FOCUSED TRAFFIC IMPACT ANALYSIS

LOS ANGELES
201 S. Figueroa St, Suite 240
Los Angeles, CA 90012
213.337.3680
Fax :213.337.3679

ONTARIO
4141 E. Inland Empire Blvd,
Suite 250
Ontario, CA 91764
909.481.5750
Fax:909.481.5757

SAN DIEGO
3530 Camino Del Rio North, Suite
105 San Diego, CA 92108
619.400.0600
Fax: 619.400.0599

SANTA CLARITA
25152 Springfield Ct, Suite 350
Santa Clarita, CA 91355
661.284.7400
Fax 661.284.7401

TEMECULA
41951 Remington Ave, Suite 220
Temecula, CA 92590
951.294.9300
Fax: 951.294-9301

TUSTIN
17782 17th St, Suite 200
Tustin, CA 92780
714.665.4500
Fax: 714.665.4501

VICTORVILLE
18484 Outer Highway 18 North,
Suite 225
Apple Valley, CA, 92307
760.524.9100
Fax 760.524.9101

www.deainc

JOHNSON ROAD INDUSTRIAL BUILDING (WAREHOUSE)

APN: 0463-213-26, 27, 28

TOWN OF APPLE VALLEY, CALIFORNIA

Prepared by:

DAVID EVANS AND ASSOCIATES INC.

DRAFT REPORT
January 29, 2024

DAVID EVANS
AND ASSOCIATES INC.

January 29, 2024 Job No. PIXI5AMG-0002

Mr. Simon Bouzaglou
55555 Amargosa LLC
5901 South Eastern Avenue
Commerce, CA 90040

RE: DRAFT FOCUSED TRAFFIC IMPACT ANALYSIS FOR THE PROPOSED JOHNSON ROAD INDUSTRIAL BUILDING (WAREHOUSE) LOCATED AT THE NWC OF JOHNSON ROAD AND NAVAJO ROAD IN THE TOWN OF APPLE VALLEY, CA (APN: 0463-213-26, 27, AND 28)

Dear Mr. Bouzaglou,

David Evans and Associates, Inc. is pleased to submit this Draft Traffic Impact Analysis report for your proposed warehouse development in the Town of Apple Valley. The proposed project consists of a 410,241 square foot speculative industrial warehouse building located on approximately 18.71-acres in the Town of Apple Valley, California.

This report was prepared in accordance with San Bernardino County's Traffic Impact Study Guidelines for level of service (LOS) assessment published in July 2019, and the Town's adopted Resolution No. 2021-08 (May 2021) establishing thresholds of significance for a development's project-generated vehicle miles traveled (VMT) and the development's overall effect of VMT on the town's circulation system.

A VMT analysis was prepared to identify potentially significant transportation impacts for environmental clearance under the California Environmental Quality Act (CEQA). The VMT analysis findings and conclusions are summarized in the Executive Summary of this report and the full VMT analysis report is included in the appendix.

We are pleased to have been of assistance to you in processing and obtaining approval for the project. If you have any questions or comments, please feel free to contact me at 909-912-7304.

Respectfully submitted,

DAVID EVANS AND ASSOCIATES, INC.

James M. Daisa, P.E.
Senior Project Manager / Associate

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1 EXECUTIVE SUMMARY

This executive summary presents the findings and recommendations of this study.

1.1 Project Description

The Proposed Johnson Road Industrial Project consists of a 410,241 square foot speculative industrial warehouse building located on approximately 18.71-acres in the north part of the town and within the North Apple Valley Industrial Specific Plan area. The North Apple Valley Industrial Specific Plan is the regulatory plan that governs all development within its boundaries. It designates land uses and provides design standards for the construction of buildings and defines the area's required infrastructure for transportation / circulation, public services, and utilities.

The warehouse building includes 67 loading docks on the north side, 233 automobile parking spaces, and 48 trailer parking spaces.

Access to the site will be from driveways on Johnson Road and Navajo Road. Proposed circulation and access improvements include improving Navajo Road from Johnson Road to the project boundary and providing a driveway on Johnson Road. One commercial driveway is proposed on Johnson Road accessing the site's automobile parking, in the study this driveway will be assumed as primarily auto access.

It is assumed in the study the primary truck access to the secure gated loading dock and truck/trailer parking area is provided by a commercial driveway on Navajo Road (approximately 580 feet north of Johnson Road (measured from centerline to centerline)). The internal gates securing the loading dock and truck / trailer parking area of the site are setback from Navajo Road by about 230 feet—enough space for several interstate truck/trailer combinations.

1.2 Town of Apple Valley and Caltrans Intersection Level of Service Policies

The Town of Apple Valley's General Plan policy (Policy 1.A, Program 1.A.4) on level of service is to maintain a level of service (LOS) D in the AM and PM peak hours on all its roadways. This level of service policy applies to local Apple Valley roadways, roads of regional importance as part of the county's Congestion Management Program (CMP) network, and state highways.

The Caltrans' Guide for the Preparation of Traffic Impact Studies (December 2002) states "Caltrans endeavors to maintain a target level of service at the transition between LOS "C" and LOS "D" on State highway facilities. However, Caltrans acknowledges that this may not always be feasible, so their practice is to allow level of service thresholds equal to the threshold of the jurisdiction where the facility is located but preferably no greater than a 45 second average delay per vehicle in the peak hour (mid LOS D). For this study, the town's LOS D is assumed to be the minimum level of service criteria for the study intersections.

1.3 Level of Service Comparison With and Without the Proposed Project

1.3.1 Determination of Level of Service Deficiencies

Table 1-1 compares the weekday AM and PM peak hour background conditions and project conditions LOS at the study intersections. Background conditions represent the project's opening year of 2025 without the project and includes growth in ambient traffic from regional development equaling 3.5 percent annually, and other approved development within the study area (see **Appendix D**).

In this scenario, the addition of project traffic contributes to intersection LOS deficiencies that occur in background conditions at the following two study intersections: Stoddard Wells Rd / Outer Highway 15 / I-15 NB Ramps and Stoddard Wells Rd / Quarry Rd. As a result, these intersections are identified as cumulative deficiencies occurring prior to the addition of project traffic.

Table 1-1: Comparison of Background Conditions and Project Conditions LOS

Intersection	Control Type	Background Conditions				Background + Project Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Navajo Road / Johnson Road	SSSC	9.9	A	9.9	A	11.6	B	10.9	B
2. Dale Evans Parkway / Johnson Road	AWSC	9.0	A	13.9	B	9.8	A	18.3	C
3. Central Road / Johnson Road	SSSC	8.7	A	8.8	A	8.7	A	8.8	A
4. Stoddard Wells Road / Johnson Road	SSSC	10.7	B	16.6	C	11.4	B	20.8	C
5. Stoddard Wells Road / I-15 NB Ramps	SSSC	‡	F	‡	F	‡	F	‡	F
6. Stoddard Wells Road / Quarry Road	SSSC	42.7	E	23.6	C	58.3	F	26.7	D
7. I-15 Southbound Ramps / Quarry Road	SSSC	15.2	C	23.0	C	15.9	C	24.7	C
8. Johnson Road / Project Driveway	SSSC	Future Intersection				9.4	A	9.5	A
9. Navajo Road / Project Driveway	SSSC	Future Intersection				8.4	A	8.5	A

Notes:
‡ Delay cannot be calculated using the Highway Capacity Manual 6 algorithms because the intersection is over-saturated for the type of control being analyzed. In these conditions the intersection can result in exponentially high delays.
Shaded cells in the table represent intersection peak hours with LOS deficiencies (LOS E or F).
Abbreviations:
TWSC = Two-way (or side street) stop control, AWSC = All-way stop control, Not Applicable – Not Applicable Future Intersection
Delay – seconds per vehicle, LOS – Level of Service

Table 1-2 compares the weekday AM and PM peak hour Future year 2040 and Future year 2040 plus project LOS at the study intersections. Future year 2040 conditions represent a long-range forecast for addressing the cumulative impacts of regional growth in traffic as determined through traffic forecasts from the San Bernardino Countywide Traffic Analysis Model (SBTAM). It should be noted that the peak hour factor utilized in the Future year 2040 conditions and future year 2040 plus project conditions capacity analysis is set to 0.95 for all intersections consistent with county guidelines. Four study intersections have LOS deficiencies in future year 2040 conditions without the project.

Table 1-2: Comparison of Future 2040 and Future 2040 Plus Project LOS

Intersection	Control Type	Future Conditions				Future + Project Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Navajo Road / Johnson Road	SSSC	9.5	A	9.9	A	10.6	B	10.8	B
2. Dale Evans Parkway / Johnson Road	AWSC	13.1	B	37.3	E	15.1	C	53.0	F
3. Central Road / Johnson Road	SSSC	8.6	A	8.8	A	8.6	A	8.8	A
4. Stoddard Wells Road / Johnson Road	SSSC	15.7	C	110.3	F	17.5	C	200.6	F
5. Stoddard Wells Rd / I-15 NB Ramps	SSSC	‡	F	‡	F	‡	F	‡	F
6. Stoddard Wells Road / Quarry Road	SSSC	40.5	E	25.4	D	55.9	F	29.0	D
7. I-15 Southbound Ramps / Quarry Road	SSSC	15.3	C	20.6	C	16.0	C	21.6	C
8. Johnson Road / Project Driveway	SSSC	Future Intersection				9.4	A	9.1	A
9. Navajo Road / Project Driveway	SSSC	Future Intersection				8.4	A	8.4	A

Notes:
‡ Delay cannot be calculated using the Highway Capacity Manual 6 algorithms because the intersection is over-saturated for the type of control being analyzed. In these conditions the intersection can result in exponentially high delays.
Shaded cells in the table represent intersection peak hours with LOS deficiencies (LOS E or F).
Abbreviations:
TWSC = Two-way (or side street) stop control, AWSC = All-way stop control, Not Applicable – Not Applicable Future Intersection
Delay – seconds per vehicle, LOS – Level of Service

In the future year 2040 plus project conditions scenario, the combination of growth in ambient traffic and the addition of project traffic through the year 2040 contributes to the intersection LOS deficiencies at the

following four study intersections: Dale Evans Parkway / Johnson Road, Stoddard Wells Road / Johnson Road, Stoddard Wells Road / I-15 Northbound Ramps, and Stoddard Wells Rd / Quarry Road. The addition of project traffic in this scenario exacerbates the intersection LOS deficiencies that occur at all four intersections before the addition of project traffic. As a result, these intersections are identified as cumulative deficiencies occurring prior to the addition of project traffic.

1.4 Recommended Measures to Improve Level of Service at Deficient Intersections

Table 1-5 (on the following page) summarizes the recommended near-term opening year (2025) and long-range cumulative (year 2040) intersection improvements required to improve deficient intersection levels of service with the addition of project traffic to conform with the town's general plan policy of maintaining a minimum LOS D during peak hours. For two of these intersections, Stoddard Wells Road / I-15 Northbound Ramps and Stoddard Wells Road / Quarry Road, the recommended improvements are the improvements from the approved Apple Valley 143 Transportation Impact Analysis, dated November 2022 (see **Appendix D**).

Figure ES-1 illustrates the near-term opening year intersection improvements required to improve deficient intersection levels of service in the project conditions (year 2025) scenario. **Figure ES- 2** illustrates the long-range cumulative intersection improvements required to improve deficiencies in the future 2040 plus project conditions scenario.

1.5 Project Fair-Share Contribution to Level of Service Deficiency Improvements

Table 1-3 shows the proposed project's percent contribution to the total growth in entering traffic volumes, otherwise known as the fair-share calculation. The fair share percentages shown in the table are used to determine the fair share fee for each intersection by forecast year in the next section. The formula for calculating the percentages is:

$$\text{Percent of Total} = \frac{\text{(Total Project Trips)}}{\text{((Total Non-Project Forecasted Trips + Total Project Trips) - Existing Trips)}} \text{ X } 100\%$$

Table 1-3: Project's Fair Share of Deficient Intersections by Year and Peak Hour

Intersection	Near-Term % (Year 2025)		Long-Term % (Year 2040)	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
2.Dale Evans Parkway / Johnson Road	Not Applicable		20.9%	18.6%
4. Stoddard Wells Road / Johnson Road	Not Applicable		17.3%	13.2%
5. Stoddard Wells Rd / I-15 NB Ramps	10.2%	8.9%	6.3%	5.4%
6. Stoddard Wells Road / Quarry Road	9.8%	8.4%	8.0%	5.7%
Notes: Project traffic used in calculating the fair-share percentage is based on Passenger Car Equivalents (PCEs).				

1.6 Project Fair-Share Fee Contribution to Level of Service Deficiency Improvements

The Fair Share Fee provided in **Table 1-4** represent the estimated cost associated with the near-term opening year improvements are based on background + project scenario traffic.

Table 1-4: Project's Fair Share of Near-Term (Year 2025) Improvement Fees

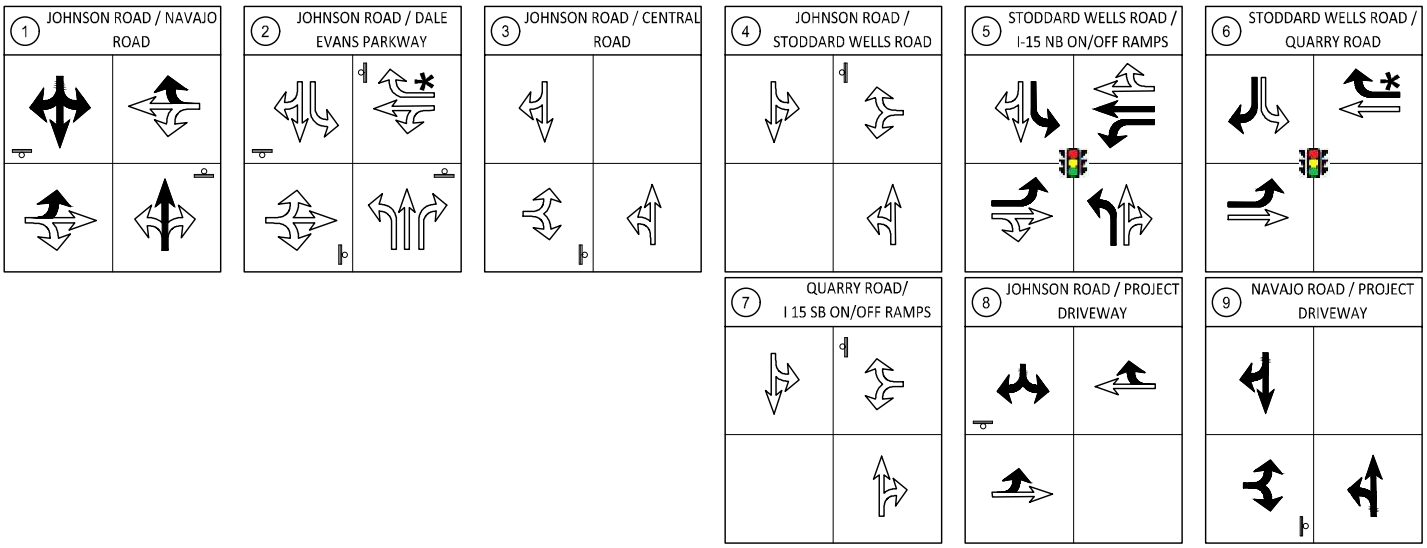
Intersection	Est. Cost ($)	Fair Share %	Fair Share Fee
5. Stoddard Wells Road / I-15 Northbound Ramps	$1,400,000	10.2%	$142,462
6. Stoddard Wells Road / Quarry Road	$800,000	9.8%	$78,153
Notes: Project traffic used in calculating the fair-share percentage is based on Passenger Car Equivalents (PCEs).			

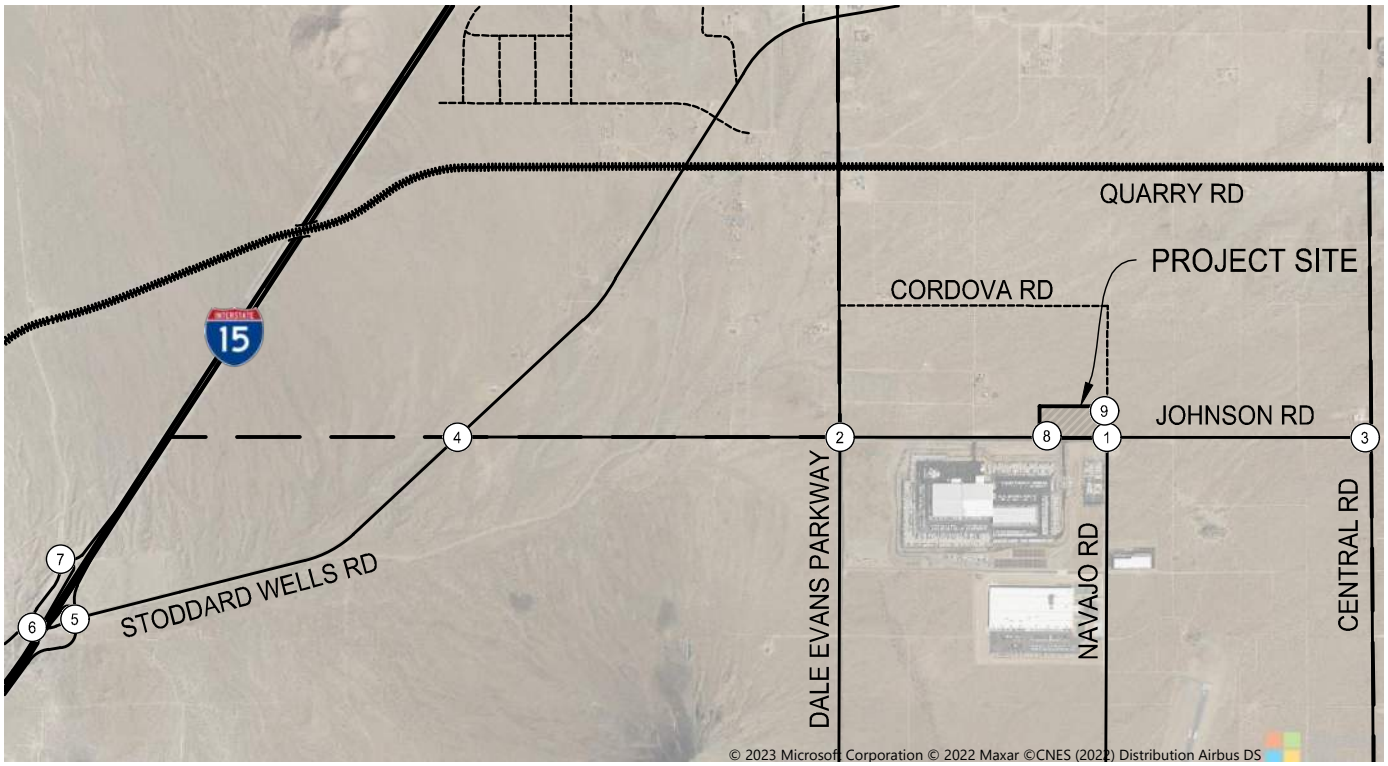
Table 1-5: Near-Term and Cumulative Long-Term Improvements to Mitigate LOS Deficiencies

Intersection	Near-Term Opening Year Improvements (See **Figure ES-1**)	Cumulative Long-Term Improvements (See **Figure ES- 2)**
2. Dale Evans Parkway / Johnson Road	**Not Applicable. No deficiency in this scenario.**	**Install a traffic signal at Dale Evans Parkway and Johnson Road** Reconfigure intersection: □ Westbound approach: remove free right and convert the lane to a through-right lane and convert the existing shared through-left lane to an exclusive left turn lane (250 feet long + a 120-foot transition). □ Eastbound approach: provide an exclusive left turn lane (250 feet long + 120-foot transition) and shared through-right lane. □ Northbound approach: remove the northbound offset right turn lane and add a second though lane and an exclusive right turn lane. □ Southbound approach: provide an exclusive right turn lane.
4. Stoddard Wells Road / Johnson Road	**Not Applicable. No deficiency in this scenario.**	**Convert intersection to all-way stop-control and Reconfigure intersection**: □ Westbound approach: widen approach to accommodate dual left-turn lanes and an exclusive right-turn lane. □ Northbound approach: widen approach to an exclusive free-right turn lane with an exclusive receiving lane eastbound on Johnson Road; design radius of free right turn lane to accommodate an STAA or California legal truck at a speed of 25 to 30 mph. □ Southbound approach: widen approach to add an exclusive left-turn lane and an additional through lane
5. Stoddard Wells Road / I-15 Northbound Ramps	**Install a traffic signal [1]** Widen the eastbound, westbound, northbound, and southbound approaches to accommodate turn lanes. Reconfigure intersection: □ Eastbound approach: widen and configure Stoddard Wells Road to add a left turn lane from Stoddard Wells Road to I-15 NB on-ramp and maintain the existing lane as a shared through-right lane. Provide eastbound left turn protected phasing. □ Westbound approach: widen and configure Stoddard Wells Road to add left turn lane from Stoddard Wells Road to Outer Highway 15 (250 feet long + a 120-foot transition), and a second through lane, maintain the existing lane as a through-right turn lane. Provide westbound left turn protected phasing.	**Retain the <u>near-term opening year proposed improvements</u>**

Intersection	Near-Term Opening Year Improvements (See **Figure ES-1**)	Cumulative Long-Term Improvements (See **Figure ES- 2)**
	□ Northbound approach: widen and configure Outer Highway 15 to add left turn lane from Outer Highway 15 to Stoddard Wells Road (250 feet long + a 120-foot transition) and retain existing lane as a shared through-right lane. Provide northbound left turn protected-permissive phasing. □ Southbound approach: widen and configure the I-15 southbound off-ramp to add a left turn lane (250-feet long + 120-foot transition) and maintain the existing lane as a shared through-right lane. Provide southbound left turn protected-permissive phasing.	
6. Stoddard Wells Rd / Quarry Rd	**Install a traffic signal [2]** Widen the eastbound, westbound, and southbound approaches to accommodate turn lanes. Reconfigure intersection: □ Eastbound approach: widen and configure Stoddard Wells Road to add left turn lane from Stoddard Wells Road to Quarry Rd (250 feet long + a 120-foot transition) and maintain the existing lane as a through lane. Provide eastbound left turn protected phasing. □ Westbound approach: widen and configure Stoddard Wells Road to add a right turn lane from Stoddard Wells Road to Quarry Rd with a receiving lane and maintain the existing lane as a through lane. □ Southbound approach: widen and configure Quarry Rd to add a right turn lane (250-feet long + 120-foot transition) and maintain the existing lane as a left lane. Provide southbound left turn protected phasing.	**Retain the <u>near-term opening year proposed improvements</u>**

Notes:
[1] The improvements identified for the intersection of Stoddard Wells Rd / I-15 NB Ramps are the improvements recommended in the approved Apple Valley 143 Transportation Impact Analysis, dated November 2022, by Dudek. Excerpt of the report is provided in **Appendix D.**
[2] The widening of the segment of Stoddard Wells Rd between Quarry Road to I-15 NB Ramps/Outer I-15 are the improvements recommended in the approved Apple Valley 143 Transportation Impact Analysis, dated November 2022, by Dudek. Excerpt of the report is provided in **Appendix D.**





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NOT TO SCALE

LEGEND

- EXISTING GEOMETRICS
- PROJECT GEOMETRICS
- (#) - STUDY INTERSECTIONS
- STOP CONTROLLED INTERSECTION
- SIGNAL CONTROLLED INTERSECTION
- * - FREE RIGHT TURN

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FIGURE ES-1: PROJECT SPECIFIC INTERSECTION IMPROVEMENTS JOHNSON ROAD INDUSTRIAL APPLE VALLEY, CALIFORNIA

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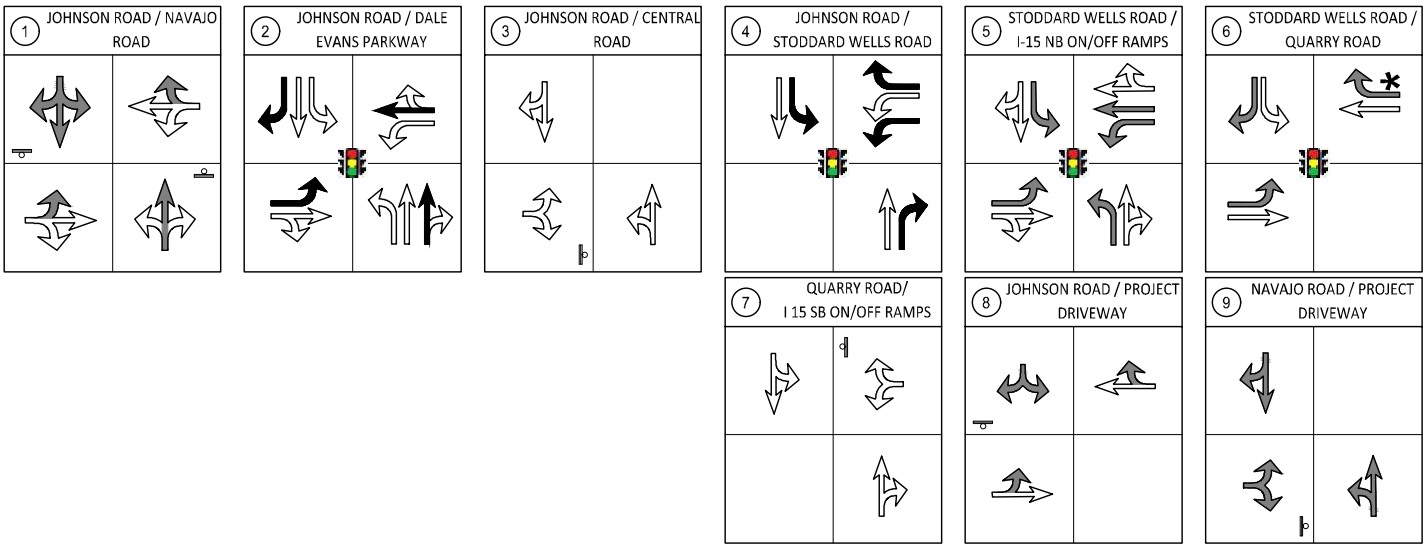

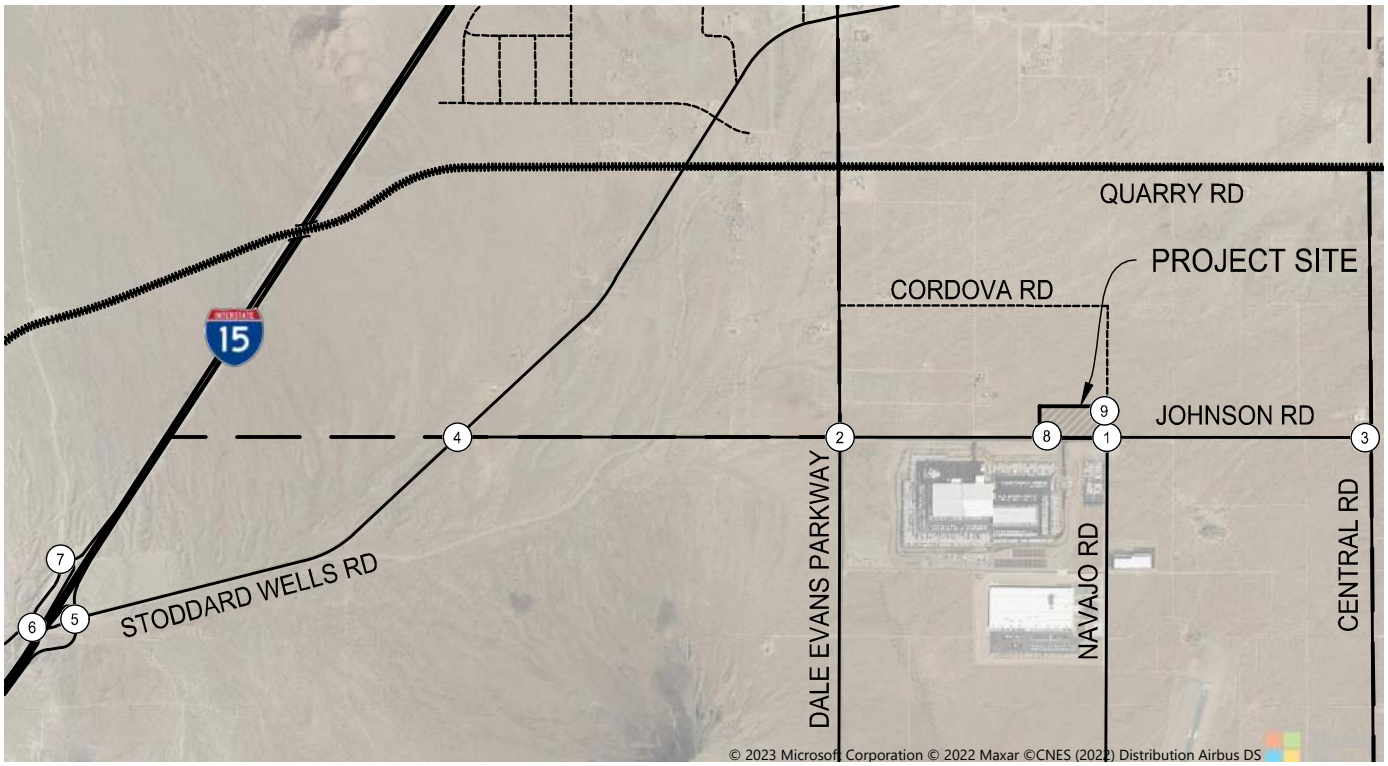

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NOT TO SCALE

LEGEND

- EXISTING GEOMETRICS
- PROJECT GEOMETRICS
- FUTURE GEOMETRICS
- (#) - STUDY INTERSECTIONS
- STOP CONTROLLED INTERSECTION
- SIGNAL CONTROLLED INTERSECTION
- * - FREE RIGHT TURN

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FIGURE ES-2: FUTURE YEAR WITH PROJECT INTERSECTION IMPROVEMENTS JOHNSON ROAD INDUSTRIAL APPLE VALLEY, CALIFORNIA

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The fair share fee provided in **Table 1-6** represent the estimated cost associated with the long-range cumulative measures are based on the future 2040 + project conditions traffic. The fair share fee for the intersections of Stoddard Wells Road / I-15 Northbound Ramps and Stoddard Wells Road / Quarry Road are included in the near-term fair share fee calculation.

Table 1-6: Project's Fair Share of Cumulative Long-Term (Year 2040) Improvement Fees

Intersection	Est. Cost ($)	Fair Share %	Fair Share Fee
2. Dale Evans Parkway / Johnson Road	$700,000	20.9%	$146,341
4. Stoddard Wells Road / Johnson Road	$900,000	17.3%	$155,437
5. Stoddard Wells Road / I-15 Northbound Ramps	Included in Near-Term Conditions		
6. Stoddard Wells Road / Quarry Road	Included in Near-Term Conditions		
Notes: Project traffic used in calculating the fair-share percentage is based on Passenger Car Equivalents (PCEs).			

1.7 Level of Service With Recommended Improvements

This section presents the level of service at deficient intersections before and after implementation of the recommended mitigation measures summarized in order of intersection number. The near-term project conditions scenarios in the following tables present the mitigated levels of service for near-term opening year improvements—improvements for which the project contributes its fair share.
The improved level of service under the long-term future year 2040 plus project conditions scenarios reflect cumulative conditions for which all development is responsible for its fair-share of the cost of the improvements. The last columns in the series of tables in this section present the change in delay (the measurement used to establish LOS). The top row shows the increase in delay caused by the proposed project's traffic added to the without project scenario. The bottom row shows the reduction in delay after implementation of the mitigation measure.

Because most of the study intersections are side-street stop-controlled intersections, for which level of service is defined as the LOS of the worst stop-controlled movement, the method of calculating average delay at saturated intersections produces exponentially high delays, although unrealistic, the calculated delay indicates that the type of traffic control (side-street stop-control) is inadequate for the projected traffic demand.

1.7.1 Dale Evans Parkway and Johnson Road

Table 1-7 shows the intersection level of service under future year 2040 plus project conditions with the long-range cumulative measures of installing a traffic signal and reconfiguring the intersection. In the long-term further lane capacity added to Dale Evans Parkway consistent with the general plan's ultimate section for this road will keep up with traffic growth. The long-range cumulative measures will improve the intersection to a LOS B in this scenario for both peak hours.

Table 1-7: Improved Level of Service with Long-Range Cumulative Measures

Intersection	Future Year 2040 Conditions				Future Year 2040 + Project Conditions				Change in Delay (Seconds) *	
	AM Peak		PM Peak		AM Peak		PM Peak			
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
2. Dale Evans Parkway / Johnson Road	13.1	B	37.3	E	15.1	C	53.0	F	2.0	15.7
w/cumulative improvements: install traffic signal and add a NBTH, SBR, EBL, and WBL	Not Applicable				15.0	B	18.0	B	1.9	(19.3)
Notes: *Positive numbers represent increases in delay while negative numbers (shown in parenthesis) represent reductions, or improvements, in delay.										

1.7.2 Stoddard Wells Road and Johnson Road

Table 1-8 shows the intersection level of service under future year 2040 plus project conditions with the long-range cumulative measures to convert the intersection to all-way stop-control, add a southbound left turn, a southbound through lane, a westbound left turn, a westbound right turn, and converting the northbound free right turn. The long-range cumulative measures will improve the intersection to a LOS B or better in this scenario for both peak hours.

Table 1-8: Improved Level of Service with Long-Range Cumulative Measures

Intersection	Future Year 2040 Conditions (With Cordova Complex)				Future Year 2040 + Project Conditions (With Cordova Complex)				Change in Delay (Seconds)*	
	AM Peak		PM Peak		AM Peak		PM Peak			
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
Stoddard Wells Road / Johnson Road	15.7	C	110.3	F	17.5	C	200.6	F	1.8	90.3
w/cumulative improvements convert to AWSC, add SBL, SBTH, WBL, WBR, and free NBR	Not Applicable				9.9	A	11.9	B	(5.8)	(98.4)

Notes:
*Positive numbers represent increases in delay while negative numbers (shown in parenthesis) represent reductions, or improvements, in delay.

1.7.3 Stoddard Wells Road / I-15 Northbound Ramps

The existing side-street stop-controlled approach (I-15 southbound on and off ramps) of this intersection will experience failure in background plus project conditions.

Table 1-9 shows the intersection level of service under background plus project conditions with the near-term opening year improvements, installing a traffic signal and reconfiguring the intersection. The near-term opening year improvements mitigations will improve the intersection to a LOS C or better in both peak hours.

Table 1-9: Improved Level of Service with Near-Term Opening Year Improvements

Intersection	Background Conditions (Without Cordova Complex)				Background + Project Conditions (Without Cordova Complex)				Change in Delay (Seconds)*	
	AM Peak		PM Peak		AM Peak		PM Peak			
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
Stoddard Wells Road / I-15 NB Ramps	‡	F	‡	F	‡	F	‡	F	N/A	N/A
w/Improvements: install traffic signal and add a SBR, EBL, WBL and WBTH	Not Applicable				34.1	C	34.1	C	N/A	N/A

Notes:
‡ Delay cannot be calculated using the Highway Capacity Manual 6 algorithms because the intersection is over-saturated for the type of control being analyzed. In these conditions the intersection can result in exponentially high delays.
*Positive numbers represent increases in delay while negative numbers (shown in parenthesis) represent reductions, or improvements, in delay. N/A = the increase and/or reduction in delay is not calculated because the deficient delay is exponentially high and not presented.

Table 1-10 shows the intersection level of service under future year 2040 plus project conditions with the recommended near-term opening year improvements of installing a traffic signal and reconfiguring the intersection.

The near-term opening year mitigations will improve the intersection to a LOS D or better in this scenario for both peak hours.

Table 1-10: Improved Level of Service with Long-Range Cumulative Measures

Intersection	Future Year 2040 Conditions				Future Year 2040 + Project Conditions				Change in Delay (Seconds)*	
	AM Peak		PM Peak		AM Peak		PM Peak			
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
Stoddard Wells Road / I-15 NB Ramps	‡	F	‡	F	‡	F	‡	F	N/A	N/A
w/ near-term improvements	Not Applicable				37.1	D	50.2	D	N/A	N/A

Notes:
‡ Delay cannot be calculated using the Highway Capacity Manual 6 algorithms because the intersection is over-saturated for the type of control being analyzed. In these conditions the intersection can result in exponentially high delays.
*Positive numbers represent increases in delay while negative numbers (shown in parenthesis) represent reductions, or improvements, in delay. N/A = the increase and/or reduction in delay is not calculated because the deficient delay is exponentially high and not presented.

1.7.4 Stoddard Wells Road / Quarry Road

The existing side-street stop-controlled approach (Quarry Road) of this intersection will experience failure in background plus project conditions.

Table 1-11 compares the intersection level of service under background and background plus project conditions with the near-term opening year improvements, installing a traffic signal and reconfiguring the intersection. The near-term opening year improvements mitigations will improve the intersection to a LOS C or better in both peak hours.

Table 1-11: Improved Level of Service with Near-Term Opening Year Improvements

Intersection	Background Conditions				Background + Project Conditions				Change in Delay (Seconds)*	
	AM Peak		PM Peak		AM Peak		PM Peak			
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
Stoddard Wells Road / Quarry Road	42.7	E	23.6	C	58.3	F	26.7	D	15.6	3.1
w/Improvements: install traffic signal and add SBR, EBL, and WBR	Not Applicable				22.7	C	22.4	C	(20.0)	(1.2)

Notes:
*Positive numbers represent increases in delay while negative numbers (shown in parenthesis) represent reductions, or improvements, in delay.

Table 1-12 shows the intersection level of service under future year 2040 plus project conditions with the recommended near-term opening year improvements of installing a traffic signal and reconfiguring the intersection.

The near-term opening year improvements mitigations will improve the intersection to a LOS D or better in this scenario for both peak hours.

Table 1-12: Improved Level of Service with Long-Range Cumulative Measures

Intersection	Future Year 2040 Conditions				Future Year 2040 + Project Conditions				Change in Delay (Seconds)*	
	AM Peak		PM Peak		AM Peak		PM Peak			
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
Stoddard Wells Road / I-15 Northbound Ramps	40.5	E	25.4	D	55.9	F	29.0	D	15.4	3.6
w/cumulative improvements: retain the project specific improvements	Not Applicable				22.7	C	23.7	C	(17.8)	(1.7)
Notes:										

*Positive numbers represent increases in delay while negative numbers (shown in parenthesis) represent reductions, or improvements, in delay.

1.8 Traffic Signal Warrant Analysis

Stop-controlled intersections operating with a LOS deficiency in any project-related scenario are subject to a warrant analysis to justify installing a traffic signal. Satisfying a warrant or multiple warrants for a traffic signal does not in of itself require the installation of a signal. Warrants are tools used in conjunction with engineering assessment and judgement regarding improving safety and operating conditions at stop-controlled intersections.

Table 1-13, on the following page, summarizes the findings of the signal warrant analyses conducted for each deficient intersection under each project-related scenario.

Under background plus project (2025) and future plus project (2040) conditions the intersections of Dale Evans Parkway / Johnson Road, Stoddard Wells Road / Johnson Road, Stoddard Wells Road / I-15, Northbound Ramps, Stoddard Wells Road / Quarry Road satisfy Warrant 3 (Peak Hour).

Table 1-13: Summary of Traffic Signal Warrant Analyses of Deficient Intersections

Deficient Intersection	Scenarios Satisfying Warrant 3 (Peak Hour) at Deficient Intersections [a]	
	Background + Project Conditions	Future + Project Conditions
2. Dale Evans Parkway / Johnson Road	Not Applicable in this Scenario	YES
4. Stoddard Wells Road / Johnson Road	Not Applicable in this Scenario	YES
5. Stoddard Wells Road / I-15 Northbound Ramps	YES	YES
6. Stoddard Wells Road / Quarry Road	YES	YES

Notes:
[a] The California Manual on Uniform Traffic Control Devices (CA MUTCD) provides procedures and standards for evaluating the need for installation of a traffic signal at a stop-controlled intersection. Of the nine warrants included in the MUTCD, warrant 3 (based on peak hour traffic volumes) is frequently used in planning and impact studies because it is standard practice to evaluate peak hour operating conditions using traffic forecasts. The other warrants generally require data that cannot be accurately forecasted.
The MUTCD emphasizes that satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic signal and a traffic signal should not be installed unless an engineering study indicates that installing a traffic signal will improve the overall safety and/or operation of the intersection.

1.9 Project-Specific Frontage and Access Improvements

This section summarizes site frontage and access improvements typically required in the town's Conditions of Approval:

1. **Construct access and site frontage improvements on Johnson Road:**
    a. Construct and improve the project's frontage with Johnson Road from the western project limit to Navajo Road.
        - The project will be required to dedicate land and construct the 71-foot half-width of a major divided parkway road section including the project's driveway accessing Johnson Road.
        - May include land dedication to accommodate additional lanes at the intersection of Johnson Road and Navajo Road if required by the town.
2. **Construct access and site frontage improvements on Navajo Road:**
    a. Construct and improve the project's frontage with Navajo Road.
        - The project will be required to dedicate land and construct the 44-foot half-width of Navajo Road's secondary road designation including the proposed driveway accessing Navajo Road.

- May include land dedication to accommodate additional lanes at the intersection of Johnson Road and Navajo Road if required by the town.

1.10 Vehicle Miles of Travel (VMT) Analysis

A VMT analysis was prepared in accordance with the Town's adopted Resolution No. 2021-08 (Adopting Thresholds of Significance for Vehicle Miles Traveled (VMT) Under the California Environmental Quality Act (CEQA)) which states that a development project would result in a significant project-generated VMT impact if either of the following conditions are satisfied:

1. The baseline project generated VMT per service population (population plus employees) exceeds the Town of Apple Valley General Plan Buildout VMT per service population, or
2. The cumulative (2040) project generated VMT per service population exceeds the Town of Apple Valley General Plan Buildout VMT per service population.

In addition to project-generated VMT, the town adopted significance thresholds for a project's effect on VMT in Apple Valley. The resolution states that a project's effect on VMT would be considered significant if it resulted in either of the following conditions to be satisfied:

3. The baseline link-level boundary Town-wide VMT per service population increases under the plus project condition compared to the no project condition, or
4. The cumulative link-level boundary Town-wide VMT per service population increases under the plus project condition compared to the no project condition.

The term "link-level boundary Town-wide" refers to all vehicle miles of travel on all roadways within the town limits of Apple Valley. The following describes the key findings and the conclusions of the VMT analysis. The VMT analysis is described in detail in **Chapter 9** and the full report is in **Appendix F.**

A. Project-Generated VMT and Effect on Roadway VMT Analyses

The SBTAM model was used to estimate project-generated VMT for a baseline (2016) and a horizon year (2040) scenario. The SBTAM socioeconomic database for each scenario was updated with the project land use to calculate project VMT. The databases were also used to obtain the town's population and employment to estimate service population.

In both the baseline and horizon year scenarios, the VMT/service population metric for the Johnson Road Industrial Building (Warehouse) project is less than the Town of Apple Valley's general plan buildout significance threshold.

The second analysis, the project's effect on town-wide VMT, used the SBTAM model to estimate the VMT on all roadways within the town's limits for the baseline and 2040 scenarios with and without the project. The metric indicating a significant impact (VMT/Service population) at a town-wide scale under the "with project" conditions compared to the metric under the "without project" conditions does not increase and does not satisfy the town's significance threshold.

B. Conclusions of the VMT Analyses

This study concludes that the project-generated VMT metric of VMT / Service population is less than the VMT / Service population representing buildout of Apple Valley's general plan and, **therefore, the project does not cause a significant impact based on the town's adopted significance thresholds for project-generated VMT**.

This study also concludes that the metric for the project's "effects on town-wide VMT" –VMT / service population—for the baseline and horizon year scenarios "with the project" do not increase the metric over the "without project" scenarios. **Therefore, the proposed Johnson Road Industrial Building (Warehouse) project does not have a significant impact based on the town's adopted significance thresholds for the project's effect on town-wide VMT.**

2 INTRODUCTION

This report identifies the traffic impacts and presents recommendations for access and traffic mitigation for the proposed Johnson Road Industrial Building (Warehouse) project in the Town of Apple Valley, California. The proposed project consists of a 410,241 square foot speculative industrial warehouse building located on approximately 18.71-acres in the north part of the town and within the North Apple Valley Industrial Specific Plan area. **Figure 1** illustrates the vicinity map, and **Figure 2** illustrates the proposed project site plan.

The intent of this report is to evaluate potentially significant traffic impacts caused by the proposed development in accordance with the Town of Apple Valley and San Bernardino County traffic impact analysis requirements under the following scenarios:

2.1 Analysis Scenarios

The scenarios analyzed in this study are consistent with the requirements of San Bernardino County's Transportation Impact Study Guidelines (July 2019). The analysis scenarios are as follows:

- Existing Conditions
- Background Conditions (Year 2025)
- Project Conditions (Year 2025)
- Future Year 2040 Conditions
- Future Year 2040 + Project Conditions

2.2 Scenario Definitions

Existing Conditions. This scenario represents existing transportation conditions at the time this report was prepared. Data includes traffic counts collected in June 2022, November 2022, and August 2023. This scenario is used as the baseline condition to identify existing deficiencies and establish context.

Background Conditions (Year 2025). This scenario represents conditions at the time the project is anticipated to be fully constructed and occupied (known as buildout year 2025) but without traffic generated by the project. This scenario is comprised of ambient growth, a general rate of growth in traffic from overall regional growth but not specific to any nearby development (assumed to be 3.0% annually for this study). In addition, two approved development projects in the immediate vicinity of the proposed project — Love's Travel Center and Apple Valley 143 Project — are included in all background scenarios. The approved improvements from Apple Valley 143 project were used for this scenario.

Background Plus Project Conditions (Year 2025). This scenario adds the project's estimated traffic generation at buildout (2025) to the Background Conditions scenario described above. Impacts identified in this near-term scenario are considered "cumulative" impacts—impacts that the project contributes to, but does not solely cause, and may be responsible for a fair-share of the cost to implement any improvement measures.

Future Conditions (Year 2040). This scenario reflects regional growth in traffic up to the year 2040. Growth in traffic is from forecasts from the San Bernardino County Transportation Analysis Model (SBTAM). Intersection turn movements were derived from post processing forecasted approach volumes and balancing the turn movement volumes for each study intersection.

Future Plus Project Conditions (Year 2040). This scenario adds the project's estimated traffic generation to the future condition's scenario described above. Impacts identified in this scenario are considered "cumulative" impacts—impacts that the project contributes to, but does not solely cause, and may be responsible for a fair-share of the cost to implement any improvement measures.

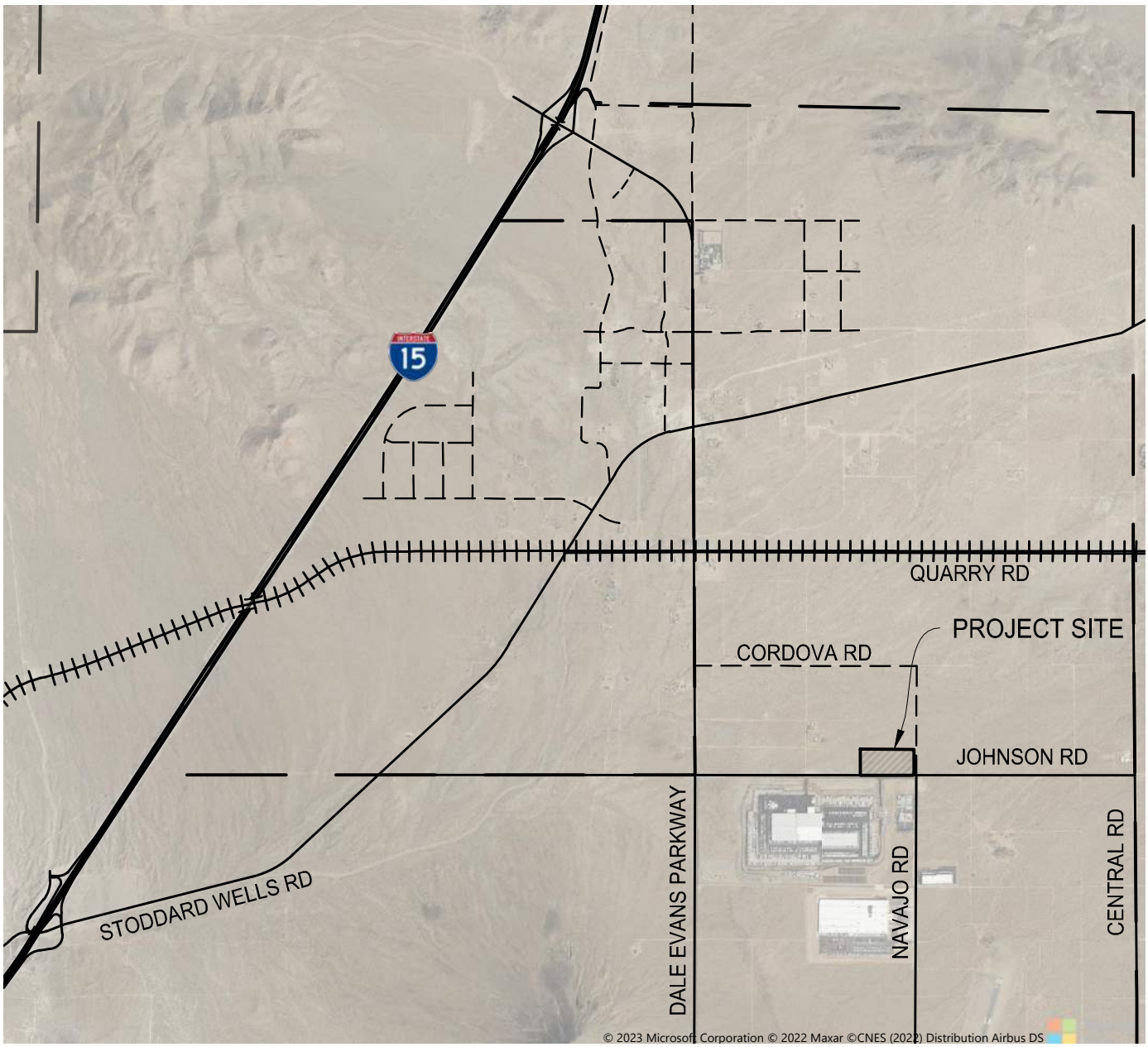

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FIGURE 1: VICINITY MAP
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

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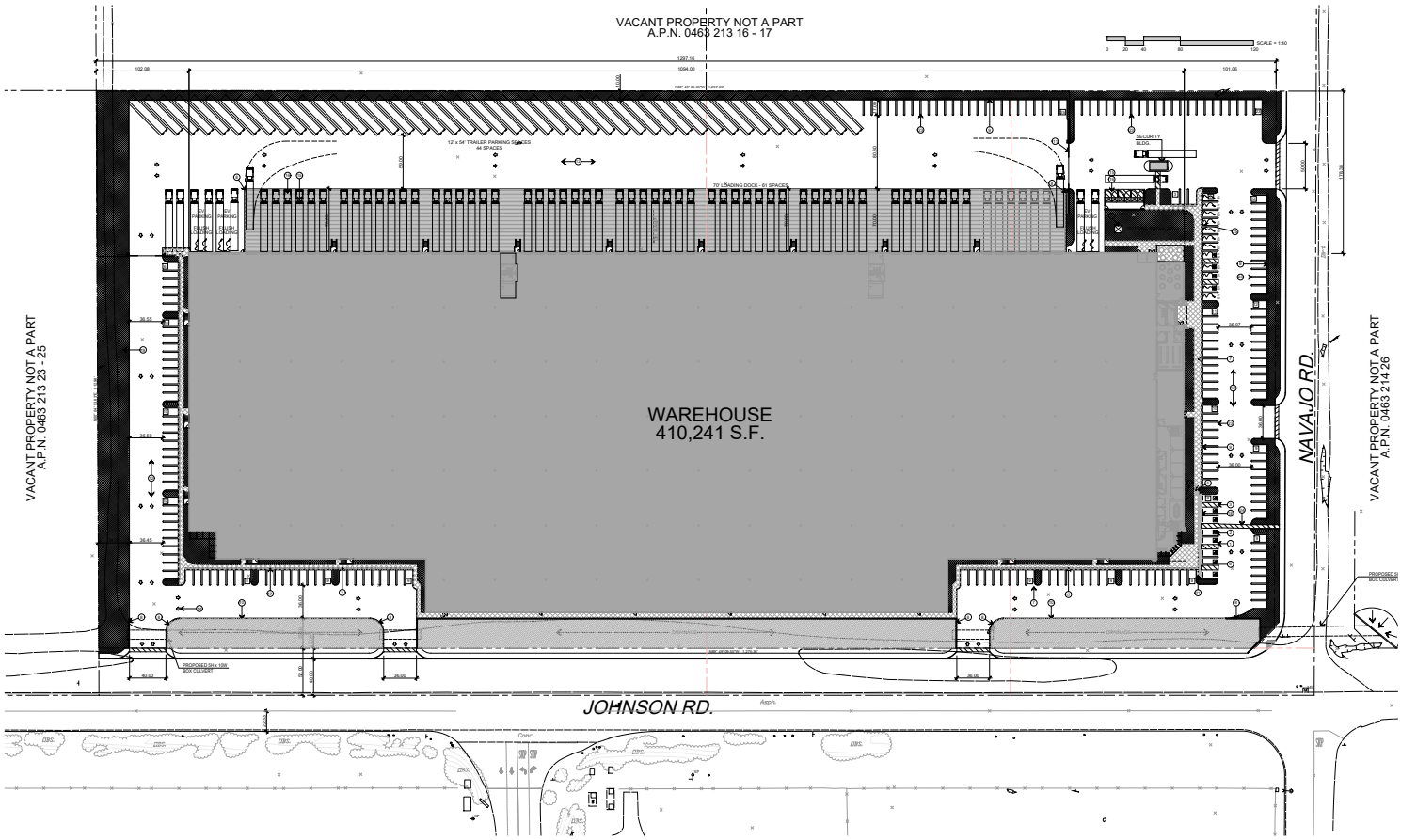

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FIGURE 2: PROJECT SITE PLAN
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

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3 EXISTING CONDITIONS

3.1 Town of Apple Valley and Caltrans Intersection Level of Service Policies

The Town of Apple Valley's General Plan policy (Policy 1.A, Program 1.A.4) on level of service is to maintain a level of service (LOS) D in the AM and PM peak hours on all its roadways. This level of service policy applies to local Apple Valley roadways, roads of regional importance as part of the county's Congestion Management Program (CMP) network, and state highways.

The Caltrans' Guide for the Preparation of Traffic Impact Studies (December 2002) states "Caltrans endeavors to maintain a target level of service at the transition between LOS "C" and LOS "D" on State highway facilities. However, Caltrans acknowledges that this may not always be feasible, so their practice is to allow level of service thresholds equal to the threshold of the jurisdiction where the facility is located but preferably no greater than a 45 second average delay per vehicle in the peak hour (mid LOS D). For this study, the town's LOS D is assumed to be the minimum level of service criteria for the study intersections.

3.2 Study Intersections

This focused traffic study evaluates key intersections on routes expected to be used by project traffic to access the site. **Figure 3** and the list below identifies the intersections analyzed in this study.

1. Navajo Road / Johnson Road
2. Dale Evans Parkway / Johnson Road
3. Central Road / Johnson Road
4. Stoddard Wells Road / Johnson Road
5. Stoddard Wells Road / I-15 Northbound Ramps
6. Stoddard Wells Road / Quarry Road
7. I-15 Southbound Ramps / Quarry Road
8. Johnson Road / Project Driveway
9. Navajo Road / Project Driveway

All the study intersections are currently side-street stop controlled, or all-way stop-controlled.

3.3 Existing Traffic Volumes

Turn movement counts were conducted in collected in June 2022, November 2022, and August 2023 by Newport Traffic Studies, an independent traffic data collection company. These counts were collected during the AM (7:00-9:00 AM) and PM (4:00-6:00 PM) peak periods. The existing turn movement counts are included in **Appendix B** of this study. **Figure 4** illustrates the existing peak hour traffic volumes in the study area.

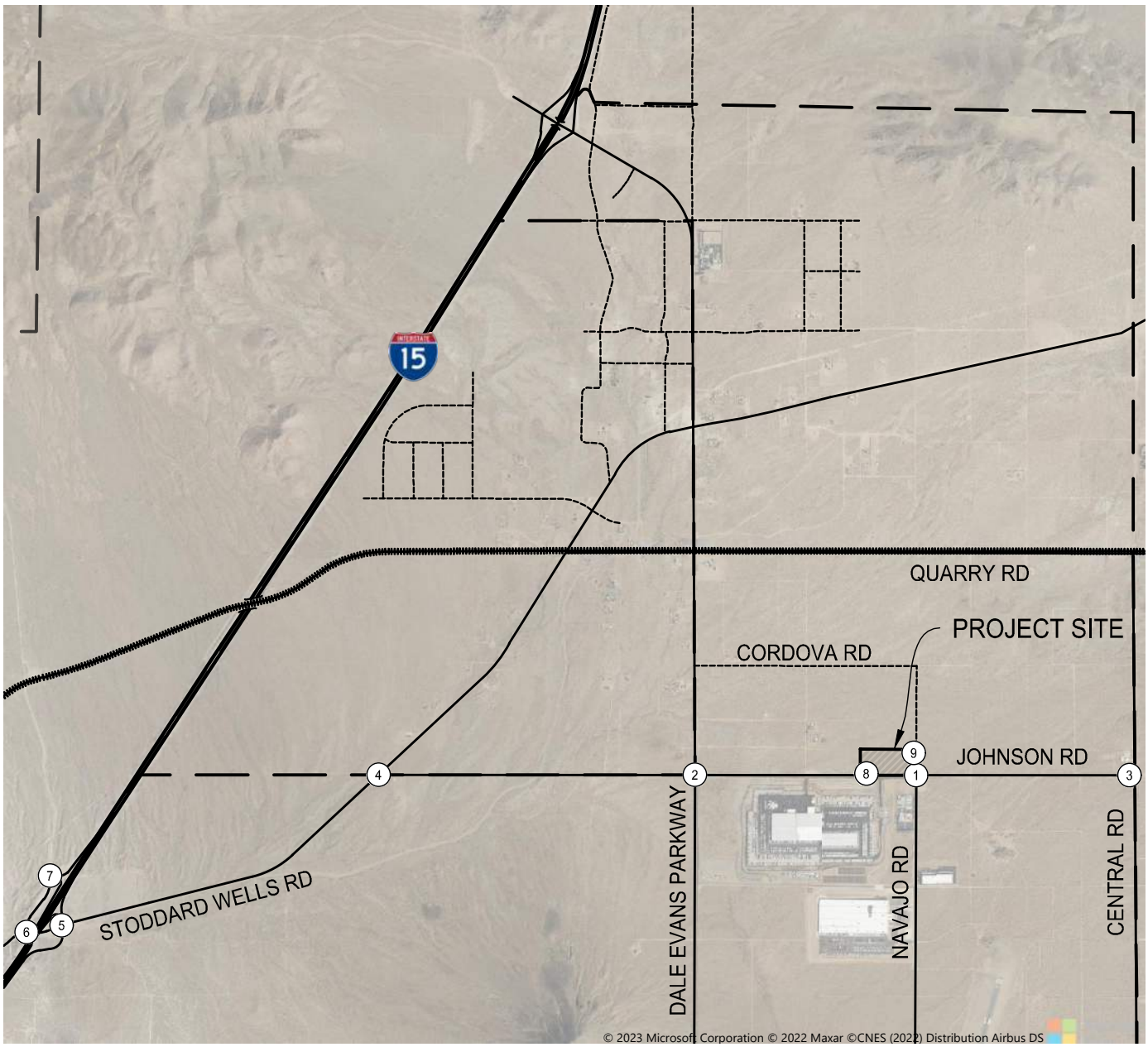

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FIGURE 3: STUDY INTERSECTIONS
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

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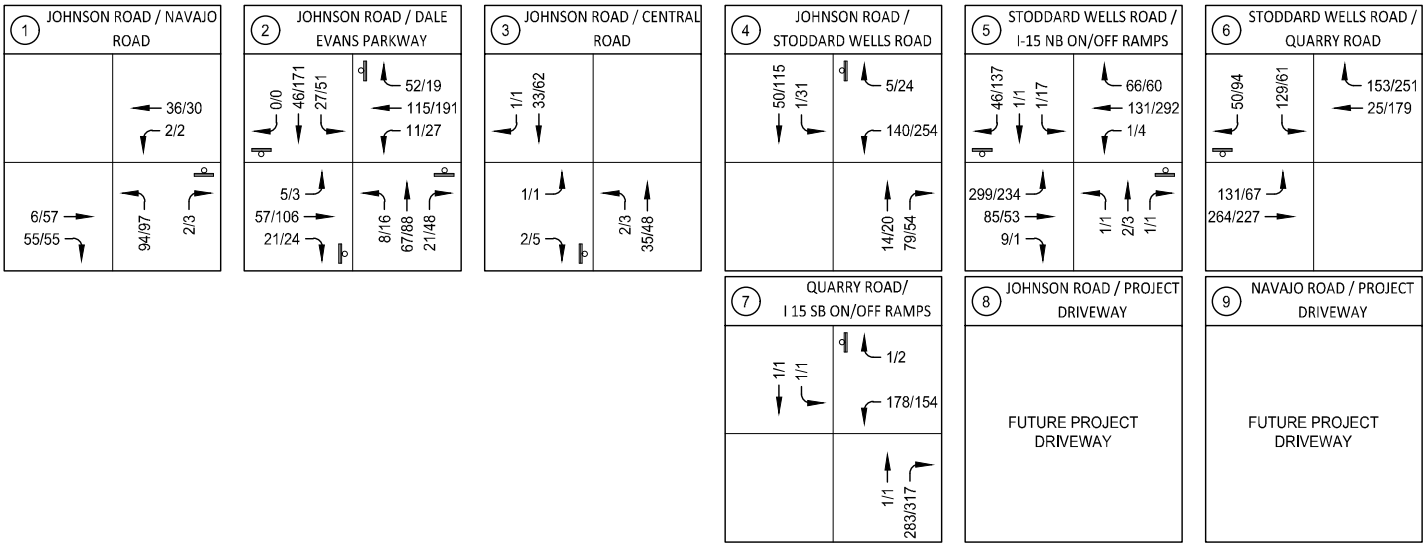

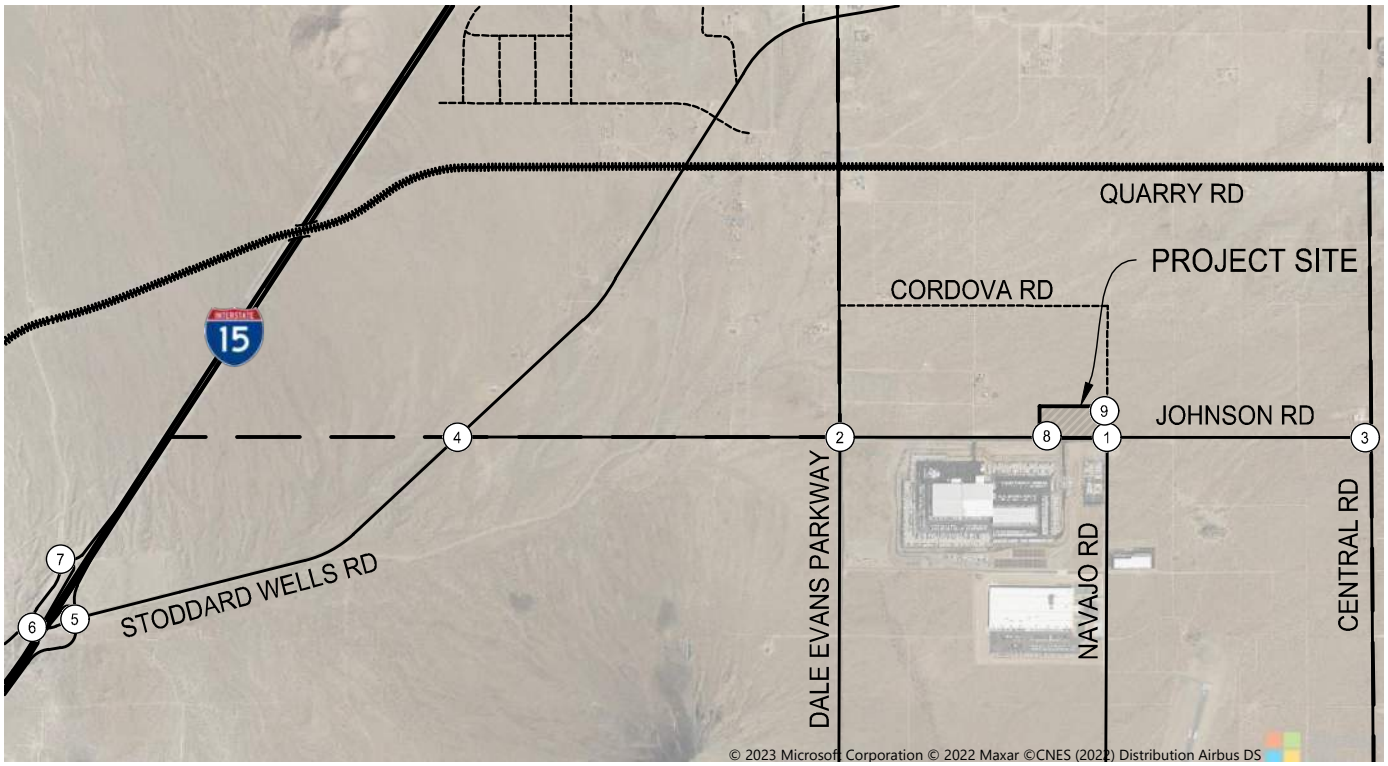

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XX/XX - AM/PM PCE TRAFFIC VOLUMES

(#) - STUDY INTERSECTIONS

- STOP CONTROLLED INTERSECTION

- SIGNAL CONTROLLED INTERSECTION

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FIGURE 4: EXISTING PCE TRAFFIC VOLUMES
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

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3.4 Intersection Capacity Analysis Methodology

In this study, intersection level of service (LOS) was determined using Synchro software[1] which implements the methodologies in Chapter 19 and Chapter 20 of the Highway Capacity Manual, 6th Edition (HCM 6)[2] and conforms to the procedures and assumptions in the county's Traffic Impact Analysis Guidelines. The intersection analyses use existing intersection geometrics and existing traffic volumes in determining AM and PM peak hour intersection level of service.

