TRAFFIC IMPACT ANALYSIS

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BAKER BOULEVARD COMMERCIAL CENTER A.P.N 0544-311-42 AND A.P.N 0544-311-43

SAN BERNARDINO COUNTY, CALIFORNIA

Prepared by:

DAVID EVANS AND ASSOCIATES INC.

DRAFT REPORT
November 23, 2022

DAVID EVANS AND ASSOCIATES INC.

November 23, 2022 Job No. OONT0004-0001

Mr. Luis Ramallo
9679 Black Coyote Court
Las Vegas, NV 89139

RE: TRAFFIC IMPACT ANALYSIS– BAKER BOULEVARD COMMERCIAL CENTER – A.P.N 0544-311-42 AND A.P.N 0544-311-43, SAN BERNARDINO COUNTY, CALIFORNIA

Dear Mr. Ramallo,

David Evans and Associates, Inc. is pleased to submit this Traffic Impact Analysis report for your Baker Boulevard Commercial Center Project. The proposed project consists of convenience store with gas station and a stand-alone coffee shop with a drive-through window located in the unincorporated community of Baker in the County of San Bernardino.

This report was prepared in accordance with the County of San Bernardino's Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS) published in July 2019 and meets the county's requirements for analyzing intersection level of service to identify consistency with the county's General Plan policies and standards.

This report also summarizes the VMT screening assessment we prepared and submitted with the scoping agreement submitted to the county and Caltrans in August of 2021 and takes into account the comments we received from Caltrans on that document.

We are pleased to be 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

DAVID EVANS AND ASSOCIATES INC.

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DAVID EVANS AND ASSOCIATES INC.

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DAVID EVANS AND ASSOCIATES INC.

1 SUMMARY OF FINDINGS AND RECOMMENDATIONS

1.1 San Bernardino County General Plan Consistency Requirements

San Bernardino County's General Plan includes policies that address level of service (LOS) and identifies transportation facility LOS standards the County maintains. Although environmental impacts under the California Environmental Quality Act (CEQA) have replaced LOS with Vehicle Miles Traveled (VMT) as the most appropriate measures of transportation impacts, San Bernardino County still requires new development projects to prepare traffic analyses that demonstrate that the development conforms with, or can mitigate to, General Plan level of service policies and standards.

According to San Bernardino County's Transportation Impact Study Guidelines (July 2019), the minimum acceptable intersection level of service for the County's **desert regions** as described in the current San Bernardino County General Plan, is LOS D. The criteria for identifying operational deficiencies at unsignalized intersections are shown in **Table 1-1**.

Table 1-1: Criteria for Determining General Plan Level of Service Consistency at Unsignalized Intersections

<table>
<tr><td colspan="4">At an unsignalized intersection, an operational improvement would be required if the analysis determines that the proposed project causes or contributes to conditions described in criterion (A) or criterion (B) and (C).</td></tr>
<tr><td>(A)</td><td rowspan="5">OR</td><td colspan="2">(B)</td></tr>
<tr><td>The addition of project traffic causes an intersection to degrade from a LOS D or better to a LOS E or F.</td><td colspan="2">The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate at a LOS E or F without project traffic.</td></tr>
<tr><td rowspan="3">Note: If Criteria A is met under the existing + project scenario, it is considered a project-specific impact and the project is solely responsible for its mitigation. If the criterion is met in the opening day or long-range scenarios (e.g., background + project, and year 2040) it is considered a cumulative impact and the project contributes its fair share to the cost of the improvement.</td><td colspan="2">AND</td></tr>
<tr><td colspan="2">(C)
One or both of the following conditions are met:</td></tr>
<tr><td>The project adds ten (10) or more peak hour trips to any minor street approach of the unsignalized intersection being analyzed.</td><td>The intersection, with the addition of project traffic, meets the peak hour traffic signal warrant (#3) as defined in the California Manual on Uniform Traffic Control Devices.</td></tr>
<tr><td colspan="4">If the analysis of a development project meets the criteria above, the transportation impact study needs to identify measures that will achieve the following:
• Measures applied to unsignalized intersections impacted under Criteria A should improve peak hour level of service to a LOS D or better or,
• Measures applied to unsignalized intersections impacted under Criteria B and C should reduce delay (and associated LOS) to at least pre-project levels.</td></tr>
</table>

1.2 Project Description

The proposed project is comprised of highway-oriented land uses including a convenience store / gas station, and a drive-through coffee shop intended to serve the public traveling on Interstate 15 (I-15) between southern California and Las Vegas, Nevada, and tourist traffic destined to Death Valley National Park traveling on State Route 127. Most of the businesses on Baker Blvd serve the tourism and traveler convenience industry.

The peak hours of traffic flow on the I-15 freeway (northbound on a Friday afternoon and southbound on a Sunday afternoon) correspond to the peak flow of visitors to/from Las Vegas each weekend. Therefore, the Friday and Sunday peaks were selected as the peak hours of analysis in this study.

The project is estimated to generate about 19,000 vehicle trips per day and about 1,500 trips in each of the Friday and Sunday peak hours. Most of the trips generated by the project (80%) are estimated to be diverted from I-15 and SR 127. The project will also capture a small number of trips that are passing by the site on Baker Blvd.

1.3 Summary of General Plan Consistency Impacts at Baker Blvd and Death Valley Rd (SR 127)

Intersections analyzed in this study include Baker Blvd and Death Valley Rd (SR 127), Baker Blvd and the I-15 southbound and northbound ramp intersections, and the project's two driveways accessing Baker Blvd. The only public street intersection in which the project causes and/or contributes to a deficient level of service is Baker Blvd and Death Valley Rd (SR 127).

Table 1-2 presents the application of the level of service deficiency criteria to the intersection of Baker Blvd and Death Valley Rd (SR 127) for all project scenarios.

The analysis finds that the proposed project causes a project-specific deficiency to the level of service of the intersection of Baker Blvd and Death Valley Rd (SR 127) under the existing + project scenario and contributes to the near-term (background + project conditions) and long-term (future 2040 + project) cumulative level of service deficiencies.

Table 1-2: Baker Blvd and Death Valley Rd (SR 127) Level of Service Deficiency Assessment

Scenario	Criteria for General Plan LOS Deficiency Impacts (Refer to Table 1-1)			
	A	**B**	**C1**	**C2**
	The addition of project traffic causes an intersection to degrade from an LOS D or better to a LOS E or worse.	The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate without project traffic at an LOS E or F.	The project adds ten (10) or more peak hour trips to any minor street approach of the unsignalized intersection being analyzed.	The intersection, with the addition of project traffic, meets the MUTCD peak hour traffic signal warrant. [1]
Existing + Project Conditions	Friday Peak: Yes Sunday Peak: Yes	Friday Peak: No Sunday Peak: No	Not Applicable	Not Applicable
Background + Project Conditions (Near-Term)	Friday Peak: Yes Sunday Peak: Yes	Friday Peak: No Sunday Peak: No		
Future (2040) + Project Conditions (Long-Term)	Friday Peak: Yes Sunday Peak: Yes	Friday Peak: No Sunday Peak: No		

Notes:

[1] A traffic signal warrant analysis is not required as part of the county's deficiency criteria (C2) because the project did not satisfy criteria B. In all scenarios, the without project conditions operated at a LOS D or better, and the addition of project traffic degraded the level of service to LOS E or F, clearly satisfying criteria A.

1.4 Intersection Warrant Analysis for all Study Scenarios

Most traffic signal warrants are not applicable to the intersection of Baker Blvd and Death Valley Rd (SR 127) because the intersection has multi-way stop control. Warrants are usually applied to side street stop-controlled intersections. The project did, however, satisfy criteria A in each of the scenarios—a condition requiring intersection improvements that would improve with project conditions to a level of service of D or better. Installation of a traffic signal is a potential improvement but at least one traffic signal warrant must be satisfied for it to be considered. Multi-way stop control is often used as an interim form of traffic control when a signal is warranted but not yet fully funded.

Criteria Justifying the Current Multi-Way Stop Control at Baker Blvd and Death Valley Rd (SR 127)

The fact that the intersection of Baker Blvd and Death Valley Rd (SR 127) currently has multi-way stop control indicates that the intersection wouldn't operate satisfactorily with side street stop control in the past. Refer to the criteria summarized below used in justifying the installation of multi-way stop control from the California MUTCD:

A. *Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.*

B. Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.

C. Minimum volumes:

1. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and

2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but

3. If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.

D. Where no single criterion is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.

The intersection of Baker Blvd and Death Valley Rd (SR 127) may have been identified for signalization in the past and the county needs to confirm if it has collected fees from new development in Baker specifically for funding a traffic signal at this intersection.

Application of Traffic Signal Warrants for all Study Scenarios

Signal warrants are applied to the all-way-stop-controlled (AWSC) intersections Baker Blvd at Death Valley Rd (SR 127) and Death Valley Rd (SR 127) at I-15 NB Ramps. Baker Blvd as the major street and Death Valley Rd as the minor street. Death Valley Rd as the major street and I-15 NB Off-Ramp as the minor street. The signal warrants were also applied to the side-street-stop-controlled (SSSC) intersection of Death Valley Rd (SR 127) at I-15 SB Ramps. Death Valley Rd as the major street and I-15 SB Off-Ramp as the stop controlled minor street.

Under these assumptions, warrant 3 (peak hour) and warrant 7 (crash experience) were evaluated at the intersections of Baker Blvd and Death Valley Rd (SR 127), Death Valley Rd (SR 127) at I-15 SB Ramps, and Death Valley Rd (SR 127) at I-15 NB Ramps. These warrants are included as standards in the California Manual on Uniform Traffic Control Devices (CA MUTCD, 2014). **Table 1-3** summarizes the traffic signal warrant analysis criteria to the intersection of Baker Blvd and Death Valley Rd (SR 127) for all study scenarios.

Table 1-3: Baker Blvd and Death Valley Rd (SR 127) Traffic Signal Warrant Analysis

Warrant	Traffic Signal Warrant Analysis					
	Warrant 3 (Peak Hour)					Warrant 7 (Crash Experience)
	Part A				Part B	
	All criteria 1,2, and 3 below must be satisfied for any four consecutive 15 minute periods				The plotted point falls above the applicable curve in Figure 4C-S (See Appendix D)	All Parts Must be Satisfied
	1. Total Delay	2. Volume on minor street	3. Total Entering volume	All Satisfied		
Existing Conditions	No	Yes	Yes	No	Yes	No
Existing + Project Conditions	Yes	Yes	Yes	Yes	Yes	Not Applicable [1]
Background Conditions	No	Yes	Yes	No	Yes	
Project Conditions	Yes	Yes	Yes	Yes	Yes	
Future (2040) Conditions	No	Yes	Yes	No	Yes	
Future (2040) + Project Conditions	Yes	Yes	Yes	Yes	Yes	

Notes:
[1] The crash experience in warrant 7 looks at historical crashes over a three-to-five-year period and there is no accurate way to forecast future crashes.
Source of warrant procedures: California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014 Edition (Section 4C.01 Studies and Factors for Justifying Traffic Control Signals).
Source of crash data: California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) Reports.

Traffic signal warrant 3, part A is satisfied under project conditions in each scenario, and part B is satisfied under every condition in each scenario. The traffic signal warrant analysis worksheets are provided in **Appendix D.**

Table 1-4 summarizes the traffic signal warrant analysis criteria to the intersection of Death Valley Rd (SR 127) and I-15 SB Ramps for all study scenarios.

Table 1-4: Death Valley Rd (SR 127) and I-15 SB Ramps Traffic Signal Warrant Analysis

Warrant	Traffic Signal Warrant Analysis					
	Warrant 3 (Peak Hour)					Warrant 7 (Crash Experience)
	Part A				Part B	
	All criteria 1,2, and 3 below must be satisfied for any four consecutive 15 minute periods				The plotted point falls above the applicable curve in Figure 4C-S (See Appendix D)	All Parts Must be Satisfied
	1. Total Delay	2. Volume on minor street	3. Total Entering volume	All Satisfied		
Existing Conditions	No	Yes	No	No	No	No
Existing + Project Conditions	No	Yes	Yes	No	Yes	Not Applicable [1]
Background Conditions	No	Yes	No	No	No	
Project Conditions	No	Yes	Yes	No	Yes	
Future (2040) Conditions	No	Yes	No	No	No	
Future (2040) + Project Conditions	No	Yes	Yes	No	Yes	

Notes:
[1] The crash experience in warrant 7 looks at historical crashes over a three-to-five-year period and there is no accurate way to forecast future crashes.
Source of warrant procedures: California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014 Edition (Section 4C.01 Studies and Factors for Justifying Traffic Control Signals).
Source of crash data: California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) Reports.

Traffic signal warrant 3, part B is satisfied under project conditions in each scenario. Warrant 3 is satisfied based on approach volume and not the total delay experienced by traffic on the minor stop-controlled approaches. To satisfy the delay element of the warrant, the total delay experienced by the stop-controlled approach must exceed five vehicle hours for a two-lane approach. This part of the warrant is not satisfied. The traffic signal warrant analysis worksheets are provided in **Appendix D.**

Table 1-5 summarizes the traffic signal warrant analysis criteria to the intersection of Death Valley Rd (SR 127) and I-15 NB Ramps for all study scenarios.

Table 1-5: Death Valley Rd (SR 127) and I-15 NB Ramps Traffic Signal Warrant Analysis

Warrant	Traffic Signal Warrant Analysis					
	Warrant 3 (Peak Hour)					Warrant 7 (Crash Experience)
	Part A				Part B	
	All criteria 1,2, and 3 below must be satisfied for any four consecutive 15 minute periods				The plotted point falls above the applicable curve in Figure 4C-S (See Appendix D)	All Parts Must be Satisfied
	1. Total Delay	2. Volume on minor street	3. Total Entering volume	All Satisfied		
Existing Conditions	No	Yes	No	No	No	No
Existing + Project Conditions	No	Yes	No	No	No	Not Applicable [1]
Background Conditions	No	Yes	No	No	No	
Project Conditions	No	Yes	No	No	No	
Future (2040) Conditions	No	Yes	No	No	No	
Future (2040) + Project Conditions	No	Yes	No	No	No	

Notes:
[1] The crash experience in warrant 7 looks at historical crashes over a three-to-five-year period and there is no accurate way to forecast future crashes.
Source of warrant procedures: California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014 Edition (Section 4C.01 Studies and Factors for Justifying Traffic Control Signals).
Source of crash data: California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) Reports.

Traffic signal warrants are not satisfied for all study scenarios. The traffic signal warrant analysis worksheets are provided in **Appendix D.**

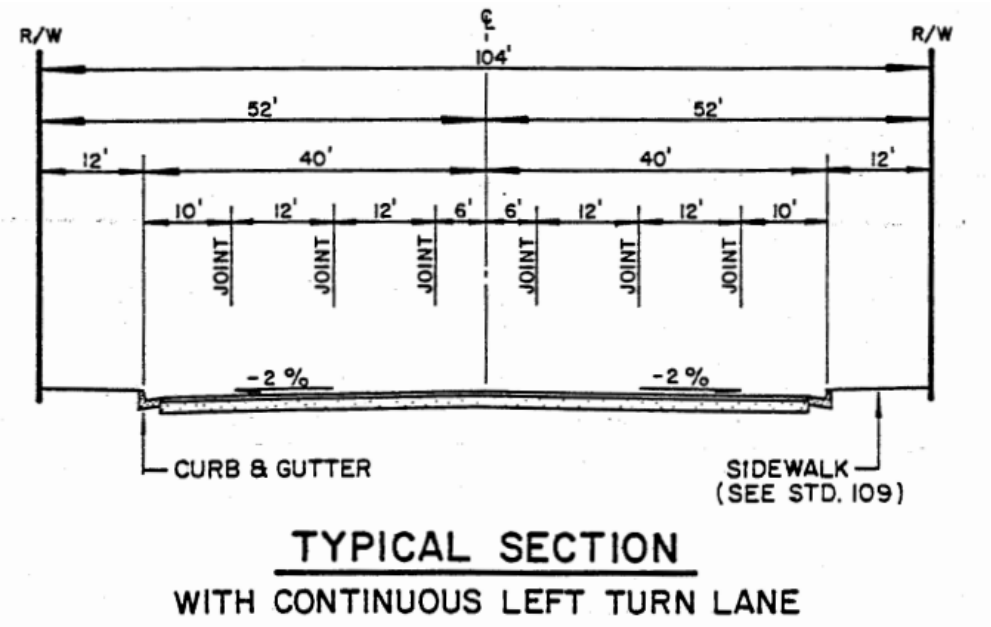
1.5 Project Access Level of Service Assessment

Project Access

Access to the proposed project is provided by two 40-foot-wide driveways on Baker Blvd. Driveway "A" is located at the southwesterly edge of the project's property. Driveway "B" is located about 180 feet south and west of the project's northeasterly property edge and is separated from Driveway "A" by approximately 337 feet.

Baker Blvd's Planning Context and Design Standards

Baker Blvd is part of San Bernardino County's Maintained Road System (CMRS) with a right of way of 104 feet and a functional classification code of 13, according to the County Public Works Department's web map of "Roads Maintained by the County Department of Public Works – Transportation". This right of way is associated with the county's Master Plan of Highways in the Arterial Roads category as a Major Highway (104-foot RW and 80-foot curb separation). See the street section below for the county's standard for a Major Highway.



County standard plan 101 (Major Highway). Ultimately, Baker Blvd will have two lanes in each direction and a median turn lane.

The current paved width of Baker Blvd along the project's frontage is about 80 feet measured from the face of curb on the south side of the street (along the Del Taco restaurant frontage) to the edge of pavement on the north side of the street. The north side of the street is unimproved lacking curb, gutter, and sidewalk. This width is consistent with the curb separation width requirements of a Major Highway classification in the County's Master Plan. Only a portion of the existing pavement is currently used by through traffic on Baker Blvd. Pavement markings are used demarcate a 12-foot southbound lane and 25 feet of pavement in the northbound direction operating as a single lane.

Driveway Level of Service

In the Friday and Sunday peak hours, both Driveway "A" and Driveway "B" operate at LOS E or LOS F under all scenarios. The delay experienced by the worse movement exiting Driveway "A" (southbound left turn) exceeds 300 seconds per vehicle in both the Friday and Sunday peak hours. Driveway "B"'s Friday peak hour experiences a similar level of delay, but the Sunday peak hour delay is about 35 seconds per vehicle (LOS E).

1.6 Recommendations

Measures to Improve Level of Service Deficiency at Baker Blvd and Death Valley Rd (SR 127)

Implementing the following improvements at the intersection of Baker Blvd and Death Valley Rd will change the deficient LOS in all scenarios from a LOS E or F to a LOS D or better.

1. Install traffic signal and widen intersection for additional lanes

a. Traffic signal is proposed to be an 8-phase signal (providing protected left-turn phasing with overlap in the east-west and north-south directions).

b. Widening of the south leg (Death Valley Rd (SR 127)) to accommodate exclusive left and right turn lanes

c. Realignment and widening of the north leg (Death Valley Rd (SR 127) to accommodate an exclusive left turn lane.

d. Set back of the east leg (Baker Blvd) to accommodate the widening of the Death Valley Rd (SR 127) approaches.

A traffic signal at the intersection of Baker Blvd and Death Valley Rd would improve the level of service to a LOS C or better under project conditions in all scenarios

The installation of the traffic signal and the reconfiguring of approach lanes should be initiated by the County and Caltrans. The development will pay its fair share of the cost of these improvements.

Project Traffic Fair Share Calculation

Table 1-6 presents the project's calculated percentage of the growth in traffic at the intersection of Baker Blvd and Death Valley Rd (SR 127). The project's percentage of growth shown in the table multiplied by the cost of implementing the intersection improvements described above minus any fees or fair share development contributions previously collected by the county towards the cost of signalizing this intersection would be the project's share of funding the improvement.

Table 1-6: Calculation of Project Share of Growth in Traffic at Baker Blvd / Death Valley Rd (SR 127)

Intersection	Scenario	Project Trips	Plus Project Conditions Traffic [1]	Existing Traffic	Project Percentage of Growth
Baker Blvd / Death Valley Rd	Existing + Project Conditions	FRI	1065 ÷ (1,763 -	698) =	100.00%
		SUN	1098 ÷ (2,132 -	1,034) =	100.00%
	Background + Project Conditions	FRI	1065 ÷ (1,792 -	698) =	97.35%
		SUN	1098 ÷ (2,173 -	1,034) =	96.40%
	Future 2040 + Project Conditions	FRI	1065 ÷ (1,872 -	698) =	90.72%
		SUN	1098 ÷ (2,214 -	1,034) =	93.05%

Notes:
[1] Plus project conditions traffic = existing + ambient growth at 2% annually + project traffic for each scenario.

Other Recommended Measures

1. Construct project frontage improvements

The project will be conditioned to construct its access driveways and construct the required half-width improvements to the north side of Baker Blvd along its frontage consistent with the county's standard for Major Highway with a 104-foot right of way and 80-foot curb separation. These improvements include but are not limited to the following:

a. Dedicate right of way (if required) for the full half width of Baker Blvd.

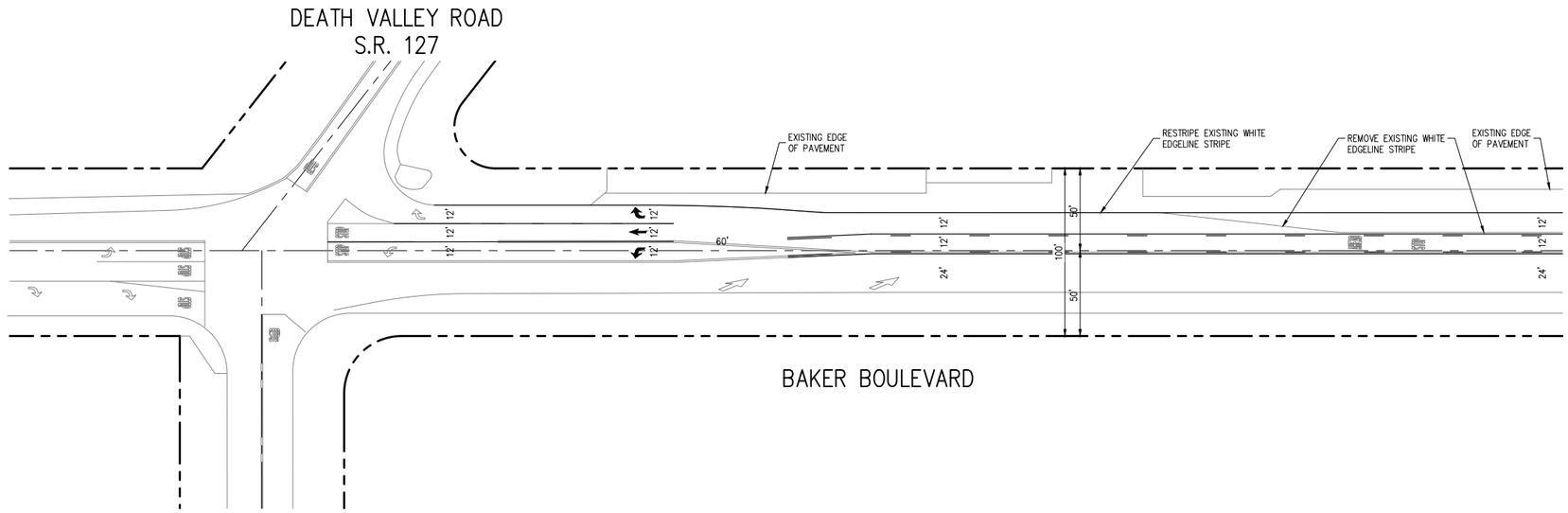
b. Remove old asphalt and repave the required half width of Baker Blvd along the project's frontage.

c. Mark the pavement of the widened side of Baker Blvd as a single southbound lane using white edge lines that transition and channelize southbound traffic into the lane at the beginning of the project's frontage and out of the lane at the end of the project's frontage.

d. Extend the existing two way left turn lane along Baker Blvd from the project limit to the intersection of Death Valley Rd (SR 127) westbound left turn pocket.

e. Construct standard curb, gutter, and sidewalk frontage improvements on Baker Blvd.

f. Construct the two project access driveways at the locations shown on the conceptual geometric plan (see **Figure ES - 1).**



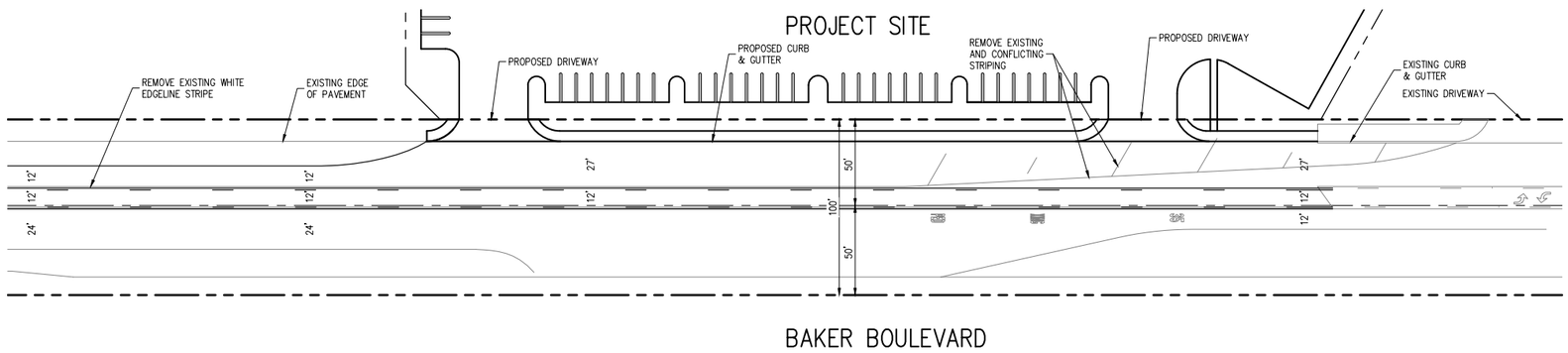
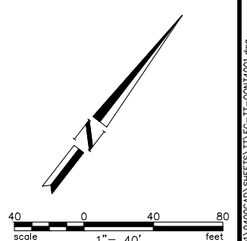


FIGURE ES - 1: CONCEPTUAL GEOMETRIC PLAN



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18484 Outer HWY 18 N, STE 225
Apple Valley California 92307
Phone: 760.524.9100

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ROBERT A. KILPATRICK R.C.E. 42386
11/16/22
DATE:

PROPOSED GAS STATION AND CONVIENIENCE STORE-BAKER, CA

DRAWN BY: PB	CONCEPTUAL GEOMETRIC PLAN	SCALE: AS SHOWN
DESIGNED BY: RK		DATE: 11/16/22
CHECKED BY: RK		SHT NO.: 1 OF 1

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2 INTRODUCTION

This report identifies the effect of the proposed Baker Blvd Commercial Center on intersection level of service in accordance with the County of San Bernardino's Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS) and recommends improvements to address level of service deficiencies.

The proposed project consists of a of a convenience store (approximately 20,400 SF) and gas station with 40 fueling stations and a stand-alone coffee shop with drive-through window (approximately 3,864 SF). **Figure 1** illustrates the vicinity map, and **Figure 2** illustrates the proposed project site plan.

This report analyzes intersection level of service under the following scenarios:

- Existing Conditions - **Chapter 3**
- Existing plus Project Conditions - **Chapter 4**
- Background Conditions (Opening Year 2023 without project) - **Chapter 5**
- Project Conditions (Opening Year 2023 with project) - **Chapter 6**
- Future Year 2040 Conditions (Horizon Year 2040 without project)- **Chapter 7**
- Future Year Plus Project Conditions (Horizon Year 2040 with project)- **Chapter 8**
- Recommendations- **Chapter 9**
- Summary of Vehicle Miles Traveled (VMT) Screening **– Chapter 10**

2.1 Scenario Definitions

Existing Conditions. This scenario represents existing transportation conditions at the time this report was prepared. Data includes traffic counts collected in September 2021 and current roadway and intersection geometries. This scenario is used as the baseline condition from which to measure project-specific impacts.

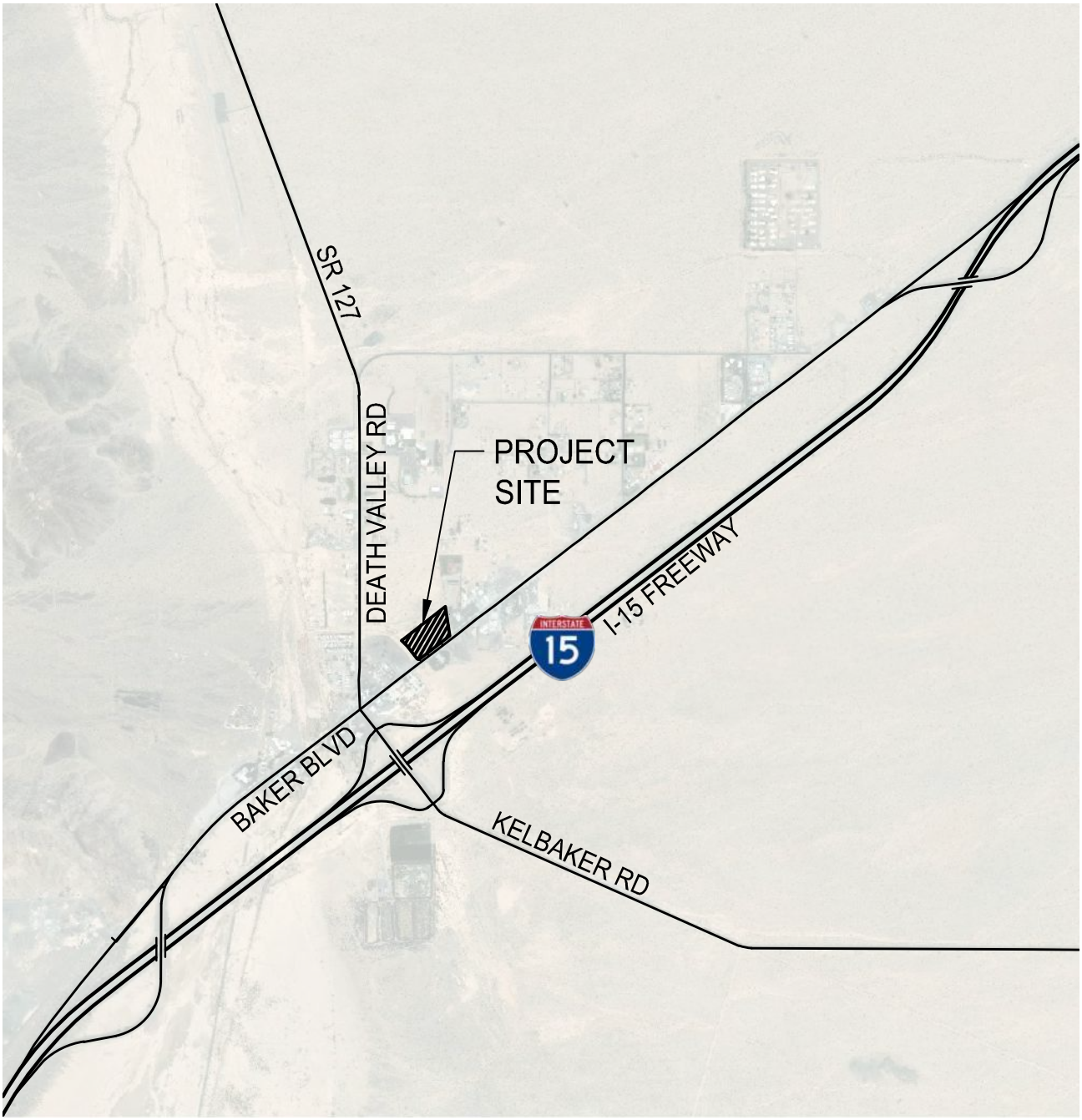
Existing Plus Project Conditions. This scenario represents transportation conditions as if the project were built and occupied today. This scenario is intended to identify potentially significant impact (requiring improvements) when compared to Existing Conditions without any unrelated transportation system improvements or other development. Impacts identified in this scenario are considered "project-specific"—impacts that are the sole responsibility of the project to mitigate.

Background Conditions (Year 2023). This scenario represents conditions at the time the project is anticipated to be fully constructed and occupied (known as buildout Year 2023) but without traffic generated by the project. This scenario is comprised of an ambient growth, a general rate of growth in traffic from overall regional growth and nearby development (assumed to be 2% annually for this study). The Background Conditions represents the Opening Year Cumulative Conditions - Year 2023 without project traffic.

Project Conditions (Year 2023). This scenario adds the project's estimated traffic generation at project buildout (year 2023) to the Background Conditions 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 mitigation measures. The Project Conditions represents the Opening Year Cumulative Conditions - Year 2023 with project traffic.

Future Year 2040 Conditions. This scenario represents regional ambient growth in traffic up to the year 2040. Ambient growth derived from forecasts from the San Bernardino Transportation Analysis Model (SBTAM).

Future Year 2040 with Project Conditions. This scenario adds the project's estimated traffic generation to the Future Conditions 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 mitigation measures.



DAVID EVANS AND ASSOCIATES INC.

FIGURE 1: VICINITY MAP
BAKER BOULEVARD COMMERCIAL CENTER
SAN BERNARDINO COUNTY, CA

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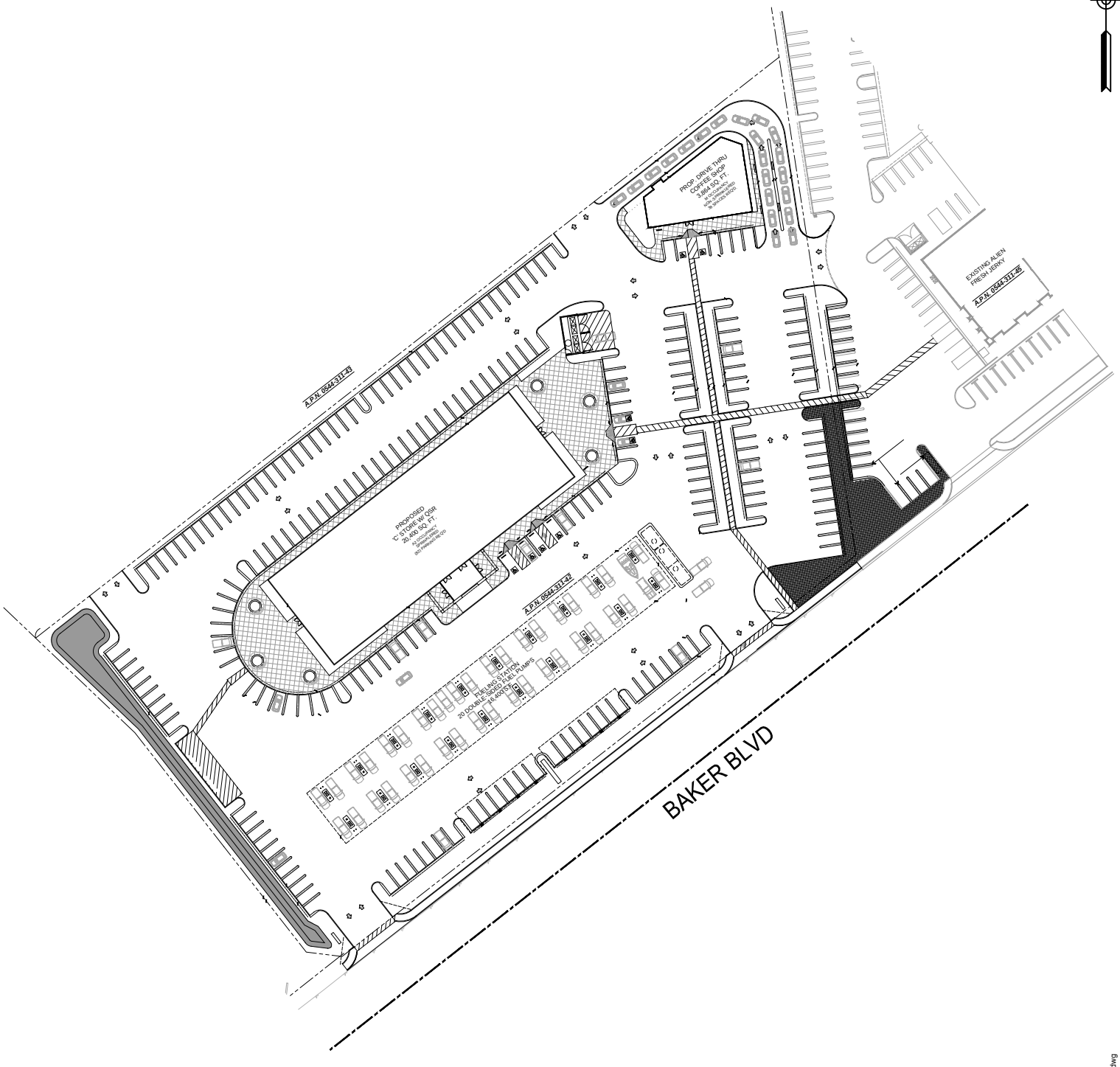

DAVID EVANS AND ASSOCIATES INC.

FIGURE 2: SITE PLAN
BAKER BOULEVARD COMMERCIAL CENTER
SAN BERNARDINO COUNTY, CA

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3 EXISTING CONDITIONS

This section describes the county's level of service policy and standards and frames the criteria the county established for determining when development is considered causing, or contributing, to a level of service deficiency requiring mitigation.

3.1 San Bernardino County General Plan Consistency Requirements

San Bernardino County's General Plan includes policies that address level of service (LOS) and identifies transportation facility LOS standards the county maintains. Although environmental impacts under the California Environmental Quality Act (CEQA) have replaced LOS with Vehicle Miles Traveled (VMT) as the most appropriate measures of transportation impacts, San Bernardino County still requires new development projects to prepare traffic analyses that demonstrate that the development conforms with, or can mitigate to, General Plan level of service policies and standards.

According to San Bernardino County's Transportation Impact Study Guidelines (July 2019), the minimum acceptable intersection level of service for the county's **desert regions** as described in the current San Bernardino County General Plan, is LOS D. The criteria for identifying operational deficiencies at unsignalized intersections are shown in **Table 3-1**.

Table 3-1: Criteria for Determining General Plan Level of Service Consistency at Unsignalized Intersections

<table>
<tr><td colspan="4">At an unsignalized intersection, an operational improvement would be required if the analysis determines that the proposed project causes or contributes to conditions described in criterion (A) or criterion (B) and (C).</td></tr>
<tr><td>(A)</td><td rowspan="6">OR</td><td colspan="2">(B)</td></tr>
<tr><td>The addition of project traffic causes an intersection to degrade from a LOS D or better to a LOS E or F.</td><td colspan="2">The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate at a LOS E or F without project traffic.</td></tr>
<tr><td rowspan="4">Note: If Criteria A is met under the existing + project scenario, it is considered a project-specific impact and the project is solely responsible for its mitigation. If the criterion is met in the opening day or long-range scenarios (e.g., background + project, and year 2040) it is considered a cumulative impact and the project contributes its fair share to the cost of the improvement.</td><td colspan="2">AND</td></tr>
<tr><td colspan="2">(C)
One or both of the following conditions are met:</td></tr>
<tr><td>The project adds ten (10) or more peak hour trips to any minor street approach of the unsignalized intersection being analyzed.</td><td>The intersection, with the addition of project traffic, meets the peak hour traffic signal warrant (#3) as defined in the California Manual on Uniform Traffic Control Devices.</td></tr>
<tr><td colspan="4">If the analysis of a development project meets the criteria above, the transportation impact study needs to identify measures that will achieve the following:
• Measures applied to unsignalized intersections impacted under Criteria A should improve peak hour level of service to a LOS D or better or,
• Measures applied to unsignalized intersections impacted under Criteria B and C should reduce delay (and associated LOS) to at least pre-project levels.</td></tr>
</table>

3.2 Local and Major Roadways

Land uses around the site consist of retail use on the east and west sides, and a dirt lot north of the project site. The street fronting the project property is a paved two-lane road. The roads pavement widths are currently within the range of 50 to 60 feet and are in good to fair condition. The following roadways provide regional access to the project within the study area:

Baker Blvd will provide the primary access to the project site. Baker Blvd is a two-lane roadway that runs parallel to the I-15 Freeway. It is the old U.S 91 Highway prior to the construction of the I-15 Freeway. Baker Blvd provides two separate interchanges at its terminus with the I-15 Freeway. The Northern Interchange, east of the project location, provides a northbound on-ramp and a southbound off-ramp to the I-15 freeway. The Southern

Interchange, west of the project location, provides a northbound off-ramp and a southbound on-ramp to the I-15 freeway.

Death Valley Rd (SR-127) is a two-lane state highway that provides northerly access from Baker at the I-15 Freeway to the Death Valley and Tecopa/Shoshone areas. Death Valley Rd (SR-127) provides an interchange for the Southbound I-15 freeway ramps.

Kelbaker Rd is a two-lane road that provides access to the small town of Kelso, the Mojave National Preserve, and Interstate 40 to the south of the unincorporated community of Baker. Kelbaker Rd is the southerly extension of Death Valley Rd that provides an interchange for the Northbound I-15 freeway ramps.

Interstate 15 Freeway provides regional access within the study area. The freeway is a four-lane (two in each direction) facility with interchange access at Death Valley Rd/Kelbaker Rd interchange in the study area. This north-south freeway is an interstate facility that provides travel between Barstow, San Bernardino, Riverside and San Diego Counties to the south and Las Vegas to the north.

3.3 Site Access

Access to the proposed project is provided by two 40-foot-wide driveways on Baker Blvd. Driveway "A" is located at the southwesterly edge of the project's property. Driveway "B" is located about 180 feet south and west of the project's northeasterly property edge and is separated from Driveway "A" by approximately 337 feet. See **Figure 2** for the driveway locations.

3.4 Study Intersections

The study intersections identified for this focused traffic study include three existing intersections and two proposed future driveways. These intersections are:

1. Baker Blvd and Death Valley Rd (SR 127)
2. Death Valley Rd (SR 127) and I-15 SB Ramps
3. Death Valley Rd (SR 127) and I-15 NB Ramps
4. Baker Blvd and Project Driveway "A"
5. Baker Blvd and Project Driveway "B"

The intersection of Death Valley Rd (SR 127) / I-15 SB Ramps is currently side-street stop controlled. The intersections of Baker Blvd / Death Valley Rd (SR 127) and Death Valley Rd (SR 127) / I-15 NB Ramps are currently all-way-street-stop controlled. The westbound right turn at the intersection of Baker Blvd / Death Valley Rd (SR 127) currently operates as yield controlled.

3.5 Existing Traffic Volumes

Turn movement counts were conducted in September 2021 by Newport Traffic Studies, an independent traffic data collection company. These counts were collected during the Friday PM (4-6 PM) and Sunday MID-Day (1-3 PM) peak periods. The existing turn movement counts are included in **Appendix A** of this study.

Average Daily Traffic (ADT)

The Sunday existing turn movement counts are utilized to calculate the Average Daily Traffic (ADT) data for study intersections by approach. The calculation to convert peak hour to Average Daily Traffic is as follows:

$$SUNDAY\ Peak\ Hour\ (Approach + Departure)\ x\ 11.5 = Daily\ Leg\ Volume$$

The Average Daily Traffic calculation worksheets are provided in the **Appendix C.**

Figure 3 illustrates the existing peak hour traffic volumes and Average Daily Traffic volumes in the study area.

