BEYOND FOOD MART PALMDALE (25TH STREET & AVE R) TRAFFIC IMPACT ANALYSIS

City of Palmdale

November 23, 2022

gandhi

Traffic Engineering • Transportation Planning • Parking • Noise & Vibration
Air Quality • Global Climate Change • Health Risk Assessment

BEYOND FOOD MART PALMDALE (25TH STREET & AVE R) TRAFFIC IMPACT ANALYSIS

City of Palmdale

November 23, 2022

prepared by

Perrie Ilercil, P.E. (AZ)
Giancarlo Ganddini, PE, PTP

GANDDINI GROUP, INC.
555 Parkcenter Drive, Suite 225
Santa Ana, California 92705
(714) 795-3100 | ganddini.com

Project No. 19524

TABLE OF CONTENTS

EXECUTIVE SUMMARY IV

1. INTRODUCTION 1

Purpose and Objectives 1
Project Description 1
Scope of Analysis 1
Study Area 1
Analysis Scenarios 2

2. METHODOLOGY 7

Level of Service/Operational Analysis Methodology (Non-CEQA) 7
Intersections: Highway Capacity Manual Delay Methodology 7
Transportation Effects 7
Vehicle Miles Traveled Analytical Methodology (CEQA) 8

3. EXISTING CONDITIONS 9

Existing Roadway System 9
Pedestrian Facilities 9
Transit Facilities 10
General Plan Context 10
Bicycle Facilities Master Plan 10
Designated Truck Routes 10
Existing Roadway Volumes 10
Existing Intersection Level of Service 10

4. PROJECT TRIP FORECASTS 23

Project Trip Generation 23
Pass-By Trip Adjustments 23
Project Trip Distribution & Assignment 23

5. FUTURE VOLUME FORECASTS 30

Method of Projection 30
Ambient Growth 30
Other Developments 30
Analysis Scenario Volumes 30
Existing Plus Project 30
Opening Year (2024) Without Project 30
Opening Year (2024) With Project 30

6. FUTURE LEVELS OF SERVICE ANALYSIS 45

Existing Plus Project 45
Opening Year (2024) Without Project 45
Opening Year (2024) With Project 45
Traffic Signal Warrant Analysis 45

7. SITE ACCESS & ON-SITE CIRCULATION 49

Project Design Features 49
Site Access Queuing Analysis 50
Sight Distance Evaluation 50
Restricted Use Area 52

8. IMPROVEMENTS & FAIR SHARE ANALYSIS 56

9. CONCLUSIONS 57

Project Trip Generation 57
Level of Service Analysis 57
Summary of Improvements 57

APPENDICES

Appendix A Glossary
Appendix B Scoping Agreement
Appendix C Traffic Count Data
Appendix D Intersection Level of Service Worksheets
Appendix E Traffic Signal Warrant Worksheet

LIST OF TABLES

Table 1. Existing Intersection Levels of Service 12
Table 2. Project Trip Generation 24
Table 3. Other Development Trip Generation 31
Table 4. Existing Plus Project Intersection Levels of Service & Project-Related Effect 46
Table 5. Opening Year (2024) Without Project Intersection Levels of Service 47
Table 6. Opening Year (2024) With Project Intersection Levels of Service & Project-Related Effect 48
Table 7. Site Access Queuing Analysis 53

LIST OF FIGURES

Figure 1. Regional Location Map 3
Figure 2. Project Location Map 4
Figure 3. Site Plan 5
Figure 4. Study Area 6
Figure 5. Existing Lane Geometry and Intersection Traffic Controls 13
Figure 6. Existing Pedestrian Facilities 14
Figure 7. Existing Transit Routes 15
Figure 8. City of Palmdale General Plan Circulation Element 16
Figure 9. City of Palmdale General Plan Roadway Cross-Sections 17
Figure 10. City of Palmdale Bicycle Facilities Master Plan 18
Figure 11. City of Palmdale Truck Routes 19
Figure 12. Existing Average Daily Traffic Volumes 20
Figure 13. Existing AM Peak Hour Intersection Turning Movement Volumes 21
Figure 14. Existing PM Peak Hour Intersection Turning Movement Volumes 22
Figure 15. Project Trip Distribution (Outbound) 25
Figure 16. Project Trip Distribution (Inbound) 26
Figure 17. Project Average Daily Traffic Volumes 27
Figure 18. Project AM Peak Hour Intersection Turning Movement Volumes 28
Figure 19. Project PM Peak Hour Intersection Turning Movement Volumes 29
Figure 20. Other Development Location Map 32
Figure 21. Other Development Average Daily Traffic Volumes 33
Figure 22. Other Development AM Peak Hour Intersection Turning Movement Volumes 34
Figure 23. Other Development PM Peak Hour Intersection Turning Movement Volumes 35
Figure 24. Existing Plus Project Average Daily Traffic Volumes 36
Figure 25. Existing Plus Project AM Peak Hour Intersection Turning Movement Volumes 37
Figure 26. Existing Plus Project PM Peak Hour Intersection Turning Movement Volumes 38
Figure 27. Opening Year (2024) Without Project Average Daily Traffic Volumes 39
Figure 28. Opening Year (2024) Without Project AM Peak Hour Intersection Turning Movement Volumes 40
Figure 29. Opening Year (2024) Without Project PM Peak Hour Intersection Turning Movement Volumes 41
Figure 30. Opening Year (2024) With Project Average Daily Traffic Volumes 42
Figure 31. Opening Year (2024) With Project AM Peak Hour Intersection Turning Movement Volumes 43
Figure 32. Opening Year (2024) With Project PM Peak Hour Intersection Turning Movement Volumes 44
Figure 33. Sight Distance Figure– Project Driveway at Avenue R 54
Figure 34. Sight Distance Figure – 25th Street at Project Driveway 55

EXECUTIVE SUMMARY

This section summarizes the proposed project, operational findings, and identifies recommendations (if any) as specified in this study.

Project Description

The 5.69-acre project site is located at the northwest corner of 25th Street East and Avenue R in the City of Palmdale California. The project site is currently vacant and zoned C-1.

The proposed project involves the construction of a 7,460 square foot convenience store gas station with eight (8) dual-sided fuel pumps (i.e., 16-vehicle fueling positions) and an approximately 1,790 square foot automatic car wash tunnel. The proposed project also involves the construction of a raised median on 25th Street along the project frontage. Vehicular access is proposed to be provided by one driveway at Avenue R providing right turn in/out and left turn in access and one driveway at 25th Street providing right in/out only access.

Project Trip Generation

The proposed project is forecast to generate a total of approximately 5,685 new daily trips, including 155 new trips during the AM peak hour and 185 new trips during the PM peak hour.

Level of Service Analysis

The study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Project and Opening Year (2024) With Project conditions. The proposed project is forecast to result in no substantial transportation effects for Existing Plus Project and Opening Year (2024) With Project conditions.

Summary of Improvements

Project design features (as detailed in the Site Access & On-Site Circulation section) involve improvements necessary to provide project site access and the construction of a raised median on 25th Street along the project site frontage.

Since the proposed project is not forecast to cause any substantial adverse transportation effects, no additional improvements or fair share contributions are recommended.

1. INTRODUCTION

This section introduces the proposed project, and the general scope of the analysis is identified.

PURPOSE AND OBJECTIVES

The purpose of this study is to evaluate the potential for transportation impacts resulting from the development of the proposed project in the context of the City of Palmdale's discretionary authority for conformance with locally established operational standards. Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with technical terms.

This study was prepared in consultation with the City of Palmdale staff and in accordance with the procedures and methodologies for assessing transportation impacts established by the City of Palmdale. To assess the project's conformance with local operational standards, this study evaluates the project's effect on traffic operations and, if necessary, identifies recommended improvements or corrective measures to alleviate operational deficiencies substantially caused or worsened by the proposed project. For compliance with California Environmental Quality Act (CEQA) requirements, the project VMT assessment is documented separately in the *Beyond Food Mart Palmdale (25th Street & Ave R) Vehicle Miles Traveled Assessment* (Ganddini Group, Inc., June 24, 2022).

PROJECT DESCRIPTION

The 5.69-acre project site is located at the northwest corner of 25th Street East and Avenue R in the City of Palmdale California. The project site is currently vacant and zoned C-1. Figure 1 and Figure 2 show the regional and project location maps.

The proposed project involves the construction of a 7,460 square foot convenience store gas station with eight (8) dual-sided fuel pumps (i.e., 16-vehicle fueling positions) and an approximately 1,790 square foot automatic car wash tunnel. The proposed project also involves the construction of a raised median on 25th Street along the project frontage. Vehicular access is proposed to be provided by one driveway at Avenue R providing right turn in/out and left turn in access and one driveway at 25th Street providing right in/out only access. Figure 3 illustrates the project site plan.

SCOPE OF ANALYSIS

The scope of this analysis was determined in consultation with the City of Palmdale staff as documented in the City-approved scoping agreement provided in Appendix B.

Study Area

Figure 4 illustrates the study area. In accordance with the City of Palmdale requirements, the study area was determined in consultation with the City of Palmdale engineering staff and consists of classified roadway intersections to which the project is forecast to contribute 50 or more peak hour trips. Based on the project trip generation and distribution forecasts presented later in this report, the study area consists of the following study intersections, each within the City of Palmdale jurisdiction:

1. 20th Street (NS) at Avenue R (EW) [1]
2. 25th Street (NS) Palmdale Boulevard (EW)
3. 25th Street (NS) at Avenue R (EW)
4. 25th Street Avenue (NS) at Avenue R-8 (EW)

[1] (NS) = north-south roadway; (EW) = east-west roadway.

5. 30th Street (NS) at Avenue R (EW)
6. Project Driveway (NS) at Avenue R (EW)
7. 25th Street (NS) at Project Driveway (EW)

ANALYSIS SCENARIOS

This study includes an evaluation of the following analysis scenarios for weekday AM and PM peak hour conditions:

- Existing
- Existing Plus Project
- Opening Year (2024) Without Project
- Opening Year (2024) With Project

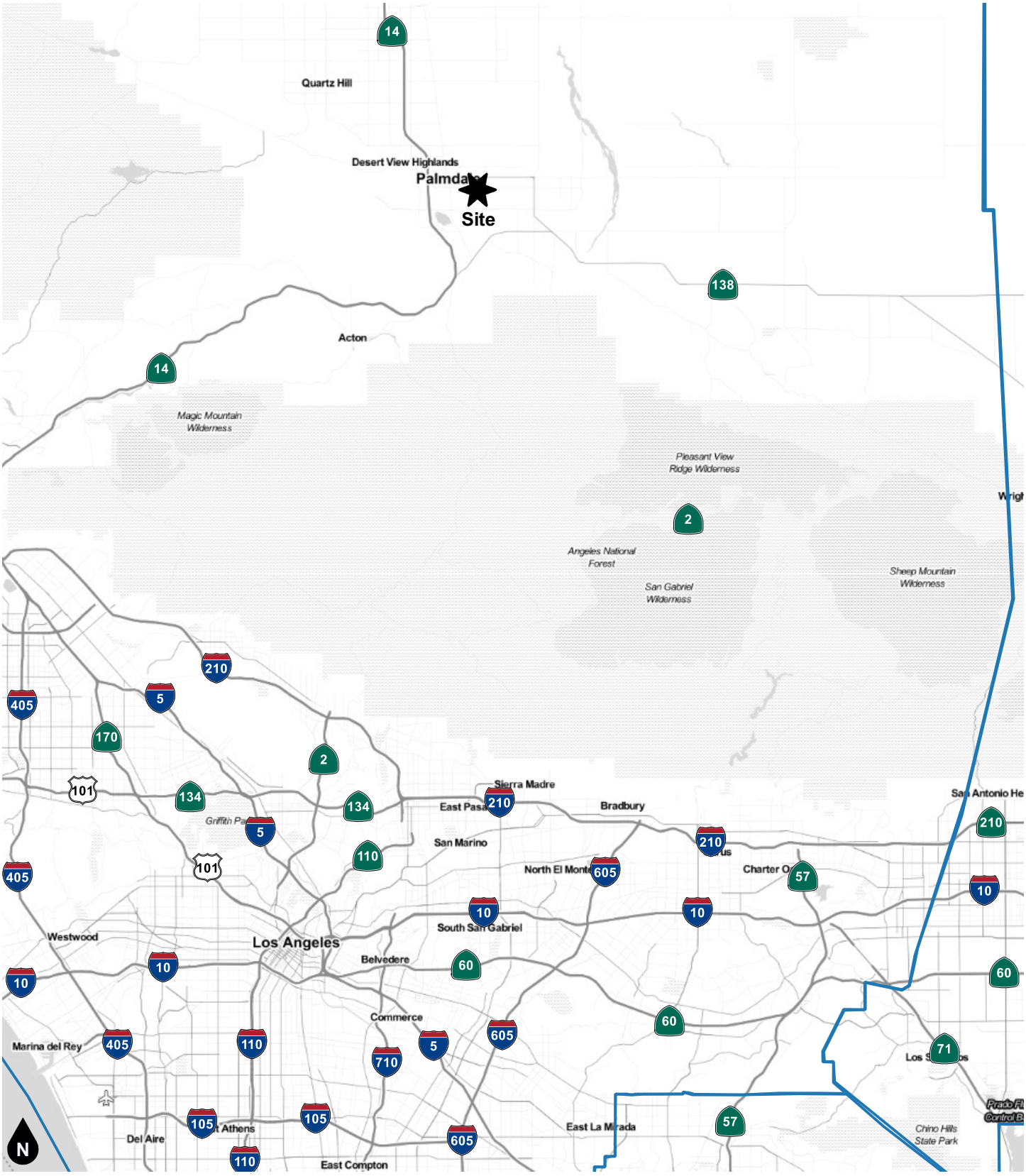


Figure 1
Regional Vicinity Map

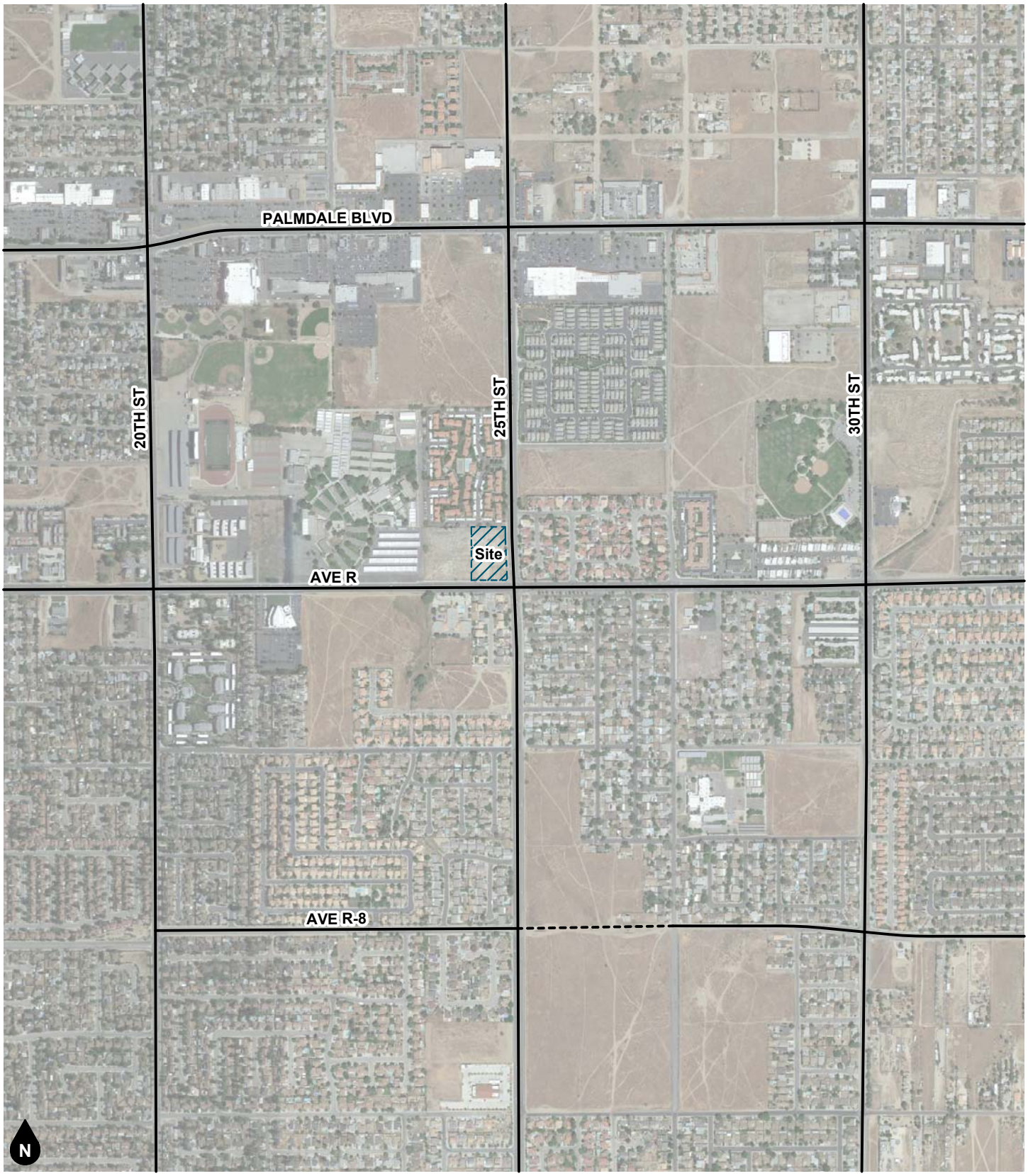


Figure 2
Project Location Map

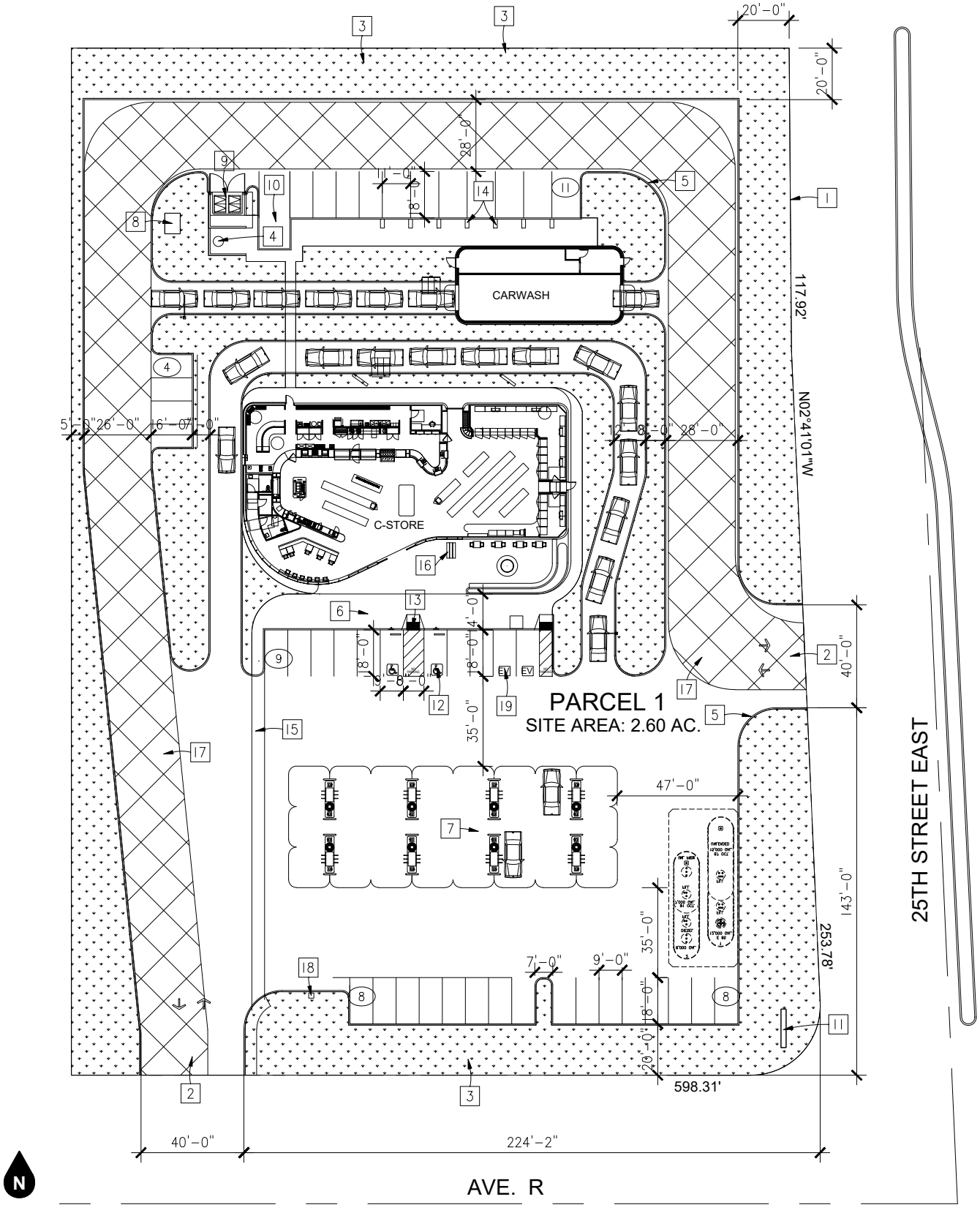
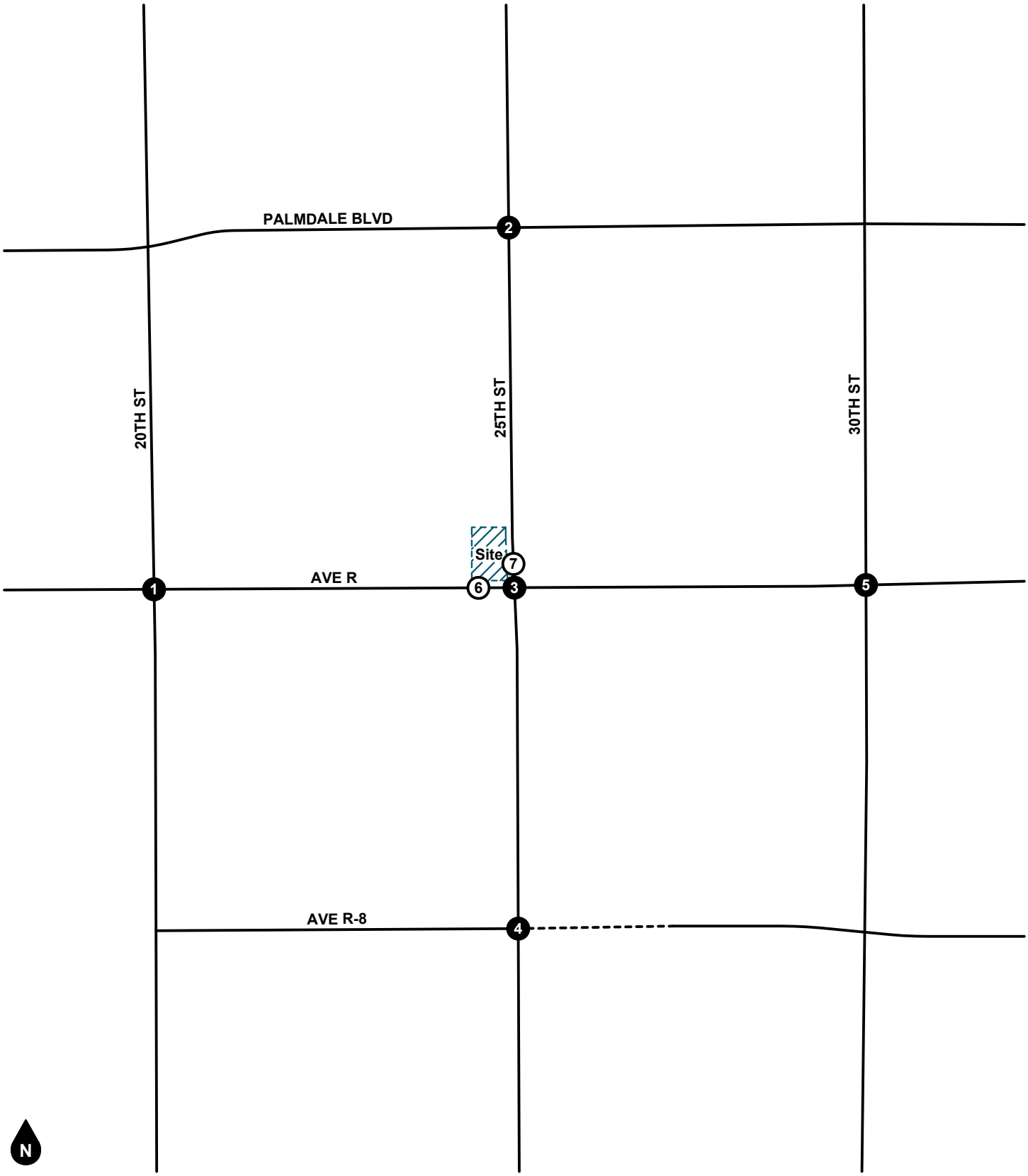


Figure 3
Site Plan



Legend

(#) Study Intersection

(#) Project Driveway

Figure 4
Study Area

2. METHODOLOGY

This section discusses the analysis methodologies used to assess transportation facility performance as adopted by the respective jurisdictional agencies. This traffic impact analysis is based on the City of Palmdale requirements and the County of Los Angeles *Transportation Impact Analysis Guidelines* (July 23, 2020) ["County TIA Guidelines"].

LEVEL OF SERVICE/OPERATIONAL ANALYSIS METHODOLOGY (NON-CEQA)

Level of Service analysis is performed for assessing conformance with General Plan and operational standards established by the applicable agencies. In accordance with current CEQA provisions, a project's effect on automobile delay (as measured by Level of Service) shall not constitute a significant environmental impact.

Intersections: Highway Capacity Manual Delay Methodology

City of Palmdale intersections are analyzed using the intersection delay methodology based on procedures contained in the *Highway Capacity Manual* (HCM) (Transportation Research Board, 7th Edition). The methodology considers the traffic volume and distribution of movements, traffic composition, geometric characteristics, and signalization details to calculate the average control delay per vehicle and corresponding Level of Service. At intersections with cross street stop control (i.e., one- or two-way stop control), the Level of Service is determined by the average control delay for the worst minor street approach or major street left-turn movement. Intersection delay analysis was performed with default capacity values and adjustment factors recommended in the HCM. The intersection Level of Service is based on the thresholds contained within the HCM.

Level of Service	Delay Methodology [1]	
	Signalized Intersection	Unsignalized Intersection
	Seconds per Vehicle	Seconds per Vehicle
A	≤ 10.0	≤ 10.0
B	> 10.0 to ≤ 20.0	> 10.0 to ≤ 15.0
C	> 20.0 to ≤ 35.0	> 15.0 to ≤ 25.0
D	> 35.0 to ≤ 55.0	> 25.0 to ≤ 35.0
E	> 55.0 to ≤ 80.0	> 35.0 to ≤ 50.0
F	> 80.0	> 50.0

1. Source: Transportation Research Board *Highway Capacity Manual* (7th Edition).

Level of Service is used to qualitatively describe the performance of a roadway facility, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure). Intersection analysis shall be performed using the Vistro software.

Transportation Effects

The City of Palmdale has established a minimum acceptable Level of Service D for peak hour intersection operations.

A substantial transportation effect is defined to occur at a signalized study intersection if the project causes intersection operations to degrade from an acceptable Level of Service (D or better) to an unacceptable Level of Service (E or F) or the project-related increase in delay is equal to or greater than 2.0 seconds at an intersection that is already operating at LOS E or F.

A substantial transportation effect is defined to occur at an unsignalized study intersection if one or more of the following conditions are met:

- The addition of project trips to a study intersection causes intersection operations to degrade from acceptable Level of Service (D or better) to an unacceptable Level of Service (E or F).

- The project-related increase in delay is equal to or greater than 2.0 seconds at an intersection that is already operating at LOS E or F.

- The intersection meets peak hour signal warrants either caused by project volumes, or project volumes are added at an intersection that meets peak hour signal warrants in the baseline scenario(s). Peak hour signal warrants should be determined based on the latest California Manual on Uniform Traffic Control Devices (CA MUTCD).

VEHICLE MILES TRAVELED ANALYTICAL METHODOLOGY (CEQA)

The metric used to evaluate the transportation impact of land use and transportation projects under CEQA is known as vehicle miles traveled (VMT). In general terms, VMT quantifies the amount and distance of automobile travel attributable to a project or region. As previously noted, the project VMT assessment is documented separately in the *Beyond Food Mart Palmdale (25th Street & Ave R) Vehicle Miles Traveled Assessment* (Ganddini Group, Inc., June 24, 2022).

3. EXISTING CONDITIONS

This section describes the existing transportation setting.

EXISTING ROADWAY SYSTEM

Figure 5 shows the lane geometry and intersection traffic controls for existing conditions based on a field survey of the study area. Regional access to the project site is provided by State Route 138 approximately one-half mile to the north and State Route 14 approximately 2.7 miles to the west of the project site. Local north-south circulation is provided by 20th Street, 25th Street, and 30th Street; and east-west circulation is provided by Palmdale Boulevard, Avenue R, and Avenue R-8.

Palmdale Boulevard: This four-lane divided (two-way left-turn lane) roadway trends in an east-west direction and is classified as the High Desert Corridor Alignment on the City of Palmdale circulation system in the study area. On-street parking is prohibited on both sides of the roadway. There are currently no designated bicycle facilities in the project vicinity. Sidewalks are generally provided along both sides of the roadway except along undeveloped lots and along the westbound approach to 20th Street. The posted speed is 45 miles per hour in the project vicinity.

Avenue R: This four-lane divided (two-way left-turn lane) roadway trends in an east-west direction and is classified as a Major Arterial on the City of Palmdale General Plan Circulation Element in the study area. On-street parking is prohibited on both sides of the roadway. There are currently no designated bicycle facilities west of 25th Street and a Class II bicycle lane (on-street, marked) is provided in both directions west of 25th Street; however, this roadway is a bikeway on the master plan. Sidewalks are generally provided along both sides of the roadway except along undeveloped lots. The posted speed in the project vicinity is 50 miles per hour.

Avenue R-8: This two-lane undivided roadway trends in an east-west direction and is classified as a Secondary Arterial on the City of Palmdale General Plan Circulation Element in the study area. There does not appear to be any on-street parking restrictions in the project vicinity. There are currently no designated bicycle facilities in the project vicinity. Sidewalks are provided along both sides of the roadway west of 25th Street and along developed portions east of 25th Street. The posted speed is 50 miles per hour west of 25th Street, 35 miles per hour between 27th Street and 30th Street, and 45 miles per hour east of 30th Street.

20th Street: This two-lane undivided roadway trends in a north-south direction and is classified as a Secondary Street on the City of Palmdale General Plan Circulation Element in the study area. On-street parking is prohibited on both sides of the roadway. There are currently no designated bicycle facilities. Sidewalks are complete in the project vicinity. The posted speed is 50 miles per hour in the project vicinity.

25th Street: This four-lane divided (two-way left-turn lane) roadway trends in a north-south direction and is classified as a Major Street on the City of Palmdale General Plan Circulation Element in the study area. On-street parking is generally prohibited on both sides of the roadway. There are currently no designated bicycle facilities. Sidewalks are generally provided along both sides of the roadway except along undeveloped lots. The posted speed is 50 miles per hour in the project vicinity.

30th Street: This three to five-lane divided (two-way left-turn lane) roadway trends in a north-south direction and is classified as a Major Street on the City of Palmdale General Plan Circulation Element in the study area. On-street parking is prohibited on both sides of the roadway north of Avenue R and on the east side of the roadway south of Avenue R., There are currently no designated bicycle facilities. Sidewalks are generally provided along both sides of the roadway except along undeveloped lots. The posted speed in the project vicinity is 50 miles per hour.

Pedestrian Facilities

Existing pedestrian facilities in the project vicinity are shown in Figure 6. As shown in Figure 6, sidewalks are currently provided along the project site frontage.

Transit Facilities

Figure 7 shows the existing Antelope Valley Transit Authority system map in the project vicinity. As shown in Figure 7, Routes 1 and 51 run along Palmdale Avenue and Route 2 runs along Avenue R. The bus stops located nearest to the site are for Route 2 and located on Avenue R approximately 150 west of 25th Street in the northwest and southwest quadrant of the intersection.

General Plan Context

Figure 8 shows the City of Palmdale General Plan Circulation Element roadway classifications map. This figure shows the nature and extent of arterial and collector highways that are needed to adequately serve the ultimate development depicted by the Land Use Element of the General Plan. The City of Palmdale standard roadway cross-sections are illustrated in Figure 9.

Bicycle Facilities Master Plan

The City of Palmdale Bicycle Master Plan is shown in Figure 10. This figure shows the bicycle facilities master plan. As shown in Figure 10, there is an existing bike route on 30th Street and Avenue R east of 25th Street, and a proposed bike route is planned for Avenue R west of 25th Street.

Designated Truck Routes

The City of Palmdale Truck Routes are shown in Figure 11. This figure shows the designated truck routes. As shown in Figure 11, Palmdale Boulevard is a designated truck route on the City Plan.

Existing Roadway Volumes

Figure 12 shows the existing average daily traffic volumes. The existing average daily traffic volumes have been factored from peak hour intersection turning movement volumes at locations using the following formula for each intersection leg:

PM Peak Hour (Approach Volume + Exit Volume) x 10.0 = Leg Volume

Figure 13 and Figure 14 show the existing AM and PM peak hour intersection turning movement volumes. Existing peak hour intersection turning movement volumes are based upon AM peak period and PM peak period intersection turning movement counts obtained in May 2022 during typical weekday conditions. The weekday AM peak period was counted between 7:00 AM and 9:00 AM and the weekday PM peak period was counted between 4:00 PM and 6:00 PM; these periods generally capture the peak times for commuter traffic when the roadway system is typically experiencing peak demand. The actual peak hour within each two-hour count period is determined based on the sum of the four consecutive 15-minute periods with the highest total volume entering the intersection. Thus, the weekday PM peak hour at one intersection may be 4:45 PM to 5:45 PM and may vary at other intersections depending on the four consecutive 15-minute periods that have the highest total volume. Intersection turning movement count worksheets are provided in Appendix C.

Existing Intersection Level of Service

The study intersection Levels of Service for Existing conditions are shown in Table 1. Detailed Level of Service worksheets are provided in Appendix D.

As shown in Table 1, the study intersections currently operate within acceptable Levels of Service (D or better) during the peak hours.

Table 1
Existing Intersection Levels of Service

Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
		Delay[2]	LOS[3]	Delay[2]	LOS
1. 20th Street at Avenue R	TS	32.0	C	25.8	C
2. 25th Street at Palmdale Boulevard	TS	24.3	C	25.9	C
3. 25th Street at Avenue R	TS	29.6	C	26.2	C
4. 25th Street at Avenue R-8	CSS	12.8	B	11.6	B
5. 30th Street at Avenue R	TS	24.0	C	24.0	C

Notes:

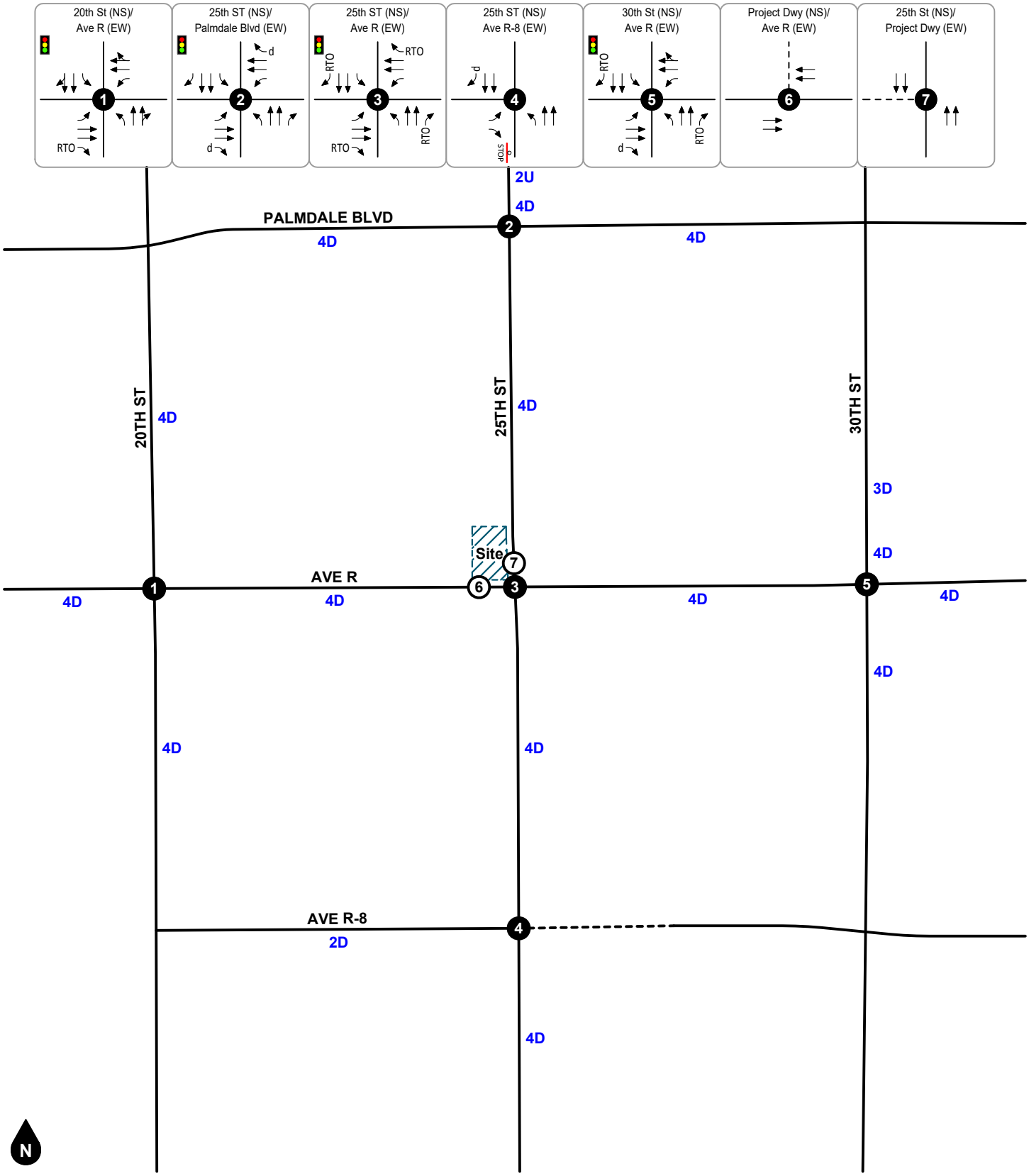
1. TS = Traffic Signal; CSS = Cross Street Stop, AWS = All Way Stop
2. Delay is shown in seconds per vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst minor street approach or major street left turn movement.
3. LOS = Level of Service

Table 1
Existing Intersection Levels of Service

Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
		Delay[2]	LOS[3]	Delay[2]	LOS
1. 20th Street at Avenue R	TS	32.0	C	25.8	C
2. 25th Street at Palmdale Boulevard	TS	24.3	C	25.9	C
3. 25th Street at Avenue R	TS	29.6	C	26.2	C
4. 25th Street at Avenue R-8	CSS	12.8	B	11.6	B
5. 30th Street at Avenue R	TS	24.0	C	24.0	C

Notes:

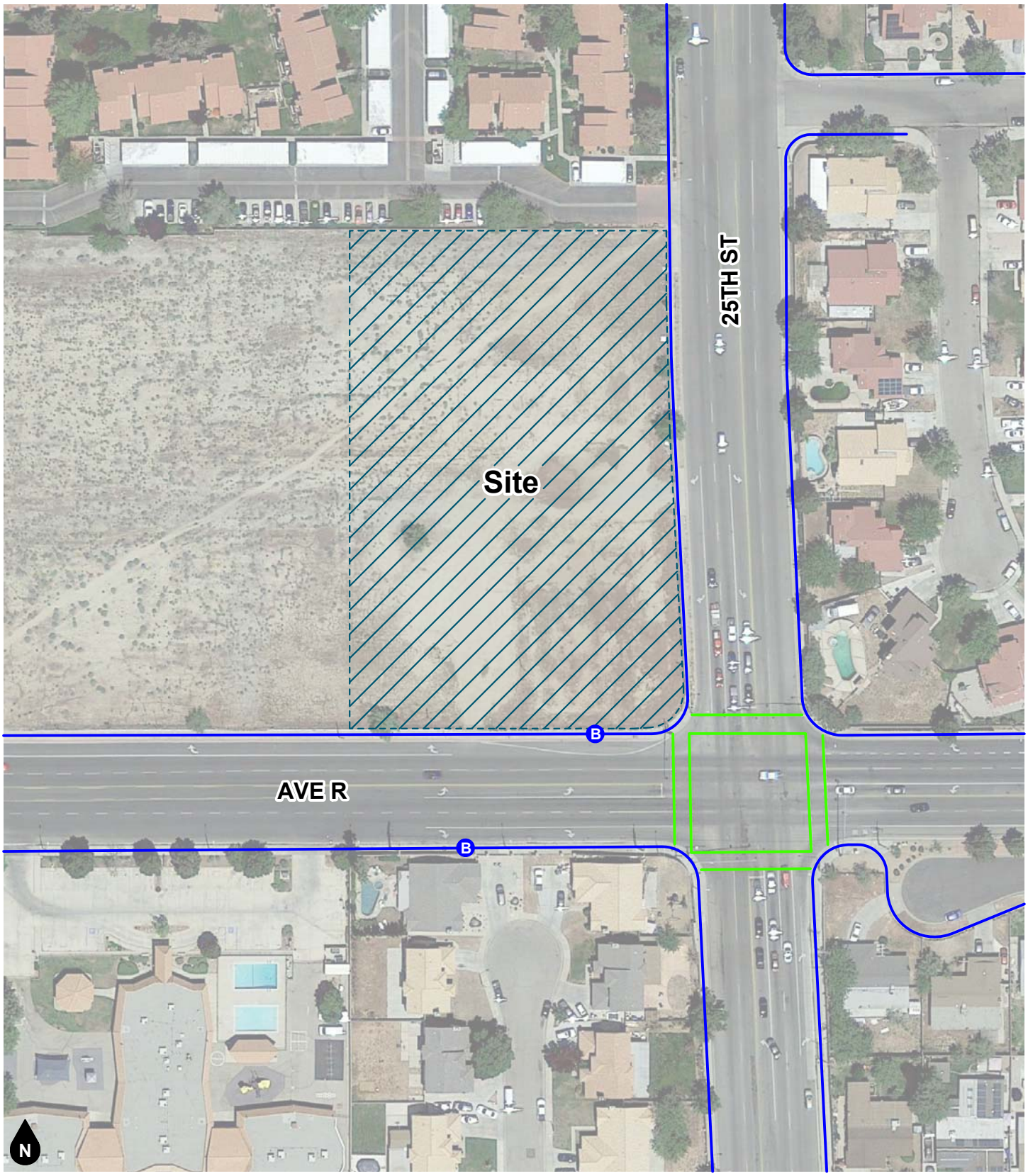
1. TS = Traffic Signal; CSS = Cross Street Stop, AWS = All Way Stop
2. Delay is shown in seconds per vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst minor street approach or major street left turn movement.
3. LOS = Level of Service



Legend

- Traffic Signal
- STOP Stop Sign
- #D #-Lane Divided Roadway
- #U #-Lane Undivided Roadway
- Existing Lane
- RTO Right Turn Overlap
- d De Facto Right Turn Lane
- Project Driveway

