
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.6	27.2	29.3	35.5	0.0	28.1	34.9	11.0	9.5	36.3	17.5	17.6
Incr Delay (d2), s/veh	2.4	3.4	23.6	1.6	0.0	8.2	11.9	0.4	0.1	6.2	8.3	8.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	4.9	8.0	1.3	0.0	6.4	2.7	2.4	0.3	1.5	10.3	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.0	30.6	52.9	37.1	0.0	36.4	46.7	11.4	9.6	42.5	25.8	26.0
LnGrp LOS	D	C	D	D	A	D	D	B	A	D	C	C
Approach Vol, veh/h		686			389			811			1379	
Approach Delay, s/veh		42.3			36.5			21.9			26.8	
Approach LOS		D			D			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		24.0	13.0	43.0		24.0	10.0	46.0				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.5	8.5	38.5		19.5	10.1	36.9				
Max Q Clear Time (g_c+I1), s		21.5	8.5	28.3		20.6	5.5	9.2				
Green Ext Time (p_c), s		0.0	0.0	5.6		0.0	0.0	3.5				
Intersection Summary												
HCM 6th Ctrl Delay			30.0									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

2: N. Pepper Ave & Violet St

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	56	88	699	117	113	1440	
Future Volume (veh/h)	56	88	699	117	113	1440	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	59	93	736	123	119	1516	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	177	167	2283	709	186	3332	
Arrive On Green	0.11	0.11	0.47	0.47	0.12	0.69	
Sat Flow, veh/h	1594	1502	4997	1502	1594	4997	
Grp Volume(v), veh/h	59	93	736	123	119	1516	
Grp Sat Flow(s),veh/h/ln	1594	1502	1612	1502	1594	1612	
Q Serve(g_s), s	1.5	2.6	4.3	0.9	3.2	6.4	
Cycle Q Clear(g_c), s	1.5	2.6	4.3	0.9	3.2	6.4	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	177	167	2283	709	186	3332	
V/C Ratio(X)	0.33	0.56	0.32	0.17	0.64	0.45	
Avail Cap(c_a), veh/h	195	184	2283	709	266	3332	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.59	0.59	
Uniform Delay (d), s/veh	18.5	19.0	7.4	1.2	19.0	3.2	
Incr Delay (d2), s/veh	1.1	3.0	0.4	0.5	2.2	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	0.6	2.3	1.0	2.0	1.1	0.3	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	19.6	22.0	7.8	1.7	21.1	3.4	
LnGrp LOS	B	C	A	A	C	A	
Approach Vol, veh/h	152		859			1635	
Approach Delay, s/veh	21.0		6.9			4.7	
Approach LOS	C		A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				35.5	9.5	9.8	25.7
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				30.5	5.5	7.5	18.5
Max Q Clear Time (g_c+I1), s				8.4	4.6	5.2	6.3
Green Ext Time (p_c), s				10.9	0.0	0.1	4.0
Intersection Summary							
HCM 6th Ctrl Delay			6.4				
HCM 6th LOS			A				

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	46	0	816	1345	151
Future Vol, veh/h	0	46	0	816	1345	151
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	48	0	859	1416	159

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	-	788	-	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-
Pot Cap-1 Maneuver	0	287	0	-	-
Stage 1	0	-	0	-	-
Stage 2	0	-	0	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	287	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	287	-	-
HCM Lane V/C Ratio	-	0.169	-	-
HCM Control Delay (s)	-	20.1	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.6	-	-

HCM 6th Signalized Intersection Summary

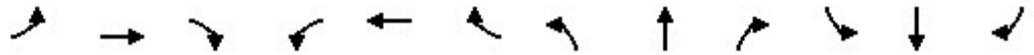
4: Blue Dr & N. Pepper Ave

06/12/2025

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations			 			 	
Traffic Volume (veh/h)	116	18	765	100	105	1313	
Future Volume (veh/h)	116	18	765	100	105	1313	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	122	19	805	105	111	1382	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	178	167	1173	523	502	2486	
Arrive On Green	0.11	0.11	0.35	0.35	0.32	0.74	
Sat Flow, veh/h	1594	1502	3455	1502	1594	3455	
Grp Volume(v), veh/h	122	19	805	105	111	1382	
Grp Sat Flow(s),veh/h/ln	1594	1502	1683	1502	1594	1683	
Q Serve(g_s), s	4.4	0.7	12.3	1.8	3.1	10.9	
Cycle Q Clear(g_c), s	4.4	0.7	12.3	1.8	3.1	10.9	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	178	167	1173	523	502	2486	
V/C Ratio(X)	0.69	0.11	0.69	0.20	0.22	0.56	
Avail Cap(c_a), veh/h	478	450	1173	523	502	2486	
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	25.6	24.0	16.7	4.9	15.1	3.5	
Incr Delay (d2), s/veh	4.6	0.3	3.3	0.9	0.2	0.9	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.8	0.6	4.4	2.6	1.0	1.3	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	30.3	24.3	20.0	5.8	15.3	4.4	
LnGrp LOS	C	C	C	A	B	A	
Approach Vol, veh/h	141		910			1493	
Approach Delay, s/veh	29.5		18.4			5.2	
Approach LOS	C		B			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				48.8	11.2	23.4	25.4
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	7.6	20.9
Max Q Clear Time (g_c+I1), s				12.9	6.4	5.1	14.3
Green Ext Time (p_c), s				9.7	0.3	0.1	2.9
Intersection Summary							
HCM 6th Ctrl Delay			11.3				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary
 5: N. Pepper Ave & W. Valley Blvd

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑		↔↔	↑↑↑	↗	↔↔	↑↑↑	
Traffic Volume (veh/h)	92	251	303	297	308	56	295	899	78	99	1083	73
Future Volume (veh/h)	92	251	303	297	308	56	295	899	78	99	1083	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1772	1772	1575	1772	1772	1575	1772	1772	1575	1772	1772
Adj Flow Rate, veh/h	97	264	319	313	324	59	311	946	82	104	1140	77
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	677	302	374	722	130	366	1790	556	292	1595	108
Arrive On Green	0.08	0.20	0.20	0.13	0.25	0.25	0.25	0.74	0.74	0.10	0.34	0.34
Sat Flow, veh/h	2910	3367	1502	2910	2850	513	2910	4837	1502	2910	4628	312
Grp Volume(v), veh/h	97	264	319	313	190	193	311	946	82	104	794	423
Grp Sat Flow(s),veh/h/ln	1455	1683	1502	1455	1683	1680	1455	1612	1502	1455	1612	1716
Q Serve(g_s), s	2.9	6.1	13.0	9.5	8.5	8.7	9.2	7.5	1.4	3.0	19.3	19.3
Cycle Q Clear(g_c), s	2.9	6.1	13.0	9.5	8.5	8.7	9.2	7.5	1.4	3.0	19.3	19.3
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	222	677	302	374	426	425	366	1790	556	292	1111	591
V/C Ratio(X)	0.44	0.39	1.06	0.84	0.45	0.45	0.85	0.53	0.15	0.36	0.71	0.72
Avail Cap(c_a), veh/h	252	677	302	404	426	425	404	1790	556	292	1111	591
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	31.2	18.5	38.3	28.3	28.3	32.9	8.3	7.6	37.8	25.6	25.7
Incr Delay (d2), s/veh	1.3	1.7	67.4	13.4	3.3	3.5	13.3	1.0	0.5	0.7	3.9	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.5	9.7	3.9	3.6	3.7	3.4	1.9	0.5	1.1	7.3	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.1	32.9	85.9	51.7	31.6	31.8	46.1	9.3	8.1	38.5	29.6	32.9
LnGrp LOS	D	C	F	D	C	C	D	A	A	D	C	C
Approach Vol, veh/h		680			696			1339			1321	
Approach Delay, s/veh		58.9			40.7			17.8			31.3	
Approach LOS		E			D			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.1	22.6	15.8	35.5	11.4	27.3	13.5	37.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.5	18.1	12.5	28.9	7.8	22.8	8.1	33.3				
Max Q Clear Time (g_c+l1), s	11.5	15.0	11.2	21.3	4.9	10.7	5.0	9.5				
Green Ext Time (p_c), s	0.1	0.9	0.2	4.2	0.1	1.5	0.1	6.7				
Intersection Summary												
HCM 6th Ctrl Delay			33.1									
HCM 6th LOS			C									

HCM Signalized Intersection Capacity Analysis
 6: N. Pepper Ave & I-10 WB On/Off-Ramps

06/12/2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	15	2	763	8	484	0	0	861	863	
Future Volume (vph)	0	0	0	15	2	763	8	484	0	0	861	863	
Ideal Flow (vphpl)	1900	1900	1900	1800	1800	1800	1700	1800	1800	1800	1800	1800	
Total Lost time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Lane Util. Factor					0.95	0.95	1.00	0.95			0.95	1.00	
Frt					0.86	0.85	1.00	1.00			1.00	0.85	
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)					1433	1425	1583	3353			3353	1500	
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)					1433	1425	1583	3353			3353	1500	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0	0	0	16	2	803	8	509	0	0	906	908	
RTOR Reduction (vph)	0	0	0	0	327	327	0	0	0	0	0	327	
Lane Group Flow (vph)	0	0	0	0	84	83	8	509	0	0	906	581	
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm	
Protected Phases					6		3	8			4		
Permitted Phases				6		6						4	
Actuated Green, G (s)					13.2	13.2	5.7	67.8			57.6	57.6	
Effective Green, g (s)					13.2	13.2	5.7	67.8			57.6	57.6	
Actuated g/C Ratio					0.15	0.15	0.06	0.75			0.64	0.64	
Clearance Time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)					210	209	100	2525			2145	960	
v/s Ratio Prot							0.01	c0.15			0.27		
v/s Ratio Perm					0.06	0.06						c0.39	
v/c Ratio					0.40	0.40	0.08	0.20			0.42	0.61	
Uniform Delay, d1					34.8	34.8	39.7	3.2			8.0	9.5	
Progression Factor					1.00	1.00	1.58	0.05			0.34	6.46	
Incremental Delay, d2					1.3	1.2	0.3	0.1			0.4	1.9	
Delay (s)					36.1	36.0	62.8	0.3			3.1	63.4	
Level of Service					D	D	E	A			A	E	
Approach Delay (s)		0.0			36.1			1.2			33.3		
Approach LOS		A			D			A			C		
Intersection Summary													
HCM 2000 Control Delay			28.7		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.55										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					13.5			
Intersection Capacity Utilization			105.1%		ICU Level of Service					G			
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 7: N. Pepper Ave & I-10 EB On/Off-Ramps

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	482	4	10	0	0	0	0	26	15	884	30	0
Future Volume (veh/h)	482	4	10	0	0	0	0	26	15	884	30	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				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	1673	1772	1772				0	1772	1772	1575	1772	0
Adj Flow Rate, veh/h	520	0	0				0	27	16	931	32	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	761	423	0				0	433	235	1180	1171	0
Arrive On Green	0.24	0.00	0.00				0.00	0.21	0.21	0.41	0.66	0.00
Sat Flow, veh/h	3188	1772	0				0	2195	1143	2910	1772	0
Grp Volume(v), veh/h	520	0	0				0	21	22	931	32	0
Grp Sat Flow(s),veh/h/ln	1594	1772	0				0	1683	1566	1455	1772	0
Q Serve(g_s), s	13.4	0.0	0.0				0.0	0.9	1.0	25.2	0.6	0.0
Cycle Q Clear(g_c), s	13.4	0.0	0.0				0.0	0.9	1.0	25.2	0.6	0.0
Prop In Lane	1.00		0.00				0.00		0.73	1.00		0.00
Lane Grp Cap(c), veh/h	761	423	0				0	346	322	1180	1171	0
V/C Ratio(X)	0.68	0.00	0.00				0.00	0.06	0.07	0.79	0.03	0.00
Avail Cap(c_a), veh/h	761	423	0				0	346	322	1180	1171	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.1	0.0	0.0				0.0	28.8	28.8	23.4	5.3	0.0
Incr Delay (d2), s/veh	4.9	0.0	0.0				0.0	0.3	0.4	5.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	0.0				0.0	0.4	0.4	8.6	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.1	0.0	0.0				0.0	29.1	29.2	28.8	5.3	0.0
LnGrp LOS	D	A	A				A	C	C	C	A	A
Approach Vol, veh/h		520						43			963	
Approach Delay, s/veh		36.1						29.2			28.0	
Approach LOS		D						C			C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				64.0		26.0	41.0	23.0				
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s				59.5		21.5	36.5	18.5				
Max Q Clear Time (g_c+I1), s				2.6		15.4	27.2	3.0				
Green Ext Time (p_c), s				0.1		1.1	2.6	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			30.8									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary

1: San Bernardino Ave & N. Pepper Ave

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	211	149	43	187	25	246	546	48	26	544	95
Future Volume (veh/h)	93	211	149	43	187	25	246	546	48	26	544	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1575	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	98	222	157	45	197	26	259	575	51	27	573	100
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	440	373	246	380	50	790	1493	666	133	732	127
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.27	0.44	0.44	0.08	0.26	0.26
Sat Flow, veh/h	1036	1772	1502	898	1533	202	2910	3367	1502	1594	2867	499
Grp Volume(v), veh/h	98	222	157	45	0	223	259	575	51	27	336	337
Grp Sat Flow(s),veh/h/ln	1036	1772	1502	898	0	1735	1455	1683	1502	1594	1683	1682
Q Serve(g_s), s	5.4	6.5	5.3	2.7	0.0	6.7	4.3	6.9	1.2	0.9	11.1	11.2
Cycle Q Clear(g_c), s	12.1	6.5	5.3	9.2	0.0	6.7	4.3	6.9	1.2	0.9	11.1	11.2
Prop In Lane	1.00		1.00	1.00		0.12	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	262	440	373	246	0	431	790	1493	666	133	430	429
V/C Ratio(X)	0.37	0.50	0.42	0.18	0.00	0.52	0.33	0.39	0.08	0.20	0.78	0.79
Avail Cap(c_a), veh/h	316	532	450	293	0	521	790	1493	666	154	561	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.93	0.93	0.93	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	19.4	18.9	23.3	0.0	19.5	17.5	11.2	9.6	25.6	20.8	20.8
Incr Delay (d2), s/veh	0.9	0.9	0.8	0.4	0.0	1.0	0.2	0.7	0.2	0.7	13.2	13.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.4	1.6	0.6	0.0	2.5	1.2	2.1	0.3	0.3	5.3	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	20.3	19.7	23.7	0.0	20.4	17.7	11.9	9.8	26.4	34.0	34.3
LnGrp LOS	C	C	B	C	A	C	B	B	A	C	C	C
Approach Vol, veh/h		477			268			885			700	
Approach Delay, s/veh		21.2			21.0			13.5			33.8	
Approach LOS		C			C			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		19.4	20.8	19.8		19.4	9.5	31.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	8.5	20.0		18.0	5.8	22.7				
Max Q Clear Time (g_c+I1), s		14.1	6.3	13.2		11.2	2.9	8.9				
Green Ext Time (p_c), s		0.8	0.2	2.1		0.8	0.0	3.1				
Intersection Summary												
HCM 6th Ctrl Delay				22.0								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary

2: N. Pepper Ave & Violet St

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	↵	↵	↑↑↑	↵	↵	↑↑↑	
Traffic Volume (veh/h)	88	78	782	59	68	785	
Future Volume (veh/h)	88	78	782	59	68	785	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	93	82	823	62	72	826	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	177	167	2311	717	177	3332	
Arrive On Green	0.11	0.11	0.48	0.48	0.11	0.69	
Sat Flow, veh/h	1594	1502	4997	1502	1594	4997	
Grp Volume(v), veh/h	93	82	823	62	72	826	
Grp Sat Flow(s),veh/h/ln	1594	1502	1612	1502	1594	1612	
Q Serve(g_s), s	2.5	2.3	4.8	1.0	1.9	2.9	
Cycle Q Clear(g_c), s	2.5	2.3	4.8	1.0	1.9	2.9	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	177	167	2311	717	177	3332	
V/C Ratio(X)	0.53	0.49	0.36	0.09	0.41	0.25	
Avail Cap(c_a), veh/h	230	217	2311	717	195	3332	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.89	0.89	
Uniform Delay (d), s/veh	18.9	18.8	7.4	6.4	18.6	2.6	
Incr Delay (d2), s/veh	2.4	2.2	0.4	0.2	1.3	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	0.9	2.0	1.1	1.2	0.6	0.2	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.3	21.0	7.8	6.6	20.0	2.8	
LnGrp LOS	C	C	A	A	B	A	
Approach Vol, veh/h	175		885			898	
Approach Delay, s/veh	21.2		7.7			4.2	
Approach LOS	C		A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				35.5	9.5	9.5	26.0
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				29.5	6.5	5.5	19.5
Max Q Clear Time (g_c+I1), s				4.9	4.5	3.9	6.8
Green Ext Time (p_c), s				5.5	0.1	0.0	4.4
Intersection Summary							
HCM 6th Ctrl Delay			7.3				
HCM 6th LOS			A				

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	113	0	841	735	138
Future Vol, veh/h	0	113	0	841	735	138
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	119	0	885	774	145

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	-	460	-	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-
Pot Cap-1 Maneuver	0	469	0	-	-
Stage 1	0	-	0	-	-
Stage 2	0	-	0	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	469	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	469	-	-
HCM Lane V/C Ratio	-	0.254	-	-
HCM Control Delay (s)	-	15.3	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	1	-	-

HCM 6th Signalized Intersection Summary

4: Blue Dr & N. Pepper Ave

06/12/2025

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations			 			 	
Traffic Volume (veh/h)	91	40	743	79	76	740	
Future Volume (veh/h)	91	40	743	79	76	740	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	96	42	782	83	80	779	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	153	144	2006	895	133	2539	
Arrive On Green	0.10	0.10	0.60	0.60	0.08	0.75	
Sat Flow, veh/h	1594	1502	3455	1502	1594	3455	
Grp Volume(v), veh/h	96	42	782	83	80	779	
Grp Sat Flow(s),veh/h/ln	1594	1502	1683	1502	1594	1683	
Q Serve(g_s), s	3.5	1.6	7.3	1.4	2.9	4.4	
Cycle Q Clear(g_c), s	3.5	1.6	7.3	1.4	2.9	4.4	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	153	144	2006	895	133	2539	
V/C Ratio(X)	0.63	0.29	0.39	0.09	0.60	0.31	
Avail Cap(c_a), veh/h	478	450	2006	895	173	2539	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	26.1	25.2	6.4	5.2	26.5	2.4	
Incr Delay (d2), s/veh	4.2	1.1	0.6	0.2	4.3	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	1.4	1.4	1.8	2.0	1.1	0.4	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	30.3	26.3	7.0	5.4	30.9	2.7	
LnGrp LOS	C	C	A	A	C	A	
Approach Vol, veh/h			865			859	
Approach Delay, s/veh			6.8			5.3	
Approach LOS			A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				49.7	10.3	9.5	40.2
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	6.5	22.0
Max Q Clear Time (g_c+I1), s				6.4	5.5	4.9	9.3
Green Ext Time (p_c), s				5.3	0.3	0.0	4.2
Intersection Summary							
HCM 6th Ctrl Delay			7.8				
HCM 6th LOS			A				