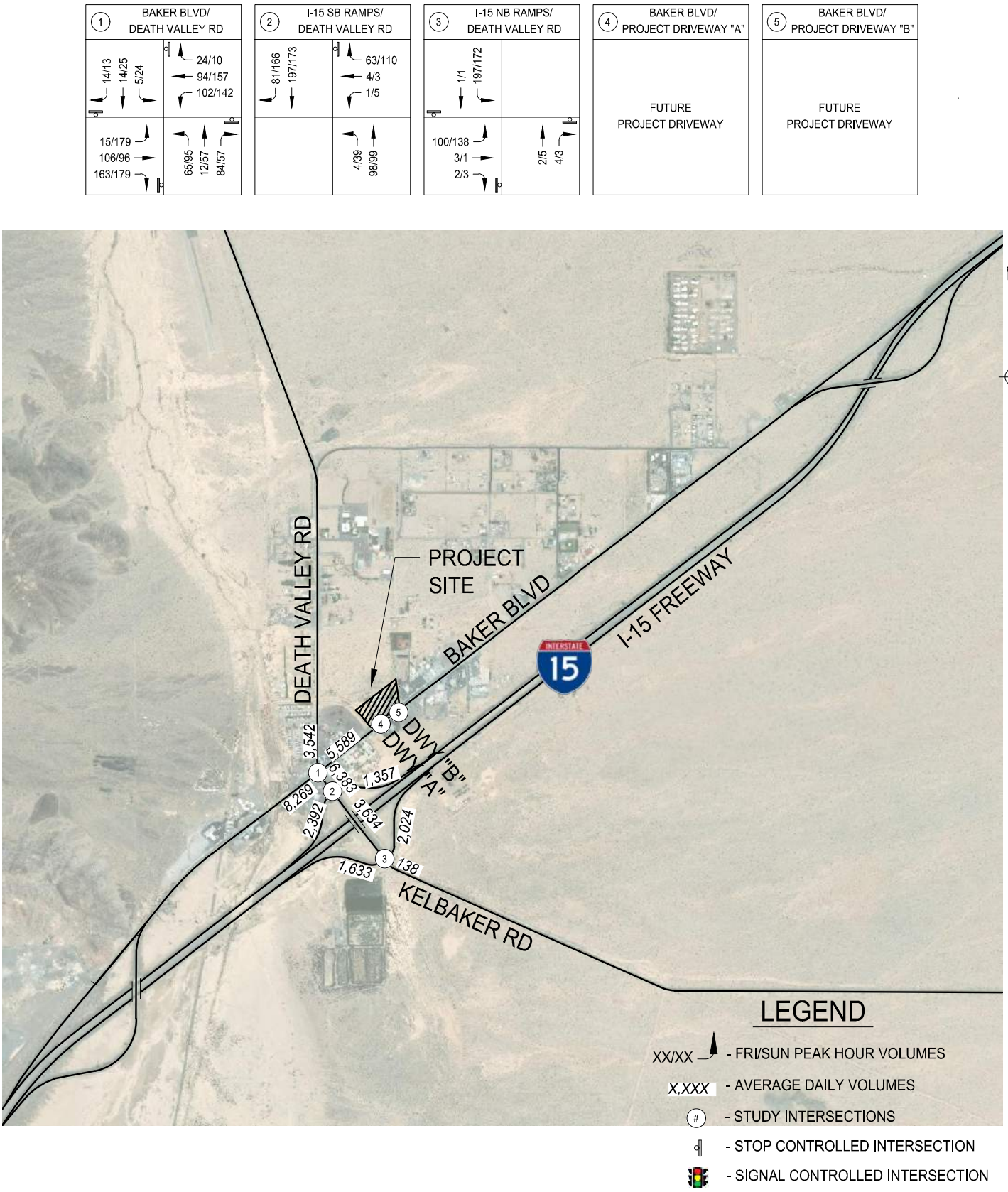

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FIGURE 3: EXISTING TRAFFIC VOLUMES
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3.6 Intersection Capacity Analysis Methodology

Intersection level of service (LOS) is determined using Synchro software[1] which implements the methodology in Chapter 19, Chapter 20, and Chapter 21 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 for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS).

The intersection analyses use existing intersection geometrics and existing traffic volumes in determining AM and PM peak hour intersection level of service. **Table 3-3** provides LOS thresholds for signalized intersections as provided in the HCM 6 Chapter 19.

Table 3-2: HCM 6 – LOS Criteria for Signalized Intersections

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio [a]	
	≤1.0	>1.0
≤ 10	A	F
> 10 - 20	B	F
> 20 - 35	C	F
> 35 - 55	D	F
> 55 - 80	E	F
> 80	F	F
[a] For approach-based and intersection-wide assessments, LOS is defined solely by control delay. Source: Highway Capacity Manual 6th Edition, Exhibit 19-8.		

The level of service for a two-way stop controlled (TWSC) intersection is determined by the computed or measured control delay. The LOS is determined for each minor-street movement (or shared movement) by using the criteria provided in **Table 3-3**.

Table 3-3: HCM 6 – Level of Service Criteria for Two-Way Stop Controlled (TWSC) Intersections

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio	
	v/c ≤1.0	v/c >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. Source: Highway Capacity Manual 6th Edition, Exhibit 20-2.		

The level of service for an all-way (or multi-way) stop controlled (AWSC) intersection is determined by the computed or measured control delay. The LOS is determined for the intersection by using the criteria provided in **Table 3-4.**

Table 3-4: HCM 6 – Level of Service Criteria for All Way Stop Controlled Intersections

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio [a]	
	v/c ≤1.0	v/c >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
[a] For approach-based and intersection-wide assessments, LOS is defined solely by control delay. Source: Highway Capacity Manual 6th Edition, Exhibit 21-8.		

1 Trafficware Ltd, version 10.
2 Transportation Research Board, Washington D.C., 2010.

3.7 Existing Traffic Analysis

Existing intersection geometrics and existing AM and PM peak hour traffic counts are used in analyzing existing intersection capacity. **Table 3-4** and **Appendix C** provide the results of the analysis. **Figure 4** illustrates the existing intersection geometrics used in the capacity analysis.

Table 3-5: Intersection Capacity Analysis – Existing Conditions

Intersection	Intersection Control	FRI Peak		SUN Peak	
		Delay	LOS	Delay	LOS
1. Baker Blvd / Death Valley Rd (SR 127)	AWSC	10.0	A	12.4	B
2. Death Valley Rd (SR 127) / I-15 SB Ramps	SSSC	9.3	A	9.7	A
3. Death Valley Rd (SR 127) / I-15 NB Ramps	AWSC	9.0	A	8.8	A
Abbreviations: TS – Traffic Signal AWSC – All Way Stop Controlled Intersection SSSC – Side Street Stop Controlled Intersection Delay – seconds per vehicle LOS – Level of Service					

As presented in **Table 3-4***,* under existing conditions, the existing study intersections are currently operating at LOS B or better during the peak hours.

3.8 Existing Conditions Traffic Signal Warrant Analysis

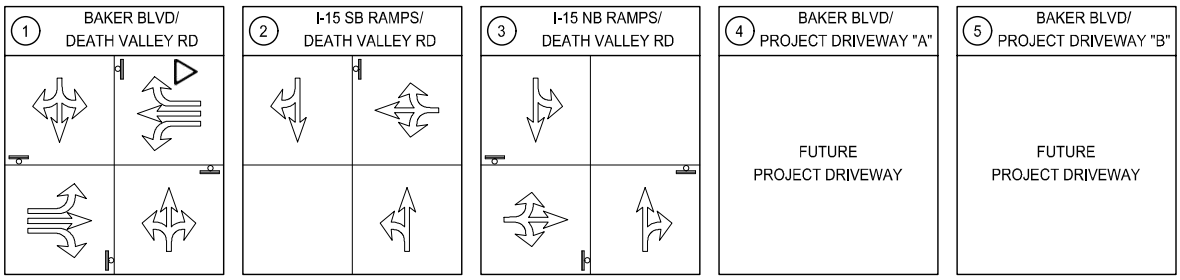
Signal warrants are applied to the all-way-stop-controlled (AWSC) intersections Baker Blvd at Death Valley Rd (SR 127) and Death Valley Rd (SR 127) at I-15 NB Ramps. Baker Blvd as the major street and Death Valley Rd as the minor street. Death Valley Rd as the major street and I-15 NB Off-Ramp as the minor street. The signal warrants were also applied to the side-street-stop-controlled (SSSC) intersection of Death Valley Rd (SR 127) at I-15 SB Ramps. Death Valley Rd as the major street and I-15 SB Off-Ramp as the stop controlled minor street.

Under these assumptions, warrant 3 (peak hour) and warrant 7 (crash experience) were evaluated at the intersections of Baker Blvd and Death Valley Rd (SR 127), Death Valley Rd (SR 127) at I-15 SB Ramps, and Death Valley Rd (SR 127) at I-15 NB Ramps. These warrants are included as standards in the California Manual on Uniform Traffic Control Devices (CA MUTCD, 2014). **Table 3-6** summarizes the traffic signal warrant analysis criteria for the existing conditions scenarios.

Table 3-6: Existing Conditions Traffic Signal Warrant Analysis

Warrant	**Traffic Signal Warrant Analysis**					
	Warrant 3 (Peak Hour)					**Warrant 7 (Crash Experience)**
	Part A				**Part B**	
	All criteria 1,2, and 3 below must be satisfied for any four consecutive 15 minute periods				The plotted point falls above the applicable curve in Figure 4C-S (See Appendix D)	All Parts Must be Satisfied
	1. Total Delay	2. Volume on minor street	3. Total Entering volume	All Satisfied		
1. Baker Blvd / Death Valley Rd (SR 127)	No	Yes	Yes	No	Yes	No
2. Death Valley Rd (SR 127) / I-15 SB Ramps	No	Yes	No	No	No	No
3. Death Valley Rd (SR 127) / I-15 NB Ramps	No	Yes	No	No	No	No
Notes: Source of warrant procedures: California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014 Edition (Section 4C.01 Studies and Factors for Justifying Traffic Control Signals). Source of crash data: California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) Reports.						

Traffic signal warrant 3, part B is satisfied for the intersection of Baker Blvd and Death Valley Rd (SR 127).



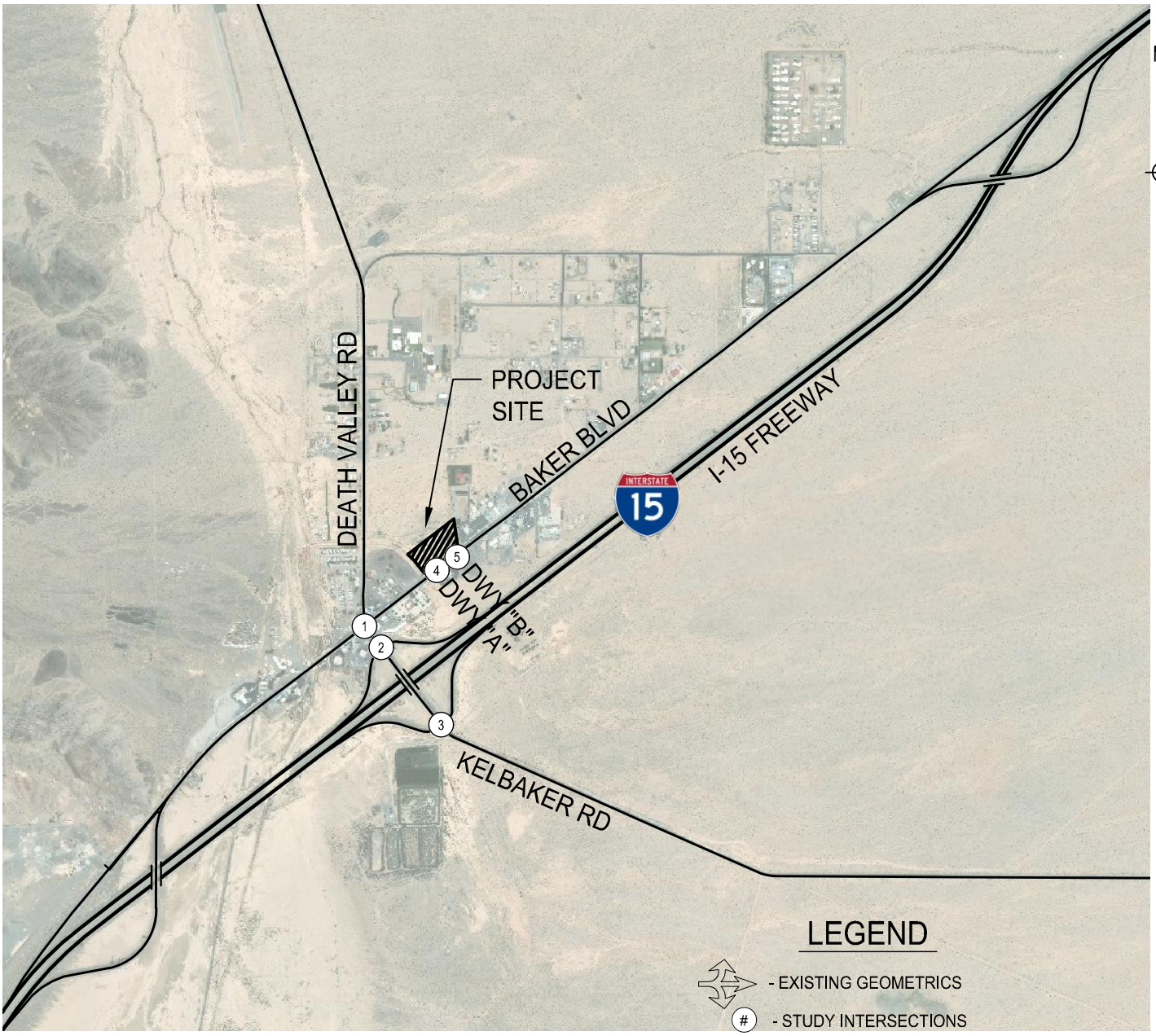


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FIGURE 4: EXISTING INTERSECTION GEOMETRICS
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4 EXISTING PLUS PROJECT CONDITIONS

Existing plus project conditions identifies impacts to the county's level of service standards when compared to existing conditions without any unrelated transportation system improvements or other development. Impacts identified in this scenario are considered "project-specific"—impacts that are the sole responsibility of the project to mitigate.

4.1 Project Description and Trip Generation

The project proposes to construct a convenience store (approximately 20,400 SF) and gas station with 40 fueling stations and a stand-alone coffee/donut shop with drive-through window (approximately 3,864 SF) as shown on the site plan in **Figure 2.**

The project is highway-oriented and relies on the I-15 freeway travel patterns to and from Las Vegas, the peak periods are Friday PM (4 - 6 PM) and Sunday PM (1 - 3 PM).

Institute of Transportation Engineers (ITE) Trip Generation manual, 11th Edition trip generation estimates are presented for the PM Peak Hour of the Adjacent Street Traffic. The proposed project land uses include Convenience Market/Gas Station: subcategory Vehicle Fueling Positions 16-24 (Land Use Category ITE 945) and Coffee/Donut Shop with Drive-Through Window (Land Use Category ITE 937).

Due to the nature of highway-oriented development, the project traffic is primarily comprised of diverted link trips. Diverted-link trips are trips passing by the site but not on an immediately adjacent street and alter their path to visit the site. For example, for a gas station at an interchange, diverted link trips are those that would exit the freeway and then re-enter the freeway to continue in their original direction.

The Institute of Transportation Engineers (ITE) Trip Generation Handbook defines a diverted-link trip as the following:

> *"A diverted trip is attracted from the traffic volume on roadways within the vicinity of the generator but without direct access to the site. A diverted trip requires a diversion from a roadway not adjacent to the site to another roadway to gain direct access to the site.* ***A diverted trip adds traffic to streets adjacent to a site and could remove a trip on streets from which it diverted.*** *A diverted trips may be part of multiple-stop chain of trips."*

The ITE Trip Generation Handbook further describes diverted link trips and the application of diverted link trips to a traffic assessment.

"Diverted trips are often difficult to identify. Consequently, diverted trips should be estimated in a traffic impact study only if

- *Reliable data reporting the percentage distribution of the three types of trips (primary, pass-by, and diverted trips) are available for the land use(s) being considered; and*
- *The travel routes for diverted trips can be clearly established.*

If these conditions cannot be met, the analyst should treat all non-pass-by trips as primary trips.

In establishing travel routes for diverted trips, the analyst should consider the location and relative volume of traffic on major roadways within the study area for the traffic impact analysis. Locally established data or data from the site developer may also be helpful in identifying the travel routes for diverted trips.

Overall, diverted trips represent a change in local area travel patterns but constitute no new increase on a macroscopic scale. Within the immediate study area, diverted trips represent additional traffic on individual streets adjacent to a proposed development and could decrease traffic on the streets from which they divert, and should be analyzed that way (if diverted trips are considered in the study and if the streets from which traffic is diverted are within the study area)."

Recent approved traffic studies completed for area projects adjoining this segment of I-15 Freeway within San Bernardino County proposed project were reviewed to establish reliable data reporting the percentage distribution of the three types of trips.

- These studies consisted of **20% primary project trips** and **80% diverted link project trips.**

The proposed travel routes considered the rural nature of the study area, destination travel patterns of the adjacent highway, and the proposed highway-oriented project.

- The I-15 freeway is defined as the diverted-link travel route. The route includes the Baker Blvd ramps (I-15 northbound on and off-ramps, I-15 southbound on and off-ramps at the north end of Baker), and Kelbaker Rd ramps at the south end of Baker

Table 4-1 summarizes the estimated trip generation for the proposed project site, for the Friday PM (4 - 6 PM) and Sunday PM (1 - 3 PM) peak periods based on the Peak Hour of the Adjacent Street Traffic.

Table 4-1: Project Trip Generation

	Use	Size/ Quantity	Daily	FRIDAY			SUNDAY		
				In	Out	Total	In	Out	Total
1	**Convenience Store/Gas Station (VFP 16-24) - Land Use Category (ITE 945)**								
	Per 1,000 Sq. Ft. GLA	20,400	1283.38	39.48	39.48	78.95	39.48	39.48	78.95
	Trips		26,181	805	805	1,610	805	805	1,610
2	**Coffee/Donut Shop with Drive-Through Window - Land Use Category (ITE 937)**								
	Per 1,000 Sq. Ft. GLA	3,864	533.57	19.50	19.50	38.99	19.50	19.50	38.99
	Trips		2,062	76	76	152	76	76	152
	Sub-Total Trips		28,243	881	881	1,762	881	881	1,762
	Internal Trips (10%)		2,824	88	88	176	88	88	176
	Adjusted Sub-Total Trips		25,419	793	793	1,586	793	793	1,586
	Diverted Link Trips (80%)		20,335	634	634	1,268	634	634	1,268
	Primary Trips (20%)		**5,084**	159	159	**318**	159	159	**318**

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

As presented in **Table 4-1**, the proposed project land use is estimated to generate 5,084 primary daily trips, 318 primary Friday PM and 318 primary Sunday PM peak hour trips during the adjacent street peak hours.

4.2 Project Trip Distribution and Assignment

The distribution of project trips to the surrounding street network is based on assumed origins of the project's employees and visitors. The directional distribution patterns (east, west, north, and south) are consistent with area traffic patterns, then assigned to the street system based on the most direct route on major streets.

The following exhibits illustrate both the directional distribution (percent direction) and the assignment of project traffic (peak hour trips) to the street system.

Figure 5 presents the primary project trips distribution percentages at each study intersection. **Figure 6** presents the diverted-link project trips distribution percentages at each study intersection.

Figure 7 presents the primary project trips assigned to each study intersection. **Figure 8** presents the diverted-link project trips to each study intersection. **Figure 9** presents the total project trips assigned to each study intersection.

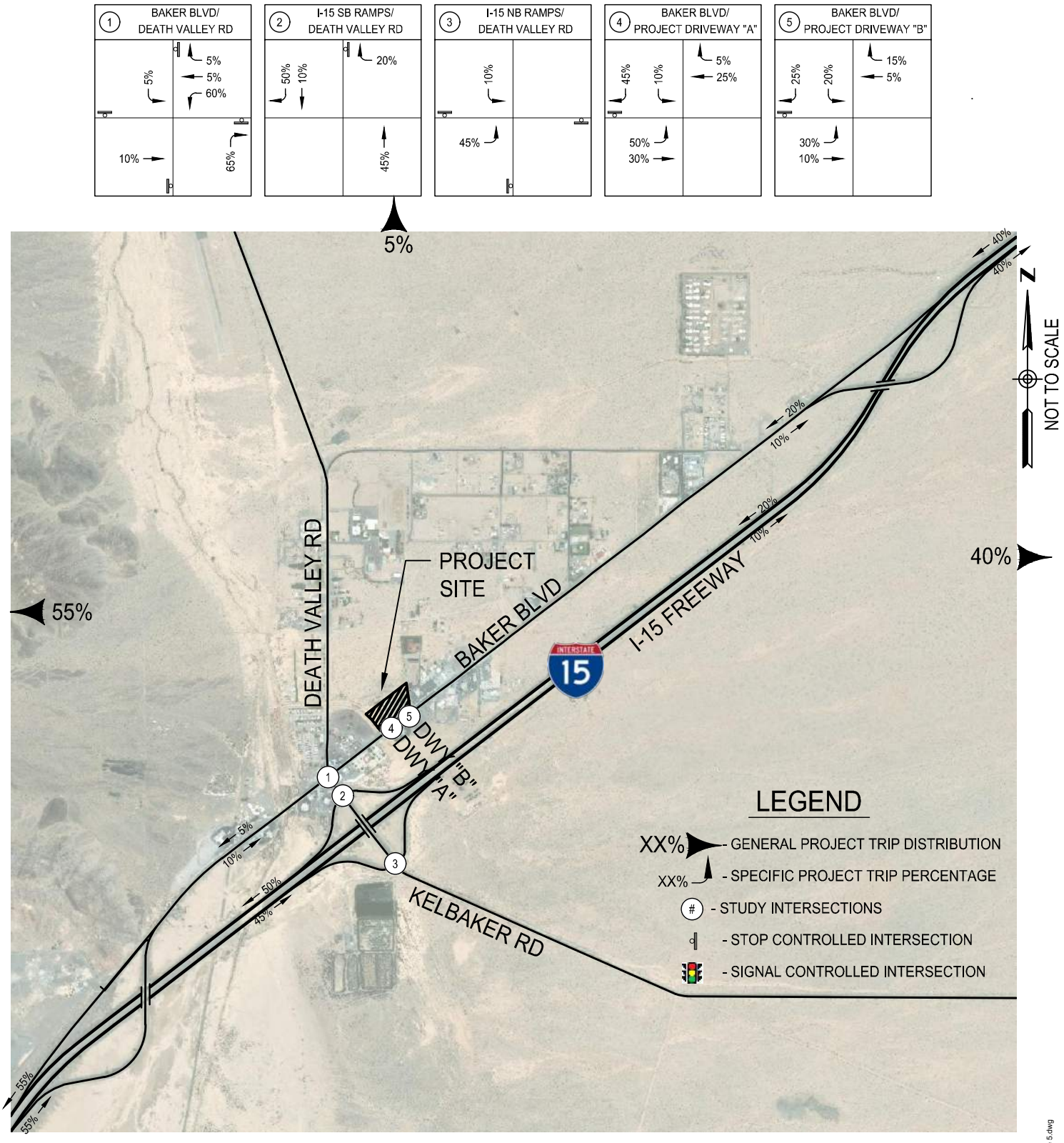

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FIGURE 5: PRIMARY PROJECT TRIP DISTRIBUTION
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SAN BERNARDINO COUNTY, CA

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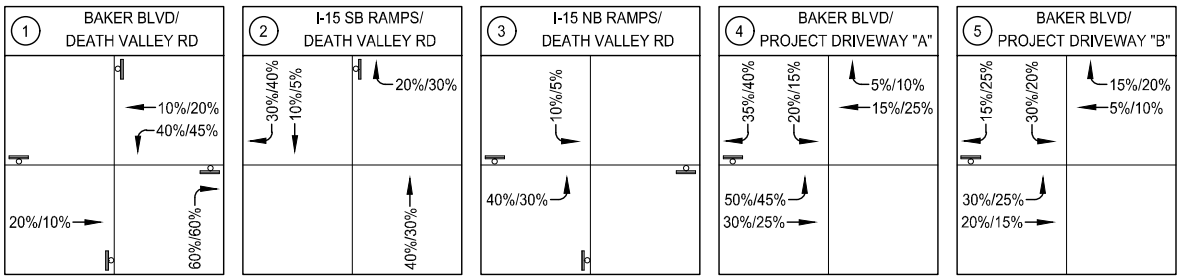

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FIGURE 6: DIVERTED-LINK PROJECT TRIP DISTRIBUTION
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SAN BERNARDINO COUNTY, CA

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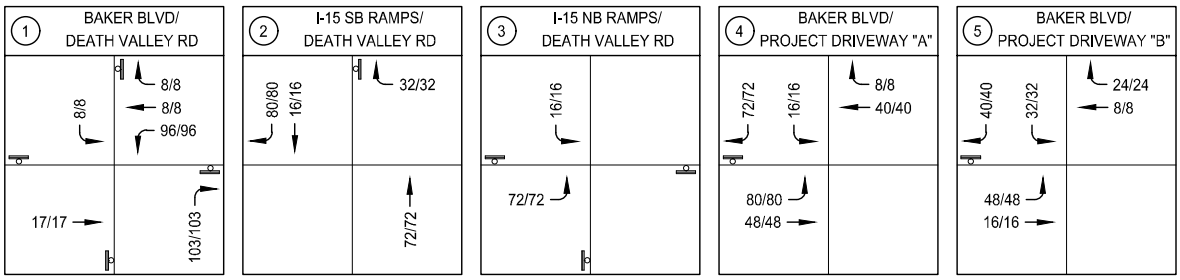

PRIMARY PROJECT TRIPS

FRI PEAK HOUR TRIPS - 159 IN / 159 OUT
SUN PEAK HOUR TRIPS - 159 IN / 159 OUT

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FIGURE 7: PRIMARY PROJECT TRIPS
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SAN BERNARDINO COUNTY, CA

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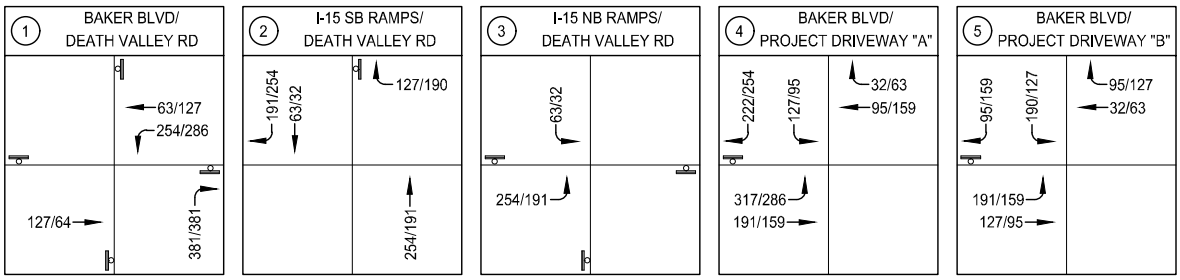

DIVERTED-LINK PROJECT TRIPS

FRI PEAK HOUR TRIPS	- 634 IN / 634 OUT
SUN PEAK HOUR TRIPS	- 634 IN / 634 OUT

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FIGURE 8: DIVERTED-LINK PROJECT TRIPS
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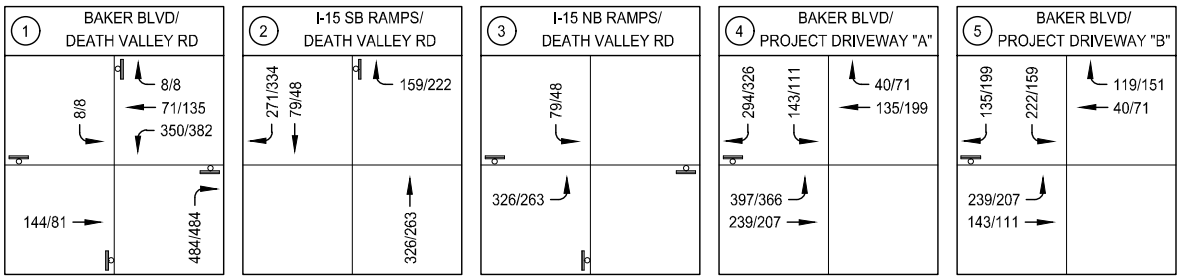

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FIGURE 9: TOTAL PROJECT TRIPS
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SAN BERNARDINO COUNTY, CA

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4.3 Existing Plus Project Level of Service Analysis

The intersection capacity analysis of existing plus project conditions uses the Friday and Sunday peak hour traffic volumes shown in **Figure 10** and the existing intersection geometrics shown in **Figure 11. Table 4-2** and **Appendix C** provide the results of the analysis.

Table 4-2: Intersection Capacity Analysis – Existing Plus Project Conditions

Intersection	Control	Existing Conditions				Existing + Project Conditions				Increase in Delay (Seconds)		Exceed the Criteria	
		FRI Peak		SUN Peak		FRI Peak		SUN Peak					
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	FRI	SUN	FRI	SUN
1. Baker Blvd / Death Valley Rd (SR 127)	AWSC	10.0	A	12.4	B	151.2	F	175.2	F	141.2	162.8	YES	YES
Proposed Improvements: Install Traffic Signal, widening NB and SB	TS	Not Applicable				25.8	C	25.9	C	15.8	13.5	NO	NO
2. Death Valley Rd (SR 127) / I-15 SB Ramps	SSSC [1]	9.3	A	9.7	A	16.3	C	19.4	C	7.0	9.7	NO	NO
3. Death Valley Rd (SR 127) / I-15 NB Ramps	AWSC	9.0	A	8.8	A	16.7	C	13.0	B	7.7	4.2	NO	NO
Project Access Driveways													
4. Baker Blvd / Driveway "A"	SSSC	Not Applicable				[2]	F	116.7	F	Not Applicable			
5. Baker Blvd / Driveway "B"	SSSC					239.0	F	27.7	D				

Notes:
[1] Side Street stop-controlled (SSSC) intersection delay and LOS presented are for the worst stop-controlled approach or lane group.
[2] Delay per vehicle exceeds 300 seconds.
Abbreviations and definitions:
TS – Traffic signal control, AWSC – All-way or multi-way stop control, SSSC – Side-street stop control
Delay – seconds per vehicle, LOS – Level of Service

As presented in **Table 4-2**, under existing plus project conditions, the intersection of Baker Blvd / Death Valley Rd (SR 127) would operate at LOS F in the Friday and Sunday peak hours with the addition of project traffic. The project Driveway "A" and Driveway "B" are anticipated to operate at LOS F under the Friday peak period. The delay experienced by the worse movement exiting Driveway "A" (southbound left turn) exceeds 300 seconds per vehicle in the Friday peak hour. Driveway "B"'s Friday peak hour experiences a similar level of delay, but the Sunday peak hour delay is about 28 seconds per vehicle (LOS D).

4.4 Existing Plus Project Conditions Traffic Signal Warrant Analysis

A traffic signal warrant analysis for the Existing plus Project Conditions was performed for the intersections of Baker Blvd and Death Valley Rd (SR 127), Death Valley Rd (SR 127) at I-15 SB Ramps, and Death Valley Rd (SR 127) at I-15 NB Ramps. **Table 4-4** summarizes the traffic signal warrant analysis criteria for the existing conditions scenarios.

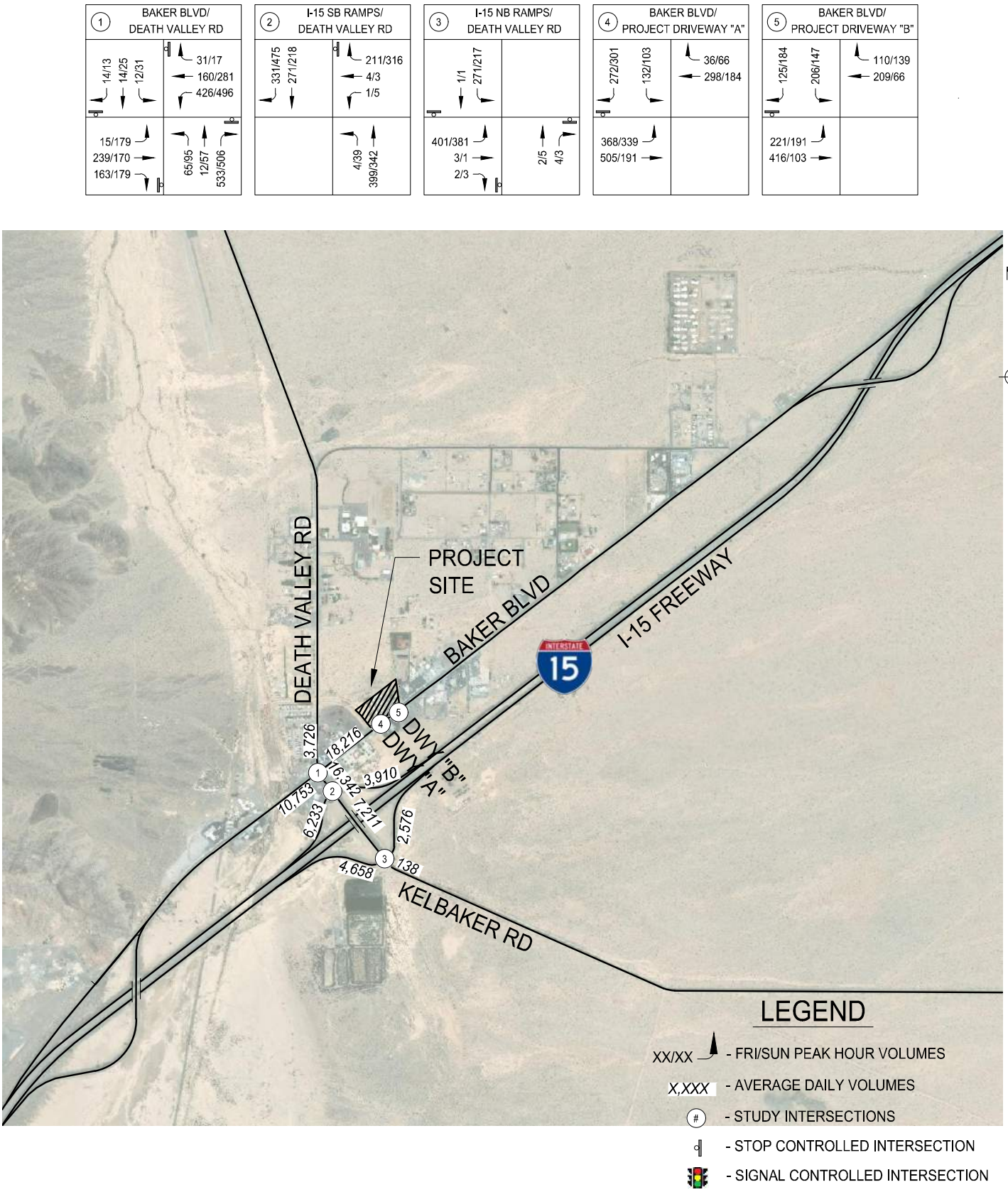

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FIGURE 10: EXISTING PLUS PROJECT TRAFFIC VOLUMES
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SAN BERNARDINO COUNTY, CA

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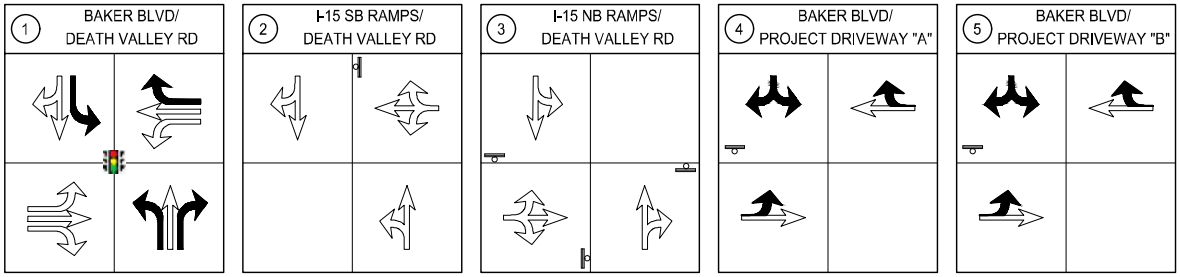

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FIGURE 11: EXISTING PLUS PROJECT INTERSECTION GEOMETRICS
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SAN BERNARDINO COUNTY, CA

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Table 4-3: Existing Plus Project Conditions Traffic Signal Warrant Analysis

Warrant	Traffic Signal Warrant Analysis					
	Warrant 3 (Peak Hour)					Warrant 7 (Crash Experience)
	Part A				Part B	
	All criteria 1,2, and 3 below must be satisfied for any four consecutive 15 minute periods				The plotted point falls above the applicable curve in Figure 4C-S (See Appendix D)	All Parts Must be Satisfied
	1. Total Delay	2. Volume on minor street	3. Total Entering volume	All Satisfied		
1. Baker Blvd / Death Valley Rd (SR 127)	Yes	Yes	Yes	Yes	Yes	Not Applicable
2. Death Valley Rd (SR 127) / I-15 SB Ramps	No	Yes	Yes	No	Yes	
3. Death Valley Rd (SR 127) / I-15 NB Ramps	No	Yes	No	No	No	
Notes: Source of warrant procedures: California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014 Edition (Section 4C.01 Studies and Factors for Justifying Traffic Control Signals). Source of crash data: California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) Reports.						

Traffic signal warrant 3, part A and part B are satisfied for the intersection of Baker Blvd at Death Valley Rd (SR 127). Traffic signal warrant 3, part B is satisfied for the intersections of Death Valley Rd (SR 127) at I-15 SB Ramps and Death Valley Rd (SR 127) at I-15 NB Ramps.

4.5 Existing Plus Project Conditions Queuing Analysis

A queuing analysis for the existing plus project conditions was performed for the Death Valley Rd (SR 127) intersections with Baker Blvd, I-15 SB Ramps, and I-15 NB Ramps. The queuing analysis was performed utilizing the Trafficware SimTraffic Version 11 software package. The 95th percentile maximum queue length results for the Existing Plus Project Conditions are shown in **Table 4-4** and **Appendix D.**

Table 4-4: Queuing Analysis – Existing Plus Project Conditions

Intersection	Movement	Storage Length (Feet)	Existing + Project Condition		Existing + Project Condition with Improvements	
			FRI	SUN	FRI	SUN
1. Baker Blvd / Death Valley Rd (SR 127)	EBL	200	38	75	41	149
	EBTH		118	84	183	142
	EBR	200	78	75	75	90
	WBL	225	161	**357**	208	309
	WBTH		79	**486**	81	289
	WBR	225	-	-	25	39
	NBL		-	-	69	103
	NBLTHR/NBTH		296	333	22	70
	NBR		-	-	144	125
	SBL		-	-	16	37
	SBLTHR/SBTHR		51	74	22	52
2. Death Valley Rd (SR 127) / I-15 SB Ramps	WBLTHR		185	481	86	137
	NBLTH		141	276	11	164
	SBTHR		5	16	-	15
3. Death Valley Rd (SR 127) / I-15 NB Ramps	EBLTHR		118	113	119	116
	NBTHR		29	37	29	37
	SBLTH		83	67	90	73
Queue – In Feet 95% - 95 Percentile Queue Length						

4.6 Project Access

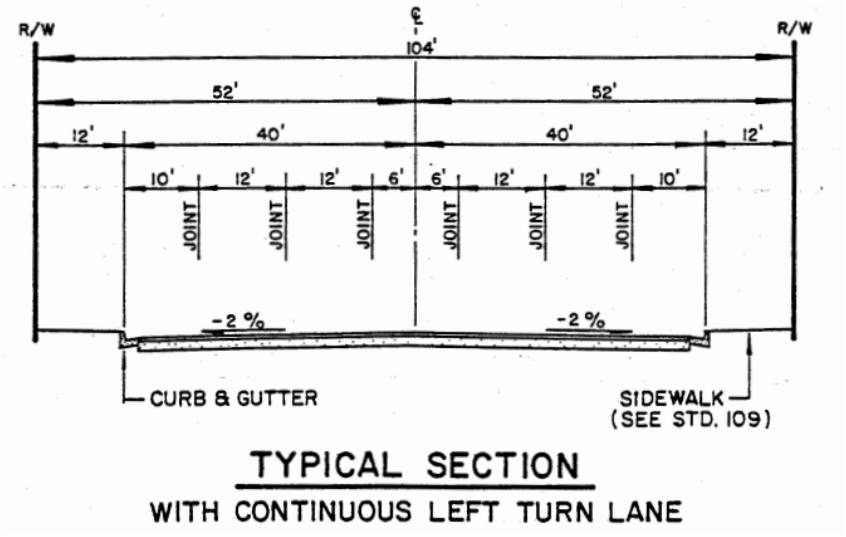
Access to the proposed project is provided by two 40-foot-wide driveways on Baker Blvd. Driveway "A" is located at the southwesterly edge of the project's property. Driveway "B" is located about 180 feet south and west of the project's northeasterly property edge and is separated from Driveway "A" by approximately 337 feet.

Baker Blvd's Planning Context and Design Standards

Baker Blvd is part of San Bernardino County's Maintained Road System (CMRS) with a right of way of 104 feet and a functional classification code of 13, according to the county Public Works Department's web map of "Roads Maintained by the County Department of Public Works – Transportation". This right of way is associated with the county's Master Plan of Highways in the Arterial Roads category as a Major Highway (104-foot RW and 80-foot curb separation). See the street section below for the county's standard for a Major Highway.

The current paved width of Baker Blvd along the project's frontage is about 80 feet measured from the face of curb on the south side of the street (along the Del Taco restaurant frontage) to the edge of pavement on the north side of the street. The north side of the street is unimproved lacking curb, gutter, and sidewalk. This width is consistent with the curb separation width requirements of a Major Highway classification in the county's Master Plan.

Only a portion of the existing pavement is currently used by through traffic on Baker Blvd. Pavement markings are used demarcate a 12-foot southbound lane and 25 feet of pavement in the northbound direction operating as a single lane.



County standard plan 101 (Major Highway). Ultimately, Baker Blvd will have two lanes in each direction and a median turn lane.

5 BACKGROUND CONDITIONS

This scenario represents conditions at the time the project is anticipated to be fully constructed and occupied (known as buildout Year 2023) but without traffic generated by the project. This scenario is comprised of an ambient growth, a general rate of growth in traffic from overall regional growth and nearby development (assumed to be 2% annually for this study). The Background Conditions represents the Opening Year Cumulative Conditions - Year 2023 without project traffic.

5.1 Background Conditions Traffic Analysis

The background conditions intersection capacity analysis uses existing intersection geometrics and the projected Friday and Sunday peak hour traffic shown in **Figure 12**. **Table 5-1** and **Appendix C** provides the results of the analysis. As presented in the table, under background conditions, the study intersections would operate at a LOS A or LOS B during the Friday and Sunday peak hours.

Table 5-1: Intersection Capacity Analysis – Background Conditions

Intersection	Intersection Control	FRI Peak		SUN Peak	
		Delay	LOS	Delay	LOS
1. Baker Blvd / Death Valley Rd (SR 127)	AWSC	10.3	B	12.9	B
2. Death Valley Rd (SR 127) / I-15 SB Ramps	SSSC	9.3	A	9.8	A
3. Death Valley Rd (SR 127) / I-15 NB Ramps	AWSC	9.1	A	8.9	A
Abbreviations and definitions: TS – Traffic signal control, AWSC – All-way or multi-way stop control, SSSC – Side-street stop control Delay – seconds per vehicle, LOS – Level of Service					

5.2 Background Conditions Traffic Signal Warrant Analysis

A traffic signal warrant analysis for the Background Conditions was performed for the intersections of Baker Blvd and Death Valley Rd (SR 127), Death Valley Rd (SR 127) at I-15 SB Ramps, and Death Valley Rd (SR 127) at I-15 NB Ramps. **Table 5-2** summarizes the traffic signal warrant analysis criteria for the existing conditions scenarios.

Table 5-2: Background Conditions Traffic Signal Warrant Analysis

Warrant	**Traffic Signal Warrant Analysis**					
	Warrant 3 (Peak Hour)					**Warrant 7 (Crash Experience)**
	Part A				**Part B**	
	All criteria 1,2, and 3 below must be satisfied for any four consecutive 15 minute periods				The plotted point falls above the applicable curve in Figure 4C-S (See Appendix D)	All Parts Must be Satisfied
	1. Total Delay	2. Volume on minor street	3. Total Entering volume	All Satisfied		
1. Baker Blvd / Death Valley Rd (SR 127)	No	Yes	Yes	No	Yes	Not Applicable
2. Death Valley Rd (SR 127) / I-15 SB Ramps	No	Yes	No	No	No	
3. Death Valley Rd (SR 127) / I-15 NB Ramps	No	Yes	No	No	No	
Notes: Source of warrant procedures: California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014 Edition (Section 4C.01 Studies and Factors for Justifying Traffic Control Signals). Source of crash data: California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) Reports.						

Traffic signal warrant 3, part B is satisfied for the intersection of Baker Blvd at Death Valley Rd (SR 127).

