

**Appendix 11.0**

**Traffic Impact Analysis and Addendum**

January 10, 2019

Daniel York  
Public Works Director/City Engineer  
**City of Wildomar**  
23873 Clinton Keith Road, Suite 201  
Wildomar, CA 92595  
(951) 677-7751 x 216

**Subject: Faith Bible Church Traffic Impact Analysis Addendum**

On behalf of the City of Wildomar, TKE Engineering reviewed the Traffic Impact Analysis (TIA) dated October 22, 2018 and provided comments in a letter dated November 29, 2018. The purpose of this technical memorandum is to address the City comments for inclusion as an addendum to the TIA. The following sections in this memo correlate to the comments received by TKE Engineering.

**Project Background**

The traffic impact analysis assumes the development of a 1,112-seat sanctuary (74,309 SF) on a 24.31-acre site. At the time the traffic study was completed, the site plan changed slightly to include a lower seating capacity of 1,030 seats for the sanctuary. The traffic study provides a conservative (worst case) analysis assuming the 1,112-seat versus 1,030-seat sanctuary and a re-analysis is not expected to significantly change the results of the analysis i.e. remove any significant project-related impacts. Therefore, no new analysis is deemed necessary.

In addition, the traffic impact analysis analyzes the peak generation period (Sunday mid-day) for the project which includes 2,057 daily trips and 678 peak hour trips versus a weekday which only generates 677 daily trips and 42 peak hour trips (AM peak hour).

**Methodology**

The traffic impact analysis followed the report methodology outlined in the *Riverside County Transportation Department Traffic Impact Analysis Preparation Guide (April 2008)*. The guidelines suggest the latest edition of the Institute of Transportation Engineers (ITE) Trip Generation Report should be used. At the time of scoping and preparing the traffic study, the 9<sup>th</sup> Edition was the latest ITE trip generation report and was used in the analysis. However, the 10<sup>th</sup> Edition was made available after the traffic study was completed.

Michael Baker reviewed both the published trip generation rates for a church and found the 9<sup>th</sup> Edition trip rates to be slightly higher than the 10<sup>th</sup> Edition trip rates. **Table 1** shows a comparison of both trip rates and project trip generation.

**Table 1**  
**Faith Bible Church ITE Trip Generation Comparison**

Trip Generation	Land Use	ITE Code	Trip Rate		AM Peak Hour Trips		PM Peak Hour Trips	
					Rate	In : Out	Rate	In : Out
ITE 9 <sup>th</sup> Edition	Church	560	Weekday <sup>1</sup>	9.11 /KSF	0.56 /KSF	62% : 38%	0.55 /KSF	48% : 52%
			Sunday	1.85 /seat	0.61 /seat	50% : 50%	NA <sup>3</sup>	
ITE 10 <sup>th</sup> Edition	Church	560	Weekday <sup>1</sup>	6.95 /KSF	0.33 /KSF	60% : 40%	0.49 /KSF	45% : 55%
			Sunday	1.21 /seat	0.54 /seat	49% : 51%	NA <sup>3</sup>	

Source: 2012 ITE Trip Generation Manual, 9<sup>th</sup> Edition and 2017 ITE Trip Generation Manual, 10<sup>th</sup> Edition.

Trip Generation	Land Use	Intensity		ADT	AM Peak Hour			PM Peak Hour				
					Volume	In	Out	Volume	In	Out		
ITE 9 <sup>th</sup> Edition	Church	Weekday <sup>1</sup>	74.309	KSF	677	42	26	16	41	20	21	
		Sunday	1,112	Seats	2,057	678	339	339	NA <sup>3</sup>			
ITE 10 <sup>th</sup> Edition	Church	Weekday <sup>1</sup>	74.309	KSF	516	25	15	10	36	16	20	
		Sunday	1,112	Seats	1,346	600	294	306	NA <sup>3</sup>			
<b>Change in Trips (10th Edition Compared to 9th Edition)</b>					-161	-17	-11	-6	-4	-3	-1	
					-711	-78	-45	-33	NA <sup>3</sup>			

<sup>1</sup>ITE only provides weekday rates based on square footage, however trip generation based on seats is expected to be more accurate for this land use. Square footage based on assumed lot coverage of 7% of gross acreage.

<sup>2</sup>Midday Weekday rates conservatively assume the ITE rates for the AM peak hour of the Generator (10:00 AM - 12:00 PM)

<sup>3</sup>Only one peak hour is anticipated to occur on a typical Sunday (in compliance with ITE). Therefore no PM peak hour rates are applied.

As shown in **Table 1**, the project is estimated to generate 161 fewer daily trips during the weekday and 711 fewer daily trips on a Sunday using the 10<sup>th</sup> Edition trip rates versus the 9<sup>th</sup> Edition trip rates. A comparison of the AM and PM peak hour trips also show fewer trips based on the 10<sup>th</sup> Edition trip rates compared to the 9<sup>th</sup> Edition trip rates. Use of the 9<sup>th</sup> Edition rates result in a more conservative estimate of project impacts.

### **Scoping**

The Scoping Agreement for the Traffic Impact Study (TIA Appendix C) includes comments from City staff regarding the need for two forecast traffic models. The need for the second model was to address proposed changes to the planned Circulation Element that were proposed in the earlier site plan (lack of Depasquale Road through the project). Since that time, the site plan has been modified to allow for a public street connection between Depasquale Road and Bayless Road along the west side of the project. In response to the

City's comment, Michael Baker conducted an assessment of the proposed Wildomar Circulation Element which is summarized in the following paragraphs.

The City of Wildomar adopted the Circulation Element Roadway Network that had been designated for this area in the Riverside County General Plan Circulation Element. The current Draft Wildomar General Plan Circulation Element shows several roadways as "proposed circulation changes". This map was prepared by Urban Crossroads as part of the Wildomar Housing Element Update Traffic Assessment that was prepared during the development of the Wildomar Housing Element Update and there were changes proposed to the adopted Riverside County Circulation Element network in proximity to the project site.

These changes include the extension of La Estrella Street to the west towards Interstate 15 as well as both Susan Drive and Bayless Road extending between Baxter Road and La Estrella Street. According to the Wildomar Housing Element Update Traffic Assessment, Bayless Road is classified as a four-lane Secondary roadway, Susan Drive is classified as a two-lane Collector, and La Estrella Street from George Avenue to Bayless Road is classified as a two-lane Collector. The inclusion of Depasquale Road as a two-lane Collector between George Avenue and the extension of La Estrella was another proposed change to the previously adopted Circulation Element. These proposed changes were also included in the Draft Wildomar General Plan Update document dated January 2015.

The project site plan is provided in **Exhibit 1**. As shown, the project proposes to construct a 2-lane road as the west leg of the existing intersection of Depasquale Road and Glazebrook Road. This road would parallel the Interstate 15 before turning north and terminate at the project boundary. The project is reserving the right-of-way along this road for a potential public road extension of a Collector classification per the City's Circulation Element. The project is also reserving the right-of-way on the northern boundary of the site to allow for a potential future La Estrella extension, although City staff has indicated that no such extension is planned in the foreseeable future due to topographic constraints and adequate circulation is provided in the community without this extension.

Michael Baker prepare a technical memorandum dated December 13, 2017 providing a detailed assessment of the General Plan Circulation Element as it relates to the initially proposed Faith Bible Church project. This memo is contained in **Attachment A** as additional information. The projected 2035 daily volumes on the currently proposed circulation network configuration is depicted in **Exhibit 2**.

### **Project Site Plan**

The project site plan (**Exhibit 1**) shows Parcel 2 on the northwest corner of the property as vacant and undeveloped. If the church decides to develop this parcel in the future, a Focused Traffic Study will be required by the City to determine if any impacts occur as a result of additional development.

### **On Site Recommendations**

FM Civil will provide a conceptual striping plan at the intersection of Depasquale Road and Glazebrook Road consistent with the TIA lane configuration recommendations.

### **Project Fair Share**

Michael Baker reviewed the preliminary cost estimates and all line items for Mitigation Measures #1 and #3. Mitigation Measure #1 is to install a new traffic signal and provided a dedicated eastbound left-turn lane at Baxter Road / Monte Vista Road. At this location, the unit costs were increased to reflect the scale of the project based on similar cost estimates from recent projects. Without a design concept, the contingency was increased from 15% to 20%. As shown in **Table 2**, the construction cost estimate was increased from \$201,100 to \$353,800, a \$152,700 increase. With an estimated design cost of \$53,070, the total cost estimate for Mitigation Measure #1 is \$406,870.

**Table 2**  
**Preliminary Cost Estimate & Fair Share Calculation**

Mitigation Measure	Study Intersection	Proposed Improvement	Preliminary Construction Cost Estimate	Preliminary Design Cost Estimate	Total Cost Estimate	Fair Share Percentage	Fair Share Cost
1	Baxter Road / Monte Vista Drive	Install traffic signal and provide a dedicated EB left-turn lane.	\$353,800	\$53,070	\$406,870	12.0%	\$48,824
2	Depasquale Road / George Avenue	Convert two-way stop control to all-way stop control. Restripe eastbound approach to include a through-shared-left turn lane and a dedicated right-turn lane.	\$2,500	\$1,500	\$4,000	58.8%	\$2,352
3	Clinton Keith Road / Arya Road	Restripe northbound approach to include a dedicated left-turn lane, through-lane, and a dedicated right-turn lane. Restripe southbound approach to include a dedicated left-turn lane and a through-shared-right-turn lane. Includes construction of median and new edge of pavement for the north side of the intersection.	\$174,600	\$26,190	\$200,790	21.3%	\$42,768
Total Estimated Cost:							\$93,945

Note: Preliminary Design Cost Estimate assumes 15% of construction cost estimate for Mitigation Measures 1 & 3.

Mitigation Measure #3 is to restripe the northbound approach to include a dedicated left-turn lane, a through lane, and a dedicated right-turn lane at Clinton Keith Road / Arya Road. The mitigation also would restripe the southbound approach to include a dedicated left-turn lane and a through-shared-right-turn lane. Construction of a median and new edge of pavement for the north side of the intersection would also be included. The unit costs for this project were also increased to reflect the scale of the project and reflect similar cost estimates from recent projects. The construction cost estimate was increased from \$110,100 to \$174,600, a \$64,500 increase. With an estimated design cost of \$26,190, the total cost estimate for Mitigation

Measure #3 is \$200,790. The detailed cost estimates for MM#1 & #3 are attached to this document. As a result of the increased construction and design cost estimates, the fair share costs also increased. The projects' fair share cost was increased from \$54,700 to \$93,945 as shown in **Table 2**.

### **Project Site Access and Circulation**

As shown on the project site plan, the project proposes to construct a 2-lane road as the west leg of the existing intersection of Depasquale Road and Glazebrook Road. This private road would parallel Interstate 15 before turning north and terminate at the northern project boundary. A secondary access to the Lower West Parking Lot will be provided by a full-access driveway on Glazebrook Road approximately 230 feet west of the intersection. Sight distance for motorists exiting the parking lot onto Glazebrook Road and vehicles traveling northbound approaching the secondary driveway is a concern raised by City staff due to the knuckle portion of the road that potentially could be a sight distance concern. With a design speed of 25 miles per hour, a safe stopping sight distance of 150 feet is required according to Caltrans Highway Design Manual. The distance from the secondary driveway to the knuckle is approximately 200 feet. Based on the 150-foot sight distance lines illustrated on the project site plan, there appears to be adequate visibility to motorists traveling around the knuckle.

Queuing was also evaluated at the intersection of Glazebrook Road and Depasquale Road with the extension of Glazebrook Road to the west. With stop signs controlling the northbound and southbound approaches and traffic flowing free in the eastbound and westbound approaches, little to no queuing would occur on Glazebrook Road in either direction. In the northbound approach on Depasquale Road, the conflicting movements are the eastbound left, southbound through and westbound through. The conflicting traffic volumes are expected to be minor and would most likely result in little to no queuing in the northbound approach. The southbound approach has the potential for the most queuing due to the conflicting movements and volumes. However, this queuing would occur on the church site where there seems to be adequate storage. Queuing is likely to occur in the southbound approach on Sundays when services end and vehicles are leaving the site. However, the queue is expected to clear within a 15 to 20-minute period following the service.

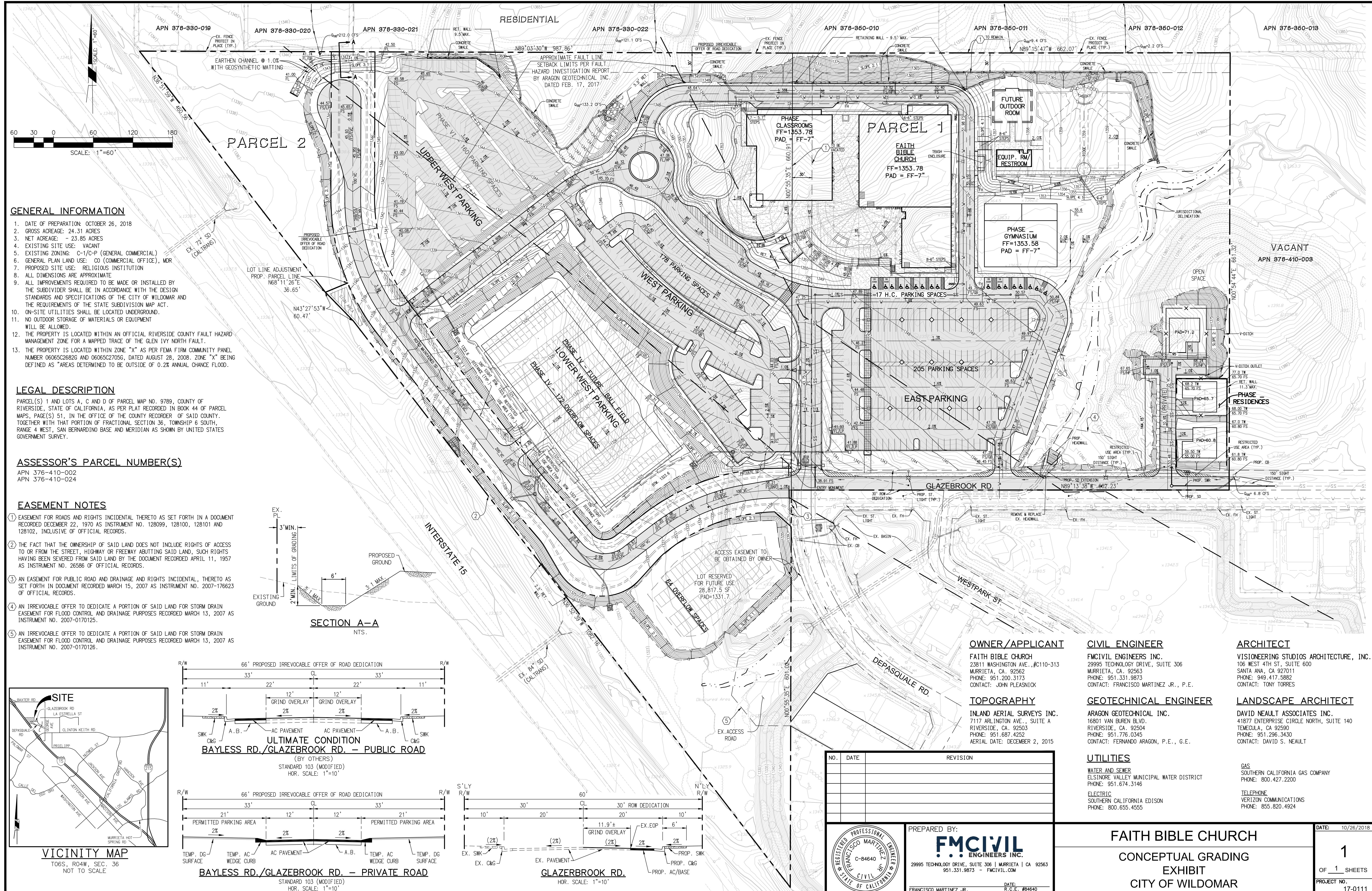
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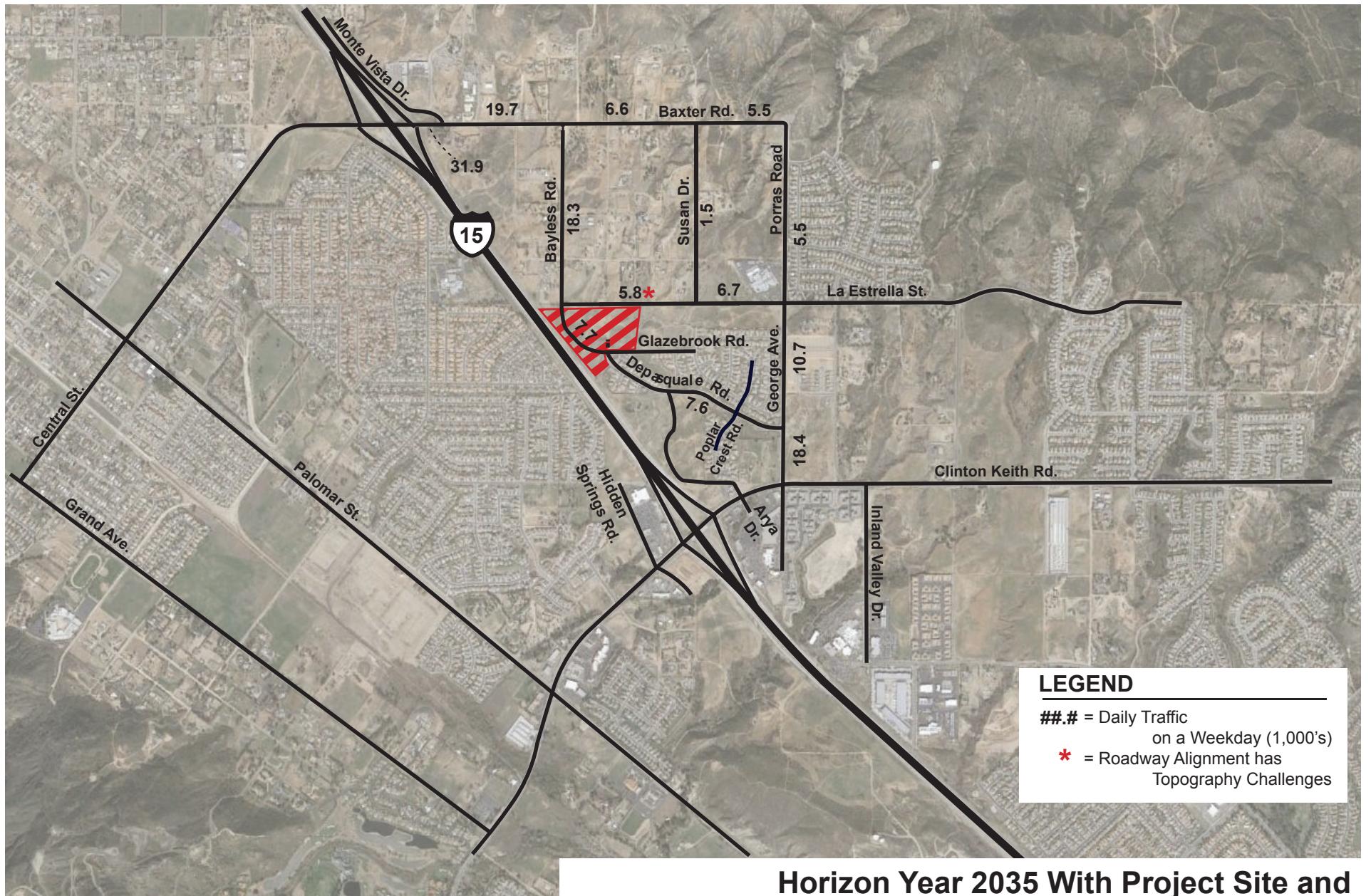
If you have any questions pertaining to the analysis results summarized in this letter, please call me at (760) 603-6244.

Sincerely,



Robert Davis,  
Senior Associate





# Faith Bible Church

## TRAFFIC IMPACT ANALYSIS REPORT

Prepared for

**City of Wildomar**

Prepared by



5050 Avenida Encinas, Suite 260, Carlsbad, CA 92008  
CONTACT: Robert Davis - 760.603.6244 [robertdavis@mbakerintl.com](mailto:robertdavis@mbakerintl.com).

**October 22, 2018**

JN 154408

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## **1.0 – INTRODUCTION & SUMMARY**

### **Purpose of Report & Study Objectives**

The purpose of this study is to analyze the forecast traffic conditions associated with the proposed Faith Bible Church (referred to as the “project”) within the City of Wildomar.

The study objectives include the documentation of existing traffic conditions in the vicinity of the project site and determine the amount of traffic generated by the project and added to the area roadway network. This study will also evaluate the existing plus ambient growth plus project conditions, existing plus ambient growth plus cumulative projects conditions, and existing plus ambient growth plus cumulative projects plus project conditions. In addition, this report will determine if the level of service (LOS) required by the City of Wildomar General Plan will be maintained at all study area intersections, and if not, determine the appropriate mitigation measures necessary to maintain the required level of service. Where appropriate, traffic signal warrants will also be evaluated at un-signalized study intersections.

### **Site Location**

The project is located immediately east of Interstate 15, northwest of Depasquale Road and north of Glazebrook Road within the City of Wildomar. **Exhibit 1** shows the project’s location. The project site is currently vacant and undeveloped.

### **Development Project Identification**

The City of Wildomar case number assigned to this project is 14-0135.

### **Development Project Description**

Faith Bible Church proposes the development of a 1,112 seat sanctuary (approximately 74,309 SF) on a 24.31-acre site. The existing zoning on the project site is General Commercial (C-1/C-P) and the land use designation per the General Plan is Commercial Office (CO) and Multiple Dwelling Unit Residential (MDR). The proposed land use designation for this site is Religious Institution. **Exhibit 2** shows the project site plan. For purposes of this analysis, the project is assumed to be developed in a single phase with a projected opening year of 2019.

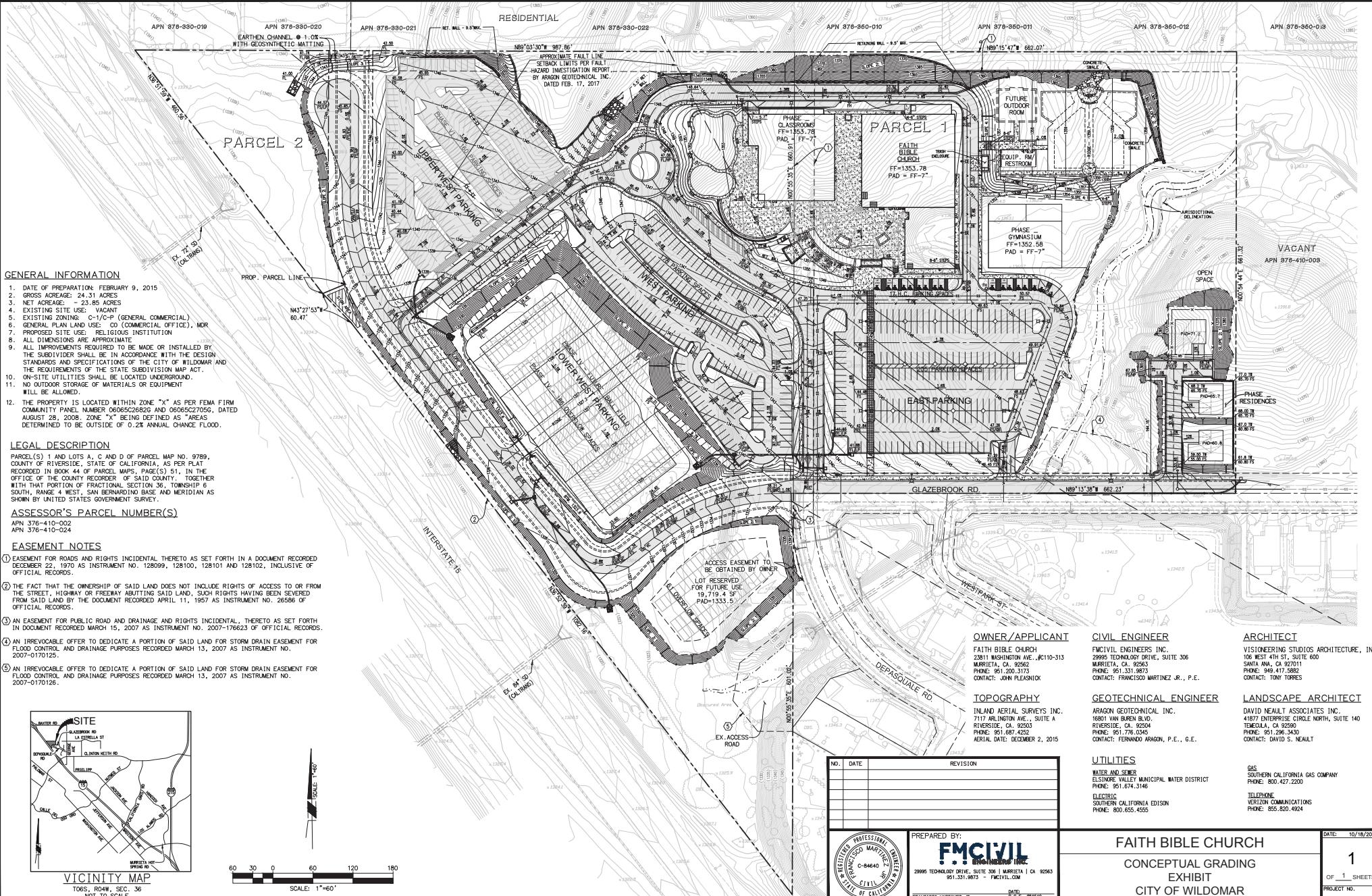
At the time the traffic study was completed, the site plan had been changed slightly to include a lower seating capacity of 1,030 seats for the sanctuary. This study analyzes a 1,112 seat sanctuary which provides a conservative (worst case) analysis. The project would be developed in phases with the initial phase including an approximately 584 seat sanctuary. The project includes 3 transient occupant residential units that will be used for visiting missionaries on a short-term basis.



Not To Scale

**Michael Baker**  
INTERNATIONAL





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## **Development Project Description cont.**

As such, these residences are expected to generate a minor amount of traffic primarily during the weekday and therefore considered to be included in the weekday trip generation. The proposed project is forecast to generate a total of approximately 2,057 daily trips on a Sunday with approximately 678 (339 inbound and 339 outbound) peak hour trips in the afternoon (mid-day). During the weekday, the project is forecast to generate a total of approximately 677 average daily trips (ADT) with approximately 42 AM peak hour trips and 41 PM peak hour trips. To be conservative, the analysis in this study is based on the more significant project-related trips on a Sunday rather than a weekday. To account for existing school related traffic, two study intersections along George Avenue during the weekday are evaluated in this report.

The proposed Faith Bible Church site is more than one mile from the border of the City of Murrieta and therefore, not within Murrieta's Sphere of Influence.

## **Principal Findings**

The City of Wildomar has adopted the County of Riverside's General Plan. As such, level of service "D" or better is considered acceptable traffic operations during the peak hour at intersections within the City of Wildomar. Level of service "D" or better is also considered acceptable at interchange ramp intersections maintained by Caltrans in urban areas.

For the Existing conditions, all study intersections are operating at acceptable levels of service (LOS D or better).

Under the Existing Plus Project conditions, all study intersections are forecast to operate at acceptable levels of service. As a result, no direct significant project-related impacts are expected to occur and therefore, no mitigation is required.

Under the Existing Plus Ambient Plus Project conditions, all study intersections continue to operate at acceptable levels of service. Therefore, no significant impacts are expected to occur and no mitigation is required.

The results of the Existing Plus Ambient Plus Cumulative conditions show that all study intersections are forecast to operate at acceptable levels of service except at the following two (2) locations which operate at a deficient LOS F (as discussed below, the project will mitigate its impact to less than significant levels):

- Int. 3 – Baxter Road / Monte Vista Drive
- Int. 10 – Clinton Keith Road / Arya Road

The results of the Existing Plus Ambient Plus Cumulative Plus Project conditions show that all study intersections are forecast to operate at acceptable levels of service (LOS D or better) except at the following three (3) locations which operate at a deficient LOS F (as discussed below, the project will mitigate its impact to less than significant levels):

- Int. 3 – Baxter Road / Monte Vista Drive

- Int. 6 – Depasquale Road / George Avenue
- Int. 10 – Clinton Keith Road / Arya Road

The intersection of Baxter Road and Monte Vista Drive would operate at LOS F both without the project and with the project under the Existing Plus Ambient Plus Cumulative conditions. The amount of traffic delay expressed in seconds added to this intersection due to the project exceeds the five second threshold. Therefore, this intersection is considered significant and mitigation is required.

The intersection of Depasquale Road and George Avenue is forecast to operate acceptably (LOS C) without the project and operates at an unacceptable level of service (LOS F) with the project. Therefore, the intersection is considered significant and mitigation is required.

At Clinton Keith Road and Arya Road, the intersection is forecast to operate at LOS F both without the project and with the project under the Existing Plus Ambient Plus Cumulative conditions. The amount of traffic delay (sec.) added to this intersection due to the project exceeds the five second threshold. Therefore, this intersection is considered significant and mitigation is required.

Recommended mitigation measures, noted below, reduce all project impacts to a less than significant level.

### **Traffic Signal Warrants**

The 2014 California *Manual on Uniform Traffic Control Devices* (MUTCD) contains minimum guidelines regarding traffic volumes, collisions, speeds, visibility, and other criteria in order to satisfy the requirements for the recommendation of a traffic signal, multi-way stop, or other traffic control device installation. Signal warrants were evaluated at significantly impacted intersections as a result of the proposed project, specifically at the intersections of Baxter Road / Monte Vista Drive and George Avenue / Depasquale Road.

In this study, a Peak Hour Warrant #3 has been evaluated at the significantly impacted intersection of Baxter Road / Monte Vista Drive. Under the Existing Plus Ambient Plus Cumulative without and with project conditions, the Peak Hour signal warrant is expected to be satisfied at Baxter Road / Monte Vista Drive. Signal warrant information is provided in [Appendix A](#).

At the intersection of George Avenue / Depasquale Road, a peak hour signal warrant was evaluated and not satisfied under the Existing Plus Ambient Plus Cumulative Plus Project conditions. As an interim improvement, an all-way stop is recommended at this location. The analysis shows the intersection is forecast to operate at an acceptable level of service (both during the weekday and weekend) as an all-way stop controlled intersection.

## **Recommendations**

This section of the study provides a summary of the recommendations for improvements necessary on-site and off-site to meet the required level of service.

### **On-Site Recommendations**

The following onsite recommendations are reflected in the project site plan (**Exhibit 2**).

- Construct partial width improvements on the northerly side of Glazebrook Road at its ultimate cross-section as a Collector with a curb-to-curb width of 60 feet and 80-foot right-of-way adjacent to the projects property boundary line.
- Modify the intersection of Depasquale Road and Glazebrook Road to include a project driveway connection forming the north and west legs of the intersection.

### **Off-Site Recommendations**

- Provide fair-share contribution towards the installation of a traffic signal at Baxter Road / Monte Vista Drive and provide a dedicated left-turn lane in the eastbound approach.
- Provide fair-share contribution to convert two-way stop control to all-way stop control at Depasquale Road / George Avenue and provide striping in eastbound approach to include a through-shared-left turn lane and a dedicated right-turn lane.
- At Clinton Keith Road / Arya Road, pay fair-share contribution towards the following improvements:

*Northbound* – Restripe to provide one dedicated left-turn lane, one through lane and one dedicated right-turn lane.

*Southbound* – Restripe to provide one dedicated left-turn lane and one through-shared-right-turn lane.

The recommended improvements at Clinton Keith Road / Arya Road are consistent with the Westpark Promenade Traffic Study with the exception of the northbound approach. The Westpark Promenade TIA recommends a dedicated southbound left-turn lane at this location. However, this analysis recommends the dedicated southbound left-turn lane and a restriping of the northbound approach to provide a dedicated left-turn lane, a through lane and a dedicated right-turn lane. These recommended improvements would improve the intersection delay to a condition better than without the project. Therefore, the impact at Clinton Keith Road / Arya Road is considered mitigated to below a level of significance.

## **Regional Funding Mechanisms**

The project will participate in the cost of off-site improvements through payment of “fair share” mitigation fees as shown in **Table 1**. The project is exempt from the Transportation Uniform Mitigation Fee (TUMF) and the City of Wildomar Development Impact Fee (DIF). These fees are collected and utilized as needed by the City of Wildomar to construct the improvements necessary to maintain the required level of service. Recommended onsite and offsite improvements including fair shares noted in Table 1, fully mitigate the project’s impacts.

## **Project Fair Share**

The project fair share contributions have been calculated for impacted intersections. The fair share percentage is based upon the proportion of project peak hour traffic contributed to the impacted intersection relative to the total new peak hour traffic volume. **Table 1** shows the preliminary cost estimates and fair share contributions at the three significantly impacted locations. As shown, the project’s total shared cost is estimated to be \$54,700. Preliminary cost estimates and fair share calculation worksheets for the impacted locations are provided in **Appendix B**.

**Table 1**  
**Preliminary Cost Estimate & Fair Share Calculations**

Mitigation Measure	Study Intersection	Proposed Improvement	Preliminary Construction Cost Estimate	Preliminary Design Cost Estimate	Total Cost Estimate	Fair Share Percentage	Fair Share Cost
1	Baxter Road / Monte Vista Drive	Install traffic signal and provide a dedicated EB left-turn lane.	\$201,100	\$20,110	\$221,210	12.0%	\$26,545
2	Depasquale Road / George Avenue	Convert two-way stop control to all-way stop control. Restripe easabout approach to include a through-shared-left turn lane and a dedicated right-turn lane.	\$2,500	\$1,500	\$4,000	58.8%	\$2,352
3	Clinton Keith Road / Arya Road	Restripe northbound approach to include a dedicated left-turn lane, through-lane, and a dedicated right-turn lane. Restripe southbound approach to include a dedicated left-turn lane and a through-shared-right-turn lane. Includes construction of median and new edge of pavement for the north side of the intersection.	\$110,100	\$11,010	\$121,110	21.3%	\$25,796
<b>Total Estimated Cost:</b>							<b>\$54,700</b>

Note: Preliminary Design Cost Estimate assumes 10% of construction cost estimate for Mitigation Measures 1 & 2.