HCM 6th Signalized Intersection Summary
 5: N. Pepper Ave & W. Valley Blvd

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	  		 	  	
Traffic Volume (veh/h)	143	295	163	106	280	62	252	678	98	125	648	119
Future Volume (veh/h)	143	295	163	106	280	62	252	678	98	125	648	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1772	1772	1575	1772	1772	1575	1772	1772	1575	1772	1772
Adj Flow Rate, veh/h	151	311	172	112	295	65	265	714	103	132	682	125
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	885	395	212	707	154	395	1417	440	333	1117	202
Arrive On Green	0.08	0.26	0.26	0.07	0.26	0.26	0.27	0.59	0.59	0.11	0.27	0.27
Sat Flow, veh/h	2910	3367	1502	2910	2751	597	2910	4837	1502	2910	4117	746
Grp Volume(v), veh/h	151	311	172	112	179	181	265	714	103	132	532	275
Grp Sat Flow(s),veh/h/ln	1455	1683	1502	1455	1683	1664	1455	1612	1502	1455	1612	1638
Q Serve(g_s), s	3.5	5.3	6.7	2.6	6.2	6.4	5.7	6.1	2.3	2.9	10.1	10.3
Cycle Q Clear(g_c), s	3.5	5.3	6.7	2.6	6.2	6.4	5.7	6.1	2.3	2.9	10.1	10.3
Prop In Lane	1.00		1.00	1.00		0.36	1.00		1.00	1.00		0.46
Lane Grp Cap(c), veh/h	229	885	395	212	433	428	395	1417	440	333	875	445
V/C Ratio(X)	0.66	0.35	0.44	0.53	0.41	0.42	0.67	0.50	0.23	0.40	0.61	0.62
Avail Cap(c_a), veh/h	229	885	395	212	433	428	395	1417	440	333	875	445
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	21.0	21.5	31.3	21.6	21.7	24.1	11.5	10.7	28.8	22.3	22.3
Incr Delay (d2), s/veh	6.9	1.1	3.5	2.4	2.9	3.1	4.0	1.2	1.1	0.8	3.1	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.0	2.5	0.9	2.5	2.6	1.8	1.7	0.8	1.0	3.8	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.2	22.1	25.0	33.7	24.5	24.7	28.1	12.7	11.9	29.5	25.4	28.6
LnGrp LOS	D	C	C	C	C	C	C	B	B	C	C	C
Approach Vol, veh/h		634			472			1082			939	
Approach Delay, s/veh		26.7			26.8			16.4			26.9	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	22.9	14.0	23.5	10.0	22.5	12.5	25.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	18.4	9.5	19.0	5.5	18.0	8.0	20.5				
Max Q Clear Time (g_c+I1), s	4.6	8.7	7.7	12.3	5.5	8.4	4.9	8.1				
Green Ext Time (p_c), s	0.0	1.7	0.2	2.6	0.0	1.3	0.1	3.9				
Intersection Summary												
HCM 6th Ctrl Delay			23.2									
HCM 6th LOS			C									

HCM Signalized Intersection Capacity Analysis
 6: N. Pepper Ave & I-10 WB On/Off-Ramps

06/12/2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	27	4	628	23	362	0	0	493	488	
Future Volume (vph)	0	0	0	27	4	628	23	362	0	0	493	488	
Ideal Flow (vphpl)	1900	1900	1900	1800	1800	1800	1700	1800	1800	1800	1800	1800	
Total Lost time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Lane Util. Factor					0.95	0.95	1.00	0.95			0.95	1.00	
Frt					0.86	0.85	1.00	1.00			1.00	0.85	
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)					1442	1425	1583	3353			3353	1500	
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)					1442	1425	1583	3353			3353	1500	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0	0	0	28	4	661	24	381	0	0	519	514	
RTOR Reduction (vph)	0	0	0	0	265	287	0	0	0	0	0	227	
Lane Group Flow (vph)	0	0	0	0	84	57	24	381	0	0	519	287	
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm	
Protected Phases					6		3	8			4		
Permitted Phases				6		6						4	
Actuated Green, G (s)					11.5	11.5	5.9	49.5			39.1	39.1	
Effective Green, g (s)					11.5	11.5	5.9	49.5			39.1	39.1	
Actuated g/C Ratio					0.16	0.16	0.08	0.71			0.56	0.56	
Clearance Time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)					236	234	133	2371			1872	837	
v/s Ratio Prot							0.02	c0.11			0.15		
v/s Ratio Perm					0.06	0.04						c0.19	
v/c Ratio					0.36	0.24	0.18	0.16			0.28	0.34	
Uniform Delay, d1					26.0	25.5	29.8	3.4			8.1	8.4	
Progression Factor					1.00	1.00	0.99	0.21			0.28	1.08	
Incremental Delay, d2					0.9	0.5	0.6	0.1			0.3	1.0	
Delay (s)					26.9	26.0	30.1	0.8			2.6	10.1	
Level of Service					C	C	C	A			A	B	
Approach Delay (s)		0.0			26.4			2.6			6.3		
Approach LOS		A			C			A			A		
Intersection Summary													
HCM 2000 Control Delay			12.2		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.33										
Actuated Cycle Length (s)			70.0		Sum of lost time (s)					13.5			
Intersection Capacity Utilization			74.7%		ICU Level of Service					D			
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 7: N. Pepper Ave & I-10 EB On/Off-Ramps

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↔						↕		↖	↗	↕
Traffic Volume (veh/h)	396	1	15	0	0	0	0	34	14	481	41	0
Future Volume (veh/h)	396	1	15	0	0	0	0	34	14	481	41	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				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	1673	1772	1772				0	1772	1772	1575	1772	0
Adj Flow Rate, veh/h	433	0	0				0	36	15	506	43	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	842	468	0				0	658	258	769	1076	0
Arrive On Green	0.26	0.00	0.00				0.00	0.28	0.28	0.26	0.61	0.00
Sat Flow, veh/h	3188	1772	0				0	2452	925	2910	1772	0
Grp Volume(v), veh/h	433	0	0				0	25	26	506	43	0
Grp Sat Flow(s),veh/h/ln	1594	1772	0				0	1683	1605	1455	1772	0
Q Serve(g_s), s	8.1	0.0	0.0				0.0	0.8	0.8	10.8	0.7	0.0
Cycle Q Clear(g_c), s	8.1	0.0	0.0				0.0	0.8	0.8	10.8	0.7	0.0
Prop In Lane	1.00		0.00				0.00		0.58	1.00		0.00
Lane Grp Cap(c), veh/h	842	468	0				0	469	447	769	1076	0
V/C Ratio(X)	0.51	0.00	0.00				0.00	0.05	0.06	0.66	0.04	0.00
Avail Cap(c_a), veh/h	842	468	0				0	469	447	769	1076	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.9	0.0	0.0				0.0	18.5	18.5	22.9	5.5	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.0				0.0	0.2	0.2	4.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	0.0				0.0	0.3	0.3	3.8	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.2	0.0	0.0				0.0	18.7	18.8	27.3	5.6	0.0
LnGrp LOS	C	A	A				A	B	B	C	A	A
Approach Vol, veh/h		433						51			549	
Approach Delay, s/veh		24.2						18.7			25.6	
Approach LOS		C						B			C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				47.0		23.0	23.0	24.0				
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s				42.5		18.5	18.5	19.5				
Max Q Clear Time (g_c+I1), s				2.7		10.1	12.8	2.8				
Green Ext Time (p_c), s				0.2		1.1	1.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	24.7
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

1: San Bernardino Ave & N. Pepper Ave

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	291	140	38	309	32	282	855	82	44	579	130
Future Volume (veh/h)	105	291	140	38	309	32	282	855	82	44	579	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1575	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	111	306	147	40	325	34	297	900	86	46	609	137
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	238	546	463	258	486	51	412	1421	634	71	888	199
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.14	0.42	0.42	0.04	0.32	0.32
Sat Flow, veh/h	915	1772	1502	839	1577	165	2910	3367	1502	1594	2732	613
Grp Volume(v), veh/h	111	306	147	40	0	359	297	900	86	46	375	371
Grp Sat Flow(s),veh/h/ln	915	1772	1502	839	0	1742	1455	1683	1502	1594	1683	1662
Q Serve(g_s), s	7.2	8.7	4.5	2.5	0.0	10.8	5.9	12.7	2.1	1.7	11.6	11.7
Cycle Q Clear(g_c), s	18.0	8.7	4.5	11.2	0.0	10.8	5.9	12.7	2.1	1.7	11.6	11.7
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	238	546	463	258	0	537	412	1421	634	71	547	540
V/C Ratio(X)	0.47	0.56	0.32	0.16	0.00	0.67	0.72	0.63	0.14	0.65	0.69	0.69
Avail Cap(c_a), veh/h	238	546	463	258	0	537	412	1421	634	133	547	540
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	0.82	0.82	0.82	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	17.3	15.9	22.0	0.0	18.1	24.6	13.7	10.6	28.2	17.6	17.6
Incr Delay (d2), s/veh	6.4	4.1	1.8	1.3	0.0	6.5	5.0	1.8	0.4	9.5	6.8	7.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	3.6	1.5	0.5	0.0	4.8	2.1	4.1	0.6	0.8	4.7	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	21.5	17.7	23.3	0.0	24.5	29.6	15.5	11.0	37.7	24.4	24.6
LnGrp LOS	C	C	B	C	A	C	C	B	B	D	C	C
Approach Vol, veh/h		564			399			1283			792	
Approach Delay, s/veh		22.6			24.4			18.4			25.3	
Approach LOS		C			C			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.0	13.0	24.0		23.0	7.2	29.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.5	8.5	19.5		18.5	5.0	23.0				
Max Q Clear Time (g_c+I1), s		20.0	7.9	13.7		13.2	3.7	14.7				
Green Ext Time (p_c), s		0.0	0.1	2.1		1.1	0.0	3.8				
Intersection Summary												
HCM 6th Ctrl Delay			21.8									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

2: N. Pepper Ave & Violet St

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	98	121	1100	8	37	779	
Future Volume (veh/h)	98	121	1100	8	37	779	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	103	127	1158	8	39	820	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	204	192	2230	692	177	3251	
Arrive On Green	0.13	0.13	0.46	0.46	0.11	0.67	
Sat Flow, veh/h	1594	1502	4997	1502	1594	4997	
Grp Volume(v), veh/h	103	127	1158	8	39	820	
Grp Sat Flow(s),veh/h/ln	1594	1502	1612	1502	1594	1612	
Q Serve(g_s), s	2.7	3.6	7.6	0.1	1.0	3.0	
Cycle Q Clear(g_c), s	2.7	3.6	7.6	0.1	1.0	3.0	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	204	192	2230	692	177	3251	
V/C Ratio(X)	0.50	0.66	0.52	0.01	0.22	0.25	
Avail Cap(c_a), veh/h	266	250	2230	692	195	3251	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.78	0.78	
Uniform Delay (d), s/veh	18.3	18.7	8.6	6.6	18.2	2.9	
Incr Delay (d2), s/veh	1.9	4.0	0.9	0.0	0.5	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	1.0	3.2	1.8	0.2	0.3	0.2	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.2	22.7	9.5	6.6	18.7	3.1	
LnGrp LOS	C	C	A	A	B	A	
Approach Vol, veh/h			1166			859	
Approach Delay, s/veh			9.4			3.8	
Approach LOS			A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				34.7	10.3	9.5	25.2
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				28.5	7.5	5.5	18.5
Max Q Clear Time (g_c+I1), s				5.0	5.6	3.0	9.6
Green Ext Time (p_c), s				5.4	0.1	0.0	4.7
Intersection Summary							
HCM 6th Ctrl Delay			8.5				
HCM 6th LOS			A				

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	135	0	1108	804	73
Future Vol, veh/h	0	135	0	1108	804	73
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	142	0	1166	846	77

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	462	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	467	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %			
Mov Cap-1 Maneuver	-	467	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 467	-	-
HCM Lane V/C Ratio	- 0.304	-	-
HCM Control Delay (s)	- 16	-	-
HCM Lane LOS	- C	-	-
HCM 95th %tile Q(veh)	- 1.3	-	-

HCM 6th Signalized Intersection Summary

4: Blue Dr & N. Pepper Ave

06/12/2025

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations			 			 	
Traffic Volume (veh/h)	134	52	998	34	68	898	
Future Volume (veh/h)	134	52	998	34	68	898	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	141	55	1051	36	72	945	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	199	188	1319	588	412	2441	
Arrive On Green	0.13	0.13	0.39	0.39	0.26	0.72	
Sat Flow, veh/h	1594	1502	3455	1502	1594	3455	
Grp Volume(v), veh/h	141	55	1051	36	72	945	
Grp Sat Flow(s),veh/h/ln	1594	1502	1683	1502	1594	1683	
Q Serve(g_s), s	5.1	2.0	16.6	0.5	2.1	6.4	
Cycle Q Clear(g_c), s	5.1	2.0	16.6	0.5	2.1	6.4	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	199	188	1319	588	412	2441	
V/C Ratio(X)	0.71	0.29	0.80	0.06	0.17	0.39	
Avail Cap(c_a), veh/h	478	450	1319	588	412	2441	
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	25.2	23.8	16.1	3.4	17.3	3.2	
Incr Delay (d2), s/veh	4.6	0.9	5.1	0.2	0.2	0.5	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.1	1.8	6.0	0.8	0.7	0.8	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	29.8	24.7	21.2	3.6	17.5	3.6	
LnGrp LOS	C	C	C	A	B	A	
Approach Vol, veh/h	196		1087			1017	
Approach Delay, s/veh	28.3		20.6			4.6	
Approach LOS	C		C			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				48.0	12.0	20.0	28.0
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s				8.4	7.1	4.1	18.6
Green Ext Time (p_c), s				6.5	0.4	0.0	2.8
Intersection Summary							
HCM 6th Ctrl Delay			14.2				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary
 5: N. Pepper Ave & W. Valley Blvd

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	  		 	   	
Traffic Volume (veh/h)	146	418	237	169	444	82	266	767	133	123	843	78
Future Volume (veh/h)	146	418	237	169	444	82	266	767	133	123	843	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1772	1772	1575	1772	1772	1575	1772	1772	1575	1772	1772
Adj Flow Rate, veh/h	154	440	249	178	467	86	280	807	140	129	887	82
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	225	757	338	261	675	124	355	1639	509	354	1525	140
Arrive On Green	0.08	0.22	0.22	0.09	0.24	0.24	0.12	0.34	0.34	0.12	0.34	0.34
Sat Flow, veh/h	2910	3367	1502	2910	2841	520	2910	4837	1502	2910	4507	415
Grp Volume(v), veh/h	154	440	249	178	276	277	280	807	140	129	634	335
Grp Sat Flow(s),veh/h/ln	1455	1683	1502	1455	1683	1678	1455	1612	1502	1455	1612	1697
Q Serve(g_s), s	4.1	9.3	8.6	4.7	11.9	12.1	7.5	10.6	5.4	3.3	12.9	13.0
Cycle Q Clear(g_c), s	4.1	9.3	8.6	4.7	11.9	12.1	7.5	10.6	5.4	3.3	12.9	13.0
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	225	757	338	261	400	399	355	1639	509	354	1091	574
V/C Ratio(X)	0.68	0.58	0.74	0.68	0.69	0.70	0.79	0.49	0.28	0.36	0.58	0.58
Avail Cap(c_a), veh/h	273	757	338	309	400	399	455	1639	509	354	1091	574
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	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	0.90	0.90	0.90	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.0	27.6	14.0	35.3	27.8	27.9	34.1	21.0	19.3	32.3	21.8	21.8
Incr Delay (d2), s/veh	5.3	3.2	13.4	4.8	9.4	9.7	6.4	1.0	1.2	0.6	2.3	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.8	5.1	1.8	5.4	5.5	2.8	3.7	1.9	1.1	4.7	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	30.9	27.4	40.1	37.2	37.5	40.5	21.9	20.5	32.9	24.1	26.1
LnGrp LOS	D	C	C	D	D	D	D	C	C	C	C	C
Approach Vol, veh/h		843			731			1227			1098	
Approach Delay, s/veh		31.8			38.0			26.0			25.7	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.7	22.5	14.3	31.6	10.7	23.5	14.2	31.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	18.0	12.5	23.0	7.5	19.0	8.4	27.1				
Max Q Clear Time (g_c+I1), s	6.7	11.3	9.5	15.0	6.1	14.1	5.3	12.6				
Green Ext Time (p_c), s	0.1	2.0	0.3	3.5	0.1	1.3	0.1	4.8				
Intersection Summary												
HCM 6th Ctrl Delay			29.4									
HCM 6th LOS			C									

HCM Signalized Intersection Capacity Analysis
 6: N. Pepper Ave & I-10 WB On/Off-Ramps

06/12/2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	5	3	648	7	632	0	0	635	663	
Future Volume (vph)	0	0	0	5	3	648	7	632	0	0	635	663	
Ideal Flow (vphpl)	1900	1900	1900	1800	1800	1800	1700	1800	1800	1800	1800	1800	
Total Lost time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Lane Util. Factor					0.95	0.95	1.00	0.95			0.95	1.00	
Frt					0.85	0.85	1.00	1.00			1.00	0.85	
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)					1430	1425	1583	3353			3353	1500	
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)					1430	1425	1583	3353			3353	1500	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0	0	0	5	3	682	7	665	0	0	668	698	
RTOR Reduction (vph)	0	0	0	0	218	218	0	0	0	0	0	279	
Lane Group Flow (vph)	0	0	0	0	124	130	7	665	0	0	668	419	
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm	
Protected Phases					6		3	8			4		
Permitted Phases				6		6						4	
Actuated Green, G (s)					13.4	13.4	5.1	57.6			48.0	48.0	
Effective Green, g (s)					13.4	13.4	5.1	57.6			48.0	48.0	
Actuated g/C Ratio					0.17	0.17	0.06	0.72			0.60	0.60	
Clearance Time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)					239	238	100	2414			2011	900	
v/s Ratio Prot							0.00	c0.20			0.20		
v/s Ratio Perm					0.09	c0.09						c0.28	
v/c Ratio					0.52	0.55	0.07	0.28			0.33	0.47	
Uniform Delay, d1					30.4	30.5	35.2	3.9			8.0	8.9	
Progression Factor					1.00	1.00	0.99	0.13			0.40	3.82	
Incremental Delay, d2					1.9	2.5	0.2	0.2			0.4	1.4	
Delay (s)					32.3	33.1	34.9	0.7			3.6	35.3	
Level of Service					C	C	C	A			A	D	
Approach Delay (s)		0.0			32.7			1.1			19.8		
Approach LOS		A			C			A			B		
Intersection Summary													
HCM 2000 Control Delay			18.4		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.48										
Actuated Cycle Length (s)			80.0		Sum of lost time (s)						13.5		
Intersection Capacity Utilization			89.2%		ICU Level of Service						E		
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 7: N. Pepper Ave & I-10 EB On/Off-Ramps

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	593	4	6	0	0	0	0	30	21	617	15	0
Future Volume (veh/h)	593	4	6	0	0	0	0	30	21	617	15	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				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	1673	1772	1772				0	1772	1772	1575	1772	0
Adj Flow Rate, veh/h	632	0	0				0	32	22	649	16	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	956	532	0				0	453	282	884	1041	0
Arrive On Green	0.30	0.00	0.00				0.00	0.23	0.23	0.30	0.59	0.00
Sat Flow, veh/h	3188	1772	0				0	2081	1240	2910	1772	0
Grp Volume(v), veh/h	632	0	0				0	27	27	649	16	0
Grp Sat Flow(s),veh/h/ln	1594	1772	0				0	1683	1549	1455	1772	0
Q Serve(g_s), s	13.8	0.0	0.0				0.0	1.0	1.1	16.0	0.3	0.0
Cycle Q Clear(g_c), s	13.8	0.0	0.0				0.0	1.0	1.1	16.0	0.3	0.0
Prop In Lane	1.00		0.00				0.00		0.80	1.00		0.00
Lane Grp Cap(c), veh/h	956	532	0				0	383	352	884	1041	0
V/C Ratio(X)	0.66	0.00	0.00				0.00	0.07	0.08	0.73	0.02	0.00
Avail Cap(c_a), veh/h	956	532	0				0	383	352	884	1041	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.4	0.0	0.0				0.0	24.3	24.3	25.0	6.9	0.0
Incr Delay (d2), s/veh	3.6	0.0	0.0				0.0	0.3	0.4	5.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	0.0				0.0	0.4	0.4	5.6	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.0	0.0	0.0				0.0	24.6	24.7	30.3	6.9	0.0
LnGrp LOS	C	A	A				A	C	C	C	A	A
Approach Vol, veh/h		632						54			665	
Approach Delay, s/veh		28.0						24.7			29.8	
Approach LOS		C						C			C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				51.5		28.5	28.8	22.7				
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s				47.0		24.0	24.3	18.2				
Max Q Clear Time (g_c+l1), s				2.3		15.8	18.0	3.1				
Green Ext Time (p_c), s				0.0		1.6	1.4	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			28.8									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