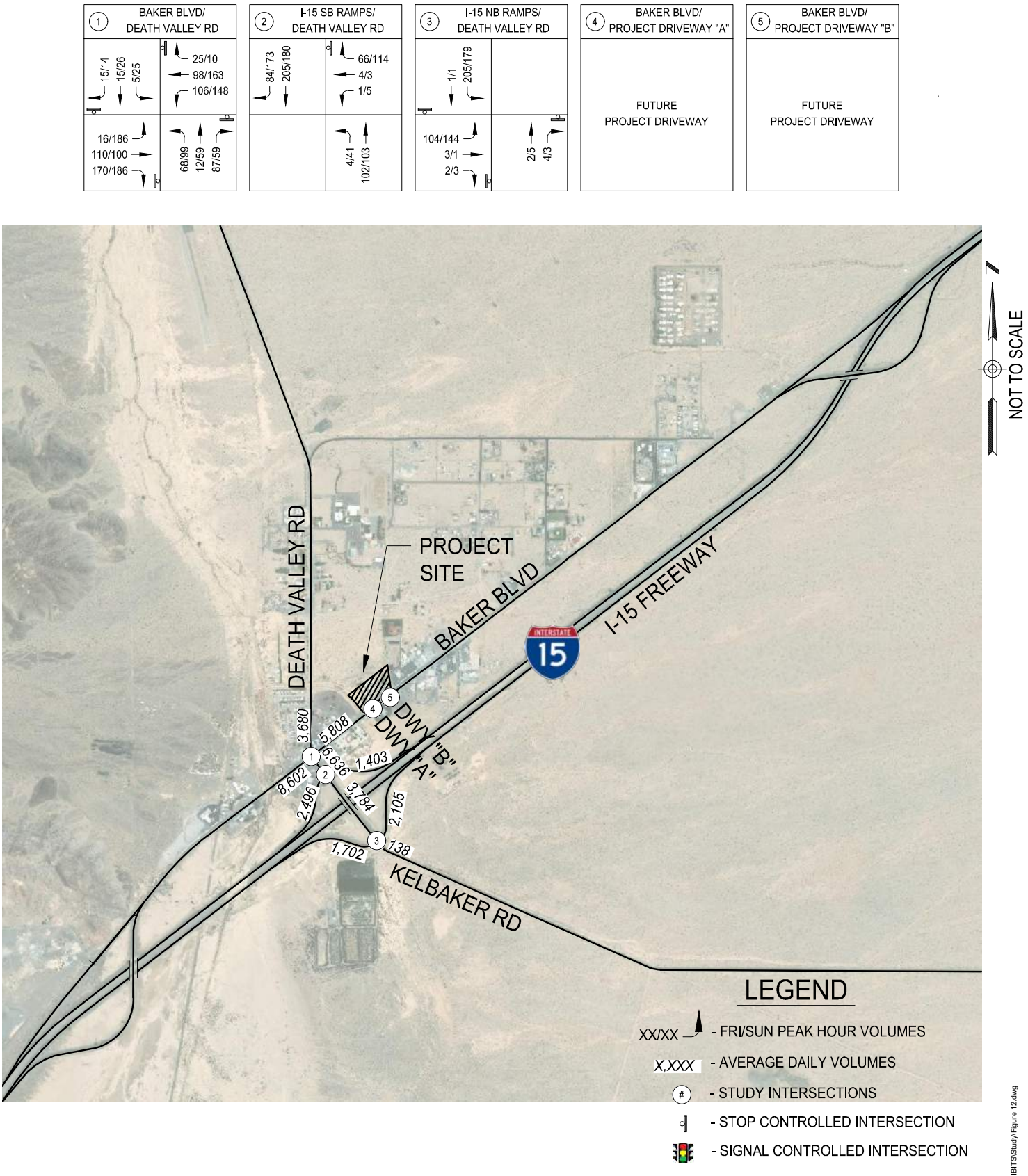


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FIGURE 12: BACKGROUND TRAFFIC VOLUMES
BAKER BOULEVARD COMMERCIAL CENTER
SAN BERNARDINO COUNTY, CA

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6 PROJECT CONDITIONS

The project conditions scenario evaluates the potential cumulative impacts to the study intersections due to ambient growth and traffic from other area development that occurs by opening day (year 2023) with the addition of project traffic. The Project Conditions represents the Opening Year Cumulative Conditions - Year 2023 with project traffic.

This scenario adds the project's estimated traffic generation at opening day (2023) to the opening day conditions scenario. 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 improvement measures.

6.1 Project Traffic Analysis

The traffic volumes under this scenario are illustrated in **Figure 13**. Intersection capacity analysis for the study intersections uses existing lanes geometries and the proposed project-specific access, roadway, and off-site intersection improvements described earlier. The results of the analysis are shown in **Table 6-1** and provided in **Appendix C.**

Table 6-1: Intersection Capacity Analysis – Project Conditions

Intersection	Control	Background Conditions				Project Condition				Increase in Delay (Seconds)		Exceed the Criteria	
		FRI Peak		SUN Peak		FRI Peak		SUN Peak					
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	FRI	SUN	FRI	SUN
1. Baker Blvd / Death Valley Rd (SR 127)	AWSC	10.3	B	12.9	B	132.3	F	182.1	F	122.0	169.2	YES	YES
Proposed Improvements: Install Traffic Signal, widening NB and SB	TS	Not Applicable				27.3	C	26.6	C	17.0	13.7	NO	NO
2. Death Valley Rd (SR 127) / I-15 SB Ramps	SSSC [1]	9.3	A	9.8	A	15.4	C	19.9	C	6.1	10.1	NO	NO
3. Death Valley Rd (SR 127) / I-15 NB Ramps	AWSC	9.1	A	8.9	A	15.8	C	13.4	B	6.7	4.5	NO	NO
Project Access Driveways													
4. Baker Blvd / Driveway "A"	SSSC	Not Applicable				[2]	F	[2]	F	Not Applicable			
5. Baker Blvd / Driveway "B"	SSSC					171.0	F	278.5	F				

Notes:
[1] Side Street stop-controlled (SSSC) intersection delay and LOS presented are for the worst stop-controlled approach or lane group.
[2] Delay per vehicle exceeds 300 seconds.
Abbreviations and definitions:
TS – Traffic signal control, AWSC – All-way or multi-way stop control, SSSC – Side-street stop control
Delay – seconds per vehicle, LOS – Level of Service

As presented in **Table 6-1**, with the addition of project traffic, the intersection of Baker Blvd / Death Valley Rd (SR 127) would operate at LOS F in both peak hours.

Driveway "A" and Driveway "B" operate at LOS F under all scenarios. The delay experienced by the worse movement exiting Driveway "A" (southbound left turn) exceeds 300 seconds per vehicle in both the Friday and Sunday peak hours. Driveway "B"'s Friday and Sunday peak hours experience a similar level of delay.

6.2 Project Conditions Traffic Signal Warrant Analysis

A traffic signal warrant analysis for the Future plus Project Conditions was performed for the intersections of Baker Blvd and Death Valley Rd (SR 127), Death Valley Rd (SR 127) at I-15 SB Ramps, and Death Valley Rd (SR 127) at I-15 NB Ramps. **Table 6-2** summarizes the traffic signal warrant analysis criteria for the existing conditions scenarios.

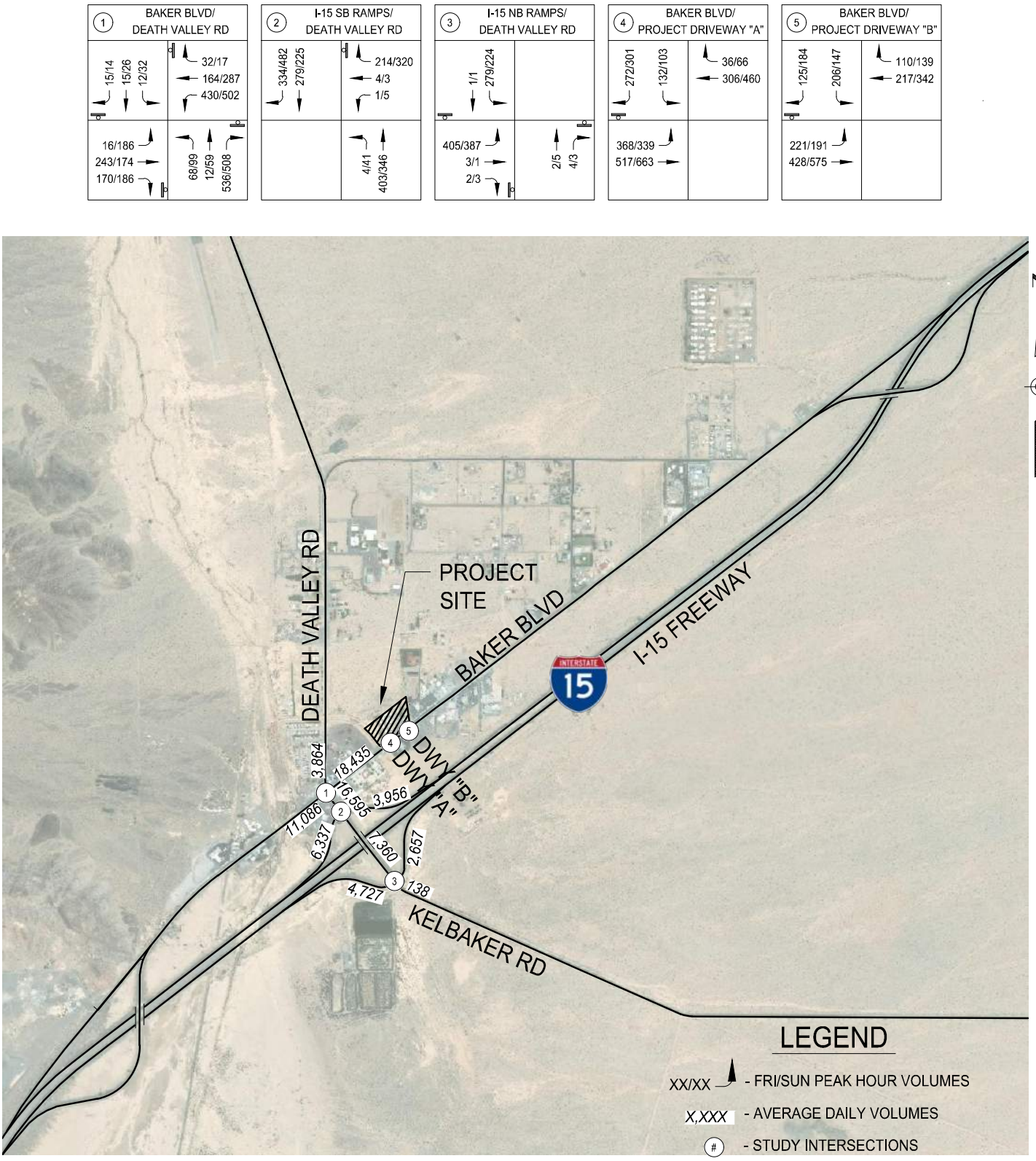

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FIGURE 13: PROJECT TRAFFIC VOLUMES
BAKER BOULEVARD COMMERCIAL CENTER
SAN BERNARDINO COUNTY, CA

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Table 6-2: Project Conditions Traffic Signal Warrant Analysis

Warrant	Traffic Signal Warrant Analysis					
	Warrant 3 (Peak Hour)					Warrant 7 (Crash Experience)
	Part A				Part B	
	All criteria 1,2, and 3 below must be satisfied for any four consecutive 15 minute periods				The plotted point falls above the applicable curve in Figure 4C-S (See Appendix D)	All Parts Must be Satisfied
	1. Total Delay	2. Volume on minor street	3. Total Entering volume	All Satisfied		
1. Baker Blvd / Death Valley Rd (SR 127)	Yes	Yes	Yes	Yes	Yes	Not Applicable
2. Death Valley Rd (SR 127) / I-15 SB Ramps	No	Yes	Yes	No	Yes	
3. Death Valley Rd (SR 127) / I-15 NB Ramps	No	Yes	No	No	No	
Notes: Source of warrant procedures: California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014 Edition (Section 4C.01 Studies and Factors for Justifying Traffic Control Signals). Source of crash data: California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) Reports.						

Traffic signal warrant 3, part A and part B are satisfied for the intersection of Baker Blvd at Death Valley Rd (SR 127). Traffic signal warrant 3, part B is satisfied for the intersections of Death Valley Rd (SR 127) at I-15 SB Ramps and Death Valley Rd (SR 127) at I-15 NB Ramps.

6.3 Project Conditions Queuing Analysis

A queuing analysis for the project conditions was performed for the Death Valley Rd (SR 127) intersections with Baker Blvd, I-15 SB Ramps, and I-15 NB Ramps. The queuing analysis was performed utilizing the Trafficware SimTraffic Version 11 software package. The 95th percentile maximum queue length results for the Existing Plus Project Conditions are shown in **Table 6-3** and **Appendix D.**

Table 6-3: Queuing Analysis – Project Conditions

Intersection	Movement	Storage Length (Feet)	Project Condition		Project Condition with Improvements	
			FRI	SUN	FRI	SUN
1. Baker Blvd / Death Valley Rd (SR 127)	EBL	200	38	45	39	138
	EBTH		122	52	212	149
	EBR	200	75	47	130	109
	WBL	225	204	94	205	206
	WBTH		77	57	75	145
	WBR	225	-	-	27	28
	NBL		-	-	67	85
	NBLTHR/NBTH		324	340	30	58
	NBR		-	-	155	143
	SBL		-	-	18	37
	SBLTHR/SBTHR		48	62	13	30
2. Death Valley Rd (SR 127) / I-15 SB Ramps	WBLTHR					
	NBLTH		229	537	93	166
	SBTHR		199	345	37	130
3. Death Valley Rd (SR 127) / I-15 NB Ramps	EBLTHR		-	16	5	16
	NBTHR					
	SBLTH		127	133	122	135
Queue – In Feet 95% - 95 Percentile Queue Length						

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7 FUTURE CONDITIONS

The future conditions scenario represents regional ambient growth in traffic up to the year 2040. Ambient growth is derived from forecasts from the San Bernardino 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 derivation of future traffic projections from the SBTAM traffic model are shown in **Appendix B**.

7.1 Future Conditions Traffic Analysis

The future conditions intersection capacity analysis uses existing intersection geometrics and the projected AM and PM peak hour traffic shown in **Figure 14**. **Table 6-1** and **Appendix C** provides the results of the analysis.

Table 7-1: Intersection Capacity Analysis – Future Conditions

Intersection	Intersection Control	FRI Peak		SUN Peak	
		Delay	LOS	Delay	LOS
1. Baker Blvd / Death Valley Rd (SR 127)	AWSC	11.2	B	13.7	B
2. Death Valley Rd (SR 127) / I-15 SB Ramps	SSSC	9.6	A	9.9	A
3. Death Valley Rd (SR 127) / I-15 NB Ramps	AWSC	8.7	A	8.9	A
Abbreviations and definitions: TS – Traffic signal control, AWSC – All-way or multi-way stop control, SSSC – Side-street stop control Delay – seconds per vehicle, LOS – Level of Service					

As presented in **Table 7-1**, under future conditions, the study intersections would operate at LOS A or B during the Friday and Sunday peak hours.

7.2 Future Conditions Traffic Signal Warrant Analysis

A traffic signal warrant analysis for the Future Conditions was performed for the intersections of Baker Blvd and Death Valley Rd (SR 127), Death Valley Rd (SR 127) at I-15 SB Ramps, and Death Valley Rd (SR 127) at I-15 NB Ramps. **Table 7-2** summarizes the traffic signal warrant analysis criteria for the existing conditions scenarios.

Table 7-2: Future Conditions Traffic Signal Warrant Analysis

Warrant	Traffic Signal Warrant Analysis					
	Warrant 3 (Peak Hour)					Warrant 7 (Crash Experience)
	Part A				Part B	
	All criteria 1,2, and 3 below must be satisfied for any four consecutive 15 minute periods				The plotted point falls above the applicable curve in Figure 4C-S (See Appendix D)	All Parts Must be Satisfied
	1. Total Delay	2. Volume on minor street	3. Total Entering volume	All Satisfied		
1. Baker Blvd / Death Valley Rd (SR 127)	No	Yes	Yes	No	Yes	Not Applicable
2. Death Valley Rd (SR 127) / I-15 SB Ramps	No	Yes	No	No	No	
3. Death Valley Rd (SR 127) / I-15 NB Ramps	No	Yes	No	No	No	
Notes: Source of warrant procedures: California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014 Edition (Section 4C.01 Studies and Factors for Justifying Traffic Control Signals). Source of crash data: California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) Reports.						

Traffic signal warrant 3, part B is satisfied for the intersection of Baker Blvd at Death Valley Rd (SR 127).

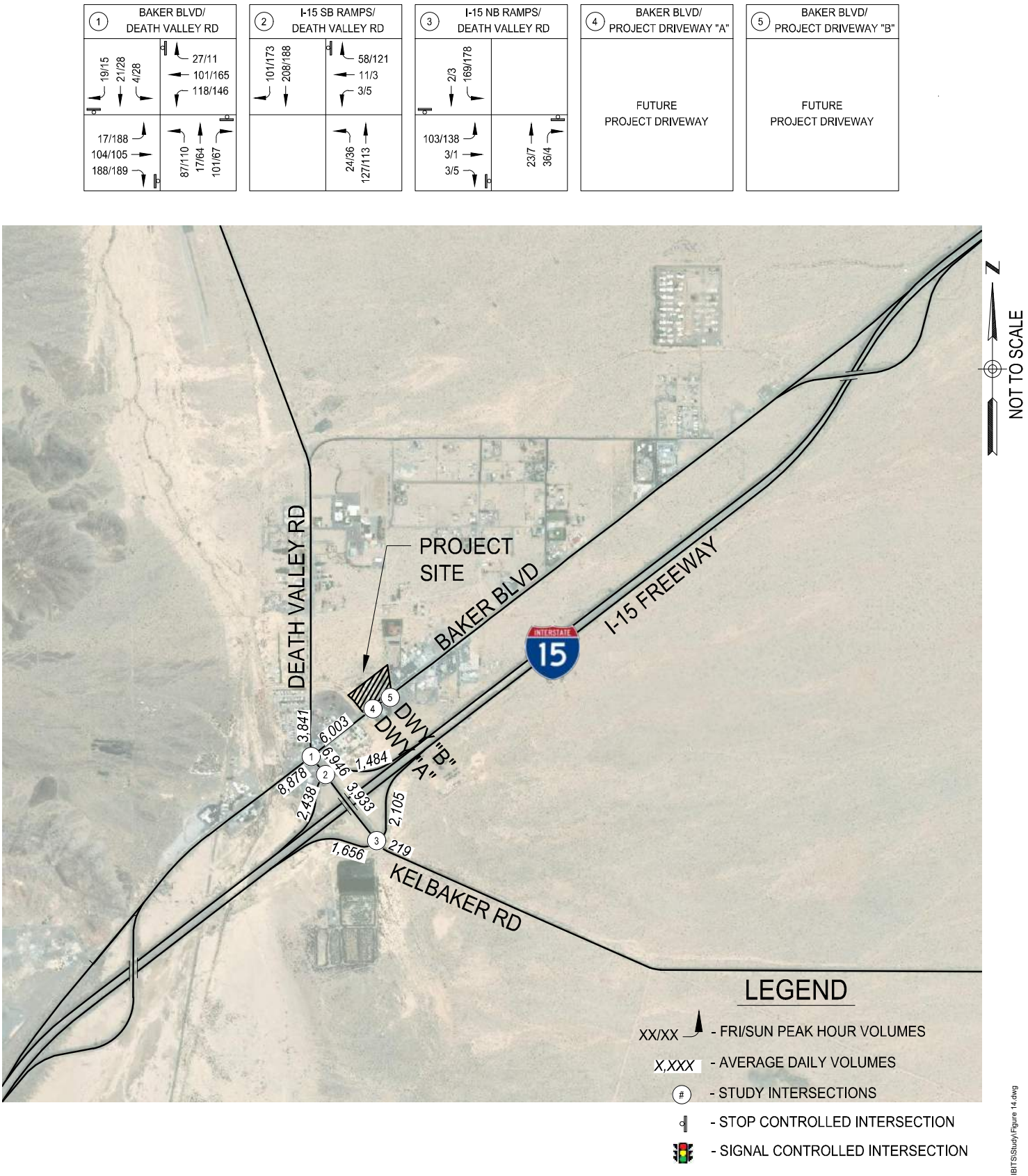

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FIGURE 14: FUTURE TRAFFIC VOLUMES BAKER BOULEVARD COMMERCIAL CENTER SAN BERNARDINO COUNTY, CA

8 FUTURE PLUS PROJECT CONDITIONS

Future plus project conditions adds the project's estimated traffic generation to the future condition scenario. As described in the previous section, the forecasted future year 2040 traffic intersection turn movements were derived from post processing forecasted SBTAM traffic model approach volumes and balancing the turn movement volumes for each study intersection.

8.1 Future Plus Project Traffic Analysis

The intersection capacity analysis of future plus project conditions uses existing intersection geometrics and the projected Friday and Sunday peak hour traffic volumes shown in **Figure 15**. **Table 8-1** and **Appendix C** provide the results of the analysis.

Table 8-1: Intersection Capacity Analysis – Future Plus Project Conditions

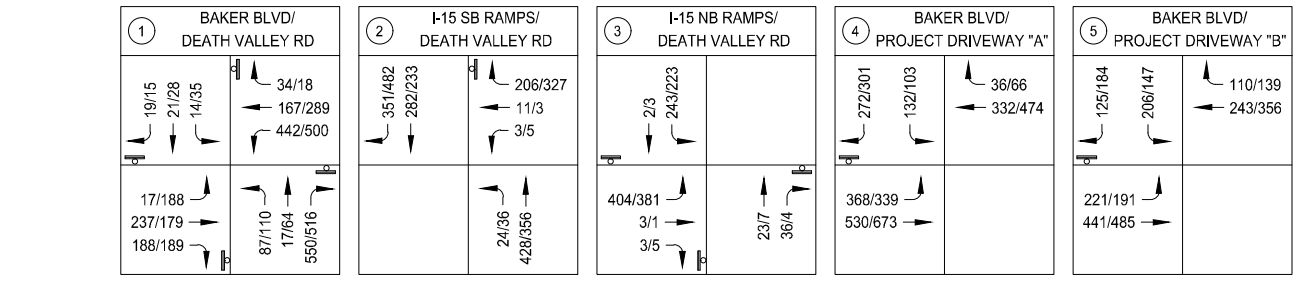
Intersection	Control	Future Conditions				Future + Project Condition				Increase in Delay (Seconds)		Exceed the Criteria	
		FRI Peak		SUN Peak		FRI Peak		SUN Peak					
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	FRI	SUN	FRI	SUN
1. Baker Blvd / Death Valley Rd (SR 127)	AWSC	11.2	B	13.7	B	181.7	F	194.5	F	145.8	157.2	YES	YES
Proposed Improvements: Install Traffic Signal, widening NB and SB	TS	Not Applicable				28.0	C	26.9	C	16.8	13.2	NO	NO
2. Death Valley Rd (SR 127) / I-15 SB Ramps	SSSC [1]	9.6	A	9.9	A	17.8	C	20.9	C	6.8	8.9	NO	NO
3. Death Valley Rd (SR 127) / I-15 NB Ramps	AWSC	8.7	A	8.9	A	17.2	C	13.3	B	6.6	3.8	NO	NO
Project Access Driveways													
4. Baker Blvd / Driveway "A"	SSSC	Not Applicable				[2]	F	[2]	F	Not Applicable			
5. Baker Blvd / Driveway "B"	SSSC					279.1	F	295.6	F				

Notes:
[1] Side Street stop-controlled (SSSC) intersection delay and LOS presented are for the worst stop-controlled approach or lane group.
[2] Delay per vehicle exceeds 300 seconds.
Abbreviations and definitions:
TS – Traffic signal control, AWSC – All-way or multi-way stop control, SSSC – Side-street stop control
Delay – seconds per vehicle, LOS – Level of Service

As presented in **Table 8-1**, with the addition of project traffic, the intersection of Baker Blvd / Death Valley Rd (SR 127) would operate at LOS F in both peak hours. As in the other project scenarios, Driveway "A" and Driveway "B" operate at LOS F under all scenarios. The delay experienced by the worse movement exiting Driveway "A" (southbound left turn) exceeds 300 seconds per vehicle in both the Friday and Sunday peak hours. Driveway "B"'s Friday and Sunday peak hours experience a similar level of delay.

8.2 Future Plus Project Conditions Traffic Signal Warrant Analysis

A traffic signal warrant analysis for the Future plus Project Conditions was performed for the intersections of Baker Blvd and Death Valley Rd (SR 127), Death Valley Rd (SR 127) at I-15 SB Ramps, and Death Valley Rd (SR 127) at I-15 NB Ramps. **Table 8-2** summarizes the traffic signal warrant analysis criteria for the existing conditions scenarios.



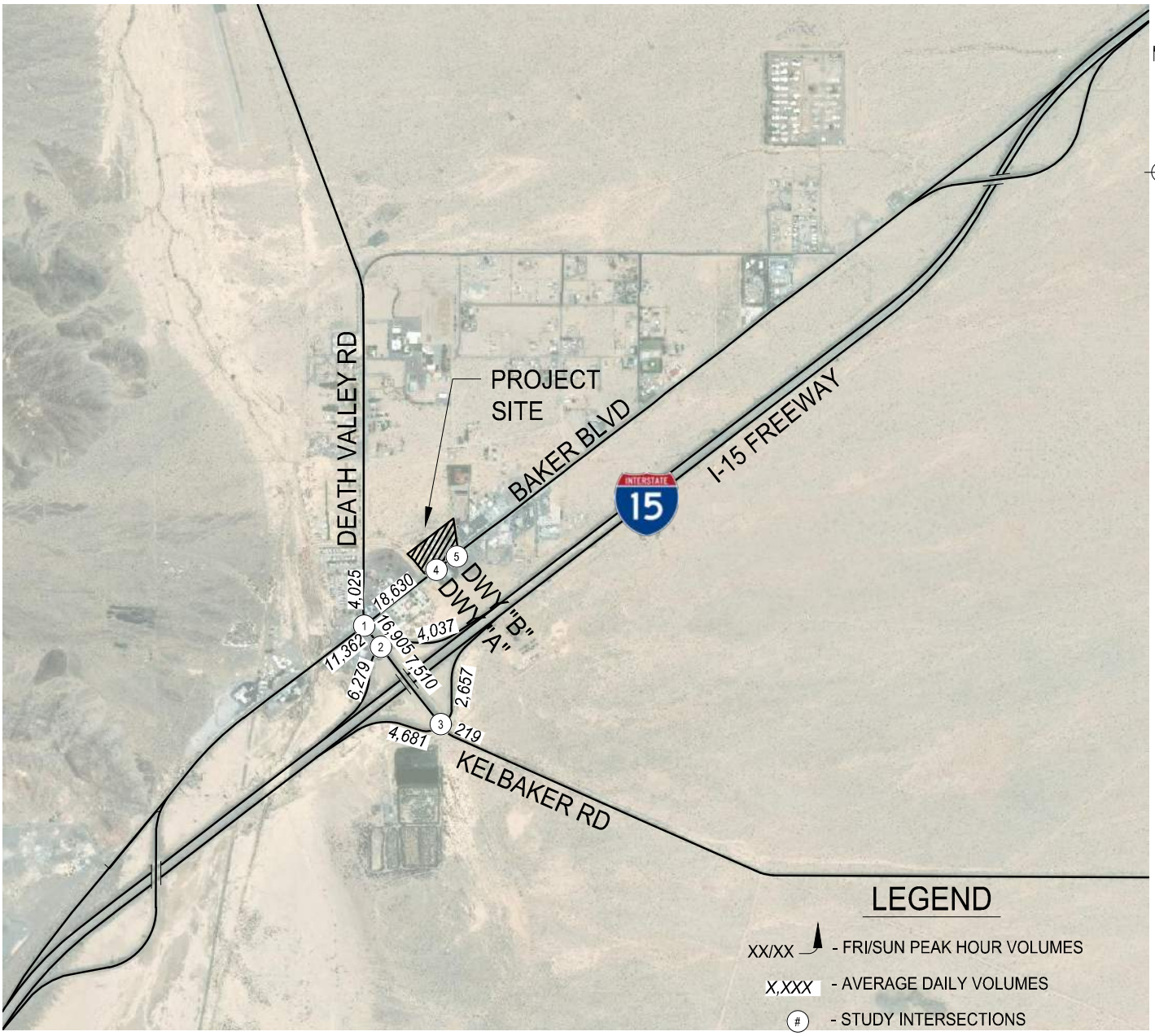


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FIGURE 15: FUTURE PLUS PROJECT TRAFFIC VOLUMES
BAKER BOULEVARD COMMERCIAL CENTER
SAN BERNARDINO COUNTY, CA

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Last Opened: Nov 10, 2022 - 10:06pm by: Tim

Table 8-2: Future Plus Project Conditions Traffic Signal Warrant Analysis

Warrant	Traffic Signal Warrant Analysis					
	Warrant 3 (Peak Hour)					Warrant 7 (Crash Experience)
	Part A				Part B	
	All criteria 1,2, and 3 below must be satisfied for any four consecutive 15 minute periods				The plotted point falls above the applicable curve in Figure 4C-S (See Appendix D)	All Parts Must be Satisfied
	1. Total Delay	2. Volume on minor street	3. Total Entering volume	All Satisfied		
1. Baker Blvd / Death Valley Rd (SR 127)	Yes	Yes	Yes	Yes	Yes	Not Applicable
2. Death Valley Rd (SR 127) / I-15 SB Ramps	No	Yes	Yes	No	Yes	
3. Death Valley Rd (SR 127) / I-15 NB Ramps	No	Yes	No	No	No	

Notes:
Source of warrant procedures: California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014 Edition (Section 4C.01 Studies and Factors for Justifying Traffic Control Signals).
Source of crash data: California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) Reports.

Traffic signal warrant 3, part A and part B are satisfied for the intersection of Baker Blvd at Death Valley Rd (SR 127). Traffic signal warrant 3, part B is satisfied for the intersections of Death Valley Rd (SR 127) at I-15 SB Ramps and Death Valley Rd (SR 127) at I-15 NB Ramps.

8.3 Future Plus Project Conditions Queuing Analysis

A queuing analysis for the future plus project conditions was performed for the Death Valley Rd (SR 127) intersections with Baker Blvd, I-15 SB Ramps, and I-15 NB Ramps. The queuing analysis was performed utilizing the Trafficware SimTraffic Version 11 software package. The 95th percentile maximum queue length results for the Existing Plus Project Conditions are shown in **Table 8-3** and **Appendix D.**

Table 8-3: Queuing Analysis – Future Plus Project Conditions

Intersection	Movement	Storage Length (Feet)	Project Condition		Project Condition with Improvements	
			FRI	SUN	FRI	SUN
1. Baker Blvd / Death Valley Rd (SR 127)	EBL	200	44	81	51	176
	EBTH		120	82	196	123
	EBR	200	77	79	87	86
	WBL	225	173	190	203	200
	WBTH		78	82	112	139
	WBR	225	-	-	26	25
	NBL		-	-	85	104
	NBLTHR/NBTH		329	314	19	67
	NBR		-	-	180	145
	SBL		-	-	27	38
	SBLTHR/SBTHR		67	69	35	52
2. Death Valley Rd (SR 127) / I-15 SB Ramps	WBLTHR					
	NBLTH		461	780	107	135
	SBTHR		144	202	77	153
3. Death Valley Rd (SR 127) / I-15 NB Ramps	EBLTHR		7	11	23	10
	NBTHR					
	SBLTH		132	106	133	101

Queue – In Feet
95% - 95 Percentile Queue Length

9 RECOMMENDATIONS

The intersection of Baker Blvd / Death Valley Rd (SR 127) is projected to change from an acceptable level of service to a deficient level of service after project traffic is added to the intersection. This occurs in all three scenarios (existing, background opening day, and future 2040).

Measures to Improve Level of Service Deficiency at Baker Blvd and Death Valley Rd (SR 127)

Implementing the following improvements at the intersection of Baker Blvd and Death Valley Rd will change the deficient LOS in all scenarios from a LOS E or F to a LOS D or better.

2. Install traffic signal and widen intersection for additional lanes

a. Traffic signal is proposed to be an 8-phase signal (providing protected left-turn phasing with overlap in the east-west and north-south directions).

b. Widening of the south leg (Death Valley Rd (SR 127)) to accommodate exclusive left and right turn lanes

c. Realignment and widening of the north leg (Death Valley Rd (SR 127) to accommodate an exclusive left turn lane.

d. Set back of the east leg (Baker Blvd) to accommodate the widening of the Death Valley Rd (SR 127) approaches.

The installation of a traffic signal would improve level of service to a LOS C or better under project conditions in all scenarios, as shown in **Table 9-1**.

The installation of the traffic signal and the reconfiguring of approach lanes should be initiated by the County and Caltrans. The development will pay its fair share of the cost of these improvements.

Table 9-1: Mitigated Level of Service at Baker Blvd and Death Valley Rd (SR127)

Scenario	Without Project				With Project				With Project Mitigated			
	FRI Peak		SUN Peak		FRI Peak		SUN Peak		FRI Peak		SUN Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Existing Conditions	10.0	A	12.4	B	151.2	F	175.2	F	25.8	C	25.9	C
Background (2023) Conditions	10.3	B	12.9	B	132.3	F	182.1	F	27.3	C	26.6	C
Future 2040 Conditions	11.2	B	13.7	B	181.7	F	194.5	F	28.0	C	26.9	C
Notes: Mitigation: Install traffic signal and widen approaches to add turning lanes.												

Project Traffic Fair Share Calculation

Table 9-2 presents the project's calculated percentage of the growth in traffic at the intersection of Baker Blvd and Death Valley Rd (SR 127). The project's percentage of growth shown in the table multiplied by the cost of implementing the intersection improvements described above minus any fees or fair share development contributions previously collected by the county towards the cost of signalizing this intersection would be the project's share of funding the improvement.

Other Recommended Measures

2. Construct project frontage improvements

The project will be conditioned to construct its access driveways and construct the required half-width improvements to the north side of Baker Blvd along its frontage consistent with the county's standard for Major Highway with a 104-foot right of way and 80-foot curb separation. These improvements include but are not limited to the following:

a. Dedicate right of way (if required) for the full half width of Baker Blvd.

Table 9-2: Calculation of Project Share of Growth in Traffic at Baker Blvd / Death Valley Rd (SR 127)

Intersection	Scenario	Project Trips		Plus Project Conditions Traffic [1]		Existing Traffic		Project Percentage of Growth
Baker Blvd / Death Valley Rd	Existing + Project Conditions	FRI	1065 ÷	(1,763	-	698)	=	100.00%
		SUN	1098 ÷	(2,132	-	1,034)	=	100.00%
	Background + Project Conditions	FRI	1065 ÷	(1,792	-	698)	=	97.35%
		SUN	1098 ÷	(2,173	-	1,034)	=	96.40%
	Future 2040 + Project Conditions	FRI	1065 ÷	(1,872	-	698)	=	90.72%
		SUN	1098 ÷	(2,214	-	1,034)	=	93.05%

Notes:
[1] Plus project conditions traffic = existing + ambient growth at 2% annually + project traffic for each scenario.

b. Remove old asphalt and repave the required half width of Baker Blvd along the project's frontage.

c. Mark the pavement of the widened side of Baker Blvd as a single southbound lane using white edge lines that transition and channelize southbound traffic into the lane at the beginning of the project's frontage and out of the lane at the end of the project's frontage.

d. Extend the existing two way left turn lane to the south along Baker Blvd for the length of the project's frontage plus any required transition to match existing centerline south of the project's frontage improvements.

e. Construct standard curb, gutter, and sidewalk frontage improvements on Baker Blvd.

f. Construct the two project access driveways at the locations shown on the site plan (see Figure 2).

10 SUMMARY OF VEHICLE MILES TRAVELED (VMT) SCREENING

The County of San Bernardino guideline refers to the use of the San Bernardino County Transportation Authority (SBCTA) guidelines for analyzing a development project's VMT in conformance with SB 743.

According to the SBCTA guidelines a VMT analysis would apply to projects that have the potential to increase the average VMT per service population (e.g., population plus employment) compared to the County of San Bernardino VMT average of 32.7%.

10.1 Project Screening from Conducting VMT Analyses

There are three types of screening that lead agencies can apply to effectively screen projects from the need to conduct a project-level VMT assessment. The two relevant screening steps are summarized below:

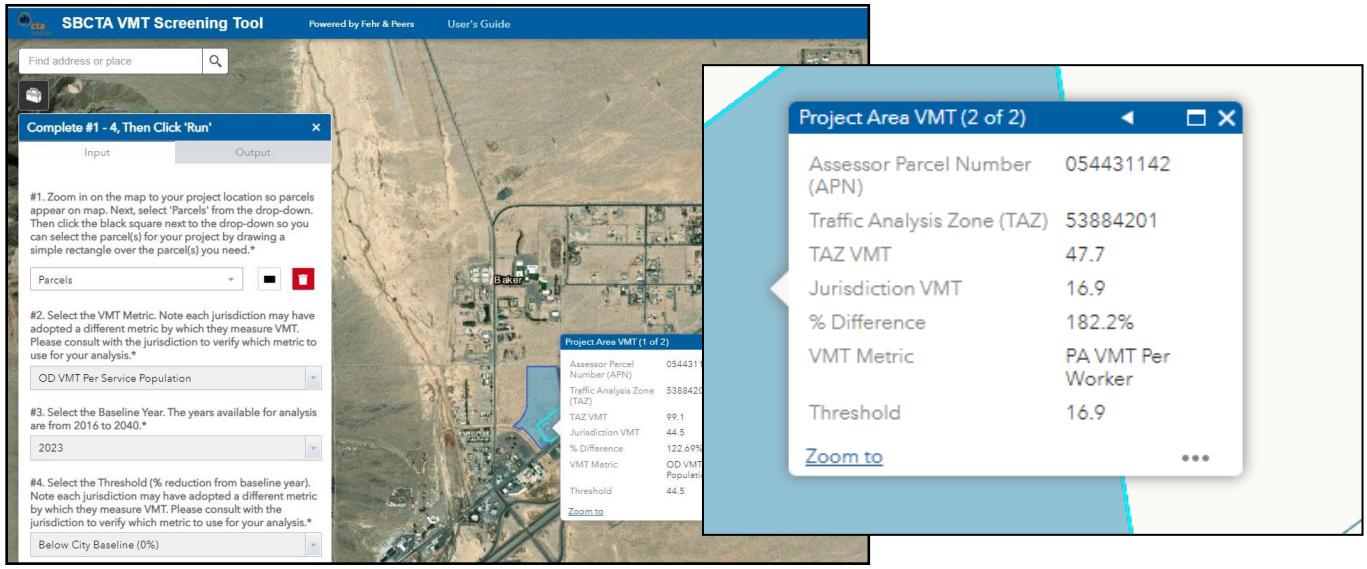
Low VMT Area Screening

Residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition, other employment-related and mixed-use land use projects may qualify for the use of screening if the project can reasonably be expected to generate VMT per resident, per worker, or per service population that is similar to the existing land uses in the low VMT area.

For low VMT screening in the SBCTA area, the SBTAM travel forecasting model was used to develop a tool that measures VMT performance for individual jurisdictions and for individual traffic analysis zones (TAZs). TAZs are geographic polygons like Census block groups used to represent areas of homogenous travel behavior. Total daily VMT per service population (population plus employment) was estimated for each TAZ. This presumption may not be appropriate if the project land uses would alter the existing built environment in such a way as to increase the rate or length of vehicle trips.

To identify if the project is in a low VMT-generating area, the SBCTA screening tool is used to **compare the appropriate baseline (without project) TAZ VMT to current County of San Bernardino VMT threshold of 32.7% VMT/Service Population**. Additionally, as noted above, the analyst must identify if the project is consistent with the existing land use within that TAZ and use professional judgement that there is nothing unique about the project that would otherwise be mis-represented utilizing the data from the travel demand model.

The image below provides the SBCTA screening tool output for the project's opening year (2023) and shows that the project identified in blue. Based on this analysis, the project is not located in a low-VMT generating area.



SBCTA Screening Tool Output for Project in Opening Year (2023)

Project Type Screening

Local serving retail projects less than 50,000 square feet may be presumed to have a less than significant impact absent substantial evidence to the contrary. Local serving retail generally improves the convenience of shopping close to home and has the effect of reducing vehicle travel.

Highway Oriented Commercial as Locally Serving Retail for Pass-by and Diverted Trips

The definition of local serving retail can also be applied to convenience retail near interchanges that attract most of their customers from the freeway. These "diverted" customer trips from the freeway are trips that are passing-by and drive a little further to the site for the provided services important to freeway travelers. When the diverted travelers are ready, they return to the freeway and continue in the same direction as their original route. The vehicle miles traveled by diverted link trips is the length of the route from the freeway to the site and the return trip.

The most recent version (11th Edition) of the Institute of Transportation Engineers Trip Generation manual's appendices summarizes the substantial amount of empirical data on the proportion of trips generated by convenience markets / gas station that fall into the categories of pass-by, diverted link and primary trips. Combining pass-by and diverted link trips into a single category, as was done for this study, the average proportion of trips that are non-primary exceeds 80 percent.

In addition to serving freeway travelers, the project will also serve the residents of Baker and people who work in Baker thereby meeting the traditional definition of a locally serving retail store / gas station.

VMT Screening Conclusion

Based on the above assessment, the proposed project can be screened from requiring a VMT analysis under CEQA because the project meets the definition of "locally serving retail" under 50,000 square feet and can be presumed to have an insignificant affect on VMT by providing necessary services to vehicles already traveling very long distances unrelated to the proposed project.

DAVID EVANS AND ASSOCIATES INC.

11 APPENDICES

Appendix A: Traffic Counts
Appendix B: Forecast Model Volume Development
Appendix C: Intersection Capacity Analysis
Appendix D: Traffic Signal Warrant Analysis
Appendix E: Queuing Analysis
Appendix F: Truck Turning Template

DAVID EVANS AND ASSOCIATES INC.

11 APPENDICES

Appendix A: Traffic Counts
Appendix B: Forecast Model Volume Development
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DAVID EVANS AND ASSOCIATES INC.