## 2.0 – ANALYSIS METHODOLOGY

This section of the report outlines the methodologies and assumptions used to perform this traffic assessment. This study has been prepared in accordance to the *Traffic Impact Analysis Preparation Guide* dated April 2008 prepared by the Riverside County Transportation Department.

### Intersection Analysis Methodology

The City of Wildomar utilizes the *Highway Capacity Manual (HCM)* intersection analysis methodology to analyze the operation of signalized and un-signalized intersections. The *HCM* analysis methodology describes the operation of an intersection using a range of level of service (LOS) from LOS A (free-flow conditions) to LOS F (severely congested conditions), based on the corresponding stopped delay experienced per vehicle for study intersections shown in **Table**.

**Table 2**  
**Level of Service & Delay Ranges**

LOS	Delay (seconds/vehicle)	
	Signalized Intersections	Un-signalized Intersections
A	$\leq 10.0$	$< 10.0$
B	$> 10.0 \leq 20.0$	$> 10.0 \text{ to } < 15.0$
C	$> 20.0 \leq 35.0$	$> 15.0 \text{ to } < 25.0$
D	$> 35.0 \leq 55.0$	$> 25.0 \text{ to } < 35.0$
E	$> 55.0 \leq 80.0$	$> 35.0 \text{ to } < 50.0$
F	$> 80.0$	$> 50.0$

Source: 2010 *Highway Capacity Manual*.

Level of service is based on the average stopped delay per vehicle for all movements of signalized intersections and all-way stop-controlled intersections; for one-way or two-way stop-controlled intersections, LOS is based on the worst stop-controlled approach.

A computer software program called *Synchro Version 8.0* was used to analyze the study intersections and is a direct application of HCM methodology.

### Roadway Segment Analysis Methodology

Roadway segment level of service standards are generally used as long-range planning guidelines to determine the functional classification of roadways and are not always accurate indicators of roadway performance. Typically, the performance and level of service of a roadway segment is heavily influenced by the ability of intersections to accommodate peak hour volumes. Therefore, peak hour signalized and un-signalized intersections within the study area are the focus of the project traffic analysis summarized in this report since intersections control the movement of vehicles along road segments. The roadway segment volumes provided in this report are for information only, not for determining the significance of a potential impact.

## **Performance Criteria**

The City of Wildomar has adopted the County of Riverside General Plan for application within the City limits. According to the County of Riverside General Plan, Policy C-5 which states:

*"Maintain target LOS C along all City-maintained roads. As an exception, LOS D may be allowed, only at intersections of any combination of secondary highways, major highways, arterials, urban arterials, expressways, convention state highways, or freeway ramp intersections. LOS E may be allowed in mixed use planning areas."*

Therefore, LOS "D" is considered acceptable traffic operations during the peak hour at intersections within the City of Wildomar.

Regarding Caltrans' intersections and facilities, the published Caltrans Traffic Study Guidelines (December 2002) states:

*"Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State Highway facilities, however, Caltrans acknowledges that this may not be always feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS."*

Therefore, LOS "D" is also considered acceptable traffic operations during the peak hour at freeway ramp intersections with the surface streets maintained by Caltrans.

## **Thresholds of Significance**

To determine whether the addition of project-generated trips results in a significant impact at a study intersection, and thus requires mitigation, the City of Wildomar utilizes the following thresholds of significance:

- A significant project-related impact occurs at a study intersection when the addition of project-generated trips causes the peak hour level of service of the study intersection to change from acceptable "pre-project" operation (LOS A, B, C, or D) to deficient operation (LOS E or F); or
- A significant project impact occurs at a study intersection when the addition of project-generated trips causes an increase in delay of 5.0 seconds or more at intersections operating at a deficient level of service (LOS E or F).

If the addition of project-related traffic causes the LOS at a facility to degrade from an acceptable to an unacceptable LOS, then the impact is considered a "significant direct impact" and the project is fully responsible for providing an improvement that mitigates the impact to below a level of significance.

If the addition of project-related traffic results in the worsening of an existing/projected deficient LOS for a facility, then the impact is considered a "significant incremental impact" and the project is responsible for contributing a fair share percentage of the cost towards an improvement that mitigates the impact to below the level of significance.

## **3.0 - AREA CONDITIONS**

This section of the report summarizes the project's study area, conditions evaluated, existing circulation network, the City of Wildomar General Plan Circulation Element network, and the results of the existing peak hour intersection analysis.

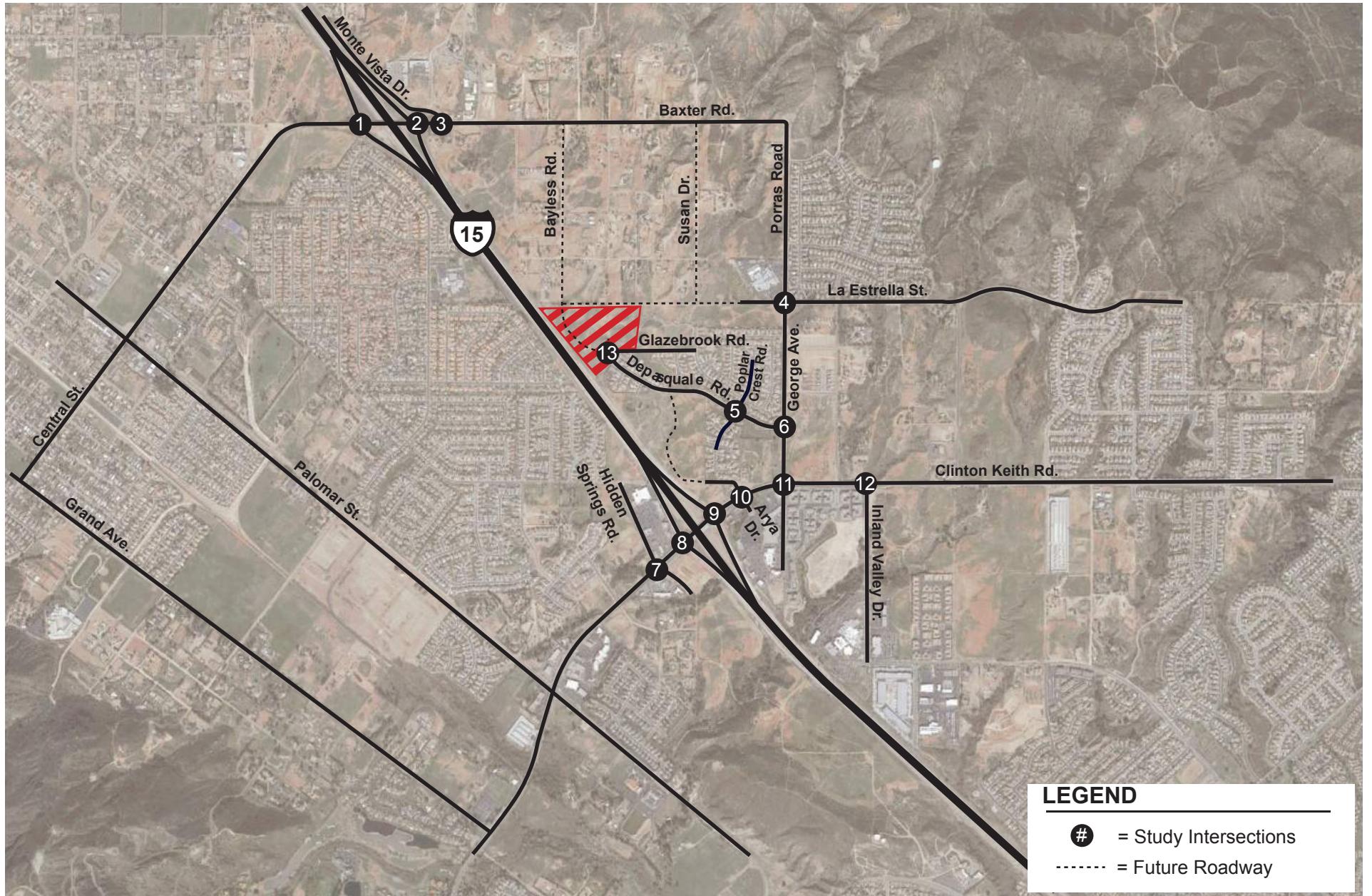
### **Study Area**

To determine the study area for the proposed project, a Scoping Agreement was prepared, reviewed and approved by the City of Wildomar which is included in [\*\*Appendix C\*\*](#). According to the Riverside County Traffic Impact Analysis (TIA) Preparation Guide, the study area should include “any intersection of “Collector” or higher classification street, with “Collector” or higher classification streets, at which the proposed project will add 50 or more peak hour trips, not exceeding a 5-mile radius from the project site.” Based on consultation with City staff and Riverside County TIA Preparation Guide, the study evaluates the following [thirteen](#) (13) intersections in the vicinity of the project site:

1. I-15 SB Ramps / Baxter Road
2. I-15 NB Ramps / Baxter Road
3. Baxter Road / Monte Vista Drive
4. La Estrella Street / Porras Road – George Avenue
5. Depasquale Road / Poplar Crest Road
6. Depasquale Road / George Avenue
7. Clinton Keith Road / Hidden Springs Road
8. I-15 SB Ramps / Clinton Keith Road
9. I-15 NB Ramps / Clinton Keith Road
10. Clinton Keith Road / Arya Road
11. Clinton Keith Road / George Avenue
12. Clinton Keith Road / Inland Valley Drive
13. Glazebrook Road / Depasquale Road

**Exhibit 3** shows the locations of the study intersections, which are analyzed for the following study conditions:

- Existing Conditions
- Existing Plus Project Conditions
- Existing Plus Ambient Plus Project Conditions
- Existing Plus Ambient Plus Cumulative Conditions
- Existing Plus Ambient Plus Cumulative Plus Project Conditions



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“Ambient” refers to a growth rate applied to the existing volumes to account for other general traffic growth in and around the study area. The term “Cumulative” in this study refers to cumulative development which includes pending and/or approved projects that are expected to be completed and occupied, after the date of existing counts but prior to the project’s expected opening day (Year 2019) that would contribute traffic within the project study area.

### **Existing Conditions**

To determine the existing operation of the study intersections, intersection turning movement counts were collected during the afternoon peak (10:00 AM – 1:00 PM) period on a Sunday when highest number of attendees are expected to arrive and depart church services. Project traffic expected on Monday through Friday is expected to be below the threshold of significance. Count data for all study intersections were obtained on Sunday July 10, 2016 and Sunday June 3, 2018. Detailed traffic count data is contained in [Appendix D](#).

The characteristics of the roadway system in the vicinity of the project site are described below:

**Clinton Keith Road-** is a 4-lane major roadway west of Hidden Springs Road that trends in the east-west direction. Between Hidden Springs Road and George Avenue it widens to six lanes. Clinton Keith Road narrows to two lanes east of Inland Valley Drive. It is a divided roadway with intermittent raised medians. The ultimate classification is a 6-lane major according to the City of Wildomar’s General Plan Circulation Element. The posted speed limit is 45 mph and on-street parking is prohibited. Sidewalks are provided on both sides of the street with intermittent gaps.

**George Avenue / Porras Road-** is a 2-lane secondary road that trends in the north-south direction. George Avenue spans between Clinton Keith Road and La Estrella Street. Porras Road spans between La Estrella Street and Baxter Road. The posted speed limit is 35 mph and on-street parking is prohibited. Sidewalks are provided on the west side of George Avenue from approximately 130 feet south of Depasquale road to approximately 640 feet north of La Estrella Street as well as on the east side of the Porras Road between La Estrella Street and Baxter Road.

**Baxter Road-** is a 2-lane secondary road that trends in the east-west direction. The posted speed limit is 45 mph and on-street parking is prohibited. Sidewalks are not provided.

**Monte Vista Road-** is a 2-lane secondary road that trends in the north-south direction parallel to I-15 and serves as a connector to Bundy Canyon Road to the north and Baxter Road to the south. The posted speed limit is 55 mph and on street parking is prohibited. Sidewalks are not provided.

**La Estrella Street-** is a 2-lane collector road west of George Avenue/Porras Road and a 2-lane secondary east of George Avenue/Porras Road that trends in the east-west direction. Between Solida Del Sol and Crest Meadow Drive, La Estrella Street widens to a 4-lane street. The posted speed limit is 40 mph and on-street parking is prohibited. Sidewalks are provided on the north side of the street as well as the south side between Meadow Park Circle and Crossroads Street only.

**Depasquale Road-** is a 2-lane collector road that trends in the east-west direction. The prima facie speed limit for a residential road is 25 mph. Sidewalks are provided on both sides of the street.

### Existing Conditions Study Intersection LOS

**Exhibit 4** shows the Existing conditions study intersection lane geometry and number of travel lanes. **Exhibit 5** shows existing mid-day peak hour volumes at the study intersections. Midday in the peak hour turn movement exhibits refers to the intersection peak hour which occurred from 12:00 to 1:00 PM for the majority of the study intersections according the count data. **Table 3** summarizes Existing conditions peak hour LOS of the study intersections. As shown, all of the study intersections are currently operating at an acceptable LOS (D or better) according to City of Wildomar performance criteria.

Detailed LOS analysis worksheets are contained in [Appendix E](#).

**Table 3**  
**Existing Mid-Day (Sunday) Peak Hour Intersection Conditions**

Study Intersection	Traffic Control	Existing Conditions Midday
		Delay <sup>1</sup> - LOS
1 - I-15 SB Ramps / Baxter Road	AWSC	10.4 - B
2 - I-15 NB Ramps / Baxter Road	AWSC	10.3 - B
3 - Baxter Road / Monte Vista Drive	OWSC	7.4 - A
4 - La Estrella Street / Porras Road - George Avenue	AWSC	7.2 - A
5 - Depasquale Road / Poplar Crest Road	TWSC	9.1 - A
6 - Depasquale Road / George Avenue	OWSC	9.2 - A
7 - Clinton Keith Road / Hidden Springs Road	Signal	23.9 - C
8 - I-15 SB Ramps / Clinton Keith Road	Signal	19.9 - B
9 - I-15 NB Ramps / Clinton Keith Road	Signal	23.2 - C
10 - Clinton Keith Road / Arya Road	Signal	22.5 - C
11 - Clinton Keith Road / George Avenue	Signal	16.8 - B
12 - Clinton Keith Road / Inland Valley Drive	Signal	13.0 - B
13 - Glazebrook Road / Depasquale Road	OWSC	7.3 - A

Note: Deficient intersection operation indicated in bold.

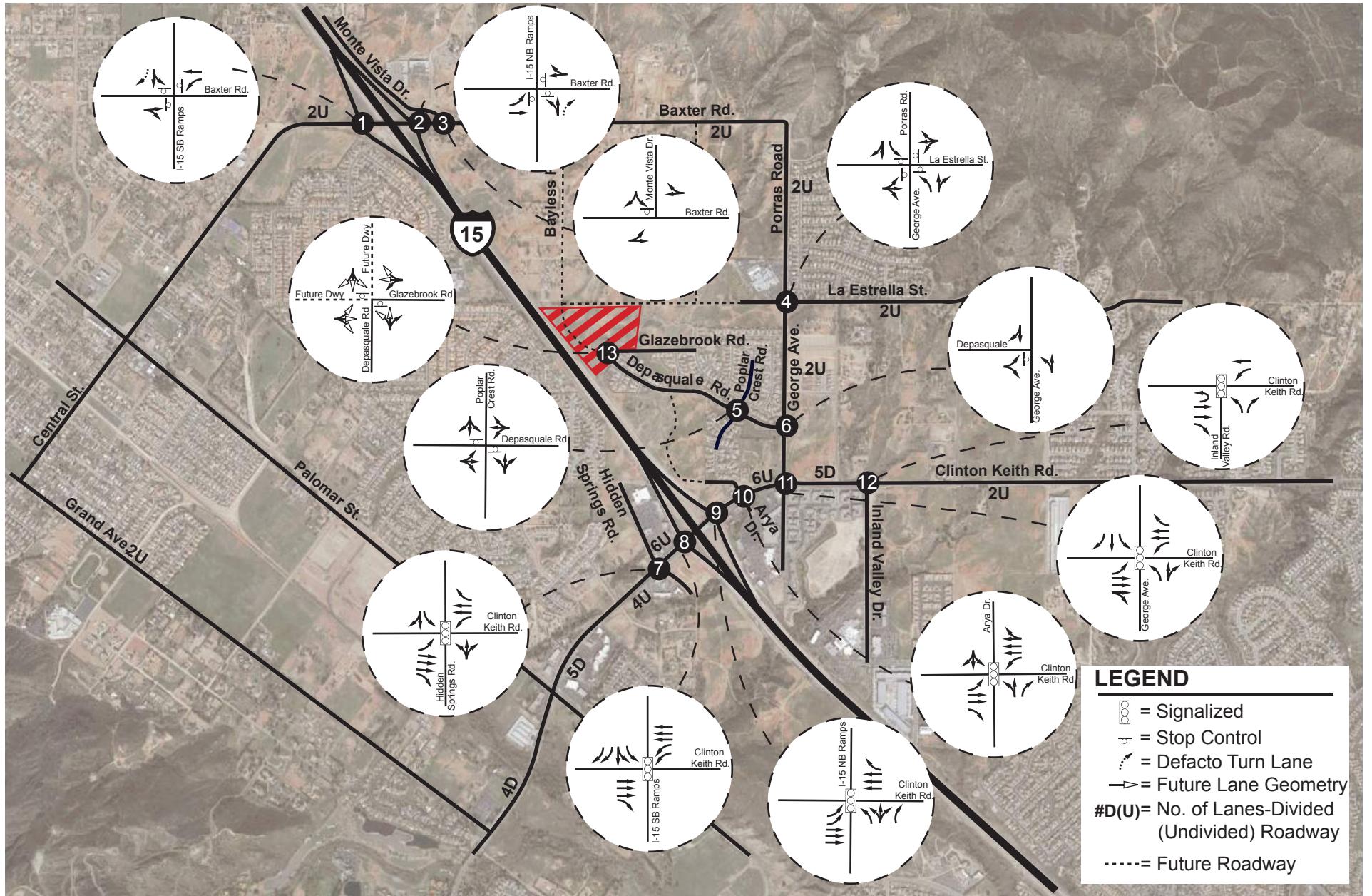
<sup>1</sup> Average seconds of delay per vehicle.

TWSC = Two-Way Stop Control

LOS is level of service.

AWSC = All-Way Stop Control

OWSC = One-Way Stop Control

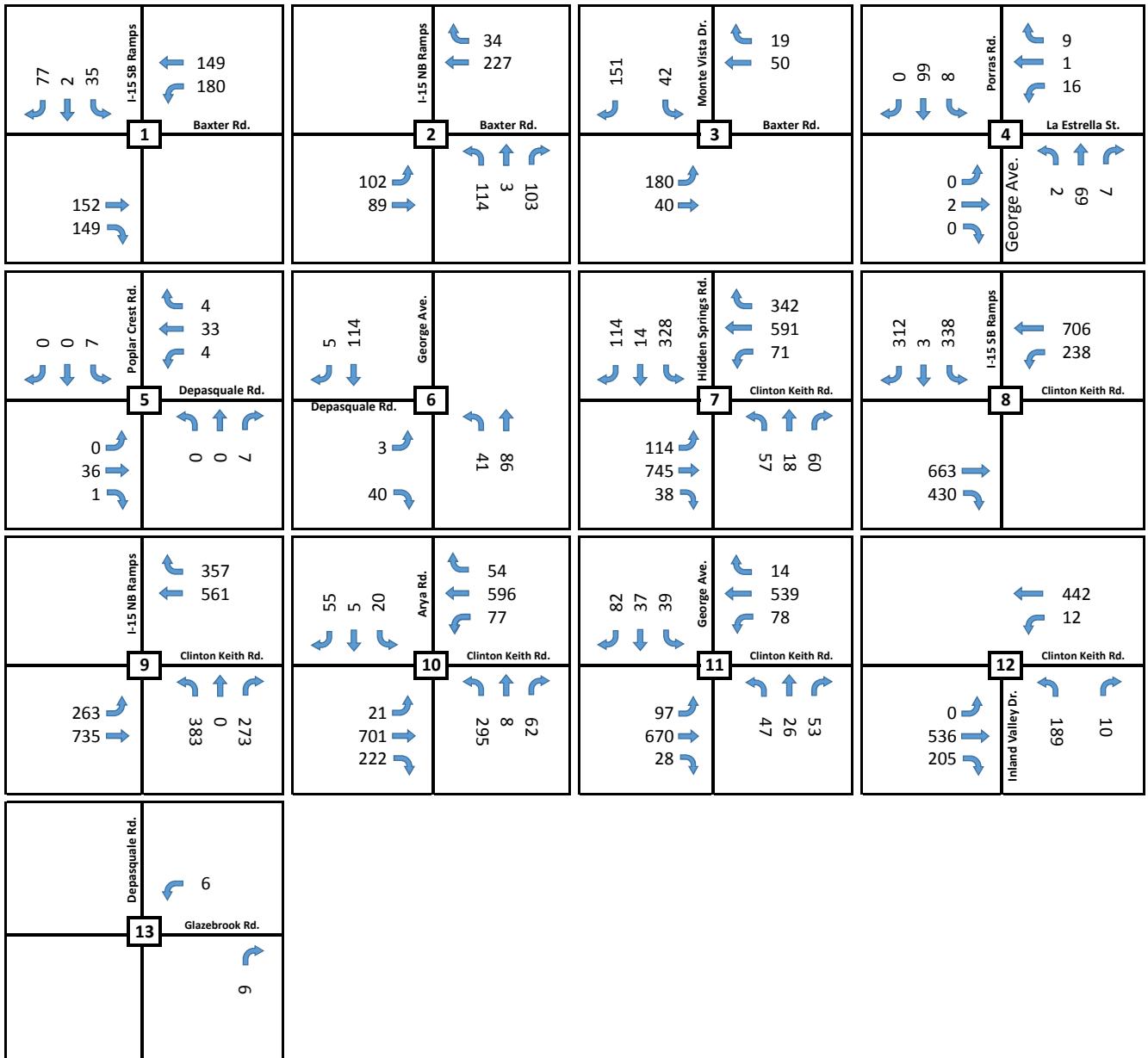


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## Existing Travel Lanes and Intersection Geometries



*Notes:*

XX = Mid-Day Peak Hour Volumes

### **Existing Roadway Traffic**

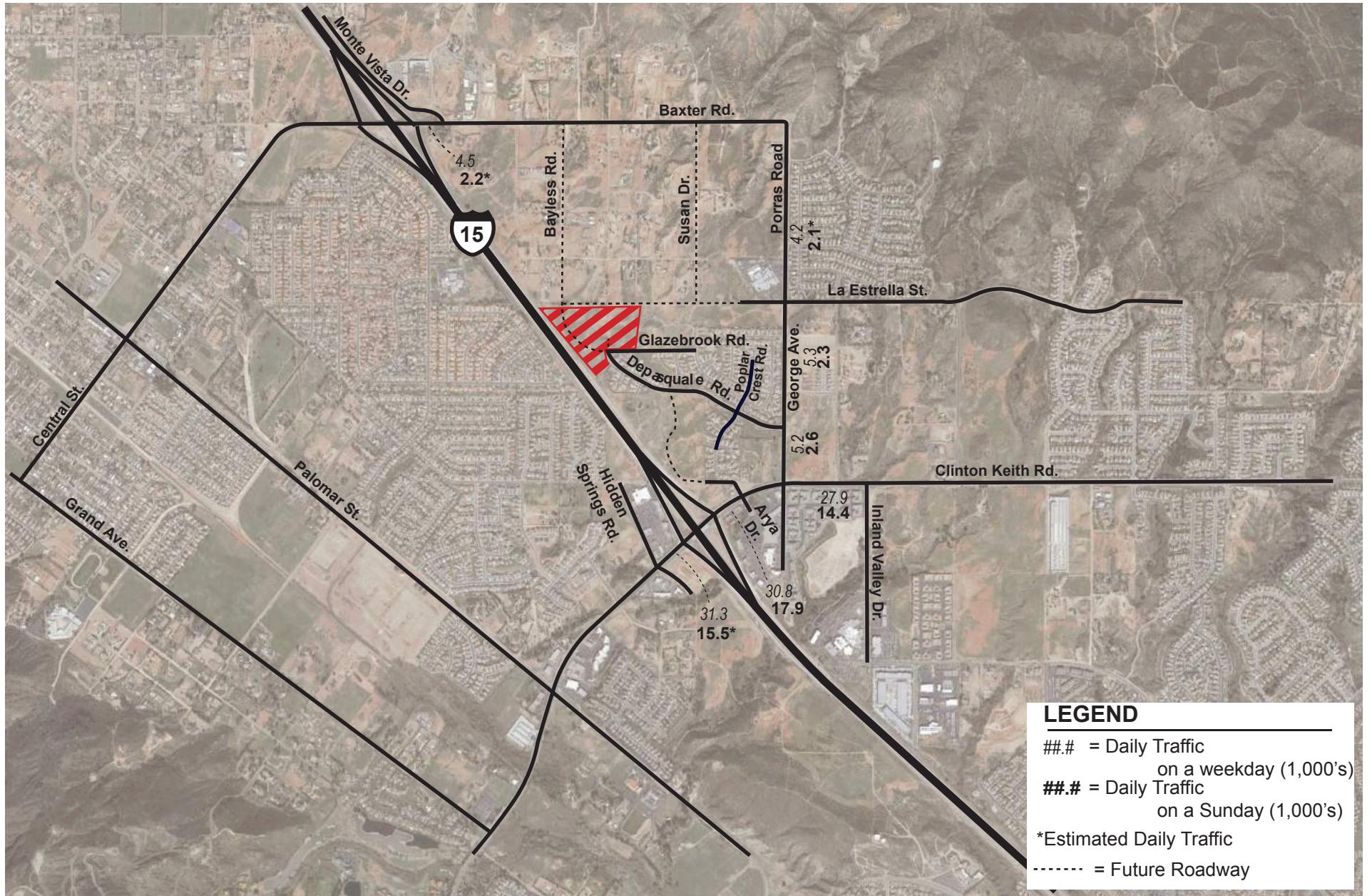
**Exhibit 6** shows the existing weekday and Sunday daily (24 hour) traffic volumes for roadway segments within the project's study area. As shown, Sunday traffic volumes are approximately half of weekday traffic. As previously mentioned, the roadway segment volumes provided in this report are for information only, not for measuring significance since intersection constraints have a greater impact on the movement of vehicles along road segments.

### **City of Wildomar General Plan Circulation Element**

**Exhibit 7** shows the City of Wildomar General Plan Circulation Element showing the classification and configuration of arterial highways planned to serve the ultimate development defined by the land use element of the General Plan. **Exhibit 8** shows the City of Wildomar General Plan roadway cross-sections.

### **Transit Service**

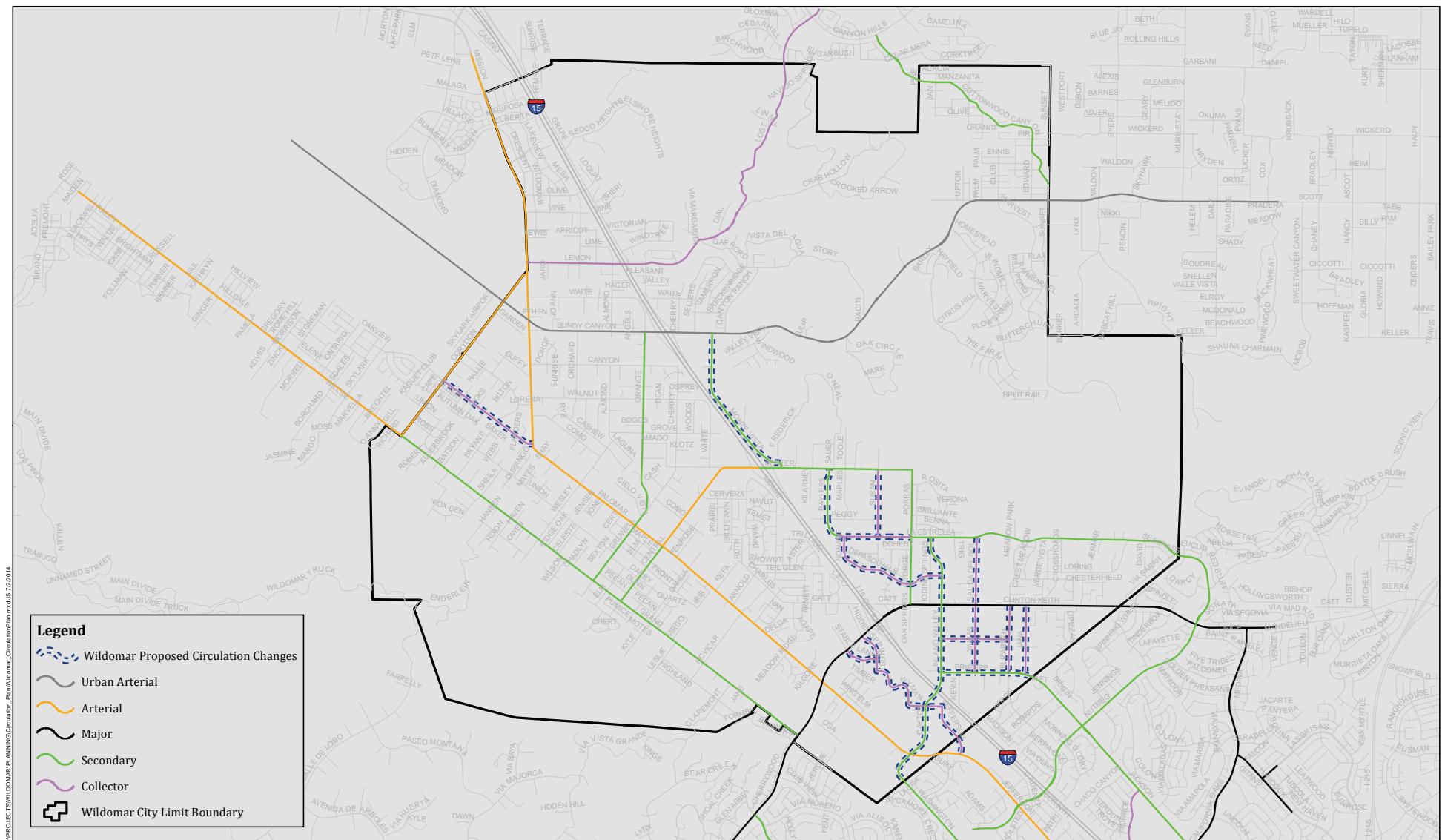
The study area is served by the Riverside Transit Agency (RTA) Route 23 along Clinton Keith Road. Route 23 services the Inland Valley Medical Center, Rancho Springs Medical Center, Chaparral High School and County Center Drive. There is a bus stop located on the southeast side of Clinton Keith Road / George Avenue which is approximately  $\frac{3}{4}$  of a mile (3,950 feet) walking distance from the project site. This bus route operates on weekends with approximately 60-minute headways.



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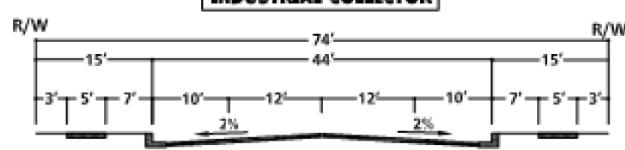
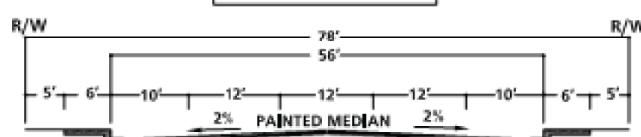
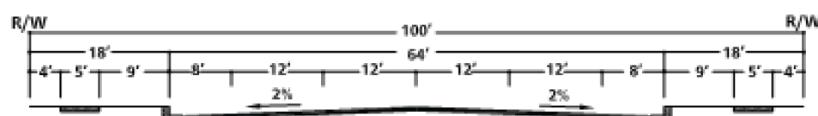
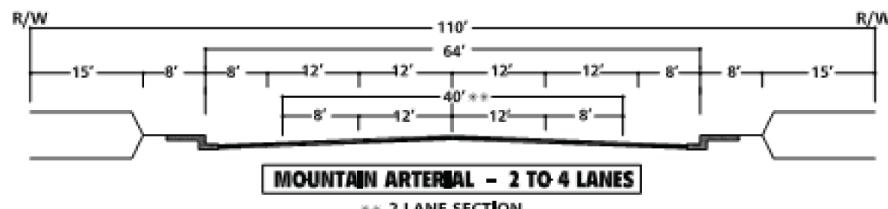
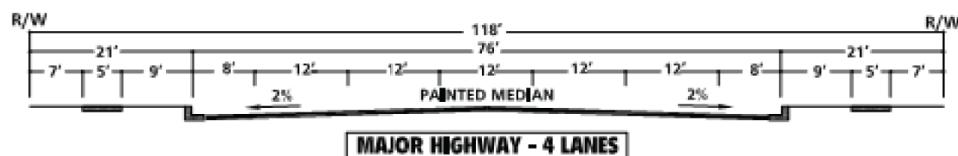
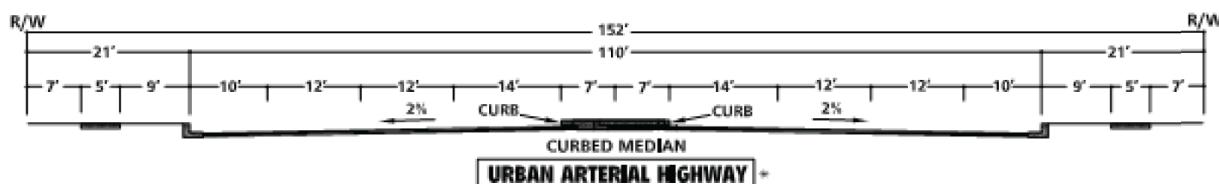
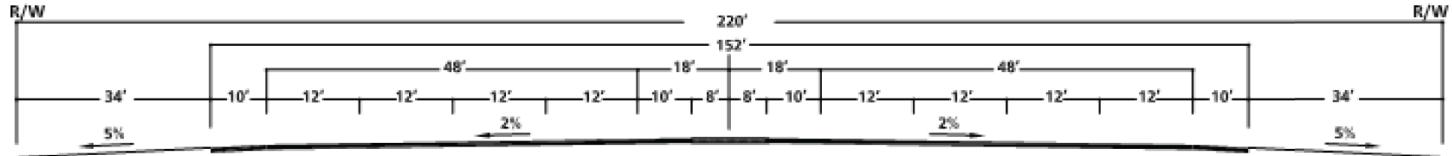
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## City of Wildomar General Plan Circulation Element

Exhibit 7



\* IMPROVEMENTS MAY BE RECONFIGURED TO ACCOMMODATE EXCLUSIVE TRANSIT LANES OR ALTERNATIVE LANE ARRANGEMENTS. ADDITIONAL RIGHT OF WAY MAY BE REQUIRED AT INTERSECTIONS TO ACCOMMODATE ULTIMATE IMPROVEMENTS FOR STATE HIGHWAYS SHALL CONFORM TO CALTRANS DESIGN STANDARDS.