Appendix G
Level of Service Worksheets for
General Plan Buildout Year With No Project Conditions

HCM 6th Signalized Intersection Summary

1: San Bernardino Ave & N. Pepper Ave

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	279	346	62	279	49	134	559	34	76	1184	183
Future Volume (veh/h)	83	279	346	62	279	49	134	559	34	76	1184	183
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1575	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	87	294	364	65	294	52	141	588	36	80	1246	193
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	432	366	155	357	63	309	1727	770	119	1407	217
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.11	0.51	0.51	0.07	0.48	0.48
Sat Flow, veh/h	926	1772	1502	694	1466	259	2910	3367	1502	1594	2924	450
Grp Volume(v), veh/h	87	294	364	65	0	346	141	588	36	80	714	725
Grp Sat Flow(s),veh/h/ln	926	1772	1502	694	0	1725	1455	1683	1502	1594	1683	1691
Q Serve(g_s), s	4.3	12.0	19.4	7.5	0.0	15.2	3.6	8.2	1.0	3.9	30.6	31.1
Cycle Q Clear(g_c), s	19.5	12.0	19.4	19.5	0.0	15.2	3.6	8.2	1.0	3.9	30.6	31.1
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	140	432	366	155	0	421	309	1727	770	119	810	814
V/C Ratio(X)	0.62	0.68	0.99	0.42	0.00	0.82	0.46	0.34	0.05	0.67	0.88	0.89
Avail Cap(c_a), veh/h	140	432	366	155	0	421	309	1727	770	201	810	814
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	27.4	30.2	36.3	0.0	28.6	33.6	11.5	9.7	36.1	18.7	18.8
Incr Delay (d2), s/veh	8.2	4.3	45.5	1.8	0.0	12.4	1.0	0.5	0.1	6.5	13.2	14.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	5.3	11.0	1.3	0.0	7.4	1.2	2.7	0.3	1.6	12.8	13.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.9	31.7	75.7	38.1	0.0	41.0	34.6	12.0	9.8	42.5	31.9	32.9
LnGrp LOS	D	C	E	D	A	D	C	B	A	D	C	C
Approach Vol, veh/h		745			411			765			1519	
Approach Delay, s/veh		55.0			40.6			16.1			32.9	
Approach LOS		D			D			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		24.0	13.0	43.0		24.0	10.5	45.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.5	8.5	38.5		19.5	10.1	36.9				
Max Q Clear Time (g_c+I1), s		21.5	5.6	33.1		21.5	5.9	10.2				
Green Ext Time (p_c), s		0.0	0.1	3.7		0.0	0.0	3.9				
Intersection Summary												
HCM 6th Ctrl Delay			34.9									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
 2: N. Pepper Ave & Violet St

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	63	100	645	134	129	1448
Future Volume (veh/h)	63	100	645	134	129	1448
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	1673	1772	1772	1772	1673	1772
Adj Flow Rate, veh/h	66	105	679	141	136	1524
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	178	168	2231	693	203	3329
Arrive On Green	0.11	0.11	0.46	0.46	0.13	0.69
Sat Flow, veh/h	1594	1502	4997	1502	1594	4997
Grp Volume(v), veh/h	66	105	679	141	136	1524
Grp Sat Flow(s),veh/h/ln	1594	1502	1612	1502	1594	1612
Q Serve(g_s), s	1.7	3.0	4.0	1.1	3.7	6.5
Cycle Q Clear(g_c), s	1.7	3.0	4.0	1.1	3.7	6.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	178	168	2231	693	203	3329
V/C Ratio(X)	0.37	0.63	0.30	0.20	0.67	0.46
Avail Cap(c_a), veh/h	195	184	2231	693	266	3329
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.47	0.47
Uniform Delay (d), s/veh	18.5	19.1	7.6	1.3	18.7	3.2
Incr Delay (d2), s/veh	1.3	5.7	0.4	0.7	2.0	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	0.6	2.7	0.9	2.3	1.2	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.8	24.8	8.0	1.9	20.7	3.4
LnGrp LOS	B	C	A	A	C	A
Approach Vol, veh/h	171		820			1660
Approach Delay, s/veh	22.9		6.9			4.8
Approach LOS	C		A			A
Timer - Assigned Phs				4	6	7
Phs Duration (G+Y+Rc), s				35.5	9.5	10.2
Change Period (Y+Rc), s				4.5	4.5	4.5
Max Green Setting (Gmax), s				30.5	5.5	7.5
Max Q Clear Time (g_c+I1), s				8.5	5.0	5.7
Green Ext Time (p_c), s				11.0	0.0	0.1
Intersection Summary						
HCM 6th Ctrl Delay			6.6			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary

4: Blue Dr & N. Pepper Ave

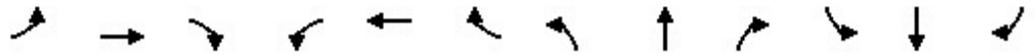
06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	133	20	739	114	101	1441	
Future Volume (veh/h)	133	20	739	114	101	1441	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	140	21	778	120	106	1517	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	196	185	1173	523	484	2448	
Arrive On Green	0.12	0.12	0.35	0.35	0.30	0.73	
Sat Flow, veh/h	1594	1502	3455	1502	1594	3455	
Grp Volume(v), veh/h	140	21	778	120	106	1517	
Grp Sat Flow(s),veh/h/ln	1594	1502	1683	1502	1594	1683	
Q Serve(g_s), s	5.1	0.7	11.8	2.0	3.0	13.4	
Cycle Q Clear(g_c), s	5.1	0.7	11.8	2.0	3.0	13.4	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	196	185	1173	523	484	2448	
V/C Ratio(X)	0.71	0.11	0.66	0.23	0.22	0.62	
Avail Cap(c_a), veh/h	478	450	1173	523	484	2448	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	25.3	23.4	16.6	4.7	15.6	4.1	
Incr Delay (d2), s/veh	4.8	0.3	3.0	1.0	0.2	1.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.1	0.7	4.2	2.9	0.9	1.8	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	30.1	23.7	19.5	5.7	15.8	5.3	
LnGrp LOS	C	C	B	A	B	A	
Approach Vol, veh/h	161		898			1623	
Approach Delay, s/veh	29.2		17.7			5.9	
Approach LOS	C		B			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				48.1	11.9	22.7	25.4
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	7.6	20.9
Max Q Clear Time (g_c+I1), s				15.4	7.1	5.0	13.8
Green Ext Time (p_c), s				10.0	0.3	0.0	3.0
Intersection Summary							
HCM 6th Ctrl Delay			11.3				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary
 5: N. Pepper Ave & W. Valley Blvd

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑		↔↔	↑↑↑	↗	↔↔	↑↑↑	
Traffic Volume (veh/h)	95	251	345	338	310	55	335	910	89	109	1189	76
Future Volume (veh/h)	95	251	345	338	310	55	335	910	89	109	1189	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1772	1772	1575	1772	1772	1575	1772	1772	1575	1772	1772
Adj Flow Rate, veh/h	100	264	363	356	326	58	353	958	94	115	1252	80
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	677	302	404	725	128	402	1790	556	262	1495	96
Arrive On Green	0.09	0.20	0.20	0.14	0.25	0.25	0.28	0.74	0.74	0.09	0.32	0.32
Sat Flow, veh/h	2910	3367	1502	2910	2861	503	2910	4837	1502	2910	4647	297
Grp Volume(v), veh/h	100	264	363	356	190	194	353	958	94	115	869	463
Grp Sat Flow(s),veh/h/ln	1455	1683	1502	1455	1683	1681	1455	1612	1502	1455	1612	1718
Q Serve(g_s), s	2.9	6.1	12.7	10.8	8.6	8.8	10.4	7.7	1.7	3.4	22.5	22.5
Cycle Q Clear(g_c), s	2.9	6.1	12.7	10.8	8.6	8.8	10.4	7.7	1.7	3.4	22.5	22.5
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	252	677	302	404	426	426	402	1790	556	262	1038	553
V/C Ratio(X)	0.40	0.39	1.20	0.88	0.45	0.45	0.88	0.54	0.17	0.44	0.84	0.84
Avail Cap(c_a), veh/h	252	677	302	404	426	426	404	1790	556	262	1038	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.87	0.87	0.87	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	31.2	17.7	38.0	28.3	28.4	31.8	8.4	7.6	38.8	28.3	28.3
Incr Delay (d2), s/veh	1.0	1.7	118.2	19.6	3.4	3.5	17.1	1.0	0.6	1.2	8.0	14.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.5	13.9	4.7	3.6	3.7	3.9	1.9	0.6	1.2	9.1	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.9	32.9	135.9	57.6	31.6	31.8	48.9	9.4	8.2	40.0	36.4	42.4
LnGrp LOS	D	C	F	E	C	C	D	A	A	D	D	D
Approach Vol, veh/h		727			740			1405			1447	
Approach Delay, s/veh		85.3			44.2			19.2			38.6	
Approach LOS		F			D			B			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	22.6	16.9	33.5	12.3	27.3	12.6	37.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.5	18.1	12.5	28.9	7.8	22.8	8.1	33.3				
Max Q Clear Time (g_c+I1), s	12.8	14.7	12.4	24.5	4.9	10.8	5.4	9.7				
Green Ext Time (p_c), s	0.0	1.0	0.0	2.9	0.1	1.6	0.1	6.8				
Intersection Summary												
HCM 6th Ctrl Delay			41.1									
HCM 6th LOS			D									

HCM Signalized Intersection Capacity Analysis
 6: N. Pepper Ave & I-10 WB On/Off-Ramps

06/12/2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	18	2	831	9	476	0	0	966	952	
Future Volume (vph)	0	0	0	18	2	831	9	476	0	0	966	952	
Ideal Flow (vphpl)	1900	1900	1900	1800	1800	1800	1700	1800	1800	1800	1800	1800	
Total Lost time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Lane Util. Factor					0.95	0.95	1.00	0.95			0.95	1.00	
Frt					0.86	0.85	1.00	1.00			1.00	0.85	
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)					1434	1425	1583	3353			3353	1500	
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)					1434	1425	1583	3353			3353	1500	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0	0	0	19	2	875	9	501	0	0	1017	1002	
RTOR Reduction (vph)	0	0	0	0	325	325	0	0	0	0	0	377	
Lane Group Flow (vph)	0	0	0	0	125	121	9	501	0	0	1017	625	
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm	
Protected Phases					6		3	8			4		
Permitted Phases				6		6						4	
Actuated Green, G (s)					14.7	14.7	5.7	66.3			56.1	56.1	
Effective Green, g (s)					14.7	14.7	5.7	66.3			56.1	56.1	
Actuated g/C Ratio					0.16	0.16	0.06	0.74			0.62	0.62	
Clearance Time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)					234	232	100	2470			2090	935	
v/s Ratio Prot							0.01	c0.15			0.30		
v/s Ratio Perm					0.09	0.08						c0.42	
v/c Ratio					0.53	0.52	0.09	0.20			0.49	0.67	
Uniform Delay, d1					34.5	34.4	39.7	3.7			9.2	10.9	
Progression Factor					1.00	1.00	1.60	0.05			0.38	6.55	
Incremental Delay, d2					2.3	2.0	0.3	0.1			0.5	2.1	
Delay (s)					36.8	36.4	63.9	0.3			3.9	73.8	
Level of Service					D	D	E	A			A	E	
Approach Delay (s)		0.0			36.6			1.5			38.6		
Approach LOS		A			D			A			D		
Intersection Summary													
HCM 2000 Control Delay			32.5		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.61										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					13.5			
Intersection Capacity Utilization			113.8%		ICU Level of Service					H			
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 7: N. Pepper Ave & I-10 EB On/Off-Ramps

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	474	5	12	0	0	0	0	29	18	992	34	0
Future Volume (veh/h)	474	5	12	0	0	0	0	29	18	992	34	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				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	1673	1772	1772				0	1772	1772	1575	1772	0
Adj Flow Rate, veh/h	515	0	0				0	31	19	1044	36	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	761	423	0				0	428	240	1180	1171	0
Arrive On Green	0.24	0.00	0.00				0.00	0.21	0.21	0.41	0.66	0.00
Sat Flow, veh/h	3188	1772	0				0	2169	1165	2910	1772	0
Grp Volume(v), veh/h	515	0	0				0	25	25	1044	36	0
Grp Sat Flow(s),veh/h/ln	1594	1772	0				0	1683	1562	1455	1772	0
Q Serve(g_s), s	13.2	0.0	0.0				0.0	1.1	1.2	29.9	0.6	0.0
Cycle Q Clear(g_c), s	13.2	0.0	0.0				0.0	1.1	1.2	29.9	0.6	0.0
Prop In Lane	1.00		0.00				0.00		0.75	1.00		0.00
Lane Grp Cap(c), veh/h	761	423	0				0	346	321	1180	1171	0
V/C Ratio(X)	0.68	0.00	0.00				0.00	0.07	0.08	0.88	0.03	0.00
Avail Cap(c_a), veh/h	761	423	0				0	346	321	1180	1171	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.1	0.0	0.0				0.0	28.8	28.9	24.8	5.3	0.0
Incr Delay (d2), s/veh	4.8	0.0	0.0				0.0	0.4	0.5	9.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	0.0				0.0	0.4	0.5	10.8	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.9	0.0	0.0				0.0	29.2	29.4	34.6	5.3	0.0
LnGrp LOS	D	A	A				A	C	C	C	A	A
Approach Vol, veh/h		515						50			1080	
Approach Delay, s/veh		35.9						29.3			33.7	
Approach LOS		D						C			C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				64.0		26.0	41.0	23.0				
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s				59.5		21.5	36.5	18.5				
Max Q Clear Time (g_c+I1), s				2.6		15.2	31.9	3.2				
Green Ext Time (p_c), s				0.2		1.1	1.9	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			34.2									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary

1: San Bernardino Ave & N. Pepper Ave

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	212	162	41	187	28	157	576	47	29	571	108
Future Volume (veh/h)	106	212	162	41	187	28	157	576	47	29	571	108
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1575	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	112	223	171	43	197	29	165	606	49	31	601	114
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	274	461	391	256	393	58	722	1453	648	133	754	143
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.25	0.43	0.43	0.08	0.27	0.27
Sat Flow, veh/h	1033	1772	1502	886	1510	222	2910	3367	1502	1594	2824	535
Grp Volume(v), veh/h	112	223	171	43	0	226	165	606	49	31	358	357
Grp Sat Flow(s),veh/h/ln	1033	1772	1502	886	0	1732	1455	1683	1502	1594	1683	1676
Q Serve(g_s), s	6.2	6.4	5.7	2.6	0.0	6.7	2.7	7.5	1.2	1.1	11.9	11.9
Cycle Q Clear(g_c), s	12.9	6.4	5.7	9.0	0.0	6.7	2.7	7.5	1.2	1.1	11.9	11.9
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	274	461	391	256	0	450	722	1453	648	133	449	447
V/C Ratio(X)	0.41	0.48	0.44	0.17	0.00	0.50	0.23	0.42	0.08	0.23	0.80	0.80
Avail Cap(c_a), veh/h	315	532	450	291	0	520	722	1453	648	154	561	559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	18.8	18.5	22.6	0.0	18.9	18.0	11.8	10.0	25.7	20.5	20.5
Incr Delay (d2), s/veh	1.0	0.8	0.8	0.3	0.0	0.9	0.1	0.8	0.2	0.9	13.6	13.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.4	1.8	0.5	0.0	2.5	0.8	2.3	0.3	0.4	5.6	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.3	19.6	19.3	22.9	0.0	19.8	18.1	12.7	10.2	26.6	34.1	34.4
LnGrp LOS	C	B	B	C	A	B	B	B	B	C	C	C
Approach Vol, veh/h		506			269			820			746	
Approach Delay, s/veh		20.8			20.3			13.6			33.9	
Approach LOS		C			C			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.1	19.4	20.5		20.1	9.5	30.4				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	8.5	20.0		18.0	5.8	22.7				
Max Q Clear Time (g_c+I1), s		14.9	4.7	13.9		11.0	3.1	9.5				
Green Ext Time (p_c), s		0.7	0.2	2.1		0.8	0.0	3.2				
Intersection Summary												
HCM 6th Ctrl Delay				22.4								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary
 2: N. Pepper Ave & Violet St

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	100	89	714	67	77	714
Future Volume (veh/h)	100	89	714	67	77	714
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	1673	1772	1772	1772	1673	1772
Adj Flow Rate, veh/h	105	94	752	71	81	752
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	177	167	2311	717	177	3332
Arrive On Green	0.11	0.11	0.48	0.48	0.11	0.69
Sat Flow, veh/h	1594	1502	4997	1502	1594	4997
Grp Volume(v), veh/h	105	94	752	71	81	752
Grp Sat Flow(s),veh/h/ln	1594	1502	1612	1502	1594	1612
Q Serve(g_s), s	2.8	2.7	4.3	1.2	2.1	2.6
Cycle Q Clear(g_c), s	2.8	2.7	4.3	1.2	2.1	2.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	177	167	2311	717	177	3332
V/C Ratio(X)	0.59	0.56	0.33	0.10	0.46	0.23
Avail Cap(c_a), veh/h	230	217	2311	717	195	3332
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	0.88	0.88
Uniform Delay (d), s/veh	19.0	19.0	7.3	6.4	18.7	2.6
Incr Delay (d2), s/veh	3.1	3.0	0.4	0.3	1.6	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	1.1	2.4	1.0	1.4	0.7	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.2	21.9	7.6	6.7	20.3	2.7
LnGrp LOS	C	C	A	A	C	A
Approach Vol, veh/h			823			833
Approach Delay, s/veh	22.1		7.6			4.4
Approach LOS	C		A			A
Timer - Assigned Phs				4	6	7
Phs Duration (G+Y+Rc), s				35.5	9.5	9.5
Change Period (Y+Rc), s				4.5	4.5	4.5
Max Green Setting (Gmax), s				29.5	6.5	5.5
Max Q Clear Time (g_c+I1), s				4.6	4.8	4.1
Green Ext Time (p_c), s				5.0	0.1	0.0
Intersection Summary						
HCM 6th Ctrl Delay			7.7			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary

4: Blue Dr & N. Pepper Ave

06/12/2025

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations			 			 	
Traffic Volume (veh/h)	103	46	715	90	41	721	
Future Volume (veh/h)	103	46	715	90	41	721	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	108	48	753	95	43	759	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	165	156	1979	883	133	2512	
Arrive On Green	0.10	0.10	0.59	0.59	0.08	0.75	
Sat Flow, veh/h	1594	1502	3455	1502	1594	3455	
Grp Volume(v), veh/h	108	48	753	95	43	759	
Grp Sat Flow(s),veh/h/ln	1594	1502	1683	1502	1594	1683	
Q Serve(g_s), s	3.9	1.8	7.1	1.7	1.5	4.4	
Cycle Q Clear(g_c), s	3.9	1.8	7.1	1.7	1.5	4.4	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	165	156	1979	883	133	2512	
V/C Ratio(X)	0.65	0.31	0.38	0.11	0.32	0.30	
Avail Cap(c_a), veh/h	478	450	1979	883	173	2512	
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	25.8	24.9	6.6	5.4	25.9	2.5	
Incr Delay (d2), s/veh	4.3	1.1	0.6	0.2	1.4	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	1.6	1.6	1.8	2.3	0.6	0.4	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	30.1	26.0	7.1	5.7	27.3	2.8	
LnGrp LOS	C	C	A	A	C	A	
Approach Vol, veh/h			848			802	
Approach Delay, s/veh	28.9		7.0			4.1	
Approach LOS	C		A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				49.3	10.7	9.5	39.8
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	6.5	22.0
Max Q Clear Time (g_c+I1), s				6.4	5.9	3.5	9.1
Green Ext Time (p_c), s				5.1	0.3	0.0	4.1
Intersection Summary							
HCM 6th Ctrl Delay			7.6				
HCM 6th LOS			A				