Figure 5
Existing Lane Geometry and Intersection Traffic Controls



Legend
- Sidewalk
- Cross Walk
- B Bus Stop

Figure 6
Existing Pedestrian Facilities

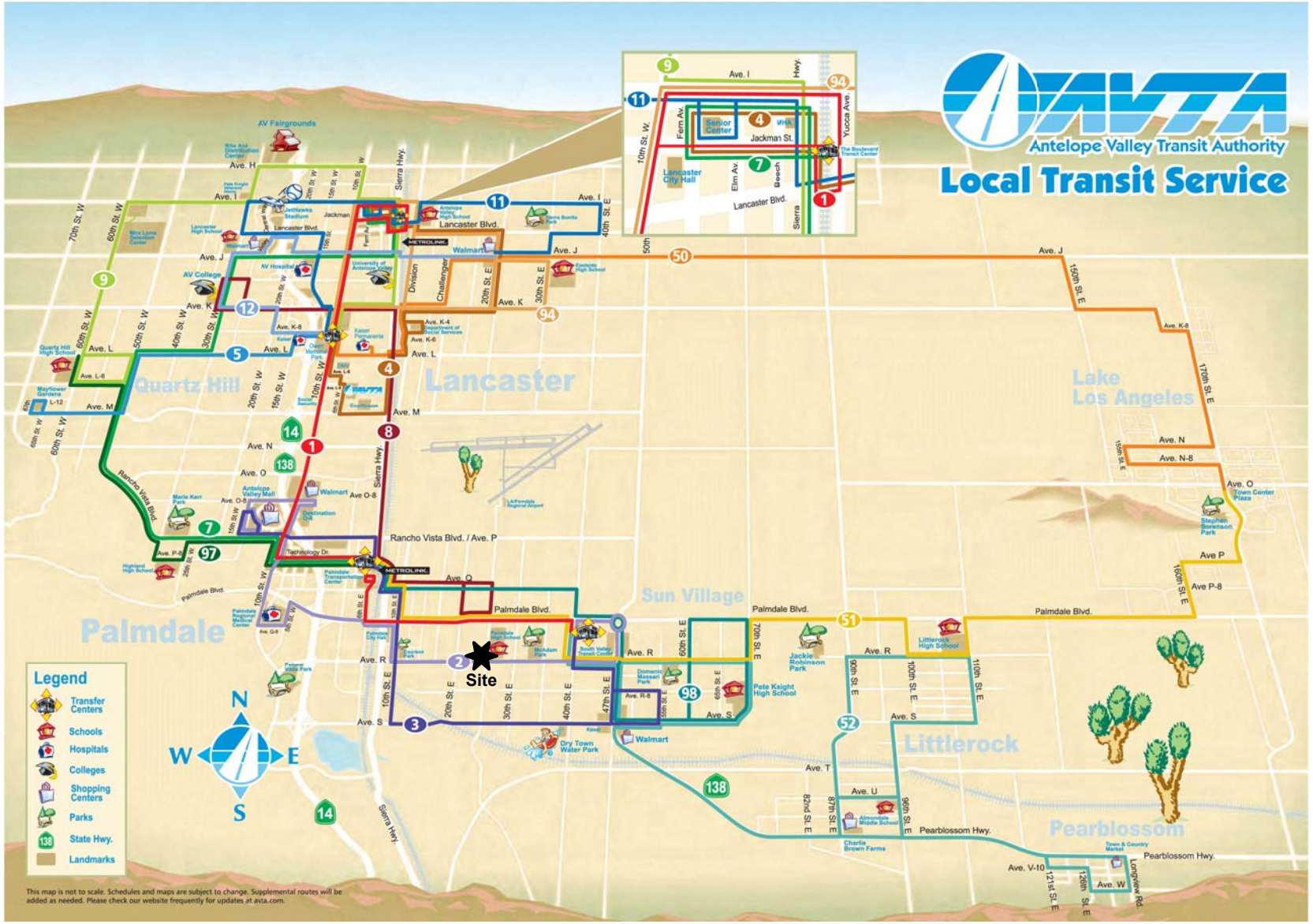


Figure 7
Existing Transit Routes

Source: Antelope Valley Transit Authority

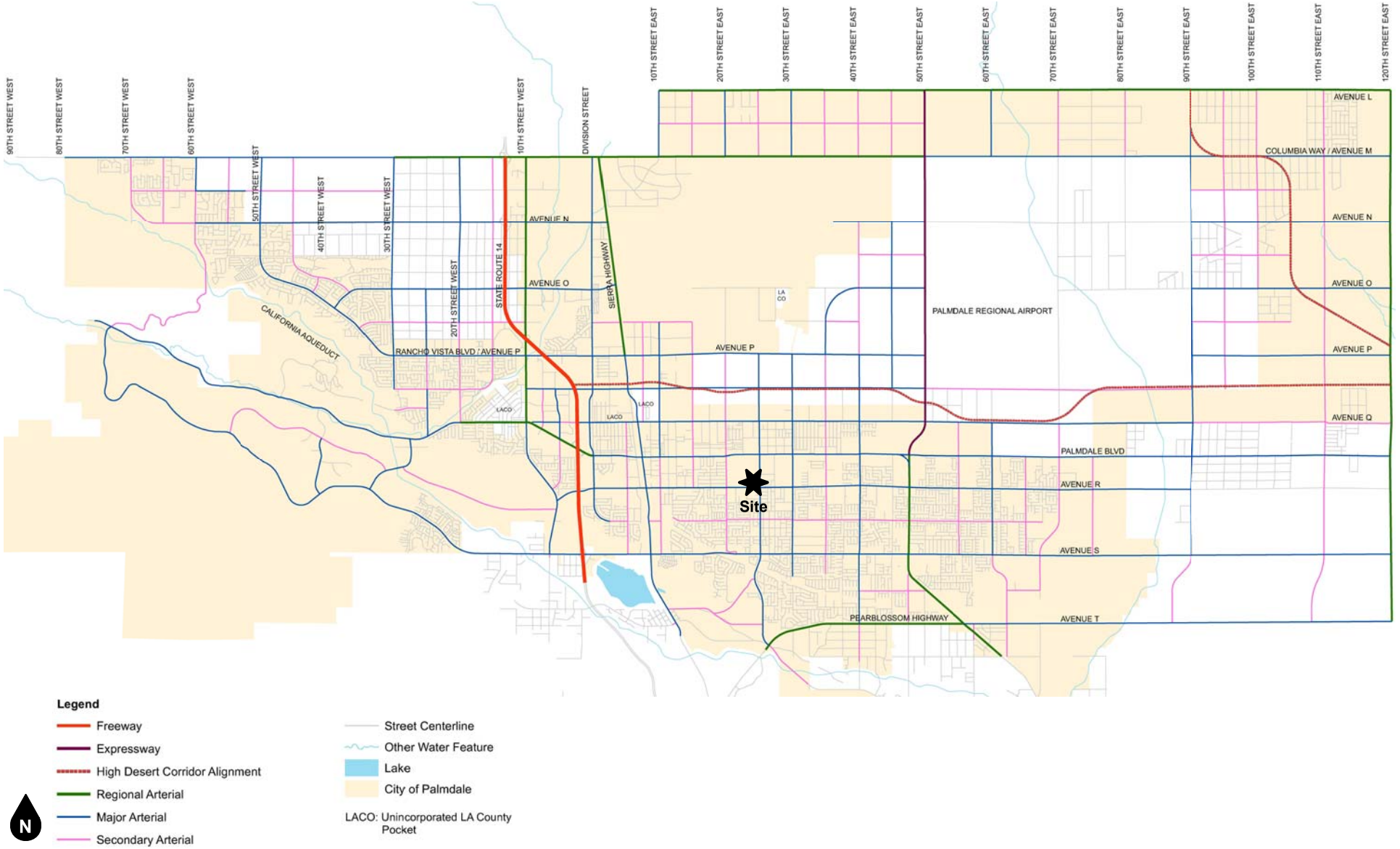


Figure 8
City of Palmdale General Plan Circulation Element

Source: City of Palmdale

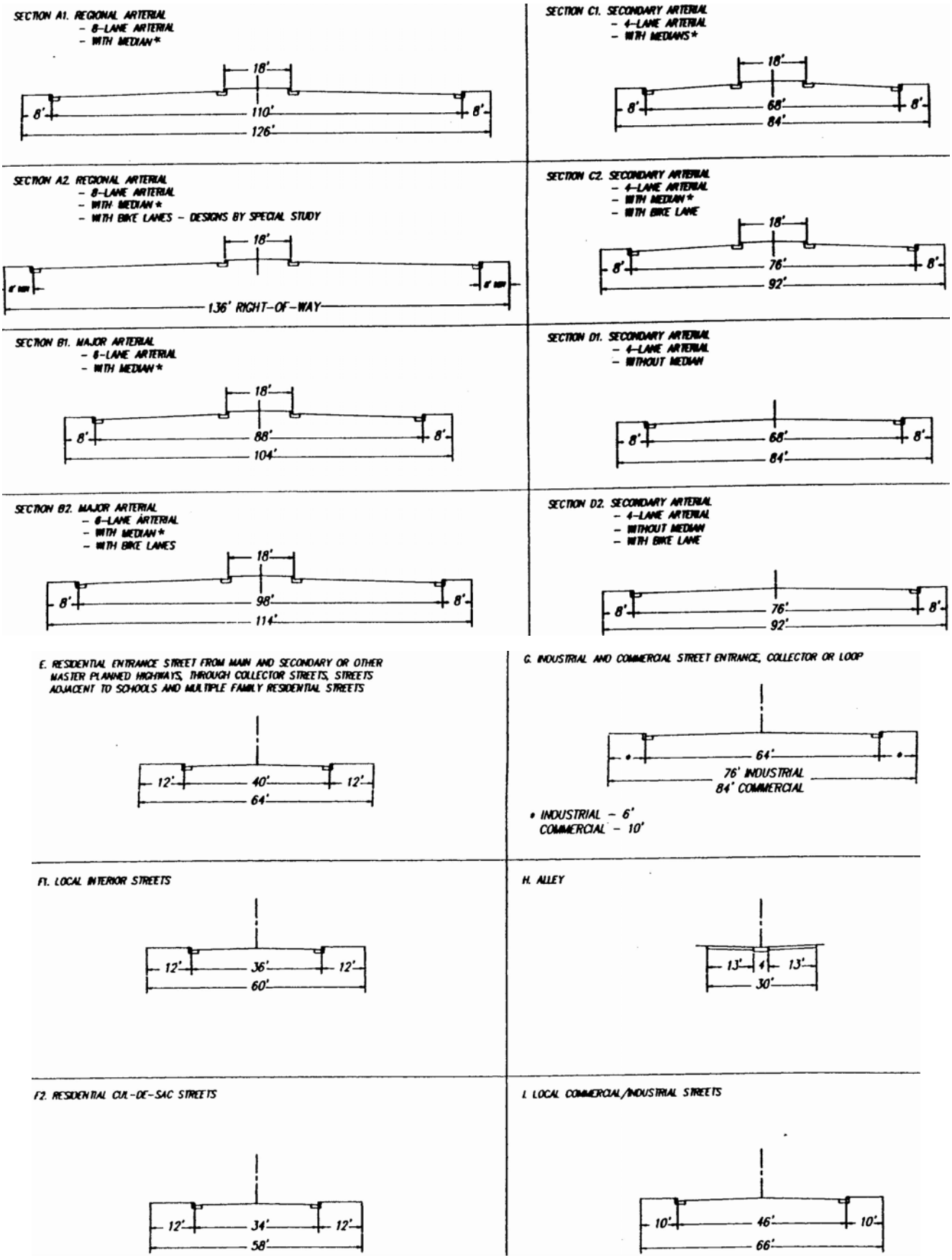


Figure 9
City of Palmdale General Plan Roadway Cross-Sections

Source: City of Palmdale

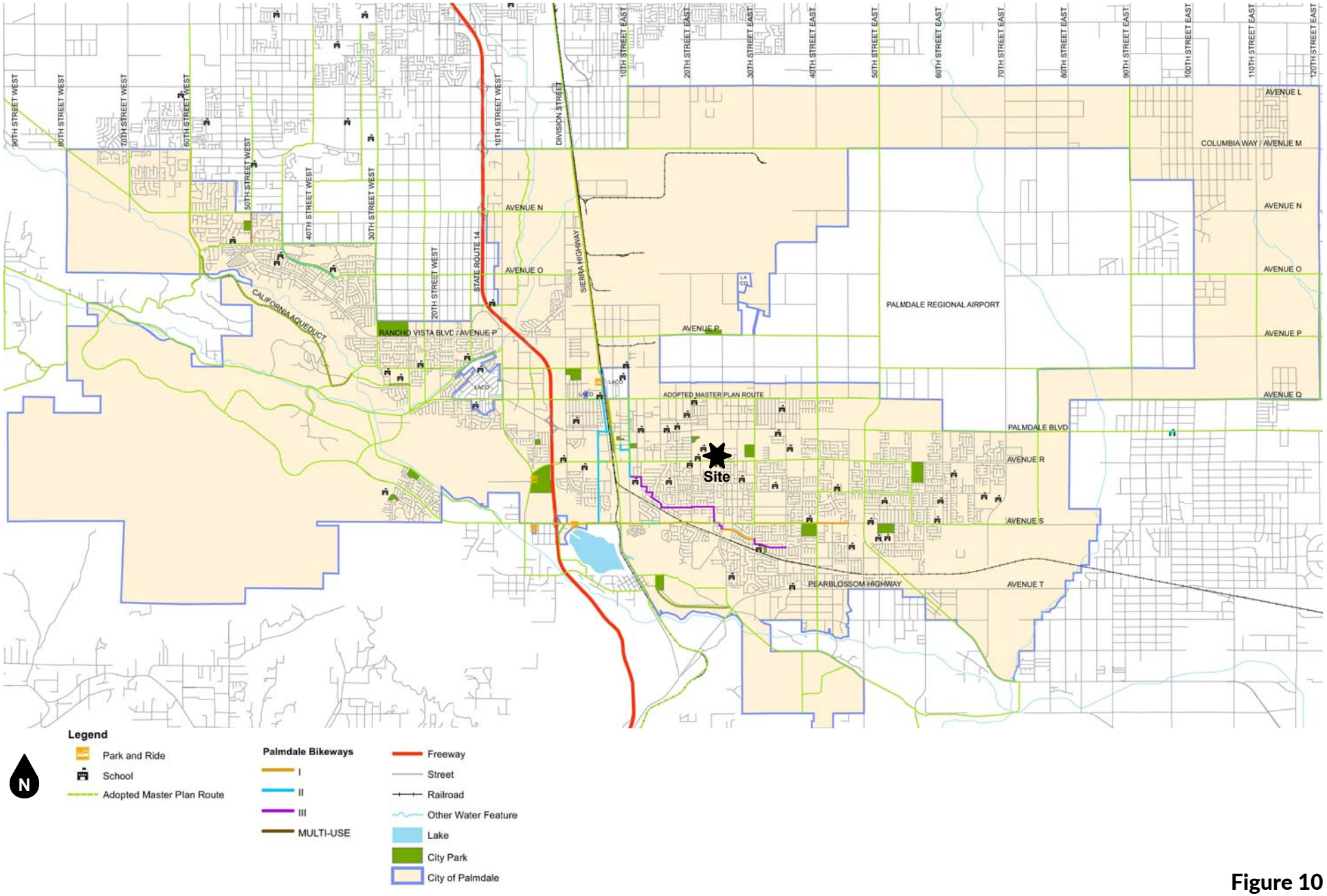
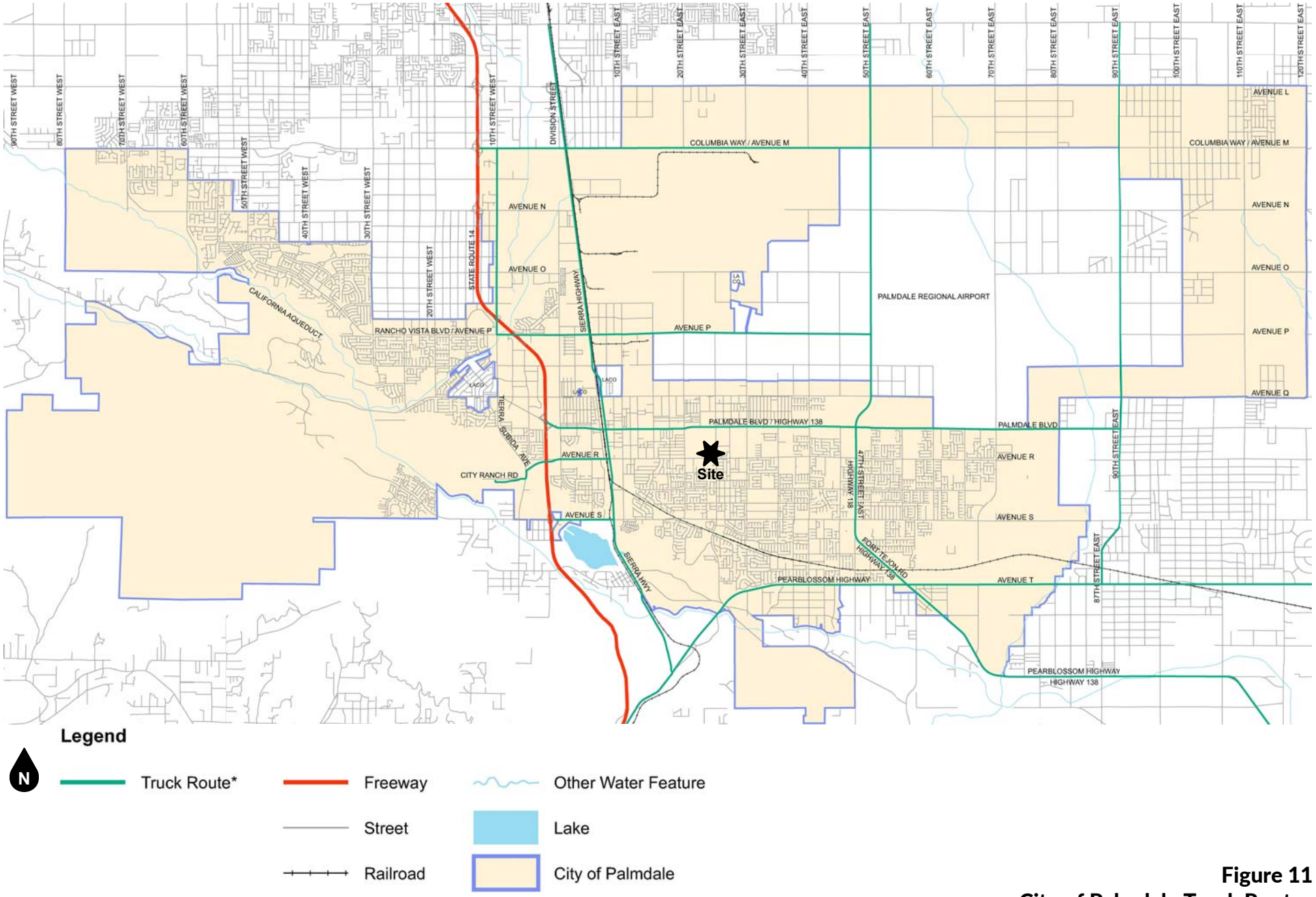


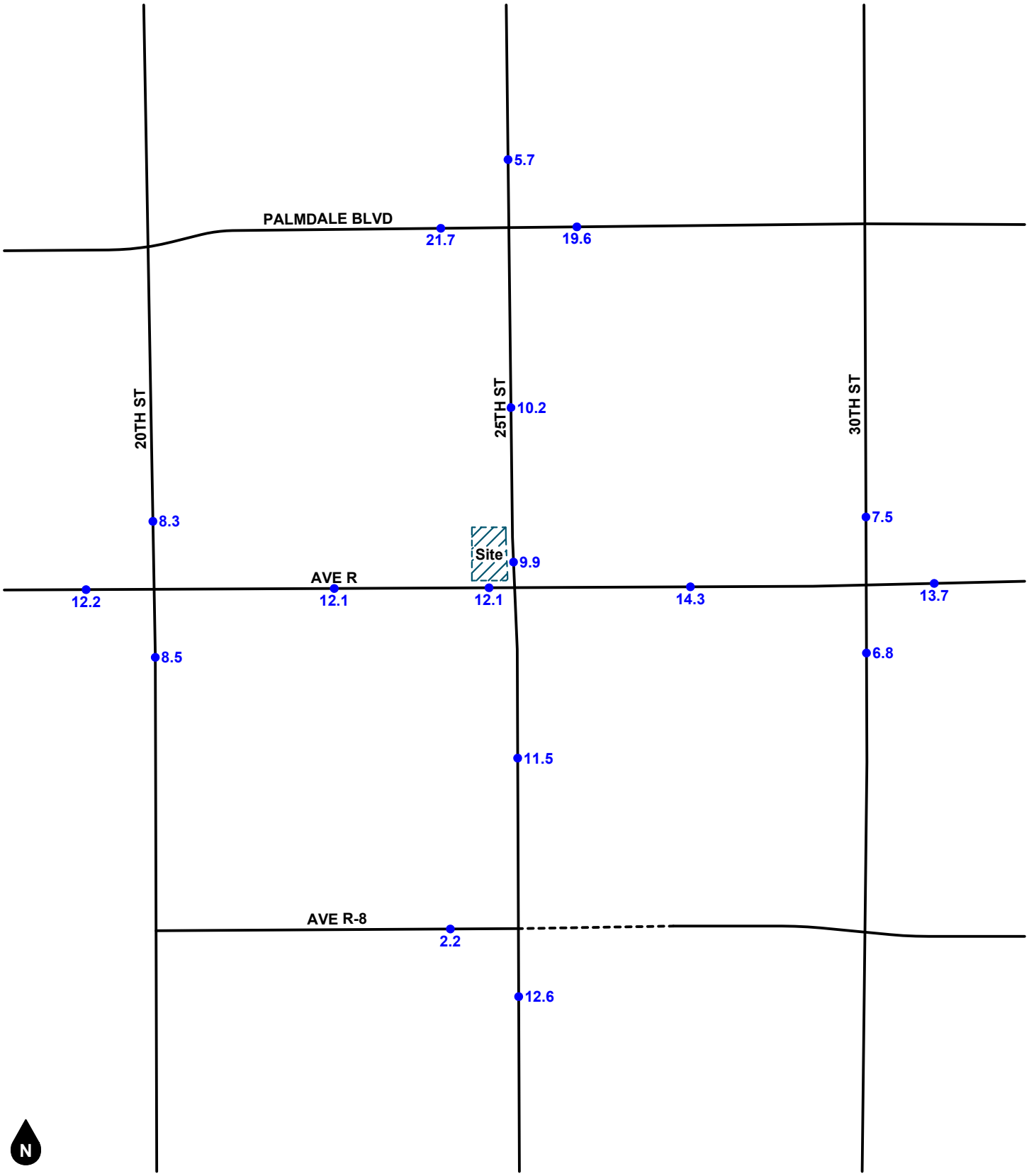
Figure 10
City of Palmdale Bicycle Facilities Master Plan

Source: City of Plamdale



Source: City of Palmdale

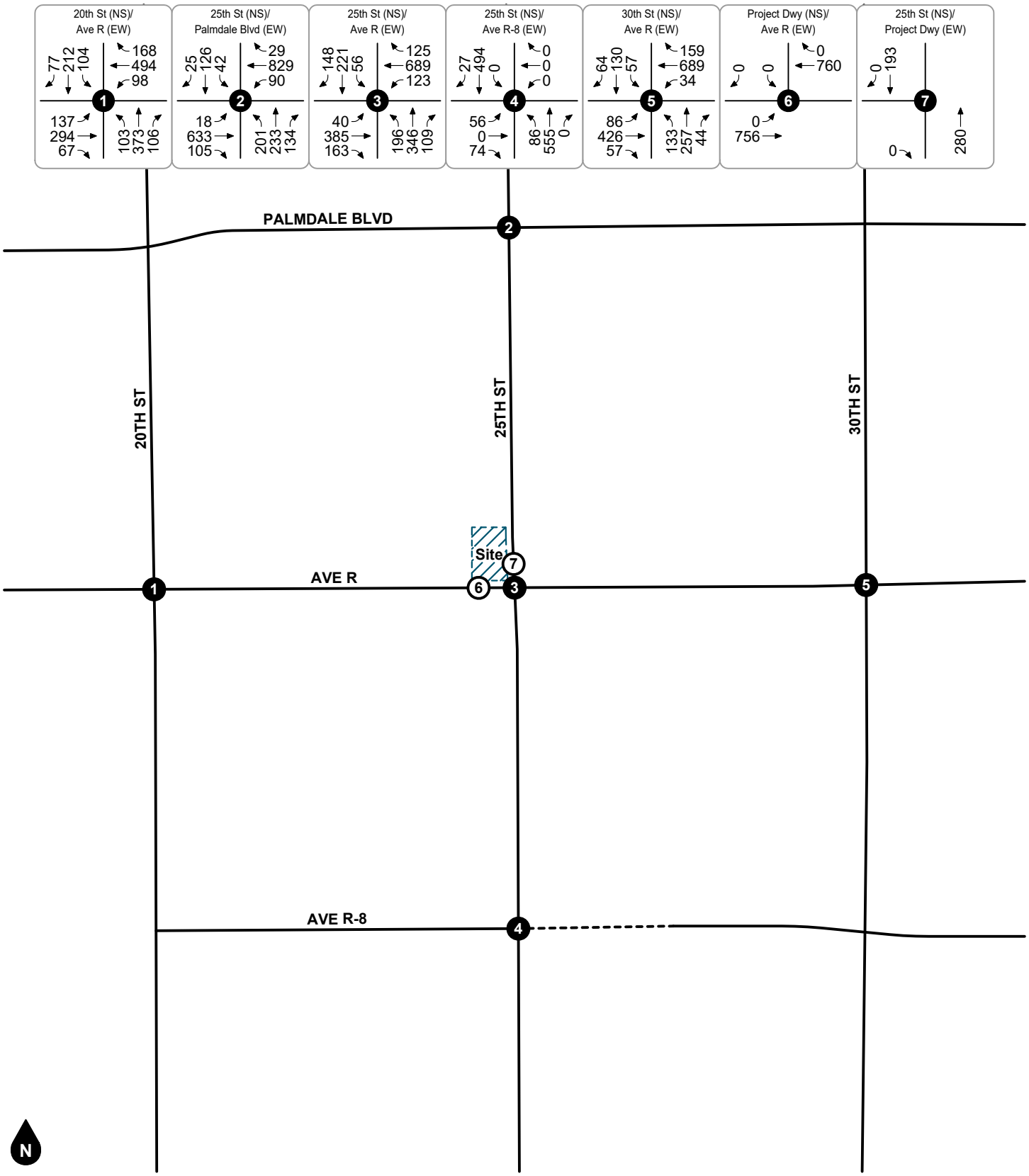
Figure 11
City of Palmdale Truck Routes



Legend

●## Vehicles Per Day (1,000's)

Figure 12
Existing Average Daily Traffic Volumes

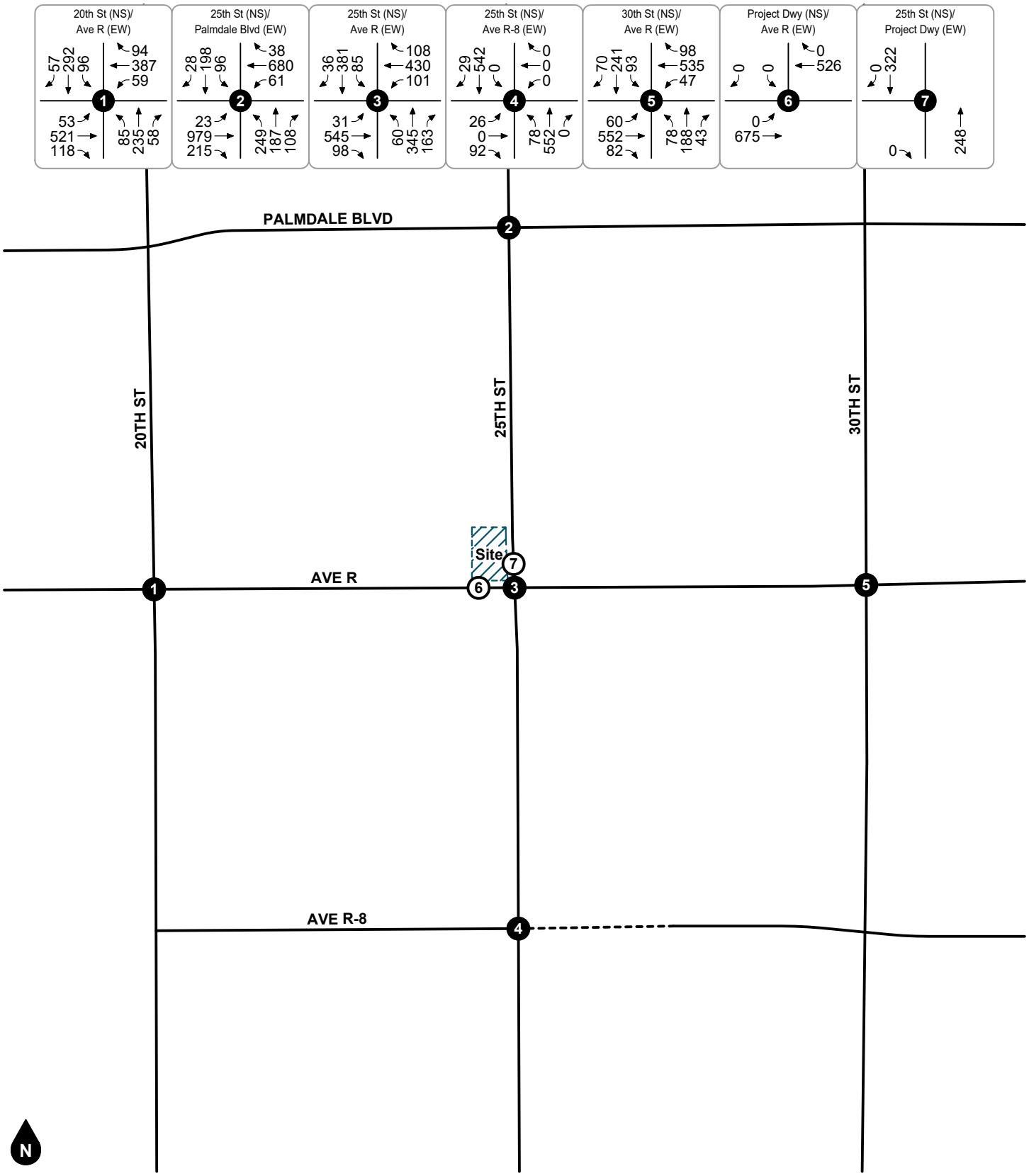


Legend

(#) Study Intersection

(#) Project Driveway

Figure 13
Existing AM Peak Hour Intersection Turning Movement Volumes



Legend

(#) Study Intersection

(#) Project Driveway

Figure 14
Existing PM Peak Hour Intersection Turning Movement Volumes

4. PROJECT TRIP FORECASTS

This section describes how project trip generation, trip distribution, and trip assignment forecasts were developed. The forecast project volumes are illustrated In Figures contained in this section.

PROJECT TRIP GENERATION

Table 2 shows the project trip generation is based on rates obtained from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition, 2021) for Land Use Codes 945 (Convenience Store Gas Station (5.5-10 TSF) and 948 (Automated Car Wash).

Internal Capture Adjustments

The project trip generation forecasts shown in Table 2 include applicable internal capture adjustments based the internal capture methodology recommended by ITE. Since the proposed project consists of two restaurant additions to an existing shopping center, a portion of the trips generated by the proposed land uses are expected to remain internal to the shopping center (e.g., a retail shopper from another on-site use who patrons one of the proposed restaurants). Since the trip generation rates contained in the ITE *Trip Generation Manual* represent vehicles entering and exiting at the site driveway(s), it is appropriate to reduce the initial trip generation forecast by the applicable internal capture rate when calculating the new trips generated by the project and added to the external roadway network. The ITE *Trip Generation Handbook* recommends use of the Transportation Research Board (TRB) *NCHRP Report 684* (2013) estimation tool worksheet to determine internal capture rates for trips within a mixed-use development. Internal capture calculations are included in the City-approved scoping agreement provided in Appendix B.

Pass-By Trip Adjustments

The project trip generation forecasts shown in Table 2 include pass-by trip adjustments based average pass-by rates obtained from the ITE *Trip Generation Manual*. Land uses such as shopping centers, restaurants, gas stations, and convenience stores will often locate next to busy roadways to attract motorists already on the street. Since the trip generation rates contained in the ITE *Trip Generation Manual* represent vehicles entering and exiting at the site driveway(s), it is appropriate to reduce the initial trip generation forecast by the applicable pass-by trip rate when calculating the net new trips that will be added to the surrounding street system. When there is no daily pass-by data provided in ITE *Trip Generation Manual Appendices*, the daily pass-by value is determined by the sum of the AM peak and PM peak pass-by values.

As shown in Table 2, the proposed project is forecast to generate a total of approximately 6,393 daily trips, including 540 trips during the AM peak hour and 508 trips during the PM peak hour. Pass-by trips are included at the project driveways. With application of pass-by trip adjustments for the surrounding street system, the proposed project is forecast to generate a total of approximately 5,685 new daily trips, including 155 new trips during the AM peak hour and 185 new trips during the PM peak hour.

PROJECT TRIP DISTRIBUTION & ASSIGNMENT

Figure 15 and Figure 16 show the forecast outbound and inbound directional distribution patterns for the project generated trips, respectively. The project trip distribution patterns were developed using engineering judgment in consultation with City engineering staff based on review of existing traffic data, surrounding land uses, and the local and regional roadway facilities in the project vicinity.

Based on the identified project trip generation and distributions, project-generated average daily traffic volumes are shown on Figure 17. Project-generated AM peak hour and PM peak hour intersection turning movement volumes are shown on Figure 18 and Figure 19.

Table 2
Project Trip Generation

Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			
Land Use	Source[1]	Land Use Variable[2]	% In	% Out	Rate	% In	% Out	Rate	Daily Rate
Automated Car Wash	ITE 948 [3]	CWT	*50%*	50%	*34.44*	50%	50%	77.50	*861.11*
Convenience Store Gas Station (5.5-10 ksf GFA)	ITE 945	VFP	50%	50%	31.60	50%	50%	26.90	345.75

Trips Generated									
			AM Peak Hour			PM Peak Hour			
Land Use	Source	Quantity	In	Out	Total	In	Out	Total	Daily
Convenience Store Gas Station (5.5-10 ksf GFA)	ITE 945	16 VFP	253	253	506	215	215	430	5,532
Pass-by Trips (76%AM, 75%PM)	ITE 945		*-192*	*-193*	*-385*	*-161*	*-162*	*-323*	*-708*
Subtotal			61	60	121	54	53	107	4,824
Automated Car Wash	ITE 948	1 CWT	17	17	34	39	39	78	861
Total Gross Trips (Without Pass-by Trip Adjustments)			270	270	540	254	254	508	6,393
Total Pass-by Trips			-192	-193	-385	-161	-162	-323	-708
TOTAL NEW TRIPS GENERATED			**78**	**77**	**155**	**93**	**92**	**185**	**5,685**

Notes:

1. ITE = Institute of Transportation Engineers *Trip Generation Manual* (11th Edition, 2021); ### = Land Use Code. All rates based on General Urban/Suburban setting.
2. CWT = Car Wash Tunnels; VFP = Vehicle Fuel Positions
3. In the absence of ITE trip rates for AM peak hour and daily, trip rates for these periods were determined based on the ratio relative to the PM peak hour in comparison to data from the San Diego Association of Governments (SANDAG) *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002).

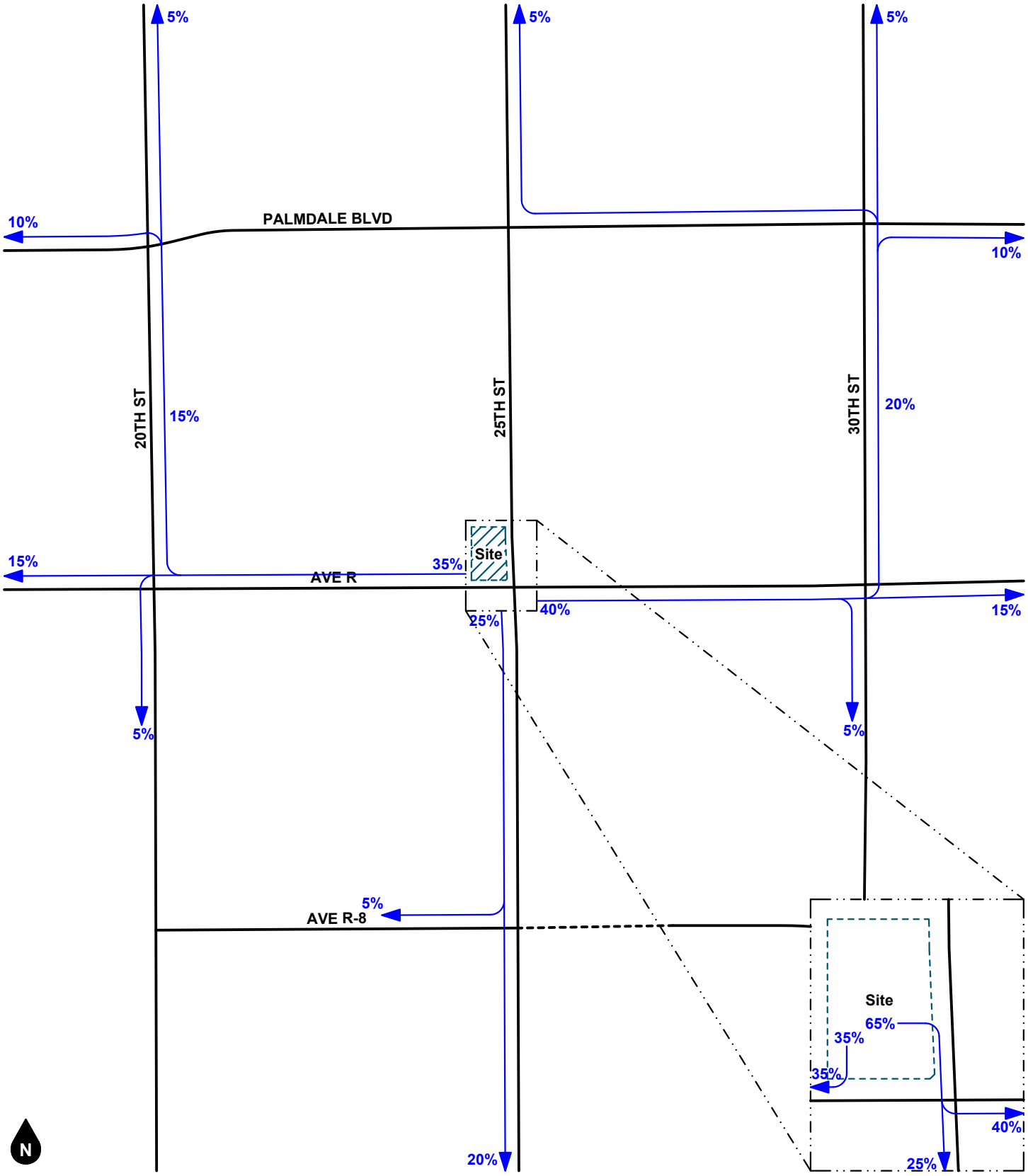


Figure 15
Project Outbound Trip Distribution

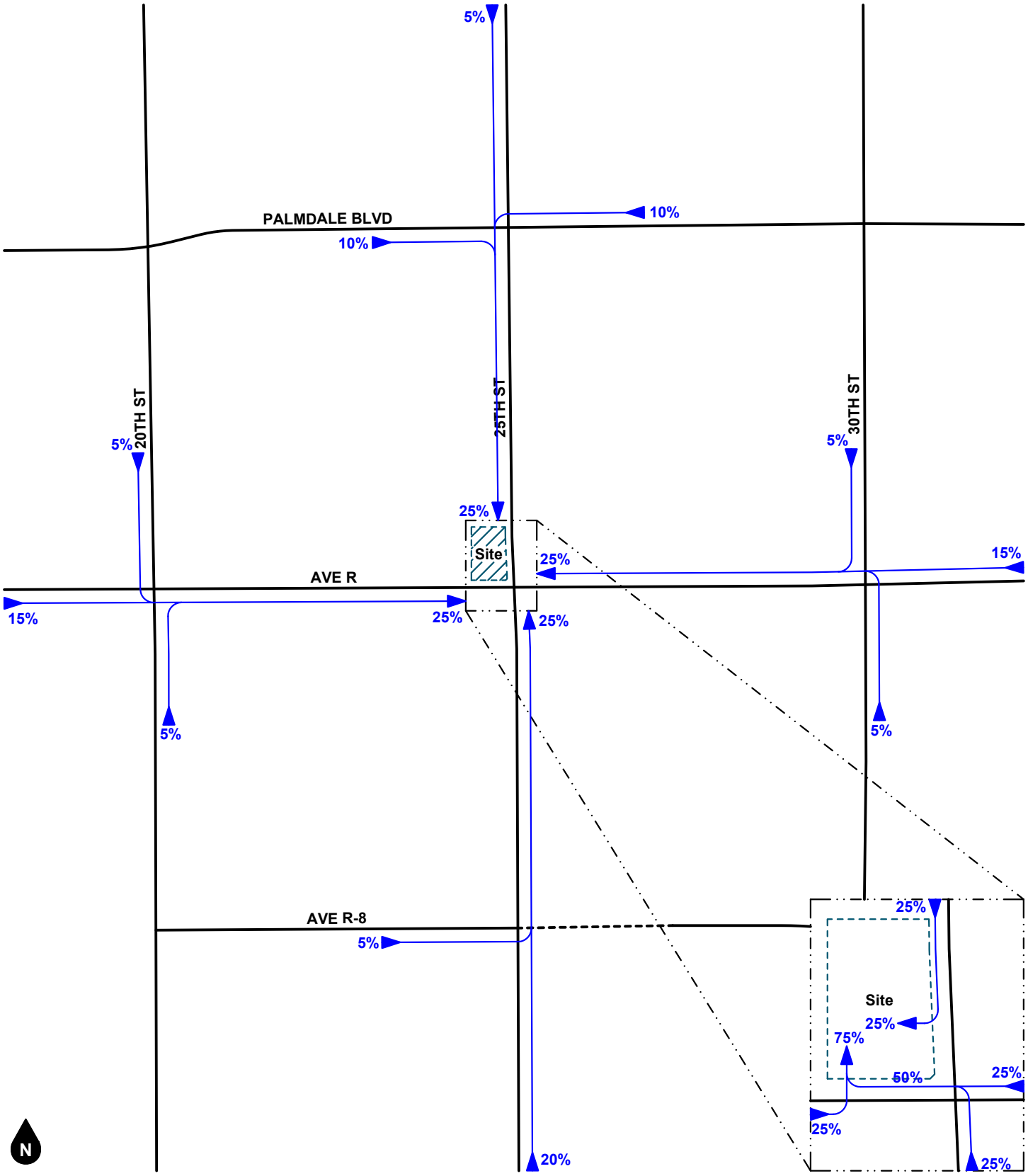
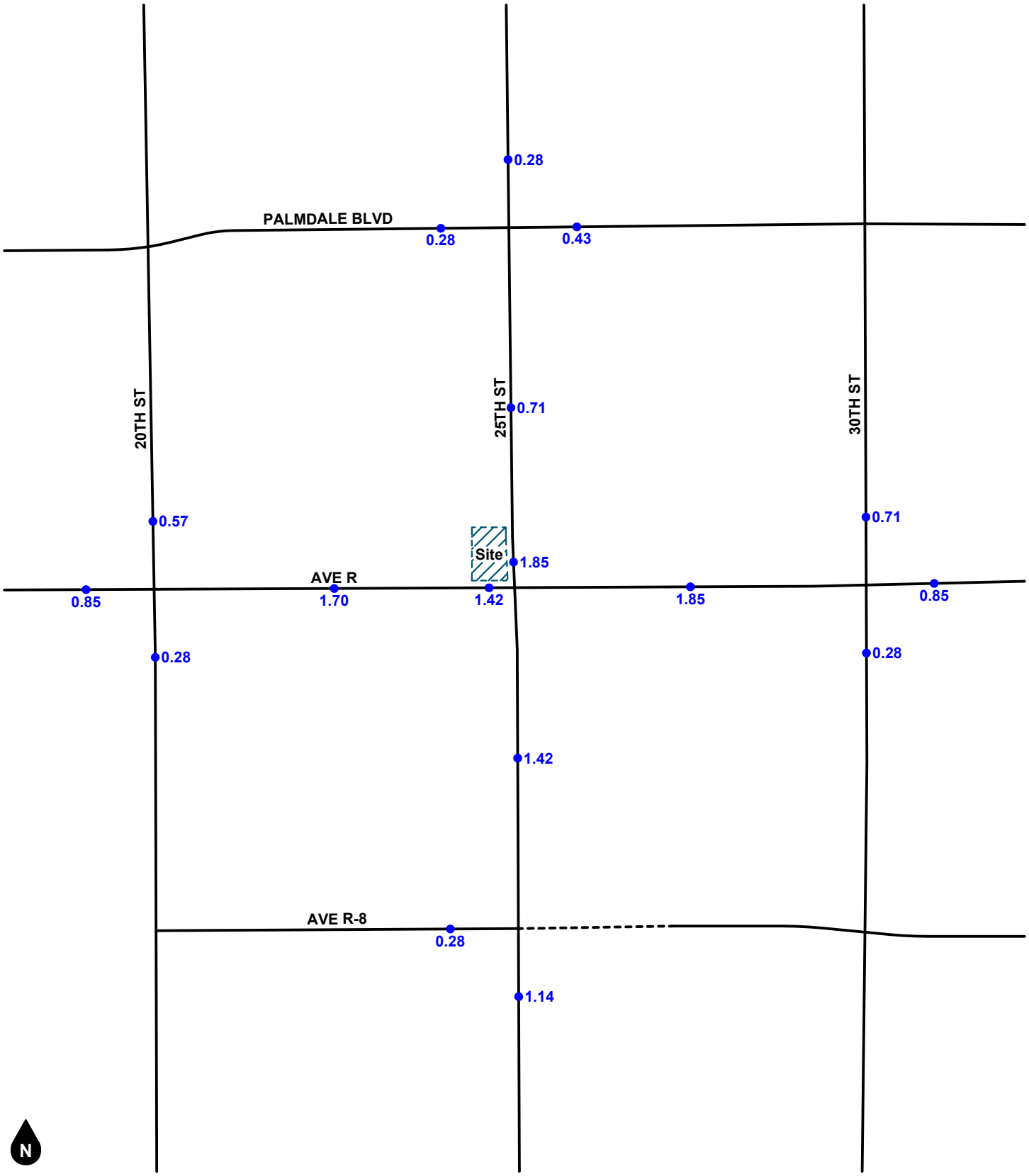
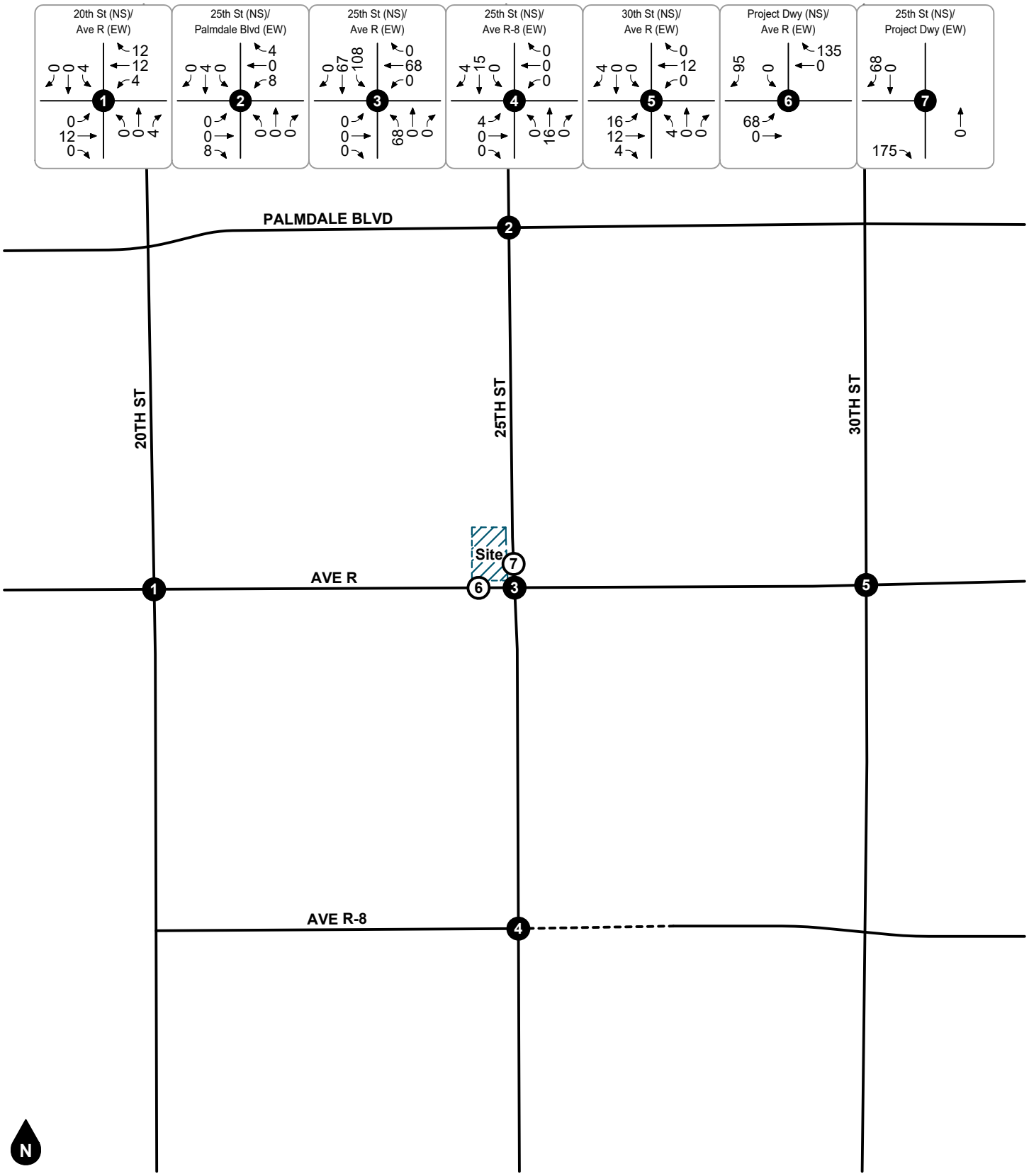


Figure 16
Project Inbound Trip Distribution



Legend
●## Vehicles Per Day (1,000's)

Figure 17
Project Average Daily Traffic Volumes



Legend

(#) Study Intersection

(#) Project Driveway

Figure 18
Project AM Peak Hour Intersection Turning Movement Volumes

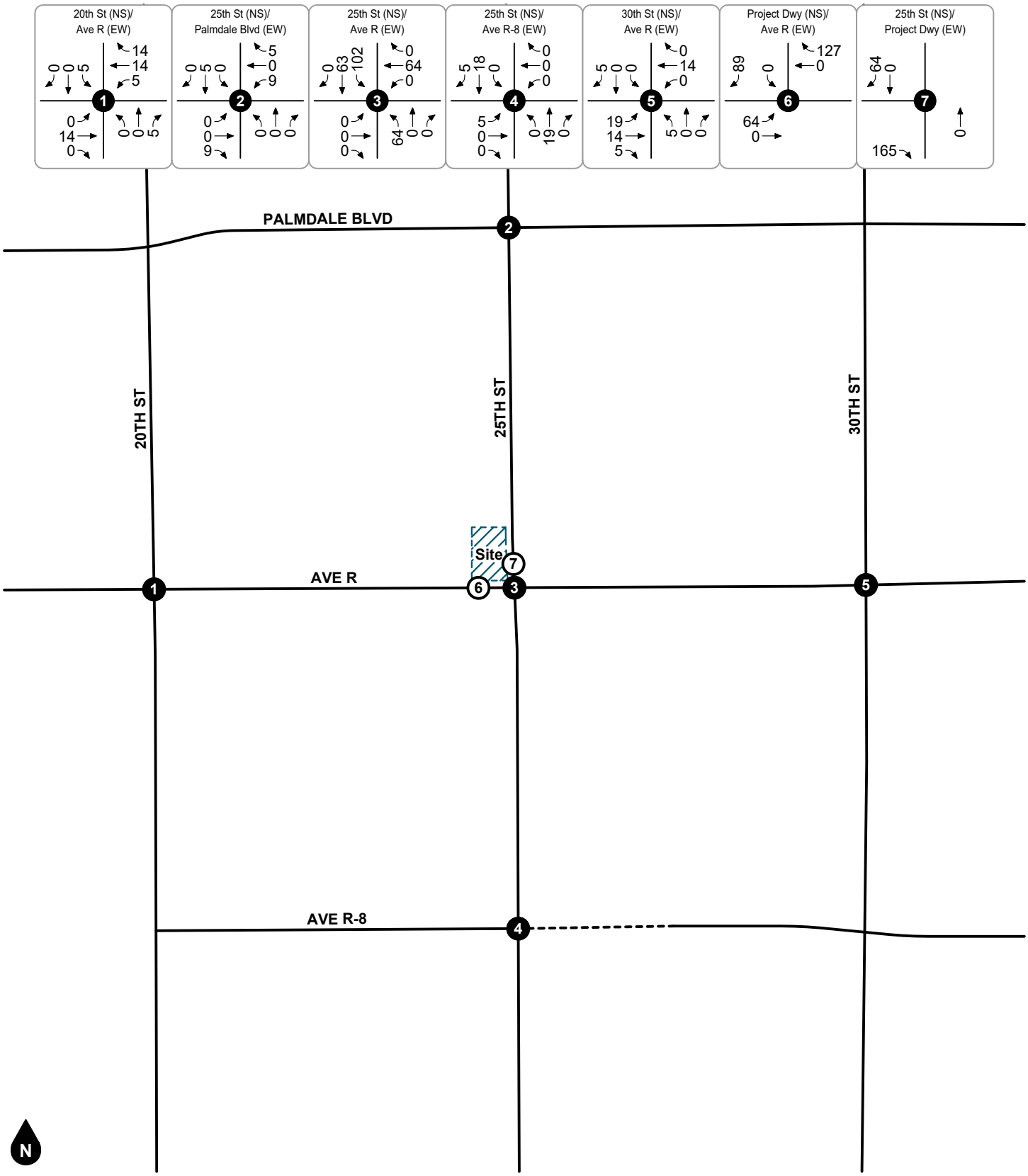


Figure 19
Project PM Peak Hour Intersection Turning Movement Volumes

5. FUTURE VOLUME FORECASTS

This section describes how future volume forecasts for each analysis scenario were developed. Forecast study area volumes are illustrated in Figures contained in this section.