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NOTE: THE CITY OF WILDOMAR HAS ADOPTED THE COUNTY OF RIVERSIDE'S GENERAL PLAN AND STANDARDS

## Roadway Cross Sections

Exhibit 8

## 4.0 – PROJECTED FUTURE TRAFFIC

The project proposes to construct a 1,112 seat sanctuary for church services on 24.31 gross acres along the north side of Glazebrook Road. Church services will be conducted on Sunday mornings from 8:30-10 AM and 10:30-12 PM with various events planned throughout the week. In order to anticipate the worst-case scenario, this study analyzes the road network based on a Sunday morning between 10:00 and 1:00 PM. Based on existing counts anticipated to capture the Sunday church services scheduled, the peak hour occurred from 12:00 (noon) to 1:00 PM which was used for this analysis.

### Project Trip Generation

To calculate vehicle trips forecast to be generated by the proposed project, *Institute of Transportation Engineers (ITE) 9<sup>th</sup> Edition* trip generation rates were used as shown in **Table 4**. **Table 5** summarizes the forecast trip generation based on the published ITE trip generation rates.

On a Sunday, the proposed project is forecast to generate approximately 2,057 average daily trips (ADT), with approximately 678 (339 inbound and 339 outbound) mid-day peak hour trips.

For comparison, a trip generation during the weekday was also prepared. As shown in **Table 5**, the proposed project is forecast to generate approximately 677 trips per day on an average weekday, with approximately 42 AM peak hour trips (26 inbound and 16 outbound), and 41 PM peak hour trips (20 inbound and 21 outbound). According to the trip generation table, the project generates more daily and peak hour traffic during a Sunday afternoon than during the weekday. Therefore, the analysis in this report is based on Sunday traffic to be conservative.

**Table 4**  
**ITE Trip Generation Rates**

Land Use	ITE Code	Trip Rate		AM Peak Hour Trips		PM Peak Hour Trips	
				Rate	In : Out	Rate	In : Out
Church	560	Weekday <sup>1</sup>	9.11 /KSF	0.56 /KSF	62% : 38%	0.55 /KSF	48% : 52%
		Sunday	1.85 /seat	0.61 /seat	50% : 50%	NA <sup>2</sup>	

Source: 2012 ITE Trip Generation Manual, 9<sup>th</sup> Edition

**Table 5**  
**Proposed Project Trip Generation**

Land Use	Intensity	ADT	AM Peak Hour			PM Peak Hour		
			Volume	In	Out	Volume	In	Out
Church	Weekday <sup>1</sup>	74,309 KSF	677	42	16	41	20	21
	Sunday	1,112 Seats	2,057	678	339	339	NA <sup>2</sup>	

<sup>1</sup>ITE only provides weekday rates based on square footage, however trip generation based on seats is expected to be more accurate for this land use. Square footage based on assumed lot coverage of 7% of gross acreage.

<sup>2</sup>Only one peak hour is anticipated to occur on a typical Sunday (in compliance with ITE). Therefore no PM peak hour rates are applied.

## **Project Trip Distribution and Assignment**

The project trip distribution was developed based on the existing roadway network and surrounding land uses, existing traffic patterns and access to regional routes such as Interstate 15 and 215.

**Exhibit 9** illustrates the project trip distribution under existing and near-term (existing plus ambient plus cumulative) conditions. Based on consultation with City staff, the Westpark Promenade project is approved by City staff. Although the timing of construction is unknown, the analysis assumes Westpark Street within the Westpark Promenade project is built and extended south which ultimately connects to the intersection of Arya Drive and Clinton Keith Road. Based on this information and input from City staff, the analysis assumes approximately 15% of church traffic use Westpark Street to access Clinton Keith Road as an alternative to using George Avenue.

Utilizing the project trip distribution shown in **Exhibit 9**, the forecast project-generated trips were assigned to the roadway network. **Exhibit 10** and **Exhibit 11** show the daily project trip assignment and Mid-day peak hour project trip assignment, respectively.

## **Modal Split**

The use of public transit, bicycling and walking could potentially reduce project-related traffic, however, this study has not taken any trip reductions to provide a conservative analysis.

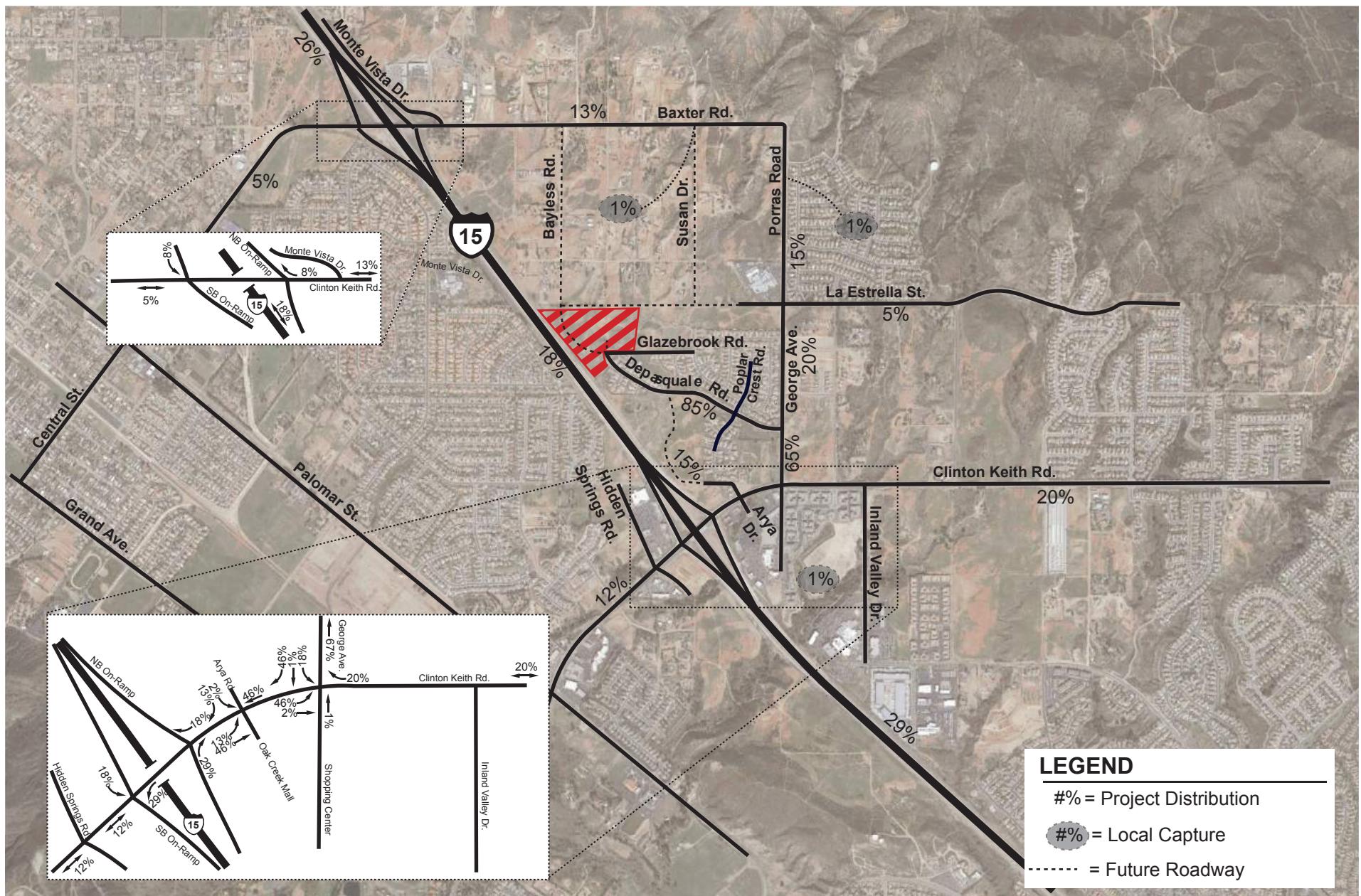
## **Ambient Growth**

Ambient growth refers to a growth rate applied to the existing volumes to account for other general traffic growth in and around the study area. For this analysis, the ambient growth rate is based on a 2% annual growth for three (3) years to represent the 2019 traffic conditions. The total ambient growth is 6% (growth of 2% per year from 2016 to 2019 i.e. 3 years). This ambient growth rate (6%) is added to existing traffic (daily and peak hour) volumes to account for general traffic growth not reflected by cumulative projects.

## **Site Access and Circulation**

The proposed church site will provide two (2) points of vehicular access. The primary access to and from the project site will be a full-access driveway at the intersection of Depasquale Road and Glazebrook Road. The secondary access will be a full-access driveway on Glazebrook Road approximately 230 feet east of Depasquale Road. The project will be responsible for modifying the intersection of Depasquale Road and Glazebrook Road to include a project driveway connection adding the north leg of the intersection and extending Glazebrook to the west then along the I-15 freeway right-of-way up to the northern project boundary.

This analysis assumes all trips entering and exiting the site use Depasquale Road towards George Avenue. Although some traffic may use Glazebrook Road and travel south on Susan Drive, the majority of traffic is expected to use Depasquale Road which provides a direct path to George Avenue rather than travel on nearby residential streets such as Dulock Road, Doheny Circle, or Bovard Street to access George Avenue.



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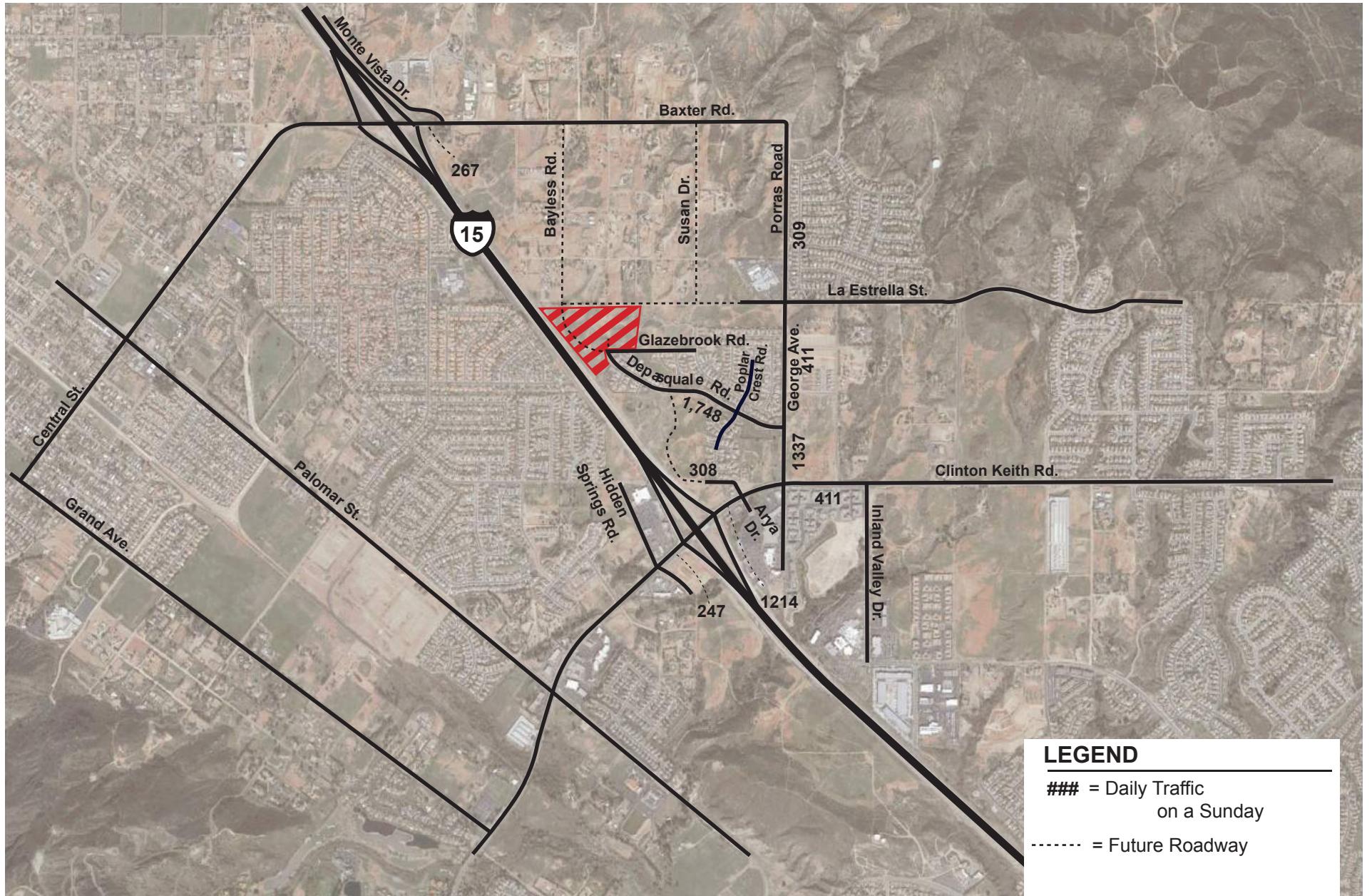
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## Project Traffic Distribution

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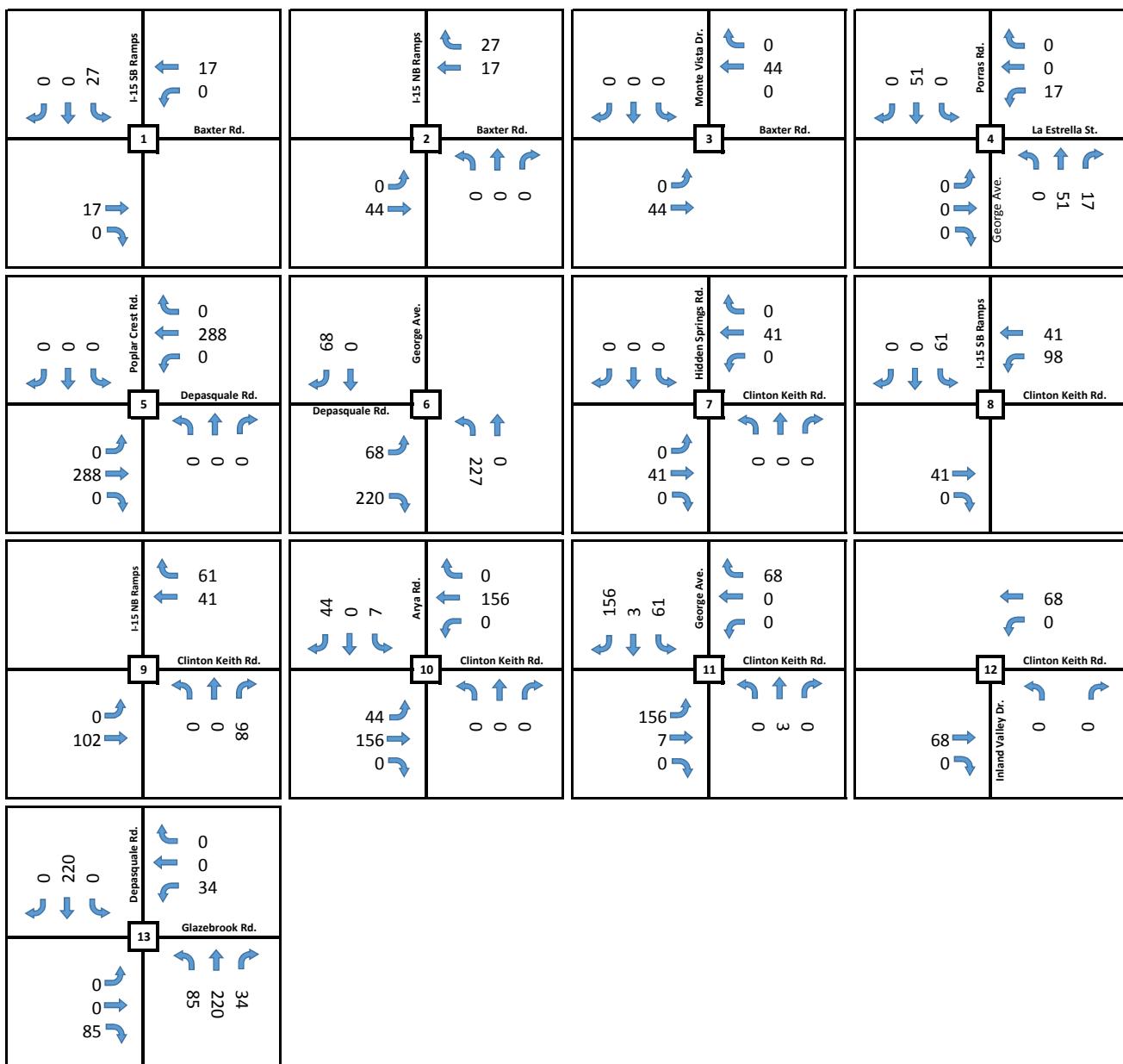
Exhibit 9



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*Notes:*

XX = Mid-Day Peak Hour Volumes

## Cumulative Traffic

To determine “cumulative” traffic in the project study area, forecast project traffic associated with City of Wildomar approved or pending projects were identified and evaluated. The City of Wildomar provided a list of projects that could potentially generate traffic within the study area by the project’s opening year (2019). Michael Baker reviewed each cumulative project and determined that a total of twenty-one (21) cumulative projects added traffic to the study area. **Table 6** includes a list of cumulative projects and the trips expected to be generated by each project. More detailed land use and trip generation information pertaining to the specific cumulative development projects identified by the City to be considered in this traffic study is provided in **Appendix F**.

As presented in **Table 6**, the cumulative projects are forecast to generate approximately 44,252 average weekend daily trips, which includes approximately 4,741 weekend peak hour trips (2,399 inbound and 2,342 outbound). The trips generated by the cumulative projects are based on weekend or Sunday trip rates per the *ITE Trip Generation*, 9<sup>th</sup> Edition.

The locations of the cumulative projects are provided in **Exhibit 12**. The daily trips generated by the cumulative projects during the weekend are illustrated in **Exhibit 13**. **Exhibit 14** shows the mid-day peak hour trips generated by the cumulative projects during the weekend.

**Table 6**  
**Cumulative Projects List**

ID No.	Planning Application No.	Project Name	Land Use	ITE Code <sup>1</sup>	Intensity	ADT	Peak Hour Volume	In	Out
1	12-0053 (PM 36492)	Rancon Medical & Retail Center	Medical Office	720	31.42 KSF	49	13	7	6
			Commercial	820	19.40 KSF	490	61	30	31
			Fast Food w/ Drive Thru	934	3.00 KSF	1,628	218	105	113
			Office	710	42.42 KSF	45	7	4	3
			Business Park <sup>2</sup>	770	294.90 KSF	Non Trip Generating			
			Pass-by Reduction (25% Commercial)			-122	-15	-7	-8
			Pass-by Reduction (50% Fast Food)			-814	-109	-52	-57
2	14-0069	Grove Park Mixed Use	Internal Trips (10%)			-221	-30	-14	-15
			Subtotal			1,053	144	71	73
			Commercial	820	50.00 KSF	1,262	156	76	80
			Apartment	220	162 DU	949	83	41	41
3	15-0013	Clinton Keith Village Retail Center	Pass-by Reduction (34%)			-752	-81	-40	-41
			Subtotal			1,459	157	78	80
			Commercial	820	31.09 KSF	785	97	48	49
			Fast Food w/ Drive Thru	934	5.94 KSF	3,224	432	207	225
4	13-0082 (TPM 36122)	Westpark Promenade	Gas Station with Market <sup>3</sup>	945	12 VFP	1,953	127	63	63
			Pass-by Reduction (25%)			-1,490	-164	-80	-84
			Subtotal			4,471	492	239	253
			Supermarket	850	85.00 KSF	14,147	1,609	805	805
5	08-0072 (PM 36080)	Wildomar Square Retail Center	Commercial	820	17.35 KSF	438	54	27	28
			Restaurant	932	16.00 KSF	2,109	295	162	133
			Condominium	230	191 DU	924	86	42	44
			Pass-by Reduction (10%)			-1,762	-204	-104	-101
			Internal Trips (10%)			-1,762	-204	-104	-101
			Subtotal			14,095	1,636	828	807

**Table 6**  
**Cumulative Projects List cont.**

ID No.	Planning Application No.	Project Name	Land Use	ITE Code <sup>1</sup>	Intensity	ADT	Peak Hour Volume	In	Out	
6	08-0166	Stable Lanes Retail Center	Commercial	820	20.89 KSF	527	65	32	33	
			Daycare	565	9.31 KSF	58	16	10	6	
					Subtotal	585	81	42	39	
7	14-0002	Baxter Village Mixed Use	Apartment	220	204 DU	1,195	104	52	52	
			Commercial	820	75.00 KSF	1,893	234	115	119	
			SFDR	210	67 DU	578	58	31	27	
					Pass-by Reduction (34%)	-1,246	-135	-67	-67	
					Internal Trips (12%)	-440	-47	-24	-24	
					Subtotal	1,980	214	106	107	
8	12-0194	Cornerstone Church Preschool & Admin. Bldg.	Preschool	565	17.14 KSF	106	29	18	11	
			Administration (Church) <sup>4</sup>	560	23.02 KSF				Non Trip Generating	
					Subtotal	106	29	18	11	
9	08-0179 (TPM 32557)	Bundy Canyon Plaza <sup>5</sup>	Gas Station with Market <sup>3</sup>	945	Complete					
			Fast Food w/ Drive Thru	934	6.20 KSF					
			Commercial	820	33.80 KSF					
10	13-0086 (PM 36652)	Walmart Retail Project	Freestanding Discount Superstore	813	185.99 KSF	10,438	963	491	472	
			Commercial	820	7.80 KSF	197	24	12	12	
					Pass-by Reduction (49% Commercial only)	-96	-12	-6	-6	
					Internal Trips (20% Commercial only)	-39	-5	-2	-2	
					Subtotal	10,499	971	495	476	
11	14-040	Horizons/Strata Mixed Use	Assisted Living	254	86 Beds	210	35	15	20	
			Condominium	230	138 DU	668	62	30	32	
					Subtotal	878	97	46	52	
12	15-0051	Baxter/Susan GPA/TTM	SFDR	210	48 DU	414	41	22	19	
13	15-0123	Nova Homes Residential	SFDR	210	77 DU	664	66	35	31	
14	14-0081 (TTM 31479)	Diversified Pacific Homes	SFDR	210	51 DU	440	44	23	21	
15	13-0089	Villa Siena Apartments	Apartment	220	170 DU	996	87	43	43	
16	12-0364 (TTM 36497)	Lennar Residential (Briarwood)	SFDR	210	67 DU	578	58	31	27	
17	TTM 32535 PPN 14-0100	Lennar North Ranch	SFDR	210	84 DU	724	72	38	34	
18	TTM 31667	Beazer Homes	SFDR	210	108 DU	931	93	49	44	
19	TTM 31896	Rhoades Residential	SFDR	210	131 DU	1,129	113	60	53	
20	TM 25122 & TM 32078	Richmond American	SFDR	210	149 DU	1,284	128	68	60	
21	16-0070	Camelia Townhouse Project	Condominium	230	163 DU	789	73	36	37	
<b>Total Cumulative Project Trips</b>							44,252	4,741	2,399	2,342

Notes:

ADT = Average Daily Trips; SFDR = Single Family Detached Residential; VHDR = Very High Density Residential;

DU = Dwelling Units; VFP = Vehicle Fueling Pumps; KSF = Thousand Square Feet

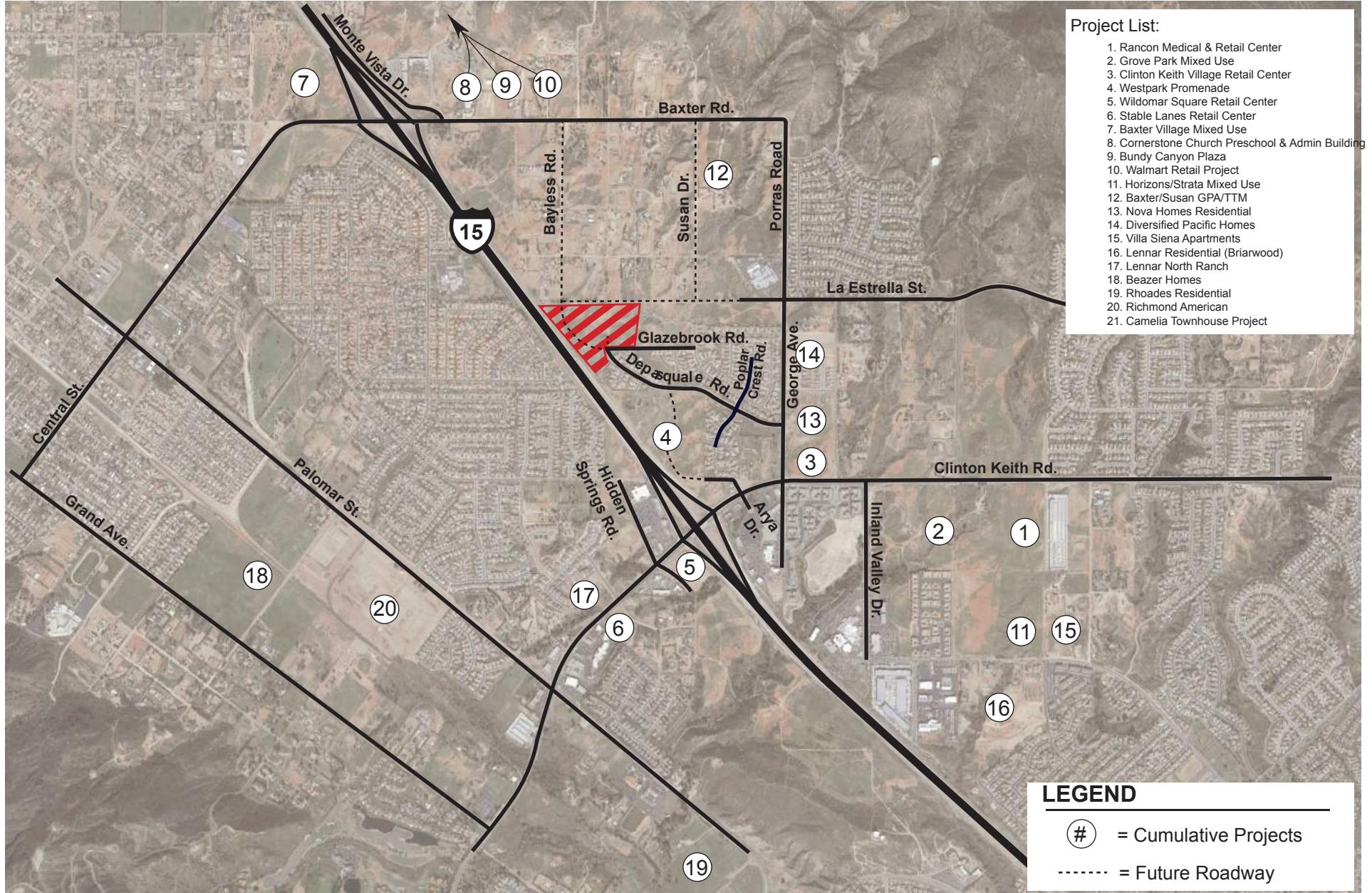
<sup>1</sup> Trip generation weekend or Sunday rates based on ITE Trip Generation 9th Edition

<sup>2</sup>For purposes of this analysis, Rancon business park is considered a future development and not included in the cumulative project's trip generation.

<sup>3</sup>Sunday rates for a gas station are not available, therefore weekday rates were conservatively used.

<sup>4</sup>Church administration building is expected to be closed on Sundays and not expected to generate trips.

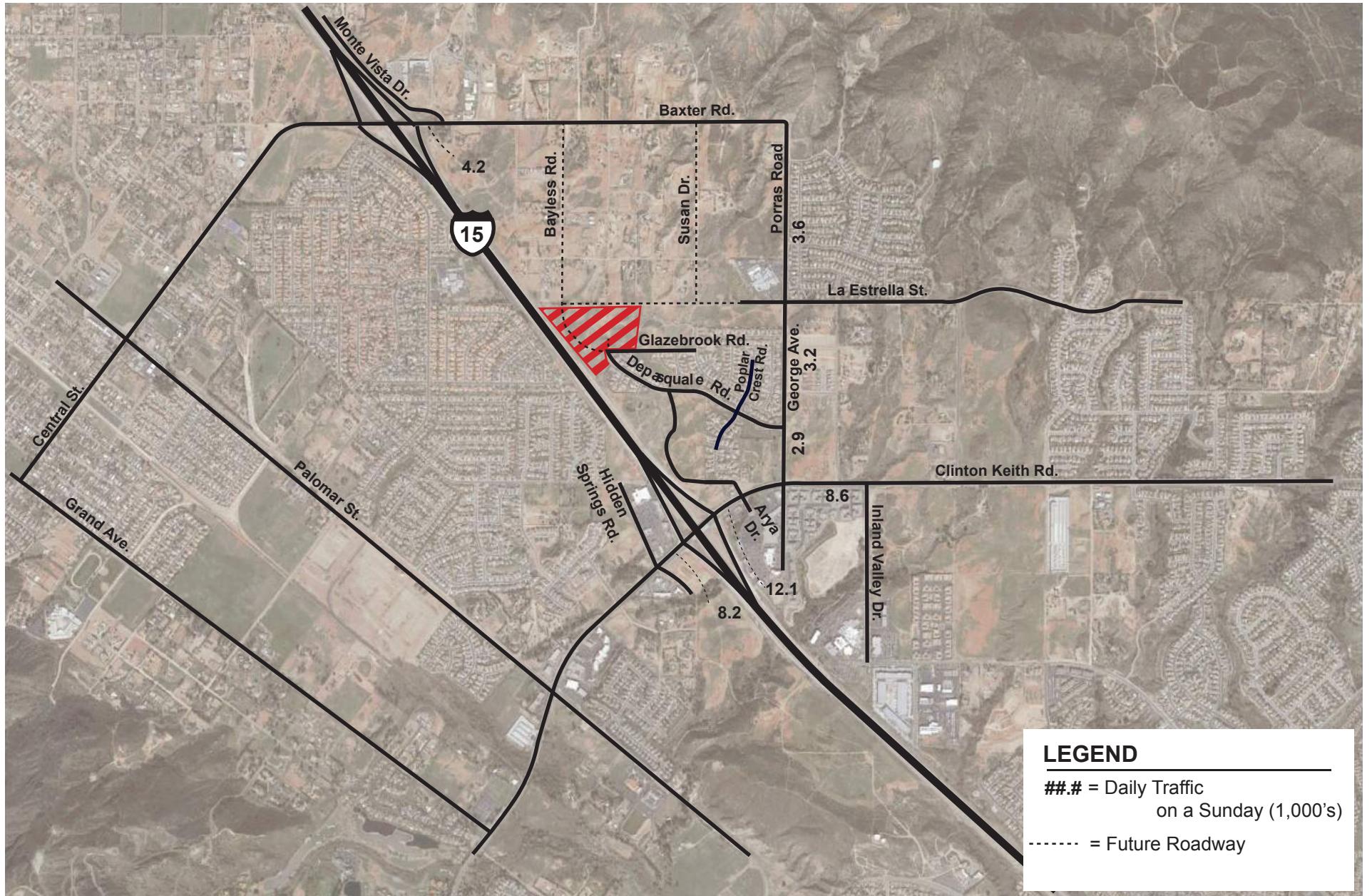
<sup>5</sup>Traffic from Bundy Canyon Plaza is not expected to contribute to the study area and therefore not included in cumulative project's trip generation.



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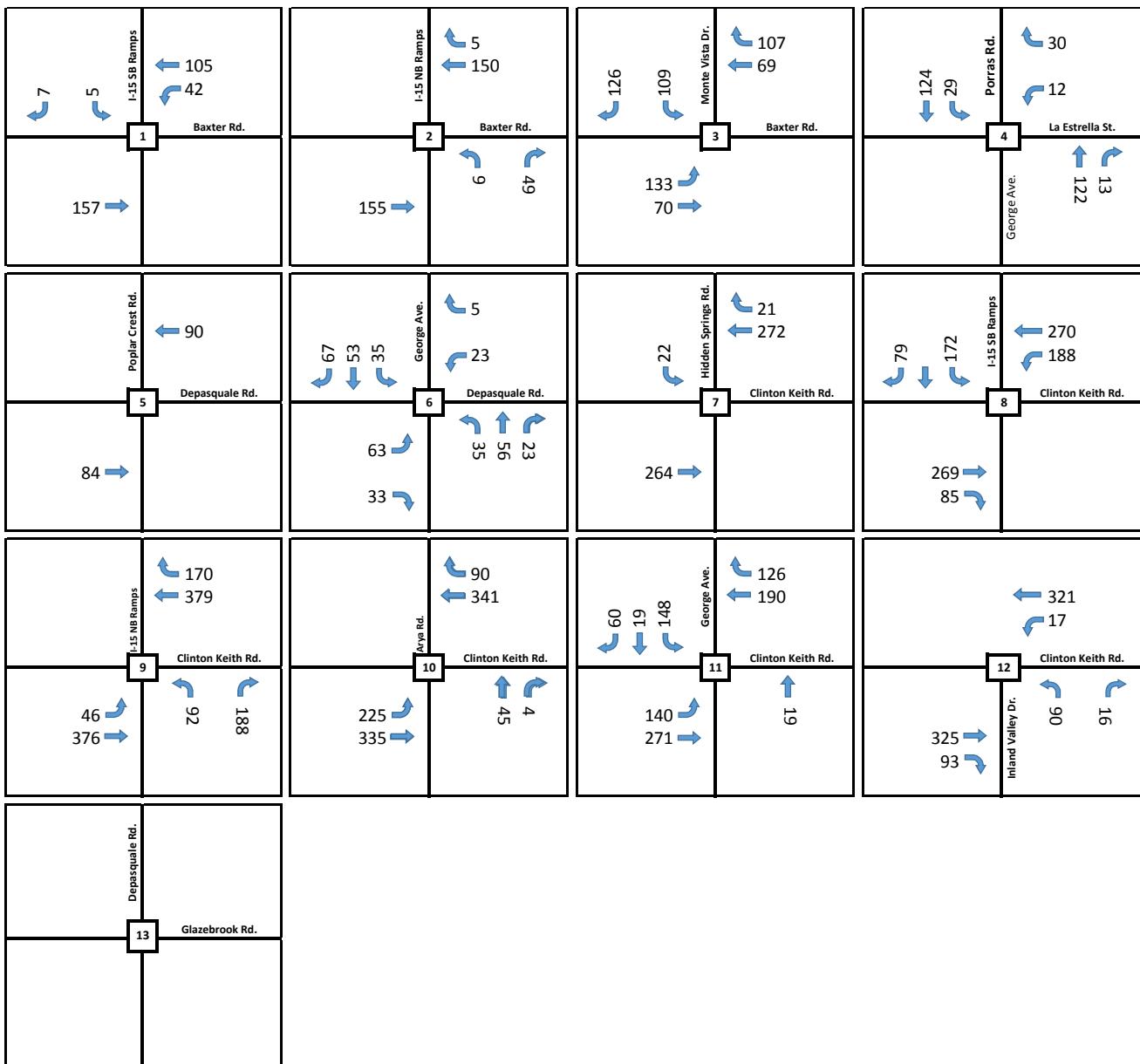




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Notes:

XX = Mid-Day Peak Hour Volumes

## 5.0 – TRAFFIC ANALYSIS

For all future scenarios, the only new road network segment included in this analysis is Westpark Street, per direction by City staff.