Appendix A: Traffic Counts

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER
EAST-WEST STREET: BAKER BLVD
JURISDICTION: BAKER

DATE: 09-03-21

PEAK HOUR: 04:45PM

NORTH LEG

TOTAL: 33

Rt	Thru	Lt	
14	14	5	Total
3	3	2	1st
1	2	1	2nd
6	6	0	3rd
4	3	2	4th

EAST LEG TOTAL: 220

	1st	2nd	3rd	4th	Total
Rt	2	14	3	5	24
Thru	17	26	23	28	94
Lt	35	22	21	24	102

WEST LEG TOTAL: 284

Total	1st	2nd	3rd	4th	
15	3	3	5	4	Lt
106	20	36	23	27	Thru
163	35	44	35	49	Rt

PEAK HOUR FACTORS

NORTH LEG = 0.69
SOUTH LEG = 0.69
EAST LEG = 0.89
WEST LEG = 0.86

ALL LEGS = 0.84

SOUTH LEG

TOTAL: 161

	Lt	Thru	Rt
1st	14	6	24
2nd	31	4	23
3rd	10	1	13
4th	10	1	24
Total	65	12	84

HOUR TOTAL: 698

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : DEATH VALLEY/KELBAKER BAKER

EAST-WEST STREET : BAKER BLVD 09-03-21

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	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
4	2	1	0	0	0	0	0	0	0	0	0	7
2	1	2	0	0	0	0	0	0	1	2	0	8
1	2	1	0	0	0	0	0	0	0	0	0	4
6	6	0	0	0	0	0	0	0	0	0	0	12
3	3	2	0	0	0	0	0	0	1	0	0	9
7	0	4	0	0	0	0	0	0	0	0	0	11
23	16	12	0	0	0	0	0	0	2	2	0	55
						SOUTH LEG						
6	0	8	0	0	0	0	1	0	1	1	0	17
15	3	19	0	0	0	0	0	0	0	0	0	37
8	1	12	0	0	0	0	0	0	0	0	0	21
24	6	14	0	0	0	0	0	0	0	0	0	44
21	3	31	0	0	0	1	1	0	1	0	0	58
12	1	9	0	0	0	0	0	0	1	0	1	24
24	1	10	0	0	0	0	0	0	0	0	0	35
14	2	4	0	0	0	0	0	0	0	0	0	20
124	17	107	0	0	0	1	2	0	3	1	1	256
						EAST LEG						
6	22	25	1	.0	0	1	0	0	0	1	0	56
0	12	29	0	0	0	0	1	1	0	1	0	44
0	16	30	0	0	0	0	0	0	0	3	3	52
2	16	33	0	0	0	0	1	0	0	0	2	54
14	23	20	0	1	0	0	0	0	0	2	2	62
3	23	21	0	0	0	0	0	0	0	0	0	47
5	22	23	0	1	1	0	4	0	0	1	0	57
2	11	40	0	0	0	0	0	0	0	3	1	57
32	145	221	1	2	1	1	6	1	0	11	8	429
						WEST LEG						
33	8	4	0	0	0	0	0	0	0	0	0	45
30	16	1	0	0	0	1	0	0	0	0	0	48
24	14	3	1	0	0	2	0	0	0	0	0	44
2	19	2	0	0	0	33	0	0	0	1	1	58
43	35	3	0	0	0	1	0	0	0	1	0	83
32	22	4	0	0	0	1	0	0	2	1	1	63
49	23	4	0	0	0	0	0	0	0	4	0	80
17	10	2	0	1	0	0	0	0	1	2	0	33
230	147	23	1	1	0	38	0	0	3	9	2	454

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER

EAST-WEST STREET: BAKER BLVD

TIME: 04:00PM-05:00PM DATE: 09-03-21

NORTH LEG

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

Rt	8	0	0	2	10
Thru	23	14	19	17	73
Lt	25	30	33	35	123
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
11	4	1	3	3	Lt
58	8	16	14	20	Thru
126	33	31	27	35	Rt

	Lt	Thru	Rt
1st	8	2	7
2nd	19	3	15
3rd	12	1	8
4th	14	6	24
Total	53	12	54

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER

EAST-WEST STREET: BAKER BLVD

TIME: 05:00PM-06:00PM DATE: 09-03-21

NORTH LEG

Rt	Thru	Lt	
18	11	7	Total
1	2	1	1st
6	6	0	2nd
4	3	2	3rd
7	0	4	4th

	1st	2nd	3rd	4th	Total
Rt	14	3	5	2	24
Thru	26	23	28	14	91
Lt	22	21	24	41	108

Total	1st	2nd	3rd	4th	
14	3	5	4	2	Lt
99	36	23	27	13	Thru
146	44	35	49	18	Rt

	Lt	Thru	Rt
1st	31	4	23
2nd	10	1	13
3rd	10	1	24
4th	4	2	14
Total	55	8	74

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER
EAST-WEST STREET: BAKER BLVD DATE: 09-05-21
JURISDICTION: BAKER

PEAK HOUR: 01:00PM

NORTH LEG

TOTAL: 62

Rt	Thru	Lt	
13	25	24	Total
1	8	13	1st
6	6	0	2nd
2	3	7	3rd
4	8	4	4th

EAST LEG TOTAL: 309

	1st	2nd	3rd	4th	Total
Rt	1	2	0	7	10
Thru	8	39	56	54	157
Lt	13	48	35	46	142

WEST LEG TOTAL: 454

Total	1st	2nd	3rd	4th	
179	26	48	49	56	Lt
96	24	22	29	21	Thru
179	26	48	49	56	Rt

PEAK HOUR FACTORS

NORTH LEG = 0.70
SOUTH LEG = 0.71
EAST LEG = 0.72
WEST LEG = 0.85

ALL LEGS = 0.89

SOUTH LEG

TOTAL: 209

	Lt	Thru	Rt
1st	38	34	2
2nd	21	3	27
3rd	17	15	16
4th	19	5	12
Total	95	57	57

HOUR TOTAL: 1,034

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : DEATH VALLEY/KELBAKER BAKER

EAST-WEST STREET : BAKER BLVD 09-05-21

BEGINNING TIME : 01:00PM

AUTOS			LARGE 2 AXLE			3 AXLE			4(+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
0	6	12	0	0	0	0	0	0	1	2	1	22
6	4	0	0	0	0	0	0	0	0	2	0	12
2	1	7	0	0	0	0	0	0	0	2	0	12
4	7	4	0	0	0	0	0	0	0	1	0	16
0	1	2	0	0	0	0	0	0	0	1	0	4
2	3	0	0	0	0	0	0	0	0	0	0	5
1	1	0	0	0	0	0	0	0	0	0	0	2
3	2	1	0	0	0	0	0	0	0	0	0	6
18	25	26	0	0	0	0	0	0	1	8	1	79
SOUTH LEG												
1	33	38	0	0	0	1	0	0	0	1	0	74
27	2	21	0	1	0	0	0	0	0	0	0	51
14	15	16	2	0	1	0	0	0	0	0	0	48
12	5	19	0	0	0	0	0	0	0	0	0	36
23	1	14	0	0	0	0	0	0	0	0	0	38
12	4	17	0	0	0	0	0	0	0	0	0	33
27	0	10	0	0	0	0	0	0	0	0	1	38
21	7	16	0	0	0	0	0	0	0	0	0	44
137	67	151	2	1	1	1	0	0	0	1	1	362
EAST LEG												
1	8	11	0	0	0	0	0	0	0	0	2	22
2	39	48	0	0	0	0	0	0	0	0	0	89
0	56	35	0	0	0	0	0	0	0	0	0	91
7	53	45	0	0	0	0	0	0	0	1	1	107
6	27	31	0	0	0	0	0	0	1	1	0	66
4	25	34	0	0	0	0	0	0	0	0	0	63
2	15	27	0	0	0	0	0	0	0	0	0	44
2	14	36	0	0	0	0	0	0	0	0	0	52
24	237	267	0	0	0	0	0	0	1	2	3	534
WEST LEG												
26	24	26	0	0	0	0	0	0	0	0	0	76
48	22	48	0	0	0	0	0	0	0	0	0	118
49	29	49	0	0	0	0	0	0	0	0	0	127
56	20	56	0	1	0	0	0	0	0	0	0	133
34	9	2	0	1	1	0	0	0	0	0	2	49
28	14	2	0	0	0	0	0	0	0	0	0	44
24	17	4	0	0	0	0	0	0	0	0	0	45
31	24	5	0	0	0	0	0	0	0	0	0	60
296	159	192	0	2	1	0	0	0	0	0	2	652

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER

EAST-WEST STREET: BAKER BLVD

TIME: 01:00PM-02:00PM DATE: 09-05-21

NORTH LEG

Rt	Thru	Lt	
13	25	24	Total
1	8	13	1st
6	6	0	2nd
2	3	7	3rd
4	8	4	4th

	1st	2nd	3rd	4th	Total
Rt	1	2	0	7	10
Thru	8	39	56	54	157
Lt	13	48	35	46	142

Total	1st	2nd	3rd	4th	
179	26	48	49	56	Lt
96	24	22	29	21	Thru
179	26	48	49	56	Rt

	Lt	Thru	Rt
1st	38	34	2
2nd	21	3	27
3rd	17	15	16
4th	19	5	12
Total	95	57	57

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER

EAST-WEST STREET: BAKER BLVD

TIME: 02:00PM-03:00PM DATE: 09-05-21

NORTH LEG

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

Rt	7	4	2	2	15
Thru	28	25	15	14	82
Lt	31	34	27	36	128
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
16	5	2	4	5	Lt
65	10	14	17	24	Thru
117	34	28	24	31	Rt

	Lt	Thru	Rt
1st	14	1	23
2nd	17	4	12
3rd	11	0	27
4th	16	7	21
Total	58	12	83

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER
EAST-WEST STREET: I-15 SB RAMPS DATE: 09-03-21
JURISDICTION: BAKER

PEAK HOUR: 04:45PM

NORTH LEG

TOTAL: 278

Rt	Thru	Lt	
81	197		Total
22	50		1st
19	49		2nd
17	45		3rd
23	53		4th

EAST LEG TOTAL: 68

	1st	2nd	3rd	4th	Total
Rt	19	20	10	14	63
Thru	1	2	1	0	4
Lt	0	0	0	1	1

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

WEST LEG TOTAL: 0

PEAK HOUR FACTORS

NORTH LEG = 0.91
SOUTH LEG = 0.67
EAST LEG = 0.77
WEST LEG =

ALL LEGS = 0.88

	Lt	Thru	Rt
1st	4	24	
2nd	0	38	
3rd	0	14	
4th	0	22	
Total	4	98	

SOUTH LEG

TOTAL: 102

HOUR TOTAL: 448

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : DEATH VALLEY/KELBAKER BAKER

EAST-WEST STREET : I-15 SB RAMPS 09-03-21

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												
19	40	0	0	0	0	0	0	0	0	0	0	59
22	37	0	0	0	0	2	0	0	0	0	0	61
7	50	0	1	0	0	2	0	0	3	0	0	63
17	50	0	0	0	0	2	0	0	3	0	0	72
19	47	0	0	0	0	0	0	0	0	2	0	68
16	43	0	0	0	0	1	0	0	0	2	0	62
22	52	0	1	0	0	0	0	0	0	1	0	76
20	38	0	0	0	0	0	0	0	0	1	0	59
142	357	0	2	0	0	7	0	0	6	6	0	520
SOUTH LEG												
0	9	0	0	0	0	0	0	0	0	2	0	11
0	23	3	0	0	0	0	0	0	0	0	0	26
0	12	1	0	0	0	0	0	0	0	0	0	13
0	24	4	0	0	0	0	0	0	0	0	0	28
0	38	0	0	0	0	0	0	0	0	0	0	38
0	14	0	0	0	0	0	0	0	0	0	0	14
0	22	0	0	0	0	0	0	0	0	0	0	22
0	14	1	0	0	0	0	0	0	0	0	0	15
0	156	9	0	0	0	0	0	0	0	2	0	167
EAST LEG												
1	2	0	0	0	0	1	0	0	4	0	0	8
14	2	0	0	0	0	0	0	0	0	0	0	16
10	3	1	0	0	0	0	0	0	0	0	0	14
19	1	0	0	0	0	0	0	0	0	0	0	20
17	2	0	0	0	0	2	0	0	1	0	0	22
9	1	0	0	0	0	0	0	0	1	0	0	11
14	0	1	0	0	0	0	0	0	0	0	0	15
6	2	2	0	0	0	0	0	0	0	0	0	10
90	13	4	0	0	0	3	0	0	6	0	0	116
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: DEATH VALLEY/KELBAKER

EAST-WEST STREET: I-15 SB RAMPS

TIME: 04:00PM-05:00PM DATE: 09-03-21

NORTH LEG

Rt	Thru	Lt	
78	177		Total
19	40		1st
24	37		2nd
13	50		3rd
22	50		4th

	1st	2nd	3rd	4th	Total
Rt	6	14	10	19	49
Thru	2	2	3	1	8
Lt	0	0	1	0	1

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

	Lt	Thru	Rt
1st	0	11	
2nd	3	23	
3rd	1	12	
4th	4	24	
Total	8	70	

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER

EAST-WEST STREET: I-15 SB RAMPS

TIME: 05:00PM-06:00PM DATE: 09-03-21

NORTH LEG

Rt	Thru	Lt	
79	186		Total
19	49		1st
17	45		2nd
23	53		3rd
20	39		4th

	1st	2nd	3rd	4th	Total
Rt	20	10	14	6	50
Thru	2	1	0	2	5
Lt	0	0	1	2	3

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

	Lt	Thru	Rt
1st	0	38	
2nd	0	14	
3rd	0	22	
4th	1	14	
Total	1	88	

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER
EAST-WEST STREET: I-15 SB RAMPS DATE: 09-05-21
JURISDICTION: BAKER

PEAK HOUR: 01:00PM

NORTH LEG

TOTAL: 339

Rt	Thru	Lt	
166	173		Total
28	19		1st
51	51		2nd
32	55		3rd
55	48		4th

EAST LEG TOTAL: 118

	1st	2nd	3rd	4th	Total
Rt	33	31	27	19	110
Thru	1	2	0	0	3
Lt	0	2	3	0	5

WEST LEG TOTAL: 0

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

PEAK HOUR FACTORS

NORTH LEG = 0.82
SOUTH LEG = 0.63
EAST LEG = 0.84
WEST LEG =

ALL LEGS = 0.90

SOUTH LEG

TOTAL: 138

	Lt	Thru	Rt
1st	15	40	
2nd	8	20	
3rd	8	21	
4th	8	18	
Total	39	99	

HOUR TOTAL: 595

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : DEATH VALLEY/KELBAKER BAKER

EAST-WEST STREET : I-15 SB RAMPS 09-05-21

BEGINNING TIME : 01:00PM

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												
26	17	0	0	0	0	0	0	0	2	2	0	47
51	50	0	0	0	0	0	0	0	0	1	0	102
32	53	0	0	0	0	0	0	0	0	2	0	87
55	46	0	0	0	0	0	0	0	0	2	0	103
35	32	0	0	0	0	0	0	0	0	1	0	68
33	32	0	0	0	0	0	0	0	0	0	0	65
22	31	0	0	0	0	0	0	0	0	0	0	53
38	30	0	0	0	0	0	0	0	0	0	0	68
292	291	0	0	0	0	0	0	0	2	8	0	593
SOUTH LEG												
0	39	15	0	0	0	0	1	0	0	0	0	55
0	19	8	0	1	0	0	0	0	0	0	0	28
0	21	8	0	0	0	0	0	0	0	0	0	29
0	18	8	0	0	0	0	0	0	0	0	0	26
0	18	10	0	0	0	0	0	0	0	0	0	28
0	22	16	0	0	0	0	0	0	0	0	0	38
0	9	12	0	0	0	0	0	0	0	1	0	22
0	12	11	0	0	0	0	0	0	0	0	0	23
0	158	88	0	1	0	0	1	0	0	1	0	249
EAST LEG												
27	1	0	3	0	0	0	0	0	3	0	0	34
31	2	2	0	0	0	0	0	0	0	0	0	35
24	0	3	3	0	0	0	0	0	0	0	0	30
19	0	0	0	0	0	0	0	0	0	0	0	19
20	2	0	0	0	0	0	0	0	0	0	0	22
12	3	1	0	0	0	0	0	0	0	0	0	16
27	0	0	0	0	1	0	0	0	0	0	0	28
32	3	0	0	0	0	0	0	0	0	0	0	35
192	11	6	6	0	1	0	0	0	3	0	0	219
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: DEATH VALLEY/KELBAKER

EAST-WEST STREET: I-15 SB RAMPS

TIME: 01:00PM-02:00PM DATE: 09-05-21

NORTH LEG

Rt	Thru	Lt	
166	173		Total
28	19		1st
51	51		2nd
32	55		3rd
55	48		4th

	1st	2nd	3rd	4th	Total
Rt	33	31	27	19	110
Thru	1	2	0	0	3
Lt	0	2	3	0	5

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

	Lt	Thru	Rt
1st	15	40	
2nd	8	20	
3rd	8	21	
4th	8	18	
Total	39	99	

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER

EAST-WEST STREET: I-15 SB RAMPS

TIME: 02:00PM-03:00PM DATE: 09-05-21

NORTH LEG

Rt	Thru	Lt	
128	126		Total
35	33		1st
33	32		2nd
22	31		3rd
38	30		4th

	1st	2nd	3rd	4th	Total
Rt	20	12	27	32	91
Thru	2	3	0	3	8
Lt	0	1	1	0	2

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

	Lt	Thru	Rt
1st	10	18	
2nd	16	22	
3rd	12	10	
4th	11	12	
Total	49	62	

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER
EAST-WEST STREET: I-15 NB RAMPS
JURISDICTION: BAKER
DATE: 09-03-21

PEAK HOUR: 04:45PM

NORTH LEG

TOTAL: 198

	1	197	Total
	1	49	1st
	0	49	2nd
	0	45	3rd
	0	54	4th
Rt	Thru	Lt	

EAST LEG TOTAL: 0

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

WEST LEG TOTAL: 105

Total	1st	2nd	3rd	4th	
100	26	38	14	22	Lt
3	1	2	0	0	Thru
2	1	0	1	0	Rt

SOUTH LEG

TOTAL: 6

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

PEAK HOUR FACTORS

NORTH LEG = 0.92
SOUTH LEG = 0.30
EAST LEG =
WEST LEG = 0.66

ALL LEGS = 0.87

HOUR TOTAL: 309

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : DEATH VALLEY/KELBAKER BAKER

EAST-WEST STREET : I-15 NB RAMPS 09-03-21

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	1	39	0	0	0	0	0	0	0	0	0	40
0	3	34	0	0	0	0	0	0	0	0	0	37
0	1	51	0	0	0	0	0	0	0	0	0	52
0	1	47	0	0	0	0	0	1	0	0	1	50
0	0	46	0	0	0	0	0	1	0	0	2	49
0	0	43	0	0	0	0	0	0	0	0	2	45
0	0	53	0	0	0	0	0	0	0	0	1	54
0	1	35	0	0	0	0	0	0	0	0	1	37
0	7	348	0	0	0	0	0	2	0	0	7	364
SOUTH LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
1	3	0	0	0	0	0	0	0	0	0	0	4
0	1	0	0	0	0	0	0	0	0	0	0	1
3	2	0	0	0	0	0	0	0	0	0	0	5
0	0	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	0	0	0	0	0	0	0	0	0	0	1
6	6	0	0	0	0	0	0	0	0	0	0	12
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	1	10	0	0	0	0	0	0	0	0	1	12
0	3	23	0	0	0	0	0	0	0	0	0	26
1	2	12	0	0	0	0	0	0	0	0	0	15
1	1	26	0	0	0	0	0	0	0	0	0	28
0	1	38	0	0	0	0	0	0	0	1	0	40
1	0	13	0	0	0	0	0	0	0	0	1	15
0	0	20	0	0	0	0	0	0	0	0	2	22
0	3	15	0	0	0	0	0	0	0	0	0	18
3	11	157	0	0	0	0	0	0	0	1	4	176

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER

EAST-WEST STREET: I-15 NB RAMPS

TIME: 04:00PM-05:00PM DATE: 09-03-21

NORTH LEG

	6	173	Total
	1	39	1st
	3	34	2nd
	1	51	3rd
	1	49	4th
Rt	Thru	Lt	

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

Total	1st	2nd	3rd	4th	
72	11	23	12	26	Lt
7	1	3	2	1	Thru
2	0	0	1	1	Rt

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

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER

EAST-WEST STREET: I-15 NB RAMPS

TIME: 05:00PM-06:00PM DATE: 09-03-21

NORTH LEG

	1	184	Total
	0	49	1st
	0	45	2nd
	0	54	3rd
	1	36	4th

Rt Thru Lt

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

Total	1st	2nd	3rd	4th	
89	38	14	22	15	Lt
5	2	0	0	3	Thru
1	0	1	0	0	Rt

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

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER
EAST-WEST STREET: I-15 NB RAMPS
JURISDICTION: BAKER
DATE: 09-05-21

PEAK HOUR: 01:00PM

NORTH LEG

TOTAL: 173

	1	172	Total
	0	19	1st
	0	51	2nd
	1	54	3rd
	0	48	4th
Rt	Thru	Lt	

EAST LEG TOTAL: 0

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

WEST LEG TOTAL: 142

Total	1st	2nd	3rd	4th	
138	55	28	29	26	Lt
1	0	0	0	1	Thru
3	0	0	1	2	Rt

SOUTH LEG

TOTAL: 8

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

PEAK HOUR FACTORS

NORTH LEG = 0.79
SOUTH LEG = 0.67
EAST LEG =
WEST LEG = 0.65

ALL LEGS = 0.94

HOUR TOTAL: 323

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : DEATH VALLEY/KELBAKER BAKER

EAST-WEST STREET : I-15 NB RAMPS 09-05-21

BEGINNING TIME : 01:00PM

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	17	0	0	0	0	0	0	0	0	2	19
0	0	50	0	0	0	0	0	0	0	0	1	51
0	1	52	0	0	0	0	0	0	0	0	2	55
0	0	46	0	0	0	0	0	0	0	0	2	48
0	1	30	0	0	0	0	0	0	0	0	2	33
0	4	28	0	0	0	0	0	0	0	0	0	32
0	0	30	0	0	1	0	0	0	0	0	0	31
0	0	30	0	0	0	0	0	0	0	0	0	30
0	6	283	0	0	1	0	0	0	0	0	9	299
SOUTH LEG												
0	1	0	0	0	0	0	0	0	1	0	0	2
0	2	0	0	0	0	0	0	0	0	0	0	2
1	0	0	0	0	0	0	0	0	0	0	0	1
1	2	0	0	0	0	0	0	0	0	0	0	3
1	0	0	0	0	0	0	0	0	0	0	0	1
4	2	0	0	0	0	0	0	0	0	0	0	6
3	0	0	0	0	0	0	0	0	0	0	0	3
1	0	0	0	0	0	0	0	0	0	0	0	1
11	7	0	0	0	0	0	0	0	1	0	0	19
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	53	0	0	0	0	0	1	0	0	1	55
0	0	25	0	0	1	0	0	0	0	0	2	28
1	0	29	0	0	0	0	0	0	0	0	0	30
2	1	25	0	0	0	0	0	0	0	0	1	29
0	3	28	0	0	0	0	0	0	0	0	0	31
0	0	38	0	0	0	0	0	0	0	0	0	38
0	1	20	0	0	1	0	0	0	0	0	1	23
0	1	22	0	0	0	0	0	1	0	0	0	24
3	6	240	0	0	2	0	0	2	0	0	5	258

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER

EAST-WEST STREET: I-15 NB RAMPS

TIME: 01:00PM-02:00PM DATE: 09-05-21

NORTH LEG

	1	172	Total
	0	19	1st
	0	51	2nd
	1	54	3rd
	0	48	4th
Rt	Thru	Lt	

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

Total	1st	2nd	3rd	4th	
138	55	28	29	26	Lt
1	0	0	0	1	Thru
3	0	0	1	2	Rt

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

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: DEATH VALLEY/KELBAKER

EAST-WEST STREET: I-15 NB RAMPS

TIME: 02:00PM-03:00PM DATE: 09-05-21

NORTH LEG

	5	121	Total
	1	32	1st
	4	28	2nd
	0	31	3rd
	0	30	4th
Rt	Thru	Lt	

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

Total	1st	2nd	3rd	4th	
111	28	38	22	23	Lt
5	3	0	1	1	Thru
0	0	0	0	0	Rt

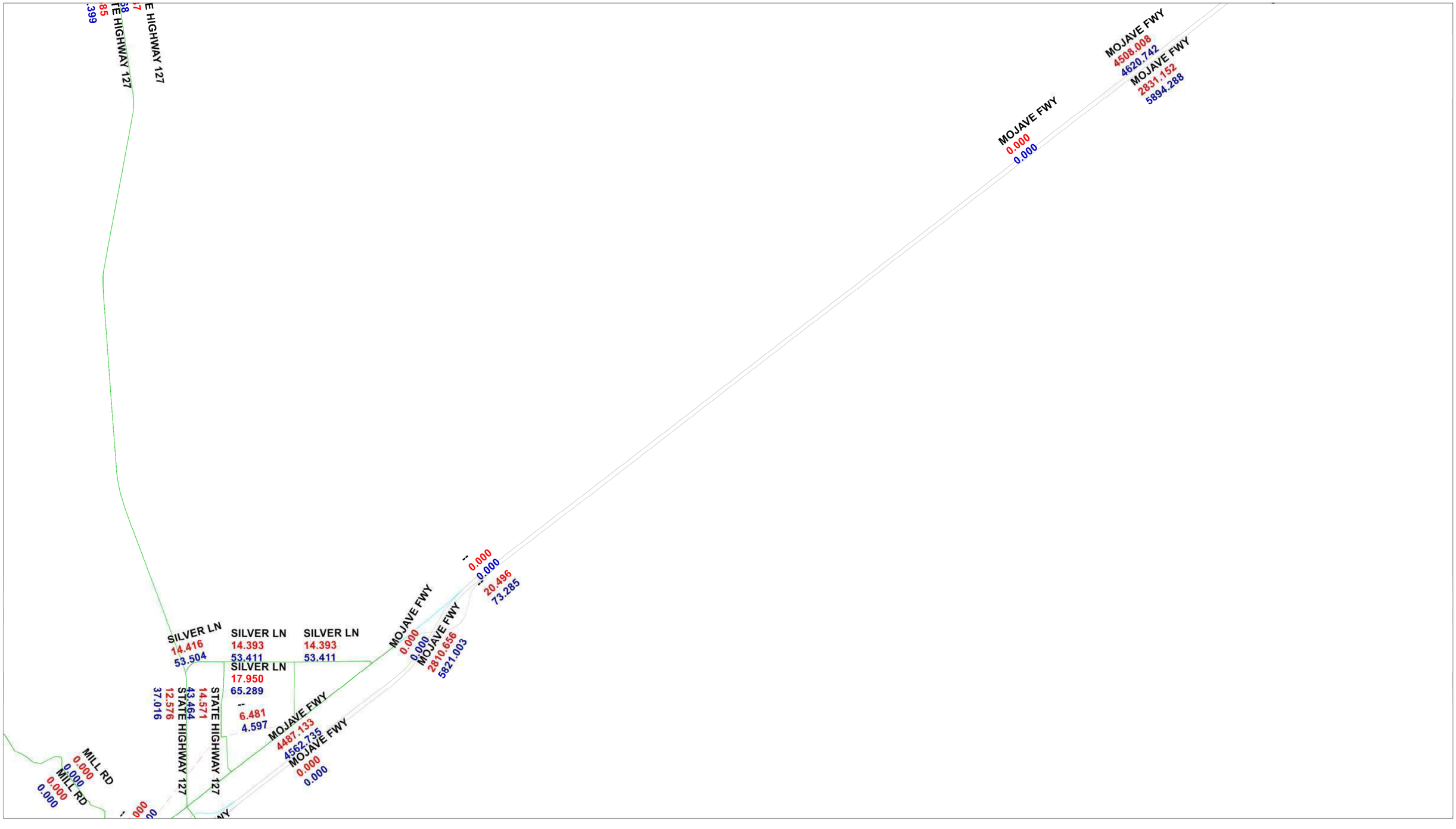
	Lt	Thru	Rt
1st		0	1
2nd		2	4
3rd		0	3
4th		0	1
Total		2	9

Prepared by NEWPORT TRAFFIC STUDIES

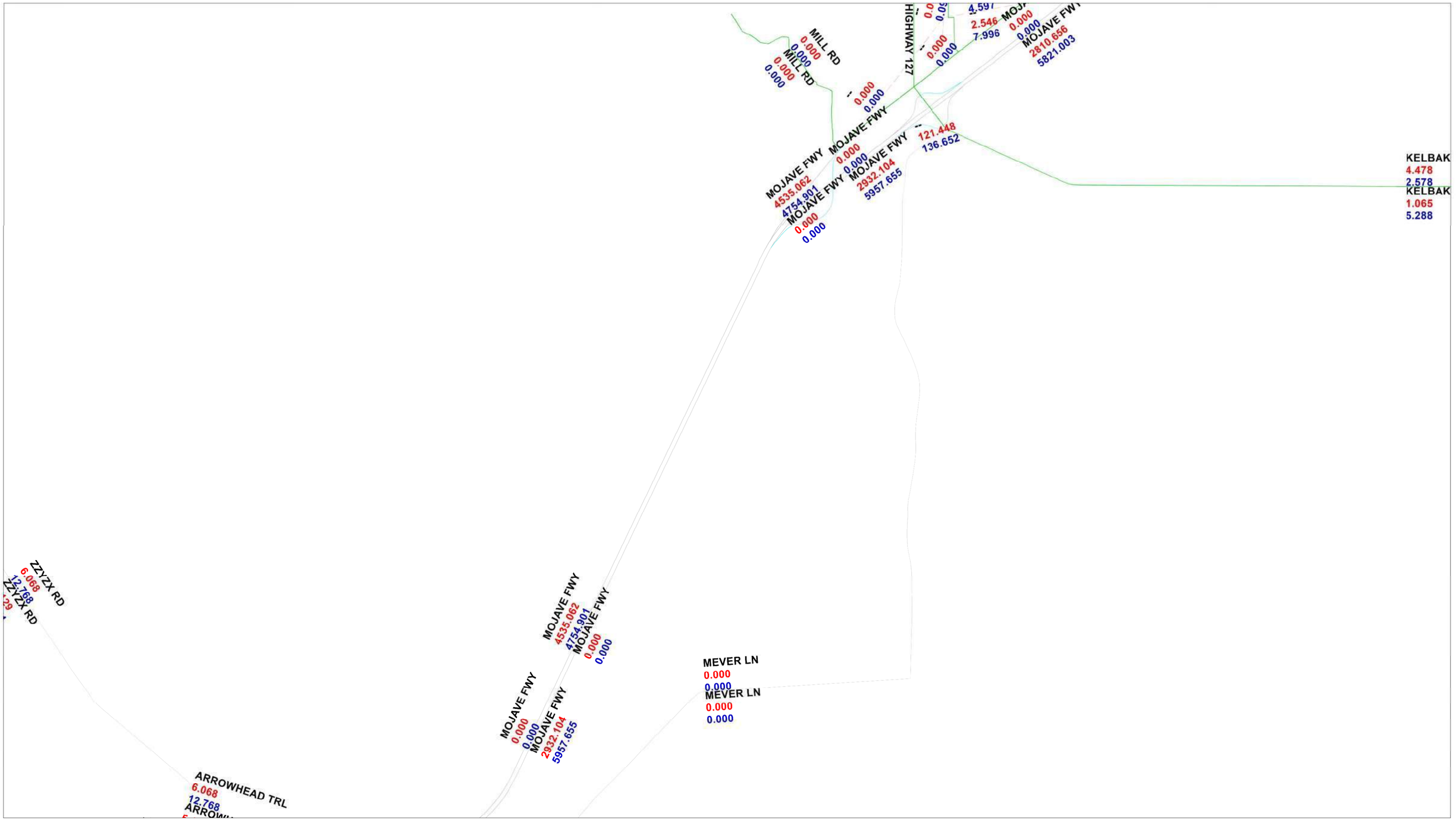
DAVID EVANS AND ASSOCIATES INC.

Appendix B: Forecast Model Volume Development

2016 Base Model Directional Volumes (AM/PM)

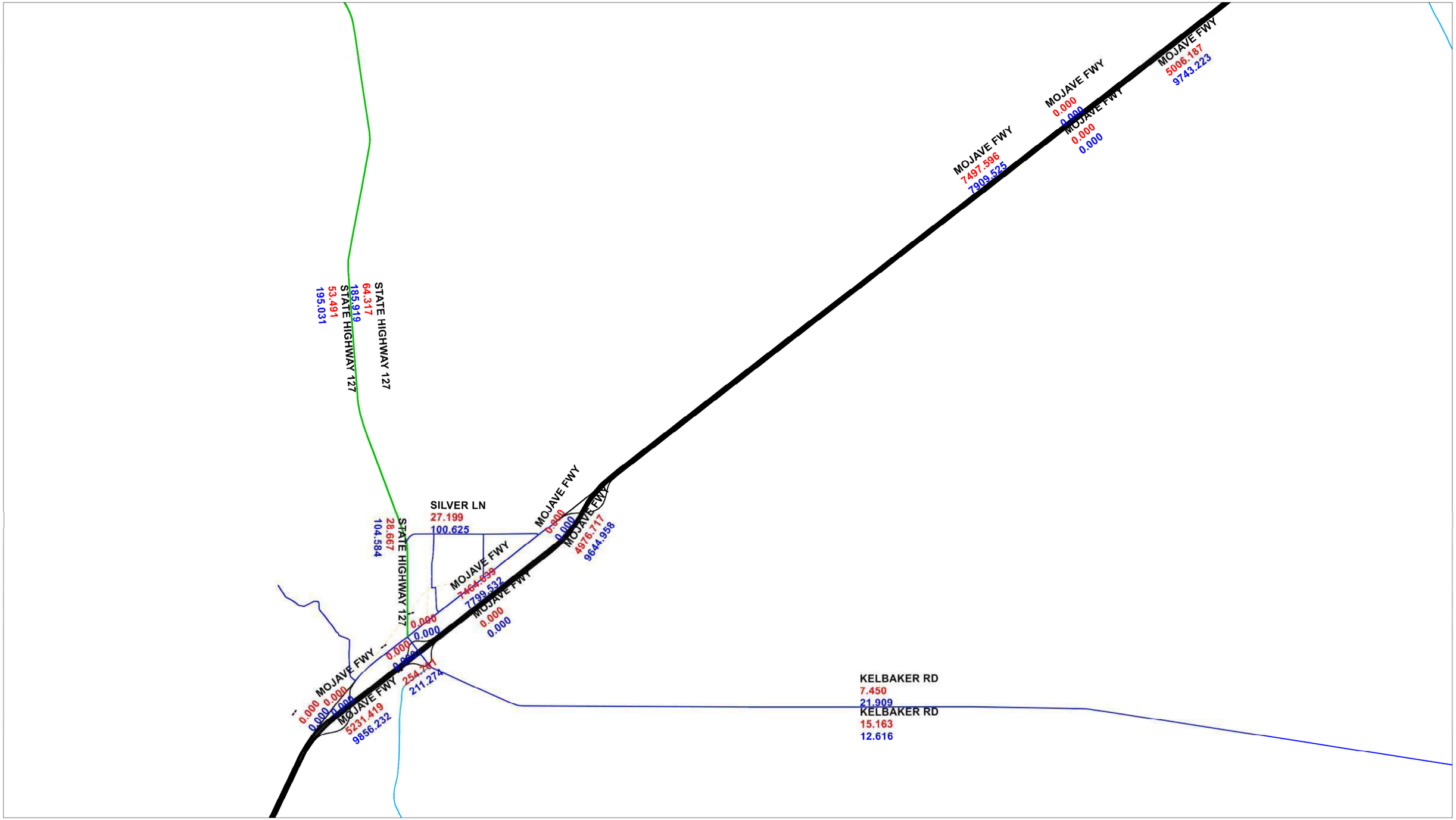


2016 Base Model Directional Volumes (AM/PM)

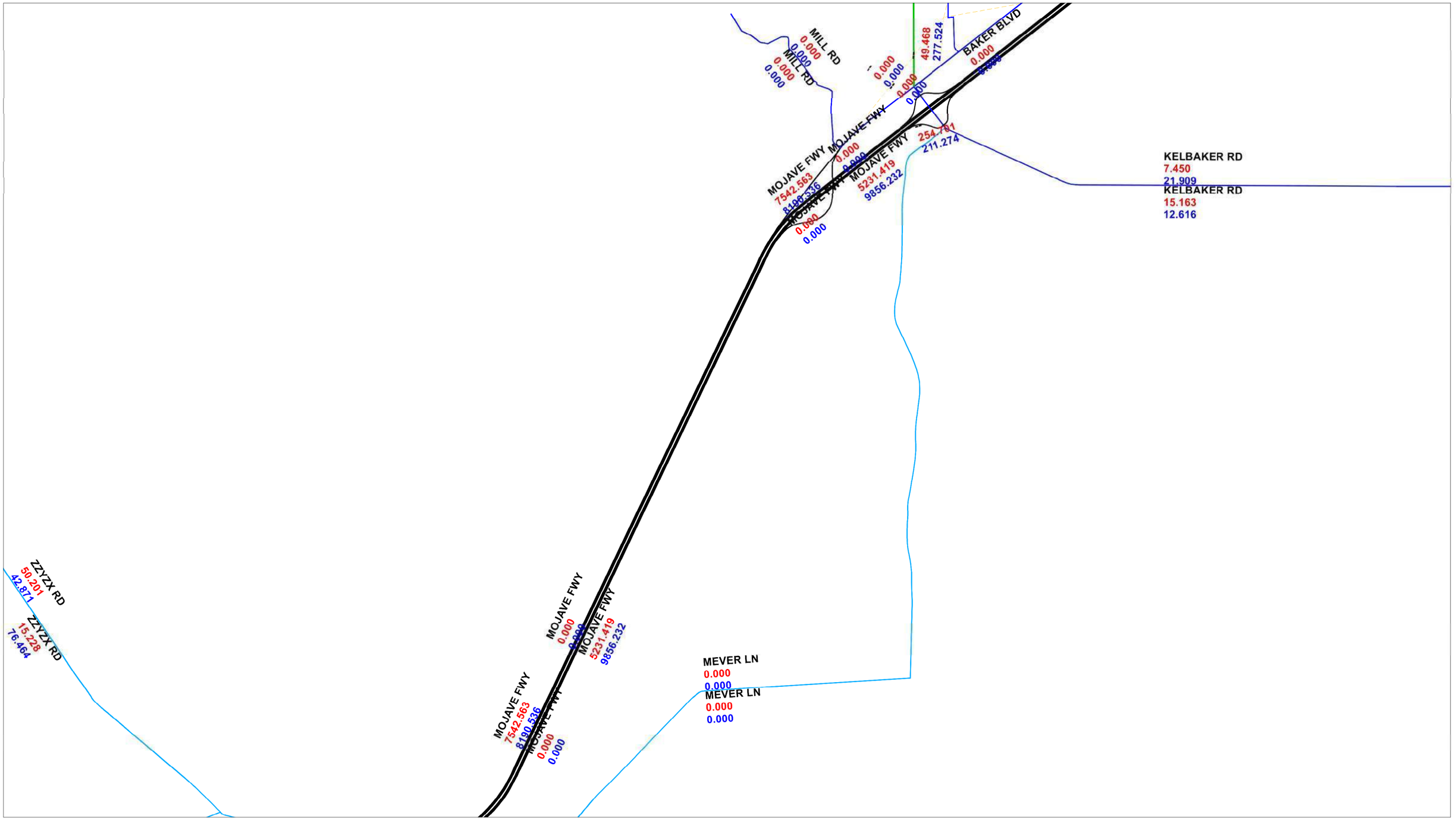


2016 Base Model Directional Volumes (AM/PM)

2040 Forecast Model Directional Volumes (AM/PM)



2040 Forecast Model Directional Volumes (AM/PM)



2040 Forecast Model Directional Volumes (AM/PM)

DAVID EVANS AND ASSOCIATES INC.

Appendix C: Intersection Capacity Analysis

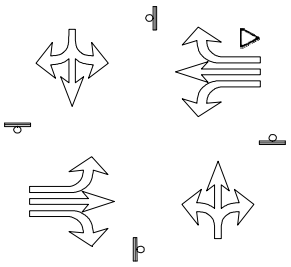
DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	10-Nov-22	OONT0004-0001	1 OF 2

E/W STREET : BAKER BLVD
N/S STREET : DEATH VALLEY RD (SR 127)
CONDITION : FRIDAY PEAK HOUR

INTERSECTION : 1
PROJECTED GROWTH PER YEAR : 2.0%

CONDITION DIAGRAMS



EXISTING GEOMETRICS

TURN MOVEMENTS

Condition	Existing Condition	Project Trips	Existing + Project Condition	Ambient Growth	Background Condition	Project Condition	Future Condition	Future + Project Condition
Scenario #	1		3		5	7	9	11
BAKER BLVD								
EB LEFT	15	0	15	1	16	16	17	17
EB THRU	106	144	250	4	110	254	104	248
EB RIGHT	163	0	163	7	170	170	188	188
WB LEFT	102	350	452	4	106	456	118	468
WB THRU	94	71	165	4	98	169	101	172
WB RIGHT	24	8	32	1	25	33	27	35
DEATH VALLEY RD (SR 127)								
NB LEFT	65	0	65	3	68	68	87	87
NB THRU	12	0	12	0	12	12	17	17
NB RIGHT	84	484	568	3	87	571	101	585
SB LEFT	5	8	13	0	5	13	7	15
SB THRU	14	0	14	1	15	15	21	21
SB RIGHT	14	0	14	1	15	15	19	19
TOTALS	**698**	**1065**	**1763**	**29**	**727**	**1792**	**807**	**1872**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	10-Nov-22	OONT0004-0001	2 OF 2

E/W STREET : BAKER BLVD
N/S STREET : DEATH VALLEY RD (SR 127)
CONDITION : FRIDAY PEAK HOUR
PHF : 0.84

NORTH LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
2	1	2	0	0	0	0	0	0	1	2	0
1	2	1	0	0	0	0	0	0	0	0	0
6	6	0	0	0	0	0	0	0	0	0	0
3	3	2	0	0	0	0	0	0	1	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
24	6	14	0	0	0	0	0	0	0	0	0
21	3	31	0	0	0	1	1	0	1	0	0
12	1	9	0	0	0	0	0	0	1	0	1
24	1	10	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
2	16	33	0	0	0	0	1	0	0	0	2
14	23	20	0	1	0	0	0	0	0	2	2
3	23	21	0	0	0	0	0	0	0	0	0
5	22	23	0	1	1	0	4	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
33	19	2	0	0	0	2	0	0	0	1	1
43	35	3	0	0	0	1	0	0	0	1	0
32	22	4	0	0	0	1	0	0	2	1	1
49	23	4	0	0	0	0	0	0	0	4	0

	Truck Volumes	Auto Volumes	Totals	Truck Percentage
BAKER BLVD				
EB LEFT	2	13	**15**	**13%**
EB THRU	7	99	**106**	**7%**
EB RIGHT	6	157	**163**	**4%**
WB LEFT	5	97	**102**	**5%**
WB THRU	10	84	**94**	**11%**
WB RIGHT	0	24	**24**	**1%**
DEATH VALLEY RD (SR 127)				
NB LEFT	1	64	**65**	**2%**
NB THRU	1	11	**12**	**8%**
NB RIGHT	3	81	**84**	**4%**
SB LEFT	0	5	**5**	**1%**
SB THRU	2	12	**14**	**14%**
SB RIGHT	2	12	**14**	**14%**

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	106	163	102	94	24	65	12	84	5	14	14
Future Vol, veh/h	15	106	163	102	94	24	65	12	84	5	14	14
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	13	7	4	5	11	1	2	8	4	1	14	14
Mvmt Flow	18	126	194	121	112	29	77	14	100	6	17	17
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.5	10	11.2	9.2
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	40%	100%	0%	0%	100%	0%	0%	15%
Vol Thru, %	7%	0%	100%	0%	0%	100%	0%	42%
Vol Right, %	52%	0%	0%	100%	0%	0%	100%	42%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	161	15	106	163	102	94	24	33
LT Vol	65	15	0	0	102	0	0	5
Through Vol	12	0	106	0	0	94	0	14
RT Vol	84	0	0	163	0	0	24	14
Lane Flow Rate	192	18	126	194	121	112	29	39
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.312	0.031	0.2	0.267	0.21	0.181	0.039	0.066
Departure Headway (Hd)	5.862	6.321	5.712	4.952	6.217	5.814	4.933	6.062
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	613	570	632	730	579	619	727	591
Service Time	3.589	4.021	3.412	2.652	3.939	3.536	2.655	3.797
HCM Lane V/C Ratio	0.313	0.032	0.199	0.266	0.209	0.181	0.04	0.066
HCM Control Delay	11.2	9.2	9.8	9.4	10.6	9.8	7.9	9.2
HCM Lane LOS	B	A	A	A	B	A	A	A
HCM 95th-tile Q	1.3	0.1	0.7	1.1	0.8	0.7	0.1	0.2

Intersection	
Intersection Delay, s/veh	151.2
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	250	163	452	165	32	65	12	568	13	14	14
Future Vol, veh/h	15	250	163	452	165	32	65	12	568	13	14	14
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	13	7	4	5	11	1	2	8	4	1	14	14
Mvmt Flow	18	298	194	538	196	38	77	14	676	15	17	17
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	24.6	112.9	282.5	15.1
HCM LOS	C	F	F	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	10%	100%	0%	0%	100%	0%	0%	32%
Vol Thru, %	2%	0%	100%	0%	0%	100%	0%	34%
Vol Right, %	88%	0%	0%	100%	0%	0%	100%	34%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	645	15	250	163	452	165	32	41
LT Vol	65	15	0	0	452	0	0	13
Through Vol	12	0	250	0	0	165	0	14
RT Vol	568	0	0	163	0	0	32	14
Lane Flow Rate	768	18	298	194	538	196	38	49
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	1.561	0.043	0.662	0.391	1.23	0.427	0.074	0.125
Departure Headway (Hd)	7.629	10.512	9.864	9.056	9.814	9.389	8.461	10.885
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	484	343	369	400	377	387	426	331
Service Time	5.329	8.212	7.564	6.756	7.514	7.089	6.161	8.585
HCM Lane V/C Ratio	1.587	0.052	0.808	0.485	1.427	0.506	0.089	0.148
HCM Control Delay	282.5	13.7	29.9	17.5	154.3	18.9	11.8	15.1
HCM Lane LOS	F	B	D	C	F	C	B	C
HCM 95th-tile Q	40	0.1	4.5	1.8	19.3	2.1	0.2	0.4

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	110	170	106	98	25	68	12	87	5	15	15
Future Vol, veh/h	16	110	170	106	98	25	68	12	87	5	15	15
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	13	7	4	5	11	1	2	8	4	1	14	14
Mvmt Flow	19	131	202	126	117	30	81	14	104	6	18	18
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.8	10.1	11.5	9.3
HCM LOS	A	B	B	A