HCM 6th Signalized Intersection Summary
 5: N. Pepper Ave & W. Valley Blvd

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	  		 	  	
Traffic Volume (veh/h)	150	295	185	121	280	62	287	661	111	135	638	123
Future Volume (veh/h)	150	295	185	121	280	62	287	661	111	135	638	123
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1772	1772	1575	1772	1772	1575	1772	1772	1575	1772	1772
Adj Flow Rate, veh/h	158	311	195	127	295	65	302	696	117	142	672	129
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	885	395	212	707	154	395	1417	440	333	1108	210
Arrive On Green	0.08	0.26	0.26	0.07	0.26	0.26	0.27	0.59	0.59	0.11	0.27	0.27
Sat Flow, veh/h	2910	3367	1502	2910	2751	597	2910	4837	1502	2910	4084	774
Grp Volume(v), veh/h	158	311	195	127	179	181	302	696	117	142	529	272
Grp Sat Flow(s),veh/h/ln	1455	1683	1502	1455	1683	1664	1455	1612	1502	1455	1612	1633
Q Serve(g_s), s	3.7	5.3	7.7	3.0	6.2	6.4	6.7	5.9	2.7	3.2	10.0	10.2
Cycle Q Clear(g_c), s	3.7	5.3	7.7	3.0	6.2	6.4	6.7	5.9	2.7	3.2	10.0	10.2
Prop In Lane	1.00		1.00	1.00		0.36	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	229	885	395	212	433	428	395	1417	440	333	875	443
V/C Ratio(X)	0.69	0.35	0.49	0.60	0.41	0.42	0.76	0.49	0.27	0.43	0.60	0.61
Avail Cap(c_a), veh/h	229	885	395	212	433	428	395	1417	440	333	875	443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	21.0	21.9	31.5	21.6	21.7	24.5	11.5	10.8	28.9	22.2	22.3
Incr Delay (d2), s/veh	8.6	1.1	4.4	4.6	2.9	3.1	7.9	1.1	1.3	0.9	3.1	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.0	2.9	1.1	2.5	2.6	2.3	1.7	0.9	1.1	3.7	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.0	22.1	26.2	36.1	24.5	24.7	32.4	12.6	12.2	29.7	25.3	28.5
LnGrp LOS	D	C	C	D	C	C	C	B	B	C	C	C
Approach Vol, veh/h		664			487			1115			943	
Approach Delay, s/veh		27.5			27.6			17.9			26.9	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	22.9	14.0	23.5	10.0	22.5	12.5	25.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	18.4	9.5	19.0	5.5	18.0	8.0	20.5				
Max Q Clear Time (g_c+l1), s	5.0	9.7	8.7	12.2	5.7	8.4	5.2	7.9				
Green Ext Time (p_c), s	0.0	1.6	0.1	2.6	0.0	1.3	0.1	3.8				
Intersection Summary												
HCM 6th Ctrl Delay			24.0									
HCM 6th LOS			C									

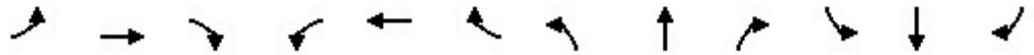
HCM Signalized Intersection Capacity Analysis
 6: N. Pepper Ave & I-10 WB On/Off-Ramps

06/12/2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	30	5	678	26	338	0	0	528	488	
Future Volume (vph)	0	0	0	30	5	678	26	338	0	0	528	488	
Ideal Flow (vphpl)	1900	1900	1900	1800	1800	1800	1700	1800	1800	1800	1800	1800	
Total Lost time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Lane Util. Factor					0.95	0.95	1.00	0.95			0.95	1.00	
Frt					0.86	0.85	1.00	1.00			1.00	0.85	
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)					1443	1425	1583	3353			3353	1500	
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)					1443	1425	1583	3353			3353	1500	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0	0	0	32	5	714	27	356	0	0	556	514	
RTOR Reduction (vph)	0	0	0	0	285	308	0	0	0	0	0	230	
Lane Group Flow (vph)	0	0	0	0	95	63	27	356	0	0	556	284	
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm	
Protected Phases					6		3	8			4		
Permitted Phases				6		6						4	
Actuated Green, G (s)					11.9	11.9	5.9	49.1			38.7	38.7	
Effective Green, g (s)					11.9	11.9	5.9	49.1			38.7	38.7	
Actuated g/C Ratio					0.17	0.17	0.08	0.70			0.55	0.55	
Clearance Time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)					245	242	133	2351			1853	829	
v/s Ratio Prot							0.02	c0.11			0.17		
v/s Ratio Perm					0.07	0.04						c0.19	
v/c Ratio					0.39	0.26	0.20	0.15			0.30	0.34	
Uniform Delay, d1					25.8	25.2	29.9	3.5			8.4	8.6	
Progression Factor					1.00	1.00	1.00	0.25			0.31	0.89	
Incremental Delay, d2					1.0	0.6	0.7	0.1			0.4	1.0	
Delay (s)					26.8	25.8	30.7	1.0			3.0	8.7	
Level of Service					C	C	C	A			A	A	
Approach Delay (s)		0.0			26.3			3.1			5.7		
Approach LOS		A			C			A			A		
Intersection Summary													
HCM 2000 Control Delay			12.3		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.34										
Actuated Cycle Length (s)			70.0		Sum of lost time (s)						13.5		
Intersection Capacity Utilization			76.9%		ICU Level of Service						D		
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 7: N. Pepper Ave & I-10 EB On/Off-Ramps

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷						↶	↷	↶	↷	↶
Traffic Volume (veh/h)	376	1	18	0	0	0	0	39	16	515	47	0
Future Volume (veh/h)	376	1	18	0	0	0	0	39	16	515	47	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				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	1673	1772	1772				0	1772	1772	1575	1772	0
Adj Flow Rate, veh/h	414	0	0				0	41	17	542	49	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	842	468	0				0	659	257	769	1076	0
Arrive On Green	0.26	0.00	0.00				0.00	0.28	0.28	0.26	0.61	0.00
Sat Flow, veh/h	3188	1772	0				0	2455	923	2910	1772	0
Grp Volume(v), veh/h	414	0	0				0	28	30	542	49	0
Grp Sat Flow(s),veh/h/ln	1594	1772	0				0	1683	1606	1455	1772	0
Q Serve(g_s), s	7.7	0.0	0.0				0.0	0.9	0.9	11.8	0.8	0.0
Cycle Q Clear(g_c), s	7.7	0.0	0.0				0.0	0.9	0.9	11.8	0.8	0.0
Prop In Lane	1.00		0.00				0.00		0.57	1.00		0.00
Lane Grp Cap(c), veh/h	842	468	0				0	469	447	769	1076	0
V/C Ratio(X)	0.49	0.00	0.00				0.00	0.06	0.07	0.70	0.05	0.00
Avail Cap(c_a), veh/h	842	468	0				0	469	447	769	1076	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.8	0.0	0.0				0.0	18.5	18.6	23.3	5.6	0.0
Incr Delay (d2), s/veh	2.0	0.0	0.0				0.0	0.2	0.3	5.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	0.0				0.0	0.3	0.4	4.1	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.8	0.0	0.0				0.0	18.8	18.8	28.6	5.6	0.0
LnGrp LOS	C	A	A				A	B	B	C	A	A
Approach Vol, veh/h		414						58			591	
Approach Delay, s/veh		23.8						18.8			26.7	
Approach LOS		C						B			C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				47.0		23.0	23.0	24.0				
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s				42.5		18.5	18.5	19.5				
Max Q Clear Time (g_c+I1), s				2.8		9.7	13.8	2.9				
Green Ext Time (p_c), s				0.2		1.0	0.9	0.2				

Intersection Summary

HCM 6th Ctrl Delay	25.2
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

1: San Bernardino Ave & N. Pepper Ave

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	305	155	39	321	36	251	920	84	50	630	148
Future Volume (veh/h)	120	305	155	39	321	36	251	920	84	50	630	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1575	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	126	321	163	41	338	38	264	968	88	53	663	156
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	546	463	247	482	54	412	1407	627	78	879	207
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.14	0.42	0.42	0.05	0.32	0.32
Sat Flow, veh/h	901	1772	1502	816	1564	176	2910	3367	1502	1594	2705	636
Grp Volume(v), veh/h	126	321	163	41	0	376	264	968	88	53	412	407
Grp Sat Flow(s),veh/h/ln	901	1772	1502	816	0	1740	1455	1683	1502	1594	1683	1657
Q Serve(g_s), s	7.1	9.2	5.1	2.7	0.0	11.4	5.1	14.1	2.2	2.0	13.1	13.2
Cycle Q Clear(g_c), s	18.5	9.2	5.1	11.9	0.0	11.4	5.1	14.1	2.2	2.0	13.1	13.2
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	226	546	463	247	0	537	412	1407	627	78	547	539
V/C Ratio(X)	0.56	0.59	0.35	0.17	0.00	0.70	0.64	0.69	0.14	0.68	0.75	0.75
Avail Cap(c_a), veh/h	226	546	463	247	0	537	412	1407	627	133	547	539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	0.80	0.80	0.80	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	17.5	16.1	22.5	0.0	18.3	24.3	14.3	10.8	28.1	18.1	18.1
Incr Delay (d2), s/veh	9.6	4.6	2.1	1.4	0.0	7.4	2.7	2.2	0.4	9.9	9.3	9.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.9	1.7	0.6	0.0	5.1	1.7	4.6	0.6	0.9	5.6	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.6	22.1	18.2	24.0	0.0	25.8	27.0	16.5	11.2	38.0	27.4	27.6
LnGrp LOS	D	C	B	C	A	C	C	B	B	D	C	C
Approach Vol, veh/h		610			417			1320			872	
Approach Delay, s/veh		24.1			25.6			18.2			28.1	
Approach LOS		C			C			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.0	13.0	24.0		23.0	7.4	29.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.5	8.5	19.5		18.5	5.0	23.0				
Max Q Clear Time (g_c+I1), s		20.5	7.1	15.2		13.9	4.0	16.1				
Green Ext Time (p_c), s		0.0	0.1	1.9		1.0	0.0	3.5				
Intersection Summary												
HCM 6th Ctrl Delay			23.0									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

2: N. Pepper Ave & Violet St

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	111	137	1120	9	42	787	
Future Volume (veh/h)	111	137	1120	9	42	787	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	117	144	1179	9	44	828	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	221	208	2179	676	177	3200	
Arrive On Green	0.14	0.14	0.45	0.45	0.11	0.66	
Sat Flow, veh/h	1594	1502	4997	1502	1594	4997	
Grp Volume(v), veh/h	117	144	1179	9	44	828	
Grp Sat Flow(s),veh/h/ln	1594	1502	1612	1502	1594	1612	
Q Serve(g_s), s	3.1	4.1	8.0	0.1	1.1	3.1	
Cycle Q Clear(g_c), s	3.1	4.1	8.0	0.1	1.1	3.1	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	221	208	2179	676	177	3200	
V/C Ratio(X)	0.53	0.69	0.54	0.01	0.25	0.26	
Avail Cap(c_a), veh/h	266	250	2179	676	195	3200	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.71	0.71	
Uniform Delay (d), s/veh	18.0	18.5	9.0	6.8	18.3	3.1	
Incr Delay (d2), s/veh	2.0	6.2	1.0	0.0	0.5	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	1.1	3.7	1.9	0.2	0.4	0.3	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.0	24.7	10.0	6.9	18.8	3.3	
LnGrp LOS	B	C	A	A	B	A	
Approach Vol, veh/h			1188			872	
Approach Delay, s/veh	22.6		9.9			4.0	
Approach LOS	C		A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				34.3	10.7	9.5	24.8
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				28.5	7.5	5.5	18.5
Max Q Clear Time (g_c+I1), s				5.1	6.1	3.1	10.0
Green Ext Time (p_c), s				5.5	0.1	0.0	4.7
Intersection Summary							
HCM 6th Ctrl Delay			9.1				
HCM 6th LOS			A				

HCM 6th Signalized Intersection Summary

4: Blue Dr & N. Pepper Ave

06/12/2025

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations			 			 	
Traffic Volume (veh/h)	152	59	1059	39	22	883	
Future Volume (veh/h)	152	59	1059	39	22	883	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	160	62	1115	41	23	929	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	219	206	1319	588	392	2399	
Arrive On Green	0.14	0.14	0.39	0.39	0.25	0.71	
Sat Flow, veh/h	1594	1502	3455	1502	1594	3455	
Grp Volume(v), veh/h	160	62	1115	41	23	929	
Grp Sat Flow(s),veh/h/ln	1594	1502	1683	1502	1594	1683	
Q Serve(g_s), s	5.8	2.2	18.1	0.5	0.7	6.6	
Cycle Q Clear(g_c), s	5.8	2.2	18.1	0.5	0.7	6.6	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	219	206	1319	588	392	2399	
V/C Ratio(X)	0.73	0.30	0.85	0.07	0.06	0.39	
Avail Cap(c_a), veh/h	478	450	1319	588	392	2399	
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	24.8	23.3	16.6	3.2	17.3	3.4	
Incr Delay (d2), s/veh	4.7	0.8	6.8	0.2	0.1	0.5	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.4	2.0	6.7	0.9	0.2	0.9	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	29.5	24.1	23.4	3.4	17.4	3.9	
LnGrp LOS	C	C	C	A	B	A	
Approach Vol, veh/h			1156			952	
Approach Delay, s/veh			22.7			4.2	
Approach LOS			C			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				47.3	12.7	19.3	28.0
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s				8.6	7.8	2.7	20.1
Green Ext Time (p_c), s				6.4	0.5	0.0	2.2
Intersection Summary							
HCM 6th Ctrl Delay			15.7				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary
 5: N. Pepper Ave & W. Valley Blvd

06/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	428	270	192	444	89	303	809	151	131	842	77
Future Volume (veh/h)	157	428	270	192	444	89	303	809	151	131	842	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1772	1772	1575	1772	1772	1575	1772	1772	1575	1772	1772
Adj Flow Rate, veh/h	165	451	284	202	467	94	319	852	159	138	886	81
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	236	757	338	272	664	133	391	1639	509	343	1453	132
Arrive On Green	0.08	0.22	0.22	0.09	0.24	0.24	0.13	0.34	0.34	0.12	0.32	0.32
Sat Flow, veh/h	2910	3367	1502	2910	2795	559	2910	4837	1502	2910	4512	411
Grp Volume(v), veh/h	165	451	284	202	280	281	319	852	159	138	632	335
Grp Sat Flow(s),veh/h/ln	1455	1683	1502	1455	1683	1671	1455	1612	1502	1455	1612	1698
Q Serve(g_s), s	4.4	9.6	9.9	5.4	12.2	12.3	8.5	11.3	6.3	3.5	13.2	13.3
Cycle Q Clear(g_c), s	4.4	9.6	9.9	5.4	12.2	12.3	8.5	11.3	6.3	3.5	13.2	13.3
Prop In Lane	1.00		1.00	1.00		0.33	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	236	757	338	272	400	397	391	1639	509	343	1039	547
V/C Ratio(X)	0.70	0.60	0.84	0.74	0.70	0.71	0.82	0.52	0.31	0.40	0.61	0.61
Avail Cap(c_a), veh/h	273	757	338	309	400	397	455	1639	509	343	1039	547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.87	0.87	0.87	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	27.7	13.8	35.3	27.9	28.0	33.7	21.2	19.6	32.7	22.9	22.9
Incr Delay (d2), s/veh	6.5	3.4	21.6	8.1	9.8	10.2	8.5	1.0	1.4	0.8	2.7	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	3.9	4.9	2.1	5.6	5.6	3.3	4.0	2.2	1.2	4.9	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.3	31.2	35.3	43.5	37.7	38.1	42.2	22.3	21.0	33.4	25.5	27.9
LnGrp LOS	D	C	D	D	D	D	D	C	C	C	C	C
Approach Vol, veh/h		900			763			1330			1105	
Approach Delay, s/veh		34.5			39.4			26.9			27.2	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	22.5	15.3	30.3	11.0	23.5	13.9	31.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	18.0	12.5	23.0	7.5	19.0	8.4	27.1				
Max Q Clear Time (g_c+I1), s	7.4	11.9	10.5	15.3	6.4	14.3	5.5	13.3				
Green Ext Time (p_c), s	0.1	2.0	0.2	3.4	0.1	1.3	0.1	5.0				
Intersection Summary												
HCM 6th Ctrl Delay			31.0									
HCM 6th LOS			C									

HCM Signalized Intersection Capacity Analysis
 6: N. Pepper Ave & I-10 WB On/Off-Ramps

06/12/2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	6	4	716	8	677	0	0	685	675	
Future Volume (vph)	0	0	0	6	4	716	8	677	0	0	685	675	
Ideal Flow (vphpl)	1900	1900	1900	1800	1800	1800	1700	1800	1800	1800	1800	1800	
Total Lost time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Lane Util. Factor					0.95	0.95	1.00	0.95			0.95	1.00	
Frt					0.85	0.85	1.00	1.00			1.00	0.85	
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)					1431	1425	1583	3353			3353	1500	
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)					1431	1425	1583	3353			3353	1500	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0	0	0	6	4	754	8	713	0	0	721	711	
RTOR Reduction (vph)	0	0	0	0	189	189	0	0	0	0	0	306	
Lane Group Flow (vph)	0	0	0	0	190	196	8	713	0	0	721	405	
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm	
Protected Phases					6		3	8			4		
Permitted Phases				6		6						4	
Actuated Green, G (s)					15.8	15.8	5.1	55.2			45.6	45.6	
Effective Green, g (s)					15.8	15.8	5.1	55.2			45.6	45.6	
Actuated g/C Ratio					0.20	0.20	0.06	0.69			0.57	0.57	
Clearance Time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)					282	281	100	2313			1911	855	
v/s Ratio Prot							0.01	c0.21			0.22		
v/s Ratio Perm					0.13	c0.14						c0.27	
v/c Ratio					0.68	0.70	0.08	0.31			0.38	0.47	
Uniform Delay, d1					29.7	29.9	35.2	4.9			9.4	10.1	
Progression Factor					1.00	1.00	0.99	0.14			0.43	3.45	
Incremental Delay, d2					6.3	7.4	0.3	0.3			0.4	1.5	
Delay (s)					36.0	37.3	35.0	0.9			4.5	36.5	
Level of Service					D	D	C	A			A	D	
Approach Delay (s)		0.0			36.6			1.3			20.4		
Approach LOS		A			D			A			C		
Intersection Summary													
HCM 2000 Control Delay			19.9		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.53										
Actuated Cycle Length (s)			80.0		Sum of lost time (s)					13.5			
Intersection Capacity Utilization			94.2%		ICU Level of Service					F			
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 7: N. Pepper Ave & I-10 EB On/Off-Ramps