METHOD OF PROJECTION

To assess future conditions, existing volumes were combined with project trips, ambient growth, and other development trips. The project completion year for analysis purposes in this report is 2024.

Ambient Growth

To account for ambient growth, Opening Year (2024) roadway volumes were developed by increasing existing (year 2022) volumes by a growth rate of one and one-half percent (1.5%) per year over a two (2) year period for a total growth factor of 1.03. This provides a conservative growth estimate compared to the annual growth rate derived from the 2010 Congestion Management Program for Los Angeles County (Exhibit D-1 - General Traffic Volume Growth Factors). The ambient growth was applied to all movements at the study intersections.

Other Developments

To account for growth associated with other development projects, trips generated by other pending or approved but unconstructed developments in the City of Palmdale were reviewed and added to the study area as appropriate. The other development trip generation summary is shown in Table 3. The regional ambient growth is assumed to account for any additional trips generated by other developments not specifically listed in Table 3. Figure 20 shows the other development location map.

Average daily traffic volumes generated by other developments are shown on Figure 21. Figure 22 and Figure 23 show the forecast AM peak hour and PM peak hour intersection turning movement volumes for trips generated by other developments.

ANALYSIS SCENARIO VOLUMES

Existing Plus Project

The Existing Plus Project volume forecast was developed by adding project-generated trips to the Existing volumes. Existing Plus Project average daily traffic volumes are shown on Figure 24. Existing Plus Project AM peak hour and PM peak hour intersection turning movement volumes are shown on Figure 25 and Figure 26.

Opening Year (2024) Without Project

The Opening Year (2024) Without Project volume forecast was developed by applying the ambient growth factor to existing volumes and adding trips generated by other developments. Opening Year (2024) Without Project average daily traffic volumes are shown on Figure 27. Opening Year (2024) Without Project AM peak hour and PM peak hour intersection turning movement volumes are shown on Figure 28 and Figure 29.

Opening Year (2024) With Project

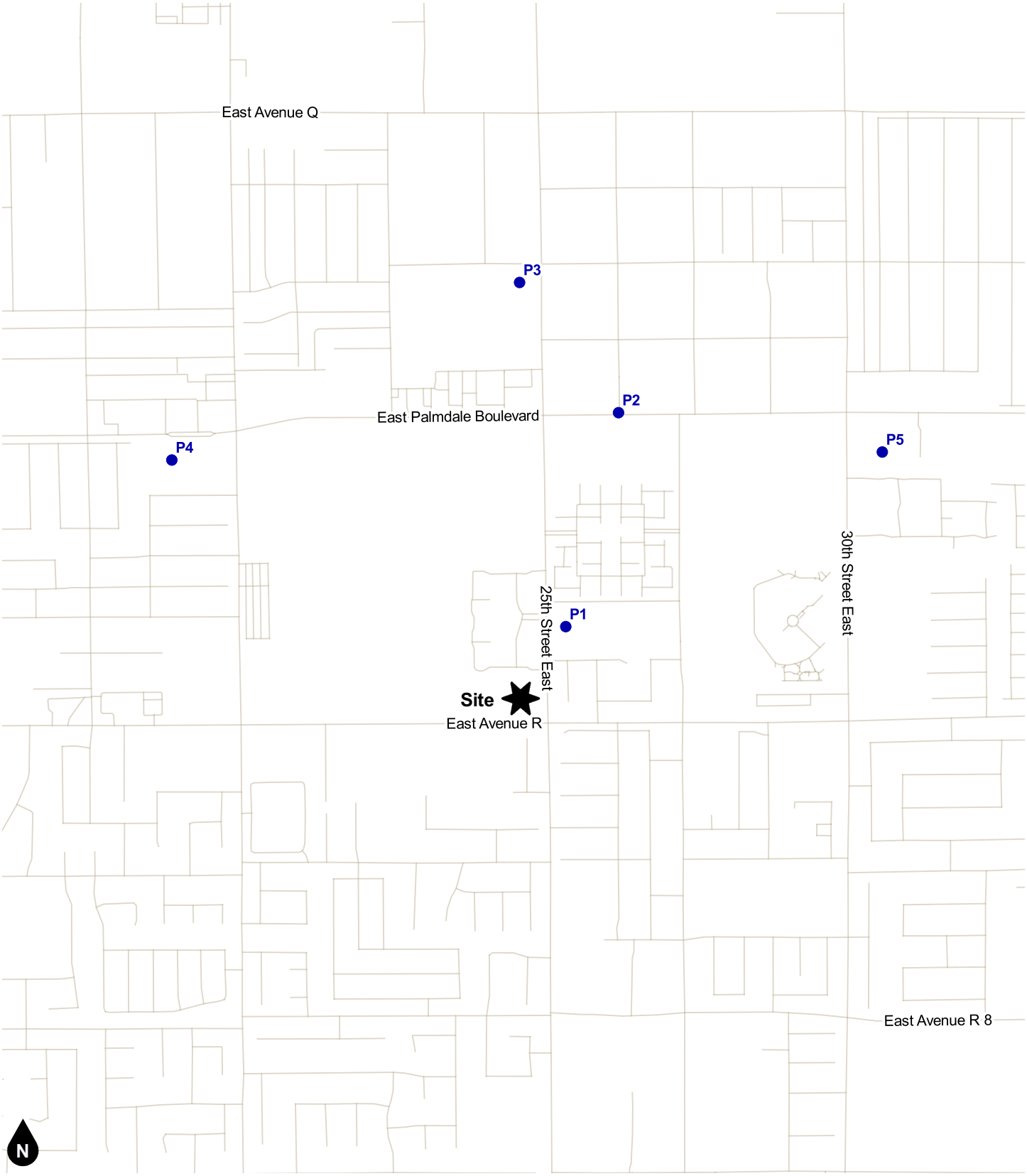
The Opening Year (2024) With Project volume forecast was developed by adding project-generated trips to the Opening Year (2024) Without Project volumes. Opening Year (2024) With Project average daily traffic volumes are shown on Figure 30. Opening Year (2024) With Project AM peak hour and PM peak hour intersection turning movement volumes are shown on Figure 31 and Figure 32.

Table 3
Other Development Trip Generation

Trips Generated											
					AM Peak Hour			PM Peak Hour			
ID	Name/Address	Land Use	Source	Quantity	In	Out	Total	In	Out	Total	Daily
P1	SEC 25th Street / Ave Q-12	Affordable Housing - Income Limits	ITE 223	151 DU	16	38	54	41	28	69	726
P2	26th Street / Palmdale Blvd	Strip Retail Plaza (<40k)	ITE 822	12.978 TSF	18	13	31	43	43	86	707
P3	SWC 25th Street / Ave Q-4	Multifamily Housing (Low-Rise, Not Close to Rail Transit)	ITE 220	80 DU	8	24	32	26	15	41	539
P4	1812 E Palmdale Blvd	Automated Car Wash	ITE 948	1 CWT	17	17	34	39	39	78	861
P5	3030 E Palmdale Blvd, Ste G	Fast Casual Restaurant	ITE 930	1.000 TSF	1	0	1	7	6	13	97
TOTAL OTHER DEVELOPMENT TRIPS GENERATED					**60**	**92**	**152**	**156**	**131**	**287**	**2,930**

Notes:

1. ITE = Institute of Transportation Engineers Trip Generation Manual (11th Edition, 2021); ### = Land Use Code. All rates based on General Urban/Suburban setting.
2. DU = Dwelling Unit; TSF = Thousand Square Feet; CWT = Car Wah Tunnels
3. In the absence of ITE trip rates for AM peak hour and daily, trip rates for these periods were determined based on the ratio relative to the PM peak hour in comparison to data from the San Diego Association of Governments (SANDAG) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (April 2002).

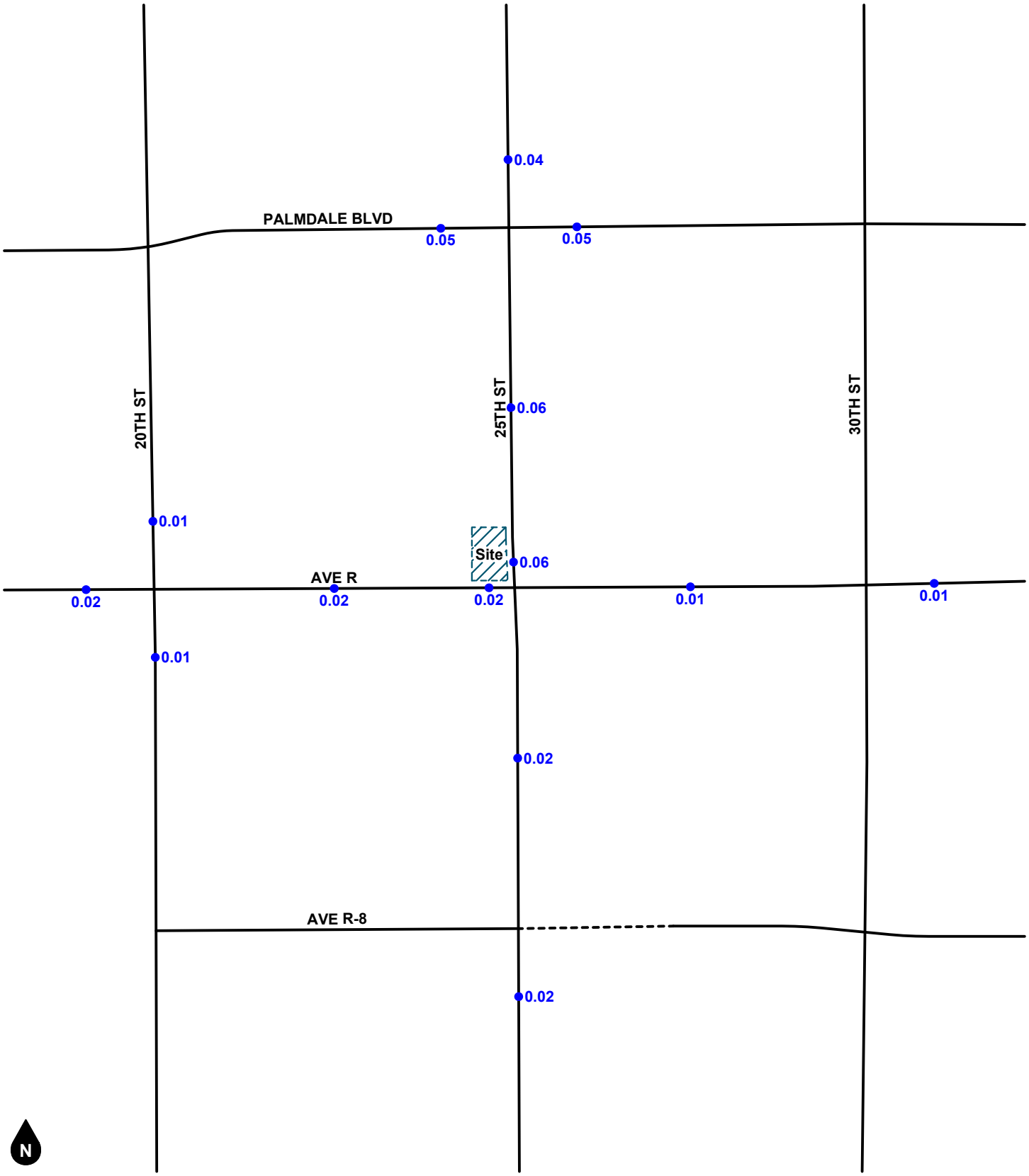


Legend

\# Other Development ID in:

● City of Palmdale

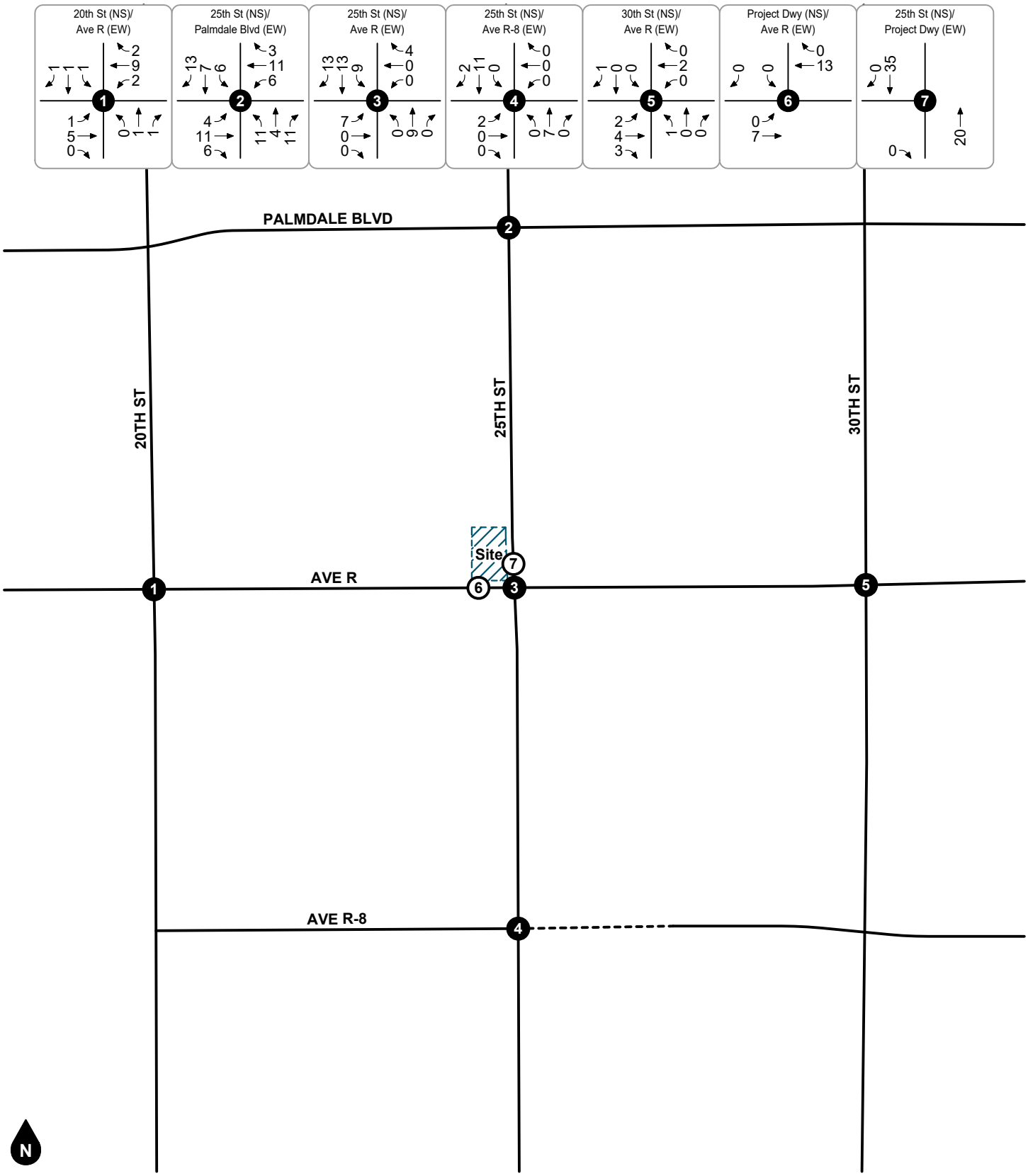
Figure 20
Other Development Location Map



Legend

●## Vehicles Per Day (1,000's)

Figure 21
Other Development Average Daily Traffic Volumes

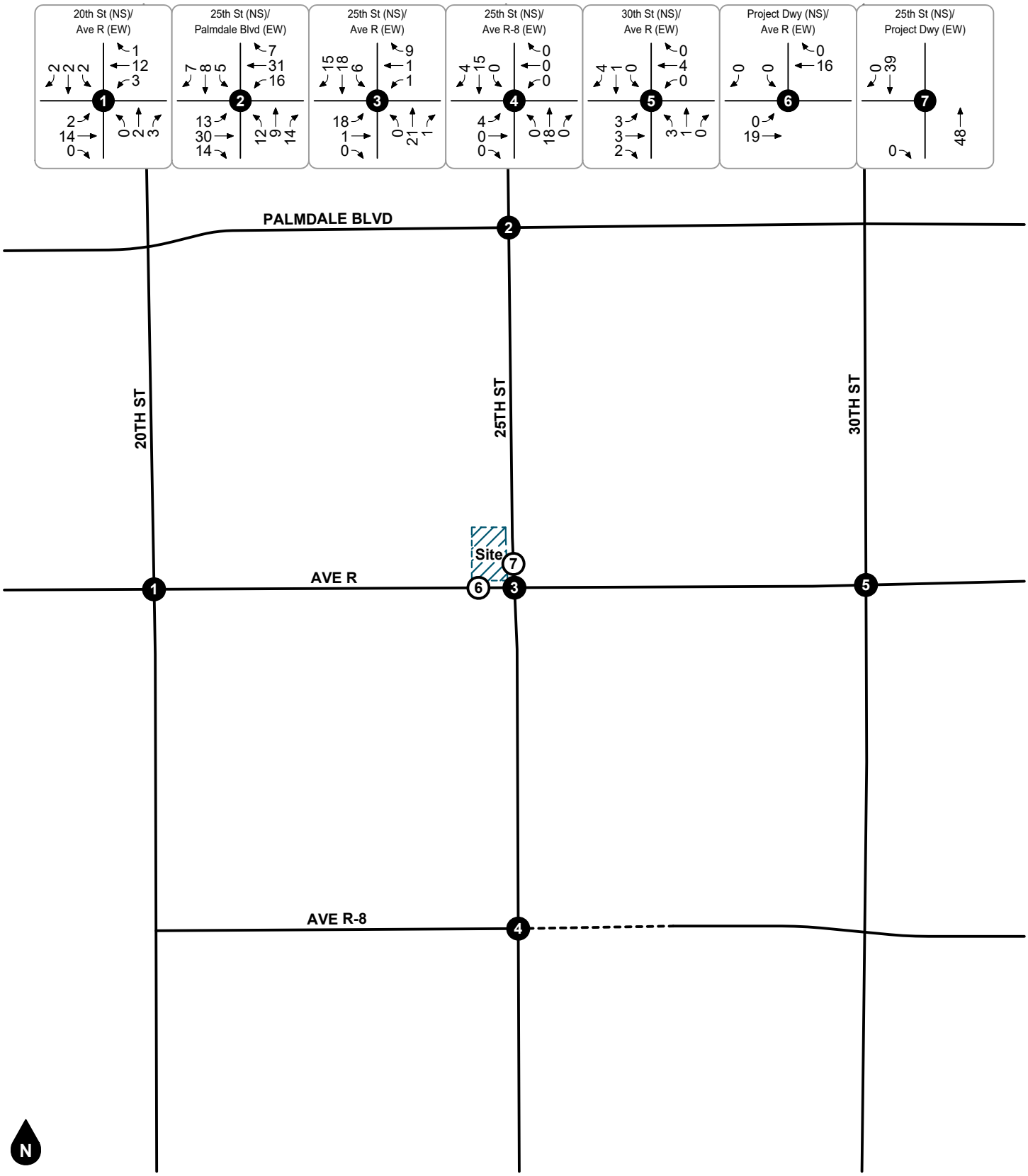


Legend

(#) Study Intersection

(#) Project Driveway

Figure 22
Other Development
AM Peak Hour Intersection Turning Movement Volumes

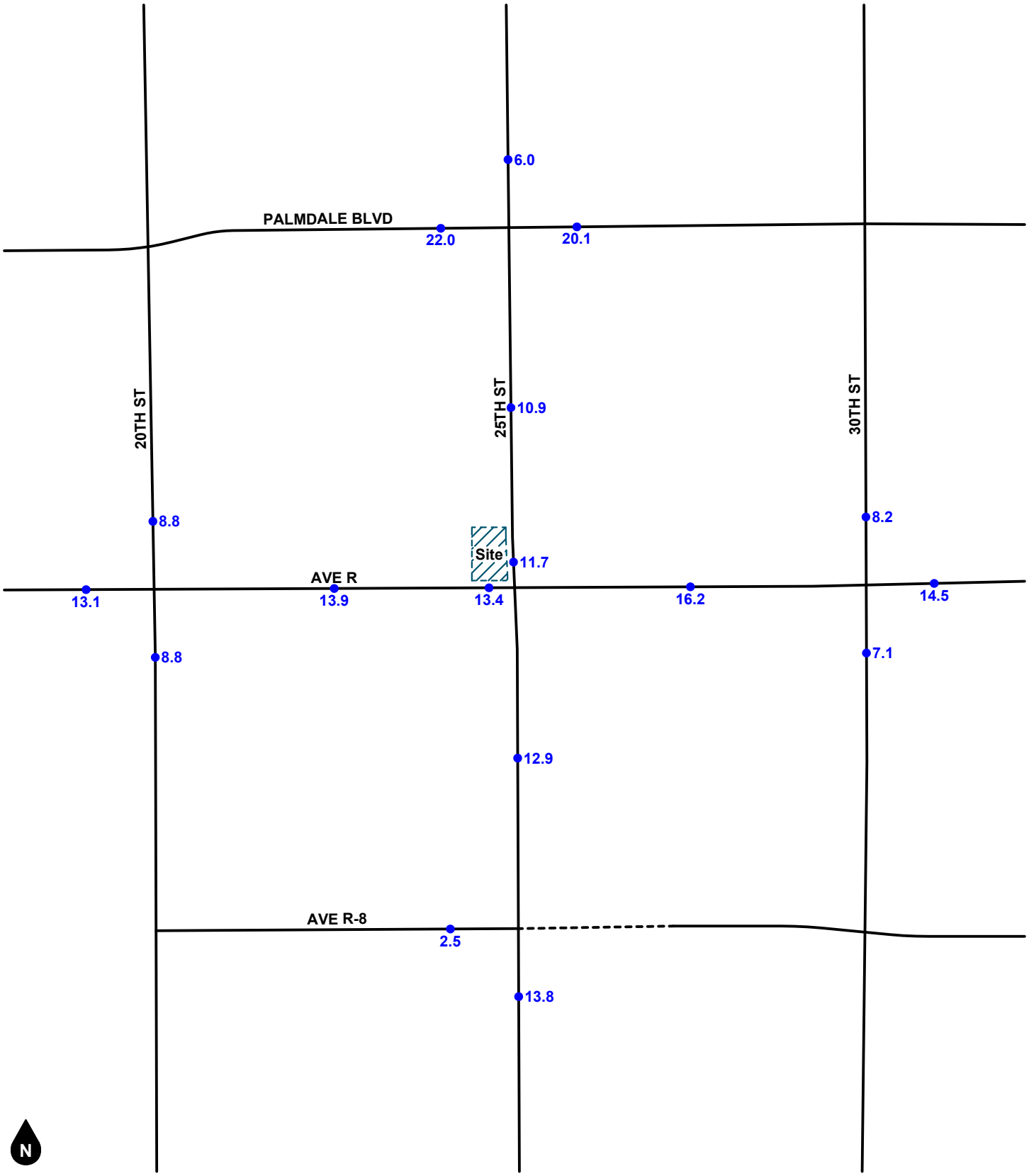


Legend

(#) Study Intersection

(#) Project Driveway

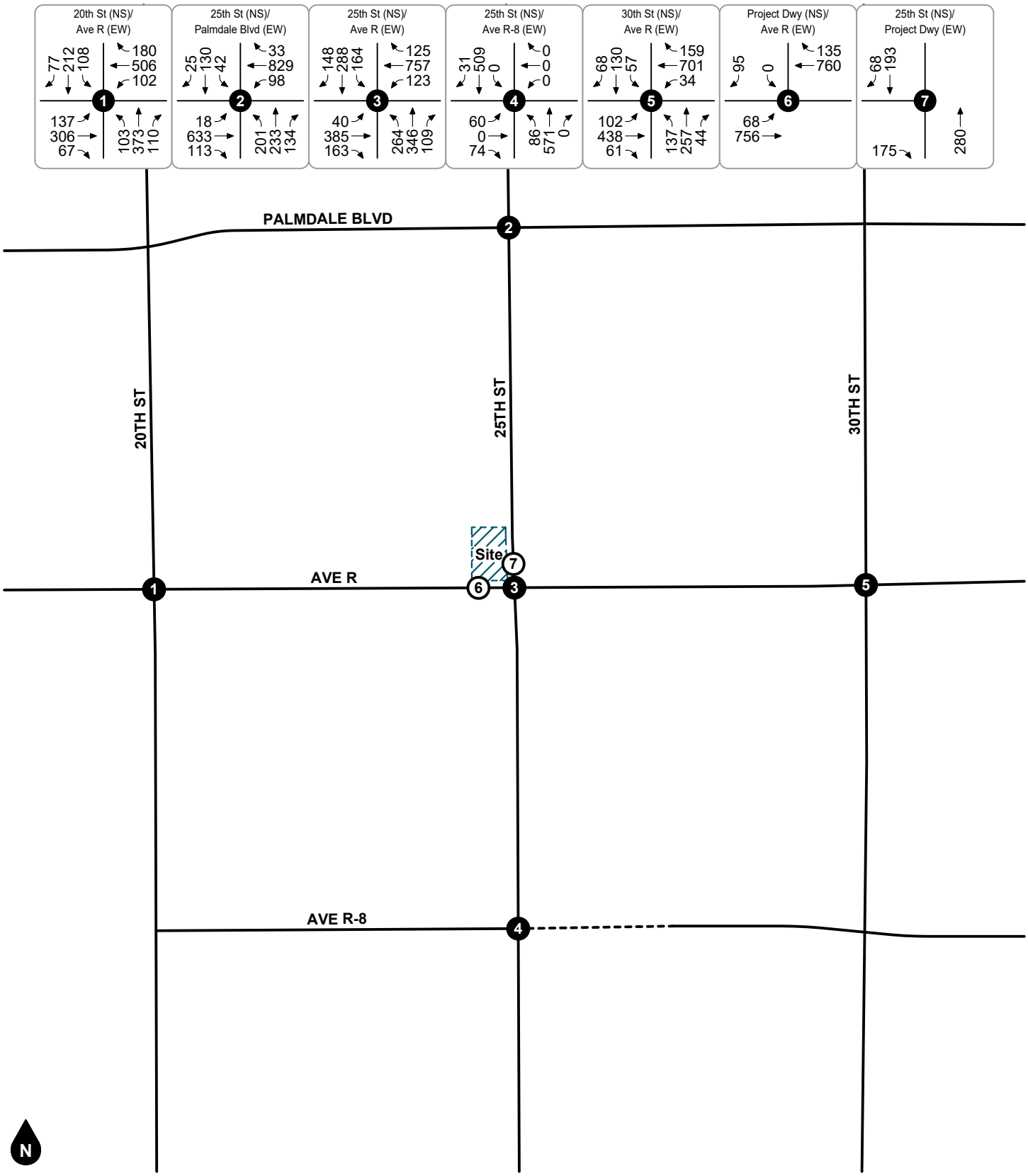
Figure 23
Other Development
PM Peak Hour Intersection Turning Movement Volumes



Legend

●## Vehicles Per Day (1,000's)

Figure 24
Existing Plus Project Average Daily Traffic Volumes

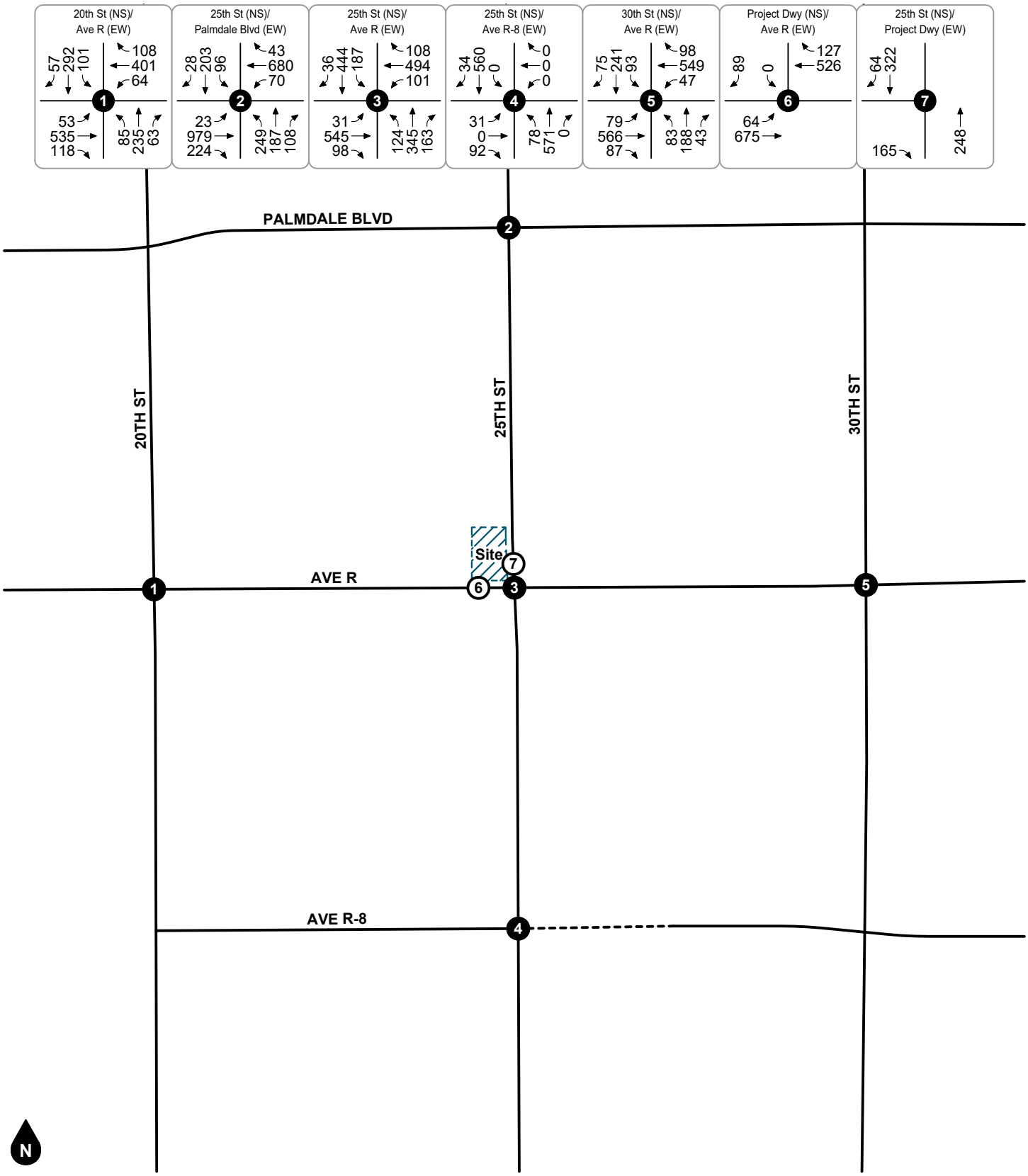


Legend

Study Intersection

(#) Project Driveway

Figure 25
Existing Plus Project
AM Peak Hour Intersection Turning Movement Volumes

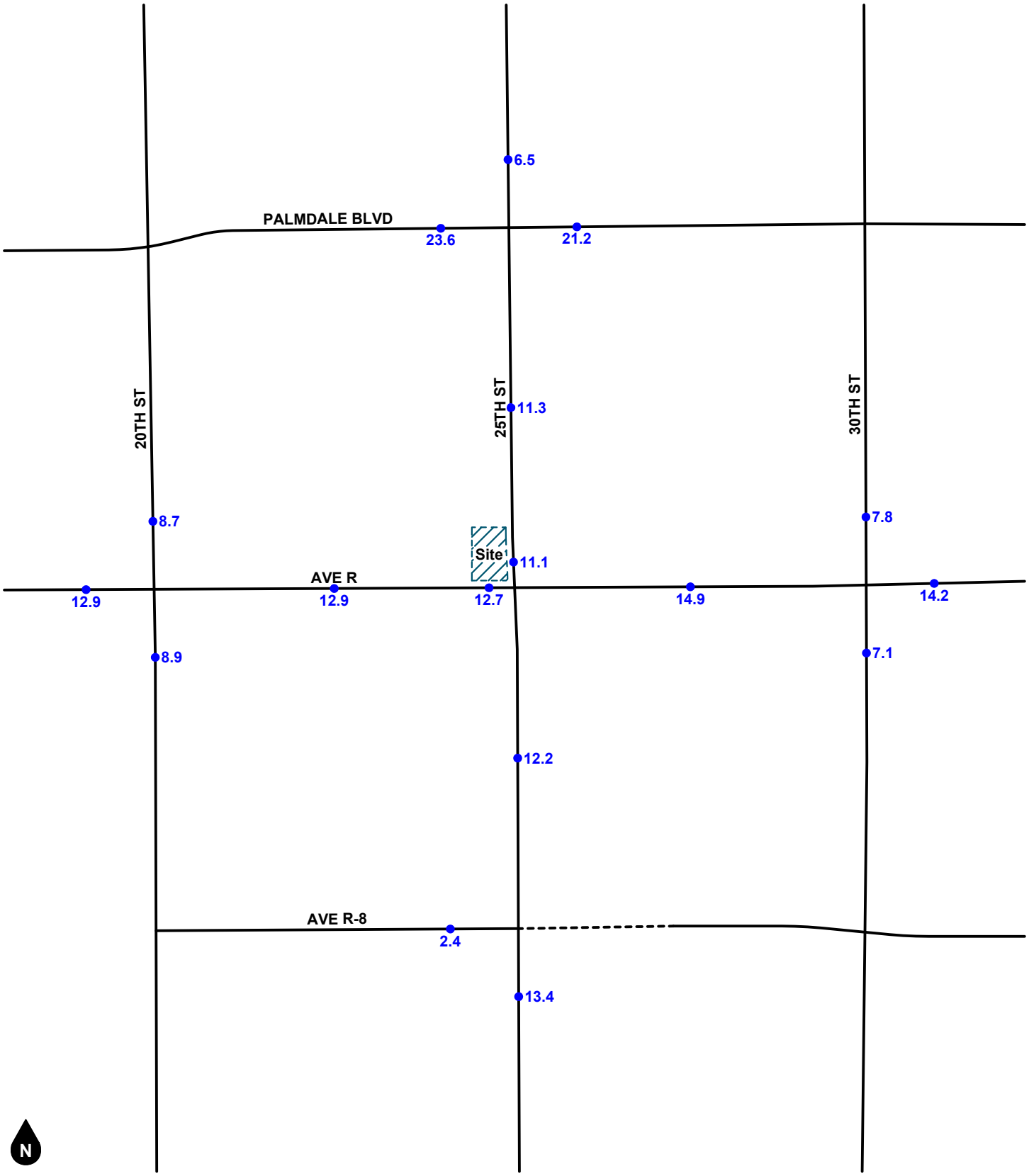


Legend

(#) Study Intersection

(#) Project Driveway

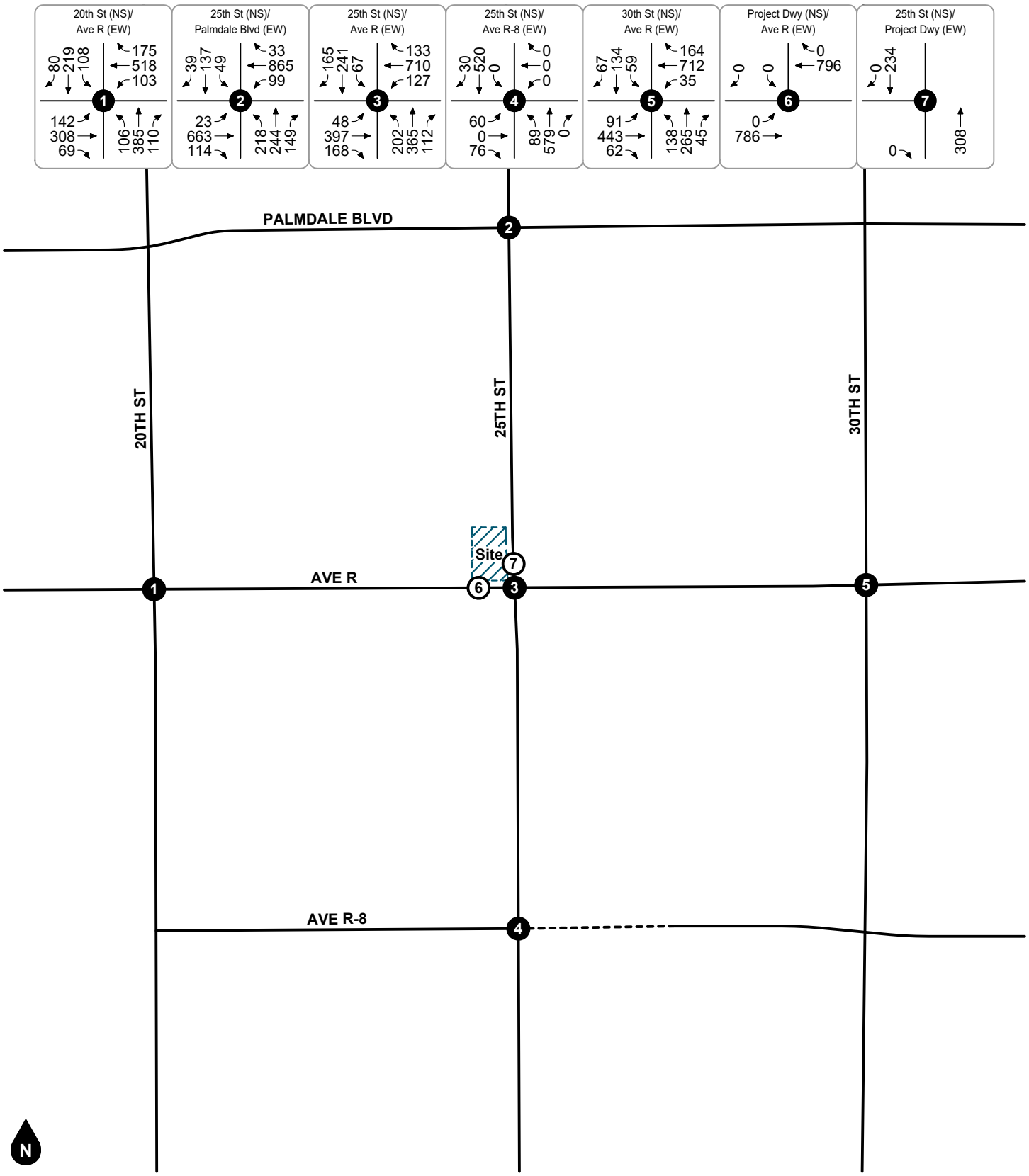
Figure 26
Existing Plus Project
PM Peak Hour Intersection Turning Movement Volumes



Legend

●## Vehicles Per Day (1,000's)

Figure 27
Opening Year (2024) Without Project Average Daily Traffic Volumes



Legend

(#) Study Intersection

(#) Project Driveway

Figure 28
Opening Year (2024) Without Project
AM Peak Hour Intersection Turning Movement Volumes

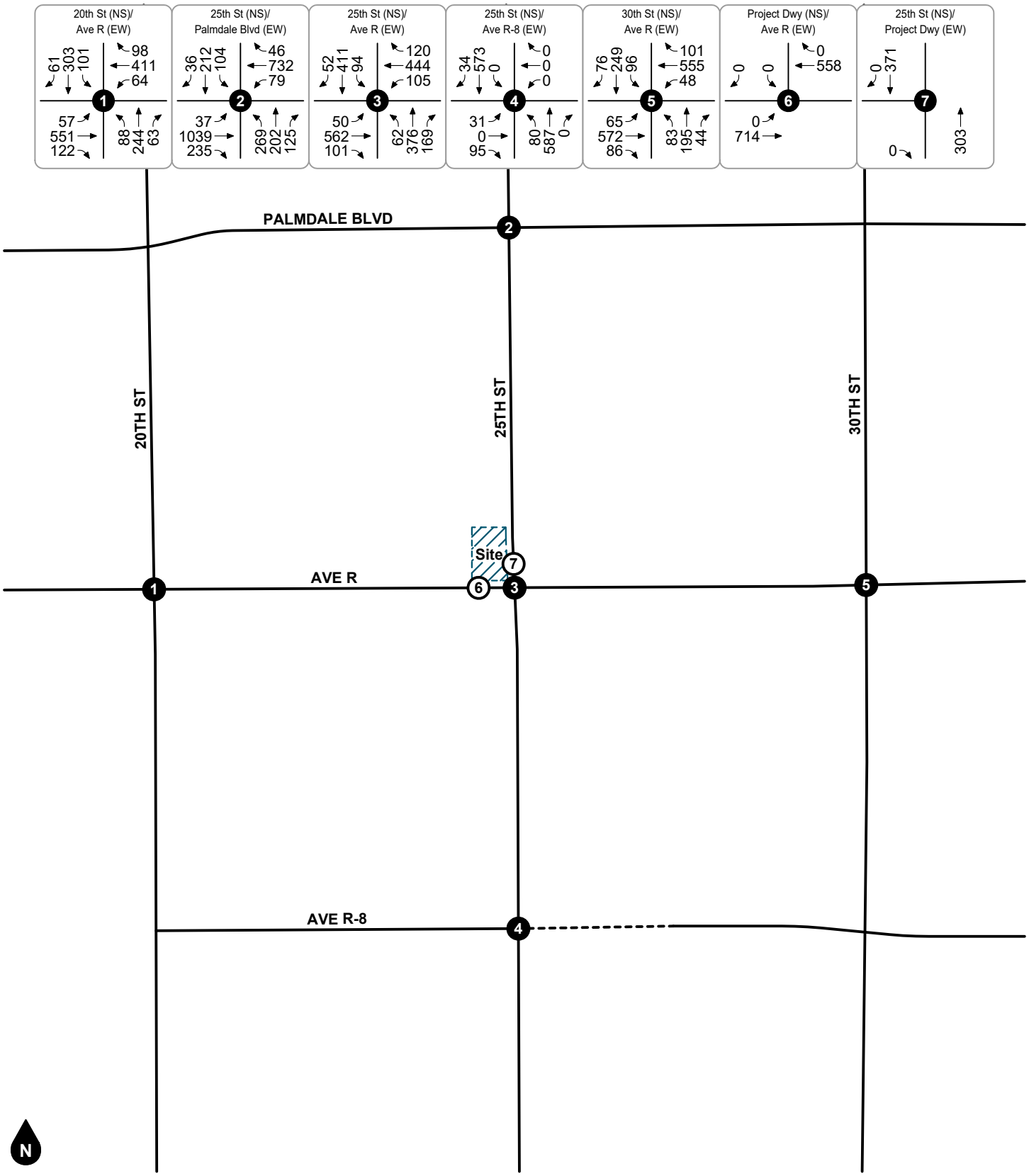
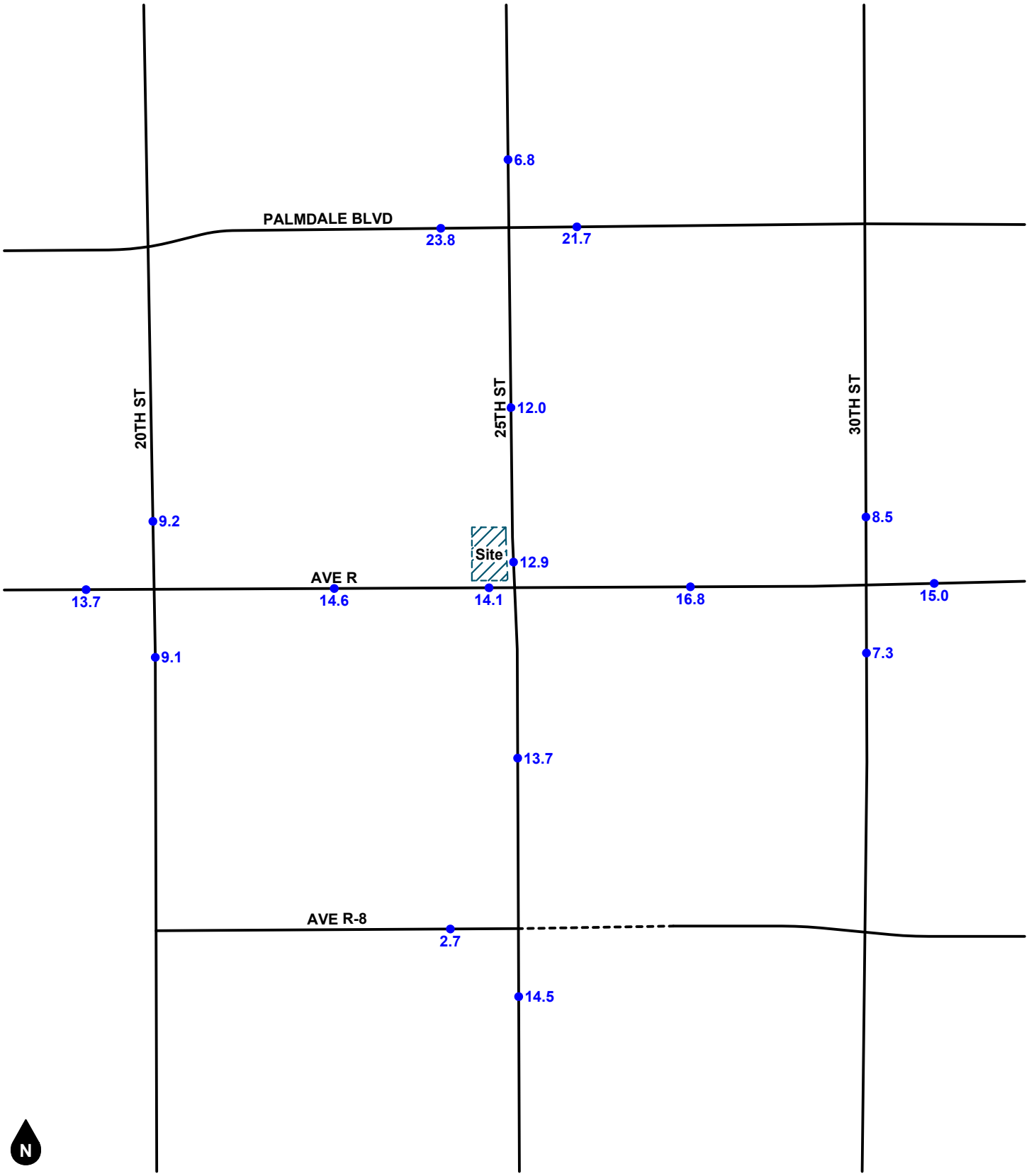


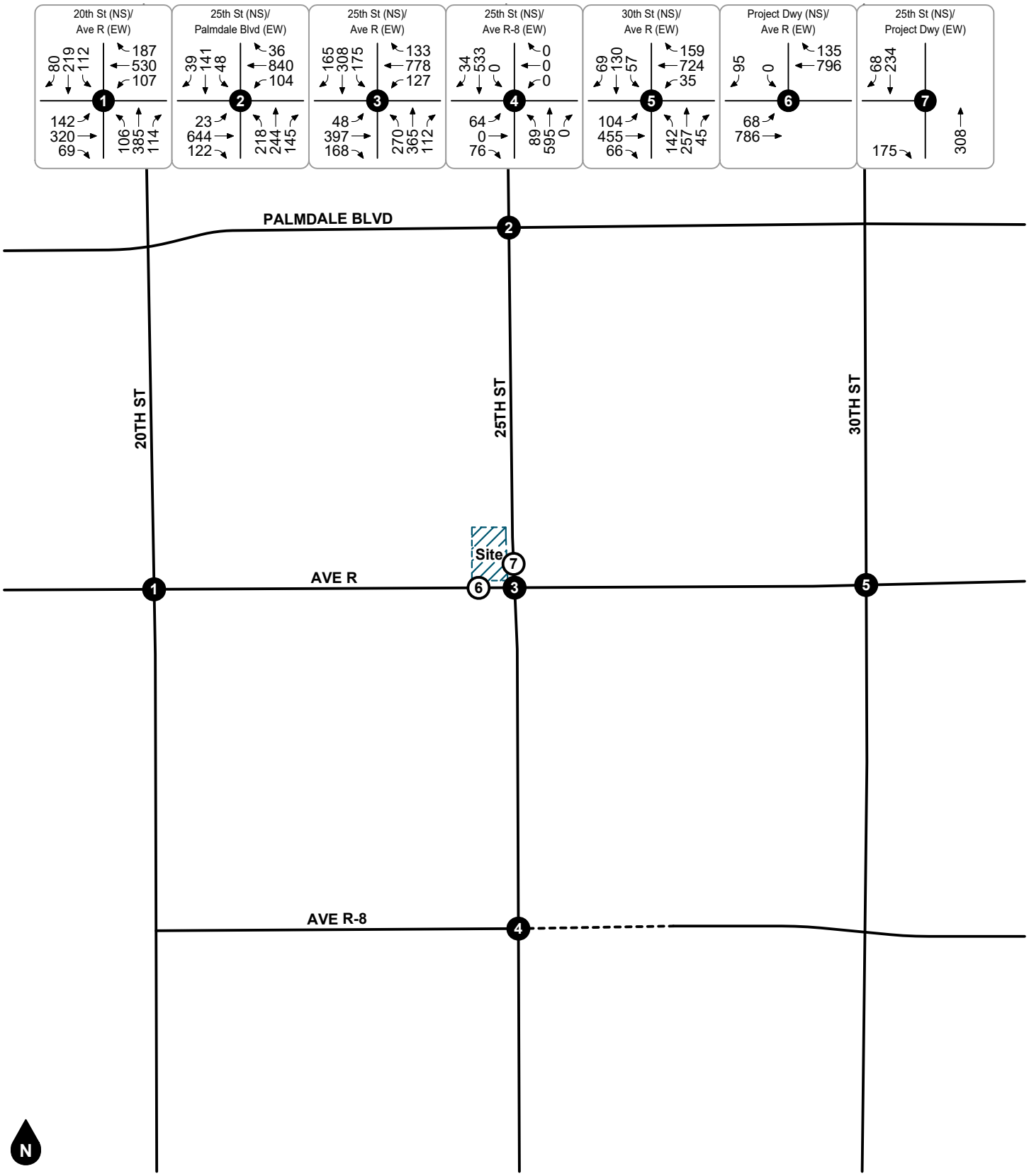
Figure 29
Opening Year (2024) Without Project
PM Peak Hour Intersection Turning Movement Volumes



Legend

●## Vehicles Per Day (1,000's)

Figure 30
Opening Year (2024) With Project Average Daily Traffic Volumes

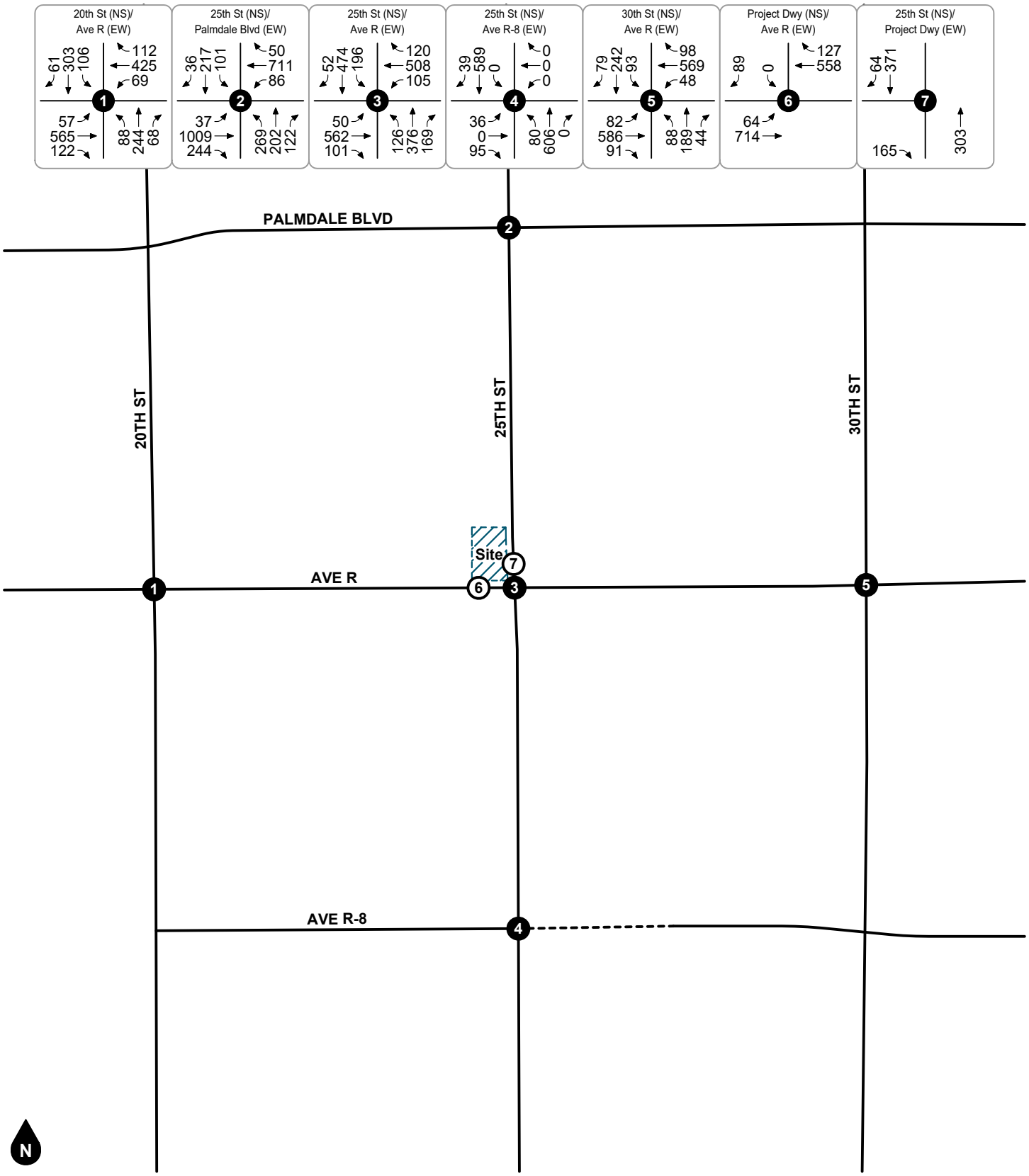


Legend

(#) Study Intersection

(#) Project Driveway

Figure 31
Opening Year (2024) With Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

(#) Study Intersection

(#) Project Driveway

Figure 32
Opening Year (2024) With Project
PM Peak Hour Intersection Turning Movement Volumes

6. FUTURE LEVELS OF SERVICE ANALYSIS

Detailed intersection Level of Service calculation worksheets for each of the following analysis scenarios are provided in Appendix D.