### Existing Plus Project Conditions

Existing Plus Project traffic volumes are derived by adding the estimated project trips to existing Sunday traffic volumes. **Exhibit 15** shows forecast Existing Plus Project average daily traffic volumes on a Sunday. **Exhibit 16** shows forecast Existing Plus Project conditions mid-day peak hour traffic volumes at the study intersections.

**Table 7** summarizes Existing Plus Project conditions mid-day peak hour LOS of the study intersections compared to Existing Conditions; detailed LOS analysis sheets are contained in **Appendix G**.

As shown in **Table 7**, consistent with existing conditions, all study intersections are forecast to operate at acceptable levels of service (LOS D or better) during the mid-day peak hour with the addition of project-related traffic to existing traffic volumes. Therefore, no significant impacts were identified under Existing Plus Project conditions and no mitigation measures are required.

### Existing Plus Ambient Plus Project Conditions

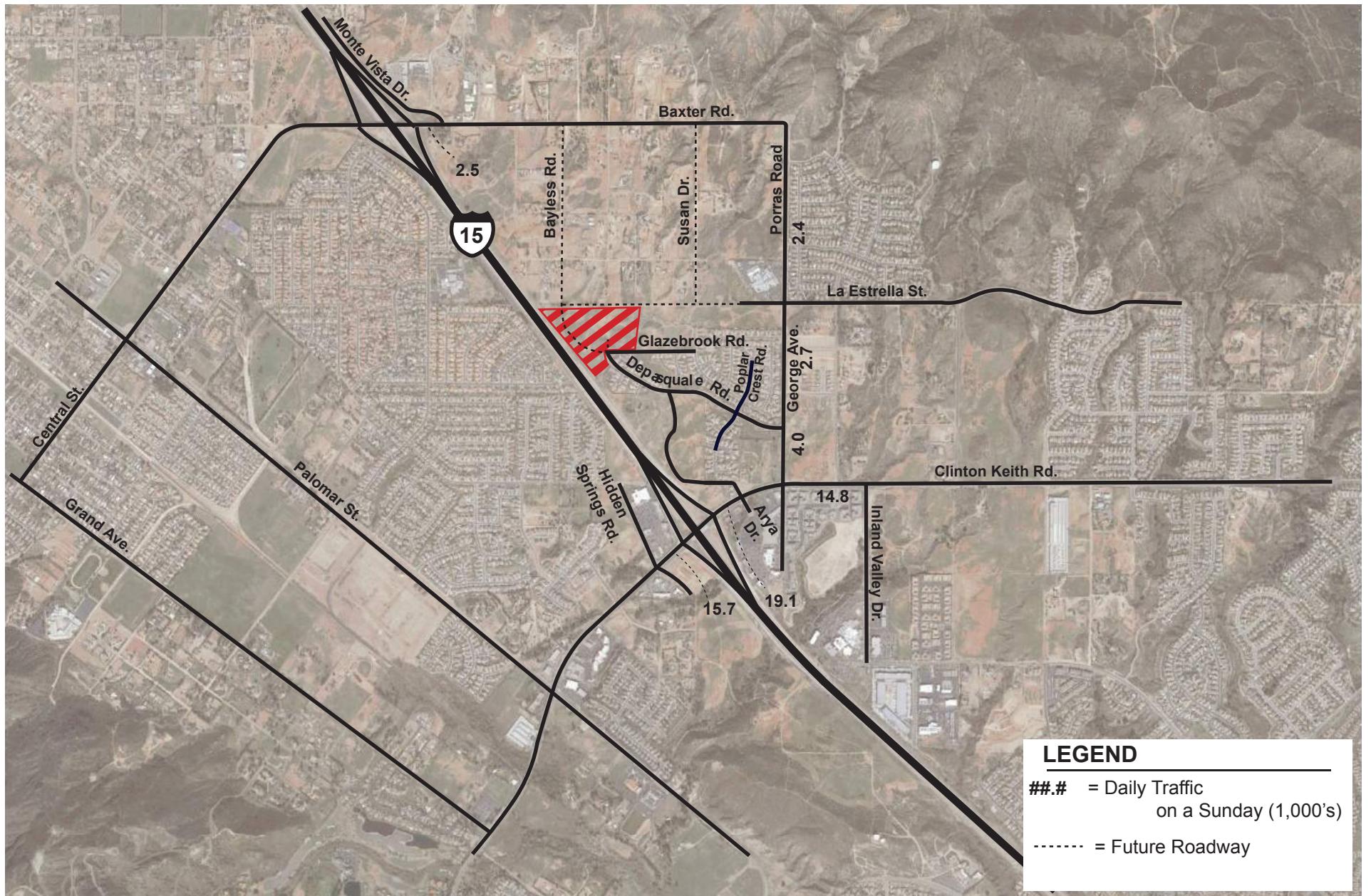
To derive Existing Plus Ambient Plus Project traffic volumes, an annual average growth rate of two percent per year (a total of 6%) was applied to existing traffic volumes to account for general background traffic growth also known as Ambient Growth in the vicinity of the project site in accordance with City staff direction. Project-related traffic volumes were then added to the Existing Plus Ambient traffic volumes to obtain the Existing Plus Ambient Plus Project volumes.

**Exhibit 17** shows the Existing Plus Ambient Plus Project average daily traffic volumes on a Sunday. **Exhibit 18** shows Existing Plus Ambient Plus Project conditions mid-day peak hour traffic volumes at the study intersections.

**Table 8** summarizes Existing Plus Ambient Plus Project conditions mid-day peak hour LOS of the study intersections. Detailed LOS analysis sheets are contained in **Appendix H**. As shown, all study intersections are forecast to operate at acceptable levels of service (LOS D or better) during the mid-day peak hour on a Sunday under the Existing Plus Ambient Plus Project conditions. Therefore, no significant impacts are identified and no mitigation measures are required.

### Existing Plus Ambient Plus Cumulative Conditions

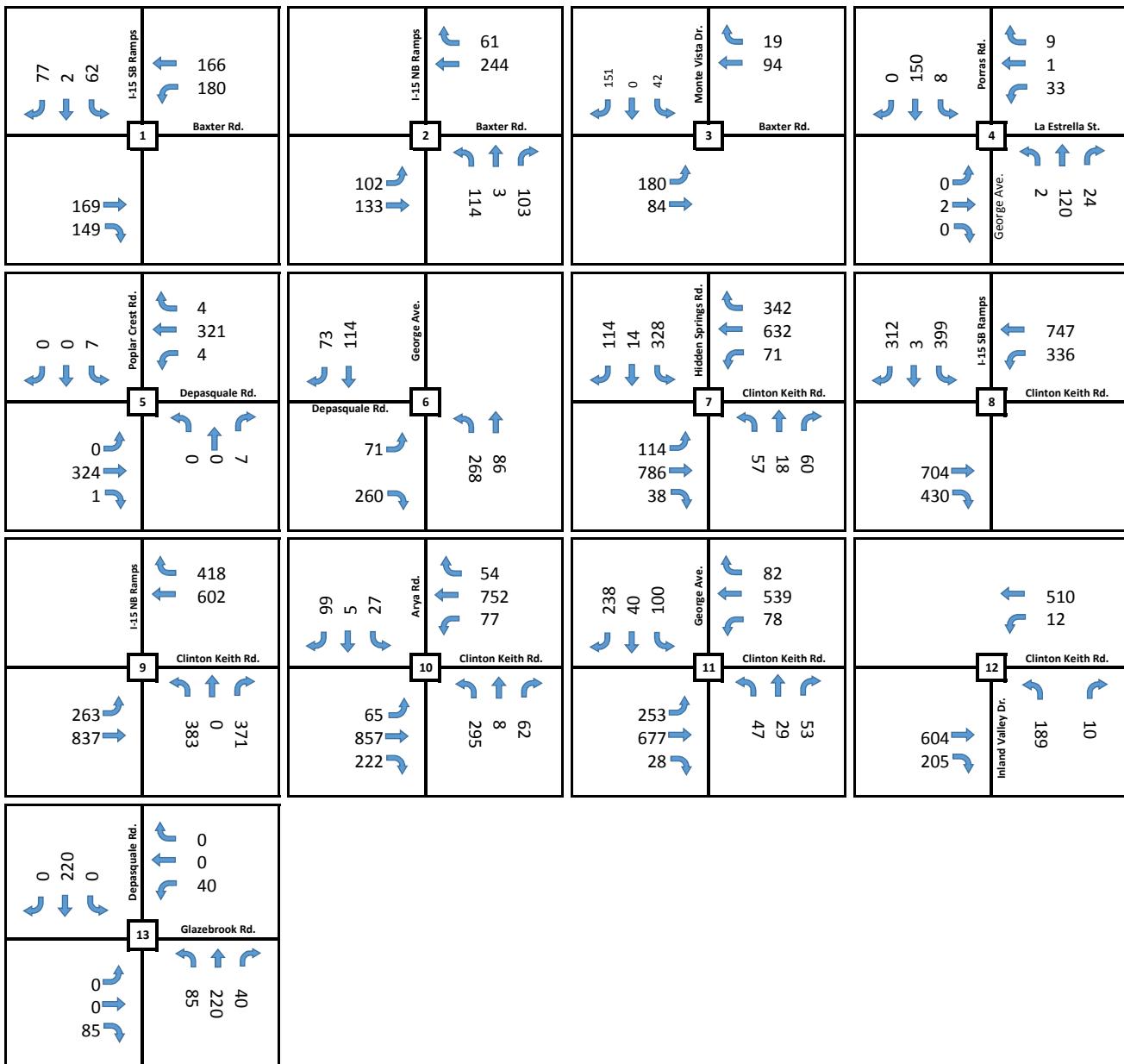
Existing Plus Ambient Plus Cumulative traffic volumes were derived by adding trips associated with twenty-one (21) cumulative projects to Existing Plus Ambient without project traffic volumes. Cumulative project traffic is assumed to generate traffic into the study area by the project's opening year (approximately 2019).



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Notes:

XX = Mid-Day Peak Hour Volumes

**Table 7**  
**Existing Plus Project Mid-Day (Sunday) Peak Hour Intersection Conditions**

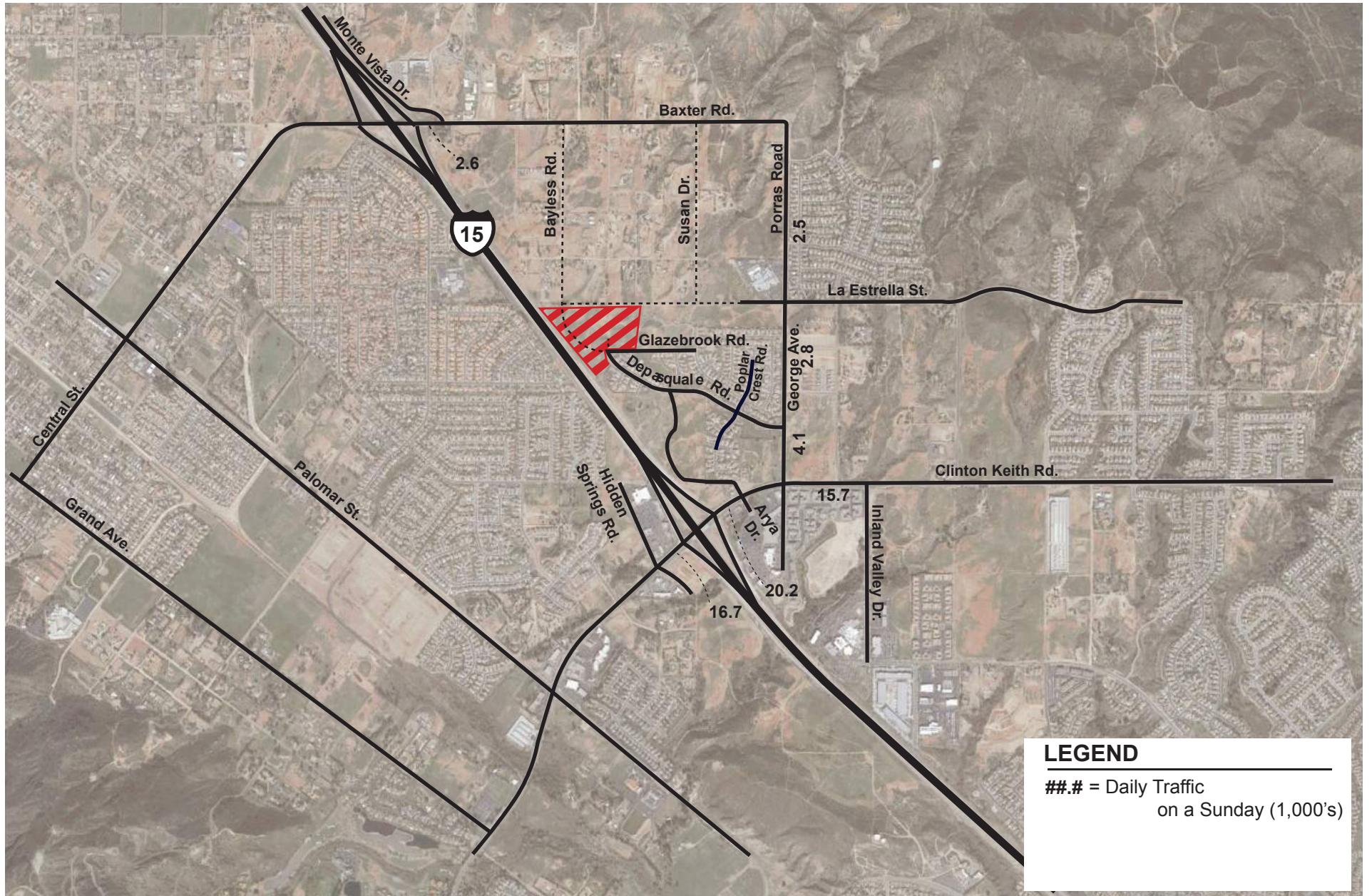
Study Intersection	Traffic Control	Existing Conditions	Existing Plus Project Conditions	Change in Delay (sec.)	Significant Impact?
		Midday Delay <sup>1</sup> - LOS	Midday Delay <sup>1</sup> - LOS		
1 - I-15 SB Ramps / Baxter Road	AWSC	10.4 - B	10.9 - B	0.5	No
2 - I-15 NB Ramps / Baxter Road	AWSC	10.3 - B	11.1 - B	0.8	No
3 - Baxter Road / Monte Vista Drive	OWSC	7.4 - A	11.9 - B	4.5	No
4 - La Estrella Street / Porras Road - George Avenue	AWSC	7.2 - A	7.8 - A	0.6	No
5 - Depasquale Road / Poplar Crest Road	TWSC	9.1 - A	15.8 - C	6.7	No
6 - Depasquale Road / George Avenue	OWSC	9.2 - A	10.5 - B	1.3	No
7 - Clinton Keith Road / Hidden Springs Road	Signal	23.9 - C	24.0 - C	0.1	No
8 - I-15 SB Ramps / Clinton Keith Road	Signal	19.9 - B	21.5 - C	1.6	No
9 - I-15 NB Ramps / Clinton Keith Road	Signal	23.2 - C	24.0 - C	0.8	No
10 - Clinton Keith Road / Arya Road	Signal	22.5 - C	28.3 - C	5.8	No
11 - Clinton Keith Road / George Avenue	Signal	16.8 - B	24.8 - C	8.0	No
12 - Clinton Keith Road / Inland Valley Drive	Signal	13.0 - B	13.6 - B	0.6	No
13 - Glazebrook Road / Depasquale Road	OWSC <sup>2</sup>	7.3 - A	17.5 - C	10.2	No

Note: Deficient intersection operation indicated in **bold**.

<sup>1</sup> Seconds of delay per vehicle.

<sup>2</sup> Intersection control is modified to a two-way-stop-controlled intersection with the addition of the project.

LOS is level of service.

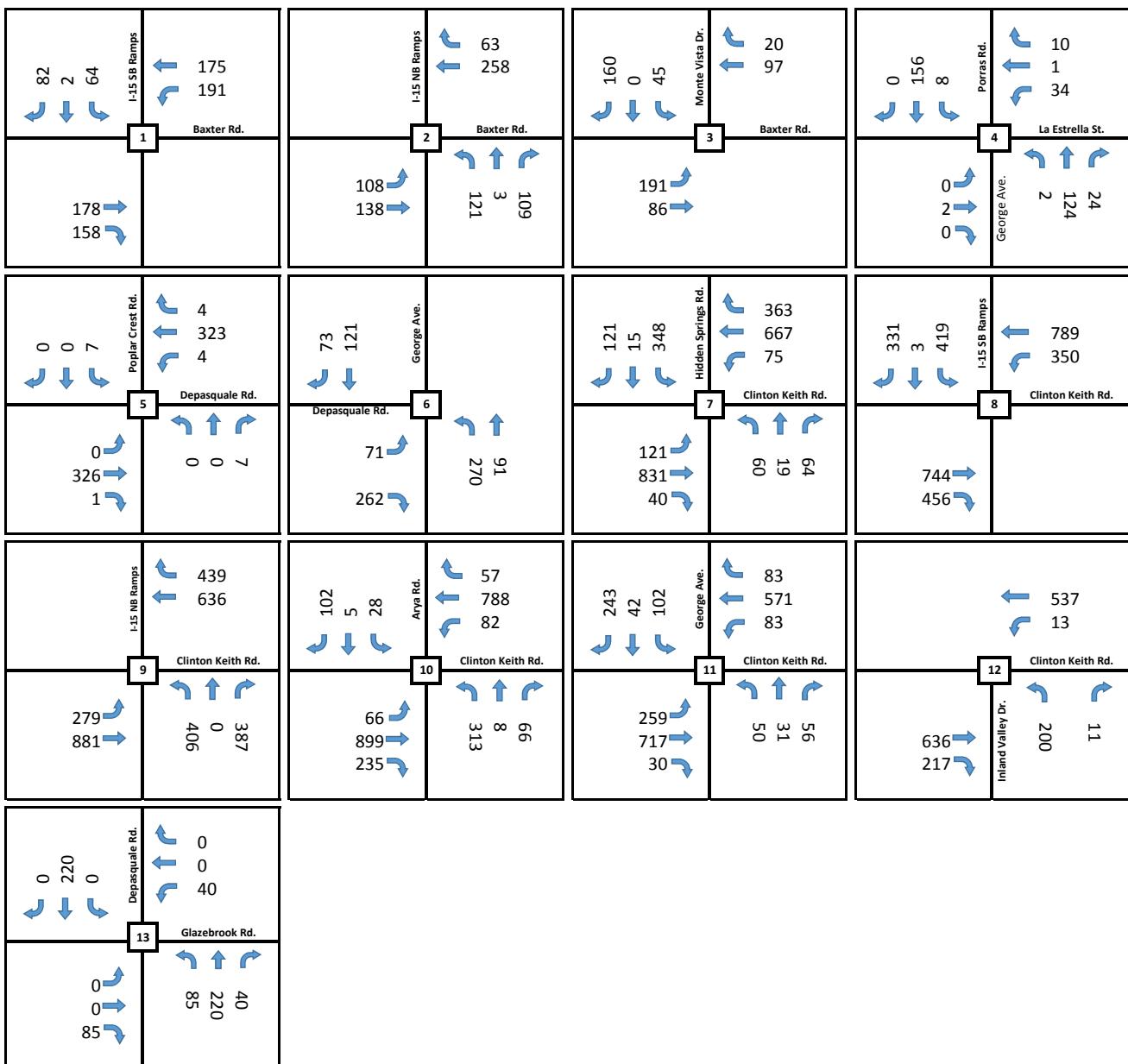


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## Existing Plus Ambient Plus Project Daily Traffic (Sunday)



Notes:

XX = Mid-Day Peak Hour Volumes

**Table 8**  
**Existing Plus Ambient Plus Project Mid-Day (Sunday)**  
**Peak Hour Intersection Conditions**

Study Intersection	Traffic Control	Existing Conditions	Existing Plus Ambient Plus Project Conditions	Change in Delay (sec.)	Significant Impact?
		Midday Delay <sup>1</sup> - LOS	Midday Delay <sup>1</sup> - LOS		
1 - I-15 SB Ramps / Baxter Road	AWSC	10.4 - B	11.5 - B	1.1	No
2 - I-15 NB Ramps / Baxter Road	AWSC	10.3 - B	11.7 - B	1.4	No
3 - Baxter Road / Monte Vista Drive	OWSC	7.4 - A	12.3 - B	4.9	No
4 - La Estrella Street / Porras Road - George Avenue	AWSC	7.2 - A	7.9 - A	0.7	No
5 - Depasquale Road / Poplar Crest Road	TWSC	9.1 - A	15.9 - C	6.8	No
6 - Depasquale Road / George Avenue	OWSC	9.2 - A	10.7 - B	1.5	No
7 - Clinton Keith Road / Hidden Springs Road	Signal	23.9 - C	25.2 - C	1.3	No
8 - I-15 SB Ramps / Clinton Keith Road	Signal	19.9 - B	21.8 - C	1.9	No
9 - I-15 NB Ramps / Clinton Keith Road	Signal	23.2 - C	24.4 - C	1.2	No
10 - Clinton Keith Road / Arya Road	Signal	22.5 - C	29.8 - C	7.3	No
11 - Clinton Keith Road / George Avenue	Signal	16.8 - B	24.9 - C	8.1	No
12 - Clinton Keith Road / Inland Valley Drive	Signal	13.0 - B	14.1 - B	1.1	No
13 - Glazebrook Road / Depasquale Road	OWSC <sup>2</sup>	7.3 - A	17.0 - C	9.7	No

Note: Deficient intersection operation indicated in **bold**.

<sup>1</sup> Seconds of delay per vehicle.

<sup>2</sup> Intersection control is modified to a two-way-stop-controlled intersection with the addition of the project.

LOS is level of service.

### **Existing Plus Ambient Plus Cumulative Conditions cont.**

**Exhibit 19** shows the Existing Plus Ambient Plus Cumulative conditions without project average daily traffic volumes on a Sunday. **Exhibit 20** shows Existing Plus Ambient Plus Cumulative conditions without project mid-day peak hour traffic volumes at the study intersections.

**Table 9** summarizes Existing Plus Ambient Plus Cumulative conditions without project mid-day peak hour LOS of the study intersections. Detailed LOS analysis sheets are contained in **Appendix I**.

As shown, all study intersections are forecast to operate at acceptable levels of service (LOS D or better) during the mid-day peak hour on a Sunday under the Existing Plus Ambient Plus Cumulative conditions with the exception of two (2) intersections. The following intersections are forecast to operate at deficient levels of service based on the existing geometry and traffic controls:

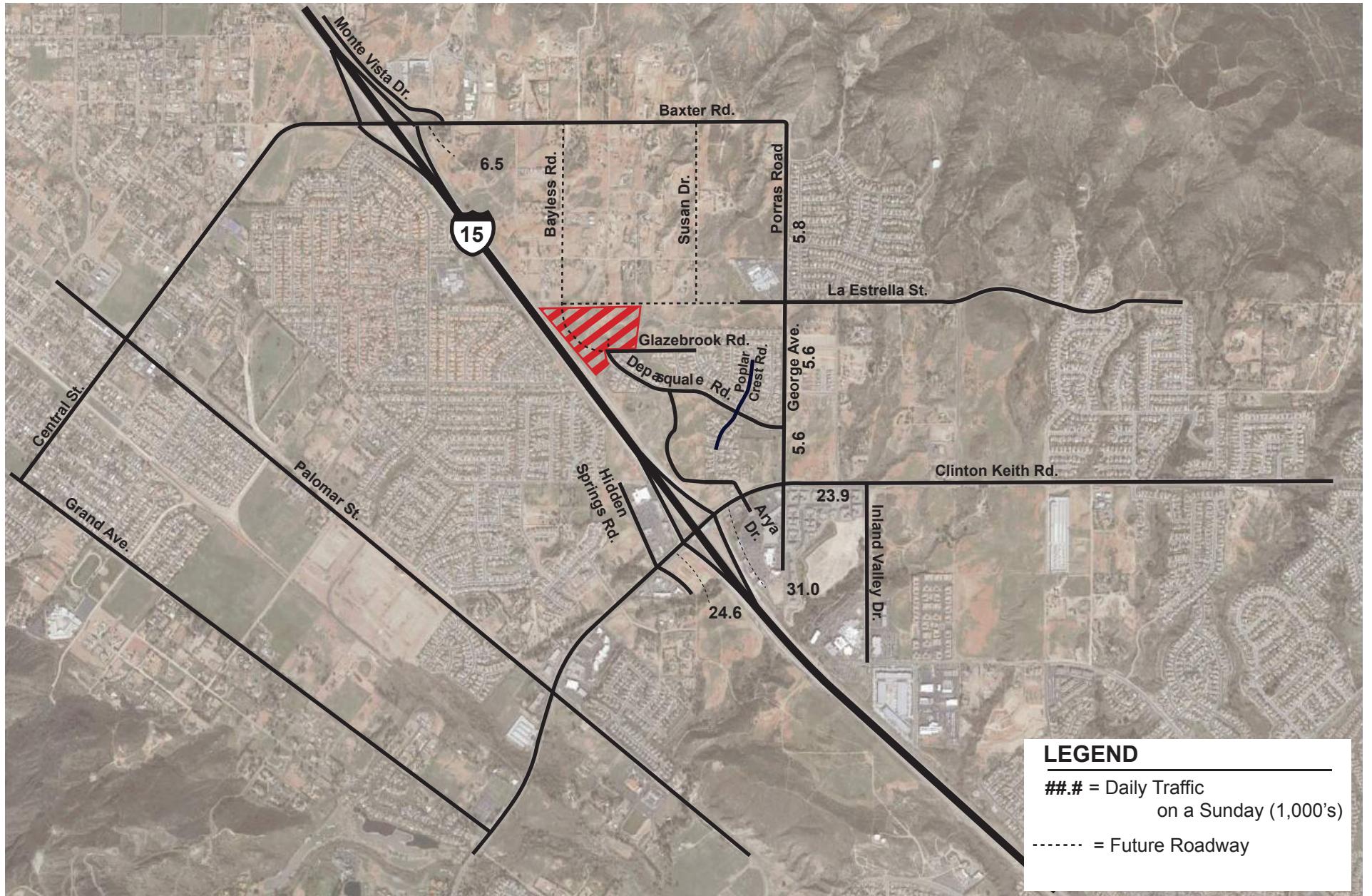
- Int. 3 – Baxter Road / Monte Vista Drive..... LOS F
- Int. 10 – Clinton Keith Road / Arya Road..... LOS F

Queuing was analyzed at the intersection of Baxter Road / Monte Vista Drive due to the proposed mitigation and the neighboring intersection of I-15 northbound ramps / Baxter Road. As shown in **Table 10**, there is adequate queue storage provided along Baxter Road except for the eastbound left-turn lane at Baxter Road / Monte Vista Drive. Vehicular peak hour volumes for this turn movement are high due to a few cumulative projects forecast to add traffic onto Monte Vista Drive. However, forecasted turn movement volumes and queuing at this intersection should be re-evaluated prior to the design of the signal and eastbound left-turn lane.

### **Existing Plus Ambient Plus Cumulative Plus Project Conditions**

To derive the Existing Plus Ambient Plus Cumulative Plus Project conditions, project-related traffic volumes were added to the Existing Plus Ambient Plus Cumulative without project volumes. **Exhibit 21** shows the Existing Plus Ambient Plus Cumulative Plus Project average daily traffic volumes on a Sunday. **Exhibit 22** shows mid-day peak hour traffic volumes under the Existing Plus Ambient Plus Cumulative Plus Project conditions.

**Table 11** summarizes mid-day peak hour LOS of the study intersections under the Existing Plus Ambient Plus Cumulative Without and With Project conditions. As shown, all study intersections are forecast to operate at acceptable levels of service (LOS D or better) during the mid-day peak hour on a Sunday under the Existing Plus Ambient Plus Cumulative Plus Project conditions with the exception of three (3) intersections. Detailed LOS analysis sheets are contained in **Appendix J**.

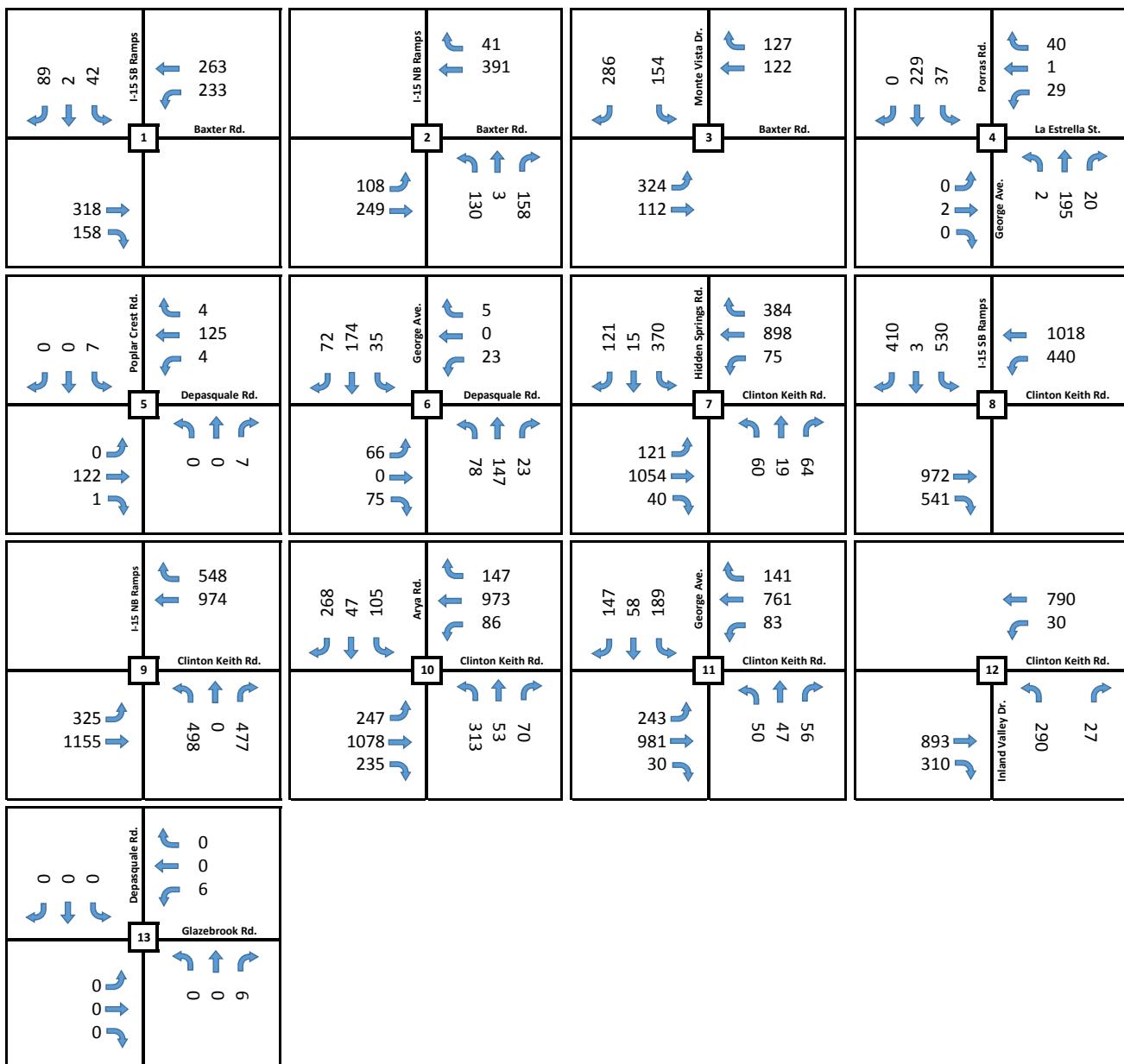


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## Existing Plus Ambient Plus Cumulative Daily Traffic (Sunday)



*Notes:*

XX = Mid-Day Peak Hour Volumes

**Table 9**  
**Existing Plus Ambient Plus Cumulative**  
**Mid-Day (Sunday) Peak Hour Intersection Conditions**

Study Intersection	Traffic Control	Existing Plus Ambient Plus Cumulative Conditions Midday
		Delay <sup>1</sup> - LOS
1 - I-15 SB Ramps / Baxter Road	AWSC	18.6 - C
2 - I-15 NB Ramps / Baxter Road	AWSC	19.9 - C
3 - Baxter Road / Monte Vista Drive (without improvements)	OWSC	<b>108.9 - F</b>
4 - La Estrella Street / Porras Road - George Avenue	AWSC	9.7 - A
5 - Depasquale Road / Poplar Crest Road	TWSC	11.7 - B
6 - Depasquale Road / George Avenue	TWSC	10.9 - B
7 - Clinton Keith Road / Hidden Springs Road	Signal	28.2 - C
8 - I-15 SB Ramps / Clinton Keith Road	Signal	26.0 - C
9 - I-15 NB Ramps / Clinton Keith Road	Signal	26.5 - C
10 - Clinton Keith Road / Arya Road (without improvements)	Signal	<b>95.8 - F</b>
11 - Clinton Keith Road / George Avenue	Signal	31.8 - C
12 - Clinton Keith Road / Inland Valley Drive	Signal	15.8 - B
13 - Glazebrook Road / Depasquale Road	OWSC	7.3 - A

Note: Deficient intersection operation indicated in **bold**.