Table 3-1 provides LOS thresholds for both two-way stop-controlled (TWSC) and all-way stop-controlled intersections which is determined by the computed or measured control delay. Unsignalized intersections have lower delay criteria than signalized intersections because stop-control is associated with more uncertainty for users, as delays are less predictable than they are at signals, which reduces the user's tolerance for delay.

The level of service at TWSC intersections is measured as the control delay for the worst stop-controlled movement at the intersection regardless of the movement's traffic volume. The level of service at AWSC intersections is also measured as the control delay, but it applies to the entire intersection not individual movements.

Table 3-1: Level of Service Criteria for Two-Way and All-Way Stop Controlled (TWSC & AWSC) Intersections

Control Delay (s/veh)	**LOS by Volume-to-Capacity Ratio [a]**	
	≤1.0	**>1.0**
0 - 10	A	F
> 10 -15	B	F
> 15 - 25	C	F
> 25 - 35	D	F
> 35 - 50	E	F
> 50	F	F

Note:
The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for the uncontrolled major-Street approaches or for the intersection as a whole.
[a] For approaches and intersectionwide assessment, LOS is defined solely by control delay.
Source: Highway Capacity Manual 6th Edition, Exhibit 20-2.

3.5 Existing Traffic Analysis

Existing intersection geometrics and existing AM and PM peak hour traffic counts are used in analyzing existing intersection capacity. **Table 3-2** and **Appendix E** provide the results of the analysis. **Figure 5** illustrates the existing intersection geometrics used in the capacity analysis. As presented in **Table 3-2***,* under existing conditions, all study intersections currently operate at LOS C or better in both peak hours.

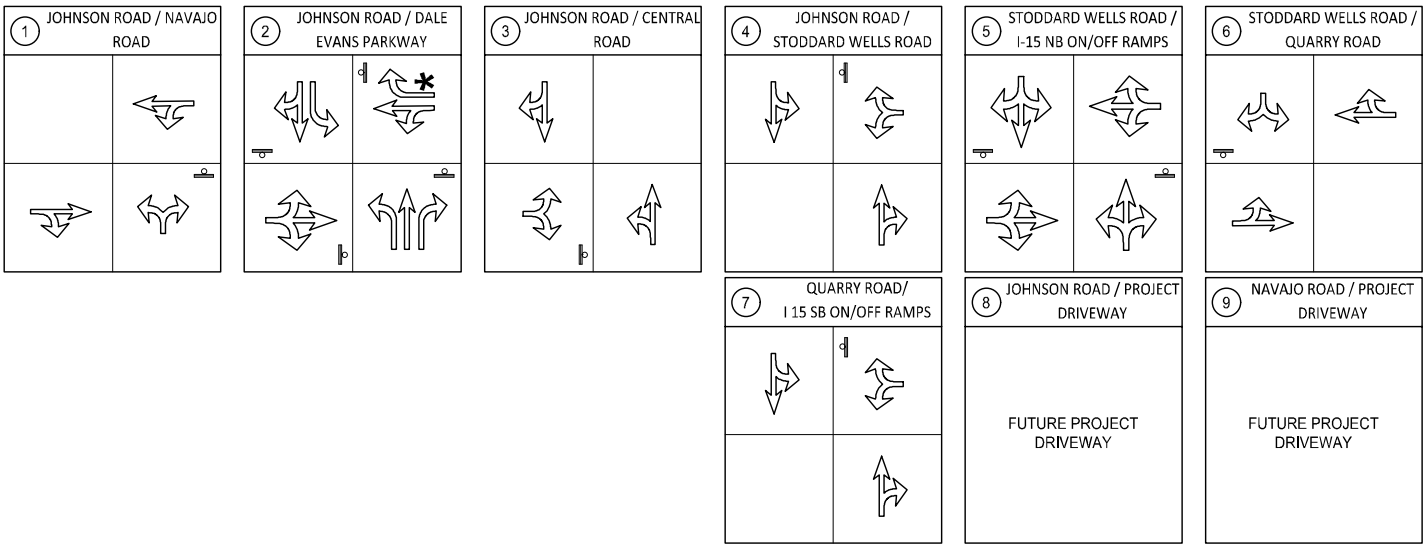
Table 3-2: Intersection Level of Service for Existing (2023) Conditions

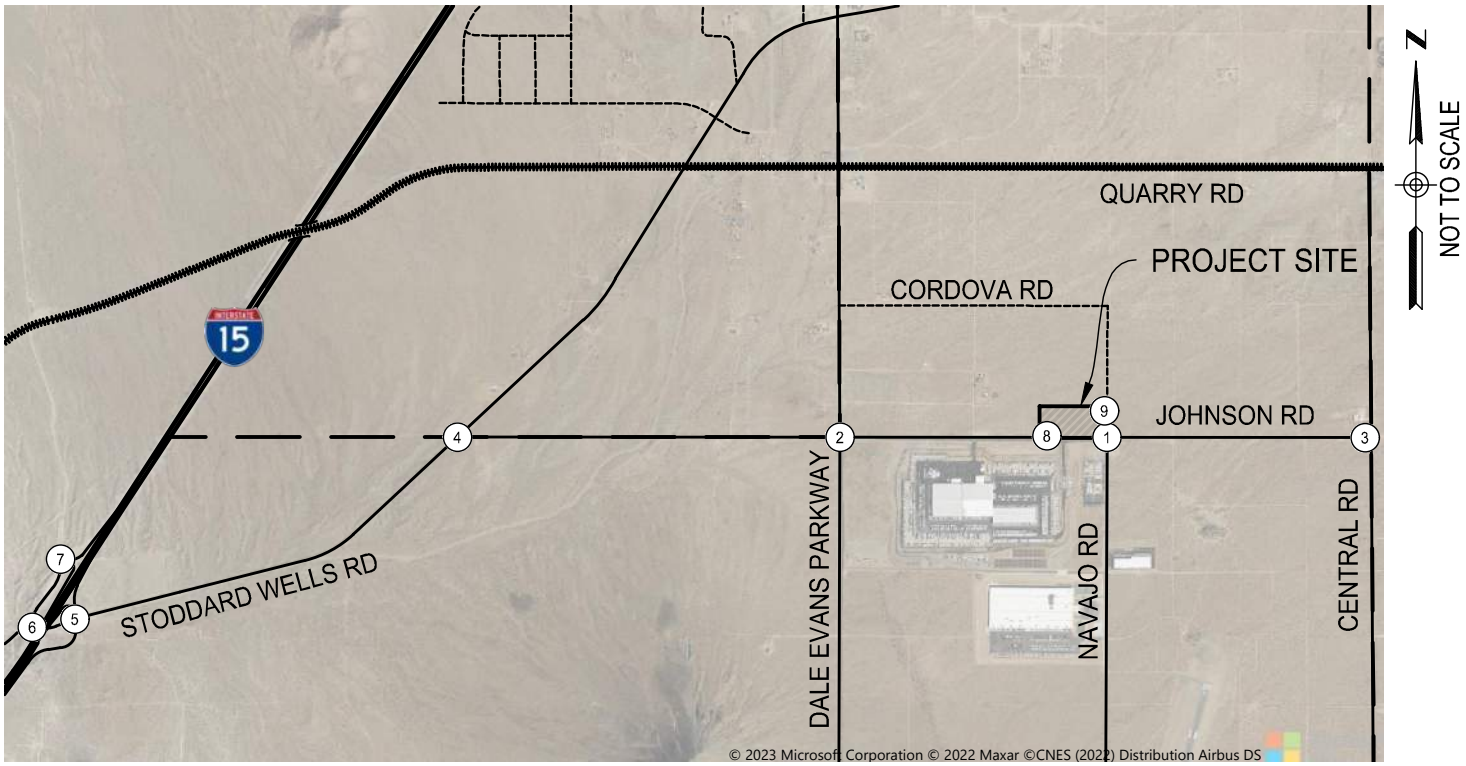
Intersection	Intersection Control Type	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
1. Navajo Road / Johnson Road	SSSC	9.7	A	9.7	A
2. Dale Evans Parkway / Johnson Road	AWSC	8.7	A	12.4	B
3. Central Road / Johnson Road	SSSC	8.6	A	8.8	A
4. Stoddard Wells Road / Johnson Road	SSSC	10.2	B	14.5	B
5. Stoddard Wells Road / I-15 Northbound Ramps	SSSC	20.5	C	23.0	C
6. Stoddard Wells Road / Quarry Road	SSSC	16.6	C	12.8	B
7. I-15 Southbound Ramps / Quarry Road	SSSC	10.7	B	11.3	B
8. Johnson Road / Project Driveway	SSSC	Future Intersection			
9. Navajo Road / Project Driveway	SSSC	Future Intersection			

Abbreviations:
SSSC – Side Street Stop Controlled Intersection, AWSC – All Way Stop Controlled Intersection, Not Applicable – Not Applicable Future Intersection Delay – seconds per vehicle, LOS – Level of Service

[1] Trafficware Ltd, version 10.

[2] Transportation Research Board, Washington D.C., 2010.





LEGEND

- EXISTING GEOMETRICS
- # - STUDY INTERSECTIONS
- STOP CONTROLLED INTERSECTION
- SIGNAL CONTROLLED INTERSECTION
- * - FREE RIGHT TURN

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FIGURE 5: EXISTING INTERSECTION GEOMETRICS
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

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4 BACKGROUND CONDITIONS

This scenario represents conditions at the time the project is anticipated to be fully constructed and occupied (known as opening year 2025) but without traffic generated by the project. This scenario is comprised of ambient growth over a two-year period, at a general rate of growth in traffic from overall regional growth but not specific to any nearby development (assumed to be 3.5% annually for this study).

In addition, two approved development projects in the immediate vicinity of the proposed project are included in all background scenarios. The development described in the approved Apple Valley 143 project was included in this scenario. Also, the approved Love's Traveler Center development is included in this scenario. The other approved development projects were provided by the Town of Apple Valley Planning Department. The Other Area Approved Developments Excerpts are provided in **Appendix D**.

4.1 Background Conditions Traffic Analysis

The Background Conditions intersection level of service analysis uses existing intersection geometrics and the traffic volumes shown in is provided in **Figure 6. Table 4-1** and **Appendix E** provides the results of the analysis.

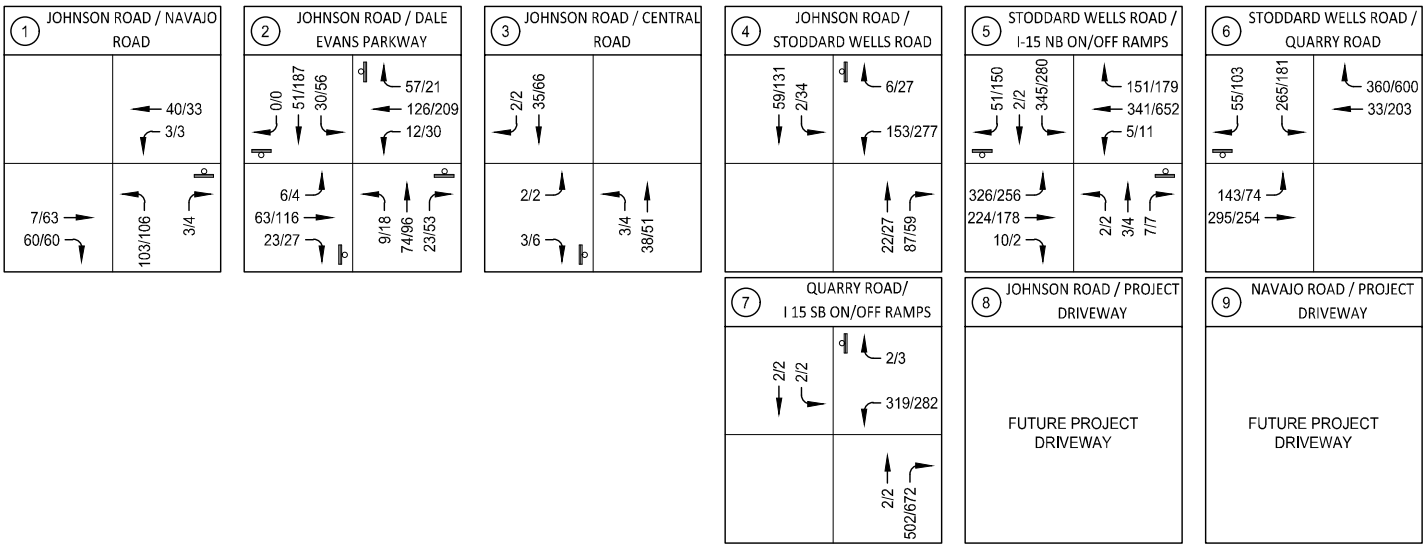
Table 4-1: Intersection Level of Service for Background Conditions

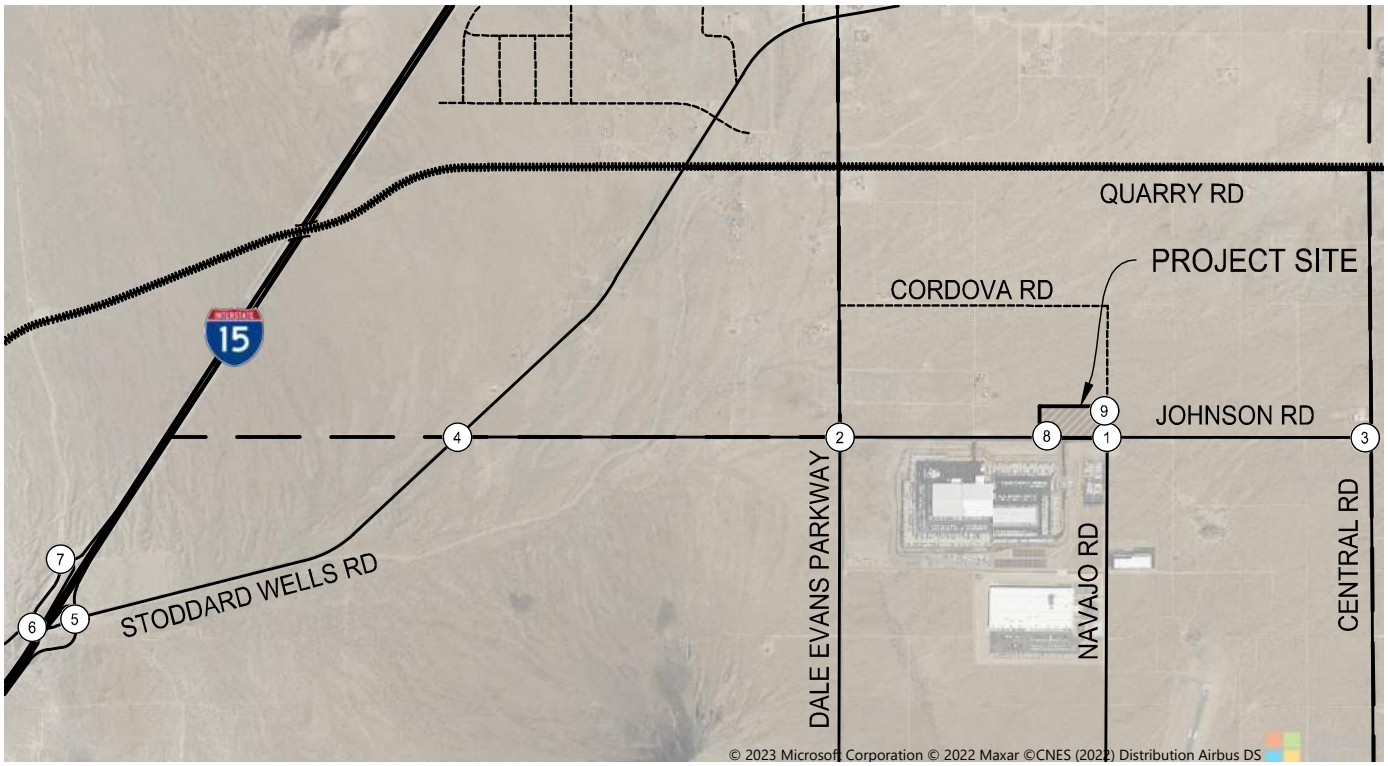
Intersection	Intersection Control Type	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
1. Navajo Road / Johnson Road	SSSC	9.9	A	9.9	A
2. Dale Evans Parkway / Johnson Road	AWSC	9.0	A	13.9	B
3. Central Road / Johnson Road	SSSC	8.7	A	8.8	A
4. Stoddard Wells Road / Johnson Road	SSSC	10.7	B	16.6	C
5. Stoddard Wells Road / I-15 NB Ramps	SSSC	‡	F	‡	F
6. Stoddard Wells Road / Quarry Road	SSSC	42.7	E	23.6	C
7. I-15 Southbound Ramps / Quarry Road	SSSC	15.2	C	23.0	C
8. Johnson Road / Project Driveway	SSSC	Future Intersection			
9. Navajo Road / Project Driveway	SSSC	Future Intersection			

Notes:
‡ Delay cannot be calculated using the Highway Capacity Manual 6 algorithms because the intersection is over-saturated for the type of control being analyzed. In these conditions the intersection can result in exponentially high delays.
The shaded cells in the table represent intersection peak hours with LOS deficiencies (LOS E or F).
Abbreviations:
SSSC – Side Street Stop Controlled Intersection, AWSC – All Way Stop Controlled Intersection, Not Applicable – Not Applicable Future Intersection Delay – seconds per vehicle, LOS – Level of Service

As presented in **Table 4-1***,* under background conditions, the study intersections are anticipated to operate at an acceptable level of service with the exception of two intersections: Stoddard Wells Rd / Outer Hwy 15 / I-15 NB Ramps and Stoddard Wells Rd / Quarry Rd.

The intersection of Stoddard Wells Rd / Outer Hwy 15 / I-15 NB Ramps is anticipated to operate at an LOS F during the AM Peak hour and PM peak hour. The intersection of Stoddard Wells Rd / Quarry Rd is anticipated to operate at an LOS E during the AM Peak hour. These service levels are below the Town's peak hour level of service standard. As a result, these intersections are identified as having deficient levels of service prior to the addition of project traffic.





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LEGEND

XX/XX - AM/PM PCE TRAFFIC VOLUMES

(#) - STUDY INTERSECTIONS

- STOP CONTROLLED INTERSECTION

- SIGNAL CONTROLLED INTERSECTION

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FIGURE 6: BACKGROUND PCE TRAFFIC VOLUMES
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

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5 PROJECT CONDITIONS

This scenario adds the project's estimated traffic generation in the opening year (2025) to the background conditions scenario analyzed in **Chapter 4**. Level of service impacts identified in this scenario are considered "cumulative" impacts—impacts that the project contributes to, but does not solely cause, and may be responsible for a fair-share of the cost to implement any mitigation measures.

5.1 Project Description and Trip Generation

The proposed project is a speculative warehouse where the tenant(s) and function as a potential short term storage facility, distribution center, fulfillment center, etc. are unknown. While the impact analysis needs to reflect a reasonable spectrum of tenant types, there is a risk when estimating trip generation of over or under-estimating traffic. The 11th Edition of the Institute of Transportation Engineers' Trip Generation manual contains data for the most common types of warehouse operations with a wide range of rates. **Table 5-1** summarizes the trip generation rates for warehouse facilities in the current edition of ITE's Trip Generation.

Table 5-1: Trip Generation Rates for ITE Land Use Categories of Warehousing

Warehouse Type	ITE Land Use Code	Average Trip Generation Rates for Warehouse Types (Trips Per KSF) (Source: ITE Trip Generation 11th Edition)		
		Average Daily Traffic	AM Peak Hour of Adjacent Street Traffic	PM Peak Hour of Adjacent Street Traffic
		Total (In + Out)	Total (In + Out)	Total (In + Out)
High-Cube Transload and Short-Term Storage Warehouse	154	1.54	0.08	0.10
High-Cube Cold Storage Warehouse	157	2.12	0.11	0.12
High-Cube Fulfillment Center Warehouse - Non-Sort	155	1.81	0.15	0.16
General Warehouse	150	1.71	0.17	0.18
High-Cube Parcel Hub Warehouse	156	4.63	0.70	0.64
High-Cube Fulfillment Center Warehouse - Sort	155	6.44	0.87	1.20
Average of All Warehouse Types		3.04	0.35	0.40
Average Without High-Cube Sort Fulfillment Center		2.36	0.24	0.24

To help select a trip generation rate for the proposed Johnson Road Industrial Building (Warehouse) project representative of the range of potential owners/tenants, **Table 5-1** includes the average of the rates for all warehouse types in the ITE Trip Generation manual and the average of the rates for all warehouse types except High-Cube Fulfillment Sort Facility—the most intensive type of warehouse which is not expected for the proposed project. The secondary average rate (excluding High-Cube Fulfillment Sort Facility) represents two thirds the ITE warehouse types and covers a broad range of tenant types and operations.

Table 5-2 summarizes the estimated trip generation of the proposed project for an average weekday, and weekday AM (7-9 AM) and PM (4-6 PM) peak hours, based on the secondary average rates identified in **Table 5-1**. The proposed Johnson Road Industrial Building (Warehouse) would generate about 968 vehicle trips per day and 98 vehicle trips in both the AM and PM peak hour.

It is standard practice to convert vehicle trips to passenger car equivalents (PCEs) for intersection capacity analysis. This conversion reflects the effects of large vehicles on intersection operations both from the physical space a truck occupies but also from their effect on the intersection's saturation flow rate due to the slower acceleration of trucks.

When converted to PCEs, the Johnson Road Industrial Building (Warehouse) generates about 1,360 daily PCEs, and 140 PCEs in both the AM and PM peak hour.

Table 5-2: Johnson Road Industrial Building (Warehouse) Project Trip Generation

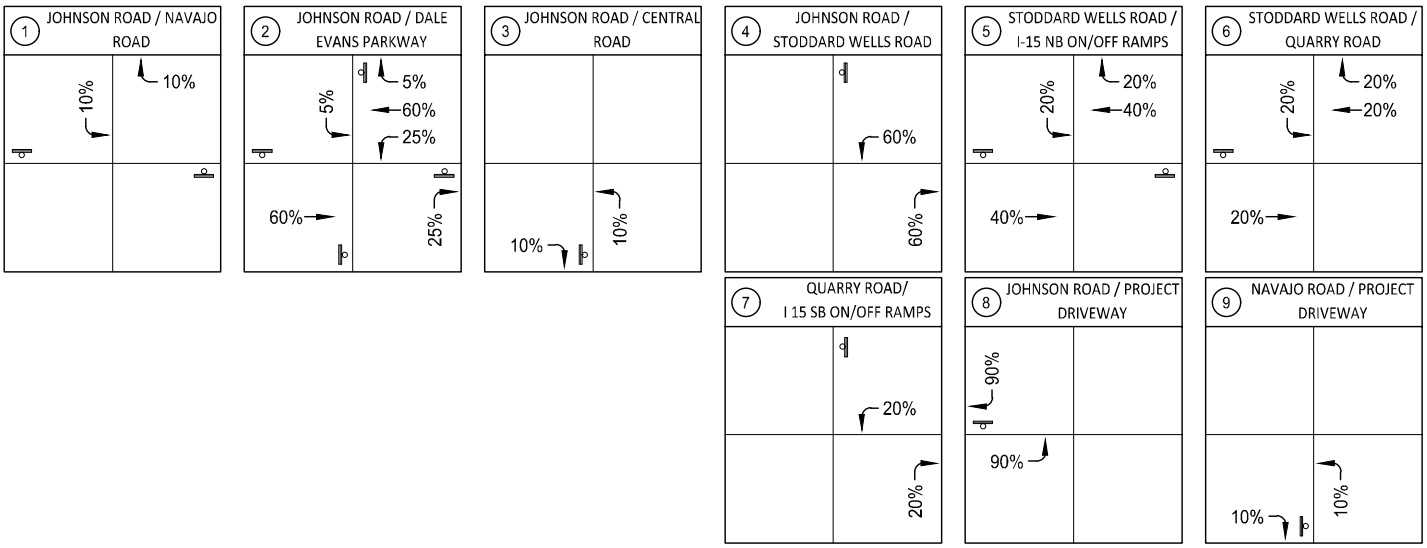
Land Use	Gross Floor Area (KSF)	Daily	AM Peak Hour of Adjacent Street Traffic			PM Peak Hour of Adjacent Street Traffic		
			In	Out	Total	In	Out	Total
Warehouse (Rates are the Average of ITE Land Use Categories 150, 154, 156, and 157)	410.24	Vehicle Trip Generation Rates (Trips Per 1,000 Square Feet of Gross Floor Area)						
		2.36	0.18	0.06	0.24	0.07	0.17	0.24
		Total Vehicle Trip Generation						
		968	76	23	98	28	71	98
	Mode Share	Project Trip Generation by Vehicle Type						
Passenger Cars (Percent of Total)	74.21%	718	57	17	74	21	53	74
2-Axle Trucks (Percent of Total)	4.55%	44	3	1	4	1	3	4
3-Axle Trucks (Percent of Total)	4.18%	40	3	1	4	1	3	4
4-Axle Trucks (Percent of Total)	17.04%	165	13	4	17	5	12	17
	PCE Factor	Project Trip Generation in Passenger Car Equivalents (PCE)						
Passenger Cars)	1.0	718	57	17	74	21	53	74
2-Axle Trucks	1.5	66	5	2	7	2	5	7
3-Axle Trucks	2.0	81	6	2	8	2	6	8
4 + Axle Trucks	3.0	495	39	12	51	15	36	51
Total Passenger Car Equivalents (PCE)		**1,360**	**107**	**33**	**140**	**40**	**100**	**140**

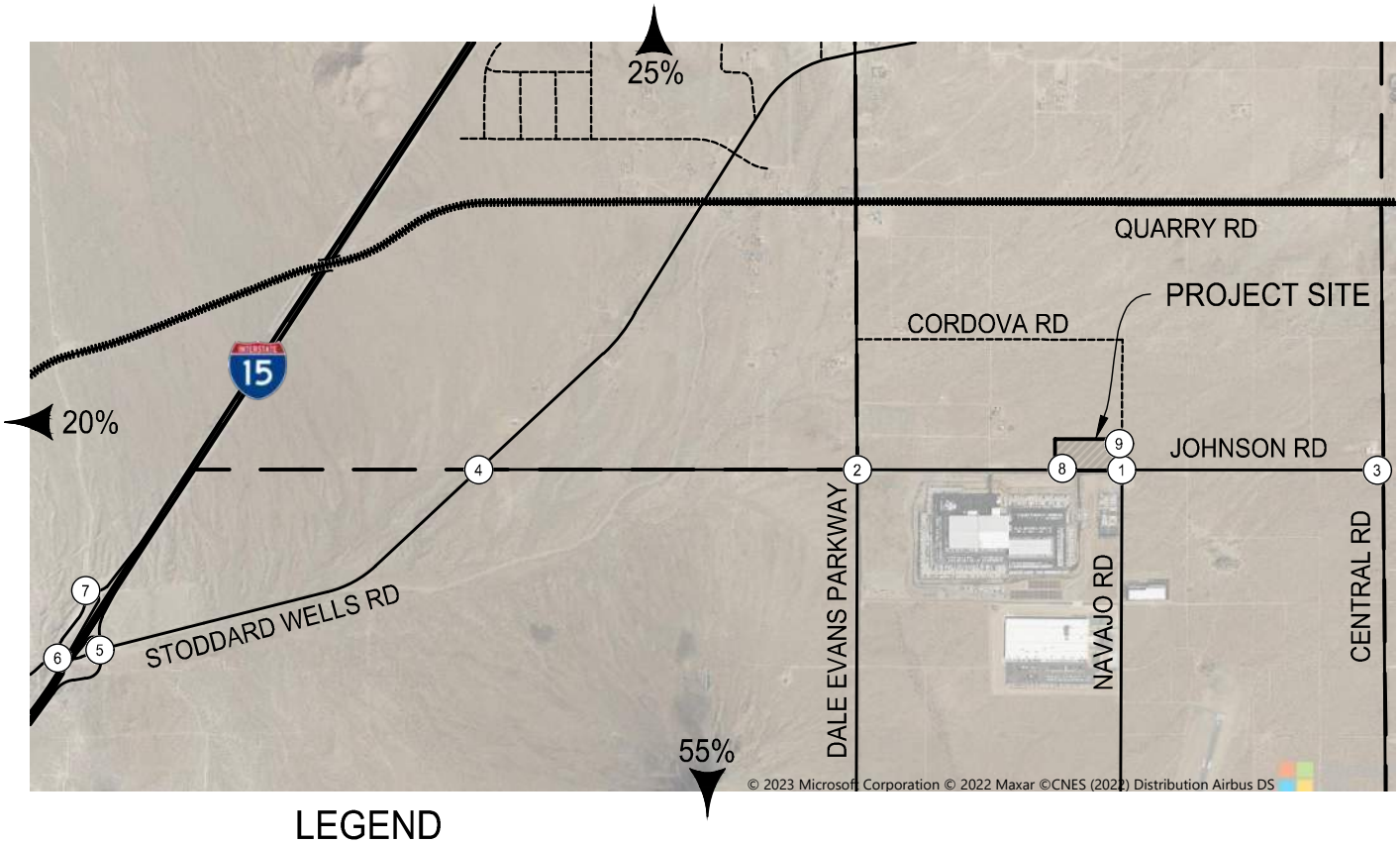
Notes:
KSF = Thousands of Square Feet.
AM / PM Peak Hour of Adjacent Street Traffic = Trip generation coinciding with the highest hourly volumes of traffic on the adjacent streets during the AM (7:00 AM and 9:00 AM) and PM (4:00 PM and 6:00 PM) commuter peak periods.
Source of trip generation rates: Institute of Transportation Engineers (ITE) Trip Generation (11th Edition). Average rates for land use category 150 (Warehouse).
Source of passenger car / truck mode share (percentage of total): South Coast Air Quality Management District High Cube Warehouse Trip Generation Study (2016). Based on data from eight high cube warehouses in the Inland Empire over 1,000,000 square feet in size. The average warehouse building size is 1,364,496 square feet.
Passenger Car Equivalents (PCE) factors: Industry standard values utilized in neighboring jurisdictions

5.2 Project Trip Distribution and Assignment

Project traffic is distributed by direction separately for automobiles (employees) and trucks. The automobile distribution is based on where the warehouse employees are likely to reside or perform other activities (e.g., concentration of residential neighborhoods and commercial centers). The truck distribution is based on the most direct routes to major roadways and highways trucks are likely to use to access the project and depart for delivery of freight. Project trips are assigned to the area streets that provide the most direct route to the destinations.

Figure 7 shows the distribution of project-generated automobile to roadways as a percentage by direction and route. **Figure 8** shows the distribution of project-generated truck trips to roadways as a percentage by direction and route. Truck traffic volumes have been converted into passenger car equivalents (PCEs) as required in the San Bernardino County guidelines for intersection capacity analysis. **Figure 9** shows the total project PCE trips.





LEGEND

XX% - GENERAL PROJECT TRIP DISTRIBUTION

XX% - SPECIFIC PROJECT TRIP PERCENTAGE

(#) - STUDY INTERSECTIONS

- STOP CONTROLLED INTERSECTION

- SIGNAL CONTROLLED INTERSECTION

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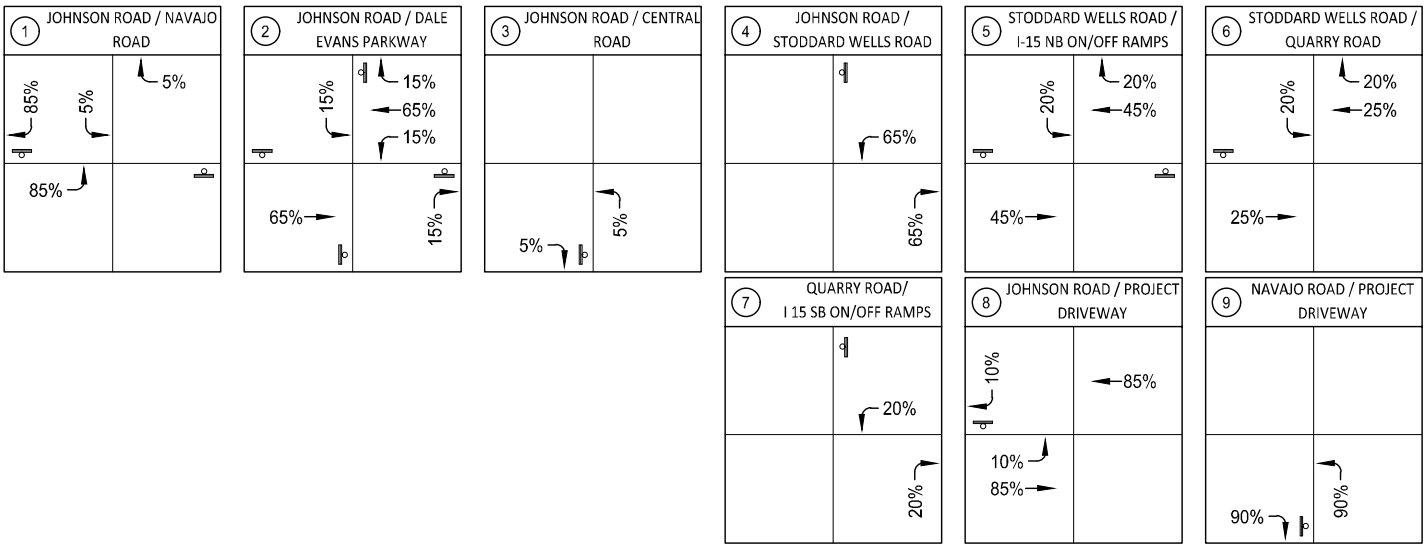
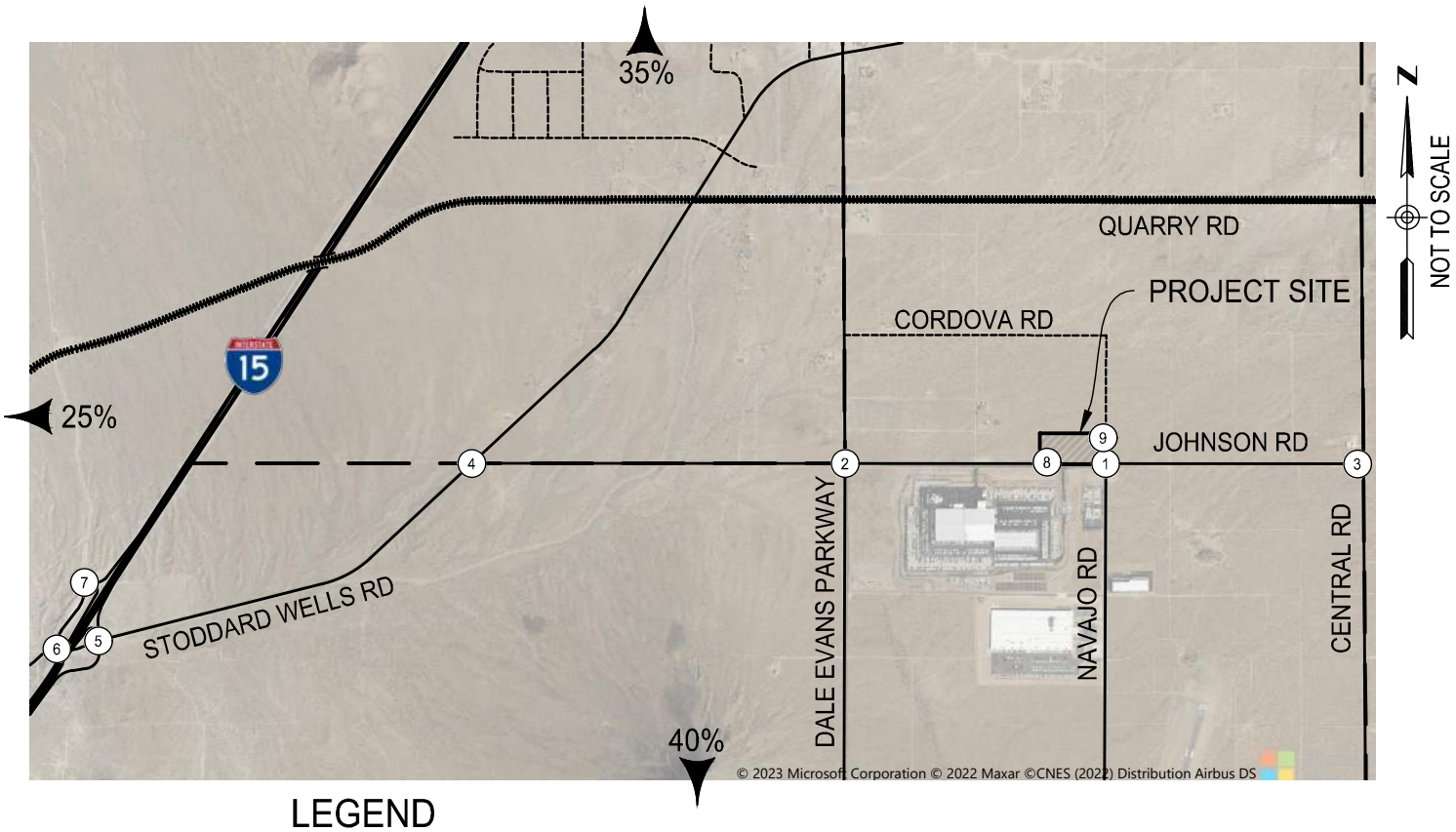
FIGURE 7: PROJECT AUTOMOBILE TRIP DISTRIBUTION
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA





LEGEND

XX% - GENERAL PROJECT TRIP DISTRIBUTION

XX% - SPECIFIC PROJECT TRIP PERCENTAGE

(#) - STUDY INTERSECTIONS

- STOP CONTROLLED INTERSECTION

- SIGNAL CONTROLLED INTERSECTION

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FIGURE 8: PROJECT TRUCK TRIP DISTRIBUTION
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

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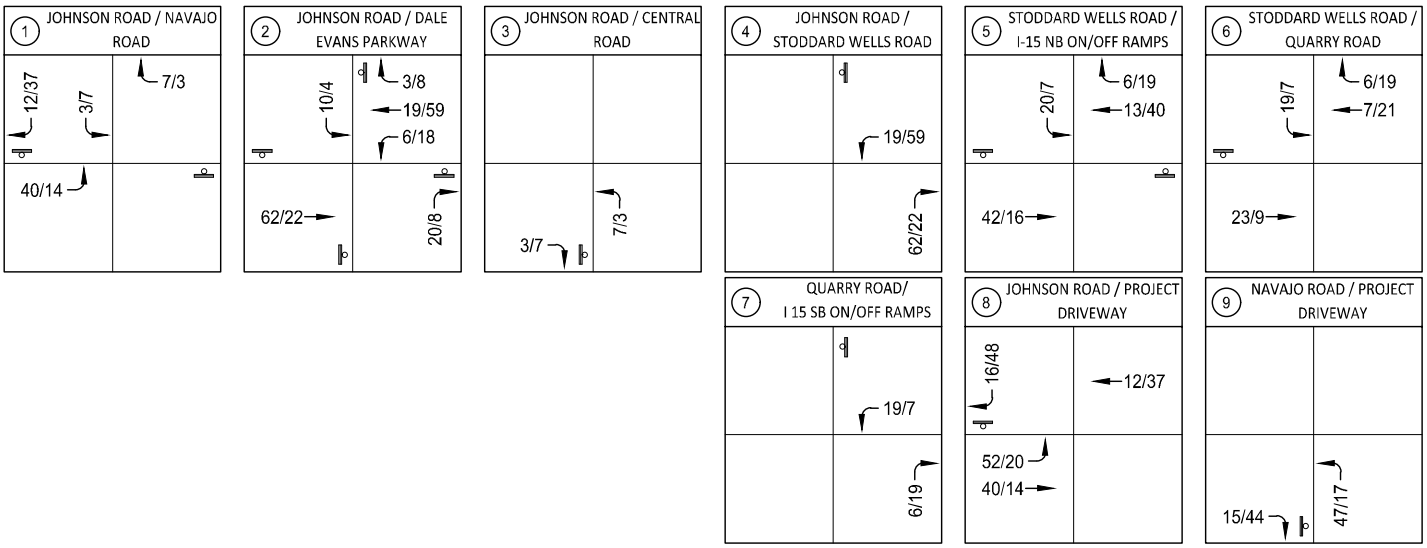

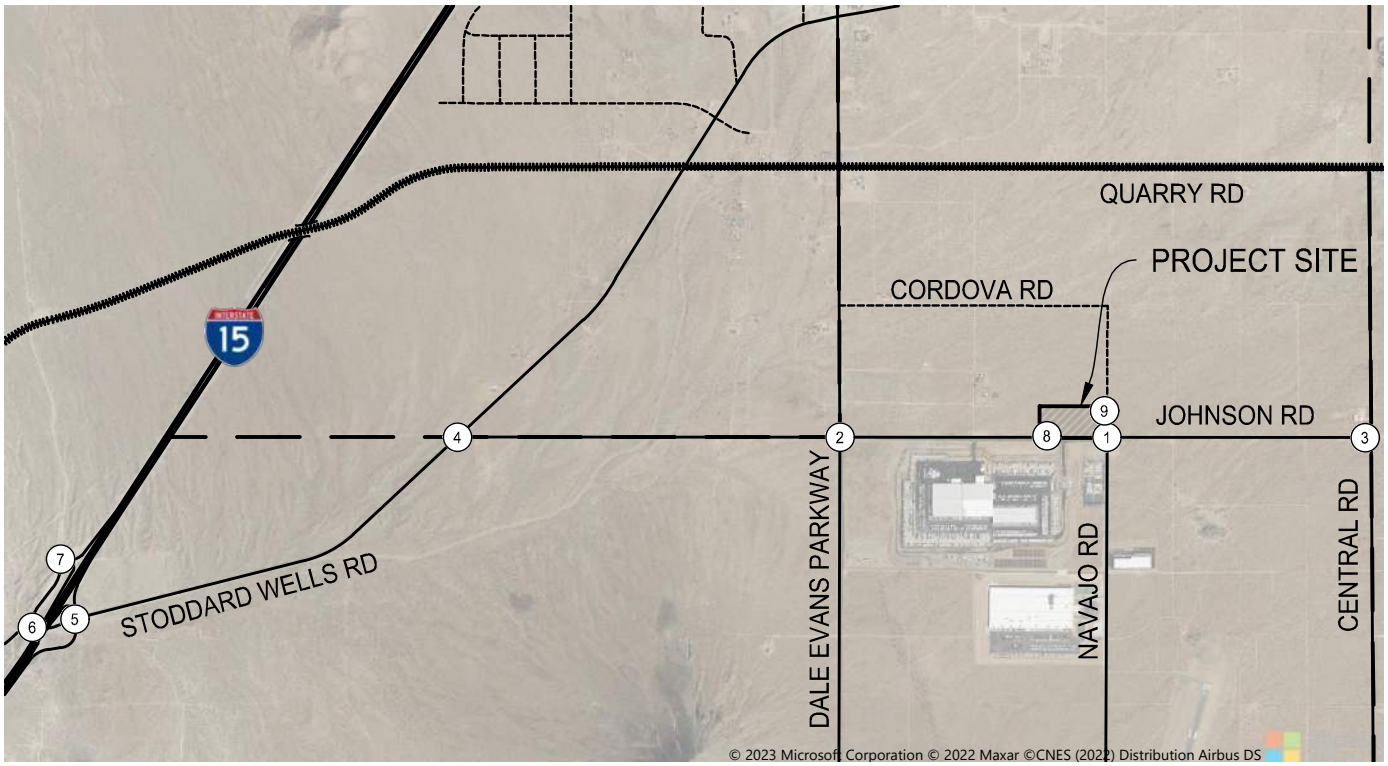

N

NOT TO SCALE

TOTAL PROJECT PCE TRIPS

AM PEAK HOUR TRIPS - 107 IN / 33 OUT
PM PEAK HOUR TRIPS - 40 IN / 100 OUT

LEGEND

XX/XX - AM/PM TOTAL PCE PROJECT TRIPS
(#) - STUDY INTERSECTIONS
- STOP CONTROLLED INTERSECTION
- SIGNAL CONTROLLED INTERSECTION

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FIGURE 9: TOTAL PROJECT PCE TRIPS
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

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5.3 Project Conditions Traffic Analysis

Table 5-3 compares intersection level of service of Background and Project Conditions. The Project Conditions traffic volumes shown in **Figure 10**. The capacity analysis worksheets are in **Appendix E.**

Table 5-3: Comparison of Background and Project Conditions LOS

Intersection	Control Type	Background Conditions				Background + Project Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Navajo Road / Johnson Road	SSSC	9.9	A	9.9	A	11.6	B	10.9	B
2. Dale Evans Parkway / Johnson Road	AWSC	9.0	A	13.9	B	9.8	A	18.3	C
3. Central Road / Johnson Road	SSSC	8.7	A	8.8	A	8.7	A	8.8	A
4. Stoddard Wells Road / Johnson Road	SSSC	10.7	B	16.6	C	11.4	B	20.8	C
5. Stoddard Wells Road / I-15 NB Ramps	SSSC	‡	F	‡	F	‡	F	‡	F
6. Stoddard Wells Road / Quarry Road	SSSC	42.7	E	23.6	C	58.3	F	26.7	D
7. I-15 Southbound Ramps / Quarry Road	SSSC	15.2	C	23.0	C	15.9	C	24.7	C
8. Johnson Road / Project Driveway	SSSC	Future Intersection				9.4	A	9.5	A
9. Navajo Road / Project Driveway	SSSC	Future Intersection				8.4	A	8.5	A

Notes:
‡ Delay cannot be calculated using the Highway Capacity Manual 6 algorithms because the intersection is over-saturated for the type of control being analyzed. In these conditions the intersection can result in exponentially high delays.
Shaded cells in the table represent intersection peak hours with LOS deficiencies (LOS E or F).
Abbreviations:
TWSC = Two-way (or side street) stop control, AWSC = All-way stop control, Not Applicable – Not Applicable Future Intersection Delay – seconds per vehicle, LOS – Level of Service

As presented in **Table 5-3**, under Project Conditions, the combination of ambient traffic, project trips from other area approved development, and the addition of project traffic through the year 2025 causes intersection LOS deficiencies (from LOS D or better to LOS E or F) at two study intersections. The two study intersections are as follows: Stoddard Wells Rd / I-15 NB Ramps and Stoddard Wells Rd / Quarry Rd.

5.3.1 Level of Service With Recommended Improvements

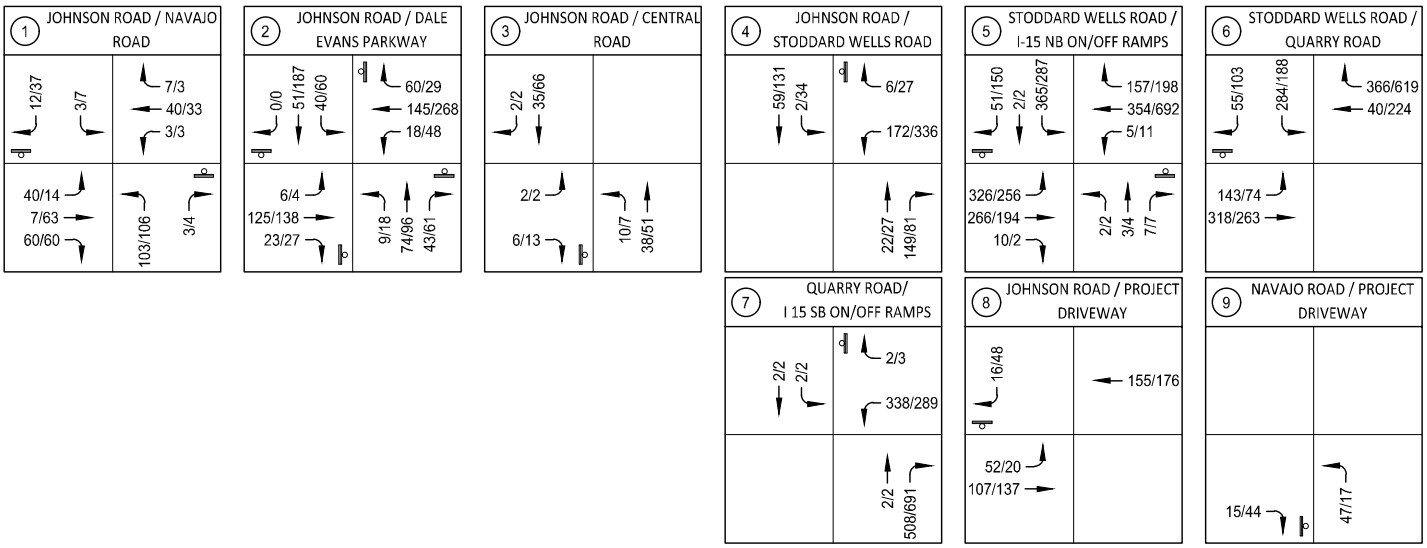
The two existing side-street stop-controlled intersections of Stoddard Wells Rd / I-15 NB Ramps and Stoddard Wells Rd / Quarry Rd experience failure in background plus project conditions. Improvements to the intersection of Stoddard Wells Rd / Outer Highway 15 / I-15 NB Ramps and the widening of the segment of Stoddard Wells Rd between Quarry Road to I-15 NB Ramps/Outer I-15 were identified in the approved Apple Valley 143 Transportation Impact Analysis, dated November 2022, by Dudek. Excerpt of the report is provided in **Appendix D.**

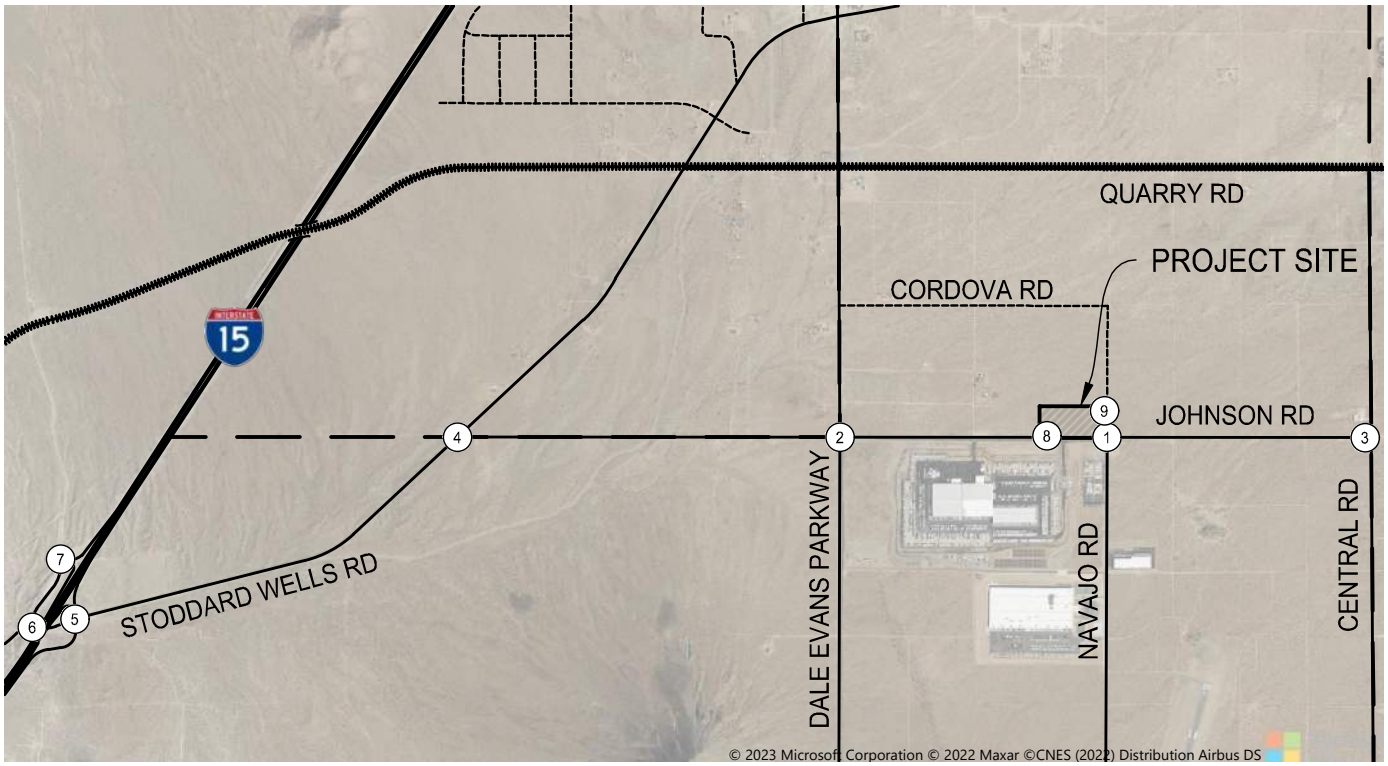
Table 5-4 provides the capacity analysis with the near-term opening year improvements in Section 1.4 and illustrated in **Figure 11.** The proposed mitigation improves the LOS deficiency, to a LOS C.

Table 5-4: Improved Level of Service Under Project Conditions

Intersection	Control Type	Background Conditions				Project Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
5. Stoddard Wells Road / I-15 NB Ramps	SSSC	‡	F	‡	F	‡	F	‡	F
With Improvements: install traffic signal and provide turn lanes. See Table 1.3.	TS	Not Applicable				34.1	C	34.1	C
6. Stoddard Wells Road / Quarry Road	SSSC	42.7	E	23.6	C	58.3	F	26.7	D
With Improvements: install traffic signal and provide turn lanes. See Table 1.3.	TS	Not Applicable				22.7	C	22.4	C

‡ Delay cannot be calculated using the Highway Capacity Manual 6 algorithms because the intersection is over-saturated for the type of control being analyzed. In these conditions the intersection can result in exponentially high delays.
Abbreviations:
SSSC – Side Street Stop Controlled Intersection, AWSC – All Way Stop Controlled Intersection, TS – Traffic Signal Controlled Intersection, N/A – Not Applicable Future Intersection Delay – seconds per vehicle, LOS – Level of Service





N

NOT TO SCALE

LEGEND

XX/XX - AM/PM PCE TRAFFIC VOLUMES

(#) - STUDY INTERSECTIONS

- STOP CONTROLLED INTERSECTION

- SIGNAL CONTROLLED INTERSECTION

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FIGURE 10: PROJECT PCE TRAFFIC VOLUMES
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

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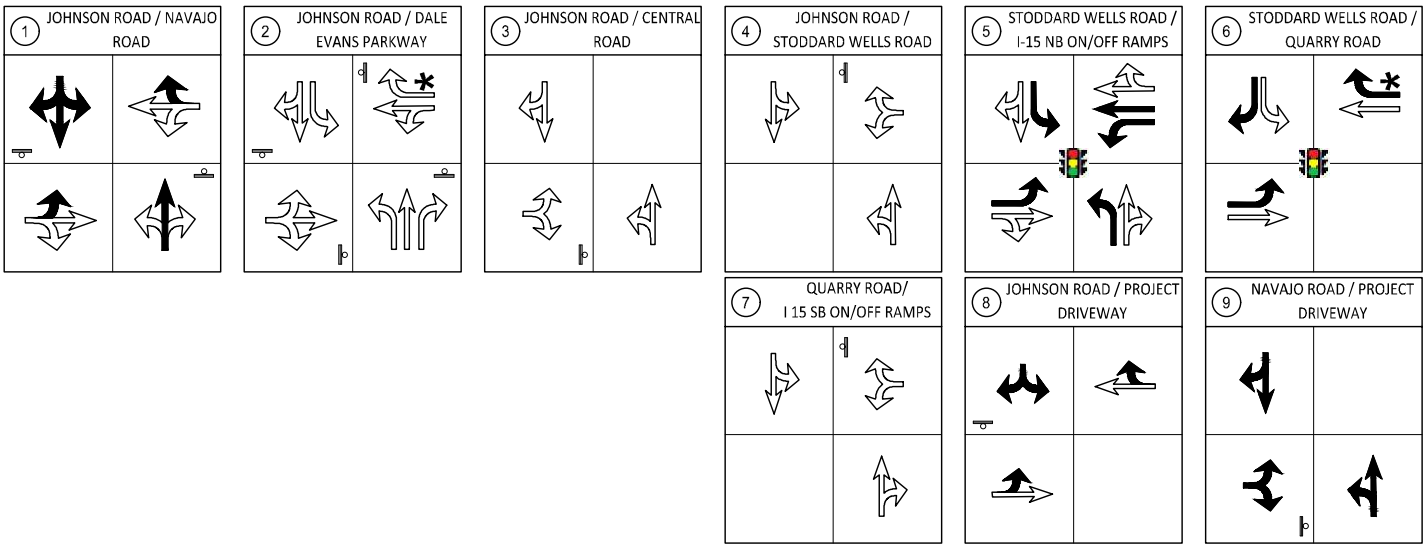

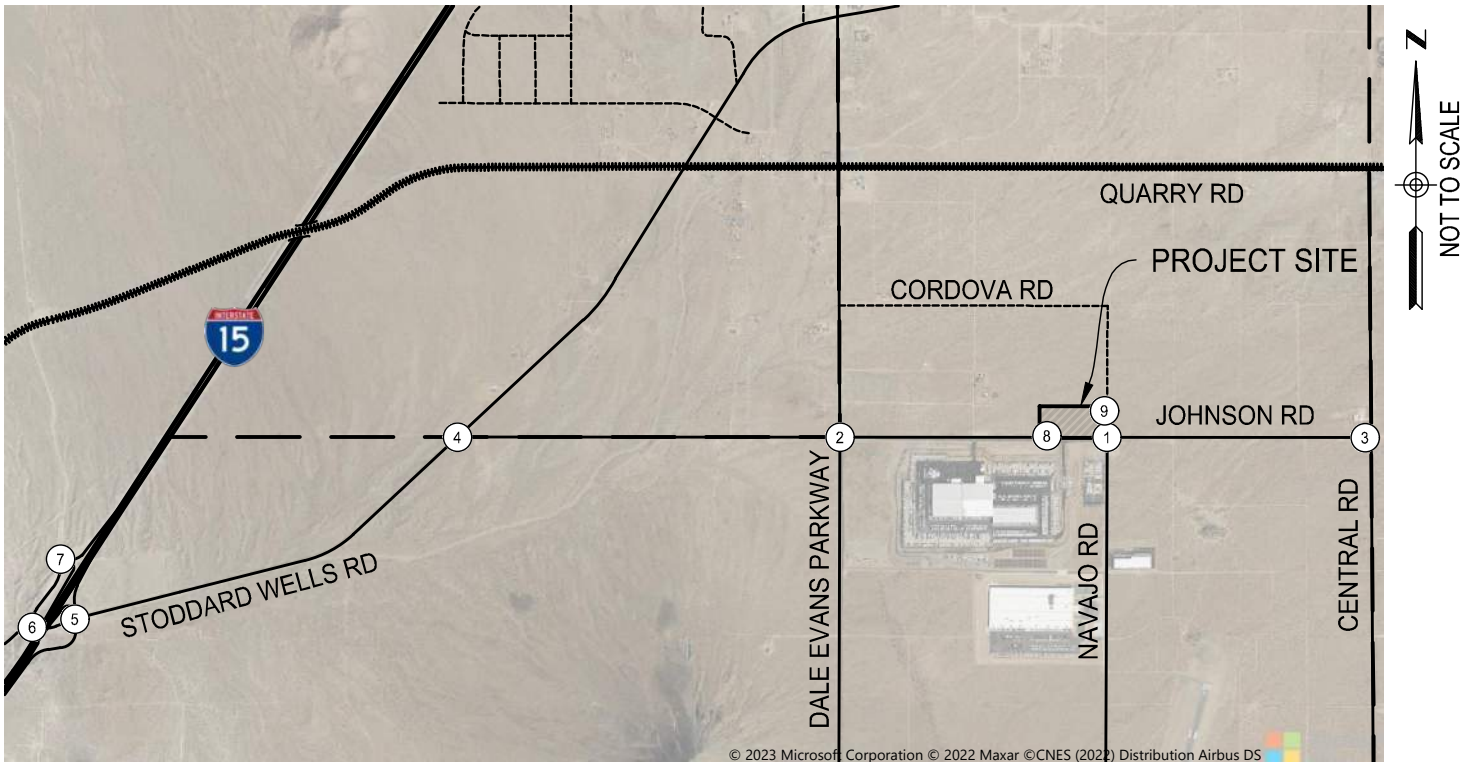

LEGEND

- EXISTING GEOMETRICS
- PROJECT GEOMETRICS
- (#) - STUDY INTERSECTIONS
- STOP CONTROLLED INTERSECTION
- SIGNAL CONTROLLED INTERSECTION
- * - FREE RIGHT TURN

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FIGURE 11: PROJECT INTERSECTION GEOMETRICS
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

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6 FUTURE YEAR 2040 CONDITIONS

The Future Year 2040 Conditions scenario reflects regional growth in traffic up to the year 2040. Growth in traffic is from forecasts from the San Bernardino County Transportation Analysis Model (SBTAM). Intersection turn movements were derived from post processing forecasted approach volumes and balancing the turn movement volumes for each study intersection. The SBTAM traffic model plots are provided in **Appendix C**. As requested by the Town of Apple Valley Staff the Other Area Approved Developments Trips (described in Chapter 4) were added to the balanced post processed forecast volumes to produce the Future Year 2040 Conditions traffic volumes provided in **Figure 12.** The Other Area Approved Developments Excerpts are provided in **Appendix D**.