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	41%	100%	0%	0%	100%	0%	0%	14%
Vol Thru, %	7%	0%	100%	0%	0%	100%	0%	43%
Vol Right, %	52%	0%	0%	100%	0%	0%	100%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	167	16	110	170	106	98	25	35
LT Vol	68	16	0	0	106	0	0	5
Through Vol	12	0	110	0	0	98	0	15
RT Vol	87	0	0	170	0	0	25	15
Lane Flow Rate	199	19	131	202	126	117	30	42
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.328	0.034	0.209	0.281	0.22	0.19	0.041	0.071
Departure Headway (Hd)	5.932	6.361	5.751	4.991	6.28	5.877	4.995	6.143
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	606	564	626	720	573	611	717	583
Service Time	3.66	4.085	3.475	2.714	4.007	3.603	2.722	3.878
HCM Lane V/C Ratio	0.328	0.034	0.209	0.281	0.22	0.191	0.042	0.072
HCM Control Delay	11.5	9.3	10	9.7	10.8	10	7.9	9.3
HCM Lane LOS	B	A	A	A	B	A	A	A
HCM 95th-tile Q	1.4	0.1	0.8	1.2	0.8	0.7	0.1	0.2

Intersection	
Intersection Delay, s/veh	132.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	243	170	430	164	32	68	12	536	12	15	15
Future Vol, veh/h	16	243	170	430	164	32	68	12	536	12	15	15
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	13	7	4	5	11	1	2	8	4	1	14	14
Mvmt Flow	19	289	202	512	195	38	81	14	638	14	18	18
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	23.7	95.6	253.2	14.9
HCM LOS	C	F	F	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	11%	100%	0%	0%	100%	0%	0%	29%
Vol Thru, %	2%	0%	100%	0%	0%	100%	0%	36%
Vol Right, %	87%	0%	0%	100%	0%	0%	100%	36%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	616	16	243	170	430	164	32	42
LT Vol	68	16	0	0	430	0	0	12
Through Vol	12	0	243	0	0	164	0	15
RT Vol	536	0	0	170	0	0	32	15
Lane Flow Rate	733	19	289	202	512	195	38	50
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	1.493	0.046	0.65	0.413	1.169	0.424	0.074	0.128
Departure Headway (Hd)	7.594	10.301	9.655	8.85	9.659	9.235	8.31	10.639
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	484	350	376	409	379	392	434	339
Service Time	5.294	8.001	7.355	6.55	7.359	6.935	6.01	8.339
HCM Lane V/C Ratio	1.514	0.054	0.769	0.494	1.351	0.497	0.088	0.147
HCM Control Delay	253.2	13.5	28.6	17.6	131.2	18.6	11.7	14.9
HCM Lane LOS	F	B	D	C	F	C	B	B
HCM 95th-tile Q	36.5	0.1	4.4	2	17.3	2.1	0.2	0.4

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	104	188	118	101	27	87	17	101	7	21	19
Future Vol, veh/h	17	104	188	118	101	27	87	17	101	7	21	19
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	13	7	4	5	11	1	2	8	4	1	14	14
Mvmt Flow	20	124	224	140	120	32	104	20	120	8	25	23
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.5	10.8	13.2	9.9
HCM LOS	B	B	B	A

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	42%	100%	0%	0%	100%	0%	0%	15%
Vol Thru, %	8%	0%	100%	0%	0%	100%	0%	45%
Vol Right, %	49%	0%	0%	100%	0%	0%	100%	40%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	205	17	104	188	118	101	27	47
LT Vol	87	17	0	0	118	0	0	7
Through Vol	17	0	104	0	0	101	0	21
RT Vol	101	0	0	188	0	0	27	19
Lane Flow Rate	244	20	124	224	140	120	32	56
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.415	0.037	0.208	0.328	0.256	0.206	0.047	0.1
Departure Headway (Hd)	6.128	6.651	6.039	5.276	6.567	6.162	5.278	6.412
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	588	538	594	680	546	582	678	558
Service Time	3.868	4.391	3.779	3.015	4.308	3.903	3.018	4.164
HCM Lane V/C Ratio	0.415	0.037	0.209	0.329	0.256	0.206	0.047	0.1
HCM Control Delay	13.2	9.6	10.4	10.6	11.6	10.5	8.3	9.9
HCM Lane LOS	B	A	B	B	B	B	A	A
HCM 95th-tile Q	2	0.1	0.8	1.4	1	0.8	0.1	0.3

Intersection	
Intersection Delay, s/veh	181.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	248	188	468	172	35	87	17	585	15	21	19
Future Vol, veh/h	17	248	188	468	172	35	87	17	585	15	21	19
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	13	7	4	5	11	1	2	8	4	1	14	14
Mvmt Flow	20	295	224	557	205	42	104	20	696	18	25	23
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	25.9	130.7	347.2	16.3
HCM LOS	D	F	F	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	13%	100%	0%	0%	100%	0%	0%	27%
Vol Thru, %	2%	0%	100%	0%	0%	100%	0%	38%
Vol Right, %	85%	0%	0%	100%	0%	0%	100%	35%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	689	17	248	188	468	172	35	55
LT Vol	87	17	0	0	468	0	0	15
Through Vol	17	0	248	0	0	172	0	21
RT Vol	585	0	0	188	0	0	35	19
Lane Flow Rate	820	20	295	224	557	205	42	65
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	1.708	0.049	0.663	0.456	1.292	0.452	0.082	0.169
Departure Headway (Hd)	7.877	10.997	10.344	9.53	10.27	9.842	8.908	11.282
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	468	328	351	380	357	369	405	320
Service Time	5.577	8.697	8.044	7.23	7.97	7.542	6.608	8.982
HCM Lane V/C Ratio	1.752	0.061	0.84	0.589	1.56	0.556	0.104	0.203
HCM Control Delay	347.2	14.3	31.2	20	180.1	20.4	12.4	16.3
HCM Lane LOS	F	B	D	C	F	C	B	C
HCM 95th-tile Q	46.7	0.2	4.5	2.3	20.9	2.3	0.3	0.6

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	10-Nov-22	OONT0004-0001	1 OF 2

E/W STREET : BAKER BLVD
N/S STREET : DEATH VALLEY RD (SR 127)
CONDITION : SUNDAY PEAK HOUR

INTERSECTION : 1
PROJECTED GROWTH PER YEAR : 2.0%

TURN MOVEMENTS

Condition	Existing Condition	Project Trips	Existing + Project Condition	Ambient Growth	Background Condition	Project Condition	Future Condition	Future + Project Condition
Scenario #	2		4		6	8	10	12
BAKER BLVD								
EB LEFT	179	0	179	7	186	186	188	188
EB THRU	96	81	177	4	100	181	105	186
EB RIGHT	179	0	179	7	186	186	189	189
WB LEFT	142	382	524	6	148	530	146	528
WB THRU	157	135	292	6	163	298	165	300
WB RIGHT	10	8	18	0	10	18	11	19
DEATH VALLEY RD (SR 127)								
NB LEFT	95	0	95	4	99	99	110	110
NB THRU	57	0	57	2	59	59	64	64
NB RIGHT	57	484	541	2	59	543	67	551
SB LEFT	24	8	32	1	25	33	28	36
SB THRU	25	0	25	1	26	26	28	28
SB RIGHT	13	0	13	1	14	14	15	15
TOTALS	**1034**	**1098**	**2132**	**41**	**1075**	**2173**	**1116**	**2214**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	10-Nov-22	OONT0004-0001	2 OF 2

E/W STREET : BAKER BLVD
CONDITION : SUNDAY PEAK HOUR
N/S STREET : DEATH VALLEY RD (SR 127)
PHF : 0.89

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	6	12	0	0	0	0	0	0	1	2	1
6	4	0	0	0	0	0	0	0	0	2	0
2	1	7	0	0	0	0	0	0	0	2	0
4	7	4	0	0	0	0	0	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
1	33	38	0	0	0	1	0	0	0	1	0
27	2	21	0	1	0	0	0	0	0	0	0
14	15	16	2	0	1	0	0	0	0	0	0
12	5	19	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
1	8	11	0	0	0	0	0	0	0	0	2
2	39	48	0	0	0	0	0	0	0	0	0
0	56	35	0	0	0	0	0	0	0	0	0
7	53	45	0	0	0	0	0	0	0	1	1

WEST LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
26	24	26	0	0	0	0	0	0	0	0	0
48	22	48	0	0	0	0	0	0	0	0	0
49	29	49	0	0	0	0	0	0	0	0	0
56	20	56	0	1	0	0	0	0	0	0	0

	Truck Volumes	Auto Volumes	Totals	Truck Percentage
BAKER BLVD				
EB LEFT	0	179	**179**	**1%**
EB THRU	1	95	**96**	**1%**
EB RIGHT	0	179	**179**	**1%**
WB LEFT	3	139	**142**	**2%**
WB THRU	1	156	**157**	**1%**
WB RIGHT	0	10	**10**	**1%**
DEATH VALLEY RD (SR 127)				
NB LEFT	1	94	**95**	**1%**
NB THRU	2	55	**57**	**4%**
NB RIGHT	3	54	**57**	**5%**
SB LEFT	1	23	**24**	**4%**
SB THRU	7	18	**25**	**28%**
SB RIGHT	1	12	**13**	**8%**

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	179	96	179	142	157	10	95	57	57	24	25	13
Future Vol, veh/h	179	96	179	142	157	10	95	57	57	24	25	13
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
Heavy Vehicles, %	1	1	1	2	1	1	1	4	5	4	28	8
Mvmt Flow	201	108	201	160	176	11	107	64	64	27	28	15
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.6	12.2	14.9	11.3
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	45%	100%	0%	0%	100%	0%	0%	39%
Vol Thru, %	27%	0%	100%	0%	0%	100%	0%	40%
Vol Right, %	27%	0%	0%	100%	0%	0%	100%	21%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	209	179	96	179	142	157	10	62
LT Vol	95	179	0	0	142	0	0	24
Through Vol	57	0	96	0	0	157	0	25
RT Vol	57	0	0	179	0	0	10	13
Lane Flow Rate	235	201	108	201	160	176	11	70
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.443	0.373	0.185	0.305	0.305	0.311	0.018	0.141
Departure Headway (Hd)	6.795	6.678	6.168	5.455	6.876	6.348	5.634	7.266
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	528	537	579	656	520	563	632	490
Service Time	4.564	4.442	3.932	3.218	4.646	4.118	3.402	5.053
HCM Lane V/C Ratio	0.445	0.374	0.187	0.306	0.308	0.313	0.017	0.143
HCM Control Delay	14.9	13.4	10.3	10.6	12.7	12	8.5	11.3
HCM Lane LOS	B	B	B	B	B	B	A	B
HCM 95th-tile Q	2.2	1.7	0.7	1.3	1.3	1.3	0.1	0.5

Intersection	
Intersection Delay, s/veh	175.2
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	179	177	179	524	292	18	95	57	541	32	25	13
Future Vol, veh/h	179	177	179	524	292	18	95	57	541	32	25	13
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
Heavy Vehicles, %	1	1	1	2	1	1	1	4	5	4	28	8
Mvmt Flow	201	199	201	589	328	20	107	64	608	36	28	15
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	20.7	149.1	341.8	17.2
HCM LOS	C	F	F	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	14%	100%	0%	0%	100%	0%	0%	46%
Vol Thru, %	8%	0%	100%	0%	0%	100%	0%	36%
Vol Right, %	78%	0%	0%	100%	0%	0%	100%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	693	179	177	179	524	292	18	70
LT Vol	95	179	0	0	524	0	0	32
Through Vol	57	0	177	0	0	292	0	25
RT Vol	541	0	0	179	0	0	18	13
Lane Flow Rate	779	201	199	201	589	328	20	79
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	1.693	0.485	0.452	0.418	1.385	0.725	0.041	0.211
Departure Headway (Hd)	8.253	10.567	10.025	9.267	10.351	9.795	9.043	11.5
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	452	344	362	392	359	374	398	315
Service Time	5.953	8.267	7.725	6.967	8.051	7.495	6.743	9.2
HCM Lane V/C Ratio	1.723	0.584	0.55	0.513	1.641	0.877	0.05	0.251
HCM Control Delay	341.8	22.8	20.7	18.5	217.8	34.4	12.1	17.2
HCM Lane LOS	F	C	C	C	F	D	B	C
HCM 95th-tile Q	44.1	2.5	2.3	2	24.2	5.5	0.1	0.8

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	186	100	186	148	163	10	99	59	59	25	26	14
Future Vol, veh/h	186	100	186	148	163	10	99	59	59	25	26	14
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
Heavy Vehicles, %	1	1	1	2	1	1	1	4	5	4	28	8
Mvmt Flow	209	112	209	166	183	11	111	66	66	28	29	16
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	12.1	12.6	15.6	11.5
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	46%	100%	0%	0%	100%	0%	0%	38%
Vol Thru, %	27%	0%	100%	0%	0%	100%	0%	40%
Vol Right, %	27%	0%	0%	100%	0%	0%	100%	22%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	217	186	100	186	148	163	10	65
LT Vol	99	186	0	0	148	0	0	25
Through Vol	59	0	100	0	0	163	0	26
RT Vol	59	0	0	186	0	0	10	14
Lane Flow Rate	244	209	112	209	166	183	11	73
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.467	0.393	0.196	0.322	0.323	0.328	0.018	0.15
Departure Headway (Hd)	6.897	6.776	6.265	5.551	6.982	6.454	5.738	7.389
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	519	529	570	644	512	553	619	482
Service Time	4.671	4.547	4.036	3.321	4.76	4.231	3.515	5.185
HCM Lane V/C Ratio	0.47	0.395	0.196	0.325	0.324	0.331	0.018	0.151
HCM Control Delay	15.6	13.9	10.6	11	13.1	12.4	8.6	11.5
HCM Lane LOS	C	B	B	B	B	B	A	B
HCM 95th-tile Q	2.5	1.9	0.7	1.4	1.4	1.4	0.1	0.5

Intersection	
Intersection Delay, s/veh	182.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	186	181	186	530	298	18	99	59	543	33	26	14
Future Vol, veh/h	186	181	186	530	298	18	99	59	543	33	26	14
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
Heavy Vehicles, %	1	1	1	2	1	1	1	4	5	4	28	8
Mvmt Flow	209	203	209	596	335	20	111	66	610	37	29	16
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	21.3	156.1	357.4	17.6
HCM LOS	C	F	F	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	14%	100%	0%	0%	100%	0%	0%	45%
Vol Thru, %	8%	0%	100%	0%	0%	100%	0%	36%
Vol Right, %	77%	0%	0%	100%	0%	0%	100%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	701	186	181	186	530	298	18	73
LT Vol	99	186	0	0	530	0	0	33
Through Vol	59	0	181	0	0	298	0	26
RT Vol	543	0	0	186	0	0	18	14
Lane Flow Rate	788	209	203	209	596	335	20	82
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	1.728	0.505	0.463	0.436	1.409	0.744	0.041	0.222
Departure Headway (Hd)	8.341	10.643	10.101	9.342	10.484	9.928	9.174	11.616
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	441	341	360	389	351	368	393	311
Service Time	6.041	8.343	7.801	7.042	8.184	7.628	6.874	9.316
HCM Lane V/C Ratio	1.787	0.613	0.564	0.537	1.698	0.91	0.051	0.264
HCM Control Delay	357.4	23.7	21.2	19.1	228.2	36.5	12.3	17.6
HCM Lane LOS	F	C	C	C	F	E	B	C
HCM 95th-tile Q	45.4	2.7	2.4	2.1	24.9	5.8	0.1	0.8

Intersection	
Intersection Delay, s/veh	13.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	188	105	189	146	165	11	110	64	67	28	28	15
Future Vol, veh/h	188	105	189	146	165	11	110	64	67	28	28	15
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
Heavy Vehicles, %	1	1	1	2	1	1	1	4	5	4	28	8
Mvmt Flow	211	118	212	164	185	12	124	72	75	31	31	17
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	12.5	13.1	17.3	11.9
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	46%	100%	0%	0%	100%	0%	0%	39%
Vol Thru, %	27%	0%	100%	0%	0%	100%	0%	39%
Vol Right, %	28%	0%	0%	100%	0%	0%	100%	21%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	241	188	105	189	146	165	11	71
LT Vol	110	188	0	0	146	0	0	28
Through Vol	64	0	105	0	0	165	0	28
RT Vol	67	0	0	189	0	0	11	15
Lane Flow Rate	271	211	118	212	164	185	12	80
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.525	0.407	0.211	0.337	0.331	0.347	0.021	0.17
Departure Headway (Hd)	7.076	7.048	6.535	5.818	7.272	6.742	6.023	7.654
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	512	513	552	622	497	538	598	471
Service Time	4.776	4.748	4.235	3.518	4.972	4.442	3.723	5.367
HCM Lane V/C Ratio	0.529	0.411	0.214	0.341	0.33	0.344	0.02	0.17
HCM Control Delay	17.3	14.5	11	11.4	13.5	13	8.9	11.9
HCM Lane LOS	C	B	B	B	B	B	A	B
HCM 95th-tile Q	3	2	0.8	1.5	1.4	1.5	0.1	0.6

Intersection	
Intersection Delay, s/veh	194.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	188	186	189	528	300	19	110	64	551	36	28	15
Future Vol, veh/h	188	186	189	528	300	19	110	64	551	36	28	15
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
Heavy Vehicles, %	1	1	1	2	1	1	1	4	5	4	28	8
Mvmt Flow	211	209	212	593	337	21	124	72	619	40	31	17
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	22	157.6	390.9	18.2
HCM LOS	C	F	F	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	15%	100%	0%	0%	100%	0%	0%	46%
Vol Thru, %	9%	0%	100%	0%	0%	100%	0%	35%
Vol Right, %	76%	0%	0%	100%	0%	0%	100%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	725	188	186	189	528	300	19	79
LT Vol	110	188	0	0	528	0	0	36
Through Vol	64	0	186	0	0	300	0	28
RT Vol	551	0	0	189	0	0	19	15
Lane Flow Rate	815	211	209	212	593	337	21	89
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	1.804	0.513	0.479	0.445	1.413	0.755	0.044	0.241
Departure Headway (Hd)	8.424	10.825	10.281	9.519	10.711	10.153	9.398	11.79
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	440	336	353	382	344	361	383	306
Service Time	6.124	8.525	7.981	7.219	8.411	7.853	7.098	9.49
HCM Lane V/C Ratio	1.852	0.628	0.592	0.555	1.724	0.934	0.055	0.291
HCM Control Delay	390.9	24.4	22.1	19.6	230.6	38.3	12.5	18.2
HCM Lane LOS	F	C	C	C	F	E	B	C
HCM 95th-tile Q	48.9	2.8	2.5	2.2	24.6	6	0.1	0.9

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
AVERAGE DAILY VOLUME	TM	10-Nov-22	OONT0004-0001	1 OF 1

E/W STREET : BAKER BLVD

INTERSECTION : 1

N/S STREET : DEATH VALLEY RD (SR 127)

Average Daily Bi-Directional Volume = SUNDAY Peak Hour (Approach+Departure) x 11.5

Condition	Existing Condition	Existing + Project Condition	Background Condition	Project Condition	Future Condition	Future + Project Condition
Scenario #						
Approach						
South leg (NB)	209	693	217	701	241	725
North leg (SB)	62	70	65	73	71	79
West leg (EB)	454	535	472	553	482	563
East leg (WB)	309	834	321	846	322	847
Departure						
South leg (NB)	346	728	360	742	363	745
North leg (SB)	246	254	255	263	263	271
West leg (EB)	265	400	276	411	290	425
East leg (WB)	177	750	184	757	200	773
Balanced Average Daily Volume						
South leg (NB)	6,383	16,342	6,636	16,595	6,946	16,905
North leg (SB)	3,542	3,726	3,680	3,864	3,841	4,025
West leg (EB)	8,269	10,753	8,602	11,086	8,878	11,362
East leg (WB)	5,589	18,216	5,808	18,435	6,003	18,630

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

Intersection No.: 1
North/South Street: DEATH VALLEY RD (SR 127)
East/West Street: BAKER BLVD

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	65	Approach	181	Left	107	87
NB	Through	12	Departure	328	Through	23	17
	Right	84			Right	119	101
North leg	Left	5	Approach	51	Left	5	7
SB	Through	14	Departure	62	Through	23	21
	Right	14			Right	17	19
West leg	Left	15	Approach	318	Left	15	17
EB	Through	106	Departure	207	Through	80	104
	Right	163			Right	188	188
East leg	Left	102	Approach	251	Left	117	118
WB	Through	94	Departure	204	Through	82	101
	Right	24			Right	24	27

P.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume			Turn Volume	Rounded Volume
South leg	Left	95	Approach	244	Left	113	110
NB	Through	57	Departure	360	Through	64	64
	Right	57			Right	68	67
North leg	Left	24	Approach	70	Left	27	28
SB	Through	25	Departure	259	Through	28	28
	Right	13			Right	15	15
West leg	Left	179	Approach	479	Left	185	188
EB	Through	96	Departure	290	Through	105	105
	Right	179			Right	189	189
East leg	Left	142	Approach	315	Left	143	146
WB	Through	157	Departure	200	Through	163	165
	Right	10			Right	10	11

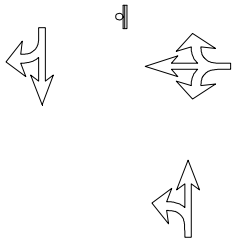
DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	10-Nov-22	OONT0004-0001	1 OF 2

E/W STREET : I-15 SB RAMPS
N/S STREET : DEATH VALLEY RD (SR 127)
CONDITION : FRIDAY PEAK HOUR

INTERSECTION : 2
PROJECTED GROWTH PER YEAR : 2.0%

CONDITION DIAGRAMS



EXISTING GEOMETRICS

TURN MOVEMENTS

Condition	Existing Condition	Project Trips	Existing + Project Condition	Ambient Growth	Background Condition	Project Condition	Future Condition	Future + Project Condition
Scenario #	1		3		5	7	9	11
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	1	0	1	0	1	1	3	3
WB THRU	4	0	4	0	4	4	11	11
WB RIGHT	63	159	222	3	66	225	58	217
DEATH VALLEY RD (SR 127)								
NB LEFT	4	0	4	0	4	4	24	24
NB THRU	98	326	424	4	102	428	127	453
NB RIGHT	0	0	0	0	0	0	0	0
SB LEFT	0	0	0	0	0	0	0	0
SB THRU	197	79	276	8	205	284	208	287
SB RIGHT	81	271	352	3	84	355	101	372
TOTALS	**448**	**835**	**1283**	**18**	**466**	**1301**	**532**	**1367**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	10-Nov-22	OONT0004-0001	2 OF 2

E/W STREET : I-15 SB RAMPS
N/S STREET : DEATH VALLEY RD (SR 127)
CONDITION : FRIDAY PEAK HOUR
PHF : 0.88

NORTH LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
17	50	0	0	0	0	2	0	0	3	0	0
19	47	0	0	0	0	0	0	0	0	2	0
16	43	0	0	0	0	1	0	0	0	2	0
22	52	0	1	0	0	0	0	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	24	4	0	0	0	0	0	0	0	0	0
0	38	0	0	0	0	0	0	0	0	0	0
0	14	0	0	0	0	0	0	0	0	0	0
0	22	0	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
19	1	0	0	0	0	0	0	0	0	0	0
17	2	0	0	0	0	2	0	0	1	0	0
9	1	0	0	0	0	0	0	0	1	0	0
14	0	1	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
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

	Truck Volumes	Auto Volumes	Totals	Truck Percentage
I-15 SB RAMPS				
EB LEFT	0	0	**0**	**0%**
EB THRU	0	0	**0**	**0%**
EB RIGHT	0	0	**0**	**0%**
WB LEFT	0	1	**1**	**1%**
WB THRU	0	4	**4**	**1%**
WB RIGHT	4	59	**63**	**6%**
DEATH VALLEY RD (SR 127)				
NB LEFT	0	4	**4**	**1%**
NB THRU	0	98	**98**	**1%**
NB RIGHT	0	0	**0**	**0%**
SB LEFT	0	0	**0**	**0%**
SB THRU	5	192	**197**	**3%**
SB RIGHT	7	74	**81**	**9%**

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	1	4	63	4	98	0	0	197	81
Future Vol, veh/h	0	0	0	1	4	63	4	98	0	0	197	81
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	1	1	6	1	1	0	0	3	9
Mvmt Flow	0	0	0	1	5	72	5	111	0	0	224	92

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	391	437	111	316	0	-	-	-	0
Stage 1	121	121	-	-	-	-	-	-	-
Stage 2	270	316	-	-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.26	4.11	-	-	-	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.354	2.209	-	-	-	-	-
Pot Cap-1 Maneuver	615	515	931	1250	-	0	0	-	-
Stage 1	907	798	-	-	-	0	0	-	-
Stage 2	778	657	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	613	0	931	1250	-	-	-	-	-
Mov Cap-2 Maneuver	613	0	-	-	-	-	-	-	-
Stage 1	903	0	-	-	-	-	-	-	-
Stage 2	778	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1250	-	924	-	-
HCM Lane V/C Ratio	0.004	-	0.084	-	-
HCM Control Delay (s)	7.9	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	1	4	222	4	424	0	0	276	352
Future Vol, veh/h	0	0	0	1	4	222	4	424	0	0	276	352
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	1	1	6	1	1	0	0	3	9
Mvmt Flow	0	0	0	1	5	252	5	482	0	0	314	400

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1006	1206	482	714	0	-	-	-	0
Stage 1	492	492	-	-	-	-	-	-	-
Stage 2	514	714	-	-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.26	4.11	-	-	-	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.354	2.209	-	-	-	-	-
Pot Cap-1 Maneuver	268	184	576	891	-	0	0	-	-
Stage 1	617	549	-	-	-	0	0	-	-
Stage 2	602	436	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	266	0	576	891	-	-	-	-	-
Mov Cap-2 Maneuver	266	0	-	-	-	-	-	-	-
Stage 1	612	0	-	-	-	-	-	-	-
Stage 2	602	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.3	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	891	-	573	-	-
HCM Lane V/C Ratio	0.005	-	0.45	-	-
HCM Control Delay (s)	9.1	0	16.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	2.3	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	1	4	66	4	102	0	0	205	84
Future Vol, veh/h	0	0	0	1	4	66	4	102	0	0	205	84
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	1	1	6	1	1	0	0	3	9
Mvmt Flow	0	0	0	1	5	75	5	116	0	0	233	95

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	407	454	116	328	0	-	-	-	0
Stage 1	126	126	-	-	-	-	-	-	-
Stage 2	281	328	-	-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.26	4.11	-	-	-	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.354	2.209	-	-	-	-	-
Pot Cap-1 Maneuver	602	503	926	1237	-	0	0	-	-
Stage 1	902	794	-	-	-	0	0	-	-
Stage 2	769	649	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	600	0	926	1237	-	-	-	-	-
Mov Cap-2 Maneuver	600	0	-	-	-	-	-	-	-
Stage 1	898	0	-	-	-	-	-	-	-
Stage 2	769	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1237	-	919	-	-
HCM Lane V/C Ratio	0.004	-	0.088	-	-
HCM Control Delay (s)	7.9	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	1	4	214	4	403	0	0	279	334
Future Vol, veh/h	0	0	0	1	4	214	4	403	0	0	279	334
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	1	1	6	1	1	0	0	3	9
Mvmt Flow	0	0	0	1	5	243	5	458	0	0	317	380

Major/Minor	Minor1			Major1			Major2			
Conflicting Flow All	975	1165	458	697	0	-	-	-	0	
Stage 1	468	468	-	-	-	-	-	-	-	
Stage 2	507	697	-	-	-	-	-	-	-	
Critical Hdwy	6.41	6.51	6.26	4.11	-	-	-	-	-	
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-	
Follow-up Hdwy	3.509	4.009	3.354	2.209	-	-	-	-	-	
Pot Cap-1 Maneuver	280	195	595	904	-	0	0	-	-	
Stage 1	632	563	-	-	-	0	0	-	-	
Stage 2	607	444	-	-	-	0	0	-	-	
Platoon blocked, %					-			-	-	
Mov Cap-1 Maneuver	278	0	595	904	-	-	-	-	-	
Mov Cap-2 Maneuver	278	0	-	-	-	-	-	-	-	
Stage 1	628	0	-	-	-	-	-	-	-	
Stage 2	607	0	-	-	-	-	-	-	-	

Approach	WB	NB	SB
HCM Control Delay, s	15.4	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	904	-	592	-	-
HCM Lane V/C Ratio	0.005	-	0.42	-	-
HCM Control Delay (s)	9	0	15.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	2.1	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	3	11	58	24	127	0	0	208	101
Future Vol, veh/h	0	0	0	3	11	58	24	127	0	0	208	101
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	1	1	6	1	1	0	0	3	9
Mvmt Flow	0	0	0	3	13	66	27	144	0	0	236	115

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	492	549	144	351	0	-	-	-	0
Stage 1	198	198	-	-	-	-	-	-	-
Stage 2	294	351	-	-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.26	4.11	-	-	-	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.354	2.209	-	-	-	-	-
Pot Cap-1 Maneuver	538	445	893	1213	-	0	0	-	-
Stage 1	838	739	-	-	-	0	0	-	-
Stage 2	759	634	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	525	0	893	1213	-	-	-	-	-
Mov Cap-2 Maneuver	525	0	-	-	-	-	-	-	-
Stage 1	818	0	-	-	-	-	-	-	-
Stage 2	759	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	1.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1213	-	863	-	-
HCM Lane V/C Ratio	0.022	-	0.095	-	-
HCM Control Delay (s)	8	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	3	11	217	24	453	0	0	287	372
Future Vol, veh/h	0	0	0	3	11	217	24	453	0	0	287	372
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	1	1	6	1	1	0	0	3	9
Mvmt Flow	0	0	0	3	13	247	27	515	0	0	326	423

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	1107	1318	515	749	0	-	-	-	0
Stage 1	569	569	-	-	-	-	-	-	-
Stage 2	538	749	-	-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.26	4.11	-	-	-	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.354	2.209	-	-	-	-	-
Pot Cap-1 Maneuver	234	158	552	864	-	0	0	-	-
Stage 1	568	507	-	-	-	0	0	-	-
Stage 2	587	421	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	224	0	552	864	-	-	-	-	-
Mov Cap-2 Maneuver	224	0	-	-	-	-	-	-	-
Stage 1	543	0	-	-	-	-	-	-	-
Stage 2	587	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.8	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	864	-	541	-	-
HCM Lane V/C Ratio	0.032	-	0.485	-	-
HCM Control Delay (s)	9.3	0	17.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	2.6	-	-

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	10-Nov-22	OONT0004-0001	1 OF 2

E/W STREET : I-15 SB RAMPS
N/S STREET : DEATH VALLEY RD (SR 127)
CONDITION : SUNDAY PEAK HOUR

INTERSECTION : 2
PROJECTED GROWTH PER YEAR : 2.0%

TURN MOVEMENTS

Condition	Existing Condition	Project Trips	Existing + Project Condition	Ambient Growth	Background Condition	Project Condition	Future Condition	Future + Project Condition
Scenario #	2		4		6	8	10	12
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	5	0	5	0	5	5	5	5
WB THRU	3	0	3	0	3	3	3	3
WB RIGHT	110	222	332	4	114	336	121	343
DEATH VALLEY RD (SR 127)								
NB LEFT	39	0	39	2	41	41	36	36
NB THRU	99	263	362	4	103	366	113	376
NB RIGHT	0	0	0	0	0	0	0	0
SB LEFT	0	0	0	0	0	0	0	0
SB THRU	173	48	221	7	180	228	188	236
SB RIGHT	166	334	500	7	173	507	173	507
TOTALS	**595**	**867**	**1462**	**24**	**619**	**1486**	**639**	**1506**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	10-Nov-22	OONT0004-0001	2 OF 2

E/W STREET : I-15 SB RAMPS
N/S STREET : DEATH VALLEY RD (SR 127)
CONDITION : SUNDAY PEAK HOUR
PHF : 0.90

NORTH LEG											
AUTO			LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
26	17	0	0	0	0	0	0	0	2	2	0
51	50	0	0	0	0	0	0	0	0	1	0
32	53	0	0	0	0	0	0	0	0	2	0
55	46	0	0	0	0	0	0	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	39	15	0	0	0	0	1	0	0	0	0
0	19	8	0	1	0	0	0	0	0	0	0
0	21	8	0	0	0	0	0	0	0	0	0
0	18	8	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
27	1	0	3	0	0	0	0	0	3	0	0
31	2	2	0	0	0	0	0	0	0	0	0
24	0	3	3	0	0	0	0	0	0	0	0
19	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
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

	Truck Volumes	Auto Volumes	Totals	Truck Percentage
I-15 SB RAMPS				
EB LEFT	0	0	**0**	**0%**
EB THRU	0	0	**0**	**0%**
EB RIGHT	0	0	**0**	**0%**
WB LEFT	0	5	**5**	**1%**
WB THRU	0	3	**3**	**1%**
WB RIGHT	9	101	**110**	**8%**
DEATH VALLEY RD (SR 127)				
NB LEFT	0	39	**39**	**1%**
NB THRU	2	97	**99**	**2%**
NB RIGHT	0	0	**0**	**0%**
SB LEFT	0	0	**0**	**0%**
SB THRU	7	166	**173**	**4%**
SB RIGHT	2	164	**166**	**1%**

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	3	110	39	99	0	0	173	166
Future Vol, veh/h	0	0	0	5	3	110	39	99	0	0	173	166
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	1	1	8	1	2	0	0	4	1
Mvmt Flow	0	0	0	6	3	122	43	110	0	0	192	184

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	480	572	110	376	0	-	-	-	0
Stage 1	196	196	-	-	-	-	-	-	-
Stage 2	284	376	-	-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.28	4.11	-	-	-	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.372	2.209	-	-	-	-	-
Pot Cap-1 Maneuver	546	432	927	1188	-	0	0	-	-
Stage 1	840	740	-	-	-	0	0	-	-
Stage 2	766	618	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	525	0	927	1188	-	-	-	-	-
Mov Cap-2 Maneuver	525	0	-	-	-	-	-	-	-
Stage 1	807	0	-	-	-	-	-	-	-
Stage 2	766	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	2.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1188	-	897	-	-
HCM Lane V/C Ratio	0.036	-	0.146	-	-
HCM Control Delay (s)	8.1	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

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	0	0	0	5	3	332	39	362	0	0	221	500
Future Vol, veh/h	0	0	0	5	3	332	39	362	0	0	221	500
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	1	1	8	1	2	0	0	4	1
Mvmt Flow	0	0	0	6	3	369	43	402	0	0	246	556

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1012	1290	402	802	0	-	-	-	0
Stage 1	488	488	-	-	-	-	-	-	-
Stage 2	524	802	-	-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.28	4.11	-	-	-	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.372	2.209	-	-	-	-	-
Pot Cap-1 Maneuver	266	164	635	826	-	0	0	-	-
Stage 1	619	552	-	-	-	0	0	-	-
Stage 2	596	398	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	248	0	635	826	-	-	-	-	-
Mov Cap-2 Maneuver	248	0	-	-	-	-	-	-	-
Stage 1	578	0	-	-	-	-	-	-	-
Stage 2	596	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.4	0.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	826	-	621	-	-
HCM Lane V/C Ratio	0.052	-	0.608	-	-
HCM Control Delay (s)	9.6	0	19.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	4.1	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	3	114	41	103	0	0	180	173
Future Vol, veh/h	0	0	0	5	3	114	41	103	0	0	180	173
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	1	1	8	1	2	0	0	4	1
Mvmt Flow	0	0	0	6	3	127	46	114	0	0	200	192

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	502	598	114	392	0	-	-	-	0
Stage 1	206	206	-	-	-	-	-	-	-
Stage 2	296	392	-	-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.28	4.11	-	-	-	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.372	2.209	-	-	-	-	-
Pot Cap-1 Maneuver	531	417	923	1172	-	0	0	-	-
Stage 1	831	733	-	-	-	0	0	-	-
Stage 2	757	608	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	509	0	923	1172	-	-	-	-	-
Mov Cap-2 Maneuver	509	0	-	-	-	-	-	-	-
Stage 1	796	0	-	-	-	-	-	-	-
Stage 2	757	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	2.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1172	-	892	-	-
HCM Lane V/C Ratio	0.039	-	0.152	-	-
HCM Control Delay (s)	8.2	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	3	336	41	366	0	0	228	507
Future Vol, veh/h	0	0	0	5	3	336	41	366	0	0	228	507
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	1	1	8	1	2	0	0	4	1
Mvmt Flow	0	0	0	6	3	373	46	407	0	0	253	563

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	1034	1315	407	816	0	-	-	-	0
Stage 1	499	499	-	-	-	-	-	-	-
Stage 2	535	816	-	-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.28	4.11	-	-	-	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.372	2.209	-	-	-	-	-
Pot Cap-1 Maneuver	258	159	631	816	-	0	0	-	-
Stage 1	612	545	-	-	-	0	0	-	-
Stage 2	589	392	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	239	0	631	816	-	-	-	-	-
Mov Cap-2 Maneuver	239	0	-	-	-	-	-	-	-
Stage 1	567	0	-	-	-	-	-	-	-
Stage 2	589	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.9	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	816	-	616	-	-
HCM Lane V/C Ratio	0.056	-	0.62	-	-
HCM Control Delay (s)	9.7	0	19.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	4.3	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	3	121	36	113	0	0	188	173
Future Vol, veh/h	0	0	0	5	3	121	36	113	0	0	188	173
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	1	1	8	1	2	0	0	4	1
Mvmt Flow	0	0	0	6	3	134	40	126	0	0	209	192

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	511	607	126	401	0	-	-	-	0
Stage 1	206	206	-	-	-	-	-	-	-
Stage 2	305	401	-	-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.28	4.11	-	-	-	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.372	2.209	-	-	-	-	-
Pot Cap-1 Maneuver	524	412	909	1163	-	0	0	-	-
Stage 1	831	733	-	-	-	0	0	-	-
Stage 2	750	603	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	505	0	909	1163	-	-	-	-	-
Mov Cap-2 Maneuver	505	0	-	-	-	-	-	-	-
Stage 1	800	0	-	-	-	-	-	-	-
Stage 2	750	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1163	-	881	-	-
HCM Lane V/C Ratio	0.034	-	0.163	-	-
HCM Control Delay (s)	8.2	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	3	343	36	376	0	0	236	507
Future Vol, veh/h	0	0	0	5	3	343	36	376	0	0	236	507
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	1	1	8	1	2	0	0	4	1
Mvmt Flow	0	0	0	6	3	381	40	418	0	0	262	563

Major/Minor	Minor1			Major1			Major2			
Conflicting Flow All	1042	1323	418	825	0	-	-	-	0
Stage 1	498	498	-	-	-	-	-	-	-
Stage 2	544	825	-	-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.28	4.11	-	-	-	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.372	2.209	-	-	-	-	-
Pot Cap-1 Maneuver	256	157	622	810	-	0	0	-	-
Stage 1	613	546	-	-	-	0	0	-	-
Stage 2	584	388	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	240	0	622	810	-	-	-	-	-
Mov Cap-2 Maneuver	240	0	-	-	-	-	-	-	-
Stage 1	574	0	-	-	-	-	-	-	-
Stage 2	584	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.9	0.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	810	-	608	-	-
HCM Lane V/C Ratio	0.049	-	0.641	-	-
HCM Control Delay (s)	9.7	0	20.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	4.6	-	-

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
AVERAGE DAILY VOLUME	TM	10-Nov-22	OONT0004-0001	1 OF 1

E/W STREET : I-15 SB RAMPS

INTERSECTION : 2

N/S STREET : DEATH VALLEY RD (SR 127)

Average Daily Bi-Directional Volume = SUNDAY Peak Hour (Approach+Departure) x 11.5

Condition	Existing Condition	Existing + Project Condition	Background Condition	Project Condition	Future Condition	Future + Project Condition
Scenario #						
Approach						
South leg (NB)	138	401	144	407	149	412
North leg (SB)	346	728	360	742	363	745
West leg (EB)	0	0	0	0	0	0
East leg (WB)	118	340	122	344	129	351
Departure						
South leg (NB)	178	226	185	233	193	241
North leg (SB)	209	694	217	702	234	719
West leg (EB)	208	542	217	551	212	546
East leg (WB)	0	0	0	0	0	0
Balanced Average Daily Volume						
South leg (NB)	3,634	7,211	3,784	7,360	3,933	7,510
North leg (SB)	6,383	16,353	6,636	16,606	6,866	16,836
West leg (EB)	2,392	6,233	2,496	6,337	2,438	6,279
East leg (WB)	1,357	3,910	1,403	3,956	1,484	4,037

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

Intersection No.: 2
North/South Street: DEATH VALLEY RD (SR 127)
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	4	Approach	126	Left	58	24
NB	Through	98	Departure	199	Through	149	127
	Right	0			Right	0	0
North leg	Left	0	Approach	327	Left	0	0
SB	Through	197	Departure	181	Through	194	208
	Right	81			Right	71	101
West leg	Left	0	Approach	0	Left	0	0
EB	Through	0	Departure	149	Through	0	0
	Right	0			Right	0	0
East leg	Left	1	Approach	76	Left	5	3
WB	Through	4	Departure	0	Through	20	11
	Right	63			Right	32	58

P.M. Peak Hour

Approach Direction		Base Year Count	Forecast Future Year Link Volume		Turn Volume	Rounded Volume
South leg	Left	39	Approach	139	Left	28	36
NB	Through	99	Departure	195	Through	122	113
	Right	0			Right	0	0
North leg	Left	0	Approach	353	Left	0	0
SB	Through	173	Departure	244	Through	192	188
	Right	166			Right	178	173
West leg	Left	0	Approach	43	Left	0	0
EB	Through	0	Departure	208	Through	0	0
	Right	0			Right	0	0
East leg	Left	5	Approach	118	Left	3	5
WB	Through	3	Departure	6	Through	2	3
	Right	110			Right	122	121

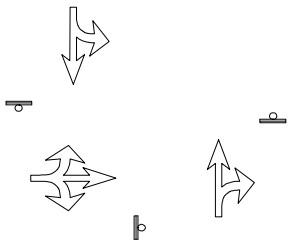
DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	10-Nov-22	OONT0004-0001	1 OF 2

E/W STREET : I-15 SB RAMPS
N/S STREET : DEATH VALLEY RD (SR 127)
CONDITION : FRIDAY PEAK HOUR

INTERSECTION : 3
PROJECTED GROWTH PER YEAR : 2.0%

CONDITION DIAGRAMS



EXISTING GEOMETRICS

TURN MOVEMENTS

Condition	Existing Condition	Project Trips	Existing + Project Condition	Ambient Growth	Background Condition	Project Condition	Future Condition	Future + Project Condition
Scenario #	1		3		5	7	9	11
I-15 SB RAMPS								
EB LEFT	100	326	426	4	104	430	103	429
EB THRU	3	0	3	0	3	3	3	3
EB RIGHT	2	0	2	0	2	2	3	3
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
DEATH VALLEY RD (SR 127)								
NB LEFT	0	0	0	0	0	0	0	0
NB THRU	2	0	2	0	2	2	23	23
NB RIGHT	4	0	4	0	4	4	36	36
SB LEFT	197	79	276	8	205	284	169	248
SB THRU	1	0	1	0	1	1	2	2
SB RIGHT	0	0	0	0	0	0	0	0
TOTALS	**309**	**405**	**714**	**12**	**321**	**726**	**339**	**744**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	10-Nov-22	OONT0004-0001	2 OF 2

E/W STREET : I-15 SB RAMPS
N/S STREET : DEATH VALLEY RD (SR 127)
CONDITION : FRIDAY PEAK HOUR
PHF : 0.87

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	1	47	0	0	0	0	0	1	0	0	1
0	0	46	0	0	0	0	0	1	0	0	2
0	0	43	0	0	0	0	0	0	0	0	2
0	0	53	0	0	0	0	0	0	0	0	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	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
1	0	0	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
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
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
1	1	26	0	0	0	0	0	0	0	0	0
0	1	38	0	0	0	0	0	0	0	1	0
1	0	13	0	0	0	0	0	0	0	0	1
0	0	20	0	0	0	0	0	0	0	0	2

	Truck Volumes	Auto Volumes	Totals	Truck Percentage
I-15 SB RAMPS				
EB LEFT	3	97	**100**	**3%**
EB THRU	1	2	**3**	**33%**
EB RIGHT	0	2	**2**	**1%**
WB LEFT	0	0	**0**	**0%**
WB THRU	0	0	**0**	**0%**
WB RIGHT	0	0	**0**	**0%**
DEATH VALLEY RD (SR 127)				
NB LEFT	0	0	**0**	**0%**
NB THRU	0	2	**2**	**1%**
NB RIGHT	0	4	**4**	**1%**
SB LEFT	8	189	**197**	**4%**
SB THRU	0	1	**1**	**1%**
SB RIGHT	0	0	**0**	**0%**

