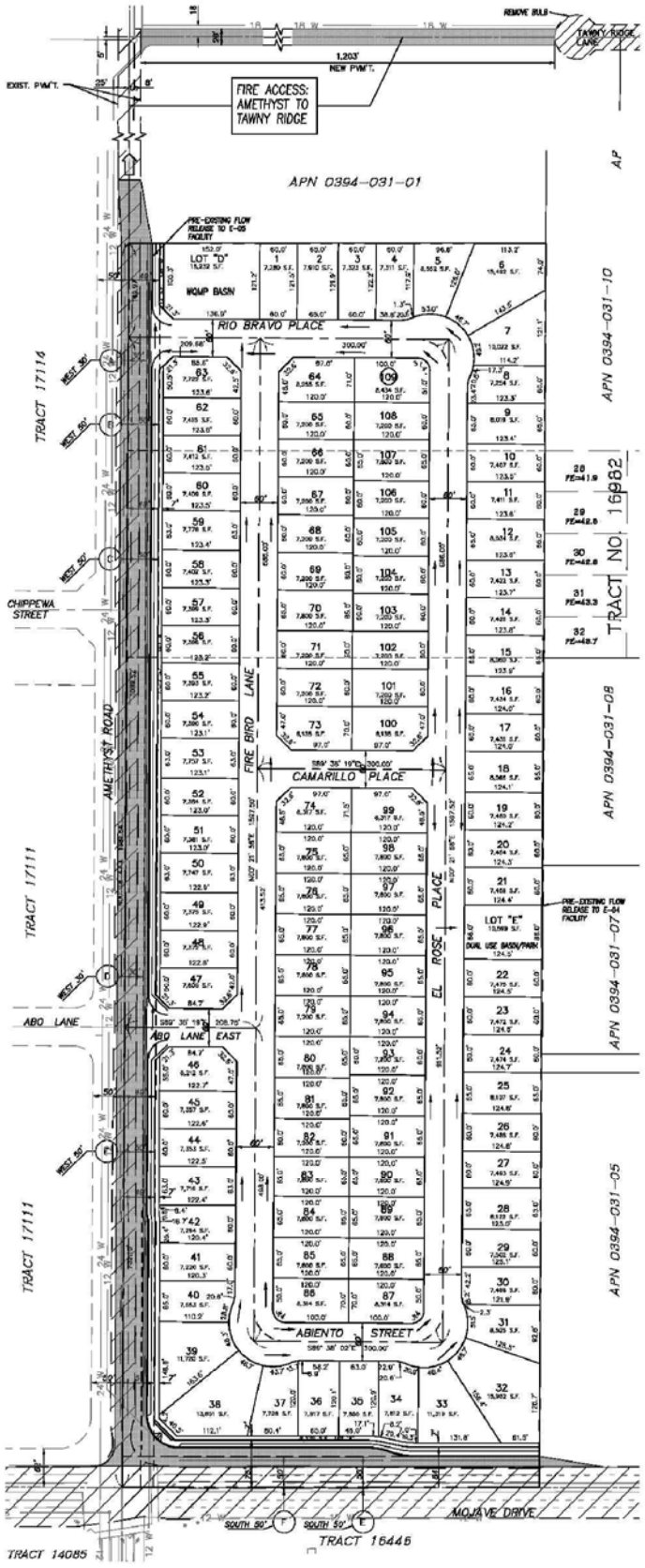
TTM 20525 SINGLE FAMILY RESIDENTIAL
TRAFFIC IMPACT STUDY
City of Victorville, California



TTM 20525
SINGLE FAMILY RESIDENTIAL
TRAFFIC IMPACT STUDY
City of Victorville, California

Prepared for:

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April 13, 2022

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1.0 Introduction

1.1 Purpose of Report & Study Objectives

The purpose of this traffic impact study is to evaluate the development of the proposed TTM 20525 Single Family Residential project (hereinafter referred to as "Project") from a traffic and circulation standpoint and to determine whether the project will have a significant traffic impact.

This traffic study has been conducted pursuant to the City of Victorville *General Guidelines for Conducting Traffic Studies and Determination of Intersection Level of Service and Improvement Needs*, dated January 20, 2005 (TIA Guidelines), the latest San Bernardino County Congestion Management Program, and the California Environmental Quality Act (CEQA) requirements.

This study is prepared in accordance with the scope of work that has been approved by the City of Victorville staff, which is contained in Appendix A.

1.2 Site Location & Project Description

The project is located on the northeast corner of Amethyst Road and Mojave Drive in the City of Victorville, CA. The 30.1-acre project site is currently vacant. Surrounding land uses in the vicinity of the project site include residential homes to the south and northeast and a middle school to the northwest.

The project consists of constructing 109 single-family residential dwelling units.

Primary vehicular access for the proposed project will be provided via two (2) full-access unsignalized intersections along Amethyst Road, which will be accessed via the intersection of Amethyst Road at Mojave Drive.

The project will construct the north leg of the Amethyst Road / Mojave Drive intersection and will modify the existing traffic signal as necessary. Amethyst Road, from Mojave Drive to the northern extents of the project site, will be improved as necessary to meet City of Victorville requirements.

The project is anticipated to be completed towards the end of Year 2023. However, to provide a conservative analysis, the project will be assumed to be fully occupied by Year

2024. As such, the project opening year is assumed to be Year 2024 and is evaluated in one single phase.

Exhibit 1-1 shows the location of the proposed project. Exhibit 1-2 shows the proposed project's site plan.

1.3 Traffic Study Area & Analysis Scenarios

Exhibit 1-1 illustrates the project's site location map and traffic analysis study area.

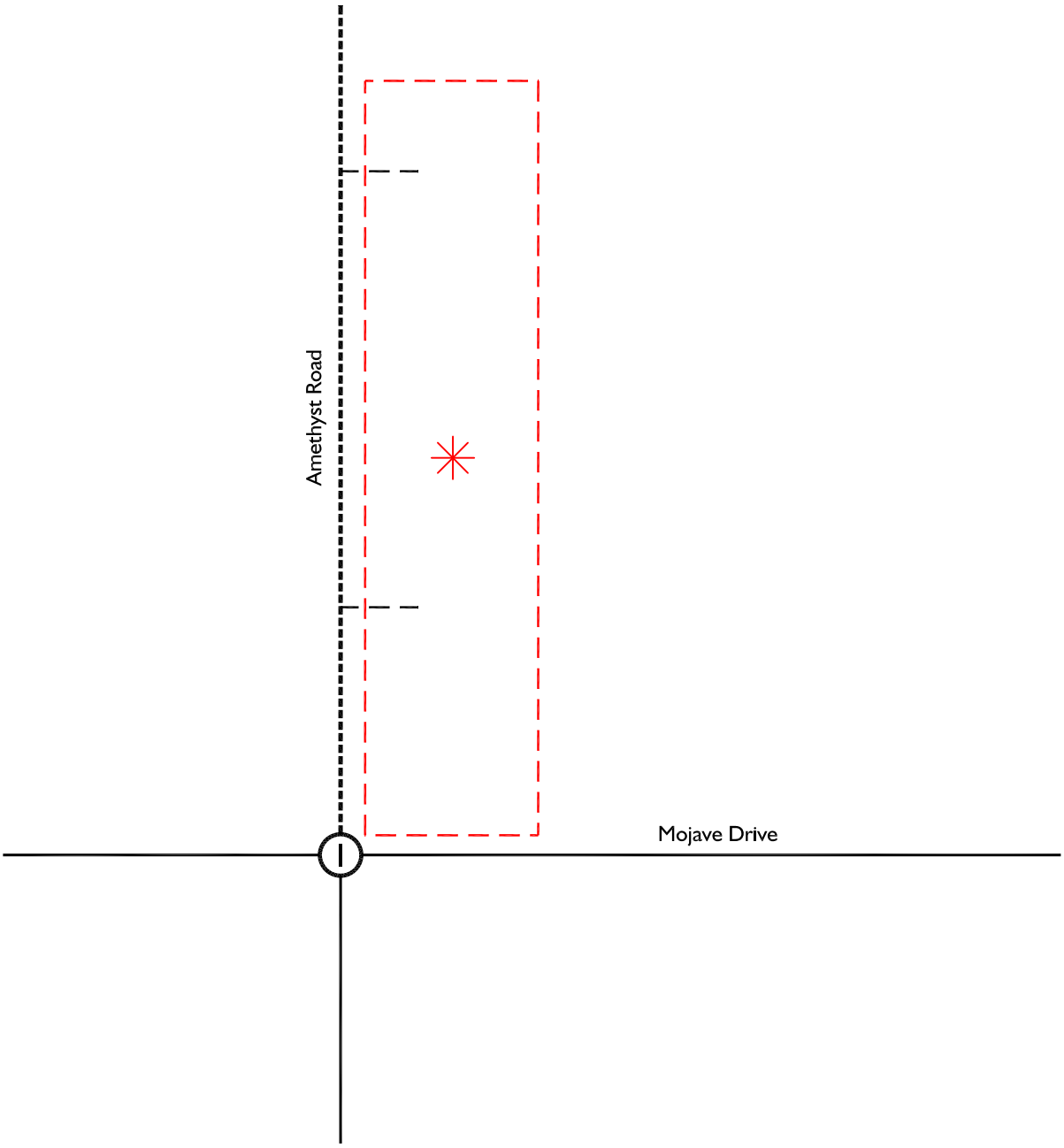
The study area consists of the following intersection listed below. The jurisdiction where this study intersection is located is also identified.

#	North-South Street	East-West Street	Jurisdiction
1.	Amethyst Road	Mojave Drive	City of Victorville

The analysis evaluates traffic conditions of the one (1) study intersection for the following scenarios during the weekday AM (7:00 AM – 9:00 AM) and weekday PM (4:00 PM – 6:00 PM) peak periods, in accordance with the City of Victorville Guidelines:

- Existing Conditions;
- Project Opening Year (2024) Without Project Conditions – Existing Conditions Plus Ambient Growth (3% Annually) Plus Cumulative Projects;
- Project Opening Year (2024) With Project Conditions – Existing Conditions Plus Ambient Growth (3% Annually) Plus Cumulative Projects Plus Project;
- Future Year (2034) Without Project Conditions – Existing Conditions Plus Ambient Growth (3% Annually) Plus Cumulative Projects; and
- Future Year (2034) With Project Conditions – Existing Conditions Plus Ambient Growth (3% Annually) Plus Cumulative Projects Plus Project.

Exhibit 1-1
Location Map



Legend:

= Study Area Intersection
= Project Site Boundary
= Project Access Driveway
= Project Site
= Future Amethyst Road Extension

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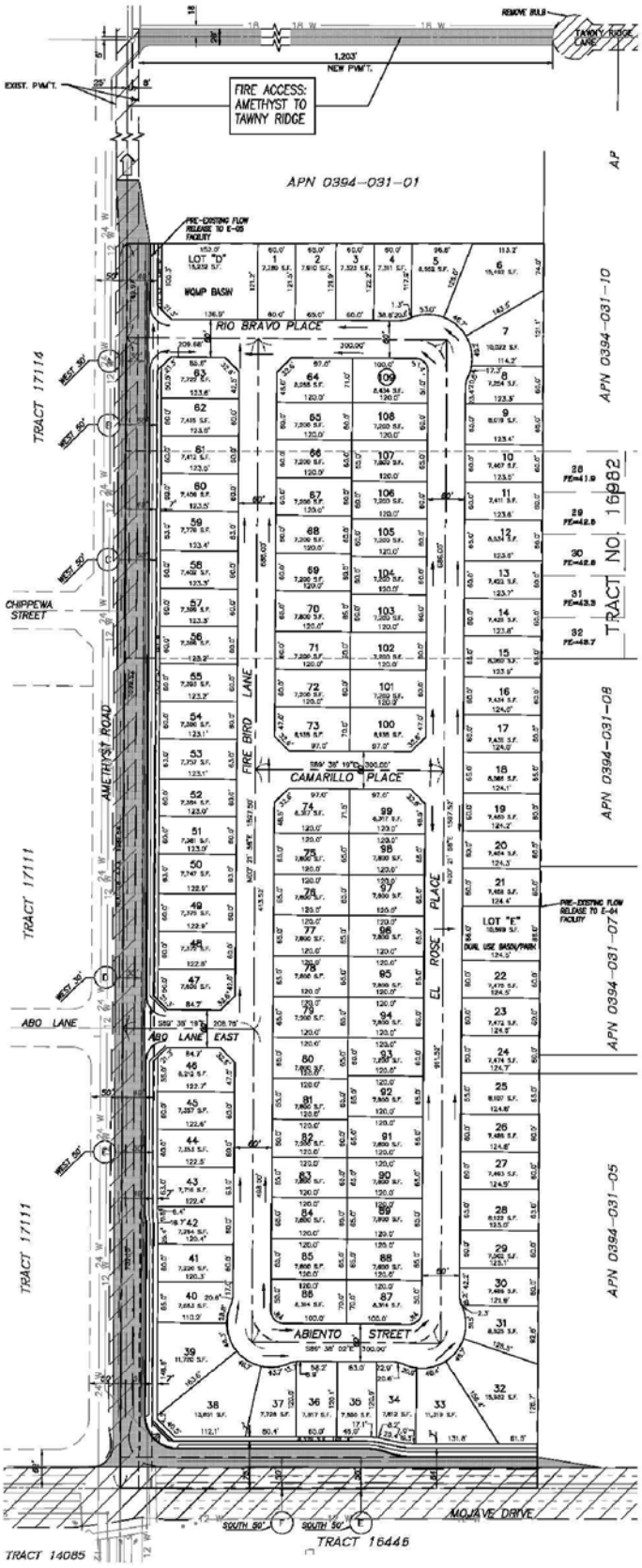
Exhibit 1-2

Site Plan



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2.0 Analysis Methodologies, Performance Criteria, and Thresholds of Significance

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report in accordance with the City of Victorville. This section also discusses the agency-established applicable performance criteria and thresholds of significance for the study facilities.

2.1 Study Intersection Peak Hour Level of Service Analysis Methodology

In accordance with the City of Victorville *General Guidelines for Conducting Traffic Studies and Determination of Intersection Level of Service and Improvement Needs*, dated January 2005, the Highway Capacity Manual Sixth Edition (HCM 6) is utilized as the technical guide in the evaluation of traffic operations.

The HCM defines level of service as a qualitative measure which describes operational conditions within a traffic stream, generally in terms of factors such as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate LOS (Level of Service) conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted.

The definitions of level of service for uninterrupted flow (flow unrestrained by the existence of traffic control devices) are:

- **LOS A** represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream.

- **LOS B** is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver.

- **LOS C** is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.

- **LOS D** represents high-density but stable flow. Speed and freedom to maneuver are severely restricted, and the driver experiences a generally poor level of comfort and convenience.

- **LOS E** represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Small increases in flow will cause breakdowns in traffic movement.

- **LOS F** is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations.

2.1.1 HCM (6th Edition) Methodology

Level of service is typically dependent on the quality of traffic flow at the intersection along a roadway. The Highway Capacity Manual 6th Edition (HCM 6) expresses the level of service at an intersection in terms of delay time for various intersection approaches. The HCM 6 uses different procedures depending on the type of intersection control. The levels of service determined in this study are calculated using the HCM 6 methodology.

For signalized intersections, average control delay per vehicle is used to determine the level of service. Levels of service at signalized study intersections have been evaluated using the HCM 6 intersection analysis program.

For all-way stop-controlled intersections, average control delay per vehicle is used to determine the level of service.

For intersections with stop control on the minor approach only, the calculation of level of service is dependent on the occurrence of gaps occurring in the free-flow traffic movement of the major street, and the level of service is determined based on the worst individual movement on the stop-controlled minor approach or movements sharing a single lane on the stop-controlled minor approach.

Table 2-1 shows the level of service criteria based on the HCM 6 methodology.

Table 2-1
HCM Intersection LOS & Delay Ranges

LOS	Average Control Delay Per Vehicle (Seconds)	
	Signalized	Unsignalized
A	0.00 - 10.00	0.00 - 10.00
B	10.01 - 20.00	10.01 - 15.00
C	20.01 - 35.00	15.01 - 25.00
D	35.01 - 55.00	25.01 - 35.00
E	55.01 - 80.00	35.01 - 50.00
F	>80.00	>50.00

2.1.2 Analysis Parameters

For this study, the HCM level of service grades will be determined utilizing the HCM 6 methodology and the PTV Vistro analysis software.

All analysis parameters utilized in this analysis are in accordance with the City of Victorville *General Guidelines for Conducting Traffic Studies and Determination of Intersection Level of Service and Improvement Needs*, dated January 20, 2005.

The saturation flow rates and future year peak hour factors utilized in this analysis are consistent with the latest San Bernardino County Congestion Management Program.

Existing peak hour factors have been calculated based upon the manual turning movement counts collected at the study area intersections.

2.2 LOS Performance Criteria & Thresholds for Requiring LOS Improvements

Performance Criteria:

The acceptable LOS for intersections within the City of Victorville is LOS D or better.

Thresholds of Improvement Requirement:

Per the City of Victorville TIA Guidelines, which are identified in the Circulation Element of the City of Victorville General Plan 2030, the following types of traffic impacts are considered significant under CEQA and would require level of service improvements:

A) If a development project would worsen an intersection peak hour LOS to E or worse, the level of service needs to be improved to achieve acceptable level of service by identifying improvements.

OR

B) If a development project would worsen an already deficient intersection by two percent (2%) or more, improvements need to be identified.

3.0 Circulation System & Existing Traffic Volumes

This section provides a discussion of existing study area conditions and traffic volumes.

3.1 Existing Traffic Controls & Intersection Geometrics

Exhibit 3-1 identifies the existing roadway conditions for the study area roadways. The number of through traffic lanes for existing roadways and the existing intersection controls are identified. The type of traffic control and number of lanes at an intersection are key inputs for the calculation of level of service.

3.2 Existing Traffic Volumes

Existing conditions intersection level of service calculations are based upon manual AM and PM peak hour turning movement counts taken in March 2022 during typical weekday conditions. The AM and PM peak hour traffic volumes were determined by counting the two-hour peak period between 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, respectively, and using the highest hour within each two-hour peak period. The traffic count worksheets are included in Appendix B.

Existing traffic volumes for the study area intersections are shown on Exhibit 3-2.