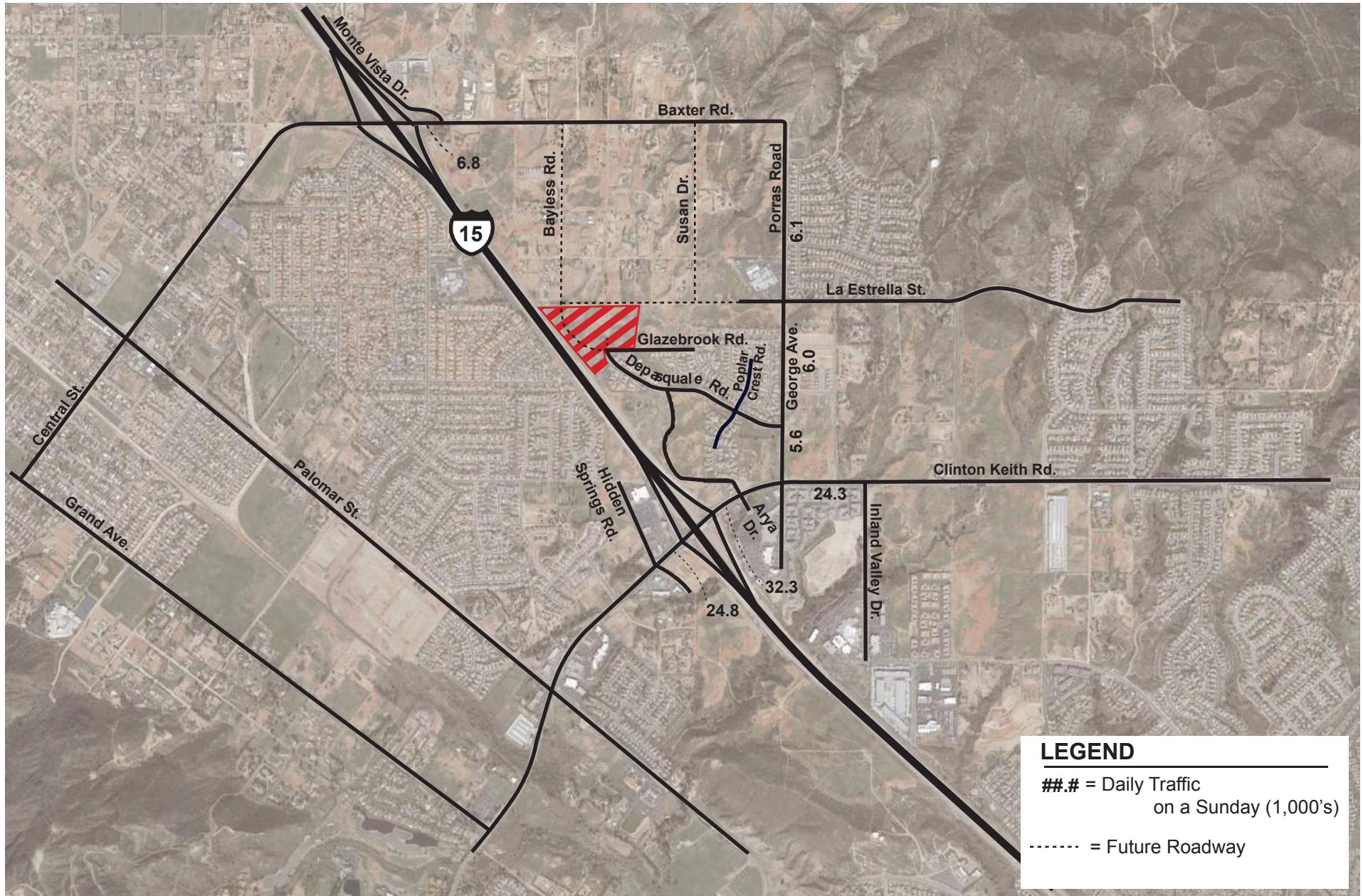
<sup>1</sup> Average seconds of delay per vehicle.

LOS is level of service.

TWSC = Two-Way Stop Control

AWSC = All-Way Stop Control

OWSC = One-Way Stop Control

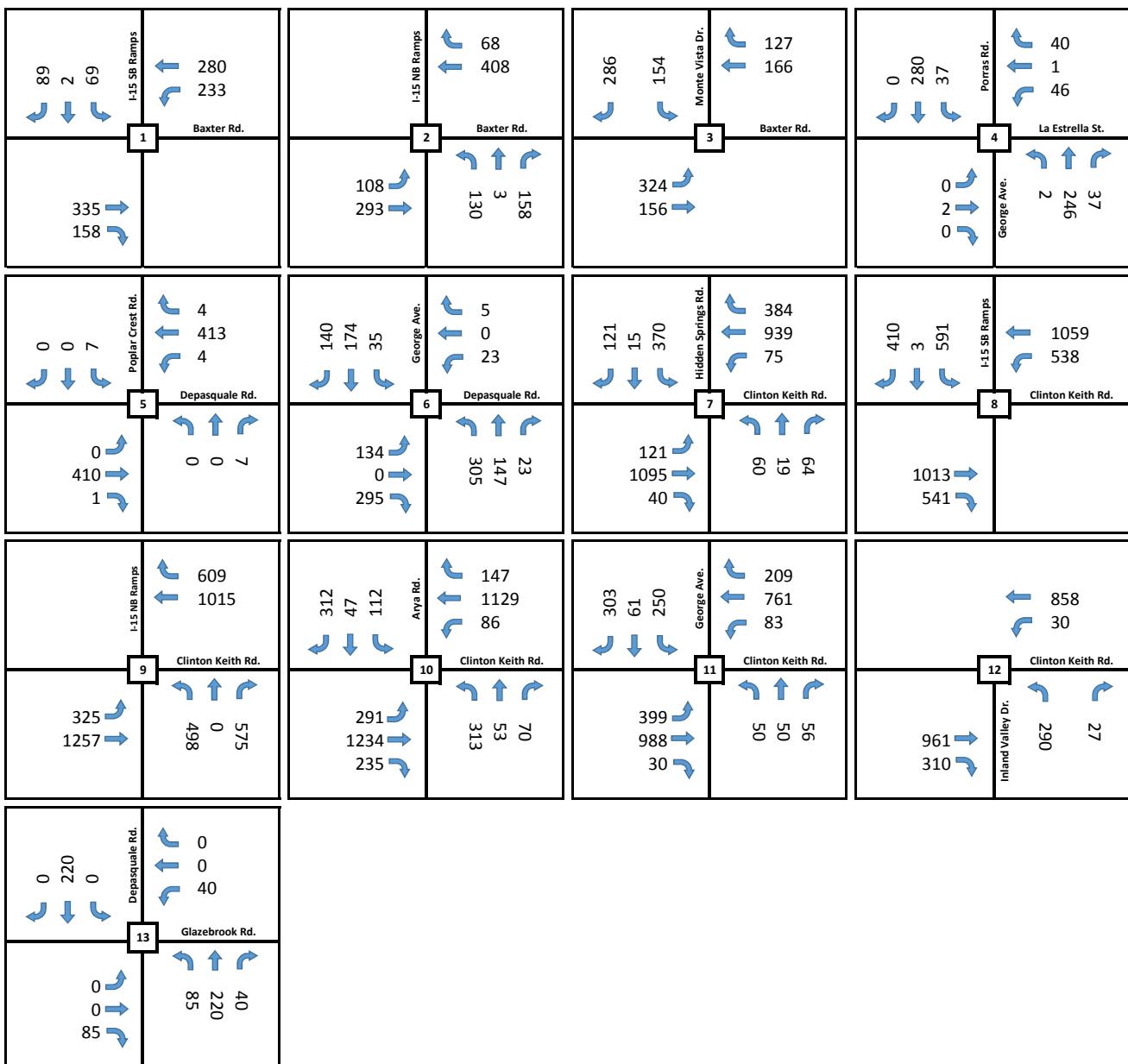


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# Existing Plus Ambient Plus Cumulative Plus Project Daily Traffic (Sunday)



*Notes:*

XX = Mid-Day Peak Hour Volumes

**Table 10**  
**Existing Plus Ambient Plus Cumulative**  
**Mid-Day (Sunday) Queuing Analysis**

Intersection & Turn Movement	Number of Lanes	Storage Length Per Lane (feet)	95th Percentile Queue Per Lane (feet)	Adequate Queue Storage Provided?
<b>2. Baxter Rd &amp; I-15 NB Ramps</b>				
WB Baxter Rd Through/Right-Turn*	1	300	208	Yes
<b>3. Baxter Rd and Monte Vista Dr</b>				
EB Baxter Rd Left-Turn	1	200	259	No**
EB Baxter Rd Through	1	300	68	Yes

**Notes:** EB = Eastbound, WB = Westbound.

\* = Shared lane

\*\* = Prior to mitigation

Storage length for through lane is measured as the link distance to the next adjacent study intersection.

**Table 11**  
**Existing Plus Ambient Plus Cumulative Plus Project**  
**Mid-Day (Sunday) Intersection Conditions**

Study Intersection	Traffic Control	Existing Plus Ambient Plus Cumulative Conditions	Existing Plus Ambient Plus Cumulative Plus Project Conditions	Change in Delay (sec.)	Significant Impact?
		Midday Delay <sup>1</sup> - LOS	Midday Delay <sup>1</sup> - LOS		
1 - I-15 SB Ramps / Baxter Road	AWSC	18.6 - C	21.6 - C	3.0	No
2 - I-15 NB Ramps / Baxter Road	AWSC	19.9 - C	26.2 - D	6.3	No
3 - Baxter Road / Monte Vista Drive With Proposed Improvements	OWSC	<b>108.9 - F</b>	<b>135.0 - F</b>	26.1	<b>YES</b>
	Signal		33.8 - C		No
4 - La Estrella Street / Porras Road - George Avenue	AWSC	9.7 - A	11.4 - B	1.7	No
5 - Depasquale Road / Poplar Crest Road	TWSC	11.7 - B	23.1 - C	11.4	No
6 - Depasquale Road / George Avenue With Proposed Improvements	TWSC	10.9 - B	<b>198.0 - F</b>	187.1	<b>YES</b>
	AWSC		29.9 - D		No
7 - Clinton Keith Road / Hidden Springs Road	Signal	28.2 - C	28.5 - C	0.3	No
8 - I-15 SB Ramps / Clinton Keith Road	Signal	26.0 - C	29.1 - C	3.1	No
9 - I-15 NB Ramps / Clinton Keith Road	Signal	26.5 - C	27.5 - C	1.0	No
10 - Clinton Keith Road / Arya Road With Proposed Improvements	Signal	<b>95.8 - F</b>	<b>133.7 - F</b>	37.9	<b>YES</b>
	Signal		<b>78.9 - E</b>		No
11 - Clinton Keith Road / George Avenue	Signal	31.8 - C	47.2 - D	15.4	No
12 - Clinton Keith Road / Inland Valley Drive	Signal	15.8 - B	18.5 - B	2.7	No
13 - Glazebrook Road / Depasquale Road	OWSC <sup>2</sup>	7.3 - A	17.0 - C	9.7	No

Note: Deficient intersection operation indicated in **bold**.

<sup>1</sup> Seconds of delay per vehicle.

<sup>2</sup> Intersection control is modified to a two-way-stop-controlled intersection with the addition of the project.

LOS is level of service.

### **Existing Plus Ambient Plus Cumulative Plus Project Conditions cont.**

The following intersections are forecast to operate at deficient levels of service based on the existing geometry and traffic controls:

- Int. 3 – Baxter Road / Monte Vista Drive..... LOS F
- Int. 6 – Depasquale Road / George Avenue..... LOS F
- Int. 10 – Clinton Keith Road / Arya Road..... LOS F

The following improvements are recommended to mitigate the deficient intersections to operate at an acceptable level of service (the project would pay a fair share per Table 1):

Int. 3 – Baxter Road / Monte Vista Drive

- Install a traffic signal and a dedicated left-turn lane in the eastbound approach

Int. 6 – Depasquale Road / George Avenue

- Convert two-way stop control to all-way stop control
- Provide striping at the eastbound approach to include a through-shared-left lane and a dedicated right-turn lane.

Int. 10 – Clinton Keith Road / Arya Road

Northbound – Restripe to provide one dedicated left-turn lane, one through lane and one dedicated right-turn lane.

Southbound – Restripe to provide one dedicated left-turn lane and one through-shared-right-turn lane.

The recommended improvements at Clinton Keith Road / Arya Road are consistent with the Westpark Promenade Traffic Study with the exception of the northbound approach. The Westpark Promenade TIA recommends a dedicated southbound left-turn lane at this location. However, this analysis recommends the dedicated southbound left-turn lane and a restriping of the northbound approach to provide a dedicated left-turn lane, a through lane and a dedicated right-turn lane. These recommended improvements would improve the intersection delay to a condition better than without the project. Therefore, the impact at Clinton Keith Road / Arya Road is considered mitigated to below a level of significance.

Queuing was analyzed at the intersection of Baxter Road / Monte Vista Drive due to the proposed mitigation and the neighboring intersection of I-15 northbound ramps / Baxter Road. As shown in **Table 12**, there is adequate queue storage provided along Baxter Road except for the eastbound left-turn lane at Baxter Road / Monte Vista Drive. Vehicular peak hour volumes for this turn movement are high due to a few cumulative projects forecast to add traffic onto Monte Vista Drive. However, forecasted turn movement volumes and queuing at this intersection should be re-evaluated prior to the design of the signal and eastbound left-turn lane.

**Table 12**  
**Existing Plus Ambient Plus Cumulative Plus Project**  
**Mid-Day (Sunday) Queuing Analysis**

Intersection & Turn Movement	Number of Lanes	Storage Length Per Lane (feet)	95th Percentile Queue Per Lane (feet)	Adequate Queue Storage Provided?
<b>2. Baxter Rd &amp; I-15 NB Ramps</b>				
WB Baxter Rd Through/Right-Turn*	1	300	280	Yes
<b>3. Baxter Rd and Monte Vista Dr</b>				
EB Baxter Rd Left-Turn	1	200	261	No**
EB Baxter Rd Through	1	300	75	Yes

**Notes:** SB = southbound; NB = Northbound; EB = Eastbound; WB = Westbound;

\* = Shared lane

\*\* = Prior to mitigation.

Storage length for through lane is measured as the link distance to the next adjacent study intersection.

## **Weekday Peak Hour Analysis**

Due to the proximity of the proposed project adjacent to Ronald Reagan Elementary School at the northwest corner of Porras Road / La Estrella Street, week day trip generation rates were used to analyze the following two intersections under AM and midday peak hours:

- Int. 4 – La Estrella Street / Porras Road – George Avenue
- Int. 6 – Depasquale Road / George Avenue

Summarized analysis results are shown in **Table 13** for Weekday Peak Hour Intersection Analysis. As shown, the intersection of Depasquale Road / George Avenue is expected to operate at LOS E during the AM peak hour in the Existing Plus Ambient Growth Plus Cumulative Projects Plus Project Condition. The proposed improvement at this intersection is to convert the two-way stop control to an all-way stop control which improves the intersection to a LOS D in the AM peak hour. Detailed LOS analysis sheets are contained in **Appendix K**.

## **Circulation Element Analysis**

The City of Wildomar adopted the Circulation Element Roadway Network that had been designated for this area in the Riverside County General Plan Circulation Element. The current Draft Wildomar General Plan Circulation Element depicted in **Exhibit 7** shows several roadways as “proposed circulation changes”. This map was prepared by Urban Crossroads as part of the Wildomar Housing Element Update Traffic Assessment that was prepared during the development of the Wildomar Housing Element Update and there were changes proposed to the adopted Riverside County Circulation Element network in proximity to the project site.

These changes include the extension of La Estrella Street to the west towards Interstate 15 as well as both Susan Drive and Bayless Road extending between Baxter Road and La Estrella Street. According to the Wildomar Housing Element Update Traffic Assessment, Bayless Road is classified as a four-lane Secondary roadway, Susan Drive is classified as a two-lane Collector, and La Estrella Street from George Avenue to Bayless Road is classified as a two-lane Collector. The inclusion of Depasquale Road as a two-lane Collector between George Avenue and the extension of La Estrella was another proposed change to the previously adopted Circulation Element. These proposed changes were also included in the Draft Wildomar General Plan Update document dated January 2015.

As shown in **Exhibit 2**, the project proposes to construct a private road as the west leg of the existing intersection of Depasquale Road and Glazebrook Road. This private road would parallel the Interstate 15 before turning north and terminate at the project boundary. The private road would be constructed at a modified Collector cross-section, allowing for potential future widening to a full Collector cross-section and extension by others. The project is also reserving the right-of-way on the northern boundary of the site to allow for a potential future La Estrella extension, although City staff has indicated that no such extension is planned in the foreseeable future due to topographic constraints and adequate circulation is provided in the community without this extension.

**Table 13**  
**Weekday Peak Hour Intersection Analysis**  
(During School Peak Hours on George Avenue)

Study Intersection	AM Delay <sup>1</sup> - LOS	Midday Delay <sup>1</sup> - LOS
<i>Existing Conditions</i>		
4 - La Estrella Street / Porras Road - George Avenue	12.6 - B	9.9 - A
6 - Depasquale Road / George Avenue	13.0 - B	11.4 - B
<i>Existing Plus Project Conditions</i>		
4 - La Estrella Street / Porras Road - George Avenue	12.8 - B	10.0 - A
6 - Depasquale Road / George Avenue	13.7 - B	12.3 - B
<i>Existing Plus Ambient Growth Plus Project Conditions</i>		
4 - La Estrella Street / Porras Road - George Avenue	13.2 - B	10.2 - B
6 - Depasquale Road / George Avenue	14.0 - B	12.5 - B
<i>Existing Plus Ambient Growth Plus Cumulative Projects Conditions</i>		
4 - La Estrella Street / Porras Road - George Avenue	17.1 - C	14.3 - B
6 - Depasquale Road / George Avenue	33.3 - D	19.7 - C
<i>Existing Plus Ambient Growth Plus Cumulative Projects Plus Project Conditions</i>		
4 - La Estrella Street / Porras Road - George Avenue	17.7 - C	14.7 - B
6 - Depasquale Road / George Avenue	<b>39.8 - E</b>	22.8 - C
6 - Depasquale Road / George Avenue (with improvements)	28.0 - D	11.6 - B

Note: Deficient intersection operation indicated in **bold**.

<sup>1</sup> Seconds of delay per vehicle.

LOS is level of service.

## **6.0 - FINDINGS AND RECOMMENDATIONS**

The proposed Faith Bible Church is forecast to generate a total of approximately 2,057 average daily trips on a Sunday, with approximately 678 (339 inbound and 339 outbound) mid-day peak hour trips. The initial phase 1 project at 584 seats would generate slightly less traffic than half of this buildout volume.

The results of the traffic analysis under Existing Plus Project conditions show that all study intersections are forecast to operate at acceptable levels of service (LOS D or better). Therefore, no significant direct impacts were identified under Existing Plus Project conditions and no mitigation measures are required for this scenario.

The results of the traffic analysis under Existing Plus Ambient Plus Project conditions show that all study intersections are forecast to operate at acceptable levels of service (LOS D or better). Therefore, no significant direct impacts were identified under Existing Plus Ambient Plus Project conditions and no mitigation measures are required for this scenario.

The results of the analysis under Existing Plus Ambient Plus Cumulative conditions show that all study intersections are forecast to operate at acceptable levels of service (LOS D or better) except at the following two (2) locations which operate at a deficient LOS F:

- Int. 3 – Baxter Road / Monte Vista Drive
- Int. 10 – Clinton Keith Road / Arya Road

The results of the Existing Plus Ambient Plus Cumulative Plus Project conditions show that all study intersections are forecast to operate at acceptable levels of service (LOS D or better) except at the following three (3) locations which operate at a deficient LOS F:

- Int. 3 – Baxter Road / Monte Vista Drive
- Int. 6 – Depasquale Road / George Avenue
- Int. 10 – Clinton Keith Road / Arya Road

The intersection of Baxter Road and Monte Vista Drive would operate at LOS F both without the project and with the project under the Existing Plus Ambient Plus Cumulative conditions. The amount of traffic delay expressed in seconds added to this intersection due to the project exceeds the five second threshold. Therefore, this intersection is considered significant and mitigation is required.

The intersection of Depasquale Road and George Avenue is forecast to operate acceptably (LOS C) without the project, but operates at an unacceptable level of service (LOS F) with the project. Therefore, the intersection is considered significant and mitigation is required.

At Clinton Keith Road and Arya Road, the intersection is forecast to operate at LOS F both without the project and with the project under the Existing Plus Ambient Plus Cumulative conditions. The amount of traffic delay (sec.) added to this intersection due to the project exceeds the five second threshold. Therefore, this intersection is considered significant and mitigation is required.

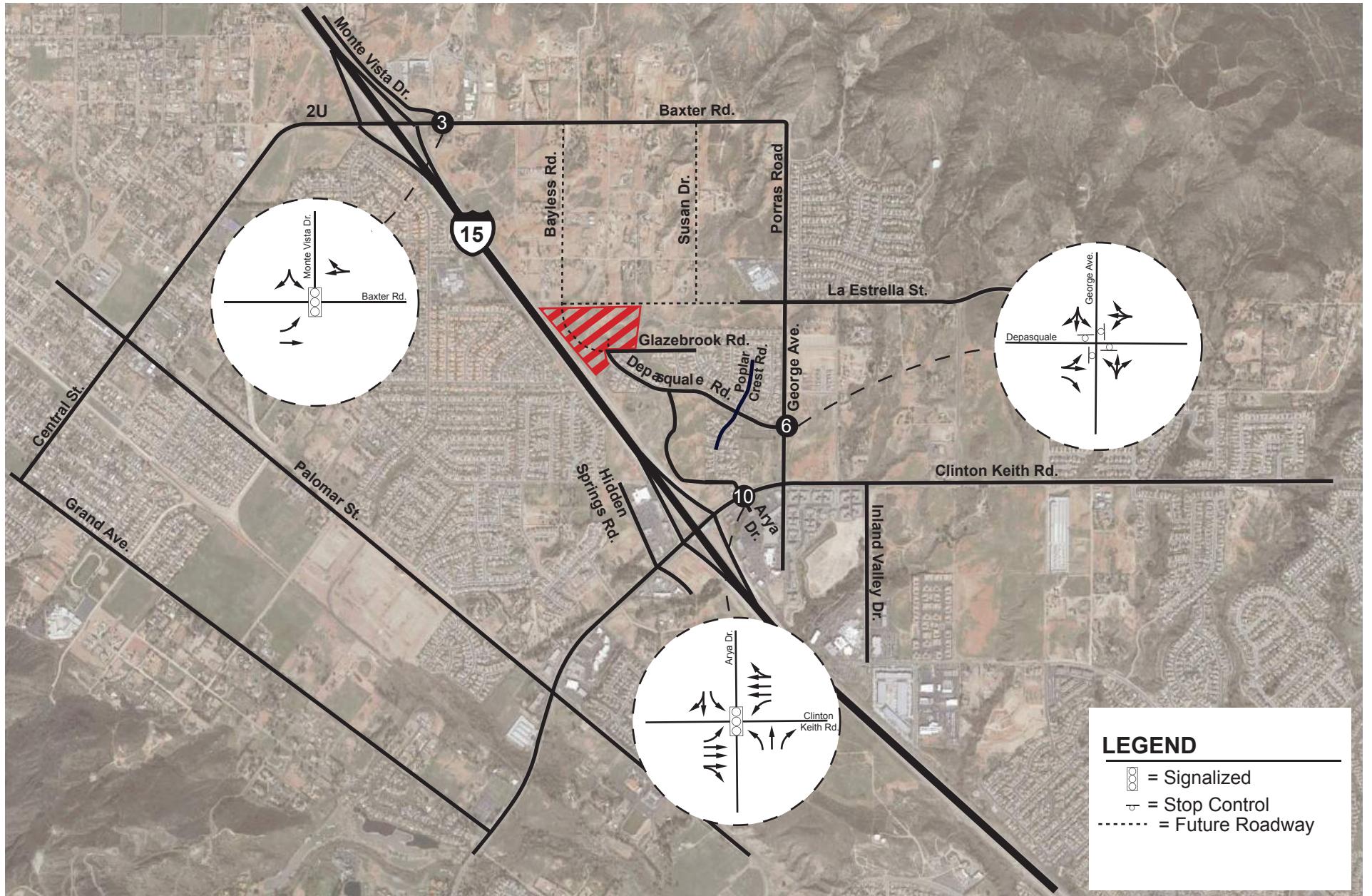
The following improvements as shown in **Exhibit 23** are recommended to mitigate the deficient intersections to operate at an acceptable level of service:

- Provide fair-share contribution towards the installation of a traffic signal at Baxter Road / Monte Vista Drive.
- Provide fair-share contribution to convert two-way stop control to all-way stop control at Depasquale Road / George Avenue and provide striping in eastbound approach to include a through-shared-left turn lane and a dedicated right-turn lane.
- At Clinton Keith Road / Arya Road, pay fair-share contribution towards the following improvements:

Northbound – Restripe to provide one dedicated left-turn lane, one through lane and one dedicated right-turn lane.

Southbound – Restripe to provide one dedicated left-turn lane and one through-shared-right-turn lane.

The recommended improvements at Clinton Keith Road / Arya Road are consistent with the Westpark Promenade Traffic Study with the exception of the northbound approach. The Westpark Promenade TIA recommends a dedicated southbound left-turn lane at this location. However, this analysis recommends the dedicated southbound left-turn lane and a restriping of the northbound approach to provide a dedicated left-turn lane, a through lane and a dedicated right-turn lane. These recommended improvements would improve the intersection delay to a condition better than without the project. Therefore, the impact at Clinton Keith Road / Arya Road is considered mitigated to below a level of significance.



**Existing Plus Ambient Plus Cumulative With Project  
Intersection Geometries (With Mitigation)**

Not To Scale

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## **Appendix A**

### **Traffic Signal Warrants**

**CUMULATIVE CONDITIONS PEAK HOUR VOLUME WARRANT  
RURAL CONDITIONS**  
**(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)**

**Peak Hour:** **Midday**

**Major Street:** **Baxter Road**

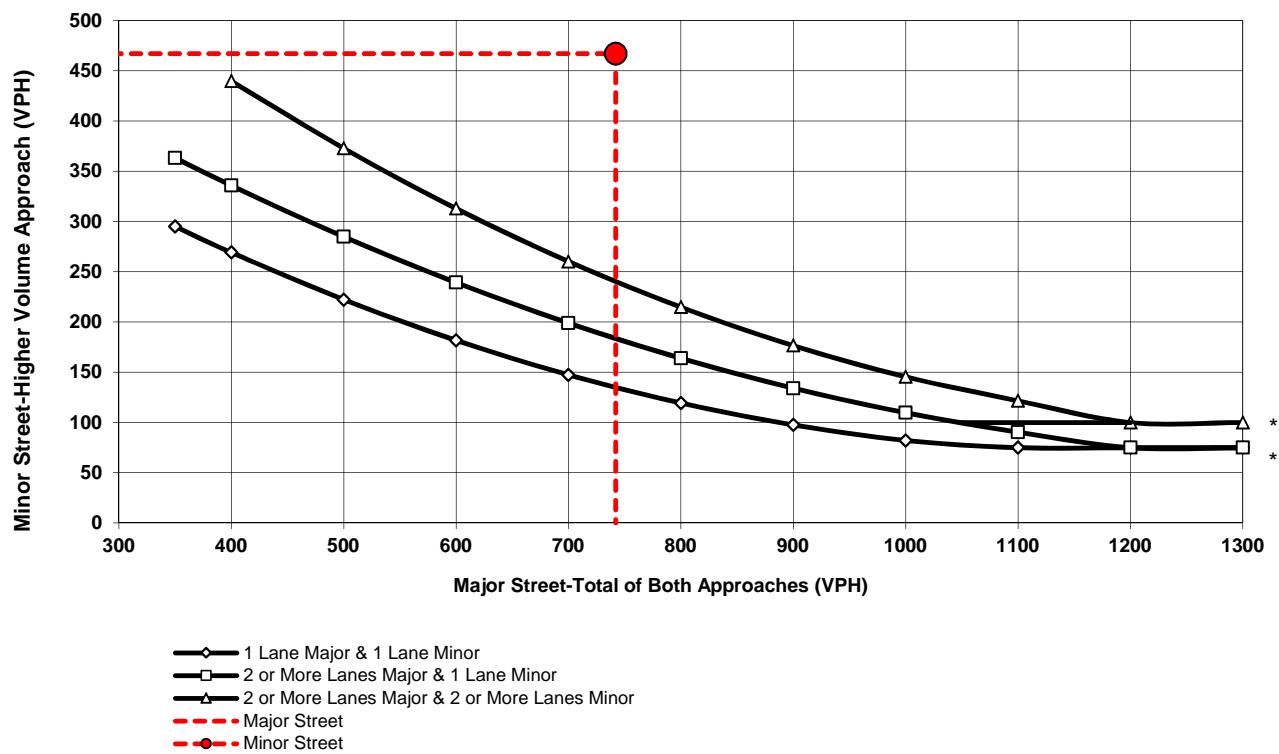
**Minor Street:** **Monte Vista Drive**

Total of Both Approaches (VPH): **742**  
Number of Approach Lanes: **1**

Higher Volume Approach (VPH): **467**  
Number of Approach Lanes: **1**

**SIGNAL WARRANT SATISFIED**

Figure 4C-4. Peak Hour Warrant (Rural)



\* 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.

Source: MUTCD 2003 Revision 1, as amended for use in California (September 26, 2006).

**Existing Plus Ambient Plus Cumulative Conditions  
Midday Peak Hour Volume Warrant  
Baxter Road / Monte Vista Drive**

**CUMULATIVE CONDITIONS PEAK HOUR VOLUME WARRANT  
RURAL CONDITIONS**  
**(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)**

**Peak Hour:** **Midday**

**Major Street:** **Baxter Road**

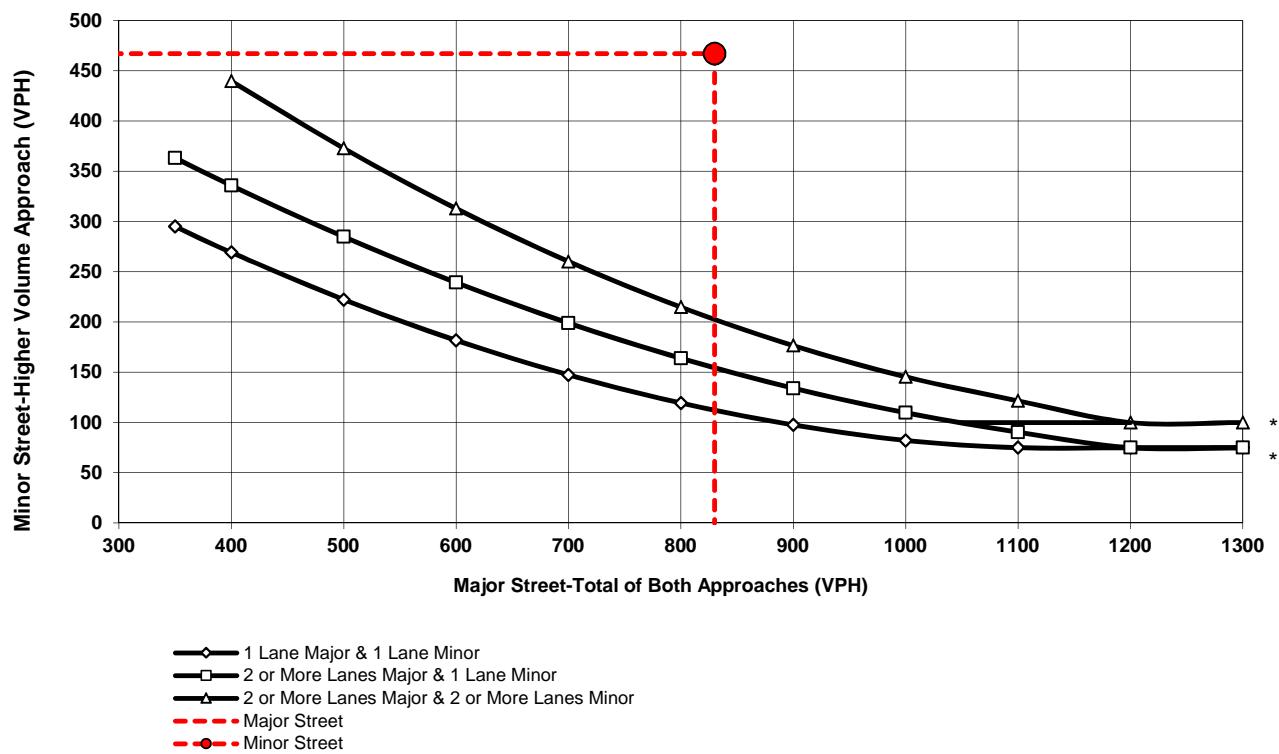
**Minor Street:** **Monte Vista Drive**

Total of Both Approaches (VPH): **830**  
Number of Approach Lanes: **1**

Higher Volume Approach (VPH): **467**  
Number of Approach Lanes: **1**

**SIGNAL WARRANT SATISFIED**

Figure 4C-4. Peak Hour Warrant (Rural)



\* 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.

Source: MUTCD 2003 Revision 1, as amended for use in California (September 26, 2006).