6.1 Future Conditions Traffic Analysis

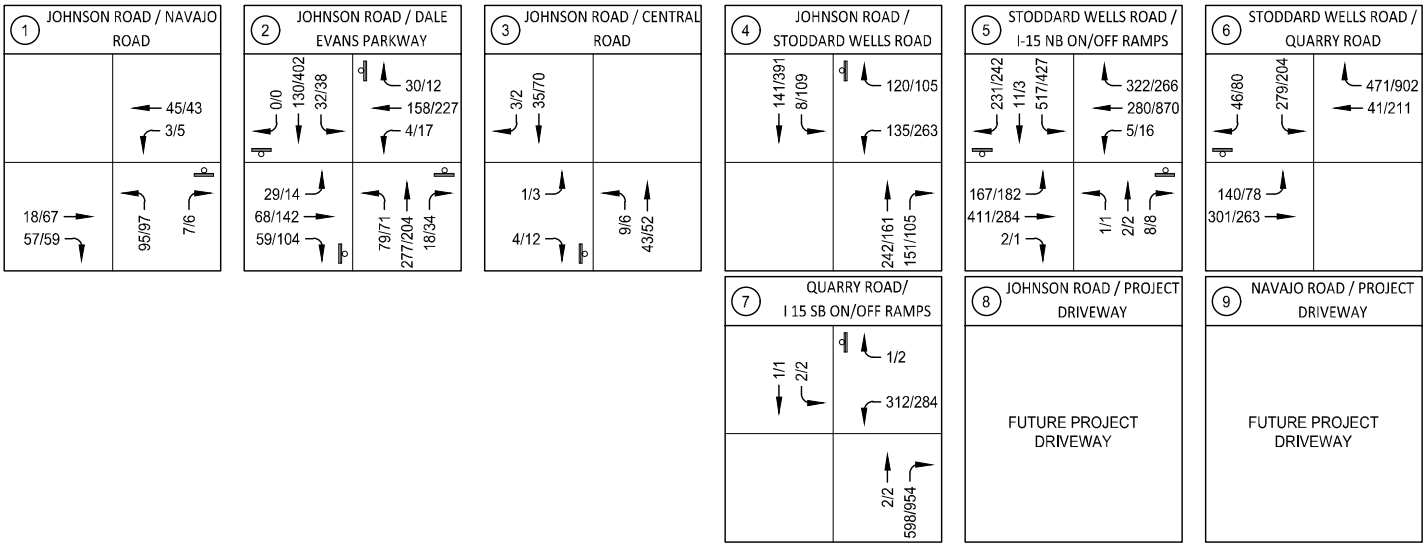
The Future Year 2040 Conditions intersection capacity analysis uses existing intersection geometrics and the traffic volumes provided in **Figure 12**. **Table 6-1** and **Appendix E** provide the results of the analysis.

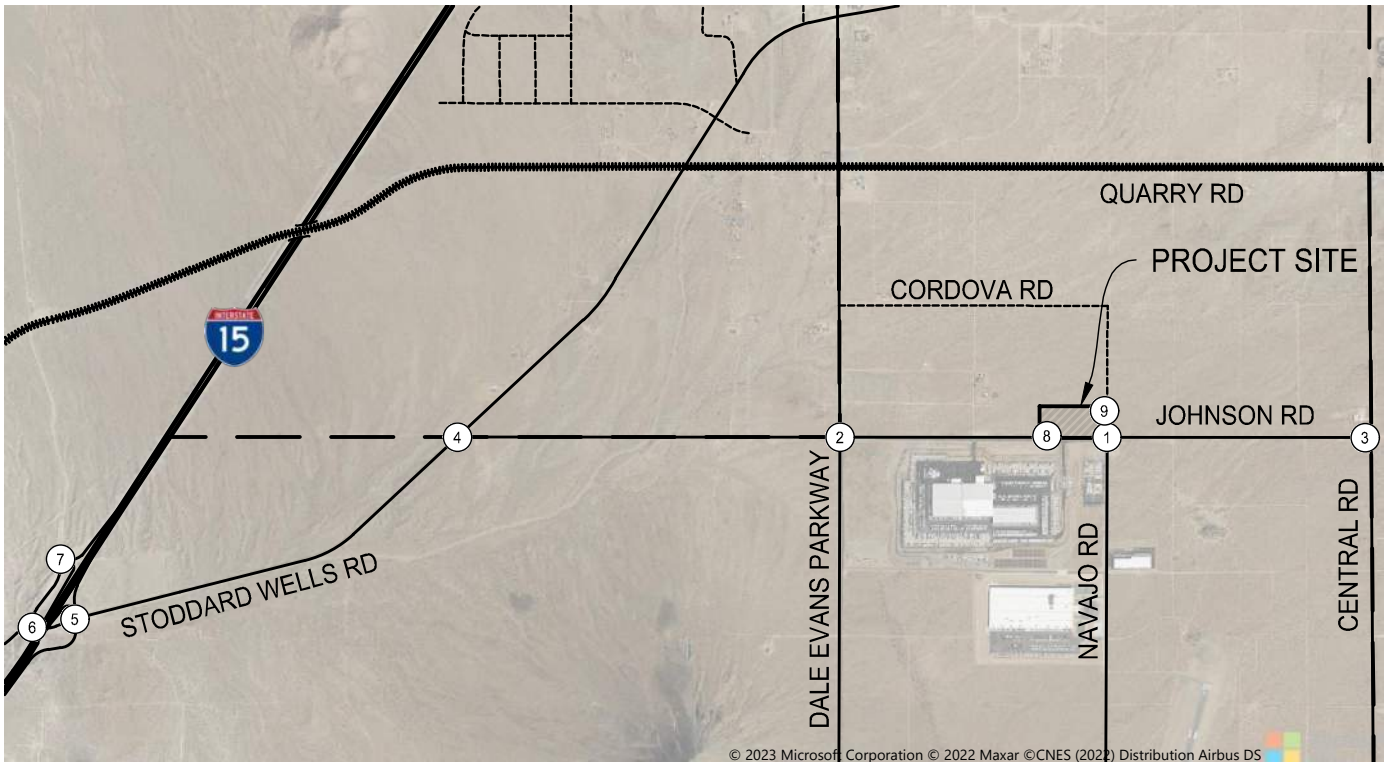
Table 6-1: Intersection Level of Service for Future Year 2040 Conditions

Intersection	Intersection Control Type	Future Conditions			
		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
1. Navajo Road / Johnson Road	SSSC	9.5	A	9.9	A
2. Dale Evans Parkway / Johnson Road	AWSC	13.1	B	37.3	E
3. Central Road / Johnson Road	SSSC	8.6	A	8.8	A
4. Stoddard Wells Road / Johnson Road	SSSC	15.7	C	110.3	F
5. Stoddard Wells Road / I-15 Northbound Ramps	SSSC	‡	F	‡	F
6. Stoddard Wells Road / Quarry Road	SSSC	40.5	E	25.4	D
7. I-15 Southbound Ramps / Quarry Road	SSSC	15.3	C	20.6	C
8. Johnson Road / Project Driveway	SSSC	Future Intersection			
9. Navajo Road / Project Driveway	SSSC	Future Intersection			

Notes:
‡ Delay cannot be calculated using the Highway Capacity Manual 6 algorithms because the intersection is over-saturated for the type of control being analyzed. In these conditions the intersection can result in exponentially high delays. The shaded cells in the table represent intersection peak hours with LOS deficiencies (LOS E or F).
Abbreviations:
SSSC – Side Street Stop Controlled Intersection, AWSC – All Way Stop Controlled Intersection, Not Applicable – Not Applicable Future Intersection Delay – seconds per vehicle, LOS – Level of Service

As presented in **Table 6-1***,* under future year 2040 conditions, four intersections are projected to operate at deficient levels of service without the proposed project.





N

NOT TO SCALE

LEGEND

XX/XX - AM/PM PCE TRAFFIC VOLUMES

(#) - STUDY INTERSECTIONS

- STOP CONTROLLED INTERSECTION

- SIGNAL CONTROLLED INTERSECTION

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FIGURE 12: FUTURE YEAR PCE TRAFFIC VOLUMES
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

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7 FUTURE 2040 PLUS PROJECT CONDITIONS

The Future Plus Project Conditions scenario adds the project's estimated traffic generation to the Future Year 2040 Condition's scenario described in Chapter 6. As described in the previous section, the forecasted Future Year 2040 Conditions intersection turn movement volumes were derived from a combination of post processing forecasted approach volumes from the SBTAM model and the project trips generated by Other Area Approved Developments for each study intersection. The SBTAM traffic model plots are provided in **Appendix C**. The impacts identified in this scenario are considered "cumulative" impacts—impacts that the project contributes to, but does not solely cause, and may be responsible for a fair-share of the cost to implement any mitigation measures.

7.1 Future Plus Project Traffic Analysis

The intersection level of service analysis for Future Plus Project Conditions uses existing intersection geometrics and the traffic volumes shown in is provided in **Figure 13**. **Table 7-1** and **Appendix E** provide the results of the analysis.

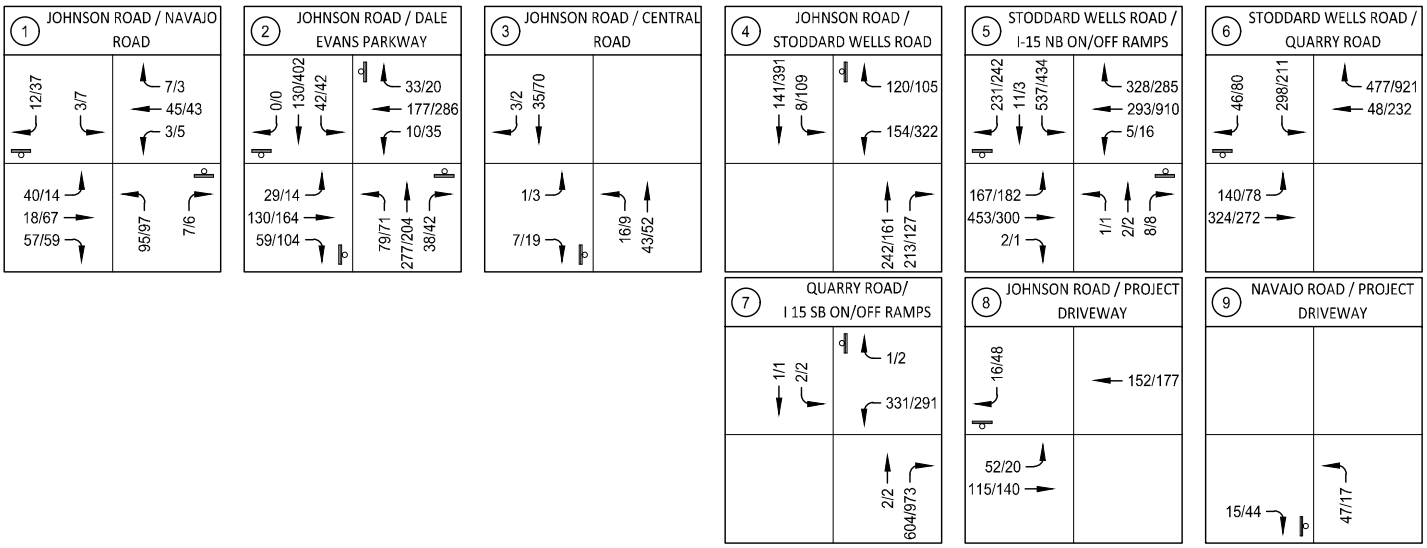
Table 7-1: Comparison of Future 2040 and Future 2040 Plus Project LOS

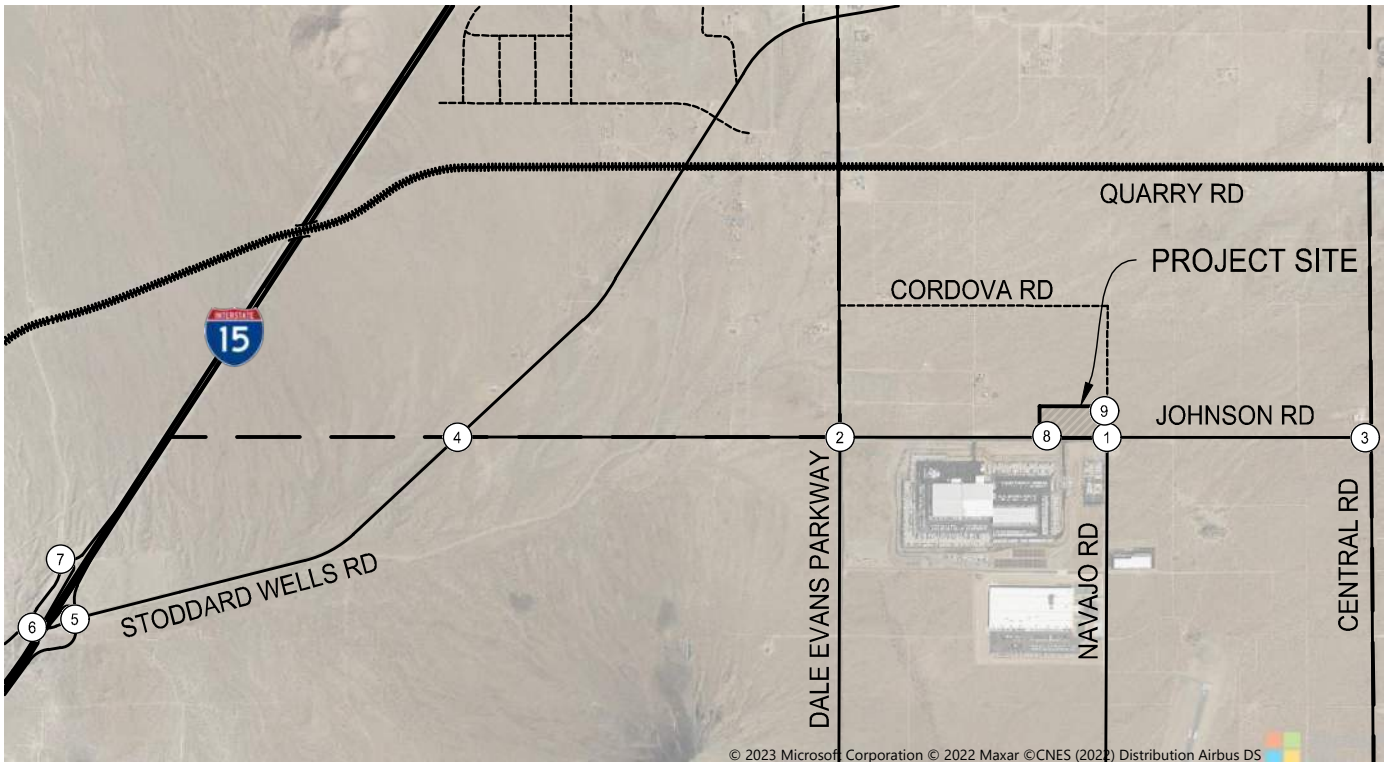
Intersection	Control Type	Future Conditions				Future + Project Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Navajo Road / Johnson Road	SSSC	9.5	A	9.9	A	10.6	B	10.8	B
2. Dale Evans Parkway / Johnson Road	AWSC	13.1	B	37.3	E	15.1	C	53.0	F
3. Central Road / Johnson Road	SSSC	8.6	A	8.8	A	8.6	A	8.8	A
4. Stoddard Wells Road / Johnson Road	SSSC	15.7	C	110.3	F	17.5	C	200.6	F
5. Stoddard Wells Rd / I-15 NB Ramps	SSSC	‡	F	‡	F	‡	F	‡	F
6. Stoddard Wells Road / Quarry Road	SSSC	40.5	E	25.4	D	55.9	F	29.0	D
7. I-15 Southbound Ramps / Quarry Road	SSSC	15.3	C	20.6	C	16.0	C	21.6	C
8. Johnson Road / Project Driveway	SSSC	Future Intersection				9.4	A	9.1	A
9. Navajo Road / Project Driveway	SSSC	Future Intersection				8.4	A	8.4	A

Notes:
‡ Delay cannot be calculated using the Highway Capacity Manual 6 algorithms because the intersection is over-saturated for the type of control being analyzed. In these conditions the intersection can result in exponentially high delays.
Shaded cells in the table represent intersection peak hours with LOS deficiencies (LOS E or F).
Abbreviations:
TWSC = Two-way (or side street) stop control, AWSC = All-way stop control, Not Applicable – Not Applicable Future Intersection Delay – seconds per vehicle, LOS – Level of Service

As presented in **Table 7-1**, the combination of ambient traffic and the addition of project traffic through the year 2040 causes intersection LOS deficiencies at the following four study intersections: Dale Evans Parkway / Johnson Road, Stoddard Wells Road / Johnson Road, Stoddard Wells Road / I-15 NB Ramps, and Stoddard Wells Road / Quarry Road.

The addition of project traffic in this scenario exacerbates the intersection LOS deficiencies that occur at the four intersections before the addition of project traffic. As a result, these intersections are identified as cumulative deficiencies occurring prior to the addition of project traffic.





N

NOT TO SCALE

LEGEND

XX/XX - AM/PM PCE TRAFFIC VOLUMES

(#) - STUDY INTERSECTIONS

- STOP CONTROLLED INTERSECTION

- SIGNAL CONTROLLED INTERSECTION

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FIGURE 13: FUTURE YEAR WITH PROJECT PCE TRAFFIC VOLUMES JOHNSON ROAD INDUSTRIAL APPLE VALLEY, CALIFORNIA

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7.1.1 Level of Service With Recommended Improvements

The four existing side-street stop-controlled intersections of Dale Evans Parkway / Johnson Road, Stoddard Wells Road / Johnson Road, Stoddard Wells Rd / I-15 NB Ramps, and Stoddard Wells Rd / Quarry Rd experience failure in Future Plus Project Conditions.

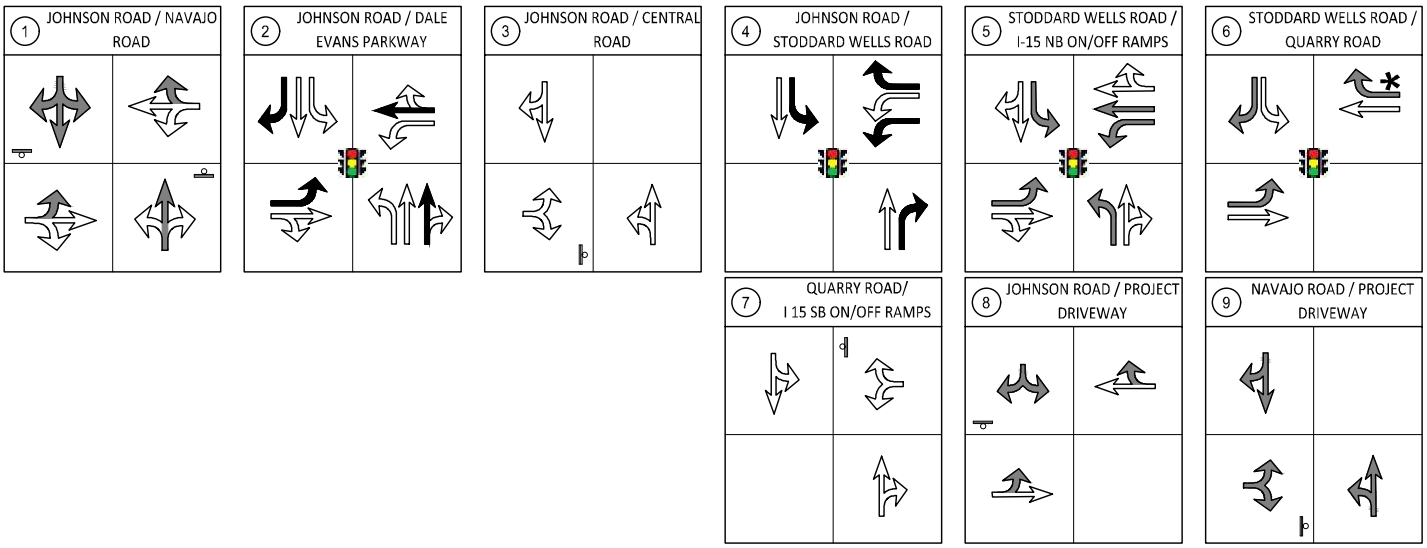
Improvements to the intersection of Stoddard Wells Rd / Outer Highway 15 / I-15 NB Ramps and the widening of the segment of Stoddard Wells Rd between Quarry Road to I-15 NB Ramps/Outer I-15 were identified in the approved Apple Valley 143 Transportation Impact Analysis, dated November 2022, by Dudek. Excerpt of the report is provided in **Appendix D.**

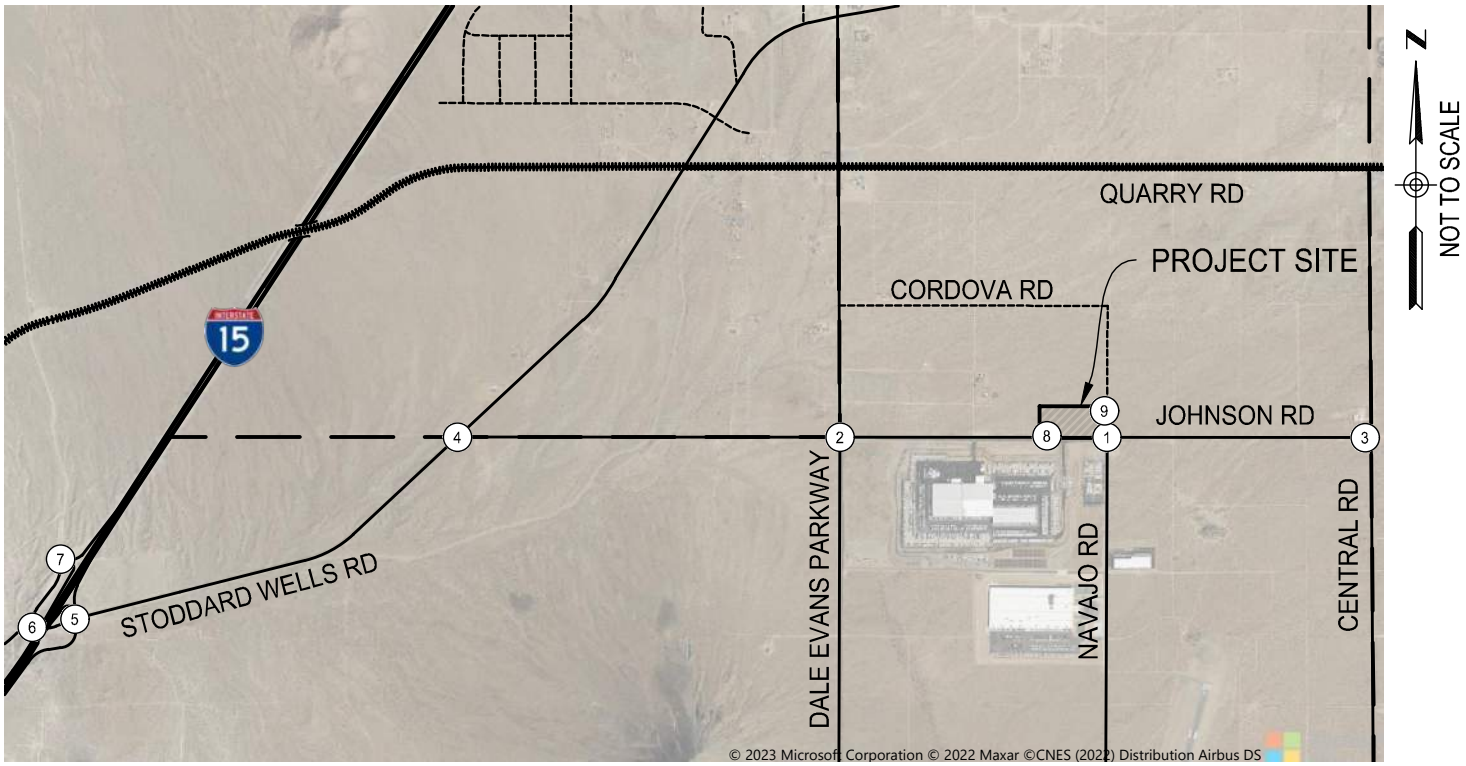
Table 7-2 provides the capacity analysis utilizing the long-term cumulative intersection improvements are outlined in **Chapter 1.4** and illustrated in **Figure 14.** The proposed mitigation improves the LOS deficiency, to a LOS D or better.

Table 7-2: Improved Level of Service Under Future 2040 + Project Conditions

Intersection	Control Type	Future Conditions				Future + Project Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
2.Dale Evans Parkway / Johnson Road	AWSC	13.1	B	37.3	E	15.1	C	53.0	F
w/cumulative improvements: install traffic signal and add a NBTH, SBR, EBL, and WBL	TS	Not Applicable				15.0	B	18.0	B
4. Stoddard Wells Road / Johnson Road	SSSC	15.7	C	110.3	F	17.5	C	200.6	F
w/cumulative improvements convert to AWSC, add SBL, SBTH, WBL, WBR, and free NBR	AWSC	Not Applicable				9.9	A	11.9	B
5. Stoddard Wells Road / I-15 Northbound Ramps	SSSC	‡	F	‡	F	‡	F	‡	F
w/cumulative improvements: retain near-term improvements	TS	Not Applicable				37.1	D	50.2	D
6. Stoddard Wells Road / Quarry Road	SSSC	40.5	E	25.4	D	55.9	F	29.0	D
w/cumulative improvements: retain near-term improvements	TS	Not Applicable				22.7	C	23.7	C

Notes:
‡ Delay cannot be calculated using the Highway Capacity Manual 6 algorithms because the intersection is over-saturated for the type of control being analyzed. In these conditions the intersection can result in exponentially high delays.
Shaded cells in the table represent intersection peak hours with LOS deficiencies (LOS E or F).
Abbreviations:
TWSC = Two-way (or side street SSSC) stop control, AWSC = All-way stop control, Not Applicable – Not Applicable Future Intersection Delay – seconds per vehicle, LOS – Level of Service





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LEGEND

- EXISTING GEOMETRICS
- PROJECT GEOMETRICS
- FUTURE GEOMETRICS
- (#) - STUDY INTERSECTIONS
- STOP CONTROLLED INTERSECTION
- SIGNAL CONTROLLED INTERSECTION
- * - FREE RIGHT TURN

DAVID EVANS AND ASSOCIATES INC.

FIGURE 14: FUTURE YEAR WITH PROJECT INTERSECTION GEOMETRICS JOHNSON ROAD INDUSTRIAL APPLE VALLEY, CALIFORNIA

8 RECOMMENDED MITIGATION MEASURES AND PROJECT-SPECIFIC FRONTAGE IMPROVEMENTS

8.1 Recommended Mitigation Measures to Improve LOS Deficiencies

The recommended mitigation measures to improve intersections with deficient levels of service is described comprehensively beginning in **Section 1.4** of Section 1 (Executive Summary). The required mitigation measures (both near-term and long-term) are cumulative in nature in which the project contributes, but does not cause, the LOS deficits requiring mitigation.

8.1.1 Near-Term Improvements (Fair Share Contribution)

1. Stoddard Wells Rd / I-15 NB Ramps: install a traffic signal and widen the eastbound, westbound, northbound, and southbound approaches to accommodate turn lanes.
2. Stoddard Wells Rd / Quarry Rd: install a traffic signal and widen the eastbound, westbound, northbound, and southbound approaches to accommodate turn lanes.

8.1.2 Cumulative Long-Term Improvements (Fair Share Contribution)

1. Dale Evans Parkway / Johnson Road: install a traffic signal and widen the westbound, eastbound, northbound, and southbound approaches to accommodate additional turn lanes.
2. Stoddard Wells Road / Johnson Road: widen the westbound, northbound, and southbound approaches to accommodate additional turn lanes.
3. Stoddard Wells Rd / I-15 NB Ramps: Retain the near-term improvements.
4. Stoddard Wells Rd / Quarry Rd: Retain the near-term improvements.

8.2 Project-Specific Frontage and Access Improvements

The required project-specific frontage and access improvements described in **Section 1.9** of the Executive Summary and repeated below. These site frontage and access improvements are typically required in the town's Conditions of Approval:

3. Construct access and site frontage improvements on Johnson Road:

b. Construct and improve the project's frontage with Johnson Road from the western project limit to Navajo Road.

- The project will be required to dedicate land and construct the 71-foot half-width of a major divided parkway road section including the project's driveway accessing Johnson Road.
- May include land dedication to accommodate additional lanes at the intersection of Johnson Road and Navajo Road if required by the town.

4. Construct access and site frontage improvements on Navajo Road:

b. Construct and improve the project's frontage with Navajo Road.

- The project will be required to dedicate land and construct the 44-foot half-width of Navajo Road's secondary road designation including the proposed driveway accessing Navajo Road.
- May include land dedication to accommodate additional lanes at the intersection of Johnson Road and Navajo Road if required by the town.

8.3 Fair Share Calculations

The fair share percentages calculated in Chapter 1.5 are used to determine the Fair Share Fee for each intersection and by forecast year. The Fair Share Fee provided in **Table 8-1** represent the estimated cost associated with the near-term improvements described in **Section 8.1.1** for the Near-Term (Year 2025) Scenario and are based on background + project scenario traffic.

Table 8-1: Project's Fair Share of Deficient Intersections for Near-Term (Year 2025)

Intersection	Cost ($)	Fair Share %	Fair Share Fee
5. Stoddard Wells Road / I-15 Northbound Ramps	$1,400,000	10.2%	$142,462
6. Stoddard Wells Road / Quarry Road	$800,000	9.8%	$78,153
Notes: Project traffic used in calculating the fair-share percentage is based on Passenger Car Equivalents (PCEs).			

The Fair Share Fee provided in **Table 8-2** represent the estimated cost associated with the long-range cumulative measures described in **Section 8.1.2** for the Long-Term (Year 2040) Scenario and are based on the future 2040 + project conditions traffic.

Table 8-2: Project's Fair Share of Deficient Intersections for Long-Term (Year 2040)

Intersection	Cost ($)	Fair Share %	Fair Share Fee
2. Dale Evans Parkway / Johnson Road	$700,000	20.9%	$146,341
4. Stoddard Wells Road / Johnson Road	$900,000	17.3%	$155,437
5. Stoddard Wells Road / I-15 Northbound Ramps	Included in Near-Term Conditions		
6. Stoddard Wells Road / Quarry Road	Included in Near-Term Conditions		
Notes: Project traffic used in calculating the fair-share percentage is based on Passenger Car Equivalents (PCEs).			

9 VEHICLE MILES OF TRAVEL (VMT) ANALYSIS

The VMT analysis screening assessment included in the approved April 10, 2023, scoping agreement concluded that the Johnson Road Industrial Building (Warehouse) project was required to prepare a detailed analysis of project-generated VMT and its effect on VMT town-wide as part of the project's environmental clearance under CEQA.

The VMT analysis was prepared in accordance with the Town's adopted Resolution No. 2021-08 (Adopting Thresholds of Significance for Vehicle Miles Traveled (VMT) Under the California Environmental Quality Act (CEQA)) which states that a development project would result in a significant project-generated VMT impact if either of the following conditions are satisfied:

1. The baseline project generated VMT per service population (population plus employees) exceeds the Town of Apple Valley General Plan Buildout VMT per service population, or
2. The cumulative (2040) project generated VMT per service population exceeds the Town of Apple Valley General Plan Buildout VMT per service population.

In addition to project-generated VMT, the town adopted significance thresholds for a project's effect on VMT in Apple Valley. The resolution states that a project's effect on VMT would be considered significant if it resulted in either of the following conditions to be satisfied:

3. The baseline link-level boundary Town-wide VMT per service population increases under the plus project condition compared to the no project condition, or
4. The cumulative link-level boundary Town-wide VMT per service population increases under the plus project condition compared to the no project condition.

The term "link-level boundary Town-wide" refers to all vehicle miles of travel on all roadways within the town limits of Apple Valley. The following describes the key findings and the conclusions of the VMT analysis. The full report is in **Appendix F.**

C. Project-Generated VMT and Effect on Roadway VMT Analyses

The SBTAM model was used to estimate project-generated VMT for a baseline (2016) and a horizon year (2040) scenario. The SBTAM socioeconomic database for each scenario was updated with the project land use to calculate project VMT. The databases were also used to obtain the town's population and employment to estimate service population.

Table 9-1 on the following page present the outcome of the project-generated VMT analyses for the baseline and horizon year scenarios. As shown in **Table 9-1**, in both the baseline and horizon year scenarios, the VMT/service population metric for the Johnson Road Industrial Building (Warehouse) project is less than the Town of Apple Valley's general plan buildout significance threshold.

The outcome of the second analysis, the project's effect on town-wide VMT, is presented on the following page in **Table 9-2.** The SBTAM model was used to estimate the VMT on all roadways within the town's limits for the baseline and 2040 scenarios with and without the project. Using the resulting town-wide VMT, the metric indicating a significant impact (VMT/Service population) at a town-wide scale was calculated.

Table 9-2 shows that the VMT/Service population metric under the "with project" conditions compared to the metric under the "without project" conditions in both scenarios does not increase and does not satisfy the town's significance threshold described above.

D. Conclusions of the VMT Analyses

The VMT analysis conducted to identify potentially significant project-generated VMT impacts under CEQA concludes that the proposed project generates a VMT / Service population less than the VMT / Service population representing buildout of Apple Valley's general plan and, therefore, does not cause a significant impact based on the town's adopted significance thresholds for project-generated VMT.

Another VMT analysis conducted to identify potentially significant impacts of the project's "effects on town-wide VMT" under CEQA concludes that the VMT / service population metric for the baseline and horizon year scenarios

"with the project" do not increase the metric over the "without project" scenarios. Therefore, the proposed Johnson Road Industrial Building (Warehouse) project does not have a significant impact based on the town's adopted significance thresholds for the project's effect on town-wide VMT.

Table 9-1: Project-Generated VMT Analysis

Metric	2016 Baseline Conditions		2040 Conditions	
	Johnson Road Warehouse (project)	Town of Apple Valley General Plan Buildout (Threshold) [a]	Johnson Road Warehouse (project)	Town of Apple Valley General Plan Buildout (Threshold) [a]
Population	0		0	
Employment [b]	180		180	
Service Population	180		180	
OD VMT [c]	5,950		5,694	
OD VMT per service population	33.1	33.2	31.6	33.2

Notes:
[a] Source: SBCTA VMT Screening Tool: https://www.gosbcta.com/vmtscreening
[b] Source: SCAG Employment Density Study Summary Report, October 31, 2001 (using 2,111 square feet per employee).
[c] The project's Origin/Destination (OD) VMT derived from the San Bernardino Traffic Analysis Model (SBTAM)
Source of analysis: General Technologies and Solutions (GTS)

Table 9-2: Project Effect on Roadway VMT within Town of Apple Valley

Metric	2016 Baseline		2040 Conditions	
	With Project	Without Project	With Project	Without Project
Roadway VMT [a]	849,362	847,823	1,361,983	1,362,981
Service population [b]	91,293	91,113	126,986	126,806
VMT per service population	9.3	9.3	10.7	10.7

Notes:
[a] Roadway VMT = sum of all vehicle miles travel on all streets within the town limits of Apple Valley
[b] Service population = sum of residents and employees in Apple Valley in the scenario being analyzed. Source: 2016 and 2040 land use summaries from the San Bernardino Traffic Analysis Model (SBTAM)
Source of analysis: General Technologies and Solutions (GTS)

10 APPENDICES

Appendix A: Approved Scope Agreement
Appendix B: Traffic Counts
Appendix C: Forecast Model Plots and Volume Development
Appendix D: Other Area Approved Developments Excerpts
Appendix E: Intersection Capacity Analysis Worksheets
Appendix F: VMT Analysis

Appendix A: Approved Scope Agreement

DAVID EVANS
AND ASSOCIATES INC.

March 10, 2023 Job No. PIXI5AMG-0002

MEMORANDUM

To: Mr. Simon Bouzaglou
55555 Amargosa LLC
5901 South Eastern Avenue
Commerce, CA 90040

From: James Daisa, PE
Senior Transportation Project Manager / Associate

RE: FOCUSED TRAFFIC IMPACT ANALYSIS SCOPING AGREEMENT FOR THE PROPOSED JOHNSON ROAD INDUSTRIAL BUILDING (WAREHOUSE) LOCATED IN THE NWC OF JOHNSON ROAD AND NAVAJO ROAD, TOWN OF APPLE VALLEY, CA (A.P.N. 0463-213-26, 27, 28)

This memorandum presents key elements of the proposed Focused Traffic Impact Analysis (TIA Report) scope of work for the above referenced development project. The purpose of this memorandum is to inform the Town of Apple Valley of the TIA's assumptions and methodologies prior to preparing the analysis. We will incorporate any changes specified by the Town, and once approved, this document will serve as our notification to proceed.

The Town of Apple Valley does not have guidelines for conducting intersection level of service deficiency studies, therefore the assumptions and methods described in this document conform to San Bernardino County's Transportation Impact Study Guidelines (July 2019). With respect to VMT impacts, the Town of Apple Valley adopted Resolution No. 2021-08 in May 2021. This resolution defines the Town's thresholds of significance for project generated VMT and the project's overall effect of VMT at the town-wide scale. The resolution also defines the specific methods for analyzing VMT in Apple Valley.

The Town has not, however, adopted criteria for screening development from requiring a VMT analysis under CEQA. This scoping agreement uses the county's screening criteria to identify if the Proposed Johnson Road Industrial Project requires a VMT analysis as part of its environmental review.

A. Project Description

The Proposed Johnson Road Industrial Project consists of a 379,657 square foot speculative industrial warehouse building located on approximately 18.71-acres in the north part of the town and within the North Apple Valley Industrial Specific Plan area. The North Apple Valley Industrial Specific Plan is the regulatory plan that governs all development within its boundaries. It designates land uses and provides design standards for the construction of buildings and defines the area's required infrastructure for transportation / circulation, public services, and utilities.

The project site is located at the northwest corner of Johnson Road and Navajo Road, as illustrated in **Exhibit A**. The site is bounded to the north by undeveloped land; to the south by Johnson Road and Victor Valley Community College Regional Public Safety Training Center and the existing Walmart Distribution Center south of Johnson Road; to the west by undeveloped land; and to the east by unimproved Navajo Road and undeveloped land. The warehouse building includes 63 loading docks on north side, 166 automobile parking spaces, and 92 trailer parking spaces. **Exhibit B** shows the proposed site plan.

Site Access and Circulation Improvements

Access to the site will be from driveways on Johnson Road and Navajo Road. The proposed circulation and access include improving Navajo Road from Johnson Road to Project boundary and providing a driveway on Johnson Road. One commercial driveway is proposed on Johnson Road accessing the site's automobile parking, in the study this driveway will be assumed as the primarily auto access. It is assumed in the study the primary truck access to the secure gated loading dock and truck/trailer parking area is provided by a commercial driveway on Navajo Road (approximately 560 feet north of Johnson Road (measured from centerline to centerline)). The internal gates securing the loading dock and truck / trailer parking area of the site are setback from Navajo Road by about 80 feet—enough space for a single interstate truck/trailer combination. The site as shown in **Exhibit B**.

B. Project Trip Generation

The Proposed Johnson Road Industrial Project is a speculative warehouse where the tenant(s) and function as a potential short term storage facility, distribution center, fulfillment center, etc. is unknown. While the impact analysis needs to reflect a reasonable spectrum of tenant types, there is a risk when estimating trip generation of over or under-estimating traffic. The 11th Edition of the Institute of Transportation Engineers' Trip Generation manual contains data for the most common types of warehouse operations with a wide range of rates. **Table 1** summarizes the trip generation rates for warehouse facilities in the current edition of ITE's Trip Generation.

Table 1: Trip Generation Rates for ITE Land Use Categories of Warehousing

Warehouse Type	ITE Land Use Code	Average Trip Generation Rates for Warehouse Types (Trips Per KSF) (Source: ITE Trip Generation 11th Edition)		
		Average Daily Traffic	AM Peak Hour of Adjacent Street Traffic	PM Peak Hour of Adjacent Street Traffic
		Total (In + Out)	Total (In + Out)	Total (In + Out)
High-Cube Transload and Short-Term Storage Warehouse	154	1.54	0.08	0.10
High-Cube Cold Storage Warehouse	157	2.12	0.11	0.12
High-Cube Fulfillment Center Warehouse - Non-Sort	155	1.81	0.15	0.16
General Warehouse	150	1.71	0.17	0.18
High-Cube Parcel Hub Warehouse	156	4.63	0.70	0.64
High-Cube Fulfillment Center Warehouse - Sort	155	6.44	0.87	1.20
Average of All Warehouse Types		3.04	0.35	0.40
Average Without High-Cube Sort Fulfillment Center		2.36	0.24	0.24

To help select a trip generation rate for the Proposed Johnson Road Industrial Project representative of the range of potential owners/tenants, **Table 1** includes the average of the rates for all warehouse types in the ITE Trip Generation manual and the average of the rates for all warehouse types except High-Cube Fulfillment Sort Facility—the most intensive type of warehouse. The secondary average rate (excluding High-Cube Fulfillment Sort Facility) represents two thirds the ITE warehouse types and covers a broad range of tenant types and operations.

Table 2 summarizes the estimated trip generation of the Proposed Johnson Road Industrial Project for an average weekday, and weekday AM (7-9 AM) and PM (4-6 PM) peak hours, based on the secondary average rates identified in **Table 1**. The Proposed Johnson Road Industrial Project complex would generate about 896 vehicle trips per day and 91 vehicle trips in both the AM and PM peak hours.

It is standard practice to convert vehicle trips to passenger car equivalents (PCEs) for intersection capacity analysis. This conversion reflects the effects of large vehicles on intersection operations both from the physical space a truck occupies but also from their effect on the intersection's saturation flow rate due to the slower acceleration of trucks.

When converted to PCEs, the Proposed Johnson Road Industrial Project generates approximately 1,259 daily PCEs, and 128 PCEs in both the AM and PM peak hours.

Table 2: Project Trip Generation

Land Use	Gross Floor Area (KSF)	Daily	AM Peak Hour of Adjacent Street Traffic			PM Peak Hour of Adjacent Street Traffic		
			In	Out	Total	In	Out	Total
Warehouse (Rates are the Average of ITE Land Use Categories 150, 154, 156, and 157)	379.66	Vehicle Trip Generation Rates (Trips Per 1,000 Square Feet of Gross Floor Area)						
		2.36	0.18	0.06	0.24	0.07	0.17	0.24
		Total Vehicle Trip Generation						
		896	70	21	91	26	66	91
	Mode Share	Project Trip Generation by Vehicle Type						
Passenger Cars (Percent of Total)	74.21%	665	52	16	68	19	49	68
2-Axle Trucks (Percent of Total)	4.55%	41	3	1	4	1	3	4
3-Axle Trucks (Percent of Total)	4.18%	37	3	1	4	1	3	4
4-Axle Trucks (Percent of Total)	17.04%	153	12	4	16	4	11	16
	PCE Factor	Project Trip Generation in Passenger Car Equivalents (PCE)						
Passenger Cars)	1.0	665	52	16	68	19	49	68
2-Axle Trucks	1.5	61	5	1	6	2	4	6
3-Axle Trucks	2.0	75	6	2	8	2	5	8
4 + Axle Trucks	3.0	458	36	11	47	13	34	47
Total Passenger Car Equivalents (PCE)		**1,259**	**99**	**29**	**128**	**36**	**92**	**128**

Notes:
KSF = Thousands of Square Feet.
AM / PM Peak Hour of Adjacent Street Traffic = Trip generation coinciding with the highest hourly volumes of traffic on the adjacent streets during the AM (7:00 AM and 9:00 AM) and PM (4:00 PM and 6:00 PM) commuter peak periods.
Source of trip generation rates: Institute of Transportation Engineers (ITE) Trip Generation (11th Edition). Average rates for land use category 150 (Warehouse).
Source of passenger car / truck mode share (percentage of total): South Coast Air Quality Management District High Cube Warehouse Trip Generation Study (2016). Based on data from eight high cube warehouses in the Inland Empire over 1,000,000 square feet in size. The average warehouse building size is 1,364,496 square feet.
Passenger Car Equivalents (PCE) factors: Industry standard values utilized in neighboring jurisdictions

C. Study Intersections

This focused traffic study evaluates key intersections on routes expected to be used by project traffic to access the site. **Exhibit C** and the list below identify the intersections proposed for inclusion in the study.

1. Navajo Road / Johnson Road
2. Dale Evans Parkway / Johnson Road
3. Central Road / Johnson Road
4. Stoddard Wells Road / Johnson Road
5. Stoddard Wells Road / I-15 Northbound Ramps
6. Stoddard Wells Road / Quarry Road
7. I-15 Southbound Ramps / Quarry Road
8. Johnson Road / Project Driveway
9. Navajo Road / Project Driveway

Project driveways will be reviewed for required traffic control and the primary truck gated driveway will be analyzed for traffic control, lane geometries, and queuing behind the access gate based on industry standard gate processing time.

All the study intersections are currently side-street stop controlled, or all-way stop-controlled.

D. Project Trip Distribution and Assignment

Project traffic is distributed by direction separately for automobiles (employees) and trucks. The automobile distribution is based on where the warehouse employees are likely to reside or perform other activities (e.g., concentration of residential neighborhoods and commercial centers). The truck distribution is based on the most direct routes to major roadways and highways trucks are likely to use to access the project and depart for delivery of freight. Project trips are assigned to the area streets that provide the most direct route to the destinations.

Exhibit D1 shows the distribution of project-generated automobile to roadways as a percentage by direction and route. **Exhibit D2** shows the distribution of truck trips to roadways as a percentage by direction and route. The following exhibits show the assignment of project generated traffic at the study intersections. Truck traffic volumes have been converted into passenger car equivalents (PCEs) as required in the San Bernardino County guidelines for intersection capacity analysis. **Exhibit E** shows the total project PCE trips.

E. Traffic Analysis Scenarios

The traffic analysis scenarios, consistent with the county's impact analysis guidelines, include:

1. Existing Conditions AM (7-9 AM) and PM (4-6 PM)
2. Background Conditions (year 2025)
    a. representing the projects opening year growth in ambient traffic
    b. Growth forecasts (based on the estimated combination of the ambient growth in traffic plus traffic generated by nearby, but unidentified, development equaling 3.5% annually).
3. Background (Year 2025) + Project Conditions
    a. Project traffic in PCE's added to Background Conditions forecasts
4. Cumulative (Year 2040) Conditions
    a. representing the regional planning horizon of 2040 without project[1]
    b. Forecasts derived from the San Bernardino Transportation Analysis Model (SBTAM) representing buildout of the General Plan
5. Cumulative (Year 2040) Conditions Plus Project
    a. Project traffic in PCE's added to the Cumulative (Year 2040) Conditions forecasts

F. Level of Service Standard

The Town's General Plan policy on level of service is to maintain a level of service (LOS) D in the AM and PM peak hours.

[1] Caltrans typically requires that cumulative traffic forecasts represent a 20-year design life for infrastructure. If required, the cumulative scenario will be linearly extrapolated to the year 2044.

G. Analyses Included in Traffic Impact Analysis

- Intersection capacity analyses will be conducted using SYNCHRO software based on the unsignalized methods in the 6th Edition of the Highway Capacity Manual.
- A traffic signal warrant analysis (warrant 3 – peak hour) will be conducted at public intersections found to operate at LOS E or F under any project scenario.

H. Vehicle Miles of Travel (VMT) Screening

The Town of Apple Valley has adopted thresholds of significance for potential VMT impacts of development as well as the specific methodology for analyzing VMT impacts (Resolution No. 2021-08 - Adopting Thresholds of Significance for Vehicle Miles Traveled (VMT) Under the California Environmental Quality Act (CEQA)). According to the Town's resolution a development project would result in a significant project-generated VMT impact if either of the following conditions are satisfied:

1. The baseline (2023) project generated VMT per service population (population plus employees) exceeds the Town of Apple Valley General Plan Buildout VMT per service population, or
2. The cumulative (2040) project generated VMT per service population exceeds the Town of Apple Valley General Plan Buildout VMT per service population

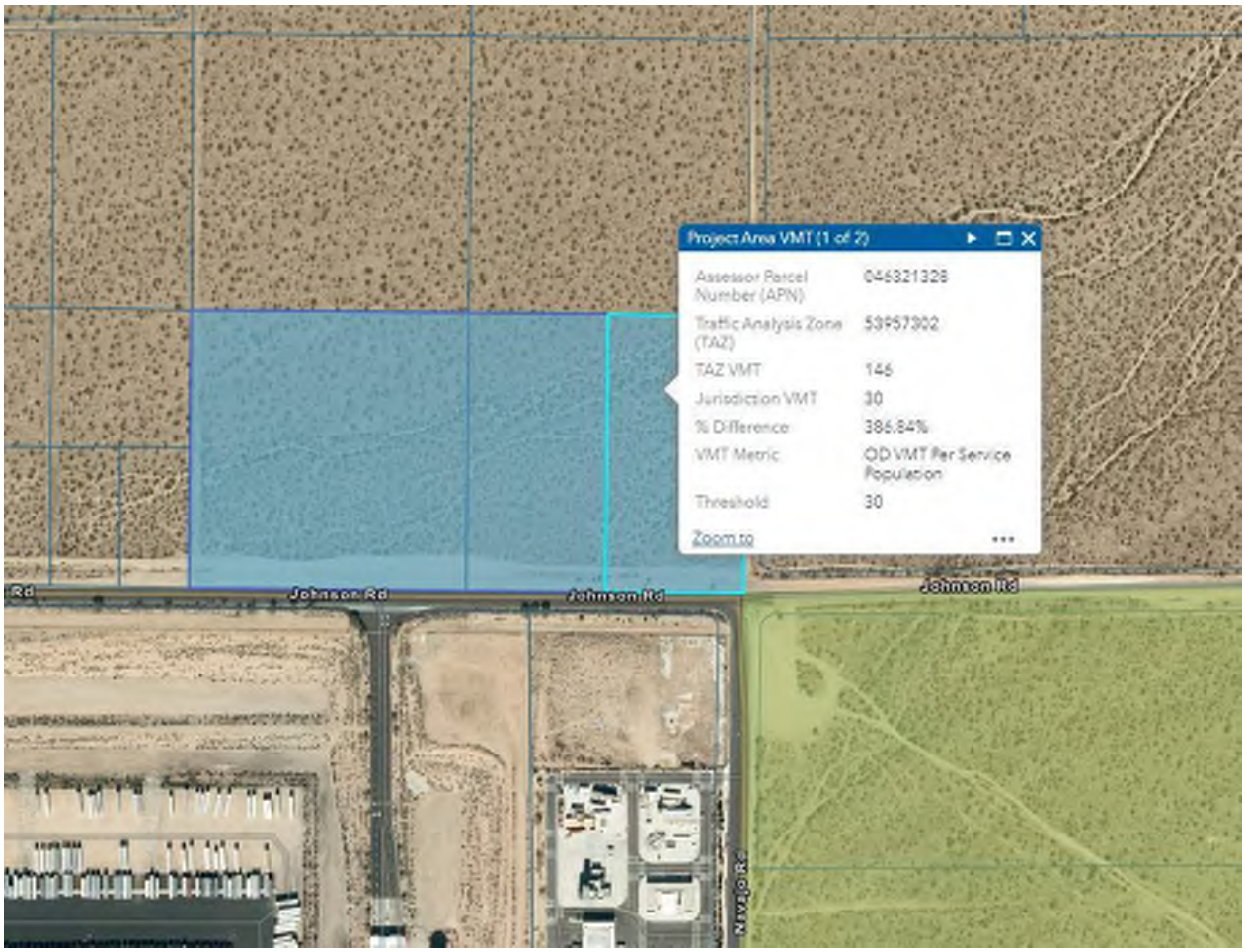

Figure 1: low VMT generating traffic analysis zones are highlighted in green. The traffic analysis zone in which the project is located is forecast to generate VMT that exceeds the jurisdictional threshold based on allowed General Plan land uses. Therefore, the proposed project is not located in a low VMT generating area.

The proposed project parcels (indicated in blue) are not in a low VMT-generating Traffic Analysis Zone (which are indicated in green) in baseline year 2023 and in future year 2040 conditions. The TAZ containing the project exceeds the county's VMT / Service population threshold by more than 385% in baseline conditions and a little over 100% in future 2040 conditions. Because the project does not satisfy any of the county's screening criteria it is required to prepare a VMT analysis. Source: San Bernardino County Transportation Authority (SBCTA) VMT Screening Tool. https://sbcta.maps.arcgis.com/apps/webappviewer/index.html?id=779a71bc659041ad995cd48d9ef4052b

The Town, however, has not adopted criteria for screening projects from requiring a VMT analysis. The county and nearby municipalities have adopted such criteria consistent with the technical advisories published by the Governor's Office of Planning and Research. In this scoping agreement, the county's screening criteria are applied to the Proposed Johnson Road Industrial Project for the Town's consideration.

Applying the county's VMT screening criteria results in demonstrating that the proposed project requires a detailed VMT analysis under CEQA.

Screening criteria includes:

1. The project serves the local community and has the potential to reduce VMT by providing services that capture trips locally (the Proposed Johnson Road Industrial Project is not a locally serving type of land use).
2. The project is located within a Transit Priority Area (the Proposed Johnson Road Industrial Project is not located in a TPA).
3. The project generates less than 110 daily vehicle trips (the Proposed Johnson Road Industrial Project generates more than 110 daily trips).
4. The project is in a low VMT generating traffic analysis zone (the Proposed Johnson Road Industrial Project is not located in a low VMT generating zone in baseline year 2022, see **Figure 1**).

The proposed project does not meet the county's four screening criteria and therefore is required to conduct a VMT analysis to identify potentially significant impacts under CEQA.

If you have any questions or comments, please feel free to contact me at (909) 912-7304.