3.3 City of Victorville General Plan Circulation Element

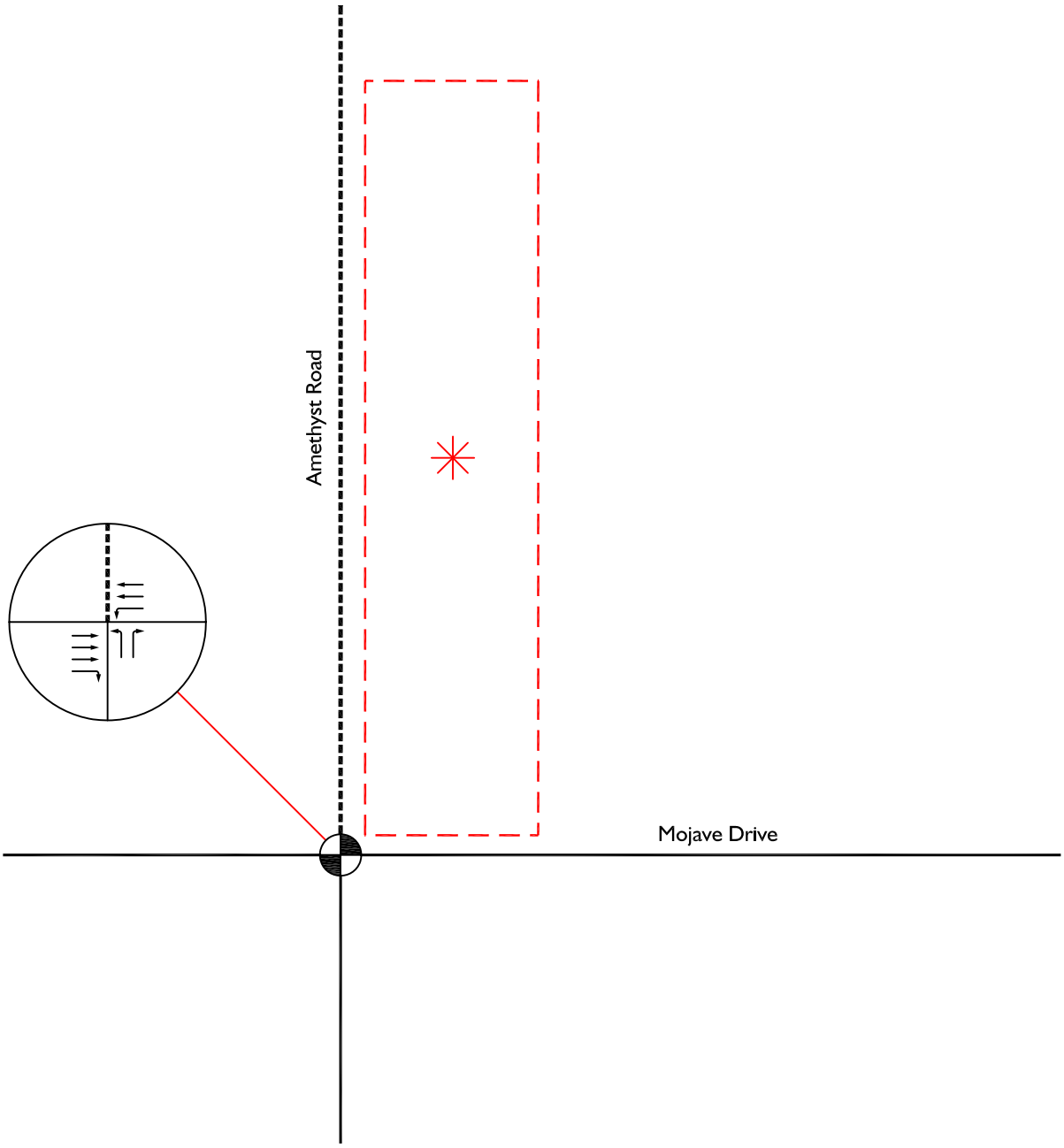
The City of Victorville General Plan Circulation Map is shown on Exhibit 3-3. The City of Victorville General Plan Typical Roadway Cross-Sections are shown on Exhibit 3-4.

For the roadway segments immediately adjacent to the site, the ultimate buildout General Plan classifications are as follows:

- Mojave Road – Super Arterial (6 lanes, 124 feet right-of-way);
- Amethyst Rd, South of Mojave Rd – Super Arterial (6 lanes, 124 feet right-of-way); and
- Amethyst Road, North of Mojave Road – Arterial (4 lanes, 84 feet right-of-way).

Exhibit 3-1

Existing Lane Geometry and Traffic Controls



Legend:

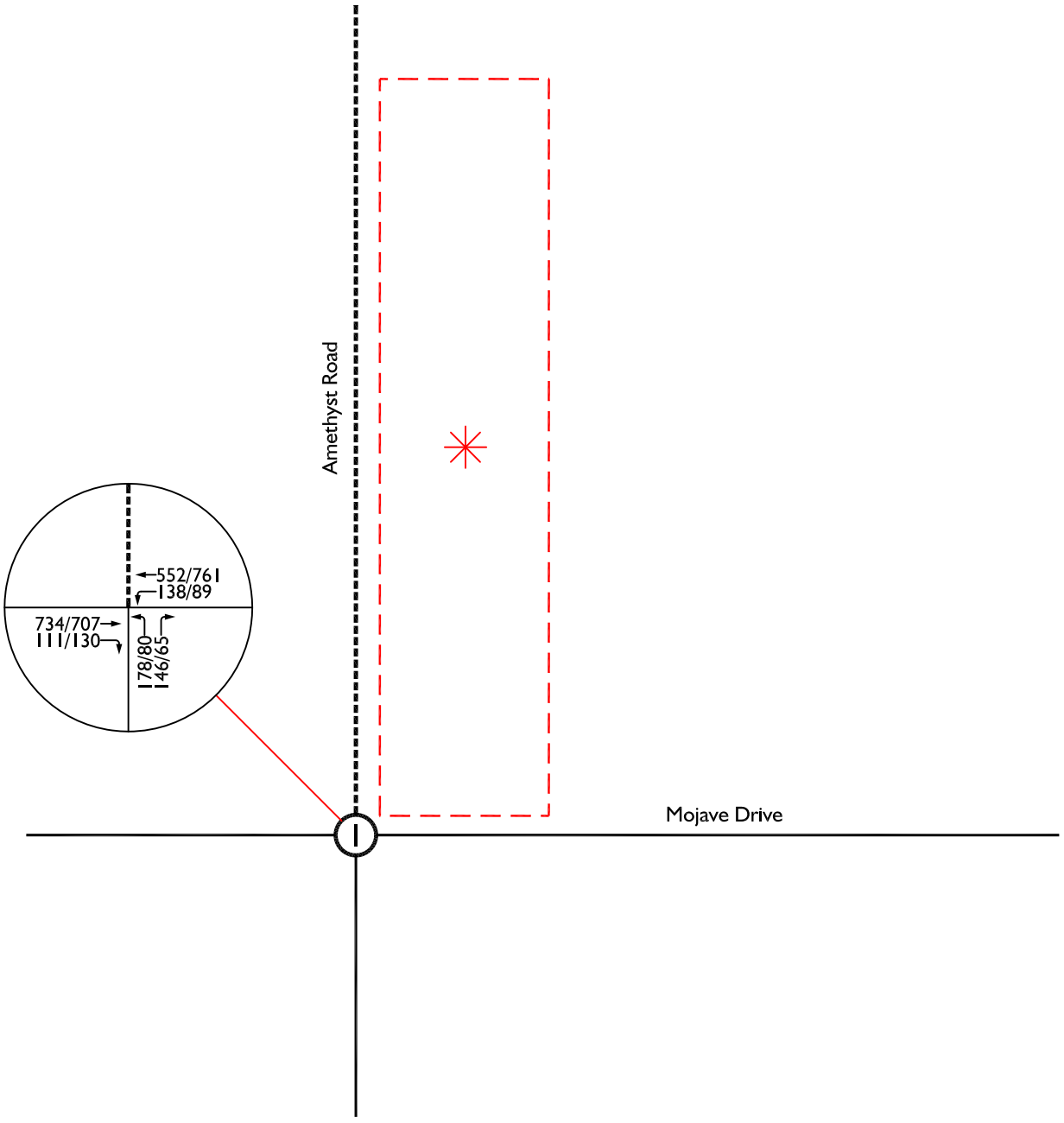
= Traffic Signal

= Future Amethyst Road Extension

N

Exhibit 3-2

Existing Traffic Volumes



Legend:

10/20 = AM/PM Peak Hour Volumes

▪▪▪▪▪▪ = Future Amethyst Road Extension

N

Exhibit 3-3

City of Victorville General Plan Circulation Map

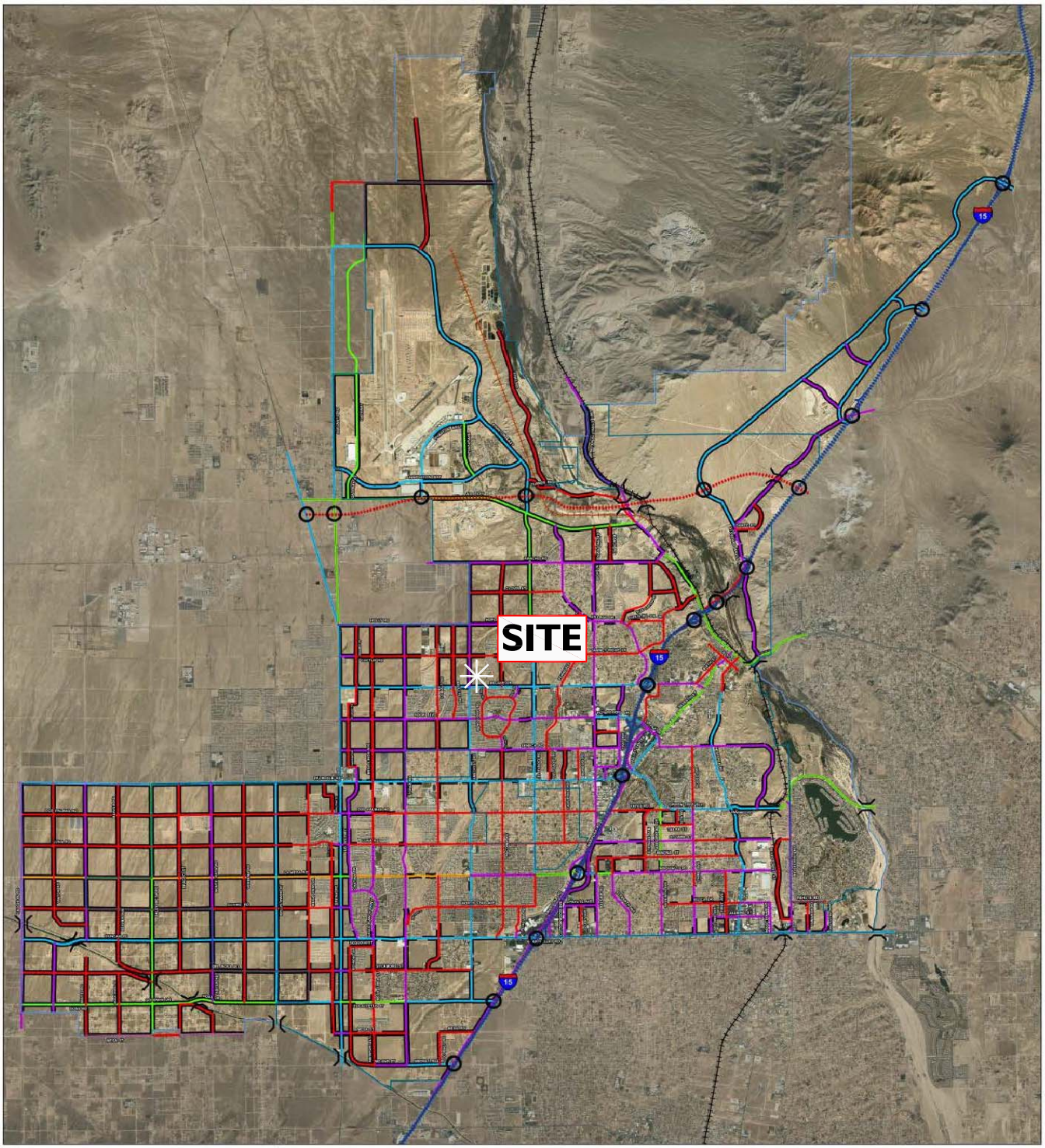


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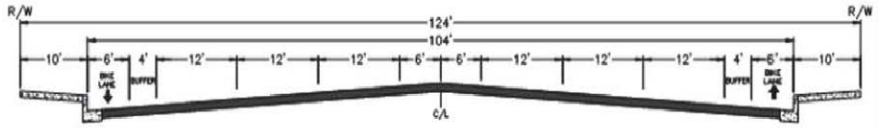
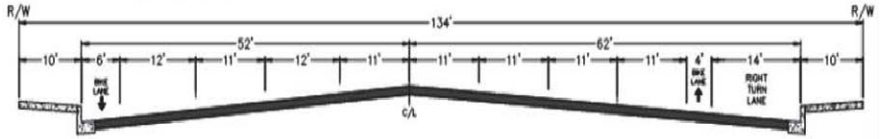
Exhibit 3-4

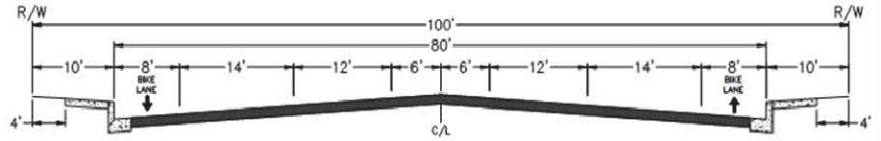
City of Victorville General Plan Typical Roadway Cross-Sections



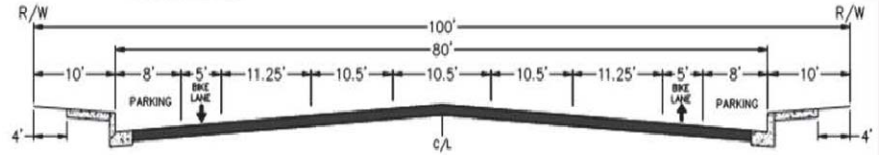
SUPER ARTERIAL
NO PARKING



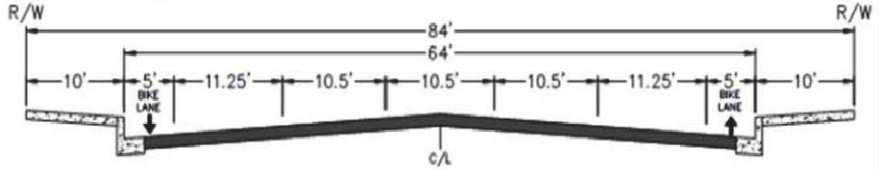
SUPER ARTERIAL AT INTERSECTIONS
WITH DUAL LEFT TURN LANES/ RIGHT TURN LANE

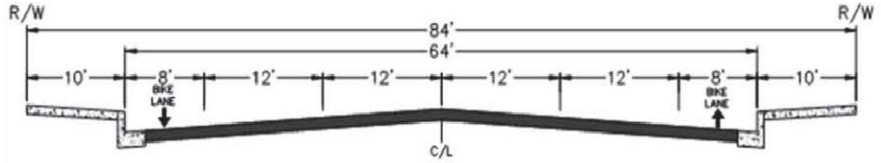


MAJOR ARTERIAL
NO PARKING

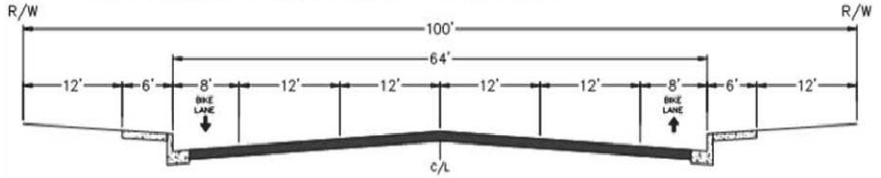


MAJOR ARTERIAL
WITH PARKING

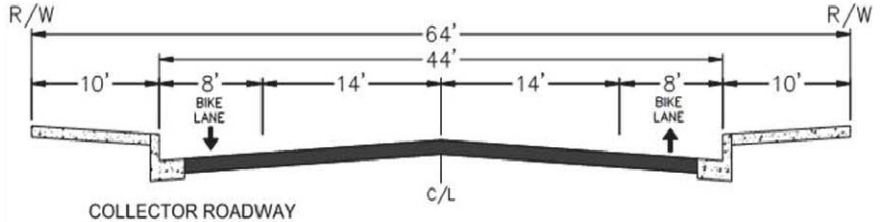




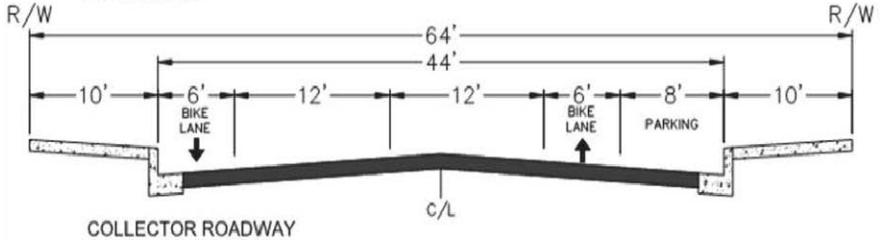
ARTERIAL ROADWAY
NO PARKING & NO CENTER LEFT TURN LANE



RESIDENTIAL ARTERIAL



COLLECTOR ROADWAY
NO PARKING



COLLECTOR ROADWAY
PARKING - ONE SIDE

4.0 Projected & Future Traffic Volumes

This section provides a discussion on methodologies utilized to derive future traffic volumes for the study area.

4.1 Project Traffic Conditions

4.1.1 Project-Specific Improvements

As previously mentioned, the project will construct the north leg of the Amethyst Road at Mojave Drive intersection and will modify the existing traffic signal as necessary. Amethyst Road, from Mojave Drive to the northern extents of the project site, will be also improved as necessary to meet City of Victorville requirements. Specifically, the northbound approach is recommended to be re-striped to convert the existing chevron striping to a northbound through lane. The southbound approach is recommended to be striped as an exclusive southbound left-turn lane and a shared southbound through/right-turn lane. The eastbound approach is recommended to be re-striped to provide an exclusive eastbound left-turn lane. Lastly, the westbound approach is recommended to be widened and re-striped to provide a second exclusive westbound left-turn lane, a third westbound through lane, and an exclusive westbound right-turn lane. The traffic signal is recommended to be modified to provide protected left-turn phasing in all directions. Furthermore, crosswalks are recommended on all legs as well as a striped bike lane along the north side of Mojave Drive. These improvements are consistent with the cross-sections identified on the proposed site plan.

These project-specific improvements have been assumed in all level of service calculations that include traffic from the project (i.e. "With Project" traffic scenarios).

Exhibit 4-1 presents a concept striping plan for the intersection of Amethyst Road at Mojave Drive with the above-mentioned project-specific improvements and details the existing and/or proposed lengths for all turn pockets. Exhibit 4-2 provides the recommended lane widths with the above-mentioned project-specific improvements.

It should be noted that these improvements are subject to approval from the City of Victorville and are intended for conceptual purposes only (i.e. not for construction).

The existing facilities (i.e. traffic poles, curbs, median, etc.) will need to be reviewed and may need to be relocated upon final design of the intersection.

4.1.2 Project Trip Generation

Trip generation represents the amount of traffic that is attracted and produced by a development. The trip generation for the project is based upon the specific land uses that have been planned for this development.

Trip generation rates for the proposed development are shown in Table 4-1 and are from the *Institute of Transportation Engineers (ITE) Trip Generation Manual* (11th Edition, 2021). This publication provides a comprehensive evaluation of trip generation rates for a variety of land uses.

Utilizing the trip generation rates from Table 4-1, Table 4-2 summarizes the daily and peak hour trip generation for weekday conditions for the proposed project.

As shown in Table 4-2, based on the ITE trip generation rates:

The proposed project is forecast to generate approximately 1,028 daily trips which include approximately 76 AM peak hour trips and approximately 103 PM peak hour trips.

4.1.3 Project Trip Distribution & Assignment

Trip distribution represents the directional orientation of traffic to and from the project site. Trip distribution is heavily influenced by the geographical location of the site, the location of residential, employment and recreational opportunities, and the proximity to the regional freeway system. The directional orientation of traffic was determined by evaluating existing and proposed land uses, highways within the community, and existing traffic volumes.

The assignment of traffic from the project site to the adjoining roadway system has been based upon the site's trip generation, trip distribution, existing and proposed arterial highways, and local street systems, which would be in place by the time of initial occupancy of the site.

Exhibit 4-3 shows the forecast trip distribution for the proposed project.

4.1.4 Modal Split

Modal split denotes the proportion of traffic generated by a project that would use any of the transportation modes, namely buses, cars, bicycles, motorcycles, trains, carpools, etc. The traffic-reducing potential of public transit and other modes is significant. However, the traffic projections in this study are conservative in that public transit and alternative transportation may be able to reduce the traffic volumes, but no modal split reduction is applied to the projections. With the implementation of transit service and provision of alternative transportation ideas and incentives, the automobile traffic demand can be reduced significantly.

4.1.5 Project Peak Hour Traffic Volumes

Project peak hour traffic volumes have been calculated throughout the study area. The project's AM and PM peak hour intersection turning movement volumes are shown on Exhibit 4-4.

4.2 Background Traffic

4.2.1 Method of Projection

To assess future traffic conditions, project traffic is combined with existing traffic and area-wide growth. As directed by City staff, to account for area-wide/ambient growth in the study area, a linear annual growth rate of three percent (3%) per year has been applied to the existing (2022) traffic volumes over a two-year period for project opening year 2024 conditions (i.e. 6% total growth), and over a twelve-year period for long-range (2034) conditions (i.e. 36% total growth).

4.2.2 Cumulative Projects Traffic Volumes

Information on future projects in the vicinity of the study area has been provided by City of Victorville staff for inclusion in this analysis and is shown in Table 4-3.