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	632	5	7	0	0	0	0	34	23	665	18	0
Future Volume (veh/h)	632	5	7	0	0	0	0	34	23	665	18	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				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	1673	1772	1772				0	1772	1772	1575	1772	0
Adj Flow Rate, veh/h	675	0	0				0	36	24	700	19	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	956	532	0				0	458	278	884	1041	0
Arrive On Green	0.30	0.00	0.00				0.00	0.23	0.23	0.30	0.59	0.00
Sat Flow, veh/h	3188	1772	0				0	2103	1221	2910	1772	0
Grp Volume(v), veh/h	675	0	0				0	29	31	700	19	0
Grp Sat Flow(s),veh/h/ln	1594	1772	0				0	1683	1552	1455	1772	0
Q Serve(g_s), s	15.0	0.0	0.0				0.0	1.1	1.2	17.6	0.4	0.0
Cycle Q Clear(g_c), s	15.0	0.0	0.0				0.0	1.1	1.2	17.6	0.4	0.0
Prop In Lane	1.00		0.00				0.00		0.79	1.00		0.00
Lane Grp Cap(c), veh/h	956	532	0				0	383	353	884	1041	0
V/C Ratio(X)	0.71	0.00	0.00				0.00	0.08	0.09	0.79	0.02	0.00
Avail Cap(c_a), veh/h	956	532	0				0	383	353	884	1041	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.9	0.0	0.0				0.0	24.3	24.3	25.5	6.9	0.0
Incr Delay (d2), s/veh	4.4	0.0	0.0				0.0	0.4	0.5	7.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	0.0	0.0				0.0	0.4	0.5	6.4	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	0.0	0.0				0.0	24.7	24.8	32.7	6.9	0.0
LnGrp LOS	C	A	A				A	C	C	C	A	A
Approach Vol, veh/h		675						60			719	
Approach Delay, s/veh		29.2						24.8			32.0	
Approach LOS		C						C			C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				51.5		28.5	28.8	22.7				
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s				47.0		24.0	24.3	18.2				
Max Q Clear Time (g_c+I1), s				2.4		17.0	19.6	3.2				
Green Ext Time (p_c), s				0.1		1.6	1.2	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			30.4									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

Appendix H

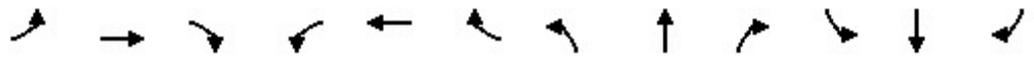
Level of Service Worksheets for

General Plan Buildout Year With Project Conditions

HCM 6th Signalized Intersection Summary

1: San Bernardino Ave & N. Pepper Ave

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	279	354	70	279	49	248	569	37	76	1216	183
Future Volume (veh/h)	83	279	354	70	279	49	248	569	37	76	1216	183
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1575	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	87	294	373	74	294	52	261	599	39	80	1280	193
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	432	366	154	357	63	309	1727	770	119	1413	212
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.11	0.51	0.51	0.07	0.48	0.48
Sat Flow, veh/h	926	1772	1502	688	1466	259	2910	3367	1502	1594	2936	440
Grp Volume(v), veh/h	87	294	373	74	0	346	261	599	39	80	730	743
Grp Sat Flow(s),veh/h/ln	926	1772	1502	688	0	1725	1455	1683	1502	1594	1683	1693
Q Serve(g_s), s	4.3	12.0	19.5	7.5	0.0	15.2	7.0	8.4	1.0	3.9	31.8	32.5
Cycle Q Clear(g_c), s	19.5	12.0	19.5	19.5	0.0	15.2	7.0	8.4	1.0	3.9	31.8	32.5
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	140	432	366	154	0	421	309	1727	770	119	810	815
V/C Ratio(X)	0.62	0.68	1.02	0.48	0.00	0.82	0.84	0.35	0.05	0.67	0.90	0.91
Avail Cap(c_a), veh/h	140	432	366	154	0	421	309	1727	770	201	810	815
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	27.4	30.3	36.8	0.0	28.6	35.1	11.5	9.7	36.1	19.0	19.2
Incr Delay (d2), s/veh	8.2	4.3	52.0	2.3	0.0	12.4	17.5	0.5	0.1	6.5	15.1	16.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	5.3	11.7	1.5	0.0	7.4	3.1	2.8	0.3	1.6	13.7	14.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.9	31.7	82.2	39.1	0.0	41.0	52.6	12.0	9.9	42.5	34.1	35.4
LnGrp LOS	D	C	F	D	A	D	D	B	A	D	C	D
Approach Vol, veh/h		754			420			899			1553	
Approach Delay, s/veh		58.5			40.7			23.7			35.2	
Approach LOS		E			D			C			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		24.0	13.0	43.0		24.0	10.5	45.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.5	8.5	38.5		19.5	10.1	36.9				
Max Q Clear Time (g_c+I1), s		21.5	9.0	34.5		21.5	5.9	10.4				
Green Ext Time (p_c), s		0.0	0.0	2.9		0.0	0.0	4.0				
Intersection Summary												
HCM 6th Ctrl Delay			37.8									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary
 2: N. Pepper Ave & Violet St

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	63	100	772	134	129	1607	
Future Volume (veh/h)	63	100	772	134	129	1607	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	66	105	813	141	136	1692	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	178	168	2231	693	203	3329	
Arrive On Green	0.11	0.11	0.46	0.46	0.13	0.69	
Sat Flow, veh/h	1594	1502	4997	1502	1594	4997	
Grp Volume(v), veh/h	66	105	813	141	136	1692	
Grp Sat Flow(s),veh/h/ln	1594	1502	1612	1502	1594	1612	
Q Serve(g_s), s	1.7	3.0	4.9	1.1	3.7	7.5	
Cycle Q Clear(g_c), s	1.7	3.0	4.9	1.1	3.7	7.5	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	178	168	2231	693	203	3329	
V/C Ratio(X)	0.37	0.63	0.36	0.20	0.67	0.51	
Avail Cap(c_a), veh/h	195	184	2231	693	266	3329	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.42	0.42	
Uniform Delay (d), s/veh	18.5	19.1	7.9	1.3	18.7	3.4	
Incr Delay (d2), s/veh	1.3	5.7	0.5	0.7	1.8	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.6	2.7	1.1	2.3	1.2	0.4	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	19.8	24.8	8.3	1.9	20.5	3.6	
LnGrp LOS	B	C	A	A	C	A	
Approach Vol, veh/h			954			1828	
Approach Delay, s/veh			7.4			4.9	
Approach LOS			A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				35.5	9.5	10.2	25.3
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				30.5	5.5	7.5	18.5
Max Q Clear Time (g_c+I1), s				9.5	5.0	5.7	6.9
Green Ext Time (p_c), s				12.0	0.0	0.1	4.3
Intersection Summary							
HCM 6th Ctrl Delay			6.7				
HCM 6th LOS			A				

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	46	0	906	1519	151
Future Vol, veh/h	0	46	0	906	1519	151
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	48	0	954	1599	159

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	879	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	250	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %			
Mov Cap-1 Maneuver	-	250	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	250	-	-
HCM Lane V/C Ratio	-	0.194	-	-
HCM Control Delay (s)	-	22.8	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.7	-	-

HCM 6th Signalized Intersection Summary

4: Blue Dr & N. Pepper Ave

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	133	20	850	114	117	1479	
Future Volume (veh/h)	133	20	850	114	117	1479	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	140	21	895	120	123	1557	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	196	185	1173	523	484	2448	
Arrive On Green	0.12	0.12	0.35	0.35	0.30	0.73	
Sat Flow, veh/h	1594	1502	3455	1502	1594	3455	
Grp Volume(v), veh/h	140	21	895	120	123	1557	
Grp Sat Flow(s),veh/h/ln	1594	1502	1683	1502	1594	1683	
Q Serve(g_s), s	5.1	0.7	14.2	2.0	3.5	14.1	
Cycle Q Clear(g_c), s	5.1	0.7	14.2	2.0	3.5	14.1	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	196	185	1173	523	484	2448	
V/C Ratio(X)	0.71	0.11	0.76	0.23	0.25	0.64	
Avail Cap(c_a), veh/h	478	450	1173	523	484	2448	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	25.3	23.4	17.4	4.7	15.8	4.2	
Incr Delay (d2), s/veh	4.8	0.3	4.7	1.0	0.3	1.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.1	0.7	5.2	2.9	1.1	1.8	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	30.1	23.7	22.1	5.7	16.0	5.4	
LnGrp LOS	C	C	C	A	B	A	
Approach Vol, veh/h	161		1015			1680	
Approach Delay, s/veh	29.2		20.2			6.2	
Approach LOS	C		C			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				48.1	11.9	22.7	25.4
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	7.6	20.9
Max Q Clear Time (g_c+I1), s				16.1	7.1	5.5	16.2
Green Ext Time (p_c), s				10.0	0.3	0.1	2.5
Intersection Summary							
HCM 6th Ctrl Delay			12.5				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary
 5: N. Pepper Ave & W. Valley Blvd

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	  		 	  	
Traffic Volume (veh/h)	103	251	345	338	310	63	335	1005	89	112	1221	79
Future Volume (veh/h)	103	251	345	338	310	63	335	1005	89	112	1221	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1772	1772	1575	1772	1772	1575	1772	1772	1575	1772	1772
Adj Flow Rate, veh/h	108	264	363	356	326	66	353	1058	94	118	1285	83
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	677	302	404	708	142	402	1790	556	262	1494	96
Arrive On Green	0.09	0.20	0.20	0.14	0.25	0.25	0.28	0.74	0.74	0.09	0.32	0.32
Sat Flow, veh/h	2910	3367	1502	2910	2796	559	2910	4837	1502	2910	4643	300
Grp Volume(v), veh/h	108	264	363	356	195	197	353	1058	94	118	892	476
Grp Sat Flow(s),veh/h/ln	1455	1683	1502	1455	1683	1671	1455	1612	1502	1455	1612	1718
Q Serve(g_s), s	3.2	6.1	12.7	10.8	8.8	9.0	10.4	9.1	1.7	3.5	23.4	23.4
Cycle Q Clear(g_c), s	3.2	6.1	12.7	10.8	8.8	9.0	10.4	9.1	1.7	3.5	23.4	23.4
Prop In Lane	1.00		1.00	1.00		0.33	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	252	677	302	404	426	423	402	1790	556	262	1038	553
V/C Ratio(X)	0.43	0.39	1.20	0.88	0.46	0.47	0.88	0.59	0.17	0.45	0.86	0.86
Avail Cap(c_a), veh/h	252	677	302	404	426	423	404	1790	556	262	1038	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.85	0.85	0.85	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.0	31.2	17.7	38.0	28.4	28.4	31.8	8.6	7.6	38.8	28.6	28.6
Incr Delay (d2), s/veh	1.1	1.7	118.2	19.6	3.5	3.7	16.8	1.2	0.6	1.2	9.3	16.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.5	13.9	4.7	3.7	3.8	3.9	2.2	0.6	1.2	9.6	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.1	32.9	135.9	57.6	31.9	32.1	48.6	9.8	8.1	40.1	37.9	44.6
LnGrp LOS	D	C	F	E	C	C	D	A	A	D	D	D
Approach Vol, veh/h		735			748			1505			1486	
Approach Delay, s/veh		84.8			44.2			18.8			40.2	
Approach LOS		F			D			B			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	22.6	16.9	33.5	12.3	27.3	12.6	37.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.5	18.1	12.5	28.9	7.8	22.8	8.1	33.3				
Max Q Clear Time (g_c+l1), s	12.8	14.7	12.4	25.4	5.2	11.0	5.5	11.1				
Green Ext Time (p_c), s	0.0	1.0	0.0	2.5	0.1	1.6	0.1	7.5				
Intersection Summary												
HCM 6th Ctrl Delay			41.0									
HCM 6th LOS			D									

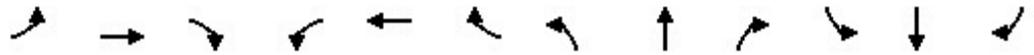
HCM Signalized Intersection Capacity Analysis
 6: N. Pepper Ave & I-10 WB On/Off-Ramps

06/12/2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	18	2	863	9	539	0	0	976	974	
Future Volume (vph)	0	0	0	18	2	863	9	539	0	0	976	974	
Ideal Flow (vphpl)	1900	1900	1900	1800	1800	1800	1700	1800	1800	1800	1800	1800	
Total Lost time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Lane Util. Factor					0.95	0.95	1.00	0.95			0.95	1.00	
Frt					0.86	0.85	1.00	1.00			1.00	0.85	
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)					1433	1425	1583	3353			3353	1500	
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)					1433	1425	1583	3353			3353	1500	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0	0	0	19	2	908	9	567	0	0	1027	1025	
RTOR Reduction (vph)	0	0	0	0	272	272	0	0	0	0	0	415	
Lane Group Flow (vph)	0	0	0	0	194	191	9	567	0	0	1027	610	
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm	
Protected Phases					6		3	8			4		
Permitted Phases				6		6						4	
Actuated Green, G (s)					17.5	17.5	5.4	63.5			53.6	53.6	
Effective Green, g (s)					17.5	17.5	5.4	63.5			53.6	53.6	
Actuated g/C Ratio					0.19	0.19	0.06	0.71			0.60	0.60	
Clearance Time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)					278	277	94	2365			1996	893	
v/s Ratio Prot							0.01	c0.17			0.31		
v/s Ratio Perm					0.14	0.13						c0.41	
v/c Ratio					0.70	0.69	0.10	0.24			0.51	0.68	
Uniform Delay, d1					33.8	33.7	40.0	4.7			10.6	12.4	
Progression Factor					1.00	1.00	1.62	0.05			0.38	7.02	
Incremental Delay, d2					7.4	7.0	0.3	0.2			0.5	2.3	
Delay (s)					41.2	40.7	65.1	0.4			4.6	89.5	
Level of Service					D	D	E	A			A	F	
Approach Delay (s)		0.0			40.9			1.4			47.0		
Approach LOS		A			D			A			D		
Intersection Summary													
HCM 2000 Control Delay			38.0		HCM 2000 Level of Service						D		
HCM 2000 Volume to Capacity ratio			0.66										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						13.5		
Intersection Capacity Utilization			117.5%		ICU Level of Service						H		
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 7: N. Pepper Ave & I-10 EB On/Off-Ramps

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	537	5	12	0	0	0	0	29	18	1002	34	0
Future Volume (veh/h)	537	5	12	0	0	0	0	29	18	1002	34	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				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	1673	1772	1772				0	1772	1772	1575	1772	0
Adj Flow Rate, veh/h	581	0	0				0	31	19	1055	36	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	761	423	0				0	428	240	1180	1171	0
Arrive On Green	0.24	0.00	0.00				0.00	0.21	0.21	0.41	0.66	0.00
Sat Flow, veh/h	3188	1772	0				0	2169	1165	2910	1772	0
Grp Volume(v), veh/h	581	0	0				0	25	25	1055	36	0
Grp Sat Flow(s),veh/h/ln	1594	1772	0				0	1683	1562	1455	1772	0
Q Serve(g_s), s	15.3	0.0	0.0				0.0	1.1	1.2	30.4	0.6	0.0
Cycle Q Clear(g_c), s	15.3	0.0	0.0				0.0	1.1	1.2	30.4	0.6	0.0
Prop In Lane	1.00		0.00				0.00		0.75	1.00		0.00
Lane Grp Cap(c), veh/h	761	423	0				0	346	321	1180	1171	0
V/C Ratio(X)	0.76	0.00	0.00				0.00	0.07	0.08	0.89	0.03	0.00
Avail Cap(c_a), veh/h	761	423	0				0	346	321	1180	1171	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.9	0.0	0.0				0.0	28.8	28.9	24.9	5.3	0.0
Incr Delay (d2), s/veh	7.1	0.0	0.0				0.0	0.4	0.5	10.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	0.0	0.0				0.0	0.4	0.5	11.1	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.0	0.0	0.0				0.0	29.2	29.4	35.5	5.3	0.0
LnGrp LOS	D	A	A				A	C	C	D	A	A
Approach Vol, veh/h		581						50			1091	
Approach Delay, s/veh		39.0						29.3			34.5	
Approach LOS		D						C			C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				64.0		26.0	41.0	23.0				
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s				59.5		21.5	36.5	18.5				
Max Q Clear Time (g_c+I1), s				2.6		17.3	32.4	3.2				
Green Ext Time (p_c), s				0.2		1.0	1.7	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			35.9									
HCM 6th LOS			D									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary

1: San Bernardino Ave & N. Pepper Ave

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	212	169	48	187	28	265	603	54	29	600	108
Future Volume (veh/h)	106	212	169	48	187	28	265	603	54	29	600	108
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1575	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	112	223	178	51	197	29	279	635	57	31	632	114
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	274	461	391	255	393	58	699	1453	648	133	783	141
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.24	0.43	0.43	0.08	0.27	0.27
Sat Flow, veh/h	1033	1772	1502	880	1510	222	2910	3367	1502	1594	2850	513
Grp Volume(v), veh/h	112	223	178	51	0	226	279	635	57	31	373	373
Grp Sat Flow(s),veh/h/ln	1033	1772	1502	880	0	1732	1455	1683	1502	1594	1683	1680
Q Serve(g_s), s	6.2	6.4	6.0	3.1	0.0	6.7	4.8	7.9	1.3	1.1	12.4	12.4
Cycle Q Clear(g_c), s	12.9	6.4	6.0	9.5	0.0	6.7	4.8	7.9	1.3	1.1	12.4	12.4
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	274	461	391	255	0	451	699	1453	648	133	462	461
V/C Ratio(X)	0.41	0.48	0.46	0.20	0.00	0.50	0.40	0.44	0.09	0.23	0.81	0.81
Avail Cap(c_a), veh/h	315	532	450	290	0	520	699	1453	648	154	561	560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	18.8	18.6	22.8	0.0	18.9	19.2	12.0	10.1	25.7	20.3	20.3
Incr Delay (d2), s/veh	1.0	0.8	0.8	0.4	0.0	0.9	0.3	0.9	0.2	0.9	14.0	14.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.4	1.9	0.6	0.0	2.5	1.4	2.5	0.4	0.4	5.9	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.3	19.6	19.5	23.2	0.0	19.7	19.5	12.8	10.3	26.6	34.3	34.5
LnGrp LOS	C	B	B	C	A	B	B	B	B	C	C	C
Approach Vol, veh/h		513			277			971			777	
Approach Delay, s/veh		20.8			20.4			14.6			34.1	
Approach LOS		C			C			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.1	18.9	21.0		20.1	9.5	30.4				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	8.5	20.0		18.0	5.8	22.7				
Max Q Clear Time (g_c+I1), s		14.9	6.8	14.4		11.5	3.1	9.9				
Green Ext Time (p_c), s		0.7	0.2	2.0		0.8	0.0	3.3				
Intersection Summary												
HCM 6th Ctrl Delay				22.4								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary

2: N. Pepper Ave & Violet St

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	100	89	856	67	77	859	
Future Volume (veh/h)	100	89	856	67	77	859	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	105	94	901	71	81	904	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	177	167	2311	717	177	3332	
Arrive On Green	0.11	0.11	0.48	0.48	0.11	0.69	
Sat Flow, veh/h	1594	1502	4997	1502	1594	4997	
Grp Volume(v), veh/h	105	94	901	71	81	904	
Grp Sat Flow(s),veh/h/ln	1594	1502	1612	1502	1594	1612	
Q Serve(g_s), s	2.8	2.7	5.4	1.2	2.1	3.2	
Cycle Q Clear(g_c), s	2.8	2.7	5.4	1.2	2.1	3.2	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	177	167	2311	717	177	3332	
V/C Ratio(X)	0.59	0.56	0.39	0.10	0.46	0.27	
Avail Cap(c_a), veh/h	230	217	2311	717	195	3332	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.85	0.85	
Uniform Delay (d), s/veh	19.0	19.0	7.5	6.4	18.7	2.7	
Incr Delay (d2), s/veh	3.1	3.0	0.5	0.3	1.6	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.1	2.4	1.2	1.4	0.7	0.2	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	22.2	21.9	8.0	6.7	20.3	2.8	
LnGrp LOS	C	C	A	A	C	A	
Approach Vol, veh/h			972			985	
Approach Delay, s/veh			7.9			4.3	
Approach LOS			A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				35.5	9.5	9.5	26.0
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				29.5	6.5	5.5	19.5
Max Q Clear Time (g_c+I1), s				5.2	4.8	4.1	7.4
Green Ext Time (p_c), s				6.1	0.1	0.0	4.7
Intersection Summary							
HCM 6th Ctrl Delay			7.6				
HCM 6th LOS			A				