Project design features, such as improvements necessary to provide project site access, are assumed to be constructed by the proposed project and are described in further detail in the Site Access & Circulation section presented later in this report.

EXISTING PLUS PROJECT

The study intersection Levels of Service for Existing Plus Project conditions are shown in Table 4. As shown in Table 4, the study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Project conditions.

OPENING YEAR (2024) WITHOUT PROJECT

The study intersection Levels of Service for Opening Year (2024) Without Project conditions are shown in Table 5. As shown in Table 5, the study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Opening Year (2024) Without Project conditions.

OPENING YEAR (2024) WITH PROJECT

The study intersection Levels of Service for Opening Year (2024) With Project conditions are shown in Table 6. As shown in Table 6, the study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Opening Year (2024) With Project conditions.

Traffic Signal Warrant Analysis

The potential need for installation of a traffic signal at the project driveways was evaluated based on the *California Manual on Uniform Traffic Control Devices* ("*California MUTCD*", November 2014), Section 4C-101, peak hour volume warrant (Warrant 3). The *California MUTCD* states that a traffic control signal should not be installed unless one or more warrants are satisfied. Application of the traffic signal warrants should be based on engineering judgement and satisfaction of one or more traffic signal warrants shall not in itself require the installation of a traffic signal. Traffic signal warrant worksheets are provided in Appendix E.

For the project driveways restricted to right-turn only, the peak hour traffic signal warrant was evaluated for the major street left-turn volume and conflicting major street through volume. The minor street left-turns were not evaluated since the project driveway is recommended to be restricted to right-turns only. Installation of a traffic signal is not warranted at the project driveway at Avenue R or 25th Street based on the forecast Opening Year (2024) with Project volumes.

Installation of a traffic signal is not warranted at the project driveway at 25th Street at Avenue R-8 based on the California Manual on Uniform Traffic Control Devices (2014), peak hour volume warrant (Warrant 3) for Opening Year (2024) With Project conditions.

Table 4
Existing Plus Project Intersection Levels of Service & Project-Related Effect2022-1122

Study Intersection	Traffic Control[1]	Existing				Existing Plus Project				AM Peak Hour		PM Peak Hour	
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour					
		Delay[2]	LOS[3]	Delay[2]	LOS	Delay[2]	LOS[3]	Delay[2]	LOS	Change	Substantial Effect?	Change	Substantial Effect?
1. 20th Street at Avenue R	TS	32.0	C	25.8	C	32.0	C	25.8	C	+0.0	NO	+0.0	NO
2. 25th Street at Palmdale Boulevard	TS	24.3	C	25.9	C	24.5	C	26.1	C	+0.2	NO	+0.2	NO
3. 25th Street at Avenue R	TS	29.6	C	26.2	C	34.8	C	33.4	C	+5.2	NO	+7.2	NO
4. 25th Street at Avenue R-8	CSS	12.8	B	11.6	B	13.1	B	11.8	B	+0.3	NO	+0.2	NO
5. 30th Street at Avenue R	TS	24.0	C	24.0	C	25.5	C	24.3	C	+1.5	NO	+0.3	NO
6. Project Driveway at Avenue R	CSS	-		-		12.4	B	10.9	B	+12.4	NO	+10.9	NO
7. 25th Street at Project Driveway	CSS	-		-		9.9	A	10.5	B	+9.9	NO	+10.5	NO

Notes:

1. TS = Traffic Signal; CSS = Cross Street Stop AWS = All Way Stop
2. Delay is shown in seconds per vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst minor street approach or major street left turn movement.
3. LOS = Level of Service

Table 5
Opening Year (2024) Intersection Levels of Service 2022-1122

Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
		Delay[2]	LOS[3]	Delay[2]	LOS
1. 20th Street at Avenue R	TS	32.3	C	26.0	C
2. 25th Street at Palmdale Boulevard	TS	25.4	C	28.1	C
3. 25th Street at Avenue R	TS	30.4	C	27.2	C
4. 25th Street at Avenue R-8	CSS	13.3	B	11.9	B
5. 30th Street at Avenue R	TS	24.2	C	24.0	C

Notes:

1. TS = Traffic Signal; CSS = Cross Street Stop AWS = All Way Stop
2. Delay is shown in seconds per vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst minor street approach or major street left turn movement.
3. LOS = Level of Service

Table 6
Opening Year (2024) Intersection Levels of Service & Project-Related Effect2022-1122

Study Intersection	Traffic Control[1]	Opening Year (2024) Without Project				Opening Year (2024) With Project				AM Peak Hour		PM Peak Hour	
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour					
		Delay[2]	LOS[3]	Delay[2]	LOS	Delay[2]	LOS[3]	Delay[2]	LOS	Change	Substantial Effect?	Change	Substantial Effect?
1. 20th Street at Avenue R	TS	32.3	C	26.0	C	32.4	C	26.0	C	+0.1	NO	+0.0	NO
2. 25th Street at Palmdale Boulevard	TS	25.4	C	28.1	C	25.6	C	28.4	C	+0.2	NO	+0.3	NO
3. 25th Street at Avenue R	TS	30.4	C	27.2	C	35.7	D	33.9	C	+5.3	NO	+6.7	NO
4. 25th Street at Avenue R-8	CSS	13.3	B	11.9	B	13.6	B	12.2	B	+0.3	NO	+0.3	NO
5. 30th Street at Avenue R	TS	24.2	C	24.0	C	25.9	C	24.3	C	+1.7	NO	+0.3	NO
6. Project Driveway at Avenue R	CSS	-		-		12.7	B	11.0	B	+12.7	NO	+11.0	NO
7. 25th Street at Project Driveway	CSS	-		-		10.1	B	10.7	B	+10.1	NO	+10.7	NO

Notes:

1. TS = Traffic Signal; CSS = Cross Street Stop AWS = All Way Stop
2. Delay is shown in seconds per vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst minor street approach or major street left turn movement.
3. LOS = Level of Service

7. SITE ACCESS & ON-SITE CIRCULATION

This section evaluates the project site access and on-site circulation. Vehicular access to the project site is proposed to be provided by two restricted access driveways. The project driveway at Avenue R is restricted with no outbound left turns, and the project driveway on 25th Street is restricted to right-turn in and right-turn out because of the proposed median on 25th Street.

PROJECT DESIGN FEATURES

This analysis assumes the following improvements will be constructed by the project to provide project site access:

3. 25th Street (NS) at Avenue R (EW)
- Construct a raised median on 25th Street from Avenue R to the project north boundary.
- The raised median shall provide a southbound left turn lane with at least 270 feet of storage length.

6. Project Driveway (NS) at Avenue R (EW)
- Install southbound stop control.
- Construct the project driveway to provide one inbound lane and one outbound lane.
- Restrict egress to right-turn out only.

7. 25th Street (NS) at Project Driveway (EW)
- Install eastbound stop control.
- Construct the project driveway to provide one inbound lane and one outbound lane.
- The driveway shall be restricted to right in/out only as result of the raised median on 25th Street.

This analysis also assumes the project shall comply with the following conditions as part of the City of Palmdale standard development review process to ensure adequate geometric design and emergency access:

- Site-adjacent roadways shall be constructed or repaired at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development, or as otherwise required by the City of Palmdale.

- All on-site and off-site roadway design, signing/striping, and traffic control improvements relating to the proposed project shall be the submitted to the City for review and constructed in accordance with applicable State/Federal engineering standards to the satisfaction of the City of Palmdale.

- The final grading, landscaping, and street improvement plans shall demonstrate that applicable sight distance requirements are met.

- The project shall comply with the City of Palmdale municipal parking requirements which will be reviewed as a part of the standard development review process.

- Final project plans shall demonstrate adequate emergency vehicle access and circulation to the satisfaction of the City of Palmdale Public Works and Fire Departments.

- A construction work site traffic control plan shall comply with applicable engineering standards set forth in the California *Manual of Uniform Traffic Control Devices* and shall be submitted to the City for review and approval prior to the issuance of a grading permit or start of construction. The plan shall identify any roadway, sidewalk, bike route, or bus stop closures and detours as well as haul routes and hours of operation. All construction related trips shall be restricted to off-peak hours to the extent possible.

SITE ACCESS QUEUING ANALYSIS

Table 7 summarizes the results of a queue analysis for the key turn movements providing project site access:

- Project Driveway at Avenue R
  - Southbound right-turn lane providing site egress
  - Eastbound left-turn lane providing site ingress
  - Westbound shared through/right-turn lane providing site ingress

- 25th Street at Project Driveway
  - Southbound shared through/right-turn providing site ingress
  - Eastbound right-turn lane providing site egress

- 25th Street at Avenue R
  - Northbound left-turn lane
  - Southbound left-turn lane
  - Eastbound left-turn lane

Queuing for the project driveway turning movements were evaluated to check for potential conflicts. Additionally, the storage length of the left-turn lanes of the adjacent 25th Street at Avenue R were evaluated for potential impacts by project trips.

The forecasted queue lengths shown in Table 7 are based on the HCM 95th-percentile back-of-queue methodology. Queuing calculations for the project driveways and the adjacent 25th Street at Avenue R intersection are shown in the Level of Service worksheets provided in Appendix D.

As shown in Table 7, the traffic volumes for project driveways are forecast to operate within the available storage length during the peak hours for the Opening Year (2024) With Project conditions. The proposed raised median on 25th Street north of Avenue R will incorporate the necessary storage length of 270 feet during construction of the median. The 25th Street at Avenue R intersection northbound left-turn has additional storage length is available within the two-way left turn for a total length of approximately 500 feet before the queue would interfere with the upstream intersection.

SIGHT DISTANCE EVALUATION

Intersection sight distance analysis was prepared for the project driveways.

Roadways are designed to provide sufficient stopping sight distance continuously along each roadway so that drivers have a view of the roadway ahead. If the available sight distance equals or exceeds the appropriate stopping sight distance for the major road, sufficient sight distance is provided to anticipate and avoid collisions. In some cases, however, vehicles traveling on the major road may need to substantially slow down or stop to accommodate vehicles entering or crossing from the minor road. Therefore, to enhance traffic operations at uncontrolled or minor street stop-controlled intersections, it is desirable to provide intersection sight distances that exceed the stopping sight distances along the major road.

The sight distance analysis was prepared based on the sight distance guidelines specified in the American Association of State Highway and Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Street (7th Edition, 2018)* ["*AASHTO Greenbook*"]. Both stopping sight distance and intersection sight distance were evaluated. The stopping sight distances are based on passenger car operation and do not explicitly consider design for truck operations. While trucks typically require longer braking distances, they generally travel slower and truck drivers are more experienced than the average passenger car driver; therefore, separate stopping distances for trucks and passenger cars are not generally used in highway design. For intersection sight distance, AASHTO notes that the minor road design vehicle can usually be assumed to

be a passenger car, except in cases where substantial volumes of heavy vehicles enter the major road, such as ramp terminals.

Assuming level major street roadways (less than three percent grade), stopping sight distance is determined by the following formula:

Stopping Sight Distance = $1.47\ Vt + 1.075\ (V^2 / a)$
where:
V = design speed (miles per hour)
t = brake reaction time, 2.5 seconds
a = deceleration rate (feet / second^2), 11.2 feet/second^2

The intersection sight distance was determined based on "Case B – Intersections with stop control on the minor road." For Case B conditions, the intersection sight distance along the major road is determined by the following formula:

Intersection Sight Distance = $1.47\ V_{major}\ t_g$
where:
V_{major} = design speed of the major road (miles per hour)
t_g = time gap for minor road vehicle to enter the major road (seconds)

Time gaps are determined based on the design vehicle, number of lanes crossed, median widths, minor road approach grade, design vehicle, and turning movement from the minor road.

Project Driveway at Avenue R

The design speed along Avenue R was estimated based on five miles per hour greater than the posted speed limit of 50 miles per hour; thus, a design speed of 55 miles per hour was used for the analysis.

Since the project egress is restricted to right-turn only, intersection sight distance at the project driveway was calculated using the recommended time gap for a right turn from stop (Case B-2). For sight distance looking to the left at approaching westbound traffic (i.e., Case B2, right turn from stop), a 6.5-second time gap was used. Based on the AASHTO sight distance formulas, an intersection sight distance of 526 feet is desirable with a minimum stopping sight distance of 495 feet.

Figure 33 shows the sight distance analysis for the Project Driveway at Avenue R. The restricted use areas shown on Figure 33 should be kept free of objects that could substantially obstruct the line of sight, including parked vehicles and landscaping over two feet in height. Sufficient stopping sight distance and intersection sight distance would be provided for vehicles exiting the project driveway at Avenue R with implementation of the recommended landscaping and on-street parking restrictions (See Figure 33).

25th Street at Project Driveway

The design speed along 25th Street was estimated based on five miles per hour greater than the posted speed limit of 50 miles per hour; thus, a design speed of 55 miles per hour was used for the analysis.

Since the project egress is restricted to right-turn only, intersection sight distance at the project driveway was calculated using the recommended time gap for a right turn from stop (Case B-2). For sight distance looking to the left at approaching southbound traffic (i.e., Case B2, right turn from stop), a 6.5-second time gap was used. Based on the AASHTO sight distance formulas, an intersection sight distance of 526 feet is desirable with a minimum stopping sight distance of 495 feet.

Figure 34 shows the sight distance analysis for the project driveway at 25th Street. The restricted use areas shown on Figure 34 should be kept free of objects that could substantially obstruct the line of sight, including

parked vehicles and landscaping over two feet in height. Sufficient stopping sight distance and intersection sight distance would be provided for vehicles exiting the project driveway at 25th Street with implementation of the recommended landscaping and on-street parking restrictions (See Figure 34).

Restricted Use Area

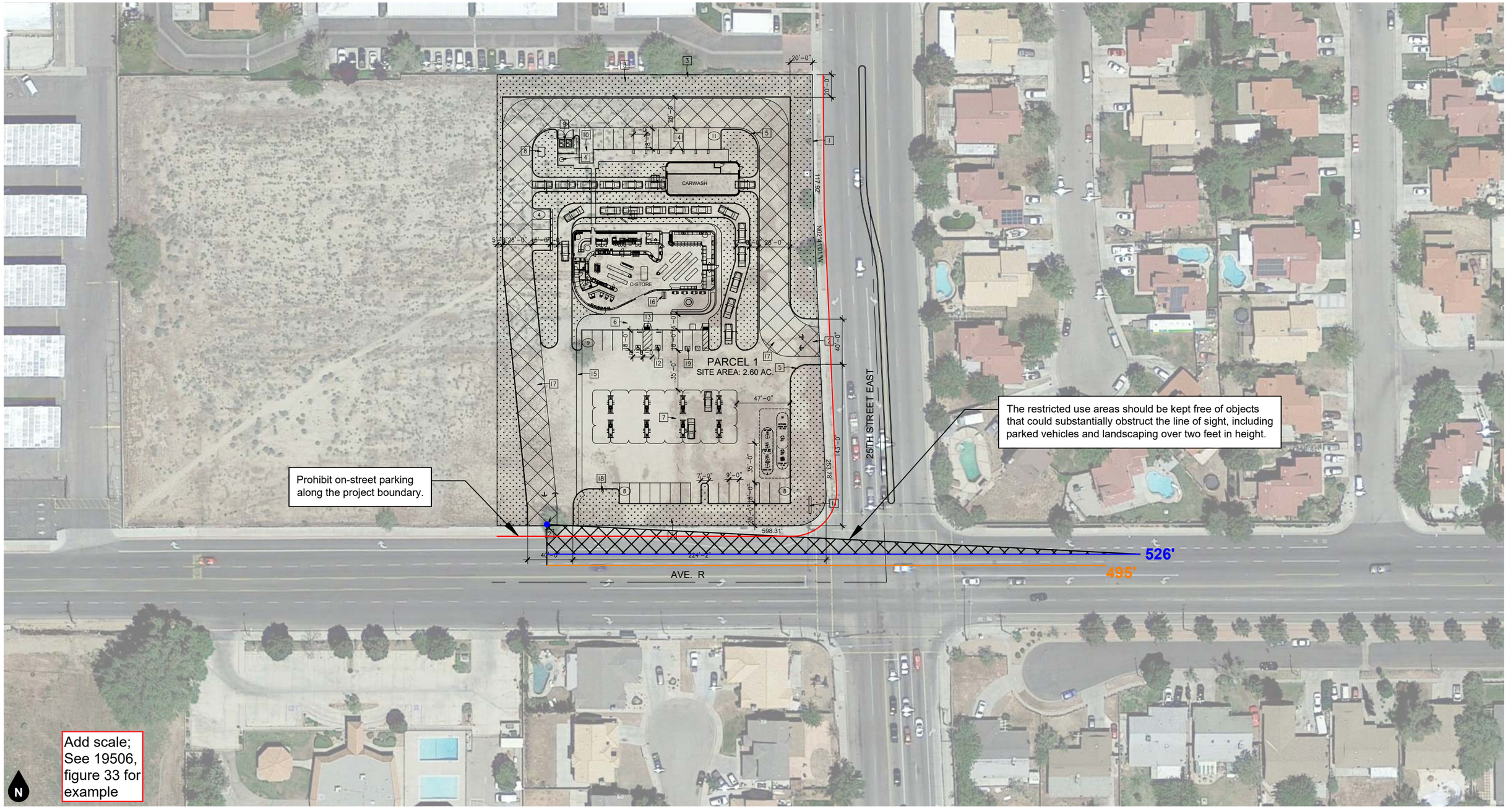
The landscape plan for the site should utilize the sight distance principals to avoid placing obstructions (such as dense trees or monument signs) within the limited use area on either side of the proposed project driveways. Ultimately, the final grading, landscaping, and street improvement plans should demonstrate that sight distance standards are met in accordance with applicable City of Palmdale distance standards.

Table 7
Site Access Queuing Analysis

Study Intersection	Approach	Lane	Storage Length (Feet)[2]	Peak Hour 95th-Percentile Queue Length (Feet)[1] Opening Year (2024) With Project With Improvements AM	PM	Adequate Storage Provided 2024
3. 25th Street at Avenue R	Northbound	Left	300	400	180	YES[3]
	Southbound	Left	250	265	255	YES[4]
	Eastbound	Left	250	80	80	YES
6. Project Driveway at Avenue R	Southbound	Right	150	20	15	YES
	Eastbound	Left	1600	<10	<10	YES
	Westbound	Shared	220	<10	<10	YES
7. 25th Street at Project Driveway	Southbound	Shared	195	<10	<10	YES
	Eastbound	Right	70	20	25	YES

Notes:

1. The forecast 95th-percentile queue lengths shown in the delay calculation worksheets have been rounded up to nearest 5-foot increment.
2. Length of turning lane storage or distance to the adjacent driveway.
3. Additional storage length is available within the two-way left turn for a total length of approximately 500 feet before the queue would interfere with the upstream intersection.
4. Turning lane to be lengthened per study recommendation with the proposed project median construction.

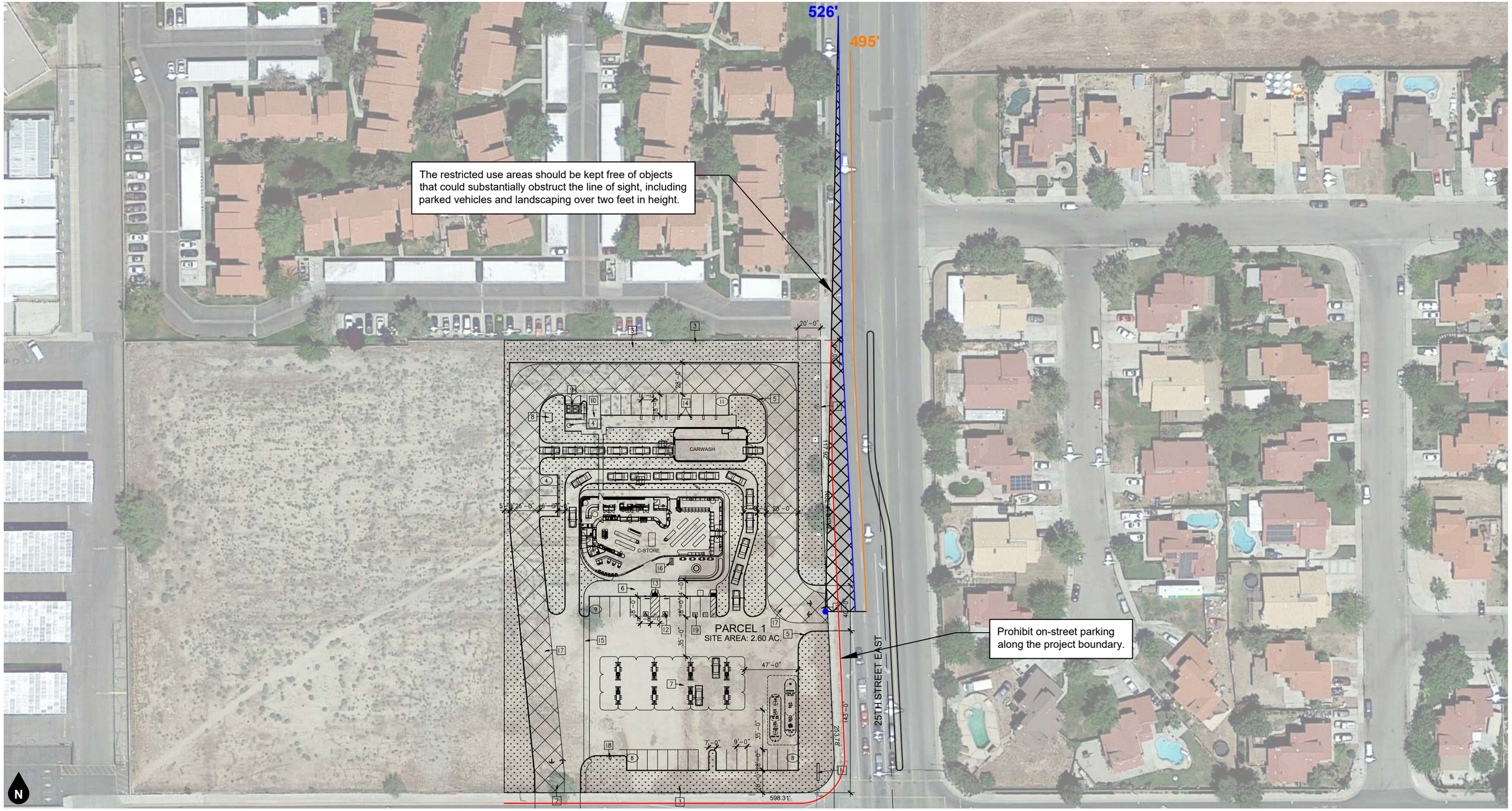


Legend

- Intersection Sight Distance
- Stopping Sight Distance
- Restricted Use Area
- Driver's Eye (10 foot setback from curbline extension and 3 feet right of centerline)

Major Road Design Speed (Vm = 55 MPH)
Stopping Sight Distance = 495 Feet
Corner Sight Distance (CSD) = 1.47 x Vm xTg
Time Gap For Cars (Tg = 6.5sec. Right Turn and 7.5sec. Left Turn)
CSD Right = 526 Feet
CSD Left = 606 Feet

Figure 33
Sight Distance Figure - Project Driveway at Avenue R



Legend
- Intersection Sight Distance
- Stopping Sight Distance
- Restricted Use Area
- Driver's Eye (10 foot setback from curbline extension and 3 feet right of centerline)

Major Road Design Speed (Vm = 55 MPH)
Stopping Sight Distance = 495 Feet
Corner Sight Distance (CSD) = 1.47 x Vm xTg
Time Gap For Cars (Tg = 6.5sec. Right Turn and 7.5sec. Left Turn)
CSD Right = 526 Feet
CSD Left = 606 Feet

Figure 34
Sight Distance Figure - 25th Street at Project Driveway

8. IMPROVEMENTS & FAIR SHARE ANALYSIS

This section summarizes the recommended improvements identified in the previous sections of this report and the project's fair share toward any improvements required for cumulative conditions.

Project design features (as detailed in the Site Access & On-Site Circulation section) involve improvements necessary to provide project site access and construction of a raised median on 25th Street along the project site frontage.

Since the proposed project is not forecast to cause any substantial adverse transportation effects, no additional improvements or fair share contributions are recommended.

9. CONCLUSIONS

This section summarizes the proposed project, operational findings, and identifies recommendations (if any) as specified in previous sections of this study.

PROJECT TRIP GENERATION

The proposed project is forecast to generate a total of approximately 5,685 new daily trips, including 155 new trips during the AM peak hour and 185 new trips during the PM peak hour.

LEVEL OF SERVICE ANALYSIS

The study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Project and Opening Year (2024) With Project conditions. The proposed project is forecast to result in a no substantial transportation effects for Existing Plus Project and Opening Year (2024) With Project conditions.

SUMMARY OF IMPROVEMENTS

Project design features (as detailed in the Site Access & On-Site Circulation section) involve improvements necessary to provide project site access and construction of a raised median on 25th Street along the project site frontage.

Since the proposed project is not forecast to cause any substantial adverse transportation effects, no additional improvements or fair share contributions are recommended.

APPENDICES

Appendix A Glossary
Appendix B Scoping Agreement
Appendix C Traffic Count Data
Appendix D Intersection Level of Service Worksheets
Appendix E Traffic Signal Warrant Worksheet

APPENDIX A

GLOSSARY

ACRONYMS

AC	Acres
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
DU	Dwelling Unit
ICU	Intersection Capacity Utilization
GFA	Gross Floor Area
LOS	Level of Service
PCE	Passenger Car Equivalent
SF	Square Foot
SP	Service Population
TSF	Thousand Square Feet
V/C	Volume to Capacity Ratio
VMT	Vehicle Miles Traveled

TERMS

ACTUATED SIGNAL CONTROL: A type of traffic signal control in which display of each phase depends on whether the corresponding phase detector has registered a service call or the phase is on recall.

ACTUATION: Detection of a roadway user that is forwarded to the signal controller.

AVERAGE DAILY TRAFFIC: The average 24-hour volume for a stated period divided by the number of days in that period. For example, Annual Average Daily Traffic is the total volume during a year divided by 365 days.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A point of constriction along a roadway that limits the amount of traffic that can proceed downstream from its location.

CALL: An indication within a signal controller that a particular phase is waiting for service, either through actuation from a roadway user or phase recall.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass through a roadway facility during a specified period.

CHANNELIZATION: The separation of conflicting traffic movements by use of pavement markings, raised curbs, or other suitable means to facilitate free flow movement.

CLEARANCE INTERVAL: Equal to the yellow plus all-red time, if any, when a traffic signal changes between phases (i.e., the amount of time between the end of a green light from one movement to the beginning of a green light for the next).

COORDINATED SIGNAL CONTROL: A type of traffic signal control in which non-coordinated phases associated with minor movements are constrained such that the coordinated phases are served at a specific time during the signal cycle, thus maintaining the efficient progression of traffic flow along the major roadway.

CONTROL DELAY: The portion of delay attributed to the intersection traffic control (such as a traffic signal or stop sign). It includes initial deceleration, queue move-up time, stopped delay, and final acceleration delay.

CORDON: An imaginary boundary line around or across a study area across which vehicles, persons, or other information can be collected for survey and analytical purposes.

CORNER SIGHT DISTANCE: The minimum sight distance required by the driver of a vehicle to cross or enter the lanes of the major roadway without requiring approaching traffic traveling at a given speed to radically alter their speed or trajectory.

CYCLE: A complete sequence of signal indications for all phases. Also known as a signal cycle.

CYCLE LENGTH: The total time for a traffic signal to complete one full cycle.

DAILY CAPACITY: A theoretical value representing the daily traffic volume that will typically result in a peak hour volume equal to the capacity of the roadway.

DELAY: The total additional travel time experienced by a roadway user (driver, passenger, bicyclist, or pedestrian) beyond that required to travel at a desired speed.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device used to count or determine the presence of a roadway user.

DESIGN SPEED: A speed used for purposes of designing horizontal and vertical alignments of a highway.

DIRECTIONAL SPLIT: The percent of two-way traffic traveling in a specified direction.

DIVERSION: The rerouting of traffic from a normal path of travel between two points, such as to avoid congestion or perform a secondary trip.

FREE FLOW: Traffic flow that is unaffected by a traffic control and/or or upstream or downstream conditions.

GAP: Time or distance between two vehicles measured from rear bumper of the front vehicle to front bumper of the second vehicle.

GAP ACCEPTANCE: The method by which a driver accepts an available gap in traffic to enter or cross the road.

HEADWAY: Time or distance between two successive vehicles measured from same point on both vehicles (i.e., front bumper to front bumper). Also known as gap.

LEVEL OF SERVICE: A grading scale of quantitative performance measures representing the quality of service of a transportation facility or service from an average traveler's perspective.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MULTI-MODAL: More than one mode, such as automobile, transit, bicycle, and pedestrian.

OFFSET: The time interval between the beginning of a traffic signal cycle at one intersection and the beginning of signal cycle an adjacent intersection.

PLATOON: A set of vehicles traveling at similar speed and moving as a general group with clear separation between other vehicles ahead and behind.

PASSENGER CAR EQUIVALENT: A metric used to assess the impact of larger vehicles, such as trucks, recreational vehicles, and buses, by converting the traffic volume of larger vehicles to an equivalent number of passenger cars.

PEDESTRIAN CLEARANCE INTERVAL: Also known as the "Flashing Don't Walk" interval, it signals the end of pedestrian entry into the crosswalk following the "Walk" indication and provides time for pedestrians who have already entered the crosswalk to finishing crossing.

PEAK HOUR: The hour within a day in which the maximum volume occurs.

PEAK HOUR FACTOR: The peak hour volume divided by the four times the peak 15-minute flow rate.

PHASE: In traffic signals, the green, yellow, and red clearance intervals assigned to a specified traffic movement.

PRETIMED SIGNAL: A traffic signal operation in which the cycle length, phasing sequence, and phasing times are predetermined and fixed, regardless of actual demand for any given traffic movement. Also known as a fixed time signal.

PROGRESSION: The coordinated movement of vehicles through signalized intersections along a corridor.

QUEUE: The number of vehicles waiting at a service area such as a traffic signal, stop sign, or access gate.

QUEUE LENGTH: The length of vehicle queue, typically expressed in feet, waiting at a service area such as a traffic signal, stop sign, or access gate.

RECALL: A signal phasing operation in which a specified phase places a call to the signal controller each time a conflicting phase is served, thus ensuring the specified phase will be serviced again.

SEMI-ACTUATED CONTROL: A type of traffic signal control in which only the minor movements are provided detection.

SIGHT DISTANCE: The continuous length of roadway visible to a driver or roadway user.

STACKING DISTANCE: The length of area available behind a service area, such as a traffic signal or gate, for vehicle queuing to occur.

STOPPING SIGHT DISTANCE: The minimum distance required by the driver of a vehicle traveling at a given speed to bring the vehicle to a stop after an object on the road becomes visible, including reaction and response time.

TRAFFIC-ACTUATED SIGNAL: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors. Also known as a demand responsive signal.

TRIP OR TRIP END: The one-directional movement of a person or vehicle. Every trip has an origin and a destination at its respective ends (i.e., trip ends). In terms of site trip generation, the same vehicle entering and exiting a site generates two trips: one inbound trip and one outbound trip.

TRIP GENERATION RATE: The rate at which a land use generates trips per the specified land use variable, such per dwelling unit or per thousand square feet.

TURNING RADIUS: The circular arc formed by the smallest turning path radius of the front outside tire of a vehicle, such as that performed by a U-turn maneuver. This is based on the length and width of the wheelbase as well as the steering mechanism of the vehicle.

VEHICLE MILES TRAVELED: A measure of the amount and distance of automobile travel essentially calculated as the sum of each trip times the trip length.

APPENDIX B

SCOPING AGREEMENT

Perrie Ilercil

Subject: FW: Beyond Food Mart (25thStreet & Ave R) - Traffic Scoping Agreement & VMT Screening Letter

From: Jay Nelson <jnelson@cityofpalmdale.org>
Sent: Tuesday, August 02, 2022 7:16 PM
To: Perrie Ilercil <perrie@ganddini.com>; Michael Ramirez (mramirez@beyondfoodmart.com) <mramirez@beyondfoodmart.com>
Cc: Bill Padilla <bpadilla@cityofpalmdale.org>
Subject: RE: Beyond Food Mart (25thStreet & Ave R) - Traffic Scoping Agreement & VMT Screening Letter

Hi Perrie:

The Traffic Scoping Agreement and VMT Screening Letter for CIP 22-006 & SPR 22-007 is approved, and you can proceed with completing the study.

Jay Nelson
City Traffic Engineer

CITY OF PALMDALE

Public Works
38250 Sierra Hwy.
Palmdale, CA 93550
661/267-5300 main
661/267-5320 direct
661/305-3080 cell
Office Hours: Monday-Thursday, 7:30 am - 6 pm. Closed Friday.

From: Perrie Ilercil
Sent: Thursday, July 14, 2022 12:04 PM
To: Jay Nelson (jnelson@cityofpalmdale.org) <jnelson@cityofpalmdale.org>
Cc: Bill Padilla (bpadilla@cityofpalmdale.org) <bpadilla@cityofpalmdale.org>
Subject: RE: Beyond Food Mart (25thStreet & Ave R) - Traffic Scoping Agreement & VMT Screening Letter

Jay,
Please provide an status update on the scoping review.

The intersections were counted prior to the end of school in May, and the report draft will be completed soon.

Sincerely,
Perrie Ilercil, **PE (AZ)**

MEMORANDUM OF UNDERSTANDING

TO: CITY OF PALMDALE

FROM: Perrie Ilercil, PE (AZ) | GANDDINI GROUP, INC.

DATE: June 29, 2022

SUBJECT: **Beyond Food Mart Palmdale (25th Street & Ave R) Traffic Study Scope**
Project No.: 19524

The purpose of this scoping document is to outline the proposed traffic analysis parameters and assumptions for the Beyond Food Mart Palmdale (25th Street & Ave R) for review/concurrence by City of Palmdale staff.

PROJECT DESCRIPTION

The 5.69-acre project site is located at northwest corner of 25th Street East and Avenue R in the City of Palmdale California. The project site is currently vacant and zoned C-1. Figure 1 shows the regional vicinity map and Figure 2 shows the project location map.

The proposed project involves construction of a gasoline station with eight (8) dual-sided fuel pumps (i.e., 16-vehicle fueling positions), a 7,460 square foot convenience store, and an approximately 1,790 square foot automatic car wash tunnel. Vehicular access to the project site is proposed to be provided by a full access driveway at Avenue R and a restricted right turn in right turn out driveway on 25th Street. The proposed site plan is illustrated on Figure 3 and the study area is shown on Figure 4.

PROJECT TRIP GENERATION & DISTRIBUTION

Table 1 shows the project trip generation based upon rates obtained from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition, 2021) for Land Use Code 945 Convenience Store Gas Station (5.5-10 TSF) and 948 Automated Car Wash. Applicable pass-by trip reductions as prescribed in the ITE *Trip Generation Handbook* (3rd Edition, 2017) have been applied to the net trip generation.

As shown in Table 1, the proposed project is forecast to generate approximately 5,685 daily trips, including 155 trips during the AM peak hour and 185 trips during the PM peak hour.

Figures 5 and 6 illustrate the forecast directional distribution patterns for the project-generated trips developed from engineering judgement based on review of surrounding land uses and the local and regional roadway facilities in the project vicinity.

STUDY AREA

In accordance the County of Los Angeles *Transportation Impact Analysis Guidelines* (July 23, 2020) [“County TIA Guidelines”], the study area shall consist of study intersections which are adjacent to the project or that are expected to be integral to the project’s site access. Adjacent classified intersections that the project is forecast to contribute 50 or more peak hour trips are included as study intersections. Based on the project

trip generation and distribution forecasts, the study area would consist of the following study intersections and study roadway segments, each within City of Palmdale jurisdiction and illustrated on Figure 6:

Study Intersections[1]
1. 20th Street (NS) at Avenue R (EW)
2. 25th Street (NS) Palmdale Boulevard (EW)
3. 25th Street (NS) at Avenue R (EW)
4. 25th Street Avenue (NS) at Avenue R-8 (EW)
5. 30th Street (NS) at Avenue R (EW)
6. Project Driveway (NS) at Avenue R (EW)
7. 25th Street (NS) at Project Driveway (EW)

TRAFFIC COUNTS

New intersection turning movement counts will be collected at the study intersections during the AM peak period (7:00 AM – 9:00 AM) and PM peak period (4:00 PM – 6:00 PM). Counts will be collected on one typical weekday (Tuesday, Wednesday, or Thursday) while local schools are in session and shall avoid weeks with a holiday, special events, construction activities, or other conditions which can alter the counts.

ANALYSIS METHODOLOGY

Study intersection and roadway segment performance shall be calculated in accordance with the parameters outlined below:

Intersection HCM Delay Methodology

In accordance with County TIA Guidelines requirements, signalized and unsignalized study intersections are analyzed using the intersection delay methodology based on procedures contained in the *Highway Capacity Manual* (Transportation Research Board, 7th Edition):

- Saturation flow rate default of 1900
- Peak hour factor (PHF) based on collected counts will be used for the existing conditions.
- A PHF of 0.95 will be used for future conditions.

ANALYSIS SCENARIOS

The traffic study shall evaluate the following analysis scenarios for typical weekday AM and PM peak hour conditions:

- Existing
- Existing Plus Project
- Opening Year (2024) Without Project
- Opening Year (2024) With Project

As the proposed project does not involve a General Plan Amendment, a horizon year analysis is not necessary.

[1] NS = north-south roadway; E-W – east-west roadway.

FORECASTING METHODOLOGY

To account for ambient growth, Opening Year (2024) roadway volumes shall be increased by a growth rate of one and one-half percent (1.5%) per year over a two (2) year period for a total growth factor of 1.03. This provides a conservative growth estimate compared to the annual growth rate of 1.47% per year derived from the *2010 Congestion Management Program for Los Angeles County* General Traffic Volume Growth Factors (Appendix D, Exhibit D-1).

In addition, a list of pending and approved/unconstructed development projects shall be requested from the City of Palmdale. Trip forecasts for other development projects within the project study area shall be determined based on trip rates from the ITE *Trip Generation Manual* and will be added to existing roadway volumes for the opening year analysis scenarios.

TRANSPORTATION EFFECTS

The City of Palmdale has established a minimum acceptable Level of Service standards during peak hour conditions of Level of Service C or better, while Level of Service D may be acceptable for a short duration during peak periods. Therefore, Level of Service D or better is generally considered acceptable during peak hours and Level of Service E/F is considered unacceptable.

A substantial transportation effect at unsignalized study intersections may require improvements if one or more of the following conditions are met:

- The addition of project trips to a study intersection results in the degradation of intersection operations from LOS D or better operations to LOS E or F.

- The project-related increase in delay is equal to or greater than 2.0 seconds at an intersection that is already operating at LOS E or F.

- The intersection meets peak hour signal warrants either caused by project volumes, or project volumes are added at an intersection that meets peak hour signal warrants in the baseline scenario(s). Peak hour signal warrants should be determined based on the latest California Manual on Uniform Traffic Control Devices (CA MUTCD).

SITE ACCESS AND ON-SITE CIRCULATION ANALYSIS

Site access and on-site circulation analysis shall include the following:

- Review stopping sight distance and intersection sight distance at the project driveways on 25th Street and Avenue R in accordance the American Association of State Highway and Transportation Officials (AASHTO) *A Policy on* Geometric Design of Highways and Street (7th Edition, 2018) ["AASHTO Greenbook"].

- Review vehicle queue and storage length requirements for the project driveways based on the 95th-percentile back-of-queue HCM methodology:
  - Avenue R westbound left turn at the project driveway
  - Avenue R eastbound left turn and through lanes at 25th Street
  - 25th Street southbound left turn at Avenue R
  - 25th Street northbound left turn at Canyon Creek Apartment driveway

- Assess the need for turning movement restrictions or installation of a traffic signal at the project driveways.

- Turning radii/swept path drawings for automobiles and trucks (delivery/waste collection) will be obtained from the project architect or civil engineer and provided as an attachment in the appendix of the report.

VEHICLE MILES TRAVELED (VMT) SCREENING ASSESSMENT

The VMT analysis will be prepared in accordance with the City Transportation Study Guidelines. Based on preliminary review, the proposed project is anticipated to satisfy the screening criteria for projects located in a low VMT area; therefore, a detailed VMT analysis is not anticipated to be required. For compliance with California Environmental Quality Act (CEQA) requirements, a vehicle miles traveled (VMT) assessment for the project is provided in a separate document.

CONCLUSION

We appreciate the opportunity to provide this memorandum of understanding for your review. Should you have any questions or comments regarding the proposed scope, please contact me at 714-795-3100 ext. 103 or 949-257-3126.

Table 1
Project Trip Generation

Trip Generation Rates									
Land Use	Source[1]	Land Use Variable[2]	AM Peak Hour			PM Peak Hour			Daily Rate
			% In	% Out	Rate	% In	% Out	Rate	
Automated Car Wash	ITE 948 [3]	CWT	*50%*	50%	*34.44*	50%	50%	77.50	*861.11*
Convenience Store Gas Station (5.5-10 ksf GFA)	ITE 945	VFP	50%	50%	31.60	50%	50%	26.90	345.75

Trips Generated									
Land Use	Source	Quantity	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Convenience Store Gas Station (5.5-10 ksf GFA)	ITE 945	16 VFP	253	253	506	215	215	430	5,532
Pass-by Trips (76%AM, 75%PM)	ITE 945[4]		*-192*	*-193*	*-385*	*-161*	*-162*	*-323*	*-708*
Subtotal			61	60	121	54	53	107	4,824
Automated Car Wash	ITE 948	1 CWT	17	17	34	39	39	78	861
Subtotal Trips without Pass-by Adjustment			270	270	540	254	254	508	6,393
Subtotal Pass-by			-192	-193	-385	-161	-162	-323	-708
TOTAL VEHICLE TRIPS GENERATED			**78**	**77**	**155**	**93**	**92**	**185**	**5,685**

Notes:

1. ITE = Institute of Transportation Engineers *Trip Generation Manual* (11th Edition, 2021); ### = Land Use Code. All rates based on General Urban/Suburban setting.
2. TSF = Thousand Square Feet; VFP = Vehicle Fuel Position.
3. San Diego Association of Governments (SANDAG) *Vehicular Traffic Generation Rates* (April 2002). Where the daily or peak hour rate is not provided by ITE, the SANDAG percentage of peak hour to daily rate is used to calculate the missing data. Where the peak hour distribution is not provided by ITE, the SANDAG peak hour distribution is used.
4. Pass-by rates calculated in accordance with procedures in the ITE *Trip Generation Handbook* (3rd Edition, 2017). Daily pass-by is calculated as the sum of the AM and PM pass-by trips.