Attachments:

1. Exhibit A –Vicinity Map
2. Exhibit B – Project Site Plan
3. Exhibit C – Study Intersections
4. Exhibit D1 – Project Automobile Distribution
5. Exhibit D2 – Project Truck Trip Distribution
6. Exhibit E – Total Project PCE Trips (AM Peak Hour)

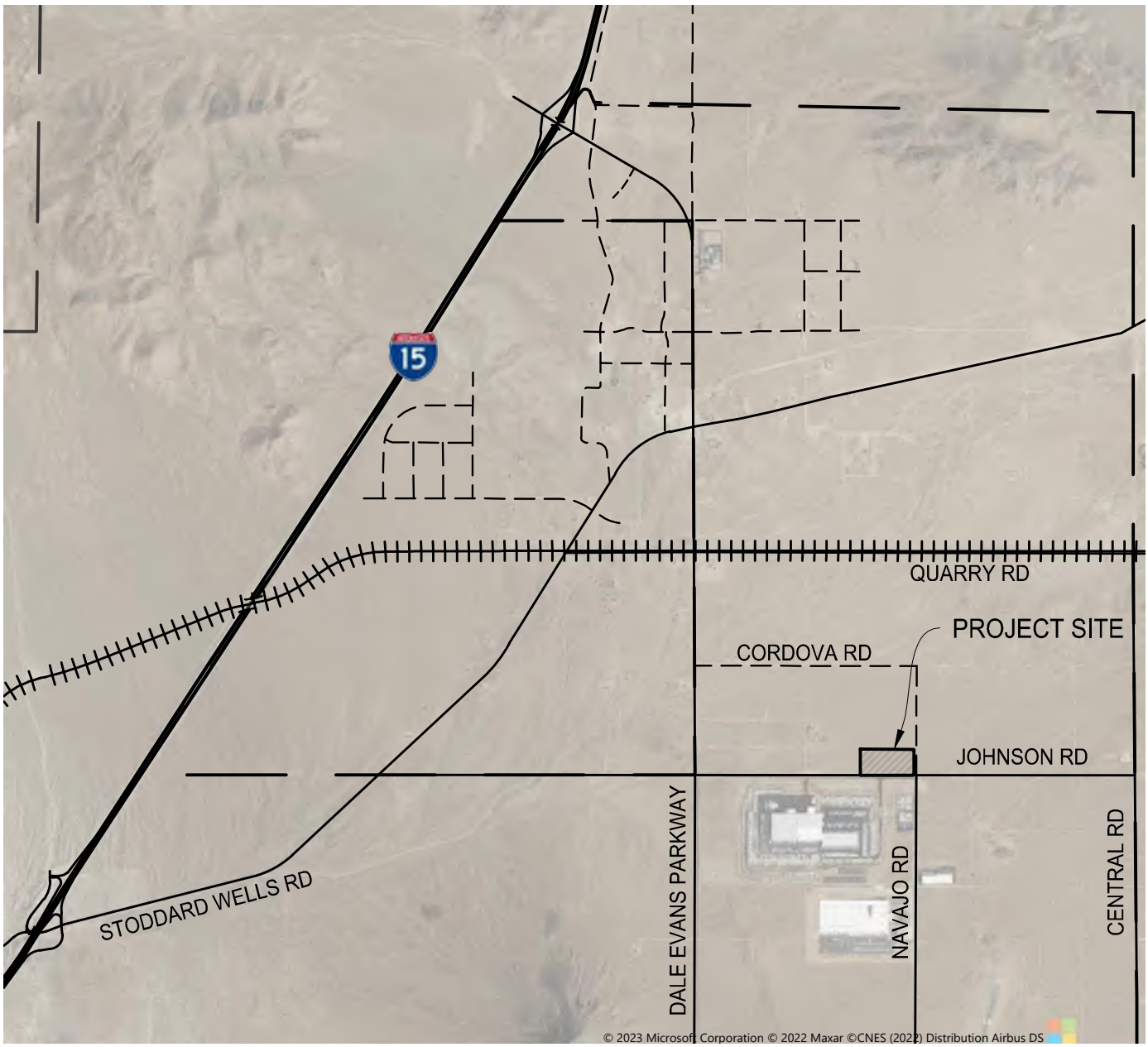

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EXHIBIT A: VICINITY MAP
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

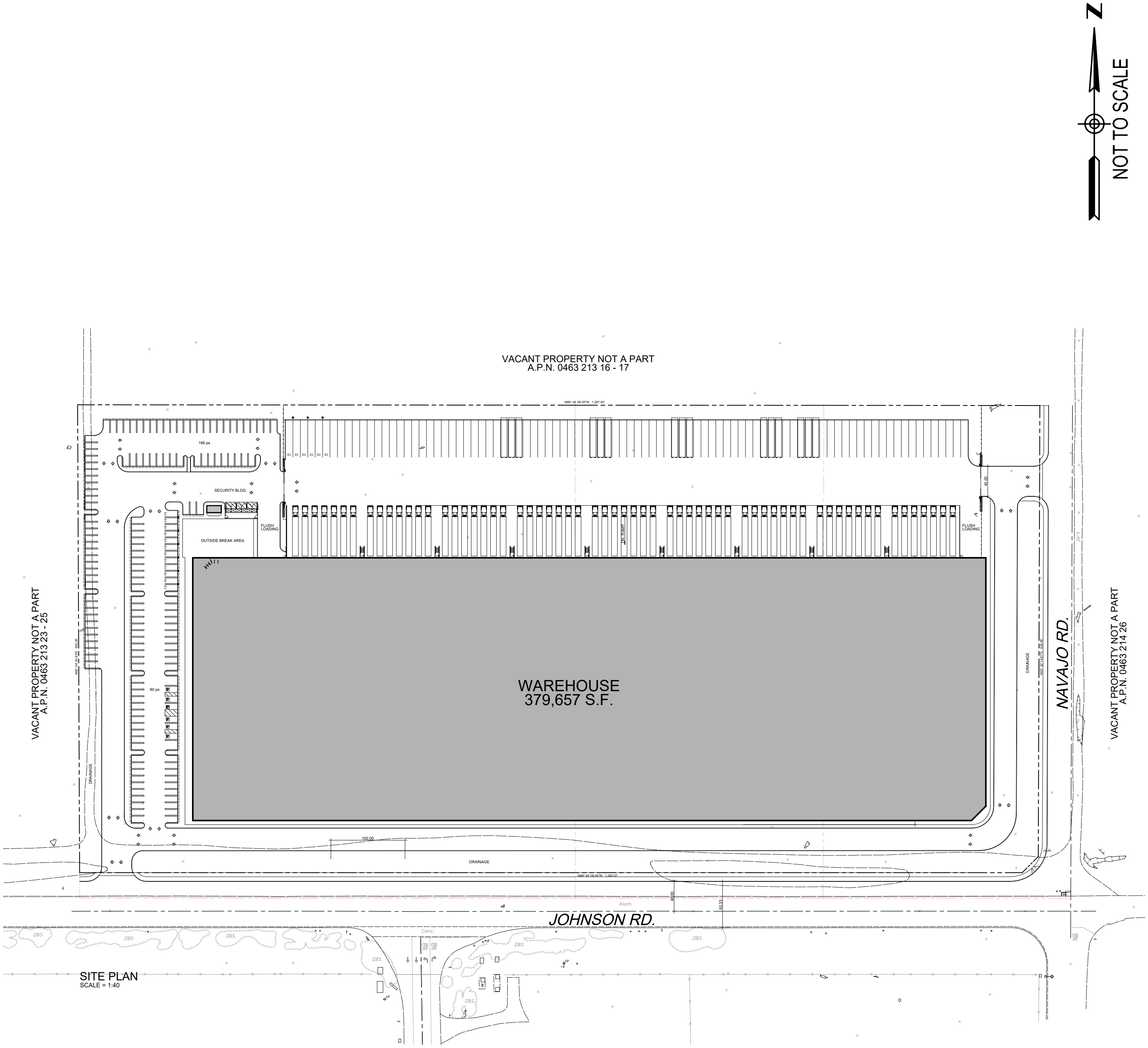

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EXHIBIT B: PROJECT SITE PLAN
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

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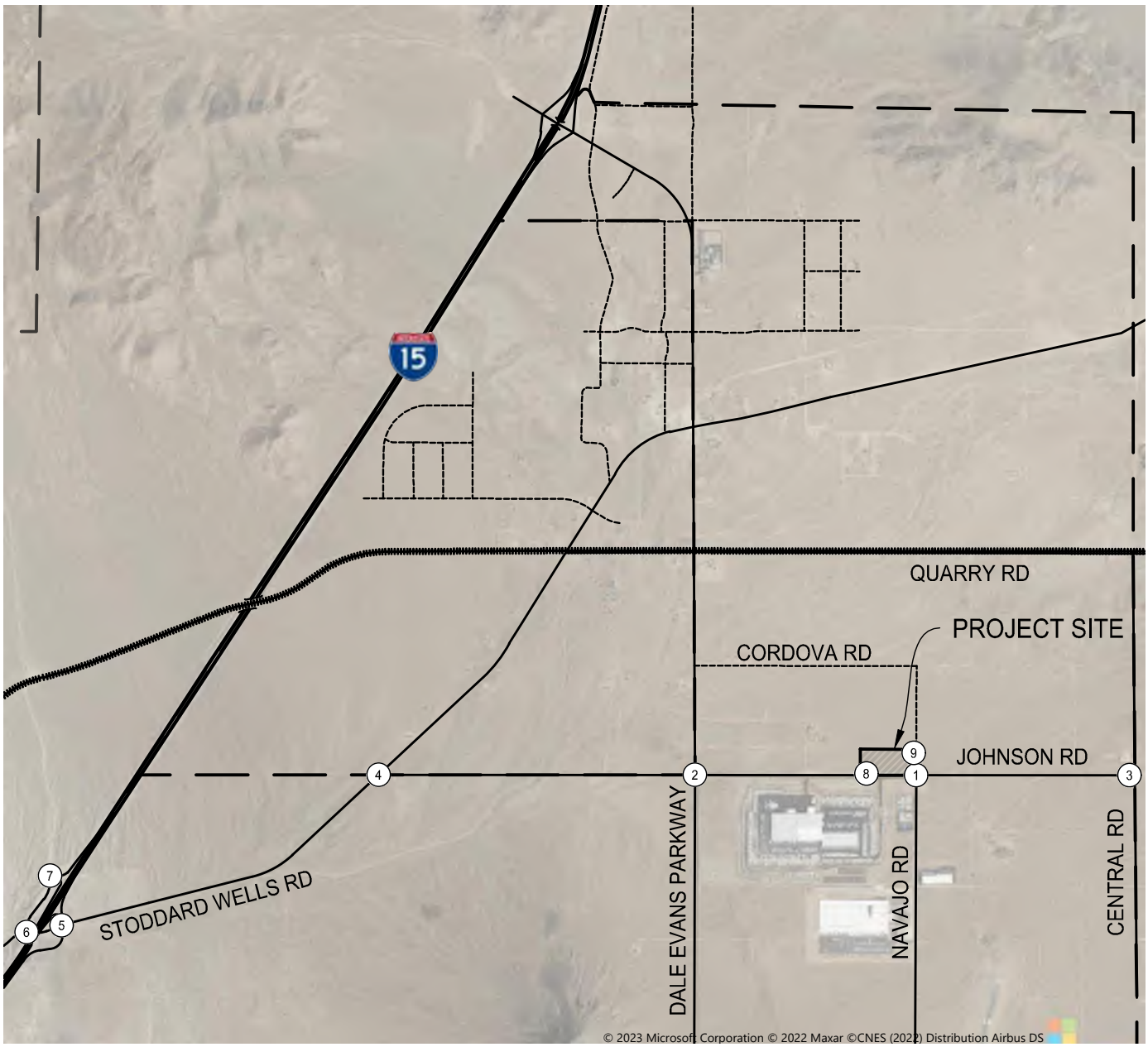

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EXHIBIT C: STUDY INTERSECTIONS
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

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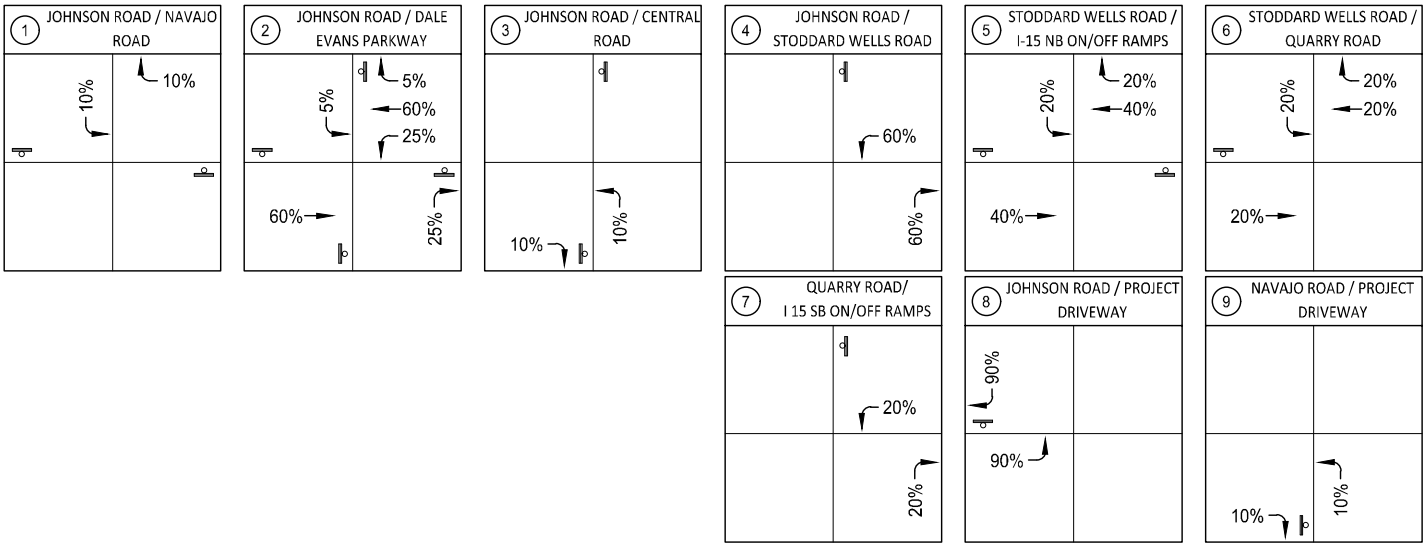

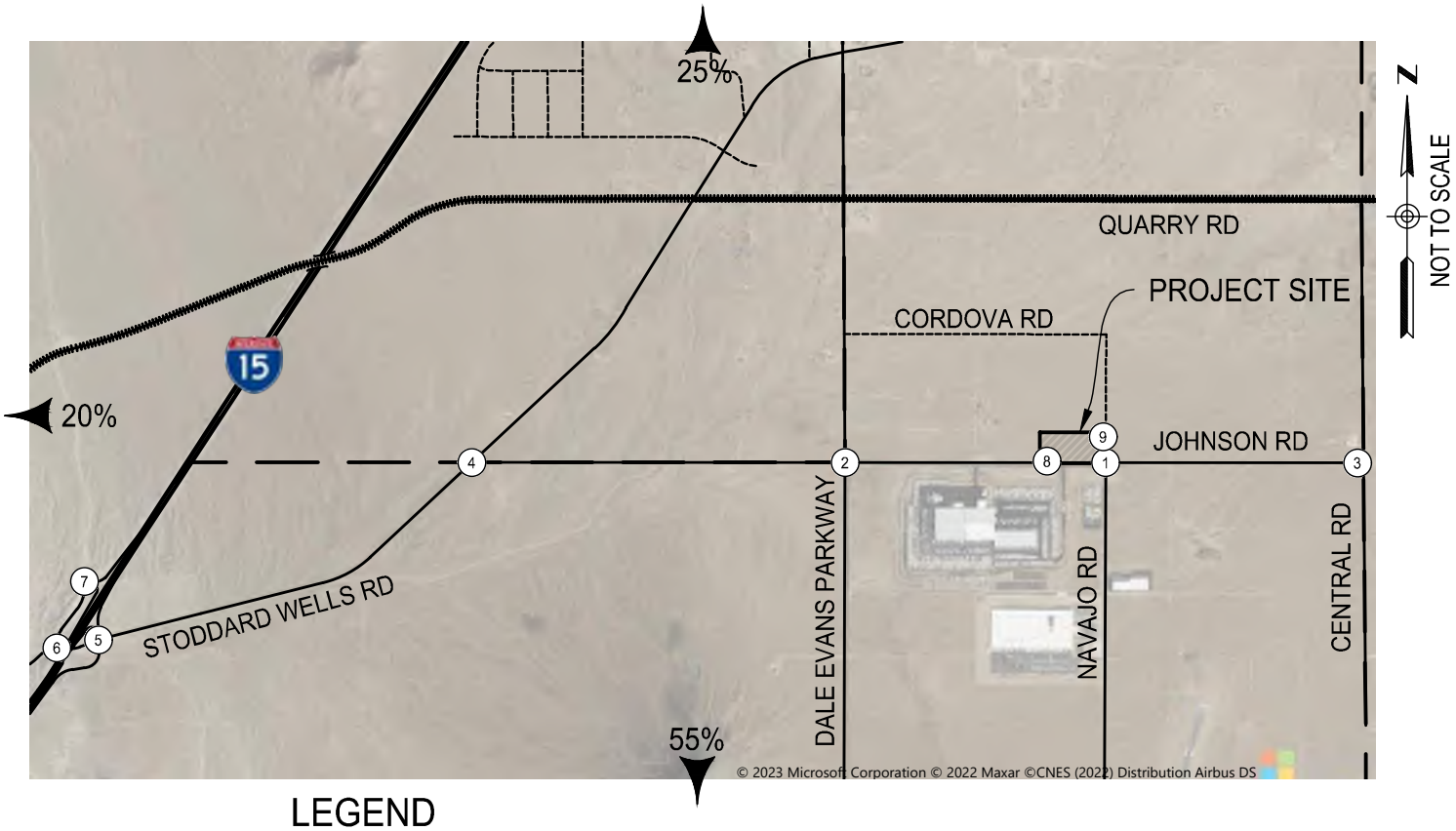

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XX% - GENERAL PROJECT TRIP DISTRIBUTION

XX% - SPECIFIC PROJECT TRIP PERCENTAGE

(#) - STUDY INTERSECTIONS

- STOP CONTROLLED INTERSECTION

- SIGNAL CONTROLLED INTERSECTION

DAVID EVANS AND ASSOCIATES INC.

EXHIBIT D1: PROJECT AUTOMOBILE TRIP DISTRIBUTION
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

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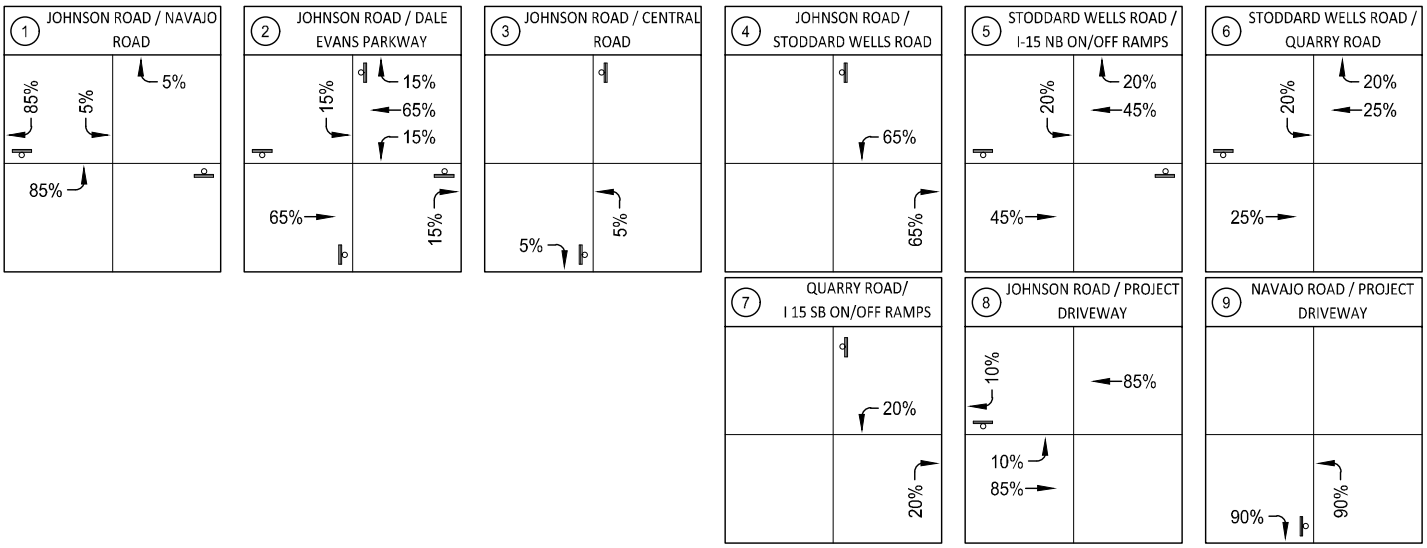
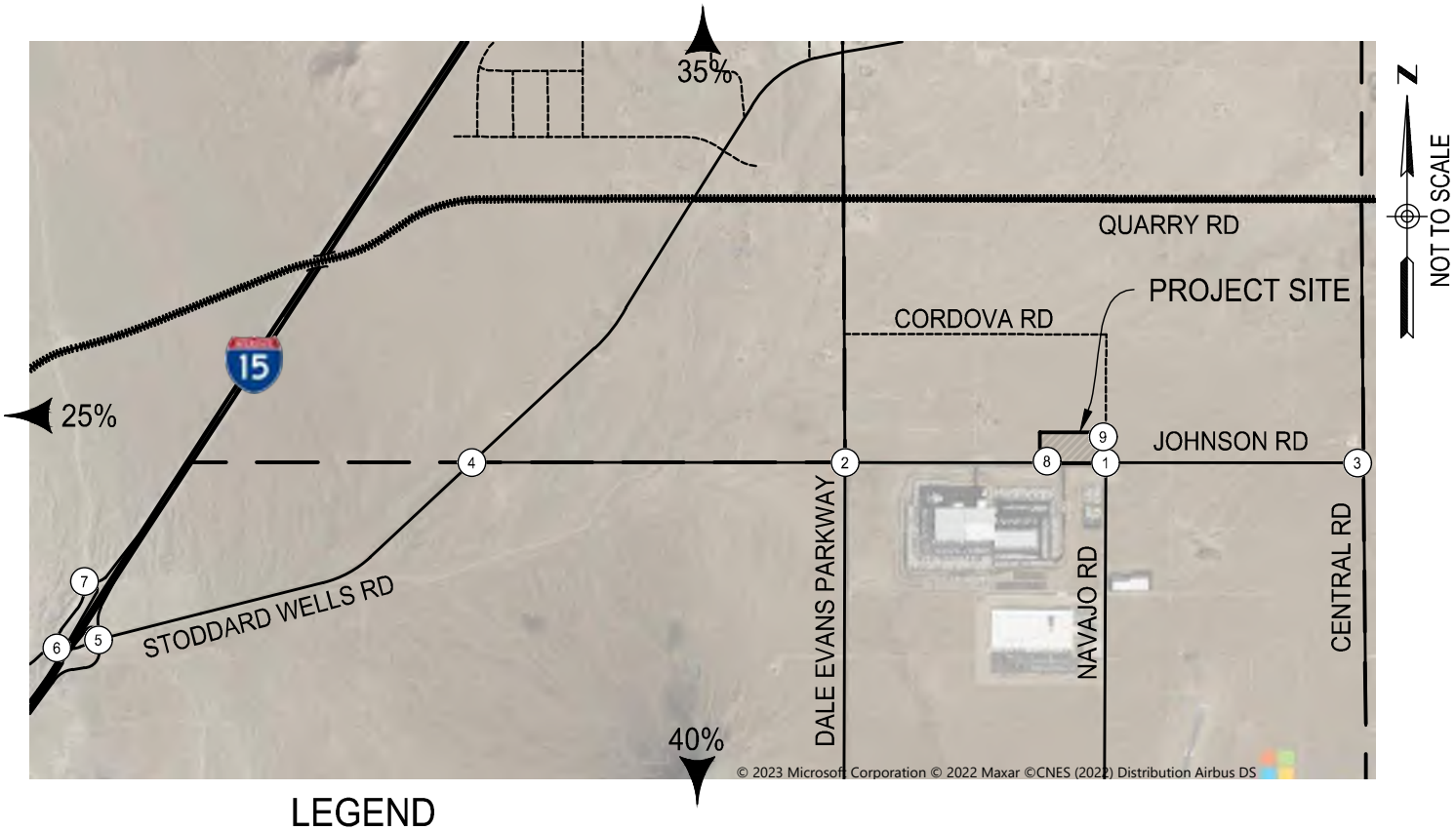
Last Opened: Mar 10, 2023 - 7:06am by: Tnm





LEGEND

XX% - GENERAL PROJECT TRIP DISTRIBUTION

XX% - SPECIFIC PROJECT TRIP PERCENTAGE

(#) - STUDY INTERSECTIONS

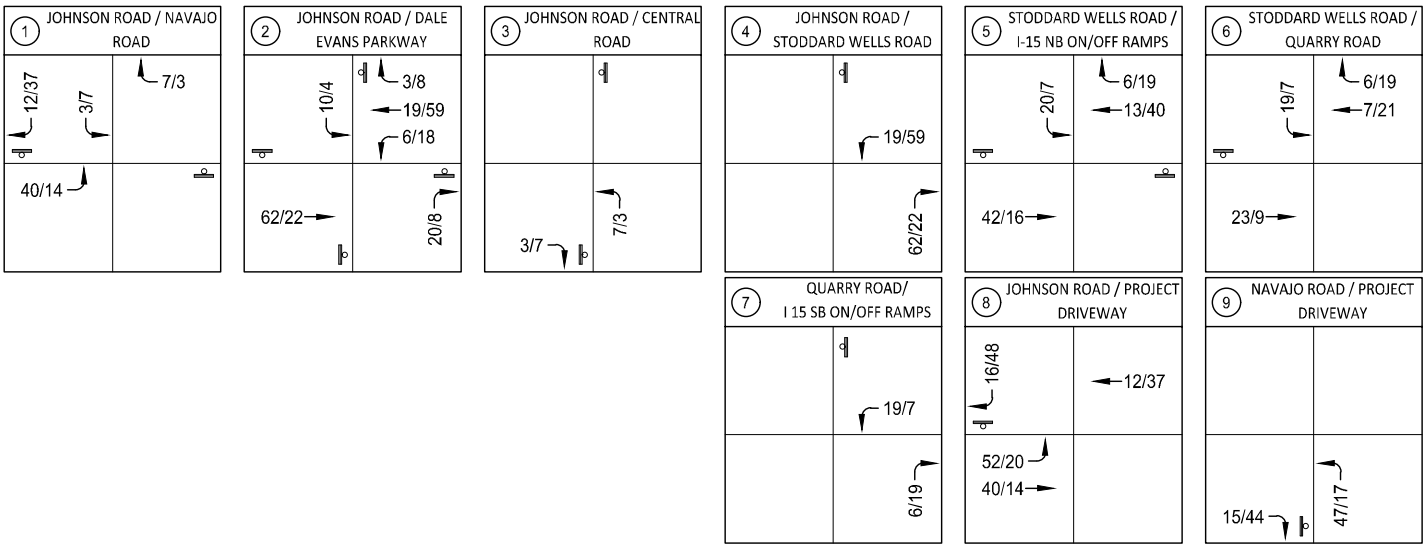
- STOP CONTROLLED INTERSECTION

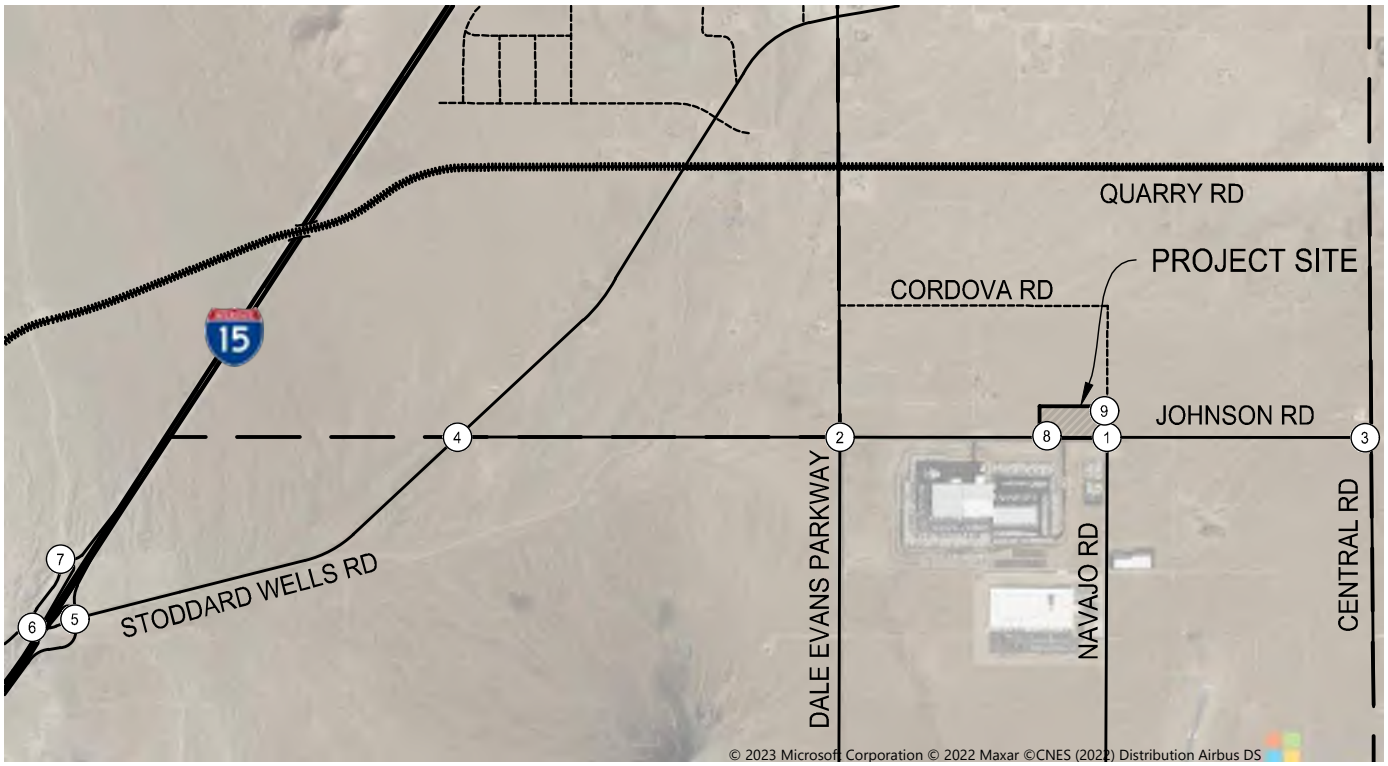
- SIGNAL CONTROLLED INTERSECTION

DAVID EVANS AND ASSOCIATES INC.

EXHIBIT D2: PROJECT TRUCK TRIP DISTRIBUTION
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

Drawing Name: P:\PTPIX\SAM\G0002\0400\CAD\TTE\EXHIBITS\Scope\Exhibit D2.dwg
Last Opened: Mar 10, 2023 - 7:06am by: Tim





N

NOT TO SCALE

TOTAL PROJECT PCE TRIPS

AM PEAK HOUR TRIPS - 99 IN / 30 OUT
PM PEAK HOUR TRIPS - 36 IN / 92 OUT

LEGEND

XX/XX - AM/PM TOTAL PCE PROJECT TRIPS

(#) - STUDY INTERSECTIONS

- STOP CONTROLLED INTERSECTION

- SIGNAL CONTROLLED INTERSECTION

DAVID EVANS AND ASSOCIATES INC.

EXHIBIT E: TOTAL PROJECT PCE TRIPS
JOHNSON ROAD INDUSTRIAL
APPLE VALLEY, CALIFORNIA

Drawing Name: P:\PTPIX\SAM\G0002\0400\CAD\TT\EXHIBITS\Scope\Exhibit E.dwg
Last Opened: Mar 10, 2023 - 7:06am by: Tmm

Appendix B: Traffic Counts

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: NAVAJO RD
EAST-WEST STREET: JOHNSON RD
JURISDICTION: APPLE VALLEY

DATE: 11-03-22

PEAK HOUR: 07:45AM

NORTH LEG

TOTAL: 0

			Total
0	0	0	1st
0	0	0	2nd
0	0	0	3rd
0	0	0	4th
Rt	Thru	Lt	

EAST LEG TOTAL: 35

	1st	2nd	3rd	4th	Total
Rt	0	0	0	0	
Thru	1	8	14	10	33
Lt	2	0	0	0	2

WEST LEG TOTAL: 59

Total	1st	2nd	3rd	4th	
	0	0	0	0	Lt
6	3	0	1	2	Thru
53	10	11	20	12	Rt

PEAK HOUR FACTORS

NORTH LEG =
SOUTH LEG = 0.81
EAST LEG = 0.63
WEST LEG = 0.70

ALL LEGS = 0.73

SOUTH LEG

TOTAL: 87

	Lt	Thru	Rt
1st	22	0	0
2nd	22	0	0
3rd	25	0	2
4th	16	0	0
Total	85		2

HOUR TOTAL: 181

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : NAVAJO RD — APPLE VALLEY

EAST-WEST STREET : JOHNSON RD — 11-03-22

BEGINNING TIME : 07:00AM

AUTOS RT	AUTOS THRU	AUTOS LT	LARGE 2 AXLE RT	LARGE 2 AXLE THRU	LARGE 2 AXLE LT	3 AXLE RT	3 AXLE THRU	3 AXLE LT	4(+) AXLE RT	4(+) AXLE THRU	4(+) AXLE LT	TOTALS
NORTH LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH LEG												
0	0	13	0	0	0	0	0	0	0	0	2	15
0	0	18	0	0	1	0	0	1	0	0	0	20
0	0	19	0	0	0	0	0	0	0	0	2	21
0	0	17	0	0	2	0	0	1	0	0	2	22
0	0	22	0	0	0	0	0	0	0	0	0	22
2	0	23	0	0	1	0	0	0	0	0	1	27
0	0	16	0	0	0	0	0	0	0	0	0	16
1	0	15	0	0	0	0	0	0	0	0	0	16
3	0	143	0	0	4	0	0	2	0	0	7	159
EAST LEG												
0	3	0	0	0	0	0	0	0	0	0	0	3
0	5	0	0	0	0	0	0	0	0	0	0	5
0	1	2	0	0	0	0	1	0	0	0	0	4
0	1	2	0	0	0	0	0	0	0	0	0	3
0	7	0	0	0	0	0	0	0	0	1	0	8
0	14	0	0	0	0	0	0	0	0	0	0	14
0	9	0	0	0	0	0	1	0	0	0	0	10
0	9	1	0	0	0	0	0	0	0	1	0	11
0	49	5	0	0	0	0	2	0	0	2	0	58
WEST LEG												
8	2	0	0	0	0	1	0	0	1	0	0	12
9	2	0	2	0	0	0	0	0	0	0	0	13
8	4	0	0	0	0	0	0	0	2	0	0	14
10	3	0	0	0	0	0	0	0	0	0	0	13
10	0	0	0	0	0	0	0	0	1	0	0	11
20	1	0	0	0	0	0	0	0	0	0	0	21
12	2	0	0	0	0	0	0	0	0	0	0	14
11	0	0	0	0	0	0	0	0	0	0	0	11
88	14	0	2	0	0	1	0	0	4	0	0	109

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: NAVAJO RD

EAST-WEST STREET: JOHNSON RD

TIME: 07:00AM-08:00AM DATE: 11-03-22

NORTH LEG

Rt	Thru	Lt	
0	0	0	Total
0	0	0	1st
0	0	0	2nd
0	0	0	3rd
0	0	0	4th

	1st	2nd	3rd	4th	Total
Rt	0	0	0	0	0
Thru	3	5	2	1	11
Lt	0	0	2	2	4

Total	1st	2nd	3rd	4th	
0	0	0	0	0	Lt
11	2	2	4	3	Thru
41	10	11	10	10	Rt

	Lt	Thru	Rt
1st	15	0	0
2nd	20	0	0
3rd	21	0	0
4th	22	0	0
Total	78	0	0

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: NAVAJO RD

EAST-WEST STREET: JOHNSON RD

TIME: 08:00AM-09:00AM DATE: 11-03-22

NORTH LEG

Rt	Thru	Lt	
0	0	0	Total
0	0	0	1st
0	0	0	2nd
0	0	0	3rd
0	0	0	4th

	1st	2nd	3rd	4th	Total
Rt	0	0	0	0	0
Thru	8	14	10	10	42
Lt	0	0	0	1	1

Total	1st	2nd	3rd	4th	
0	0	0	0	0	Lt
3	0	1	2	0	Thru
54	11	20	12	11	Rt

	Lt	Thru	Rt
1st	22	0	0
2nd	25	0	2
3rd	16	0	0
4th	15	0	1
Total	78	0	3

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: NAVAJO RD
EAST-WEST STREET: JOHNSON RD
JURISDICTION: APPLE VALLEY

DATE: 11-03-22

PEAK HOUR: 04:15PM

NORTH LEG

TOTAL: 0

			Total
0	0	0	1st
0	0	0	2nd
0	0	0	3rd
0	0	0	4th
Rt	Thru	Lt	

EAST LEG TOTAL: 32

Rt	0	0	0	0	
Thru	6	5	9	10	30
Lt	1	1	0	0	2
	1st	2nd	3rd	4th	Total

WEST LEG TOTAL: 109

Total	1st	2nd	3rd	4th	
	0	0	0	0	Lt
57	10	10	16	21	Thru
52	21	10	11	10	Rt

SOUTH LEG

TOTAL: 98

	Lt	Thru	Rt
1st	27	0	1
2nd	33	0	1
3rd	21	0	1
4th	14	0	0
Total	95		3

PEAK HOUR FACTORS

NORTH LEG =
SOUTH LEG = 0.72
EAST LEG = 0.80
WEST LEG = 0.88

ALL LEGS = 0.91

HOUR TOTAL: 239

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : NAVAJO RD — APPLE VALLEY

EAST-WEST STREET : JOHNSON RD — 11-03-22

BEGINNING TIME : 04:00PM

AUTOS			LARGE 2 AXLE			3 AXLE			4(+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH LEG												
0	0	13	0	0	0	0	0	0	0	0	3	16
1	0	27	0	0	0	0	0	0	0	0	0	28
1	0	33	0	0	0	0	0	0	0	0	0	34
1	0	21	0	0	0	0	0	0	0	0	0	22
0	0	13	0	0	0	0	0	0	0	0	1	14
1	0	19	0	0	0	0	0	0	0	0	0	20
0	0	25	0	0	0	0	0	0	0	0	0	25
1	0	16	0	0	0	0	0	0	0	0	0	17
5	0	167	0	0	0	0	0	0	0	0	4	176
EAST LEG												
0	8	0	0	0	0	0	0	0	0	0	0	8
0	6	1	0	0	0	0	0	0	0	0	0	7
0	5	1	0	0	0	0	0	0	0	0	0	6
0	9	0	0	0	0	0	0	0	0	0	0	9
0	10	0	0	0	0	0	0	0	0	0	0	10
0	8	2	0	0	0	0	0	0	0	0	0	10
0	11	1	0	0	0	0	0	0	0	0	0	12
0	6	0	0	0	0	0	0	0	0	0	0	6
0	63	5	0	0	0	0	0	0	0	0	0	68
WEST LEG												
14	14	0	1	0	0	0	0	0	0	0	0	29
21	10	0	0	0	0	0	0	0	0	0	0	31
8	10	0	0	0	0	1	0	0	1	0	0	20
11	16	0	0	0	0	0	0	0	0	0	0	27
10	21	0	0	0	0	0	0	0	0	0	0	31
6	16	0	1	0	0	0	0	0	1	0	0	24
16	10	0	0	0	0	0	0	0	0	0	0	26
10	10	0	0	0	0	0	0	0	0	0	0	20
96	107	0	2	0	0	1	0	0	2	0	0	208

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: NAVAJO RD

EAST-WEST STREET: JOHNSON RD

TIME: 04:00PM-05:00PM DATE: 11-03-22

NORTH LEG

Rt	Thru	Lt	
0	0	0	Total
0	0	0	1st
0	0	0	2nd
0	0	0	3rd
0	0	0	4th

	1st	2nd	3rd	4th	Total
Rt	0	0	0	0	0
Thru	8	6	5	9	28
Lt	0	1	1	0	2

Total	1st	2nd	3rd	4th	
0	0	0	0	0	Lt
50	14	10	10	16	Thru
57	15	21	10	11	Rt

	Lt	Thru	Rt
1st	16	0	0
2nd	27	0	1
3rd	33	0	1
4th	21	0	1
Total	97	0	3

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: NAVAJO RD

EAST-WEST STREET: JOHNSON RD

TIME: 05:00PM-06:00PM DATE: 11-03-22

NORTH LEG

Rt	Thru	Lt	
0	0	0	Total
0	0	0	1st
0	0	0	2nd
0	0	0	3rd
0	0	0	4th

	1st	2nd	3rd	4th	Total
Rt	0	0	0	0	0
Thru	10	8	11	6	35
Lt	0	2	1	0	3

Total	1st	2nd	3rd	4th	
0	0	0	0	0	Lt
57	21	16	10	10	Thru
44	10	8	16	10	Rt

	Lt	Thru	Rt
1st	14	0	0
2nd	19	0	1
3rd	25	0	0
4th	16	0	1
Total	74	0	2

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: DALE EVANS PKWY
EAST-WEST STREET: JOHNSON RD
JURISDICTION: APPLE VALLEY

DATE: 11-03-22

PEAK HOUR: 07:15AM

NORTH LEG

TOTAL: 55

	35	20	Total
0	13	4	1st
0	5	8	2nd
0	8	5	3rd
0	9	3	4th
Rt	Thru	Lt	

EAST LEG TOTAL: 153

	1st	2nd	3rd	4th	Total
Rt	6	6	10	11	33
Thru	26	32	22	29	109
Lt	3	2	3	3	11

WEST LEG TOTAL: 69

Total	1st	2nd	3rd	4th	
5	2	0	2	1	Lt
50	15	11	14	10	Thru
14	0	3	7	4	Rt

PEAK HOUR FACTORS

NORTH LEG = 0.81
SOUTH LEG = 0.82
EAST LEG = 0.89
WEST LEG = 0.75

ALL LEGS = 0.95

SOUTH LEG

TOTAL: 95

	Lt	Thru	Rt
1st	0	25	4
2nd	2	13	5
3rd	3	15	5
4th	3	14	6
Total	8	67	20

HOUR TOTAL: 372

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : DALE EVANS PKWY — APPLE VALLEY

EAST-WEST STREET : JOHNSON RD — 11-03-22

BEGINNING TIME : 07:00AM

AUTOS			LARGE 2 AXLE			3 AXLE			4(+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
0	12	1	0	1	0	0	0	0	0	2	1	17
0	13	3	0	0	1	0	0	0	0	0	0	17
0	4	8	0	1	0	0	0	0	0	0	0	13
0	5	3	0	0	0	0	0	0	0	3	2	13
0	6	2	0	1	0	0	0	0	0	2	1	12
0	6	6	0	0	0	0	0	0	0	3	0	15
0	6	5	0	0	0	0	0	0	0	0	0	11
0	12	1	0	0	1	0	0	0	0	0	3	17
0	64	29	0	3	2	0	0	0	0	10	7	115
SOUTH LEG												
5	25	0	0	0	0	0	0	0	0	0	0	30
3	25	0	1	0	0	0	0	0	0	0	0	29
5	13	2	0	0	0	0	0	0	0	0	0	20
5	15	3	0	0	0	0	0	0	0	0	0	23
6	14	3	0	0	0	0	0	0	0	0	0	23
4	9	2	0	0	0	0	0	0	0	0	0	15
6	8	2	0	0	0	0	0	0	0	0	0	16
5	11	0	0	0	0	0	0	0	0	0	0	16
39	120	12	1	0	0	0	0	0	0	0	0	172
EAST LEG												
3	24	1	0	1	0	0	0	0	2	1	0	32
5	24	3	0	1	0	1	1	0	0	0	0	35
4	30	2	0	0	0	0	1	0	2	1	0	40
6	18	3	1	2	0	0	1	0	3	1	0	35
10	28	3	1	0	0	0	0	0	0	1	0	43
9	27	2	1	1	0	0	1	0	0	0	0	41
3	30	2	0	0	0	0	1	0	1	0	0	37
6	48	0	0	0	0	0	0	0	1	0	0	55
46	229	16	3	5	0	1	5	0	9	4	0	318
WEST LEG												
0	9	2	0	0	0	0	1	0	0	0	0	12
0	14	2	0	1	0	0	0	0	0	0	0	17
2	9	0	0	1	0	0	0	0	1	1	0	14
6	14	2	0	0	0	1	0	0	0	0	0	23
2	7	1	0	1	0	0	1	0	2	1	0	15
5	16	0	0	0	0	0	0	0	0	0	0	21
5	14	0	0	0	0	0	0	0	0	0	0	19
3	8	1	0	0	0	0	1	0	0	0	0	13
23	91	8	0	3	0	1	3	0	3	2	0	134

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: DALE EVANS PKWY

EAST-WEST STREET: JOHNSON RD

TIME: 07:00AM-08:00AM DATE: 11-03-22

NORTH LEG

0	41	19	Total
0	15	2	1st
0	13	4	2nd
0	5	8	3rd
0	8	5	4th
Rt	Thru	Lt	

Rt	5	6	6	10	27
Thru	26	26	32	22	106
Lt	1	3	2	3	9
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
6	2	2	0	2	Lt
50	10	15	11	14	Thru
10	0	0	3	7	Rt

	Lt	Thru	Rt
1st	0	25	5
2nd	0	25	4
3rd	2	13	5
4th	3	15	5
Total	5	78	19

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: DALE EVANS PKWY

EAST-WEST STREET: JOHNSON RD

TIME: 08:00AM-09:00AM DATE: 11-03-22

NORTH LEG

Rt	Thru	Lt	
0	36	19	Total
0	9	3	1st
0	9	6	2nd
0	6	5	3rd
0	12	5	4th

	1st	2nd	3rd	4th	Total
Rt	11	10	4	7	32
Thru	29	29	31	48	137
Lt	3	2	2	0	7

Total	1st	2nd	3rd	4th	
2	1	0	0	1	Lt
49	10	16	14	9	Thru
17	4	5	5	3	Rt

	Lt	Thru	Rt
1st	3	14	6
2nd	2	9	4
3rd	2	8	6
4th	0	11	5
Total	7	42	21

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: DALE EVANS PKWY
EAST-WEST STREET: JOHNSON RD
JURISDICTION: APPLE VALLEY

DATE: 11-03-22

PEAK HOUR: 04:15PM

NORTH LEG

TOTAL: 214

	170	44	Total
0	29	12	1st
0	50	15	2nd
0	40	11	3rd
0	51	6	4th
Rt	Thru	Lt	

EAST LEG TOTAL: 231

	1st	2nd	3rd	4th	Total
Rt	7	5	4	3	19
Thru	45	50	44	46	185
Lt	10	8	5	4	27

WEST LEG TOTAL: 126

Total	1st	2nd	3rd	4th	
3	2	1	0	0	Lt
101	26	31	29	15	Thru
22	3	7	5	7	Rt

PEAK HOUR FACTORS

NORTH LEG = 0.82
SOUTH LEG = 0.88
EAST LEG = 0.92
WEST LEG = 0.81

ALL LEGS = 0.86

SOUTH LEG

TOTAL: 144

	Lt	Thru	Rt
1st	2	18	15
2nd	5	25	11
3rd	3	11	14
4th	6	26	8
Total	16	80	48

HOUR TOTAL: 715

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : DALE EVANS PKWY — APPLE VALLEY

EAST-WEST STREET : JOHNSON RD — 11-03-22

BEGINNING TIME : 04:00PM

AUTOS RT	AUTOS THRU	AUTOS LT	LARGE 2 AXLE RT	LARGE 2 AXLE THRU	LARGE 2 AXLE LT	3 AXLE RT	3 AXLE THRU	3 AXLE LT	4(+) AXLE RT	4(+) AXLE THRU	4(+) AXLE LT	TOTALS
					NORTH LEG							
0	21	11	0	0	1	0	0	0	0	1	0	34
0	29	12	0	0	0	0	0	0	0	0	0	41
0	50	13	0	0	1	0	0	1	0	0	0	65
0	40	8	0	0	0	0	0	1	0	0	2	51
0	50	6	0	1	0	0	0	0	0	0	0	57
0	40	6	0	0	2	0	0	0	0	0	0	48
0	38	2	0	0	0	0	0	0	0	0	3	43
0	29	5	0	0	0	0	0	0	0	0	1	35
0	297	63	0	1	4	0	0	2	0	1	6	374
					SOUTH LEG							
10	13	3	0	0	0	0	0	0	0	1	0	27
15	17	2	0	0	0	0	0	0	0	1	0	35
11	24	5	0	0	0	0	0	0	0	1	0	41
14	9	3	0	0	0	0	0	0	0	2	0	28
8	26	6	0	0	0	0	0	0	0	0	0	40
10	27	5	0	0	0	0	0	0	0	3	0	45
6	7	3	0	0	0	0	0	0	0	0	0	16
6	9	5	0	0	0	0	0	0	0	0	0	20
80	132	32	0	0	0	0	0	0	0	8	0	252
					EAST LEG							
5	30	3	0	0	0	0	0	0	0	3	0	41
7	45	10	0	0	0	0	0	0	0	0	0	62
5	48	8	0	0	0	0	0	0	0	2	0	63
4	44	5	0	0	0	0	0	0	0	0	0	53
3	45	4	0	0	0	0	0	0	0	1	0	53
5	35	4	0	0	0	0	0	0	0	0	0	44
5	39	5	0	0	0	0	0	0	0	0	0	49
3	42	3	0	0	0	0	0	0	0	0	0	48
37	328	42	0	0	0	0	0	0	0	6	0	413
					WEST LEG							
3	24	0	0	1	0	0	0	0	0	0	0	28
3	26	2	0	0	0	0	0	0	0	0	0	31
6	30	1	0	1	0	0	0	0	1	0	0	39
5	28	0	0	0	0	0	0	0	0	1	0	34
7	14	0	0	0	0	0	0	0	0	1	0	22
7	13	1	0	0	0	0	0	0	0	0	0	21
4	14	1	0	0	0	0	0	0	0	0	0	19
4	11	1	0	0	0	0	0	0	1	0	0	17
39	160	6	0	2	0	0	0	0	2	2	0	211

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: DALE EVANS PKWY

EAST-WEST STREET: JOHNSON RD

TIME: 04:00PM-05:00PM DATE: 11-03-22

NORTH LEG

0	141	50	Total
0	22	12	1st
0	29	12	2nd
0	50	15	3rd
0	40	11	4th
Rt	Thru	Lt	

Rt	5	7	5	4	21
Thru	33	45	50	44	172
Lt	3	10	8	5	26
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
3	0	2	1	0	Lt
111	25	26	31	29	Thru
18	3	3	7	5	Rt

	Lt	Thru	Rt
1st	3	14	10
2nd	2	18	15
3rd	5	25	11
4th	3	11	14
Total	13	68	50

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: DALE EVANS PKWY

EAST-WEST STREET: JOHNSON RD

TIME: 05:00PM-06:00PM DATE: 11-03-22

NORTH LEG

Rt	Thru	Lt	
0	158	25	Total
0	51	6	1st
0	40	8	2nd
0	38	5	3rd
0	29	6	4th

	1st	2nd	3rd	4th	Total
Rt	3	5	5	3	16
Thru	46	35	39	42	162
Lt	4	4	5	3	16

Total	1st	2nd	3rd	4th	
3	0	1	1	1	Lt
53	15	13	14	11	Thru
23	7	7	4	5	Rt

	Lt	Thru	Rt
1st	6	26	8
2nd	5	30	10
3rd	3	7	6
4th	5	9	6
Total	19	72	30

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: CENTRAL RD
EAST-WEST STREET: JOHNSON RD
JURISDICTION: APPLE VALLEY

DATE: 08-31-23

PEAK HOUR: 07:00AM

NORTH LEG

TOTAL: 29

	29		Total
0	9	0	1st
0	7	0	2nd
0	8	0	3rd
0	5	0	4th
Rt	Thru	Lt	

EAST LEG TOTAL: 0

	1st	2nd	3rd	4th	Total
Rt	0	0	0	0	
Thru	0	0	0	0	
Lt	0	0	0	0	

WEST LEG TOTAL: 3

Total	1st	2nd	3rd	4th	
1	0	0	0	1	Lt
	0	0	0	0	Thru
2	0	0	1	1	Rt

PEAK HOUR FACTORS

NORTH LEG = 0.81
SOUTH LEG = 0.83
EAST LEG =
WEST LEG = 0.38

ALL LEGS = 0.86

SOUTH LEG

TOTAL: 30

	Lt	Thru	Rt
1st	0	9	0
2nd	0	5	0
3rd	0	9	0
4th	2	5	0
Total	2	28	

HOUR TOTAL: 62

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : CENTRAL RD — APPLE VALLEY

EAST-WEST STREET : JOHNSON RD — 08-31-23

BEGINNING TIME : 07:00AM

AUTOS			LARGE 2 AXLE			3 AXLE			4(+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
0	9	0	0	0	0	0	0	0	0	0	0	9
0	6	0	0	1	0	0	0	0	0	0	0	7
0	8	0	0	0	0	0	0	0	0	0	0	8
0	2	0	0	1	0	0	1	0	0	1	0	5
0	1	0	0	1	0	0	1	0	0	1	0	4
0	2	0	0	0	0	0	0	0	0	1	0	3
0	6	0	0	0	0	0	0	0	0	0	0	6
0	1	0	0	1	0	0	1	0	0	0	0	3
0	35	0	0	4	0	0	3	0	0	3	0	45
SOUTH LEG												
0	9	0	0	0	0	0	0	0	0	0	0	9
0	2	0	0	1	0	0	0	0	0	2	0	5
0	7	0	0	1	0	0	1	0	0	0	0	9
0	4	2	0	0	0	0	1	0	0	0	0	7
0	4	1	0	0	0	0	0	0	0	0	0	5
0	5	1	0	2	0	0	0	0	0	1	0	9
0	4	0	0	0	0	0	0	0	0	1	0	5
0	3	0	0	1	0	0	0	0	0	1	0	5
0	38	4	0	5	0	0	2	0	0	5	0	54
EAST LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
WEST LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	1
1	0	1	0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	1	0	0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	1
4	0	3	0	0	0	0	0	0	0	0	0	7

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: CENTRAL RD

EAST-WEST STREET: JOHNSON RD

TIME: 07:00AM-08:00AM DATE: 08-31-23

NORTH LEG

Rt	Thru	Lt	
0	29	0	Total
0	9	0	1st
0	7	0	2nd
0	8	0	3rd
0	5	0	4th

	1st	2nd	3rd	4th	Total
Rt	0	0	0	0	0
Thru	0	0	0	0	0
Lt	0	0	0	0	0

Total	1st	2nd	3rd	4th	
1	0	0	0	1	Lt
0	0	0	0	0	Thru
2	0	0	1	1	Rt

	Lt	Thru	Rt
1st	0	9	0
2nd	0	5	0
3rd	0	9	0
4th	2	5	0
Total	2	28	0

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: CENTRAL RD

EAST-WEST STREET: JOHNSON RD

TIME: 08:00AM-09:00AM DATE: 08-31-23

NORTH LEG

Rt	Thru	Lt	
0	16	0	Total
0	4	0	1st
0	3	0	2nd
0	6	0	3rd
0	3	0	4th

	1st	2nd	3rd	4th	Total
Rt	0	0	0	0	0
Thru	0	0	0	0	0
Lt	0	0	0	0	0

Total	1st	2nd	3rd	4th	
2	0	1	0	1	Lt
0	0	0	0	0	Thru
2	0	2	0	0	Rt

	Lt	Thru	Rt
1st	1	4	0
2nd	1	8	0
3rd	0	5	0
4th	0	5	0
Total	2	22	0

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: CENTRAL RD
EAST-WEST STREET: JOHNSON RD
JURISDICTION: APPLE VALLEY

DATE: 08-31-23

PEAK HOUR: 04:00PM

NORTH LEG

TOTAL: 53

	49	4	Total
0	12	0	1st
0	11	2	2nd
0	14	2	3rd
0	12	0	4th
Rt	Thru	Lt	

EAST LEG TOTAL: 8

	1st	2nd	3rd	4th	Total
Rt	0	0	1	0	1
Thru	0	2	1	0	3
Lt	1	1	1	1	4

Total	1st	2nd	3rd	4th	
1	0	0	1	0	Lt
1	0	1	0	0	Thru
5	3	0	1	1	Rt

WEST LEG TOTAL: 7

PEAK HOUR FACTORS

NORTH LEG = 0.83
SOUTH LEG = 0.73
EAST LEG = 0.67
WEST LEG = 0.58

ALL LEGS = 0.78

	Lt	Thru	Rt
1st	0	9	0
2nd	1	10	0
3rd	2	10	2
4th	0	6	1
Total	3	35	3

SOUTH LEG

TOTAL: 41

HOUR TOTAL: 109

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : CENTRAL RD
EAST-WEST STREET : JOHNSON RD

APPLE VALLEY
08-31-23

BEGINNING TIME : 04:00PM

AUTOS RT	AUTOS THRU	AUTOS LT	LARGE 2 AXLE RT	LARGE 2 AXLE THRU	LARGE 2 AXLE LT	3 AXLE RT	3 AXLE THRU	3 AXLE LT	4(+) AXLE RT	4(+) AXLE THRU	4(+) AXLE LT	TOTALS
NORTH LEG												
0	10	0	0	0	0	0	1	0	0	1	0	12
0	8	2	0	2	0	0	0	0	0	1	0	13
0	13	2	0	0	0	0	1	0	0	0	0	16
0	8	0	0	1	0	0	1	0	0	2	0	12
0	14	0	0	1	0	0	0	0	0	0	0	15
0	11	3	0	0	0	0	0	0	0	0	0	14
0	7	0	0	1	0	0	1	0	0	1	0	10
0	4	2	0	1	0	0	0	0	0	1	0	8
0	75	9	0	6	0	0	4	0	0	6	0	100
SOUTH LEG												
0	9	0	0	0	0	0	0	0	0	0	0	9
0	4	1	0	2	0	0	2	0	0	2	0	11
2	8	2	0	1	0	0	0	0	0	1	0	14
1	3	0	0	1	0	0	1	0	0	1	0	7
1	4	0	0	0	0	0	0	0	0	1	0	6
0	4	0	0	1	0	0	0	0	0	0	0	5
1	5	2	0	1	0	0	0	0	0	0	0	9
0	2	0	0	1	0	0	0	0	0	1	0	4
5	39	5	0	7	0	0	3	0	0	6	0	65
EAST LEG												
0	0	1	0	0	0	0	0	0	0	0	0	1
0	2	1	0	0	0	0	0	0	0	0	0	3
1	1	1	0	0	0	0	0	0	0	0	0	3
0	0	1	0	0	0	0	0	0	0	0	0	1
1	0	0	0	0	0	0	0	0	0	0	0	1
0	1	1	0	0	0	0	0	0	0	0	0	2
0	1	1	0	0	0	0	0	0	0	0	0	2
0	0	1	0	0	0	0	0	0	0	0	0	1
2	5	7	0	0	0	0	0	0	0	0	0	14
WEST LEG												
3	0	0	0	0	0	0	0	0	0	0	0	3
0	1	0	0	0	0	0	0	0	0	0	0	1
1	0	1	0	0	0	0	0	0	0	0	0	2
1	0	0	0	0	0	0	0	0	0	0	0	1
0	0	1	0	0	0	0	0	0	0	0	0	1
0	0	1	0	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0	0	0	0	2
1	0	1	0	0	0	0	0	0	0	0	0	2
8	1	4	0	0	0	0	0	0	0	0	0	13

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: CENTRAL RD

EAST-WEST STREET: JOHNSON RD

TIME: 04:00PM-05:00PM DATE: 08-31-23

NORTH LEG

Rt	Thru	Lt	
0	49	4	Total
0	12	0	1st
0	11	2	2nd
0	14	2	3rd
0	12	0	4th

	1st	2nd	3rd	4th	Total
Rt	0	0	1	0	1
Thru	0	2	1	0	3
Lt	1	1	1	1	4

Total	1st	2nd	3rd	4th	
1	0	0	1	0	Lt
1	0	1	0	0	Thru
5	3	0	1	1	Rt

	Lt	Thru	Rt
1st	0	9	0
2nd	1	10	0
3rd	2	10	2
4th	0	6	1
Total	3	35	3

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: CENTRAL RD

EAST-WEST STREET: JOHNSON RD

TIME: 05:00PM-06:00PM DATE: 08-31-23

NORTH LEG

Rt	Thru	Lt	
0	42	5	Total
0	15	0	1st
0	11	3	2nd
0	10	0	3rd
0	6	2	4th

	1st	2nd	3rd	4th	Total
Rt	1	0	0	0	1
Thru	0	1	1	0	2
Lt	0	1	1	1	3

Total	1st	2nd	3rd	4th	
3	1	1	0	1	Lt
0	0	0	0	0	Thru
3	0	0	2	1	Rt

	Lt	Thru	Rt
1st	0	5	1
2nd	0	5	0
3rd	2	6	1
4th	0	4	0
Total	2	20	2

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: STODDARD WELLS RD
EAST-WEST STREET: JOHNSON RD
JURISDICTION: APPLE VALLEY

DATE: 11-09-22

PEAK HOUR: 07:15AM

NORTH LEG

TOTAL: 50

	49	1	Total
0	12	0	1st
0	15	1	2nd
0	11	0	3rd
0	11	0	4th
Rt	Thru	Lt	

EAST LEG

EAST LEG TOTAL: 138

Rt	2	0	1	2	5
Thru	0	0	0	0	
Lt	25	38	40	30	133
	1st	2nd	3rd	4th	Total

WEST LEG

Total	1st	2nd	3rd	4th	
	0	0	0	0	Lt
	0	0	0	0	Thru
	0	0	0	0	Rt

WEST LEG TOTAL: 0

SOUTH LEG

	Lt	Thru	Rt
1st	0	8	40
2nd	0	0	15
3rd	0	1	7
4th	0	4	13
Total		13	75

TOTAL: 88

PEAK HOUR FACTORS

NORTH LEG = 0.78
SOUTH LEG = 0.46
EAST LEG = 0.84
WEST LEG =

ALL LEGS = 0.79

HOUR TOTAL: 276

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : STODDARD WELLS RD — APPLE VALLEY

EAST-WEST STREET : JOHNSON RD — 11-09-22

BEGINNING TIME : 07:00AM

AUTOS			LARGE 2 AXLE			3 AXLE			4(+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
0	10	0	0	0	0	0	0	0	0	0	0	10
0	12	0	0	0	0	0	0	0	0	0	0	12
0	15	1	0	0	0	0	0	0	0	0	0	16
0	11	0	0	0	0	0	0	0	0	0	0	11
0	10	0	0	0	0	0	1	0	0	0	0	11
0	12	0	0	1	0	0	1	0	0	0	0	14
0	10	2	0	0	0	0	0	0	0	0	0	12
0	8	1	0	0	0	0	0	0	0	0	0	9
0	88	4	0	1	0	0	2	0	0	0	0	95
SOUTH LEG												
12	1	0	0	0	0	1	0	0	0	0	0	14
38	8	0	0	0	0	1	0	0	1	0	0	48
15	0	0	0	0	0	0	0	0	0	0	0	15
6	1	0	1	0	0	0	0	0	0	0	0	8
13	3	0	0	0	0	0	1	0	0	0	0	17
3	1	0	0	0	0	0	0	0	1	0	0	5
8	2	0	0	0	0	0	0	0	0	0	0	10
3	0	0	0	0	0	0	0	0	0	0	0	3
98	16	0	1	0	0	2	1	0	2	0	0	120
EAST LEG												
0	0	30	0	0	0	0	0	1	0	0	1	32
2	0	20	0	0	2	0	0	1	0	0	2	27
0	0	38	0	0	0	0	0	0	0	0	0	38
1	0	39	0	0	1	0	0	0	0	0	0	41
2	0	30	0	0	0	0	0	0	0	0	0	32
2	0	29	0	0	1	0	0	4	0	0	0	36
1	0	20	0	0	0	0	0	0	0	0	0	21
2	0	13	0	0	0	0	0	0	0	0	0	15
10	0	219	0	0	4	0	0	6	0	0	3	242
WEST LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: STODDARD WELLS RD

EAST-WEST STREET: JOHNSON RD

TIME: 07:00AM-08:00AM DATE: 11-09-22

NORTH LEG

Rt	Thru	Lt	
0	48	1	Total
0	10	0	1st
0	12	0	2nd
0	15	1	3rd
0	11	0	4th

	1st	2nd	3rd	4th	Total
Rt	0	2	0	1	3
Thru	0	0	0	0	0
Lt	32	25	38	40	135

Total	1st	2nd	3rd	4th	
0	0	0	0	0	Lt
0	0	0	0	0	Thru
0	0	0	0	0	Rt

	Lt	Thru	Rt
1st	0	1	13
2nd	0	8	40
3rd	0	0	15
4th	0	1	7
Total	0	10	75

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: STODDARD WELLS RD

EAST-WEST STREET: JOHNSON RD

TIME: 08:00AM-09:00AM DATE: 11-09-22

NORTH LEG

Rt	Thru	Lt	
0	43	3	Total
0	11	0	1st
0	14	0	2nd
0	10	2	3rd
0	8	1	4th

	1st	2nd	3rd	4th	Total
Rt	2	2	1	2	7
Thru	0	0	0	0	0
Lt	30	34	20	13	97

Total	1st	2nd	3rd	4th	
0	0	0	0	0	Lt
0	0	0	0	0	Thru
0	0	0	0	0	Rt

	Lt	Thru	Rt
1st	0	4	13
2nd	0	1	4
3rd	0	2	8
4th	0	0	3
Total	0	7	28

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: STODDARD WELLS RD
EAST-WEST STREET: JOHNSON RD
JURISDICTION: APPLE VALLEY

DATE: 11-09-22

PEAK HOUR: 04:00PM

NORTH LEG

TOTAL: 146

	115	31	Total
0	32	6	1st
0	25	6	2nd
0	28	8	3rd
0	30	11	4th
Rt	Thru	Lt	

EAST LEG TOTAL: 267

Rt	6	5	9	4	24
Thru	0	0	0	0	
Lt	84	34	64	61	243
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
	0	0	0	0	Lt
	0	0	0	0	Thru
	0	0	0	0	Rt

WEST LEG TOTAL: 0

PEAK HOUR FACTORS

NORTH LEG = 0.89
SOUTH LEG = 0.80
EAST LEG = 0.74
WEST LEG =

ALL LEGS = 0.81

	Lt	Thru	Rt
1st	0	5	16
2nd	0	7	15
3rd	0	4	10
4th	0	4	9
Total		20	50

TOTAL: 70

SOUTH LEG

HOUR TOTAL: 483

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : STODDARD WELLS RD — APPLE VALLEY