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	100	3	2	0	0	0	0	2	4	197	1	0
Future Vol, veh/h	100	3	2	0	0	0	0	2	4	197	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	33	1	0	0	0	0	1	1	4	1	0
Mvmt Flow	115	3	2	0	0	0	0	2	5	226	1	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.6	7.1	9.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	95%	99%
Vol Thru, %	33%	3%	1%
Vol Right, %	67%	2%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	6	105	198
LT Vol	0	100	197
Through Vol	2	3	1
RT Vol	4	2	0
Lane Flow Rate	7	121	228
Geometry Grp	1	1	1
Degree of Util (X)	0.008	0.157	0.284
Departure Headway (Hd)	4.063	4.684	4.485
Convergence, Y/N	Yes	Yes	Yes
Cap	882	768	806
Service Time	2.08	2.7	2.485
HCM Lane V/C Ratio	0.008	0.158	0.283
HCM Control Delay	7.1	8.6	9.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0	0.6	1.2

Intersection	
Intersection Delay, s/veh	16.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	426	3	2	0	0	0	0	2	4	276	1	0
Future Vol, veh/h	426	3	2	0	0	0	0	2	4	276	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	33	1	0	0	0	0	1	1	4	1	0
Mvmt Flow	490	3	2	0	0	0	0	2	5	317	1	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	18.8	8.5	13.6
HCM LOS	C	A	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	99%	100%
Vol Thru, %	33%	1%	0%
Vol Right, %	67%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	6	431	277
LT Vol	0	426	276
Through Vol	2	3	1
RT Vol	4	2	0
Lane Flow Rate	7	495	318
Geometry Grp	1	1	1
Degree of Util (X)	0.01	0.693	0.483
Departure Headway (Hd)	5.421	5.034	5.459
Convergence, Y/N	Yes	Yes	Yes
Cap	664	713	653
Service Time	3.421	3.107	3.549
HCM Lane V/C Ratio	0.011	0.694	0.487
HCM Control Delay	8.5	18.8	13.6
HCM Lane LOS	A	C	B
HCM 95th-tile Q	0	5.6	2.6

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	104	3	2	0	0	0	0	2	4	205	1	0
Future Vol, veh/h	104	3	2	0	0	0	0	2	4	205	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	33	1	0	0	0	0	1	1	4	1	0
Mvmt Flow	120	3	2	0	0	0	0	2	5	236	1	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.6	7.1	9.4
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	95%	100%
Vol Thru, %	33%	3%	0%
Vol Right, %	67%	2%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	6	109	206
LT Vol	0	104	205
Through Vol	2	3	1
RT Vol	4	2	0
Lane Flow Rate	7	125	237
Geometry Grp	1	1	1
Degree of Util (X)	0.008	0.164	0.296
Departure Headway (Hd)	4.086	4.71	4.499
Convergence, Y/N	Yes	Yes	Yes
Cap	877	764	803
Service Time	2.105	2.724	2.499
HCM Lane V/C Ratio	0.008	0.164	0.295
HCM Control Delay	7.1	8.6	9.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0	0.6	1.2

Intersection	
Intersection Delay, s/veh	15.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	405	3	2	0	0	0	0	2	4	279	1	0
Future Vol, veh/h	405	3	2	0	0	0	0	2	4	279	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	33	1	0	0	0	0	1	1	4	1	0
Mvmt Flow	466	3	2	0	0	0	0	2	5	321	1	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	17.4	8.4	13.5
HCM LOS	C	A	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	99%	100%
Vol Thru, %	33%	1%	0%
Vol Right, %	67%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	6	410	280
LT Vol	0	405	279
Through Vol	2	3	1
RT Vol	4	2	0
Lane Flow Rate	7	471	322
Geometry Grp	1	1	1
Degree of Util (X)	0.01	0.659	0.482
Departure Headway (Hd)	5.346	5.035	5.397
Convergence, Y/N	Yes	Yes	Yes
Cap	674	712	663
Service Time	3.346	3.105	3.482
HCM Lane V/C Ratio	0.01	0.662	0.486
HCM Control Delay	8.4	17.4	13.5
HCM Lane LOS	A	C	B
HCM 95th-tile Q	0	5	2.6

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	103	3	3	0	0	0	0	23	36	169	2	0
Future Vol, veh/h	103	3	3	0	0	0	0	23	36	169	2	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	33	1	0	0	0	0	1	1	4	1	0
Mvmt Flow	118	3	3	0	0	0	0	26	41	194	2	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.7	7.4	9.1
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	94%	99%
Vol Thru, %	39%	3%	1%
Vol Right, %	61%	3%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	59	109	171
LT Vol	0	103	169
Through Vol	23	3	2
RT Vol	36	3	0
Lane Flow Rate	68	125	197
Geometry Grp	1	1	1
Degree of Util (X)	0.077	0.165	0.248
Departure Headway (Hd)	4.08	4.73	4.547
Convergence, Y/N	Yes	Yes	Yes
Cap	880	760	792
Service Time	2.098	2.746	2.562
HCM Lane V/C Ratio	0.077	0.164	0.249
HCM Control Delay	7.4	8.7	9.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.6	1

Intersection	
Intersection Delay, s/veh	17.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	429	3	3	0	0	0	0	23	36	248	2	0
Future Vol, veh/h	429	3	3	0	0	0	0	23	36	248	2	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	33	1	0	0	0	0	1	1	4	1	0
Mvmt Flow	493	3	3	0	0	0	0	26	41	285	2	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	20.5	9.1	13.4
HCM LOS	C	A	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	99%	99%
Vol Thru, %	39%	1%	1%
Vol Right, %	61%	1%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	59	435	250
LT Vol	0	429	248
Through Vol	23	3	2
RT Vol	36	3	0
Lane Flow Rate	68	500	287
Geometry Grp	1	1	1
Degree of Util (X)	0.103	0.722	0.453
Departure Headway (Hd)	5.443	5.2	5.678
Convergence, Y/N	Yes	Yes	Yes
Cap	657	700	635
Service Time	3.485	3.2	3.712
HCM Lane V/C Ratio	0.104	0.714	0.452
HCM Control Delay	9.1	20.5	13.4
HCM Lane LOS	A	C	B
HCM 95th-tile Q	0.3	6.2	2.4

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	10-Nov-22	OONT0004-0001	1 OF 2

E/W STREET : I-15 SB RAMPS
N/S STREET : DEATH VALLEY RD (SR 127)
CONDITION : SUNDAY PEAK HOUR

INTERSECTION : 3
PROJECTED GROWTH PER YEAR : 2.0%

TURN MOVEMENTS

Condition	Existing Condition	Project Trips	Existing + Project Condition	Ambient Growth	Background Condition	Project Condition	Future Condition	Future + Project Condition
Scenario #	2		4		6	8	10	12
I-15 SB RAMPS								
EB LEFT	138	263	401	6	144	407	138	401
EB THRU	1	0	1	0	1	1	1	1
EB RIGHT	3	0	3	0	3	3	5	5
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
DEATH VALLEY RD (SR 127)								
NB LEFT	0	0	0	0	0	0	0	0
NB THRU	5	0	5	0	5	5	7	7
NB RIGHT	3	0	3	0	3	3	4	4
SB LEFT	172	48	220	7	179	227	178	226
SB THRU	1	0	1	0	1	1	3	3
SB RIGHT	0	0	0	0	0	0	0	0
TOTALS	**323**	**311**	**634**	**13**	**336**	**647**	**336**	**647**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	10-Nov-22	OONT0004-0001	2 OF 2

E/W STREET : I-15 SB RAMPS
N/S STREET : DEATH VALLEY RD (SR 127)
CONDITION : SUNDAY PEAK HOUR
PHF : 0.94

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	0	17	0	0	0	0	0	0	0	0	2
0	0	50	0	0	0	0	0	0	0	0	1
0	1	52	0	0	0	0	0	0	0	0	2
0	0	46	0	0	0	0	0	0	0	0	2

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	1	0	0	0	0	0	0	0	1	0	0
0	2	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0
1	2	0	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
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
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	53	0	0	0	0	0	1	0	0	1
0	0	25	0	0	1	0	0	0	0	0	2
1	0	29	0	0	0	0	0	0	0	0	0
2	1	25	0	0	0	0	0	0	0	0	1

	Truck Volumes	Auto Volumes	Totals	Truck Percentage
I-15 SB RAMPS				
EB LEFT	6	132	**138**	**4%**
EB THRU	0	1	**1**	**1%**
EB RIGHT	0	3	**3**	**1%**
WB LEFT	0	0	**0**	**0%**
WB THRU	0	0	**0**	**0%**
WB RIGHT	0	0	**0**	**0%**
DEATH VALLEY RD (SR 127)				
NB LEFT	0	0	**0**	**0%**
NB THRU	0	5	**5**	**1%**
NB RIGHT	1	2	**3**	**33%**
SB LEFT	7	165	**172**	**4%**
SB THRU	0	1	**1**	**1%**
SB RIGHT	0	0	**0**	**0%**

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	138	1	3	0	0	0	0	5	3	172	1	0
Future Vol, veh/h	138	1	3	0	0	0	0	5	3	172	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	4	1	1	0	0	0	0	1	33	4	1	0
Mvmt Flow	147	1	3	0	0	0	0	5	3	183	1	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.7	7.3	8.9
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	97%	99%
Vol Thru, %	62%	1%	1%
Vol Right, %	38%	2%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	8	142	173
LT Vol	0	138	172
Through Vol	5	1	1
RT Vol	3	3	0
Lane Flow Rate	9	151	184
Geometry Grp	1	1	1
Degree of Util (X)	0.01	0.194	0.233
Departure Headway (Hd)	4.269	4.612	4.548
Convergence, Y/N	Yes	Yes	Yes
Cap	840	781	791
Service Time	2.287	2.624	2.56
HCM Lane V/C Ratio	0.011	0.193	0.233
HCM Control Delay	7.3	8.7	8.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0	0.7	0.9

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	401	1	3	0	0	0	0	5	3	220	1	0
Future Vol, veh/h	401	1	3	0	0	0	0	5	3	220	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	4	1	1	0	0	0	0	1	33	4	1	0
Mvmt Flow	427	1	3	0	0	0	0	5	3	234	1	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	14.2	8.3	11.1
HCM LOS	B	A	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	99%	100%
Vol Thru, %	62%	0%	0%
Vol Right, %	38%	1%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	8	405	221
LT Vol	0	401	220
Through Vol	5	1	1
RT Vol	3	3	0
Lane Flow Rate	9	431	235
Geometry Grp	1	1	1
Degree of Util (X)	0.012	0.576	0.344
Departure Headway (Hd)	5.115	4.811	5.264
Convergence, Y/N	Yes	Yes	Yes
Cap	693	750	679
Service Time	3.196	2.856	3.319
HCM Lane V/C Ratio	0.013	0.575	0.346
HCM Control Delay	8.3	14.2	11.1
HCM Lane LOS	A	B	B
HCM 95th-tile Q	0	3.7	1.5

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	144	1	3	0	0	0	0	5	3	179	1	0
Future Vol, veh/h	144	1	3	0	0	0	0	5	3	179	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	4	1	1	0	0	0	0	1	33	4	1	0
Mvmt Flow	153	1	3	0	0	0	0	5	3	190	1	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.8	7.4	9
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	97%	99%
Vol Thru, %	62%	1%	1%
Vol Right, %	38%	2%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	8	148	180
LT Vol	0	144	179
Through Vol	5	1	1
RT Vol	3	3	0
Lane Flow Rate	9	157	191
Geometry Grp	1	1	1
Degree of Util (X)	0.01	0.203	0.243
Departure Headway (Hd)	4.296	4.632	4.566
Convergence, Y/N	Yes	Yes	Yes
Cap	835	778	789
Service Time	2.314	2.644	2.578
HCM Lane V/C Ratio	0.011	0.202	0.242
HCM Control Delay	7.4	8.8	9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0	0.8	1

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	407	1	3	0	0	0	0	5	3	227	1	0
Future Vol, veh/h	407	1	3	0	0	0	0	5	3	227	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	4	1	1	0	0	0	0	1	33	4	1	0
Mvmt Flow	433	1	3	0	0	0	0	5	3	241	1	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	14.6	8.3	11.3
HCM LOS	B	A	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	99%	100%
Vol Thru, %	62%	0%	0%
Vol Right, %	38%	1%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	8	411	228
LT Vol	0	407	227
Through Vol	5	1	1
RT Vol	3	3	0
Lane Flow Rate	9	437	243
Geometry Grp	1	1	1
Degree of Util (X)	0.012	0.587	0.356
Departure Headway (Hd)	5.148	4.832	5.284
Convergence, Y/N	Yes	Yes	Yes
Cap	688	743	677
Service Time	3.232	2.879	3.341
HCM Lane V/C Ratio	0.013	0.588	0.359
HCM Control Delay	8.3	14.6	11.3
HCM Lane LOS	A	B	B
HCM 95th-tile Q	0	3.9	1.6

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	138	1	5	0	0	0	0	7	4	178	3	0
Future Vol, veh/h	138	1	5	0	0	0	0	7	4	178	3	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	4	1	1	0	0	0	0	1	33	4	1	0
Mvmt Flow	147	1	5	0	0	0	0	7	4	189	3	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.8	7.4	9
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	96%	98%
Vol Thru, %	64%	1%	2%
Vol Right, %	36%	3%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	11	144	181
LT Vol	0	138	178
Through Vol	7	1	3
RT Vol	4	5	0
Lane Flow Rate	12	153	193
Geometry Grp	1	1	1
Degree of Util (X)	0.014	0.197	0.244
Departure Headway (Hd)	4.292	4.628	4.554
Convergence, Y/N	Yes	Yes	Yes
Cap	835	778	791
Service Time	2.31	2.641	2.567
HCM Lane V/C Ratio	0.014	0.197	0.244
HCM Control Delay	7.4	8.8	9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0	0.7	1

Intersection	
Intersection Delay, s/veh	13.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	401	1	5	0	0	0	0	7	4	226	3	0
Future Vol, veh/h	401	1	5	0	0	0	0	7	4	226	3	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	4	1	1	0	0	0	0	1	33	4	1	0
Mvmt Flow	427	1	5	0	0	0	0	7	4	240	3	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	14.5	8.3	11.3
HCM LOS	B	A	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	99%	99%
Vol Thru, %	64%	0%	1%
Vol Right, %	36%	1%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	11	407	229
LT Vol	0	401	226
Through Vol	7	1	3
RT Vol	4	5	0
Lane Flow Rate	12	433	244
Geometry Grp	1	1	1
Degree of Util (X)	0.017	0.582	0.357
Departure Headway (Hd)	5.143	4.837	5.275
Convergence, Y/N	Yes	Yes	Yes
Cap	689	745	677
Service Time	3.229	2.886	3.335
HCM Lane V/C Ratio	0.017	0.581	0.36
HCM Control Delay	8.3	14.5	11.3
HCM Lane LOS	A	B	B
HCM 95th-tile Q	0.1	3.8	1.6

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
AVERAGE DAILY VOLUME	TM	10-Nov-22	OONT0004-0001	1 OF 1

E/W STREET : I-15 SB RAMPS INTERSECTION : 3

N/S STREET : DEATH VALLEY RD (SR 127)

Average Daily Bi-Directional Volume = SUNDAY Peak Hour (Approach+Departure) x 11.5

Condition	Existing Condition	Existing + Project Condition	Background Condition	Project Condition	Future Condition	Future + Project Condition
Scenario #						
Approach						
South leg (NB)	8	8	8	8	11	11
North leg (SB)	173	221	180	228	181	229
West leg (EB)	142	405	148	411	144	407
East leg (WB)	0	0	0	0	0	0
Departure						
South leg (NB)	4	4	4	4	8	8
North leg (SB)	143	406	149	412	145	408
West leg (EB)	0	0	0	0	0	0
East leg (WB)	176	224	183	231	183	231
Balanced Average Daily Volume						
South leg (NB)	138	138	138	138	219	219
North leg (SB)	3,634	7,211	3,784	7,360	3,749	7,326
West leg (EB)	1,633	4,658	1,702	4,727	1,656	4,681
East leg (WB)	2,024	2,576	2,105	2,657	2,105	2,657

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

Intersection No.: 3
North/South Street: DEATH VALLEY RD (SR 127)
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	12	Left	0	0
NB	Through	2	Departure	5	Through	61	23
	Right	4			Right	95	36
North leg	Left	197	Approach	199	Left	109	169
SB	Through	1	Departure	126	Through	2	2
	Right	0			Right	0	0
West leg	Left	100	Approach	125	Left	65	103
EB	Through	3	Departure	0	Through	2	3
	Right	2			Right	3	3
East leg	Left	0	Approach	0	Left	0	0
WB	Through	0	Departure	206	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	0	Approach	10	Left	0	0
NB	Through	5	Departure	8	Through	7	7
	Right	3			Right	2	4
North leg	Left	172	Approach	190	Left	173	178
SB	Through	1	Departure	144	Through	3	3
	Right	0			Right	0	0
West leg	Left	138	Approach	142	Left	137	138
EB	Through	1	Departure	14	Through	1	1
	Right	3			Right	5	5
East leg	Left	0	Approach	2	Left	0	0
WB	Through	0	Departure	176	Through	0	0
	Right	0			Right	0	0

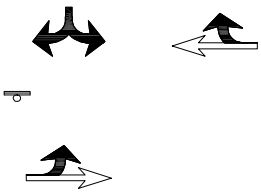
DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	7-Nov-22	OONT0004-0001	1 OF 2

E/W STREET : BAKER BLVD
N/S STREET : PROJECT DRIVEWAY "A"
CONDITION : FRIDAY PEAK HOUR

INTERSECTION : 4
PROJECTED GROWTH PER YEAR : 2.0%

CONDITION DIAGRAMS



PROJECT GEOMETRICS

TURN MOVEMENTS

Condition	Existing Condition	Project Trips	Existing + Project Condition	Ambient Growth	Background Condition	Project Condition	Future Condition	Future + Project Condition
Scenario #	1		3		5	7	9	11
BAKER BLVD								
EB LEFT	0	397	397	0	0	397	0	397
EB THRU	284	239	523	12	296	535	309	548
EB RIGHT	0	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0	0
WB THRU	173	135	308	8	181	316	207	342
WB RIGHT	0	40	40	0	0	40	0	40
PROJECT DRIVEWAY "A"								
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	143	143	0	0	143	0	143
SB THRU	0	0	0	0	0	0	0	0
SB RIGHT	0	294	294	0	0	294	0	294
TOTALS	**457**	**1248**	**1705**	**20**	**477**	**1725**	**516**	**1764**

Intersection	
Int Delay, s/veh	97.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	368	517	306	36	132	272
Future Vol, veh/h	368	517	306	36	132	272
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	84	84	84	84	84	84
Heavy Vehicles, %	2	4	9	2	2	2
Mvmt Flow	438	615	364	43	157	324

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	407	0	-	0	1877	386
Stage 1	-	-	-	-	386	-
Stage 2	-	-	-	-	1491	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1152	-	-	-	~ 79	662
Stage 1	-	-	-	-	687	-
Stage 2	-	-	-	-	206	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1152	-	-	-	~ 33	662
Mov Cap-2 Maneuver	-	-	-	-	~ 125	-
Stage 1	-	-	-	-	290	-
Stage 2	-	-	-	-	206	-

Approach	EB	WB	SB
HCM Control Delay, s	4.2	0	$ 383.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1152	-	-	-	275
HCM Lane V/C Ratio	0.38	-	-	-	1.749
HCM Control Delay (s)	10	0	-	-	$ 383.3
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	1.8	-	-	-	31.5

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

Intersection	
Int Delay, s/veh	231.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	366	679	475	71	111	326
Future Vol, veh/h	366	679	475	71	111	326
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	84	84	84	84	84	84
Heavy Vehicles, %	2	1	2	2	2	2
Mvmt Flow	436	808	565	85	132	388

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	650	0	-	0	2288	608
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	1680	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	936	-	-	-	~ 43	496
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	166	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	936	-	-	-	~ 7	496
Mov Cap-2 Maneuver	-	-	-	-	~ 54	-
Stage 1	-	-	-	-	~ 84	-
Stage 2	-	-	-	-	166	-

Approach	EB	WB	SB
HCM Control Delay, s	4.3	0	$ 1062.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	936	-	-	-	161
HCM Lane V/C Ratio	0.466	-	-	-	3.231
HCM Control Delay (s)	12.2	0	-		$ 1062.8
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	2.5	-	-	-	48.9

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

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	7-Nov-22	OONT0004-0001	1 OF 2

E/W STREET : BAKER BLVD
N/S STREET : PROJECT DRIVEWAY "A"
CONDITION : SUNDAY PEAK HOUR

INTERSECTION : 4
PROJECTED GROWTH PER YEAR : 2.0%

TURN MOVEMENTS

Condition	Existing Condition	Project Trips	Project Condition	Ambient Growth	Background Condition	Project Condition	Future Condition	Future + Project Condition
Scenario #	2		4		6	8	10	12
BAKER BLVD								
EB LEFT	0	366	366	0	0	366	0	366
EB THRU	454	207	207	18	472	679	482	689
EB RIGHT	0	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0	0
WB THRU	265	199	199	11	276	475	290	489
WB RIGHT	0	71	71	0	0	71	0	71
PROJECT DRIVEWAY "A"								
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	111	111	0	0	111	0	111
SB THRU	0	0	0	0	0	0	0	0
SB RIGHT	0	326	326	0	0	326	0	326
TOTALS	**719**	**1280**	**1280**	**29**	**748**	**2028**	**772**	**2052**

Intersection	
Int Delay, s/veh	157.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	397	548	342	40	143	294
Future Vol, veh/h	397	548	342	40	143	294
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	84	84	84	84	84	84
Heavy Vehicles, %	2	4	9	2	2	2
Mvmt Flow	473	652	407	48	170	350

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	455	0	-	0	2029	431
Stage 1	-	-	-	-	431	-
Stage 2	-	-	-	-	1598	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1106	-	-	-	~ 63	624
Stage 1	-	-	-	-	655	-
Stage 2	-	-	-	-	182	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1106	-	-	-	~ 21	624
Mov Cap-2 Maneuver	-	-	-	-	~ 99	-
Stage 1	-	-	-	-	215	-
Stage 2	-	-	-	-	182	-

Approach	EB	WB	SB
HCM Control Delay, s	4.5	0	$ 624.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1106	-	-	-	228
HCM Lane V/C Ratio	0.427	-	-	-	2.282
HCM Control Delay (s)	10.7	0	-	-	$ 624.4
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	2.2	-	-	-	41.3

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

Intersection	
Int Delay, s/veh	266.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	366	689	489	71	111	326
Future Vol, veh/h	366	689	489	71	111	326
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	84	84	84	84	84	84
Heavy Vehicles, %	2	1	2	2	2	2
Mvmt Flow	436	820	582	85	132	388

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	667	0	-	0	2317	625
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	1692	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	923	-	-	-	~ 42	485
Stage 1	-	-	-	-	534	-
Stage 2	-	-	-	-	164	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	923	-	-	-	~ 6	485
Mov Cap-2 Maneuver	-	-	-	-	~ 47	-
Stage 1	-	-	-	-	~ 70	-
Stage 2	-	-	-	-	164	-

Approach	EB	WB	SB
HCM Control Delay, s	4.3	0	$ 1239.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	923	-	-	-	144
HCM Lane V/C Ratio	0.472	-	-	-	3.613
HCM Control Delay (s)	12.3	0	-		$ 1239.4
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	2.6	-	-	-	50.9

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

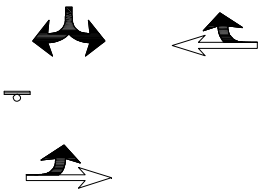
DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	7-Nov-22	OONT0004-0001	1 OF 2

E/W STREET : BAKER BLVD
N/S STREET : PROJECT DRIVEWAY "B"
CONDITION : FRIDAY PEAK HOUR

INTERSECTION : 5
PROJECTED GROWTH PER YEAR : 2.0%

CONDITION DIAGRAMS



PROJECT GEOMETRICS

TURN MOVEMENTS

Condition	Existing Condition	Project Trips	Existing + Project Condition	Ambient Growth	Background Condition	Project Condition	Future Condition	Future + Project Condition
Scenario #	1		3		5	7	9	11
BAKER BLVD								
EB LEFT	0	239	239	0	0	239	0	239
EB THRU	284	143	427	12	296	439	309	452
EB RIGHT	0	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0	0
WB THRU	173	40	213	8	181	221	207	247
WB RIGHT	0	119	119	0	0	119	0	119
PROJECT DRIVEWAY "B"								
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	222	222	0	0	222	0	222
SB THRU	0	0	0	0	0	0	0	0
SB RIGHT	0	135	135	0	0	135	0	135
TOTALS	**457**	**898**	**1355**	**20**	**477**	**1375**	**516**	**1414**

Intersection	
Int Delay, s/veh	44.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	221	428	217	110	206	125
Future Vol, veh/h	221	428	217	110	206	125
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	84	84	84	84	84	84
Heavy Vehicles, %	2	4	9	2	2	2
Mvmt Flow	263	510	258	131	245	149

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	389	0	-	0	1360	324
Stage 1	-	-	-	-	324	-
Stage 2	-	-	-	-	1036	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1170	-	-	-	~ 164	717
Stage 1	-	-	-	-	733	-
Stage 2	-	-	-	-	342	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1170	-	-	-	~ 113	717
Mov Cap-2 Maneuver	-	-	-	-	~ 235	-
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	342	-

Approach	EB	WB	SB
HCM Control Delay, s	3.1	0	171
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1170	-	-	-	315
HCM Lane V/C Ratio	0.225	-	-	-	1.251
HCM Control Delay (s)	9	0	-	-	171
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.9	-	-	-	18.1

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

Intersection	
Int Delay, s/veh	61.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	207	583	347	151	159	199
Future Vol, veh/h	207	583	347	151	159	199
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	84	84	84	84	84	84
Heavy Vehicles, %	2	1	2	2	2	2
Mvmt Flow	246	694	413	180	189	237

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	593	0	-	0	1689	503
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	1186	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	983	-	-	-	~ 103	569
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	290	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	983	-	-	-	~ 61	569
Mov Cap-2 Maneuver	-	-	-	-	~ 174	-
Stage 1	-	-	-	-	360	-
Stage 2	-	-	-	-	290	-

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	278.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	983	-	-	-	283
HCM Lane V/C Ratio	0.251	-	-	-	1.506
HCM Control Delay (s)	9.9	0	-	-	278.5
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	1	-	-	-	24.4

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

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	7-Nov-22	OONT0004-0001	1 OF 2

E/W STREET : BAKER BLVD
N/S STREET : PROJECT DRIVEWAY "B"
CONDITION : SUNDAY PEAK HOUR

INTERSECTION : 5
PROJECTED GROWTH PER YEAR : 2.0%

TURN MOVEMENTS

Condition	Existing Condition	Project Trips	Project Condition	Ambient Growth	Background Condition	Project Condition	Future Condition	Future + Project Condition
Scenario #	2		4		6	8	10	12
BAKER BLVD								
EB LEFT	0	207	207	0	0	207	0	207
EB THRU	454	111	111	18	472	583	482	593
EB RIGHT	0	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0	0
WB THRU	265	71	71	11	276	347	290	361
WB RIGHT	0	151	151	0	0	151	0	151
PROJECT DRIVEWAY "B"								
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	159	159	0	0	159	0	159
SB THRU	0	0	0	0	0	0	0	0
SB RIGHT	0	199	199	0	0	199	0	199
TOTALS	**719**	**898**	**898**	**29**	**748**	**1646**	**772**	**1670**

Intersection	
Int Delay, s/veh	72

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	239	452	247	119	222	135
Future Vol, veh/h	239	452	247	119	222	135
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	84	84	84	84	84	84
Heavy Vehicles, %	2	4	9	2	2	2
Mvmt Flow	285	538	294	142	264	161

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	436	0	-	0	1473	365
Stage 1	-	-	-	-	365	-
Stage 2	-	-	-	-	1108	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1124	-	-	-	~ 140	680
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	316	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1124	-	-	-	~ 89	680
Mov Cap-2 Maneuver	-	-	-	-	~ 208	-
Stage 1	-	-	-	-	448	-
Stage 2	-	-	-	-	316	-

Approach	EB	WB	SB
HCM Control Delay, s	3.2	0	279.1
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1124	-	-	-	282
HCM Lane V/C Ratio	0.253	-	-	-	1.507
HCM Control Delay (s)	9.3	0	-	-	279.1
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	1	-	-	-	24.4

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

Intersection	
Int Delay, s/veh	64.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	207	593	361	151	159	199
Future Vol, veh/h	207	593	361	151	159	199
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	84	84	84	84	84	84
Heavy Vehicles, %	2	1	2	2	2	2
Mvmt Flow	246	706	430	180	189	237

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	610	0	-	0	1718	520
Stage 1	-	-	-	-	520	-
Stage 2	-	-	-	-	1198	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	969	-	-	-	~ 99	556
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	286	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	969	-	-	-	~ 58	556
Mov Cap-2 Maneuver	-	-	-	-	~ 169	-
Stage 1	-	-	-	-	347	-
Stage 2	-	-	-	-	286	-

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	295.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	969	-	-	-	276
HCM Lane V/C Ratio	0.254	-	-	-	1.544
HCM Control Delay (s)	10	0	-	-	295.6
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	1	-	-	-	25.1

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

DAVID EVANS AND ASSOCIATES INC.

Appendix D: Traffic Signal Warrant Analysis

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE 10-29-20
CALC TNM DATE 11-7-22
CHK _____ DATE _____

DIST _____ CO _____ RTE _____ PM _____

Major St: Baker Blvd
Minor St: Death Valley Rd (SR 127)

Critical Approach Speed 35 mph
Critical Approach Speed 35 mph

Speed limit or critical speed on major street traffic > 40 mph..... ☐
or
In built up area of isolated community of < 10,000 population..... ☒
} RURAL (R)
☐ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume SATISFIED YES ☐ NO ☐ N/A
(Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume 100% SATISFIED YES ☐ NO ☐
80% SATISFIED YES ☐ NO ☐

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				
	U	R	U	R	Hour
APPROACH LANES	1		2 or More		
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)	
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	

Condition B - Interruption of Continuous Traffic 100% SATISFIED YES ☐ NO ☐
80% SATISFIED YES ☐ NO ☐

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				
	U	R	U	R	Hour
APPROACH LANES	1		2 or More		
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)	
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	

Combination of Conditions A & B SATISFIED YES ☐ NO ☐

REQUIREMENT	CONDITION	✓	FULFILLED
TWO CONDITIONS SATISFIED 80%	A. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☐
	AND, B. INTERRUPTION OF CONTINUOUS TRAFFIC		
AND, AN ADEQUATE TRIAL OF OTHER ALTERNATIVES THAT COULD CAUSE LESS DELAY AND INCONVENIENCE TO TRAFFIC HAS FAILED TO SOLVE THE TRAFFIC PROBLEMS			Yes ☐ No ☐

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

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

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

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

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

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

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

PART A **SATISFIED YES ☐ NO ☒**

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

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

PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street		X	763
Higher Approach - Minor Street	X		209

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

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

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 3 of 5)

WARRANT 4 - Pedestrian Volume
(Parts 1 and 2 Must Be Satisfied)

SATISFIED YES ☐ NO ☐ N/A

Part 1 (Parts A or B must be satisfied)

	Hours - - ->				
A.	Vehicles per hour for any 4 hours				
	Pedestrians per hour for any 4 hours				

Figure 4C-5 or Figure 4C-6
SATISFIED YES ☐ NO ☐

	Hours - - ->				
B.	Vehicles per hour for any 1 hour				
	Pedestrians per hour for any 1 hour				

Figure 4C-7 or Figure 4C-8
SATISFIED YES ☐ NO ☐

Part 2 **SATISFIED YES ☐ NO ☐**

AND, The distance to the nearest traffic signal along the major street is greater than 300 ft	Yes ☐ No ☐
OR, The proposed traffic signal will not restrict progressive traffic flow along the major street.	Yes ☐ No ☐

WARRANT 5 - School Crossing
(Parts A and B Must Be Satisfied)

SATISFIED YES ☐ NO ☐ N/A

Part A
Gap/Minutes and # of Children

SATISFIED YES ☐ NO ☐

		Hour
Gaps vs Minutes	Minutes Children Using Crossing	
	Number of Adequate Gaps	
School Age Pedestrians Crossing Street / hr		

Gaps < Minutes YES ☐ NO ☐
AND Children > 20/hr YES ☐ NO ☐

AND, Consideration has been given to less restrictive remedial measures.	Yes ☐ No ☐

Part B **SATISFIED YES ☐ NO ☐**

The distance to the nearest traffic signal along the major street is greater than 300 ft	Yes ☐ No ☐
OR, The proposed signal will not restrict the progressive movement of traffic.	Yes ☐ No ☐

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

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

WARRANT 6 - Coordinated Signal System **SATISFIED YES ☐ NO ☐** N/A
(All Parts Must Be Satisfied)

MINIMUM REQUIREMENTS	DISTANCE TO NEAREST SIGNAL	
≥ 1000 ft	N _____ ft, S _____ ft, E _____ ft, W _____ ft	Yes ☐ No ☐
On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning.		Yes ☐ No ☐
OR, On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation.		

WARRANT 7 - Crash Experience Warrant **SATISFIED YES ☐ NO ☒**
(All Parts Must Be Satisfied)

Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.			Yes ☐ No ☒
REQUIREMENTS	Number of crashes reported within a 12 month period susceptible to correction by a traffic signal, and involving injury or damage exceeding the requirements for a reportable crash.		Yes ☐ No ☒
5 OR MORE			
REQUIREMENTS	CONDITIONS	✓	
ONE CONDITION SATISFIED 80%	Warrant 1, Condition A - Minimum Vehicular Volume		Yes ☐ No ☒
	OR, Warrant 1, Condition B - Interruption of Continuous Traffic		
	OR, Warrant 4, Pedestrian Volume Condition Ped Vol ≥ 80% of Figure 4C-5 through Figure 4C-8		

WARRANT 8 - Roadway Network **SATISFIED YES ☐ NO ☐** N/A
(All Parts Must Be Satisfied)

MINIMUM VOLUME REQUIREMENTS	ENTERING VOLUMES - ALL APPROACHES	✓	FULFILLED
1000 Veh/Hr	During Typical Weekday Peak Hour _____ Veh/Hr and has 5-year projected traffic volumes that meet one or more of Warrants 1, 2, and 3 during an average weekday.		Yes ☐ No ☐
	OR During Each of Any 5 Hrs. of a Sat. or Sun _____ Veh/Hr		

CHARACTERISTICS OF MAJOR ROUTES	MAJOR ROUTE A	MAJOR ROUTE B	
Hwy. System Serving as Principal Network for Through Traffic			
Rural or Suburban Highway Outside Of, Entering, or Traversing a City			
Appears as Major Route on an Official Plan			
Any Major Route Characteristics Met, Both Streets			Yes ☐ No ☐

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

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

WARRANT 9 - Intersection Near a Grade Crossing **SATISFIED YES ☐ NO ☐** N/A
(Both Parts A and B Must Be Satisfied)

PART A A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach. Track Center Line to Limit Line _____ ft	Yes ☐ No ☐
PART B **There is one minor street approach lane at the track crossing -** During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point falls above the applicable curve in Figure 4C-9. Major Street - Total of both approaches: _____ VPH Minor Street - Crosses the track (one direction only, approaching the intersection): _____ VPH X AF (Use Tables 4C-2, 3, & 4 below to calculate AF) = _____ VPH	Yes ☐ No ☐
OR, There are two or more minor street approach lanes at the track crossing - During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point falls above the applicable curve in Figure 4C-10. Major Street - Total of both approaches : _____ VPH Minor Street - Crosses the track (one direction only, approaching the intersection): _____ VPH X AF (Use Tables 4C-2, 3, & 4 below to calcualte AF) = _____ VPH	

The minor street approach volume may be multiplied by up to three following adjustment factors (AF) as described in Section 4C.10.

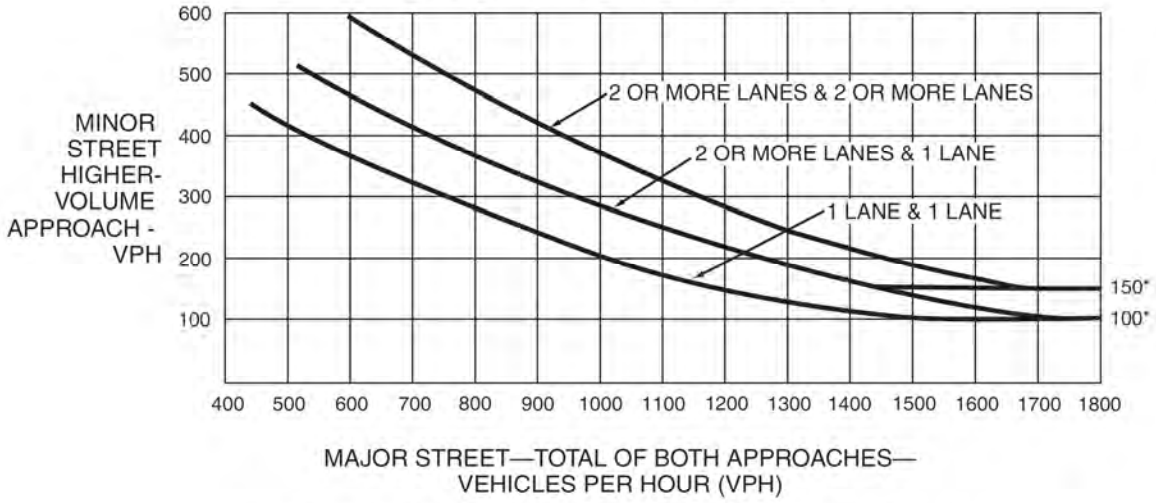
1- Number of Rail Traffic per Day_____ Adjustment factor from table 4C-2____

2- Percentage of High-Occupancy Buses on Minor Street Approach_____ Adjustment factor from table 4C-3____

3- Percentage of Tractor-Trailer Trucks on Minor Street Approach_____ Adjustment factor from table 4C-4____

NOTE: If no data is availale or known, then use AF = 1 (no adjustment)

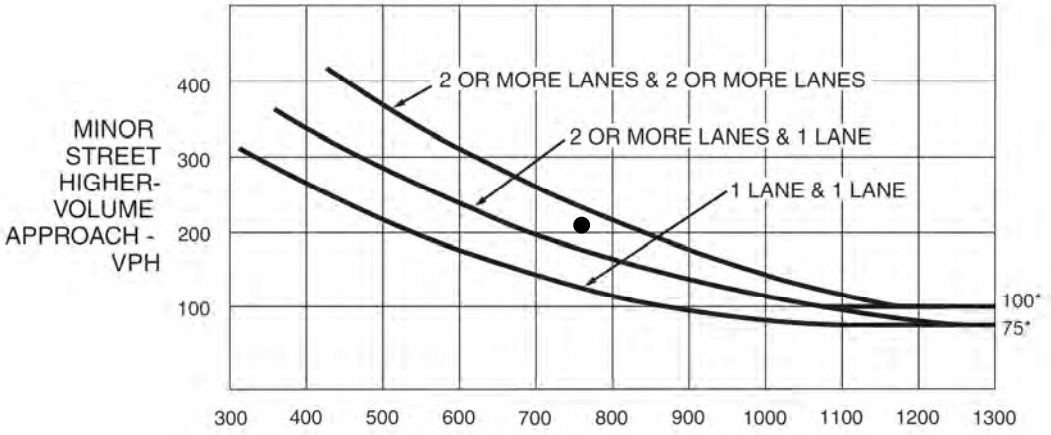
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

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

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

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

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

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

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

PART A **SATISFIED YES ☒ NO ☐**

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

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

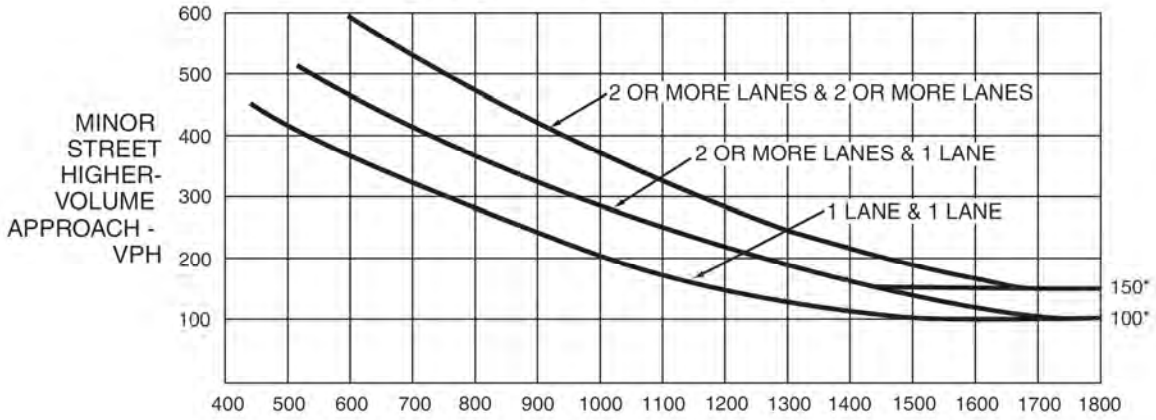
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street		X	1369
Higher Approach - Minor Street	X		693

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

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

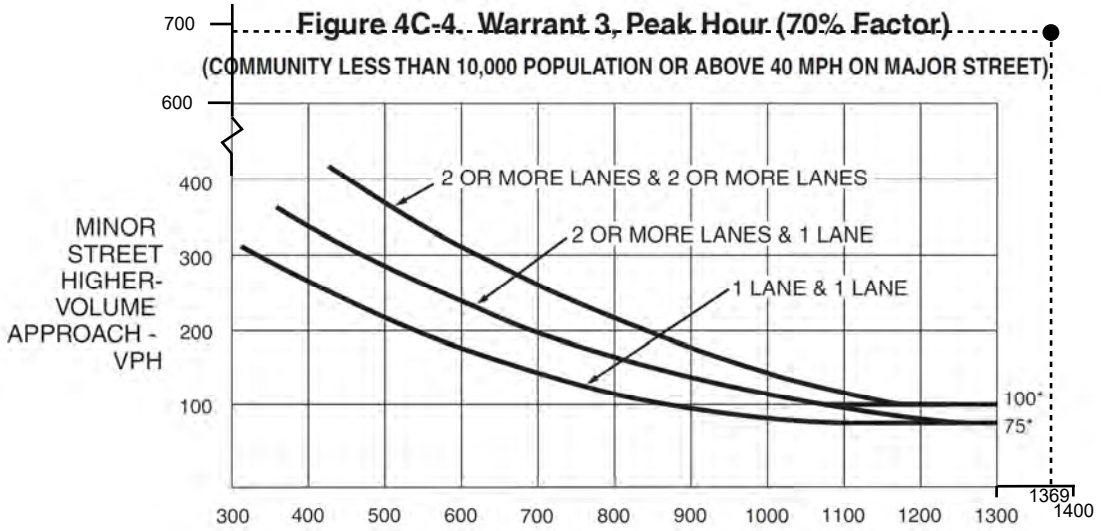
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

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

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

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

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

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

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

PART A **SATISFIED YES ☐ NO ☒**

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

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

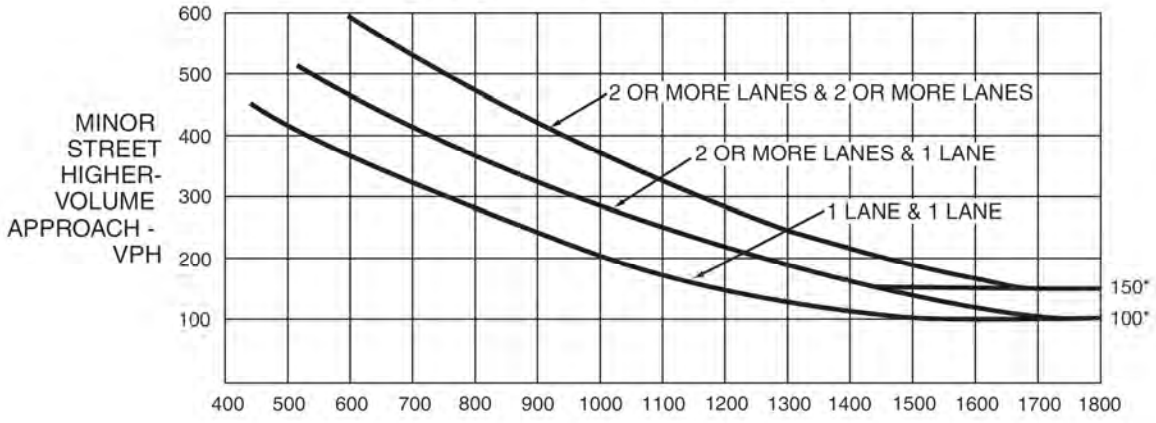
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street		X	793
Higher Approach - Minor Street	X		217