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	113	0	923	821	138
Future Vol, veh/h	0	113	0	923	821	138
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	119	0	972	864	145

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	-	505	-	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-
Pot Cap-1 Maneuver	0	439	0	-	-
Stage 1	0	-	0	-	-
Stage 2	0	-	0	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	439	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	439	-	-
HCM Lane V/C Ratio	-	0.271	-	-
HCM Control Delay (s)	-	16.2	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	1.1	-	-

HCM 6th Signalized Intersection Summary

4: Blue Dr & N. Pepper Ave

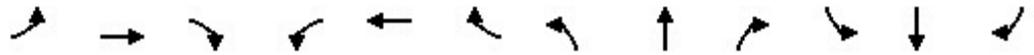
06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	103	46	817	90	81	814	
Future Volume (veh/h)	103	46	817	90	81	814	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	108	48	860	95	85	857	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	165	156	1973	880	136	2512	
Arrive On Green	0.10	0.10	0.59	0.59	0.09	0.75	
Sat Flow, veh/h	1594	1502	3455	1502	1594	3455	
Grp Volume(v), veh/h	108	48	860	95	85	857	
Grp Sat Flow(s),veh/h/ln	1594	1502	1683	1502	1594	1683	
Q Serve(g_s), s	3.9	1.8	8.5	1.7	3.1	5.2	
Cycle Q Clear(g_c), s	3.9	1.8	8.5	1.7	3.1	5.2	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	165	156	1973	880	136	2512	
V/C Ratio(X)	0.65	0.31	0.44	0.11	0.63	0.34	
Avail Cap(c_a), veh/h	478	450	1973	880	173	2512	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	25.8	24.9	6.9	5.5	26.5	2.6	
Incr Delay (d2), s/veh	4.3	1.1	0.7	0.2	4.7	0.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.6	1.6	2.1	2.3	1.2	0.5	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	30.1	26.0	7.6	5.7	31.2	3.0	
LnGrp LOS	C	C	A	A	C	A	
Approach Vol, veh/h			955			942	
Approach Delay, s/veh			7.4			5.5	
Approach LOS			A			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				49.3	10.7	9.6	39.7
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	6.5	22.0
Max Q Clear Time (g_c+I1), s				7.2	5.9	5.1	10.5
Green Ext Time (p_c), s				5.9	0.3	0.0	4.4
Intersection Summary							
HCM 6th Ctrl Delay			8.2				
HCM 6th LOS			A				

HCM 6th Signalized Intersection Summary
 5: N. Pepper Ave & W. Valley Blvd

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑		↔↔	↑↑↑	↗	↔↔	↑↑↑	
Traffic Volume (veh/h)	157	295	185	121	280	69	287	749	111	142	717	130
Future Volume (veh/h)	157	295	185	121	280	69	287	749	111	142	717	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1772	1772	1575	1772	1772	1575	1772	1772	1575	1772	1772
Adj Flow Rate, veh/h	165	311	195	127	295	73	302	788	117	149	755	137
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	885	395	212	690	168	395	1417	440	333	1119	201
Arrive On Green	0.08	0.26	0.26	0.07	0.26	0.26	0.27	0.59	0.59	0.11	0.27	0.27
Sat Flow, veh/h	2910	3367	1502	2910	2684	654	2910	4837	1502	2910	4122	741
Grp Volume(v), veh/h	165	311	195	127	183	185	302	788	117	149	589	303
Grp Sat Flow(s),veh/h/ln	1455	1683	1502	1455	1683	1654	1455	1612	1502	1455	1612	1638
Q Serve(g_s), s	3.9	5.3	7.7	3.0	6.4	6.5	6.7	7.0	2.7	3.3	11.4	11.6
Cycle Q Clear(g_c), s	3.9	5.3	7.7	3.0	6.4	6.5	6.7	7.0	2.7	3.3	11.4	11.6
Prop In Lane	1.00		1.00	1.00		0.40	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	229	885	395	212	433	425	395	1417	440	333	875	445
V/C Ratio(X)	0.72	0.35	0.49	0.60	0.42	0.43	0.76	0.56	0.27	0.45	0.67	0.68
Avail Cap(c_a), veh/h	229	885	395	212	433	425	395	1417	440	333	875	445
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	21.0	21.9	31.5	21.7	21.7	24.5	11.7	10.8	28.9	22.7	22.8
Incr Delay (d2), s/veh	10.6	1.1	4.4	4.6	3.0	3.2	7.9	1.4	1.3	0.9	4.1	8.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.0	2.9	1.1	2.6	2.6	2.3	1.9	0.9	1.1	4.3	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	22.1	26.2	36.1	24.7	25.0	32.4	13.1	12.2	29.9	26.9	31.0
LnGrp LOS	D	C	C	D	C	C	C	B	B	C	C	C
Approach Vol, veh/h		671			495			1207			1041	
Approach Delay, s/veh		28.2			27.7			17.9			28.5	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	22.9	14.0	23.5	10.0	22.5	12.5	25.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	18.4	9.5	19.0	5.5	18.0	8.0	20.5				
Max Q Clear Time (g_c+l1), s	5.0	9.7	8.7	13.6	5.9	8.5	5.3	9.0				
Green Ext Time (p_c), s	0.0	1.6	0.1	2.5	0.0	1.3	0.1	4.1				
Intersection Summary												
HCM 6th Ctrl Delay			24.6									
HCM 6th LOS			C									

HCM Signalized Intersection Capacity Analysis
 6: N. Pepper Ave & I-10 WB On/Off-Ramps

06/12/2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	30	5	707	26	397	0	0	554	541	
Future Volume (vph)	0	0	0	30	5	707	26	397	0	0	554	541	
Ideal Flow (vphpl)	1900	1900	1900	1800	1800	1800	1700	1800	1800	1800	1800	1800	
Total Lost time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Lane Util. Factor					0.95	0.95	1.00	0.95			0.95	1.00	
Frt					0.86	0.85	1.00	1.00			1.00	0.85	
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)					1443	1425	1583	3353			3353	1500	
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)					1443	1425	1583	3353			3353	1500	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0	0	0	32	5	744	27	418	0	0	583	569	
RTOR Reduction (vph)	0	0	0	0	295	320	0	0	0	0	0	256	
Lane Group Flow (vph)	0	0	0	0	99	67	27	418	0	0	583	313	
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm	
Protected Phases					6		3	8			4		
Permitted Phases				6		6						4	
Actuated Green, G (s)					12.1	12.1	5.9	48.9			38.5	38.5	
Effective Green, g (s)					12.1	12.1	5.9	48.9			38.5	38.5	
Actuated g/C Ratio					0.17	0.17	0.08	0.70			0.55	0.55	
Clearance Time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)					249	246	133	2342			1844	825	
v/s Ratio Prot							0.02	c0.12			0.17		
v/s Ratio Perm					0.07	0.05						c0.21	
v/c Ratio					0.40	0.27	0.20	0.18			0.32	0.38	
Uniform Delay, d1					25.7	25.1	29.9	3.6			8.6	9.0	
Progression Factor					1.00	1.00	0.98	0.21			0.28	1.24	
Incremental Delay, d2					1.0	0.6	0.6	0.1			0.4	1.1	
Delay (s)					26.7	25.7	29.8	0.9			2.8	12.2	
Level of Service					C	C	C	A			A	B	
Approach Delay (s)		0.0			26.2			2.7			7.4		
Approach LOS		A			C			A			A		
Intersection Summary													
HCM 2000 Control Delay			12.7		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.37										
Actuated Cycle Length (s)			70.0		Sum of lost time (s)					13.5			
Intersection Capacity Utilization			81.6%		ICU Level of Service					D			
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 7: N. Pepper Ave & I-10 EB On/Off-Ramps

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	435	1	18	0	0	0	0	39	16	541	47	0
Future Volume (veh/h)	435	1	18	0	0	0	0	39	16	541	47	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				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	1673	1772	1772				0	1772	1772	1575	1772	0
Adj Flow Rate, veh/h	476	0	0				0	41	17	569	49	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	842	468	0				0	659	257	769	1076	0
Arrive On Green	0.26	0.00	0.00				0.00	0.28	0.28	0.26	0.61	0.00
Sat Flow, veh/h	3188	1772	0				0	2455	923	2910	1772	0
Grp Volume(v), veh/h	476	0	0				0	28	30	569	49	0
Grp Sat Flow(s),veh/h/ln	1594	1772	0				0	1683	1606	1455	1772	0
Q Serve(g_s), s	9.0	0.0	0.0				0.0	0.9	0.9	12.5	0.8	0.0
Cycle Q Clear(g_c), s	9.0	0.0	0.0				0.0	0.9	0.9	12.5	0.8	0.0
Prop In Lane	1.00		0.00				0.00		0.57	1.00		0.00
Lane Grp Cap(c), veh/h	842	468	0				0	469	447	769	1076	0
V/C Ratio(X)	0.57	0.00	0.00				0.00	0.06	0.07	0.74	0.05	0.00
Avail Cap(c_a), veh/h	842	468	0				0	469	447	769	1076	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.3	0.0	0.0				0.0	18.5	18.6	23.5	5.6	0.0
Incr Delay (d2), s/veh	2.7	0.0	0.0				0.0	0.2	0.3	6.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	0.0				0.0	0.3	0.4	4.5	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	0.0	0.0				0.0	18.8	18.8	29.9	5.6	0.0
LnGrp LOS	C	A	A				A	B	B	C	A	A
Approach Vol, veh/h		476						58			618	
Approach Delay, s/veh		25.0						18.8			27.9	
Approach LOS		C						B			C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				47.0		23.0	23.0	24.0				
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s				42.5		18.5	18.5	19.5				
Max Q Clear Time (g_c+I1), s				2.8		11.0	14.5	2.9				
Green Ext Time (p_c), s				0.2		1.1	0.9	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			26.3									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary

1: San Bernardino Ave & N. Pepper Ave

06/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	305	159	43	321	36	313	952	92	50	645	148
Future Volume (veh/h)	120	305	159	43	321	36	313	952	92	50	645	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1575	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	126	321	167	45	338	38	329	1002	97	53	679	156
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	546	463	246	482	54	412	1407	627	78	884	203
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.14	0.42	0.42	0.05	0.32	0.32
Sat Flow, veh/h	901	1772	1502	812	1564	176	2910	3367	1502	1594	2719	624
Grp Volume(v), veh/h	126	321	167	45	0	376	329	1002	97	53	420	415
Grp Sat Flow(s),veh/h/ln	901	1772	1502	812	0	1740	1455	1683	1502	1594	1683	1660
Q Serve(g_s), s	7.1	9.2	5.2	3.0	0.0	11.4	6.6	14.8	2.4	2.0	13.5	13.5
Cycle Q Clear(g_c), s	18.5	9.2	5.2	12.2	0.0	11.4	6.6	14.8	2.4	2.0	13.5	13.5
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	226	546	463	246	0	537	412	1407	627	78	547	539
V/C Ratio(X)	0.56	0.59	0.36	0.18	0.00	0.70	0.80	0.71	0.15	0.68	0.77	0.77
Avail Cap(c_a), veh/h	226	546	463	246	0	537	412	1407	627	133	547	539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	0.76	0.76	0.76	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	17.5	16.1	22.7	0.0	18.3	24.9	14.5	10.9	28.1	18.2	18.2
Incr Delay (d2), s/veh	9.6	4.6	2.2	1.6	0.0	7.4	8.2	2.4	0.4	9.9	9.9	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.9	1.8	0.6	0.0	5.1	2.5	4.8	0.7	0.9	5.8	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.6	22.1	18.3	24.3	0.0	25.8	33.1	16.8	11.3	38.0	28.2	28.4
LnGrp LOS	D	C	B	C	A	C	C	B	B	D	C	C
Approach Vol, veh/h		614			421			1428			888	
Approach Delay, s/veh		24.1			25.6			20.2			28.8	
Approach LOS		C			C			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.0	13.0	24.0		23.0	7.4	29.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.5	8.5	19.5		18.5	5.0	23.0				
Max Q Clear Time (g_c+I1), s		20.5	8.6	15.5		14.2	4.0	16.8				
Green Ext Time (p_c), s		0.0	0.0	1.8		1.0	0.0	3.3				
Intersection Summary												
HCM 6th Ctrl Delay				23.9								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary

2: N. Pepper Ave & Violet St

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	↶	↶	↑↑↑	↷	↶	↑↑↑	
Traffic Volume (veh/h)	111	137	1222	9	42	864	
Future Volume (veh/h)	111	137	1222	9	42	864	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	117	144	1286	9	44	909	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	221	208	2179	676	177	3200	
Arrive On Green	0.14	0.14	0.45	0.45	0.11	0.66	
Sat Flow, veh/h	1594	1502	4997	1502	1594	4997	
Grp Volume(v), veh/h	117	144	1286	9	44	909	
Grp Sat Flow(s),veh/h/ln	1594	1502	1612	1502	1594	1612	
Q Serve(g_s), s	3.1	4.1	9.0	0.1	1.1	3.5	
Cycle Q Clear(g_c), s	3.1	4.1	9.0	0.1	1.1	3.5	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	221	208	2179	676	177	3200	
V/C Ratio(X)	0.53	0.69	0.59	0.01	0.25	0.28	
Avail Cap(c_a), veh/h	266	250	2179	676	195	3200	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.70	0.70	
Uniform Delay (d), s/veh	18.0	18.5	9.3	6.8	18.3	3.2	
Incr Delay (d2), s/veh	2.0	6.2	1.2	0.0	0.5	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.1	3.7	2.2	0.2	0.4	0.3	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.0	24.7	10.4	6.9	18.8	3.3	
LnGrp LOS	B	C	B	A	B	A	
Approach Vol, veh/h	261		1295			953	
Approach Delay, s/veh	22.6		10.4			4.0	
Approach LOS	C		B			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				34.3	10.7	9.5	24.8
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				28.5	7.5	5.5	18.5
Max Q Clear Time (g_c+I1), s				5.5	6.1	3.1	11.0
Green Ext Time (p_c), s				6.1	0.1	0.0	4.6
Intersection Summary							
HCM 6th Ctrl Delay			9.3				
HCM 6th LOS			A				

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	135	0	1231	902	73
Future Vol, veh/h	0	135	0	1231	902	73
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	142	0	1296	949	77

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	513	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	433	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %			
Mov Cap-1 Maneuver	-	433	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	433	-	-
HCM Lane V/C Ratio	-	0.328	-	-
HCM Control Delay (s)	-	17.3	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	1.4	-	-

HCM 6th Signalized Intersection Summary

4: Blue Dr & N. Pepper Ave

06/12/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	152	59	1113	39	70	994	
Future Volume (veh/h)	152	59	1113	39	70	994	
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	1673	1772	1772	1772	1673	1772	
Adj Flow Rate, veh/h	160	62	1172	41	74	1046	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	219	206	1319	588	392	2399	
Arrive On Green	0.14	0.14	0.39	0.39	0.25	0.71	
Sat Flow, veh/h	1594	1502	3455	1502	1594	3455	
Grp Volume(v), veh/h	160	62	1172	41	74	1046	
Grp Sat Flow(s),veh/h/ln	1594	1502	1683	1502	1594	1683	
Q Serve(g_s), s	5.8	2.2	19.5	0.5	2.2	7.8	
Cycle Q Clear(g_c), s	5.8	2.2	19.5	0.5	2.2	7.8	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	219	206	1319	588	392	2399	
V/C Ratio(X)	0.73	0.30	0.89	0.07	0.19	0.44	
Avail Cap(c_a), veh/h	478	450	1319	588	392	2399	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	24.8	23.3	17.0	3.2	17.9	3.6	
Incr Delay (d2), s/veh	4.7	0.8	9.2	0.2	0.2	0.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.4	2.0	7.6	0.9	0.7	1.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	29.5	24.1	26.2	3.4	18.1	4.2	
LnGrp LOS	C	C	C	A	B	A	
Approach Vol, veh/h			1213			1120	
Approach Delay, s/veh			25.5			5.1	
Approach LOS			C			A	
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				47.3	12.7	19.3	28.0
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	5.0	23.5
Max Q Clear Time (g_c+l1), s				9.8	7.8	4.2	21.5
Green Ext Time (p_c), s				7.3	0.5	0.0	1.4
Intersection Summary							
HCM 6th Ctrl Delay			16.8				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary
 5: N. Pepper Ave & W. Valley Blvd

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑		↔↔	↑↑↑	↗	↔↔	↑↑↑	
Traffic Volume (veh/h)	161	428	270	192	444	93	303	855	151	139	937	85
Future Volume (veh/h)	161	428	270	192	444	93	303	855	151	139	937	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1772	1772	1575	1772	1772	1575	1772	1772	1575	1772	1772
Adj Flow Rate, veh/h	169	451	284	202	467	98	319	900	159	146	986	89
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	239	757	338	276	659	137	391	1639	509	339	1449	131
Arrive On Green	0.08	0.22	0.22	0.09	0.24	0.24	0.13	0.34	0.34	0.12	0.32	0.32
Sat Flow, veh/h	2910	3367	1502	2910	2773	578	2910	4837	1502	2910	4517	407
Grp Volume(v), veh/h	169	451	284	202	282	283	319	900	159	146	703	372
Grp Sat Flow(s),veh/h/ln	1455	1683	1502	1455	1683	1668	1455	1612	1502	1455	1612	1699
Q Serve(g_s), s	4.5	9.6	9.9	5.4	12.3	12.4	8.5	12.1	6.3	3.7	15.2	15.2
Cycle Q Clear(g_c), s	4.5	9.6	9.9	5.4	12.3	12.4	8.5	12.1	6.3	3.7	15.2	15.2
Prop In Lane	1.00		1.00	1.00		0.35	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	239	757	338	276	400	396	391	1639	509	339	1035	545
V/C Ratio(X)	0.71	0.60	0.84	0.73	0.71	0.71	0.82	0.55	0.31	0.43	0.68	0.68
Avail Cap(c_a), veh/h	273	757	338	309	400	396	455	1639	509	339	1035	545
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	27.7	13.8	35.2	27.9	28.0	33.7	21.5	19.6	32.9	23.6	23.6
Incr Delay (d2), s/veh	6.9	3.4	21.6	7.7	10.1	10.5	8.4	1.1	1.4	0.9	3.6	6.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	3.9	4.9	2.1	5.7	5.7	3.3	4.3	2.2	1.3	5.7	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	31.2	35.3	42.9	38.0	38.5	42.1	22.6	20.9	33.7	27.2	30.4
LnGrp LOS	D	C	D	D	D	D	D	C	C	C	C	C
Approach Vol, veh/h		904			767			1378			1221	
Approach Delay, s/veh		34.6			39.5			26.9			28.9	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.1	22.5	15.3	30.2	11.1	23.5	13.8	31.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	18.0	12.5	23.0	7.5	19.0	8.4	27.1				
Max Q Clear Time (g_c+l1), s	7.4	11.9	10.5	17.2	6.5	14.4	5.7	14.1				
Green Ext Time (p_c), s	0.1	2.0	0.2	3.1	0.0	1.3	0.1	5.1				
Intersection Summary												
HCM 6th Ctrl Delay			31.4									
HCM 6th LOS			C									