Table 4-3 shows the land uses, and daily and peak hour trip generation for the nearby cumulative projects provided by the public agencies.

A location map of the cumulative projects is shown on Exhibit 4-5.

Cumulative projects traffic volumes are shown on Exhibit 4-6.

In reality, some of the cumulative projects may be downsized or may not be developed by the project opening year (2024). In addition, many of the cumulative projects have been or will be subject to a variety of mitigation measures that will reduce the potential environmental impacts associated with those projects. However, those mitigation measures have not been taken into account in projecting the environmental impact of the related projects.

Therefore, the cumulative analyses set forth below are conservative and could result in greater impacts than actually anticipated. Additionally, the analysis utilizes a linear annual growth rate of three percent (3%) per year for project opening year (2024) conditions (i.e. 6% total growth), and long-range (2034) conditions (i.e. 36% total growth), which would already capture and account for most projects in the area. The growth rate methodology is considered conservative since it is applied to all movements at all study intersections.

4.3 Project Opening Year (2024) Without Project Conditions Traffic Volumes

Project Opening Year (2024) Without Project Conditions traffic volumes consist of two (2) year of linear annual growth on top of existing (2022) traffic volumes at three percent (3%) per year (i.e. 6% total growth), plus traffic generated by the cumulative projects.

Project Opening Year (2024) Without Project Conditions traffic volumes are shown on Exhibit 4-7.

4.4 Project Opening Year (2024) With Project Conditions Traffic Volumes

Project Opening Year (2024) With Project Conditions traffic volumes consist of two (2) year of linear annual growth on top of existing (2022) traffic volumes at three percent (3%) per year (i.e. 6% total growth), plus traffic generated by the cumulative projects and traffic generated by the proposed project.

Project Opening Year (2024) With Project Conditions traffic volumes are shown on Exhibit 4-8.

4.5 Future Year (2034) Without Project Conditions Traffic Volumes

Future Year (2034) Without Project Conditions traffic volumes consist of twelve (12) years of linear annual growth on top of existing (2022) traffic volumes at three percent (3%) per year (i.e. 36% total growth), plus traffic generated by the cumulative projects.

Future Year (2034) Without Project Conditions traffic volumes are shown on Exhibit 4-9.

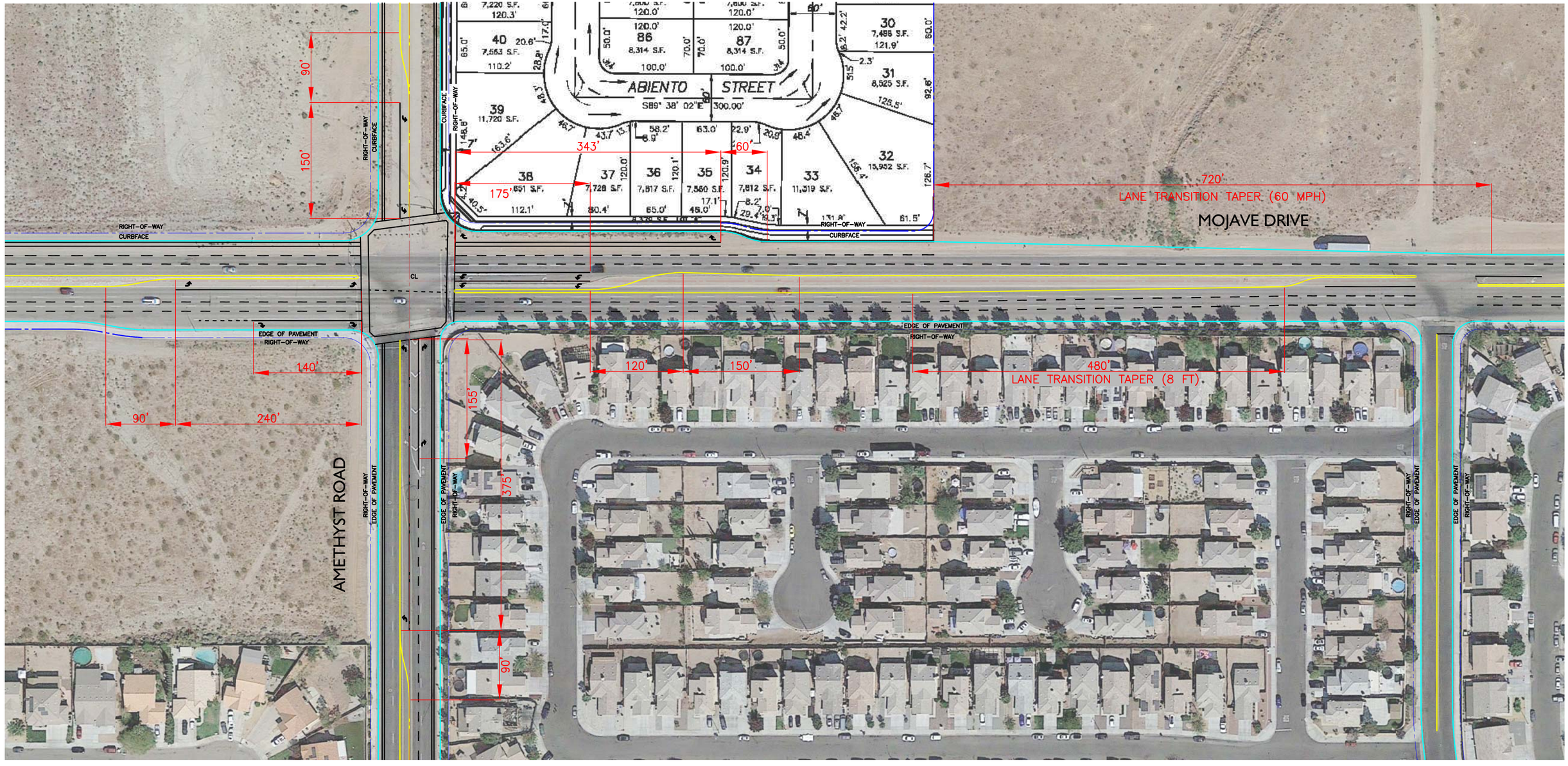
4.6 Future Year (2034) With Project Conditions Traffic Volumes

Future Year (2034) With Project Conditions traffic volumes consist of twelve (12) years of linear annual growth on top of existing (2022) traffic volumes at three percent (3%) per year (i.e. 36% total growth), plus traffic generated by the cumulative projects and traffic generated by the proposed project.

Future Year (2034) With Project Conditions traffic volumes are shown on Exhibit 4-10.

Exhibit 4-1

Amethyst Road at Mojave Drive
Conceptual Striping



N

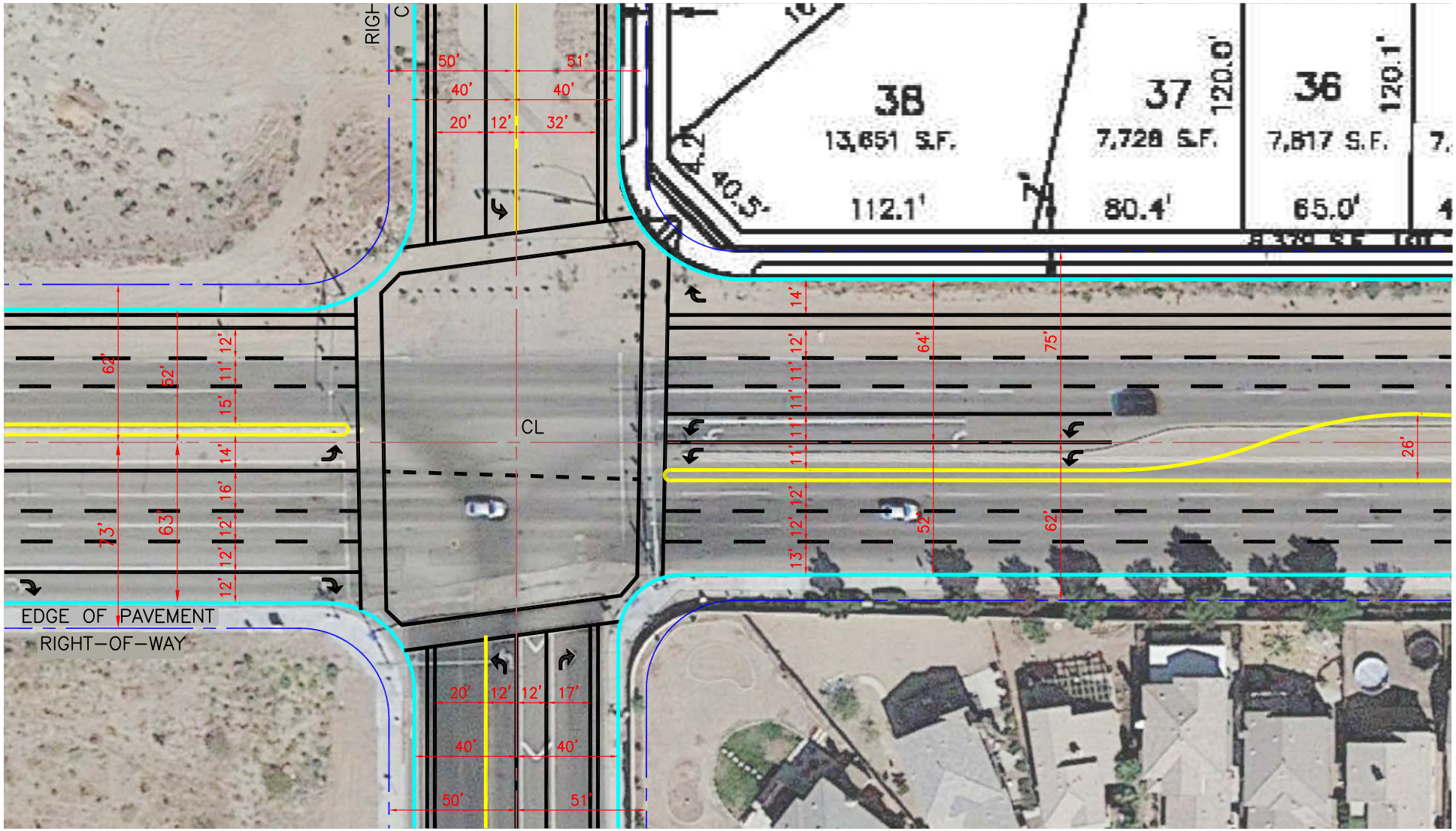
50 25 0 50 100 150

PRELIMINARY
NOT FOR CONSTRUCTION

RK engineering group, inc.

Exhibit 4-2

Amethyst Road at Mojave Drive
Conceptual Striping - Lane Widths



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N.T.S.

PRELIMINARY
NOT FOR CONSTRUCTION

Table 4-1
ITE Trip Generation Rates[1]

Land Use	ITE Code	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Single-Family Detached Housing	210	DU	0.18	0.52	0.70	0.59	0.35	0.94	9.43

[1] Source: *ITE Trip Generation Manual* (11th Edition, 2021).

[2] DU = Dwelling Units.

Table 4-2
Project Trip Generation[1]

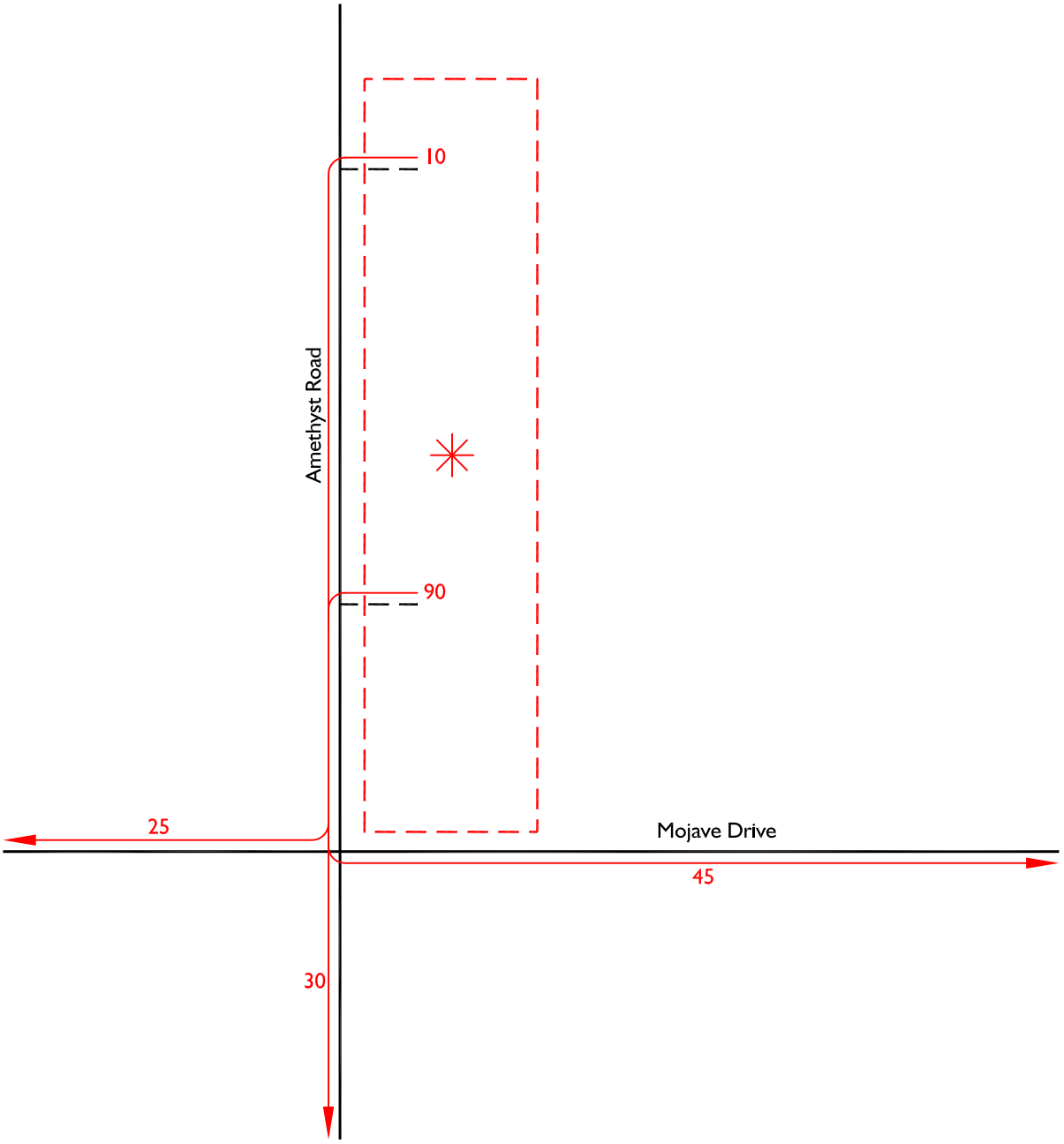
Land Use (ITE Code)	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Single-Family Detached Housing (210)	109	DU	20	56	76	65	38	103	1,028

[1] Source: *ITE Trip Generation Manual* (11th Edition, 2021).

[2] DU = Dwelling Units.

Exhibit 4-3

Project Trip Distribution



Legend:

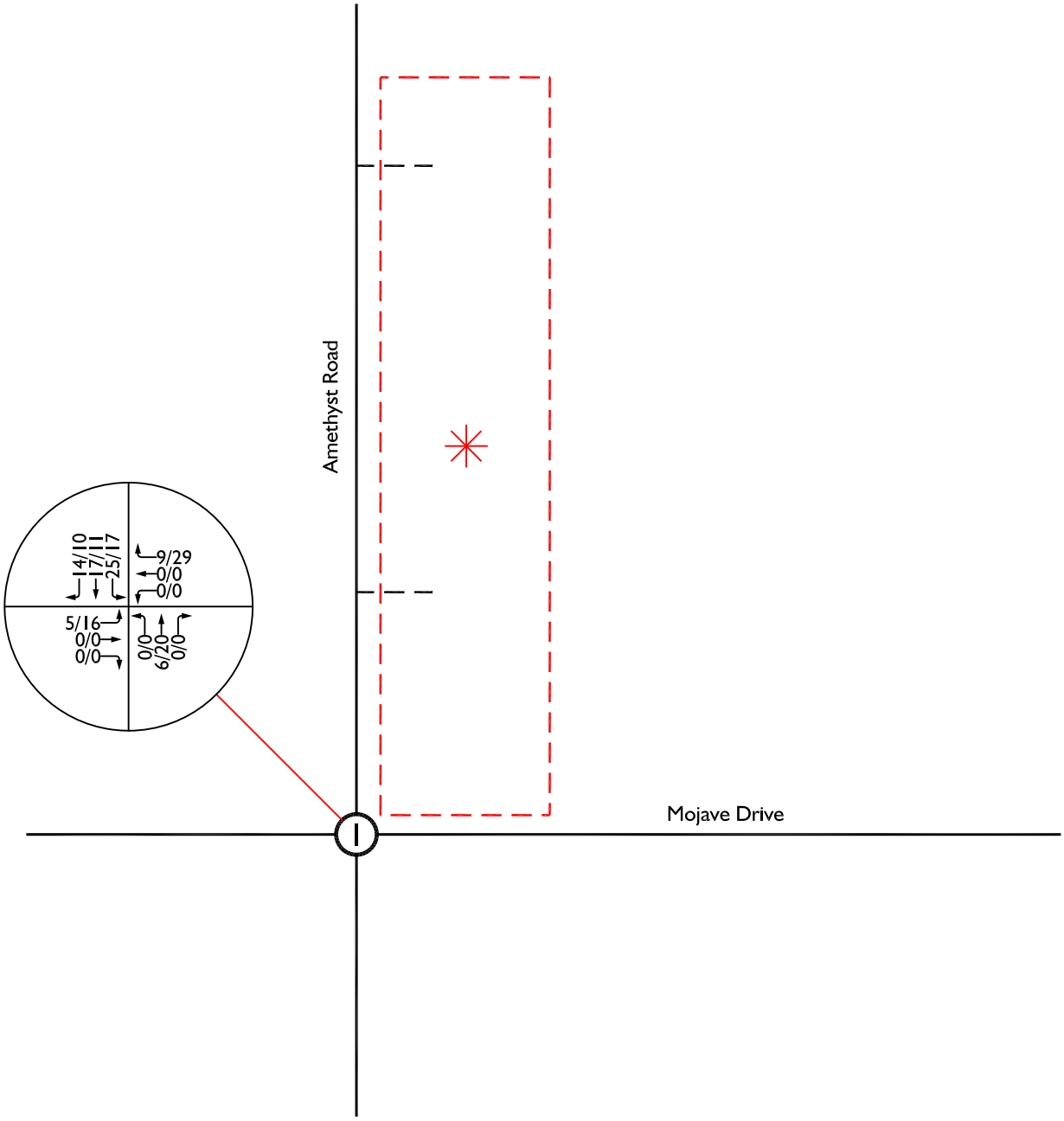
10 = Percent to/from Project

= Project Access Driveway

N

Exhibit 4-4

Project Traffic Volumes



Legend:

10/20 = AM/PM Peak Hour Volumes

= Project Access Driveway

N

Table 4-3
Cumulative Projects Trip Generation[1]