**Existing Plus Ambient Plus Cumulative Plus Project Conditions  
Midday Peak Hour Volume Warrant  
Baxter Road / Monte Vista Drive**

**EXISTING+AMBIENT+CUMULATIVE+PROJECT CONDITIONS PEAK HOUR VOLUME WARRANT  
RURAL CONDITIONS**  
**(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)**

**Peak Hour:** **AM**

**Major Street:** **George Avenue**

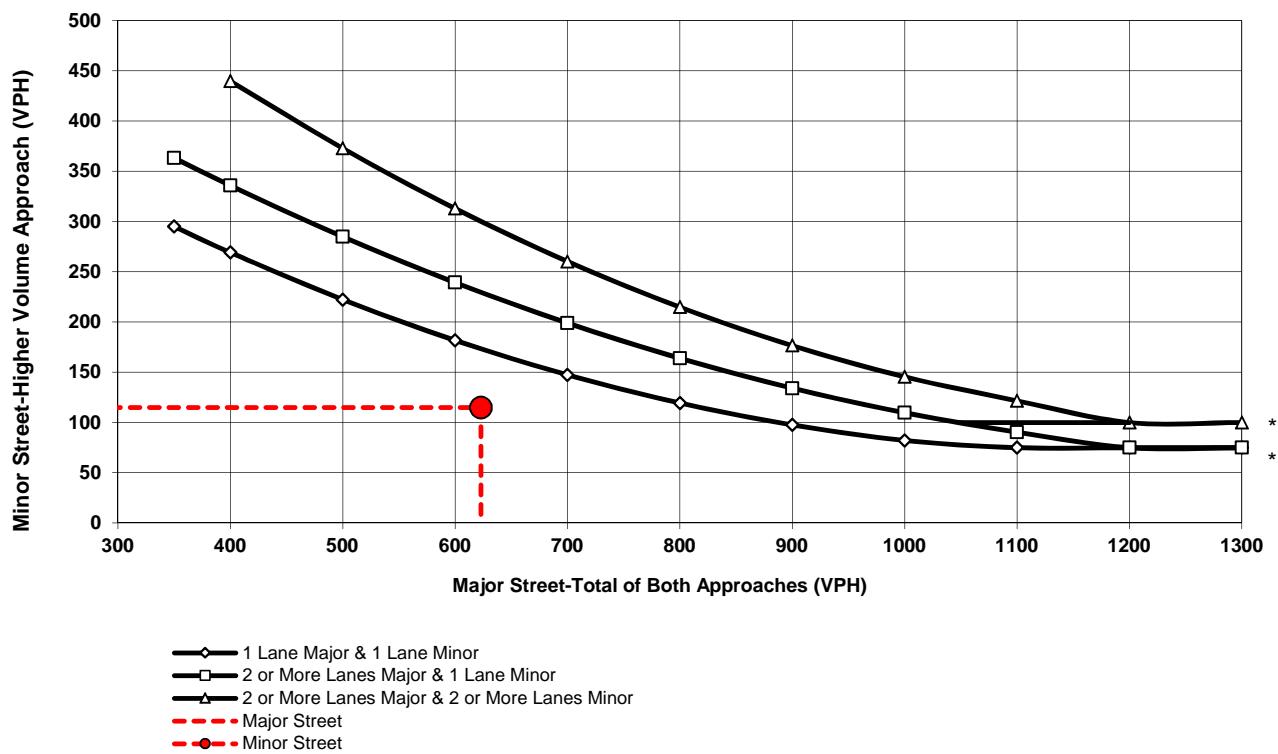
**Minor Street:** **Depasquale Road**

Total of Both Approaches (VPH): **623**  
Number of Approach Lanes: **1**

Higher Volume Approach (VPH): **115**  
Number of Approach Lanes: **1**

**SIGNAL WARRANT NOT SATISFIED**

Figure 4C-4. Peak Hour Warrant (Rural)



Source: California MUTCD 2014 Edition

Weekday volumes based on Figure 45 from the Clinton Keith Village TIA dated July 28, 2015.

**Existing Plus Ambient Plus Cumulative Plus Project Conditions  
AM Peak Hour Volume Warrant  
George Avenue / Depasquale Road**

**EXISTING+AMBIENT+CUMULATIVE+PROJECT CONDITIONS PEAK HOUR VOLUME WARRANT  
RURAL CONDITIONS**  
**(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)**

**Peak Hour:** **PM**

**Major Street:** **George Avenue**

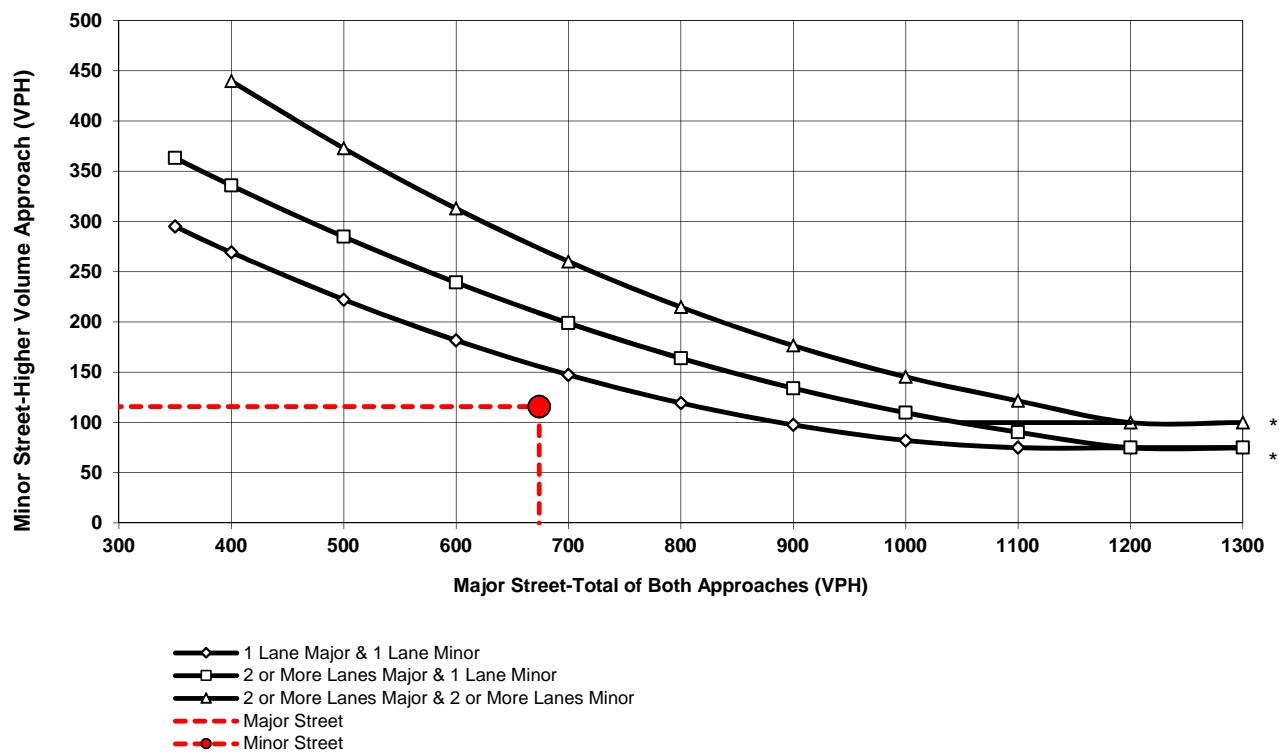
**Minor Street:** **Depasquale Road**

Total of Both Approaches (VPH): **674**  
Number of Approach Lanes: **1**

Higher Volume Approach (VPH): **116**  
Number of Approach Lanes: **1**

**SIGNAL WARRANT NOT SATISFIED**

Figure 4C-4. Peak Hour Warrant (Rural)



\* 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.

Source: California MUTCD 2014 Edition

Weekday volumes based on Figure 46 from the Clinton Keith Village TIA dated July 28, 2015.

**Existing Plus Ambient Plus Cumulative Plus Project Conditions  
PM Peak Hour Volume Warrant  
George Avenue / Depasquale Road**

## **Appendix B**

### **Cost Estimates & Fair Share Calculations**

## Baxter Road / Monte Vista Drive Intersection Improvements Cost Estimate

	Amount	Unit	Unit Cost	Total
<b>Pavement Delineation Removal</b>				
Sand Blast - Letter	22	SF	\$1.00	\$22
Sand Blast - 4" Solid Stripe	430	LF	\$0.50	\$215
Roadway Excavation		CY	\$30.00	\$0
			Subtotal	<b>\$237</b>
<b>Pavement Delineation</b>				
Detail 21 Paint	300	LF	\$1.33	\$400
Paint Limit Line	36	SF	\$2.00	\$72
Type IV Arrow Paint	30	SF	\$2.00	\$60
			Subtotal	<b>\$532</b>
<b>Roadway Improvements</b>				
Slurry Seal	10,000	SF	\$0.65	\$6,500
Type 'G' Curb	200	LF	\$18.00	\$3,600
Sidewalk	200	LF	\$7.50	\$1,500
Ped Ramp	4	EA.	\$2,200.00	\$8,800
			Subtotal	<b>\$20,400</b>
<b>Signal Improvements</b>				
3 Signal Head (New) & Mounts	10	EA.	\$800.00	\$8,000
Ped Head	6	EA.	\$800.00	\$4,800
(Type 17)	1	EA.	\$ 4,000.00	\$4,000
Signal Pole (Type 19)	2	EA.	\$ 4,400.00	\$8,800
(Type 1-A)	1	EA.	\$ 1,500.00	\$1,500
Mast Arm (20')	1	EA.	\$ 1,700.00	\$1,700
(30')	2	EA.	\$ 2,900.00	\$5,800
Foundation (Type 1-A)	1	EA.	\$ 700.00	\$700
(Type 19)	3	EA.	\$ 2,000.00	\$6,000
(Controller)	1	EA.	\$ 1,000.00	\$1,000
Pull Boxes (#5)	5	EA.	\$ 400.00	\$2,000
(#6)	5	EA.	\$ 700.00	\$3,500
(6E)	1	EA.	\$ 1,200.00	\$1,200
Controller & Cabinet	1	EA.	\$17,000.00	\$17,000
Battery Back-Up System	1	EA.	\$ 5,000.00	\$5,000
Battery Cabinet	1	EA.	\$ 2,500.00	\$2,500
Luminaire Mast Arm	3	EA.	\$ 700.00	\$2,100
Luminare Assembly	3	EA.	\$ 800.00	\$2,400
PPB	6	EA.	\$ 70.00	\$420
IISNS	3	EA.	\$ 1,000.00	\$3,000
Mast Arm Signs	3	EA.	\$ 200.00	\$600
Loops	17	EA.	\$ 700.00	\$11,900
Conduit	1,000	LF	\$ 40.00	\$40,000
Signal Wiring	1	LS	\$ 5,250.00	\$5,250
EVP	3	EA.	\$ 1,000.00	\$3,000
			Subtotal	<b>\$142,170</b>
<b>Miscellaneous</b>				
Traffic Control			\$4,900	
Clearing & Grubbing			\$6,534	

Grand Total \$174,800  
15% Contingency \$26,300

**Total \$201,100**

## Depasquale Road / George Avenue Intersection Improvements

### Cost Estimate

	Amount	Unit	Unit Cost	Total
<b>Pavement Delineation Removal</b>				
Sand Blast - Arrow		SF	\$1.00	\$0
Sand Blast - 4" Solid Stripe		LF	\$0.50	\$0
Roadway Excavation		CY	\$30.00	\$0
			Subtotal	\$0

#### **Pavement Delineation**

Detail 29	Paint	LF	\$2.68	\$0
	Raised Pavement Marker	unit	\$5.00	\$0
Detail 38B	Paint	LF	\$0.27	\$0
	Raised Pavement Marker	Unit	\$5.00	\$0
Type VII Arrow	Paint	27	SF	\$2.00
Type IV Arrow	Paint	15	SF	\$2.00
"STOP" Legend	(Quantity x4)	88	SF	\$2.00
			Subtotal	\$176
				\$260

#### **Signs**

Install Sign	(Single Post)	4	EA.	\$250.00	\$1,000
				Subtotal	\$1,000

#### **Miscellaneous**

Traffic Control	\$25
Clearing & Grubbing	\$38

Grand Total \$1,300  
15% Contingency \$200

**Total \$1,500**

**Assume Lump Sum of \$2,500**

## Clinton Keith Road / Arya Road Intersection Improvements Cost Estimate

	Amount	Unit	Unit Cost	Total
<b>Pavement Delineation Removal</b>				
Sand Blast - Arrow	42	SF	\$1.00	\$42
Sand Blast - 4" Solid Stripe	230	LF	\$0.50	\$115
Roadway Excavation	500	CY	\$30.00	\$15,000
			Subtotal	<b>\$15,157</b>
<b>Pavement Delineation</b>				
Detail 29	Paint	35	LF	\$2.68
	Raised Pavement Marker	2	unit	\$5.00
Detail 38B	Paint	300	LF	\$0.27
	Raised Pavement Marker	18	Unit	\$5.00
Type I Arrow (10)	Paint	10	SF	\$2.00
Type IV Arrow	Paint	60	SF	\$2.00
			Subtotal	<b>\$414</b>
<b>Roadway Improvements</b>				
Grind & Overlay	1590	SF	\$5.00	\$7,950
Class 2 Aggregate Base	60	TN	\$50.00	\$3,000
Asphalt Pavement	117	TN	\$120.00	\$14,040
Slurry Seal	2420	SF	\$0.65	\$1,573
6" Median Curb	215	LF	\$22.00	\$4,730
Decorative Stamped Concrete	310	SF	\$20.00	\$6,200
Type 'G' Curb	150	LF	\$18.00	\$2,700
Sidewalk	150	LF	\$7.50	\$1,125
			Subtotal	<b>\$41,318</b>
<b>Signal Improvements</b>				
3 Signal Head (New) & Mounts	7	EA.	\$800.00	\$5,600
3 Signal Head (Removal)	5	EA.	\$75.00	\$375
Ped Head	1	EA.	\$800.00	\$800
Signal Pole	(Type 19)	1	EA.	\$4,400.00
Mast Arm	(35')	1	EA.	\$2,900.00
Luminaire Mast Arm		1	EA.	\$700.00
Luminaire Assembly		1	EA.	\$800.00
PPB	5	EA.	\$70.00	\$350
Loops	14	EA.	\$700.00	\$9,800
Conduit	250	LF	\$30.00	\$7,500
EVP	1	EA.	\$1,000.00	\$1,000
			Subtotal	<b>\$34,225</b>
<b>Miscellaneous</b>				
Traffic Control			\$1,822	
Clearing & Grubbing			\$2,733	
Roadway Repair ( i.e. Pavers)			\$1,000	

Grand Total \$95,700  
15% Contingency \$14,400

**Total \$110,100**

## Faith Bible Church TIA - Fair Share Calculations

3-Baxter Road / Monte Vista Drive  
 Existing Plus Ambient Plus Cumulative  
 Mid-day (Sunday)

Movement	Existing	Existing Plus Ambient Plus Cumulative Without Project	Existing Plus Ambient Plus Cumulative With Project
NBL	0	0	0
NBT	0	0	0
NBR	0	0	0
SBL	42	154	154
SBT	0	0	0
SBR	151	286	286
EBL	180	324	324
EBT	40	112	156
EBR	0	0	0
WBL	0	0	0
WBT	50	122	166
WBR	19	127	127
<b>Total</b>	<b>482</b>	<b>1125</b>	<b>1213</b>

Project Trips (With Project - No Project) >> 88  
 Intersection Volume Increase (Existing Plus Ambient Plus Cumulative - Existing) >> 731  
 Fair Share % (Project Trips / Total Existing to Cumulative Volume Increase) >> **12.0%**

6 - Depasquale Road / George Avenue  
 Existing Plus Ambient Plus Cumulative  
 Mid-day (Sunday)

Movement	Existing	Existing Plus Ambient	Existing Plus Ambient
		Plus Cumulative Without Project	Plus Cumulative With Project
NBL	41	78	305
NBT	86	147	147
NBR	0	23	23
SBL	0	35	35
SBT	114	174	174
SBR	5	72	140
EBL	3	66	134
EBT	0	0	0
EBR	40	75	295
WBL	0	23	23
WBT	0	0	0
WBR	0	5	5
<b>Total</b>	<b>289</b>	<b>698</b>	<b>1281</b>

Project Trips (With Project - No Project) >> 583  
 Intersection Volume Increase (Existing Plus Ambient Plus Cumulative - Existing) >> 992  
 Fair Share % (Project Trips / Total Existing to Cumulative Volume Increase) >> **58.8%**

## Faith Bible Church TIA - Fair Share Calculations

10 - Clinton Keith Road / Arya Road  
 Existing Plus Ambient Plus Cumulative  
 Mid-day (Sunday)

Movement	Existing	Existing Plus Ambient Plus Cumulative Without Project	Existing Plus Ambient Plus Cumulative With Project
NBL	295	313	313
NBT	8	53	53
NBR	62	70	70
SBL	20	105	112
SBT	5	47	47
SBR	55	268	312
EBL	21	247	291
EBT	701	1,078	1,234
EBR	222	235	235
WBL	77	86	86
WBT	596	973	1,129
WBR	54	147	147
<b>Total</b>	<b>2116</b>	<b>3622</b>	<b>4029</b>

Project Trips (With Project - No Project) >>	407
Intersection Volume Increase (Existing Plus Ambient Plus Cumulative - Existing) >>	1,913
Fair Share % (Project Trips / Total Existing to Cumulative Volume Increase) >>	<b>21.3%</b>

## **Appendix C**

### **Scoping Agreement**

## SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

16-0023 PAR  
Df. 7/11/16

This letter acknowledges the Riverside County Transportation Department and City of Wildomar requirements for traffic impact analysis of the following project. The analysis must follow the Riverside County Transportation Department Traffic Study Guidelines dated April 2008.

Case No.

Related Cases -

SP No.

EIR No.

GPA No.

CZ No.

Project Name:

**Faith Bible Church**

Project Address:

**Parcel No. APN 376-410-002 and APN 376-410-024**

Project Description:

**Religious Institution Facility / Community Church building structure that will seat 1,112 people.**

Name:	<u>Consultant</u>
Address:	<b>Michael Baker International</b> <b>5050 Avenida Encinas, Suite 260</b> <b>Carlsbad, CA 92008</b>
Telephone:	<b>Bob Davis</b> <b>760-603-6244</b>

<u>Developer</u>
<b>Faith Bible Church</b> <b>23811 Washington Ave., #C110-313</b> <b>Murrieta CA 92562</b>
<b>John Pleasnick - Corporate Secretary</b> <b>951-200-3137</b>

**A. Trip Generation Source:****Institute of Transportation Engineers (ITE) - 9th Edition**

Current GP Land Use:	<b>Vacant</b>	Proposed Land Use:	<b>Religious Institution</b>
Current Zoning:	<b>C-1 / C-P</b>	Proposed Zoning:	

	Current Zoning Trip Generation			Proposed Zoning Trip Generation (See Attachment A)		
	In	Out	Total	In	Out	Total
AM Trips			<b>0</b>			
Mid-day Trips			<b>0</b>	<b>339</b>	<b>339</b>	<b>678*</b>
PM Trips			<b>0</b>			<b>0</b>

*\*Sunday Peak Hour: Btw 10 AM - 1 PM*

Internal Trip Allowance	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No	(	% Trip Discount)
Pass-By Trip Allowance	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No	(	% Trip Discount)

A passby trip discount of 25% is allowed for appropriate land uses. The passby trips at adjacent study area intersections and project driveways shall be indicated on a report figure.

**B. Trip Geographic Distribution:**

(See Attachment B)

*— See Comments, 2 models on distribution*

North	<b>26 %</b>	South	<b>29 %</b>	East	<b>20 %</b>	West	<b>12 %</b>
	<b>Interstate 15</b>		<b>Interstate 15</b>		<b>Clinton Keith Rd.</b>		<b>Clinton Keith Rd.</b>

**C. Background Traffic Growth:**

Project Opening Year:	<b>Year 2019</b>	Annual Ambient Growth Rate:	<b>2.0 %</b>
Phase Year(s):	<b>Traffic Study will address full project buildout</b>		

Other area projects to be analyzed: **To be provided by City staff**

Model/Forecast Methodology:	<b>Project proposes elimination of Depasquale Road connection to La Estrella St. which will require a change to the General Plan Circulation Element. Project proposes to run the RivTAM model</b>
-----------------------------	--

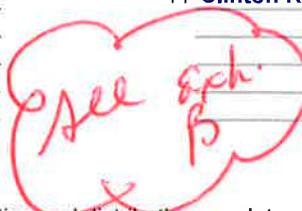
without the road connection.

**D. Study Intersections:**

NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments form other agencies.

- 1 I-15 SB Ramps / Baxter Rd.
- 2 I-15 NB Ramps / Baxter Rd.
- 3 La Estrella St / Porras Rd.-George Ave.
- 4 Depasquale Rd. / Poplar Crest Rd.
- 5 Depasquale Rd. / George Ave.
- 6 Clinton Keith Rd. / Hidden Springs Rd.
- 7 I-15 SB Ramps / Clinton Keith Rd.

- 8 I-15 NB Ramps / Clinton Keith Rd.
- 9 Clinton Keith Rd. / Arya Rd.
- 10 Clinton Keith Rd. / George Ave.
- 11 Clinton Keith Rd. / Inland Valley Dr.



**E. Study Roadway Segments:**

NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments form other agencies.

- 1 Not Applicable
- 2
- 3
- 4
- 5

Baxter as a 2/3 lane @ Buildout

- 6
- 7
- 8
- 9
- 10

**F. Other Jurisdictional Impacts:**

Is this project within a City's Sphere of Influence or one-mile radius of City boundaries?  Yes  No

If so, name of City jurisdiction: \_\_\_\_\_

**G. Site Plan:**

(See Attachment C)

**H. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline)**

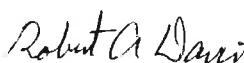
\_\_\_\_\_

\_\_\_\_\_

**I. Existing Conditions:**

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.  
Date of counts: N/A

Recommended by:

  
\_\_\_\_\_  
Michael Baker's Representative      Date 6/29/2016

Approved Scoping Agreement:

  
\_\_\_\_\_  
City of Wildomar      Date 7/1/16

Scoping Agreement Submitted on: 6/29/2016

Revised on: \_\_\_\_\_

## Attachment A

### Faith Bible Church Project Trip Generation

Land Use	ITE Code	Trip Rate	Peak Hour Trips		
			Rate	In	Out
Church (Sunday)	560	1.85 /seat	0.61 /seat	50%	50%
Land Use	Intensity	ADT	Peak Hour		
			Volume	In	Out
Church (Sunday)	1,112 Seats	2,057	678	339	339

Source: 2012 ITE Trip Generation Manual, 9<sup>th</sup> Edition

Mid week activities?   
 morning onsite.  
 may be minimal  
 but still show  
 in calcs so  
 TIA report complete  
 for Environmental

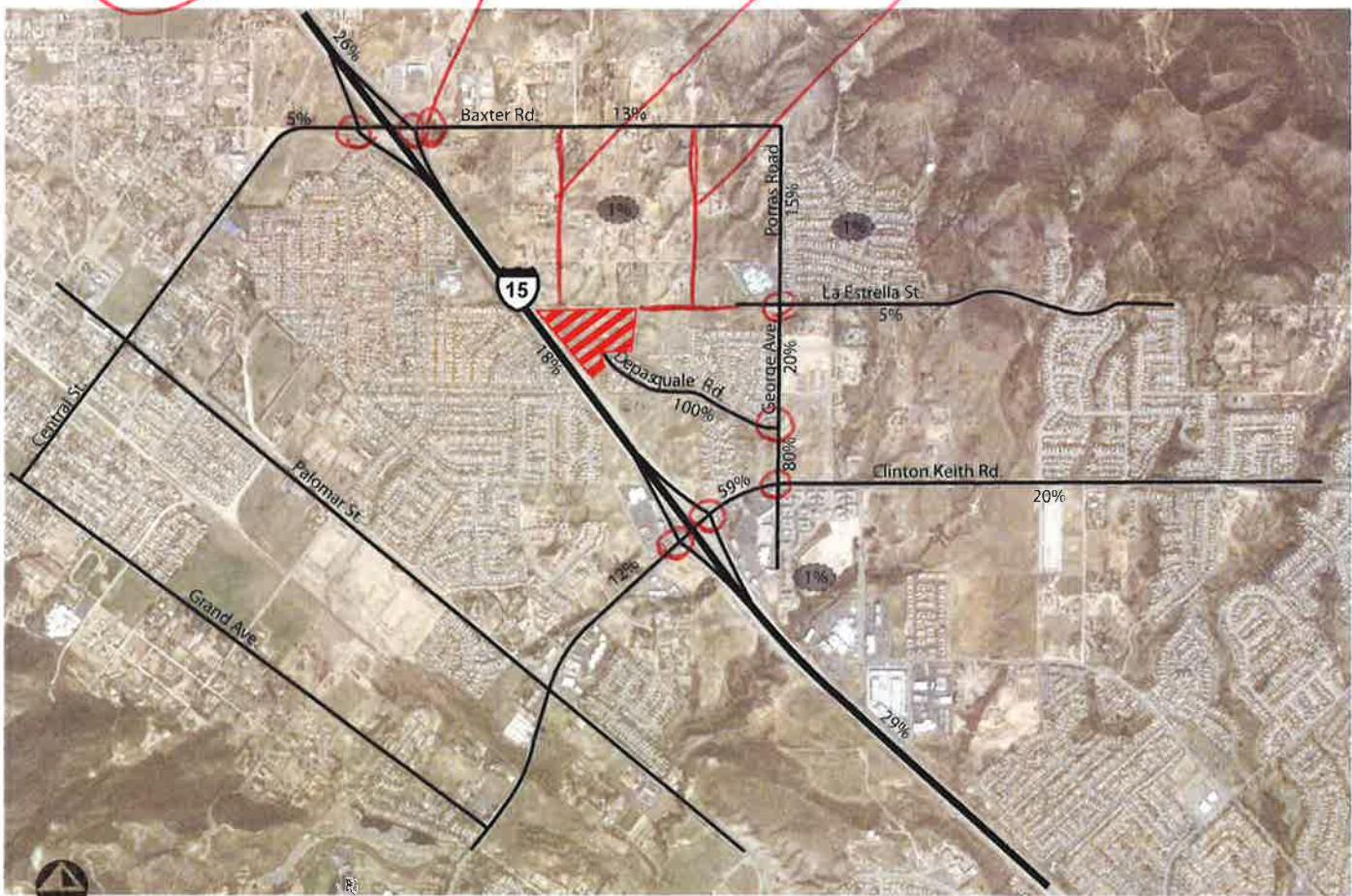
include  
 ITE  
 rate  
 tables  
 in TIA is reference attachment

May have to show  
2 models: 1) fire  
out. infrastructure and  
2) per circ. element

Monte Vista

include in  
build out for distribution  
& intersection  
analysis

(Secondary)  
CIRC. PLAZA  
(Collector)



Not To Scale

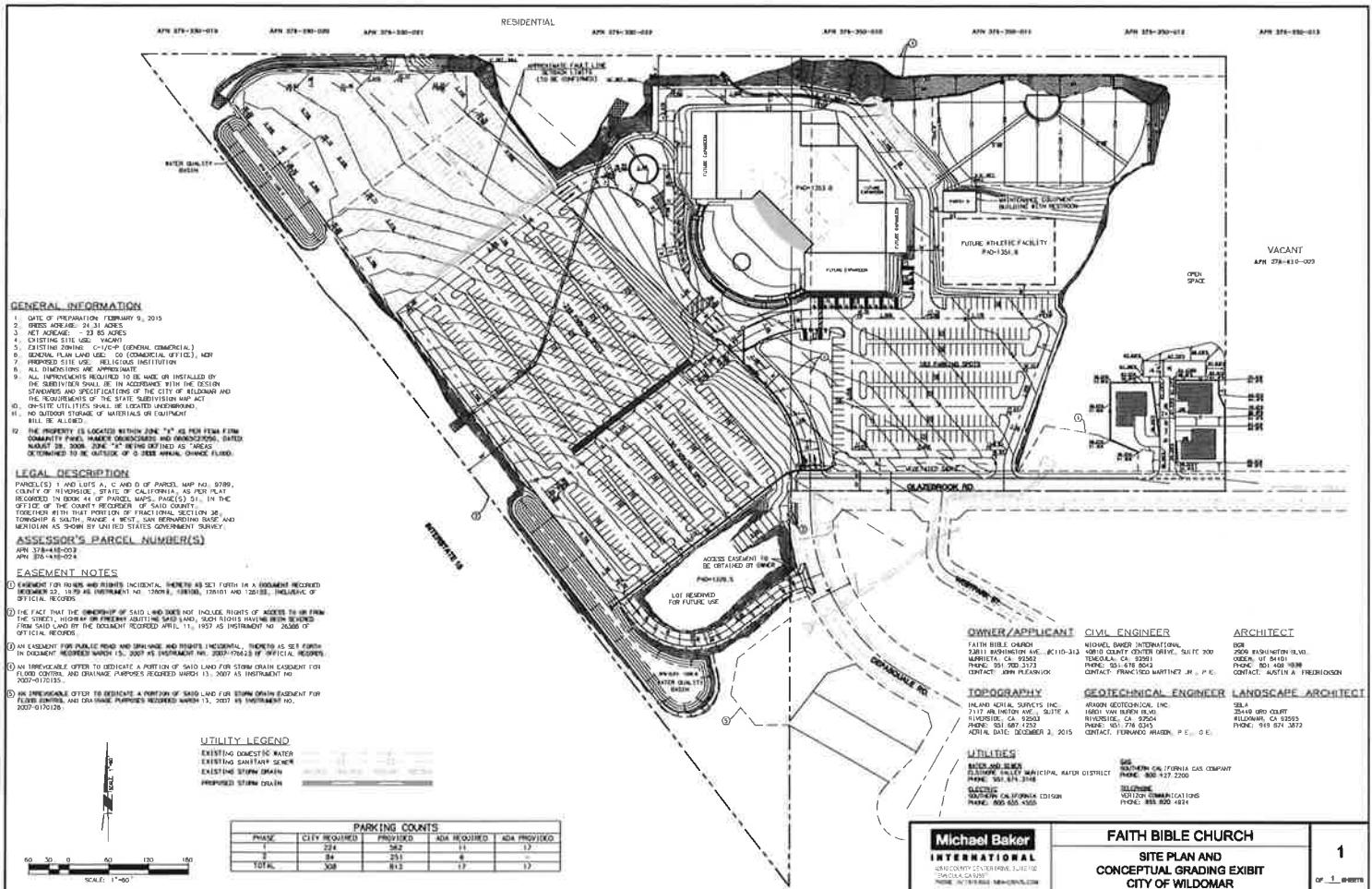
**Michael Baker**  
INTERNATIONAL

HIPDATA1149987\_Faith Bible Church TIA/Traffic Exhibits

### Project Distribution

Attachment B

also note: the city will consider a circ element  
update in 2-3 yrs that will study Baxter as a  
2/3 lane w/ ATP corridor.



## **Appendix D**

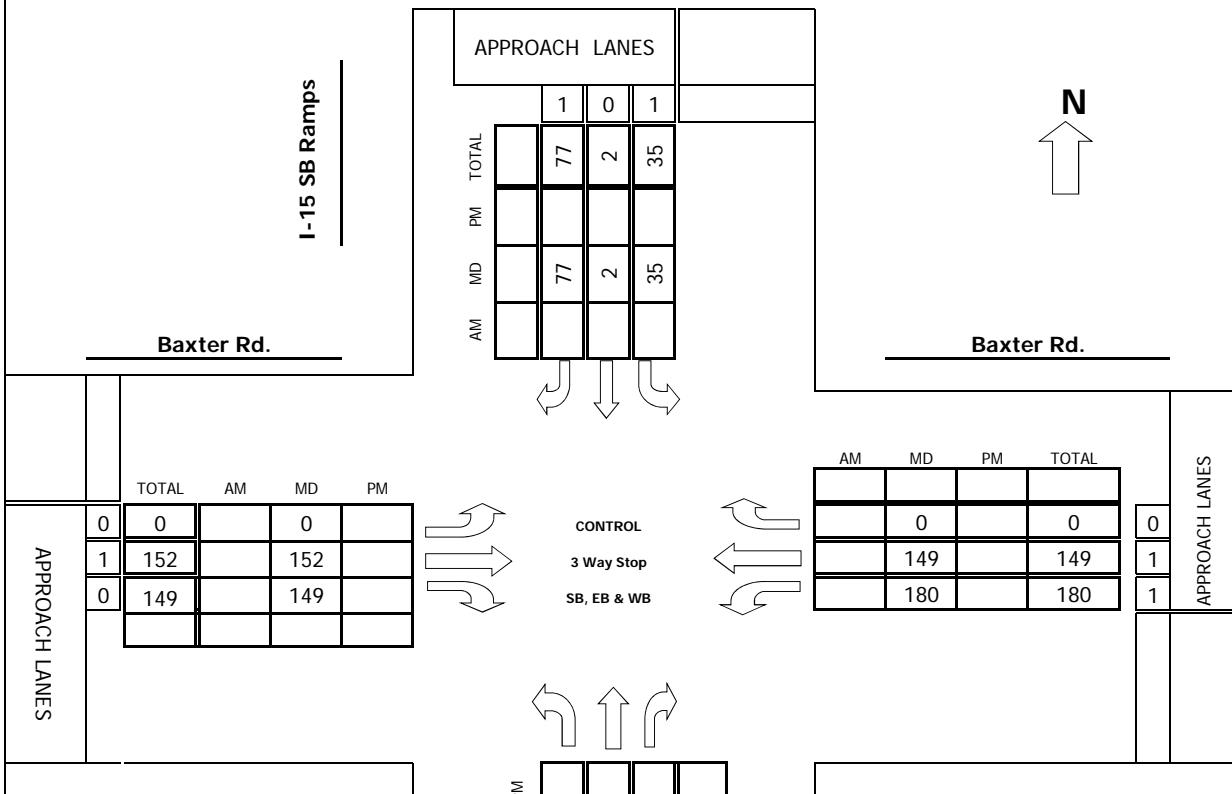
### **Traffic Count Data & Signal Timing Sheets**

**Intersection Turning Movement  
Prepared by:**



**Project #:** 16-1250-010

**TMC SUMMARY OF**



Baxter Rd.



Baxter Rd.