EAST-WEST STREET : JOHNSON RD — 11-09-22

BEGINNING TIME : 04:00PM

AUTOS RT	AUTOS THRU	AUTOS LT	LARGE 2 AXLE RT	LARGE 2 AXLE THRU	LARGE 2 AXLE LT	3 AXLE RT	3 AXLE THRU	3 AXLE LT	4(+) AXLE RT	4(+) AXLE THRU	4(+) AXLE LT	TOTALS
NORTH LEG												
0	32	6	0	0	0	0	0	0	0	0	0	38
0	25	6	0	0	0	0	0	0	0	0	0	31
0	28	8	0	0	0	0	0	0	0	0	0	36
0	30	11	0	0	0	0	0	0	0	0	0	41
0	28	4	0	0	0	0	0	0	0	0	0	32
0	35	5	0	0	0	0	0	0	0	0	0	40
0	22	5	0	0	0	0	0	0	0	0	0	27
0	25	4	0	0	0	0	0	0	0	0	0	29
0	225	49	0	0	0	0	0	0	0	0	0	274
SOUTH LEG												
16	5	0	0	0	0	0	0	0	0	0	0	21
15	7	0	0	0	0	0	0	0	0	0	0	22
8	4	0	0	0	0	0	0	0	2	0	0	14
9	4	0	0	0	0	0	0	0	0	0	0	13
11	4	0	0	0	0	0	0	0	0	0	0	15
16	5	0	0	0	0	0	0	0	0	0	0	21
12	5	0	0	0	0	0	0	0	0	0	0	17
10	4	0	0	0	0	0	0	0	0	0	0	14
97	38	0	0	0	0	0	0	0	2	0	0	137
EAST LEG												
6	0	78	0	0	1	0	0	0	0	0	5	90
5	0	34	0	0	0	0	0	0	0	0	0	39
9	0	64	0	0	0	0	0	0	0	0	0	73
4	0	61	0	0	0	0	0	0	0	0	0	65
5	0	42	0	0	0	0	0	0	0	0	0	47
5	0	62	0	0	0	0	0	0	0	0	0	67
7	0	40	0	0	0	0	0	0	0	0	0	47
4	0	45	0	0	0	0	0	0	0	0	0	49
45	0	426	0	0	1	0	0	0	0	0	5	477
WEST LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: STODDARD WELLS RD

EAST-WEST STREET: JOHNSON RD

TIME: 04:00PM-05:00PM DATE: 11-09-22

NORTH LEG

Rt	Thru	Lt	
0	115	31	Total
0	32	6	1st
0	25	6	2nd
0	28	8	3rd
0	30	11	4th

	1st	2nd	3rd	4th	Total
Rt	6	5	9	4	24
Thru	0	0	0	0	0
Lt	84	34	64	61	243

Total	1st	2nd	3rd	4th	
0	0	0	0	0	Lt
0	0	0	0	0	Thru
0	0	0	0	0	Rt

	Lt	Thru	Rt
1st	0	5	16
2nd	0	7	15
3rd	0	4	10
4th	0	4	9
Total	0	20	50

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: STODDARD WELLS RD

EAST-WEST STREET: JOHNSON RD

TIME: 05:00PM-06:00PM DATE: 11-09-22

NORTH LEG

Rt	Thru	Lt	
0	110	18	Total
0	28	4	1st
0	35	5	2nd
0	22	5	3rd
0	25	4	4th

	1st	2nd	3rd	4th	Total
Rt	5	5	7	4	21
Thru	0	0	0	0	0
Lt	42	62	40	45	189

Total	1st	2nd	3rd	4th	
0	0	0	0	0	Lt
0	0	0	0	0	Thru
0	0	0	0	0	Rt

	Lt	Thru	Rt
1st	0	4	11
2nd	0	5	16
3rd	0	5	12
4th	0	4	10
Total	0	18	49

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: I-15 NB RAMPS
EAST-WEST STREET: STODDARD WELLS RD DATE: 11-09-22
JURISDICTION: APPLE VALLEY

PEAK HOUR: 07:00AM

NORTH LEG

TOTAL: 43

Rt	Thru	Lt	
42		1	Total
1	0	1	1st
16	0	0	2nd
19	0	0	3rd
6	0	0	4th

EAST LEG TOTAL: 183

	1st	2nd	3rd	4th	Total
Rt	7	14	15	21	57
Thru	34	23	38	30	125
Lt	1	0	0	0	1

WEST LEG TOTAL: 345

Total	1st	2nd	3rd	4th	
256	93	25	77	61	Lt
80	11	58	4	7	Thru
9	2	5	2	0	Rt

PEAK HOUR FACTORS

NORTH LEG = 0.57
SOUTH LEG = 0.25
EAST LEG = 0.86
WEST LEG = 0.81

ALL LEGS = 0.92

SOUTH LEG

TOTAL: 2

	Lt	Thru	Rt
1st	0	2	0
2nd	0	0	0
3rd	0	0	0
4th	0	0	0
Total		2	

HOUR TOTAL: 573

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : I-15 NB RAMPS — APPLE VALLEY

EAST-WEST STREET : STODDARD WELLS RD — 11-09-22

BEGINNING TIME : 07:00AM

AUTOS RT	AUTOS THRU	AUTOS LT	LARGE 2 AXLE RT	LARGE 2 AXLE THRU	LARGE 2 AXLE LT	3 AXLE RT	3 AXLE THRU	3 AXLE LT	4(+) AXLE RT	4(+) AXLE THRU	4(+) AXLE LT	TOTALS
NORTH LEG												
0	0	0	1	0	0	0	0	1	0	0	0	2
15	0	0	1	0	0	0	0	0	0	0	0	16
18	0	0	0	0	0	1	0	0	0	0	0	19
6	0	0	0	0	0	0	0	0	0	0	0	6
10	0	2	1	0	0	2	0	0	0	0	0	15
13	0	3	4	0	0	2	0	0	0	0	0	22
18	0	1	0	0	0	0	0	0	0	0	0	19
12	0	0	0	0	0	0	0	0	0	0	0	12
92	0	6	7	0	0	5	0	1	0	0	0	111
SOUTH LEG												
0	2	0	0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	6
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
6	2	0	0	0	0	0	0	0	0	0	0	8
EAST LEG												
5	34	1	0	0	0	1	0	0	1	0	0	42
10	22	0	2	0	0	1	0	0	1	1	0	37
15	38	0	0	0	0	0	0	0	0	0	0	53
20	30	0	1	0	0	0	0	0	0	0	0	51
12	28	0	0	0	0	1	0	0	0	0	0	41
18	22	0	2	1	0	5	0	0	0	0	0	48
10	20	0	0	0	0	0	0	0	0	0	0	30
9	13	0	0	0	0	0	0	0	0	0	0	22
99	207	1	5	1	0	8	0	0	2	1	0	324
WEST LEG												
2	11	88	0	0	1	0	0	0	0	0	4	106
5	57	15	0	0	4	0	0	1	0	1	5	88
2	4	69	0	0	1	0	0	4	0	0	3	83
0	6	58	0	1	1	0	0	1	0	0	1	68
0	8	39	0	0	3	0	1	1	0	0	9	61
0	1	6	0	0	0	0	0	2	0	1	8	18
1	9	40	0	0	0	0	0	0	0	0	1	51
0	3	49	0	0	0	0	0	0	0	0	1	53
10	99	364	0	1	10	0	1	9	0	2	32	528

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 NB RAMPS

EAST-WEST STREET: STODDARD WELLS RD

TIME: 07:00AM-08:00AM DATE: 11-09-22

NORTH LEG

Rt	Thru	Lt	
42	0	1	Total
1	0	1	1st
16	0	0	2nd
19	0	0	3rd
6	0	0	4th

	1st	2nd	3rd	4th	Total
Rt	7	14	15	21	57
Thru	34	23	38	30	125
Lt	1	0	0	0	1

Total	1st	2nd	3rd	4th	
256	93	25	77	61	Lt
80	11	58	4	7	Thru
9	2	5	2	0	Rt

	Lt	Thru	Rt
1st	0	2	0
2nd	0	0	0
3rd	0	0	0
4th	0	0	0
Total	0	2	0

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 NB RAMPS

EAST-WEST STREET: STODDARD WELLS RD

TIME: 08:00AM-09:00AM DATE: 11-09-22

NORTH LEG

Rt	Thru	Lt	
62	0	6	Total
13	0	2	1st
19	0	3	2nd
18	0	1	3rd
12	0	0	4th

	1st	2nd	3rd	4th	Total
Rt	13	25	10	9	57
Thru	28	23	20	13	84
Lt	0	0	0	0	0

Total	1st	2nd	3rd	4th	
159	52	16	41	50	Lt
23	9	2	9	3	Thru
1	0	0	1	0	Rt

	Lt	Thru	Rt
1st	0	0	6
2nd	0	0	0
3rd	0	0	0
4th	0	0	0
Total	0	0	6

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: I-15 NB RAMPS
EAST-WEST STREET: STODDARD WELLS RD DATE: 11-09-22
JURISDICTION: APPLE VALLEY

PEAK HOUR: 04:30PM

NORTH LEG

TOTAL: 152

Rt	Thru	Lt	
135		17	Total
20	0	4	1st
19	0	4	2nd
64	0	5	3rd
32	0	4	4th

EAST LEG TOTAL: 354

	1st	2nd	3rd	4th	Total
Rt	17	14	12	17	60
Thru	74	81	57	78	290
Lt	0	0	1	3	4

WEST LEG TOTAL: 264

Total	1st	2nd	3rd	4th	
217	53	48	52	64	Lt
46	10	9	10	17	Thru
1	0	0	0	1	Rt

SOUTH LEG

TOTAL: 3

	Lt	Thru	Rt
1st	0	1	0
2nd	0	0	0
3rd	0	1	0
4th	0	1	0
Total		3	

PEAK HOUR FACTORS

NORTH LEG = 0.55
SOUTH LEG = 0.75
EAST LEG = 0.90
WEST LEG = 0.80

ALL LEGS = 0.89

HOUR TOTAL: 773

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : I-15 NB RAMPS — APPLE VALLEY

EAST-WEST STREET : STODDARD WELLS RD — 11-09-22

BEGINNING TIME : 04:00PM

AUTOS RT	AUTOS THRU	AUTOS LT	LARGE 2 AXLE RT	LARGE 2 AXLE THRU	LARGE 2 AXLE LT	3 AXLE RT	3 AXLE THRU	3 AXLE LT	4(+) AXLE RT	4(+) AXLE THRU	4(+) AXLE LT	TOTALS
					NORTH LEG							
17	0	1	2	0	0	1	0	0	0	0	0	21
29	0	3	0	0	0	0	0	0	0	0	0	32
19	0	4	0	0	0	1	0	0	0	0	0	24
19	0	4	0	0	0	0	0	0	0	0	0	23
64	0	5	0	0	0	0	0	0	0	0	0	69
32	0	4	0	0	0	0	0	0	0	0	0	36
57	0	6	0	0	0	0	0	0	0	0	0	63
11	0	1	0	0	0	0	0	0	0	0	0	12
248	0	28	2	0	0	2	0	0	0	0	0	280
					SOUTH LEG							
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	1
0	1	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	1
0	1	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	3	1	0	0	0	0	0	0	0	0	0	4
					EAST LEG							
15	95	0	1	0	0	0	0	0	5	0	0	116
37	22	0	0	0	0	0	0	0	0	0	0	59
17	74	0	0	0	0	0	0	0	0	0	0	91
14	81	0	0	0	0	0	0	0	0	0	0	95
12	57	1	0	0	0	0	0	0	0	0	0	70
17	78	3	0	0	0	0	0	0	0	0	0	98
7	52	3	0	0	0	0	0	0	0	0	0	62
11	60	7	0	0	0	0	0	0	0	0	0	78
130	519	14	1	0	0	0	0	0	5	0	0	669
					WEST LEG							
0	20	57	0	0	2	0	0	5	0	0	6	90
0	19	62	0	0	0	0	0	4	0	0	7	92
0	8	50	0	0	0	0	0	1	0	2	2	63
0	9	48	0	0	0	0	0	0	0	0	0	57
0	10	52	0	0	0	0	0	0	0	0	0	62
1	17	64	0	0	0	0	0	0	0	0	0	82
0	11	37	0	0	0	0	0	0	0	0	0	48
1	13	35	0	0	0	0	0	0	0	0	1	50
2	107	405	0	0	2	0	0	10	0	2	16	544

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 NB RAMPS

EAST-WEST STREET: STODDARD WELLS RD

TIME: 04:00PM-05:00PM DATE: 11-09-22

NORTH LEG

Rt	Thru	Lt	
88	0	12	Total
20	0	1	1st
29	0	3	2nd
20	0	4	3rd
19	0	4	4th

	1st	2nd	3rd	4th	Total
Rt	21	37	17	14	89
Thru	95	22	74	81	272
Lt	0	0	0	0	0

Total	1st	2nd	3rd	4th	
244	70	73	53	48	Lt
58	20	19	10	9	Thru
0	0	0	0	0	Rt

	Lt	Thru	Rt
1st	0	0	0
2nd	1	0	0
3rd	0	1	0
4th	0	0	0
Total	1	1	0

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 NB RAMPS

EAST-WEST STREET: STODDARD WELLS RD

TIME: 05:00PM-06:00PM DATE: 11-09-22

NORTH LEG

Rt	Thru	Lt	
164	0	16	Total
64	0	5	1st
32	0	4	2nd
57	0	6	3rd
11	0	1	4th

	1st	2nd	3rd	4th	Total
Rt	12	17	7	11	47
Thru	57	78	52	60	247
Lt	1	3	3	7	14

Total	1st	2nd	3rd	4th	
189	52	64	37	36	Lt
51	10	17	11	13	Thru
2	0	1	0	1	Rt

	Lt	Thru	Rt
1st	0	1	0
2nd	0	1	0
3rd	0	0	0
4th	0	0	0
Total	0	2	0

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: STODDARD WELLS RD
EAST-WEST STREET: QUARRY RD
JURISDICTION: APPLE VALLEY

DATE: 11-09-22

PEAK HOUR: 07:00AM

NORTH LEG

TOTAL: 148

Rt	Thru	Lt	
40		108	Total
6		11	1st
5		44	2nd
14		29	3rd
15		24	4th

EAST LEG TOTAL: 167

	1st	2nd	3rd	4th	Total
Rt	29	34	46	32	141
Thru	6	5	11	4	26
Lt					

WEST LEG TOTAL: 368

Total	1st	2nd	3rd	4th	
131	27	33	31	40	Lt
237	95	44	54	44	Thru
					Rt

SOUTH LEG

TOTAL: 0

	Lt	Thru	Rt
1st			
2nd			
3rd			
4th			
Total			

PEAK HOUR FACTORS

NORTH LEG = 0.76
SOUTH LEG =
EAST LEG = 0.73
WEST LEG = 0.75

ALL LEGS = 0.92

HOUR TOTAL: 683

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : STODDARD WELLS RD — APPLE VALLEY

EAST-WEST STREET : QUARRY RD — 11-09-22

BEGINNING TIME : 07:00AM

AUTOS RT	AUTOS THRU	AUTOS LT	LARGE 2 AXLE RT	LARGE 2 AXLE THRU	LARGE 2 AXLE LT	3 AXLE RT	3 AXLE THRU	3 AXLE LT	4(+) AXLE RT	4(+) AXLE THRU	4(+) AXLE LT	TOTALS
NORTH LEG												
6	0	9	0	0	0	0	0	0	0	0	2	17
4	0	41	0	0	1	0	0	0	1	0	2	49
12	0	28	0	0	0	0	0	1	2	0	0	43
13	0	22	2	0	1	0	0	0	0	0	1	39
9	0	10	0	0	1	1	0	0	0	0	3	24
9	0	2	1	0	0	0	0	1	0	0	0	13
11	0	9	0	0	0	2	0	0	0	0	2	24
8	0	9	0	0	0	0	0	0	1	0	0	18
72	0	130	3	0	3	3	0	2	4	0	10	227
SOUTH LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
EAST LEG												
28	5	0	1	1	0	0	0	0	0	0	0	35
33	4	0	0	1	0	0	0	0	1	0	0	39
46	10	0	0	0	0	0	1	0	0	0	0	57
32	4	0	0	0	0	0	0	0	0	0	0	36
26	12	0	0	1	0	2	0	0	0	0	0	41
20	15	0	1	4	0	1	1	0	0	0	0	42
22	16	0	0	0	0	0	0	0	0	0	0	38
13	12	0	0	0	0	0	0	0	0	0	0	25
220	78	0	2	7	0	3	2	0	1	0	0	313
WEST LEG												
0	91	27	0	2	0	0	0	0	0	2	0	122
0	36	33	0	3	0	0	1	0	0	4	0	77
0	47	31	0	1	0	0	3	0	0	3	0	85
0	42	40	0	1	0	0	1	0	0	0	0	84
0	37	23	0	2	0	0	2	0	0	6	0	70
0	7	20	0	0	0	0	1	0	0	7	0	35
0	39	16	0	0	0	0	0	0	0	1	0	56
0	43	19	0	0	0	0	0	0	0	1	0	63
0	342	209	0	9	0	0	8	0	0	24	0	592

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: STODDARD WELLS RD

EAST-WEST STREET: QUARRY RD

TIME: 07:00AM-08:00AM DATE: 11-09-22

NORTH LEG

Rt	Thru	Lt	
40		108	Total
6		11	1st
5		44	2nd
14		29	3rd
15		24	4th

	1st	2nd	3rd	4th	Total
Rt	29	34	46	32	141
Thru	6	5	11	4	26
Lt					

Total	1st	2nd	3rd	4th	
131	27	33	31	40	Lt
237	95	44	54	44	Thru
					Rt

	Lt	Thru	Rt
1st			
2nd			
3rd			
4th			
Total			

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: STODDARD WELLS RD

EAST-WEST STREET: QUARRY RD

TIME: 08:00AM-09:00AM DATE: 11-09-22

NORTH LEG

Rt	Thru	Lt	
42		37	Total
10		14	1st
10		3	2nd
13		11	3rd
9		9	4th

	1st	2nd	3rd	4th	Total
Rt	28	22	22	13	85
Thru	13	20	16	12	61
Lt					

Total	1st	2nd	3rd	4th	
78	23	20	16	19	Lt
146	47	15	40	44	Thru
					Rt

	Lt	Thru	Rt
1st			
2nd			
3rd			
4th			
Total			

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: STODDARD WELLS RD
EAST-WEST STREET: QUARRY RD
JURISDICTION: APPLE VALLEY

DATE: 11-09-22

PEAK HOUR: 04:30PM

NORTH LEG

TOTAL: 102

Rt	Thru	Lt	
58		44	Total
16		8	1st
19		13	2nd
10		7	3rd
13		16	4th

EAST LEG TOTAL: 425

	1st	2nd	3rd	4th	Total
Rt	66	70	53	57	246
Thru	28	30	69	52	179
Lt					

WEST LEG TOTAL: 286

Total	1st	2nd	3rd	4th	
66	13	21	14	18	Lt
220	55	44	55	66	Thru
					Rt

SOUTH LEG

TOTAL: 0

	Lt	Thru	Rt
1st			
2nd			
3rd			
4th			
Total			

PEAK HOUR FACTORS

NORTH LEG = 0.80
SOUTH LEG =
EAST LEG = 0.87
WEST LEG = 0.85

ALL LEGS = 0.92

HOUR TOTAL: 813

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : STODDARD WELLS RD — APPLE VALLEY

EAST-WEST STREET : QUARRY RD — 11-09-22

BEGINNING TIME : 04:00PM

AUTOS RT	AUTOS THRU	AUTOS LT	LARGE 2 AXLE RT	LARGE 2 AXLE THRU	LARGE 2 AXLE LT	3 AXLE RT	3 AXLE THRU	3 AXLE LT	4(+) AXLE RT	4(+) AXLE THRU	4(+) AXLE LT	TOTALS
NORTH LEG												
7	0	18	0	0	2	1	0	2	2	0	2	34
16	0	12	0	0	0	0	0	1	0	0	4	33
13	0	7	1	0	0	2	0	0	0	0	1	24
14	0	13	1	0	0	0	0	0	4	0	0	32
10	0	7	0	0	0	0	0	0	0	0	0	17
11	0	16	2	0	0	0	0	0	0	0	0	29
10	0	9	0	0	0	1	0	0	0	0	0	20
6	0	14	1	0	0	0	0	0	1	0	1	23
87	0	96	5	0	2	4	0	3	7	0	8	212
SOUTH LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
EAST LEG												
89	23	0	1	1	0	0	1	0	0	0	0	115
20	31	0	0	0	0	0	0	0	0	0	0	51
65	28	0	0	0	0	1	0	0	0	0	0	94
70	30	0	0	0	0	0	0	0	0	0	0	100
53	69	0	0	0	0	0	0	0	0	0	0	122
57	52	0	0	0	0	0	0	0	0	0	0	109
47	63	0	0	0	0	0	0	0	0	0	0	110
40	31	0	0	0	0	0	0	0	0	0	0	71
441	327	0	1	1	0	1	1	0	0	0	0	772
WEST LEG												
0	60	22	0	0	0	0	3	0	0	3	0	88
0	69	16	0	0	0	0	3	0	0	3	0	91
0	51	13	0	0	0	0	1	0	0	3	0	68
0	44	21	0	0	0	0	0	0	0	0	0	65
0	55	14	0	0	0	0	0	0	0	0	0	69
0	66	18	0	0	0	0	0	0	0	0	0	84
0	39	15	0	0	0	0	0	0	0	0	0	54
0	35	10	0	0	0	0	0	0	0	0	0	45
0	419	129	0	0	0	0	7	0	0	9	0	564

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: STODDARD WELLS RD

EAST-WEST STREET: QUARRY RD

TIME: 04:00PM-05:00PM DATE: 11-09-22

NORTH LEG

Rt	Thru	Lt	
61		62	Total
10		24	1st
16		17	2nd
16		8	3rd
19		13	4th

	1st	2nd	3rd	4th	Total
Rt	90	20	66	70	246
Thru	25	31	28	30	114
Lt					

Total	1st	2nd	3rd	4th	
72	22	16	13	21	Lt
240	66	75	55	44	Thru
					Rt

	Lt	Thru	Rt
1st			
2nd			
3rd			
4th			
Total			

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: STODDARD WELLS RD

EAST-WEST STREET: QUARRY RD

TIME: 05:00PM-06:00PM DATE: 11-09-22

NORTH LEG

Rt	Thru	Lt	
42		47	Total
10		7	1st
13		16	2nd
11		9	3rd
8		15	4th

	1st	2nd	3rd	4th	Total
Rt	53	57	47	40	197
Thru	69	52	63	31	215
Lt					

Total	1st	2nd	3rd	4th	
57	14	18	15	10	Lt
195	55	66	39	35	Thru
					Rt

	Lt	Thru	Rt
1st			
2nd			
3rd			
4th			
Total			

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: QUARRY RD
EAST-WEST STREET: I-15 SB RAMPS
JURISDICTION: APPLE VALLEY

DATE: 11-09-22

PEAK HOUR: 07:15AM

NORTH LEG

TOTAL: 1

Rt	Thru	Lt	
		1	Total
	0	0	1st
	0	0	2nd
	0	1	3rd
	0	0	4th

EAST LEG TOTAL: 156

	1st	2nd	3rd	4th	Total
Rt	0	0	1	0	1
Thru					
Lt	49	43	39	24	155

WEST LEG TOTAL: 0

Total	1st	2nd	3rd	4th	
					Lt
					Thru
					Rt

PEAK HOUR FACTORS

NORTH LEG = 0.25
SOUTH LEG = 0.89
EAST LEG = 0.80
WEST LEG =

ALL LEGS = 0.90

SOUTH LEG

TOTAL: 266

	Lt	Thru	Rt
1st		0	67
2nd		0	75
3rd		0	73
4th		1	50
Total		1	265

HOUR TOTAL: 423

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : QUARRY RD

EAST-WEST STREET : I-15 SB RAMPS

APPLE VALLEY

11-09-22

BEGINNING TIME : 07:00AM

AUTOS RT	AUTOS THRU	AUTOS LT	LARGE 2 AXLE RT	LARGE 2 AXLE THRU	LARGE 2 AXLE LT	3 AXLE RT	3 AXLE THRU	3 AXLE LT	4(+) AXLE RT	4(+) AXLE THRU	4(+) AXLE LT	TOTALS
NORTH LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	2	0	0	0	0	0	0	0	0	0	2
SOUTH LEG												
54	2	0	1	0	0	0	0	0	0	0	0	57
66	0	0	0	0	0	0	0	0	1	0	0	67
75	0	0	0	0	0	0	0	0	0	0	0	75
73	0	0	0	0	0	0	0	0	0	0	0	73
48	1	0	0	0	0	2	0	0	0	0	0	51
40	0	0	1	0	0	1	0	0	0	0	0	42
39	0	0	0	0	0	0	0	0	0	0	0	39
31	1	0	0	0	0	0	0	0	0	0	0	32
426	4	0	2	0	0	3	0	0	1	0	0	436
EAST LEG												
0	0	15	0	0	0	0	0	0	0	0	2	17
0	0	45	0	0	1	0	0	0	0	0	3	49
0	0	40	0	0	0	0	0	1	0	0	2	43
1	0	35	0	0	3	0	0	0	0	0	1	40
0	0	19	0	0	1	0	0	1	0	0	3	24
0	0	12	0	0	1	0	0	1	0	0	0	14
0	0	21	0	0	0	0	0	2	0	0	2	25
0	0	15	0	0	0	0	0	0	0	0	1	16
1	0	202	0	0	6	0	0	5	0	0	14	228
WEST LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: QUARRY RD

EAST-WEST STREET: I-15 SB RAMPS

TIME: 07:00AM-08:00AM DATE: 11-09-22

NORTH LEG

	0	1	Total
	0	0	1st
	0	0	2nd
	0	0	3rd
	0	1	4th
	Rt	Thru	Lt

Rt	0	0	0	1	1
Thru					
Lt	17	49	43	39	148
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
					Lt
					Thru
					Rt

	Lt	Thru	Rt
1st		2	55
2nd		0	67
3rd		0	75
4th		0	73
Total		2	270

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: QUARRY RD

EAST-WEST STREET: I-15 SB RAMPS

TIME: 08:00AM-09:00AM DATE: 11-09-22

NORTH LEG

	0	1	Total
	0	0	1st
	0	1	2nd
	0	0	3rd
	0	0	4th
Rt	Thru	Lt	

Rt	0	0	0	0	0
Thru					
Lt	24	14	25	16	79
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
					Lt
					Thru
					Rt

	Lt	Thru	Rt
1st		1	50
2nd		0	42
3rd		0	39
4th		1	31
Total		2	162

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: QUARRY RD
EAST-WEST STREET: I-15 SB RAMPS
JURISDICTION: APPLE VALLEY

DATE: 11-09-22

PEAK HOUR: 04:00PM

NORTH LEG

TOTAL: 1

	1		Total
	0	0	1st
	0	0	2nd
	1	0	3rd
	0	0	4th
Rt	Thru	Lt	

EAST LEG

EAST LEG TOTAL: 122

Rt	0	0	2	0	2
Thru					
Lt	33	32	24	31	120
	1st	2nd	3rd	4th	Total

WEST LEG

Total	1st	2nd	3rd	4th	
					Lt
					Thru
					Rt

WEST LEG TOTAL: 0

SOUTH LEG

	Lt	Thru	Rt
1st		0	111
2nd		0	36
3rd		1	78
4th		0	90
Total		1	315

SOUTH LEG

PEAK HOUR FACTORS

NORTH LEG = 0.25
SOUTH LEG = 0.71
EAST LEG = 0.92
WEST LEG =

ALL LEGS = 0.76

TOTAL: 316

HOUR TOTAL: 439

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : QUARRY RD — APPLE VALLEY

EAST-WEST STREET : I-15 SB RAMPS — 11-09-22

BEGINNING TIME : 04:00PM

AUTOS			LARGE 2 AXLE			3 AXLE			4(+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	1
0	0	1	0	0	0	0	0	0	0	0	0	1
0	1	2	0	0	0	0	0	0	0	0	0	3
SOUTH LEG												
109	0	0	2	0	0	0	0	0	0	0	0	111
36	0	0	0	0	0	0	0	0	0	0	0	36
77	1	0	0	0	0	1	0	0	0	0	0	79
90	0	0	0	0	0	0	0	0	0	0	0	90
66	1	0	0	0	0	0	0	0	0	0	0	67
75	0	0	0	0	0	0	0	0	0	0	0	75
66	0	0	0	0	0	0	0	0	0	0	0	66
48	0	0	0	0	0	0	0	0	0	0	0	48
567	2	0	2	0	0	1	0	0	0	0	0	572
EAST LEG												
0	0	24	0	0	2	0	0	3	0	0	4	33
0	0	27	0	0	0	0	0	1	0	0	4	32
2	0	20	0	0	1	0	0	2	0	0	1	26
0	0	26	0	0	1	0	0	0	0	0	4	31
0	0	17	0	0	0	0	0	0	0	0	0	17
0	0	27	0	0	2	0	0	0	0	0	0	29
1	0	19	0	0	0	0	0	1	0	0	0	21
0	0	20	0	0	1	0	0	0	0	0	2	23
3	0	180	0	0	7	0	0	7	0	0	15	212
WEST LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: QUARRY RD

EAST-WEST STREET: I-15 SB RAMPS

TIME: 04:00PM-05:00PM DATE: 11-09-22

NORTH LEG

	1	0	Total
	0	0	1st
	0	0	2nd
	1	0	3rd
	0	0	4th
Rt	Thru	Lt	

Rt	0	0	2	0	2
Thru					
Lt	33	32	24	31	120
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
					Lt
					Thru
					Rt

	Lt	Thru	Rt
1st		0	111
2nd		0	36
3rd		1	78
4th		0	90
Total		1	315

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: QUARRY RD

EAST-WEST STREET: I-15 SB RAMPS

TIME: 05:00PM-06:00PM DATE: 11-09-22

NORTH LEG

	0	2	Total
	0	0	1st
	0	0	2nd
	0	1	3rd
	0	1	4th
Rt	Thru	Lt	

Rt	0	0	1	0	1
Thru					
Lt	17	29	20	23	89
	1st	2nd	3rd	4th	Total

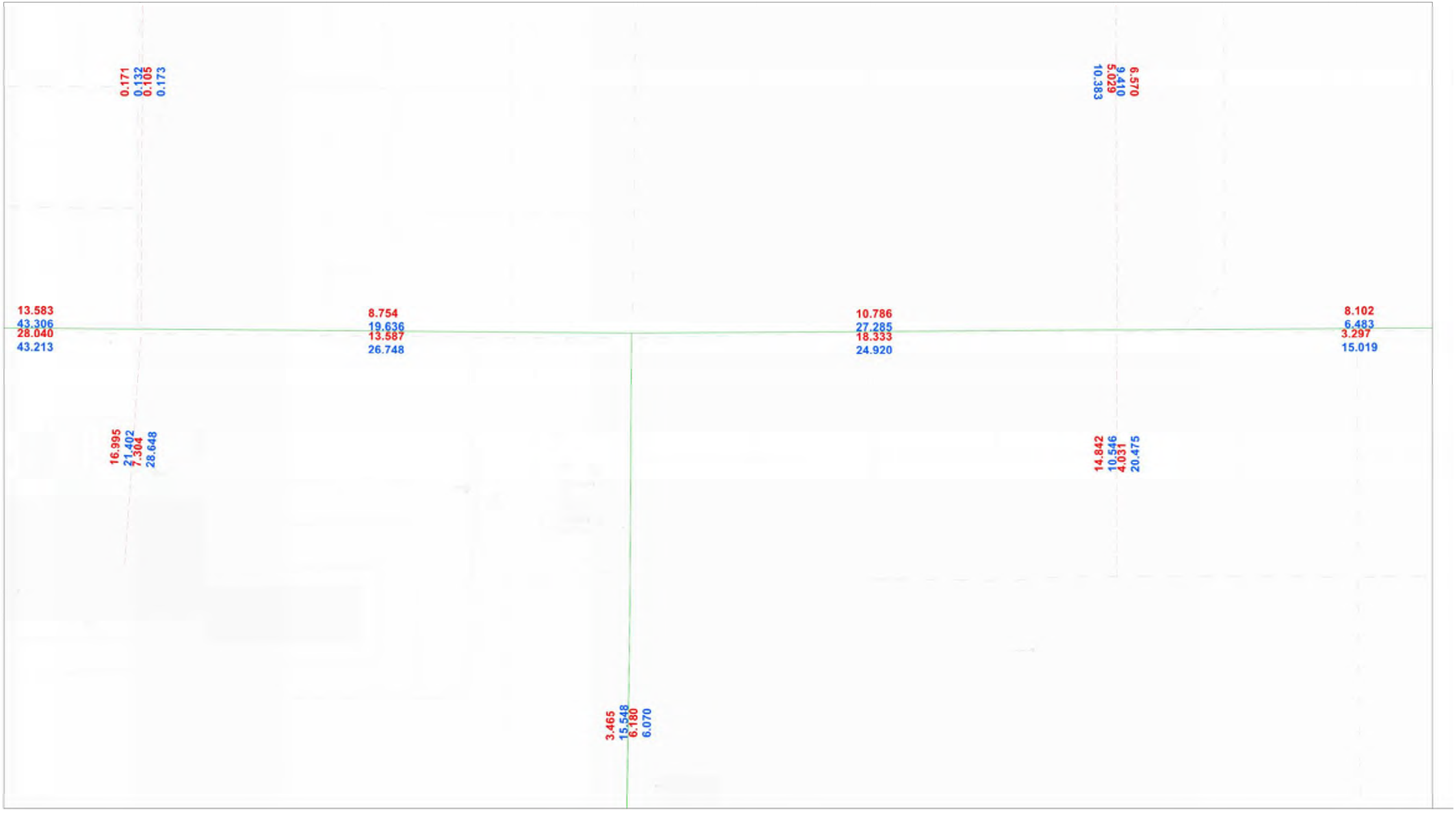
Total	1st	2nd	3rd	4th	
					Lt
					Thru
					Rt

	Lt	Thru	Rt
1st		1	66
2nd		0	75
3rd		0	66
4th		0	48
Total		1	255

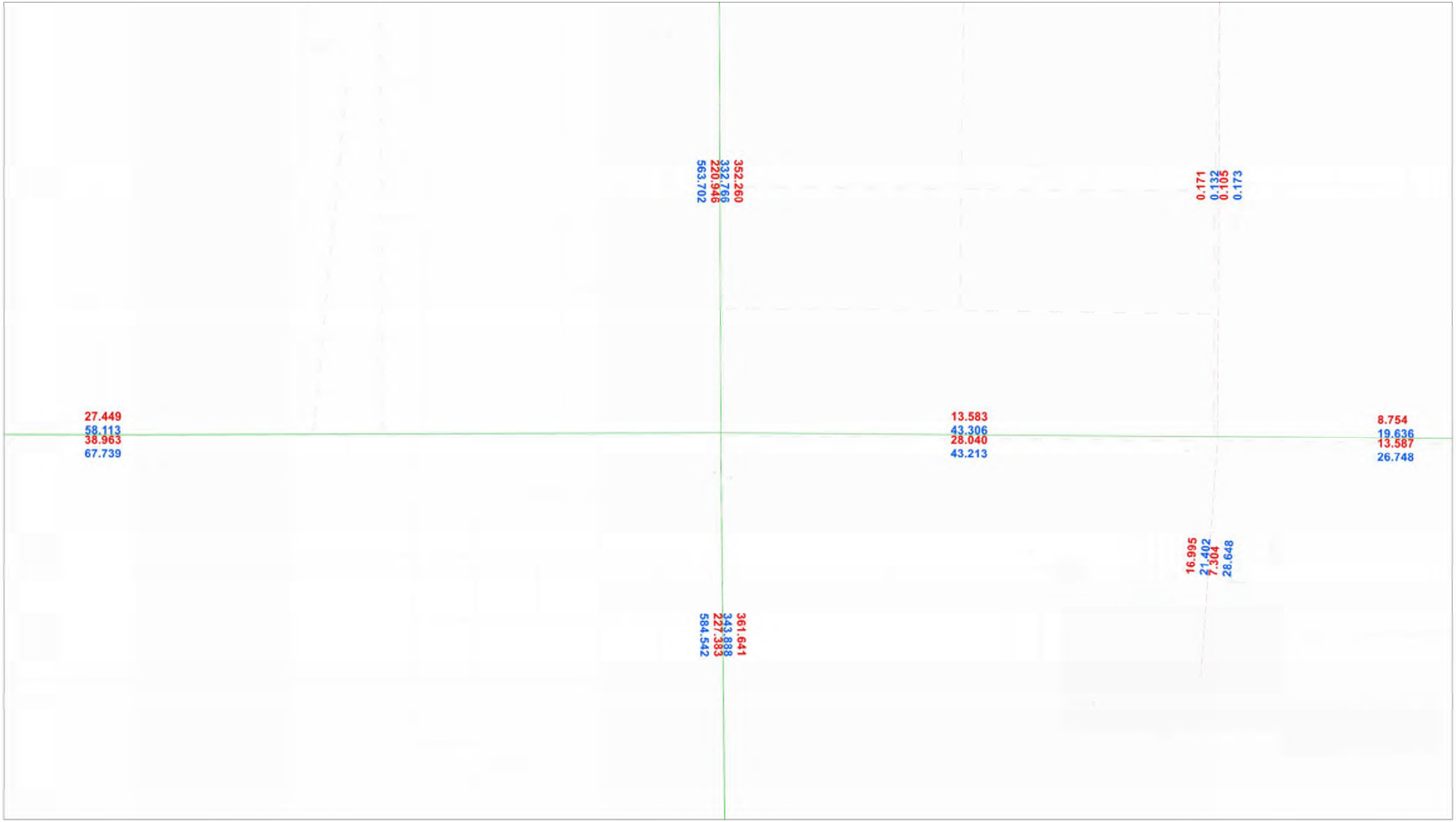
Prepared by NEWPORT TRAFFIC STUDIES

Appendix C: Forecast Model Plots and Volume Development

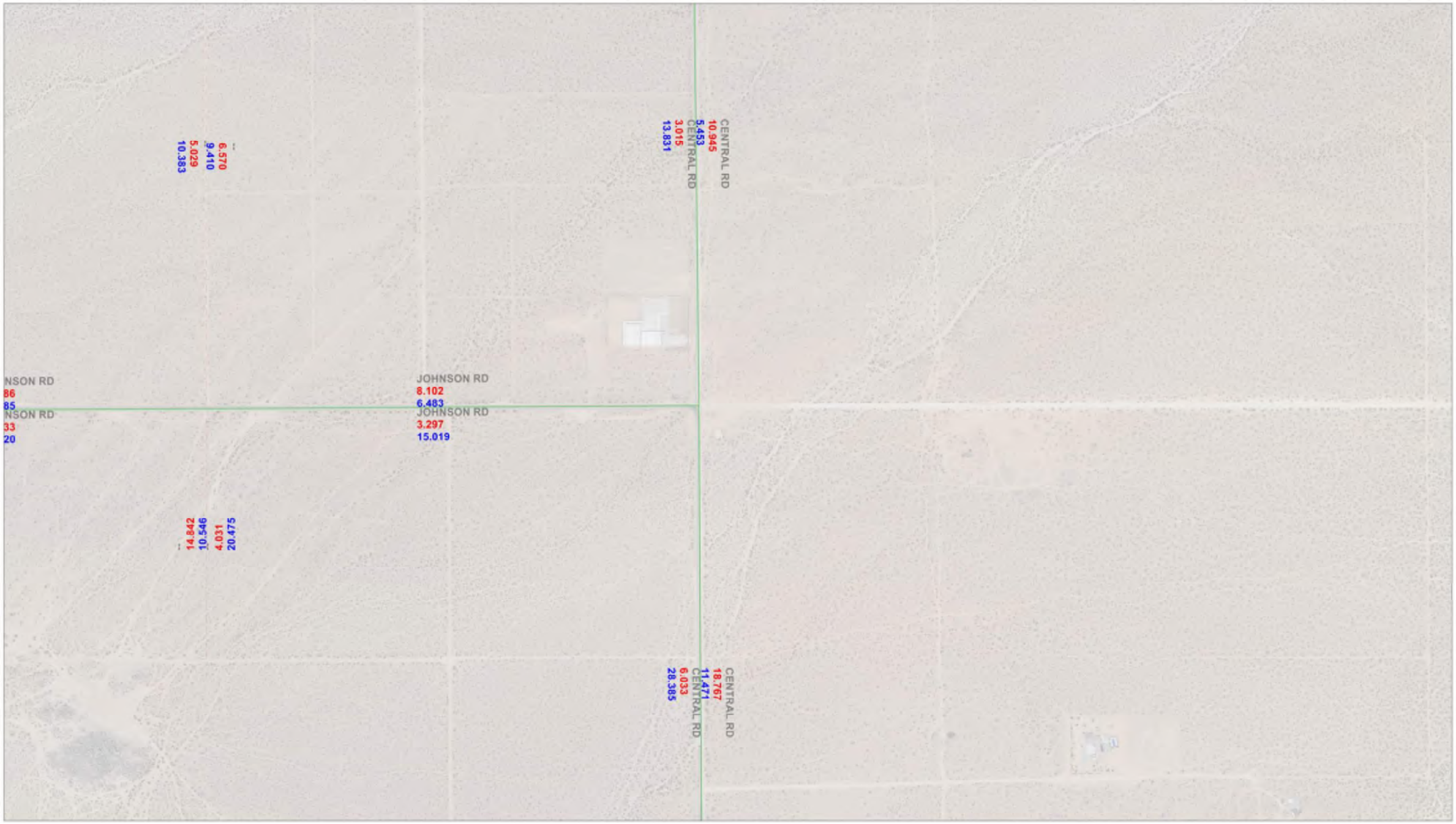
AM Volumes PM Volumes Intersection 1 - 2016



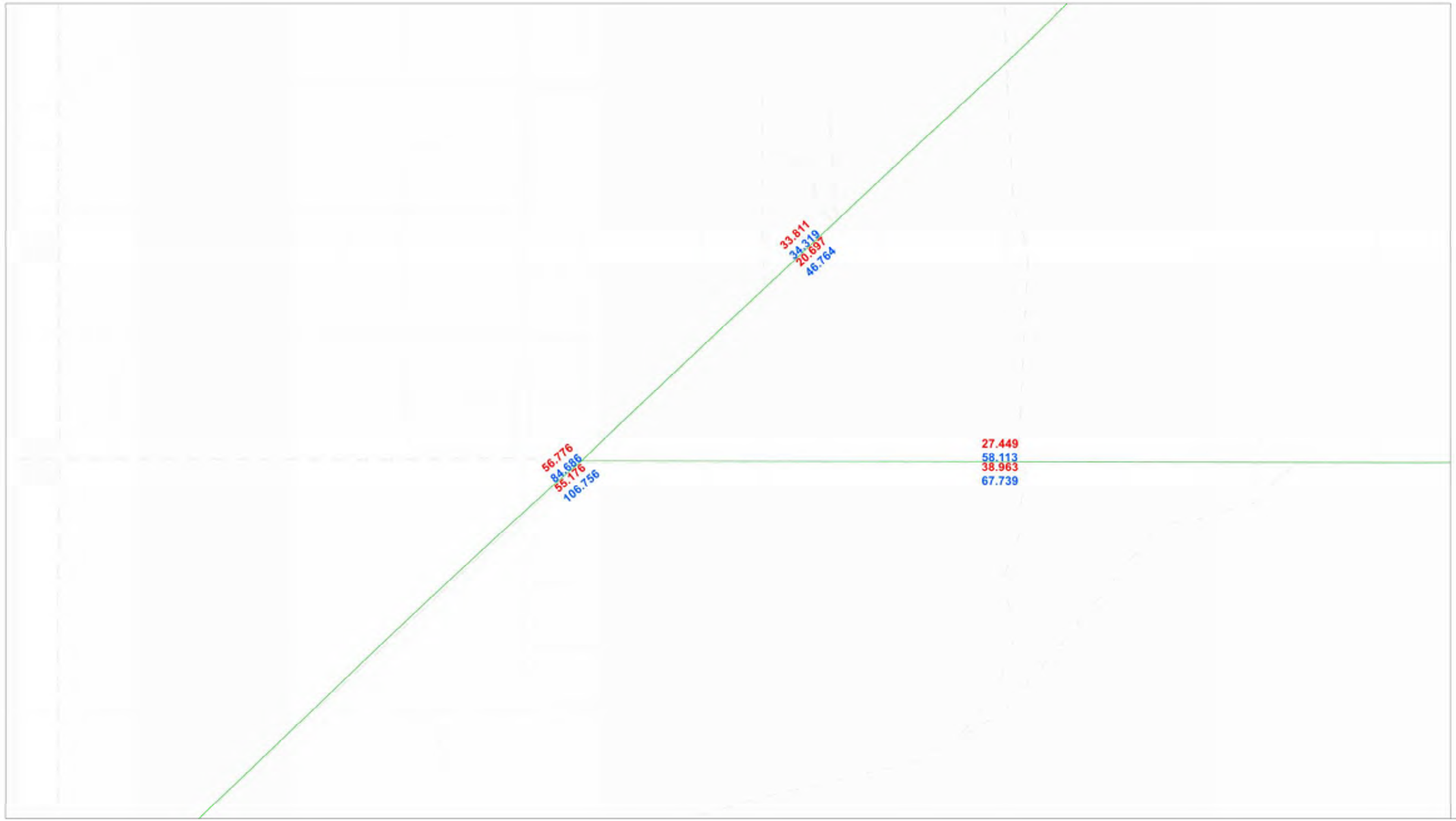
AM Volumes PM Volumes Intersection 2 - 2016



AM Volumes PM Volumes Intersection 3 - 2016



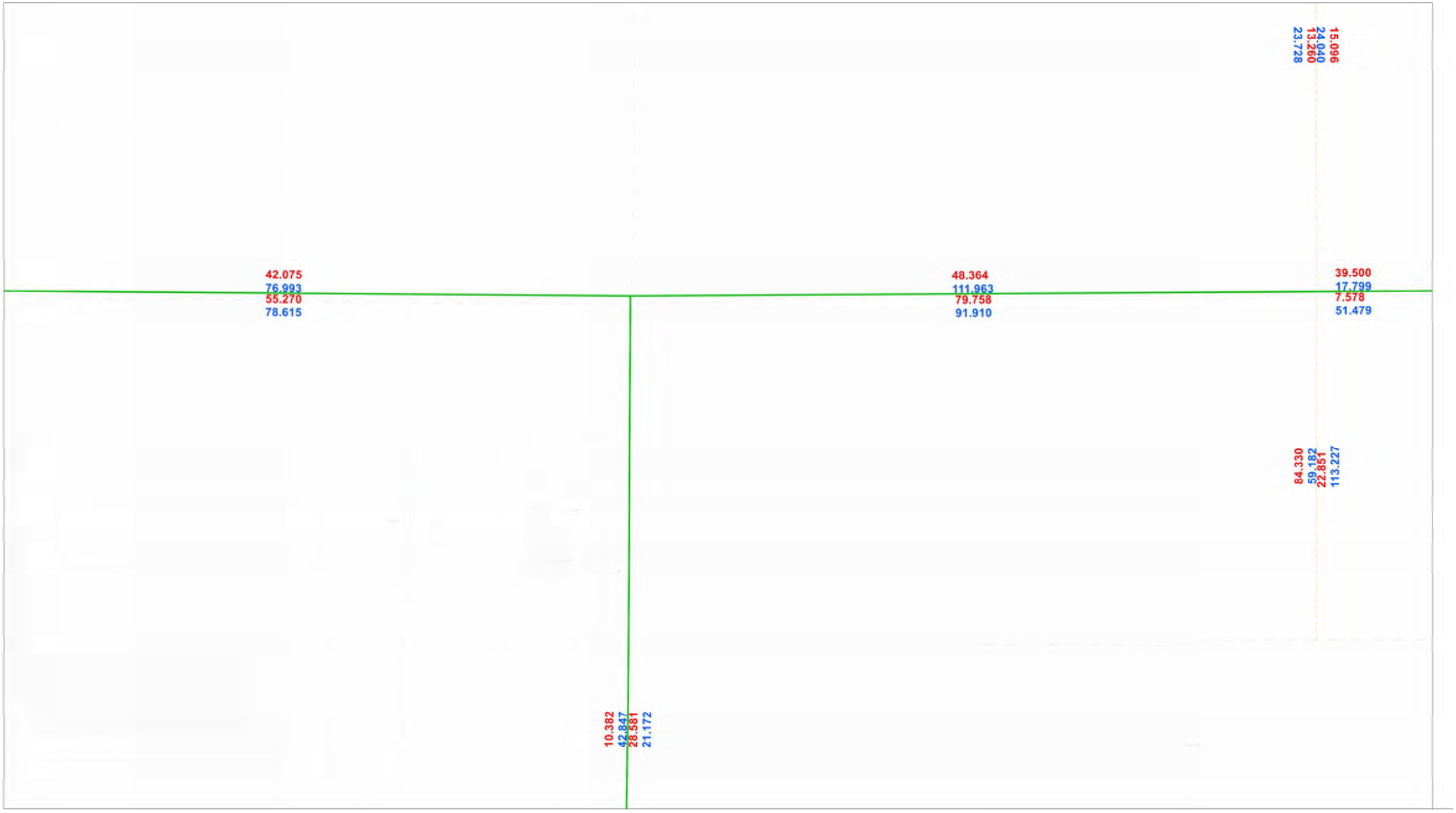
AM Volumes PM Volumes Intersection 4 - 2016



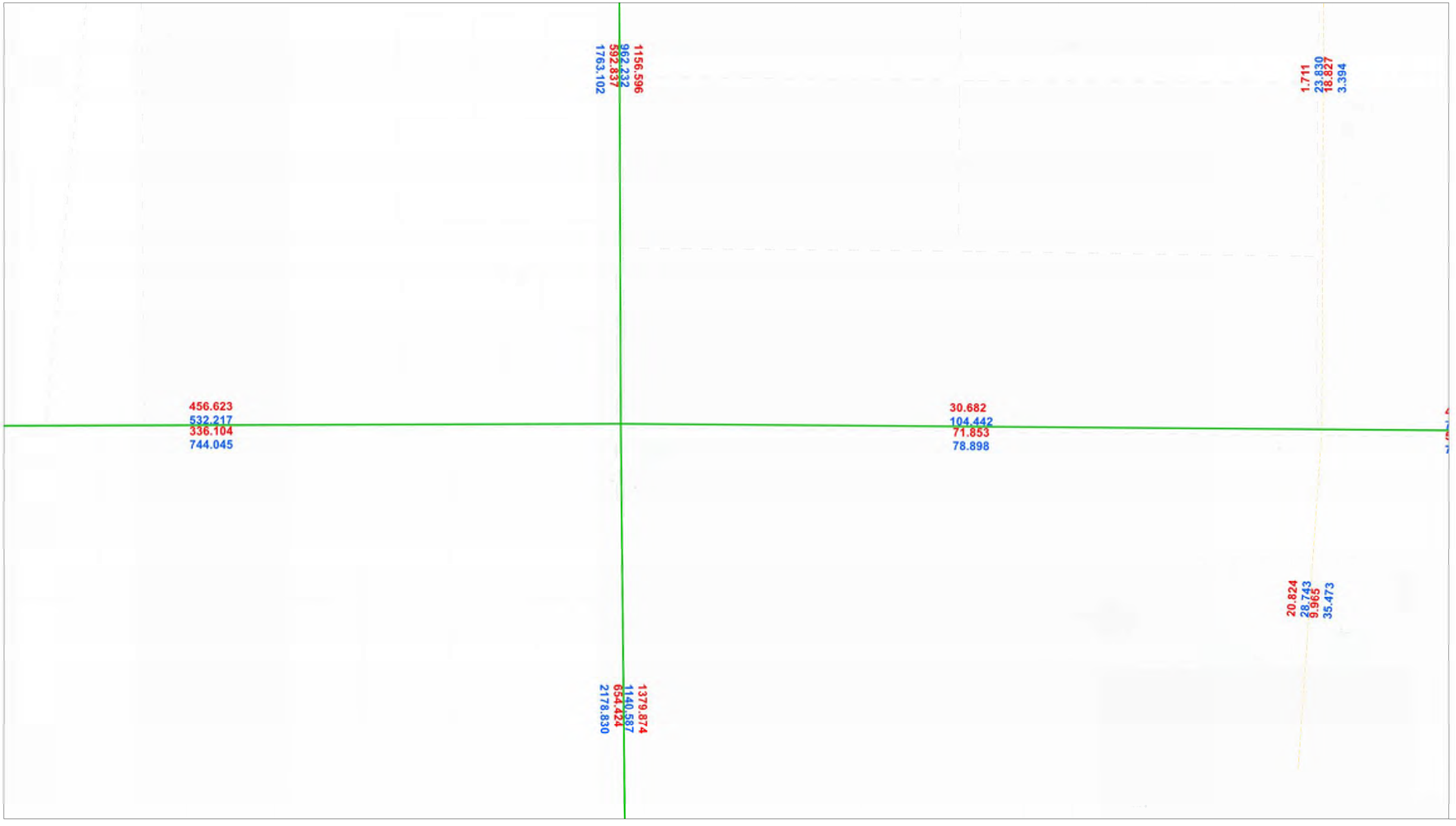
AM Volumes PM Volumes Intersections 5&6 - 2016

AM Volumes PM Volumes Intersection 7 - 2016

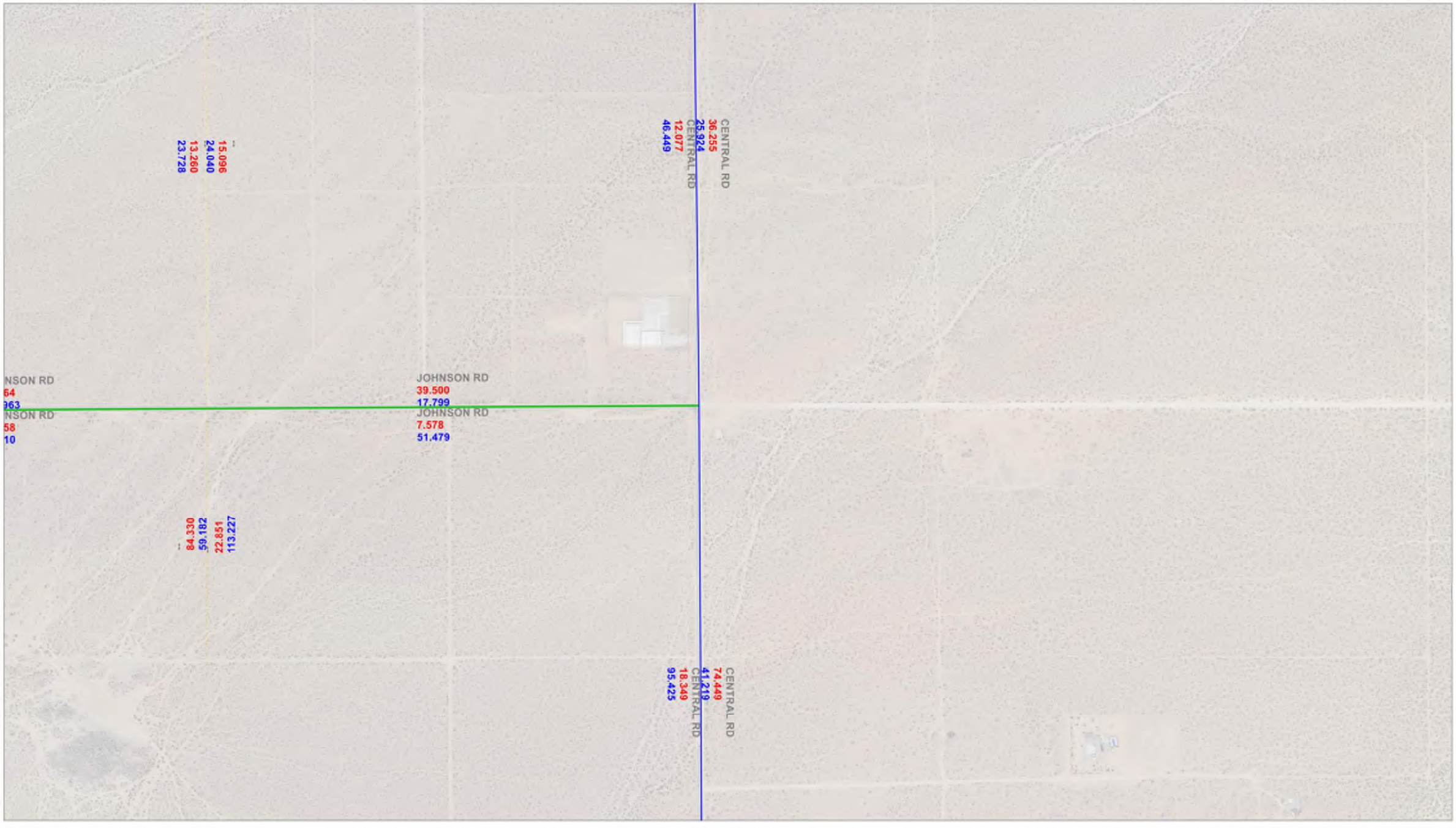
AM Volumes PM Volumes Intersection 1 - 2040



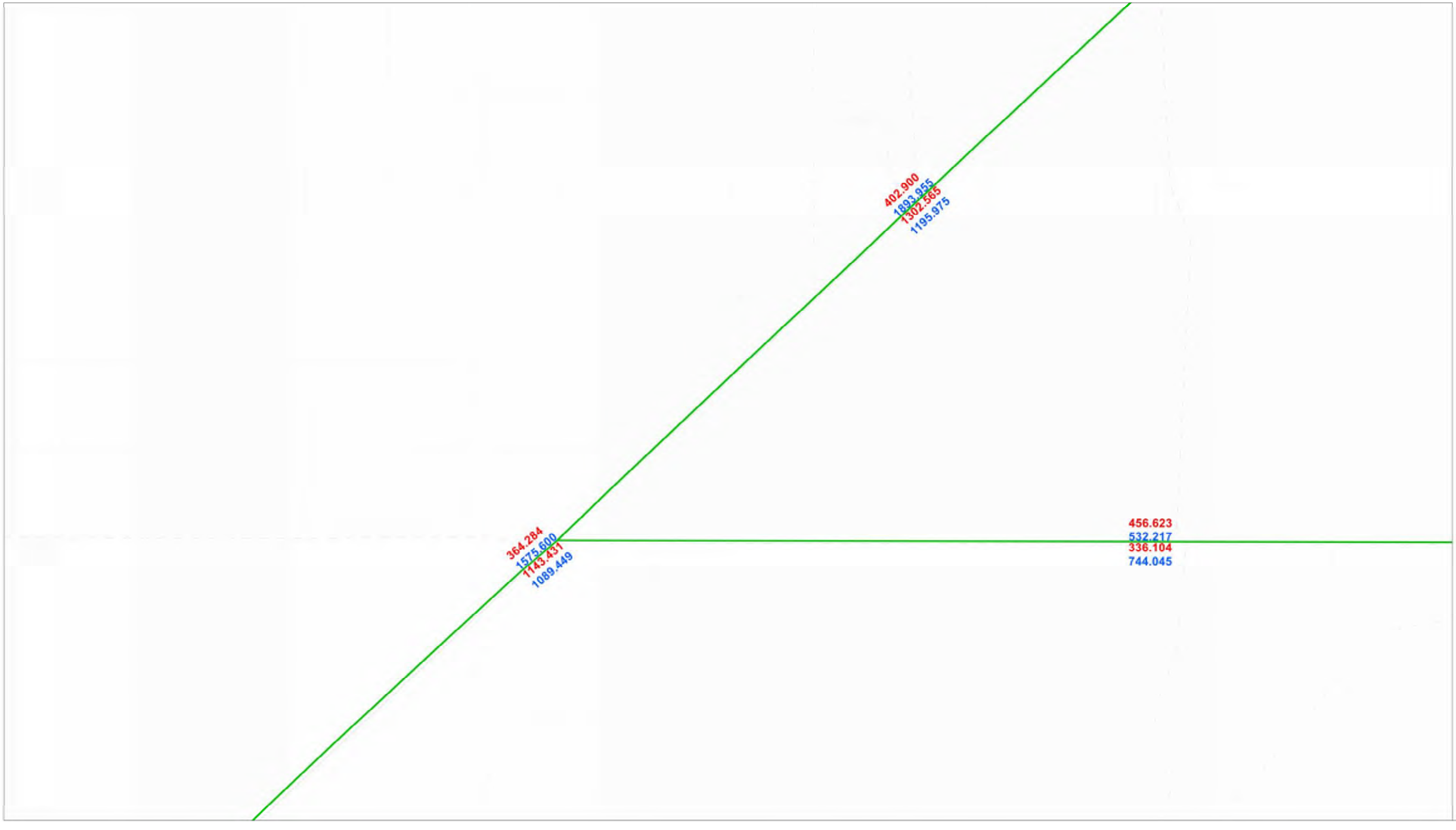
AM Volumes PM Volumes Intersection 2 - 2040



AM Volumes PM Volumes Intersection 3 - 2040



AM Volumes PM Volumes Intersection 4 - 2040



AM Volumes PM Volumes Intersections 5&6 - 2040

AM Volumes PM Volumes Intersection 7 - 2040

Appendix D: Other Area Approved Developments Excerpts

Initial Study

Apple Valley 143 Project

JULY 2022

Prepared for:

TOWN OF APPLE VALLEY
14955 Dale Evans Parkway
Apple Valley, California 92307
Contact: Daniel Alcayaga, Planning Manager

Prepared by:

DUDEK

38 N. Marengo Avenue
Pasadena, California 91101
Contact: Patrick Cruz, Project Manager

2 Project Description

2.1 Project Location

The approximately 143-acre Project site is located in the northern part of the Town, which is within the Victor Valley Region of San Bernardino County (Figure 1, Project Location). The Project site is located on the northeast quadrant of I-15 and Stoddard Wells Road. The Project site is located south of Johnson Road, approximately 0.25 miles west of Grasshopper Road, north of Stoddard Wells Road, and north of I-15. The Project site consists of Assessor's Parcel Numbers (APNs) 047-221-105, 047-221-106, 047-221-115, 047-222-206, and 047-222-211. Specifically, the Project site is located in Sections 13 and 24, Township 6N, Ranges 3W and 4W, as depicted on the U.S. Geological Survey Apple Valley North and Victorville, California 7.5-minute topographic quadrangle maps. Regional access to the Project site is provided via I-15, immediately adjacent to the northeast of the Project site.

2.2 Environmental Setting

Town of Apple Valley

The Town is approximately 72 square miles in the Victor Valley region of San Bernardino County. The Town is bordered by the City of Victorville to the west, the City of Hesperia to the southwest, and unincorporated County to the north and east.

Existing Project Site

The approximately 143-acre, irregularly-shaped project site consists of vacant, undeveloped land. The Project site is bordered to the west by I-15, which runs northeast-southwest, and to the southwest by another parcel, which gives the site its roughly trapezoidal shape. According to the Town's General Plan, the land use and zoning designations for the project site are Regional Commercial (C-R) (Town of Apple Valley 2015; Town of Apple Valley 2021) (see Figure 2, Land Use Designations, and Figure 3, Zoning Designations). Additionally, the Project site is located within the Warehouse Distribution Regional Commercial (C-R) Overlay.