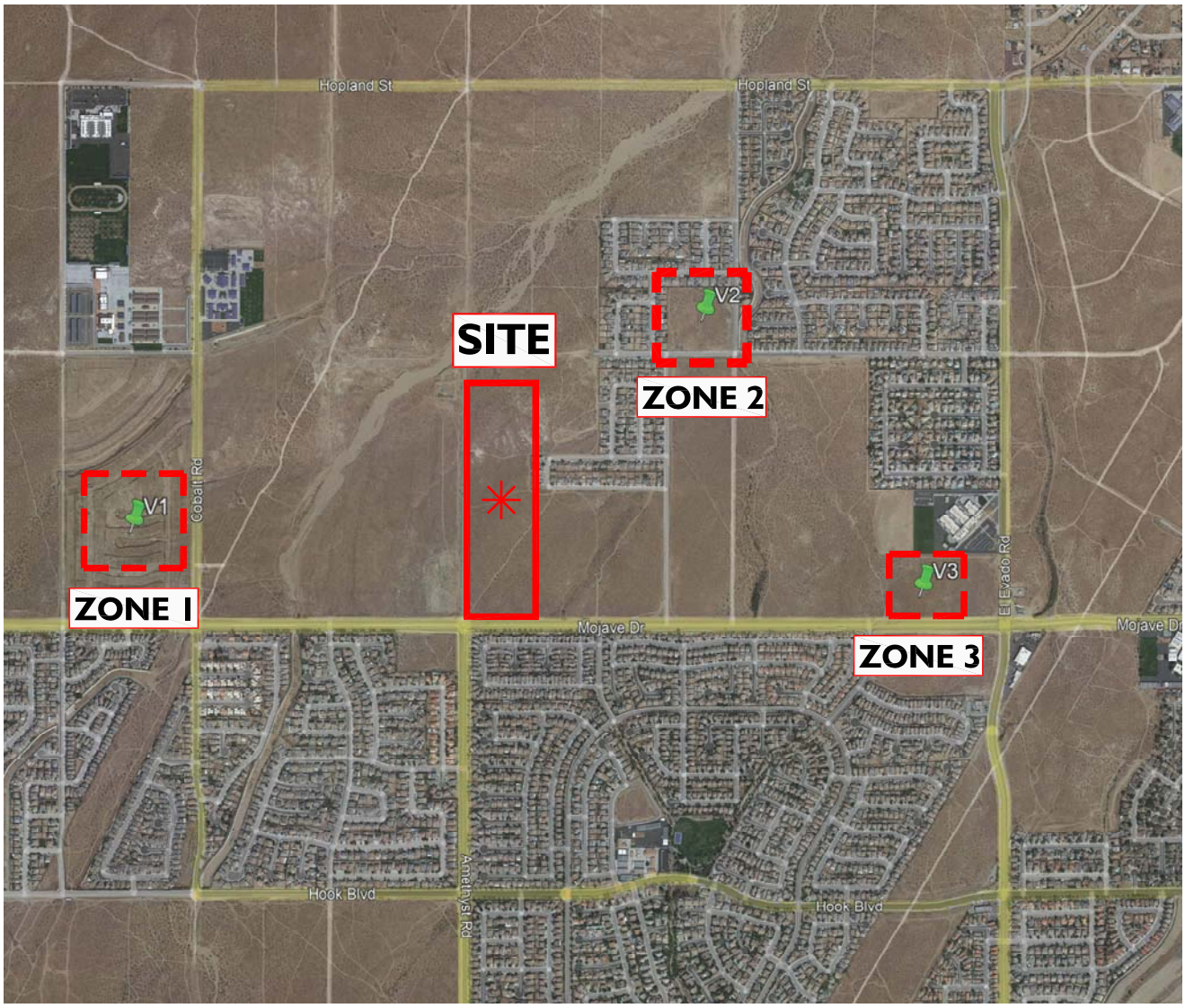
ID No.	Jurisdiction	Project Name / Case Number	Land Use	ITE Code	Quantity	Units[2]	Peak Hour						Daily
							AM			PM			
							In	Out	Total	In	Out	Total	
TAZ 1													
V1	**City of Victorville**	ADMN21-00076	Single-Family Detached Housing	210	195	DU	35	101	136	115	68	183	1,839
						TAZ 1 Total	**35**	**101**	**136**	**115**	**68**	**183**	**1,839**
TAZ 2													
V2	**City of Victorville**	ADMN21-00117	Single-Family Detached Housing	210	40	DU	7	21	28	24	14	38	377
						TAZ 2 Total	**7**	**21**	**28**	**24**	**14**	**38**	**377**
TAZ 3													
V3	**City of Victorville**	PLAN21-00012	Automobile Parts Sales	843	7.380	TSF	10	8	18	17	19	36	403
						TAZ 3 Total	**10**	**8**	**18**	**17**	**19**	**36**	**403**
						Total Cumulative Projects Trip Generation	***52***	***130***	***182***	***156***	***101***	***257***	***2,619***

[1] Cumulative Projects information provided by the City of Victorville.

[2] DU = Dwelling Units.
TSF = Thousand Square Feet.

Exhibit 4-5

Cumulative Projects Location Map



NOTE: See report for full list of cumulative projects and traffic analysis zones (TAZ).

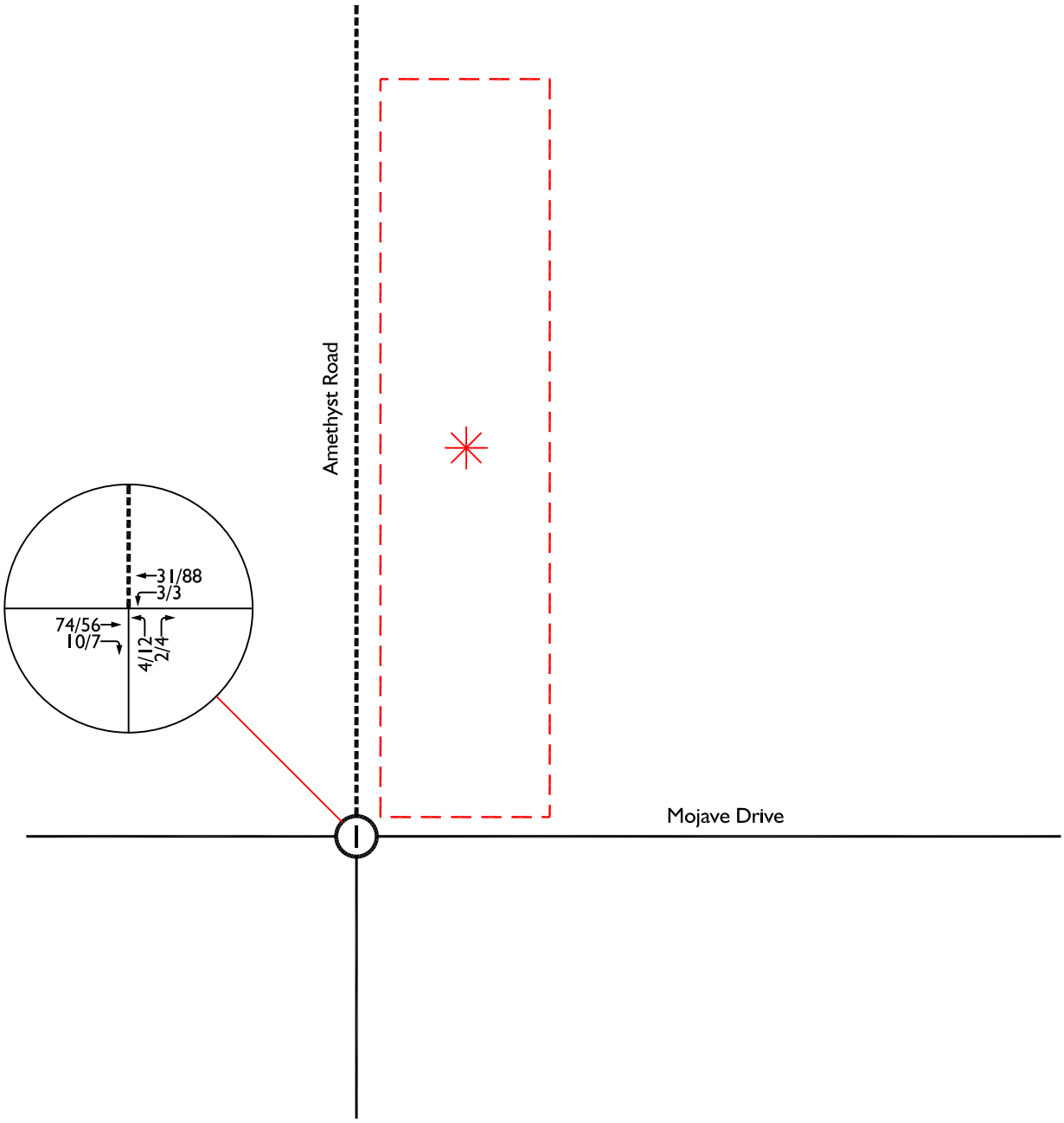
Legend:

= City of Victorville Cumulative Project

N

Exhibit 4-6

Cumulative Projects Traffic Volumes



Legend:

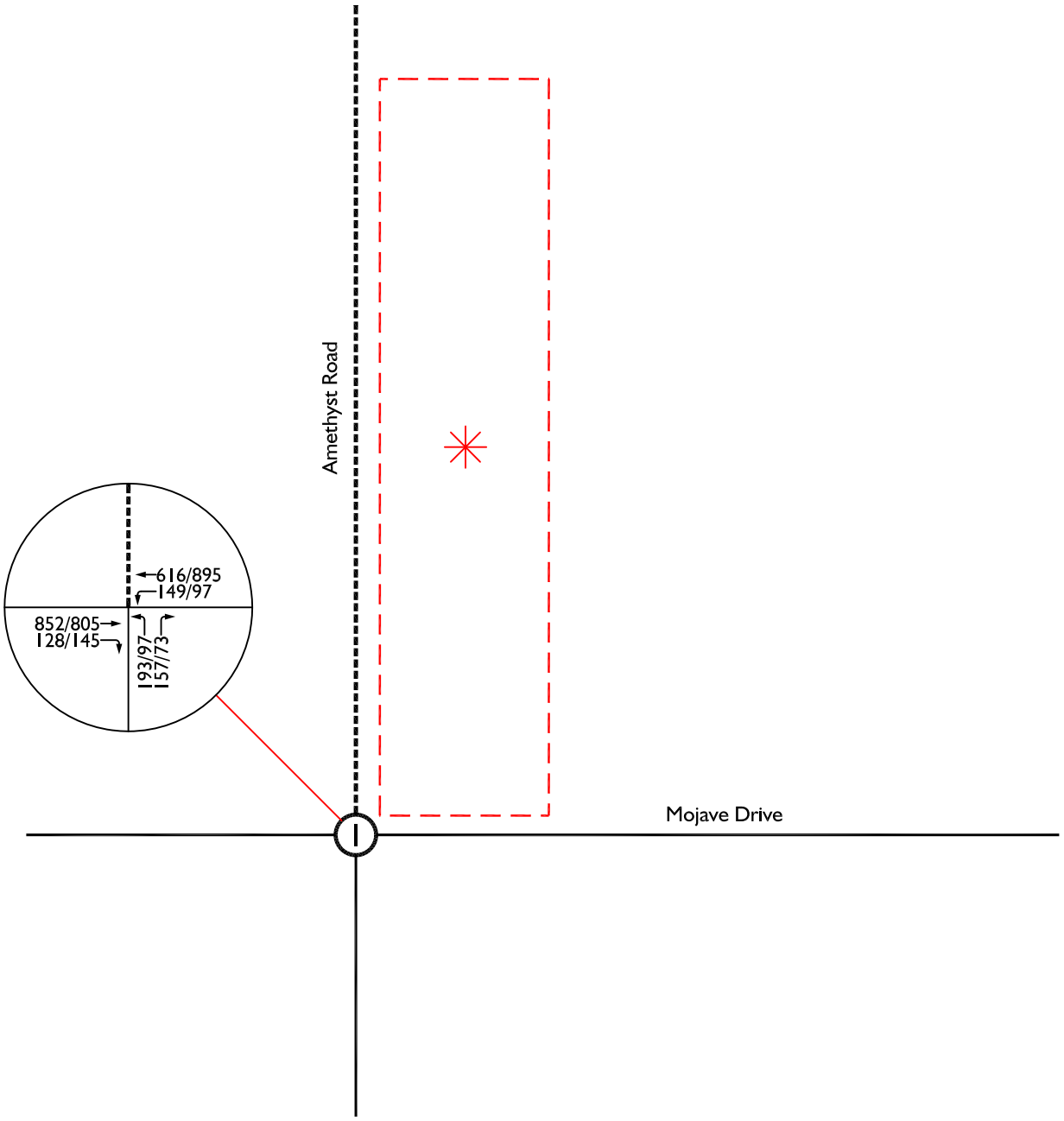
10/20 = AM/PM Peak Hour Volumes

▪▪▪▪▪▪ = Future Amethyst Road Extension

N

Exhibit 4-7

Project Opening Year (2024) Without Project Conditions Traffic Volumes



Legend:

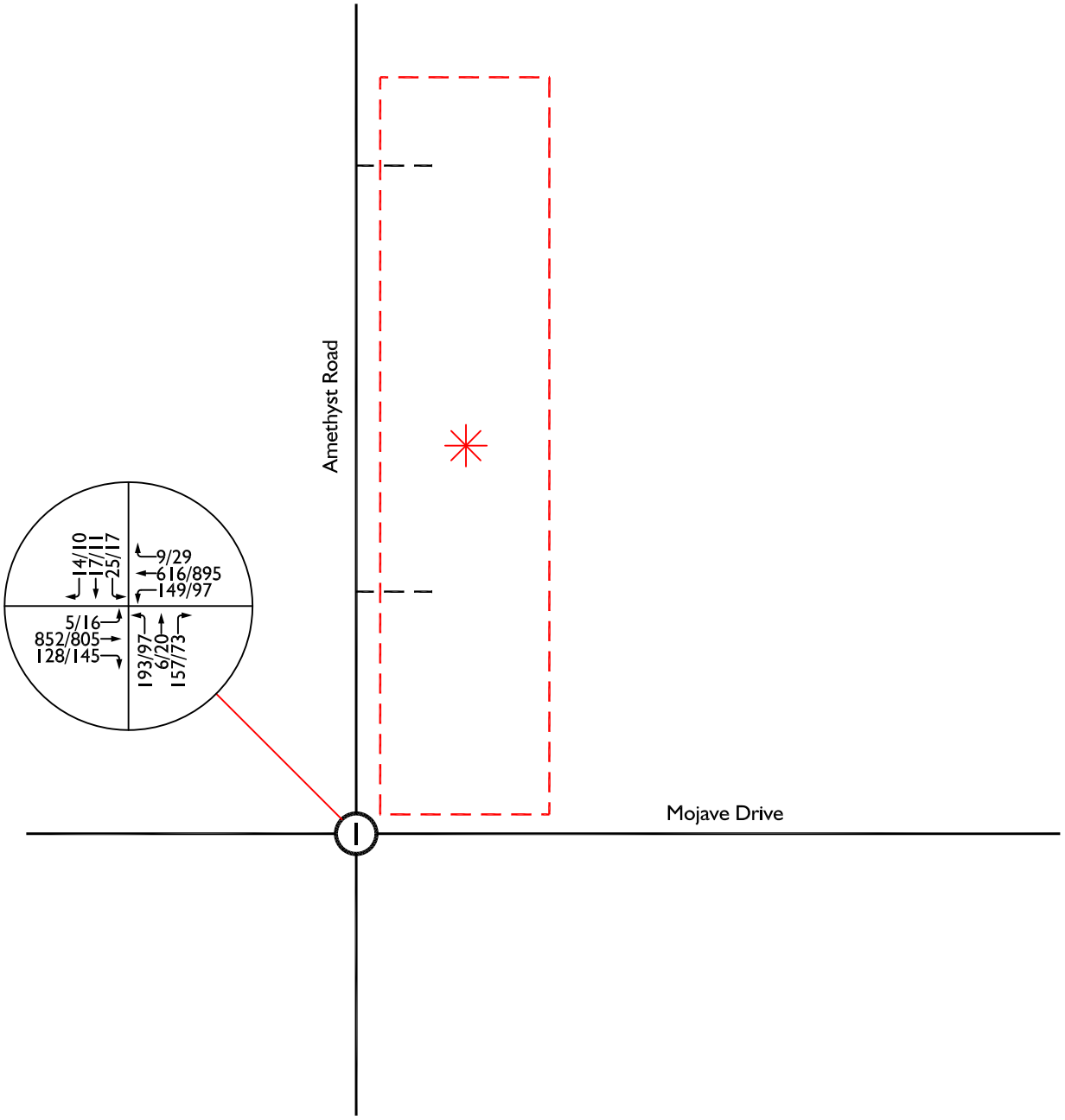
10/20 = AM/PM Peak Hour Volumes

▪▪▪▪▪▪ = Future Amethyst Road Extension

N

Exhibit 4-8

Project Opening Year (2024) With Project Conditions Traffic Volumes



Legend:

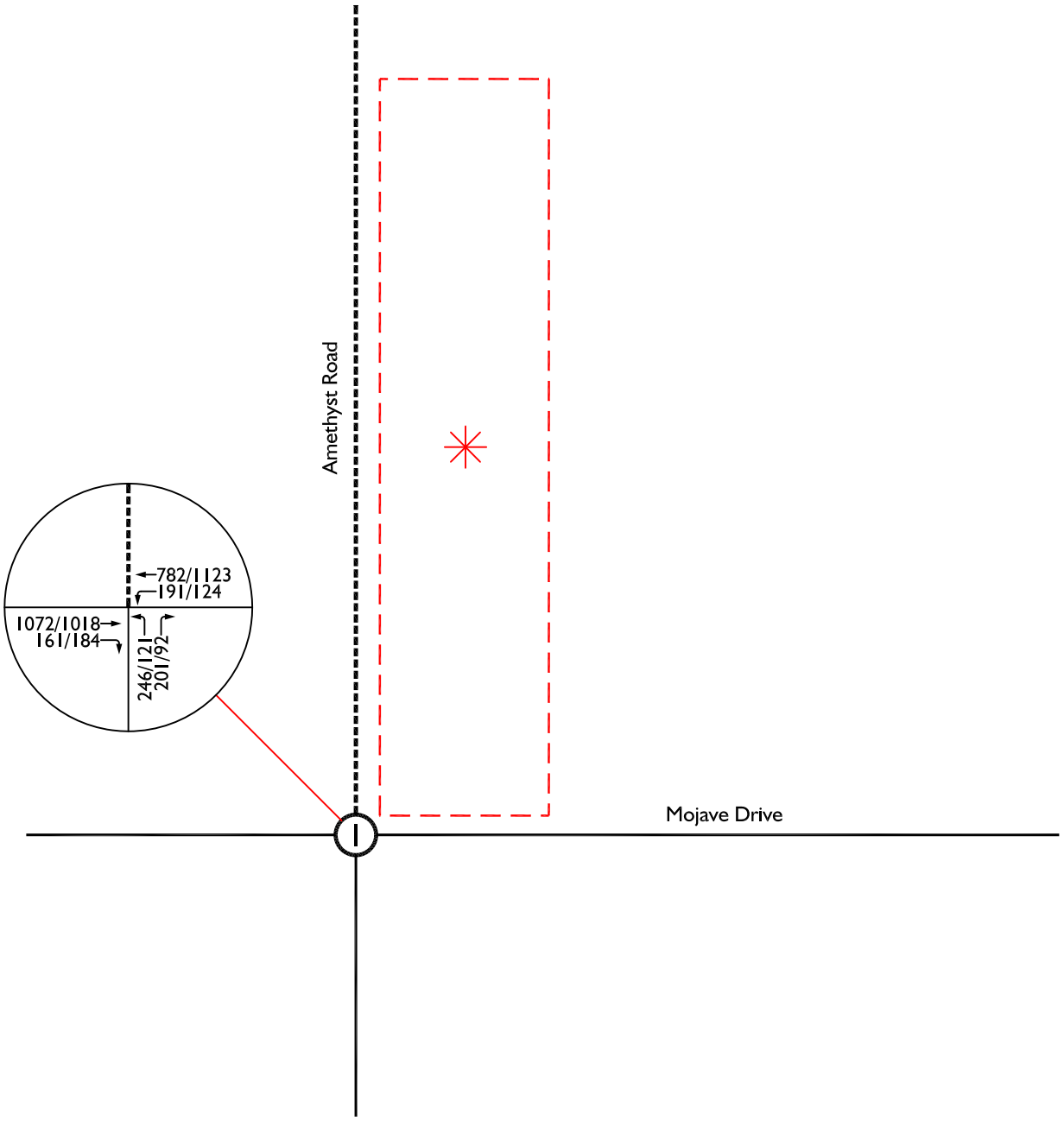
10/20 = AM/PM Peak Hour Volumes

= Project Access Driveway

N

Exhibit 4-9

Future Year (2034) Without Project Conditions Traffic Volumes



Legend:

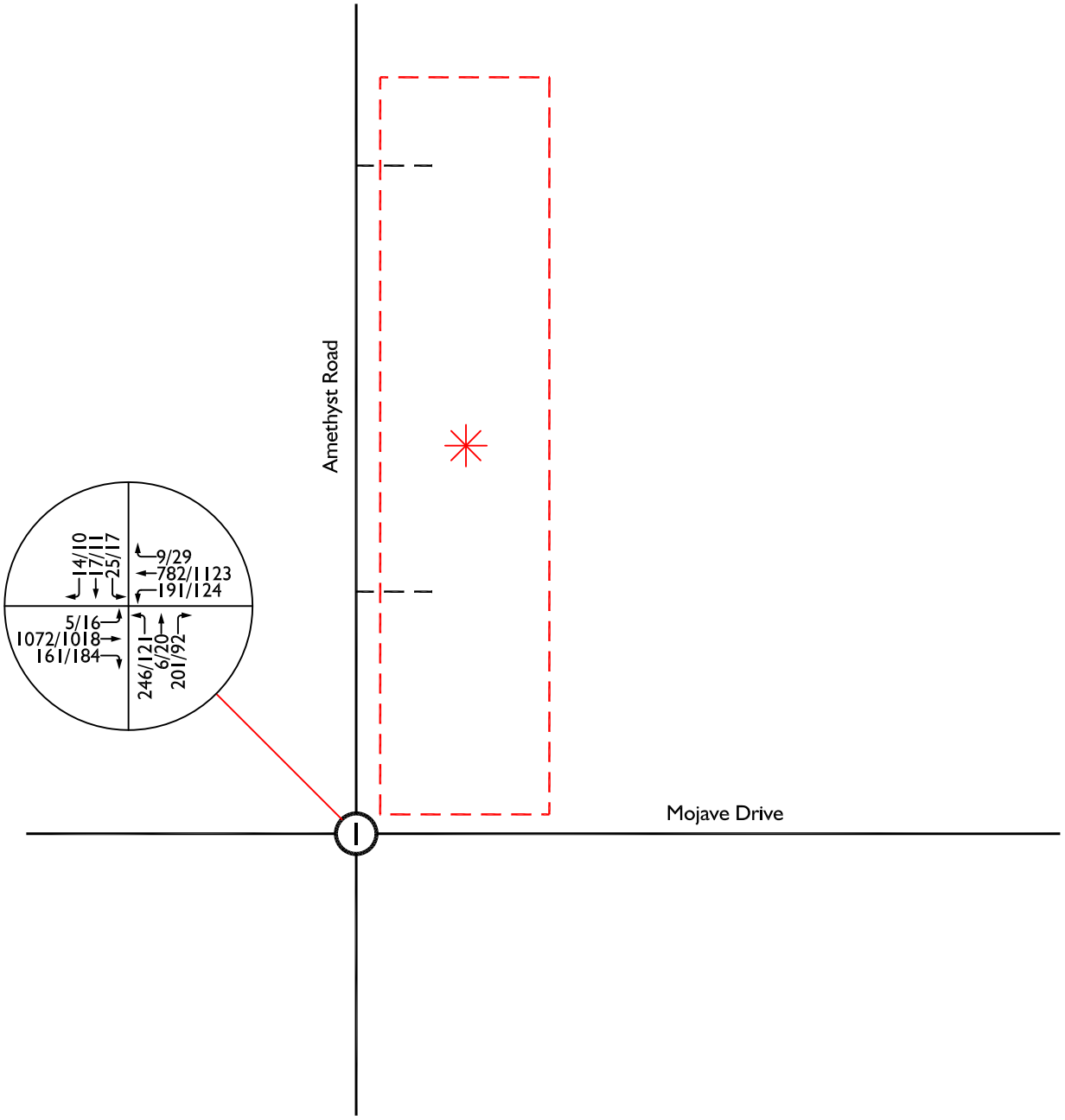
10/20 = AM/PM Peak Hour Volumes

▪▪▪▪▪▪ = Future Amethyst Road Extension

N

Exhibit 4-10

Future Year (2034) With Project Conditions Traffic Volumes



Legend:

10/20 = AM/PM Peak Hour Volumes

= Project Access Driveway

N

5.0 Study Intersection Peak Hour LOS Analysis

This section of the report provides a discussion on the study intersection peak hour level of service (LOS) analysis and findings.

5.1 Existing Conditions Level of Service

Existing Conditions LOS calculations for the study intersection of Amethyst Road at Mojave Drive is based upon the existing (2022) traffic volumes shown on Exhibit 3-2 and the existing geometry shown on Exhibit 3-1.

As shown in Table 5-1, the study intersection is forecast to operate at an acceptable LOS B or better during the AM and PM peak hours for Existing Conditions.

Detailed LOS analysis worksheets for Existing Conditions are contained in Appendix C.

5.2 Project Opening Year (2024) Without Project Conditions Level of Service

Project Opening Year (2024) Without Project Conditions LOS calculations for the study intersection of Amethyst Road at Mojave Drive is shown in Table 5-2 and are based upon the Project Opening Year (2024) Without Project Conditions traffic volumes shown on Exhibit 4-7 and the existing geometry shown on Exhibit 3-1.

As shown in Table 5-2, the study intersection of Amethyst Road at Mojave Drive is forecast to operate at an acceptable LOS B or better during the AM and PM peak hours for Project Opening Year (2024) Without Project Conditions.

Detailed LOS analysis worksheets for Project Opening Year (2024) Without Project Conditions are contained in Appendix D.

5.3 Project Opening Year (2024) With Project Conditions Level of Service

Project Opening Year (2024) With Project Conditions LOS calculations for the study intersection of Amethyst Road at Mojave Drive is also shown in Table 5-3 and are based upon the Project Opening Year (2023) With Project Conditions traffic volumes shown on Exhibit 4-8 and the proposed geometry (i.e. project-specific improvements) shown on Exhibits 4-1 and 4-2.

As shown in Table 5-3, the study intersection of Amethyst Road at Mojave Drive is forecast to operate at an acceptable LOS D during the AM and PM peak hours for Project Opening Year (2024) With Project Conditions. As such, no additional improvements are required or recommended at this intersection from what is already included as shown Exhibits 4-1 and 4-2.

Detailed LOS analysis worksheets for Project Opening Year (2024) With Project Conditions are contained in Appendix E.

5.4 Future Year (2034) Without Project Conditions Level of Service

Future Year (2034) Without Project Conditions LOS calculations for the study intersection of Amethyst Road at Mojave Drive is shown in Table 5-2 and are based upon the Future Year (2034) Without Project Conditions traffic volumes shown on Exhibit 4-9 and the existing geometry shown on Exhibit 3-1.

As shown in Table 5-2, the study intersection of Amethyst Road at Mojave Drive is forecast to continue to operate at an acceptable LOS (LOS D or better) during the AM and PM peak hours for Future Year (2034) Without Project Conditions.

Detailed LOS analysis worksheets for Future Year (2034) Without Project Conditions are contained in Appendix F.

5.5 Future Year (2034) With Project Conditions Level of Service

Future Year (2034) With Project Conditions LOS calculations for the study intersection of Amethyst Road at Mojave Drive is also shown in Table 5-5 and are based upon the Future Year (2034) With Project Conditions traffic volumes shown on Exhibit 4-10 and the proposed geometry (i.e. project-specific improvements) shown on Exhibits 4-1 and 4-2.

As shown in Table 5-5, the study intersection of Amethyst Road at Mojave Drive is forecast to continue to operate at an acceptable LOS D during the AM and PM peak hours for Future Year (2034) With Project Conditions. As such, no additional improvements are required or recommended at this intersection from what is already included as shown Exhibits 4-1 and 4-2.

Detailed LOS analysis worksheets for Future Year (2034) With Project Conditions are contained in Appendix G

Table 5-1
Study Intersection LOS Analysis Summary
Existing Conditions

	Intersection	Traffic Control[1]	Methodology	Delay (sec/veh)[2,3]		Level of Service	
				AM	PM	AM	PM
1.	Amethyst Road (NS) / Mojave Drive (EW)	TS	HCM 6	16.4	9.2	B	A

[1] TS = Traffic Signal

[2] Deficient operation shown in **Bold**.

[3] HCM Analysis Software: PTV Vistro, Version 2022.

Table 5-2
Study Intersection LOS Analysis Summary
Project Opening Year (2024) Without Project Conditions

	Intersection	Traffic Control[1]	Methodology	Delay (sec/veh)[2,3]		Level of Service	
				AM	PM	AM	PM
1.	Amethyst Road (NS) / Mojave Drive (EW)	TS	HCM 6	16.6	9.5	B	A

[1] TS = Traffic Signal

[2] Deficient operation shown in **Bold**.

[3] HCM Analysis Software: PTV Vistro, Version 2022.

Table 5-3
Study Intersection LOS Analysis Summary
Project Opening Year (2024) With Project Conditions

	Intersection	Traffic Control[1]	Methodology	Project Opening Year (2024) Without Project Conditions				Project Opening Year (2024) With Project Conditions							
				Delay (sec/veh)[2,3]		Level of Service		Delay (sec/veh)[2,3]		Increase in Delay		Level of Service		Requires Improvement?	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1.	Amethyst Road (NS) / Mojave Drive (EW)	TS	HCM 6	16.6	9.5	B	A	44.7	40.4	28.1	30.9	D	D	No	No

[1] TS = Traffic Signal

[2] Deficient operation shown in **Bold**.

[3] HCM Analysis Software: PTV Vistro, Version 2022

Table 5-4
Study Intersection LOS Analysis Summary
Future Year (2034) Without Project Conditions

	Intersection	Traffic Control[1]	Methodology	Delay (sec/veh)[2,3]		Level of Service	
				AM	PM	AM	PM
1.	Amethyst Road (NS) / Mojave Drive (EW)	TS	HCM 6	17.8	9.9	B	A

[1] TS = Traffic Signal

[2] Deficient operation shown in **Bold**.

[3] HCM Analysis Software: PTV Vistro, Version 2022.

Table 5-5
Study Intersection LOS Analysis Summary
Future Year (2034) With Project Conditions

	Intersection	Traffic Control[1]	Methodology	Future Year (2034) Without Project Conditions				Future Year (2034) With Project Conditions							
				Delay (sec/veh)[2,3]		Level of Service		Delay (sec/veh)[2,3]		Increase in Delay		Level of Service		Requires Improvement?	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1.	Amethyst Road (NS) / Mojave Drive (EW)	TS	HCM 6	17.8	9.9	B	A	45.0	40.9	27.2	35.5	D	D	No	No

[1] TS = Traffic Signal

[2] Deficient operation shown in **Bold**.

[3] HCM Analysis Software: PTV Vistro, Version 2022

6.0 CEQA Vehicle Miles Traveled (VMT) Analysis

In response to Senate Bill (SB) 743, the California Natural Resource Agency certified and adopted new CEQA Guidelines in December 2018 which now identify Vehicle Miles Traveled (VMT) as the most appropriate metric to evaluate a project's transportation impact under CEQA (§ 15064.3).

A key element of SB 743, signed in 2013, is the elimination of automobile delay and LOS as the sole basis for determining CEQA impacts. Pursuant to CEQA guidelines, Section 15064.3, VMT is the most appropriate measure of transportation impacts. However, SB 743 does not prevent a city of county from continuing to analyze delay or LOS as part of other plans (i.e. the general plan), studies, or ongoing network monitoring.

The City of Victorville has adopted Vehicle Miles Traveled (VMT) Analysis Guidelines, dated June 15, 2020, to provide recommendations in the form of thresholds of significance and methodology for identifying VMT related impacts under CEQA. The proposed project is subject to a VMT analysis and will adhere to the recommendations and practices described in the City of Victorville VMT Guidelines.

Per the City of Victorville VMT Guidelines, there are three (3) types of screening that can be applied to effectively screen development projects from requiring a project-level VMT assessment. These screening criteria are summarized below:

- *Transit Priority Area (TPA) Screening*
- *Low VMT Area Screening*
- *Daily Trip and Land Use Type Screening*

Daily Trip and Land Use Type Screening

Based on the analysis methodology described in the City of Victorville VMT Guidelines, project screening procedures have been implemented to identify projects that may be presumed to have a less than significant impact absent substantial evidence to the contrary and will be exempted from further project-level VMT assessment.

According to the City's VMT Guidelines, land use projects that result in a net increase of 1,285 or less weekday daily trips, per the latest ITE Trip Generation Manual, are presumed to have a less than significant impact absent substantial evidence to the contrary. These include the following land use types:

- Single Family or Multifamily Residential – 136 dwelling units or less;
- Office – 227,000 square feet or less;
- Retail – 122,00 square feet or less;
- Warehousing – 829,000 square feet or less;
- Light Industrial – 296,000 square feet or less;
- K-12 Public Schools;
- Daycare/Childcare/Pre-K;
- Affordable Housing;
- Student Housing;
- Community Institutions, Social Services, Public Buildings; and
- Land uses not described above for which the project would generate 1,285 weekday daily trips or less.

The proposed project consists of 109 single family residential dwelling units, which is less than the abovementioned threshold of 136 dwelling units, and therefore meets the Land Use Type Screening criteria. Furthermore, the project is forecast to generate approximately 1,028 weekday daily trips which is less than the 1,285 weekday daily trips threshold.

As a result, the proposed project is screened out based on Daily Trip and Land Use Type Screening, and may be presumed to have a less than significant VMT impact under CEQA. Therefore, no further VMT analysis is required.

7.0 Findings and Recommendations

The purpose of this traffic impact analysis is to evaluate the TTM 20525 Single Family Residential project from a traffic and circulation standpoint and determine whether the project will have a significant traffic impact. This study has been conducted pursuant to the City of Victorville TIA Guidelines, the latest San Bernardino County Congestion Management Program, and the CEQA requirements.

This study has been prepared in accordance with the scope of work that has been approved by City of Victorville staff.

7.1 Proposed Project

The currently vacant project site is located at the northeast corner of Amethyst Road and Mojave Drive in the City of Victorville, CA.

The proposed project consists of constructing and operating 109 single-family residential dwelling units on approximately 30.1-acre.

Primary vehicular access for the proposed project will be provided via two (2) full-access unsignalized intersections along Amethyst Road, which will be accessed via the intersection of Amethyst Road at Mojave Drive.

In addition to the construction of the north leg of the Amethyst Road and Mojave Drive intersection, the project will modify the existing traffic signal as necessary.

For the purposes of this study, the project is assumed to be fully occupied by Year 2024 and will be evaluated in one (1) single phase.

7.2 Trip Generation Summary

Based on the ITE trip generation rates, the proposed project is forecast to generate approximately 1,028 daily trips which include approximately 76 AM peak hour trips and approximately 103 PM.

7.3 Traffic Study Area & Analysis Scenarios

The study area consists of the following study intersections:

1. Amethyst Road (NS) at Mojave Drive (EW)

The analysis evaluates traffic conditions for the following analysis scenarios during the typical weekday AM (7:00 AM to 9:00 AM) and typical weekday PM (4:00 PM to 6:00 PM) peak periods:

- Existing Conditions;
- Project Opening Year (2024) Without Project Conditions – Existing Conditions Plus Ambient Growth (3% Annually) Plus Cumulative Projects;
- Project Opening Year (2024) With Project Conditions – Existing Conditions Plus Ambient Growth (3% Annually) Plus Cumulative Projects Plus Project;
- Future Year (2034) Without Project Conditions– Existing Conditions Plus Ambient Growth (3% Annually) Plus Cumulative Projects; and
- Future Year (2034) With Project Conditions– Existing Conditions Plus Ambient Growth (3% Annually) Plus Cumulative Projects Plus Project.

7.4 Study Intersection Peak Hour LOS Analysis Summary

All study intersections are currently operating and are forecast to continue to operate at an acceptable LOS (LOS D or better) during the AM and PM peak hours for all analysis scenarios evaluated as part of this study.

As such, the proposed project is not required nor recommended to contribute to additional LOS improvements at the study intersections for the analysis scenarios evaluated beyond what is established in this study.

7.5 CEQA Vehicle Miles Traveled (VMT) Analysis Summary

The proposed project consists of one hundred and nine (109) single family residential dwelling units, which is less than the abovementioned threshold of 136 dwelling units, and

therefore meets the Land Use Type Screening criteria. Furthermore, the project is forecast to generate approximately 1,028 weekday daily trips which is less than the 1,285 weekday daily trips threshold.

As a result, the proposed project is screened out based on Daily Trip and Land Use Type Screening, and may be presumed to have a less than significant VMT impact under CEQA. Therefore, no further VMT analysis is required.

Appendix A

Scope of Work

112-Lot Single Family Subdivision (Tract 20525) Project
Traffic Impact Study
Scoping Agreement

February 24, 2022

The following provides information on the proposed project, summarizes the analysis scope, parameters, and assumptions for review and approval, and also includes a request for information on items related to the study.

A. Project Description: The proposed 112-Lot Single Family Subdivision Project (hereinafter referred to as project) is located on the northeast corner of Amethyst Road and Mojave Drive, in the City of Victorville.

The proposed project site is currently vacant. The project consists of constructing 112 single-family residential dwelling units.

Primary vehicular access for the proposed project will be provided via two (2) full-access unsignalized intersections along Amethyst Road, which will be accessed via the intersection of Amethyst Road at Mojave Drive.

The project will construct the north leg of the Amethyst Road/Mojave Drive intersection and will modify the existing traffic signal as necessary. Amethyst Road, from Mojave Drive to the northern extents of the project site, will be improved as necessary to meet City requirements.

The project is anticipated to be completed towards the end of Year 2023. However, to provide a conservative analysis, the project will be assumed to be fully occupied by Year 2024. As such, the project opening year is assumed to be Year 2024 and will be evaluated in one single phase.

Exhibit A shows the location map of the proposed project. Exhibit B shows the proposed site plan.

B. Project Trip Generation: Trip generation represents the amount of traffic that is attracted and produced by a development.

Trip generation is typically estimated based on the trip generation rates from the latest *Institute of Transportation Engineers (ITE) Trip Generation Manual*. The 11th Edition, 2021 ITE Manual has been utilized for this scoping agreement. This publication provides a comprehensive evaluation of trip generation rates for a variety of land uses.

Table 1 shows the ITE trip generation rates utilized for the trip generation analysis of the proposed project land use.

Table 1
ITE Trip Generation Rates[1]

Land Use	Units	ITE Code	AM			PM			Daily
			In	Out	Total	In	Out	Total	
Single-Family Detached Housing	DU	210	0.18	0.52	0.70	0.59	0.35	0.94	9.43

[1] Source: *2021 ITE Trip Generation Manual (11th Edition)*

[2] DU = Dwelling Units

Table 2 shows the trip generation for the proposed project utilizing the trip generation rates shown in Table 1.

Table 2
Proposed Project Trip Generation[1]

Land Use (ITE Code)	Quantity	Units	AM			PM			Daily
			In	Out	Total	In	Out	Total	
Single-Family Detached Housing	112	DU	20	58	78	66	39	105	1,056

[1] Source: *2021 ITE Trip Generation Manual (11th Edition)*

[2] DU = Dwelling Units

As shown in Table 2, based on the ITE trip generation rates, the proposed project is forecast to generate approximately 1,056 daily trips which include approximately 78 AM peak hour trips and approximately 105 PM peak hour trips.

C. Project Trip Distribution: Exhibit C shows the project trip distribution for the proposed project.

D. Study Intersections: The analysis will evaluate the following one (1) study intersection in the City of Victorville:

1. Amethyst Road at Mojave Drive

E. Analysis Scenarios: The analysis will evaluate traffic conditions for the following scenarios during the weekday AM (7:00 AM to 9:00 AM) and weekday PM (4:00 PM to 6:00 PM):

- Existing Conditions;
- Project Opening Year (Year 2024) Without Project Conditions – Existing Conditions Plus Ambient Growth (3% Annually) Plus Cumulative Projects; ~~and~~
- Project Opening Year (Year 2024) With Project Conditions – Existing Conditions Plus Ambient Growth (3% Annually) Plus Cumulative Projects Plus Project.
- Future Year (Year 2034) Without Project Conditions – Existing Conditions Plus Ambient Growth (3% Annually) Plus Cumulative Projects; and
- Future Year (Year 2034) With Project Conditions – Existing Conditions Plus Ambient Growth (3% Annually) Plus Cumulative Projects Plus Project.