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

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

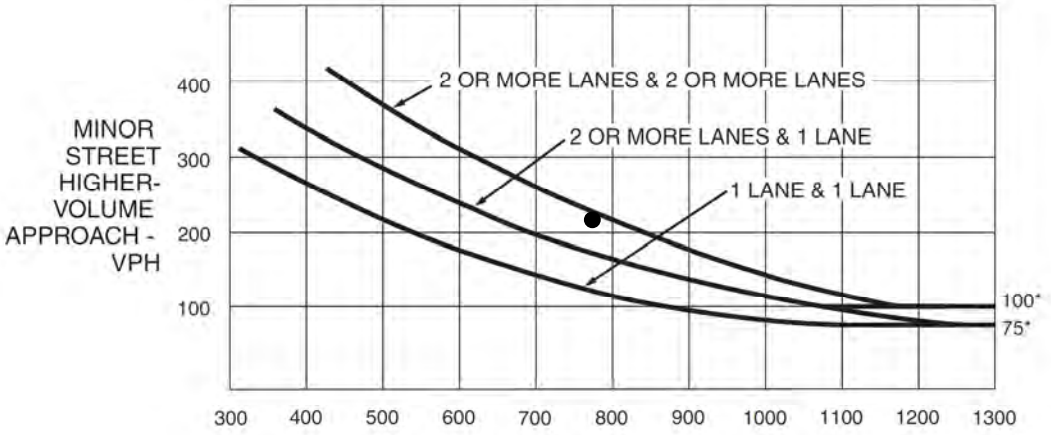
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

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

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

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

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

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

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

PART A **SATISFIED YES ☒ NO ☐**

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

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

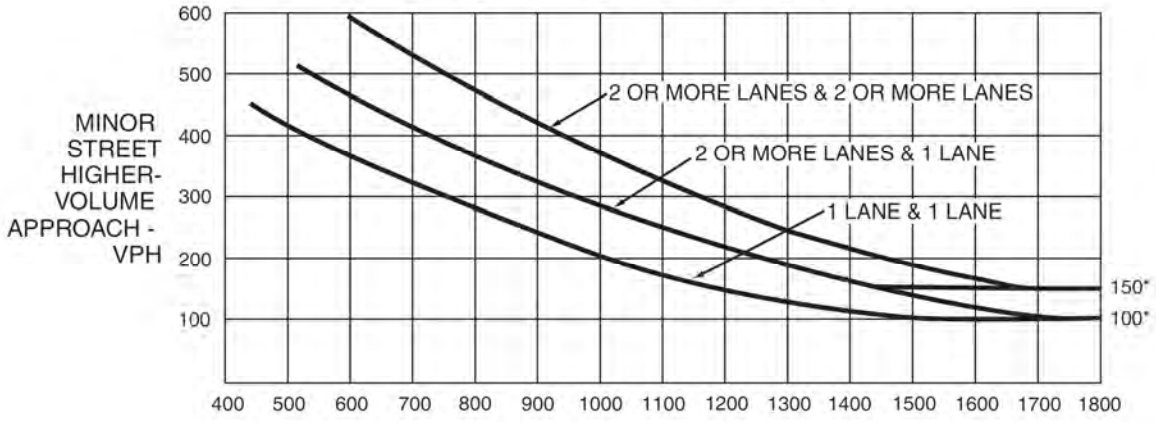
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street		X	1399
Higher Approach - Minor Street	X		701

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

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

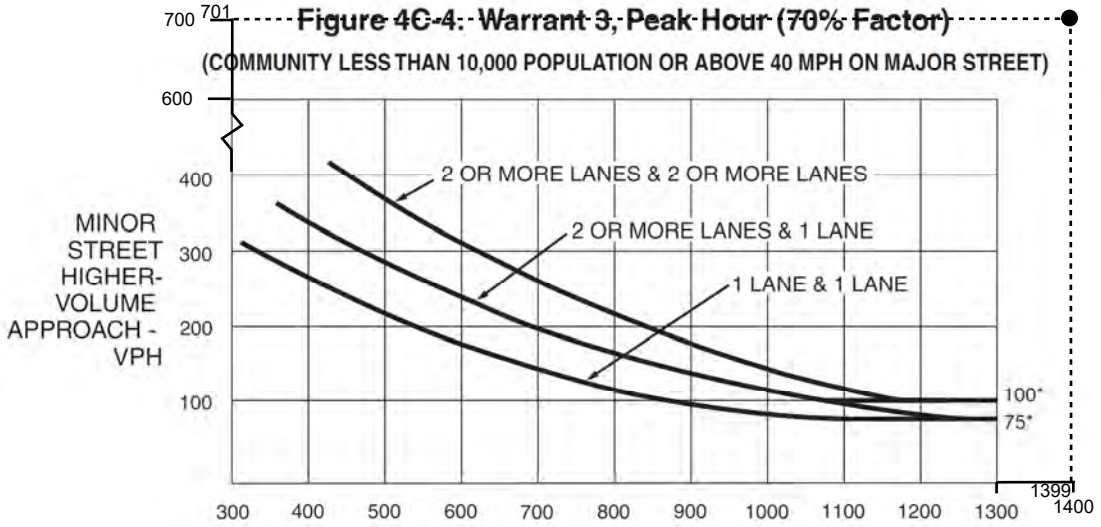
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

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

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

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

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

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

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

PART A **SATISFIED YES ☐ NO ☒**

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

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

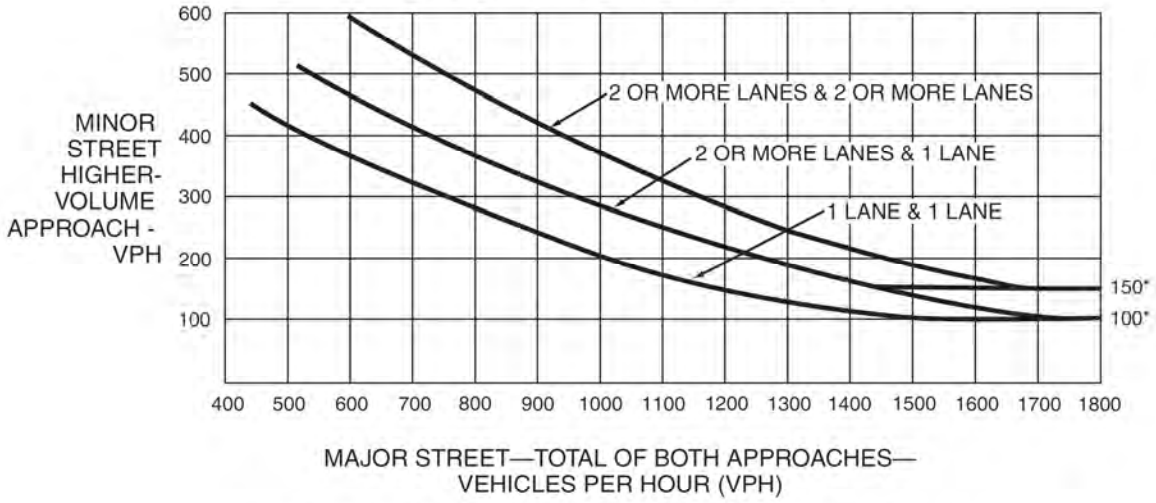
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street		X	804
Higher Approach - Minor Street	X		241

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

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

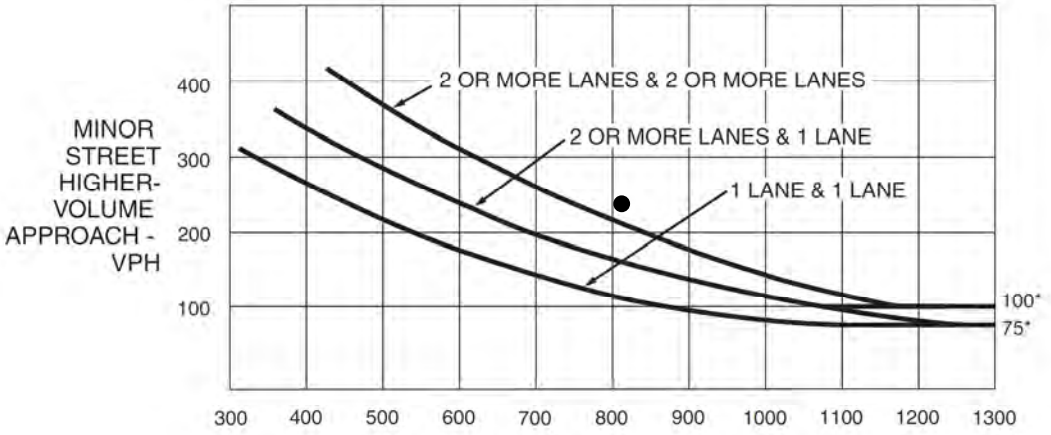
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

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

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

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

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

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

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

PART A **SATISFIED YES ☒ NO ☐**

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

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

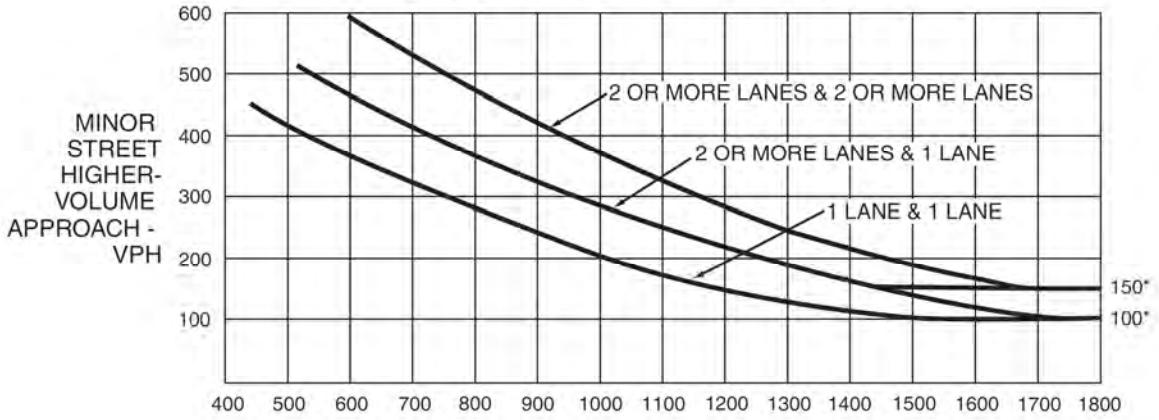
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street		X	1410
Higher Approach - Minor Street	X		725

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

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

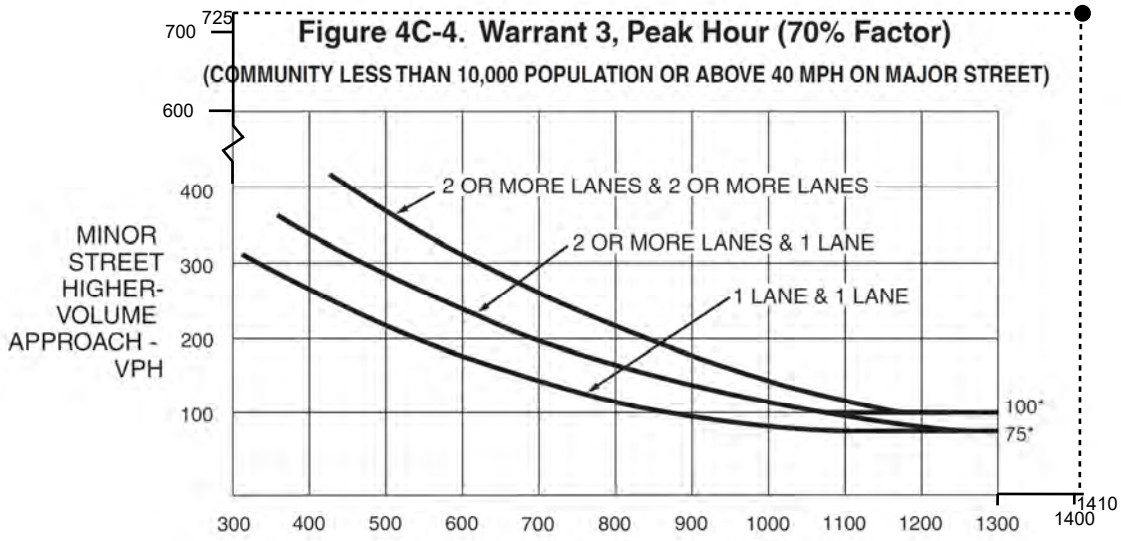
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

1. Baker Blvd and Death Valley Rd (SR 127)

Date	Primary	Secondary	Distance	Direction	Severity	Type
7/22/2018	SR-127	Baker Blvd	17	E	PDO	Sideswipe
10/6/2018	Baker Blvd W/B	Kelbaker Rd	20	E	PDO	Rear End
11/28/2018	E. Baker Blvd	SR-127	5	E	PDO	Sideswipe
2/21/2019	Baker Blvd	SR-127	0		PDO	Broadside
4/5/2019	Kelbaker Rd Northbound	Baker	55			Ran off Road
4/9/2021	Baker Blvd	CA-127	275	S	PDO	Rear End
8/18/2021	Baker Blvd	State Route 127	6	E	PDO	Hit Object
8/18/2021	Baker Blvd	State Route 127	8	E	PDO	Hit Object
3/2/2022	Baker Blvd WB	State Route 127	0		PDO	Sideswipe
8/27/2022	State Route 127	Baker Blvd	280	N	PDO	Sideswipe

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE 10-29-20

DIST ____ CO ____ RTE ____ PM ____

CALC TNM DATE 11-16-22

CHK ____ DATE ____

Major St: Death Valley Rd (SR 127) Critical Approach Speed 35 mph

Minor St: I-15 SB RAMPS Critical Approach Speed ____ mph

Speed limit or critical speed on major street traffic > 40 mph..... ☐

or

In built up area of isolated community of < 10,000 population..... ☒ } RURAL (R)

☐ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume SATISFIED YES ☐ NO ☐ N/A

(Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume 100% SATISFIED YES ☐ NO ☐

80% SATISFIED YES ☐ NO ☐

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				
	U	R	U	R	
APPROACH LANES	1		2 or More		Hour
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)	
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	

Condition B - Interruption of Continuous Traffic 100% SATISFIED YES ☐ NO ☐

80% SATISFIED YES ☐ NO ☐

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				
	U	R	U	R	
APPROACH LANES	1		2 or More		Hour
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)	
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	

Combination of Conditions A & B SATISFIED YES ☐ NO ☐

REQUIREMENT	CONDITION	✓	FULFILLED
TWO CONDITIONS SATISFIED 80%	A. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☐
	AND, B. INTERRUPTION OF CONTINUOUS TRAFFIC		
AND, AN ADEQUATE TRIAL OF OTHER ALTERNATIVES THAT COULD CAUSE LESS DELAY AND INCONVENIENCE TO TRAFFIC HAS FAILED TO SOLVE THE TRAFFIC PROBLEMS			Yes ☐ No ☐

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

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

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

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

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

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

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

PART A **SATISFIED YES ☐ NO ☒**

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

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

PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street	X		477
Higher Approach - Minor Street	X		118

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

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

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 3 of 5)

WARRANT 4 - Pedestrian Volume
(Parts 1 and 2 Must Be Satisfied)

SATISFIED YES ☐ NO ☐ N/A

Part 1 (Parts A or B must be satisfied)

	Hours - - ->				
A.	Vehicles per hour for any 4 hours				
	Pedestrians per hour for any 4 hours				

Figure 4C-5 or Figure 4C-6
SATISFIED YES ☐ NO ☐

	Hours - - ->				
B.	Vehicles per hour for any 1 hour				
	Pedestrians per hour for any 1 hour				

Figure 4C-7 or Figure 4C-8
SATISFIED YES ☐ NO ☐

Part 2 **SATISFIED YES ☐ NO ☐**

AND, The distance to the nearest traffic signal along the major street is greater than 300 ft	Yes ☐ No ☐
OR, The proposed traffic signal will not restrict progressive traffic flow along the major street.	Yes ☐ No ☐

WARRANT 5 - School Crossing
(Parts A and B Must Be Satisfied)

SATISFIED YES ☐ NO ☐ N/A

Part A
Gap/Minutes and # of Children

SATISFIED YES ☐ NO ☐

		Hour
Gaps vs Minutes	Minutes Children Using Crossing	
	Number of Adequate Gaps	
School Age Pedestrians Crossing Street / hr		

Gaps < Minutes YES ☐ NO ☐
AND Children > 20/hr YES ☐ NO ☐

AND, Consideration has been given to less restrictive remedial measures.	Yes ☐ No ☐

Part B **SATISFIED YES ☐ NO ☐**

The distance to the nearest traffic signal along the major street is greater than 300 ft	Yes ☐ No ☐
OR, The proposed signal will not restrict the progressive movement of traffic.	Yes ☐ No ☐

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

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

WARRANT 6 - Coordinated Signal System **SATISFIED YES ☐ NO ☐** N/A
(All Parts Must Be Satisfied)

MINIMUM REQUIREMENTS	DISTANCE TO NEAREST SIGNAL	
≥ 1000 ft	N _____ ft, S _____ ft, E _____ ft, W _____ ft	Yes ☐ No ☐
On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning.		Yes ☐ No ☐
OR, On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation.		

WARRANT 7 - Crash Experience Warrant **SATISFIED YES ☐ NO ☒**
(All Parts Must Be Satisfied)

Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.			Yes ☐ No ☒
REQUIREMENTS	Number of crashes reported within a 12 month period susceptible to correction by a traffic signal, and involving injury or damage exceeding the requirements for a reportable crash.		Yes ☐ No ☒
5 OR MORE			
REQUIREMENTS	CONDITIONS	✓	
ONE CONDITION SATISFIED 80%	Warrant 1, Condition A - Minimum Vehicular Volume		Yes ☐ No ☒
	OR, Warrant 1, Condition B - Interruption of Continuous Traffic		
	OR, Warrant 4, Pedestrian Volume Condition Ped Vol ≥ 80% of Figure 4C-5 through Figure 4C-8		

WARRANT 8 - Roadway Network **SATISFIED YES ☐ NO ☐** N/A
(All Parts Must Be Satisfied)

MINIMUM VOLUME REQUIREMENTS	ENTERING VOLUMES - ALL APPROACHES	✓	FULFILLED
1000 Veh/Hr	During Typical Weekday Peak Hour _____ Veh/Hr and has 5-year projected traffic volumes that meet one or more of Warrants 1, 2, and 3 during an average weekday.		Yes ☐ No ☐
	OR During Each of Any 5 Hrs. of a Sat. or Sun _____ Veh/Hr		

CHARACTERISTICS OF MAJOR ROUTES	MAJOR ROUTE A	MAJOR ROUTE B	
Hwy. System Serving as Principal Network for Through Traffic			
Rural or Suburban Highway Outside Of, Entering, or Traversing a City			
Appears as Major Route on an Official Plan			
Any Major Route Characteristics Met, Both Streets			Yes ☐ No ☐

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

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

WARRANT 9 - Intersection Near a Grade Crossing **SATISFIED YES ☐ NO ☐** N/A
(Both Parts A and B Must Be Satisfied)

PART A A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach. Track Center Line to Limit Line _____ ft	Yes ☐ No ☐
PART B **There is one minor street approach lane at the track crossing -** During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point falls above the applicable curve in Figure 4C-9. Major Street - Total of both approaches: _____ VPH Minor Street - Crosses the track (one direction only, approaching the intersection): _____ VPH X AF (Use Tables 4C-2, 3, & 4 below to calculate AF) = _____ VPH	Yes ☐ No ☐
OR, There are two or more minor street approach lanes at the track crossing - During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point falls above the applicable curve in Figure 4C-10. Major Street - Total of both approaches : _____ VPH Minor Street - Crosses the track (one direction only, approaching the intersection): _____ VPH X AF (Use Tables 4C-2, 3, & 4 below to calcualte AF) = _____ VPH	

The minor street approach volume may be multiplied by up to three following adjustment factors (AF) as described in Section 4C.10.

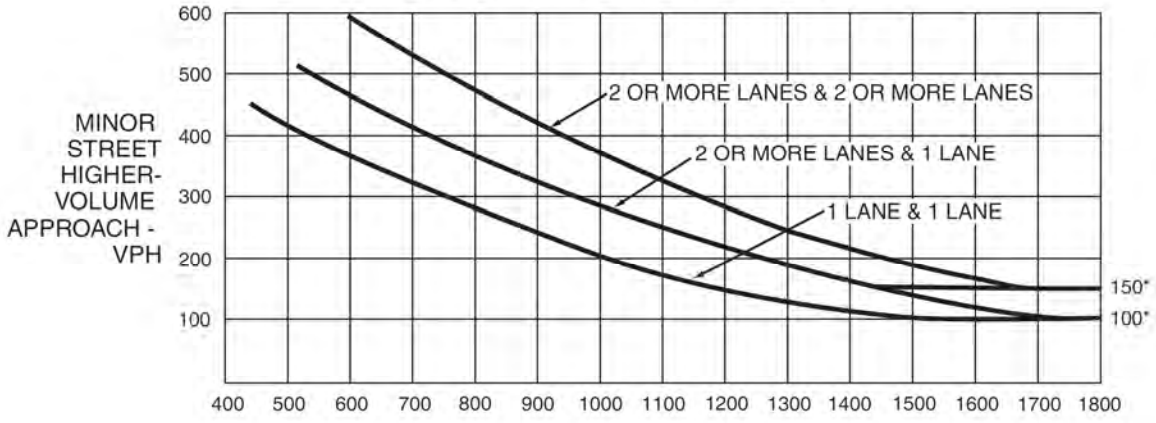
1- Number of Rail Traffic per Day_____ Adjustment factor from table 4C-2____

2- Percentage of High-Occupancy Buses on Minor Street Approach_____ Adjustment factor from table 4C-3____

3- Percentage of Tractor-Trailer Trucks on Minor Street Approach_____ Adjustment factor from table 4C-4____

NOTE: If no data is availale or known, then use AF = 1 (no adjustment)

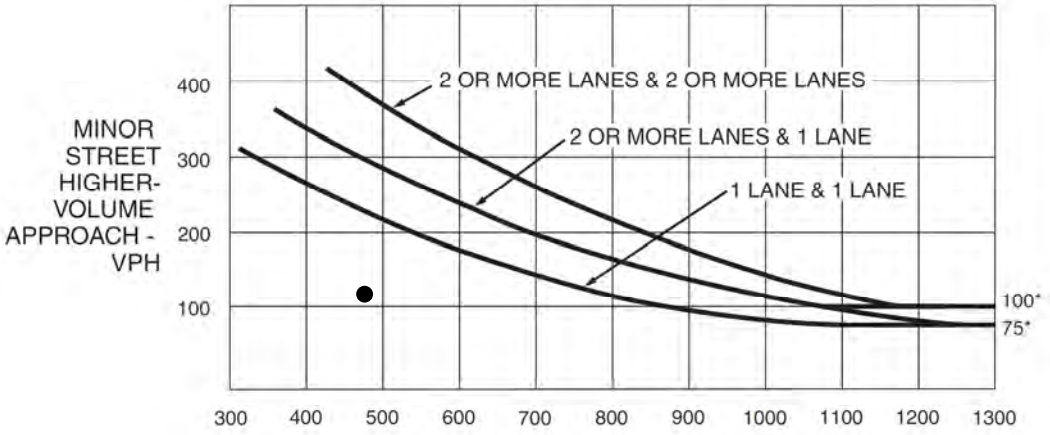
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

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

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

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

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

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

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

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

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

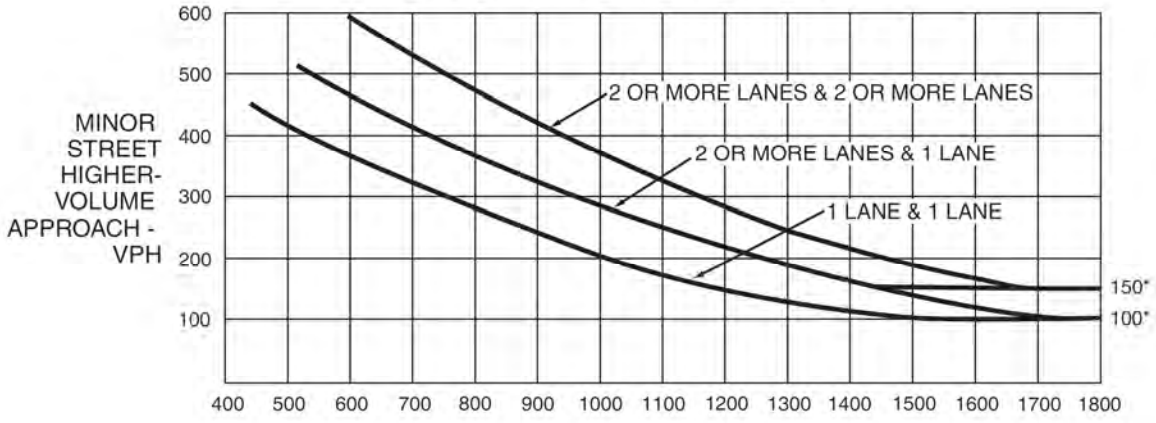
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street	X		1122
Higher Approach - Minor Street	X		340

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

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

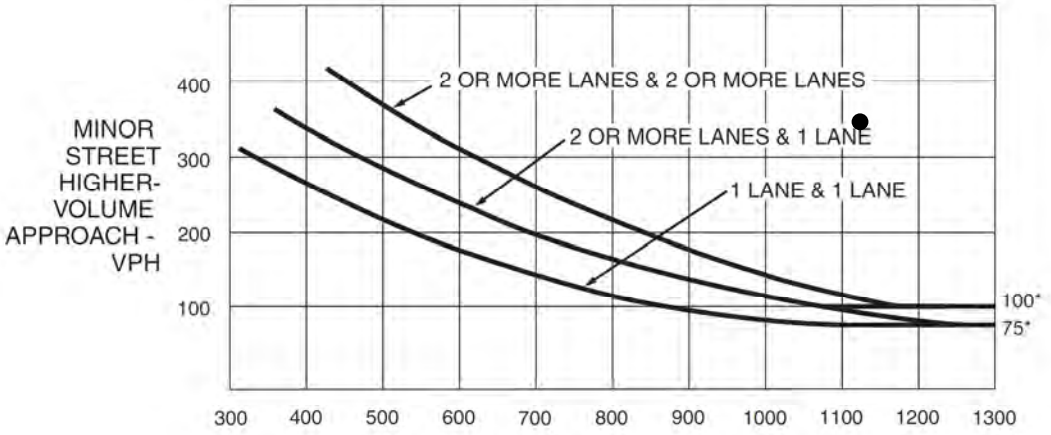
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

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

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

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

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

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

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

PART A **SATISFIED YES ☐ NO ☒**

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

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

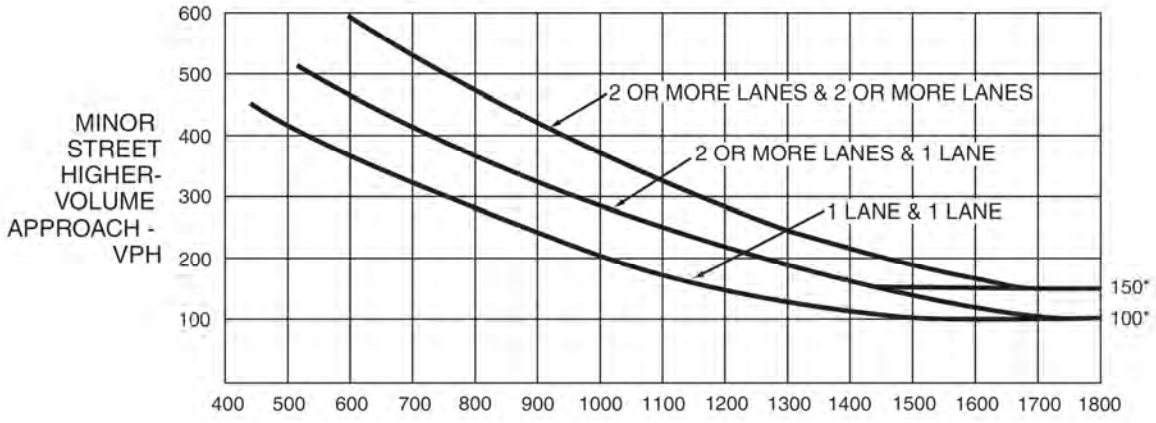
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street	X		497
Higher Approach - Minor Street	X		122

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

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

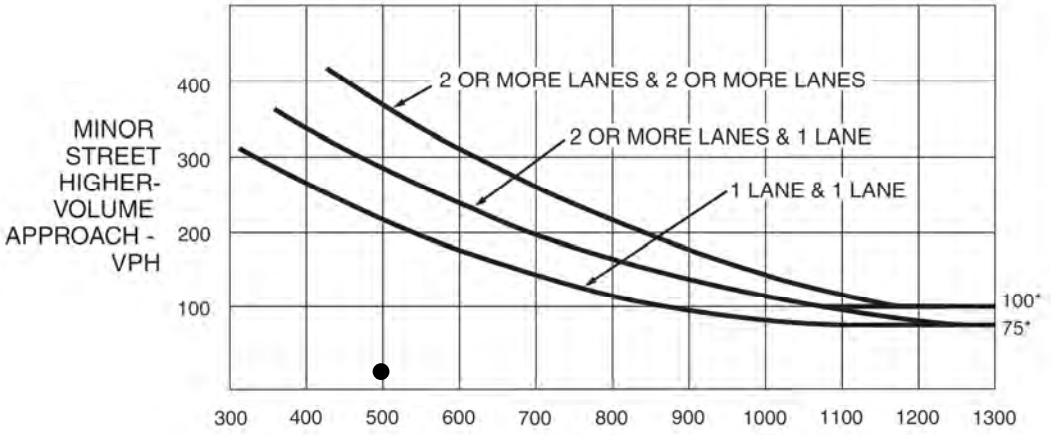
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

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

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

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

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

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

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

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

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

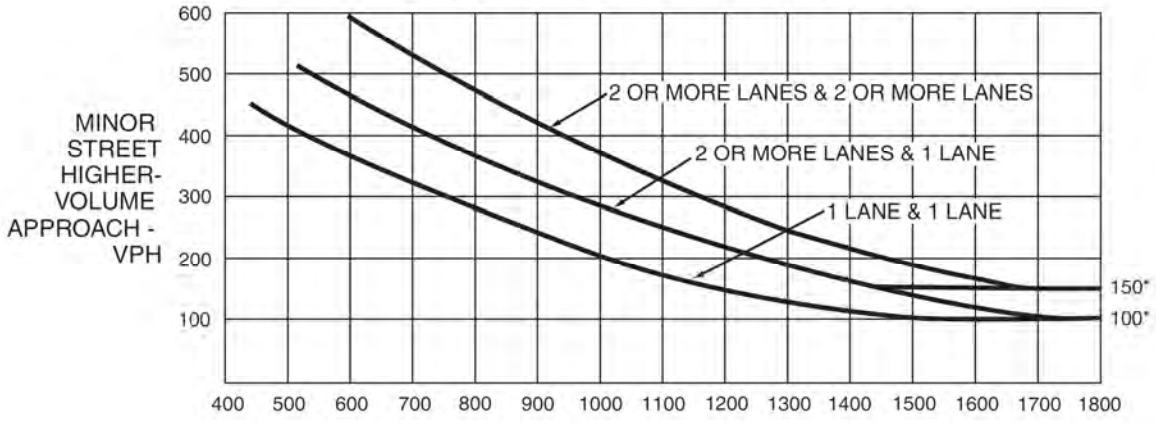
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street	X		1142
Higher Approach - Minor Street	X		344

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

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

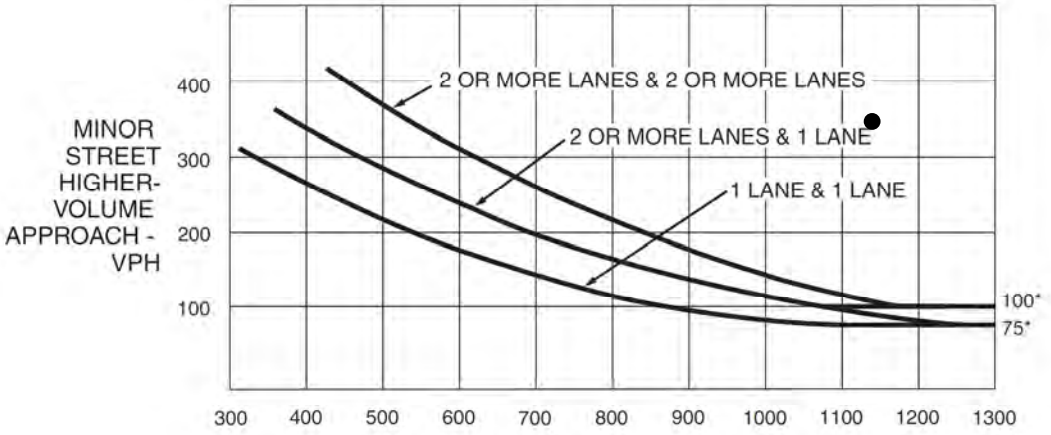
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

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

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

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

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

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

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

PART A **SATISFIED YES ☐ NO ☒**

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

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

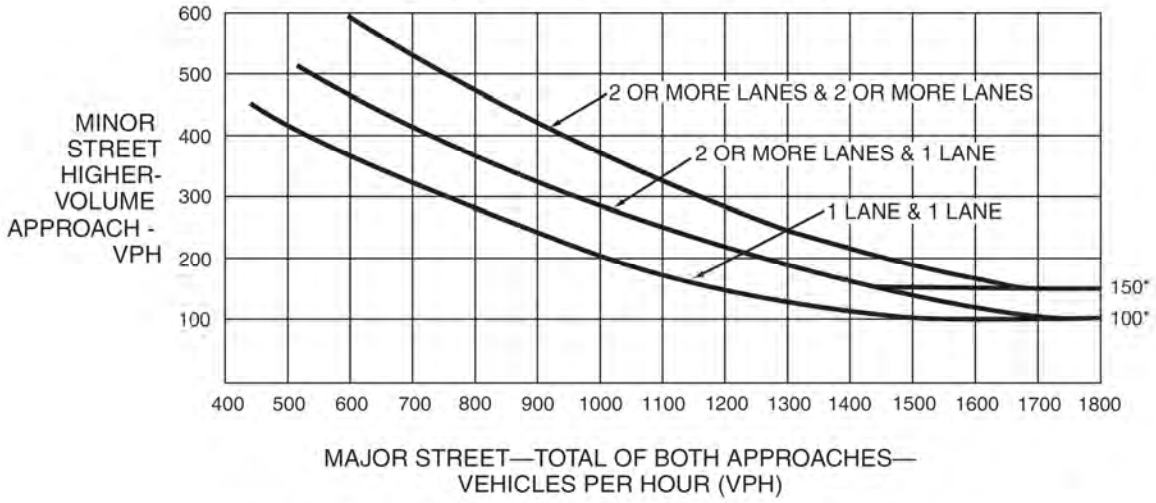
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street	X		510
Higher Approach - Minor Street	X		129

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

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

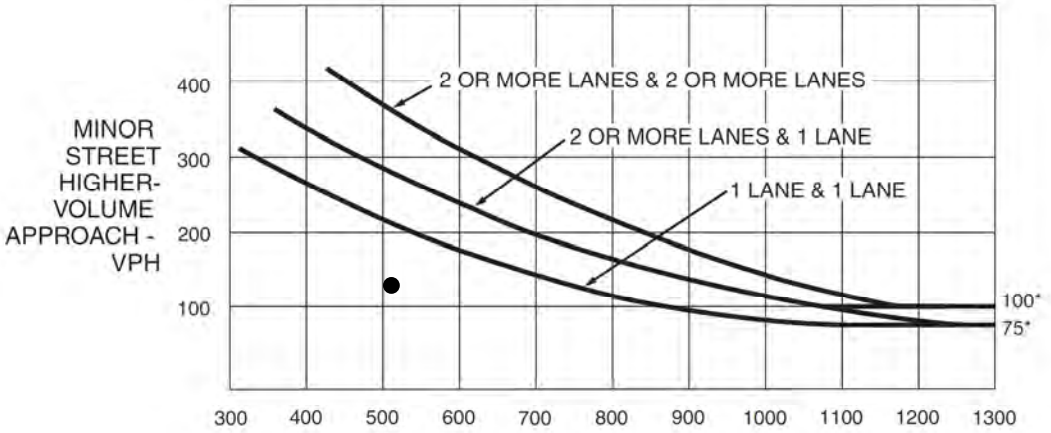
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

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

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

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

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

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

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

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

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

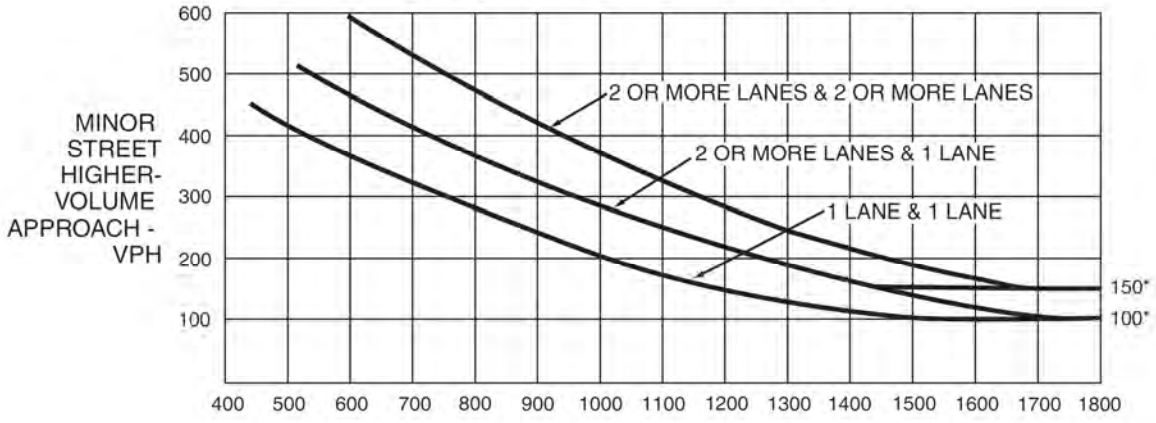
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street	X		1155
Higher Approach - Minor Street	X		351

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

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

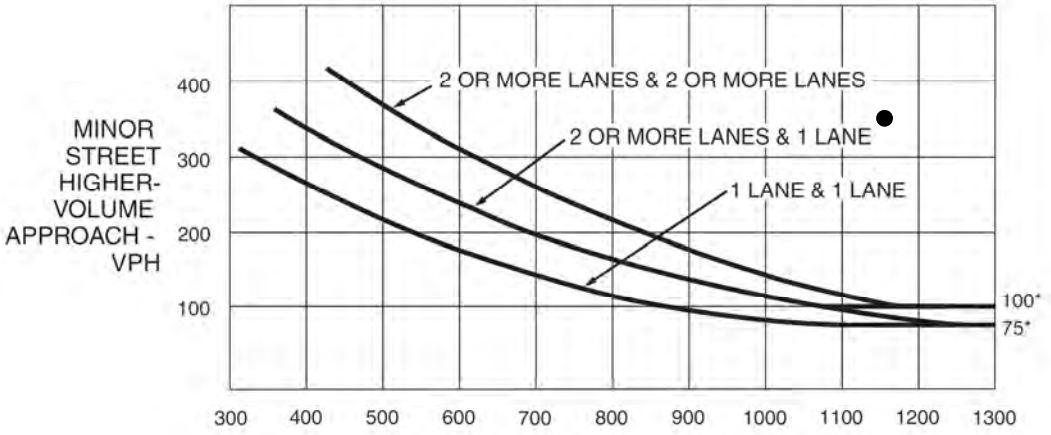
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

2. Death Valley Rd (SR 127) and I-15 NB Ramps

Date	Primary	Secondary	Distance	Direction	Severity	Type
2/25/2019	I-15 S/B From Kelbaker Road	Kelbaker Rd	209	S	injury	Hit Object
8/4/2020	I-15 SB to SR-127	SR-127	105	N	PDO	Hit-Object
10/24/2020	I-15 SB to SR-128	SR-127	0		Injury	Rear End
5/26/2021	I15 S/B TO SR-127	SR-127	250	N	Injury	Hit Object
7/5/2021	SR-127	I15 S/B TO SR-127	0		PDO	Broadside
8/7/2022	I-15 SB to SR-127	SR-127	0		PDO	Sideswipe

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE 10-29-20
CALC TNM DATE 11-16-22
CHK _____ DATE _____

DIST _____ CO _____ RTE _____ PM _____

Major St: Death Valley Rd (SR 127) Critical Approach Speed 35 mph
Minor St: I-15 NB RAMPS Critical Approach Speed _____ mph

Speed limit or critical speed on major street traffic > 40 mph..... ☐
or
In built up area of isolated community of < 10,000 population..... ☒
} RURAL (R)
☐ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume SATISFIED YES ☐ NO ☐ N/A
(Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume 100% SATISFIED YES ☐ NO ☐
80% SATISFIED YES ☐ NO ☐

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)									
	U	R	U	R						Hour
APPROACH LANES	1		2 or More							
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)						
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)						

Condition B - Interruption of Continuous Traffic 100% SATISFIED YES ☐ NO ☐
80% SATISFIED YES ☐ NO ☐

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)									
	U	R	U	R						Hour
APPROACH LANES	1		2 or More							
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)						
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)						

Combination of Conditions A & B SATISFIED YES ☐ NO ☐

REQUIREMENT	CONDITION	✓	FULFILLED
TWO CONDITIONS SATISFIED 80%	A. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☐
	AND, B. INTERRUPTION OF CONTINUOUS TRAFFIC		
AND, AN ADEQUATE TRIAL OF OTHER ALTERNATIVES THAT COULD CAUSE LESS DELAY AND INCONVENIENCE TO TRAFFIC HAS FAILED TO SOLVE THE TRAFFIC PROBLEMS			Yes ☐ No ☐

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

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

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

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

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

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

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

PART A **SATISFIED YES ☐ NO ☒**

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

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

PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street	X		181
Higher Approach - Minor Street	X		142

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

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

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 3 of 5)

WARRANT 4 - Pedestrian Volume
(Parts 1 and 2 Must Be Satisfied)

SATISFIED YES ☐ NO ☐ N/A

Part 1 (Parts A or B must be satisfied)

	Hours - - ->				
A.	Vehicles per hour for any 4 hours				
	Pedestrians per hour for any 4 hours				

Figure 4C-5 or Figure 4C-6
SATISFIED YES ☐ NO ☐

	Hours - - ->				
B.	Vehicles per hour for any 1 hour				
	Pedestrians per hour for any 1 hour				

Figure 4C-7 or Figure 4C-8
SATISFIED YES ☐ NO ☐

Part 2 **SATISFIED YES ☐ NO ☐**

AND, The distance to the nearest traffic signal along the major street is greater than 300 ft	Yes ☐ No ☐
OR, The proposed traffic signal will not restrict progressive traffic flow along the major street.	Yes ☐ No ☐

WARRANT 5 - School Crossing
(Parts A and B Must Be Satisfied)

SATISFIED YES ☐ NO ☐ N/A

Part A
Gap/Minutes and # of Children

SATISFIED YES ☐ NO ☐

		Hour
Gaps vs Minutes	Minutes Children Using Crossing	
	Number of Adequate Gaps	
School Age Pedestrians Crossing Street / hr		

Gaps < Minutes YES ☐ NO ☐
AND Children > 20/hr YES ☐ NO ☐

AND, Consideration has been given to less restrictive remedial measures.	Yes ☐ No ☐

Part B **SATISFIED YES ☐ NO ☐**

The distance to the nearest traffic signal along the major street is greater than 300 ft	Yes ☐ No ☐
OR, The proposed signal will not restrict the progressive movement of traffic.	Yes ☐ No ☐

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

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

WARRANT 6 - Coordinated Signal System **SATISFIED YES ☐ NO ☐** N/A
(All Parts Must Be Satisfied)

MINIMUM REQUIREMENTS	DISTANCE TO NEAREST SIGNAL	
≥ 1000 ft	N _____ ft, S _____ ft, E _____ ft, W _____ ft	Yes ☐ No ☐
On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning.		Yes ☐ No ☐
OR, On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation.		