Surrounding Land Uses

Land uses surrounding the Project site primarily consist of vacant land. Specific land uses located in the immediate vicinity of the Project site include the following:

- **North**: Johnson Road and vacant land
- **East**: vacant land and Grasshopper Road
- **South**: Stoddard Wells Road and a planned travel center
- **West**: I-15

2.3 Project Characteristics

The Project would include construction of three industrial/warehouse buildings and associated improvements on 143 acres of vacant land (see Figure 4, Site Plan). Building 1, the southernmost building, would be approximately

615,000 square feet, Building 2, the center building, would be approximately 1,220,000 square feet, and Building 3, the northernmost building, would be approximately 793,000 square feet. The Project would involve associated improvements, including loading docks, truck and vehicle parking, and landscaped areas.

On-Site and Off-Site Improvements

The Project would include improvements along Stoddard Wells Road and Johnson Road, including frontage landscaping and pedestrian improvements. A variety of trees, shrubs, plants, and land covers would be planted within the Project frontage's landscape setback area, as well as within the landscape areas found around the proposed industrial/warehouse buildings and throughout the Project site. The Project would also involve the off-site construction of Outer I-15 Road on the eastern boundary of the Project Site. This would be a public road once constructed.

Site Access and Circulation

Access to the Project site would be provided via Outer I-15 Road on the eastern boundary of the project site, as well as a driveway off of Stoddard Wells Road. Paved passenger vehicle parking areas would be provided within areas east of Buildings 1, 2 and 3, while tractor-trailer stalls and loading docks would be surrounding Building 1 to the north and south, and surrounding Buildings 2 and 3 to the north, south, and west. In total, the Project would provide approximately 515 loading dock positions, approximately 884 tractor-trailer stalls, roughly 975 passenger vehicle spaces, and approximately 920,000 square feet of landscape area coverage.

Utility Improvements

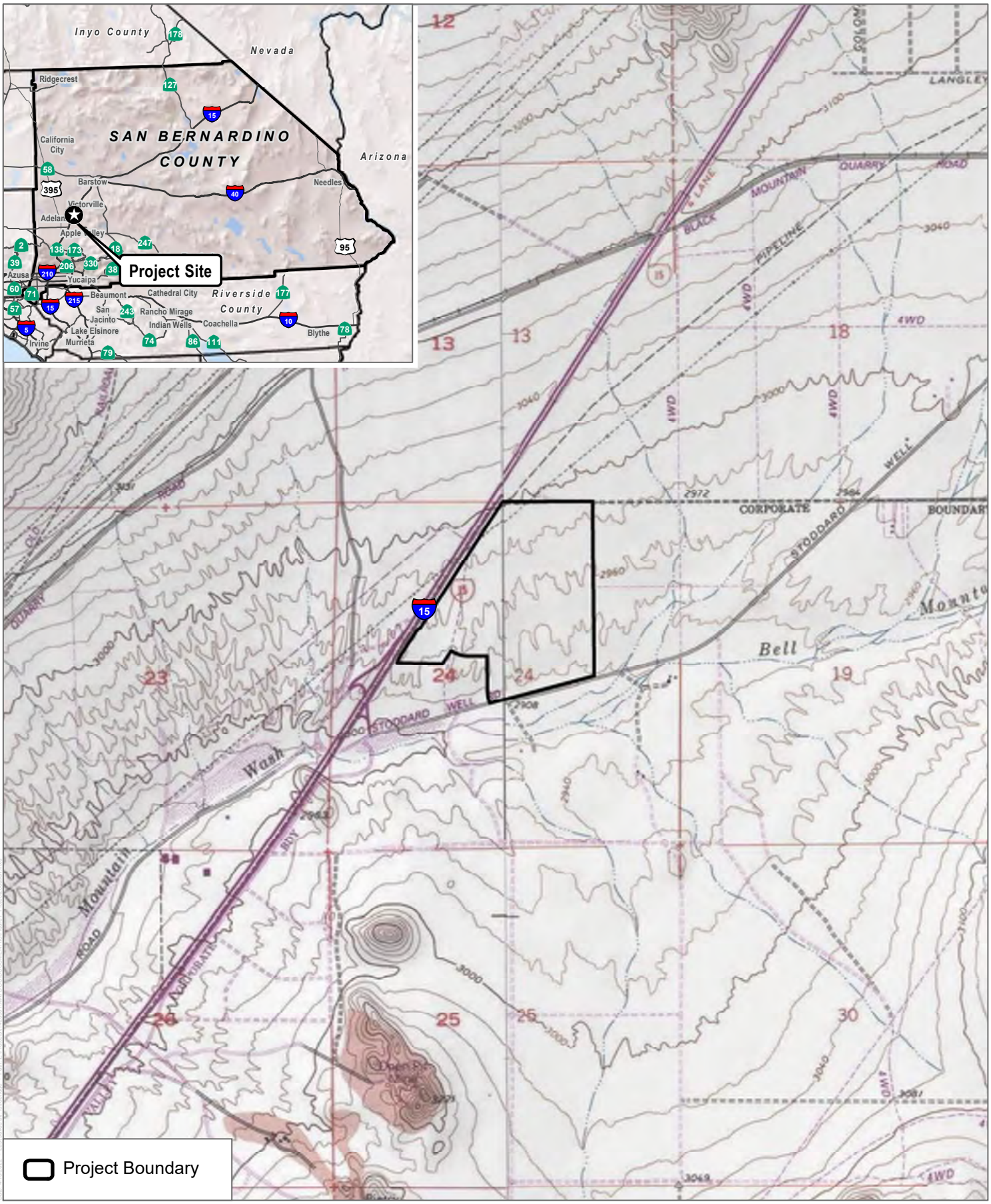
Given the vacant, undeveloped nature of the Project site, both wet and dry utilities, including domestic water, sanitary sewer, storm drainage, and electricity, would need to be extended onto the Project site.

Operations

Tenants for the Project have not been identified and the three industrial warehouse buildings are considered speculative. Business operations would be expected to be conducted within the enclosed buildings, with the exception of ingressing and egressing of trucks and passenger vehicles accessing the site, passenger and truck parking, the loading and unloading of trailers within designated truck courts/loading area, and the internal and external movement of materials around the Project site via forklifts, pallet jacks, yard hostlers, and similar equipment. It is anticipated that the facilities would be operated 24 hours a day, 7 days a week.

2.4 Project Approvals

At this time, it is anticipated that that the Project would require approval of a conditional use permit and development agreement. This list is preliminary and may not be comprehensive. Subsequent non-discretionary approvals (which would require separate processing through the Town) would include, but may not be limited to, a grading permit, building permits, and occupancy permits.



SOURCE: USGS 7.5-minute Series Victorville and Apple Valley North Quadrangles

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Apple Valley Stoddard Wells Warehouse Project Initial Study

SOURCE: RGA 2022

DUDEK

FIGURE 4

Site Plan

Apple Valley Stoddard Wells Warehouse Project Initial Study

Estimated Trip Generation of Apple Valley 143 Project

Land Use	Gross Floor Area (KSF)	Daily	AM Peak Hour of Adjacent Street Traffic			PM Peak Hour of Adjacent Street Traffic		
			In	Out	Total	In	Out	Total
Warehouse (ITE Land Use Category 150)	2,628.00	Vehicle Trip Generation Rates						
		2.36	0.18	0.06	0.24	0.07	0.17	0.24
		Total Vehicle Trip Generation						
		6,202	486	145	631	177	454	631
	Mode Share	Project Trip Generation by Vehicle Type						
Passenger Cars (Percent of Total)	74.21%	4,603	360	108	468	131	337	468
2-Axle Trucks (Percent of Total)	4.55%	282	22	7	29	8	21	29
3-Axle Trucks (Percent of Total)	4.18%	259	20	6	26	7	19	26
4-Axle Trucks (Percent of Total)	17.04%	1057	83	25	107	30	77	107
	PCE Factor	Project Trip Generation in Passenger Car Equivalents (PCE)						
Passenger Cars)	1.0	4,603	360	108	468	131	337	468
2-Axle Trucks	1.5	423	33	10	43	12	31	43
3-Axle Trucks	2.0	518	41	12	53	15	38	53
4 + Axle Trucks	3.0	3171	248	74	322	90	232	322
Total Passenger Car Equivalents (PCE)		**8,715**	**682**	**204**	**886**	**248**	**638**	**886**

Notes:

KSF = Thousands of Square Feet.

AM / PM Peak Hour of Adjacent Street Traffic = Trip generation coinciding with the highest hourly volumes of traffic on the adjacent streets during the AM (7:00 AM and 9:00 AM) and PM (4:00 PM and 6:00 PM) commuter peak periods.

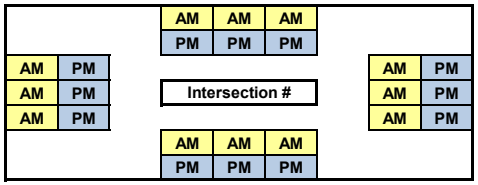
Source of trip generation rates: Institute of Transportation Engineers (ITE) Trip Generation (11th Edition). Average rates for land use category 150 (Warehouse).

Source of passenger car / truck mode share (percentage of total): South Coast Air Quality Management District High Cube Warehouse Trip Generation Study (2016). Based on data from eight high cube warehouses in the Inland Empire over 1,000,000 square feet in size. The average warehouse building size is 1,364,496 square feet.

Passenger Car Equivalents (PCE) factors: Industry standard values utilized in neighboring jurisdictions

Building 1: 615,000 square feet
Building 2: 1,220,000 square feet
Building 3: 793,000 square feet
Total: 2,628,000 square feet

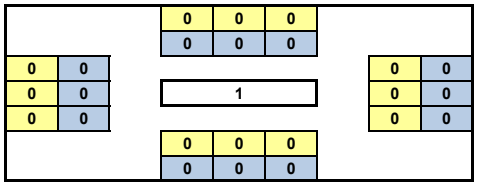
APPLE VALLEY 143 PROJECT TRIPS

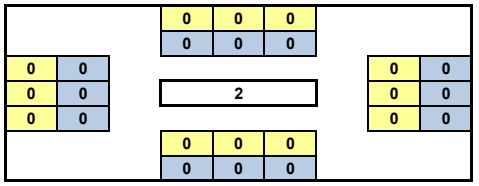


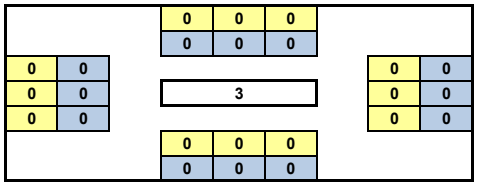
AM PEAK:	682 IN / 204 OUT
PM PEAK:	248 IN / 638 OUT

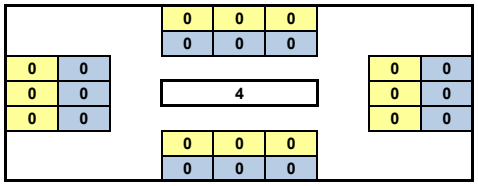
MRound: 1

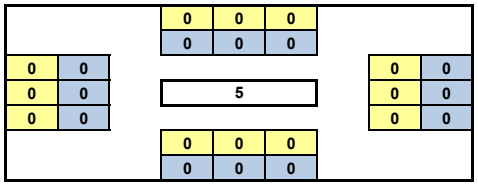
INSTRUCTIONS:
FILL OUT AM/PM PEAK ONLY. DATA CALCULATED BASED ON THE VALUES IN THE "PRIMARY MOVEMENT IN-OUT" AND "PRIMARY DISTRIBUTION" TABS. TO BE USED IN EXHIBT D1.

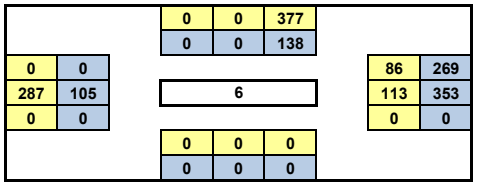


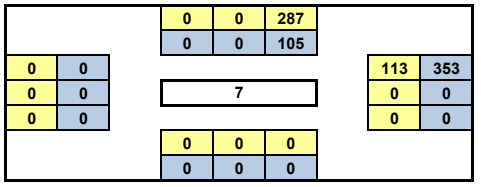


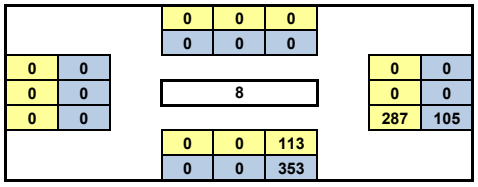


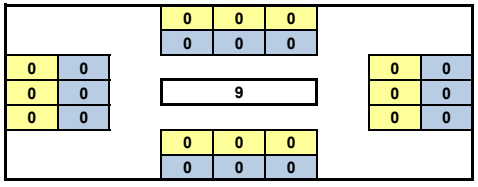


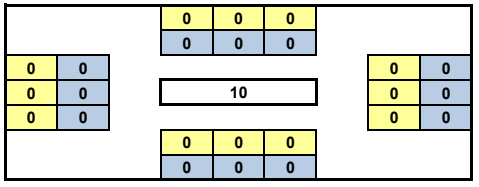


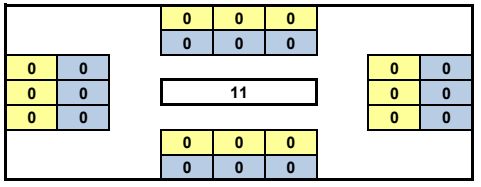


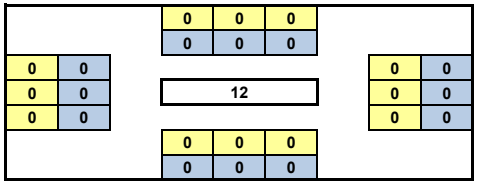


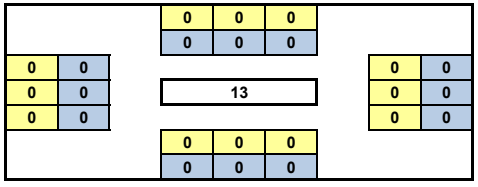


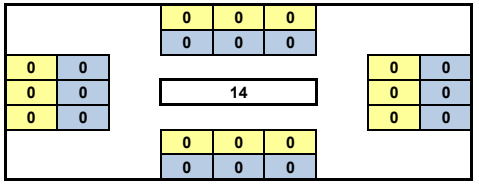












LOVE'S TRAVEL CENTER

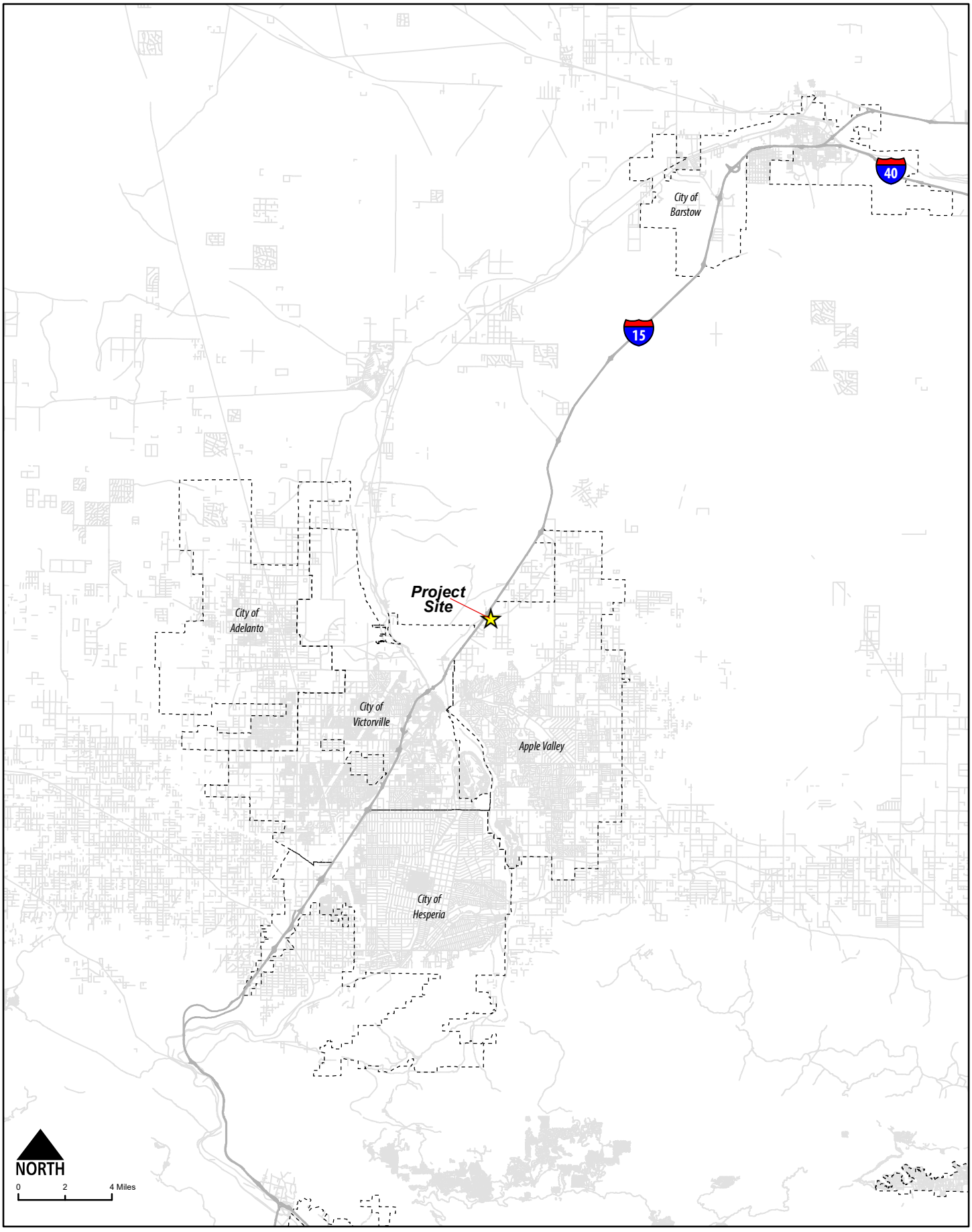
DRAFT
Transportation Impact Study

July 2022

Prepared For
Love's Travel Stops & Country Stores
10601 N. Pennsylvania Avenue
The Village, OK 73120

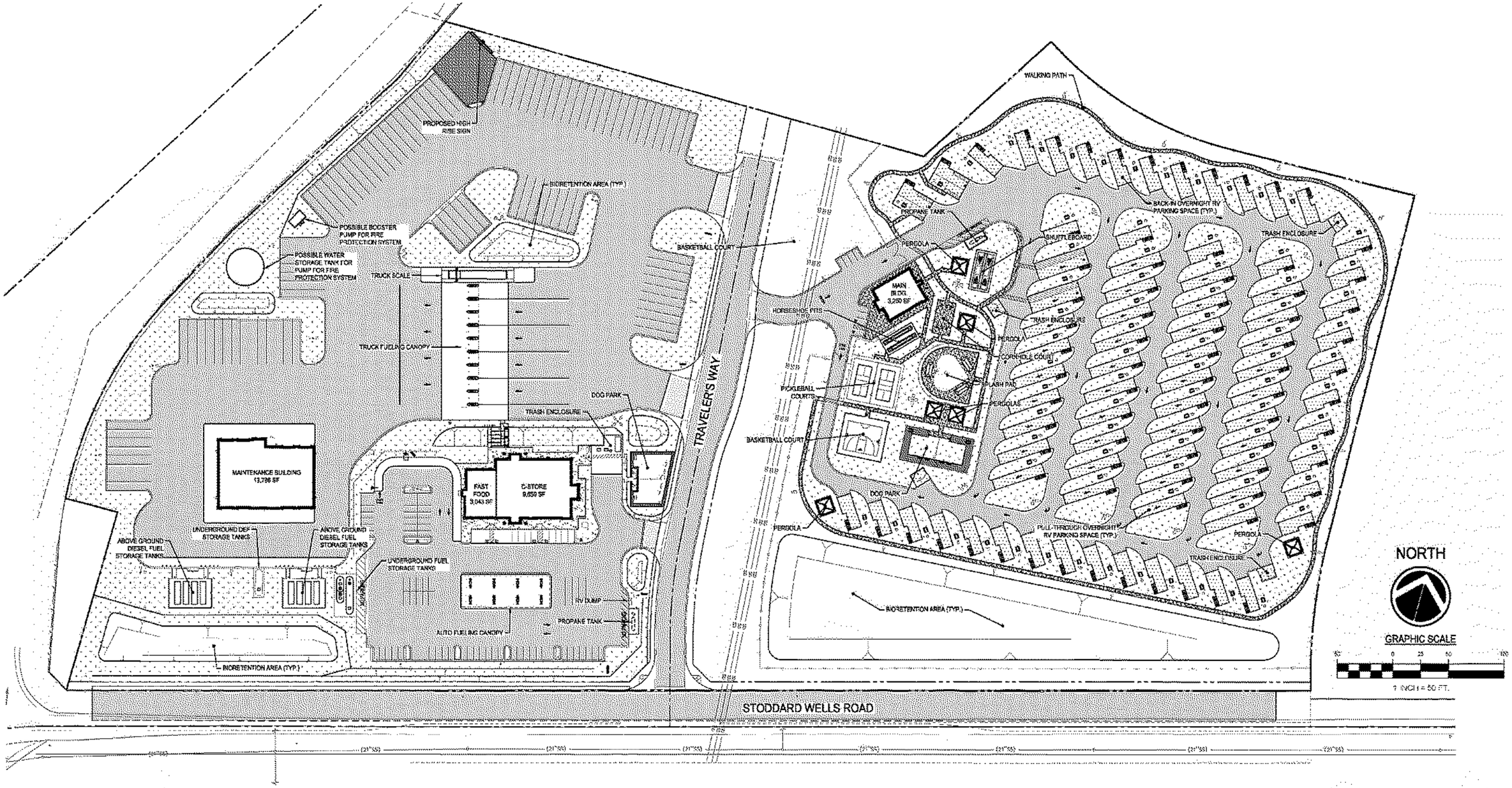
Prepared By

CR Associates
3900 Fifth Avenue, Suite 310
San Diego, CA 92103



Love's Travel Center
Transportation Impact Study

Figure 1.1
Project Regional Location



Love's Travel Center
Transportation Impact Study

C+R

Figure 1.2
Project Site Plan

Table 3.1 Proposed Project Trip Generation

Land Use	Units	Vehicle Type	Daily Trip Rate	Daily Total	AM Peak Hour Trip Rate	AM Peak Hour Total	AM Peak Hour In	AM Peak Hour Out	PM Peak Hour Trip Rate	PM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out
		Total Travel Center Trips[1] (A)										
		Auto	106.52	2,663	5.24	131	66	66	6.92	173	87	86
		Truck	106.52	2,663	5.48	137	68	68	5.20	130	65	65
		Both		5,326		268	134	134		303	152	151
		Diverted Trip Reduction (B)										
Travel Center	25 fuel positions	Auto	*90%*	*-2,397*	*90%*	*-118*	*-59*	*-59*	*90%*	*-156*	*-78*	*-77*
		Truck	*95%*	*-2,530*	*95%*	*-130*	*-65*	*-65*	*95%*	*-124*	*-62*	*-62*
		Both		*-4,927*		*-248*	*-124*	*-124*		*-280*	*-140*	*-139*
		Net New Travel Center Trips (C) = (A+B)										
		Auto		266		13	7	7		17	9	9
		Truck		133		7	3	3		6	3	3
		Both		399		20	10	10		23	12	12
		Total RV Stop Trips (D)										
RV Stop[2]	80 Overnight Parking Spots	-	2.7	216[3]	0.21	17	6	11	0.27	22	14	8
Proposed Project Total Trips (A+D)												
				5,542		**285**	**140**	**145**		**325**	**166**	**159**
Proposed Project Net New Trips (C+D)												
				615		**37**	**16**	**21**		**45**	**26**	**20**

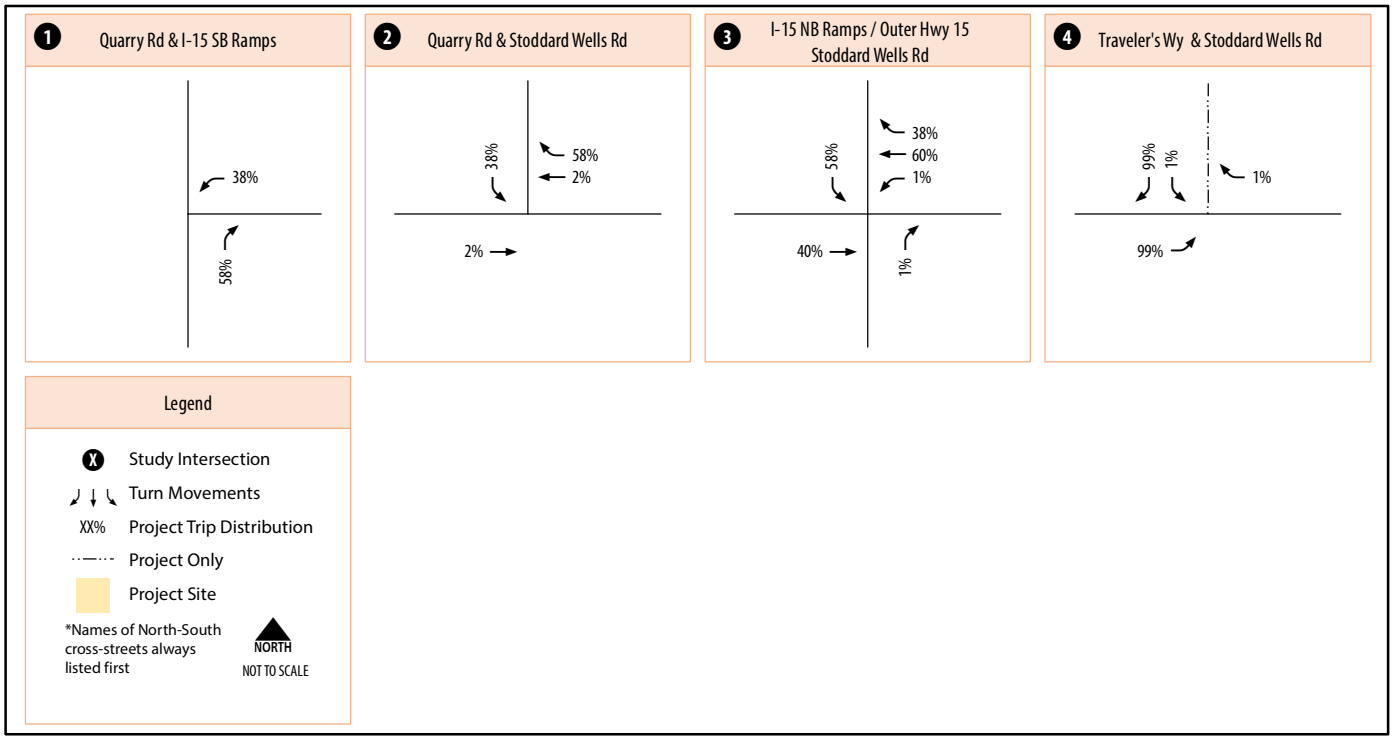
Notes:
[1]Trip generation rate from *Love's Trip Generation and Travel Characteristic Study (Omni-Means, June 2018).*
[2]Trip generation rate from ITE Trip Generation 11th Edition for LU Code 416 Campground/Recreational Vehicle Park.
[3]Daily trip rate not available for RV stop, therefore PM peak hour trips assumed to be 10 percent of daily traffic.

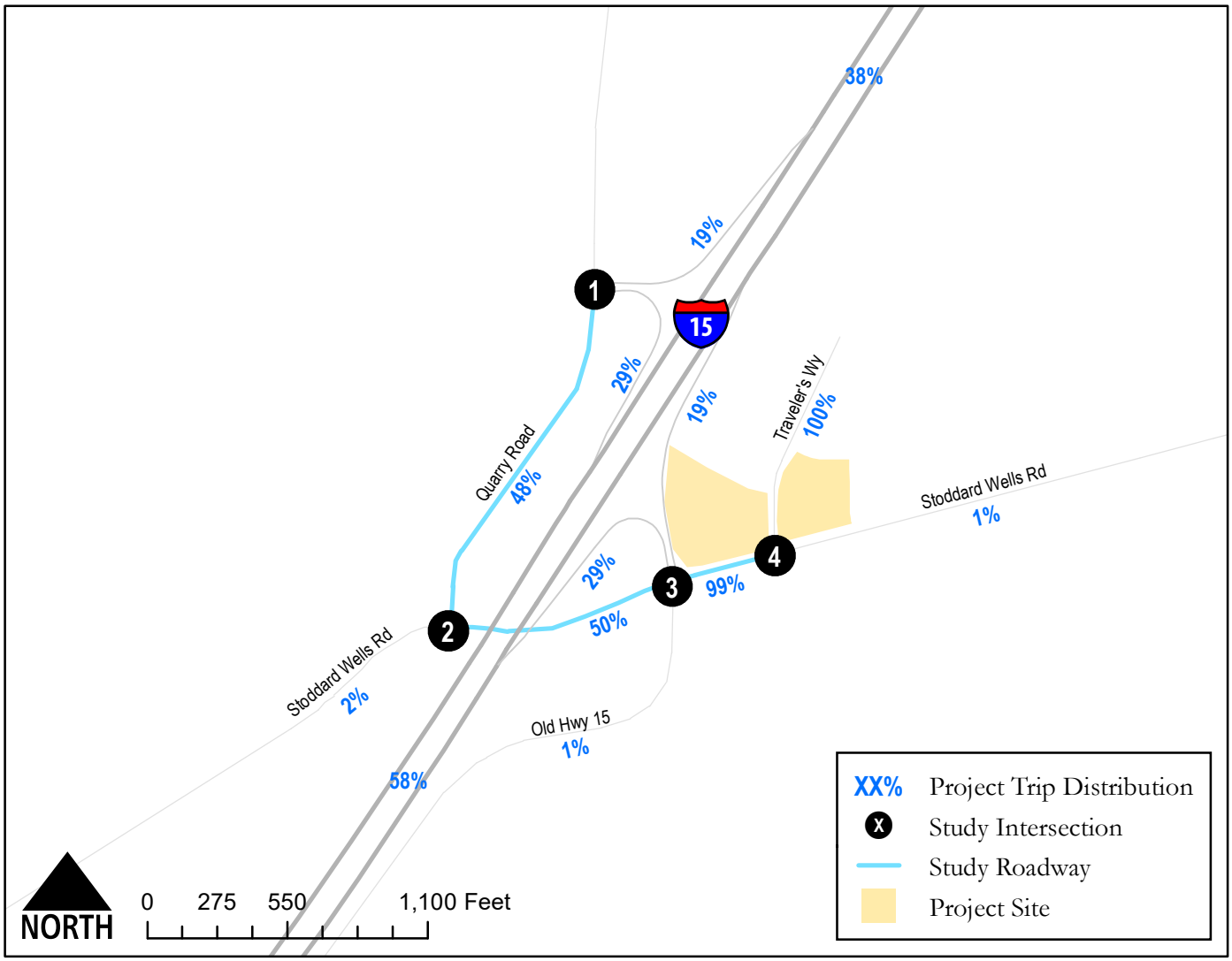
As shown, the Proposed Project land uses are anticipated to generate 5,542 daily trips, with 285 trips during the AM peak hour and 325 trips during the PM peak hour. These project trips were analyzed along adjacent roadway segments and intersections to determine if improvements are needed for study facilities to operate at acceptable levels of service.

Since most trips are assumed to be existing diverted trips, only 615 daily trips, 37 AM peak hour trips, and 45 PM peak hour trips are expected to be net new generated trips in the study area by the Proposed Project. This is important to Vehicle Miles Traveled (VMT) and further explained in Chapter 7.3 as most of the trips to the Travel Center are diverted, resulting in a low VMT for the Travel Center component.

3.2 Project Trip Distribution and Assignment

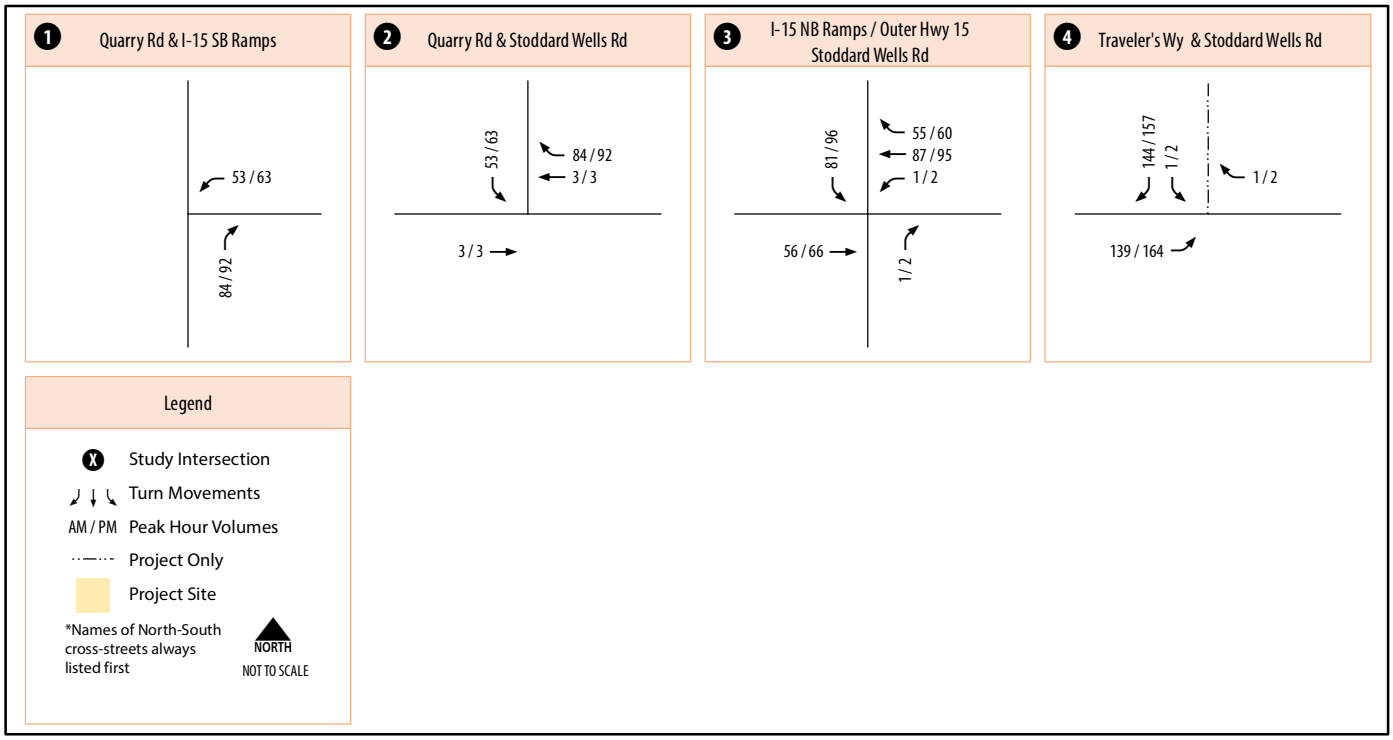
The project trip distribution was developed using engineering judgment based upon project land use characteristics, location, proximity to freeway access points, and corresponding land uses in the vicinity of the project site. **Figure 3.1** displays the regional trip distribution for the Proposed Project. Based upon the project trip distribution patterns, daily and AM/PM peak hour project trips were assigned to the adjacent roadway network. **Figure 3.2** displays the Proposed Project roadway and intersection trip assignment, respectively.

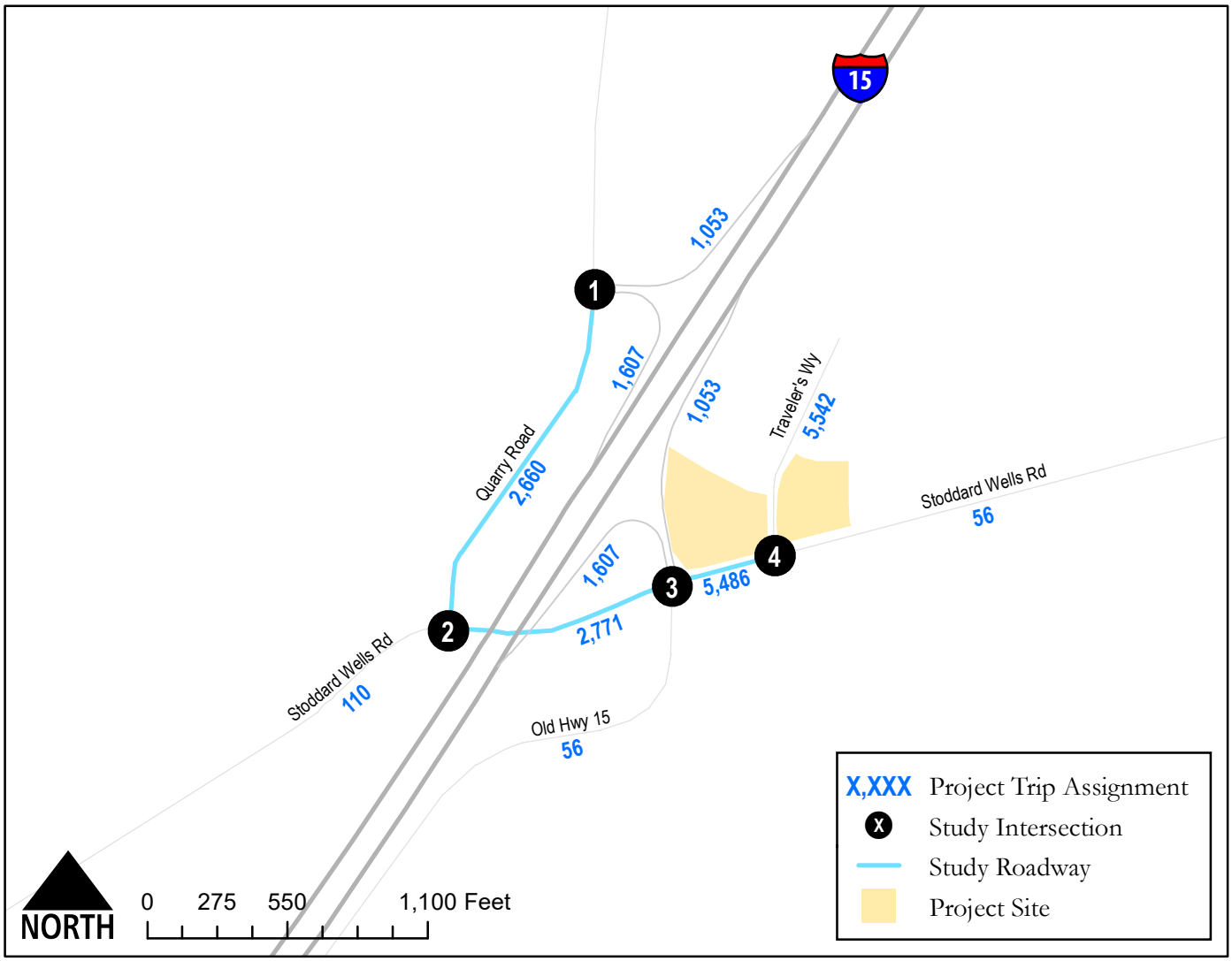




Love's Travel Center
Transportation Impact Study

Figure 3.1
Project Trip Distribution





Love's Travel Center
Transportation Impact Study

Figure 3.2
Project Trip Assignment

Appendix E: Intersection Capacity Analysis Worksheets

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : JOHNSON RD
N/S STREET : NAVAJO RD
CONDITION : AM PEAK HOUR

INTERSECTION : 1
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	1			3		5	7	9
JOHNSON RD								
EB LEFT	0	0	0	0	40	40	0	40
EB THRU	6	1	0	7	0	7	18	18
EB RIGHT	55	5	0	60	0	60	57	57
WB LEFT	2	1	0	3	0	3	3	3
WB THRU	36	4	0	40	0	40	45	45
WB RIGHT	0	0	0	0	7	7	0	7
NAVAJO RD								
NB LEFT	94	9	0	103	0	103	95	95
NB THRU	0	0	0	0	0	0	0	0
NB RIGHT	2	1	0	3	0	3	7	7
SB LEFT	0	0	0	0	3	3	0	3
SB THRU	0	0	0	0	0	0	0	0
SB RIGHT	0	0	0	0	12	12	0	12
TOTALS	**195**	**21**	**0**	**216**	**62**	**278**	**225**	**287**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TNM	12-Sep-23	PIXI5AMG-0002	2	OF 2

E/W STREET : JOHNSON RD
CONDITION : AM PEAK HOUR
N/S STREET : NAVAJO RD
PHF : 0.73

NORTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

Number of Axles	2-Axle Trucks	3-Axle Trucks	4+ Axle Trucks
PCE factor	1.5	2	3

SOUTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	0	17	0	0	2	0	0	1	0	0	2
0	0	22	0	0	0	0	0	0	0	0	0
2	0	23	0	0	1	0	0	0	0	0	1
0	0	16	0	0	0	0	0	0	0	0	0

EAST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	1	2	0	0	0	0	0	0	0	0	0
0	7	0	0	0	0	0	0	0	0	1	0
0	14	0	0	0	0	0	0	0	0	0	0
0	9	0	0	0	0	0	1	0	0	0	0

WEST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
10	3	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	1	0	0
20	1	0	0	0	0	0	0	0	0	0	0
12	2	0	0	0	0	0	0	0	0	0	0

	Truck Volumes	Auto Volumes	Vehicle Totals	PCE Totals	Balanced PCE Totals
JOHNSON RD					
EB LEFT	0	0	**0**	**0**	**0**
EB THRU	0	6	**6**	**6**	**6**
EB RIGHT	1	52	**53**	**55**	**55**
WB LEFT	0	2	**2**	**2**	**2**
WB THRU	2	31	**33**	**36**	**36**
WB RIGHT	0	0	**0**	**0**	**0**
NAVAJO RD					
NB LEFT	7	78	**85**	**94**	**94**
NB THRU	0	0	**0**	**0**	**0**
NB RIGHT	0	2	**2**	**2**	**2**
SB LEFT	0	0	**0**	**0**	**0**
SB THRU	0	0	**0**	**0**	**0**
SB RIGHT	0	0	**0**	**0**	**0**

Intersection	
Int Delay, s/veh	4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	6	55	2	36	94	2
Future Vol, veh/h	6	55	2	36	94	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	73	73	73	73	73	73
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	75	3	49	129	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	83	0	101	46
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	55	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1527	-	902	1029
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	973	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1527	-	900	1029
Mov Cap-2 Maneuver	-	-	-	-	900	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	971	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	902	-	-	1527	-
HCM Lane V/C Ratio	0.146	-	-	0.002	-
HCM Control Delay (s)	9.7	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Intersection	
Int Delay, s/veh	5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	7	60	3	40	103	3
Future Vol, veh/h	7	60	3	40	103	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	73	73	73	73	73	73
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	10	82	4	55	141	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	92	0	114	51
Stage 1	-	-	-	-	51	-
Stage 2	-	-	-	-	63	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1515	-	887	1023
Stage 1	-	-	-	-	977	-
Stage 2	-	-	-	-	965	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1515	-	884	1023
Mov Cap-2 Maneuver	-	-	-	-	884	-
Stage 1	-	-	-	-	977	-
Stage 2	-	-	-	-	962	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	887	-	-	1515	-
HCM Lane V/C Ratio	0.164	-	-	0.003	-
HCM Control Delay (s)	9.9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	40	7	60	3	40	7	103	0	3	3	0	12
Future Vol, veh/h	40	7	60	3	40	7	103	0	3	3	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	73	73	73	73	73	73	73	73	73
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	55	10	82	4	55	10	141	0	4	4	0	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	65	0	0	92	0	0	237	234	51	231	270	60
Stage 1	-	-	-	-	-	-	161	161	-	68	68	-
Stage 2	-	-	-	-	-	-	76	73	-	163	202	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1550	-	-	1515	-	-	722	670	1023	728	640	1011
Stage 1	-	-	-	-	-	-	846	769	-	947	842	-
Stage 2	-	-	-	-	-	-	938	838	-	844	738	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1550	-	-	1515	-	-	688	643	1023	703	614	1011
Mov Cap-2 Maneuver	-	-	-	-	-	-	688	643	-	703	614	-
Stage 1	-	-	-	-	-	-	814	740	-	911	839	-
Stage 2	-	-	-	-	-	-	920	835	-	809	710	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.8	0.4	11.6	9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	694	1550	-	-	1515	-	-	930
HCM Lane V/C Ratio	0.209	0.035	-	-	0.003	-	-	0.022
HCM Control Delay (s)	11.6	7.4	0	-	7.4	0	-	9
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.8	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	4.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	18	57	3	45	95	7
Future Vol, veh/h	18	57	3	45	95	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	19	60	3	47	100	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	79	0	102	49
Stage 1	-	-	-	-	49	-
Stage 2	-	-	-	-	53	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1532	-	901	1025
Stage 1	-	-	-	-	979	-
Stage 2	-	-	-	-	975	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1532	-	899	1025
Mov Cap-2 Maneuver	-	-	-	-	899	-
Stage 1	-	-	-	-	979	-
Stage 2	-	-	-	-	973	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	907	-	-	1532	-
HCM Lane V/C Ratio	0.118	-	-	0.002	-
HCM Control Delay (s)	9.5	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	40	18	57	3	45	7	95	0	7	3	0	12
Future Vol, veh/h	40	18	57	3	45	7	95	0	7	3	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	42	19	60	3	47	7	100	0	7	3	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	79	0	0	196	193	49	194	220	51
Stage 1	-	-	-	-	-	-	133	133	-	57	57	-
Stage 2	-	-	-	-	-	-	63	60	-	137	163	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1564	-	-	1532	-	-	767	706	1025	770	682	1023
Stage 1	-	-	-	-	-	-	875	790	-	960	851	-
Stage 2	-	-	-	-	-	-	953	849	-	871	767	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1564	-	-	1532	-	-	740	685	1025	747	662	1023
Mov Cap-2 Maneuver	-	-	-	-	-	-	740	685	-	747	662	-
Stage 1	-	-	-	-	-	-	851	768	-	933	849	-
Stage 2	-	-	-	-	-	-	939	847	-	841	746	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.6	0.4	10.6	8.8
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	754	1564	-	-	1532	-	-	953
HCM Lane V/C Ratio	0.142	0.027	-	-	0.002	-	-	0.017
HCM Control Delay (s)	10.6	7.4	0	-	7.4	0	-	8.8
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	0.1

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : JOHNSON RD
N/S STREET : NAVAJO RD
CONDITION : PM PEAK HOUR

INTERSECTION : 1
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	2			4		6	8	10
JOHNSON RD								
EB LEFT	0	0	0	0	14	14	0	14
EB THRU	57	6	0	63	0	63	67	67
EB RIGHT	55	5	0	60	0	60	59	59
WB LEFT	2	1	0	3	0	3	5	5
WB THRU	30	3	0	33	0	33	43	43
WB RIGHT	0	0	0	0	3	3	0	3
NAVAJO RD								
NB LEFT	97	9	0	106	0	106	97	97
NB THRU	0	0	0	0	0	0	0	0
NB RIGHT	3	1	0	4	0	4	6	6
SB LEFT	0	0	0	0	7	7	0	7
SB THRU	0	0	0	0	0	0	0	0
SB RIGHT	0	0	0	0	37	37	0	37
TOTALS	**244**	**25**	**0**	**269**	**61**	**330**	**277**	**338**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TNM	12-Sep-23	PIXI5AMG-0002	2	OF 2

E/W STREET : JOHNSON RD
CONDITION : PM PEAK HOUR
N/S STREET : NAVAJO RD
PHF : 0.91

NORTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

Number of Axles	2-Axle Trucks	3-Axle Trucks	4+ Axle Trucks
PCE factor	1.5	2	3

SOUTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
1	0	27	0	0	0	0	0	0	0	0	0
1	0	33	0	0	0	0	0	0	0	0	0
1	0	21	0	0	0	0	0	0	0	0	0
0	0	13	0	0	0	0	0	0	0	0	1

EAST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	6	1	0	0	0	0	0	0	0	0	0
0	5	1	0	0	0	0	0	0	0	0	0
0	9	0	0	0	0	0	0	0	0	0	0
0	10	0	0	0	0	0	0	0	0	0	0

WEST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
21	10	0	0	0	0	0	0	0	0	0	0
8	10	0	0	0	0	1	0	0	1	0	0
11	16	0	0	0	0	0	0	0	0	0	0
10	21	0	0	0	0	0	0	0	0	0	0

	Truck Volumes	Auto Volumes	Vehicle Totals	PCE Totals	Balanced PCE Totals
JOHNSON RD					
EB LEFT	0	0	**0**	**0**	**0**
EB THRU	0	57	**57**	**57**	**57**
EB RIGHT	2	50	**52**	**55**	**55**
WB LEFT	0	2	**2**	**2**	**2**
WB THRU	0	30	**30**	**30**	**30**
WB RIGHT	0	0	**0**	**0**	**0**
NAVAJO RD					
NB LEFT	1	94	**95**	**97**	**97**
NB THRU	0	0	**0**	**0**	**0**
NB RIGHT	0	3	**3**	**3**	**3**
SB LEFT	0	0	**0**	**0**	**0**
SB THRU	0	0	**0**	**0**	**0**
SB RIGHT	0	0	**0**	**0**	**0**

Intersection	
Int Delay, s/veh	4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	57	55	2	30	97	3
Future Vol, veh/h	57	55	2	30	97	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	63	60	2	33	107	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	123	0	130	93
Stage 1	-	-	-	-	93	-
Stage 2	-	-	-	-	37	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1477	-	869	970
Stage 1	-	-	-	-	936	-
Stage 2	-	-	-	-	991	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1477	-	868	970
Mov Cap-2 Maneuver	-	-	-	-	868	-
Stage 1	-	-	-	-	936	-
Stage 2	-	-	-	-	990	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	871	-	-	1477	-
HCM Lane V/C Ratio	0.126	-	-	0.001	-
HCM Control Delay (s)	9.7	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	60	3	33	106	4
Future Vol, veh/h	63	60	3	33	106	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	69	66	3	36	116	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	135	0	144	102
Stage 1	-	-	-	-	102	-
Stage 2	-	-	-	-	42	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1462	-	853	959
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	986	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1462	-	851	959
Mov Cap-2 Maneuver	-	-	-	-	851	-
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	984	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	854	-	-	1462	-
HCM Lane V/C Ratio	0.142	-	-	0.002	-
HCM Control Delay (s)	9.9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	63	60	3	33	3	106	0	4	7	0	37
Future Vol, veh/h	14	63	60	3	33	3	106	0	4	7	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	69	66	3	36	3	116	0	4	8	0	41

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	39	0	0	135	0	0	196	177	102	178	209	38
Stage 1	-	-	-	-	-	-	132	132	-	44	44	-
Stage 2	-	-	-	-	-	-	64	45	-	134	165	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1584	-	-	1462	-	-	767	720	959	789	692	1040
Stage 1	-	-	-	-	-	-	876	791	-	975	862	-
Stage 2	-	-	-	-	-	-	952	861	-	874	766	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1584	-	-	1462	-	-	730	711	959	778	684	1040
Mov Cap-2 Maneuver	-	-	-	-	-	-	730	711	-	778	684	-
Stage 1	-	-	-	-	-	-	867	783	-	965	860	-
Stage 2	-	-	-	-	-	-	913	859	-	861	758	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.6	10.9	8.8
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	736	1584	-	-	1462	-	-	987
HCM Lane V/C Ratio	0.164	0.01	-	-	0.002	-	-	0.049
HCM Control Delay (s)	10.9	7.3	0	-	7.5	0	-	8.8
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	3.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	67	59	5	43	97	6
Future Vol, veh/h	67	59	5	43	97	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	71	62	5	45	102	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	133	0	157	102
Stage 1	-	-	-	-	102	-
Stage 2	-	-	-	-	55	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1464	-	839	959
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	973	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1464	-	836	959
Mov Cap-2 Maneuver	-	-	-	-	836	-
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	969	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	842	-	-	1464	-
HCM Lane V/C Ratio	0.129	-	-	0.004	-
HCM Control Delay (s)	9.9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	67	59	5	43	3	97	0	6	7	0	37
Future Vol, veh/h	14	67	59	5	43	3	97	0	6	7	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	71	62	5	45	3	102	0	6	7	0	39

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	48	0	0	133	0	0	208	190	102	192	220	47
Stage 1	-	-	-	-	-	-	132	132	-	57	57	-
Stage 2	-	-	-	-	-	-	76	58	-	135	163	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1572	-	-	1464	-	-	754	708	959	772	682	1028
Stage 1	-	-	-	-	-	-	876	791	-	960	851	-
Stage 2	-	-	-	-	-	-	938	851	-	873	767	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1572	-	-	1464	-	-	718	698	959	759	672	1028
Mov Cap-2 Maneuver	-	-	-	-	-	-	718	698	-	759	672	-
Stage 1	-	-	-	-	-	-	867	783	-	950	848	-
Stage 2	-	-	-	-	-	-	899	848	-	859	759	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.7	10.8	8.9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	729	1572	-	-	1464	-	-	973
HCM Lane V/C Ratio	0.149	0.009	-	-	0.004	-	-	0.048
HCM Control Delay (s)	10.8	7.3	0	-	7.5	0	-	8.9
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.1

CALCULATION OF FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES (NCHRP 255)

Intersection No.: 1
North/South Street: NAVAJO RD
East/West Street: JOHNSON RD

Analysis Condition: YEAR 2040 FUTURE TRAFFIC

A.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume			Turn Volume	Rounded Volume
South leg	Left	94	Approach	102	Left	94	95
NB	Through	0	Departure	59	Through	0	0
	Right	2			Right	6	7
North leg	Left	0	Approach	0	Left	0	0
SB	Through	0	Departure	0	Through	0	0
	Right	0			Right	0	0
West leg	Left	0	Approach	73	Left	0	0
EB	Through	6	Departure	139	Through	18	18
	Right	55			Right	56	57
East leg	Left	2	Approach	48	Left	3	3
WB	Through	36	Departure	24	Through	45	45
	Right	0			Right	0	0

P.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume			Turn Volume	Rounded Volume
South leg	Left	97	Approach	103	Left	96	97
NB	Through	0	Departure	63	Through	0	0
	Right	3			Right	5	6
North leg	Left	0	Approach	0	Left	0	0
SB	Through	0	Departure	0	Through	0	0
	Right	0			Right	0	0
West leg	Left	0	Approach	122	Left	0	0
EB	Through	57	Departure	139	Through	67	67
	Right	55			Right	59	59
East leg	Left	2	Approach	48	Left	4	5
WB	Through	30	Departure	72	Through	43	43
	Right	0			Right	0	0

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : JOHNSON RD
N/S STREET : DALE EVANS PKWY
CONDITION : AM PEAK HOUR

INTERSECTION : 2
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	1			3		5	7	9
JOHNSON RD								
EB LEFT	5	1	0	6	0	6	29	29
EB THRU	57	6	0	63	62	125	68	130
EB RIGHT	21	2	0	23	0	23	59	59
WB LEFT	11	1	0	12	6	18	4	10
WB THRU	115	11	0	126	19	145	158	177
WB RIGHT	52	5	0	57	3	60	30	33
DALE EVANS PKWY								
NB LEFT	8	1	0	9	0	9	79	79
NB THRU	67	7	0	74	0	74	277	277
NB RIGHT	21	2	0	23	20	43	18	38
SB LEFT	27	3	0	30	10	40	32	42
SB THRU	46	5	0	51	0	51	130	130
SB RIGHT	0	0	0	0	0	0	0	0
TOTALS	**430**	**44**	**0**	**474**	**120**	**594**	**884**	**1004**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TNM	12-Sep-23	PIXI5AMG-0002	2	OF 2

E/W STREET : JOHNSON RD
CONDITION : AM PEAK HOUR
N/S STREET : DALE EVANS PKWY
PHF : 0.95

NORTH LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	13	3	0	0	1	0	0	0	0	0	0
0	4	8	0	1	0	0	0	0	0	0	0
0	5	3	0	0	0	0	0	0	0	3	2
0	6	2	0	1	0	0	0	0	0	2	1

SOUTH LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
3	25	0	1	0	0	0	0	0	0	0	0
5	13	2	0	0	0	0	0	0	0	0	0
5	15	3	0	0	0	0	0	0	0	0	0
6	14	3	0	0	0	0	0	0	0	0	0

EAST LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
5	24	3	0	1	0	1	1	0	0	0	0
4	30	2	0	0	0	0	1	0	2	1	0
6	18	3	1	2	0	0	1	0	3	1	0
10	28	3	1	0	0	0	0	0	0	1	0

WEST LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	14	2	0	1	0	0	0	0	0	0	0
2	9	0	0	1	0	0	0	0	1	1	0
6	14	2	0	0	0	1	0	0	0	0	0
2	7	1	0	1	0	0	1	0	2	1	0

Number of Axles	2-Axle Trucks	3-Axle Trucks	4+ Axle Trucks
PCE factor	1.5	2	3

	Truck Volumes	Auto Volumes	Vehicle Totals	PCE Totals	Balanced PCE Totals
JOHNSON RD					
EB LEFT	0	5	**5**	**5**	**5**
EB THRU	6	44	**50**	**57**	**57**
EB RIGHT	4	10	**14**	**21**	**21**
WB LEFT	0	11	**11**	**11**	**11**
WB THRU	9	100	**109**	**115**	**115**
WB RIGHT	8	25	**33**	**52**	**52**
DALE EVANS PKWY					
NB LEFT	0	8	**8**	**8**	**8**
NB THRU	0	67	**67**	**67**	**67**
NB RIGHT	1	19	**20**	**21**	**21**
SB LEFT	4	16	**20**	**27**	**27**
SB THRU	7	28	**35**	**46**	**46**
SB RIGHT	0	0	**0**	**0**	**0**

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	57	21	11	115	52	8	67	21	27	46	0
Future Vol, veh/h	5	57	21	11	115	52	8	67	21	27	46	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	60	22	12	121	55	8	71	22	28	48	0
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	8.8	8.7	8.5	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	6%	9%	0%	100%	0%
Vol Thru, %	0%	100%	0%	69%	91%	0%	0%	100%
Vol Right, %	0%	0%	100%	25%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	67	21	83	126	52	27	46
LT Vol	8	0	0	5	11	0	27	0
Through Vol	0	67	0	57	115	0	0	46
RT Vol	0	0	21	21	0	52	0	0
Lane Flow Rate	8	71	22	87	133	55	28	48
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.014	0.106	0.029	0.127	0.193	0.068	0.047	0.074
Departure Headway (Hd)	5.94	5.436	4.731	5.233	5.236	4.491	5.988	5.484
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	601	657	753	682	684	795	596	651
Service Time	3.69	3.186	2.481	2.983	2.978	2.233	3.742	3.237
HCM Lane V/C Ratio	0.013	0.108	0.029	0.128	0.194	0.069	0.047	0.074
HCM Control Delay	8.8	8.8	7.6	8.8	9.2	7.6	9	8.7
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0	0.4	0.1	0.4	0.7	0.2	0.1	0.2

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	63	23	12	126	57	9	74	23	30	51	0
Future Vol, veh/h	6	63	23	12	126	57	9	74	23	30	51	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	6	66	24	13	133	60	9	78	24	32	54	0
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	9	9	8.8	9
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	7%	9%	0%	100%	0%
Vol Thru, %	0%	100%	0%	68%	91%	0%	0%	100%
Vol Right, %	0%	0%	100%	25%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	74	23	92	138	57	30	51
LT Vol	9	0	0	6	12	0	30	0
Through Vol	0	74	0	63	126	0	0	51
RT Vol	0	0	23	23	0	57	0	0
Lane Flow Rate	9	78	24	97	145	60	32	54
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.016	0.12	0.032	0.144	0.215	0.076	0.053	0.083
Departure Headway (Hd)	6.041	5.537	4.831	5.336	5.318	4.572	6.094	5.589
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	590	643	736	668	673	779	585	637
Service Time	3.806	3.302	2.596	3.098	3.07	2.325	3.865	3.36
HCM Lane V/C Ratio	0.015	0.121	0.033	0.145	0.215	0.077	0.055	0.085
HCM Control Delay	8.9	9.1	7.8	9	9.5	7.7	9.2	8.9
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0	0.4	0.1	0.5	0.8	0.2	0.2	0.3

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	125	23	18	145	60	9	74	43	40	51	0
Future Vol, veh/h	6	125	23	18	145	60	9	74	43	40	51	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	6	132	24	19	153	63	9	78	45	42	54	0
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	10.3	9.9	9.2	9.6
HCM LOS	B	A	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	4%	11%	0%	100%	0%
Vol Thru, %	0%	100%	0%	81%	89%	0%	0%	100%
Vol Right, %	0%	0%	100%	15%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	74	43	154	163	60	40	51
LT Vol	9	0	0	6	18	0	40	0
Through Vol	0	74	0	125	145	0	0	51
RT Vol	0	0	43	23	0	60	0	0
Lane Flow Rate	9	78	45	162	172	63	42	54
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.017	0.129	0.066	0.256	0.271	0.087	0.077	0.09
Departure Headway (Hd)	6.481	5.975	5.267	5.684	5.691	4.933	6.563	6.056
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	553	601	681	634	635	729	547	593
Service Time	4.209	3.703	2.995	3.395	3.399	2.64	4.291	3.784
HCM Lane V/C Ratio	0.016	0.13	0.066	0.256	0.271	0.086	0.077	0.091
HCM Control Delay	9.3	9.6	8.4	10.3	10.5	8.1	9.8	9.4
HCM Lane LOS	A	A	A	B	B	A	A	A
HCM 95th-tile Q	0.1	0.4	0.2	1	1.1	0.3	0.2	0.3

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	68	59	4	158	30	79	277	18	32	130	0
Future Vol, veh/h	29	68	59	4	158	30	79	277	18	32	130	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	31	72	62	4	166	32	83	292	19	34	137	0
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	12.5	12.3	14.3	11.8
HCM LOS	B	B	B	B