F. Traffic Analysis Parameters: The analysis will utilize the following parameters:

- Synchro and/or Vistro analysis software and the Highway Capacity Manual 6th Editions (HCM 6) methodology.
- Optimized signal timing;
- Saturation flow rates consistent with the most current *San Bernardino County Congestion Management Program*, prepared by SANBAG.

G. Existing Traffic Counts: The analysis will utilize new traffic counts. The counts <u>will not</u> be collected by vehicle classification.

- AM peak period counts will be collected during one typical weekday from 7:00 AM to 9:00 AM.
- PM peak period counts will be collected during one typical weekday from 4:00 PM to 6:00 PM.

H. Forecast Opening Year (Year 2024) Conditions Traffic Volumes: Year 2024 background traffic volumes will be derived by applying an annual growth rate of three percent (3%) per year to existing traffic volumes (i.e. 2 years of growth from existing Year

2022 resulting in 6% total growth) and addition of traffic associated with specific cumulative projects in the area provided by the City.

I. Future Year (Year 2034) Conditions Traffic Volumes: Year 2034 background traffic volumes will be derived by applying an annual growth rate of three percent (3%) per year to existing traffic volumes (i.e. 12 years of growth from existing Year 2022 resulting in 36% total growth) and addition of traffic associated with specific cumulative projects in the area provided by the City.

J. Performance Criteria: Acceptable LOS of D or better.

K. Threshold for Requiring LOS Improvement:

The City of Victorville has adopted level of service "D" or better as acceptable operating conditions during the peak hour. In accordance with the City's guidelines which are identified in the Circulation Element of the *City of Victorville General Plan 2030*, the following types of traffic impacts are considered significant:

- If a development project would worsen an intersection peak hour LOS to E or worse, the level of service needs to be improved to achieve acceptable level of service by identifying improvements.

- If a development project would worsen an already deficient intersection by two percent or more, improvements needs to be identified.

L. Conceptual Striping Plan: Per City staff request, a conceptual striping plan for the intersection of Amethyst Road at Mojave Drive will be included in the traffic impact study to illustrate the recommended striping with the construction of the north leg.

M. VMT Analysis: The City of Victorville has adopted Vehicle Miles Traveled (VMT) Analysis Guidelines, dated June 16, 2020, to provide recommendations in the form of thresholds of significance and methodology for identifying VMT related impacts.

The proposed project (i.e. 112 single-family residential dwelling units) is less than 136 single family residential dwelling units, and would meet the Land Use Type Screening Criteria. Based on the project's size, it may be presumed to result in a less than significant impact to VMT under CEQA.

N. Request for Information: Please provide information on the following for use in the traffic study:

- Information on cumulative projects that need to be included in the traffic analysis (location, land use type(s), and land use quantities); and
- Information on future roadway and circulation system modifications/improvements that are planned within the study area and would potentially affect the analysis.

If you have any questions, or would like further review, please call us at (949) 474-0809.

Sincerely,

RK ENGINEERING GROUP, INC.

Justin Tucker, P.E.
Principal

Attachments

Approved by:

_____

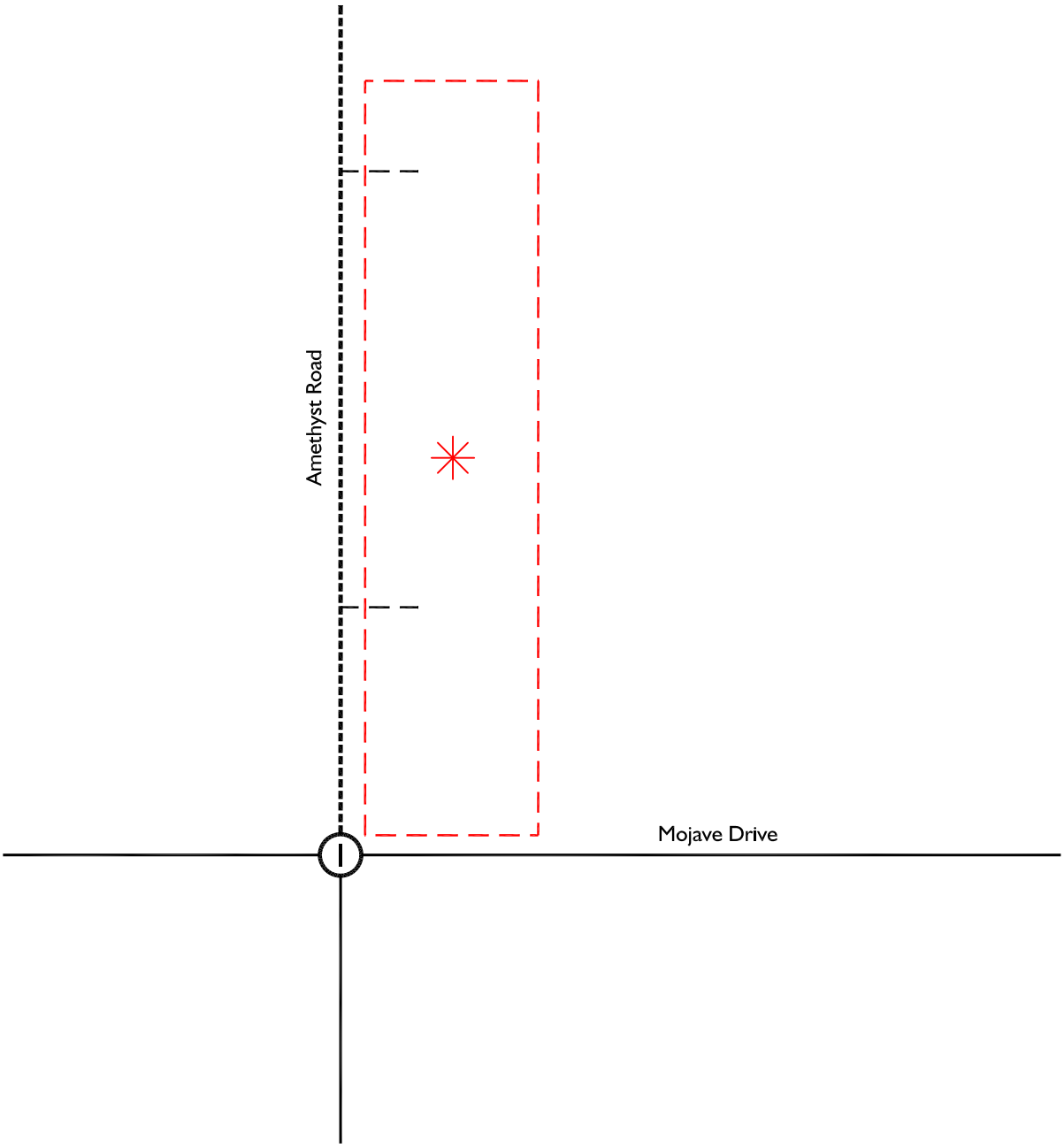
City of Victorville

_____

Date

Attachments

Exhibit A
Location Map



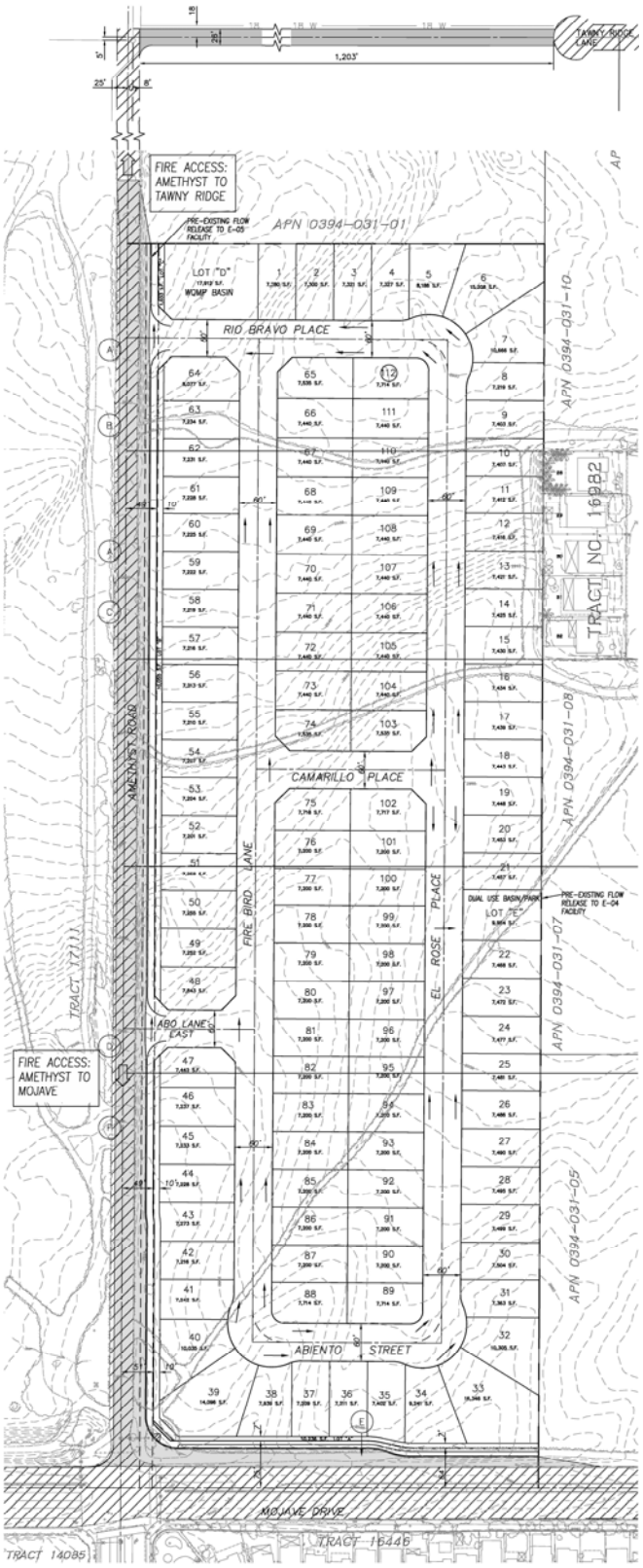
Legend:

- = Study Area Intersection
- = Project Site Boundary
- = Project Access Driveways
- = Project Site
- = Future Roadway

N

Exhibit B

Site Plan

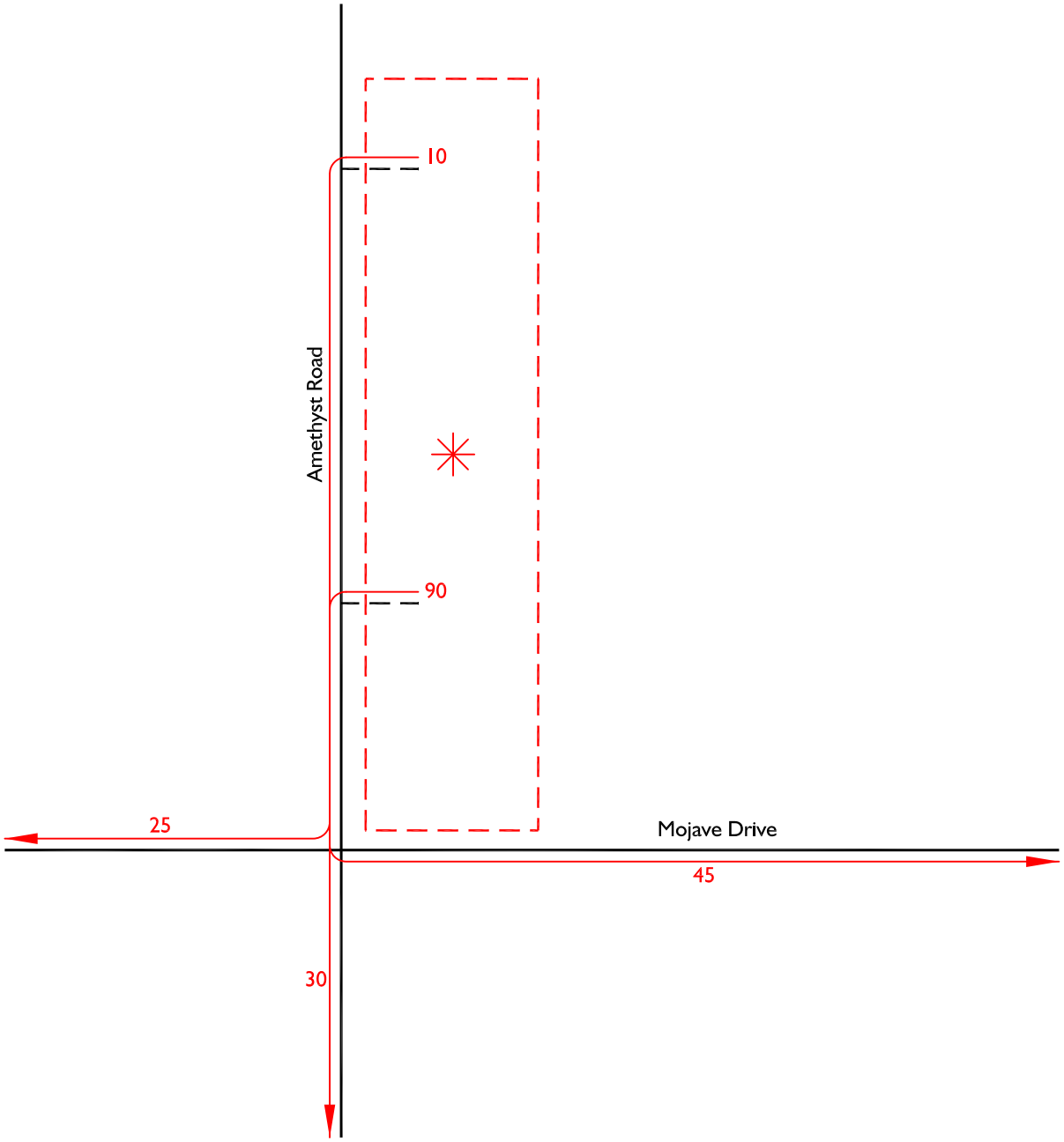


N

RK engineering group, inc.

Exhibit C

Project Trip Distribution



Legend:

10 = Percent to/from Project

N

Appendix B

Traffic Count Worksheets

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Victorville
N/S: Amethyst Road
E/W: Mojave Drive
Weather: Clear

File Name : VIC_Amethyst_Mojave AM
Site Code : 10522160
Start Date : 3/2/2022
Page No : 1

Groups Printed- Total Volume

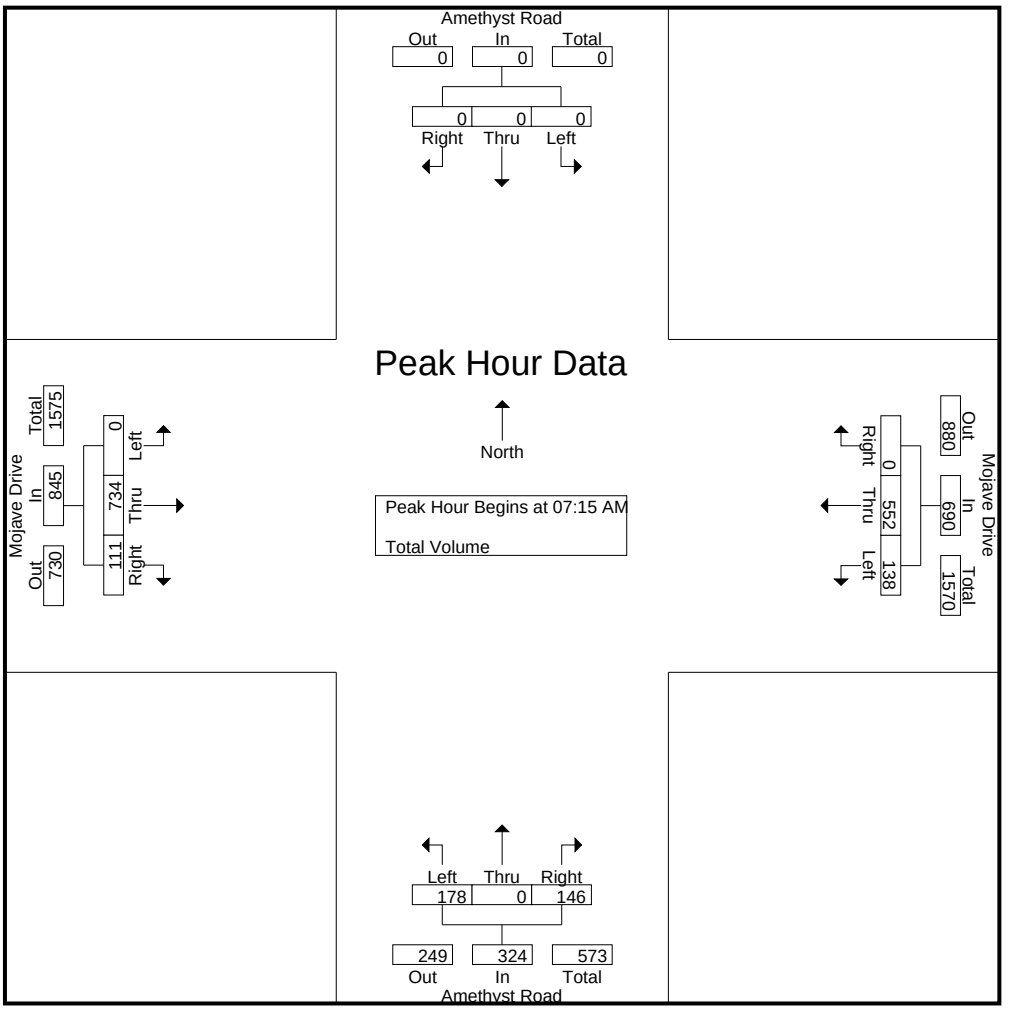
	Amethyst Road Southbound				Mojave Drive Westbound				Amethyst Road Northbound				Mojave Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	32	143	0	175	30	0	21	51	0	113	13	126	352
07:15 AM	0	0	0	0	41	151	0	192	59	0	35	94	0	163	20	183	469
07:30 AM	0	0	0	0	48	155	0	203	49	0	29	78	0	186	32	218	499
07:45 AM	0	0	0	0	31	134	0	165	37	0	41	78	0	190	36	226	469
Total	0	0	0	0	152	583	0	735	175	0	126	301	0	652	101	753	1789
08:00 AM	0	0	0	0	18	112	0	130	33	0	41	74	0	195	23	218	422
08:15 AM	0	0	0	0	22	94	0	116	27	0	31	58	0	152	34	186	360
08:30 AM	0	0	0	0	19	100	0	119	26	0	22	48	0	168	24	192	359
08:45 AM	0	0	0	0	23	99	0	122	24	0	15	39	0	149	17	166	327
Total	0	0	0	0	82	405	0	487	110	0	109	219	0	664	98	762	1468
Grand Total	0	0	0	0	234	988	0	1222	285	0	235	520	0	1316	199	1515	3257
Apprch %	0	0	0		19.1	80.9	0		54.8	0	45.2		0	86.9	13.1		
Total %	0	0	0	0	7.2	30.3	0	37.5	8.8	0	7.2	16	0	40.4	6.1	46.5	

	Amethyst Road Southbound				Mojave Drive Westbound				Amethyst Road Northbound				Mojave Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	41	151	0	192	**59**	0	35	**94**	0	163	20	183	469
07:30 AM	0	0	0	0	**48**	**155**	0	**203**	49	0	29	78	0	186	32	218	**499**
07:45 AM	0	0	0	0	31	134	0	165	37	0	**41**	78	0	190	**36**	**226**	469
08:00 AM	0	0	0	0	18	112	0	130	33	0	41	74	0	**195**	23	218	422
Total Volume	0	0	0	0	138	552	0	690	178	0	146	324	0	734	111	845	1859
% App. Total	0	0	0		20	80	0		54.9	0	45.1		0	86.9	13.1		
PHF	.000	.000	.000	.000	.719	.890	.000	.850	.754	.000	.890	.862	.000	.941	.771	.935	.931

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Victorville
N/S: Amethyst Road
E/W: Mojave Drive
Weather: Clear

File Name : VIC_Amethyst_Mojave AM
Site Code : 10522160
Start Date : 3/2/2022
Page No : 2