WARRANT 7 - Crash Experience Warrant **SATISFIED YES ☐ NO ☒**
(All Parts Must Be Satisfied)

Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.			Yes ☐ No ☒
REQUIREMENTS	Number of crashes reported within a 12 month period susceptible to correction by a traffic signal, and involving injury or damage exceeding the requirements for a reportable crash.		Yes ☐ No ☒
5 OR MORE			
REQUIREMENTS	CONDITIONS	✓	
ONE CONDITION SATISFIED 80%	Warrant 1, Condition A - Minimum Vehicular Volume		Yes ☐ No ☒
	OR, Warrant 1, Condition B - Interruption of Continuous Traffic		
	OR, Warrant 4, Pedestrian Volume Condition Ped Vol ≥ 80% of Figure 4C-5 through Figure 4C-8		

WARRANT 8 - Roadway Network **SATISFIED YES ☐ NO ☐** N/A
(All Parts Must Be Satisfied)

MINIMUM VOLUME REQUIREMENTS	ENTERING VOLUMES - ALL APPROACHES	✓	FULFILLED
1000 Veh/Hr	During Typical Weekday Peak Hour _____ Veh/Hr and has 5-year projected traffic volumes that meet one or more of Warrants 1, 2, and 3 during an average weekday.		Yes ☐ No ☐
	OR During Each of Any 5 Hrs. of a Sat. or Sun _____ Veh/Hr		

CHARACTERISTICS OF MAJOR ROUTES	MAJOR ROUTE A	MAJOR ROUTE B	
Hwy. System Serving as Principal Network for Through Traffic			
Rural or Suburban Highway Outside Of, Entering, or Traversing a City			
Appears as Major Route on an Official Plan			
Any Major Route Characteristics Met, Both Streets			Yes ☐ No ☐

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

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

WARRANT 9 - Intersection Near a Grade Crossing **SATISFIED YES ☐ NO ☐** N/A
(Both Parts A and B Must Be Satisfied)

PART A A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach. Track Center Line to Limit Line _____ ft	Yes ☐ No ☐
PART B **There is one minor street approach lane at the track crossing -** During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point falls above the applicable curve in Figure 4C-9. Major Street - Total of both approaches: _____ VPH Minor Street - Crosses the track (one direction only, approaching the intersection): _____ VPH X AF (Use Tables 4C-2, 3, & 4 below to calculate AF) = _____ VPH	Yes ☐ No ☐
OR, There are two or more minor street approach lanes at the track crossing - During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point falls above the applicable curve in Figure 4C-10. Major Street - Total of both approaches : _____ VPH Minor Street - Crosses the track (one direction only, approaching the intersection): _____ VPH X AF (Use Tables 4C-2, 3, & 4 below to calcualte AF) = _____ VPH	

The minor street approach volume may be multiplied by up to three following adjustment factors (AF) as described in Section 4C.10.

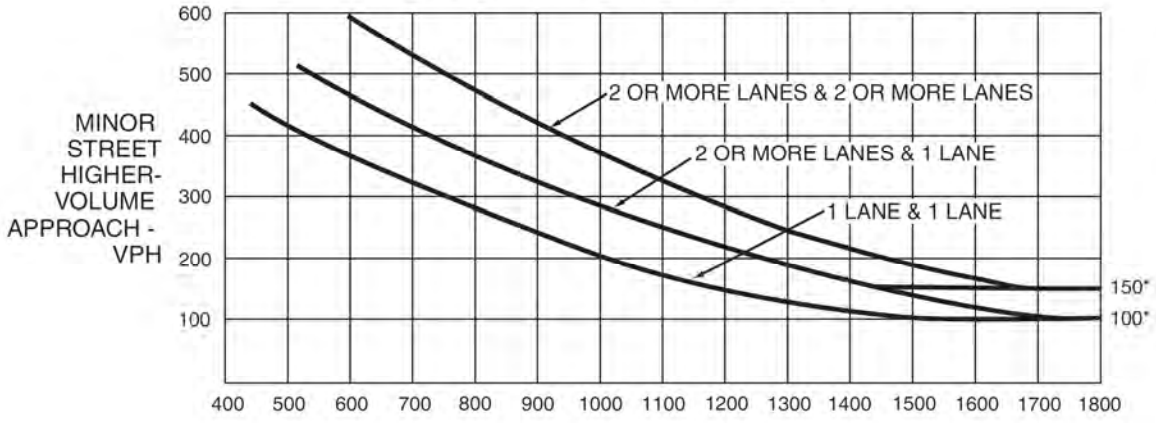
1- Number of Rail Traffic per Day_____ Adjustment factor from table 4C-2____

2- Percentage of High-Occupancy Buses on Minor Street Approach_____ Adjustment factor from table 4C-3____

3- Percentage of Tractor-Trailer Trucks on Minor Street Approach_____ Adjustment factor from table 4C-4____

NOTE: If no data is availale or known, then use AF = 1 (no adjustment)

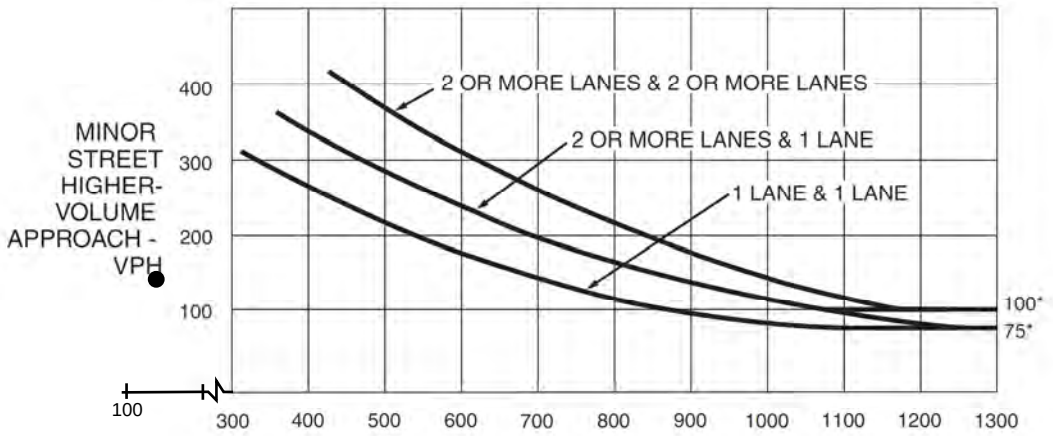
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

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

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

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

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

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

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

PART A **SATISFIED YES ☐ NO ☒**

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

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

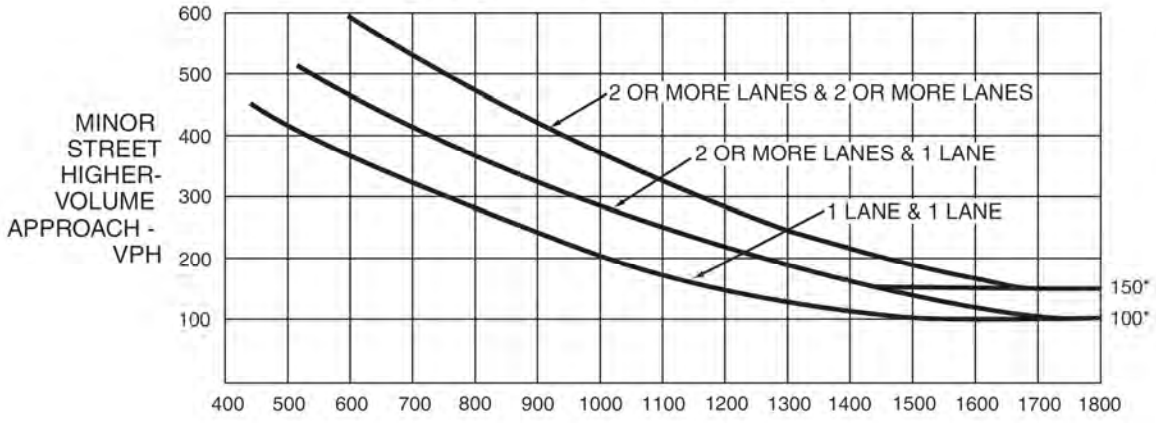
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street	X		229
Higher Approach - Minor Street	X		405

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

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

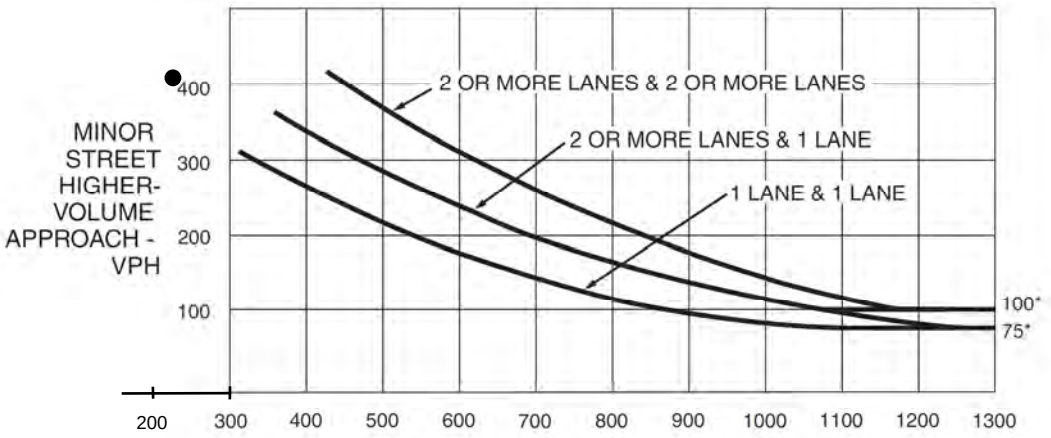
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

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

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

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

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

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

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

PART A **SATISFIED YES ☐ NO ☒**

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

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

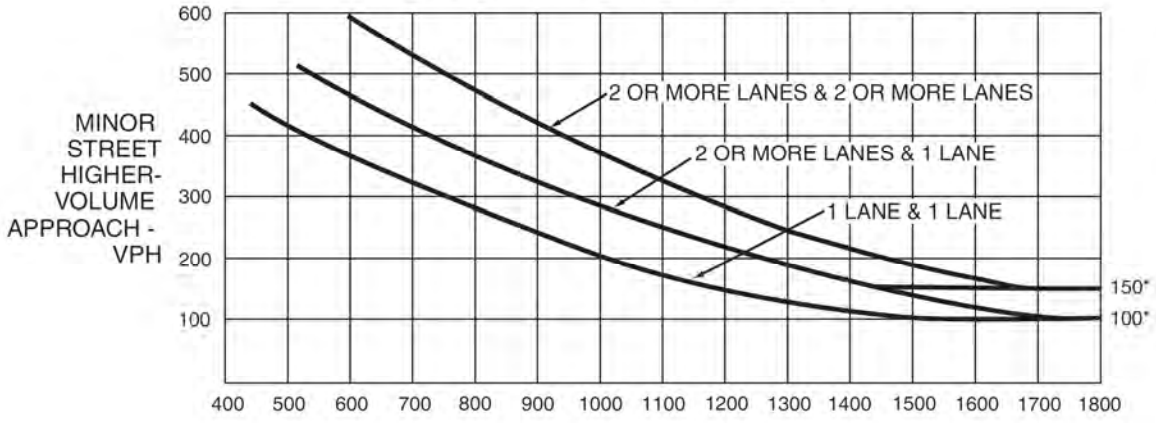
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street	X		188
Higher Approach - Minor Street	X		148

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

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

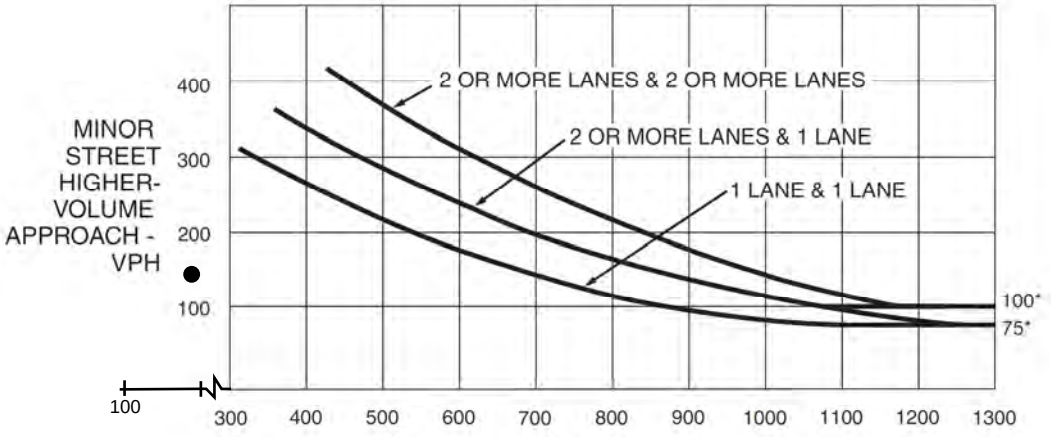
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

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

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

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

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

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

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

PART A **SATISFIED YES ☐ NO ☒**

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

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

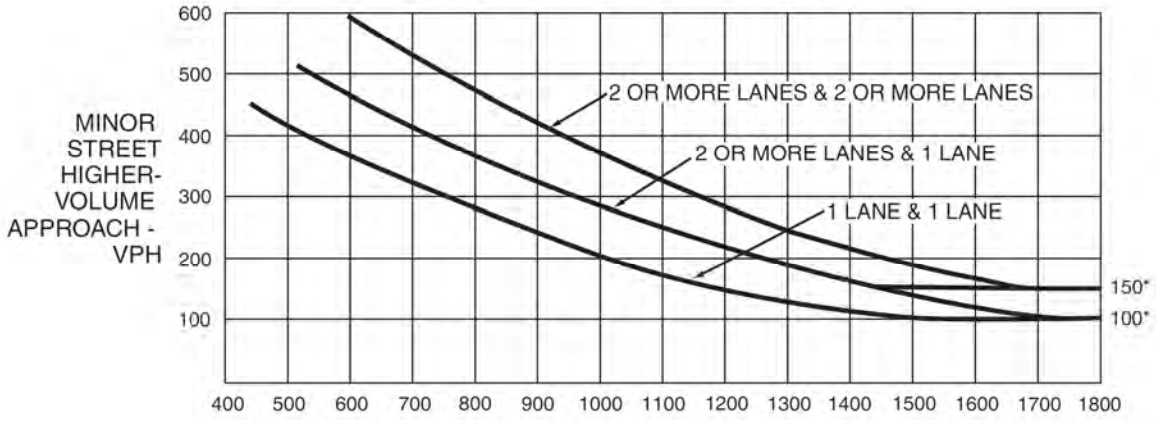
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street	X		236
Higher Approach - Minor Street	X		411

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

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

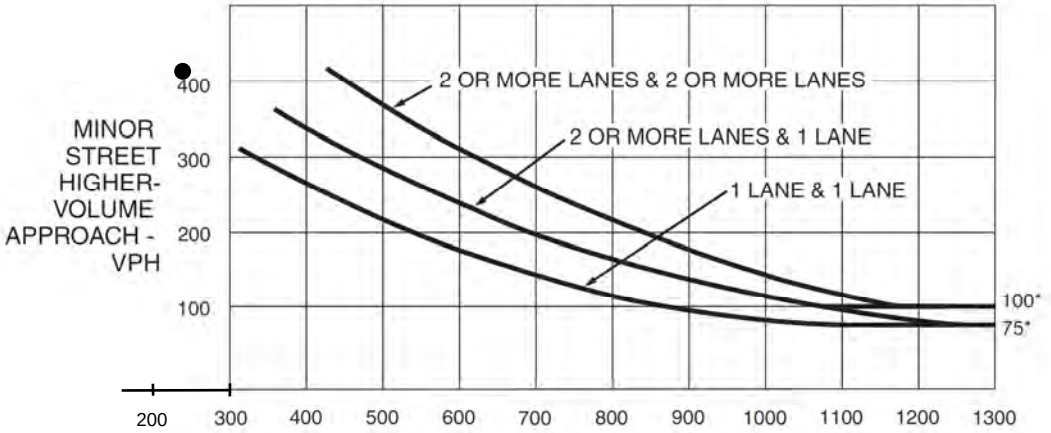
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

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

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

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

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

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

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

PART A **SATISFIED YES ☐ NO ☒**

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

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

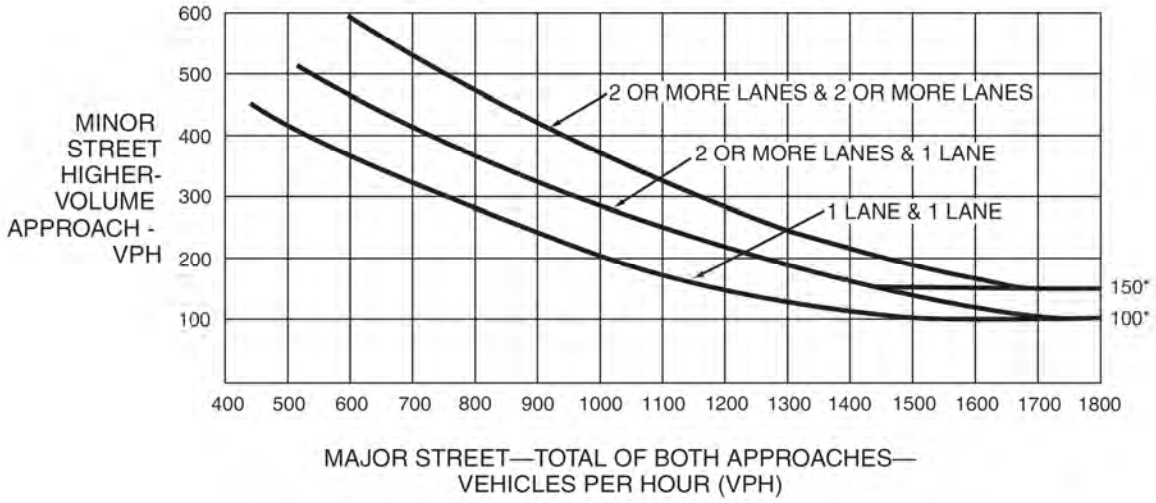
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street	X		192
Higher Approach - Minor Street	X		144

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

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

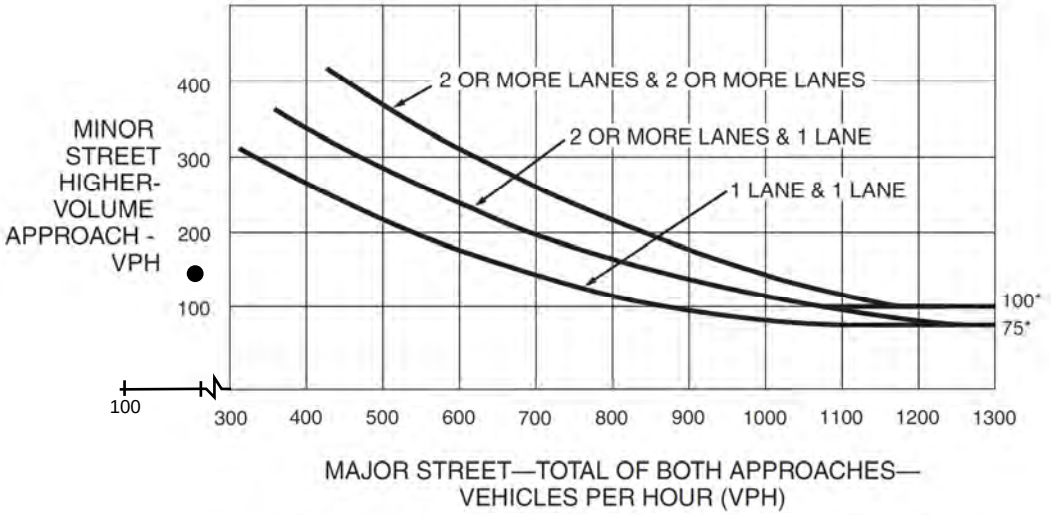
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

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

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

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

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

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

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

PART A **SATISFIED YES ☐ NO ☒**

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

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

PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	1:00 - 2:00 PM Hour
Both Approaches - Major Street	X		240
Higher Approach - Minor Street	X		407

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

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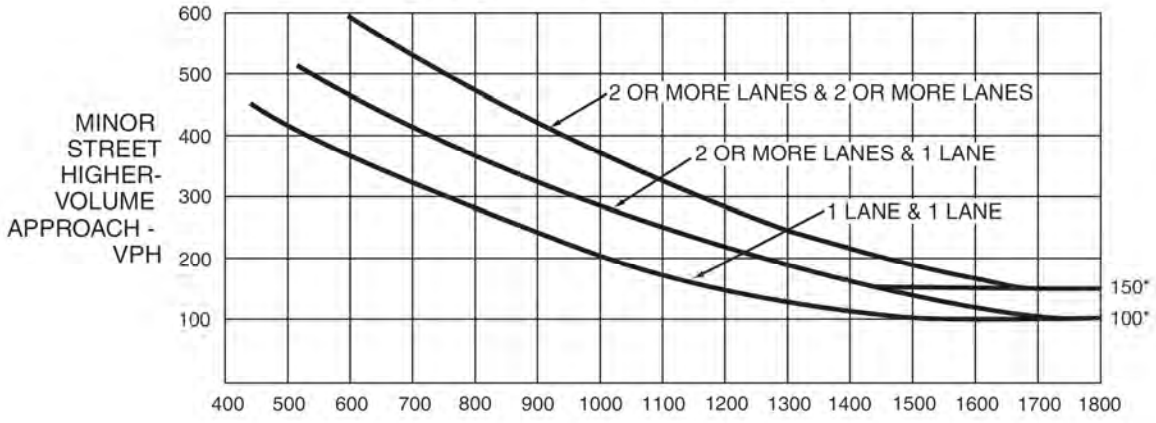
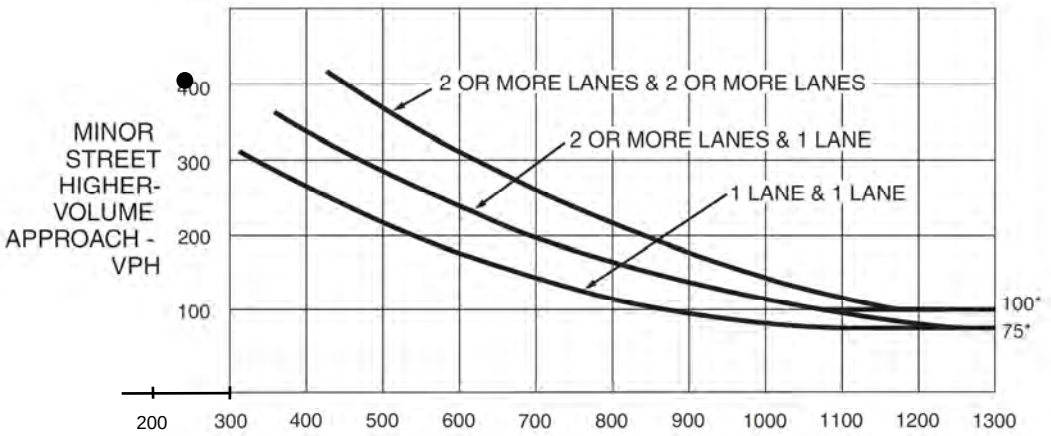
Figure 4C-3. Warrant 3, Peak Hour



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

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

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



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

3. Death Valley Rd (SR 127) and I-15 SB Ramps

Date	Primary	Secondary	Distance	Direction	Severity	Type
1/27/2019	Kelbaker Rd	I-15 N/B	20	W	PDO	Rear End
3/19/2022	SR-127	I15 NB TO SR-127	35	E	PDO	Sideswipe
8/27/2022	State Route 127	Baker Blvd	280	N	PDO	Sideswipe

DAVID EVANS AND ASSOCIATES INC.

Appendix E: Queuing Analysis

Queuing and Blocking Report

Intersection: 1: Death Valley Rd (SR-127) & Baker Blvd

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	T	LTR	LTR
Maximum Queue (ft)	31	102	70	154	71	258	41
Average Queue (ft)	12	70	45	91	49	209	25
95th Queue (ft)	38	118	78	161	79	296	51
Link Distance (ft)		818			1086	277	1052
Upstream Blk Time (%)						3	
Queuing Penalty (veh)						19	
Storage Bay Dist (ft)	200		200	225			
Storage Blk Time (%)				0			
Queuing Penalty (veh)				0			

Intersection: 2: Death Valley Road (SR-127)/Death Valley Rd (SR-127) & I-15 NB on-ramp/I-15 SB off-ran

Movement	WB	NB	SB
Directions Served	LTR	LT	TR
Maximum Queue (ft)	116	65	2
Average Queue (ft)	80	26	0
95th Queue (ft)	185	141	5
Link Distance (ft)	1367	1169	277
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Kelbaker Rd/Death Valley Road (SR-127) & I-15 NB off-ramp/I-15 NB on-ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	107	21	75
Average Queue (ft)	74	8	54
95th Queue (ft)	118	29	83
Link Distance (ft)	1038	294	1169
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 19

Queuing and Blocking Report

Intersection: 1: Death Valley Rd (SR-127) & Baker Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	36	165	66	184	67	20	58	17	122	11	18
Average Queue (ft)	14	112	45	123	37	6	34	6	80	4	5
95th Queue (ft)	41	183	75	208	81	25	69	22	144	16	22
Link Distance (ft)		811			1060			279			1017
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200		200	225		225	200		200	200	
Storage Blk Time (%)		0		0							
Queuing Penalty (veh)		0		1							

Intersection: 2: Death Valley Road (SR-127)/Death Valley Rd (SR-127) & I-15 NB on-ramp/I-15 SB off-ran

Movement	WB	NB
Directions Served	LTR	LT
Maximum Queue (ft)	78	6
Average Queue (ft)	56	1
95th Queue (ft)	86	11
Link Distance (ft)	1361	1168
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Kelbaker Rd/Death Valley Road (SR-127) & I-15 NB off-ramp/I-15 NB on-ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	107	21	80
Average Queue (ft)	75	8	58
95th Queue (ft)	119	29	90
Link Distance (ft)	1038	294	1168
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 1

Queuing and Blocking Report

Intersection: 1: Death Valley Rd (SR-127) & Baker Blvd

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	T	LTR	LTR
Maximum Queue (ft)	66	75	68	270	356	283	61
Average Queue (ft)	48	54	44	200	172	264	36
95th Queue (ft)	75	84	75	357	486	333	74
Link Distance (ft)		818			1086	277	1052
Upstream Blk Time (%)						14	
Queuing Penalty (veh)						96	
Storage Bay Dist (ft)	200		200	225			
Storage Blk Time (%)				29			
Queuing Penalty (veh)				89			

Intersection: 2: Death Valley Road (SR-127)/Death Valley Rd (SR-127) & I-15 NB on-ramp/I-15 SB off-ran

Movement	WB	NB	SB
Directions Served	LTR	LT	TR
Maximum Queue (ft)	370	202	14
Average Queue (ft)	235	84	4
95th Queue (ft)	481	276	16
Link Distance (ft)	1367	1169	277
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Kelbaker Rd/Death Valley Road (SR-127) & I-15 NB off-ramp/I-15 NB on-ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	105	30	60
Average Queue (ft)	71	10	46
95th Queue (ft)	113	37	67
Link Distance (ft)	1038	294	1169
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 186

Queuing and Blocking Report

Intersection: 1: Death Valley Rd (SR-127) & Baker Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	139	120	84	262	245	34	93	60	114	28	39
Average Queue (ft)	95	82	50	198	130	12	59	29	66	13	14
95th Queue (ft)	149	142	90	309	289	39	103	70	125	37	52
Link Distance (ft)		811			1060			279			1017
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200		200	225		225	200		200	200	
Storage Blk Time (%)		0		7							
Queuing Penalty (veh)		0		21							

Intersection: 2: Death Valley Road (SR-127)/Death Valley Rd (SR-127) & I-15 NB on-ramp/I-15 SB off-ran

Movement	WB	NB	SB
Directions Served	LTR	LT	TR
Maximum Queue (ft)	124	130	12
Average Queue (ft)	80	62	3
95th Queue (ft)	137	164	15
Link Distance (ft)	1361	1168	279
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Kelbaker Rd/Death Valley Road (SR-127) & I-15 NB off-ramp/I-15 NB on-ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	103	30	65
Average Queue (ft)	74	10	47
95th Queue (ft)	116	37	73
Link Distance (ft)	1038	294	1168
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 21

Queuing and Blocking Report

Intersection: 1: Death Valley Rd (SR-127) & Baker Blvd

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	T	LTR	LTR
Maximum Queue (ft)	25	104	65	185	69	261	40
Average Queue (ft)	12	71	47	108	47	220	25
95th Queue (ft)	38	122	75	204	77	324	48
Link Distance (ft)		818			1086	277	1052
Upstream Blk Time (%)						6	
Queuing Penalty (veh)						37	
Storage Bay Dist (ft)	200		200	225			
Storage Blk Time (%)		0		2			
Queuing Penalty (veh)		0		4			

Intersection: 2: Death Valley Road (SR-127)/Death Valley Rd (SR-127) & I-15 NB on-ramp/I-15 SB off-ran

Movement	WB	NB
Directions Served	LTR	LT
Maximum Queue (ft)	155	115
Average Queue (ft)	104	39
95th Queue (ft)	229	199
Link Distance (ft)	1367	1169
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Kelbaker Rd/Death Valley Road (SR-127) & I-15 NB off-ramp/I-15 NB on-ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	115	21	76
Average Queue (ft)	78	7	53
95th Queue (ft)	127	28	84
Link Distance (ft)	1038	294	1169
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 41

Queuing and Blocking Report

Intersection: 1: Death Valley Rd (SR-127) & Baker Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	25	189	111	191	63	25	57	22	136	13	12
Average Queue (ft)	14	125	54	122	38	6	34	9	91	4	3
95th Queue (ft)	39	212	130	205	75	27	67	30	155	18	13
Link Distance (ft)		811			1060			279			1017
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200		200	225		225	200		200	200	
Storage Blk Time (%)		1		0					0		
Queuing Penalty (veh)		2		1					0		

Intersection: 2: Death Valley Road (SR-127)/Death Valley Rd (SR-127) & I-15 NB on-ramp/I-15 SB off-ran

Movement	WB	NB	SB
Directions Served	LTR	LT	TR
Maximum Queue (ft)	87	25	2
Average Queue (ft)	61	5	0
95th Queue (ft)	93	37	5
Link Distance (ft)	1361	1168	279
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Kelbaker Rd/Death Valley Road (SR-127) & I-15 NB off-ramp/I-15 NB on-ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	108	21	88
Average Queue (ft)	78	8	61
95th Queue (ft)	122	29	97
Link Distance (ft)	1038	294	1168
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 3

Queuing and Blocking Report

Intersection: 1: Death Valley Rd (SR-127) & Baker Blvd

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	T	LTR	LTR
Maximum Queue (ft)	62	87	73	135	78	277	54
Average Queue (ft)	45	52	47	94	57	237	36
95th Queue (ft)	67	93	82	155	90	340	62
Link Distance (ft)		818			1086	277	1052
Upstream Blk Time (%)						9	
Queuing Penalty (veh)						63	
Storage Bay Dist (ft)	200		200	225			
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 2: Death Valley Road (SR-127)/Death Valley Rd (SR-127) & I-15 NB on-ramp/I-15 SB off-ran

Movement	WB	NB	SB
Directions Served	LTR	LT	TR
Maximum Queue (ft)	355	187	12
Average Queue (ft)	226	91	2
95th Queue (ft)	537	345	16
Link Distance (ft)	1367	1169	277
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Kelbaker Rd/Death Valley Road (SR-127) & I-15 NB off-ramp/I-15 NB on-ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	112	34	61
Average Queue (ft)	78	9	46
95th Queue (ft)	133	39	68
Link Distance (ft)	1038	294	1169
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 63

Queuing and Blocking Report

Intersection: 1: Death Valley Rd (SR-127) & Baker Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	117	132	85	190	127	25	76	49	126	35	21
Average Queue (ft)	87	81	53	125	89	7	46	29	74	14	7
95th Queue (ft)	138	149	109	206	145	28	85	58	143	37	30
Link Distance (ft)		811			1060			279			1017
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200		200	225		225	200		200	200	
Storage Blk Time (%)				0					0		
Queuing Penalty (veh)				1					0		

Intersection: 2: Death Valley Road (SR-127)/Death Valley Rd (SR-127) & I-15 NB on-ramp/I-15 SB off-ran

Movement	WB	NB	SB
Directions Served	LTR	LT	TR
Maximum Queue (ft)	140	118	9
Average Queue (ft)	89	47	3
95th Queue (ft)	166	130	16
Link Distance (ft)	1361	1168	279
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Kelbaker Rd/Death Valley Road (SR-127) & I-15 NB off-ramp/I-15 NB on-ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	116	34	70
Average Queue (ft)	79	9	49
95th Queue (ft)	135	39	79
Link Distance (ft)	1038	294	1168
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 1

Queuing and Blocking Report

Intersection: 1: Death Valley Rd (SR-127) & Baker Blvd

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	T	LTR	LTR
Maximum Queue (ft)	37	105	68	153	67	280	55
Average Queue (ft)	15	72	47	99	49	254	34
95th Queue (ft)	44	120	77	173	78	329	67
Link Distance (ft)		818			1086	277	1052
Upstream Blk Time (%)						11	
Queuing Penalty (veh)						73	
Storage Bay Dist (ft)	200		200	225			
Storage Blk Time (%)				0			
Queuing Penalty (veh)				0			

Intersection: 2: Death Valley Road (SR-127)/Death Valley Rd (SR-127) & I-15 NB on-ramp/I-15 SB off-ran

Movement	WB	NB	SB
Directions Served	LTR	LT	TR
Maximum Queue (ft)	314	124	4
Average Queue (ft)	175	52	1
95th Queue (ft)	461	144	7
Link Distance (ft)	1367	1169	277
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Kelbaker Rd/Death Valley Road (SR-127) & I-15 NB off-ramp/I-15 NB on-ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	122	38	66
Average Queue (ft)	81	28	48
95th Queue (ft)	132	50	72
Link Distance (ft)	1038	294	1169
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 74

Intersection: 1: Death Valley Rd (SR-127) & Baker Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	43	179	75	192	88	20	77	15	158	23	29
Average Queue (ft)	18	116	50	119	47	6	44	4	96	8	9
95th Queue (ft)	51	196	87	203	112	26	85	19	180	27	35
Link Distance (ft)		811			1060			279			1017
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200		200	225		225	200		200	200	
Storage Blk Time (%)		1		0					0		
Queuing Penalty (veh)		2		1					0		

Intersection: 2: Death Valley Road (SR-127)/Death Valley Rd (SR-127) & I-15 NB on-ramp/I-15 SB off-ran

Movement	WB	NB	SB
Directions Served	LTR	LT	TR
Maximum Queue (ft)	99	70	15
Average Queue (ft)	63	18	3
95th Queue (ft)	107	77	23
Link Distance (ft)	1361	1168	279
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Kelbaker Rd/Death Valley Road (SR-127) & I-15 NB off-ramp/I-15 NB on-ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	114	36	72
Average Queue (ft)	78	28	53
95th Queue (ft)	133	48	80
Link Distance (ft)	1038	294	1168
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 3

Intersection: 1: Death Valley Rd (SR-127) & Baker Blvd

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	T	LTR	LTR
Maximum Queue (ft)	71	70	71	162	70	283	62
Average Queue (ft)	50	51	49	106	52	270	42
95th Queue (ft)	81	82	79	190	82	314	69
Link Distance (ft)		818			1086	277	1052
Upstream Blk Time (%)						14	
Queuing Penalty (veh)						104	
Storage Bay Dist (ft)	200		200	225			
Storage Blk Time (%)				1			
Queuing Penalty (veh)				2			

Intersection: 2: Death Valley Road (SR-127)/Death Valley Rd (SR-127) & I-15 NB on-ramp/I-15 SB off-ran

Movement	WB	NB	SB
Directions Served	LTR	LT	TR
Maximum Queue (ft)	520	146	6
Average Queue (ft)	337	73	2
95th Queue (ft)	780	202	11
Link Distance (ft)	1367	1169	277
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Kelbaker Rd/Death Valley Road (SR-127) & I-15 NB off-ramp/I-15 NB on-ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	95	37	67
Average Queue (ft)	69	15	49
95th Queue (ft)	106	46	78
Link Distance (ft)	1038	294	1169
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 106

Queuing and Blocking Report

Intersection: 1: Death Valley Rd (SR-127) & Baker Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	150	111	78	185	115	18	91	56	120	34	40
Average Queue (ft)	101	80	52	115	79	6	59	30	72	14	16
95th Queue (ft)	176	123	86	200	139	25	104	67	145	38	52
Link Distance (ft)		811			1060			279			1017
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200		200	225		225	200		200	200	
Storage Blk Time (%)	1			0					0		
Queuing Penalty (veh)	3			1					0		

Intersection: 2: Death Valley Road (SR-127)/Death Valley Rd (SR-127) & I-15 NB on-ramp/I-15 SB off-ran

Movement	WB	NB	SB
Directions Served	LTR	LT	TR
Maximum Queue (ft)	116	126	6
Average Queue (ft)	84	44	2
95th Queue (ft)	135	153	10
Link Distance (ft)	1361	1168	279
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Kelbaker Rd/Death Valley Road (SR-127) & I-15 NB off-ramp/I-15 NB on-ramp

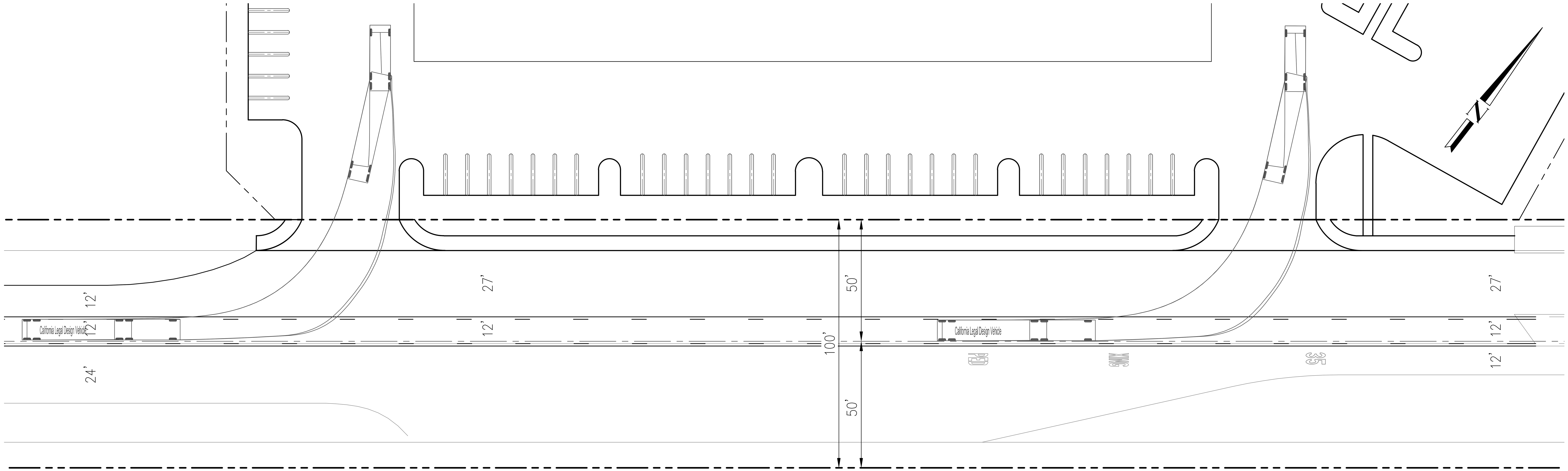
Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	95	39	76
Average Queue (ft)	68	15	50
95th Queue (ft)	101	49	82
Link Distance (ft)	1038	294	1168
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

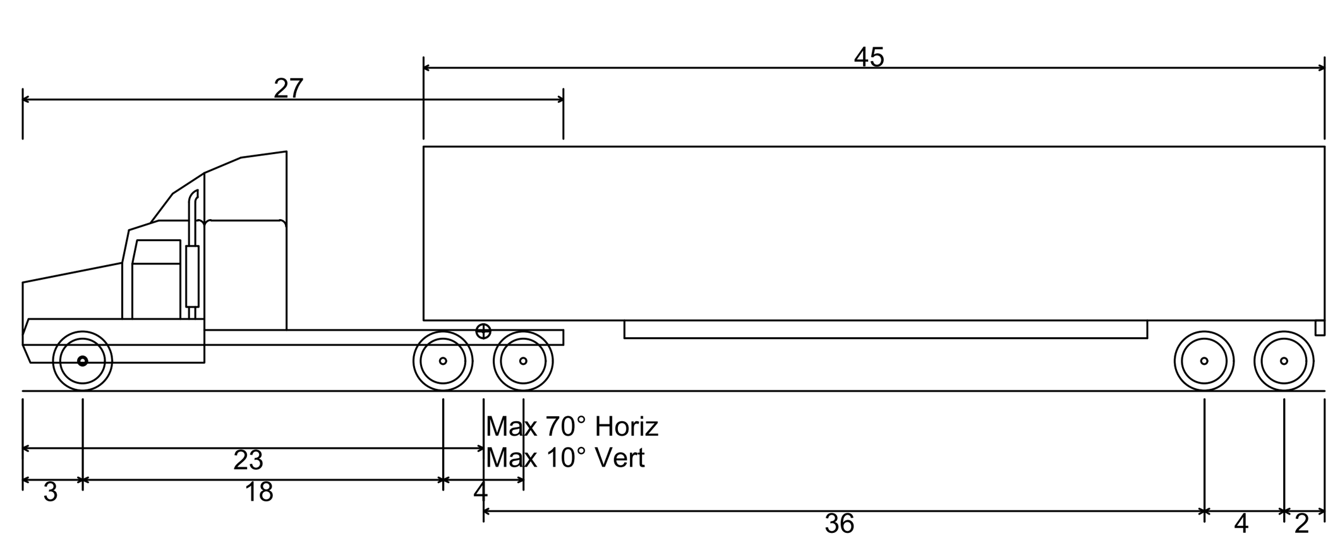
Zone Summary

Zone wide Queuing Penalty: 4

DAVID EVANS AND ASSOCIATES INC.

Appendix F: Truck Turning Template





California Legal Design Vehicle

Overall Length	65.000ft
Overall Width	8.500ft
Overall Body Height	12.227ft
Min Body Ground Clearance	1.422ft
Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	26.30°

40 0 40 80
scale 1"= 40' feet

Know what's below. Call 811 before you dig

NO.	DESCRIPTION	DATE	BY

REVISONS

REGISTERED PROFESSIONAL ENGINEER ROBERT KILPATRICK No. 42386 CIVIL STATE OF CALIFORNIA

DAVID EVANS AND ASSOCIATES INC.

18484 Outer HWY 18 N, STE 225
Apple Valley California 92307
Phone: 760.524.9100

PREPARED UNDER THE SUPERVISION OF:

ROBERT A. KILPATRICK R.C.E. 42386 11/16/22 DATE:

PROPOSED GAS STATION AND CONVIENIENCE STORE-BAKER, CA

TRUCK TURN TEMPLATE

DRAWN BY:	PB
DESIGNED BY:	RK
CHECKED BY:	RK
SCALE	AS SHOWN
DATE	11/16/22
SHT NO.	1 OF 2

Drawing Name: P:\0\OONT00040001\0400CAD\SHEETS\TT\EC-TT-OONT4001.dwg
Last Opened: Nov 17, 2022 - 12:12pm by: Pxb

Know what's below. Call 811 before you dig

NO.	DESCRIPTION	DATE	BY
	REVISONS		

REGISTERED PROFESSIONAL ENGINEER ROBERT KILPATRICK No. 42386 CIVIL STATE OF CALIFORNIA

DAVID EVANS AND ASSOCIATES INC.

18484 Outer HWY 18 N, STE 225
Apple Valley California 92307
Phone: 760.524.9100

PREPARED UNDER THE SUPERVISION OF:

ROBERT A. KILPATRICK R.C.E. 42386 11/16/22 DATE:

PROPOSED GAS STATION AND CONVIENIENCE STORE-BAKER, CA

TRUCK TURN TEMPLATE

DRAWN BY:	PB
DESIGNED BY:	RK
CHECKED BY:	RK
SCALE	AS SHOWN
DATE	11/16/22
SHT NO.	2 OF 2