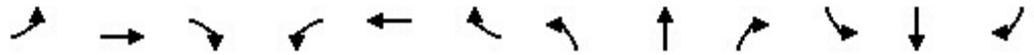
HCM Signalized Intersection Capacity Analysis
 6: N. Pepper Ave & I-10 WB On/Off-Ramps

06/12/2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	6	4	731	8	708	0	0	716	739	
Future Volume (vph)	0	0	0	6	4	731	8	708	0	0	716	739	
Ideal Flow (vphpl)	1900	1900	1900	1800	1800	1800	1700	1800	1800	1800	1800	1800	
Total Lost time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Lane Util. Factor					0.95	0.95	1.00	0.95			0.95	1.00	
Frt					0.85	0.85	1.00	1.00			1.00	0.85	
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)					1430	1425	1583	3353			3353	1500	
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)					1430	1425	1583	3353			3353	1500	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0	0	0	6	4	769	8	745	0	0	754	778	
RTOR Reduction (vph)	0	0	0	0	173	173	0	0	0	0	0	344	
Lane Group Flow (vph)	0	0	0	0	214	219	8	745	0	0	754	434	
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm	
Protected Phases					6		3	8			4		
Permitted Phases				6		6						4	
Actuated Green, G (s)					16.8	16.8	5.1	54.2			44.6	44.6	
Effective Green, g (s)					16.8	16.8	5.1	54.2			44.6	44.6	
Actuated g/C Ratio					0.21	0.21	0.06	0.68			0.56	0.56	
Clearance Time (s)					4.5	4.5	4.5	4.5			4.5	4.5	
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)					300	299	100	2271			1869	836	
v/s Ratio Prot							0.01	c0.22			0.22		
v/s Ratio Perm					0.15	c0.15						c0.29	
v/c Ratio					0.71	0.73	0.08	0.33			0.40	0.52	
Uniform Delay, d1					29.4	29.5	35.2	5.3			10.1	11.0	
Progression Factor					1.00	1.00	0.97	0.13			0.40	4.48	
Incremental Delay, d2					7.8	8.9	0.2	0.3			0.5	1.7	
Delay (s)					37.2	38.4	34.3	1.0			4.5	51.0	
Level of Service					D	D	C	A			A	D	
Approach Delay (s)		0.0			37.8			1.3			28.1		
Approach LOS		A			D			A			C		
Intersection Summary													
HCM 2000 Control Delay			24.0		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.57										
Actuated Cycle Length (s)			80.0		Sum of lost time (s)						13.5		
Intersection Capacity Utilization			99.9%		ICU Level of Service						F		
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 7: N. Pepper Ave & I-10 EB On/Off-Ramps

06/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	663	5	7	0	0	0	0	34	23	696	18	0
Future Volume (veh/h)	663	5	7	0	0	0	0	34	23	696	18	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				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	1673	1772	1772				0	1772	1772	1575	1772	0
Adj Flow Rate, veh/h	708	0	0				0	36	24	733	19	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	956	532	0				0	458	278	884	1041	0
Arrive On Green	0.30	0.00	0.00				0.00	0.23	0.23	0.30	0.59	0.00
Sat Flow, veh/h	3188	1772	0				0	2103	1221	2910	1772	0
Grp Volume(v), veh/h	708	0	0				0	29	31	733	19	0
Grp Sat Flow(s),veh/h/ln	1594	1772	0				0	1683	1552	1455	1772	0
Q Serve(g_s), s	16.0	0.0	0.0				0.0	1.1	1.2	18.8	0.4	0.0
Cycle Q Clear(g_c), s	16.0	0.0	0.0				0.0	1.1	1.2	18.8	0.4	0.0
Prop In Lane	1.00		0.00				0.00		0.79	1.00		0.00
Lane Grp Cap(c), veh/h	956	532	0				0	383	353	884	1041	0
V/C Ratio(X)	0.74	0.00	0.00				0.00	0.08	0.09	0.83	0.02	0.00
Avail Cap(c_a), veh/h	956	532	0				0	383	353	884	1041	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	25.2	0.0	0.0				0.0	24.3	24.3	25.9	6.9	0.0
Incr Delay (d2), s/veh	5.1	0.0	0.0				0.0	0.4	0.5	8.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	0.0	0.0				0.0	0.4	0.5	6.9	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.3	0.0	0.0				0.0	24.7	24.8	34.8	6.9	0.0
LnGrp LOS	C	A	A				A	C	C	C	A	A
Approach Vol, veh/h		708						60			752	
Approach Delay, s/veh		30.3						24.8			34.1	
Approach LOS		C						C			C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				51.5		28.5	28.8	22.7				
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s				47.0		24.0	24.3	18.2				
Max Q Clear Time (g_c+I1), s				2.4		18.0	20.8	3.2				
Green Ext Time (p_c), s				0.1		1.5	1.1	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			32.0									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

Appendix I

Vehicle Queuing Analysis Worksheets

Queuing and Blocking Report

06/12/2025

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	114	332	267	143	242	67	76	150	155	45	194	313
Average Queue (ft)	67	138	86	44	134	24	43	65	81	8	53	177
95th Queue (ft)	126	264	199	100	224	57	73	122	135	28	130	272
Link Distance (ft)		572			552			348	348	348		868
Upstream Blk Time (%)		0										
Queuing Penalty (veh)		0										
Storage Bay Dist (ft)	90		500	150		165	165				170	
Storage Blk Time (%)	9	20	0		8			0				7
Queuing Penalty (veh)	53	75	0		4			0				4

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	357
Average Queue (ft)	209
95th Queue (ft)	319
Link Distance (ft)	868
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	79	103	142	131	245	208	230	184	176	181	181	182
Average Queue (ft)	15	47	86	54	104	81	127	81	71	90	109	100
95th Queue (ft)	51	88	134	110	182	170	204	163	133	147	158	159
Link Distance (ft)			1222	1222				782	782			342
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	220	220			320	210	210			205	205	
Storage Blk Time (%)					0	0	2				0	0
Queuing Penalty (veh)					0	0	2				0	0

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	NB	NB	NB	SB	SB	SB	SB	SB	B25	B25
Directions Served	T	T	R	L	L	T	T	TR	T	T
Maximum Queue (ft)	203	169	100	71	94	326	317	413	246	296
Average Queue (ft)	121	79	35	19	45	167	248	380	38	257
95th Queue (ft)	179	144	82	52	80	276	380	396	163	335
Link Distance (ft)	342	342				306	306	306	183	183
Upstream Blk Time (%)						0	1	70	0	50
Queuing Penalty (veh)						1	5	326	3	345
Storage Bay Dist (ft)			75	210	210					
Storage Blk Time (%)		8	0			1				
Queuing Penalty (veh)		6	0			1				

Intersection: 6: N. Pepper Ave & I-10 WB On/Off-Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	T	T	T	T	R
Maximum Queue (ft)	329	205	48	31	30	212	188	221
Average Queue (ft)	149	100	9	5	3	119	75	138
95th Queue (ft)	250	211	33	23	19	189	152	190
Link Distance (ft)	1146			216	216	342	342	342
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		180	130					
Storage Blk Time (%)	3	0						
Queuing Penalty (veh)	12	1						

Intersection: 7: N. Pepper Ave & I-10 EB On/Off-Ramps

Movement	EB	EB	NB	NB	SB	SB	SB	B23	B23
Directions Served	L	LTR	T	TR	L	L	T	T	T
Maximum Queue (ft)	214	243	40	48	306	282	41	203	185
Average Queue (ft)	111	133	10	12	239	185	5	51	30
95th Queue (ft)	176	199	32	37	340	305	25	169	132
Link Distance (ft)		1305	718	718	214	214	214	216	216
Upstream Blk Time (%)					25	6		0	0
Queuing Penalty (veh)					73	18		2	0
Storage Bay Dist (ft)	830								
Storage Blk Time (%)									
Queuing Penalty (veh)									

Queuing and Blocking Report

06/12/2025

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	110	167	72	100	167	72	99	160	163	34	53	172
Average Queue (ft)	51	77	34	25	71	27	47	66	88	8	17	86
95th Queue (ft)	97	137	60	66	137	64	84	128	141	25	43	147
Link Distance (ft)		572			552			348	348	348		868
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	90		500	150		165	165				170	
Storage Blk Time (%)	3	5		0	1			0				0
Queuing Penalty (veh)	11	11		0	0			0				0

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	198
Average Queue (ft)	104
95th Queue (ft)	177
Link Distance (ft)	868
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	103	128	126	112	100	57	85	128	98	126	129	140
Average Queue (ft)	30	68	74	46	44	18	40	69	36	60	77	78
95th Queue (ft)	73	117	116	90	82	46	76	117	78	111	118	128
Link Distance (ft)			1222	1222				782	782			342
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	220	220			320	210	210			205	205	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	NB	NB	NB	SB	SB	SB	SB	SB	B25
Directions Served	T	T	R	L	L	T	T	TR	T
Maximum Queue (ft)	148	108	73	71	83	130	268	347	8
Average Queue (ft)	89	41	29	25	47	73	68	187	0
95th Queue (ft)	133	83	55	62	81	117	161	314	6
Link Distance (ft)	342	342				306	306	306	183
Upstream Blk Time (%)							0	1	
Queuing Penalty (veh)							0	3	
Storage Bay Dist (ft)			75	210	210				
Storage Blk Time (%)		1	0						
Queuing Penalty (veh)		1	0						

Intersection: 6: N. Pepper Ave & I-10 WB On/Off-Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	T	T	T	T	R
Maximum Queue (ft)	300	203	62	52	31	100	78	103
Average Queue (ft)	118	65	21	14	8	40	13	56
95th Queue (ft)	220	161	54	42	31	80	43	96
Link Distance (ft)	1146			216	216	342	342	342
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		180	130					
Storage Blk Time (%)	2	0						
Queuing Penalty (veh)	6	0						

Intersection: 7: N. Pepper Ave & I-10 EB On/Off-Ramps

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	L	LTR	T	TR	L	L	T
Maximum Queue (ft)	152	170	50	39	203	174	34
Average Queue (ft)	75	89	12	11	103	53	5
95th Queue (ft)	126	148	36	33	163	120	24
Link Distance (ft)		1305	718	718	214	214	214
Upstream Blk Time (%)					0	0	
Queuing Penalty (veh)					0	0	
Storage Bay Dist (ft)	830						
Storage Blk Time (%)							
Queuing Penalty (veh)							

Queuing and Blocking Report

06/12/2025

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	115	335	182	117	199	85	108	192	187	50	93	175
Average Queue (ft)	65	131	47	28	103	41	56	89	108	15	29	97
95th Queue (ft)	123	298	167	75	173	77	91	154	162	37	67	171
Link Distance (ft)		572			552			348	348	348		868
Upstream Blk Time (%)		1										
Queuing Penalty (veh)		0										
Storage Bay Dist (ft)	90		500	150		165	165				170	
Storage Blk Time (%)	12	12	0		2			0				0
Queuing Penalty (veh)	51	30	0		1			0				0

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	226
Average Queue (ft)	127
95th Queue (ft)	216
Link Distance (ft)	868
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	90	154	196	154	153	98	176	193	177	132	160	206
Average Queue (ft)	29	65	110	79	65	39	67	108	93	63	88	123
95th Queue (ft)	65	117	167	138	120	79	130	178	169	114	135	185
Link Distance (ft)			1222	1222				782	782			342
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	220	220			320	210	210			205	205	
Storage Blk Time (%)			0				0	0				0
Queuing Penalty (veh)			0				0	0				0

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	NB	NB	NB	SB	SB	SB	SB	SB	B25
Directions Served	T	T	R	L	L	T	T	TR	T
Maximum Queue (ft)	232	151	97	93	102	197	267	364	133
Average Queue (ft)	136	43	48	29	49	99	105	246	12
95th Queue (ft)	199	109	92	66	85	161	236	370	83
Link Distance (ft)	342	342				306	306	306	183
Upstream Blk Time (%)							0	7	0
Queuing Penalty (veh)							0	22	1
Storage Bay Dist (ft)			75	210	210				
Storage Blk Time (%)		1	2				0		
Queuing Penalty (veh)		1	5				0		

Intersection: 6: N. Pepper Ave & I-10 WB On/Off-Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	T	T	T	T	R
Maximum Queue (ft)	280	201	31	61	51	148	104	141
Average Queue (ft)	129	74	6	15	9	67	28	86
95th Queue (ft)	218	170	24	47	36	123	72	136
Link Distance (ft)	1146			216	216	342	342	342
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		180	130					
Storage Blk Time (%)	2	0						
Queuing Penalty (veh)	5	0						

Intersection: 7: N. Pepper Ave & I-10 EB On/Off-Ramps

Movement	EB	EB	NB	NB	SB	SB	SB	B23	B23
Directions Served	L	LTR	T	TR	L	L	T	T	T
Maximum Queue (ft)	202	235	55	56	280	232	24	61	16
Average Queue (ft)	119	143	13	13	152	102	1	6	2
95th Queue (ft)	183	214	44	38	260	222	11	47	25
Link Distance (ft)		1305	718	718	214	214	214	216	216
Upstream Blk Time (%)					4	1			
Queuing Penalty (veh)					7	2			
Storage Bay Dist (ft)	830								
Storage Blk Time (%)									
Queuing Penalty (veh)									

Queuing and Blocking Report

06/12/2025

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	115	402	359	162	326	131	155	139	156	39	194	645
Average Queue (ft)	63	167	115	54	142	60	74	61	80	7	66	264
95th Queue (ft)	123	349	279	124	259	113	127	116	136	23	162	579
Link Distance (ft)		572			552			348	348	348		868
Upstream Blk Time (%)		1										3
Queuing Penalty (veh)		0										0
Storage Bay Dist (ft)	90		500	150		165	165				170	
Storage Blk Time (%)	11	23	0	0	9	0	0	0			0	17
Queuing Penalty (veh)	62	90	0	0	5	0	0	0			0	12

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	689
Average Queue (ft)	319
95th Queue (ft)	637
Link Distance (ft)	868
Upstream Blk Time (%)	4
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	67	129	148	124	227	188	208	194	180	163	181	202
Average Queue (ft)	17	53	80	49	112	80	120	77	71	85	108	118
95th Queue (ft)	49	103	129	100	192	158	191	167	141	144	162	177
Link Distance (ft)			1222	1222				782	782			342
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	220	220			320	210	210			205	205	
Storage Blk Time (%)						0	2			0	0	0
Queuing Penalty (veh)						0	3			0	0	0

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	NB	NB	NB	SB	SB	SB	SB	SB	B25	B25
Directions Served	T	T	R	L	L	T	T	TR	T	T
Maximum Queue (ft)	231	193	100	74	210	328	306	414	233	292
Average Queue (ft)	133	90	34	21	56	164	235	380	18	268
95th Queue (ft)	200	162	82	57	131	278	376	403	122	322
Link Distance (ft)	342	342				306	306	306	183	183
Upstream Blk Time (%)						0	1	72	0	55
Queuing Penalty (veh)						2	3	340	2	392
Storage Bay Dist (ft)			75	210	210					
Storage Blk Time (%)		10	0			2				
Queuing Penalty (veh)		8	0			2				

Intersection: 6: N. Pepper Ave & I-10 WB On/Off-Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	T	T	T	T	R
Maximum Queue (ft)	395	205	35	34	31	260	251	240
Average Queue (ft)	175	110	8	5	4	133	94	140
95th Queue (ft)	313	228	31	23	21	231	207	204
Link Distance (ft)	1146			216	216	342	342	342
Upstream Blk Time (%)						0	0	0
Queuing Penalty (veh)						2	0	0
Storage Bay Dist (ft)		180	130					
Storage Blk Time (%)	6	0						
Queuing Penalty (veh)	24	1						

Intersection: 7: N. Pepper Ave & I-10 EB On/Off-Ramps

Movement	EB	EB	NB	NB	SB	SB	SB	B23	B23
Directions Served	L	LTR	T	TR	L	L	T	T	T
Maximum Queue (ft)	264	287	41	47	319	294	29	278	247
Average Queue (ft)	132	153	12	11	250	205	2	108	78
95th Queue (ft)	214	237	36	37	360	336	16	275	243
Link Distance (ft)		1305	718	718	214	214	214	216	216
Upstream Blk Time (%)					40	16		4	2
Queuing Penalty (veh)					118	45		18	8
Storage Bay Dist (ft)	830								
Storage Blk Time (%)									
Queuing Penalty (veh)									

Queuing and Blocking Report

06/12/2025

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	107	192	87	75	136	95	105	136	158	38	58	162
Average Queue (ft)	48	81	38	26	67	43	63	66	83	9	14	88
95th Queue (ft)	90	150	68	59	123	86	100	117	133	25	40	145
Link Distance (ft)		572			552			348	348	348		868
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	90		500	150		165	165				170	
Storage Blk Time (%)	1	6			0							0
Queuing Penalty (veh)	2	13			0							0

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	207
Average Queue (ft)	112
95th Queue (ft)	186
Link Distance (ft)	868
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	103	140	137	121	104	60	100	135	98	127	131	155
Average Queue (ft)	33	64	77	49	45	19	40	64	35	57	73	94
95th Queue (ft)	76	116	123	96	82	48	83	112	75	106	115	144
Link Distance (ft)			1222	1222				782	782			342
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	220	220			320	210	210			205	205	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	NB	NB	NB	SB	SB	SB	SB	SB	B25	B25
Directions Served	T	T	R	L	L	T	T	TR	T	T
Maximum Queue (ft)	162	120	91	88	108	162	284	367	44	120
Average Queue (ft)	103	50	33	29	52	81	89	226	2	10
95th Queue (ft)	148	97	66	67	92	134	220	360	26	76
Link Distance (ft)	342	342				306	306	306	183	183
Upstream Blk Time (%)							0	7	0	0
Queuing Penalty (veh)							0	21	0	2
Storage Bay Dist (ft)			75	210	210					
Storage Blk Time (%)		2	0							
Queuing Penalty (veh)		2	0							

Intersection: 6: N. Pepper Ave & I-10 WB On/Off-Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	T	T	T	T	R
Maximum Queue (ft)	258	200	62	45	39	93	67	114
Average Queue (ft)	121	62	20	15	9	40	16	64
95th Queue (ft)	202	149	50	43	33	80	50	103
Link Distance (ft)	1146			216	216	342	342	342
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		180	130					
Storage Blk Time (%)	1	0						
Queuing Penalty (veh)	4	0						

Intersection: 7: N. Pepper Ave & I-10 EB On/Off-Ramps

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	L	LTR	T	TR	L	L	T
Maximum Queue (ft)	184	188	54	38	237	198	39
Average Queue (ft)	87	103	13	11	116	71	4
95th Queue (ft)	151	164	38	33	191	159	21
Link Distance (ft)		1305	718	718	214	214	214
Upstream Blk Time (%)					0	0	
Queuing Penalty (veh)					0	0	
Storage Bay Dist (ft)	830						
Storage Blk Time (%)							
Queuing Penalty (veh)							

Queuing and Blocking Report

06/12/2025

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	115	240	98	125	233	138	164	192	208	68	86	190
Average Queue (ft)	60	107	37	31	107	57	75	96	117	16	30	94
95th Queue (ft)	113	191	66	77	189	105	126	164	182	43	68	161
Link Distance (ft)		572			552			348	348	348		868
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	90		500	150		165	165				170	
Storage Blk Time (%)	8	9			3	0	0	0				0
Queuing Penalty (veh)	36	22			1	0	0	1				0

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	246
Average Queue (ft)	140
95th Queue (ft)	221
Link Distance (ft)	868
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	95	127	177	173	162	105	153	198	191	128	174	240
Average Queue (ft)	31	61	109	80	75	36	65	117	97	64	88	131
95th Queue (ft)	70	104	165	148	131	81	128	184	171	111	138	196
Link Distance (ft)			1222	1222				782	782			342
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	220	220			320	210	210			205	205	
Storage Blk Time (%)								0			0	0
Queuing Penalty (veh)								0			0	1