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

	07:00 AM				07:00 AM				07:15 AM				07:30 AM			
+0 mins.	0	0	0	0	32	143	0	175	**59**	0	35	**94**	0	186	32	218
+15 mins.	0	0	0	0	41	151	0	192	49	0	29	78	0	190	**36**	**226**
+30 mins.	0	0	0	0	**48**	**155**	0	**203**	37	0	**41**	78	0	**195**	23	218
+45 mins.	0	0	0	0	31	134	0	165	33	0	41	74	0	152	34	186
Total Volume	0	0	0	0	152	583	0	735	178	0	146	324	0	723	125	848
% App. Total	0	0	0		20.7	79.3	0		54.9	0	45.1		0	85.3	14.7	
PHF	.000	.000	.000	.000	.792	.940	.000	.905	.754	.000	.890	.862	.000	.927	.868	.938

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Victorville
N/S: Amethyst Road
E/W: Mojave Drive
Weather: Clear

File Name : VIC_Amethyst_Mojave PM
Site Code : 10522160
Start Date : 3/2/2022
Page No : 1

Groups Printed- Total Volume

	Amethyst Road Southbound				Mojave Drive Westbound				Amethyst Road Northbound				Mojave Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	22	185	0	207	18	0	17	35	0	201	27	228	470
04:15 PM	0	0	0	0	20	190	0	210	21	0	16	37	0	167	36	203	450
04:30 PM	0	0	0	0	29	188	0	217	21	0	17	38	0	158	32	190	445
04:45 PM	0	0	0	0	18	198	0	216	20	0	15	35	0	181	35	216	467
Total	0	0	0	0	89	761	0	850	80	0	65	145	0	707	130	837	1832
05:00 PM	0	0	0	0	20	176	0	196	21	0	17	38	0	135	32	167	401
05:15 PM	0	0	0	0	18	169	0	187	29	0	18	47	0	160	23	183	417
05:30 PM	0	0	0	0	27	176	0	203	33	0	18	51	0	124	28	152	406
05:45 PM	0	0	0	0	25	155	0	180	22	0	19	41	0	158	16	174	395
Total	0	0	0	0	90	676	0	766	105	0	72	177	0	577	99	676	1619
Grand Total	0	0	0	0	179	1437	0	1616	185	0	137	322	0	1284	229	1513	3451
Apprch %	0	0	0		11.1	88.9	0		57.5	0	42.5		0	84.9	15.1		
Total %	0	0	0	0	5.2	41.6	0	46.8	5.4	0	4	9.3	0	37.2	6.6	43.8	

	Amethyst Road Southbound				Mojave Drive Westbound				Amethyst Road Northbound				Mojave Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	22	185	0	207	18	0	**17**	35	0	**201**	27	**228**	**470**
04:15 PM	0	0	0	0	20	190	0	210	**21**	0	16	37	0	167	**36**	203	450
04:30 PM	0	0	0	0	**29**	188	0	**217**	21	0	17	**38**	0	158	32	190	445
04:45 PM	0	0	0	0	18	**198**	0	216	20	0	15	35	0	181	35	216	467
Total Volume	0	0	0	0	89	761	0	850	80	0	65	145	0	707	130	837	1832
% App. Total	0	0	0		10.5	89.5	0		55.2	0	44.8		0	84.5	15.5		
PHF	.000	.000	.000	.000	.767	.961	.000	.979	.952	.000	.956	.954	.000	.879	.903	.918	.974

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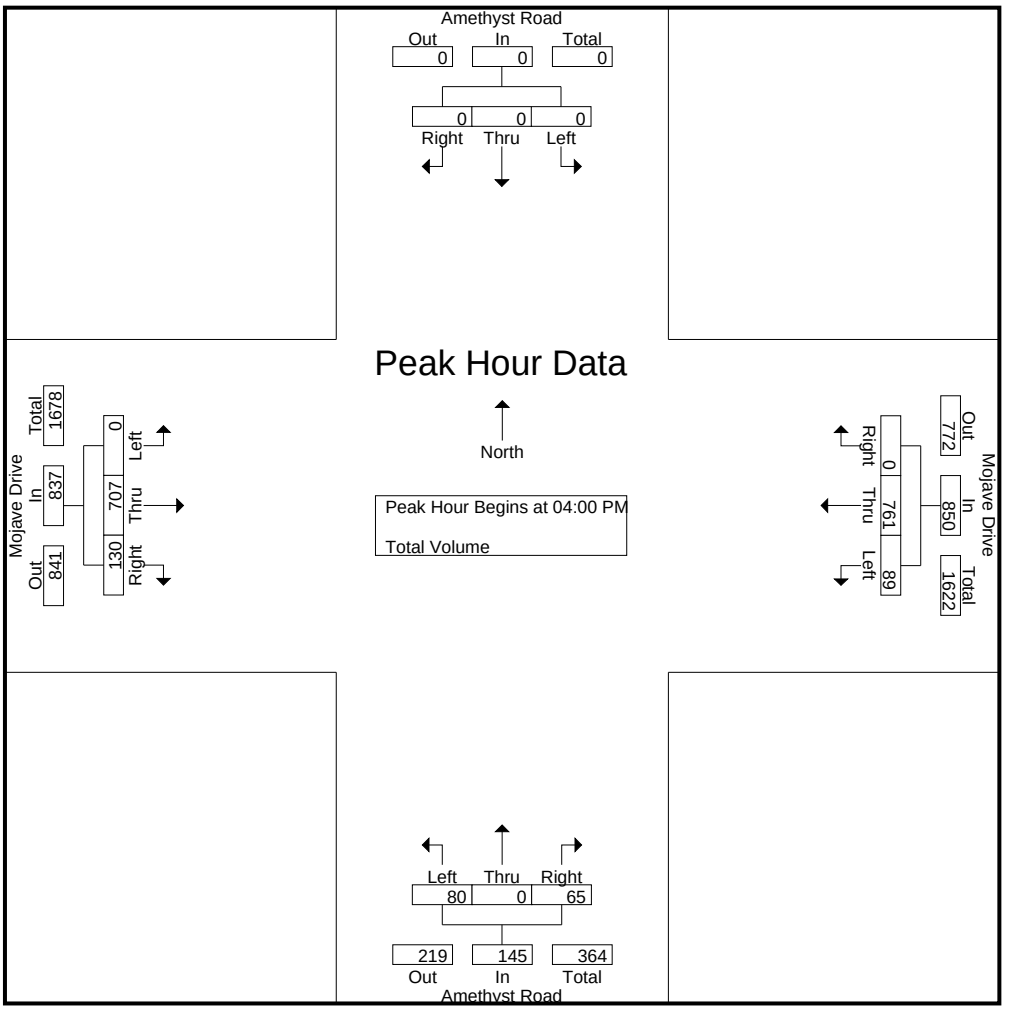
City of Victorville
N/S: Amethyst Road
E/W: Mojave Drive
Weather: Clear

File Name : VIC_Amethyst_Mojave PM
Site Code : 10522160
Start Date : 3/2/2022
Page No : 2



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

	04:00 PM				04:00 PM				05:00 PM				04:00 PM			
+0 mins.	0	0	0	0	22	185	0	207	21	0	17	38	0	**201**	27	**228**
+15 mins.	0	0	0	0	20	190	0	210	29	0	18	47	0	167	**36**	203
+30 mins.	0	0	0	0	**29**	188	0	**217**	**33**	0	18	**51**	0	158	32	190
+45 mins.	0	0	0	0	18	**198**	0	216	22	0	**19**	41	0	181	35	216
Total Volume	0	0	0	0	89	761	0	850	105	0	72	177	0	707	130	837
% App. Total	0	0	0		10.5	89.5	0		59.3	0	40.7		0	84.5	15.5	
PHF	.000	.000	.000	.000	.767	.961	.000	.979	.795	.000	.947	.868	.000	.879	.903	.918

Appendix C

Existing Conditions
Intersection Analysis Worksheets

Intersection Level Of Service Report
Intersection 1: Amethyst Road / Mojave Drive

Control Type:	Signalized	Delay (sec / veh):	16.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.430

Intersection Setup

Name	Amethyst Road		Mojave Drive		Mojave Drive	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Amethyst Road		Mojave Drive		Mojave Drive	
Base Volume Input [veh/h]	178	146	734	111	138	552
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	178	146	734	111	138	552
Peak Hour Factor	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	48	39	197	30	37	148
Total Analysis Volume [veh/h]	191	157	788	119	148	593
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	3	0	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	6	0	6	0	6	6
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	3.0	0.0	3.0	0.0	3.0	3.0
All red [s]	1.0	0.0	1.0	0.0	1.0	1.0
Split [s]	37	0	36	0	22	58
Vehicle Extension [s]	3.0	0.0	3.0	0.0	3.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	26	0	25	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	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
I, Upstream Filtering Factor	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	R	C	R	L	C
C, Cycle Length [s]	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
l1_p, Permitted Start-Up Lost Time [s]	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
g_i, Effective Green Time [s]	14	14	59	59	11	73
g / C, Green / Cycle	0.15	0.15	0.62	0.62	0.11	0.77
(v / s)_i Volume / Saturation Flow Rate	0.12	0.10	0.16	0.08	0.09	0.18
s, saturation flow rate [veh/h]	1593	1506	4826	1506	1593	3373
c, Capacity [veh/h]	233	220	2970	927	178	2595
d1, Uniform Delay [s]	39.34	38.65	8.40	7.63	41.30	3.06
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.95	4.23	0.22	0.29	9.43	0.21
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.71	0.27	0.13	0.83	0.23
d, Delay for Lane Group [s/veh]	46.29	42.89	8.62	7.92	50.74	3.27
Lane Group LOS	D	D	A	A	D	A
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.71	3.70	2.34	1.01	3.82	1.22
50th-Percentile Queue Length [ft/ln]	117.87	92.58	58.45	25.28	95.55	30.59
95th-Percentile Queue Length [veh/ln]	8.28	6.67	4.21	1.82	6.88	2.20
95th-Percentile Queue Length [ft/ln]	206.89	166.65	105.21	45.50	171.99	55.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.29	42.89	8.62	7.92	50.74	3.27
Movement LOS	D	D	A	A	D	A
d_A, Approach Delay [s/veh]	44.75		8.53		12.75	
Approach LOS	D		A		B	
d_I, Intersection Delay [s/veh]	16.41					
Intersection LOS	B					
Intersection V/C	0.430					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	0.00	37.14
l_p,int, Pedestrian LOS Score for Intersection	2.142	0.000	2.729
Crosswalk LOS	B	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	695	674	1137
d_b, Bicycle Delay [s]	20.24	20.90	8.85
l_b,int, Bicycle LOS Score for Intersection	1.560	2.058	2.171
Bicycle LOS	A	B	B

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: Amethyst Road / Mojave Drive

Control Type:	Signalized	Delay (sec / veh):	9.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.324

Intersection Setup

Name	Amethyst Road		Mojave Drive		Mojave Drive	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Amethyst Road		Mojave Drive		Mojave Drive	
Base Volume Input [veh/h]	80	65	707	130	89	761
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	65	707	130	89	761
Peak Hour Factor	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	17	181	33	23	195
Total Analysis Volume [veh/h]	82	67	726	133	91	781
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	3	0	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	6	0	6	0	6	6
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	3.0	0.0	3.0	0.0	3.0	3.0
All red [s]	1.0	0.0	1.0	0.0	1.0	1.0
Split [s]	37	0	36	0	22	58
Vehicle Extension [s]	3.0	0.0	3.0	0.0	3.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	26	0	25	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	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
I, Upstream Filtering Factor	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	R	C	R	L	C
C, Cycle Length [s]	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
l1_p, Permitted Start-Up Lost Time [s]	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
g_i, Effective Green Time [s]	7	7	69	69	7	80
g / C, Green / Cycle	0.07	0.07	0.73	0.73	0.07	0.84
(v / s)_i Volume / Saturation Flow Rate	0.05	0.04	0.15	0.09	0.06	0.23
s, saturation flow rate [veh/h]	1593	1506	4826	1506	1593	3373
c, Capacity [veh/h]	118	112	3511	1096	115	2839
d1, Uniform Delay [s]	42.95	42.63	4.15	3.87	43.39	1.55
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.14	5.11	0.13	0.23	11.53	0.24
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.60	0.21	0.12	0.79	0.28
d, Delay for Lane Group [s/veh]	50.08	47.74	4.28	4.09	54.92	1.79
Lane Group LOS	D	D	A	A	D	A
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.10	1.67	1.26	0.69	2.45	0.75
50th-Percentile Queue Length [ft/ln]	52.45	41.75	31.61	17.36	61.35	18.67
95th-Percentile Queue Length [veh/ln]	3.78	3.01	2.28	1.25	4.42	1.34
95th-Percentile Queue Length [ft/ln]	94.41	75.16	56.89	31.24	110.43	33.60

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.08	47.74	4.28	4.09	54.92	1.79
Movement LOS	D	D	A	A	D	A
d_A, Approach Delay [s/veh]	49.03		4.25		7.33	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	9.23					
Intersection LOS	A					
Intersection V/C	0.324					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	0.00	37.14
l_p,int, Pedestrian LOS Score for Intersection	2.064	0.000	2.726
Crosswalk LOS	B	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	695	674	1137
d_b, Bicycle Delay [s]	20.24	20.90	8.85
l_b,int, Bicycle LOS Score for Intersection	1.560	2.032	2.279
Bicycle LOS	A	B	B

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix D

Opening Year (2024) Without Project Conditions
Intersection Analysis Worksheets

Intersection Level Of Service Report
Intersection 1: Amethyst Road / Mojave Drive

Control Type:	Signalized	Delay (sec / veh):	16.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.481

Intersection Setup

Name	Amethyst Road		Mojave Drive		Mojave Drive	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Amethyst Road		Mojave Drive		Mojave Drive	
Base Volume Input [veh/h]	193	157	852	128	149	616
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	193	157	852	128	149	616
Peak Hour Factor	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	42	229	34	40	165
Total Analysis Volume [veh/h]	207	169	915	137	160	662
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	3	0	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	6	0	6	0	6	6
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	3.0	0.0	3.0	0.0	3.0	3.0
All red [s]	1.0	0.0	1.0	0.0	1.0	1.0
Split [s]	37	0	36	0	22	58
Vehicle Extension [s]	3.0	0.0	3.0	0.0	3.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	26	0	25	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	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
I, Upstream Filtering Factor	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	R	C	R	L	C
C, Cycle Length [s]	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
l1_p, Permitted Start-Up Lost Time [s]	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
g_i, Effective Green Time [s]	15	15	57	57	11	72
g / C, Green / Cycle	0.16	0.16	0.60	0.60	0.12	0.76
(v / s)_i Volume / Saturation Flow Rate	0.13	0.11	0.19	0.09	0.10	0.20
s, saturation flow rate [veh/h]	1593	1506	4826	1506	1593	3373
c, Capacity [veh/h]	250	236	2882	899	191	2561
d1, Uniform Delay [s]	38.83	38.06	9.51	8.48	40.91	3.43
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.93	4.03	0.29	0.36	9.32	0.24
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.72	0.32	0.15	0.84	0.26
d, Delay for Lane Group [s/veh]	45.76	42.09	9.80	8.84	50.24	3.68
Lane Group LOS	D	D	A	A	D	A
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.09	3.95	2.99	1.26	4.11	1.52
50th-Percentile Queue Length [ft/ln]	127.26	98.83	74.74	31.40	102.86	37.90
95th-Percentile Queue Length [veh/ln]	8.79	7.12	5.38	2.26	7.41	2.73
95th-Percentile Queue Length [ft/ln]	219.77	177.89	134.53	56.52	185.14	68.21

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.76	42.09	9.80	8.84	50.24	3.68
Movement LOS	D	D	A	A	D	A
d_A, Approach Delay [s/veh]	44.11		9.68		12.74	
Approach LOS	D		A		B	
d_I, Intersection Delay [s/veh]	16.55					
Intersection LOS	B					
Intersection V/C	0.481					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	0.00	37.14
l_p,int, Pedestrian LOS Score for Intersection	2.161	0.000	2.765
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	695	674	1137
d_b, Bicycle Delay [s]	20.24	20.90	8.85
l_b,int, Bicycle LOS Score for Intersection	1.560	2.138	2.238
Bicycle LOS	A	B	B

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: Amethyst Road / Mojave Drive

Control Type:	Signalized	Delay (sec / veh):	9.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.384

Intersection Setup

Name	Amethyst Road		Mojave Drive		Mojave Drive	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Amethyst Road		Mojave Drive		Mojave Drive	
Base Volume Input [veh/h]	97	73	805	145	97	895
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	97	73	805	145	97	895
Peak Hour Factor	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	19	207	37	25	230
Total Analysis Volume [veh/h]	100	75	826	149	100	919
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	3	0	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	6	0	6	0	6	6
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	3.0	0.0	3.0	0.0	3.0	3.0
All red [s]	1.0	0.0	1.0	0.0	1.0	1.0
Split [s]	37	0	36	0	22	58
Vehicle Extension [s]	3.0	0.0	3.0	0.0	3.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	26	0	25	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	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
I, Upstream Filtering Factor	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	R	C	R	L	C
C, Cycle Length [s]	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
l1_p, Permitted Start-Up Lost Time [s]	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
g_i, Effective Green Time [s]	8	8	67	67	7	79
g / C, Green / Cycle	0.09	0.09	0.71	0.71	0.08	0.83
(v / s)_i Volume / Saturation Flow Rate	0.06	0.05	0.17	0.10	0.06	0.27
s, saturation flow rate [veh/h]	1593	1506	4826	1506	1593	3373
c, Capacity [veh/h]	137	130	3421	1067	125	2798
d1, Uniform Delay [s]	42.33	41.76	4.86	4.47	43.03	1.90
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.16	4.02	0.17	0.27	10.90	0.31
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.58	0.24	0.14	0.80	0.33
d, Delay for Lane Group [s/veh]	49.50	45.77	5.03	4.74	53.93	2.21
Lane Group LOS	D	D	A	A	D	A
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.54	1.82	1.64	0.87	2.67	1.14
50th-Percentile Queue Length [ft/ln]	63.49	45.54	41.05	21.80	66.68	28.39
95th-Percentile Queue Length [veh/ln]	4.57	3.28	2.96	1.57	4.80	2.04
95th-Percentile Queue Length [ft/ln]	114.29	81.97	73.90	39.24	120.02	51.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.50	45.77	5.03	4.74	53.93	2.21
Movement LOS	D	D	A	A	D	A
d_A, Approach Delay [s/veh]	47.90		4.98		7.28	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	9.53					
Intersection LOS	A					
Intersection V/C	0.384					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	0.00	37.14
l_p,int, Pedestrian LOS Score for Intersection	2.080	0.000	2.767
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	695	674	1137
d_b, Bicycle Delay [s]	20.24	20.90	8.85
l_b,int, Bicycle LOS Score for Intersection	1.560	2.096	2.400
Bicycle LOS	A	B	B

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix E

Opening Year (2024) With Project
Intersection Analysis Worksheets

Intersection Level Of Service Report
Intersection 1: Amethyst Road / Mojave Drive

Control Type:	Signalized	Delay (sec / veh):	44.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.427

Intersection Setup

Name	Amethyst Road			Amethyst Road			Mojave Drive			Mojave Drive		
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	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	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]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Amethyst Road			Amethyst Road			Mojave Drive			Mojave Drive		
Base Volume Input [veh/h]	193	6	157	25	17	14	5	852	128	149	616	9
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
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]	193	6	157	25	17	14	5	852	128	149	616	9
Peak Hour Factor	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310
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	2	42	7	5	4	1	229	34	40	165	2
Total Analysis Volume [veh/h]	207	6	169	27	18	15	5	915	137	160	662	10
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]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	6	30	0	6	30	0	6	30	0	6	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]	27	60	0	13	46	0	10	36	0	11	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	37	0	0	35	0	0	25	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	Yes	No		Yes	No		Yes	No		Yes	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	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
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
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
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
g_i, Effective Green Time [s]	17	68	68	4	55	1	25	25	7	31	31
g / C, Green / Cycle	0.14	0.57	0.57	0.03	0.46	0.01	0.21	0.21	0.06	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.12	0.00	0.11	0.02	0.02	0.00	0.18	0.09	0.05	0.13	0.01
s, saturation flow rate [veh/h]	1687	1870	1589	1687	1731	1687	5094	1589	3277	5094	1589
c, Capacity [veh/h]	233	1063	903	50	796	13	1071	334	191	1328	415
d1, Uniform Delay [s]	50.77	11.21	12.50	57.35	17.82	59.18	45.57	40.91	55.87	37.64	32.96
k, delay calibration	0.18	0.50	0.50	0.11	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	16.56	0.01	0.46	8.75	0.10	17.08	2.07	0.81	9.26	0.29	0.02
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
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
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