**LOCATION #:** 16-1250-010

**TURNING MOVEMENT COUNT**

**I-15 SB Ramps & Baxter Rd.**  
(Intersection Name)

SUNDAY                   07/10/2016  
Day                           Date

**COUNT PERIODS**

<b>AM</b>	10:00 AM - 1:00 PM
<b>NOON</b>	
<b>PM</b>	

AM PEAK HOUR

NOON PEAK HOUR

PM PEAK HOUR

1100 AM

## **Intersection Turning Movement**

## **Prepared by:**

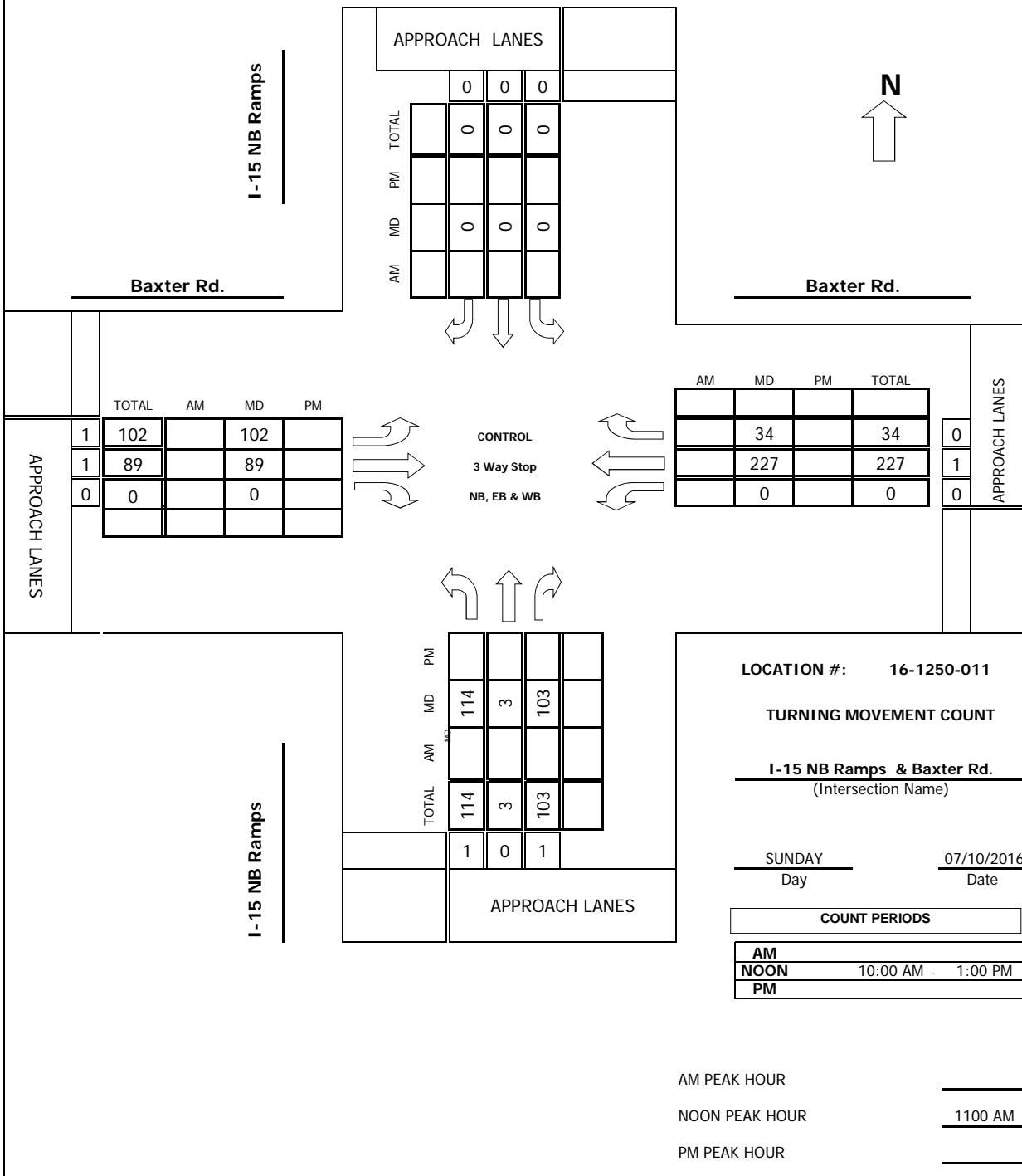


 FIELD DATA SERVICES OF ARIZONA, INC.  
520.316.6745

520.316.6745

**Project #:** 16-1250-011

**TMC SUMMARY OF**

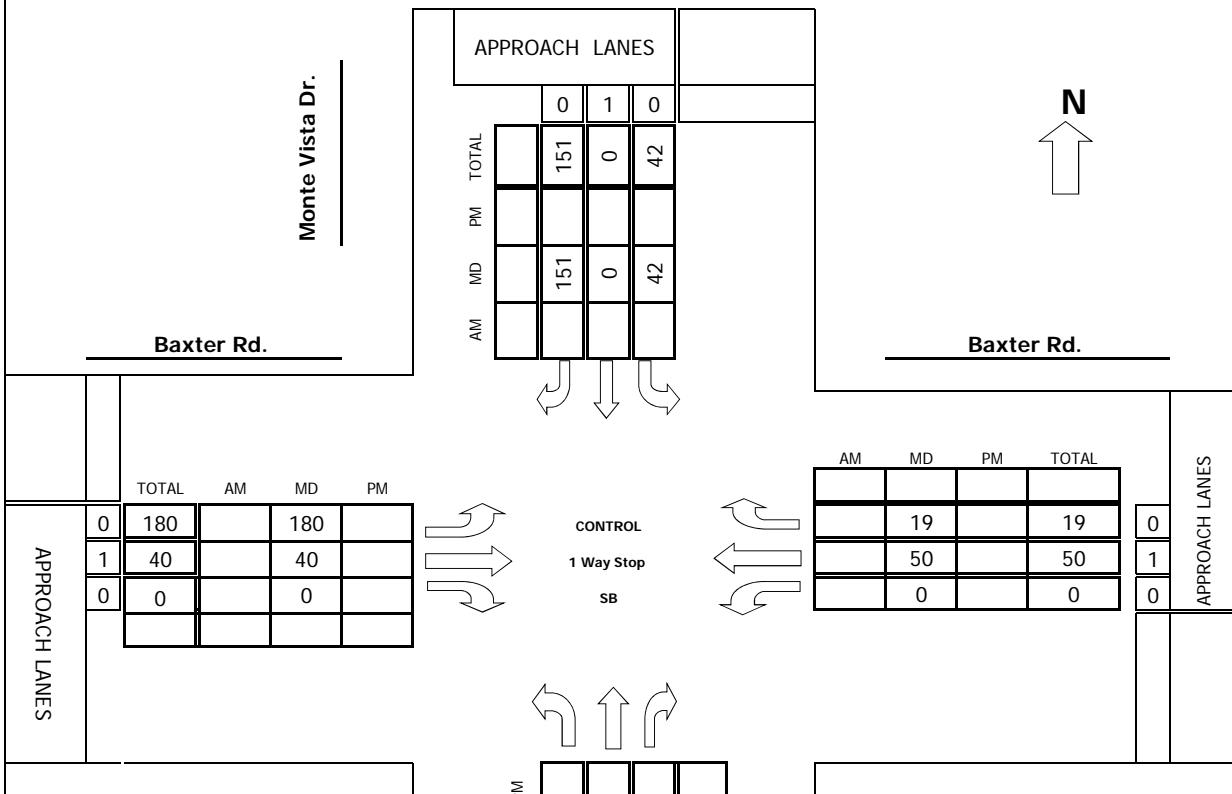


**Intersection Turning Movement  
Prepared by:**



**Project #:** 16-1264-001

**TMC SUMMARY OF**



				APPROACH LANES					
				AM	MD	PM			
				TOTAL	0	0			
				0	0	0			
				1	40	40			
				0	0	0			

Monte Vista Dr.

**LOCATION #:** 16-1264-001

**TURNING MOVEMENT COUNT**

**Monte Vista Dr. & Baxter Rd.**  
(Intersection Name)

SUNDAY 07/24/2016  
Day Date

COUNT PERIODS		
AM		
NOON	12:00 PM -	2:00 PM
PM		

AM PEAK HOUR

NOON PEAK HOUR

1000 AM

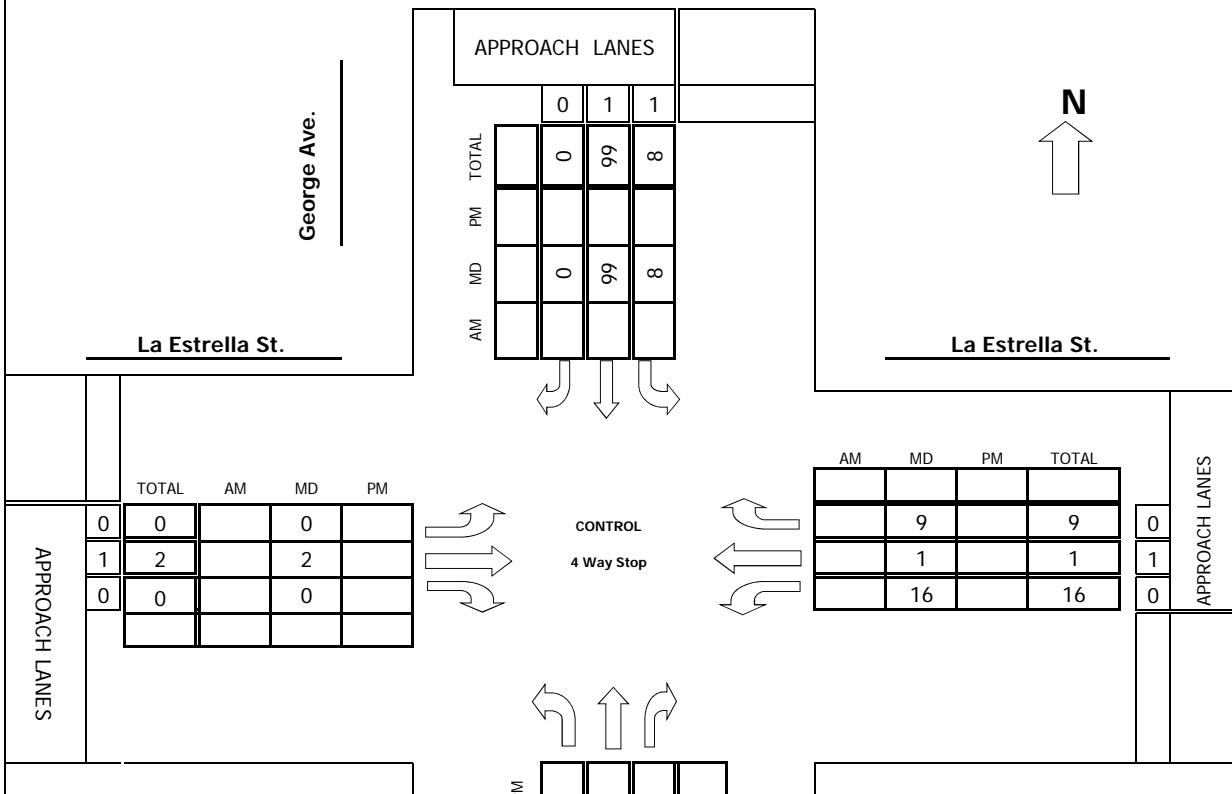
PM PEAK HOUR

**Intersection Turning Movement  
Prepared by:**



**Project #:** 16-1250-009

**TMC SUMMARY OF**



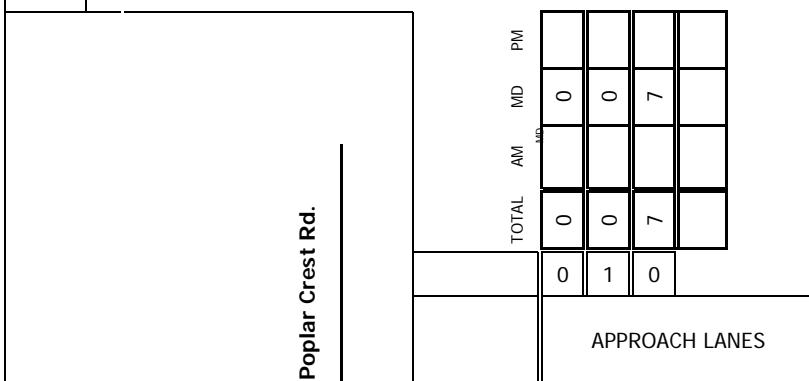
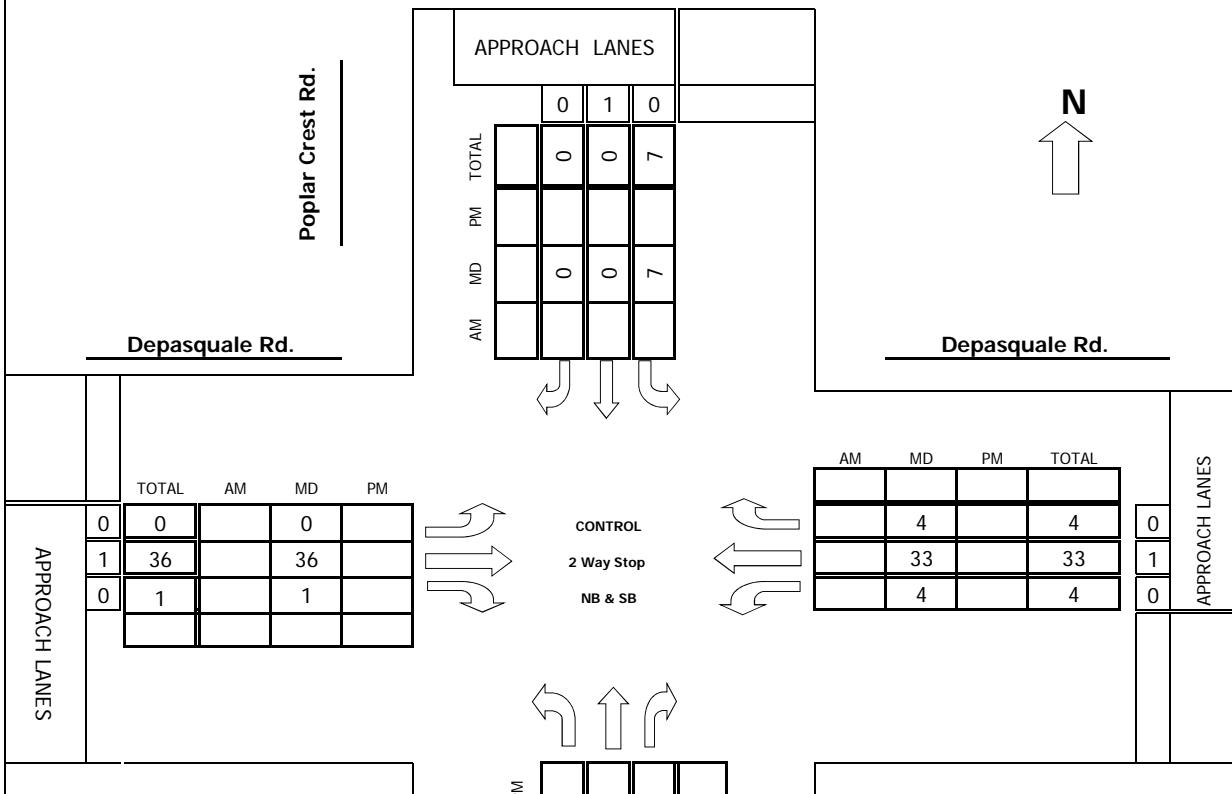
# Intersection Turning Movement

Prepared by:



**Project #:** 16-1250-008

## TMC SUMMARY OF



**LOCATION #:** 16-1250-008

### TURNING MOVEMENT COUNT

Poplar Crest Rd. & Depasquale Rd.  
(Intersection Name)

SUNDAY 07/10/2016  
Day Date

COUNT PERIODS		
AM		
NOON	10:00 AM -	1:00 PM
PM		

AM PEAK HOUR

\_\_\_\_\_  
1145 AM

NOON PEAK HOUR

\_\_\_\_\_

PM PEAK HOUR

\_\_\_\_\_

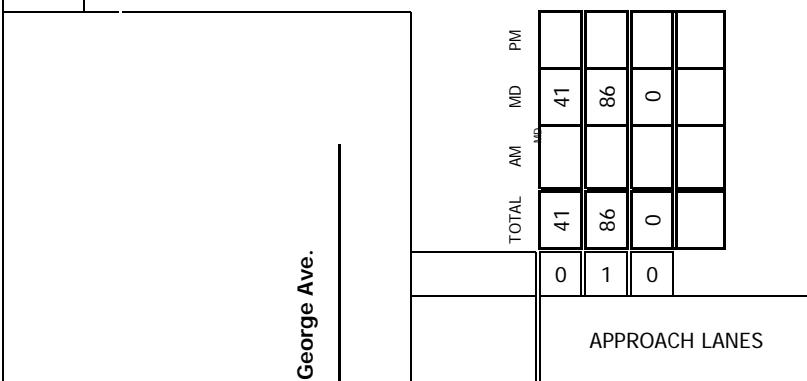
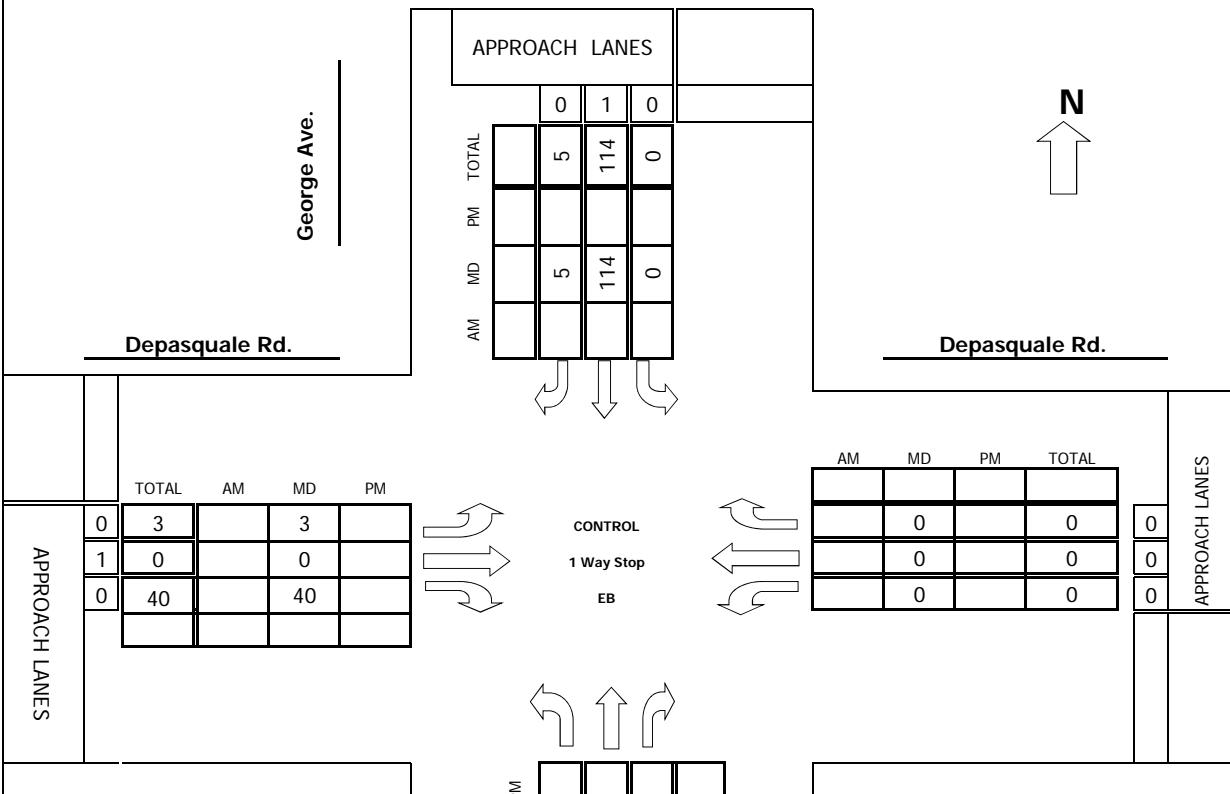
# Intersection Turning Movement

Prepared by:



**Project #:** 16-1250-007

## TMC SUMMARY OF



**LOCATION #:** 16-1250-007

### TURNING MOVEMENT COUNT

George Ave. & Depasquale Rd.  
(Intersection Name)

SUNDAY 07/10/2016  
Day Date

COUNT PERIODS		
AM		
NOON	10:00 PM -	1:00 PM
PM		

AM PEAK HOUR

NOON PEAK HOUR

1200 PM

PM PEAK HOUR

## **Intersection Turning Movement**

## **Prepared by:**

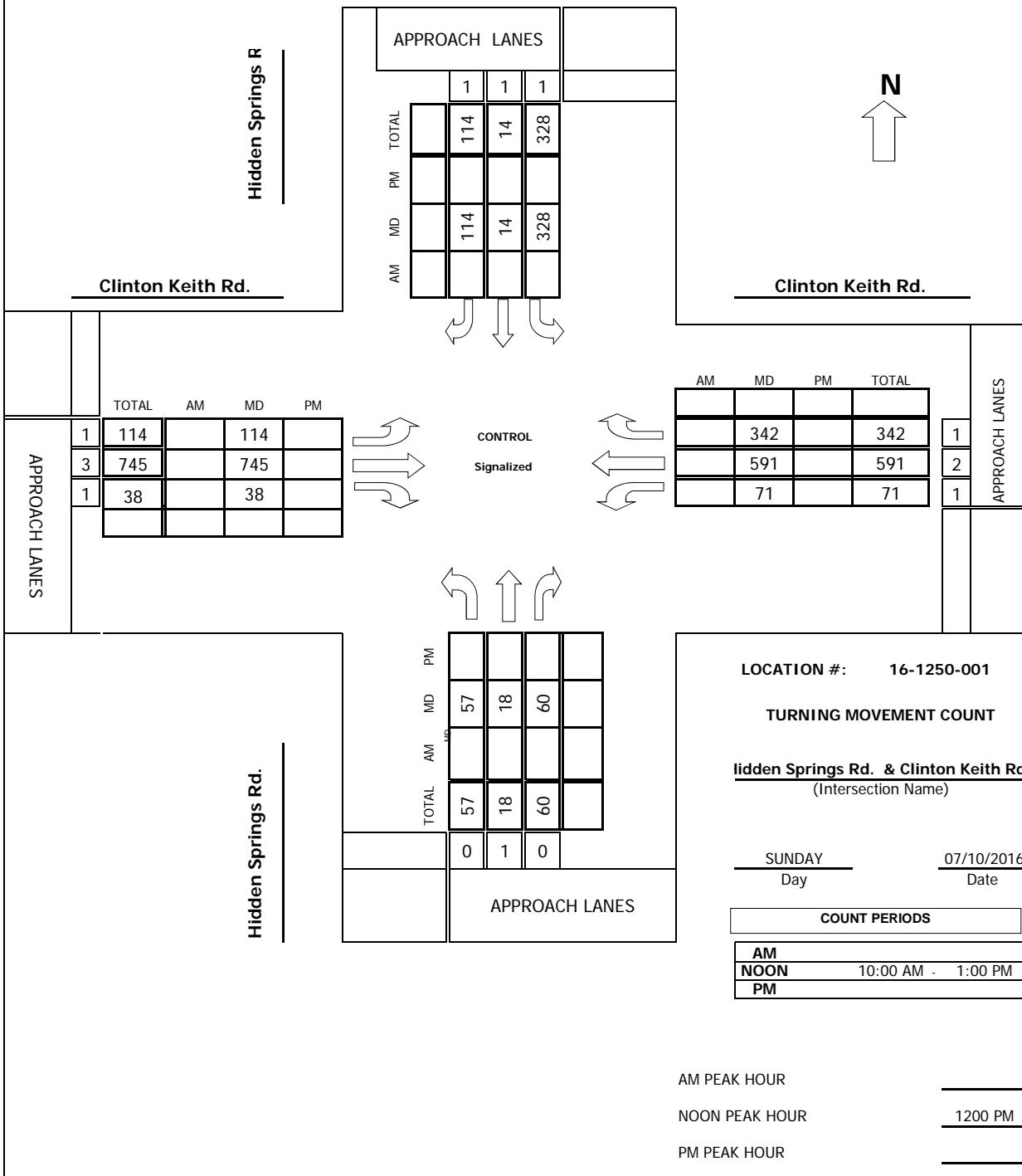


**FIELD DATA SERVICES OF ARIZONA, INC.**  
520.316.6745

520.316.6745

Project #: 16-1250-001

**TMC SUMMARY OF**

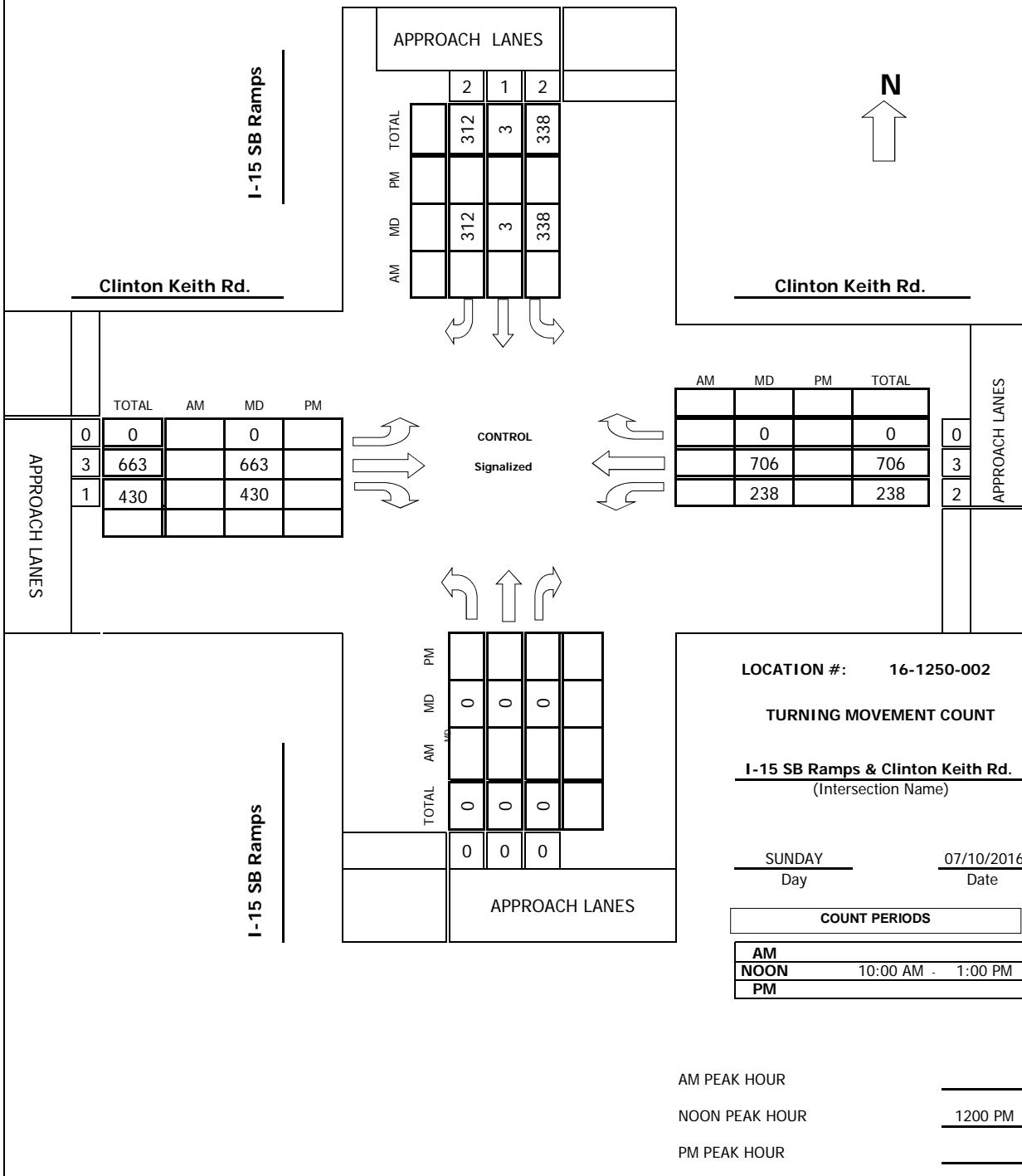


**Intersection Turning Movement  
Prepared by:**



**Project #:** 16-1250-002

**TMC SUMMARY OF**

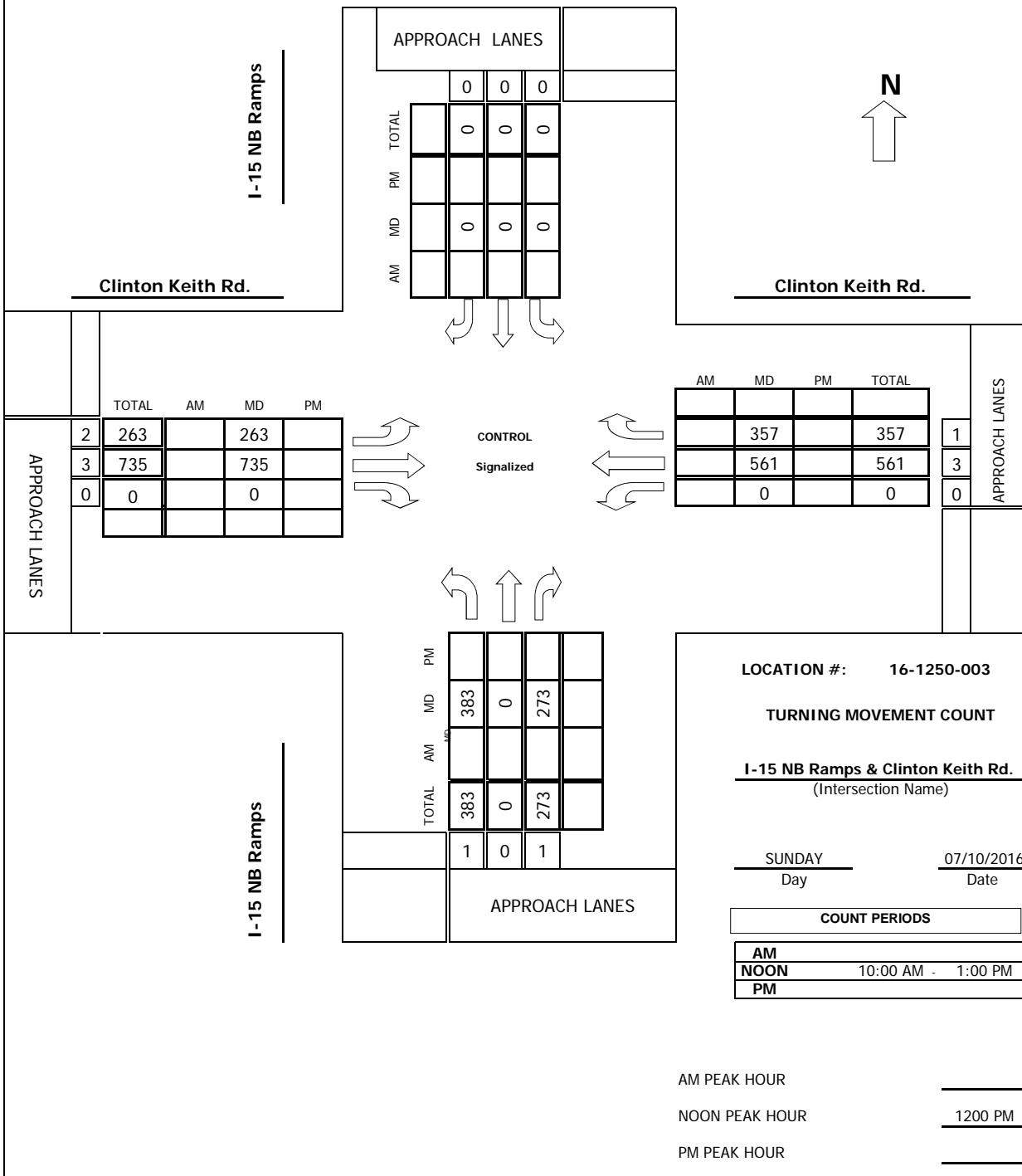


**Intersection Turning Movement  
Prepared by:**



**Project #:** 16-1250-003

***TMC SUMMARY OF***

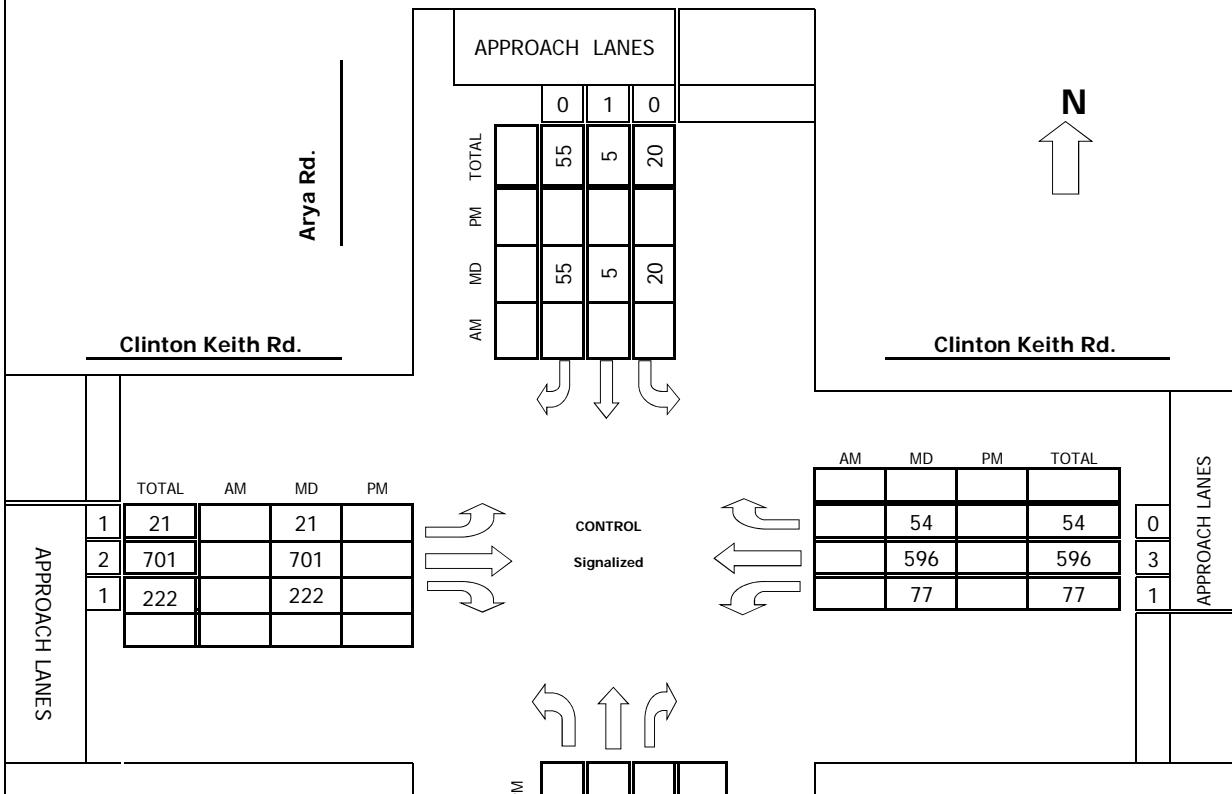


**Intersection Turning Movement  
Prepared by:**



**Project #:** 16-1250-004

**TMC SUMMARY OF**



Clinton Keith Rd.