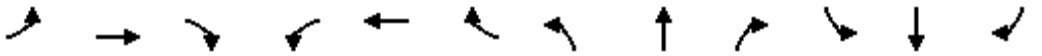
Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	19%	2%	0%	100%	0%
Vol Thru, %	0%	100%	0%	44%	98%	0%	0%	100%
Vol Right, %	0%	0%	100%	38%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	79	277	18	156	162	30	32	130
LT Vol	79	0	0	29	4	0	32	0
Through Vol	0	277	0	68	158	0	0	130
RT Vol	0	0	18	59	0	30	0	0
Lane Flow Rate	83	292	19	164	171	32	34	137
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.158	0.513	0.03	0.307	0.323	0.054	0.069	0.26
Departure Headway (Hd)	6.836	6.329	5.618	6.724	6.821	6.101	7.357	6.847
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	522	566	633	530	524	582	484	521
Service Time	4.611	4.103	3.392	4.513	4.609	3.888	5.151	4.64
HCM Lane V/C Ratio	0.159	0.516	0.03	0.309	0.326	0.055	0.07	0.263
HCM Control Delay	10.9	15.7	8.6	12.5	12.9	9.2	10.7	12.1
HCM Lane LOS	B	C	A	B	B	A	B	B
HCM 95th-tile Q	0.6	2.9	0.1	1.3	1.4	0.2	0.2	1

Intersection	
Intersection Delay, s/veh	15.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	130	59	10	177	33	79	277	38	42	130	0
Future Vol, veh/h	29	130	59	10	177	33	79	277	38	42	130	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	31	137	62	11	186	35	83	292	40	44	137	0
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	15.9	14.2	16	12.9
HCM LOS	C	B	C	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	13%	5%	0%	100%	0%
Vol Thru, %	0%	100%	0%	60%	95%	0%	0%	100%
Vol Right, %	0%	0%	100%	27%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	79	277	38	218	187	33	42	130
LT Vol	79	0	0	29	10	0	42	0
Through Vol	0	277	0	130	177	0	0	130
RT Vol	0	0	38	59	0	33	0	0
Lane Flow Rate	83	292	40	229	197	35	44	137
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.172	0.56	0.069	0.459	0.403	0.064	0.099	0.286
Departure Headway (Hd)	7.427	6.917	6.202	7.199	7.376	6.637	8.031	7.517
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	483	522	577	500	488	539	446	478
Service Time	5.172	4.662	3.947	4.946	5.126	4.387	5.784	5.27
HCM Lane V/C Ratio	0.172	0.559	0.069	0.458	0.404	0.065	0.099	0.287
HCM Control Delay	11.7	18.2	9.4	15.9	15	9.8	11.7	13.3
HCM Lane LOS	B	C	A	C	B	A	B	B
HCM 95th-tile Q	0.6	3.4	0.2	2.4	1.9	0.2	0.3	1.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	130	59	10	177	33	79	277	38	42	130	0
Future Volume (veh/h)	29	130	59	10	177	33	79	277	38	42	130	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1800	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	31	137	62	11	186	35	83	292	40	44	137	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	51	284	129	20	330	62	102	760	103	64	410	347
Arrive On Green	0.03	0.24	0.24	0.01	0.22	0.22	0.06	0.25	0.25	0.04	0.23	0.00
Sat Flow, veh/h	1714	1173	531	1714	1473	277	1619	3026	410	1619	1800	1525
Grp Volume(v), veh/h	31	0	199	11	0	221	83	164	168	44	137	0
Grp Sat Flow(s),veh/h/ln	1714	0	1704	1714	0	1750	1619	1710	1726	1619	1800	1525
Q Serve(g_s), s	0.6	0.0	3.5	0.2	0.0	3.9	1.8	2.8	2.8	0.9	2.2	0.0
Cycle Q Clear(g_c), s	0.6	0.0	3.5	0.2	0.0	3.9	1.8	2.8	2.8	0.9	2.2	0.0
Prop In Lane	1.00		0.31	1.00		0.16	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	51	0	413	20	0	392	102	429	433	64	410	347
V/C Ratio(X)	0.61	0.00	0.48	0.55	0.00	0.56	0.81	0.38	0.39	0.68	0.33	0.00
Avail Cap(c_a), veh/h	1073	0	1794	293	0	1046	461	1216	1228	276	1075	911
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.8	0.0	11.4	17.3	0.0	12.1	16.3	10.9	10.9	16.7	11.3	0.0
Incr Delay (d2), s/veh	11.2	0.0	0.9	21.9	0.0	1.3	14.0	0.6	0.6	12.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	1.1	0.2	0.0	1.3	0.9	0.8	0.9	0.5	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.0	0.0	12.3	39.2	0.0	13.4	30.3	11.5	11.5	28.7	11.8	0.0
LnGrp LOS	C	A	B	D	A	B	C	B	B	C	B	A
Approach Vol, veh/h		230			232			415			181	
Approach Delay, s/veh		14.4			14.6			15.2			15.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	12.8	4.4	12.5	6.2	12.0	5.0	11.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	25.0	6.0	37.0	10.0	21.0	22.0	21.0
Max Q Clear Time (g_c+I1), s	2.9	4.8	2.2	5.5	3.8	4.2	2.6	5.9
Green Ext Time (p_c), s	0.0	1.7	0.0	1.2	0.1	0.6	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : JOHNSON RD
N/S STREET : DALE EVANS PKWY
CONDITION : PM PEAK HOUR

INTERSECTION : 2
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	2			4		6	8	10
JOHNSON RD								
EB LEFT	3	1	0	4	0	4	14	14
EB THRU	106	10	0	116	22	138	142	164
EB RIGHT	24	3	0	27	0	27	104	104
WB LEFT	27	3	0	30	18	48	17	35
WB THRU	191	18	0	209	59	268	227	286
WB RIGHT	19	2	0	21	8	29	12	20
DALE EVANS PKWY								
NB LEFT	16	2	0	18	0	18	71	71
NB THRU	88	8	0	96	0	96	204	204
NB RIGHT	48	5	0	53	8	61	34	42
SB LEFT	51	5	0	56	4	60	38	42
SB THRU	171	16	0	187	0	187	402	402
SB RIGHT	0	0	0	0	0	0	0	0
TOTALS	**744**	**73**	**0**	**817**	**119**	**936**	**1265**	**1384**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TNM	12-Sep-23	PIXI5AMG-0002	2	OF 2

E/W STREET : JOHNSON RD
N/S STREET : DALE EVANS PKWY
CONDITION : PM PEAK HOUR
PHF : 0.86

NORTH LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	29	12	0	0	0	0	0	0	0	0	0
0	50	13	0	0	1	0	0	1	0	0	0
0	40	8	0	0	0	0	0	1	0	0	2
0	50	6	0	1	0	0	0	0	0	0	0

SOUTH LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
15	17	2	0	0	0	0	0	0	0	1	0
11	24	5	0	0	0	0	0	0	0	1	0
14	9	3	0	0	0	0	0	0	0	2	0
8	26	6	0	0	0	0	0	0	0	0	0

EAST LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
7	45	10	0	0	0	0	0	0	0	0	0
5	48	8	0	0	0	0	0	0	0	2	0
4	44	5	0	0	0	0	0	0	0	0	0
3	45	4	0	0	0	0	0	0	0	1	0

WEST LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
3	26	2	0	0	0	0	0	0	0	0	0
6	30	1	0	1	0	0	0	0	1	0	0
5	28	0	0	0	0	0	0	0	0	1	0
7	14	0	0	0	0	0	0	0	0	1	0

Number of Axles	2-Axle Trucks	3-Axle Trucks	4+ Axle Trucks
PCE factor	1.5	2	3

	Truck Volumes	Auto Volumes	Vehicle Totals	PCE Totals	Balanced PCE Totals
JOHNSON RD					
EB LEFT	0	3	**3**	**3**	**3**
EB THRU	3	98	**101**	**106**	**106**
EB RIGHT	1	21	**22**	**24**	**24**
WB LEFT	0	27	**27**	**27**	**27**
WB THRU	3	182	**185**	**191**	**191**
WB RIGHT	0	19	**19**	**19**	**19**
DALE EVANS PKWY					
NB LEFT	0	16	**16**	**16**	**16**
NB THRU	4	76	**80**	**88**	**88**
NB RIGHT	0	48	**48**	**48**	**48**
SB LEFT	5	39	**44**	**51**	**51**
SB THRU	1	169	**170**	**171**	**171**
SB RIGHT	0	0	**0**	**0**	**0**

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	106	24	27	191	19	16	88	48	51	171	0
Future Vol, veh/h	3	106	24	27	191	19	16	88	48	51	171	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	123	28	31	222	22	19	102	56	59	199	0
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	11.9	14	10.5	12.4
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	2%	12%	0%	100%	0%
Vol Thru, %	0%	100%	0%	80%	88%	0%	0%	100%
Vol Right, %	0%	0%	100%	18%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	16	88	48	133	218	19	51	171
LT Vol	16	0	0	3	27	0	51	0
Through Vol	0	88	0	106	191	0	0	171
RT Vol	0	0	48	24	0	19	0	0
Lane Flow Rate	19	102	56	155	253	22	59	199
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.037	0.191	0.093	0.282	0.454	0.035	0.116	0.36
Departure Headway (Hd)	7.235	6.726	6.013	6.576	6.449	5.68	7.02	6.51
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	493	531	592	543	555	627	509	551
Service Time	5.012	4.503	3.79	4.352	4.216	3.447	4.79	4.28
HCM Lane V/C Ratio	0.039	0.192	0.095	0.285	0.456	0.035	0.116	0.361
HCM Control Delay	10.3	11.1	9.4	11.9	14.5	8.7	10.7	12.9
HCM Lane LOS	B	B	A	B	B	A	B	B
HCM 95th-tile Q	0.1	0.7	0.3	1.2	2.3	0.1	0.4	1.6

Intersection	
Intersection Delay, s/veh	13.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	116	27	30	209	21	18	96	53	56	187	0
Future Vol, veh/h	4	116	27	30	209	21	18	96	53	56	187	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	135	31	35	243	24	21	112	62	65	217	0
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	13.1	16.2	11.1	13.7
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	3%	13%	0%	100%	0%
Vol Thru, %	0%	100%	0%	79%	87%	0%	0%	100%
Vol Right, %	0%	0%	100%	18%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	96	53	147	239	21	56	187
LT Vol	18	0	0	4	30	0	56	0
Through Vol	0	96	0	116	209	0	0	187
RT Vol	0	0	53	27	0	21	0	0
Lane Flow Rate	21	112	62	171	278	24	65	217
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.044	0.221	0.11	0.33	0.525	0.041	0.134	0.416
Departure Headway (Hd)	7.628	7.117	6.402	6.956	6.803	6.032	7.398	6.887
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	470	505	560	516	531	596	486	524
Service Time	5.371	4.86	4.144	4.698	4.519	3.747	5.118	4.606
HCM Lane V/C Ratio	0.045	0.222	0.111	0.331	0.524	0.04	0.134	0.414
HCM Control Delay	10.7	11.9	9.9	13.1	16.8	9	11.3	14.4
HCM Lane LOS	B	B	A	B	C	A	B	B
HCM 95th-tile Q	0.1	0.8	0.4	1.4	3	0.1	0.5	2

Intersection	
Intersection Delay, s/veh	18.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	138	27	48	268	29	18	96	61	60	187	0
Future Vol, veh/h	4	138	27	48	268	29	18	96	61	60	187	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	160	31	56	312	34	21	112	71	70	217	0
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	15.3	25	12.1	15.4
HCM LOS	C	C	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	2%	15%	0%	100%	0%
Vol Thru, %	0%	100%	0%	82%	85%	0%	0%	100%
Vol Right, %	0%	0%	100%	16%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	96	61	169	316	29	60	187
LT Vol	18	0	0	4	48	0	60	0
Through Vol	0	96	0	138	268	0	0	187
RT Vol	0	0	61	27	0	29	0	0
Lane Flow Rate	21	112	71	197	367	34	70	217
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.048	0.24	0.139	0.408	0.724	0.059	0.155	0.453
Departure Headway (Hd)	8.269	7.755	7.035	7.48	7.095	6.309	8.011	7.496
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	432	462	509	479	511	567	447	481
Service Time	6.032	5.517	4.797	5.242	4.848	4.061	5.768	5.253
HCM Lane V/C Ratio	0.049	0.242	0.139	0.411	0.718	0.06	0.157	0.451
HCM Control Delay	11.5	13	10.9	15.3	26.4	9.5	12.2	16.4
HCM Lane LOS	B	B	B	C	D	A	B	C
HCM 95th-tile Q	0.2	0.9	0.5	2	5.9	0.2	0.5	2.3

Intersection	
Intersection Delay, s/veh	37.3
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	142	104	17	227	12	71	204	34	38	402	0
Future Vol, veh/h	14	142	104	17	227	12	71	204	34	38	402	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	149	109	18	239	13	75	215	36	40	423	0
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	26.8	26.1	18.6	63.2
HCM LOS	D	D	C	F

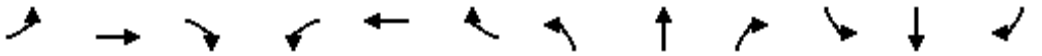
Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	5%	7%	0%	100%	0%
Vol Thru, %	0%	100%	0%	55%	93%	0%	0%	100%
Vol Right, %	0%	0%	100%	40%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	71	204	34	260	244	12	38	402
LT Vol	71	0	0	14	17	0	38	0
Through Vol	0	204	0	142	227	0	0	402
RT Vol	0	0	34	104	0	12	0	0
Lane Flow Rate	75	215	36	274	257	13	40	423
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.194	0.527	0.081	0.659	0.643	0.029	0.098	0.981
Departure Headway (Hd)	9.363	8.843	8.115	8.672	9.009	8.249	8.862	8.342
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	382	406	439	416	401	432	403	436
Service Time	7.15	6.63	5.901	6.455	6.794	6.033	6.639	6.118
HCM Lane V/C Ratio	0.196	0.53	0.082	0.659	0.641	0.03	0.099	0.97
HCM Control Delay	14.4	21.2	11.6	26.8	26.8	11.3	12.6	68
HCM Lane LOS	B	C	B	D	D	B	B	F
HCM 95th-tile Q	0.7	3	0.3	4.6	4.3	0.1	0.3	12

Intersection	
Intersection Delay, s/veh	53
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	164	104	35	286	20	71	204	42	42	402	0
Future Vol, veh/h	14	164	104	35	286	20	71	204	42	42	402	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	173	109	37	301	21	75	215	44	44	423	0
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	36.5	48.6	20.9	89.7
HCM LOS	E	E	C	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	5%	11%	0%	100%	0%
Vol Thru, %	0%	100%	0%	58%	89%	0%	0%	100%
Vol Right, %	0%	0%	100%	37%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	71	204	42	282	321	20	42	402
LT Vol	71	0	0	14	35	0	42	0
Through Vol	0	204	0	164	286	0	0	402
RT Vol	0	0	42	104	0	20	0	0
Lane Flow Rate	75	215	44	297	338	21	44	423
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.206	0.563	0.107	0.756	0.869	0.05	0.119	1.075
Departure Headway (Hd)	10.337	9.812	9.077	9.539	9.616	8.83	9.67	9.145
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	349	369	397	383	378	408	371	398
Service Time	8.037	7.512	6.777	7.239	7.316	6.53	7.425	6.899
HCM Lane V/C Ratio	0.215	0.583	0.111	0.775	0.894	0.051	0.119	1.063
HCM Control Delay	15.7	24.4	12.9	36.5	50.9	12	13.7	97.6
HCM Lane LOS	C	C	B	E	F	B	B	F
HCM 95th-tile Q	0.8	3.3	0.4	6.1	8.4	0.2	0.4	14.5



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	164	104	35	286	20	71	204	42	42	402	0
Future Volume (veh/h)	14	164	104	35	286	20	71	204	42	42	402	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1800	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	15	173	109	37	301	21	75	215	44	44	423	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	26	242	152	57	419	29	89	937	188	61	563	477
Arrive On Green	0.02	0.23	0.23	0.03	0.25	0.25	0.06	0.33	0.33	0.04	0.31	0.00
Sat Flow, veh/h	1714	1032	650	1714	1663	116	1619	2837	570	1619	1800	1525
Grp Volume(v), veh/h	15	0	282	37	0	322	75	128	131	44	423	0
Grp Sat Flow(s),veh/h/ln	1714	0	1683	1714	0	1779	1619	1710	1697	1619	1800	1525
Q Serve(g_s), s	0.4	0.0	6.8	0.9	0.0	7.2	2.0	2.4	2.5	1.2	9.3	0.0
Cycle Q Clear(g_c), s	0.4	0.0	6.8	0.9	0.0	7.2	2.0	2.4	2.5	1.2	9.3	0.0
Prop In Lane	1.00		0.39	1.00		0.07	1.00		0.34	1.00		1.00
Lane Grp Cap(c), veh/h	26	0	394	57	0	448	89	564	560	61	563	477
V/C Ratio(X)	0.57	0.00	0.72	0.65	0.00	0.72	0.84	0.23	0.23	0.72	0.75	0.00
Avail Cap(c_a), veh/h	274	0	1036	352	0	1177	222	1209	1200	258	1314	1113
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.4	0.0	15.4	20.9	0.0	15.0	20.5	10.6	10.7	20.9	13.5	0.0
Incr Delay (d2), s/veh	18.3	0.0	2.4	11.9	0.0	2.2	18.3	0.2	0.2	14.5	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	2.4	0.5	0.0	2.6	1.1	0.7	0.8	0.6	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	0.0	17.9	32.9	0.0	17.2	38.8	10.8	10.9	35.4	15.6	0.0
LnGrp LOS	D	A	B	C	A	B	D	B	B	D	B	A
Approach Vol, veh/h		297			359			334			467	
Approach Delay, s/veh		19.0			18.8			17.1			17.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	18.5	5.5	14.3	6.4	17.7	4.7	15.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	31.0	9.0	27.0	6.0	32.0	7.0	29.0
Max Q Clear Time (g_c+I1), s	3.2	4.5	2.9	8.8	4.0	11.3	2.4	9.2
Green Ext Time (p_c), s	0.0	1.4	0.0	1.5	0.0	2.5	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

CALCULATION OF FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES (NCHRP 255)

Intersection No.: 2
North/South Street: DALE EVANS PKWY
East/West Street: JOHNSON RD

Analysis Condition: YEAR 2040 FUTURE TRAFFIC

A.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume			Turn Volume	Rounded Volume
South leg	Left	8	Approach	363	Left	79	79
NB	Through	67	Departure	191	Through	276	277
	Right	21			Right	18	18
North leg	Left	27	Approach	171	Left	32	32
SB	Through	46	Departure	335	Through	129	130
	Right	0			Right	0	0
West leg	Left	5	Approach	161	Left	29	29
EB	Through	57	Departure	236	Through	67	68
	Right	21			Right	59	59
East leg	Left	11	Approach	183	Left	3	4
WB	Through	115	Departure	117	Through	157	158
	Right	52			Right	30	30

P.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume			Turn Volume	Rounded Volume
South leg	Left	16	Approach	302	Left	70	71
NB	Through	88	Departure	521	Through	203	204
	Right	48			Right	34	34
North leg	Left	51	Approach	447	Left	37	38
SB	Through	171	Departure	228	Through	401	402
	Right	0			Right	0	0
West leg	Left	3	Approach	261	Left	13	14
EB	Through	106	Departure	297	Through	141	142
	Right	24			Right	103	104
East leg	Left	27	Approach	249	Left	17	17
WB	Through	191	Departure	212	Through	227	227
	Right	19			Right	12	12

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : JOHNSON RD
N/S STREET : CENTRAL RD
CONDITION : AM PEAK HOUR

INTERSECTION : 3
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	1			3		5	7	9
JOHNSON RD								
EB LEFT	1	1	0	2	0	2	1	1
EB THRU	0	0	0	0	0	0	0	0
EB RIGHT	2	1	0	3	3	6	4	7
WB LEFT	0	0	0	0	0	0	0	0
WB THRU	0	0	0	0	0	0	0	0
WB RIGHT	0	0	0	0	0	0	0	0
CENTRAL RD								
NB LEFT	2	1	0	3	7	10	9	16
NB THRU	35	3	0	38	0	38	43	43
NB RIGHT	0	0	0	0	0	0	0	0
SB LEFT	0	0	0	0	0	0	0	0
SB THRU	33	2	0	35	0	35	35	35
SB RIGHT	1	1	0	2	0	2	3	3
TOTALS	**74**	**9**	**0**	**83**	**10**	**93**	**95**	**105**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TNM	12-Sep-23	PIXI5AMG-0002	2	OF 2

E/W STREET : JOHNSON RD
CONDITION : AM PEAK HOUR
N/S STREET : CENTRAL RD
PHF : 0.86

NORTH LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	9	0	0	0	0	0	0	0	0	0	0
0	6	0	0	1	0	0	0	0	0	0	0
0	8	0	0	0	0	0	0	0	0	0	0
0	2	0	0	1	0	0	1	0	0	1	0

SOUTH LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	9	0	0	0	0	0	0	0	0	0	0
0	2	0	0	1	0	0	0	0	0	2	0
0	7	0	0	1	0	0	1	0	0	0	0
0	4	2	0	0	0	0	1	0	0	0	0

EAST LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

WEST LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0
1	0	1	0	0	0	0	0	0	0	0	0

Number of Axles	2-Axle Trucks	3-Axle Trucks	4+ Axle Trucks
PCE factor	1.5	2	3

	Truck Volumes	Auto Volumes	Vehicle Totals	PCE Totals	Balanced PCE Totals
JOHNSON RD					
EB LEFT	0	1	**1**	**1**	**1**
EB THRU	0	0	**0**	**0**	**0**
EB RIGHT	0	2	**2**	**2**	**2**
WB LEFT	0	0	**0**	**0**	**0**
WB THRU	0	0	**0**	**0**	**0**
WB RIGHT	0	0	**0**	**0**	**0**
CENTRAL RD					
NB LEFT	0	2	**2**	**2**	**2**
NB THRU	6	22	**28**	**35**	**35**
NB RIGHT	0	0	**0**	**0**	**0**
SB LEFT	0	0	**0**	**0**	**0**
SB THRU	4	25	**29**	**33**	**33**
SB RIGHT	0	0	**0**	**0**	**1**

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	2	2	35	33	1
Future Vol, veh/h	1	2	2	35	33	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	2	2	41	38	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	84	39	39	0	-	0
Stage 1	39	-	-	-	-	-
Stage 2	45	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	923	1038	1584	-	-	-
Stage 1	989	-	-	-	-	-
Stage 2	983	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	922	1038	1584	-	-	-
Mov Cap-2 Maneuver	922	-	-	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	983	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1584	-	996	-	-
HCM Lane V/C Ratio	0.001	-	0.004	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	3	3	38	35	2
Future Vol, veh/h	2	3	3	38	35	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	3	3	44	41	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	92	42	43	0	-	0
Stage 1	42	-	-	-	-	-
Stage 2	50	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	913	1034	1579	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	978	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	911	1034	1579	-	-	-
Mov Cap-2 Maneuver	911	-	-	-	-	-
Stage 1	984	-	-	-	-	-
Stage 2	978	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1579	-	981	-	-
HCM Lane V/C Ratio	0.002	-	0.006	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	6	10	38	35	2
Future Vol, veh/h	2	6	10	38	35	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	7	12	44	41	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	110	42	43	0	-	0
Stage 1	42	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	892	1034	1579	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	960	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	885	1034	1579	-	-	-
Mov Cap-2 Maneuver	885	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	960	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1579	-	992	-	-
HCM Lane V/C Ratio	0.007	-	0.009	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	4	9	43	35	3
Future Vol, veh/h	1	4	9	43	35	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	4	9	45	37	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	102	39	40	0	-	0
Stage 1	39	-	-	-	-	-
Stage 2	63	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	901	1038	1583	-	-	-
Stage 1	989	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	896	1038	1583	-	-	-
Mov Cap-2 Maneuver	896	-	-	-	-	-
Stage 1	983	-	-	-	-	-
Stage 2	965	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1583	-	1006	-	-
HCM Lane V/C Ratio	0.006	-	0.005	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	7	16	43	35	3
Future Vol, veh/h	1	7	16	43	35	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	7	17	45	37	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	118	39	40	0	-	0
Stage 1	39	-	-	-	-	-
Stage 2	79	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	883	1038	1583	-	-	-
Stage 1	989	-	-	-	-	-
Stage 2	949	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	873	1038	1583	-	-	-
Mov Cap-2 Maneuver	873	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	949	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1583	-	1014	-	-
HCM Lane V/C Ratio	0.011	-	0.008	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : JOHNSON RD
N/S STREET : CENTRAL RD
CONDITION : PM PEAK HOUR

INTERSECTION : 3
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	2			4		6	8	10
JOHNSON RD								
EB LEFT	1	1	0	2	0	2	3	3
EB THRU	0	0	0	0	0	0	0	0
EB RIGHT	5	1	0	6	7	13	12	19
WB LEFT	0	0	0	0	0	0	0	0
WB THRU	0	0	0	0	0	0	0	0
WB RIGHT	0	0	0	0	0	0	0	0
CENTRAL RD								
NB LEFT	3	1	0	4	3	7	6	9
NB THRU	48	3	0	51	0	51	52	52
NB RIGHT	0	0	0	0	0	0	0	0
SB LEFT	0	0	0	0	0	0	0	0
SB THRU	62	4	0	66	0	66	70	70
SB RIGHT	1	1	0	2	0	2	2	2
TOTALS	**120**	**11**	**0**	**131**	**10**	**141**	**145**	**155**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TNM	12-Sep-23	PIXI5AMG-0002	2	OF 2

E/W STREET : JOHNSON RD
CONDITION : PM PEAK HOUR
N/S STREET : CENTRAL RD
PHF : 0.83

NORTH LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	10	0	0	0	0	0	1	0	0	1	0
0	8	0	0	2	0	0	0	0	0	1	0
0	13	0	0	0	0	0	1	0	0	0	0
0	8	0	0	1	0	0	1	0	0	2	0

SOUTH LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	9	0	0	0	0	0	0	0	0	0	0
0	4	1	0	2	0	0	2	0	0	2	0
0	8	2	0	1	0	0	0	0	0	1	0
0	3	0	0	1	0	0	1	0	0	1	0

EAST LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

WEST LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
3	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0

Number of Axles	2-Axle Trucks	3-Axle Trucks	4+ Axle Trucks
PCE factor	1.5	2	3

	Truck Volumes	Auto Volumes	Vehicle Totals	PCE Totals	Balanced PCE Totals
JOHNSON RD					
EB LEFT	0	1	**1**	**1**	**1**
EB THRU	0	0	**0**	**0**	**0**
EB RIGHT	0	5	**5**	**5**	**5**
WB LEFT	0	0	**0**	**0**	**0**
WB THRU	0	0	**0**	**0**	**0**
WB RIGHT	0	0	**0**	**0**	**0**
CENTRAL RD					
NB LEFT	0	3	**3**	**3**	**3**
NB THRU	11	24	**35**	**48**	**48**
NB RIGHT	0	0	**0**	**0**	**0**
SB LEFT	0	0	**0**	**0**	**0**
SB THRU	10	39	**49**	**62**	**62**
SB RIGHT	0	0	**0**	**0**	**1**

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	5	3	48	62	1
Future Vol, veh/h	1	5	3	48	62	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	6	4	58	75	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	142	76	76	0	-	0
Stage 1	76	-	-	-	-	-
Stage 2	66	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	856	991	1536	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	962	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	853	991	1536	-	-	-
Mov Cap-2 Maneuver	853	-	-	-	-	-
Stage 1	949	-	-	-	-	-
Stage 2	962	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1536	-	965	-	-
HCM Lane V/C Ratio	0.002	-	0.007	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	6	4	51	66	2
Future Vol, veh/h	2	6	4	51	66	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	7	5	61	80	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	152	81	82	0	-	0
Stage 1	81	-	-	-	-	-
Stage 2	71	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	844	985	1528	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	841	985	1528	-	-	-
Mov Cap-2 Maneuver	841	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	957	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1528	-	945	-	-
HCM Lane V/C Ratio	0.003	-	0.01	-	-
HCM Control Delay (s)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	13	7	51	66	2
Future Vol, veh/h	2	13	7	51	66	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	16	8	61	80	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	158	81	82	0	-	0
Stage 1	81	-	-	-	-	-
Stage 2	77	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	838	985	1528	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	951	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	834	985	1528	-	-	-
Mov Cap-2 Maneuver	834	-	-	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	951	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1528	-	962	-	-
HCM Lane V/C Ratio	0.006	-	0.019	-	-
HCM Control Delay (s)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	12	6	52	70	2
Future Vol, veh/h	3	12	6	52	70	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	13	6	55	74	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	142	75	76	0	-	0
Stage 1	75	-	-	-	-	-
Stage 2	67	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	856	992	1536	-	-	-
Stage 1	953	-	-	-	-	-
Stage 2	961	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	853	992	1536	-	-	-
Mov Cap-2 Maneuver	853	-	-	-	-	-
Stage 1	949	-	-	-	-	-
Stage 2	961	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1536	-	961	-	-
HCM Lane V/C Ratio	0.004	-	0.016	-	-
HCM Control Delay (s)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	19	9	52	70	2
Future Vol, veh/h	3	19	9	52	70	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	20	9	55	74	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	148	75	76	0	-	0
Stage 1	75	-	-	-	-	-
Stage 2	73	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	849	992	1536	-	-	-
Stage 1	953	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	844	992	1536	-	-	-
Mov Cap-2 Maneuver	844	-	-	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	955	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	1.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1536	-	969	-	-
HCM Lane V/C Ratio	0.006	-	0.024	-	-
HCM Control Delay (s)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

CALCULATION OF FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES (NCHRP 255)

Intersection No.: 3
North/South Street: CENTRAL RD
East/West Street: JOHNSON RD

Analysis Condition: YEAR 2040 FUTURE TRAFFIC

A.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume			Turn Volume	Rounded Volume
South leg	Left	2	Approach	52	Left	9	9
NB	Through	35	Departure	38	Through	42	43
	Right	0			Right	0	0
North leg	Left	0	Approach	37	Left	0	0
SB	Through	33	Departure	43	Through	35	35
	Right	1			Right	2	3
West leg	Left	1	Approach	4	Left	1	1
EB	Through	0	Departure	11	Through	0	0
	Right	2			Right	3	4
East leg	Left	0	Approach	0	Left	0	0
WB	Through	0	Departure	0	Through	0	0
	Right	0			Right	0	0

P.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume			Turn Volume	Rounded Volume
South leg	Left	3	Approach	57	Left	5	6
NB	Through	48	Departure	81	Through	52	52
	Right	0			Right	0	0
North leg	Left	0	Approach	71	Left	0	0
SB	Through	62	Departure	54	Through	69	70
	Right	1			Right	2	2
West leg	Left	1	Approach	14	Left	2	3
EB	Through	0	Departure	7	Through	0	0
	Right	5			Right	12	12
East leg	Left	0	Approach	0	Left	0	0
WB	Through	0	Departure	0	Through	0	0
	Right	0			Right	0	0

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	13-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : JOHNSON RD
N/S STREET : STODDARD WELLS RD
CONDITION : AM PEAK HOUR

INTERSECTION : 4
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	1			3		5	7	9
JOHNSON RD								
EB LEFT	0	0	0	0	0	0	0	0
EB THRU	0	0	0	0	0	0	0	0
EB RIGHT	0	0	0	0	0	0	0	0
WB LEFT	140	13	0	153	19	172	135	154
WB THRU	0	0	0	0	0	0	0	0
WB RIGHT	5	1	0	6	0	6	120	120
STODDARD WELLS RD								
NB LEFT	0	0	0	0	0	0	0	0
NB THRU	14	2	6	22	0	22	242	242
NB RIGHT	79	8	0	87	62	149	151	213
SB LEFT	1	1	0	2	0	2	8	8
SB THRU	50	5	4	59	0	59	141	141
SB RIGHT	0	0	0	0	0	0	0	0
TOTALS	**289**	**30**	**10**	**329**	**81**	**410**	**797**	**878**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TNM	13-Sep-23	PIXI5AMG-0002	2	OF 2

E/W STREET : JOHNSON RD
CONDITION : AM PEAK HOUR
N/S STREET : STODDARD WELLS RD
PHF : 0.79

NORTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	12	0	0	0	0	0	0	0	0	0	0
0	15	1	0	0	0	0	0	0	0	0	0
0	11	0	0	0	0	0	0	0	0	0	0
0	10	0	0	0	0	0	1	0	0	0	0

SOUTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
38	8	0	0	0	0	1	0	0	1	0	0
15	0	0	0	0	0	0	0	0	0	0	0
6	1	0	1	0	0	0	0	0	0	0	0
13	3	0	0	0	0	0	1	0	0	0	0

EAST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
2	0	20	0	0	2	0	0	1	0	0	2
0	0	38	0	0	0	0	0	0	0	0	0
1	0	39	0	0	1	0	0	0	0	0	0
2	0	30	0	0	0	0	0	0	0	0	0

WEST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

Number of Axles	2-Axle Trucks	3-Axle Trucks	4+ Axle Trucks
PCE factor	1.5	2	3

	Truck Volumes	Auto Volumes	Vehicle Totals	PCE Totals	Balanced PCE Totals
JOHNSON RD					
EB LEFT	0	0	**0**	**0**	**0**
EB THRU	0	0	**0**	**0**	**0**
EB RIGHT	0	0	**0**	**0**	**0**
WB LEFT	6	127	**133**	**140**	**140**
WB THRU	0	0	**0**	**0**	**0**
WB RIGHT	0	5	**5**	**5**	**5**
STODDARD WELLS RD					
NB LEFT	0	0	**0**	**0**	**0**
NB THRU	1	12	**13**	**14**	**14**
NB RIGHT	3	72	**75**	**79**	**79**
SB LEFT	0	1	**1**	**1**	**1**
SB THRU	1	48	**49**	**50**	**50**
SB RIGHT	0	0	**0**	**0**	**0**

Intersection	
Int Delay, s/veh	5.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	140	5	14	79	1	50
Future Vol, veh/h	140	5	14	79	1	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	177	6	18	100	1	63

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	133	68	0	0	118	0
Stage 1	68	-	-	-	-	-
Stage 2	65	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	866	1001	-	-	1483	-
Stage 1	960	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	865	1001	-	-	1483	-
Mov Cap-2 Maneuver	865	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	962	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	869	1483	-
HCM Lane V/C Ratio	-	-	0.211	0.001	-
HCM Control Delay (s)	-	-	10.2	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0	-

Intersection	
Int Delay, s/veh	5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	153	6	22	87	2	59
Future Vol, veh/h	153	6	22	87	2	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	194	8	28	110	3	75

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	164	83	0	0	138	0
Stage 1	83	-	-	-	-	-
Stage 2	81	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	831	982	-	-	1458	-
Stage 1	945	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	829	982	-	-	1458	-
Mov Cap-2 Maneuver	829	-	-	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	945	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	834	1458	-
HCM Lane V/C Ratio	-	-	0.241	0.002	-
HCM Control Delay (s)	-	-	10.7	7.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.9	0	-

Intersection	
Int Delay, s/veh	5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	172	6	22	149	2	59
Future Vol, veh/h	172	6	22	149	2	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	218	8	28	189	3	75

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	204	123	0	0	217	0
Stage 1	123	-	-	-	-	-
Stage 2	81	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	789	933	-	-	1365	-
Stage 1	907	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	787	933	-	-	1365	-
Mov Cap-2 Maneuver	787	-	-	-	-	-
Stage 1	907	-	-	-	-	-
Stage 2	945	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	791	1365	-
HCM Lane V/C Ratio	-	-	0.285	0.002	-
HCM Control Delay (s)	-	-	11.4	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.2	0	-

Intersection	
Int Delay, s/veh	5.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	135	120	242	151	8	141
Future Vol, veh/h	135	120	242	151	8	141
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	142	126	255	159	8	148

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	499	335	0	0	414	0
Stage 1	335	-	-	-	-	-
Stage 2	164	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	535	712	-	-	1156	-
Stage 1	729	-	-	-	-	-
Stage 2	870	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	531	712	-	-	1156	-
Mov Cap-2 Maneuver	531	-	-	-	-	-
Stage 1	729	-	-	-	-	-
Stage 2	863	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.7	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	603	1156	-
HCM Lane V/C Ratio	-	-	0.445	0.007	-
HCM Control Delay (s)	-	-	15.7	8.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.3	0	-

Intersection	
Int Delay, s/veh	5.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	154	120	242	213	8	141
Future Vol, veh/h	154	120	242	213	8	141
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	162	126	255	224	8	148

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	531	367	0	0	479	0
Stage 1	367	-	-	-	-	-
Stage 2	164	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	512	683	-	-	1094	-
Stage 1	705	-	-	-	-	-
Stage 2	870	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	508	683	-	-	1094	-
Mov Cap-2 Maneuver	508	-	-	-	-	-
Stage 1	705	-	-	-	-	-
Stage 2	863	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.5	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	572	1094	-
HCM Lane V/C Ratio	-	-	0.504	0.008	-
HCM Control Delay (s)	-	-	17.5	8.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.8	0	-

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	154	120	242	213	8	141
Future Vol, veh/h	154	120	242	213	8	141
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	162	126	255	224	8	148
Number of Lanes	2	1	1	1	1	2

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	3	3	0
HCM Control Delay	8.8	11	8.8
HCM LOS	A	B	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	100%	100%	0%	100%	0%	0%
Vol Thru, %	100%	0%	0%	0%	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	242	213	77	77	120	8	71	71
LT Vol	0	0	77	77	0	8	0	0
Through Vol	242	0	0	0	0	0	71	71
RT Vol	0	213	0	0	120	0	0	0
Lane Flow Rate	255	224	81	81	126	8	74	74
Geometry Grp	8	8	7	7	7	8	8	8
Degree of Util (X)	0.4	0.308	0.144	0.144	0.123	0.016	0.129	0.094
Departure Headway (Hd)	5.653	4.948	6.521	6.521	3.613	6.783	6.277	4.559
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	639	731	554	554	998	530	573	788
Service Time	3.353	2.648	4.221	4.221	1.313	4.499	3.994	2.275
HCM Lane V/C Ratio	0.399	0.306	0.146	0.146	0.126	0.015	0.129	0.094
HCM Control Delay	12.1	9.8	10.3	10.3	6.8	9.6	9.9	7.7
HCM Lane LOS	B	A	B	B	A	A	A	A
HCM 95th-tile Q	1.9	1.3	0.5	0.5	0.4	0	0.4	0.3

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	13-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : JOHNSON RD
N/S STREET : STODDARD WELLS RD
CONDITION : PM PEAK HOUR

INTERSECTION : 4
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	2			4		6	8	10
JOHNSON RD								
EB LEFT	0	0	0	0	0	0	0	0
EB THRU	0	0	0	0	0	0	0	0
EB RIGHT	0	0	0	0	0	0	0	0
WB LEFT	254	23	0	277	59	336	263	322
WB THRU	0	0	0	0	0	0	0	0
WB RIGHT	24	3	0	27	0	27	105	105
STODDARD WELLS RD								
NB LEFT	0	0	0	0	0	0	0	0
NB THRU	20	2	5	27	0	27	161	161
NB RIGHT	54	5	0	59	22	81	105	127
SB LEFT	31	3	0	34	0	34	109	109
SB THRU	115	11	5	131	0	131	391	391
SB RIGHT	0	0	0	0	0	0	0	0
TOTALS	**498**	**47**	**10**	**555**	**81**	**636**	**1134**	**1215**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TNM	13-Sep-23	PIXI5AMG-0002	2	OF 2

E/W STREET : JOHNSON RD
CONDITION : PM PEAK HOUR
N/S STREET : STODDARD WELLS RD
PHF : 0.81

NORTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	32	6	0	0	0	0	0	0	0	0	0
0	25	6	0	0	0	0	0	0	0	0	0
0	28	8	0	0	0	0	0	0	0	0	0
0	30	11	0	0	0	0	0	0	0	0	0

SOUTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
16	5	0	0	0	0	0	0	0	0	0	0
15	7	0	0	0	0	0	0	0	0	0	0
8	4	0	0	0	0	0	0	0	2	0	0
9	4	0	0	0	0	0	0	0	0	0	0

EAST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
6	0	78	0	0	1	0	0	0	0	0	5
5	0	34	0	0	0	0	0	0	0	0	0
9	0	64	0	0	0	0	0	0	0	0	0
4	0	61	0	0	0	0	0	0	0	0	0

WEST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

Number of Axles	2-Axle Trucks	3-Axle Trucks	4+ Axle Trucks
PCE factor	1.5	2	3

	Truck Volumes	Auto Volumes	Vehicle Totals	PCE Totals	Balanced PCE Totals
JOHNSON RD					
EB LEFT	0	0	**0**	**0**	**0**
EB THRU	0	0	**0**	**0**	**0**
EB RIGHT	0	0	**0**	**0**	**0**
WB LEFT	6	237	**243**	**254**	**254**
WB THRU	0	0	**0**	**0**	**0**
WB RIGHT	0	24	**24**	**24**	**24**
STODDARD WELLS RD					
NB LEFT	0	0	**0**	**0**	**0**
NB THRU	0	20	**20**	**20**	**20**
NB RIGHT	2	48	**50**	**54**	**54**
SB LEFT	0	31	**31**	**31**	**31**
SB THRU	0	115	**115**	**115**	**115**
SB RIGHT	0	0	**0**	**0**	**0**

Intersection	
Int Delay, s/veh	8.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	254	24	20	54	31	115
Future Vol, veh/h	254	24	20	54	31	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	314	30	25	67	38	142

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	277	59	0	0	92	0
Stage 1	59	-	-	-	-	-
Stage 2	218	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	717	1012	-	-	1515	-
Stage 1	969	-	-	-	-	-
Stage 2	823	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	698	1012	-	-	1515	-
Mov Cap-2 Maneuver	698	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	801	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.5	0	1.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	717	1515	-
HCM Lane V/C Ratio	-	-	0.479	0.025	-
HCM Control Delay (s)	-	-	14.5	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	2.6	0.1	-

Intersection	
Int Delay, s/veh	9.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	277	27	27	59	34	131
Future Vol, veh/h	277	27	27	59	34	131
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	342	33	33	73	42	162

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	316	70	0	0	106	0
Stage 1	70	-	-	-	-	-
Stage 2	246	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	681	998	-	-	1498	-
Stage 1	958	-	-	-	-	-
Stage 2	800	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	660	998	-	-	1498	-
Mov Cap-2 Maneuver	660	-	-	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	775	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.6	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	680	1498	-
HCM Lane V/C Ratio	-	-	0.552	0.028	-
HCM Control Delay (s)	-	-	16.6	7.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	3.4	0.1	-

Intersection	
Int Delay, s/veh	12.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	336	27	27	81	34	131
Future Vol, veh/h	336	27	27	81	34	131
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	415	33	33	100	42	162

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	329	83	0	0	133	0
Stage 1	83	-	-	-	-	-
Stage 2	246	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	670	982	-	-	1464	-
Stage 1	945	-	-	-	-	-
Stage 2	800	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	649	982	-	-	1464	-
Mov Cap-2 Maneuver	649	-	-	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	774	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.8	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	666	1464	-
HCM Lane V/C Ratio	-	-	0.673	0.029	-
HCM Control Delay (s)	-	-	20.8	7.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	5.2	0.1	-

Intersection	
Int Delay, s/veh	36.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	263	105	161	105	109	391
Future Vol, veh/h	263	105	161	105	109	391
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	277	111	169	111	115	412

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	867	225	0	0	280	0
Stage 1	225	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	326	819	-	-	1294	-
Stage 1	817	-	-	-	-	-
Stage 2	528	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	289	819	-	-	1294	-
Mov Cap-2 Maneuver	289	-	-	-	-	-
Stage 1	817	-	-	-	-	-
Stage 2	467	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	110.3	0	1.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	354	1294	-
HCM Lane V/C Ratio	-	-	1.094	0.089	-
HCM Control Delay (s)	-	-	110.3	8.1	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	14.3	0.3	-

Intersection	
Int Delay, s/veh	71.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	322	105	161	127	109	391
Future Vol, veh/h	322	105	161	127	109	391
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	339	111	169	134	115	412

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	878	236	0	0	303	0
Stage 1	236	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	~ 321	808	-	-	1269	-
Stage 1	808	-	-	-	-	-
Stage 2	528	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 283	808	-	-	1269	-
Mov Cap-2 Maneuver	~ 283	-	-	-	-	-
Stage 1	808	-	-	-	-	-
Stage 2	466	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	200.6	0	1.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	337	1269	-
HCM Lane V/C Ratio	-	-	1.334	0.09	-
HCM Control Delay (s)	-	-	200.6	8.1	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	21.8	0.3	-

Notes

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

Intersection	
Intersection Delay, s/veh	11.9
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	322	105	161	127	109	391
Future Vol, veh/h	322	105	161	127	109	391
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	339	111	169	134	115	412
Number of Lanes	2	1	1	1	1	2

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	3	3	0
HCM Control Delay	11.9	12.3	11.7
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	100%	100%	0%	100%	0%	0%
Vol Thru, %	100%	0%	0%	0%	0%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	161	127	161	161	105	109	196	196
LT Vol	0	0	161	161	0	109	0	0
Through Vol	161	0	0	0	0	0	196	196
RT Vol	0	127	0	0	105	0	0	0
Lane Flow Rate	169	134	169	169	111	115	206	206
Geometry Grp	8	8	7	7	7	8	8	8
Degree of Util (X)	0.332	0.235	0.333	0.333	0.127	0.229	0.382	0.283
Departure Headway (Hd)	7.047	6.335	7.073	7.073	4.15	7.184	6.677	4.954
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	508	563	507	507	857	498	537	720
Service Time	4.824	4.112	4.835	4.835	1.91	4.954	4.446	2.722
HCM Lane V/C Ratio	0.333	0.238	0.333	0.333	0.13	0.231	0.384	0.286
HCM Control Delay	13.3	11.1	13.4	13.4	7.5	12.1	13.6	9.7
HCM Lane LOS	B	B	B	B	A	B	B	A
HCM 95th-tile Q	1.4	0.9	1.4	1.4	0.4	0.9	1.8	1.2

CALCULATION OF FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES (NCHRP 255)

Intersection No.: 4
North/South Street: STODDARD WELLS RD
East/West Street: JOHNSON RD

Analysis Condition: YEAR 2040 FUTURE TRAFFIC

A.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume			Turn Volume	Rounded Volume
South leg	Left	0	Approach	379	Left	0	0
NB	Through	14	Departure	271	Through	236	236
	Right	79			Right	150	151
North leg	Left	1	Approach	149	Left	8	8
SB	Through	50	Departure	355	Through	136	137
	Right	0			Right	0	0
West leg	Left	0	Approach	0	Left	0	0
EB	Through	0	Departure	0	Through	0	0
	Right	0			Right	0	0
East leg	Left	140	Approach	258	Left	135	135
WB	Through	0	Departure	158	Through	0	0
	Right	5			Right	119	120

P.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume			Turn Volume	Rounded Volume
South leg	Left	0	Approach	259	Left	0	0
NB	Through	20	Departure	648	Through	155	156
	Right	54			Right	104	105
North leg	Left	31	Approach	495	Left	109	109
SB	Through	115	Departure	260	Through	385	386
	Right	0			Right	0	0
West leg	Left	0	Approach	0	Left	0	0
EB	Through	0	Departure	0	Through	0	0
	Right	0			Right	0	0
East leg	Left	254	Approach	368	Left	263	263
WB	Through	0	Departure	213	Through	0	0
	Right	24			Right	105	105

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : STODDARD WELLS RD
N/S STREET : I-15 NB RAMPS
CONDITION : AM PEAK HOUR

INTERSECTION : 5
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	1			3		5	7	9
STODDARD WELLS RD								
EB LEFT	299	27	0	326	0	326	167	167
EB THRU	85	8	131	224	42	266	411	453
EB RIGHT	9	1	0	10	0	10	2	2
WB LEFT	1	1	3	5	0	5	5	5
WB THRU	131	12	198	341	13	354	280	293
WB RIGHT	66	6	79	151	6	157	322	328
I-15 NB RAMPS								
NB LEFT	1	1	0	2	0	2	1	1
NB THRU	2	1	0	3	0	3	2	2
NB RIGHT	1	1	5	7	0	7	8	8
SB LEFT	1	1	343	345	20	365	517	537
SB THRU	1	1	0	2	0	2	11	11
SB RIGHT	46	5	0	51	0	51	231	231
TOTALS	**643**	**65**	**759**	**1467**	**81**	**1548**	**1957**	**2038**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TNM	12-Sep-23	PIXI5AMG-0002	2	OF 2

E/W STREET : STODDARD WELLS RD
N/S STREET : I-15 NB RAMPS
CONDITION : AM PEAK HOUR
PHF : 0.92

NORTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	0	0	1	0	0	0	0	1	0	0	0
15	0	0	1	0	0	0	0	0	0	0	0
18	0	0	0	0	0	1	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0

SOUTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	2	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

EAST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
5	34	1	0	0	0	1	0	0	1	0	0
10	22	0	2	0	0	1	0	0	1	1	0
15	38	0	0	0	0	0	0	0	0	0	0
20	30	0	1	0	0	0	0	0	0	0	0

WEST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
2	11	88	0	0	1	0	0	0	0	0	4
5	57	15	0	0	4	0	0	1	0	1	5
2	4	69	0	0	1	0	0	4	0	0	3
0	6	58	0	1	1	0	0	1	0	0	1

Number of Axles	2-Axle Trucks	3-Axle Trucks	4+ Axle Trucks
PCE factor	1.5	2	3

	Truck Volumes	Auto Volumes	Vehicle Totals	PCE Totals	Balanced PCE Totals
STODDARD WELLS RD					
EB LEFT	26	230	**256**	**292**	**299**
EB THRU	2	78	**80**	**83**	**85**
EB RIGHT	0	9	**9**	**9**	**9**
WB LEFT	0	1	**1**	**1**	**1**
WB THRU	1	124	**125**	**127**	**131**
WB RIGHT	7	50	**57**	**66**	**66**
I-15 NB RAMPS					
NB LEFT	0	0	**1**	**1**	**1**
NB THRU	0	2	**2**	**2**	**2**
NB RIGHT	0	0	**1**	**1**	**1**
SB LEFT	1	0	**1**	**1**	**1**
SB THRU	0	0	**1**	**1**	**1**
SB RIGHT	3	39	**42**	**44**	**46**

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	299	85	9	1	131	66	1	2	1	1	1	46
Future Vol, veh/h	299	85	9	1	131	66	1	2	1	1	1	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	325	92	10	1	142	72	1	2	1	1	1	50

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	214	0	0	102	0	0	953	963	97	929	932	178
Stage 1	-	-	-	-	-	-	747	747	-	180	180	-
Stage 2	-	-	-	-	-	-	206	216	-	749	752	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1368	-	-	1503	-	-	241	258	965	250	269	870
Stage 1	-	-	-	-	-	-	408	423	-	826	754	-
Stage 2	-	-	-	-	-	-	801	728	-	407	421	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1368	-	-	1503	-	-	182	193	965	199	201	870
Mov Cap-2 Maneuver	-	-	-	-	-	-	182	193	-	199	201	-
Stage 1	-	-	-	-	-	-	305	316	-	618	753	-
Stage 2	-	-	-	-	-	-	753	727	-	302	315	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	6.4	0	20.5	10.1
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	237	1368	-	-	1503	-	-	763
HCM Lane V/C Ratio	0.018	0.238	-	-	0.001	-	-	0.068
HCM Control Delay (s)	20.5	8.4	0	-	7.4	0	-	10.1
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.9	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	528.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	326	224	10	5	341	151	2	3	7	345	2	51
Future Vol, veh/h	326	224	10	5	341	151	2	3	7	345	2	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	354	243	11	5	371	164	2	3	8	375	2	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	535	0	0	254	0	0	1449	1502	249	1425	1425	453
Stage 1	-	-	-	-	-	-	957	957	-	463	463	-
Stage 2	-	-	-	-	-	-	492	545	-	962	962	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1043	-	-	1323	-	-	110	123	795	~ 114	137	611
Stage 1	-	-	-	-	-	-	312	339	-	583	568	-
Stage 2	-	-	-	-	-	-	562	522	-	~ 310	337	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1043	-	-	1323	-	-	68	74	795	~ 75	82	611
Mov Cap-2 Maneuver	-	-	-	-	-	-	68	74	-	~ 75	82	-
Stage 1	-	-	-	-	-	-	188	205	-	~ 352	565	-
Stage 2	-	-	-	-	-	-	506	519	-	~ 182	204	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.9	0.1	30.9	$ 1938.9
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	152	1043	-	-	1323	-	-	85
HCM Lane V/C Ratio	0.086	0.34	-	-	0.004	-	-	5.09
HCM Control Delay (s)	30.9	10.2	0	-	7.7	0	-	$ 1938.9
HCM Lane LOS	D	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	0.3	1.5	-	-	0	-	-	46.9

Notes

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

Intersection	
Int Delay, s/veh	656.8

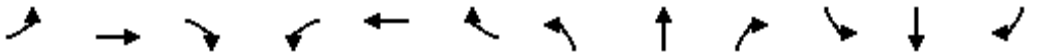
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	326	266	10	5	354	157	2	3	7	365	2	51
Future Vol, veh/h	326	266	10	5	354	157	2	3	7	365	2	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	354	289	11	5	385	171	2	3	8	397	2	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	556	0	0	300	0	0	1512	1569	295	1489	1489	471
Stage 1	-	-	-	-	-	-	1003	1003	-	481	481	-
Stage 2	-	-	-	-	-	-	509	566	-	1008	1008	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1025	-	-	1273	-	-	100	112	749	~ 103	125	597
Stage 1	-	-	-	-	-	-	294	322	-	570	557	-
Stage 2	-	-	-	-	-	-	550	511	-	~ 292	321	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1025	-	-	1273	-	-	60	65	749	~ 66	73	597
Mov Cap-2 Maneuver	-	-	-	-	-	-	60	65	-	~ 66	73	-
Stage 1	-	-	-	-	-	-	172	188	-	~ 333	554	-
Stage 2	-	-	-	-	-	-	494	508	-	~ 166	188	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.6	0.1	34.5	$ 2423.3
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	135	1025	-	-	1273	-	-	74
HCM Lane V/C Ratio	0.097	0.346	-	-	0.004	-	-	6.14
HCM Control Delay (s)	34.5	10.4	0	-	7.8	0	-	$ 2423.3
HCM Lane LOS	D	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	0.3	1.6	-	-	0	-	-	50.9

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	326	266	10	5	354	157	2	3	7	365	2	51
Future Volume (veh/h)	326	266	10	5	354	157	2	3	7	365	2	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1872	1800	1800	1800	1800	1800	1872	1800	1800	1872	1800
Adj Flow Rate, veh/h	354	289	11	5	385	171	2	3	8	397	2	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	390	847	32	9	579	254	327	80	214	611	19	527
Arrive On Green	0.23	0.47	0.47	0.01	0.25	0.25	0.00	0.18	0.18	0.17	0.34	0.34
Sat Flow, veh/h	1714	1792	68	1714	2314	1014	1714	451	1204	1714	56	1539
Grp Volume(v), veh/h	354	0	300	5	283	273	2	0	11	397	0	57
Grp Sat Flow(s),veh/h/ln	1714	0	1860	1714	1710	1618	1714	0	1655	1714	0	1595
Q Serve(g_s), s	18.1	0.0	9.1	0.3	13.4	13.7	0.1	0.0	0.5	15.0	0.0	2.2
Cycle Q Clear(g_c), s	18.1	0.0	9.1	0.3	13.4	13.7	0.1	0.0	0.5	15.0	0.0	2.2
Prop In Lane	1.00		0.04	1.00		0.63	1.00		0.73	1.00		0.96
Lane Grp Cap(c), veh/h	390	0	879	9	428	405	327	0	294	611	0	546
V/C Ratio(X)	0.91	0.00	0.34	0.56	0.66	0.67	0.01	0.00	0.04	0.65	0.00	0.10
Avail Cap(c_a), veh/h	457	0	879	114	428	405	437	0	294	611	0	546
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.00	0.93	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.8	0.0	14.9	44.7	30.3	30.4	30.3	0.0	30.6	23.8	0.0	20.2
Incr Delay (d2), s/veh	18.7	0.0	1.0	44.8	7.8	8.7	0.0	0.0	0.2	2.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	0.0	3.5	0.2	5.9	5.8	0.0	0.0	0.2	7.2	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.5	0.0	15.9	89.5	38.2	39.1	30.3	0.0	30.9	26.3	0.0	20.6
LnGrp LOS	D	A	B	F	D	D	C	A	C	C	A	C
Approach Vol, veh/h		654			561			13			454	
Approach Delay, s/veh		35.7			39.1			30.8			25.5	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.5	46.5	4.2	34.8	24.5	26.5	19.0	20.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	37.0	6.0	25.0	24.0	19.0	15.0	16.0
Max Q Clear Time (g_c+I1), s	2.3	11.1	2.1	4.2	20.1	15.7	17.0	2.5
Green Ext Time (p_c), s	0.0	1.5	0.0	0.2	0.4	0.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	34.1
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	754

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	167	411	2	5	280	322	1	2	8	517	11	231
Future Vol, veh/h	167	411	2	5	280	322	1	2	8	517	11	231
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	176	433	2	5	295	339	1	2	8	544	12	243

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	634	0	0	435	0	0	1388	1430	434	1266	1262	465
Stage 1	-	-	-	-	-	-	786	786	-	475	475	-
Stage 2	-	-	-	-	-	-	602	644	-	791	787	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	959	-	-	1135	-	-	121	136	626	~ 147	171	602
Stage 1	-	-	-	-	-	-	388	406	-	574	561	-
Stage 2	-	-	-	-	-	-	490	471	-	~ 386	406	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	959	-	-	1135	-	-	55	102	626	~ 116	129	602
Mov Cap-2 Maneuver	-	-	-	-	-	-	55	102	-	~ 116	129	-
Stage 1	-	-	-	-	-	-	294	308	-	~ 435	557	-
Stage 2	-	-	-	-	-	-	284	468	-	~ 287	308	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.8	0.1	22.4	$ 1941.5
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	218	959	-	-	1135	-	-	154
HCM Lane V/C Ratio	0.053	0.183	-	-	0.005	-	-	5.188
HCM Control Delay (s)	22.4	9.6	0	-	8.2	0	-	$ 1941.5
HCM Lane LOS	C	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	0.2	0.7	-	-	0	-	-	84.2

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

Intersection	
Int Delay, s/veh	874.7

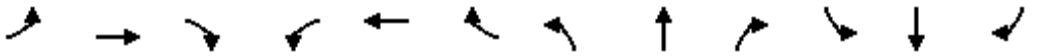
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	167	453	2	5	293	328	1	2	8	537	11	231
Future Vol, veh/h	167	453	2	5	293	328	1	2	8	537	11	231
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	176	477	2	5	308	345	1	2	8	565	12	243

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	653	0	0	479	0	0	1448	1493	478	1326	1322	481
Stage 1	-	-	-	-	-	-	830	830	-	491	491	-
Stage 2	-	-	-	-	-	-	618	663	-	835	831	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	943	-	-	1094	-	-	110	124	591	~ 134	158	589
Stage 1	-	-	-	-	-	-	367	388	-	~ 563	552	-
Stage 2	-	-	-	-	-	-	480	462	-	~ 365	387	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	943	-	-	1094	-	-	48	92	591	~ 104	117	589
Mov Cap-2 Maneuver	-	-	-	-	-	-	48	92	-	~ 104	117	-
Stage 1	-	-	-	-	-	-	274	289	-	~ 420	548	-
Stage 2	-	-	-	-	-	-	274	458	-	~ 266	289	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.6	0.1	24.5	$ 2285.9
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	196	943	-	-	1094	-	-	138
HCM Lane V/C Ratio	0.059	0.186	-	-	0.005	-	-	5.942
HCM Control Delay (s)	24.5	9.7	0	-	8.3	0	-	$ 2285.9
HCM Lane LOS	C	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	0.2	0.7	-	-	0	-	-	88.7

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	453	2	5	293	328	1	2	8	537	11	231
Future Volume (veh/h)	167	453	2	5	293	328	1	2	8	537	11	231
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1872	1800	1800	1800	1800	1800	1872	1800	1800	1872	1800
Adj Flow Rate, veh/h	176	477	2	5	308	345	1	2	8	565	12	243
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	209	839	4	9	571	509	82	29	116	586	27	557
Arrive On Green	0.12	0.45	0.45	0.01	0.33	0.33	0.00	0.09	0.09	0.28	0.37	0.37
Sat Flow, veh/h	1714	1863	8	1714	1710	1525	1714	327	1309	1714	75	1523
Grp Volume(v), veh/h	176	0	479	5	308	345	1	0	10	565	0	255
Grp Sat Flow(s),veh/h/ln	1714	0	1871	1714	1710	1525	1714	0	1636	1714	0	1598
Q Serve(g_s), s	9.0	0.0	17.0	0.3	13.2	17.5	0.0	0.0	0.5	23.3	0.0	10.8
Cycle Q Clear(g_c), s	9.0	0.0	17.0	0.3	13.2	17.5	0.0	0.0	0.5	23.3	0.0	10.8
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.80	1.00		0.95
Lane Grp Cap(c), veh/h	209	0	842	9	571	509	82	0	145	586	0	584
V/C Ratio(X)	0.84	0.00	0.57	0.56	0.54	0.68	0.01	0.00	0.07	0.96	0.00	0.44
Avail Cap(c_a), veh/h	229	0	842	76	571	509	175	0	291	586	0	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.00	0.93	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.7	0.0	18.3	44.7	24.4	25.8	39.4	0.0	37.6	29.6	0.0	21.6
Incr Delay (d2), s/veh	21.3	0.0	2.6	44.8	3.6	7.1	0.1	0.0	0.2	28.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	6.9	0.2	5.3	6.6	0.0	0.0	0.2	15.2	0.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.0	0.0	20.9	89.5	28.0	32.9	39.5	0.0	37.8	57.7	0.0	22.1
LnGrp LOS	E	A	C	F	C	C	D	A	D	E	A	C
Approach Vol, veh/h		655			658			11			820	
Approach Delay, s/veh		31.4			31.0			37.9			46.7	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.5	44.5	4.1	36.9	14.9	34.1	29.0	12.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	29.0	5.0	36.0	12.0	21.0	25.0	16.0
Max Q Clear Time (g_c+I1), s	2.3	19.0	2.0	12.8	11.0	19.5	25.3	2.5
Green Ext Time (p_c), s	0.0	1.8	0.0	1.7	0.0	0.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	37.1
HCM 6th LOS	D