Lane Group Results

X, volume / capacity	0.89	0.01	0.19	0.54	0.04	0.38	0.85	0.41	0.84	0.50	0.02
d, Delay for Lane Group [s/veh]	67.33	11.22	12.96	66.10	17.91	76.26	47.64	41.72	65.13	37.93	32.98
Lane Group LOS	E	B	B	E	B	E	D	D	E	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.16	0.07	2.29	0.93	0.53	0.21	8.91	3.59	2.64	5.55	0.22
50th-Percentile Queue Length [ft/ln]	179.06	1.80	57.26	23.24	13.26	5.34	222.79	89.65	66.05	138.70	5.53
95th-Percentile Queue Length [veh/ln]	11.55	0.13	4.12	1.67	0.96	0.38	13.81	6.45	4.76	9.41	0.40
95th-Percentile Queue Length [ft/ln]	288.79	3.24	103.07	41.83	23.88	9.62	345.19	161.37	118.89	235.27	9.96

Movement, Approach, & Intersection Results

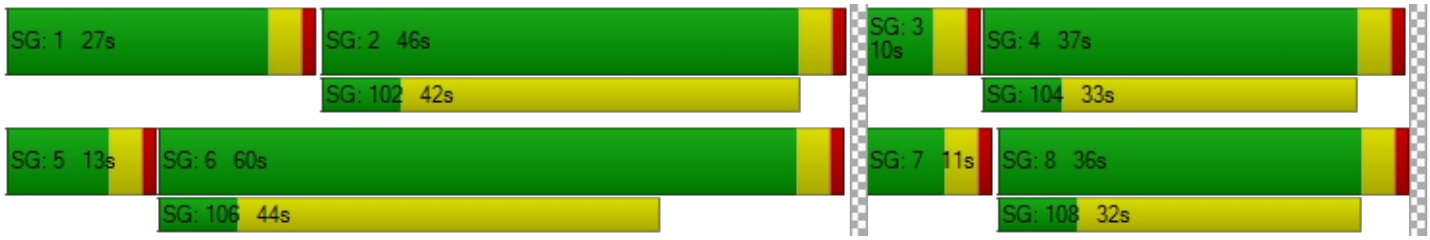
d_M, Delay for Movement [s/veh]	67.33	11.22	12.96	66.10	17.91	17.91	76.26	47.64	41.72	65.13	37.93	32.98
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	42.40			39.60			47.00			43.11		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	44.67											
Intersection LOS	D											
Intersection V/C	0.427											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	49.47	49.47	49.47	49.47
l_p,int, Pedestrian LOS Score for Intersection	2.450	2.165	2.976	3.073
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]	934	700	534	550
d_b, Bicycle Delay [s]	17.04	25.32	32.24	31.51
l_b,int, Bicycle LOS Score for Intersection	2.190	1.659	2.141	2.017
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 1: Amethyst Road / Mojave Drive

Control Type:	Signalized	Delay (sec / veh):	40.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.312

Intersection Setup

Name	Amethyst Road			Amethyst Road			Mojave Drive			Mojave Drive		
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	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	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]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Amethyst Road			Amethyst Road			Mojave Drive			Mojave Drive		
Base Volume Input [veh/h]	97	20	73	17	11	10	16	805	145	97	895	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
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]	97	20	73	17	11	10	16	805	145	97	895	29
Peak Hour Factor	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740
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]	25	5	19	4	3	3	4	207	37	25	230	7
Total Analysis Volume [veh/h]	100	21	75	17	11	10	16	826	149	100	919	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 Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	6	30	0	6	30	0	6	30	0	6	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]	12	48	0	10	46	0	10	36	0	11	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	37	0	0	35	0	0	25	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	Yes	No		Yes	No		Yes	No		Yes	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	L	C	R	L	C	R
C, Cycle Length [s]	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
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
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
g_i, Effective Green Time [s]	8	60	60	2	55	2	21	21	6	24	24
g / C, Green / Cycle	0.07	0.57	0.57	0.02	0.52	0.02	0.20	0.20	0.05	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.06	0.01	0.05	0.01	0.01	0.01	0.16	0.09	0.03	0.18	0.02
s, saturation flow rate [veh/h]	1687	1870	1589	1687	1725	1687	5094	1589	3277	5094	1589
c, Capacity [veh/h]	122	1068	907	38	899	37	1016	317	177	1181	369
d1, Uniform Delay [s]	47.89	9.75	10.12	50.52	12.15	50.60	40.05	37.03	48.33	37.70	31.49
k, delay calibration	0.20	0.50	0.50	0.11	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	21.32	0.03	0.18	7.84	0.05	7.98	1.63	1.08	2.80	1.14	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
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
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

Lane Group Results

X, volume / capacity	0.82	0.02	0.08	0.44	0.02	0.44	0.81	0.47	0.56	0.78	0.08
d, Delay for Lane Group [s/veh]	69.22	9.79	10.30	58.36	12.20	58.58	41.68	38.11	51.12	38.84	31.58
Lane Group LOS	E	A	B	E	B	E	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.29	0.21	0.80	0.52	0.25	0.50	6.87	3.45	1.34	7.41	0.61
50th-Percentile Queue Length [ft/ln]	82.21	5.35	20.04	13.07	6.18	12.38	171.66	86.35	33.53	185.13	15.13
95th-Percentile Queue Length [veh/ln]	5.92	0.39	1.44	0.94	0.45	0.89	11.16	6.22	2.41	11.87	1.09
95th-Percentile Queue Length [ft/ln]	147.98	9.64	36.06	23.53	11.13	22.28	279.09	155.42	60.36	296.70	27.23

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	69.22	9.79	10.30	58.36	12.20	12.20	58.58	41.68	38.11	51.12	38.84	31.58
Movement LOS	E	A	B	E	B	B	E	D	D	D	D	C
d_A, Approach Delay [s/veh]	40.30			32.85			41.42			39.80		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	40.43											
Intersection LOS	D											
Intersection V/C	0.312											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	42.01	42.01	42.01	42.01
l_p,int, Pedestrian LOS Score for Intersection	2.396	2.164	2.979	3.070
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]	839	801	610	629
d_b, Bicycle Delay [s]	17.66	18.84	25.32	24.63
l_b,int, Bicycle LOS Score for Intersection	1.883	1.622	2.105	2.137
Bicycle LOS	A	A	B	B

Sequence

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

Appendix F

Future Year (2034) Without Project Conditions
Intersection Analysis Worksheets

Intersection Level Of Service Report
Intersection 1: Amethyst Road / Mojave Drive

Control Type:	Signalized	Delay (sec / veh):	17.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.566

Intersection Setup

Name	Amethyst Road		Mojave Drive		Mojave Drive	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Amethyst Road		Mojave Drive		Mojave Drive	
Base Volume Input [veh/h]	246	201	1072	161	191	782
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	246	201	1072	161	191	782
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	65	53	282	42	50	206
Total Analysis Volume [veh/h]	259	212	1128	169	201	823
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	3	0	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	6	0	6	0	6	6
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	3.0	0.0	3.0	0.0	3.0	3.0
All red [s]	1.0	0.0	1.0	0.0	1.0	1.0
Split [s]	37	0	36	0	22	58
Vehicle Extension [s]	3.0	0.0	3.0	0.0	3.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	26	0	25	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	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
I, Upstream Filtering Factor	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	R	C	R	L	C
C, Cycle Length [s]	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
l1_p, Permitted Start-Up Lost Time [s]	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
g_i, Effective Green Time [s]	17	17	53	53	13	70
g / C, Green / Cycle	0.18	0.18	0.55	0.55	0.14	0.73
(v / s)_i Volume / Saturation Flow Rate	0.15	0.13	0.22	0.11	0.12	0.23
s, saturation flow rate [veh/h]	1687	1589	5094	1589	1687	3560
c, Capacity [veh/h]	306	289	2817	879	235	2614
d1, Uniform Delay [s]	37.60	36.73	12.20	10.63	39.96	4.36
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.37	3.62	0.43	0.49	8.65	0.32
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.73	0.40	0.19	0.86	0.31
d, Delay for Lane Group [s/veh]	43.97	40.35	12.62	11.11	48.62	4.68
Lane Group LOS	D	D	B	B	D	A
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.27	4.87	4.41	1.80	5.09	2.32
50th-Percentile Queue Length [ft/ln]	156.75	121.75	110.31	45.08	127.29	58.07
95th-Percentile Queue Length [veh/ln]	10.38	8.49	7.86	3.25	8.79	4.18
95th-Percentile Queue Length [ft/ln]	259.41	212.23	196.44	81.14	219.81	104.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	43.97	40.35	12.62	11.11	48.62	4.68
Movement LOS	D	D	B	B	D	A
d_A, Approach Delay [s/veh]	42.34		12.43		13.30	
Approach LOS	D		B		B	
d_I, Intersection Delay [s/veh]	17.79					
Intersection LOS	B					
Intersection V/C	0.566					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	0.00	37.14
l_p,int, Pedestrian LOS Score for Intersection	2.216	0.000	2.839
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	695	674	1137
d_b, Bicycle Delay [s]	20.24	20.90	8.85
l_b,int, Bicycle LOS Score for Intersection	1.560	2.273	2.404
Bicycle LOS	A	B	B

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: Amethyst Road / Mojave Drive

Control Type:	Signalized	Delay (sec / veh):	9.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.470

Intersection Setup

Name	Amethyst Road		Mojave Drive		Mojave Drive	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Amethyst Road		Mojave Drive		Mojave Drive	
Base Volume Input [veh/h]	121	92	1018	184	124	1123
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	121	92	1018	184	124	1123
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	24	268	48	33	296
Total Analysis Volume [veh/h]	127	97	1072	194	131	1182
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	3	0	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	6	0	6	0	6	6
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	3.0	0.0	3.0	0.0	3.0	3.0
All red [s]	1.0	0.0	1.0	0.0	1.0	1.0
Split [s]	37	0	36	0	17	53
Vehicle Extension [s]	3.0	0.0	3.0	0.0	3.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	26	0	25	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	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
I, Upstream Filtering Factor	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	R	C	R	L	C
C, Cycle Length [s]	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
l1_p, Permitted Start-Up Lost Time [s]	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
g_i, Effective Green Time [s]	9	9	60	60	9	73
g / C, Green / Cycle	0.10	0.10	0.67	0.67	0.10	0.81
(v / s)_i Volume / Saturation Flow Rate	0.08	0.06	0.21	0.12	0.08	0.33
s, saturation flow rate [veh/h]	1687	1589	5094	1589	1687	3560
c, Capacity [veh/h]	171	161	3408	1063	162	2883
d1, Uniform Delay [s]	39.31	38.72	6.25	5.62	39.86	2.44
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.21	3.57	0.24	0.38	9.02	0.43
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.60	0.31	0.18	0.81	0.41
d, Delay for Lane Group [s/veh]	45.52	42.29	6.49	6.00	48.89	2.87
Lane Group LOS	D	D	A	A	D	A
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.99	2.18	2.51	1.30	3.21	1.82
50th-Percentile Queue Length [ft/ln]	74.66	54.61	62.74	32.49	80.21	45.61
95th-Percentile Queue Length [veh/ln]	5.38	3.93	4.52	2.34	5.78	3.28
95th-Percentile Queue Length [ft/ln]	134.38	98.29	112.93	58.47	144.38	82.09

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.52	42.29	6.49	6.00	48.89	2.87
Movement LOS	D	D	A	A	D	A
d_A, Approach Delay [s/veh]	44.12		6.41		7.46	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	9.92					
Intersection LOS	A					
Intersection V/C	0.470					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.68	0.00	34.68
l_p,int, Pedestrian LOS Score for Intersection	2.118	0.000	2.856
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	711	1089
d_b, Bicycle Delay [s]	18.06	18.70	9.35
l_b,int, Bicycle LOS Score for Intersection	1.560	2.256	2.643
Bicycle LOS	A	B	B

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix G

Future Year (2034) With Project Conditions
Intersection Analysis Worksheets

Intersection Level Of Service Report
Intersection 1: Amethyst Road / Mojave Drive

Control Type:	Signalized	Delay (sec / veh):	45.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.525

Intersection Setup

Name	Amethyst Road			Amethyst Road			Mojave Drive			Mojave Drive		
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	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	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]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Amethyst Road			Amethyst Road			Mojave Drive			Mojave Drive		
Base Volume Input [veh/h]	246	6	201	25	17	14	5	1072	161	191	782	9
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
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]	246	6	201	25	17	14	5	1072	161	191	782	9
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
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	2	53	7	4	4	1	282	42	50	206	2
Total Analysis Volume [veh/h]	259	6	212	26	18	15	5	1128	169	201	823	9
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]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	6	30	0	6	30	0	6	30	0	6	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]	25	54	0	14	43	0	15	32	0	14	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	37	0	0	35	0	0	25	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	Yes	No		Yes	No		Yes	No		Yes	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	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
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
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
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
g_i, Effective Green Time [s]	20	63	63	3	46	1	28	28	9	37	37
g / C, Green / Cycle	0.17	0.52	0.52	0.03	0.38	0.01	0.24	0.24	0.08	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.15	0.00	0.13	0.02	0.02	0.00	0.22	0.11	0.06	0.16	0.01
s, saturation flow rate [veh/h]	1687	1870	1589	1687	1731	1687	5094	1589	3277	5094	1589
c, Capacity [veh/h]	282	979	832	49	667	13	1209	377	252	1562	487
d1, Uniform Delay [s]	49.17	13.67	15.72	57.43	23.09	59.22	44.81	39.04	54.42	34.39	29.00
k, delay calibration	0.34	0.50	0.50	0.11	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	28.22	0.01	0.74	8.69	0.14	17.43	3.98	0.83	5.67	0.28	0.02
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
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
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

Lane Group Results

X, volume / capacity	0.92	0.01	0.25	0.53	0.05	0.38	0.93	0.45	0.80	0.53	0.02
d, Delay for Lane Group [s/veh]	77.39	13.68	16.46	66.12	23.23	76.65	48.79	39.87	60.10	34.67	29.02
Lane Group LOS	E	B	B	E	C	E	D	D	E	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	9.81	0.08	3.35	0.90	0.62	0.21	11.33	4.35	3.18	6.66	0.19
50th-Percentile Queue Length [ft/ln]	245.34	2.03	83.77	22.41	15.47	5.36	283.24	108.73	79.57	166.43	4.63
95th-Percentile Queue Length [veh/ln]	14.95	0.15	6.03	1.61	1.11	0.39	16.85	7.77	5.73	10.89	0.33
95th-Percentile Queue Length [ft/ln]	373.78	3.66	150.78	40.33	27.84	9.65	421.24	194.24	143.23	272.22	8.33

Movement, Approach, & Intersection Results

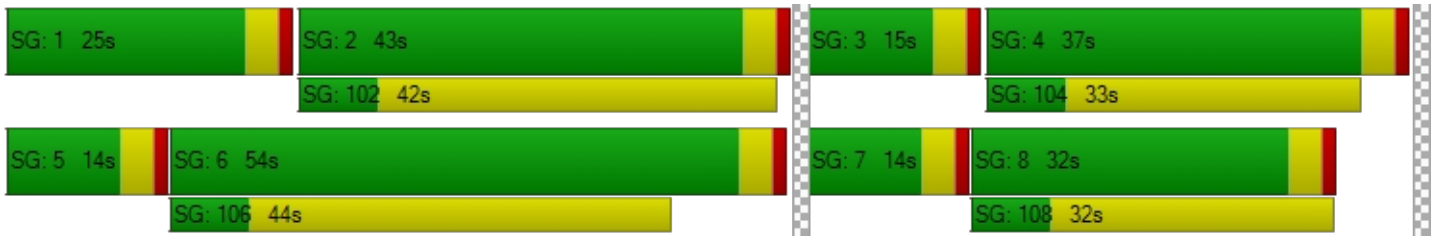
d_M, Delay for Movement [s/veh]	77.39	13.68	16.46	66.12	23.23	23.23	76.65	48.79	39.87	60.10	34.67	29.02
Movement LOS	E	B	B	E	C	C	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	49.51			42.13			47.74			39.57		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	44.98											
Intersection LOS	D											
Intersection V/C	0.525											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	49.49	49.49	49.49	49.49
l_p,int, Pedestrian LOS Score for Intersection	2.482	2.164	3.032	3.123
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]	834	650	467	550
d_b, Bicycle Delay [s]	20.40	27.32	35.25	31.52
l_b,int, Bicycle LOS Score for Intersection	2.347	1.657	2.276	2.128
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 1: Amethyst Road / Mojave Drive

Control Type:	Signalized	Delay (sec / veh):	40.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.397

Intersection Setup

Name	Amethyst Road			Amethyst Road			Mojave Drive			Mojave Drive		
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	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	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]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Amethyst Road			Amethyst Road			Mojave Drive			Mojave Drive		
Base Volume Input [veh/h]	121	20	92	17	11	10	16	1018	184	124	1123	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
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]	121	20	92	17	11	10	16	1018	184	124	1123	29
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
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	5	24	4	3	3	4	268	48	33	296	8
Total Analysis Volume [veh/h]	127	21	97	18	12	11	17	1072	194	131	1182	31
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 Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	6	30	0	6	30	0	6	30	0	6	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]	13	46	0	13	46	0	12	40	0	11	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	37	0	0	35	0	0	25	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	Yes	No		Yes	No		Yes	No		Yes	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	L	C	R	L	C	R
C, Cycle Length [s]	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
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
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
g_i, Effective Green Time [s]	9	58	58	3	51	2	28	28	6	31	31
g / C, Green / Cycle	0.08	0.52	0.52	0.02	0.46	0.02	0.25	0.25	0.06	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.08	0.01	0.06	0.01	0.01	0.01	0.21	0.12	0.04	0.23	0.02
s, saturation flow rate [veh/h]	1687	1870	1589	1687	1724	1687	5094	1589	3277	5094	1589
c, Capacity [veh/h]	138	979	832	39	802	38	1279	399	184	1453	453
d1, Uniform Delay [s]	50.07	12.60	13.27	52.96	15.92	53.03	39.00	35.07	50.94	36.53	28.61
k, delay calibration	0.31	0.50	0.50	0.11	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	42.37	0.04	0.29	8.19	0.07	8.32	1.54	0.92	4.97	1.15	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
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
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

Lane Group Results

X, volume / capacity	0.92	0.02	0.12	0.46	0.03	0.45	0.84	0.49	0.71	0.81	0.07
d, Delay for Lane Group [s/veh]	92.44	12.64	13.56	61.15	15.99	61.35	40.54	35.99	55.91	37.68	28.67
Lane Group LOS	F	B	B	E	B	E	D	D	E	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.08	0.26	1.27	0.58	0.33	0.55	9.22	4.51	1.90	9.86	0.61
50th-Percentile Queue Length [ft/ln]	126.93	6.47	31.78	14.48	8.21	13.75	230.48	112.85	47.40	246.56	15.15
95th-Percentile Queue Length [veh/ln]	8.77	0.47	2.29	1.04	0.59	0.99	14.20	8.00	3.41	15.01	1.09
95th-Percentile Queue Length [ft/ln]	219.31	11.65	57.21	26.06	14.78	24.74	354.97	199.96	85.33	375.32	27.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	92.44	12.64	13.56	61.15	15.99	15.99	61.35	40.54	35.99	55.91	37.68	28.67
Movement LOS	F	B	B	E	B	B	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	54.37			35.82			40.13			39.25		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	40.86											
Intersection LOS	D											
Intersection V/C	0.397											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	44.51	44.51	44.51	44.51
l_p,int, Pedestrian LOS Score for Intersection	2.423	2.331	3.052	3.133
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]	764	764	655	637
d_b, Bicycle Delay [s]	20.98	20.98	24.85	25.53
l_b,int, Bicycle LOS Score for Intersection	1.964	1.627	2.265	2.299
Bicycle LOS	A	A	B	B

Sequence

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