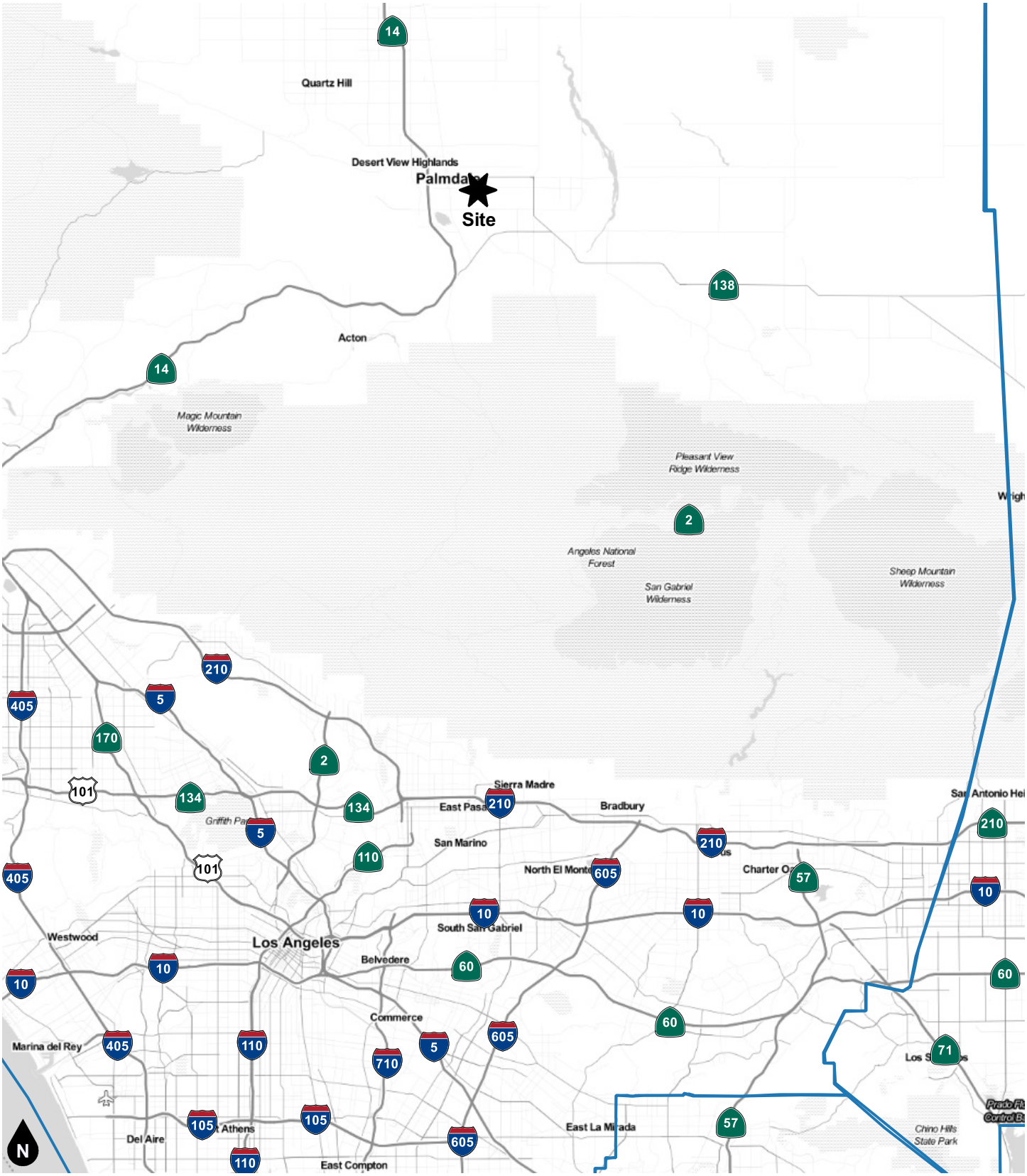


Figure 1
Regional Vicinity Map

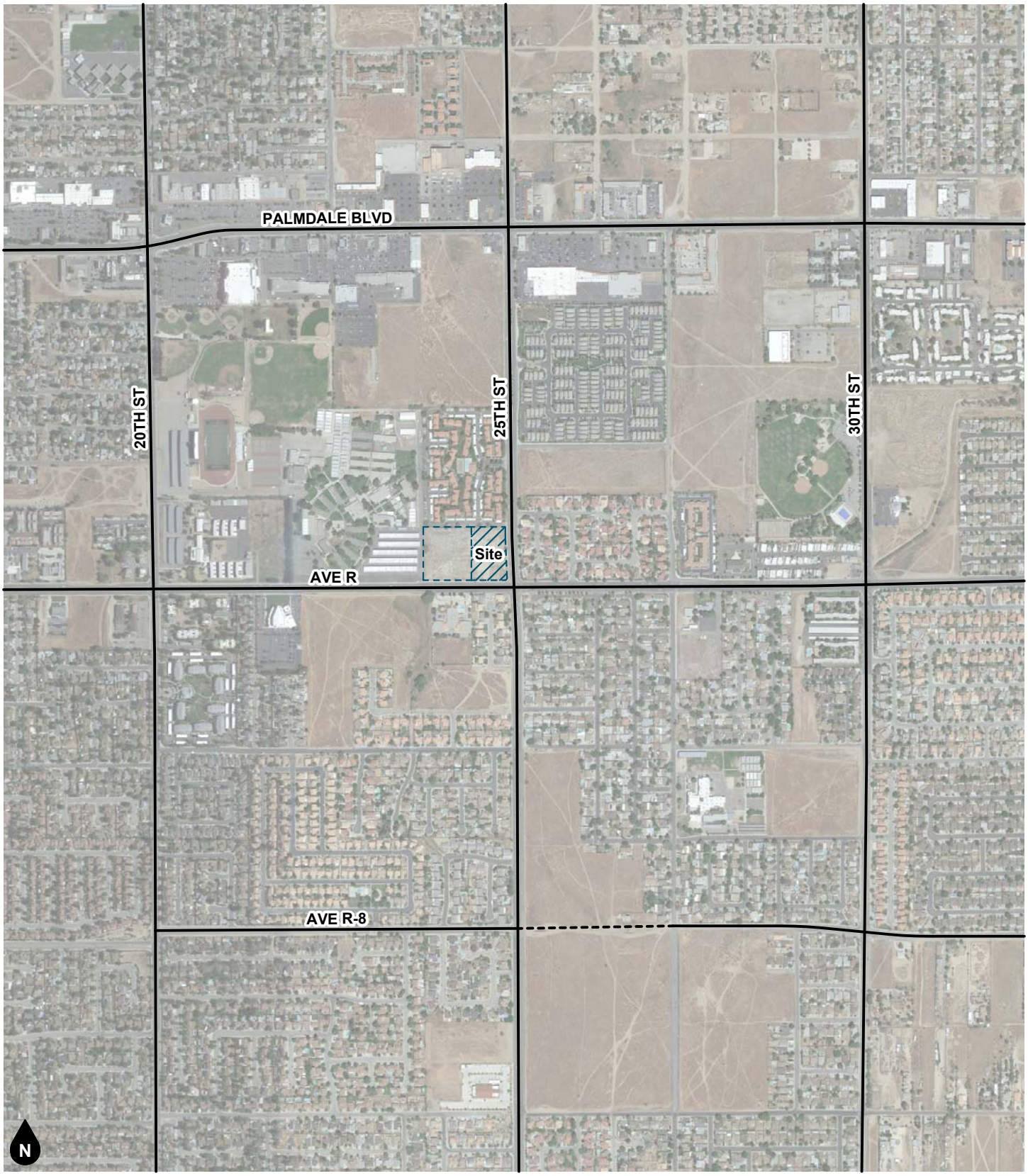


Figure 2
Project Location Map

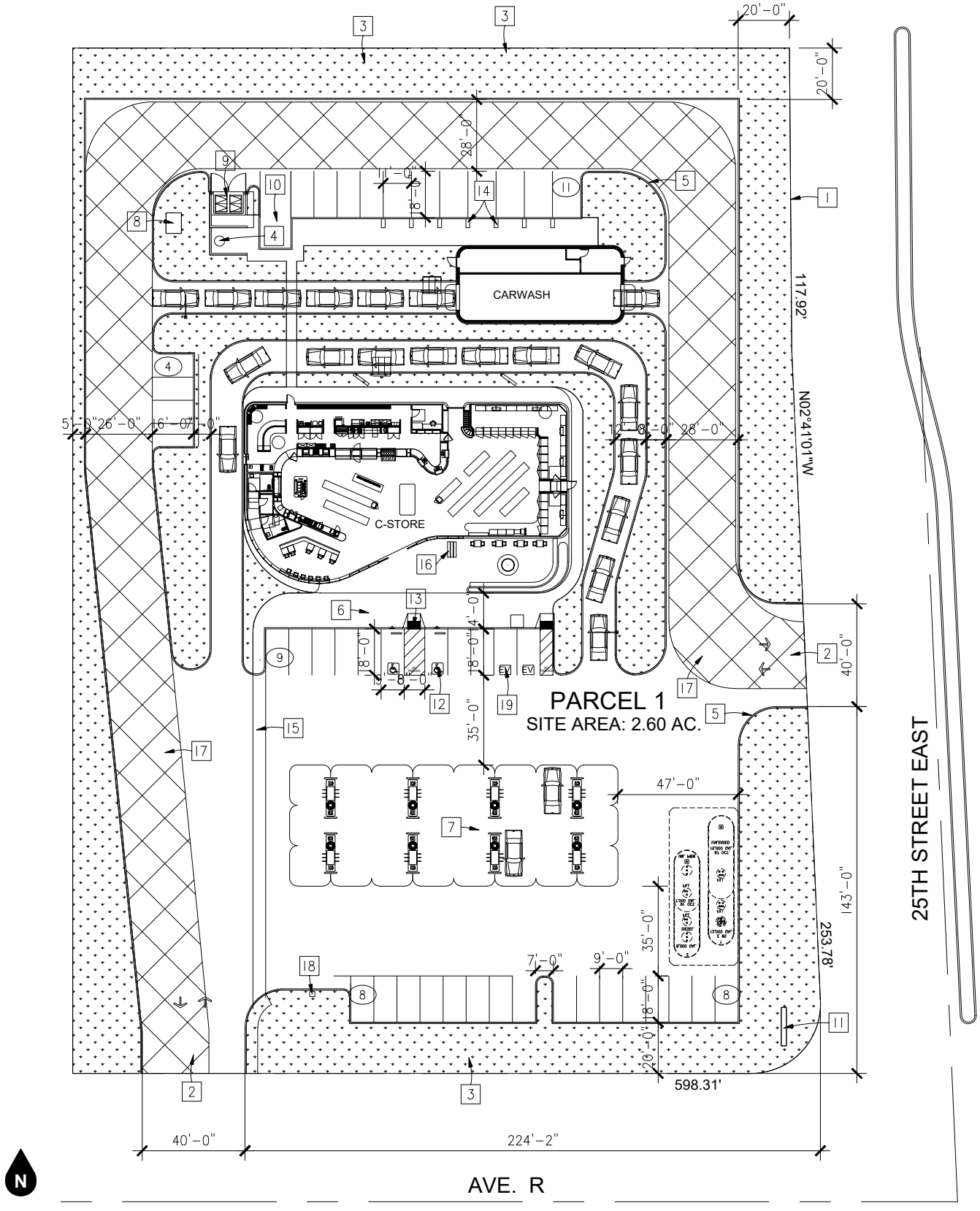
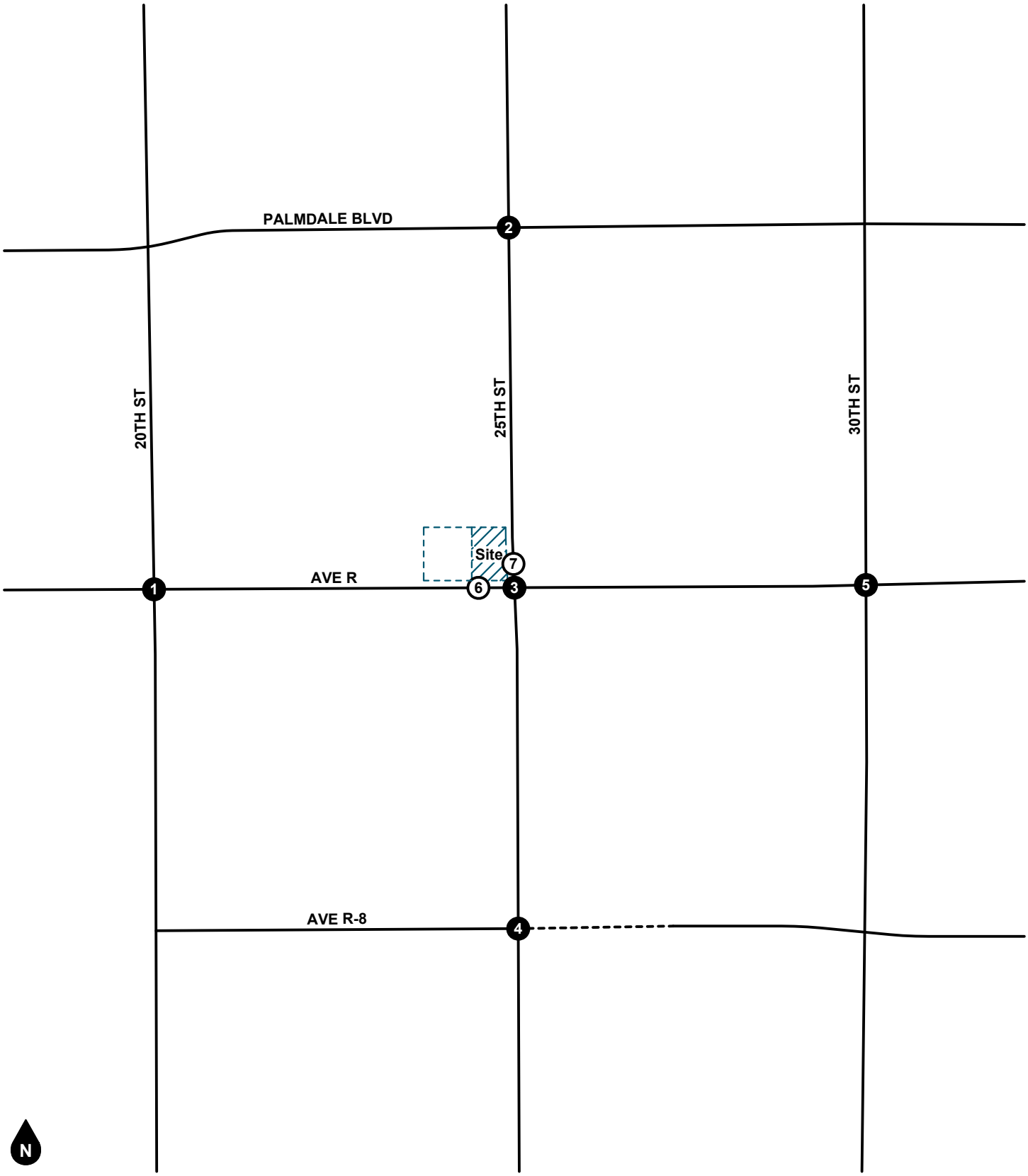


Figure 3
Site Plan



Legend

Study Intersection

Project Driveway

Figure 4
Study Area

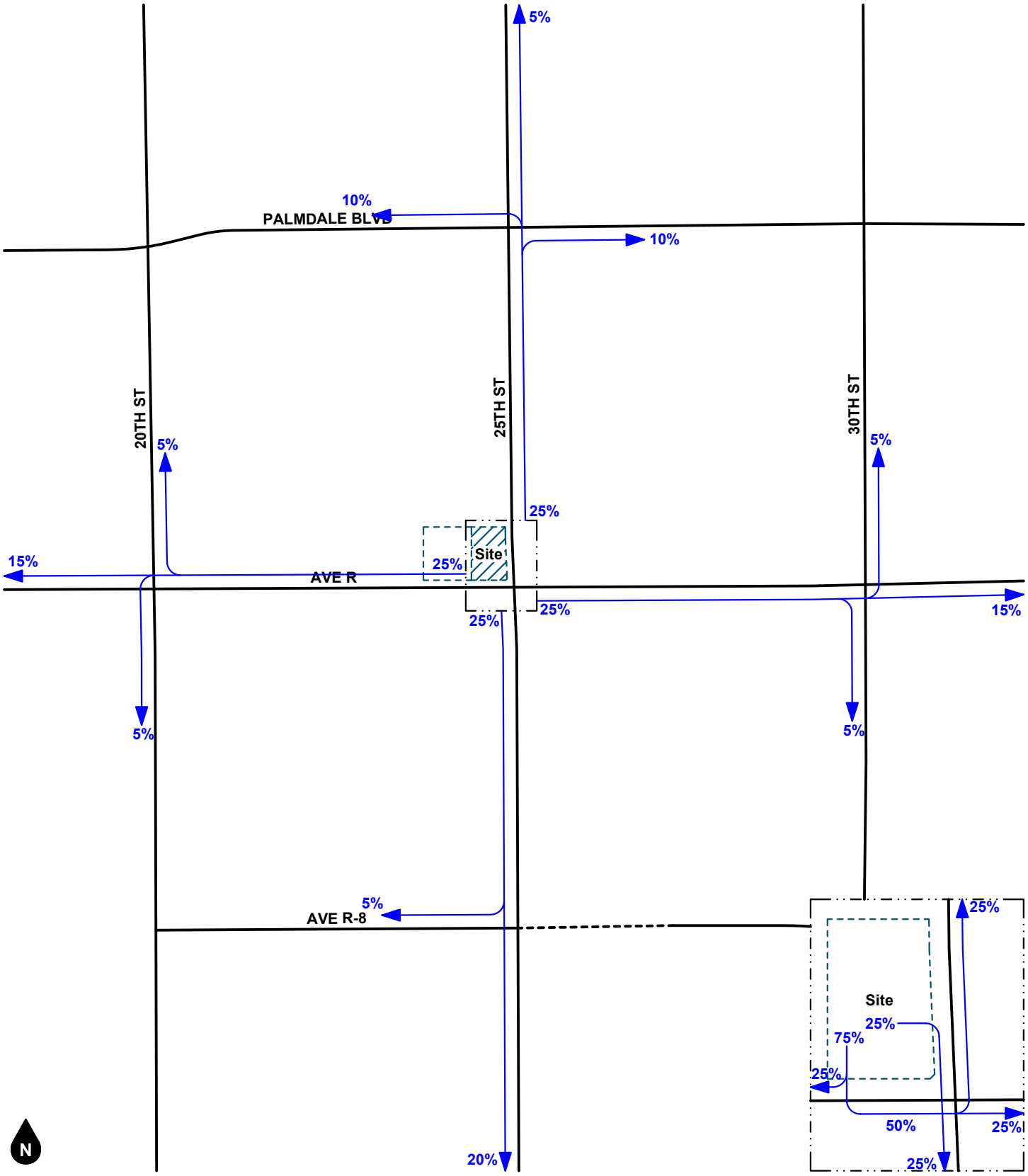


Figure 5
Project Outbound Trip Distribution

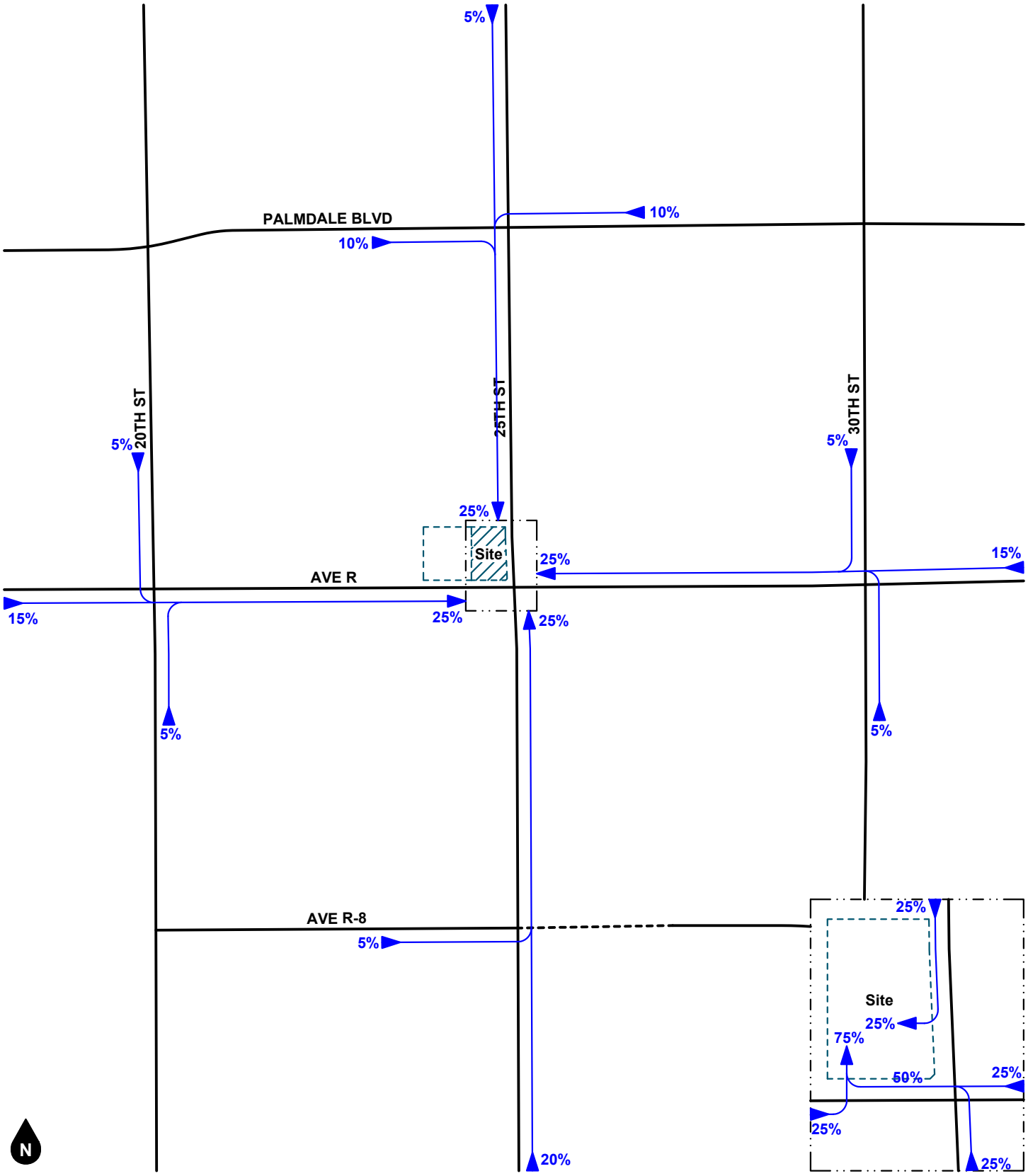


Figure 6
Project Inbound Trip Distribution

APPENDIX C

TRAFFIC COUNT DATA

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

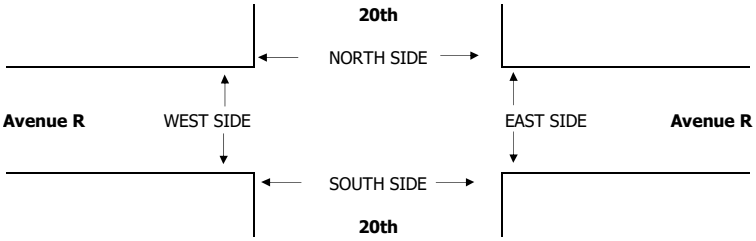
DATE:	LOCATION:	Palmdale	PROJECT #:	SC3479
Thu, May 26, 22	NORTH & SOUTH:	20th	LOCATION #:	1
	EAST & WEST:	Avenue R	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N / ◄ W / E ► / S ▼

☑ Add U-Turns to Left Turns

	NORTHBOUND 20th			SOUTHBOUND 20th			EASTBOUND Avenue R			WESTBOUND Avenue R				U-TURNS				
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM 7:00 AM	29	115	28	25	68	17	44	53	18	21	75	43	536	0	0	0	0	0
7:15 AM	24	97	32	29	60	30	42	103	8	27	133	53	638	0	0	0	0	0
7:30 AM	26	85	20	23	47	16	23	61	20	35	124	36	516	0	0	0	0	0
7:45 AM	24	76	26	27	37	14	28	77	21	15	162	36	543	0	0	0	0	0
8:00 AM	14	59	25	21	27	16	26	95	19	17	152	37	508	0	0	0	0	0
8:15 AM	23	63	14	19	37	12	29	74	15	18	122	42	468	0	0	0	1	1
8:30 AM	24	51	13	19	42	11	18	71	11	15	129	22	426	0	0	0	0	0
8:45 AM	25	67	9	21	63	31	18	57	13	9	99	23	435	0	0	0	0	0
VOLUMES	189	613	167	184	381	147	228	591	125	157	996	292	4,070	0	0	0	1	1
APPROACH %	20%	63%	17%	26%	54%	21%	24%	63%	13%	11%	69%	20%						
APP/DEPART	969	/	1,133	712	/	662	944	/	943	1,445	/	1,332	0					
BEGIN PEAK HR		7:00 AM																
VOLUMES	103	373	106	104	212	77	137	294	67	98	494	168	2,233					
APPROACH %	18%	64%	18%	26%	54%	20%	28%	59%	13%	13%	65%	22%						
PEAK HR FACTOR		0.846			0.826			0.814			0.892		0.875					
APP/DEPART	582	/	678	393	/	377	498	/	504	760	/	674	0					
PM 4:00 PM	28	50	12	20	71	17	15	110	26	13	123	23	508	0	0	0	0	0
4:15 PM	16	67	9	32	67	24	15	139	31	11	106	24	541	0	0	0	0	0
4:30 PM	20	50	13	34	73	11	18	131	27	14	99	25	515	0	0	0	0	0
4:45 PM	29	68	11	29	76	12	7	98	34	15	99	12	490	0	0	0	0	0
5:00 PM	21	57	17	28	65	19	16	138	27	12	88	15	503	0	0	0	0	0
5:15 PM	18	73	10	27	88	15	9	119	34	11	99	16	519	0	0	0	0	0
5:30 PM	24	45	16	23	75	14	9	142	36	8	98	21	511	0	0	0	0	0
5:45 PM	22	60	15	18	64	9	19	122	21	28	102	42	522	0	0	0	0	0
VOLUMES	178	470	103	211	579	121	108	999	236	112	814	178	4,109	0	0	0	0	0
APPROACH %	24%	63%	14%	23%	64%	13%	8%	74%	18%	10%	74%	16%						
APP/DEPART	751	/	756	911	/	927	1,343	/	1,313	1,104	/	1,113	0					
BEGIN PEAK HR		5:00 PM																
VOLUMES	85	235	58	96	292	57	53	521	118	59	387	94	2,055					
APPROACH %	22%	62%	15%	22%	66%	13%	8%	75%	17%	11%	72%	17%						
PEAK HR FACTOR		0.936			0.856			0.925			0.785		0.984					
APP/DEPART	378	/	382	445	/	469	692	/	675	540	/	529	0					



	PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM 7:00 AM	36	8	33	21	98	35	8	33	18	94	1	0	0	3	4
7:15 AM	47	3	29	11	90	47	3	29	11	90	0	0	0	0	0
7:30 AM	1	2	10	1	14	1	2	10	1	14	0	0	0	0	0
7:45 AM	5	1	5	4	15	5	1	5	4	15	0	0	0	0	0
8:00 AM	3	2	3	0	8	3	2	3	0	8	0	0	0	0	0
8:15 AM	4	1	2	2	9	4	1	2	2	9	0	0	0	0	0
8:30 AM	5	0	5	1	11	5	0	4	1	10	0	0	1	0	1
8:45 AM	4	2	3	0	9	4	1	3	0	8	0	1	0	0	1
TOTAL	105	19	90	40	254	104	18	89	37	248	1	1	1	3	6
AM BEGIN PEAK HR			7:00 AM			88	14	77	34	213					
PM 4:00 PM	0	3	3	2	8	0	3	3	2	8	0	0	0	0	0
4:15 PM	2	0	0	1	3	2	0	0	1	3	0	0	0	0	0
4:30 PM	2	0	11	1	14	1	0	10	1	12	1	0	1	0	2
4:45 PM	0	0	5	2	7	0	0	5	2	7	0	0	0	0	0
5:00 PM	3	1	1	1	6	3	1	1	0	5	0	0	0	1	1
5:15 PM	1	0	1	3	5	1	0	1	2	4	0	0	0	1	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	1	2	0	1	0	1	2	0	0	0	0	0
TOTAL	8	5	21	11	45	7	5	20	9	41	1	0	1	2	4
PM BEGIN PEAK HR			5:00 PM			4	2	2	3	11					

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

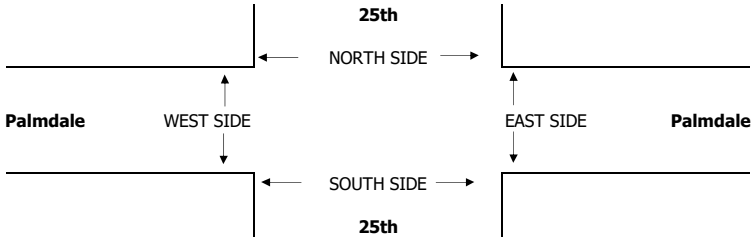
DATE:	LOCATION:	Palmdale	PROJECT #:	SC3479
Thu, May 26, 22	NORTH & SOUTH:	25th	LOCATION #:	2
	EAST & WEST:	Palmdale	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

☑ Add U-Turns to Left Turns

		NORTHBOUND 25th			SOUTHBOUND 25th			EASTBOUND Palmdale			WESTBOUND Palmdale				U-TURNS				
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	44	36	24	5	33	3	6	128	36	19	175	5	514	2	0	2	0	4
	7:15 AM	56	55	44	7	39	4	5	173	32	33	178	6	632	1	0	0	0	1
	7:30 AM	60	64	29	9	24	3	2	147	13	20	212	5	588	0	0	0	0	0
	7:45 AM	45	63	30	11	24	11	4	138	30	22	241	11	630	0	0	1	0	1
	8:00 AM	40	51	31	15	39	7	7	175	30	15	198	7	615	1	0	2	0	3
	8:15 AM	53	51	25	25	21	5	6	154	27	21	195	8	591	3	0	3	0	6
	8:30 AM	44	39	16	8	22	7	3	143	24	12	202	11	531	0	0	1	0	1
	8:45 AM	61	48	14	17	37	7	8	135	27	11	203	13	581	1	0	1	0	2
	VOLUMES	403	407	213	97	239	47	41	1,193	219	153	1,604	66	4,682	8	0	10	0	18
	APPROACH %	39%	40%	21%	25%	62%	12%	3%	82%	15%	8%	88%	4%						
	APP/DEPART	1,023	/	504	383	/	619	1,453	/	1,503	1,823	/	2,056	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	201	233	134	42	126	25	18	633	105	90	829	29	2,465					
	APPROACH %	35%	41%	24%	22%	65%	13%	2%	84%	14%	9%	87%	3%						
	PEAK HR FACTOR		0.916			0.791			0.892			0.865		0.975					
	APP/DEPART	568	/	277	193	/	323	756	/	809	948	/	1,056	0					
PM	4:00 PM	68	39	18	30	56	7	3	206	45	19	182	11	684	2	0	0	1	3
	4:15 PM	64	48	19	30	43	13	6	205	38	17	142	15	640	2	0	0	3	5
	4:30 PM	55	48	27	16	41	4	4	263	49	16	220	8	751	1	0	0	1	2
	4:45 PM	64	39	17	28	57	8	5	220	54	21	155	11	679	0	0	3	2	5
	5:00 PM	67	40	34	26	45	7	8	259	53	11	149	9	708	1	0	1	2	4
	5:15 PM	63	60	30	26	55	9	6	237	59	13	156	10	724	2	0	1	1	4
	5:30 PM	45	33	20	28	48	7	9	242	50	11	130	9	632	1	0	2	0	3
	5:45 PM	63	49	22	24	48	12	14	158	81	11	144	10	636	1	0	1	0	2
	VOLUMES	489	356	187	208	393	67	55	1,790	429	119	1,278	83	5,454	10	0	8	10	28
	APPROACH %	47%	34%	18%	31%	59%	10%	2%	79%	19%	8%	86%	6%						
	APP/DEPART	1,032	/	486	668	/	941	2,274	/	2,195	1,480	/	1,832	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	249	187	108	96	198	28	23	979	215	61	680	38	2,862					
	APPROACH %	46%	34%	20%	30%	61%	9%	2%	80%	18%	8%	87%	5%						
	PEAK HR FACTOR		0.889			0.866			0.951			0.798		0.953					
	APP/DEPART	544	/	243	322	/	472	1,217	/	1,189	779	/	958	0					



		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	1	1	2	4	0	1	1	2	4	0	0	0	0	0
	7:15 AM	0	4	0	0	4	0	4	0	0	4	0	0	0	0	0
	7:30 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	1	0	1	2	0	1	0	1	2	0	0	0	0	0
	8:15 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	8:30 AM	1	1	0	2	4	1	1	0	2	4	0	0	0	0	0
	8:45 AM	1	0	0	1	2	1	0	0	1	2	0	0	0	0	0
	TOTAL	2	9	1	6	18	2	8	1	6	17	0	1	0	0	1
	AM BEGIN PEAK HR			7:15 AM			0	5	0	1	6					
PM	4:00 PM	0	2	0	1	3	0	2	0	0	2	0	0	0	1	1
	4:15 PM	2	3	0	1	6	2	3	0	1	6	0	0	0	0	0
	4:30 PM	4	6	3	3	16	4	4	3	2	13	0	2	0	1	3
	4:45 PM	1	2	1	0	4	1	2	1	0	4	0	0	0	0	0
	5:00 PM	0	2	0	1	3	0	1	0	0	1	0	1	0	1	2
	5:15 PM	2	5	0	6	13	1	5	0	6	12	1	0	0	0	1
	5:30 PM	1	1	0	1	3	1	1	0	1	3	0	0	0	0	0
	5:45 PM	0	2	0	2	4	0	2	0	2	4	0	0	0	0	0
	TOTAL	10	23	4	15	52	9	20	4	12	45	1	3	0	3	7
	PM BEGIN PEAK HR			4:30 PM			6	12	4	8	30					

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

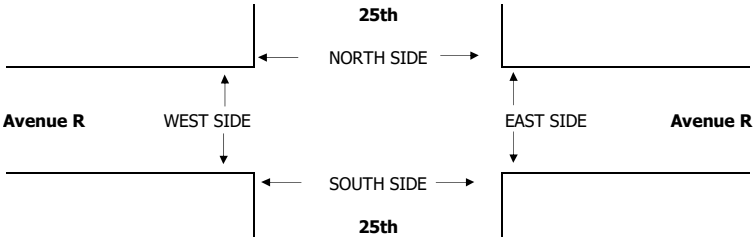
DATE:	LOCATION:	Palmdale	PROJECT #:	SC3479
Thu, May 26, 22	NORTH & SOUTH:	25th	LOCATION #:	3
	EAST & WEST:	Avenue R	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N / ◄ W / E ► / S ▼

☑ Add U-Turns to Left Turns

	NORTHBOUND 25th			SOUTHBOUND 25th			EASTBOUND Avenue R			WESTBOUND Avenue R				U-TURNS				
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 2	ER 1	WL 1	WT 2	WR 1	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM 7:00 AM	67	68	33	12	48	50	12	72	45	26	149	21	603	0	0	0	0	0
7:15 AM	66	108	28	17	67	63	8	114	60	18	191	44	784	0	0	0	0	0
7:30 AM	45	85	18	9	44	26	11	98	37	39	174	29	615	0	0	0	0	0
7:45 AM	18	85	30	18	62	9	9	101	21	40	175	31	599	0	0	0	0	0
8:00 AM	20	88	29	27	69	15	10	105	14	23	168	32	600	0	0	0	0	0
8:15 AM	17	71	26	15	47	17	5	103	12	38	163	37	551	0	0	0	0	0
8:30 AM	21	68	19	12	59	6	5	68	15	38	145	25	481	0	0	0	0	0
8:45 AM	16	77	13	12	60	14	9	86	11	19	103	27	447	0	0	0	0	0
VOLUMES	270	650	196	122	456	200	69	747	215	241	1,268	246	4,680	0	0	0	0	0
APPROACH %	24%	58%	18%	16%	59%	26%	7%	72%	21%	14%	72%	14%						
APP/DEPART	1,116	/	965	778	/	912	1,031	/	1,065	1,755	/	1,738	0					
BEGIN PEAK HR		7:00 AM																
VOLUMES	196	346	109	56	221	148	40	385	163	123	689	125	2,601					
APPROACH %	30%	53%	17%	13%	52%	35%	7%	65%	28%	13%	74%	13%						
PEAK HR FACTOR		0.806			0.723			0.808			0.926		0.829					
APP/DEPART	651	/	511	425	/	507	588	/	550	937	/	1,033	0					
PM 4:00 PM	14	78	35	22	97	13	2	129	21	32	124	38	605	0	0	0	0	0
4:15 PM	18	86	33	18	77	15	6	130	33	36	114	27	593	0	0	0	0	0
4:30 PM	23	83	39	29	74	9	8	140	27	31	97	17	577	0	0	0	0	0
4:45 PM	8	70	31	27	88	9	10	118	25	27	119	32	564	0	0	0	0	0
5:00 PM	13	97	32	11	76	7	8	148	25	26	105	24	572	0	0	0	0	0
5:15 PM	12	84	49	19	103	9	12	135	18	32	91	33	597	0	0	0	0	0
5:30 PM	11	68	45	19	102	8	7	148	25	21	117	24	595	0	1	0	0	1
5:45 PM	24	96	37	36	100	12	4	114	30	22	117	27	619	0	0	0	0	0
VOLUMES	123	662	301	181	717	82	57	1,062	204	227	884	222	4,722	0	1	0	0	1
APPROACH %	11%	61%	28%	18%	73%	8%	4%	80%	15%	17%	66%	17%						
APP/DEPART	1,086	/	942	980	/	1,148	1,323	/	1,543	1,333	/	1,089	0					
BEGIN PEAK HR		5:00 PM																
VOLUMES	60	345	163	85	381	36	31	545	98	101	430	108	2,383					
APPROACH %	11%	61%	29%	17%	76%	7%	5%	81%	15%	16%	67%	17%						
PEAK HR FACTOR		0.904			0.848			0.931			0.962		0.962					
APP/DEPART	568	/	485	502	/	580	674	/	792	639	/	526	0					



	PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM 7:00 AM	22	7	8	14	51	19	7	7	14	47	3	0	1	0	4
7:15 AM	42	14	6	20	82	42	14	6	20	82	0	0	0	0	0
7:30 AM	10	2	3	2	17	10	2	2	2	16	0	0	1	0	1
7:45 AM	1	3	0	1	5	0	3	0	1	4	1	0	0	0	1
8:00 AM	3	1	5	6	15	3	1	5	6	15	0	0	0	0	0
8:15 AM	3	0	0	1	4	2	0	0	1	3	1	0	0	0	1
8:30 AM	1	0	4	1	6	1	0	4	1	6	0	0	0	0	0
8:45 AM	2	2	2	2	8	2	1	2	2	7	0	1	0	0	1
TOTAL	84	29	28	47	188	79	28	26	47	180	5	1	2	0	8
AM BEGIN PEAK HR			7:00 AM			71	26	15	37	149					
PM 4:00 PM	4	1	1	1	7	3	1	1	1	6	1	0	0	0	1
4:15 PM	1	1	2	2	6	0	0	1	0	1	1	1	1	2	5
4:30 PM	1	1	1	0	3	0	1	1	0	2	1	0	0	0	1
4:45 PM	2	0	1	2	5	2	0	1	1	4	0	0	0	1	1
5:00 PM	0	3	1	1	5	0	0	0	1	1	0	3	1	0	4
5:15 PM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0
5:30 PM	1	0	0	2	3	1	0	0	2	3	0	0	0	0	0
5:45 PM	0	0	0	2	2	0	0	0	1	1	0	0	0	1	1
TOTAL	10	6	6	10	32	7	2	4	6	19	3	4	2	4	13
PM BEGIN PEAK HR			5:00 PM			2	0	0	4	6					

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

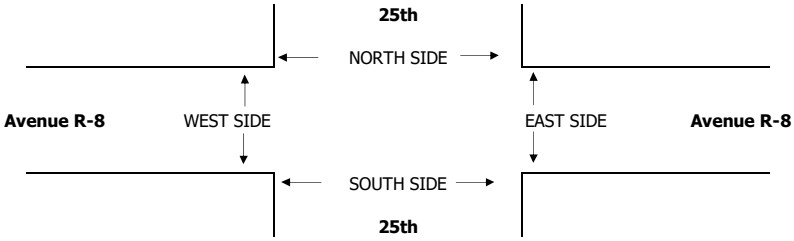
DATE:	LOCATION:	Palmdale	PROJECT #:	SC3479
Thu, May 26, 22	NORTH & SOUTH:	25th	LOCATION #:	4
	EAST & WEST:	Avenue R-8	CONTROL:	STOP E

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

		NORTHBOUND 25th			SOUTHBOUND 25th			EASTBOUND Avenue R-8			WESTBOUND Avenue R-8				U-TURNS				
	LANES:	NL 0	NT 2	NR 0	SL 0	ST 2	SR 0	EL 1	ET 0	ER 1	WL 0	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	21	156	0	0	116	7	11	0	17	0	0	0	328	0	0	0	0	0
	7:15 AM	24	163	0	0	142	4	10	0	19	0	0	0	362	0	0	0	0	0
	7:30 AM	21	118	0	0	114	7	15	0	13	0	0	0	288	0	0	0	0	0
	7:45 AM	20	118	0	0	122	9	20	0	25	0	1	3	318	0	0	0	0	0
	8:00 AM	20	111	0	0	90	13	19	0	20	0	0	0	273	0	0	0	0	0
	8:15 AM	21	111	0	0	107	16	7	0	12	0	0	0	274	0	0	0	0	0
	8:30 AM	23	97	0	0	101	3	3	0	22	0	0	0	249	0	0	0	0	0
	8:45 AM	13	99	0	0	89	4	5	0	10	0	0	0	220	0	0	0	0	0
	VOLUMES	163	973	0	0	881	63	90	0	138	0	1	3	2,312	0	0	0	0	0
	APPROACH %	14%	86%	0%	0%	93%	7%	39%	0%	61%	0%	25%	75%						
	APP/DEPART	1,136	/	1,066	944	/	1,019	228	/	0	4	/	227	0					
	BEGIN PEAK HR		7:00 AM																
	VOLUMES	86	555	0	0	494	27	56	0	74	0	1	3	1,296					
	APPROACH %	13%	87%	0%	0%	95%	5%	43%	0%	57%	0%	25%	75%						
	PEAK HR FACTOR		0.857			0.892			0.722			0.250		0.895					
	APP/DEPART	641	/	614	521	/	568	130	/	0	4	/	114	0					
PM	4:00 PM	27	128	0	0	131	11	4	0	19	0	0	0	320	0	0	0	0	0
	4:15 PM	13	131	0	0	140	6	4	0	31	0	0	0	325	0	0	0	0	0
	4:30 PM	17	143	0	0	130	6	7	0	24	0	0	0	327	0	0	0	0	0
	4:45 PM	18	108	1	0	122	3	3	0	28	0	0	0	283	0	0	0	0	0
	5:00 PM	20	135	0	0	119	7	7	0	21	0	0	0	309	0	0	0	0	0
	5:15 PM	19	146	0	0	135	7	8	0	23	0	0	0	338	0	0	0	0	0
	5:30 PM	16	132	0	0	140	9	7	0	27	0	0	0	331	0	0	0	0	0
	5:45 PM	23	139	0	0	148	6	4	0	21	0	0	0	341	0	0	0	0	0
	VOLUMES	153	1,062	1	0	1,065	55	44	0	194	0	0	0	2,574	0	0	0	0	0
	APPROACH %	13%	87%	0%	0%	95%	5%	18%	0%	82%	0%	0%	0%						
	APP/DEPART	1,216	/	1,106	1,120	/	1,259	238	/	1	0	/	208	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	78	552	0	0	542	29	26	0	92	0	0	0	1,319					
	APPROACH %	12%	88%	0%	0%	95%	5%	22%	0%	78%	0%	0%	0%						
	PEAK HR FACTOR		0.955			0.927			0.868			0.000		0.967					
	APP/DEPART	630	/	578	571	/	634	118	/	0	0	/	107	0					



		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	1	2	3	0	0	0	2	2	0	0	1	0	1
	7:15 AM	0	0	2	2	4	0	0	2	2	4	0	0	0	0	0
	7:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1
	7:45 AM	0	0	0	3	3	0	0	0	3	3	0	0	0	0	0
	8:00 AM	0	0	1	2	3	0	0	0	2	2	0	0	1	0	1
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	2	2	0	0	0	2	2	0	0	0	0	0
	8:45 AM	0	2	0	2	4	0	2	0	2	4	0	0	0	0	0
	TOTAL	0	2	5	13	20	0	2	2	13	17	0	0	3	0	3
	AM BEGIN PEAK HR			7:00 AM			0	0	2	7	9					
PM	4:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	4:15 PM	0	0	1	1	2	0	0	0	0	0	0	0	1	1	2
	4:30 PM	0	0	0	3	3	0	0	0	2	2	0	0	0	1	1
	4:45 PM	0	0	0	5	5	0	0	0	4	4	0	0	0	1	1
	5:00 PM	0	0	0	3	3	0	0	0	2	2	0	0	0	1	1
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	1	2	3	0	0	1	1	2	0	0	0	1	1
	5:45 PM	0	0	0	3	3	0	0	0	3	3	0	0	0	0	0
	TOTAL	0	1	2	17	20	0	0	1	12	13	0	1	1	5	7
	PM BEGIN PEAK HR			5:00 PM			0	0	1	6	7					

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

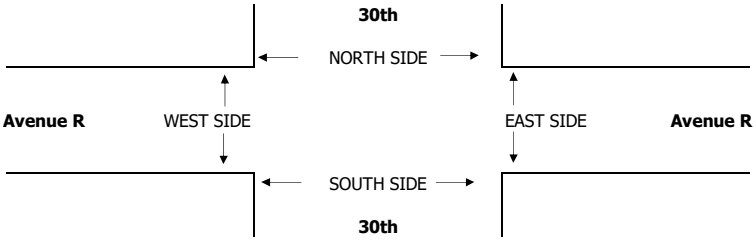
DATE:	LOCATION:	Palmdale	PROJECT #:	SC3479
Thu, May 26, 22	NORTH & SOUTH:	30th	LOCATION #:	5
	EAST & WEST:	Avenue R	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N / ◄ W / E ► / S ▼

☑ Add U-Turns to Left Turns

	NORTHBOUND 30th			SOUTHBOUND 30th			EASTBOUND Avenue R			WESTBOUND Avenue R				U-TURNS				
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM 7:00 AM	57	83	22	8	36	16	9	64	28	8	137	19	487	0	0	0	0	0
7:15 AM	51	64	8	17	23	16	13	123	22	9	173	40	559	0	0	0	0	0
7:30 AM	34	63	9	8	29	17	24	91	15	8	172	41	511	0	0	0	0	0
7:45 AM	22	62	10	14	42	18	26	96	11	11	164	37	513	0	0	0	0	0
8:00 AM	26	68	17	18	36	13	23	116	9	6	180	41	553	0	0	0	0	0
8:15 AM	30	79	8	17	42	12	22	101	14	10	144	37	516	0	0	0	0	0
8:30 AM	17	32	3	13	27	10	10	77	17	9	181	19	415	0	0	0	0	0
8:45 AM	13	39	10	7	36	11	10	81	9	11	102	8	337	0	0	0	0	0
VOLUMES	250	490	87	102	271	113	137	749	125	72	1,253	242	3,891	0	0	0	0	0
APPROACH %	30%	59%	11%	21%	56%	23%	14%	74%	12%	5%	80%	15%						
APP/DEPART	827	/	869	486	/	468	1,011	/	938	1,567	/	1,616	0					
BEGIN PEAK HR		7:15 AM																
VOLUMES	133	257	44	57	130	64	86	426	57	34	689	159	2,136					
APPROACH %	31%	59%	10%	23%	52%	25%	15%	75%	10%	4%	78%	18%						
PEAK HR FACTOR		0.882			0.848			0.900			0.971		0.955					
APP/DEPART	434	/	502	251	/	221	569	/	527	882	/	886	0					
PM 4:00 PM	21	55	10	23	62	21	13	142	22	13	145	21	548	0	0	0	0	0
4:15 PM	23	44	11	21	45	9	15	138	13	5	142	31	497	0	0	0	0	0
4:30 PM	11	48	11	26	68	17	12	156	24	17	112	24	526	0	0	0	0	0
4:45 PM	23	41	11	23	66	23	20	116	23	12	136	22	516	0	0	0	0	0
5:00 PM	17	52	1	31	58	11	10	149	19	8	117	22	495	0	0	0	0	0
5:15 PM	21	48	9	34	75	17	17	142	21	9	101	24	518	0	0	0	0	0
5:30 PM	26	62	8	33	53	17	14	171	20	8	103	22	537	0	0	0	0	0
5:45 PM	23	51	8	19	46	14	14	137	14	12	128	25	491	0	0	0	0	0
VOLUMES	165	401	69	210	473	129	115	1,151	156	84	984	191	4,128	0	0	0	0	0
APPROACH %	26%	63%	11%	26%	58%	16%	8%	81%	11%	7%	78%	15%						
APP/DEPART	635	/	707	812	/	713	1,422	/	1,430	1,259	/	1,278	0					
BEGIN PEAK HR		4:00 PM																
VOLUMES	78	188	43	93	241	70	60	552	82	47	535	98	2,087					
APPROACH %	25%	61%	14%	23%	60%	17%	9%	80%	12%	7%	79%	14%						
PEAK HR FACTOR		0.898			0.902			0.904			0.950		0.952					
APP/DEPART	309	/	346	404	/	370	694	/	688	680	/	683	0					



	PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM 7:00 AM	6	3	3	4	16	6	3	3	3	15	0	0	0	1	1
7:15 AM	2	1	2	2	7	2	0	1	1	4	0	1	1	1	3
7:30 AM	0	0	1	1	2	0	0	0	1	1	0	0	1	0	1
7:45 AM	1	3	1	3	8	0	2	0	2	4	1	1	1	1	4
8:00 AM	4	0	1	4	9	4	0	1	4	9	0	0	0	0	0
8:15 AM	1	4	0	3	8	1	2	0	1	4	0	2	0	2	4
8:30 AM	2	1	1	1	5	1	0	1	1	3	1	1	0	0	2
8:45 AM	1	3	0	3	7	0	2	0	3	5	1	1	0	0	2
TOTAL	17	15	9	21	62	14	9	6	16	45	3	6	3	5	17
AM BEGIN PEAK HR			7:15 AM			6	2	2	8	18					
PM 4:00 PM	1	2	0	3	6	1	2	0	2	5	0	0	0	1	1
4:15 PM	1	1	0	2	4	1	1	0	2	4	0	0	0	0	0
4:30 PM	3	0	2	6	11	2	0	2	6	10	1	0	0	0	1
4:45 PM	3	0	1	1	5	3	0	1	1	5	0	0	0	0	0
5:00 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2
5:15 PM	0	1	0	1	2	0	0	0	1	1	0	1	0	0	1
5:30 PM	2	0	1	7	10	2	0	1	7	10	0	0	0	0	0
5:45 PM	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0
TOTAL	10	4	4	23	41	9	3	4	20	36	1	1	0	3	5
PM BEGIN PEAK HR			4:00 PM			7	3	3	11	24					

APPENDIX D

INTERSECTION LEVEL OF SERVICE WORKSHEETS

EXISTING

Beyond Food Mart Palmdale (25th Street &

Vistro File: G:\...\AM.vistro
Report File: G:\...\AME.pdf

Scenario 1 Existing
11/22/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	20th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	WB Left	0.580	32.0	C
2	25th St (NS) at Palmdale Blvd (EW)	Signalized	HCM 7th Edition	SB Left	0.443	24.3	C
3	25th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	SB Left	0.546	29.6	C
4	25th St (NS) at Ave R-8 (EW)	Two-way stop	HCM 7th Edition	EB Left	0.158	15.8	C
5	30th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	EB Left	0.411	24.0	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 20th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	32.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name	20th St			20th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	190.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	20th St			20th St			Ave R			Ave R		
Base Volume Input [veh/h]	103	373	106	104	212	77	137	294	67	98	494	168
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	373	106	104	212	77	137	294	67	98	494	168
Peak Hour Factor	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	107	30	30	61	22	39	84	19	28	141	48
Total Analysis Volume [veh/h]	118	426	121	119	242	88	157	336	77	112	565	192
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	2	1	6	0
Auxiliary Signal Groups									2,3			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	10	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	13	34	0	17	38	0	15	32	32	12	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	25	0	0	29	0	0	23	23	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	17	17	8	17	17	10	46	58	8	44	44
g / C, Green / Cycle	0.08	0.18	0.18	0.08	0.18	0.18	0.11	0.49	0.61	0.08	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.07	0.15	0.15	0.07	0.09	0.09	0.09	0.09	0.05	0.06	0.21	0.21
s, saturation flow rate [veh/h]	1781	1870	1730	1781	1870	1704	1781	3560	1589	1781	1870	1710
c, Capacity [veh/h]	149	340	315	151	342	312	191	1728	971	142	856	783
d1, Uniform Delay [s]	42.77	37.52	37.57	42.70	34.95	35.04	41.60	13.92	7.56	43.00	17.73	17.74
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.95	5.29	5.93	8.71	1.12	1.30	8.55	0.25	0.16	9.29	1.79	1.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.83	0.84	0.79	0.50	0.51	0.82	0.19	0.08	0.79	0.46	0.46
d, Delay for Lane Group [s/veh]	51.72	42.81	43.50	51.41	36.07	36.34	50.14	14.17	7.72	52.29	19.52	19.70
Lane Group LOS	D	D	D	D	D	D	D	B	A	D	B	B
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.95	6.45	6.07	2.97	3.45	3.24	3.86	1.87	0.57	2.82	5.68	5.24
50th-Percentile Queue Length [ft/ln]	73.79	161.17	151.72	74.15	86.15	81.10	96.56	46.79	14.13	70.50	142.05	130.96
95th-Percentile Queue Length [veh/ln]	5.31	10.61	10.11	5.34	6.20	5.84	6.95	3.37	1.02	5.08	9.59	8.99
95th-Percentile Queue Length [ft/ln]	132.83	265.28	252.72	133.47	155.07	145.98	173.81	84.23	25.44	126.90	239.79	224.80

Movement, Approach, & Intersection Results

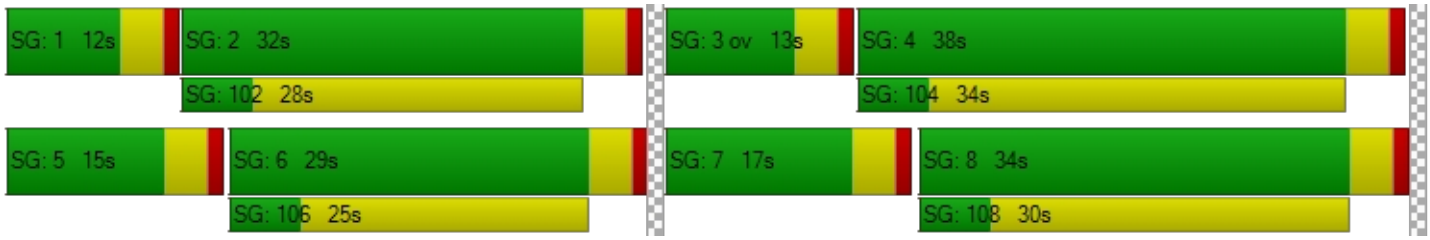
d_M, Delay for Movement [s/veh]	51.72	43.04	43.50	51.41	36.15	36.34	50.14	14.17	7.72	52.29	19.57	19.70
Movement LOS	D	D	D	D	D	D	D	B	A	D	B	B
d_A, Approach Delay [s/veh]	44.67			40.23			23.21			23.82		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	32.00											
Intersection LOS	C											
Intersection V/C	0.580											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.97	38.97	38.97	38.97
l_p,int, Pedestrian LOS Score for Intersection	2.660	2.702	2.820	2.848
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	631	715	589	526
d_b, Bicycle Delay [s]	22.27	19.62	23.66	25.83
l_b,int, Bicycle LOS Score for Intersection	2.108	1.930	2.030	2.277
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: 25th St (NS) at Palmdale Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	24.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.443

Intersection Setup

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	250.00	100.00	100.00	178.00	100.00	100.00	214.00	100.00	100.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Base Volume Input [veh/h]	201	233	134	42	126	25	18	633	105	90	829	29
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	201	233	134	42	126	25	18	633	105	90	829	29
Peak Hour Factor	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	60	34	11	32	6	5	162	27	23	213	7
Total Analysis Volume [veh/h]	206	239	137	43	129	26	18	649	108	92	850	30
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	41	0	16	38	0	9	36	0	12	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	29	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	20	20	4	10	10	2	58	58	7	63	63
g / C, Green / Cycle	0.13	0.19	0.19	0.03	0.09	0.09	0.02	0.55	0.55	0.07	0.60	0.60
(v / s)_i Volume / Saturation Flow Rate	0.12	0.07	0.09	0.02	0.04	0.02	0.01	0.18	0.07	0.05	0.24	0.02
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	238	688	307	63	338	151	37	1970	879	118	2132	952
d1, Uniform Delay [s]	44.63	36.67	37.44	50.15	44.68	43.78	50.93	12.83	11.25	48.33	11.11	8.62
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.23	0.30	1.02	12.57	0.71	0.54	9.81	0.45	0.29	10.57	0.56	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.35	0.45	0.69	0.38	0.17	0.49	0.33	0.12	0.78	0.40	0.03
d, Delay for Lane Group [s/veh]	53.86	36.97	38.45	62.72	45.39	44.31	60.75	13.28	11.54	58.90	11.67	8.68
Lane Group LOS	D	D	D	E	D	D	E	B	B	E	B	A
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.62	2.56	3.05	1.29	1.55	0.62	0.56	3.96	1.19	2.65	4.69	0.26
50th-Percentile Queue Length [ft/ln]	140.48	63.99	76.22	32.32	38.70	15.52	13.98	98.98	29.76	66.14	117.27	6.60
95th-Percentile Queue Length [veh/ln]	9.51	4.61	5.49	2.33	2.79	1.12	1.01	7.13	2.14	4.76	8.24	0.48
95th-Percentile Queue Length [ft/ln]	237.67	115.18	137.19	58.17	69.66	27.93	25.17	178.17	53.56	119.04	206.07	11.89

Movement, Approach, & Intersection Results

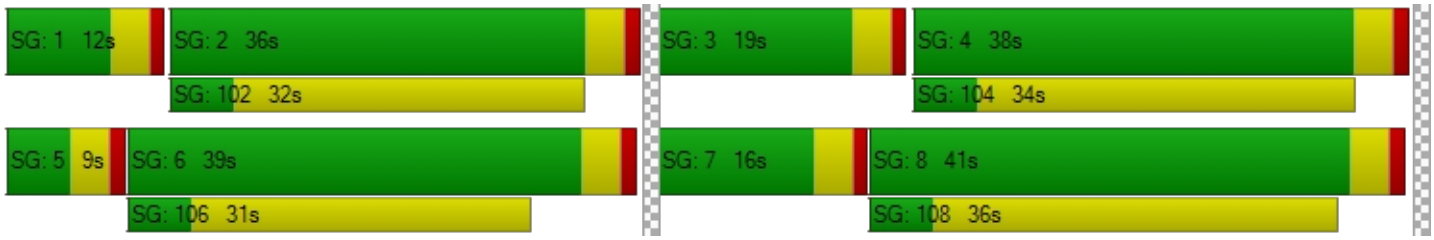
d_M, Delay for Movement [s/veh]	53.86	36.97	38.45	62.72	45.39	44.31	60.75	13.28	11.54	58.90	11.67	8.68
Movement LOS	D	D	D	E	D	D	E	B	B	E	B	A
d_A, Approach Delay [s/veh]	43.30			49.01			14.14			16.05		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	24.32											
Intersection LOS	C											
Intersection V/C	0.443											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.92	43.92	43.92	43.92
l_p,int, Pedestrian LOS Score for Intersection	2.709	2.593	2.864	2.979
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	704	647	609	666
d_b, Bicycle Delay [s]	22.05	24.03	25.40	23.36
l_b,int, Bicycle LOS Score for Intersection	2.040	1.723	2.199	2.362
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: 25th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	29.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.546

Intersection Setup

Name	25th St			25th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	195.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Ave R			Ave R		
Base Volume Input [veh/h]	196	346	109	56	221	148	40	385	163	123	689	125
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	196	346	109	56	221	148	40	385	163	123	689	125
Peak Hour Factor	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	104	33	17	67	45	12	116	49	37	208	38
Total Analysis Volume [veh/h]	236	417	131	68	267	179	48	464	197	148	831	151
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	3	8	8	7	4	4	5	2	2	1	6	6
Auxiliary Signal Groups			1,8			4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	23	38	38	21	36	36	11	36	36	15	40	40
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	29	29	0	27	27	0	27	27	0	29	29
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	17	22	37	6	11	22	7	55	76	11	59	69
g / C, Green / Cycle	0.15	0.20	0.33	0.05	0.10	0.20	0.06	0.50	0.69	0.10	0.54	0.63
(v / s)_i Volume / Saturation Flow Rate	0.13	0.12	0.08	0.04	0.07	0.11	0.03	0.13	0.12	0.08	0.23	0.09
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	270	704	530	97	358	320	115	1791	1098	177	1916	1000
d1, Uniform Delay [s]	45.68	40.14	26.65	51.17	48.14	39.57	49.52	15.63	6.00	48.69	15.32	8.38
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.69	0.80	0.24	8.83	3.10	1.53	2.42	0.35	0.36	9.82	0.72	0.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.59	0.25	0.70	0.75	0.56	0.42	0.26	0.18	0.84	0.43	0.15
d, Delay for Lane Group [s/veh]	54.37	40.94	26.89	60.01	51.24	41.11	51.94	15.98	6.36	58.51	16.04	8.70
Lane Group LOS	D	D	C	E	D	D	D	B	A	E	B	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.68	4.97	2.40	2.01	3.58	4.30	1.30	3.12	1.38	4.32	5.77	1.35
50th-Percentile Queue Length [ft/ln]	166.96	124.35	60.09	50.37	89.41	107.51	32.54	78.02	34.42	107.91	144.30	33.69
95th-Percentile Queue Length [veh/ln]	10.92	8.63	4.33	3.63	6.44	7.70	2.34	5.62	2.48	7.72	9.71	2.43
95th-Percentile Queue Length [ft/ln]	272.91	215.79	108.17	90.67	160.94	192.53	58.56	140.43	61.95	193.09	242.80	60.64

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.37	40.94	26.89	60.01	51.24	41.11	51.94	15.98	6.36	58.51	16.04	8.70
Movement LOS	D	D	C	E	D	D	D	B	A	E	B	A
d_A, Approach Delay [s/veh]	42.63			48.87			15.74			20.62		
Approach LOS	D			D			B			C		
d_I, Intersection Delay [s/veh]	29.65											
Intersection LOS	C											
Intersection V/C	0.546											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	46.39	46.39	46.39	46.39
l_p,int, Pedestrian LOS Score for Intersection	2.929	2.770	3.059	2.950
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	618	582	582	654
d_b, Bicycle Delay [s]	26.28	27.68	27.68	24.91
l_b,int, Bicycle LOS Score for Intersection	2.206	1.984	2.145	2.492
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: 25th St (NS) at Ave R-8 (EW)

Control Type:	Two-way stop	Delay (sec / veh):	15.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.158

Intersection Setup

Name	25th St		25th St		Ave R-8	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	237.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	25th St		25th St		Ave R-8	
Base Volume Input [veh/h]	86	555	494	27	56	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	86	555	494	27	56	74
Peak Hour Factor	0.8950	0.8950	0.8950	0.8950	0.8950	0.8950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	155	138	8	16	21
Total Analysis Volume [veh/h]	96	620	552	30	63	83
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.01	0.01	0.00	0.16	0.12
d_M, Delay for Movement [s/veh]	9.03	0.00	0.00	0.00	15.75	10.64
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.32	0.00	0.00	0.00	0.56	0.39
95th-Percentile Queue Length [ft/ln]	8.05	0.00	0.00	0.00	13.94	9.70
d_A, Approach Delay [s/veh]	1.21		0.00		12.84	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.90					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 5: 30th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	24.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.411

Intersection Setup

Name	30th St			30th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	190.00	100.00	100.00	190.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	30th St			30th St			Ave R			Ave R		
Base Volume Input [veh/h]	133	257	44	57	130	64	86	426	57	34	689	159
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	257	44	57	130	64	86	426	57	34	689	159
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	67	12	15	34	17	23	112	15	9	180	42
Total Analysis Volume [veh/h]	139	269	46	60	136	67	90	446	60	36	721	166
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	8	7	4	4	5	2	0	1	6	0
Auxiliary Signal Groups			1,8			4,5						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	0	5	10	0
Maximum Green [s]	30	30	30	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	36	36	16	39	39	10	39	0	9	38	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	30	30	0	28	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No		No	No	
Maximum Recall	No	No	No	No	No	No	No	No		No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	15	22	4	10	20	6	62	62	3	59	59
g / C, Green / Cycle	0.09	0.15	0.22	0.04	0.10	0.20	0.06	0.62	0.62	0.03	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.08	0.08	0.03	0.03	0.04	0.04	0.05	0.14	0.14	0.02	0.20	0.10
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1794	1781	3560	1589
c, Capacity [veh/h]	162	521	348	80	357	320	108	1153	1106	58	2095	935
d1, Uniform Delay [s]	44.90	39.48	31.45	47.28	42.14	33.36	46.51	8.54	8.55	47.81	10.64	9.47
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.41	0.79	0.17	13.31	0.67	0.32	14.73	0.45	0.47	10.12	0.45	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.52	0.13	0.75	0.38	0.21	0.83	0.22	0.22	0.62	0.34	0.18
d, Delay for Lane Group [s/veh]	57.31	40.27	31.62	60.59	42.81	33.69	61.25	8.99	9.02	57.92	11.09	9.89
Lane Group LOS	E	D	C	E	D	C	E	A	A	E	B	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.80	2.96	0.87	1.71	1.53	1.32	2.56	2.19	2.12	1.01	3.58	1.52
50th-Percentile Queue Length [ft/ln]	94.93	73.97	21.65	42.72	38.34	32.95	63.99	54.64	52.93	25.33	89.41	38.01
95th-Percentile Queue Length [veh/ln]	6.83	5.33	1.56	3.08	2.76	2.37	4.61	3.93	3.81	1.82	6.44	2.74
95th-Percentile Queue Length [ft/ln]	170.87	133.15	38.97	76.89	69.02	59.31	115.19	98.34	95.27	45.59	160.94	68.42

Movement, Approach, & Intersection Results

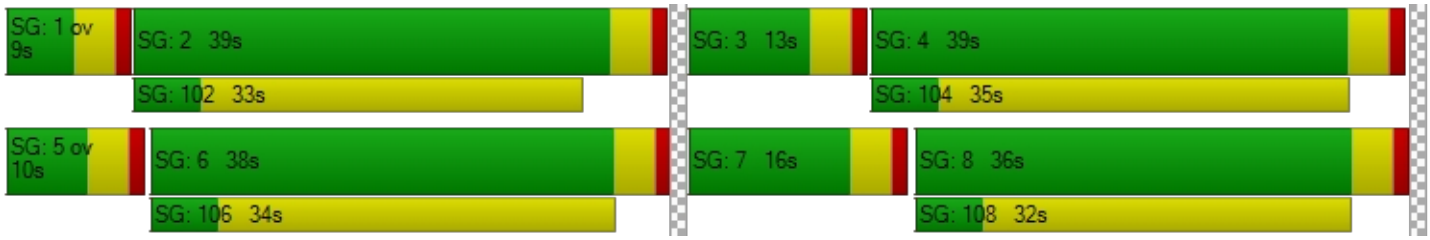
d_M, Delay for Movement [s/veh]	57.31	40.27	31.62	60.59	42.81	33.69	61.25	9.00	9.02	57.92	11.09	9.89
Movement LOS	E	D	C	E	D	C	E	A	A	E	B	A
d_A, Approach Delay [s/veh]	44.61			44.54			16.89			12.70		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	24.04											
Intersection LOS	C											
Intersection V/C	0.411											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.44	41.44	41.44	41.44
l_p,int, Pedestrian LOS Score for Intersection	2.645	2.673	2.872	2.859
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	700	700	680
d_b, Bicycle Delay [s]	23.15	21.16	21.16	21.81
l_b,int, Bicycle LOS Score for Intersection	1.934	1.777	2.051	2.321
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Beyond Food Mart Palmdale (25th Street &

Vistro File: G:\...\PM.vistro
Report File: G:\...\PME.pdf

Scenario 1 Existing
11/22/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	20th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	WB Left	0.370	25.8	C
2	25th St (NS) at Palmdale Blvd (EW)	Signalized	HCM 7th Edition	WB Left	0.585	25.9	C
3	25th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	NB Left	0.411	26.2	C
4	25th St (NS) at Ave R-8 (EW)	Two-way stop	HCM 7th Edition	EB Left	0.065	14.3	B
5	30th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	WB Left	0.363	24.0	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 20th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	25.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.370

Intersection Setup

Name	20th St			20th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	190.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	20th St			20th St			Ave R			Ave R		
Base Volume Input [veh/h]	85	235	58	96	292	57	53	521	118	59	387	94
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	85	235	58	96	292	57	53	521	118	59	387	94
Peak Hour Factor	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	60	15	24	74	14	13	132	30	15	98	24
Total Analysis Volume [veh/h]	86	239	59	98	297	58	54	529	120	60	393	96
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	2	1	6	0
Auxiliary Signal Groups									2,3			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	10	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	10	37	0	11	38	0	13	32	32	10	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	25	0	0	29	0	0	23	23	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	11	11	6	11	11	4	53	63	4	53	53
g / C, Green / Cycle	0.06	0.12	0.12	0.07	0.13	0.13	0.04	0.59	0.70	0.04	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.05	0.08	0.08	0.06	0.10	0.10	0.03	0.15	0.08	0.03	0.13	0.14
s, saturation flow rate [veh/h]	1781	1870	1745	1781	1870	1766	1781	3560	1589	1781	1870	1746
c, Capacity [veh/h]	111	221	207	126	237	223	75	2099	1107	78	1106	1033
d1, Uniform Delay [s]	41.61	38.11	38.20	41.18	38.06	38.12	42.65	8.91	4.49	42.61	8.68	8.69
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.82	3.77	4.36	9.98	5.13	5.77	12.49	0.29	0.20	14.32	0.48	0.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.69	0.71	0.78	0.77	0.78	0.72	0.25	0.11	0.77	0.23	0.23
d, Delay for Lane Group [s/veh]	52.42	41.89	42.56	51.17	43.18	43.89	55.14	9.20	4.69	56.93	9.16	9.22
Lane Group LOS	D	D	D	D	D	D	E	A	A	E	A	A
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.11	3.26	3.15	2.37	3.96	3.84	1.38	2.09	0.55	1.56	2.01	1.91
50th-Percentile Queue Length [ft/ln]	52.78	81.51	78.85	59.17	99.00	96.03	34.56	52.21	13.81	39.03	50.13	47.74
95th-Percentile Queue Length [veh/ln]	3.80	5.87	5.68	4.26	7.13	6.91	2.49	3.76	0.99	2.81	3.61	3.44
95th-Percentile Queue Length [ft/ln]	95.00	146.72	141.93	106.51	178.20	172.85	62.21	93.98	24.86	70.26	90.23	85.93

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.42	42.13	42.56	51.17	43.46	43.89	55.14	9.20	4.69	56.93	9.18	9.22
Movement LOS	D	D	D	D	D	D	E	A	A	E	A	A
d_A, Approach Delay [s/veh]	44.50			45.18			11.96			14.40		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	25.79											
Intersection LOS	C											
Intersection V/C	0.370											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.47	36.47	36.47	36.47
l_p,int, Pedestrian LOS Score for Intersection	2.581	2.575	2.790	2.789
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	755	622	555
d_b, Bicycle Delay [s]	18.07	17.44	21.38	23.49
l_b,int, Bicycle LOS Score for Intersection	1.876	1.933	2.140	2.013
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: 25th St (NS) at Palmdale Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	25.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.585

Intersection Setup

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	250.00	100.00	100.00	178.00	100.00	100.00	214.00	100.00	100.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Base Volume Input [veh/h]	249	187	108	96	198	28	23	979	215	61	680	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	249	187	108	96	198	28	23	979	215	61	680	38
Peak Hour Factor	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	65	49	28	25	52	7	6	257	56	16	178	10
Total Analysis Volume [veh/h]	261	196	113	101	208	29	24	1028	226	64	714	40
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	40	0	19	38	0	9	36	0	10	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	29	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	19	19	8	10	10	3	57	57	5	59	59
g / C, Green / Cycle	0.16	0.19	0.19	0.07	0.10	0.10	0.02	0.54	0.54	0.05	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.15	0.06	0.07	0.06	0.06	0.02	0.01	0.29	0.14	0.04	0.20	0.03
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	289	660	295	129	341	152	45	1932	862	84	2011	898
d1, Uniform Delay [s]	43.23	36.92	37.55	47.92	45.64	43.77	50.64	15.46	12.82	49.49	12.46	10.22
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.21	0.25	0.82	9.74	1.77	0.60	9.64	1.05	0.74	13.14	0.49	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.30	0.38	0.78	0.61	0.19	0.54	0.53	0.26	0.76	0.36	0.04
d, Delay for Lane Group [s/veh]	53.44	37.16	38.37	57.66	47.41	44.37	60.28	16.51	13.56	62.63	12.95	10.31
Lane Group LOS	D	D	D	E	D	D	E	B	B	E	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.14	2.10	2.50	2.84	2.58	0.69	0.73	7.50	2.81	1.92	4.21	0.40
50th-Percentile Queue Length [ft/ln]	178.44	52.38	62.45	71.07	64.51	17.33	18.28	187.46	70.19	47.93	105.15	9.93
95th-Percentile Queue Length [veh/ln]	11.52	3.77	4.50	5.12	4.64	1.25	1.32	11.99	5.05	3.45	7.57	0.71
95th-Percentile Queue Length [ft/ln]	287.98	94.28	112.40	127.93	116.12	31.19	32.90	299.73	126.35	86.27	189.23	17.87

Movement, Approach, & Intersection Results

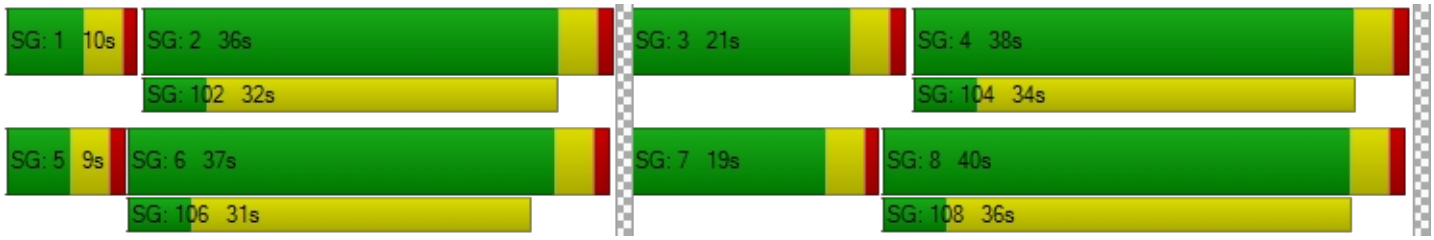
d_M, Delay for Movement [s/veh]	53.44	37.16	38.37	57.66	47.41	44.37	60.28	16.51	13.56	62.63	12.95	10.31
Movement LOS	D	D	D	E	D	D	E	B	B	E	B	B
d_A, Approach Delay [s/veh]	44.85			50.21			16.81			16.71		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	25.86											
Intersection LOS	C											
Intersection V/C	0.585											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.92	43.92	43.92	43.92
l_p,int, Pedestrian LOS Score for Intersection	2.751	2.624	2.956	2.964
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	685	647	609	628
d_b, Bicycle Delay [s]	22.70	24.03	25.40	24.71
l_b,int, Bicycle LOS Score for Intersection	2.030	1.838	2.614	2.234
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: 25th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	26.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.411

Intersection Setup

Name	25th St			25th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	195.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Ave R			Ave R		
Base Volume Input [veh/h]	60	345	163	85	381	36	31	545	98	101	430	108
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	345	163	85	381	36	31	545	98	101	430	108
Peak Hour Factor	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	90	42	22	99	9	8	142	25	26	112	28
Total Analysis Volume [veh/h]	62	358	169	88	396	37	32	566	102	105	447	112
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	3	8	8	7	4	4	5	2	2	1	6	6
Auxiliary Signal Groups			1,8			4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	12	38	38	10	36	36	9	36	36	11	38	38
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	29	29	0	27	27	0	27	27	0	29	29
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	4	12	23	6	14	21	3	54	62	7	58	68
g / C, Green / Cycle	0.05	0.13	0.25	0.06	0.15	0.22	0.03	0.56	0.65	0.07	0.61	0.71
(v / s)_i Volume / Saturation Flow Rate	0.03	0.10	0.11	0.05	0.11	0.02	0.02	0.16	0.06	0.06	0.13	0.07
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	83	467	394	114	529	353	56	2002	1035	133	2155	1131
d1, Uniform Delay [s]	44.80	39.93	30.13	43.85	38.82	29.50	45.47	10.84	6.20	43.31	8.47	4.26
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.33	2.66	0.74	10.51	2.16	0.13	8.99	0.35	0.19	10.04	0.22	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.77	0.43	0.77	0.75	0.10	0.57	0.28	0.10	0.79	0.21	0.10
d, Delay for Lane Group [s/veh]	57.13	42.59	30.87	54.36	40.97	29.63	54.45	11.20	6.39	53.35	8.69	4.44
Lane Group LOS	E	D	C	D	D	C	D	B	A	D	A	A
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.66	3.99	3.12	2.27	4.33	0.65	0.85	2.70	0.64	2.68	1.75	0.51
50th-Percentile Queue Length [ft/ln]	41.49	99.67	78.12	56.78	108.14	16.21	21.24	67.56	16.11	66.89	43.75	12.83
95th-Percentile Queue Length [veh/ln]	2.99	7.18	5.62	4.09	7.74	1.17	1.53	4.86	1.16	4.82	3.15	0.92
95th-Percentile Queue Length [ft/ln]	74.69	179.40	140.62	102.21	193.41	29.18	38.24	121.61	28.99	120.40	78.76	23.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.13	42.59	30.87	54.36	40.97	29.63	54.45	11.20	6.39	53.35	8.69	4.44
Movement LOS	E	D	C	D	D	C	D	B	A	D	A	A
d_A, Approach Delay [s/veh]	40.76			42.43			12.47			15.04		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	26.20											
Intersection LOS	C											
Intersection V/C	0.411											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.97	38.97	38.97	38.97
l_p,int, Pedestrian LOS Score for Intersection	2.875	2.734	2.887	2.860
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	715	673	673	715
d_b, Bicycle Delay [s]	19.62	20.92	20.92	19.62
l_b,int, Bicycle LOS Score for Intersection	2.046	1.989	2.137	2.107
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: 25th St (NS) at Ave R-8 (EW)

Control Type:	Two-way stop	Delay (sec / veh):	14.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.065

Intersection Setup

Name	25th St		25th St		Ave R-8	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	237.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	25th St		25th St		Ave R-8	
Base Volume Input [veh/h]	78	552	542	29	26	92
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	552	542	29	26	92
Peak Hour Factor	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	143	140	7	7	24
Total Analysis Volume [veh/h]	81	571	560	30	27	95
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.01	0.01	0.00	0.07	0.13
d_M, Delay for Movement [s/veh]	9.00	0.00	0.00	0.00	14.27	10.78
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.27	0.00	0.00	0.00	0.21	0.46
95th-Percentile Queue Length [ft/ln]	6.73	0.00	0.00	0.00	5.19	11.39
d_A, Approach Delay [s/veh]	1.12		0.00		11.56	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.57					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: 30th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	24.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.363

Intersection Setup

Name	30th St			30th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	190.00	100.00	100.00	190.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	30th St			30th St			Ave R			Ave R		
Base Volume Input [veh/h]	78	188	43	93	241	70	60	552	82	47	535	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	188	43	93	241	70	60	552	82	47	535	98
Peak Hour Factor	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	49	11	24	63	18	16	145	22	12	140	26
Total Analysis Volume [veh/h]	82	197	45	98	253	74	63	580	86	49	562	103
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	8	7	4	4	5	2	0	1	6	0
Auxiliary Signal Groups			1,8			4,5						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	0	5	10	0
Maximum Green [s]	30	30	30	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	36	36	14	39	39	12	37	0	13	38	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	30	30	0	28	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No		No	No	
Maximum Recall	No	No	No	No	No	No	No	No		No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	10	18	7	11	20	5	63	63	4	62	62
g / C, Green / Cycle	0.06	0.10	0.18	0.07	0.11	0.20	0.05	0.63	0.63	0.04	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.05	0.06	0.03	0.06	0.07	0.05	0.04	0.18	0.18	0.03	0.16	0.06
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1787	1781	3560	1589
c, Capacity [veh/h]	107	358	284	126	396	320	89	1179	1127	68	2203	984
d1, Uniform Delay [s]	46.39	42.88	34.75	45.76	42.56	33.48	46.82	8.35	8.35	47.62	8.64	7.78
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.98	1.32	0.26	9.87	1.71	0.36	9.67	0.62	0.65	13.15	0.28	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.55	0.16	0.78	0.64	0.23	0.70	0.29	0.29	0.72	0.26	0.10
d, Delay for Lane Group [s/veh]	57.37	44.20	35.01	55.63	44.28	33.85	56.49	8.97	9.00	60.76	8.92	7.99
Lane Group LOS	E	D	D	E	D	C	E	A	A	E	A	A
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.25	2.28	0.90	2.63	2.94	1.46	1.72	2.88	2.77	1.41	2.34	0.80
50th-Percentile Queue Length [ft/ln]	56.17	56.95	22.57	65.81	73.57	36.56	42.94	71.96	69.22	35.15	58.61	20.10
95th-Percentile Queue Length [veh/ln]	4.04	4.10	1.63	4.74	5.30	2.63	3.09	5.18	4.98	2.53	4.22	1.45
95th-Percentile Queue Length [ft/ln]	101.11	102.52	40.63	118.45	132.42	65.81	77.29	129.53	124.60	63.26	105.51	36.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.37	44.20	35.01	55.63	44.28	33.85	56.49	8.98	9.00	60.76	8.92	7.99
Movement LOS	E	D	D	E	D	C	E	A	A	E	A	A
d_A, Approach Delay [s/veh]	46.26			45.08			13.09			12.34		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	23.95											
Intersection LOS	C											
Intersection V/C	0.363											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.44	41.44	41.44	41.44
l_p,int, Pedestrian LOS Score for Intersection	2.652	2.673	2.851	2.849
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	700	660	680
d_b, Bicycle Delay [s]	23.15	21.16	22.48	21.81
l_b,int, Bicycle LOS Score for Intersection	1.827	1.910	2.161	2.149
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



EXISTING PLUS PROJECT

Beyond Food Mart Palmdale (25th Street &

Vistro File: G:\...\AM.vistro
Report File: G:\...\AMEp.pdf

Scenario 2 Existing Plus Project
11/23/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	20th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	WB Left	0.593	32.0	C
2	25th St (NS) at Palmdale Blvd (EW)	Signalized	HCM 7th Edition	SB Left	0.444	24.5	C
3	25th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	NB Left	0.624	34.8	C
4	25th St (NS) at Ave R-8 (EW)	Two-way stop	HCM 7th Edition	EB Left	0.172	16.1	C
5	30th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	EB Left	0.431	25.5	C
6	Project Dwy (NS) at Ave R (EW)	Two-way stop	HCM 7th Edition	SB Right	0.175	12.4	B
7	25th St (NS) at Project Dwy (EW)	Two-way stop	HCM 7th Edition	EB Right	0.204	9.9	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 20th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	32.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.593

Intersection Setup

Name	20th St			20th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	190.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	20th St			20th St			Ave R			Ave R		
Base Volume Input [veh/h]	103	373	106	104	212	77	137	294	67	98	494	168
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	4	4	0	0	0	12	0	4	12	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	373	110	108	212	77	137	306	67	102	506	180
Peak Hour Factor	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	107	31	31	61	22	39	87	19	29	145	51
Total Analysis Volume [veh/h]	118	426	126	123	242	88	157	350	77	117	578	206
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	2	1	6	0
Auxiliary Signal Groups									2,3			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	10	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	13	34	0	17	38	0	15	32	32	12	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	25	0	0	29	0	0	23	23	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	17	17	8	18	18	10	46	58	8	43	43
g / C, Green / Cycle	0.08	0.18	0.18	0.09	0.19	0.19	0.11	0.48	0.60	0.08	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.07	0.15	0.15	0.07	0.09	0.09	0.09	0.10	0.05	0.07	0.22	0.22
s, saturation flow rate [veh/h]	1781	1870	1726	1781	1870	1704	1781	3560	1589	1781	1870	1704
c, Capacity [veh/h]	149	343	317	156	350	319	191	1702	960	148	849	773
d1, Uniform Delay [s]	42.77	37.44	37.49	42.57	34.60	34.69	41.60	14.37	7.84	42.84	18.18	18.19
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.95	5.29	5.94	8.63	1.05	1.21	8.55	0.27	0.16	9.19	1.97	2.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.83	0.84	0.79	0.49	0.50	0.82	0.21	0.08	0.79	0.48	0.48
d, Delay for Lane Group [s/veh]	51.72	42.73	43.43	51.20	35.65	35.90	50.14	14.65	8.01	52.03	20.15	20.35
Lane Group LOS	D	D	D	D	D	D	D	B	A	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.95	6.51	6.11	3.06	3.42	3.22	3.86	2.00	0.58	2.94	6.03	5.54
50th-Percentile Queue Length [ft/ln]	73.79	162.73	152.84	76.46	85.55	80.48	96.56	49.92	14.53	73.42	150.75	138.50
95th-Percentile Queue Length [veh/ln]	5.31	10.69	10.17	5.51	6.16	5.79	6.95	3.59	1.05	5.29	10.06	9.40
95th-Percentile Queue Length [ft/ln]	132.83	267.34	254.21	137.63	153.98	144.87	173.81	89.85	26.15	132.16	251.43	235.00

Movement, Approach, & Intersection Results

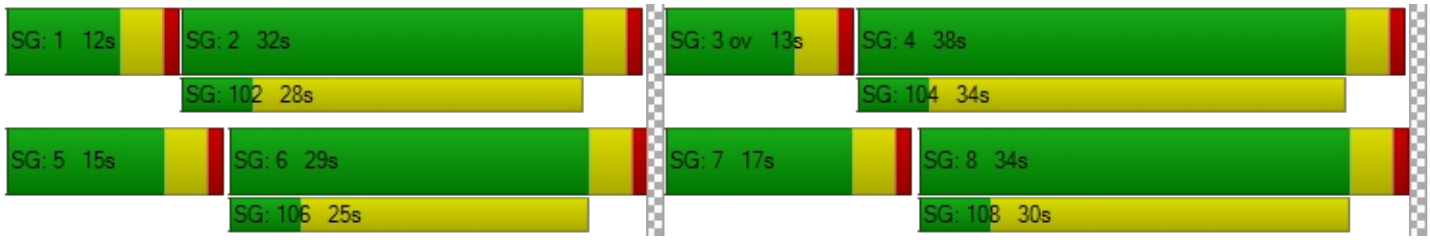
d_M, Delay for Movement [s/veh]	51.72	42.96	43.43	51.20	35.72	35.90	50.14	14.65	8.01	52.03	20.21	20.35
Movement LOS	D	D	D	D	D	D	D	B	A	D	C	C
d_A, Approach Delay [s/veh]	44.59			39.96			23.31			24.37		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	32.04											
Intersection LOS	C											
Intersection V/C	0.593											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.97	38.97	38.97	38.97
l_p,int, Pedestrian LOS Score for Intersection	2.663	2.708	2.828	2.863
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	631	715	589	526
d_b, Bicycle Delay [s]	22.27	19.62	23.66	25.83
l_b,int, Bicycle LOS Score for Intersection	2.112	1.933	2.041	2.303
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: 25th St (NS) at Palmdale Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	24.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.444

Intersection Setup

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	250.00	100.00	100.00	178.00	100.00	100.00	214.00	100.00	100.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Base Volume Input [veh/h]	201	233	134	42	126	25	18	633	105	90	829	29
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	4	0	0	0	8	8	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	201	233	134	42	130	25	18	633	113	98	829	33
Peak Hour Factor	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	60	34	11	33	6	5	162	29	25	213	8
Total Analysis Volume [veh/h]	206	239	137	43	133	26	18	649	116	101	850	34
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	41	0	16	38	0	9	36	0	12	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	29	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	20	20	4	10	10	2	58	58	8	63	63
g / C, Green / Cycle	0.13	0.19	0.19	0.03	0.09	0.09	0.02	0.55	0.55	0.07	0.60	0.60
(v / s)_i Volume / Saturation Flow Rate	0.12	0.07	0.09	0.02	0.04	0.02	0.01	0.18	0.07	0.06	0.24	0.02
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	238	688	307	63	338	151	37	1949	870	128	2132	952
d1, Uniform Delay [s]	44.63	36.66	37.43	50.15	44.72	43.77	50.93	13.16	11.61	47.99	11.11	8.65
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.23	0.30	1.01	12.57	0.74	0.54	9.81	0.46	0.32	10.22	0.56	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.35	0.45	0.69	0.39	0.17	0.49	0.33	0.13	0.79	0.40	0.04
d, Delay for Lane Group [s/veh]	53.86	36.96	38.44	62.72	45.46	44.30	60.75	13.62	11.93	58.22	11.67	8.72
Lane Group LOS	D	D	D	E	D	D	E	B	B	E	B	A
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.62	2.56	3.05	1.29	1.60	0.62	0.56	4.03	1.31	2.88	4.69	0.30
50th-Percentile Queue Length [ft/ln]	140.48	63.98	76.20	32.32	39.95	15.51	13.98	100.72	32.70	72.09	117.32	7.51
95th-Percentile Queue Length [veh/ln]	9.51	4.61	5.49	2.33	2.88	1.12	1.01	7.25	2.35	5.19	8.25	0.54
95th-Percentile Queue Length [ft/ln]	237.67	115.16	137.17	58.17	71.91	27.93	25.17	181.29	58.85	129.76	206.14	13.51

Movement, Approach, & Intersection Results

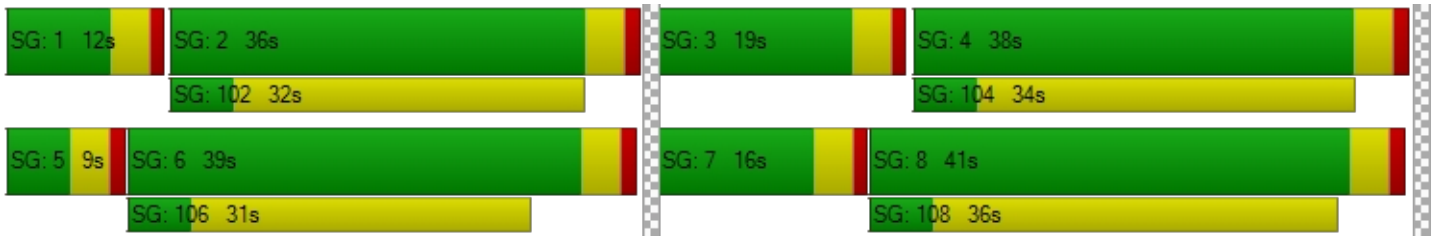
d_M, Delay for Movement [s/veh]	53.86	36.96	38.44	62.72	45.46	44.30	60.75	13.62	11.93	58.22	11.67	8.72
Movement LOS	D	D	D	E	D	D	E	B	B	E	B	A
d_A, Approach Delay [s/veh]	43.29			48.99			14.46			16.34		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	24.49											
Intersection LOS	C											
Intersection V/C	0.444											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.92	43.92	43.92	43.92
l_p,int, Pedestrian LOS Score for Intersection	2.714	2.595	2.866	2.982
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	704	647	609	666
d_b, Bicycle Delay [s]	22.05	24.03	25.40	23.36
l_b,int, Bicycle LOS Score for Intersection	2.040	1.726	2.206	2.372
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: 25th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	34.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.624

Intersection Setup

Name	25th St			25th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	195.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Ave R			Ave R		
Base Volume Input [veh/h]	196	346	109	56	221	148	40	385	163	123	689	125
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	20	0	0	32	17	0	0	0	0	0	20	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	48	0	0	76	50	0	0	0	0	0	48	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	264	346	109	164	288	148	40	385	163	123	757	125
Peak Hour Factor	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	104	33	49	87	45	12	116	49	37	228	38
Total Analysis Volume [veh/h]	318	417	131	198	347	179	48	464	197	148	913	151
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	3	8	8	7	4	4	5	2	2	1	6	6
Auxiliary Signal Groups			1,8			4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	24	38	38	22	36	36	9	36	36	14	41	41
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	29	29	0	27	27	0	27	27	0	29	29
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	20	19	33	14	14	23	5	50	74	10	55	74
g / C, Green / Cycle	0.18	0.18	0.30	0.13	0.12	0.21	0.05	0.46	0.68	0.09	0.50	0.67
(v / s)_i Volume / Saturation Flow Rate	0.18	0.12	0.08	0.11	0.10	0.11	0.03	0.13	0.12	0.08	0.26	0.09
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	324	623	482	233	440	328	82	1629	1074	163	1790	1064
d1, Uniform Delay [s]	44.84	42.43	29.15	46.82	46.84	39.08	51.46	18.63	6.60	49.55	18.31	6.64
k, delay calibration	0.20	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	27.16	1.25	0.30	8.51	3.18	1.42	6.36	0.44	0.38	16.75	1.04	0.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.98	0.67	0.27	0.85	0.79	0.55	0.58	0.28	0.18	0.91	0.51	0.14
d, Delay for Lane Group [s/veh]	72.00	43.68	29.45	55.33	50.02	40.50	57.81	19.07	6.98	66.30	19.35	6.92
Lane Group LOS	E	D	C	E	D	D	E	B	A	E	B	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	10.66	5.17	2.54	5.63	4.62	4.26	1.40	3.51	1.48	4.63	7.25	1.13
50th-Percentile Queue Length [ft/ln]	266.47	129.21	63.56	140.69	115.43	106.57	34.93	87.67	37.10	115.76	181.23	28.32
95th-Percentile Queue Length [veh/ln]	16.01	8.90	4.58	9.52	8.14	7.65	2.52	6.31	2.67	8.16	11.67	2.04
95th-Percentile Queue Length [ft/ln]	400.33	222.42	114.42	237.95	203.52	191.21	62.88	157.80	66.78	203.98	291.63	50.97

Movement, Approach, & Intersection Results

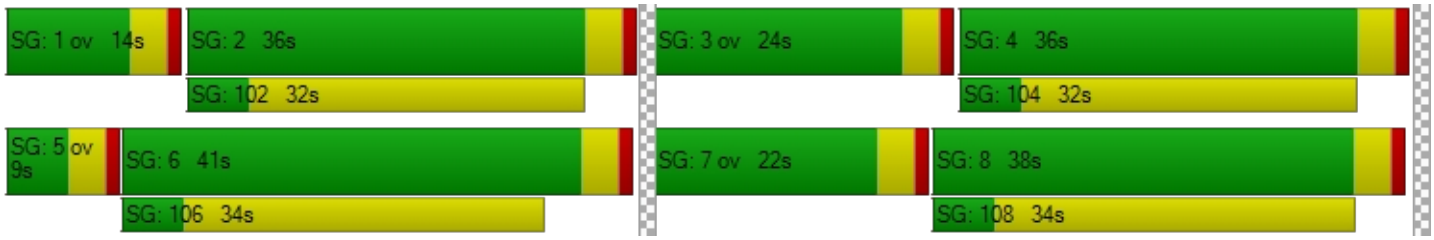
d_M, Delay for Movement [s/veh]	72.00	43.68	29.45	55.33	50.02	40.50	57.81	19.07	6.98	66.30	19.35	6.92
Movement LOS	E	D	C	E	D	D	E	B	A	E	B	A
d_A, Approach Delay [s/veh]	51.93			49.12			18.33			23.53		
Approach LOS	D			D			B			C		
d_I, Intersection Delay [s/veh]	34.76											
Intersection LOS	C											
Intersection V/C	0.624											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	46.39	46.39	46.39	46.39
l_p,int, Pedestrian LOS Score for Intersection	2.967	2.827	3.097	3.007
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	618	582	582	672
d_b, Bicycle Delay [s]	26.28	27.68	27.68	24.25
l_b,int, Bicycle LOS Score for Intersection	2.274	2.157	2.145	2.560
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: 25th St (NS) at Ave R-8 (EW)

Control Type:	Two-way stop	Delay (sec / veh):	16.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.172

Intersection Setup

Name	25th St		25th St		Ave R-8	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	237.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	25th St		25th St		Ave R-8	
Base Volume Input [veh/h]	86	555	494	27	56	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	16	13	4	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	2	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	86	571	509	31	60	74
Peak Hour Factor	0.8950	0.8950	0.8950	0.8950	0.8950	0.8950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	159	142	9	17	21
Total Analysis Volume [veh/h]	96	638	569	35	67	83
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.01	0.01	0.00	0.17	0.12
d_M, Delay for Movement [s/veh]	9.12	0.00	0.00	0.00	16.15	10.72
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.33	0.00	0.00	0.00	0.61	0.39
95th-Percentile Queue Length [ft/ln]	8.22	0.00	0.00	0.00	15.34	9.84
d_A, Approach Delay [s/veh]	1.19		0.00		13.14	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.91					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 5: 30th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	25.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.431