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : STODDARD WELLS RD
N/S STREET : I-15 NB RAMPS
CONDITION : PM PEAK HOUR

INTERSECTION : 5
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	2			4		6	8	10
STODDARD WELLS RD								
EB LEFT	234	22	0	256	0	256	182	182
EB THRU	53	5	120	178	16	194	284	300
EB RIGHT	1	1	0	2	0	2	1	1
WB LEFT	4	1	6	11	0	11	16	16
WB THRU	292	27	333	652	40	692	870	910
WB RIGHT	60	6	113	179	19	198	266	285
I-15 NB RAMPS								
NB LEFT	1	1	0	2	0	2	1	1
NB THRU	3	1	0	4	0	4	2	2
NB RIGHT	1	1	5	7	0	7	8	8
SB LEFT	17	2	261	280	7	287	427	434
SB THRU	1	1	0	2	0	2	3	3
SB RIGHT	137	13	0	150	0	150	242	242
TOTALS	**804**	**81**	**838**	**1723**	**82**	**1805**	**2302**	**2384**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TNM	12-Sep-23	PIXI5AMG-0002	2	OF 2

E/W STREET : STODDARD WELLS RD
N/S STREET : I-15 NB RAMPS
CONDITION : PM PEAK HOUR
PHF : 0.89

NORTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
19	0	4	0	0	0	1	0	0	0	0	0
19	0	4	0	0	0	0	0	0	0	0	0
64	0	5	0	0	0	0	0	0	0	0	0
32	0	4	0	0	0	0	0	0	0	0	0

SOUTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0

EAST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
17	74	0	0	0	0	0	0	0	0	0	0
14	81	0	0	0	0	0	0	0	0	0	0
12	57	1	0	0	0	0	0	0	0	0	0
17	78	3	0	0	0	0	0	0	0	0	0

WEST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	8	50	0	0	0	0	0	1	0	2	2
0	9	48	0	0	0	0	0	0	0	0	0
0	10	52	0	0	0	0	0	0	0	0	0
1	17	64	0	0	0	0	0	0	0	0	0

Number of Axles	2-Axle Trucks	3-Axle Trucks	4+ Axle Trucks
PCE factor	1.5	2	3

	Truck Volumes	Auto Volumes	Vehicle Totals	PCE Totals	Balanced PCE Totals
STODDARD WELLS RD					
EB LEFT	3	214	**217**	**222**	**234**
EB THRU	2	44	**46**	**50**	**53**
EB RIGHT	0	1	**1**	**1**	**1**
WB LEFT	0	4	**4**	**4**	**4**
WB THRU	0	290	**290**	**290**	**292**
WB RIGHT	0	60	**60**	**60**	**60**
I-15 NB RAMPS					
NB LEFT	0	0	**1**	**1**	**1**
NB THRU	0	3	**3**	**3**	**3**
NB RIGHT	0	0	**1**	**1**	**1**
SB LEFT	0	17	**17**	**17**	**17**
SB THRU	0	0	**1**	**1**	**1**
SB RIGHT	1	134	**135**	**136**	**137**

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	234	53	1	4	292	60	1	3	1	17	1	137
Future Vol, veh/h	234	53	1	4	292	60	1	3	1	17	1	137
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	263	60	1	4	328	67	1	3	1	19	1	154

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	395	0	0	61	0	0	1034	990	61	959	957	362
Stage 1	-	-	-	-	-	-	587	587	-	370	370	-
Stage 2	-	-	-	-	-	-	447	403	-	589	587	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1175	-	-	1555	-	-	212	248	1010	239	260	687
Stage 1	-	-	-	-	-	-	499	500	-	654	624	-
Stage 2	-	-	-	-	-	-	595	603	-	498	500	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1175	-	-	1555	-	-	134	190	1010	193	199	687
Mov Cap-2 Maneuver	-	-	-	-	-	-	134	190	-	193	199	-
Stage 1	-	-	-	-	-	-	383	384	-	502	622	-
Stage 2	-	-	-	-	-	-	459	601	-	379	384	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	7.3	0.1	23	15.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	206	1175	-	-	1555	-	-	530
HCM Lane V/C Ratio	0.027	0.224	-	-	0.003	-	-	0.329
HCM Control Delay (s)	23	8.9	0	-	7.3	0	-	15.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.9	-	-	0	-	-	1.4

Intersection	
Int Delay, s/veh	700.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	256	178	2	11	652	179	2	4	7	280	2	150
Future Vol, veh/h	256	178	2	11	652	179	2	4	7	280	2	150
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	288	200	2	12	733	201	2	4	8	315	2	169

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	934	0	0	202	0	0	1720	1735	201	1641	1636	834
Stage 1	-	-	-	-	-	-	777	777	-	858	858	-
Stage 2	-	-	-	-	-	-	943	958	-	783	778	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	741	-	-	1382	-	-	71	89	845	~ 81	102	371
Stage 1	-	-	-	-	-	-	393	410	-	354	376	-
Stage 2	-	-	-	-	-	-	318	338	-	390	410	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	741	-	-	1382	-	-	24	49	845	~ 49	56	371
Mov Cap-2 Maneuver	-	-	-	-	-	-	24	49	-	~ 49	56	-
Stage 1	-	-	-	-	-	-	221	230	-	~ 199	369	-
Stage 2	-	-	-	-	-	-	169	332	-	~ 213	230	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	7.6	0.1	64.3	$ 2785.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	75	741	-	-	1382	-	-	70
HCM Lane V/C Ratio	0.195	0.388	-	-	0.009	-	-	6.934
HCM Control Delay (s)	64.3	12.9	0	-	7.6	0	-	$ 2785.6
HCM Lane LOS	F	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	0.7	1.8	-	-	0	-	-	55.2

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

Intersection	
Int Delay, s/veh	840.7

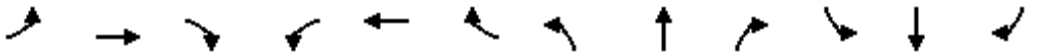
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	256	194	2	11	692	198	2	4	7	287	2	150
Future Vol, veh/h	256	194	2	11	692	198	2	4	7	287	2	150
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	288	218	2	12	778	222	2	4	8	322	2	169

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1000	0	0	220	0	0	1794	1819	219	1714	1709	889
Stage 1	-	-	-	-	-	-	795	795	-	913	913	-
Stage 2	-	-	-	-	-	-	999	1024	-	801	796	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	700	-	-	1361	-	-	63	79	826	~ 72	92	345
Stage 1	-	-	-	-	-	-	384	402	-	330	355	-
Stage 2	-	-	-	-	-	-	296	315	-	381	402	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	700	-	-	1361	-	-	19	41	826	~ 41	48	345
Mov Cap-2 Maneuver	-	-	-	-	-	-	19	41	-	~ 41	48	-
Stage 1	-	-	-	-	-	-	204	213	-	~ 175	348	-
Stage 2	-	-	-	-	-	-	147	308	-	~ 196	213	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	7.7	0.1	80.1	$ 3446.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	62	700	-	-	1361	-	-	59
HCM Lane V/C Ratio	0.236	0.411	-	-	0.009	-	-	8.36
HCM Control Delay (s)	80.1	13.7	0	-	7.7	0	-	$ 3446.1
HCM Lane LOS	F	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	0.8	2	-	-	0	-	-	57.5

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	256	194	2	11	692	198	2	4	7	287	2	150
Future Volume (veh/h)	256	194	2	11	692	198	2	4	7	287	2	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1872	1800	1800	1800	1800	1800	1872	1800	1800	1872	1800
Adj Flow Rate, veh/h	288	218	2	12	778	222	2	4	8	322	2	169
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	321	1090	10	20	1083	309	201	99	198	385	4	332
Arrive On Green	0.19	0.59	0.59	0.01	0.41	0.41	0.01	0.18	0.18	0.04	0.21	0.21
Sat Flow, veh/h	1714	1852	17	1714	2626	749	1714	557	1114	1714	19	1571
Grp Volume(v), veh/h	288	0	220	12	507	493	2	0	12	322	0	171
Grp Sat Flow(s),veh/h/ln	1714	0	1869	1714	1710	1665	1714	0	1671	1714	0	1589
Q Serve(g_s), s	14.8	0.0	4.9	0.6	22.3	22.3	0.0	0.0	0.5	0.0	0.0	8.6
Cycle Q Clear(g_c), s	14.8	0.0	4.9	0.6	22.3	22.3	0.0	0.0	0.5	0.0	0.0	8.6
Prop In Lane	1.00		0.01	1.00		0.45	1.00		0.67	1.00		0.99
Lane Grp Cap(c), veh/h	321	0	1100	20	706	687	201	0	297	385	0	336
V/C Ratio(X)	0.90	0.00	0.20	0.61	0.72	0.72	0.01	0.00	0.04	0.84	0.00	0.51
Avail Cap(c_a), veh/h	343	0	1100	114	706	687	353	0	297	538	0	336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.00	0.97	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.7	0.0	8.6	44.3	22.1	22.1	37.0	0.0	30.6	35.9	0.0	31.4
Incr Delay (d2), s/veh	23.5	0.0	0.4	26.5	6.2	6.4	0.0	0.0	0.3	8.0	0.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	0.0	1.7	0.4	8.9	8.7	0.0	0.0	0.2	7.7	0.0	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.2	0.0	9.0	70.8	28.3	28.4	37.0	0.0	30.9	43.9	0.0	36.8
LnGrp LOS	E	A	A	E	C	C	D	A	C	D	A	D
Approach Vol, veh/h		508			1012			14			493	
Approach Delay, s/veh		37.5			28.8			31.8			41.5	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.0	57.0	5.0	23.0	20.9	41.1	8.0	20.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	40.0	9.0	19.0	18.0	28.0	12.0	16.0
Max Q Clear Time (g_c+I1), s	2.6	6.9	2.0	10.6	16.8	24.3	2.0	2.5
Green Ext Time (p_c), s	0.0	1.1	0.0	0.6	0.1	1.9	0.7	0.0

Intersection Summary	
HCM 6th Ctrl Delay	34.1
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1431.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	182	284	1	16	870	266	1	2	8	427	3	242
Future Vol, veh/h	182	284	1	16	870	266	1	2	8	427	3	242
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	192	299	1	17	916	280	1	2	8	449	3	255

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1196	0	0	300	0	0	1903	1914	300	1779	1774	1056
Stage 1	-	-	-	-	-	-	684	684	-	1090	1090	-
Stage 2	-	-	-	-	-	-	1219	1230	-	689	684	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	591	-	-	1273	-	-	53	69	744	~ 65	84	276
Stage 1	-	-	-	-	-	-	442	452	-	~ 263	294	-
Stage 2	-	-	-	-	-	-	223	252	-	~ 439	452	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	591	-	-	1273	-	-	3	40	744	~ 42	49	276
Mov Cap-2 Maneuver	-	-	-	-	-	-	3	40	-	~ 42	49	-
Stage 1	-	-	-	-	-	-	270	276	-	~ 160	281	-
Stage 2	-	-	-	-	-	-	16	241	-	~ 263	276	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.5	0.1	204.9	$ 4896
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	28	591	-	-	1273	-	-	61
HCM Lane V/C Ratio	0.414	0.324	-	-	0.013	-	-	11.596
HCM Control Delay (s)	204.9	14	0	-	7.9	0	-	$ 4896
HCM Lane LOS	F	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	1.3	1.4	-	-	0	-	-	84

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

Intersection	
Int Delay, s/veh	1677

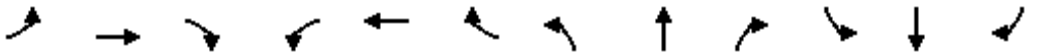
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	182	300	1	16	910	285	1	2	8	434	3	242
Future Vol, veh/h	182	300	1	16	910	285	1	2	8	434	3	242
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	192	316	1	17	958	300	1	2	8	457	3	255

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1258	0	0	317	0	0	1972	1993	317	1848	1843	1108
Stage 1	-	-	-	-	-	-	701	701	-	1142	1142	-
Stage 2	-	-	-	-	-	-	1271	1292	-	706	701	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	560	-	-	1255	-	-	47	61	728	~ 58	76	258
Stage 1	-	-	-	-	-	-	433	444	-	~ 246	278	-
Stage 2	-	-	-	-	-	-	208	236	-	~ 430	444	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	560	-	-	1255	-	-	0	34	728	~ 36	42	258
Mov Cap-2 Maneuver	-	-	-	-	-	-	0	34	-	~ 36	42	-
Stage 1	-	-	-	-	-	-	253	259	-	~ 144	264	-
Stage 2	-	-	-	-	-	-	2	224	-	~ 246	259	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.6	0.1	32.4	$ 5883.2
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	143	560	-	-	1255	-	-	52
HCM Lane V/C Ratio	0.081	0.342	-	-	0.013	-	-	13.745
HCM Control Delay (s)	32.4	14.7	0	-	7.9	0	-	$ 5883.2
HCM Lane LOS	D	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	0.3	1.5	-	-	0	-	-	86

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	300	1	16	910	285	1	2	8	434	3	242
Future Volume (veh/h)	182	300	1	16	910	285	1	2	8	434	3	242
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1872	1800	1800	1800	1800	1800	1872	1800	1800	1872	1800
Adj Flow Rate, veh/h	192	316	1	17	958	300	1	2	8	457	3	255
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	190	900	3	26	993	310	91	58	233	496	6	516
Arrive On Green	0.11	0.48	0.48	0.02	0.39	0.39	0.00	0.18	0.18	0.15	0.33	0.33
Sat Flow, veh/h	1714	1865	6	1714	2566	800	1714	327	1309	1714	18	1571
Grp Volume(v), veh/h	192	0	317	17	637	621	1	0	10	457	0	258
Grp Sat Flow(s),veh/h/ln	1714	0	1871	1714	1710	1656	1714	0	1636	1714	0	1589
Q Serve(g_s), s	10.0	0.0	9.5	0.9	32.7	33.1	0.0	0.0	0.5	10.4	0.0	11.7
Cycle Q Clear(g_c), s	10.0	0.0	9.5	0.9	32.7	33.1	0.0	0.0	0.5	10.4	0.0	11.7
Prop In Lane	1.00		0.00	1.00		0.48	1.00		0.80	1.00		0.99
Lane Grp Cap(c), veh/h	190	0	903	26	662	641	91	0	291	496	0	522
V/C Ratio(X)	1.01	0.00	0.35	0.64	0.96	0.97	0.01	0.00	0.03	0.92	0.00	0.49
Avail Cap(c_a), veh/h	190	0	903	95	662	641	270	0	291	578	0	522
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.00	0.92	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.0	0.0	14.5	44.1	26.9	27.0	32.7	0.0	30.6	32.6	0.0	24.2
Incr Delay (d2), s/veh	64.6	0.0	1.0	23.3	26.8	28.7	0.0	0.0	0.2	18.8	0.0	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	0.0	3.7	0.5	16.4	16.3	0.0	0.0	0.2	12.0	0.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	104.6	0.0	15.5	67.4	53.8	55.7	32.8	0.0	30.8	51.4	0.0	27.5
LnGrp LOS	F	A	B	E	D	E	C	A	C	D	A	C
Approach Vol, veh/h		509			1275			11			715	
Approach Delay, s/veh		49.1			54.9			31.0			42.8	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	47.5	3.6	33.6	14.0	38.8	17.2	20.0
Change Period (Y+Rc), s	4.0	4.0	3.5	4.0	4.0	4.0	4.0	* 4
Max Green Setting (Gmax), s	5.0	36.0	9.5	24.0	10.0	31.0	17.5	* 16
Max Q Clear Time (g_c+I1), s	2.9	11.5	2.0	13.7	12.0	35.1	12.4	2.5
Green Ext Time (p_c), s	0.0	1.5	0.0	1.2	0.0	0.0	0.8	0.0

Intersection Summary	
HCM 6th Ctrl Delay	50.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

CALCULATION OF FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES (NCHRP 255)

Intersection No.: 5
North/South Street: I-15 NB RAMPS
East/West Street: STODDARD WELLS RD

Analysis Condition: YEAR 2040 FUTURE TRAFFIC

A.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume			Turn Volume	Rounded Volume
South leg	Left	1	Approach	4	Left	0	1
NB	Through	2	Departure	14	Through	1	2
	Right	1			Right	3	3
North leg	Left	1	Approach	408	Left	174	174
SB	Through	1	Departure	410	Through	11	11
	Right	46			Right	231	231
West leg	Left	299	Approach	438	Left	166	167
EB	Through	85	Departure	313	Through	279	280
	Right	9			Right	2	2
East leg	Left	1	Approach	319	Left	1	2
WB	Through	131	Departure	456	Through	82	82
	Right	66			Right	243	243

P.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume			Turn Volume	Rounded Volume
South leg	Left	1	Approach	5	Left	0	1
NB	Through	3	Departure	13	Through	2	2
	Right	1			Right	3	3
North leg	Left	17	Approach	401	Left	165	166
SB	Through	1	Departure	336	Through	2	3
	Right	137			Right	242	242
West leg	Left	234	Approach	338	Left	181	182
EB	Through	53	Departure	779	Through	163	164
	Right	1			Right	1	1
East leg	Left	4	Approach	686	Left	10	10
WB	Through	292	Departure	331	Through	537	537
	Right	60			Right	153	153

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : STODDARD WELLS RD
N/S STREET : QUARRY RD
CONDITION : AM PEAK HOUR

INTERSECTION : 6
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	1			3		5	7	9
STODDARD WELLS RD								
EB LEFT	131	12	0	143	0	143	140	140
EB THRU	264	24	7	295	23	318	301	324
EB RIGHT	0	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0	0
WB THRU	25	3	5	33	7	40	41	48
WB RIGHT	153	14	193	360	6	366	471	477
QUARRY RD								
NB LEFT	0	0	0	0	0	0	0	0
NB THRU	0	0	0	0	0	0	0	0
NB RIGHT	0	0	0	0	0	0	0	0
SB LEFT	129	12	124	265	19	284	279	298
SB THRU	0	0	0	0	0	0	0	0
SB RIGHT	50	5	0	55	0	55	46	46
TOTALS	**752**	**70**	**329**	**1151**	**55**	**1206**	**1278**	**1333**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TNM	12-Sep-23	PIXI5AMG-0002	2	OF 2

E/W STREET : STODDARD WELLS RD
N/S STREET : QUARRY RD
CONDITION : AM PEAK HOUR
PHF : 0.92

NORTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
6	0	9	0	0	0	0	0	0	0	0	2
4	0	41	0	0	1	0	0	0	1	0	2
12	0	28	0	0	0	0	0	1	2	0	0
13	0	22	2	0	1	0	0	0	0	0	1

SOUTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

EAST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
28	5	0	1	1	0	0	0	0	0	0	0
33	4	0	0	1	0	0	0	0	1	0	0
46	10	0	0	0	0	0	1	0	0	0	0
32	4	0	0	0	0	0	0	0	0	0	0

WEST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	91	27	0	2	0	0	0	0	0	2	0
0	36	33	0	3	0	0	1	0	0	4	0
0	47	31	0	1	0	0	3	0	0	3	0
0	42	40	0	1	0	0	1	0	0	0	0

Number of Axles	2-Axle Trucks	3-Axle Trucks	4+ Axle Trucks
PCE factor	1.5	2	3

	Truck Volumes	Auto Volumes	Vehicle Totals	PCE Totals	Balanced PCE Totals
STODDARD WELLS RD					
EB LEFT	0	131	**131**	**131**	**131**
EB THRU	21	216	**237**	**264**	**264**
EB RIGHT	0	0	**0**	**0**	**0**
WB LEFT	0	0	**0**	**0**	**0**
WB THRU	3	23	**26**	**25**	**25**
WB RIGHT	2	139	**141**	**153**	**153**
QUARRY RD					
NB LEFT	0	0	**0**	**0**	**0**
NB THRU	0	0	**0**	**0**	**0**
NB RIGHT	0	0	**0**	**0**	**0**
SB LEFT	8	100	**108**	**120**	**129**
SB THRU	0	0	**0**	**0**	**0**
SB RIGHT	5	35	**40**	**47**	**50**

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	131	264	25	153	129	50
Future Vol, veh/h	131	264	25	153	129	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	142	287	27	166	140	54

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	27	0	-	0	598	27
Stage 1	-	-	-	-	27	-
Stage 2	-	-	-	-	571	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1600	-	-	0	468	1054
Stage 1	-	-	-	0	1001	-
Stage 2	-	-	-	0	569	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	1600	-	-	-	418	1054
Mov Cap-2 Maneuver	-	-	-	-	418	-
Stage 1	-	-	-	-	895	-
Stage 2	-	-	-	-	569	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	16.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1600	-	-	503
HCM Lane V/C Ratio	0.089	-	-	0.387
HCM Control Delay (s)	7.5	0	-	16.6
HCM Lane LOS	A	A	-	C
HCM 95th %tile Q(veh)	0.3	-	-	1.8

Intersection	
Int Delay, s/veh	18.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	143	295	33	360	265	55
Future Vol, veh/h	143	295	33	360	265	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	155	321	36	391	288	60

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	36	0	-	0	667	36
Stage 1	-	-	-	-	36	-
Stage 2	-	-	-	-	631	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1588	-	-	0	427	1042
Stage 1	-	-	-	0	992	-
Stage 2	-	-	-	0	534	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	1588	-	-	-	376	1042
Mov Cap-2 Maneuver	-	-	-	-	376	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	534	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	42.7
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1588	-	-	422
HCM Lane V/C Ratio	0.098	-	-	0.824
HCM Control Delay (s)	7.5	0	-	42.7
HCM Lane LOS	A	A	-	E
HCM 95th %tile Q(veh)	0.3	-	-	7.7

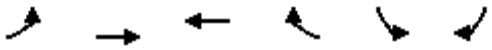
Intersection	
Int Delay, s/veh	24.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	143	318	40	366	284	55
Future Vol, veh/h	143	318	40	366	284	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	155	346	43	398	309	60

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	43	0	-	0	699	43
Stage 1	-	-	-	-	43	-
Stage 2	-	-	-	-	656	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1579	-	-	0	409	1033
Stage 1	-	-	-	0	985	-
Stage 2	-	-	-	0	520	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	1579	-	-	-	360	1033
Mov Cap-2 Maneuver	-	-	-	-	360	-
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	520	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	58.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1579	-	-	403
HCM Lane V/C Ratio	0.098	-	-	0.914
HCM Control Delay (s)	7.5	0	-	58.3
HCM Lane LOS	A	A	-	F
HCM 95th %tile Q(veh)	0.3	-	-	9.8



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	143	318	40	366	284	55
Future Volume (veh/h)	143	318	40	366	284	55
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1800	1872	1872	1800	1872	1800
Adj Flow Rate, veh/h	155	346	43	0	309	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	190	874	583		792	678
Arrive On Green	0.11	0.47	0.31	0.00	0.44	0.44
Sat Flow, veh/h	1714	1872	1872	1525	1783	1525
Grp Volume(v), veh/h	155	346	43	0	309	60
Grp Sat Flow(s),veh/h/ln	1714	1872	1872	1525	1783	1525
Q Serve(g_s), s	8.0	10.9	1.5	0.0	10.5	2.0
Cycle Q Clear(g_c), s	8.0	10.9	1.5	0.0	10.5	2.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	190	874	583		792	678
V/C Ratio(X)	0.82	0.40	0.07		0.39	0.09
Avail Cap(c_a), veh/h	362	874	583		792	678
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.68	0.00	1.00	1.00
Uniform Delay (d), s/veh	39.1	15.7	21.8	0.0	16.8	14.5
Incr Delay (d2), s/veh	8.2	1.3	0.2	0.0	1.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	4.3	0.6	0.0	4.3	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.4	17.0	22.0	0.0	18.2	14.7
LnGrp LOS	D	B	C		B	B
Approach Vol, veh/h		501	43		369	
Approach Delay, s/veh		26.4	22.0		17.7	
Approach LOS		C	C		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		46.0		44.0	14.0	32.0
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		42.0		40.0	19.0	19.0
Max Q Clear Time (g_c+I1), s		12.9		12.5	10.0	3.5
Green Ext Time (p_c), s		1.8		1.1	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	17.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	140	301	41	471	279	46
Future Vol, veh/h	140	301	41	471	279	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	147	317	43	496	294	48

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	43	0	-	0	654	43
Stage 1	-	-	-	-	43	-
Stage 2	-	-	-	-	611	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1579	-	-	0	435	1033
Stage 1	-	-	-	0	985	-
Stage 2	-	-	-	0	546	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	1579	-	-	-	386	1033
Mov Cap-2 Maneuver	-	-	-	-	386	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	546	-

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	40.5
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1579	-	-	424
HCM Lane V/C Ratio	0.093	-	-	0.807
HCM Control Delay (s)	7.5	0	-	40.5
HCM Lane LOS	A	A	-	E
HCM 95th %tile Q(veh)	0.3	-	-	7.3

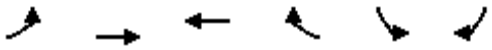
Intersection	
Int Delay, s/veh	23.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	140	324	48	477	298	46
Future Vol, veh/h	140	324	48	477	298	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	147	341	51	502	314	48

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	51	0	-	0	686	51
Stage 1	-	-	-	-	51	-
Stage 2	-	-	-	-	635	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1568	-	-	0	416	1023
Stage 1	-	-	-	0	977	-
Stage 2	-	-	-	0	532	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	1568	-	-	-	368	1023
Mov Cap-2 Maneuver	-	-	-	-	368	-
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	532	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	55.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1568	-	-	402
HCM Lane V/C Ratio	0.094	-	-	0.901
HCM Control Delay (s)	7.5	0	-	55.9
HCM Lane LOS	A	A	-	F
HCM 95th %tile Q(veh)	0.3	-	-	9.4



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	140	324	48	477	298	46
Future Volume (veh/h)	140	324	48	477	298	46
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1800	1872	1872	1800	1872	1800
Adj Flow Rate, veh/h	147	341	51	0	314	48
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	181	811	530		852	729
Arrive On Green	0.11	0.43	0.28	0.00	0.48	0.48
Sat Flow, veh/h	1714	1872	1872	1525	1783	1525
Grp Volume(v), veh/h	147	341	51	0	314	48
Grp Sat Flow(s),veh/h/ln	1714	1872	1872	1525	1783	1525
Q Serve(g_s), s	7.5	11.4	1.8	0.0	10.0	1.5
Cycle Q Clear(g_c), s	7.5	11.4	1.8	0.0	10.0	1.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	181	811	530		852	729
V/C Ratio(X)	0.81	0.42	0.10		0.37	0.07
Avail Cap(c_a), veh/h	362	811	530		852	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.78	0.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	17.7	23.8	0.0	14.9	12.7
Incr Delay (d2), s/veh	8.4	1.6	0.3	0.0	1.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	4.6	0.8	0.0	4.1	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.7	19.3	24.1	0.0	16.1	12.8
LnGrp LOS	D	B	C		B	B
Approach Vol, veh/h		488	51		362	
Approach Delay, s/veh		27.8	24.1		15.7	
Approach LOS		C	C		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		43.0		47.0	13.5	29.5
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		39.0		43.0	19.0	16.0
Max Q Clear Time (g_c+I1), s		13.4		12.0	9.5	3.8
Green Ext Time (p_c), s		1.7		1.1	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : STODDARD WELLS RD
N/S STREET : QUARRY RD
CONDITION : PM PEAK HOUR

INTERSECTION : 6
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	2			4		6	8	10
STODDARD WELLS RD								
EB LEFT	67	7	0	74	0	74	78	78
EB THRU	227	21	6	254	9	263	263	272
EB RIGHT	0	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0	0
WB THRU	179	17	7	203	21	224	211	232
WB RIGHT	251	23	326	600	19	619	902	921
QUARRY RD								
NB LEFT	0	0	0	0	0	0	0	0
NB THRU	0	0	0	0	0	0	0	0
NB RIGHT	0	0	0	0	0	0	0	0
SB LEFT	61	6	114	181	7	188	204	211
SB THRU	0	0	0	0	0	0	0	0
SB RIGHT	94	9	0	103	0	103	80	80
TOTALS	**879**	**83**	**453**	**1415**	**56**	**1471**	**1738**	**1794**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TNM	12-Sep-23	PIXI5AMG-0002	2	OF 2

E/W STREET : STODDARD WELLS RD
N/S STREET : QUARRY RD
CONDITION : PM PEAK HOUR
PHF : 0.92

NORTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
13	0	7	1	0	0	2	0	0	0	0	1
14	0	13	1	0	0	0	0	0	4	0	0
10	0	7	0	0	0	0	0	0	0	0	0
11	0	16	2	0	0	0	0	0	0	0	0

SOUTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

EAST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
65	28	0	0	0	0	1	0	0	0	0	0
70	30	0	0	0	0	0	0	0	0	0	0
53	69	0	0	0	0	0	0	0	0	0	0
57	52	0	0	0	0	0	0	0	0	0	0

WEST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	51	13	0	0	0	0	1	0	0	3	0
0	44	21	0	0	0	0	0	0	0	0	0
0	55	14	0	0	0	0	0	0	0	0	0
0	66	18	0	0	0	0	0	0	0	0	0

Number of Axles	2-Axle Trucks	3-Axle Trucks	4+ Axle Trucks
PCE factor	1.5	2	3

	Truck Volumes	Auto Volumes	Vehicle Totals	PCE Totals	Balanced PCE Totals
STODDARD WELLS RD					
EB LEFT	0	66	**66**	**66**	**67**
EB THRU	4	216	**220**	**227**	**227**
EB RIGHT	0	0	**0**	**0**	**0**
WB LEFT	0	0	**0**	**0**	**0**
WB THRU	0	179	**179**	**179**	**179**
WB RIGHT	1	245	**246**	**247**	**251**
QUARRY RD					
NB LEFT	0	0	**0**	**0**	**0**
NB THRU	0	0	**0**	**0**	**0**
NB RIGHT	0	0	**0**	**0**	**0**
SB LEFT	1	43	**44**	**46**	**61**
SB THRU	0	0	**0**	**0**	**0**
SB RIGHT	10	48	**58**	**70**	**94**

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	67	227	179	251	61	94
Future Vol, veh/h	67	227	179	251	61	94
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	73	247	195	273	66	102

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	195	0	-	0	588	195
Stage 1	-	-	-	-	195	-
Stage 2	-	-	-	-	393	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1390	-	-	0	475	851
Stage 1	-	-	-	0	843	-
Stage 2	-	-	-	0	686	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	1390	-	-	-	446	851
Mov Cap-2 Maneuver	-	-	-	-	446	-
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	686	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1390	-	-	627
HCM Lane V/C Ratio	0.052	-	-	0.269
HCM Control Delay (s)	7.7	0	-	12.8
HCM Lane LOS	A	A	-	B
HCM 95th %tile Q(veh)	0.2	-	-	1.1

Intersection	
Int Delay, s/veh	8.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	74	254	203	600	181	103
Future Vol, veh/h	74	254	203	600	181	103
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	80	276	221	652	197	112

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	221	0	-	0	657	221
Stage 1	-	-	-	-	221	-
Stage 2	-	-	-	-	436	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1360	-	-	0	433	824
Stage 1	-	-	-	0	821	-
Stage 2	-	-	-	0	656	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	1360	-	-	-	403	824
Mov Cap-2 Maneuver	-	-	-	-	403	-
Stage 1	-	-	-	-	764	-
Stage 2	-	-	-	-	656	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	23.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1360	-	-	495
HCM Lane V/C Ratio	0.059	-	-	0.624
HCM Control Delay (s)	7.8	0	-	23.6
HCM Lane LOS	A	A	-	C
HCM 95th %tile Q(veh)	0.2	-	-	4.2

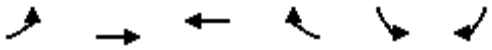
Intersection	
Int Delay, s/veh	9.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	74	263	224	619	188	103
Future Vol, veh/h	74	263	224	619	188	103
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	80	286	243	673	204	112

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	243	0	-	0	689	243
Stage 1	-	-	-	-	243	-
Stage 2	-	-	-	-	446	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1335	-	-	0	415	801
Stage 1	-	-	-	0	802	-
Stage 2	-	-	-	0	649	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	1335	-	-	-	386	801
Mov Cap-2 Maneuver	-	-	-	-	386	-
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	649	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	26.7
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1335	-	-	473
HCM Lane V/C Ratio	0.06	-	-	0.669
HCM Control Delay (s)	7.9	0	-	26.7
HCM Lane LOS	A	A	-	D
HCM 95th %tile Q(veh)	0.2	-	-	4.9



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	74	263	224	619	188	103
Future Volume (veh/h)	74	263	224	619	188	103
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1800	1872	1872	1800	1872	1800
Adj Flow Rate, veh/h	80	286	243	0	204	112
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	103	1019	824		654	559
Arrive On Green	0.06	0.54	0.15	0.00	0.37	0.37
Sat Flow, veh/h	1714	1872	1872	1525	1783	1525
Grp Volume(v), veh/h	80	286	243	0	204	112
Grp Sat Flow(s),veh/h/ln	1714	1872	1872	1525	1783	1525
Q Serve(g_s), s	4.1	7.4	10.4	0.0	7.4	4.5
Cycle Q Clear(g_c), s	4.1	7.4	10.4	0.0	7.4	4.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	103	1019	824		654	559
V/C Ratio(X)	0.78	0.28	0.29		0.31	0.20
Avail Cap(c_a), veh/h	305	1019	824		654	559
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.42	0.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	11.0	26.0	0.0	20.4	19.5
Incr Delay (d2), s/veh	11.9	0.7	0.4	0.0	1.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.7	4.7	0.0	3.2	4.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.6	11.7	26.4	0.0	21.6	20.3
LnGrp LOS	D	B	C		C	C
Approach Vol, veh/h		366	243		316	
Approach Delay, s/veh		20.9	26.4		21.2	
Approach LOS		C	C		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		53.0		37.0	9.4	43.6
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		49.0		33.0	16.0	29.0
Max Q Clear Time (g_c+I1), s		9.4		9.4	6.1	12.4
Green Ext Time (p_c), s		1.5		0.9	0.1	1.0

Intersection Summary	
HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	9.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	78	263	211	902	204	80
Future Vol, veh/h	78	263	211	902	204	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	82	277	222	949	215	84

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	222	0	-	0	663	222
Stage 1	-	-	-	-	222	-
Stage 2	-	-	-	-	441	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1359	-	-	0	429	823
Stage 1	-	-	-	0	820	-
Stage 2	-	-	-	0	653	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	1359	-	-	-	399	823
Mov Cap-2 Maneuver	-	-	-	-	399	-
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	653	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	25.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1359	-	-	467
HCM Lane V/C Ratio	0.06	-	-	0.64
HCM Control Delay (s)	7.8	0	-	25.4
HCM Lane LOS	A	A	-	D
HCM 95th %tile Q(veh)	0.2	-	-	4.4

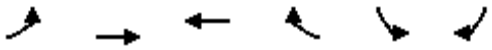
Intersection	
Int Delay, s/veh	10.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	78	272	232	921	211	80
Future Vol, veh/h	78	272	232	921	211	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	82	286	244	969	222	84

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	244	0	-	0	694	244
Stage 1	-	-	-	-	244	-
Stage 2	-	-	-	-	450	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1334	-	-	0	412	800
Stage 1	-	-	-	0	801	-
Stage 2	-	-	-	0	647	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	1334	-	-	-	382	800
Mov Cap-2 Maneuver	-	-	-	-	382	-
Stage 1	-	-	-	-	743	-
Stage 2	-	-	-	-	647	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	29
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1334	-	-	446
HCM Lane V/C Ratio	0.062	-	-	0.687
HCM Control Delay (s)	7.9	0	-	29
HCM Lane LOS	A	A	-	D
HCM 95th %tile Q(veh)	0.2	-	-	5.1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	78	272	232	921	211	80
Future Volume (veh/h)	78	272	232	921	211	80
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1800	1872	1872	1800	1872	1800
Adj Flow Rate, veh/h	82	286	244	0	222	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	105	1420	1222		272	232
Arrive On Green	0.06	0.76	0.22	0.00	0.15	0.15
Sat Flow, veh/h	1714	1872	1872	1525	1783	1525
Grp Volume(v), veh/h	82	286	244	0	222	84
Grp Sat Flow(s),veh/h/ln	1714	1872	1872	1525	1783	1525
Q Serve(g_s), s	4.2	3.9	9.6	0.0	10.9	4.4
Cycle Q Clear(g_c), s	4.2	3.9	9.6	0.0	10.9	4.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	105	1420	1222		272	232
V/C Ratio(X)	0.78	0.20	0.20		0.82	0.36
Avail Cap(c_a), veh/h	305	1420	1222		654	559
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.09	0.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	3.1	16.0	0.0	36.9	34.2
Incr Delay (d2), s/veh	11.7	0.3	0.0	0.0	6.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.8	3.7	0.0	5.0	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.3	3.4	16.1	0.0	42.9	35.2
LnGrp LOS	D	A	B		D	D
Approach Vol, veh/h		368	244		306	
Approach Delay, s/veh		14.5	16.1		40.8	
Approach LOS		B	B		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		72.3		17.7	9.5	62.8
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		49.0		33.0	16.0	29.0
Max Q Clear Time (g_c+I1), s		5.9		12.9	6.2	11.6
Green Ext Time (p_c), s		1.5		0.9	0.1	1.0

Intersection Summary	
HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

CALCULATION OF FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES (NCHRP 255)

Intersection No.: 6
North/South Street: QUARRY RD
East/West Street: STODDARD WELLS RD

Analysis Condition: YEAR 2040 FUTURE TRAFFIC

A.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume			Turn Volume	Rounded Volume
South leg	Left	0	Approach	0	Left	0	0
NB	Through	0	Departure	0	Through	0	0
	Right	0			Right	0	0
North leg	Left	129	Approach	193	Left	148	155
SB	Through	0	Departure	417	Through	0	0
	Right	50			Right	45	46
West leg	Left	131	Approach	421	Left	140	140
EB	Through	264	Departure	81	Through	281	294
	Right	0			Right	0	0
East leg	Left	0	Approach	313	Left	0	0
WB	Through	25	Departure	429	Through	36	36
	Right	153			Right	277	278

P.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume			Turn Volume	Rounded Volume
South leg	Left	0	Approach	0	Left	0	0
NB	Through	0	Departure	0	Through	0	0
	Right	0			Right	0	0
North leg	Left	61	Approach	152	Left	83	90
SB	Through	0	Departure	652	Through	0	0
	Right	94			Right	70	80
West leg	Left	67	Approach	316	Left	78	78
EB	Through	227	Departure	273	Through	240	257
	Right	0			Right	0	0
East leg	Left	0	Approach	775	Left	0	0
WB	Through	179	Departure	323	Through	203	204
	Right	251			Right	574	576

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : I-15 SB RAMPS
N/S STREET : QUARRY RD
CONDITION : AM PEAK HOUR

INTERSECTION : 7
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	1			3		5	7	9
I-15 SB RAMPS								
EB LEFT	0	0	0	0	0	0	0	0
EB THRU	0	0	0	0	0	0	0	0
EB RIGHT	0	0	0	0	0	0	0	0
WB LEFT	178	17	124	319	19	338	312	331
WB THRU	0	0	0	0	0	0	0	0
WB RIGHT	1	1	0	2	0	2	1	1
QUARRY RD								
NB LEFT	0	0	0	0	0	0	0	0
NB THRU	1	1	0	2	0	2	2	2
NB RIGHT	283	26	193	502	6	508	598	604
SB LEFT	1	1	0	2	0	2	2	2
SB THRU	1	1	0	2	0	2	1	1
SB RIGHT	0	0	0	0	0	0	0	0
TOTALS	**465**	**47**	**317**	**829**	**25**	**854**	**916**	**941**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TNM	12-Sep-23	PIXI5AMG-0002	2	OF 2

E/W STREET : I-15 SB RAMPS
N/S STREET : QUARRY RD
CONDITION : AM PEAK HOUR
PHF : 0.90

NORTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

SOUTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
66	0	0	0	0	0	0	0	0	1	0	0
75	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0
48	1	0	0	0	0	2	0	0	0	0	0

EAST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	0	45	0	0	1	0	0	0	0	0	3
0	0	40	0	0	0	0	0	1	0	0	2
1	0	35	0	0	3	0	0	0	0	0	1
0	0	19	0	0	1	0	0	1	0	0	3

WEST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

Number of Axles	2-Axle Trucks	3-Axle Trucks	4+ Axle Trucks
PCE factor	1.5	2	3

	Truck Volumes	Auto Volumes	Vehicle Totals	PCE Totals	Balanced PCE Totals
I-15 SB RAMPS					
EB LEFT	0	0	**0**	**0**	**0**
EB THRU	0	0	**0**	**0**	**0**
EB RIGHT	0	0	**0**	**0**	**0**
WB LEFT	16	139	**155**	**178**	**178**
WB THRU	0	0	**0**	**0**	**0**
WB RIGHT	0	1	**1**	**1**	**1**
QUARRY RD					
NB LEFT	0	0	**0**	**0**	**0**
NB THRU	0	1	**1**	**1**	**1**
NB RIGHT	3	262	**265**	**269**	**283**
SB LEFT	0	1	**1**	**1**	**1**
SB THRU	0	0	**1**	**1**	**1**
SB RIGHT	0	0	**0**	**0**	**0**

Intersection	
Int Delay, s/veh	4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	178	1	1	283	1	1
Future Vol, veh/h	178	1	1	283	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	198	1	1	314	1	1

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	161	158	0	0	315	0
Stage 1	158	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	835	893	-	-	1257	-
Stage 1	875	-	-	-	-	-
Stage 2	1025	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	834	893	-	-	1257	-
Mov Cap-2 Maneuver	834	-	-	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	1024	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	3.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	834	1257	-
HCM Lane V/C Ratio	-	-	0.238	0.001	-
HCM Control Delay (s)	-	-	10.7	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.9	0	-

Intersection	
Int Delay, s/veh	5.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	319	2	2	502	2	2
Future Vol, veh/h	319	2	2	502	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	354	2	2	558	2	2

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	287	281	0	0	560	0
Stage 1	281	-	-	-	-	-
Stage 2	6	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	708	763	-	-	1021	-
Stage 1	771	-	-	-	-	-
Stage 2	1022	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	707	763	-	-	1021	-
Mov Cap-2 Maneuver	707	-	-	-	-	-
Stage 1	771	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	4.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	707	1021	-
HCM Lane V/C Ratio	-	-	0.504	0.002	-
HCM Control Delay (s)	-	-	15.2	8.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.9	0	-

Intersection	
Int Delay, s/veh	6.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	338	2	2	508	2	2
Future Vol, veh/h	338	2	2	508	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	376	2	2	564	2	2

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	290	284	0	0	566	0
Stage 1	284	-	-	-	-	-
Stage 2	6	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	705	760	-	-	1016	-
Stage 1	769	-	-	-	-	-
Stage 2	1022	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	704	760	-	-	1016	-
Mov Cap-2 Maneuver	704	-	-	-	-	-
Stage 1	769	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.9	0	4.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	704	1016	-
HCM Lane V/C Ratio	-	-	0.537	0.002	-
HCM Control Delay (s)	-	-	15.9	8.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	3.2	0	-

Intersection	
Int Delay, s/veh	5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	312	1	2	598	2	1
Future Vol, veh/h	312	1	2	598	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	328	1	2	629	2	1

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	322	317	0	0	631	0
Stage 1	317	-	-	-	-	-
Stage 2	5	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	676	728	-	-	961	-
Stage 1	743	-	-	-	-	-
Stage 2	1023	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	675	728	-	-	961	-
Mov Cap-2 Maneuver	675	-	-	-	-	-
Stage 1	743	-	-	-	-	-
Stage 2	1021	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.3	0	5.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	675	961	-
HCM Lane V/C Ratio	-	-	0.488	0.002	-
HCM Control Delay (s)	-	-	15.3	8.8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.7	0	-

Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	331	1	2	604	2	1
Future Vol, veh/h	331	1	2	604	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	348	1	2	636	2	1

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	325	320	0	0	638	0
Stage 1	320	-	-	-	-	-
Stage 2	5	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	673	725	-	-	956	-
Stage 1	741	-	-	-	-	-
Stage 2	1023	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	672	725	-	-	956	-
Mov Cap-2 Maneuver	672	-	-	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	1021	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16	0	5.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	672	956	-
HCM Lane V/C Ratio	-	-	0.52	0.002	-
HCM Control Delay (s)	-	-	16	8.8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	3	0	-

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : I-15 SB RAMPS
N/S STREET : QUARRY RD
CONDITION : PM PEAK HOUR

INTERSECTION : 7
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	2			4		6	8	10
I-15 SB RAMPS								
EB LEFT	0	0	0	0	0	0	0	0
EB THRU	0	0	0	0	0	0	0	0
EB RIGHT	0	0	0	0	0	0	0	0
WB LEFT	154	14	114	282	7	289	284	291
WB THRU	0	0	0	0	0	0	0	0
WB RIGHT	2	1	0	3	0	3	2	2
QUARRY RD								
NB LEFT	0	0	0	0	0	0	0	0
NB THRU	1	1	0	2	0	2	2	2
NB RIGHT	317	29	326	672	19	691	954	973
SB LEFT	1	1	0	2	0	2	2	2
SB THRU	1	1	0	2	0	2	1	1
SB RIGHT	0	0	0	0	0	0	0	0
TOTALS	**476**	**47**	**440**	**963**	**26**	**989**	**1245**	**1271**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TNM	12-Sep-23	PIXI5AMG-0002	2	OF 2

E/W STREET : I-15 SB RAMPS
N/S STREET : QUARRY RD
CONDITION : PM PEAK HOUR
PHF : 0.76

NORTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

SOUTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
109	0	0	2	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0
77	1	0	0	0	0	1	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0

EAST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	0	24	0	0	2	0	0	3	0	0	4
0	0	27	0	0	0	0	0	1	0	0	4
2	0	20	0	0	1	0	0	2	0	0	1
0	0	26	0	0	1	0	0	0	0	0	4

WEST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

Number of Axles	2-Axle Trucks	3-Axle Trucks	4+ Axle Trucks
PCE factor	1.5	2	3

	Truck Volumes	Auto Volumes	Vehicle Totals	PCE Totals	Balanced PCE Totals
I-15 SB RAMPS					
EB LEFT	0	0	**0**	**0**	**0**
EB THRU	0	0	**0**	**0**	**0**
EB RIGHT	0	0	**0**	**0**	**0**
WB LEFT	23	97	**120**	**154**	**154**
WB THRU	0	0	**0**	**0**	**0**
WB RIGHT	0	2	**2**	**2**	**2**
QUARRY RD					
NB LEFT	0	0	**0**	**0**	**0**
NB THRU	0	1	**1**	**1**	**1**
NB RIGHT	3	312	**315**	**317**	**317**
SB LEFT	0	0	**1**	**1**	**1**
SB THRU	0	1	**1**	**1**	**1**
SB RIGHT	0	0	**0**	**0**	**0**

CALCULATION OF FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES (NCHRP 255)

Intersection No.: 7
North/South Street: QUARRY RD
East/West Street: I-15 SB RAMPS

Analysis Condition: YEAR 2040 FUTURE TRAFFIC

A.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume			Turn Volume	Rounded Volume
South leg	Left	0	Approach	406	Left	0	0
NB	Through	1	Departure	188	Through	1	2
	Right	283			Right	405	405
North leg	Left	1	Approach	2	Left	1	2
SB	Through	1	Departure	2	Through	1	1
	Right	0			Right	0	0
West leg	Left	0	Approach	0	Left	0	0
EB	Through	0	Departure	0	Through	0	0
	Right	0			Right	0	0
East leg	Left	178	Approach	188	Left	187	188
WB	Through	0	Departure	406	Through	0	0
	Right	1			Right	1	1

P.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume			Turn Volume	Rounded Volume
South leg	Left	0	Approach	629	Left	0	0
NB	Through	1	Departure	170	Through	1	2
	Right	317			Right	628	628
North leg	Left	1	Approach	2	Left	1	2
SB	Through	1	Departure	3	Through	1	1
	Right	0			Right	0	0
West leg	Left	0	Approach	0	Left	0	0
EB	Through	0	Departure	0	Through	0	0
	Right	0			Right	0	0
East leg	Left	154	Approach	171	Left	169	170
WB	Through	0	Departure	629	Through	0	0
	Right	2			Right	2	2

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : JOHNSON RD
N/S STREET : PROJECT DRIVEWAY
CONDITION : AM PEAK HOUR

INTERSECTION : 8
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	1			3		5	7	9
JOHNSON RD								
EB LEFT	0	0	0	0	52	52	0	52
EB THRU	61	6	0	67	40	107	75	115
EB RIGHT	0	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0	0
WB THRU	130	13	0	143	12	155	140	152
WB RIGHT	0	0	0	0	0	0	0	0
PROJECT DRIVEWAY								
NB LEFT	0	0	0	0	0	0	0	0
NB THRU	0	0	0	0	0	0	0	0
NB RIGHT	0	0	0	0	0	0	0	0
SB LEFT	0	0	0	0	0	0	0	0
SB THRU	0	0	0	0	0	0	0	0
SB RIGHT	0	0	0	0	16	16	0	16
TOTALS	**191**	**19**	**0**	**210**	**120**	**330**	**215**	**335**

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	52	107	155	0	0	16
Future Vol, veh/h	52	107	155	0	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	73	73	73	73	73	73
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	71	147	212	0	0	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	212	0	-	0	501	212
Stage 1	-	-	-	-	212	-
Stage 2	-	-	-	-	289	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1370	-	-	-	533	833
Stage 1	-	-	-	-	828	-
Stage 2	-	-	-	-	765	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1370	-	-	-	503	833
Mov Cap-2 Maneuver	-	-	-	-	503	-
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	765	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1370	-	-	-	833
HCM Lane V/C Ratio	0.052	-	-	-	0.026
HCM Control Delay (s)	7.8	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	52	115	152	0	0	16
Future Vol, veh/h	52	115	152	0	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	55	121	160	0	0	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	160	0	-	0	391	160
Stage 1	-	-	-	-	160	-
Stage 2	-	-	-	-	231	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1432	-	-	-	617	890
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	812	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1432	-	-	-	592	890
Mov Cap-2 Maneuver	-	-	-	-	592	-
Stage 1	-	-	-	-	838	-
Stage 2	-	-	-	-	812	-

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1432	-	-	-	890
HCM Lane V/C Ratio	0.038	-	-	-	0.019
HCM Control Delay (s)	7.6	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : JOHNSON RD
N/S STREET : PROJECT DRIVEWAY
CONDITION : PM PEAK HOUR

INTERSECTION : 8
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	2			4		6	8	10
JOHNSON RD								
EB LEFT	0	0	0	0	20	20	0	20
EB THRU	112	11	0	123	14	137	126	140
EB RIGHT	0	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0	0
WB THRU	127	12	0	139	37	176	140	177
WB RIGHT	0	0	0	0	0	0	0	0
PROJECT DRIVEWAY								
NB LEFT	0	0	0	0	0	0	0	0
NB THRU	0	0	0	0	0	0	0	0
NB RIGHT	0	0	0	0	0	0	0	0
SB LEFT	0	0	0	0	0	0	0	0
SB THRU	0	0	0	0	0	0	0	0
SB RIGHT	0	0	0	0	48	48	0	48
TOTALS	**239**	**23**	**0**	**262**	**119**	**381**	**266**	**385**

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	137	176	0	0	48
Future Vol, veh/h	20	137	176	0	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	22	151	193	0	0	53

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	193	0	-	0	388	193
Stage 1	-	-	-	-	193	-
Stage 2	-	-	-	-	195	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1392	-	-	-	619	854
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	843	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1392	-	-	-	608	854
Mov Cap-2 Maneuver	-	-	-	-	608	-
Stage 1	-	-	-	-	831	-
Stage 2	-	-	-	-	843	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1392	-	-	-	854
HCM Lane V/C Ratio	0.016	-	-	-	0.062
HCM Control Delay (s)	7.6	0	-	-	9.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	140	177	0	0	48
Future Vol, veh/h	20	140	177	0	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	21	147	186	0	0	51

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	186	0	-	0	375	186
Stage 1	-	-	-	-	186	-
Stage 2	-	-	-	-	189	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1401	-	-	-	630	861
Stage 1	-	-	-	-	851	-
Stage 2	-	-	-	-	848	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1401	-	-	-	620	861
Mov Cap-2 Maneuver	-	-	-	-	620	-
Stage 1	-	-	-	-	837	-
Stage 2	-	-	-	-	848	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1401	-	-	-	861
HCM Lane V/C Ratio	0.015	-	-	-	0.059
HCM Control Delay (s)	7.6	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : PROJECT DRIVEWAY
N/S STREET : NAVAJO RD
CONDITION : AM PEAK HOUR

INTERSECTION : 9
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	1			3		5	7	9
PROJECT DRIVEWAY								
EB LEFT	0	0	0	0	0	0	0	0
EB THRU	0	0	0	0	0	0	0	0
EB RIGHT	0	0	0	0	15	15	0	15
WB LEFT	0	0	0	0	0	0	0	0
WB THRU	0	0	0	0	0	0	0	0
WB RIGHT	0	0	0	0	0	0	0	0
NAVAJO RD								
NB LEFT	0	0	0	0	47	47	0	47
NB THRU	0	0	0	0	0	0	0	0
NB RIGHT	0	0	0	0	0	0	0	0
SB LEFT	0	0	0	0	0	0	0	0
SB THRU	0	0	0	0	0	0	0	0
SB RIGHT	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**62**	**62**	**0**	**62**

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	15	47	0	0	0
Future Vol, veh/h	0	15	47	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	73	73	73	73	73	73
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	21	64	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	129	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	870	1090	1635	-	-	-
Stage 1	1028	-	-	-	-	-
Stage 2	903	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	836	1090	1635	-	-	-
Mov Cap-2 Maneuver	836	-	-	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	903	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1635	-	1090	-	-
HCM Lane V/C Ratio	0.039	-	0.019	-	-
HCM Control Delay (s)	7.3	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	15	47	0	0	0
Future Vol, veh/h	0	15	47	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	16	49	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	99	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	98	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	905	1090	1635	-	-	-
Stage 1	1028	-	-	-	-	-
Stage 2	931	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	878	1090	1635	-	-	-
Mov Cap-2 Maneuver	878	-	-	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	931	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1635	-	1090	-	-
HCM Lane V/C Ratio	0.03	-	0.014	-	-
HCM Control Delay (s)	7.3	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	-	-

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	12-Sep-23	PIXI5AMG-0002	1 OF 2

E/W STREET : PROJECT DRIVEWAY
N/S STREET : NAVAJO RD
CONDITION : PM PEAK HOUR

INTERSECTION : 9
PROJECTED GROWTH PER YEAR : 3.0%

TURN MOVEMENTS

Condition	Existing Condition	Year 2025 Ambient Growth	Other Area Projects	Background Condition	Project Trips	Project Condition	Future Year 2040 Condition	Future Year 2040 + Project Condition
Scenario #	2			4		6	8	10
PROJECT DRIVEWAY								
EB LEFT	0	0	0	0	0	0	0	0
EB THRU	0	0	0	0	0	0	0	0
EB RIGHT	0	0	0	0	44	44	0	44
WB LEFT	0	0	0	0	0	0	0	0
WB THRU	0	0	0	0	0	0	0	0
WB RIGHT	0	0	0	0	0	0	0	0
NAVAJO RD								
NB LEFT	0	0	0	0	17	17	0	17
NB THRU	0	0	0	0	0	0	0	0
NB RIGHT	0	0	0	0	0	0	0	0
SB LEFT	0	0	0	0	0	0	0	0
SB THRU	0	0	0	0	0	0	0	0
SB RIGHT	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**61**	**61**	**0**	**61**

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	44	17	0	0	0
Future Vol, veh/h	0	44	17	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	48	19	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	39	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	38	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	978	1090	1635	-	-	-
Stage 1	1028	-	-	-	-	-
Stage 2	990	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	966	1090	1635	-	-	-
Mov Cap-2 Maneuver	966	-	-	-	-	-
Stage 1	1016	-	-	-	-	-
Stage 2	990	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	7.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1635	-	1090	-	-
HCM Lane V/C Ratio	0.011	-	0.044	-	-
HCM Control Delay (s)	7.2	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	44	17	0	0	0
Future Vol, veh/h	0	44	17	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	46	18	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	37	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	36	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	981	1090	1635	-	-	-
Stage 1	1028	-	-	-	-	-
Stage 2	992	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	970	1090	1635	-	-	-
Mov Cap-2 Maneuver	970	-	-	-	-	-
Stage 1	1017	-	-	-	-	-
Stage 2	992	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	7.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1635	-	1090	-	-
HCM Lane V/C Ratio	0.011	-	0.042	-	-
HCM Control Delay (s)	7.2	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Appendix F: VMT Analysis

t +1 213 267 2332 | **f** +1 213 318 0744
info@gentecsol.com | www.gentecsol.com
11900 W Olympic Blvd #450, Los Angeles, CA 90064
GTS | General Technologies and Solutions

MEMORANDUM

Date:	August 18, 2023	**GTS:** 230709.00
To:	James M. Daisa, DEA	
From:	Rawad Hani, GTS	
Subject:	**Vehicle Miles Traveled (VMT) Analysis** **Johnson Road Warehouse, Town of Apple Valley, CA**	

This memorandum describes the development of vehicle miles traveled (VMT) analysis for the proposed Johnson Road warehouse in the Town of Apple Valley (City), CA. The project is located at the northwest corner of Johnson Road and Navajo Road, in the north part of the city and within the North Apple Valley Industrial Specific Plan area. The project proposes development of 379,657 square foot (SF) speculative industrial warehouse building on approximately 18.71-acres. This VMT analysis evaluated the project using the 2016 and 2040 model years obtained from the San Bernardino County Transportation Authority (SBCTA).

Background

On December 28, 2018, the California Office of Administrative Law cleared the revised California Environmental Quality Act (CEQA) guidelines for use. Among the changes to the guidelines was removal of vehicle delay and level of service from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on vehicle miles traveled (VMT).

Methodology

The project VMT analysis was conducted using the Town of Apple Valley Resolution "*Resolution No. 2021-08, A Resolution of the City Council of the Town of Apple Valley, California, Adopting thresholds of Significance for Vehicle Miles Traveled (VMT) under the California Environmental Quality Act (CEQA)*" adopted during the Town Council Meeting, May 11, 2021. A full VMT analysis was conducted using San Bernardino County Transportation Analysis Model (SBTAM). The guidelines recommend use of VMT per service population to evaluate land use projects. The project would have a significant impact if the project VMT per service population is greater than Town of Apple Valley's General Plan Buildout VMT per service population.

SBTAM model is a socioeconomic data based model and so the project land uses were converted into model employment categories using conversion factors from SCAG's "Employment Density Study Summary Report – dated October 31, 2001". The land use conversion yielded a total of 180 employees as shown in Table 1 which was used as input for the model runs.

Table 1: Johnson Road Warehouse – Employment Estimates

Land Use Type	Square Footage (SF)	SF/Employee *	Total Employees
Warehouse Building	379,657	2,111	**180**
Total	**379,657**		**180**

Source: SCAG Employment Density Study Summary Report, October 31, 2001

VMT Analysis

Both baseline (2016) and horizon year (2040) model runs were used to estimate project's VMT impacts. SBTAM socioeconomic databases for the scenarios were updated with the project land use to calculate project VMT. Typically, project VMT is calculated by isolating the project in a new TAZ or multiple TAZs depending on the diversity of project land uses and project size. Since, SBTAM does not allow addition of new TAZs, one TAZ was borrowed for this project. The project TAZ was utilized to calculate project specific VMT per service population.

No project specific network modifications were conducted for the model scenarios. Full model runs with feedback loops were conducted for all project scenarios. It should be noted that the project land use was included in the model as additional land use in the cumulative (2040) scenario and no shifting of land use from other TAZs was used. In that regard, the cumulative VMT analysis can be considered as a conservative estimate.

As indicated previously, project's Origin/Destination (OD) VMT per service population can be used to evaluate project impact according to the guidelines. The Origin/Destination (OD) method for calculating VMT sums all weekday VMT generated by trips with at least one trip-end in the study area and tracks those trips to their origin or destination. Origins are all vehicle trips that start in a specific TAZ, while destinations are all vehicle trips that end in a specific TAZ. The OD method accounts for all trips (i.e., both passenger cars and trucks) and trip purposes (i.e., total VMT) and therefore provides a more complete estimate of VMT. Origin-destination matrix outputs were used as trips and the trip lengths were derived from the skimming step to estimate OD VMT. OD matrix outputs include vehicle trips and hence no conversion for auto occupancy was applied. The trip length or distance was obtained using the model outputs from the "Skimming" step. The model skim outputs include peak and off-peak skim matrices by mode, similar to trip outputs from the model. OD VMT was estimated for both peak and off-peak and added together to estimate the total daily VMT for the project.

Based on the guidelines, the project would constitute a significant impact if the project OD VMT per service population for base or cumulative scenarios is greater than Town of Apple Valley General Plan Buildout OD VMT per service population. The Town of Apple Valley General Plan Buildout OD VMT per service population was obtained from SBCTA VMT Screening Tool (*https://www.gosbcta.com/vmtscreening*).

Table 2 below shows the project VMT metrics for both baseline (2016) and cumulative (2040) conditions along with the regional VMT thresholds.

Table 2: Project VMT analysis

2016	Johnson Road Warehouse (project)	Town of Apple Valley General Plan Buildout (Threshold) *
Population	0	
Employment	180	
Service Population	180	
OD VMT	5,950	
OD VMT per service population	33.1	33.2

2040	Johnson Road Warehouse (project)	Town of Apple Valley General Plan Buildout (Threshold) *
Population	0	
Employment	180	
Service Population	180	
OD VMT	5,694	
OD VMT per service population	31.6	33.2

** Threshold value obtained from SBCTA VMT Screening Tool: https://www.gosbcta.com/vmtscreening*

Table 3 illustrates the project's effect on VMT. The project's effect on VMT is a comparison of roadway VMT within Town of Apple Valley for both "With project" and "Without project" conditions.

Table 3: Roadway VMT within Town of Apple Valley

2016	With Project	Without Project
Roadway VMT	849,362	847,823
Service population	91,293	91,113
VMT per service population	9.3	9.3

2040	With Project	Without Project
Roadway VMT	1,361,983	1,362,981
Service population	126,986	126,806
VMT per service population	10.7	10.7

Conclusion

Based on the VMT analysis as shown in above tables 2 and 3, the project doesn't constitute a significant impact for both "project generated VMT" and "project's effect on VMT.