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	NB	NB	NB	SB	SB	SB	SB	SB	B25	B25
Directions Served	T	T	R	L	L	T	T	TR	T	T
Maximum Queue (ft)	231	158	96	78	116	237	320	403	182	285
Average Queue (ft)	138	39	46	28	54	127	198	357	25	165
95th Queue (ft)	199	111	85	61	91	209	369	438	123	352
Link Distance (ft)	342	342				306	306	306	183	183
Upstream Blk Time (%)						0	0	56	0	27
Queuing Penalty (veh)						0	1	193	0	142
Storage Bay Dist (ft)			75	210	210					
Storage Blk Time (%)		1	2			0				
Queuing Penalty (veh)		1	5			0				

Intersection: 6: N. Pepper Ave & I-10 WB On/Off-Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	T	T	T	T	R
Maximum Queue (ft)	267	205	51	66	58	152	126	160
Average Queue (ft)	138	84	9	17	10	78	34	98
95th Queue (ft)	225	186	33	48	37	133	89	145
Link Distance (ft)	1146			216	216	342	342	342
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		180	130					
Storage Blk Time (%)	3	0						
Queuing Penalty (veh)	9	1						

Intersection: 7: N. Pepper Ave & I-10 EB On/Off-Ramps

Movement	EB	EB	NB	NB	SB	SB	SB	B23	B23
Directions Served	L	LTR	T	TR	L	L	T	T	T
Maximum Queue (ft)	227	241	53	53	288	260	24	128	94
Average Queue (ft)	128	146	15	17	189	136	2	17	6
95th Queue (ft)	204	218	43	42	301	259	16	86	56
Link Distance (ft)		1305	718	718	214	214	214	216	216
Upstream Blk Time (%)					12	2		0	0
Queuing Penalty (veh)					25	5		0	0
Storage Bay Dist (ft)	830								
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	115	521	481	174	346	99	108	161	173	50	194	908
Average Queue (ft)	79	231	189	63	155	33	48	73	93	9	90	477
95th Queue (ft)	137	500	453	142	278	74	89	140	155	31	212	982
Link Distance (ft)		572			552			348	348	348		868
Upstream Blk Time (%)		6			1							24
Queuing Penalty (veh)		0			0							0
Storage Bay Dist (ft)	90		500	150		165	165				170	
Storage Blk Time (%)	22	27	6	3	11	0		0			0	41
Queuing Penalty (veh)	140	118	21	11	7	0		0			0	31

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	912
Average Queue (ft)	505
95th Queue (ft)	985
Link Distance (ft)	868
Upstream Blk Time (%)	27
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	71	120	152	283	307	207	229	442	395	175	203	234
Average Queue (ft)	17	52	82	59	143	136	162	148	118	97	117	113
95th Queue (ft)	46	94	135	160	263	242	256	433	354	156	175	178
Link Distance (ft)			1222	1222				782	782			342
Upstream Blk Time (%)								1	0			
Queuing Penalty (veh)								0	0			
Storage Bay Dist (ft)	220	220			320	210	210			205	205	
Storage Blk Time (%)					1	1	14	0		0	0	0
Queuing Penalty (veh)					2	2	22	0		0	0	1

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	NB	NB	NB	SB	SB	SB	SB	SB	B25	B25
Directions Served	T	T	R	L	L	T	T	TR	T	T
Maximum Queue (ft)	222	215	100	79	166	323	310	402	145	296
Average Queue (ft)	136	104	47	22	50	176	243	381	9	273
95th Queue (ft)	197	176	103	60	107	296	379	394	75	299
Link Distance (ft)	342	342				306	306	306	183	183
Upstream Blk Time (%)						0	1	73	0	58
Queuing Penalty (veh)						2	3	384	0	459
Storage Bay Dist (ft)			75	210	210					
Storage Blk Time (%)		14	1			2				
Queuing Penalty (veh)		13	2			2				

Intersection: 6: N. Pepper Ave & I-10 WB On/Off-Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	T	T	T	T	R
Maximum Queue (ft)	506	205	36	31	44	316	298	300
Average Queue (ft)	208	139	10	5	4	187	153	157
95th Queue (ft)	393	256	34	23	21	329	322	252
Link Distance (ft)	1146			216	216	342	342	342
Upstream Blk Time (%)						2	1	0
Queuing Penalty (veh)						12	6	2
Storage Bay Dist (ft)		180	130					
Storage Blk Time (%)	11	1						
Queuing Penalty (veh)	45	3						

Intersection: 7: N. Pepper Ave & I-10 EB On/Off-Ramps

Movement	EB	EB	NB	NB	SB	SB	SB	B23	B23
Directions Served	L	LTR	T	TR	L	L	T	T	T
Maximum Queue (ft)	227	258	63	39	317	306	90	282	266
Average Queue (ft)	125	155	13	14	275	251	6	173	150
95th Queue (ft)	208	231	42	36	351	350	49	343	330
Link Distance (ft)		1305	718	718	214	214	214	216	216
Upstream Blk Time (%)					65	33		13	7
Queuing Penalty (veh)					213	108		64	36
Storage Bay Dist (ft)	830								
Storage Blk Time (%)									
Queuing Penalty (veh)									

Queuing and Blocking Report

06/12/2025

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	113	167	75	89	144	77	87	144	154	43	61	176
Average Queue (ft)	51	78	37	22	69	26	46	72	91	11	21	96
95th Queue (ft)	99	146	63	59	120	62	77	130	144	30	52	154
Link Distance (ft)		572			552			348	348	348		868
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	90		500	150		165	165				170	
Storage Blk Time (%)	3	5			0			0				0
Queuing Penalty (veh)	13	14			0			0				0

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	211
Average Queue (ft)	108
95th Queue (ft)	187
Link Distance (ft)	868
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	101	144	131	108	112	69	96	130	103	126	146	152
Average Queue (ft)	32	74	71	42	49	24	42	68	42	67	81	85
95th Queue (ft)	69	125	116	86	90	51	80	116	89	113	124	137
Link Distance (ft)			1222	1222				782	782			342
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	220	220			320	210	210			205	205	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	NB	NB	NB	SB	SB	SB	SB	SB	B25	B25
Directions Served	T	T	R	L	L	T	T	TR	T	T
Maximum Queue (ft)	160	137	100	78	88	193	285	376	34	138
Average Queue (ft)	100	56	38	28	50	94	103	236	1	17
95th Queue (ft)	147	112	77	62	79	164	244	396	25	91
Link Distance (ft)	342	342				306	306	306	183	183
Upstream Blk Time (%)							0	14		0
Queuing Penalty (veh)							0	38		2
Storage Bay Dist (ft)			75	210	210					
Storage Blk Time (%)		2	0			0				
Queuing Penalty (veh)		2	0			0				

Intersection: 6: N. Pepper Ave & I-10 WB On/Off-Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	T	T	T	T	R
Maximum Queue (ft)	265	203	59	57	36	91	70	133
Average Queue (ft)	129	75	22	16	10	47	16	62
95th Queue (ft)	226	176	52	47	34	86	47	105
Link Distance (ft)	1146			216	216	342	342	342
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		180	130					
Storage Blk Time (%)	3	0						
Queuing Penalty (veh)	9	1						

Intersection: 7: N. Pepper Ave & I-10 EB On/Off-Ramps

Movement	EB	EB	NB	NB	SB	SB	SB	B23
Directions Served	L	LTR	T	TR	L	L	T	T
Maximum Queue (ft)	146	170	54	42	260	202	38	34
Average Queue (ft)	81	102	16	11	137	93	4	1
95th Queue (ft)	135	161	42	33	220	186	22	11
Link Distance (ft)		1305	718	718	214	214	214	216
Upstream Blk Time (%)					1	0		
Queuing Penalty (veh)					2	0		
Storage Bay Dist (ft)	830							
Storage Blk Time (%)								
Queuing Penalty (veh)								

Queuing and Blocking Report

06/12/2025

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	115	389	174	102	231	102	114	194	210	45	120	240
Average Queue (ft)	79	139	40	26	117	49	66	110	132	15	32	108
95th Queue (ft)	130	287	113	69	204	87	99	171	189	36	78	194
Link Distance (ft)		572			552			348	348	348		868
Upstream Blk Time (%)		0										
Queuing Penalty (veh)		0										
Storage Bay Dist (ft)	90		500	150		165	165				170	
Storage Blk Time (%)	18	15			5			0				1
Queuing Penalty (veh)	81	41			2			1				0

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	290
Average Queue (ft)	147
95th Queue (ft)	247
Link Distance (ft)	868
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	116	138	205	190	157	132	144	187	180	161	184	256
Average Queue (ft)	40	70	117	90	79	41	73	116	98	77	101	142
95th Queue (ft)	85	114	180	155	132	94	132	174	166	133	158	216
Link Distance (ft)			1222	1222				782	782			342
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	220	220			320	210	210			205	205	
Storage Blk Time (%)			0					0		0	0	0
Queuing Penalty (veh)			0					0		0	0	1

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	NB	NB	NB	SB	SB	SB	SB	SB	B25	B25
Directions Served	T	T	R	L	L	T	T	TR	T	T
Maximum Queue (ft)	278	202	100	88	104	237	305	410	160	255
Average Queue (ft)	151	64	53	29	53	123	175	327	13	96
95th Queue (ft)	224	152	97	68	90	201	340	455	85	274
Link Distance (ft)	342	342				306	306	306	183	183
Upstream Blk Time (%)	0						0	40	0	12
Queuing Penalty (veh)	0						1	137	0	62
Storage Bay Dist (ft)			75	210	210					
Storage Blk Time (%)		1	3			0				
Queuing Penalty (veh)		2	8			0				

Intersection: 6: N. Pepper Ave & I-10 WB On/Off-Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	T	T	T	T	R
Maximum Queue (ft)	335	205	52	60	45	190	148	168
Average Queue (ft)	156	104	6	22	11	89	44	100
95th Queue (ft)	264	214	30	51	37	153	106	149
Link Distance (ft)	1146			216	216	342	342	342
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		180	130					
Storage Blk Time (%)	4	0						
Queuing Penalty (veh)	16	1						

Intersection: 7: N. Pepper Ave & I-10 EB On/Off-Ramps

Movement	EB	EB	NB	NB	SB	SB	SB	B23	B23
Directions Served	L	LTR	T	TR	L	L	T	T	T
Maximum Queue (ft)	255	252	54	39	306	263	18	156	109
Average Queue (ft)	136	156	16	16	203	153	1	27	16
95th Queue (ft)	217	231	44	37	311	280	8	132	98
Link Distance (ft)		1305	718	718	214	214	214	216	216
Upstream Blk Time (%)					15	5		1	0
Queuing Penalty (veh)					34	11		3	1
Storage Bay Dist (ft)	830								
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	115	531	456	162	480	143	152	158	164	48	194	902
Average Queue (ft)	78	304	231	84	189	69	81	70	88	8	101	553
95th Queue (ft)	143	617	543	167	391	121	130	130	145	29	229	1038
Link Distance (ft)		572			552			348	348	348		868
Upstream Blk Time (%)		17			3							29
Queuing Penalty (veh)		0			0							0
Storage Bay Dist (ft)	90		500	150		165	165				170	
Storage Blk Time (%)	29	30	13	10	13	0	0	0			0	48
Queuing Penalty (veh)	187	133	46	33	9	0	0	0			0	37

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	901
Average Queue (ft)	585
95th Queue (ft)	1031
Link Distance (ft)	868
Upstream Blk Time (%)	35
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	79	114	154	128	276	222	233	472	396	205	223	245
Average Queue (ft)	23	50	87	54	122	120	162	155	127	102	124	130
95th Queue (ft)	59	94	138	105	218	228	248	467	376	179	190	195
Link Distance (ft)			1222	1222				782	782			342
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	220	220			320	210	210			205	205	
Storage Blk Time (%)					0	1	13	0		0	1	0
Queuing Penalty (veh)					0	1	20	1		0	2	1

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	NB	NB	NB	SB	SB	SB	SB	SB	B25	B25
Directions Served	T	T	R	L	L	T	T	TR	T	T
Maximum Queue (ft)	257	197	100	80	193	335	316	405	223	293
Average Queue (ft)	150	100	44	28	58	168	224	381	19	272
95th Queue (ft)	214	173	101	63	123	285	373	395	124	299
Link Distance (ft)	342	342				306	306	306	183	183
Upstream Blk Time (%)						0	0	74	0	59
Queuing Penalty (veh)						1	2	395	0	476
Storage Bay Dist (ft)			75	210	210					
Storage Blk Time (%)		14	0			2				
Queuing Penalty (veh)		12	1			2				

Intersection: 6: N. Pepper Ave & I-10 WB On/Off-Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	T	T	T	T	R
Maximum Queue (ft)	497	205	47	36	44	307	296	242
Average Queue (ft)	219	152	10	6	6	169	125	145
95th Queue (ft)	388	262	35	28	26	297	272	212
Link Distance (ft)	1146			216	216	342	342	342
Upstream Blk Time (%)						0	0	
Queuing Penalty (veh)						3	1	
Storage Bay Dist (ft)		180	130					
Storage Blk Time (%)	13	1						
Queuing Penalty (veh)	54	3						

Intersection: 7: N. Pepper Ave & I-10 EB On/Off-Ramps

Movement	EB	EB	NB	NB	SB	SB	SB	B23	B23
Directions Served	L	LTR	T	TR	L	L	T	T	T
Maximum Queue (ft)	300	328	57	55	319	283	30	258	246
Average Queue (ft)	154	179	18	15	259	223	2	122	98
95th Queue (ft)	252	282	47	43	361	339	15	303	287
Link Distance (ft)		1305	718	718	214	214	214	216	216
Upstream Blk Time (%)					45	21		9	5
Queuing Penalty (veh)					150	68		45	26
Storage Bay Dist (ft)	830								
Storage Blk Time (%)									
Queuing Penalty (veh)									

Queuing and Blocking Report

06/12/2025

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	110	168	97	75	164	94	111	143	150	32	60	190
Average Queue (ft)	56	76	42	27	70	47	63	74	96	10	18	96
95th Queue (ft)	104	136	74	61	128	81	96	125	142	27	48	159
Link Distance (ft)		572			552			348	348	348		868
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	90		500	150		165	165				170	
Storage Blk Time (%)	4	5			0			0				0
Queuing Penalty (veh)	14	14			0			0				0

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	231
Average Queue (ft)	128
95th Queue (ft)	205
Link Distance (ft)	868
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	116	136	142	116	130	59	106	122	107	132	147	187
Average Queue (ft)	38	70	76	46	53	22	50	65	41	63	79	101
95th Queue (ft)	84	125	121	93	96	51	90	108	87	112	121	152
Link Distance (ft)			1222	1222				782	782			342
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	220	220			320	210	210			205	205	
Storage Blk Time (%)											0	0
Queuing Penalty (veh)											0	0

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	NB	NB	NB	SB	SB	SB	SB	SB	B25	B25
Directions Served	T	T	R	L	L	T	T	TR	T	T
Maximum Queue (ft)	184	161	88	69	96	212	319	392	101	201
Average Queue (ft)	108	58	40	27	50	100	175	331	7	68
95th Queue (ft)	158	115	77	57	83	173	360	438	61	216
Link Distance (ft)	342	342				306	306	306	183	183
Upstream Blk Time (%)							0	38	0	6
Queuing Penalty (veh)							1	117	0	28
Storage Bay Dist (ft)			75	210	210					
Storage Blk Time (%)		3	1			0				
Queuing Penalty (veh)		3	2			0				

Intersection: 6: N. Pepper Ave & I-10 WB On/Off-Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	T	T	T	T	R
Maximum Queue (ft)	333	205	70	53	44	121	100	135
Average Queue (ft)	148	91	20	17	11	54	22	73
95th Queue (ft)	273	205	57	48	38	96	63	113
Link Distance (ft)	1146			216	216	342	342	342
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		180	130					
Storage Blk Time (%)	5	0						
Queuing Penalty (veh)	17	1						

Intersection: 7: N. Pepper Ave & I-10 EB On/Off-Ramps

Movement	EB	EB	NB	NB	SB	SB	SB	B23
Directions Served	L	LTR	T	TR	L	L	T	T
Maximum Queue (ft)	172	192	54	44	279	223	30	34
Average Queue (ft)	91	114	14	12	151	107	3	2
95th Queue (ft)	149	173	42	36	253	216	19	22
Link Distance (ft)		1305	718	718	214	214	214	216
Upstream Blk Time (%)					3	1		
Queuing Penalty (veh)					5	1		
Storage Bay Dist (ft)	830							
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	115	349	165	119	274	121	146	224	233	77	100	264
Average Queue (ft)	76	154	66	29	119	61	74	111	131	19	39	128
95th Queue (ft)	131	368	254	80	205	105	118	184	200	52	78	216
Link Distance (ft)		572			552			348	348	348		868
Upstream Blk Time (%)		2							0			
Queuing Penalty (veh)		0							0			
Storage Bay Dist (ft)	90		500	150		165	165				170	
Storage Blk Time (%)	21	13	0		4	0	0	1				1
Queuing Penalty (veh)	99	37	0		2	0	0	2				1

Intersection: 1: San Bernardino Ave & N. Pepper Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	314
Average Queue (ft)	179
95th Queue (ft)	271
Link Distance (ft)	868
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	85	128	188	178	196	117	142	206	192	147	204	243
Average Queue (ft)	34	65	118	91	79	41	67	120	105	71	101	150
95th Queue (ft)	72	116	173	155	142	91	128	184	174	124	168	214
Link Distance (ft)			1222	1222				782	782			342
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	220	220			320	210	210			205	205	
Storage Blk Time (%)						0	0	0			0	1
Queuing Penalty (veh)						0	0	0			0	2

Intersection: 5: N. Pepper Ave & W. Valley Blvd

Movement	NB	NB	NB	SB	SB	SB	SB	SB	B25	B25
Directions Served	T	T	R	L	L	T	T	TR	T	T
Maximum Queue (ft)	231	180	100	100	172	254	306	408	229	296
Average Queue (ft)	153	59	50	40	65	134	228	373	16	235
95th Queue (ft)	215	145	91	84	127	216	384	429	117	363
Link Distance (ft)	342	342				306	306	306	183	183
Upstream Blk Time (%)							0	73	0	49
Queuing Penalty (veh)							1	280	0	280
Storage Bay Dist (ft)			75	210	210					
Storage Blk Time (%)		1	2				1			
Queuing Penalty (veh)		1	7				1			

Intersection: 6: N. Pepper Ave & I-10 WB On/Off-Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	T	T	T	T	R
Maximum Queue (ft)	355	205	33	71	54	173	147	188
Average Queue (ft)	170	117	7	22	12	91	47	105
95th Queue (ft)	292	237	28	58	42	152	113	159
Link Distance (ft)	1146			216	216	342	342	342
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		180	130					
Storage Blk Time (%)	7	1						
Queuing Penalty (veh)	24	2						

Intersection: 7: N. Pepper Ave & I-10 EB On/Off-Ramps

Movement	EB	EB	NB	NB	SB	SB	SB	B23	B23
Directions Served	L	LTR	T	TR	L	L	T	T	T
Maximum Queue (ft)	278	279	66	51	321	283	24	227	200
Average Queue (ft)	150	170	17	15	237	185	1	54	37
95th Queue (ft)	226	244	48	41	347	307	10	187	155
Link Distance (ft)		1305	718	718	214	214	214	216	216
Upstream Blk Time (%)					30	8		1	0
Queuing Penalty (veh)					73	19		4	1
Storage Bay Dist (ft)	830								
Storage Blk Time (%)									
Queuing Penalty (veh)									