Intersection Setup

Name	30th St			30th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	190.00	100.00	100.00	190.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	30th St			30th St			Ave R			Ave R		
Base Volume Input [veh/h]	133	257	44	57	130	64	86	426	57	34	689	159
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	0	0	0	0	4	16	12	4	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	137	257	44	57	130	68	102	438	61	34	701	159
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	67	12	15	34	18	27	115	16	9	184	42
Total Analysis Volume [veh/h]	143	269	46	60	136	71	107	459	64	36	734	166
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	8	7	4	4	5	2	0	1	6	0
Auxiliary Signal Groups			1,8			4,5						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	0	5	10	0
Maximum Green [s]	30	30	30	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	36	36	16	39	39	10	39	0	9	38	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	30	30	0	28	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No		No	No	
Maximum Recall	No	No	No	No	No	No	No	No		No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	15	22	4	10	20	6	62	62	3	59	59
g / C, Green / Cycle	0.09	0.15	0.22	0.04	0.10	0.20	0.06	0.62	0.62	0.03	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.08	0.08	0.03	0.03	0.04	0.04	0.06	0.14	0.14	0.02	0.21	0.10
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1791	1781	3560	1589
c, Capacity [veh/h]	162	521	348	80	357	320	108	1153	1104	58	2095	935
d1, Uniform Delay [s]	45.01	39.47	31.45	47.28	42.14	33.45	46.98	8.59	8.60	47.81	10.69	9.47
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.51	0.79	0.17	13.31	0.67	0.35	37.18	0.47	0.49	10.12	0.46	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.52	0.13	0.75	0.38	0.22	0.99	0.23	0.23	0.62	0.35	0.18
d, Delay for Lane Group [s/veh]	59.53	40.27	31.62	60.59	42.80	33.80	84.17	9.06	9.09	57.92	11.15	9.89
Lane Group LOS	E	D	C	E	D	C	F	A	A	E	B	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.99	2.96	0.87	1.71	1.53	1.40	3.66	2.27	2.20	1.01	3.66	1.52
50th-Percentile Queue Length [ft/ln]	99.82	73.97	21.65	42.72	38.34	35.02	91.52	56.87	54.97	25.33	91.47	38.02
95th-Percentile Queue Length [veh/ln]	7.19	5.33	1.56	3.08	2.76	2.52	6.59	4.09	3.96	1.82	6.59	2.74
95th-Percentile Queue Length [ft/ln]	179.68	133.14	38.97	76.89	69.02	63.04	164.73	102.37	98.95	45.59	164.64	68.43

Movement, Approach, & Intersection Results

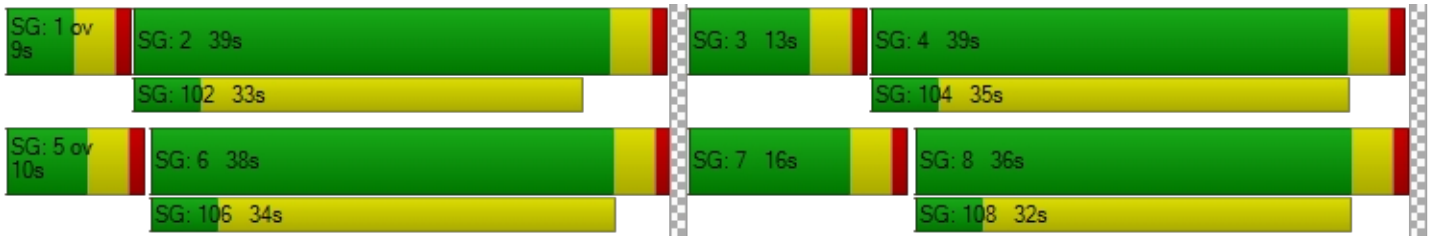
d_M, Delay for Movement [s/veh]	59.53	40.27	31.62	60.59	42.80	33.80	84.17	9.07	9.09	57.92	11.15	9.89
Movement LOS	E	D	C	E	D	C	F	A	A	E	B	A
d_A, Approach Delay [s/veh]	45.41			44.41			21.83			12.73		
Approach LOS	D			D			C			B		
d_I, Intersection Delay [s/veh]	25.46											
Intersection LOS	C											
Intersection V/C	0.431											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.44	41.44	41.44	41.44
l_p,int, Pedestrian LOS Score for Intersection	2.647	2.679	2.887	2.866
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	700	700	680
d_b, Bicycle Delay [s]	23.15	21.16	21.16	21.81
l_b,int, Bicycle LOS Score for Intersection	1.937	1.780	2.079	2.332
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Ave R (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.175

Intersection Setup

Name	Project Dwy		Ave R		Ave R	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project Dwy		Ave R		Ave R	
Base Volume Input [veh/h]	0	0	0	756	760	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	20	0	0	40
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	48	67	48	0	0	95
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	48	95	68	756	760	135
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	26	18	205	207	37
Total Analysis Volume [veh/h]	52	103	74	822	826	147
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.18	0.11	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	12.42	10.71	0.00	0.00	0.00
Movement LOS		B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.63	0.35	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	15.76	8.77	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.42		0.88		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.05					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 7: 25th St (NS) at Project Dwy (EW)

Control Type:	Two-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.204

Intersection Setup

Name	25th St		25th St		Project Dwy	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	25th St		25th St		Project Dwy	
Base Volume Input [veh/h]	0	280	193	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	20	0	49
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	48	0	126
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	280	193	68	0	175
Peak Hour Factor	1.0000	0.9200	0.9200	0.9200	1.0000	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	76	52	18	0	48
Total Analysis Volume [veh/h]	0	304	210	74	0	190
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.20
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	9.87
Movement LOS		A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.76
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	19.12
d_A, Approach Delay [s/veh]	0.00		0.00		9.87	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.41					
Intersection LOS	A					

Beyond Food Mart Palmdale (25th Street &

Vistro File: G:\...\PM.vistro
Report File: G:\...\PMEp.pdf

Scenario 2 Existing Plus Project
11/22/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	20th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	WB Left	0.378	25.8	C
2	25th St (NS) at Palmdale Blvd (EW)	Signalized	HCM 7th Edition	WB Left	0.592	26.1	C
3	25th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	EB Left	0.468	33.4	C
4	25th St (NS) at Ave R-8 (EW)	Two-way stop	HCM 7th Edition	EB Left	0.079	14.6	B
5	30th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	WB Left	0.372	24.3	C
6	Project Dwy (NS) at Ave R (EW)	Two-way stop	HCM 7th Edition	SB Right	0.136	10.9	B
7	25th St (NS) at Project Dwy (EW)	Two-way stop	HCM 7th Edition	EB Right	0.214	10.5	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 20th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	25.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.378

Intersection Setup

Name	20th St			20th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	190.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	20th St			20th St			Ave R			Ave R		
Base Volume Input [veh/h]	85	235	58	96	292	57	53	521	118	59	387	94
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	5	5	0	0	0	14	0	5	14	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	85	235	63	101	292	57	53	535	118	64	401	108
Peak Hour Factor	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	60	16	26	74	14	13	136	30	16	102	27
Total Analysis Volume [veh/h]	86	239	64	103	297	58	54	544	120	65	407	110
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	2	1	6	0
Auxiliary Signal Groups									2,3			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	10	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	10	37	0	11	38	0	13	32	32	10	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	25	0	0	29	0	0	23	23	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	10	10	7	11	11	4	53	62	4	53	53
g / C, Green / Cycle	0.06	0.11	0.11	0.07	0.13	0.13	0.04	0.59	0.69	0.05	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.05	0.08	0.09	0.06	0.10	0.10	0.03	0.15	0.08	0.04	0.14	0.14
s, saturation flow rate [veh/h]	1781	1870	1737	1781	1870	1766	1781	3560	1589	1781	1870	1735
c, Capacity [veh/h]	111	215	200	131	237	223	75	2086	1101	85	1106	1027
d1, Uniform Delay [s]	41.61	38.46	38.55	41.01	38.06	38.12	42.65	9.12	4.60	42.40	8.76	8.78
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.82	4.50	5.28	9.75	5.13	5.77	12.49	0.30	0.20	13.34	0.52	0.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.72	0.74	0.78	0.77	0.78	0.72	0.26	0.11	0.77	0.24	0.24
d, Delay for Lane Group [s/veh]	52.42	42.96	43.83	50.76	43.19	43.89	55.14	9.42	4.80	55.75	9.28	9.34
Lane Group LOS	D	D	D	D	D	D	E	A	A	E	A	A
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.11	3.37	3.26	2.47	3.96	3.84	1.38	2.19	0.56	1.67	2.15	2.03
50th-Percentile Queue Length [ft/ln]	52.78	84.31	81.48	61.87	99.03	96.01	34.56	54.72	14.12	41.65	53.71	50.83
95th-Percentile Queue Length [veh/ln]	3.80	6.07	5.87	4.45	7.13	6.91	2.49	3.94	1.02	3.00	3.87	3.66
95th-Percentile Queue Length [ft/ln]	95.00	151.76	146.67	111.37	178.25	172.82	62.21	98.50	25.41	74.98	96.68	91.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.42	43.27	43.83	50.76	43.46	43.89	55.14	9.42	4.80	55.75	9.30	9.34
Movement LOS	D	D	D	D	D	D	E	A	A	E	A	A
d_A, Approach Delay [s/veh]	45.38			45.16			12.09			14.49		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	25.83											
Intersection LOS	C											
Intersection V/C	0.378											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.47	36.47	36.47	36.47
l_p,int, Pedestrian LOS Score for Intersection	2.584	2.581	2.798	2.805
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	755	622	555
d_b, Bicycle Delay [s]	18.07	17.44	21.38	23.49
l_b,int, Bicycle LOS Score for Intersection	1.881	1.937	2.152	2.040
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: 25th St (NS) at Palmdale Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	26.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.592

Intersection Setup

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	250.00	100.00	100.00	178.00	100.00	100.00	214.00	100.00	100.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Base Volume Input [veh/h]	249	187	108	96	198	28	23	979	215	61	680	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	5	0	0	0	9	9	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	249	187	108	96	203	28	23	979	224	70	680	43
Peak Hour Factor	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	65	49	28	25	53	7	6	257	59	18	178	11
Total Analysis Volume [veh/h]	261	196	113	101	213	29	24	1028	235	73	714	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	40	0	19	38	0	9	36	0	10	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	29	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	19	19	8	10	10	3	56	56	6	59	59
g / C, Green / Cycle	0.16	0.19	0.19	0.07	0.10	0.10	0.02	0.54	0.54	0.05	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.15	0.06	0.07	0.06	0.06	0.02	0.01	0.29	0.15	0.04	0.20	0.03
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	289	660	295	129	341	152	45	1910	852	95	2011	898
d1, Uniform Delay [s]	43.23	36.91	37.55	47.92	45.71	43.77	50.64	15.89	13.26	49.10	12.46	10.25
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.21	0.25	0.82	9.74	1.88	0.60	9.64	1.09	0.80	12.03	0.49	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.30	0.38	0.78	0.62	0.19	0.54	0.54	0.28	0.77	0.36	0.05
d, Delay for Lane Group [s/veh]	53.44	37.16	38.37	57.66	47.58	44.37	60.28	16.98	14.06	61.13	12.95	10.36
Lane Group LOS	D	D	D	E	D	D	E	B	B	E	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.14	2.10	2.50	2.84	2.65	0.69	0.73	7.64	2.99	2.15	4.21	0.45
50th-Percentile Queue Length [ft/ln]	178.44	52.38	62.45	71.07	66.23	17.33	18.28	190.96	74.85	53.76	105.15	11.21
95th-Percentile Queue Length [veh/ln]	11.52	3.77	4.50	5.12	4.77	1.25	1.32	12.17	5.39	3.87	7.57	0.81
95th-Percentile Queue Length [ft/ln]	287.98	94.28	112.40	127.93	119.22	31.19	32.90	304.27	134.73	96.78	189.24	20.18

Movement, Approach, & Intersection Results

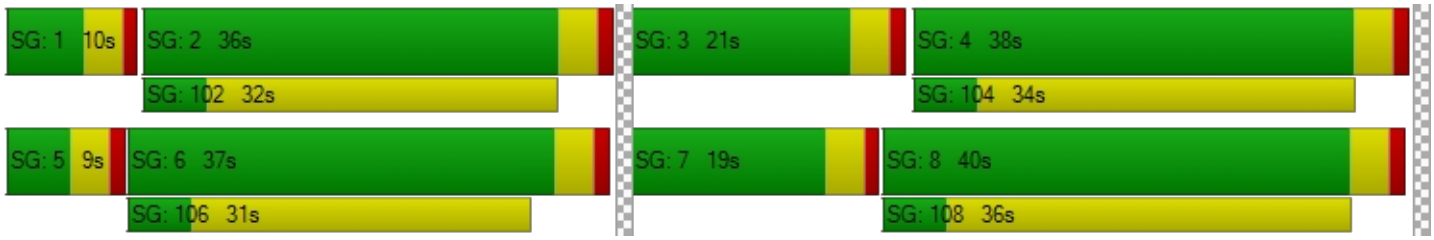
d_M, Delay for Movement [s/veh]	53.44	37.16	38.37	57.66	47.58	44.37	60.28	16.98	14.06	61.13	12.95	10.36
Movement LOS	D	D	D	E	D	D	E	B	B	E	B	B
d_A, Approach Delay [s/veh]	44.85			50.28			17.26			17.04		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	26.12											
Intersection LOS	C											
Intersection V/C	0.592											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.92	43.92	43.92	43.92
l_p,int, Pedestrian LOS Score for Intersection	2.757	2.627	2.958	2.967
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	685	647	609	628
d_b, Bicycle Delay [s]	22.70	24.03	25.40	24.71
l_b,int, Bicycle LOS Score for Intersection	2.030	1.843	2.621	2.246
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: 25th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	33.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.468

Intersection Setup

Name	25th St			25th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	195.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Ave R			Ave R		
Base Volume Input [veh/h]	60	345	163	85	381	36	31	545	98	101	430	108
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	24	0	0	38	21	0	0	0	0	0	24	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	40	0	0	64	42	0	0	0	0	0	40	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	345	163	187	444	36	31	545	98	101	494	108
Peak Hour Factor	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	90	42	49	115	9	8	142	25	26	128	28
Total Analysis Volume [veh/h]	129	358	169	194	461	37	32	566	102	105	513	112
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	3	8	8	7	4	4	5	2	2	1	6	6
Auxiliary Signal Groups			1,8			4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	21	43	43	23	45	45	10	36	36	13	39	39
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	29	29	0	27	27	0	27	27	0	29	29
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	10	14	27	15	19	26	3	61	75	9	67	85
g / C, Green / Cycle	0.09	0.13	0.24	0.13	0.16	0.23	0.03	0.53	0.65	0.08	0.58	0.74
(v / s)_i Volume / Saturation Flow Rate	0.07	0.10	0.11	0.11	0.13	0.02	0.02	0.16	0.06	0.06	0.14	0.07
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	161	448	381	227	580	360	51	1883	1039	141	2062	1178
d1, Uniform Delay [s]	51.35	48.90	37.25	49.18	46.32	35.26	55.27	15.18	7.36	51.88	11.91	4.15
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.96	3.34	0.81	8.94	2.53	0.12	11.76	0.41	0.19	7.66	0.29	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.80	0.44	0.86	0.80	0.10	0.62	0.30	0.10	0.75	0.25	0.10
d, Delay for Lane Group [s/veh]	60.31	52.24	38.06	58.12	48.86	35.38	67.02	15.59	7.55	59.53	12.20	4.31
Lane Group LOS	E	D	D	E	D	D	E	B	A	E	B	A
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.92	5.01	3.97	5.81	6.28	0.81	1.06	3.89	0.84	3.16	2.97	0.59
50th-Percentile Queue Length [ft/ln]	97.93	125.36	99.21	145.27	157.12	20.15	26.39	97.18	21.11	79.03	74.19	14.74
95th-Percentile Queue Length [veh/ln]	7.05	8.69	7.14	9.76	10.40	1.45	1.90	7.00	1.52	5.69	5.34	1.06
95th-Percentile Queue Length [ft/ln]	176.27	217.17	178.57	244.11	259.91	36.27	47.51	174.92	38.01	142.25	133.55	26.53

Movement, Approach, & Intersection Results

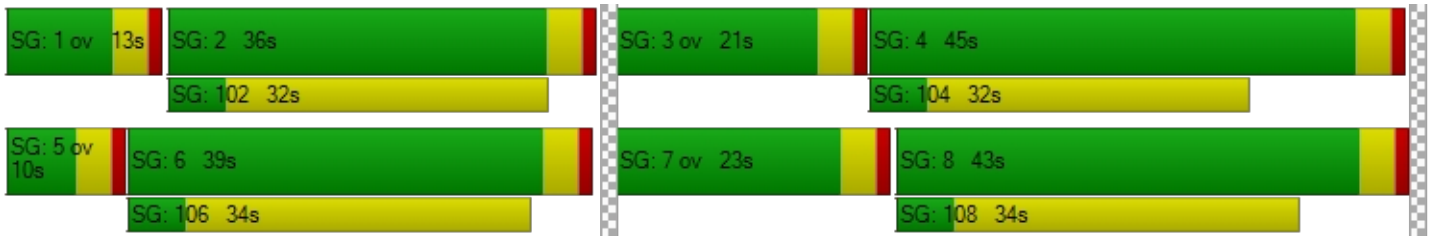
d_M, Delay for Movement [s/veh]	60.31	52.24	38.06	58.12	48.86	35.38	67.02	15.59	7.55	59.53	12.20	4.31
Movement LOS	E	D	D	E	D	D	E	B	A	E	B	A
d_A, Approach Delay [s/veh]	50.17			50.73			16.77			17.80		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	33.39											
Intersection LOS	C											
Intersection V/C	0.468											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	48.87	48.87	48.87	48.87
l_p,int, Pedestrian LOS Score for Intersection	2.915	2.790	2.927	2.915
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	678	713	556	608
d_b, Bicycle Delay [s]	25.13	23.83	29.97	27.84
l_b,int, Bicycle LOS Score for Intersection	2.101	2.131	2.137	2.162
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: 25th St (NS) at Ave R-8 (EW)

Control Type:	Two-way stop	Delay (sec / veh):	14.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.079

Intersection Setup

Name	25th St		25th St		Ave R-8	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	237.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	25th St		25th St		Ave R-8	
Base Volume Input [veh/h]	78	552	542	29	26	92
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	19	16	5	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	2	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	571	560	34	31	92
Peak Hour Factor	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	148	145	9	8	24
Total Analysis Volume [veh/h]	81	590	579	35	32	95
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.01	0.01	0.00	0.08	0.13
d_M, Delay for Movement [s/veh]	9.09	0.00	0.00	0.00	14.63	10.88
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.28	0.00	0.00	0.00	0.26	0.46
95th-Percentile Queue Length [ft/ln]	6.88	0.00	0.00	0.00	6.38	11.57
d_A, Approach Delay [s/veh]	1.10		0.00		11.82	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.58					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: 30th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	24.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.372

Intersection Setup

Name	30th St			30th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	190.00	100.00	100.00	190.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	30th St			30th St			Ave R			Ave R		
Base Volume Input [veh/h]	78	188	43	93	241	70	60	552	82	47	535	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	0	0	0	0	5	19	14	5	0	14	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	188	43	93	241	75	79	566	87	47	549	98
Peak Hour Factor	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	49	11	24	63	20	21	149	23	12	144	26
Total Analysis Volume [veh/h]	87	197	45	98	253	79	83	594	91	49	577	103
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	8	7	4	4	5	2	0	1	6	0
Auxiliary Signal Groups			1,8			4,5						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	0	5	10	0
Maximum Green [s]	30	30	30	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	36	36	14	39	39	12	37	0	13	38	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	30	30	0	28	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No		No	No	
Maximum Recall	No	No	No	No	No	No	No	No		No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	10	18	7	11	21	6	63	63	4	61	61
g / C, Green / Cycle	0.06	0.10	0.18	0.07	0.11	0.21	0.06	0.63	0.63	0.04	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.05	0.06	0.03	0.06	0.07	0.05	0.05	0.19	0.19	0.03	0.16	0.06
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1784	1781	3560	1589
c, Capacity [veh/h]	113	358	284	126	385	332	108	1179	1125	68	2165	967
d1, Uniform Delay [s]	46.20	42.88	34.75	45.76	42.88	32.98	46.32	8.40	8.41	47.62	9.18	8.22
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.65	1.32	0.26	9.87	1.92	0.37	10.61	0.64	0.68	13.15	0.30	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.55	0.16	0.78	0.66	0.24	0.77	0.30	0.30	0.72	0.27	0.11
d, Delay for Lane Group [s/veh]	56.85	44.20	35.01	55.63	44.80	33.34	56.93	9.05	9.08	60.76	9.48	8.45
Lane Group LOS	E	D	D	E	D	C	E	A	A	E	A	A
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.37	2.28	0.90	2.63	2.96	1.55	2.26	2.98	2.86	1.41	2.52	0.84
50th-Percentile Queue Length [ft/ln]	59.23	56.95	22.57	65.81	74.09	38.71	56.59	74.61	71.62	35.15	63.09	20.95
95th-Percentile Queue Length [veh/ln]	4.26	4.10	1.63	4.74	5.33	2.79	4.07	5.37	5.16	2.53	4.54	1.51
95th-Percentile Queue Length [ft/ln]	106.62	102.52	40.63	118.45	133.36	69.68	101.86	134.30	128.91	63.26	113.56	37.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	56.85	44.20	35.01	55.63	44.80	33.34	56.93	9.06	9.08	60.76	9.48	8.45
Movement LOS	E	D	D	E	D	C	E	A	A	E	A	A
d_A, Approach Delay [s/veh]	46.29			45.16			14.24			12.78		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	24.34											
Intersection LOS	C											
Intersection V/C	0.372											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.44	41.44	41.44	41.44
l_p,int, Pedestrian LOS Score for Intersection	2.655	2.680	2.869	2.857
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	700	660	680
d_b, Bicycle Delay [s]	23.15	21.16	22.48	21.81
l_b,int, Bicycle LOS Score for Intersection	1.831	1.914	2.193	2.161
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Ave R (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.136

Intersection Setup

Name	Project Dwy		Ave R		Ave R	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project Dwy		Ave R		Ave R	
Base Volume Input [veh/h]	0	0	0	675	526	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	33	24	0	0	48
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	56	40	0	0	79
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	89	64	675	526	127
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	24	17	183	143	35
Total Analysis Volume [veh/h]	0	97	70	734	572	138
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.14	0.08	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	10.86	9.42	0.00	0.00	0.00
Movement LOS		B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.47	0.26	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	11.78	6.43	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.86		0.82		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.06					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 7: 25th St (NS) at Project Dwy (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.214

Intersection Setup

Name	25th St		25th St		Project Dwy	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	25th St		25th St		Project Dwy	
Base Volume Input [veh/h]	0	248	322	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	23	0	59
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	41	0	106
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	248	322	64	0	165
Peak Hour Factor	1.0000	0.9200	0.9200	0.9200	1.0000	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	67	88	17	0	45
Total Analysis Volume [veh/h]	0	270	350	70	0	179
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.21
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	10.46
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.81
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	20.18
d_A, Approach Delay [s/veh]	0.00		0.00		10.46	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.15					
Intersection LOS	B					

OPENING YEAR (2024) WITHOUT PROJECT

Beyond Food Mart Palmdale (25th Street &

Vistro File: G:\...\AM.vistro
Report File: G:\...\AMOY.pdf

Scenario 3 Opening Year without Project
11/22/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	20th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	WB Left	0.602	32.3	C
2	25th St (NS) at Palmdale Blvd (EW)	Signalized	HCM 7th Edition	SB Left	0.465	25.4	C
3	25th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	SB Left	0.577	30.4	C
4	25th St (NS) at Ave R-8 (EW)	Two-way stop	HCM 7th Edition	EB Left	0.175	16.4	C
5	30th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	EB Left	0.424	24.2	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 20th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	32.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.602

Intersection Setup

Name	20th St			20th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	190.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	20th St			20th St			Ave R			Ave R		
Base Volume Input [veh/h]	103	373	106	104	212	77	137	294	67	98	494	168
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	1	1	1	1	1	5	0	2	9	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	106	385	110	108	219	80	142	308	69	103	518	175
Peak Hour Factor	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	110	31	31	63	23	41	88	20	29	148	50
Total Analysis Volume [veh/h]	121	440	126	123	250	91	162	352	79	118	592	200
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	2	1	6	0
Auxiliary Signal Groups									2,3			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	10	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	13	34	0	17	38	0	15	32	32	12	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	25	0	0	29	0	0	23	23	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	18	18	8	18	18	10	45	57	8	43	43
g / C, Green / Cycle	0.09	0.19	0.19	0.09	0.19	0.19	0.11	0.48	0.60	0.08	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.07	0.16	0.16	0.07	0.09	0.10	0.09	0.10	0.05	0.07	0.22	0.22
s, saturation flow rate [veh/h]	1781	1870	1729	1781	1870	1704	1781	3560	1589	1781	1870	1710
c, Capacity [veh/h]	153	350	324	156	354	322	196	1686	956	149	836	765
d1, Uniform Delay [s]	42.68	37.26	37.31	42.57	34.54	34.63	41.46	14.63	7.96	42.81	18.67	18.68
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.92	5.30	5.91	8.63	1.09	1.25	8.56	0.28	0.17	9.18	2.09	2.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.84	0.84	0.79	0.50	0.51	0.83	0.21	0.08	0.79	0.49	0.49
d, Delay for Lane Group [s/veh]	51.60	42.56	43.22	51.20	35.63	35.89	50.02	14.91	8.13	51.98	20.76	20.96
Lane Group LOS	D	D	D	D	D	D	D	B	A	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.02	6.66	6.26	3.06	3.54	3.33	3.98	2.03	0.60	2.96	6.21	5.72
50th-Percentile Queue Length [ft/ln]	75.56	166.58	156.50	76.46	88.51	83.18	99.54	50.83	15.08	74.01	155.13	142.99
95th-Percentile Queue Length [veh/ln]	5.44	10.90	10.36	5.51	6.37	5.99	7.17	3.66	1.09	5.33	10.29	9.64
95th-Percentile Queue Length [ft/ln]	136.01	272.41	259.08	137.63	159.32	149.72	179.16	91.49	27.14	133.22	257.27	241.05

Movement, Approach, & Intersection Results

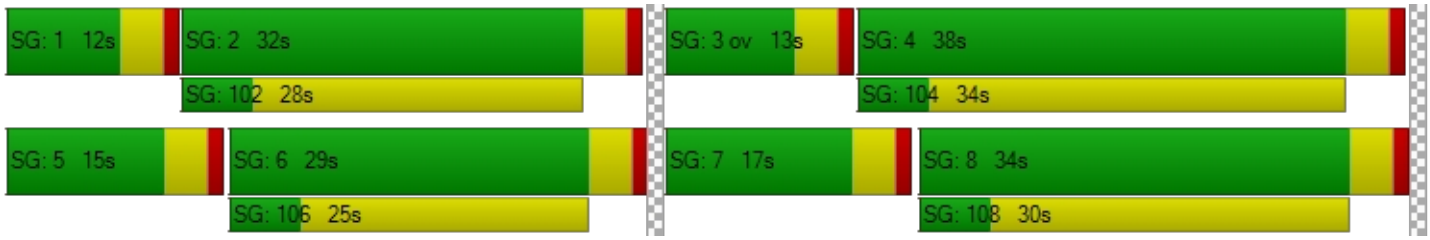
d_M, Delay for Movement [s/veh]	51.60	42.78	43.22	51.20	35.71	35.89	50.02	14.91	8.13	51.98	20.82	20.96
Movement LOS	D	D	D	D	D	D	D	B	A	D	C	C
d_A, Approach Delay [s/veh]	44.41			39.85			23.60			24.89		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	32.27											
Intersection LOS	C											
Intersection V/C	0.602											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.97	38.97	38.97	38.97
l_p,int, Pedestrian LOS Score for Intersection	2.673	2.715	2.835	2.866
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	631	715	589	526
d_b, Bicycle Delay [s]	22.27	19.62	23.66	25.83
l_b,int, Bicycle LOS Score for Intersection	2.126	1.942	2.049	2.310
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: 25th St (NS) at Palmdale Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	25.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.465

Intersection Setup

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	250.00	100.00	100.00	178.00	100.00	100.00	214.00	100.00	100.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Base Volume Input [veh/h]	201	233	134	42	126	25	18	633	105	90	829	29
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0302	1.0000	1.0000	1.0302	1.0302	1.0302	1.0000	1.0302	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	4	11	6	7	13	4	11	6	6	11	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	218	244	145	48	137	39	23	644	114	96	840	32
Peak Hour Factor	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	56	63	37	12	35	10	6	165	29	25	215	8
Total Analysis Volume [veh/h]	224	250	149	49	141	40	24	661	117	98	862	33
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	41	0	16	38	0	9	36	0	12	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	29	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	21	21	4	10	10	3	57	57	7	62	62
g / C, Green / Cycle	0.14	0.20	0.20	0.04	0.10	0.10	0.02	0.54	0.54	0.07	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.13	0.07	0.09	0.03	0.04	0.03	0.01	0.19	0.07	0.06	0.24	0.02
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	255	716	320	66	340	152	45	1921	857	125	2081	929
d1, Uniform Delay [s]	44.16	36.08	37.02	50.09	44.78	44.12	50.64	13.69	12.04	48.10	11.98	9.27
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.53	0.29	1.06	14.69	0.81	0.92	9.64	0.49	0.33	10.32	0.61	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.35	0.47	0.74	0.42	0.26	0.54	0.34	0.14	0.79	0.41	0.04
d, Delay for Lane Group [s/veh]	53.69	36.37	38.08	64.78	45.59	45.04	60.28	14.18	12.37	58.43	12.59	9.34
Lane Group LOS	D	D	D	E	D	D	E	B	B	E	B	A
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.11	2.65	3.30	1.50	1.70	0.97	0.73	4.22	1.35	2.80	5.03	0.31
50th-Percentile Queue Length [ft/ln]	152.82	66.35	82.61	37.40	42.46	24.16	18.28	105.49	33.78	70.10	125.72	7.65
95th-Percentile Queue Length [veh/ln]	10.17	4.78	5.95	2.69	3.06	1.74	1.32	7.59	2.43	5.05	8.71	0.55
95th-Percentile Queue Length [ft/ln]	254.19	119.43	148.69	67.32	76.43	43.50	32.90	189.71	60.81	126.18	217.66	13.77

Movement, Approach, & Intersection Results

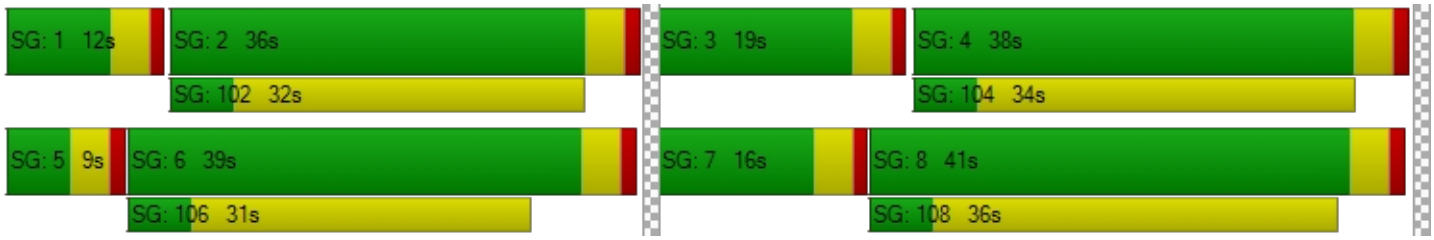
d_M, Delay for Movement [s/veh]	53.69	36.37	38.08	64.78	45.59	45.04	60.28	14.18	12.37	58.43	12.59	9.34
Movement LOS	D	D	D	E	D	D	E	B	B	E	B	A
d_A, Approach Delay [s/veh]	43.01			49.58			15.30			17.01		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	25.44											
Intersection LOS	C											
Intersection V/C	0.465											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.92	43.92	43.92	43.92
l_p,int, Pedestrian LOS Score for Intersection	2.727	2.607	2.880	2.990
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	704	647	609	666
d_b, Bicycle Delay [s]	22.05	24.03	25.40	23.36
l_b,int, Bicycle LOS Score for Intersection	2.074	1.749	2.221	2.379
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: 25th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	30.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.577

Intersection Setup

Name	25th St			25th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	195.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Ave R			Ave R		
Base Volume Input [veh/h]	196	346	109	56	221	148	40	385	163	123	689	125
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	9	13	13	7	0	0	0	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	202	365	112	67	241	165	48	397	168	127	710	133
Peak Hour Factor	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	61	110	34	20	73	50	14	120	51	38	214	40
Total Analysis Volume [veh/h]	244	440	135	81	291	199	58	479	203	153	856	160
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	3	8	8	7	4	4	5	2	2	1	6	6
Auxiliary Signal Groups			1,8			4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	23	38	38	21	36	36	11	36	36	15	40	40
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	29	29	0	27	27	0	27	27	0	29	29
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	17	22	37	7	12	23	7	54	75	11	58	69
g / C, Green / Cycle	0.16	0.20	0.34	0.06	0.11	0.21	0.06	0.49	0.68	0.10	0.53	0.63
(v / s)_i Volume / Saturation Flow Rate	0.14	0.12	0.08	0.05	0.08	0.13	0.03	0.13	0.13	0.09	0.24	0.10
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	277	718	538	110	384	332	115	1746	1085	179	1875	993
d1, Uniform Delay [s]	45.48	40.04	26.33	50.74	47.70	39.40	49.81	16.51	6.36	48.72	16.24	8.61
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.85	0.85	0.24	8.99	3.06	1.74	3.42	0.39	0.38	10.90	0.80	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.61	0.25	0.73	0.76	0.60	0.51	0.27	0.19	0.85	0.46	0.16
d, Delay for Lane Group [s/veh]	54.33	40.90	26.57	59.73	50.77	41.14	53.23	16.90	6.75	59.62	17.04	8.95
Lane Group LOS	D	D	C	E	D	D	D	B	A	E	B	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.91	5.26	2.46	2.39	3.88	4.80	1.60	3.35	1.49	4.51	6.21	1.46
50th-Percentile Queue Length [ft/ln]	172.74	131.51	61.54	59.72	97.12	120.12	39.92	83.71	37.19	112.78	155.25	36.45
95th-Percentile Queue Length [veh/ln]	11.22	9.02	4.43	4.30	6.99	8.40	2.87	6.03	2.68	7.99	10.30	2.62
95th-Percentile Queue Length [ft/ln]	280.52	225.55	110.77	107.49	174.82	210.00	71.86	150.67	66.94	199.86	257.42	65.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.33	40.90	26.57	59.73	50.77	41.14	53.23	16.90	6.75	59.62	17.04	8.95
Movement LOS	D	D	C	E	D	D	D	B	A	E	B	A
d_A, Approach Delay [s/veh]	42.54			48.68			16.96			21.51		
Approach LOS	D			D			B			C		
d_I, Intersection Delay [s/veh]	30.41											
Intersection LOS	C											
Intersection V/C	0.577											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	46.39	46.39	46.39	46.39
l_p,int, Pedestrian LOS Score for Intersection	2.945	2.797	3.078	2.969
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	618	582	582	654
d_b, Bicycle Delay [s]	26.28	27.68	27.68	24.91
l_b,int, Bicycle LOS Score for Intersection	2.235	2.031	2.170	2.524
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: 25th St (NS) at Ave R-8 (EW)

Control Type:	Two-way stop	Delay (sec / veh):	16.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.175

Intersection Setup

Name	25th St		25th St		Ave R-8	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	237.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	25th St		25th St		Ave R-8	
Base Volume Input [veh/h]	86	555	494	27	56	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	11	2	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	89	579	520	30	60	76
Peak Hour Factor	0.8950	0.8950	0.8950	0.8950	0.8950	0.8950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	162	145	8	17	21
Total Analysis Volume [veh/h]	99	647	581	34	67	85
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.01	0.01	0.00	0.18	0.12
d_M, Delay for Movement [s/veh]	9.18	0.00	0.00	0.00	16.40	10.80
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.34	0.00	0.00	0.00	0.63	0.41
95th-Percentile Queue Length [ft/ln]	8.59	0.00	0.00	0.00	15.68	10.21
d_A, Approach Delay [s/veh]	1.22		0.00		13.27	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.93					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 5: 30th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	24.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.424

Intersection Setup

Name	30th St			30th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	190.00	100.00	100.00	190.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	30th St			30th St			Ave R			Ave R		
Base Volume Input [veh/h]	133	257	44	57	130	64	86	426	57	34	689	159
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0000	1.0302	1.0000	1.0000	1.0000	1.0000	1.0302	1.0302	1.0302	1.0302	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	0	0	0	0	1	2	4	3	0	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	138	257	45	57	130	65	88	443	62	35	712	159
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	67	12	15	34	17	23	116	16	9	186	42
Total Analysis Volume [veh/h]	145	269	47	60	136	68	92	464	65	37	746	166
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	8	7	4	4	5	2	0	1	6	0
Auxiliary Signal Groups			1,8			4,5						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	0	5	10	0
Maximum Green [s]	30	30	30	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	36	36	16	39	39	10	39	0	9	38	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	30	30	0	28	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No		No	No	
Maximum Recall	No	No	No	No	No	No	No	No		No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	15	22	4	10	20	6	62	62	3	59	59
g / C, Green / Cycle	0.09	0.15	0.22	0.04	0.10	0.20	0.06	0.62	0.62	0.03	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.08	0.08	0.03	0.03	0.04	0.04	0.05	0.14	0.14	0.02	0.21	0.10
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1791	1781	3560	1589
c, Capacity [veh/h]	162	521	349	80	357	320	108	1152	1103	59	2095	935
d1, Uniform Delay [s]	45.07	39.48	31.43	47.28	42.14	33.38	46.57	8.63	8.64	47.79	10.73	9.47
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.75	0.79	0.17	13.31	0.67	0.33	16.27	0.48	0.50	10.27	0.47	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.52	0.13	0.75	0.38	0.21	0.85	0.23	0.24	0.62	0.36	0.18
d, Delay for Lane Group [s/veh]	60.82	40.27	31.60	60.59	42.81	33.71	62.84	9.11	9.14	58.06	11.21	9.89
Lane Group LOS	E	D	C	E	D	C	E	A	A	E	B	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.10	2.96	0.88	1.71	1.53	1.34	2.66	2.31	2.23	1.04	3.73	1.52
50th-Percentile Queue Length [ft/ln]	102.48	73.97	22.12	42.72	38.34	33.47	66.39	57.75	55.83	26.04	93.37	38.01
95th-Percentile Queue Length [veh/ln]	7.38	5.33	1.59	3.08	2.76	2.41	4.78	4.16	4.02	1.88	6.72	2.74
95th-Percentile Queue Length [ft/ln]	184.47	133.15	39.81	76.89	69.02	60.24	119.50	103.94	100.49	46.88	168.06	68.43

Movement, Approach, & Intersection Results

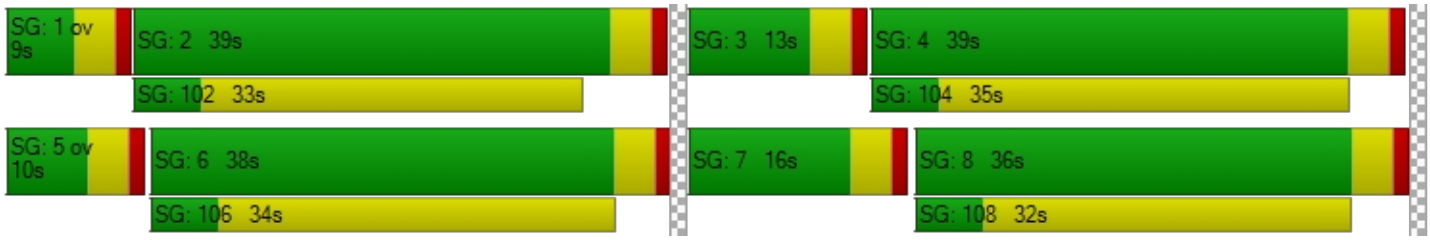
d_M, Delay for Movement [s/veh]	60.82	40.27	31.60	60.59	42.81	33.71	62.84	9.12	9.14	58.06	11.21	9.89
Movement LOS	E	D	C	E	D	C	E	A	A	E	B	A
d_A, Approach Delay [s/veh]	45.85			44.51			17.08			12.80		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	24.25											
Intersection LOS	C											
Intersection V/C	0.424											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.44	41.44	41.44	41.44
l_p,int, Pedestrian LOS Score for Intersection	2.649	2.674	2.887	2.871
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	700	700	680
d_b, Bicycle Delay [s]	23.15	21.16	21.16	21.81
l_b,int, Bicycle LOS Score for Intersection	1.940	1.777	2.072	2.343
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Beyond Food Mart Palmdale (25th Street &

Vistro File: G:\...\PM.vistro
Report File: G:\...\PMOY.pdf

Scenario 3 Opening Year without Project
11/22/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	20th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	EB Left	0.390	26.0	C
2	25th St (NS) at Palmdale Blvd (EW)	Signalized	HCM 7th Edition	NB Left	0.623	28.1	C
3	25th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	SB Left	0.436	27.2	C
4	25th St (NS) at Ave R-8 (EW)	Two-way stop	HCM 7th Edition	EB Left	0.081	14.9	B
5	30th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	WB Left	0.375	24.0	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 20th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	26.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.390

Intersection Setup

Name	20th St			20th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	190.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	20th St			20th St			Ave R			Ave R		
Base Volume Input [veh/h]	85	235	58	96	292	57	53	521	118	59	387	94
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	3	2	2	2	2	14	0	3	12	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	244	63	101	303	61	57	551	122	64	411	98
Peak Hour Factor	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	62	16	26	77	15	14	140	31	16	104	25
Total Analysis Volume [veh/h]	89	248	64	103	308	62	58	560	124	65	418	100
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	2	1	6	0
Auxiliary Signal Groups									2,3			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	10	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	10	37	0	11	38	0	13	32	32	10	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	25	0	0	29	0	0	23	23	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	11	11	7	12	12	4	52	62	4	53	53
g / C, Green / Cycle	0.06	0.12	0.12	0.07	0.13	0.13	0.04	0.58	0.69	0.05	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.05	0.09	0.09	0.06	0.10	0.10	0.03	0.16	0.08	0.04	0.14	0.14
s, saturation flow rate [veh/h]	1781	1870	1741	1781	1870	1763	1781	3560	1589	1781	1870	1747
c, Capacity [veh/h]	115	227	212	131	245	231	77	2063	1094	85	1092	1020
d1, Uniform Delay [s]	41.50	38.00	38.09	41.01	37.85	37.91	42.62	9.45	4.75	42.40	9.10	9.11
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.59	3.93	4.55	9.75	5.13	5.77	13.76	0.32	0.21	13.34	0.53	0.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.70	0.72	0.78	0.77	0.78	0.75	0.27	0.11	0.77	0.24	0.25
d, Delay for Lane Group [s/veh]	52.09	41.93	42.65	50.76	42.98	43.69	56.38	9.78	4.96	55.75	9.63	9.69
Lane Group LOS	D	D	D	D	D	D	E	A	A	E	A	A
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.18	3.42	3.30	2.47	4.12	3.99	1.50	2.32	0.60	1.67	2.21	2.10
50th-Percentile Queue Length [ft/ln]	54.38	85.58	82.58	61.87	103.10	99.77	37.55	58.02	15.01	41.65	55.25	52.54
95th-Percentile Queue Length [veh/ln]	3.92	6.16	5.95	4.45	7.42	7.18	2.70	4.18	1.08	3.00	3.98	3.78
95th-Percentile Queue Length [ft/ln]	97.89	154.05	148.64	111.37	185.57	179.58	67.59	104.43	27.02	74.98	99.44	94.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.09	42.19	42.65	50.76	43.25	43.69	56.38	9.78	4.96	55.75	9.65	9.69
Movement LOS	D	D	D	D	D	D	E	A	A	E	A	A
d_A, Approach Delay [s/veh]	44.46			44.94			12.62			14.80		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	25.95											
Intersection LOS	C											
Intersection V/C	0.390											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.47	36.47	36.47	36.47
l_p,int, Pedestrian LOS Score for Intersection	2.593	2.587	2.809	2.809
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	755	622	555
d_b, Bicycle Delay [s]	18.07	17.44	21.38	23.49
l_b,int, Bicycle LOS Score for Intersection	1.890	1.950	2.172	2.041
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: 25th St (NS) at Palmdale Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	28.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.623

Intersection Setup

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	250.00	100.00	100.00	178.00	100.00	100.00	214.00	100.00	100.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Base Volume Input [veh/h]	249	187	108	96	198	28	23	979	215	61	680	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0302	1.0000	1.0000	1.0302	1.0302	1.0302	1.0000	1.0302	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	9	14	5	8	7	13	30	14	16	31	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	269	202	122	101	212	36	37	1009	235	77	711	45
Peak Hour Factor	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	71	53	32	27	56	9	10	265	62	20	187	12
Total Analysis Volume [veh/h]	282	212	128	106	223	38	39	1059	247	81	746	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	40	0	19	38	0	9	36	0	10	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	29	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	19	19	8	10	10	3	56	56	6	59	59
g / C, Green / Cycle	0.16	0.18	0.18	0.08	0.10	0.10	0.03	0.53	0.53	0.06	0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.16	0.06	0.08	0.06	0.06	0.02	0.02	0.30	0.16	0.05	0.21	0.03
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	289	649	290	135	341	152	60	1893	845	103	1981	884
d1, Uniform Delay [s]	43.83	37.38	38.23	47.73	45.84	44.02	50.20	16.40	13.64	48.87	13.09	10.66
k, delay calibration	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.23	0.29	1.06	9.57	2.12	0.85	11.53	1.20	0.88	12.19	0.55	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.98	0.33	0.44	0.79	0.65	0.25	0.65	0.56	0.29	0.78	0.38	0.05
d, Delay for Lane Group [s/veh]	65.06	37.67	39.29	57.30	47.96	44.87	61.74	17.60	14.52	61.05	13.64	10.78
Lane Group LOS	E	D	D	E	D	D	E	B	B	E	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.63	2.29	2.88	2.97	2.79	0.92	1.18	8.08	3.22	2.38	4.57	0.48
50th-Percentile Queue Length [ft/ln]	215.66	57.22	71.99	74.32	69.73	22.89	29.58	202.01	80.47	59.52	114.14	12.03
95th-Percentile Queue Length [veh/ln]	13.44	4.12	5.18	5.35	5.02	1.65	2.13	12.74	5.79	4.29	8.07	0.87
95th-Percentile Queue Length [ft/ln]	336.08	102.99	129.59	133.77	125.52	41.21	53.24	318.56	144.85	107.14	201.75	21.65

Movement, Approach, & Intersection Results

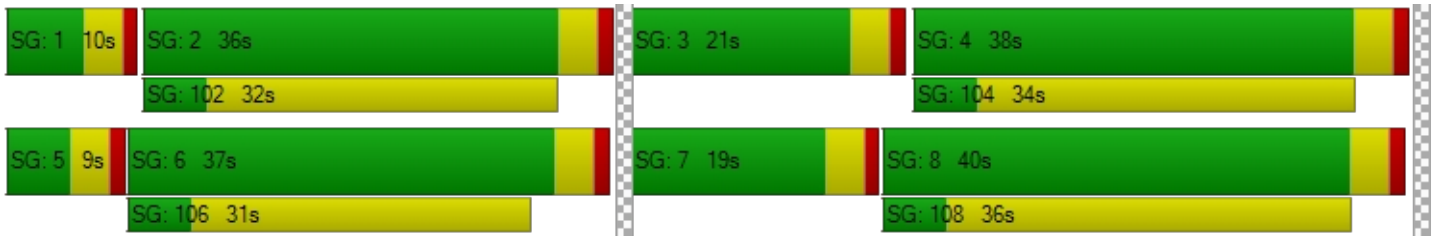
d_M, Delay for Movement [s/veh]	65.06	37.67	39.29	57.30	47.96	44.87	61.74	17.60	14.52	61.05	13.64	10.78
Movement LOS	E	D	D	E	D	D	E	B	B	E	B	B
d_A, Approach Delay [s/veh]	50.42			50.34			18.31			17.88		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	28.08											
Intersection LOS	C											
Intersection V/C	0.623											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.92	43.92	43.92	43.92
l_p,int, Pedestrian LOS Score for Intersection	2.780	2.642	2.984	2.990
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	685	647	609	628
d_b, Bicycle Delay [s]	22.70	24.03	25.40	24.71
l_b,int, Bicycle LOS Score for Intersection	2.073	1.862	2.669	2.281
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: 25th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	27.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.436

Intersection Setup

Name	25th St			25th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	195.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Ave R			Ave R		
Base Volume Input [veh/h]	60	345	163	85	381	36	31	545	98	101	430	108
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	21	1	6	18	15	18	1	0	1	1	9
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	376	169	94	411	52	50	562	101	105	444	120
Peak Hour Factor	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	98	44	24	107	14	13	146	26	27	115	31
Total Analysis Volume [veh/h]	64	391	176	98	427	54	52	584	105	109	461	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	3	8	8	7	4	4	5	2	2	1	6	6
Auxiliary Signal Groups			1,8			4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	12	38	38	10	36	36	9	36	36	11	38	38
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	29	29	0	27	27	0	27	27	0	29	29
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	13	24	6	15	23	4	53	61	7	56	66
g / C, Green / Cycle	0.05	0.14	0.26	0.06	0.16	0.24	0.04	0.55	0.64	0.07	0.59	0.69
(v / s)_i Volume / Saturation Flow Rate	0.04	0.11	0.11	0.06	0.12	0.03	0.03	0.16	0.07	0.06	0.13	0.08
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	86	502	409	114	559	381	72	1966	1021	133	2087	1100
d1, Uniform Delay [s]	44.71	39.43	29.49	44.11	38.43	28.49	45.12	11.41	6.51	43.41	9.36	4.89
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.02	2.65	0.71	16.52	2.21	0.17	12.65	0.39	0.20	11.76	0.24	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.78	0.43	0.86	0.76	0.14	0.72	0.30	0.10	0.82	0.22	0.11
d, Delay for Lane Group [s/veh]	56.73	42.09	30.20	60.63	40.64	28.66	57.77	11.80	6.71	55.18	9.60	5.10
Lane Group LOS	E	D	C	E	D	C	E	B	A	E	A	A
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.70	4.34	3.22	2.69	4.66	0.93	1.41	2.90	0.69	2.83	1.95	0.65
50th-Percentile Queue Length [ft/ln]	42.62	108.42	80.39	67.37	116.38	23.25	35.21	72.51	17.27	70.81	48.76	16.21
95th-Percentile Queue Length [veh/ln]	3.07	7.75	5.79	4.85	8.19	1.67	2.54	5.22	1.24	5.10	3.51	1.17
95th-Percentile Queue Length [ft/ln]	76.71	193.80	144.70	121.26	204.84	41.85	63.38	130.52	31.08	127.46	87.77	29.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	56.73	42.09	30.20	60.63	40.64	28.66	57.77	11.80	6.71	55.18	9.60	5.10
Movement LOS	E	D	C	E	D	C	E	B	A	E	A	A
d_A, Approach Delay [s/veh]	40.26			42.91			14.30			15.94		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	27.18											
Intersection LOS	C											
Intersection V/C	0.436											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.97	38.97	38.97	38.97
l_p,int, Pedestrian LOS Score for Intersection	2.893	2.768	2.905	2.878
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	715	673	673	715
d_b, Bicycle Delay [s]	19.62	20.92	20.92	19.62
l_b,int, Bicycle LOS Score for Intersection	2.080	2.037	2.171	2.133
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: 25th St (NS) at Ave R-8 (EW)

Control Type:	Two-way stop	Delay (sec / veh):	14.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.081

Intersection Setup

Name	25th St		25th St		Ave R-8	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	237.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	25th St		25th St		Ave R-8	
Base Volume Input [veh/h]	78	552	542	29	26	92
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	18	15	4	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	587	573	34	31	95
Peak Hour Factor	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	152	148	9	8	25
Total Analysis Volume [veh/h]	83	607	593	35	32	98
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.01	0.01	0.00	0.08	0.14
d_M, Delay for Movement [s/veh]	9.15	0.00	0.00	0.00	14.85	10.98
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.29	0.00	0.00	0.00	0.26	0.49
95th-Percentile Queue Length [ft/ln]	7.16	0.00	0.00	0.00	6.53	12.14
d_A, Approach Delay [s/veh]	1.10		0.00		11.93	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.60					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: 30th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	24.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.375

Intersection Setup

Name	30th St			30th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	190.00	100.00	100.00	190.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	30th St			30th St			Ave R			Ave R		
Base Volume Input [veh/h]	78	188	43	93	241	70	60	552	82	47	535	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0000	1.0302	1.0000	1.0000	1.0000	1.0000	1.0302	1.0302	1.0302	1.0302	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	1	0	0	1	4	3	3	2	0	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	189	44	93	242	74	63	572	86	48	555	98
Peak Hour Factor	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	50	12	24	64	19	17	150	23	13	146	26
Total Analysis Volume [veh/h]	87	199	46	98	254	78	66	601	90	50	583	103
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	8	7	4	4	5	2	0	1	6	0
Auxiliary Signal Groups			1,8			4,5						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	0	5	10	0
Maximum Green [s]	30	30	30	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	36	36	14	39	39	12	37	0	13	38	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	30	30	0	28	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No		No	No	
Maximum Recall	No	No	No	No	No	No	No	No		No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	10	18	7	11	20	5	63	63	4	62	62
g / C, Green / Cycle	0.06	0.10	0.18	0.07	0.11	0.20	0.05	0.63	0.63	0.04	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.05	0.06	0.03	0.06	0.07	0.05	0.04	0.19	0.19	0.03	0.16	0.06
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1786	1781	3560	1589
c, Capacity [veh/h]	113	358	285	126	385	319	94	1179	1126	69	2194	979
d1, Uniform Delay [s]	46.20	42.91	34.74	45.76	42.90	33.63	46.64	8.44	8.44	47.61	8.82	7.89
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.65	1.35	0.26	9.87	1.94	0.39	9.05	0.65	0.68	13.49	0.30	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.56	0.16	0.78	0.66	0.24	0.70	0.30	0.30	0.73	0.27	0.11
d, Delay for Lane Group [s/veh]	56.85	44.26	35.01	55.63	44.84	34.02	55.69	9.09	9.12	61.10	9.12	8.11
Lane Group LOS	E	D	D	E	D	C	E	A	A	E	A	A
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.37	2.30	0.92	2.63	2.98	1.55	1.78	3.02	2.90	1.44	2.48	0.81
50th-Percentile Queue Length [ft/ln]	59.23	57.59	23.08	65.81	74.42	38.69	44.56	75.49	72.54	35.96	61.92	20.32
95th-Percentile Queue Length [veh/ln]	4.26	4.15	1.66	4.74	5.36	2.79	3.21	5.44	5.22	2.59	4.46	1.46
95th-Percentile Queue Length [ft/ln]	106.62	103.65	41.54	118.45	133.96	69.64	80.20	135.88	130.57	64.73	111.45	36.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	56.85	44.26	35.01	55.63	44.84	34.02	55.69	9.10	9.12	61.10	9.12	8.11
Movement LOS	E	D	D	E	D	C	E	A	A	E	A	A
d_A, Approach Delay [s/veh]	46.28			45.33			13.17			12.51		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	23.96											
Intersection LOS	C											
Intersection V/C	0.375											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.44	41.44	41.44	41.44
l_p,int, Pedestrian LOS Score for Intersection	2.656	2.676	2.867	2.861
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	700	660	680
d_b, Bicycle Delay [s]	23.15	21.16	22.48	21.81
l_b,int, Bicycle LOS Score for Intersection	1.834	1.914	2.184	2.167
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



OPENING YEAR (2024) WITH PROJECT

Beyond Food Mart Palmdale (25th Street &

Vistro File: G:\...\AM.vistro
Report File: G:\...\AMOYp.pdf

Scenario 4 Opening Year with Project
11/23/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	20th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	WB Left	0.616	32.4	C
2	25th St (NS) at Palmdale Blvd (EW)	Signalized	HCM 7th Edition	SB Left	0.466	25.6	C
3	25th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	NB Left	0.652	35.7	D
4	25th St (NS) at Ave R-8 (EW)	Two-way stop	HCM 7th Edition	EB Left	0.192	16.9	C
5	30th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	EB Left	0.444	25.9	C
6	Project Dwy (NS) at Ave R (EW)	Two-way stop	HCM 7th Edition	SB Right	0.180	12.7	B
7	25th St (NS) at Project Dwy (EW)	Two-way stop	HCM 7th Edition	EB Right	0.211	10.1	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 20th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	32.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.616

Intersection Setup

Name	20th St			20th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	190.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	20th St			20th St			Ave R			Ave R		
Base Volume Input [veh/h]	103	373	106	104	212	77	137	294	67	98	494	168
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	5	5	1	1	1	17	0	6	21	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	106	385	114	112	219	80	142	320	69	107	530	187
Peak Hour Factor	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	110	33	32	63	23	41	91	20	31	151	53
Total Analysis Volume [veh/h]	121	440	130	128	250	91	162	366	79	122	606	214
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	2	1	6	0
Auxiliary Signal Groups									2,3			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	10	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	13	34	0	17	38	0	15	32	32	12	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	25	0	0	29	0	0	23	23	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	18	18	9	18	18	10	45	57	8	42	42
g / C, Green / Cycle	0.09	0.19	0.19	0.09	0.19	0.19	0.11	0.47	0.60	0.08	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.07	0.16	0.16	0.07	0.09	0.10	0.09	0.10	0.05	0.07	0.23	0.23
s, saturation flow rate [veh/h]	1781	1870	1726	1781	1870	1704	1781	3560	1589	1781	1870	1705
c, Capacity [veh/h]	153	353	326	161	362	330	196	1665	946	151	828	755
d1, Uniform Delay [s]	42.68	37.20	37.25	42.41	34.17	34.26	41.46	15.02	8.19	42.77	19.17	19.17
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.92	5.30	5.92	8.54	1.02	1.17	8.56	0.30	0.17	9.63	2.31	2.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.84	0.84	0.79	0.49	0.50	0.83	0.22	0.08	0.81	0.52	0.52
d, Delay for Lane Group [s/veh]	51.60	42.50	43.17	50.95	35.19	35.43	50.02	15.33	8.37	52.39	21.48	21.70
Lane Group LOS	D	D	D	D	D	D	D	B	A	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.02	6.71	6.30	3.17	3.51	3.30	3.98	2.16	0.62	3.07	6.59	6.06
50th-Percentile Queue Length [ft/ln]	75.56	167.84	157.40	79.36	87.86	82.50	99.54	53.93	15.42	76.86	164.76	151.43
95th-Percentile Queue Length [veh/ln]	5.44	10.96	10.41	5.71	6.33	5.94	7.17	3.88	1.11	5.53	10.80	10.09
95th-Percentile Queue Length [ft/ln]	136.01	274.07	260.28	142.84	158.15	148.51	179.16	97.07	27.76	138.35	270.01	252.33

Movement, Approach, & Intersection Results

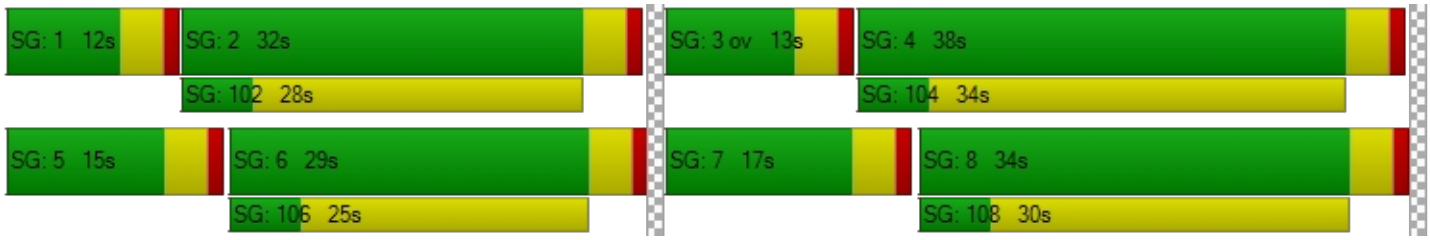
d_M, Delay for Movement [s/veh]	51.60	42.72	43.17	50.95	35.26	35.43	50.02	15.33	8.37	52.39	21.55	21.70
Movement LOS	D	D	D	D	D	D	D	B	A	D	C	C
d_A, Approach Delay [s/veh]	44.36			39.58			23.68			25.58		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	32.37											
Intersection LOS	C											
Intersection V/C	0.616											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.97	38.97	38.97	38.97
l_p,int, Pedestrian LOS Score for Intersection	2.675	2.722	2.843	2.881
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	631	715	589	526
d_b, Bicycle Delay [s]	22.27	19.62	23.66	25.83
l_b,int, Bicycle LOS Score for Intersection	2.130	1.947	2.060	2.337
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: 25th St (NS) at Palmdale Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	25.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.466

Intersection Setup

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	250.00	100.00	100.00	178.00	100.00	100.00	214.00	100.00	100.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Base Volume Input [veh/h]	201	233	134	42	126	25	18	633	105	90	829	29
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0302	1.0000	1.0000	1.0302	1.0302	1.0302	1.0000	1.0302	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	4	11	6	11	13	4	11	14	14	11	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	218	244	145	48	141	39	23	644	122	104	840	36
Peak Hour Factor	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	56	63	37	12	36	10	6	165	31	27	215	9
Total Analysis Volume [veh/h]	224	250	149	49	145	40	24	661	125	107	862	37
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	41	0	16	38	0	9	36	0	12	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	29	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	21	21	4	10	10	3	56	56	8	62	62
g / C, Green / Cycle	0.14	0.20	0.20	0.04	0.10	0.10	0.02	0.53	0.53	0.08	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.13	0.07	0.09	0.03	0.04	0.03	0.01	0.19	0.08	0.06	0.24	0.02
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	255	716	320	66	340	152	45	1900	848	135	2080	929
d1, Uniform Delay [s]	44.16	36.08	37.02	50.09	44.83	44.11	50.64	14.03	12.40	47.78	11.98	9.30
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.53	0.29	1.06	14.69	0.85	0.92	9.64	0.50	0.37	10.05	0.61	0.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.35	0.47	0.74	0.43	0.26	0.54	0.35	0.15	0.79	0.41	0.04
d, Delay for Lane Group [s/veh]	53.69	36.37	38.07	64.78	45.68	45.03	60.28	14.53	12.77	57.83	12.59	9.38
Lane Group LOS	D	D	D	E	D	D	E	B	B	E	B	A
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.11	2.65	3.30	1.50	1.75	0.97	0.73	4.29	1.48	3.04	5.03	0.34
50th-Percentile Queue Length [ft/ln]	152.82	66.35	82.60	37.40	43.73	24.16	18.28	107.22	36.89	76.07	125.74	8.60
95th-Percentile Queue Length [veh/ln]	10.17	4.78	5.95	2.69	3.15	1.74	1.32	7.69	2.66	5.48	8.71	0.62
95th-Percentile Queue Length [ft/ln]	254.19	119.42	148.68	67.32	78.71	43.49	32.90	192.13	66.40	136.92	217.69	15.48

Movement, Approach, & Intersection Results

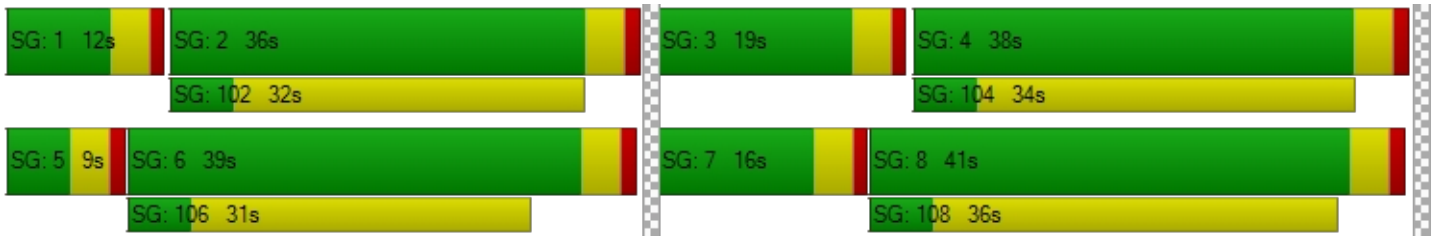
d_M, Delay for Movement [s/veh]	53.69	36.37	38.07	64.78	45.68	45.03	60.28	14.53	12.77	57.83	12.59	9.38
Movement LOS	D	D	D	E	D	D	E	B	B	E	B	A
d_A, Approach Delay [s/veh]	43.01			49.57			15.62			17.29		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	25.60											
Intersection LOS	C											
Intersection V/C	0.466											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.92	43.92	43.92	43.92
l_p,int, Pedestrian LOS Score for Intersection	2.733	2.609	2.881	2.993
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	704	647	609	666
d_b, Bicycle Delay [s]	22.05	24.03	25.40	23.36
l_b,int, Bicycle LOS Score for Intersection	2.074	1.753	2.228	2.390
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: 25th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	35.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.652

Intersection Setup

Name	25th St			25th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	195.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Ave R			Ave R		
Base Volume Input [veh/h]	196	346	109	56	221	148	40	385	163	123	689	125
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	20	9	0	41	30	13	7	0	0	0	20	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	48	0	0	76	50	0	0	0	0	0	48	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	270	365	112	175	308	165	48	397	168	127	778	133
Peak Hour Factor	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290	0.8290
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	81	110	34	53	93	50	14	120	51	38	235	40
Total Analysis Volume [veh/h]	326	440	135	211	372	199	58	479	203	153	938	160
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	3	8	8	7	4	4	5	2	2	1	6	6
Auxiliary Signal Groups			1,8			4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	27	38	38	25	36	36	10	36	36	16	42	42
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	29	29	0	27	27	0	27	27	0	29	29
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	23	22	38	16	15	25	6	50	76	12	55	75
g / C, Green / Cycle	0.20	0.19	0.33	0.14	0.13	0.22	0.05	0.43	0.66	0.10	0.48	0.65
(v / s)_i Volume / Saturation Flow Rate	0.18	0.12	0.08	0.12	0.10	0.13	0.03	0.13	0.13	0.09	0.26	0.10
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	353	677	520	246	463	346	94	1534	1055	181	1708	1037
d1, Uniform Delay [s]	45.29	43.05	28.49	48.51	48.63	40.25	53.35	21.54	7.46	50.77	21.14	7.73
k, delay calibration	0.23	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.63	1.06	0.26	8.51	3.31	1.51	6.36	0.53	0.41	10.07	1.27	0.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.65	0.26	0.86	0.80	0.57	0.62	0.31	0.19	0.84	0.55	0.15
d, Delay for Lane Group [s/veh]	63.91	44.10	28.75	57.02	51.93	41.75	59.70	22.07	7.86	60.85	22.41	8.04
Lane Group LOS	E	D	C	E	D	D	E	C	A	E	C	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	10.54	5.64	2.65	6.27	5.20	4.97	1.75	4.09	1.73	4.68	8.46	1.39
50th-Percentile Queue Length [ft/ln]	263.50	141.10	66.34	156.71	130.01	124.32	43.86	102.26	43.33	116.96	211.41	34.72
95th-Percentile Queue Length [veh/ln]	15.86	9.54	4.78	10.37	8.94	8.63	3.16	7.36	3.12	8.23	13.23	2.50
95th-Percentile Queue Length [ft/ln]	396.61	238.51	119.41	259.37	223.51	215.75	78.94	184.08	78.00	205.64	330.64	62.50

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	63.91	44.10	28.75	57.02	51.93	41.75	59.70	22.07	7.86	60.85	22.41	8.04
Movement LOS	E	D	C	E	D	D	E	C	A	E	C	A
d_A, Approach Delay [s/veh]	48.97			50.71			21.12			25.28		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	35.66											
Intersection LOS	D											
Intersection V/C	0.652											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	48.87	48.87	48.87	48.87
l_p,int, Pedestrian LOS Score for Intersection	2.985	2.856	3.119	3.028
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	591	556	556	661
d_b, Bicycle Delay [s]	28.54	29.97	29.97	25.80
l_b,int, Bicycle LOS Score for Intersection	2.303	2.205	2.170	2.592
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: 25th St (NS) at Ave R-8 (EW)

Control Type:	Two-way stop	Delay (sec / veh):	16.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.192

Intersection Setup

Name	25th St		25th St		Ave R-8	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	237.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	25th St		25th St		Ave R-8	
Base Volume Input [veh/h]	86	555	494	27	56	74
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	23	24	6	6	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	89	595	533	34	64	76
Peak Hour Factor	0.8950	0.8950	0.8950	0.8950	0.8950	0.8950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	166	149	9	18	21
Total Analysis Volume [veh/h]	99	665	596	38	72	85
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.01	0.01	0.00	0.19	0.12
d_M, Delay for Movement [s/veh]	9.25	0.00	0.00	0.00	16.85	10.87
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.35	0.00	0.00	0.00	0.70	0.41
95th-Percentile Queue Length [ft/ln]	8.75	0.00	0.00	0.00	17.48	10.34
d_A, Approach Delay [s/veh]	1.20		0.00		13.61	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.96					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 5: 30th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	25.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.444

Intersection Setup

Name	30th St			30th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	190.00	100.00	100.00	190.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	30th St			30th St			Ave R			Ave R		
Base Volume Input [veh/h]	133	257	44	57	130	64	86	426	57	34	689	159
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0000	1.0302	1.0000	1.0000	1.0000	1.0000	1.0302	1.0302	1.0302	1.0302	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	0	0	0	0	5	18	16	7	0	14	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	142	257	45	57	130	69	104	455	66	35	724	159
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	67	12	15	34	18	27	119	17	9	190	42
Total Analysis Volume [veh/h]	149	269	47	60	136	72	109	476	69	37	758	166
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	8	7	4	4	5	2	0	1	6	0
Auxiliary Signal Groups			1,8			4,5						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	0	5	10	0
Maximum Green [s]	30	30	30	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	36	36	16	39	39	10	39	0	9	38	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	30	30	0	28	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No		No	No	
Maximum Recall	No	No	No	No	No	No	No	No		No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	15	22	4	10	20	6	62	62	3	59	59
g / C, Green / Cycle	0.09	0.15	0.22	0.04	0.10	0.20	0.06	0.62	0.62	0.03	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.08	0.08	0.03	0.03	0.04	0.05	0.06	0.15	0.15	0.02	0.21	0.10
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1788	1781	3560	1589
c, Capacity [veh/h]	162	521	349	80	357	320	108	1152	1101	59	2095	935
d1, Uniform Delay [s]	45.18	39.47	31.43	47.28	42.14	33.47	47.02	8.68	8.68	47.79	10.78	9.47
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.67	0.79	0.17	13.31	0.67	0.35	41.62	0.50	0.52	10.27	0.49	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.52	0.13	0.75	0.38	0.23	1.01	0.24	0.24	0.62	0.36	0.18
d, Delay for Lane Group [s/veh]	63.85	40.27	31.60	60.59	42.80	33.82	88.65	9.17	9.21	58.06	11.27	9.89
Lane Group LOS	E	D	C	E	D	C	F	A	A	E	B	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.33	2.96	0.88	1.71	1.53	1.42	3.83	2.40	2.31	1.04	3.81	1.52
50th-Percentile Queue Length [ft/ln]	108.31	73.97	22.12	42.72	38.34	35.54	95.73	59.90	57.78	26.04	95.30	38.02
95th-Percentile Queue Length [veh/ln]	7.75	5.33	1.59	3.08	2.76	2.56	6.89	4.31	4.16	1.88	6.86	2.74
95th-Percentile Queue Length [ft/ln]	193.65	133.14	39.81	76.89	69.02	63.97	172.31	107.81	104.00	46.88	171.54	68.44

Movement, Approach, & Intersection Results

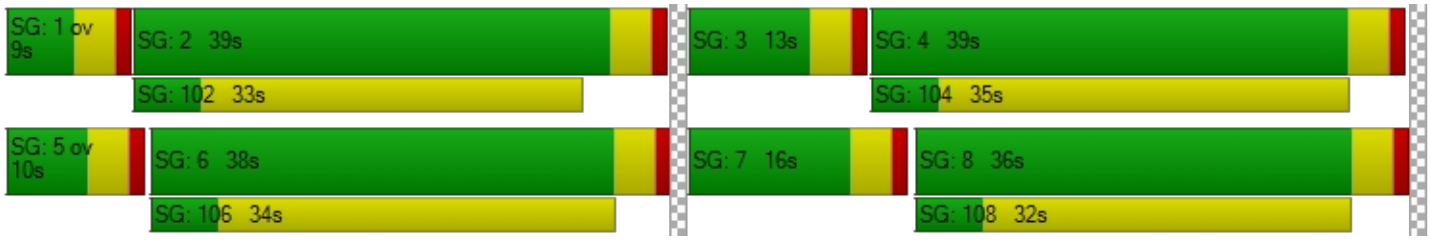
d_M, Delay for Movement [s/veh]	63.85	40.27	31.60	60.59	42.80	33.82	88.65	9.19	9.21	58.06	11.27	9.89
Movement LOS	E	D	C	E	D	C	F	A	A	E	B	A
d_A, Approach Delay [s/veh]	46.95			44.37			22.43			12.83		
Approach LOS	D			D			C			B		
d_I, Intersection Delay [s/veh]	25.86											
Intersection LOS	C											
Intersection V/C	0.444											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.44	41.44	41.44	41.44
l_p,int, Pedestrian LOS Score for Intersection	2.651	2.679	2.902	2.878
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	700	700	680
d_b, Bicycle Delay [s]	23.15	21.16	21.16	21.81
l_b,int, Bicycle LOS Score for Intersection	1.943	1.781	2.099	2.352
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Ave R (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.180

Intersection Setup

Name	Project Dwy		Ave R		Ave R	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project Dwy		Ave R		Ave R	
Base Volume Input [veh/h]	0	0	0	756	760	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	20	7	13	40
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	48	67	48	0	0	95
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	48	95	68	786	796	135
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	26	18	214	216	37
Total Analysis Volume [veh/h]	52	103	74	854	865	147
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.18	0.11	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	12.68	10.93	0.00	0.00	0.00
Movement LOS		B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.65	0.36	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	16.32	9.10	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.68		0.87		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.04					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 7: 25th St (NS) at Project Dwy (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.211

Intersection Setup

Name	25th St		25th St		Project Dwy	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	25th St		25th St		Project Dwy	
Base Volume Input [veh/h]	0	280	193	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0302	1.0302	1.0302	1.0000	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	20	35	20	0	49
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	48	0	126
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	308	234	68	0	175
Peak Hour Factor	1.0000	0.9200	0.9200	0.9200	1.0000	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	84	64	18	0	48
Total Analysis Volume [veh/h]	0	335	254	74	0	190
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.21
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	10.07
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.80
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	19.90
d_A, Approach Delay [s/veh]	0.00		0.00		10.07	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.24					
Intersection LOS	B					

Beyond Food Mart Palmdale (25th Street &

Vistro File: G:\...\PM.vistro
Report File: G:\...\PMOYp.pdf

Scenario 4 Opening Year with Project
11/22/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	20th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	EB Left	0.397	26.0	C
2	25th St (NS) at Palmdale Blvd (EW)	Signalized	HCM 7th Edition	WB Left	0.630	28.4	C
3	25th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	EB Left	0.492	33.9	C
4	25th St (NS) at Ave R-8 (EW)	Two-way stop	HCM 7th Edition	EB Left	0.095	15.2	C
5	30th St (NS) at Ave R (EW)	Signalized	HCM 7th Edition	WB Left	0.384	24.3	C
6	Project Dwy (NS) at Ave R (EW)	Two-way stop	HCM 7th Edition	SB Right	0.140	11.0	B
7	25th St (NS) at Project Dwy (EW)	Two-way stop	HCM 7th Edition	EB Right	0.222	10.7	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 20th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	26.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.397

Intersection Setup

Name	20th St			20th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	190.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	20th St			20th St			Ave R			Ave R		
Base Volume Input [veh/h]	85	235	58	96	292	57	53	521	118	59	387	94
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	8	7	2	2	2	28	0	8	26	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	244	68	106	303	61	57	565	122	69	425	112
Peak Hour Factor	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842	0.9842
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	62	17	27	77	15	14	144	31	18	108	28
Total Analysis Volume [veh/h]	89	248	69	108	308	62	58	574	124	70	432	114
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	2	1	6	0
Auxiliary Signal Groups									2,3			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	10	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	30	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	10	37	0	11	38	0	13	32	32	10	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	25	0	0	29	0	0	23	23	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	11	11	7	12	12	4	52	62	5	53	53
g / C, Green / Cycle	0.06	0.12	0.12	0.08	0.13	0.13	0.04	0.58	0.69	0.05	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.05	0.09	0.09	0.06	0.10	0.10	0.03	0.16	0.08	0.04	0.15	0.15
s, saturation flow rate [veh/h]	1781	1870	1733	1781	1870	1763	1781	3560	1589	1781	1870	1738
c, Capacity [veh/h]	115	221	205	137	245	231	77	2050	1088	91	1092	1015
d1, Uniform Delay [s]	41.50	38.35	38.44	40.85	37.85	37.92	42.62	9.66	4.86	42.21	9.18	9.20
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.59	4.68	5.51	9.56	5.13	5.77	13.76	0.34	0.21	12.55	0.57	0.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.73	0.75	0.79	0.77	0.78	0.75	0.28	0.11	0.77	0.26	0.26
d, Delay for Lane Group [s/veh]	52.09	43.02	43.95	50.41	42.99	43.69	56.38	10.00	5.07	54.75	9.76	9.82
Lane Group LOS	D	D	D	D	D	D	E	B	A	D	A	A
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.18	3.54	3.41	2.58	4.12	3.99	1.50	2.42	0.61	1.77	2.36	2.23
50th-Percentile Queue Length [ft/ln]	54.38	88.47	85.30	64.58	103.12	99.75	37.55	60.55	15.32	44.28	59.02	55.78
95th-Percentile Queue Length [veh/ln]	3.92	6.37	6.14	4.65	7.42	7.18	2.70	4.36	1.10	3.19	4.25	4.02
95th-Percentile Queue Length [ft/ln]	97.89	159.25	153.54	116.24	185.62	179.55	67.59	108.98	27.58	79.71	106.23	100.41

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.09	43.34	43.95	50.41	43.26	43.69	56.38	10.00	5.07	54.75	9.78	9.82
Movement LOS	D	D	D	D	D	D	E	B	A	D	A	A
d_A, Approach Delay [s/veh]	45.36			44.93			12.75			14.90		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	26.02											
Intersection LOS	C											
Intersection V/C	0.397											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.47	36.47	36.47	36.47
l_p,int, Pedestrian LOS Score for Intersection	2.596	2.593	2.817	2.825
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	755	622	555
d_b, Bicycle Delay [s]	18.07	17.44	21.38	23.49
l_b,int, Bicycle LOS Score for Intersection	1.895	1.954	2.183	2.068
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: 25th St (NS) at Palmdale Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	28.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.630

Intersection Setup

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	250.00	100.00	100.00	178.00	100.00	100.00	214.00	100.00	100.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Palmdale Blvd			Palmdale Blvd		
Base Volume Input [veh/h]	249	187	108	96	198	28	23	979	215	61	680	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0302	1.0000	1.0000	1.0302	1.0302	1.0302	1.0000	1.0302	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	9	14	5	13	7	13	30	23	25	31	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	269	202	122	101	217	36	37	1009	244	86	711	50
Peak Hour Factor	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527	0.9527
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	71	53	32	27	57	9	10	265	64	23	187	13
Total Analysis Volume [veh/h]	282	212	128	106	228	38	39	1059	256	90	746	52
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	40	0	19	38	0	9	36	0	10	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	29	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	19	19	8	10	10	3	56	56	6	59	59
g / C, Green / Cycle	0.16	0.18	0.18	0.08	0.10	0.10	0.03	0.53	0.53	0.06	0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.16	0.06	0.08	0.06	0.06	0.02	0.02	0.30	0.16	0.05	0.21	0.03
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	289	649	290	135	341	152	60	1893	845	103	1981	884
d1, Uniform Delay [s]	43.83	37.38	38.23	47.73	45.91	44.02	50.20	16.40	13.73	49.13	13.09	10.70
k, delay calibration	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.23	0.29	1.06	9.57	2.26	0.85	11.53	1.20	0.92	19.21	0.55	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.98	0.33	0.44	0.79	0.67	0.25	0.65	0.56	0.30	0.87	0.38	0.06
d, Delay for Lane Group [s/veh]	65.06	37.67	39.29	57.30	48.17	44.87	61.74	17.60	14.66	68.34	13.64	10.82
Lane Group LOS	E	D	D	E	D	D	E	B	B	E	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.63	2.29	2.88	2.97	2.86	0.92	1.18	8.08	3.36	2.82	4.57	0.53
50th-Percentile Queue Length [ft/ln]	215.66	57.22	71.99	74.32	71.51	22.89	29.58	202.01	84.01	70.50	114.14	13.36
95th-Percentile Queue Length [veh/ln]	13.44	4.12	5.18	5.35	5.15	1.65	2.13	12.74	6.05	5.08	8.07	0.96
95th-Percentile Queue Length [ft/ln]	336.08	102.99	129.58	133.77	128.71	41.21	53.24	318.56	151.23	126.91	201.75	24.04

Movement, Approach, & Intersection Results

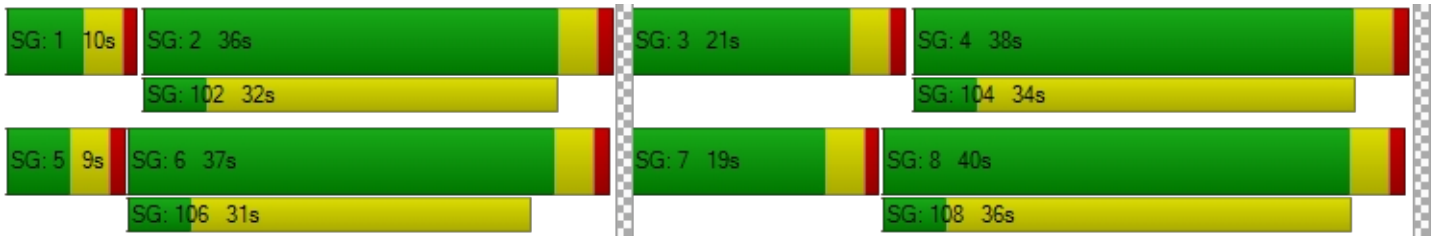
d_M, Delay for Movement [s/veh]	65.06	37.67	39.29	57.30	48.17	44.87	61.74	17.60	14.66	68.34	13.64	10.82
Movement LOS	E	D	D	E	D	D	E	B	B	E	B	B
d_A, Approach Delay [s/veh]	50.42			50.44			18.31			19.02		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	28.37											
Intersection LOS	C											
Intersection V/C	0.630											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.92	43.92	43.92	43.92
l_p,int, Pedestrian LOS Score for Intersection	2.786	2.645	2.986	2.993
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	685	647	609	628
d_b, Bicycle Delay [s]	22.70	24.03	25.40	24.71
l_b,int, Bicycle LOS Score for Intersection	2.073	1.867	2.677	2.292
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: 25th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	33.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.492

Intersection Setup

Name	25th St			25th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	195.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	25th St			25th St			Ave R			Ave R		
Base Volume Input [veh/h]	60	345	163	85	381	36	31	545	98	101	430	108
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	24	21	1	44	39	15	18	1	0	1	25	9
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	40	0	0	64	42	0	0	0	0	0	40	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	126	376	169	196	474	52	50	562	101	105	508	120
Peak Hour Factor	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624	0.9624
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	98	44	51	123	14	13	146	26	27	132	31
Total Analysis Volume [veh/h]	131	391	176	204	493	54	52	584	105	109	528	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	3	8	8	7	4	4	5	2	2	1	6	6
Auxiliary Signal Groups			1,8			4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	20	40	40	30	50	50	13	32	32	13	32	32
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	29	29	0	27	27	0	27	27	0	29	29
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	11	16	29	16	21	29	4	59	73	9	64	83
g / C, Green / Cycle	0.09	0.14	0.25	0.14	0.18	0.25	0.04	0.51	0.64	0.08	0.55	0.72
(v / s)_i Volume / Saturation Flow Rate	0.07	0.11	0.11	0.11	0.14	0.03	0.03	0.16	0.07	0.06	0.15	0.08
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	163	483	396	241	638	402	69	1820	1013	141	1963	1147
d1, Uniform Delay [s]	51.25	48.30	36.47	48.59	45.00	33.26	54.76	16.44	8.09	52.00	13.60	4.85
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.82	3.31	0.78	8.00	2.03	0.15	15.03	0.47	0.21	8.79	0.34	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.81	0.44	0.85	0.77	0.13	0.75	0.32	0.10	0.78	0.27	0.11
d, Delay for Lane Group [s/veh]	60.07	51.61	37.25	56.59	47.03	33.41	69.79	16.91	8.30	60.79	13.94	5.04
Lane Group LOS	E	D	D	E	D	C	E	B	A	E	B	A
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.97	5.46	4.09	6.03	6.60	1.14	1.73	4.24	0.93	3.32	3.35	0.75
50th-Percentile Queue Length [ft/ln]	99.23	136.43	102.18	150.74	165.03	28.51	43.29	106.01	23.29	83.04	83.80	18.80
95th-Percentile Queue Length [veh/ln]	7.14	9.29	7.36	10.06	10.81	2.05	3.12	7.62	1.68	5.98	6.03	1.35
95th-Percentile Queue Length [ft/ln]	178.62	232.20	183.92	251.42	270.37	51.33	77.92	190.44	41.92	149.48	150.84	33.84

Movement, Approach, & Intersection Results

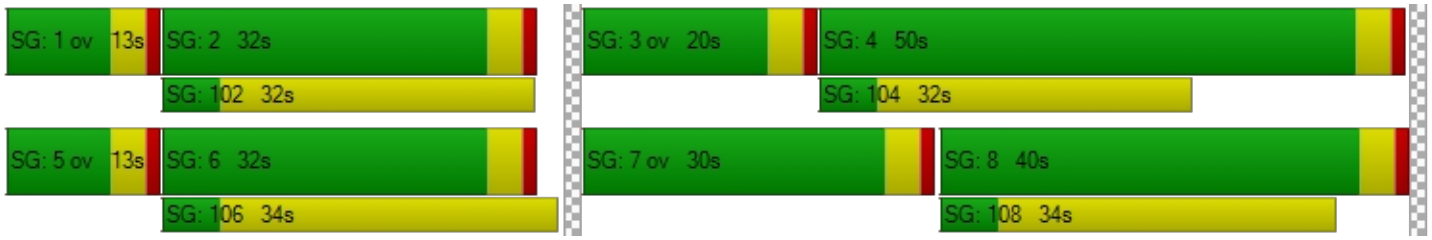
d_M, Delay for Movement [s/veh]	60.07	51.61	37.25	56.59	47.03	33.41	69.79	16.91	8.30	60.79	13.94	5.04
Movement LOS	E	D	D	E	D	C	E	B	A	E	B	A
d_A, Approach Delay [s/veh]	49.58			48.65			19.40			19.18		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	33.92											
Intersection LOS	C											
Intersection V/C	0.492											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	48.87	48.87	48.87	48.87
l_p,int, Pedestrian LOS Score for Intersection	2.933	2.823	2.945	2.934
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	626	800	487	487
d_b, Bicycle Delay [s]	27.15	20.72	32.93	32.93
l_b,int, Bicycle LOS Score for Intersection	2.135	2.179	2.171	2.188
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: 25th St (NS) at Ave R-8 (EW)

Control Type:	Two-way stop	Delay (sec / veh):	15.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.095

Intersection Setup

Name	25th St		25th St		Ave R-8	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	237.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	25th St		25th St		Ave R-8	
Base Volume Input [veh/h]	78	552	542	29	26	92
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	37	31	9	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	606	589	39	36	95
Peak Hour Factor	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	157	152	10	9	25
Total Analysis Volume [veh/h]	83	627	609	40	37	98
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.01	0.01	0.00	0.10	0.14
d_M, Delay for Movement [s/veh]	9.24	0.00	0.00	0.00	15.21	11.06
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.29	0.00	0.00	0.00	0.31	0.49
95th-Percentile Queue Length [ft/ln]	7.30	0.00	0.00	0.00	7.82	12.30
d_A, Approach Delay [s/veh]	1.08		0.00		12.20	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.62					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 5: 30th St (NS) at Ave R (EW)

Control Type:	Signalized	Delay (sec / veh):	24.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.384

Intersection Setup

Name	30th St			30th St			Ave R			Ave R		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	190.00	100.00	100.00	190.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	30th St			30th St			Ave R			Ave R		
Base Volume Input [veh/h]	78	188	43	93	241	70	60	552	82	47	535	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0302	1.0000	1.0302	1.0000	1.0000	1.0000	1.0000	1.0302	1.0302	1.0302	1.0302	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	1	0	0	1	9	22	17	7	0	18	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	189	44	93	242	79	82	586	91	48	569	98
Peak Hour Factor	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521	0.9521
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	50	12	24	64	21	22	154	24	13	149	26
Total Analysis Volume [veh/h]	92	199	46	98	254	83	86	615	96	50	598	103
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	8	7	4	4	5	2	0	1	6	0
Auxiliary Signal Groups			1,8			4,5						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	0	5	10	0
Maximum Green [s]	30	30	30	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	36	36	14	39	39	12	37	0	13	38	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	27	0	30	30	0	28	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No	No	No	No		No	No	
Maximum Recall	No	No	No	No	No	No	No	No		No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	10	18	7	10	21	6	63	63	4	61	61
g / C, Green / Cycle	0.07	0.10	0.18	0.07	0.10	0.21	0.06	0.63	0.63	0.04	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.05	0.06	0.03	0.06	0.07	0.05	0.05	0.19	0.19	0.03	0.17	0.06
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1783	1781	3560	1589
c, Capacity [veh/h]	118	358	285	126	373	330	112	1179	1124	69	2158	963
d1, Uniform Delay [s]	46.01	42.91	34.74	45.76	43.21	33.17	46.20	8.49	8.50	47.61	9.34	8.31
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.37	1.35	0.26	9.87	2.19	0.40	10.43	0.68	0.71	13.49	0.32	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.56	0.16	0.78	0.68	0.25	0.77	0.31	0.31	0.73	0.28	0.11
d, Delay for Lane Group [s/veh]	56.38	44.26	35.01	55.63	45.41	33.57	56.63	9.17	9.21	61.10	9.66	8.53
Lane Group LOS	E	D	D	E	D	C	E	A	A	E	A	A
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.49	2.30	0.92	2.63	3.00	1.64	2.34	3.13	3.00	1.44	2.66	0.84
50th-Percentile Queue Length [ft/ln]	62.30	57.59	23.08	65.81	74.98	40.88	58.43	78.35	75.10	35.96	66.38	21.11
95th-Percentile Queue Length [veh/ln]	4.49	4.15	1.66	4.74	5.40	2.94	4.21	5.64	5.41	2.59	4.78	1.52
95th-Percentile Queue Length [ft/ln]	112.14	103.65	41.54	118.45	134.97	73.58	105.17	141.02	135.19	64.73	119.48	37.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	56.38	44.26	35.01	55.63	45.41	33.57	56.63	9.19	9.21	61.10	9.66	8.53
Movement LOS	E	D	D	E	D	C	E	A	A	E	A	A
d_A, Approach Delay [s/veh]	46.31			45.45			14.31			12.93		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	24.35											
Intersection LOS	C											
Intersection V/C	0.384											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.44	41.44	41.44	41.44
l_p,int, Pedestrian LOS Score for Intersection	2.659	2.682	2.885	2.868
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	700	660	680
d_b, Bicycle Delay [s]	23.15	21.16	22.48	21.81
l_b,int, Bicycle LOS Score for Intersection	1.838	1.918	2.217	2.179
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Ave R (EW)

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.140

Intersection Setup

Name	Project Dwy		Ave R		Ave R	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project Dwy		Ave R		Ave R	
Base Volume Input [veh/h]	0	0	0	675	526	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0302	1.0302	1.0302	1.0302	1.0302	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	33	24	19	16	48
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	56	40	0	0	79
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	89	64	714	558	127
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	24	17	194	152	35
Total Analysis Volume [veh/h]	0	97	70	776	607	138
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.14	0.08	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	11.04	9.56	0.00	0.00	0.00
Movement LOS		B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.49	0.27	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	12.14	6.64	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.04		0.79		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.03					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 7: 25th St (NS) at Project Dwy (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.222

Intersection Setup

Name	25th St		25th St		Project Dwy	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	25th St		25th St		Project Dwy	
Base Volume Input [veh/h]	0	248	322	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0302	1.0302	1.0302	1.0000	1.0302
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	48	39	23	0	59
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	41	0	106
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	303	371	64	0	165
Peak Hour Factor	1.0000	0.9200	0.9200	0.9200	1.0000	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	82	101	17	0	45
Total Analysis Volume [veh/h]	0	329	403	70	0	179
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.22
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	10.74
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.85
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	21.19
d_A, Approach Delay [s/veh]	0.00		0.00		10.74	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.96					
Intersection LOS	B					

ATTACHMENT E

TRAFFIC SIGNAL WARRANT WORKSHEETS

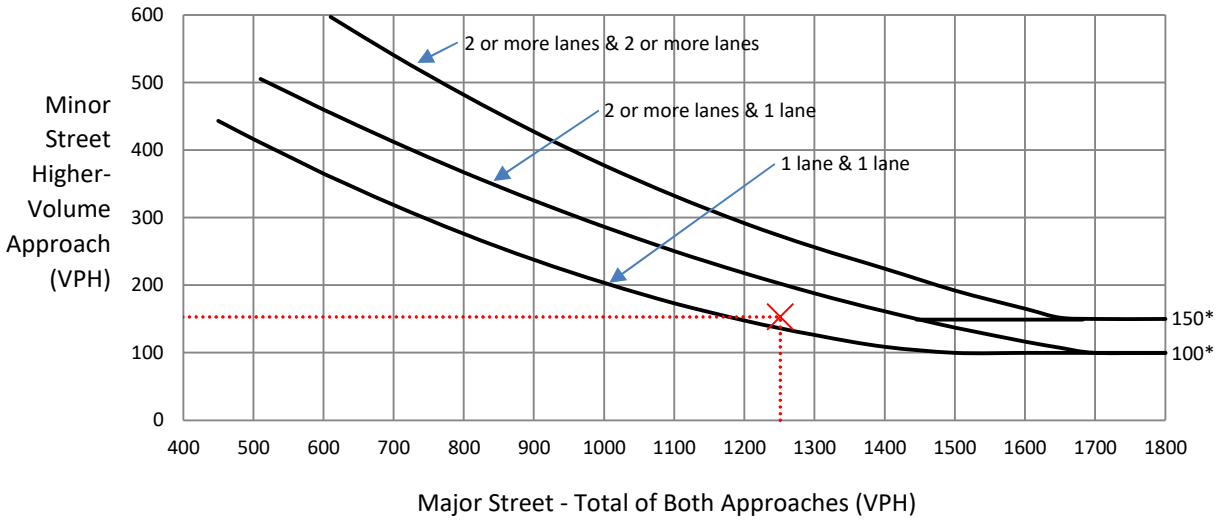
Figure E-1

25th Street (NS) / Avenue R-8 (EW) - #4
Opening Year (2024) With Project
AM

Major Street: 25th Street Volume: 1251

Minor Street: Avenue R-8 Volume: 153

Warrant 3, Peak Hour Vehicular Volume (100% Factor)



Traffic Signal Warrant Is NOT Satisfied

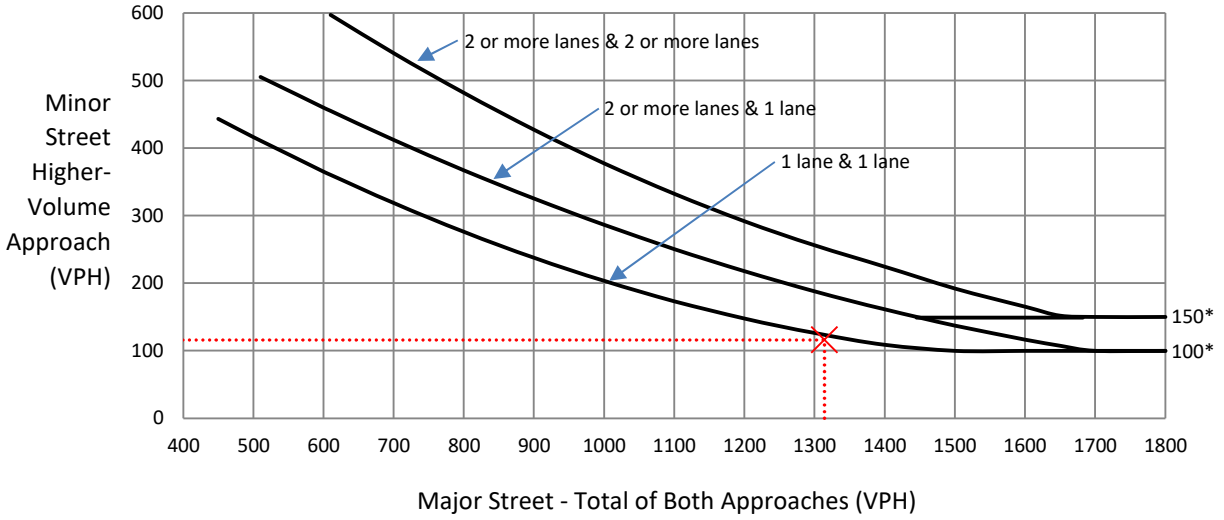
*Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

Figure E-2

25th Street (NS) / Avenue R-8 (EW) - #4
Opening Year (2024) With Project
PM

Major Street:	25th Street	Volume:	1314
Minor Street:	Avenue R-8	Volume:	116

Warrant 3, Peak Hour Vehicular Volume (100% Factor)



Traffic Signal Warrant Is NOT Satisfied

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



GANDDINI GROUP, INC.
550 Parkcenter Drive, Suite 202, Santa Ana, CA 92705
714.795.3100 | www.ganddini.com