APPROACH LANES

APPROACH LANES			
	AM	MD	PM
TOTAL	295	295	295
AM	8	8	8
MD	62	62	62
PM	1	1	1
TOTAL	295	295	295

LOCATION #: 16-1250-004

**TURNING MOVEMENT COUNT**

**Arya Rd. & Clinton Keith Rd.**  
(Intersection Name)

SUNDAY 07/10/2016  
Day Date

COUNT PERIODS		
AM		
NOON	10:00 AM -	1:00 PM
PM		

AM PEAK HOUR

NOON PEAK HOUR

1145 AM

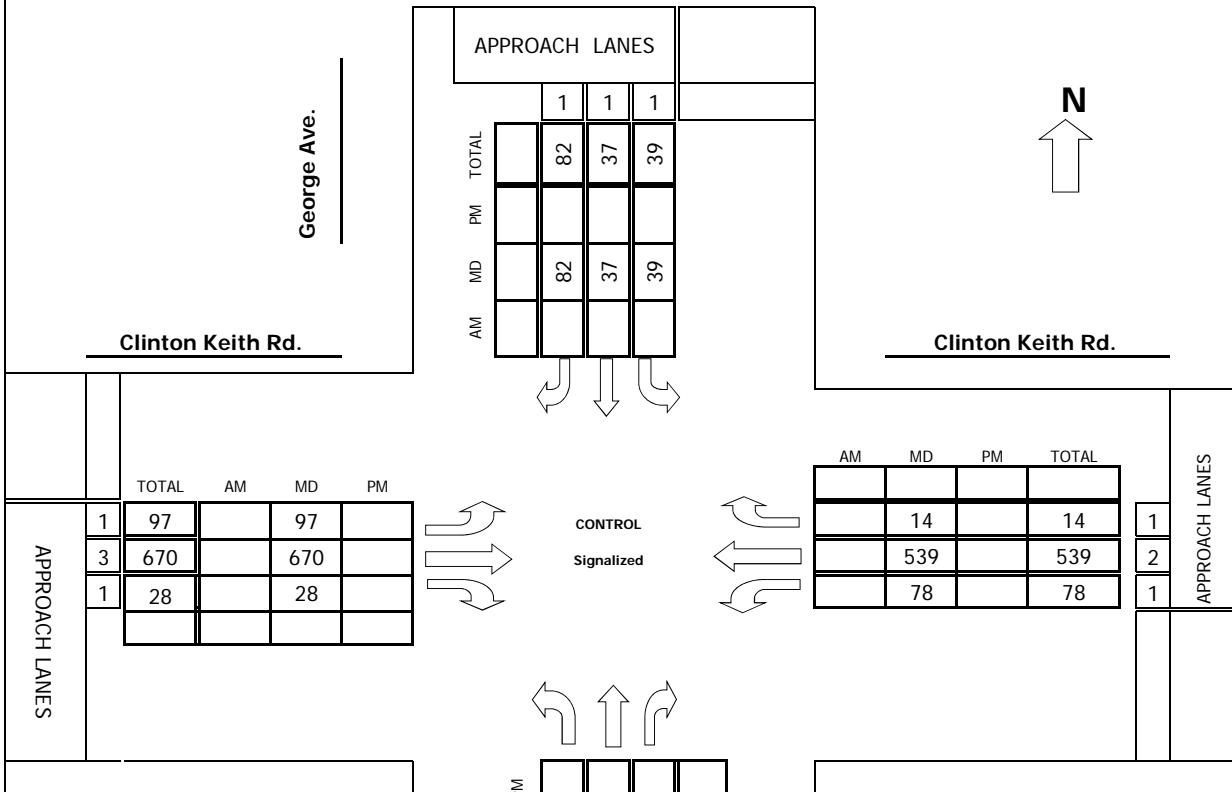
PM PEAK HOUR

**Intersection Turning Movement  
Prepared by:**



**Project #:** 16-1250-005

***TMC SUMMARY OF***



	TOTAL	AM	MD	PM
George Ave.	47	47		
George Ave.	26	26		
George Ave.	53	53		
George Ave.	1	1	1	

APPROACH LANES

**LOCATION #:** 16-1250-005

**TURNING MOVEMENT COUNT**

**George Ave. & Clinton Keith Rd.**  
(Intersection Name)

SUNDAY 07/10/2016  
Day Date

COUNT PERIODS		
AM		
NOON	10:00 AM -	1:00 PM
PM		

AM PEAK HOUR

NOON PEAK HOUR

PM PEAK HOUR

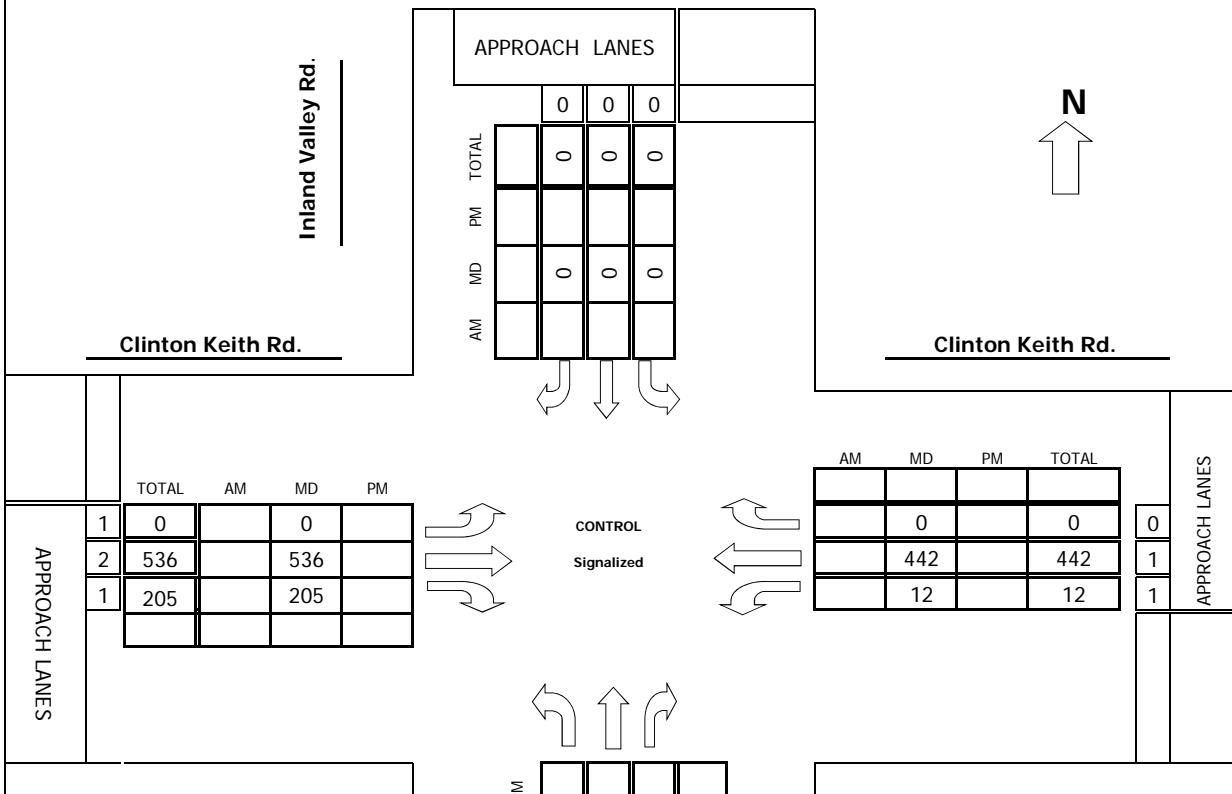
1200 PM

**Intersection Turning Movement  
Prepared by:**



**Project #:** 16-1250-006

**TMC SUMMARY OF**



Inland Valley Rd.				Inland Valley Rd.		
				189	0	10
TOTAL	AM	MD	PM	189	0	10
				189	0	10
				1	0	1

APPROACH LANES

**LOCATION #:** 16-1250-006

**TURNING MOVEMENT COUNT**

**Inland Valley Rd. & Clinton Keith Rd.**  
(Intersection Name)

SUNDAY 07/10/2016  
Day Date

COUNT PERIODS		
AM		
NOON	10:00 AM -	1:00 PM
PM		

AM PEAK HOUR

NOON PEAK HOUR

1200 PM

PM PEAK HOUR

**Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745**

Volumes for: Sunday, July 10, 2016

City: Wildomar

Project #: 16-1250-015

Location: George Ave. btwn. Depasquale Rd. & Clinton Keith Rd.

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB	
00:00	1	1			12:00	38	33			
00:15	0	1			12:15	34	39			
00:30	1	0			12:30	36	43			
00:45	0	2	0	2	4	12:45	40	148	41	156
										304
01:00	1	0			13:00	43	43			
01:15	2	0			13:15	41	39			
01:30	1	1			13:30	42	30			
01:45	0	4	0	1	5	13:45	29	155	28	140
										295
02:00	0	3			14:00	30	21			
02:15	1	0			14:15	32	14			
02:30	2	0			14:30	28	19			
02:45	1	4	1	4	8	14:45	24	114	20	74
										188
03:00	0	0			15:00	28	21			
03:15	0	0			15:15	25	25			
03:30	0	0			15:30	24	24			
03:45	1	1	1	1	2	15:45	29	106	28	98
										204
04:00	0	2			16:00	30	20			
04:15	1	4			16:15	19	14			
04:30	2	7			16:30	16	16			
04:45	3	6	4	17	23	16:45	20	85	13	63
										148
05:00	6	5			17:00	28	9			
05:15	5	2			17:15	21	11			
05:30	8	3			17:30	14	10			
05:45	4	23	6	16	39	17:45	8	71	14	44
										115
06:00	7	2			18:00	5	7			
06:15	14	5			18:15	9	4			
06:30	10	4			18:30	6	8			
06:45	11	42	4	15	57	18:45	11	31	16	35
										66
07:00	9	7			19:00	7	13			
07:15	13	14			19:15	4	8			
07:30	16	21			19:30	8	5			
07:45	14	52	20	62	114	19:45	12	31	7	33
										64
08:00	21	16			20:00	8	4			
08:15	20	14			20:15	5	8			
08:30	13	21			20:30	9	5			
08:45	19	73	28	79	152	20:45	6	28	9	26
										54
09:00	14	32			21:00	3	6			
09:15	21	30			21:15	2	3			
09:30	24	39			21:30	5	2			
09:45	28	87	40	141	228	21:45	2	12	1	12
										24
10:00	28	43			22:00	1	0			
10:15	27	32			22:15	1	0			
10:30	26	21			22:30	0	1			
10:45	20	101	28	124	225	22:45	1	3	0	1
										4
11:00	25	42			23:00	2	0			
11:15	24	41			23:15	1	1			
11:30	22	30			23:30	3	2			
11:45	25	96	33	146	242	23:45	0	6	1	4
										10
<b>Total Vol.</b>	491	608			<b>1099</b>		790	686		<b>1476</b>

GPS Coordinates:

	<b>Daily Totals</b>			
	NB	SB	EB	WB
	1281	1294		2575

**AM**

Split %	44.7%	55.3%	42.7%	53.5%	46.5%	57.3%
<b>Peak Hour</b>	11:45	09:30	<b>11:45</b>	12:45	12:15	<b>12:30</b>
<b>Volume</b>	133	154	<b>281</b>	166	166	<b>326</b>
P.H.F.	0.88	0.90	<b>0.89</b>	0.97	0.97	<b>0.95</b>

**Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745**

Volumes for: Sunday, July 10, 2016

City: Wildomar

Project #: 16-1250-014

Location: George Ave. btwn. La Estrella St. & Depasquale Rd.

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB		
00:00	0	0			12:00	25	28				
00:15	0	1			12:15	21	29				
00:30	0	0			12:30	25	28				
00:45	1	1	1	2	3	12:45	31	102	36	121	223
01:00	0	0			13:00	41	42				
01:15	0	0			13:15	43	38				
01:30	1	0			13:30	39	35				
01:45	2	3	0	0	3	13:45	30	153	28	143	296
02:00	1	2			14:00	32	21				
02:15	0	0			14:15	28	14				
02:30	1	0			14:30	24	19				
02:45	2	4	1	3	7	14:45	29	113	22	76	189
03:00	1	0			15:00	20	20				
03:15	0	1			15:15	25	21				
03:30	0	0			15:30	24	25				
03:45	0	1	0	1	2	15:45	21	90	24	90	180
04:00	0	1			16:00	28	22				
04:15	1	3			16:15	21	19				
04:30	2	2			16:30	14	13				
04:45	1	4	4	10	14	16:45	16	79	11	65	144
05:00	3	2			17:00	13	10				
05:15	2	5			17:15	19	14				
05:30	1	8			17:30	13	9				
05:45	4	10	3	18	28	17:45	8	53	11	44	97
06:00	8	6			18:00	5	10				
06:15	16	2			18:15	7	7				
06:30	13	5			18:30	11	4				
06:45	8	45	4	17	62	18:45	10	33	8	29	62
07:00	11	7			19:00	9	16				
07:15	10	12			19:15	5	7				
07:30	14	19			19:30	4	9				
07:45	20	55	20	58	113	19:45	11	29	6	38	67
08:00	21	25			20:00	5	3				
08:15	28	21			20:15	2	2				
08:30	21	14			20:30	5	5				
08:45	14	84	28	88	172	20:45	5	17	2	12	29
09:00	19	26			21:00	2	1				
09:15	20	33			21:15	1	0				
09:30	25	30			21:30	4	1				
09:45	22	86	41	130	216	21:45	1	8	2	4	12
10:00	26	36			22:00	2	0				
10:15	19	29			22:15	0	1				
10:30	11	22			22:30	1	0				
10:45	19	75	19	106	181	22:45	0	3	0	1	4
11:00	16	19			23:00	0	1				
11:15	13	25			23:15	1	0				
11:30	20	29			23:30	2	1				
11:45	14	63	24	97	160	23:45	1	4	1	3	7
<b>Total Vol.</b>	431	530			<b>961</b>		684	626		<b>1310</b>	

GPS Coordinates:

	<b>Daily Totals</b>			
	NB	SB	EB	WB
	1115	1156		<b>2271</b>

**AM**

Split %	44.8%	55.2%	42.3%	52.2%	47.8%	57.7%
Peak Hour	09:15	09:15	09:15	12:45	12:45	12:45
Volume	93	140	233	154	151	305
P.H.F.	0.89	0.85	0.92	0.90	0.90	0.92

**Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745**

Volumes for: Sunday, July 10, 2016

City: Wildomar

Project #: 16-1250-013

Location: Clinton Keith Rd. btwn. George Ave. & Iodine Springs Rd.

AM Period	NB	SB	EB	WB		PM Period	NB	SB	EB	WB
00:00			6	4		12:00			182	147
00:15			9	4		12:15			196	154
00:30			6	5		12:30			214	161
00:45			2	23	5	18	41	12:45		222 814 163 625 1439
01:00			5	3		13:00			241	174
01:15			4	6		13:15			22	152
01:30			7	9		13:30			236	166
01:45			4	20	6	24	44	13:45		244 743 161 653 1396
02:00			5	9		14:00			214	154
02:15			2	4		14:15			252	185
02:30			3	7		14:30			236	166
02:45			6	16	8	28	44	14:45		214 916 167 672 1588
03:00			5	4		15:00			185	163
03:15			8	7		15:15			196	166
03:30			2	5		15:30			199	187
03:45			5	20	8	24	44	15:45		181 761 185 701 1462
04:00			1	5		16:00			174	185
04:15			4	2		16:15			145	163
04:30			3	3		16:30			139	154
04:45			6	14	6	16	30	16:45		133 591 147 649 1240
05:00			9	9		17:00			130	141
05:15			6	6		17:15			104	122
05:30			9	9		17:30			74	120
05:45			14	38	14	38	76	17:45		75 383 69 452 835
06:00			21	20		18:00			50	60
06:15			41	26		18:15			59	65
06:30			29	42		18:30			60	58
06:45			24	115	41	129	244	18:45		65 234 54 237 471
07:00			28	54		19:00			43	41
07:15			21	58		19:15			32	43
07:30			42	50		19:30			28	39
07:45			41	132	74	236	368	19:45		21 124 30 153 277
08:00			54	104		20:00			14	28
08:15			60	122		20:15			16	21
08:30			85	128		20:30			13	14
08:45			104	303	155	509	812	20:45		11 54 16 79 133
09:00			111	152		21:00			10	13
09:15			122	147		21:15			14	9
09:30			141	154		21:30			7	7
09:45			154	528	163	616	1144	21:45		4 35 7 36 71
10:00			152	168		22:00			8	4
10:15			147	174		22:15			5	5
10:30			166	154		22:30			9	2
10:45			161	626	158	654	1280	22:45		6 28 6 17 45
11:00			159	152		23:00			3	3
11:15			154	166		23:15			2	3
11:30			158	163		23:30			5	2
11:45			181	652	169	650	1302	23:45		5 15 5 13 28

**Total Vol.**

2487 2942 5429

4698 4287 **8985**

## **GPS Coordinates:**

## Daily Totals

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NB	SB	EB	WB	Combined
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7185      7229      **14414**

AM

PM

## Split %

45.8% 54.2% **37.1%**

**52.3% 47.1% 62.3%**

## Peak Hour

11:45 09:30 11:4

13:30 15:15 13:30

Volume  
D.H.E

173 659 140

946 723 1612  
0.04 0.07 0.03

**Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745**

Volumes for: Sunday, July 10, 2016

City: Wildomar

Project #: 16-1250-012

Location: Clinton Keith Rd. btwn. I-15 NB Ramps & Arya Rd.

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00			9	7	12:00			243	240
00:15			6	5	12:15			263	237
00:30			9	8	12:30			241	231
00:45			5	29	12:45			258	1005 212 920 1925
01:00			8	9	13:00			263	219
01:15			4	5	13:15			266	200
01:30			7	8	13:30			258	208
01:45			11	30	13:45			277	1064 214 841 1905
02:00			5	10	14:00			275	196
02:15			8	11	14:15			258	199
02:30			5	6	14:30			252	166
02:45			2	20	14:45			263	1048 161 722 1770
03:00			3	8	15:00			266	154
03:15			6	12	15:15			239	178
03:30			9	18	15:30			230	185
03:45			5	23	15:45			241	976 181 698 1674
04:00			8	17	16:00			214	196
04:15			4	13	16:15			185	166
04:30			7	16	16:30			163	154
04:45			14	33	16:45			139	701 147 663 1364
05:00			10	13	17:00			133	141
05:15			11	16	17:15			104	152
05:30			13	14	17:30			105	128
05:45			16	50	17:45			108	450 130 551 1001
06:00			14	24	18:00			87	104
06:15			21	28	18:15			85	74
06:30			41	32	18:30			86	59
06:45			54	130	18:45			60	318 60 297 615
07:00			50	85	19:00			54	65
07:15			45	87	19:15			43	58
07:30			43	108	19:30			33	54
07:45			41	179	19:45			30	160 39 216 376
08:00			50	120	20:00			32	33
08:15			75	120	20:15			28	30
08:30			87	147	20:30			24	28
08:45			98	310	20:45			21	105 11 102 207
09:00			122	166	21:00			14	10
09:15			128	196	21:15			16	14
09:30			166	185	21:30			13	18
09:45			163	579	21:45			9	52 8 50 102
10:00			176	228	22:00			11	5
10:15			175	241	22:15			10	7
10:30			181	221	22:30			14	4
10:45			196	728	22:45			7	42 8 24 66
11:00			199	187	23:00			4	5
11:15			187	217	23:15			8	9
11:30			196	223	23:30			5	6
11:45			208	790	23:45			9	26 9 29 55
<b>Total Vol.</b>			2901	3943	<b>6844</b>			5947	5113 <b>11060</b>

GPS Coordinates:

	NB	SB	EB	WB	Combined
			8848	9056	<b>17904</b>

**AM**

<b>Split %</b>	42.4%	57.6%	<b>38.2%</b>			
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**PM**

<b>Peak Hour</b>	11:45	11:45	<b>11:45</b>			
<b>Volume P.H.F.</b>	955	977	<b>1932</b>			
	0.91	0.91	<b>0.97</b>			

**Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745**

Volumes for: Thursday, May 19, 2016

City: Murrieta

Project #: 16-1199-008

Location: Baxter Rd. btwn. I-15 NB Ramps & Monte Vista Dr.

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00			3	1	12:00			19	27
00:15			1	0	12:15			23	30
00:30			4	0	12:30			28	39
00:45			1	9	12:45			34	104 30 126 230
01:00			4	0	13:00			46	30
01:15			3	0	13:15			43	29
01:30			2	1	13:30			44	30
01:45			0	9	13:45			39	172 42 131 303
02:00			0	1	14:00			43	52
02:15			1	1	14:15			31	22
02:30			0	1	14:30			46	24
02:45			3	4	14:45			76	196 39 137 333
03:00			3	1	15:00			45	55
03:15			2	4	15:15			40	31
03:30			2	1	15:30			27	50
03:45			3	10	15:45			47	159 42 178 337
04:00			6	5	16:00			32	59
04:15			1	2	16:15			45	50
04:30			3	3	16:30			52	32
04:45			3	13	16:45			66	195 34 175 370
05:00			2	2	17:00			73	52
05:15			4	10	17:15			56	41
05:30			7	11	17:30			55	46
05:45			6	19	17:45			34	218 49 188 406
06:00			10	16	18:00			32	37
06:15			15	14	18:15			45	34
06:30			21	21	18:30			40	30
06:45			39	85	18:45			33	150 26 127 277
07:00			43	74	19:00			31	23
07:15			61	49	19:15			24	16
07:30			87	91	19:30			19	18
07:45			84	275	19:45			21	95 15 72 167
08:00			33	67	20:00			29	13
08:15			29	32	20:15			16	12
08:30			31	28	20:30			22	12
08:45			25	118	20:45			17	84 15 52 136
09:00			24	23	21:00			21	10
09:15			27	30	21:15			11	6
09:30			27	23	21:30			13	5
09:45			20	98	21:45			12	57 7 28 85
10:00			25	20	22:00			3	4
10:15			20	21	22:15			8	2
10:30			21	26	22:30			2	4
10:45			24	90	22:45			1	14 2 12 26
11:00			15	22	23:00			5	2
11:15			28	20	23:15			5	2
11:30			25	32	23:30			10	3
11:45			29	97	23:45			2	22 5 12 34
<b>Total Vol.</b>			827	938	<b>1765</b>			1466	1238 2704

GPS Coordinates:

	NB	SB	EB	WB	Combined
			2293	2176	4469

**AM**

<b>Split %</b>	46.9%	53.1%	<b>39.5%</b>	<b>PM</b>	54.2%	45.8%	<b>60.5%</b>
<b>Peak Hour</b>	07:00	07:00	<b>07:00</b>		16:45	15:30	<b>16:45</b>
<b>Volume P.H.F.</b>	275	313	<b>588</b>		250	201	<b>423</b>
	0.79	0.79	<b>0.80</b>		0.86	0.85	<b>0.85</b>

**Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745**

Volumes for: Thursday, May 19, 2016

City: Murrieta

Project #: 16-1199-007

Location: Porras Rd. btwn. School Drwy. & Brillante Dr.

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00	1	2			12:00	17	22		
00:15	0	1			12:15	19	32		
00:30	0	2			12:30	21	29		
00:45	3	4	3	8	12	12:45	23	80	26 109
									189
01:00	2	1			13:00	36	40		
01:15	3	2			13:15	42	22		
01:30	2	1			13:30	45	26		
01:45	1	8	1	5	13	13:45	86	209	21 109
									318
02:00	1	1			14:00	48	40		
02:15	1	0			14:15	26	24		
02:30	0	0			14:30	28	35		
02:45	0	2	0	1	3	14:45	50	152	34 133
									285
03:00	3	0			15:00	34	35		
03:15	0	2			15:15	19	32		
03:30	0	0			15:30	25	42		
03:45	2	5	1	3	8	15:45	20	98	37 146
									244
04:00	1	0			16:00	43	30		
04:15	1	0			16:15	49	45		
04:30	10	2			16:30	60	49		
04:45	7	19	2	4	23	16:45	87	239	40 164
									403
05:00	4	2			17:00	99	43		
05:15	6	5			17:15	63	63		
05:30	7	7			17:30	74	77		
05:45	13	30	6	20	50	17:45	51	287	73 256
									543
06:00	10	4			18:00	43	32		
06:15	15	2			18:15	26	28		
06:30	23	4			18:30	27	24		
06:45	16	64	10	20	84	18:45	29	125	25 109
									234
07:00	25	29			19:00	19	19		
07:15	41	30			19:15	24	33		
07:30	78	76			19:30	19	20		
07:45	96	240	86	221	461	19:45	16	78	20 92
									170
08:00	21	77			20:00	28	15		
08:15	16	62			20:15	14	22		
08:30	13	32			20:30	21	14		
08:45	18	68	25	196	264	20:45	13	76	13 64
									140
09:00	26	29			21:00	16	15		
09:15	23	26			21:15	6	17		
09:30	26	21			21:30	7	15		
09:45	32	107	21	97	204	21:45	7	36	10 57
									93
10:00	45	31			22:00	5	11		
10:15	18	20			22:15	3	8		
10:30	20	27			22:30	8	11		
10:45	27	110	20	98	208	22:45	1	17	5 35
									52
11:00	16	20			23:00	1	5		
11:15	32	19			23:15	1	3		
11:30	41	20			23:30	0	4		
11:45	25	114	27	86	200	23:45	3	5	1 13
									18
<b>Total Vol.</b>	771	759			<b>1530</b>		1402	1287	<b>2689</b>

GPS Coordinates:

	<b>Daily Totals</b>			
	NB	SB	EB	WB
	2173	2046		4219

**AM**

<b>Split %</b>	50.4%	49.6%	<b>36.3%</b>	<b>52.1%</b>	47.9%	<b>63.7%</b>	
<b>Peak Hour</b>	07:00	07:30	<b>07:30</b>		16:45	17:00	<b>16:45</b>
<b>Volume</b>	240	301	<b>512</b>		323	256	<b>546</b>
<b>P.H.F.</b>	0.63	0.88	<b>0.70</b>		0.82	0.83	<b>0.90</b>

**Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745**

Volumes for: Thursday, May 19, 2016

City: Murrieta

Project #: 16-1199-006

Location: La Estrella St. btwn. George Ave. & Iodine Springs Rd.

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00			0	0	12:00			8	7
00:15			1	0	12:15			10	6
00:30			0	0	12:30			4	5
00:45			1	2	0	0	2	12:45	5 23 55
01:00			1	0	13:00			5	8
01:15			1	0	13:15			9	11
01:30			1	0	13:30			10	16
01:45			0	3	0	0	3	13:45	55 79 5 40 119
02:00			0	0	14:00			15	10
02:15			1	0	14:15			11	10
02:30			0	1	14:30			14	4
02:45			0	1	0	1	2	14:45	16 56 4 28 84
03:00			2	1	15:00			17	10
03:15			0	0	15:15			9	5
03:30			0	1	15:30			5	9
03:45			2	4	0	2	6	15:45	12 43 11 35 78
04:00			0	0	16:00			10	8
04:15			0	1	16:15			11	9
04:30			1	0	16:30			8	8
04:45			0	1	0	1	2	16:45	6 35 13 38 73
05:00			0	1	17:00			6	4
05:15			2	2	17:15			4	6
05:30			0	1	17:30			3	6
05:45			1	3	4	8	11	17:45	4 17 6 22 39
06:00			1	1	18:00			8	6
06:15			2	2	18:15			8	4
06:30			4	3	18:30			12	10
06:45			1	8	2	8	16	18:45	10 38 4 24 62
07:00			2	9	19:00			14	5
07:15			4	15	19:15			7	4
07:30			9	24	19:30			13	3
07:45			16	31	22	70	101	19:45	8 42 4 16 58
08:00			16	19	20:00			9	3
08:15			6	10	20:15			6	3
08:30			2	8	20:30			7	1
08:45			4	28	9	46	74	20:45	5 27 10 17 44
09:00			8	7	21:00			10	5
09:15			3	12	21:15			7	3
09:30			10	8	21:30			3	4
09:45			2	23	12	39	62	21:45	8 28 2 14 42
10:00			10	5	22:00			5	1
10:15			4	9	22:15			4	1
10:30			3	12	22:30			4	4
10:45			9	26	8	34	60	22:45	1 14 1 7 21
11:00			12	5	23:00			1	3
11:15			6	12	23:15			0	1
11:30			5	9	23:30			0	0
11:45			8	31	7	33	64	23:45	2 3 0 4 7

**Total Vol.**

161 242 403

414 268 682

## Daily Totals

NB SB EB WB Combined

575 510 1085

PM

60.7% 39.3% **62.9%**

13:45 13:15 13:30

AM

## Split %

40.0% 60.0% **37.1%**

60.7% 39.3% **62.9%**

13:45 13:15 13:30

Peak Hour

07:30 07:15 07:15

13:45 13:15 13:30

Peak Flow

67.13 67.13 67.13

18.18 18.19 18.20

## volume P.H.F.

47 80 125  
0.73 0.83 0.82

95 42 132  
0.43 0.66 0.55

• • • •

377-378 379-380

2012-2013

**Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745**

Volumes for: Thursday, May 19, 2016

City: Murrieta

Project #: 16-1199-005

Location: George Ave. btwn. Depasquale Rd. & La Estrella St.

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00	3	1			12:00	39	26		
00:15	3	3			12:15	43	28		
00:30	2	2			12:30	26	32		
00:45	8	16	1	7	23	12:45	28	136	30
							116		252
01:00	1	0			13:00	49	29		
01:15	5	1			13:15	54	31		
01:30	1	2			13:30	65	30		
01:45	2	9	1	4	13	13:45	60	228	106
							196		424
02:00	2	1			14:00	33	77		
02:15	1	0			14:15	29	45		
02:30	1	1			14:30	41	36		
02:45	0	4	2	4	8	14:45	36	139	41
							199		338
03:00	1	3			15:00	45	42		
03:15	2	1			15:15	43	32		
03:30	2	2			15:30	55	35		
03:45	3	8	5	11	19	15:45	49	192	36
							145		337
04:00	2	2			16:00	45	33		
04:15	3	8			16:15	41	41		
04:30	11	13			16:30	60	42		
04:45	12	28	14	37	65	16:45	79	225	41
							157		382
05:00	6	10			17:00	99	43		
05:15	6	16			17:15	66	63		
05:30	19	19			17:30	60	80		
05:45	18	49	22	67	116	17:45	45	270	73
							259		529
06:00	11	16			18:00	43	53		
06:15	21	27			18:15	39	41		
06:30	32	36			18:30	66	43		
06:45	28	92	28	107	199	18:45	60	208	33
							170		378
07:00	26	30			19:00	54	20		
07:15	33	42			19:15	41	25		
07:30	60	89			19:30	42	24		
07:45	56	175	99	260	435	19:45	29	166	21
							90		256
08:00	27	96			20:00	30	29		
08:15	26	56			20:15	32	20		
08:30	22	54			20:30	28	19		
08:45	20	95	26	232	327	20:45	24	114	16
							84		198
09:00	42	43			21:00	21	13		
09:15	21	33			21:15	14	14		
09:30	28	30			21:30	19	12		
09:45	24	115	32	138	253	21:45	16	70	8
							47		117
10:00	29	28			22:00	19	5		
10:15	33	54			22:15	13	9		
10:30	30	41			22:30	8	6		
10:45	32	124	36	159	283	22:45	5	45	3
							23		68
11:00	28	33			23:00	7	2		
11:15	24	37			23:15	4	5		
11:30	41	39			23:30	8	2		
11:45	42	135	32	141	276	23:45	5	24	1
							10		34
<b>Total Vol.</b>	850	1167			<b>2017</b>		1817	1496	<b>3313</b>

GPS Coordinates:

	<b>Daily Totals</b>			
	NB	SB	EB	WB
	2667	2663		5330

**AM**

Split %	42.1%	57.9%	37.8%	54.8%	45.2%	62.2%
<b>Peak Hour</b>	07:15	07:30	<b>07:30</b>	16:30	17:15	<b>16:45</b>
<b>Volume</b>	176	340	<b>509</b>	304	269	<b>531</b>
<b>P.H.F.</b>	0.73	0.86	<b>0.82</b>	0.77	0.84	<b>0.93</b>

**Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745**

Volumes for: Thursday, May 19, 2016

City: Murrieta

Project #: 16-1199-004

Location: George Ave. btwn. Clinton Keith Rd. & Depasquale Rd.

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00	2	1			12:00	31	24		
00:15	8	1			12:15	47	32		
00:30	3	1			12:30	27	29		
00:45	7	20	5	8	12:45	28	133	27	112
									245
01:00	2	0			13:00	50	34		
01:15	5	2			13:15	47	21		
01:30	1	2			13:30	60	28		
01:45	0	8	1	5	13:45	59	216	108	191
									407
02:00	1	1			14:00	26	78		
02:15	1	0			14:15	25	48		
02:30	0	1			14:30	44	36		
02:45	0	2	0	2	14:45	35	130	43	205
									335
03:00	0	1			15:00	46	42		
03:15	1	1			15:15	43	28		
03:30	0	2			15:30	54	37		
03:45	2	3	4	8	15:45	48	191	37	144
									335
04:00	1	3			16:00	53	36		
04:15	1	7			16:15	49	52		
04:30	1	14			16:30	63	45		
04:45	1	4	13	37	16:45	79	244	39	172
									416
05:00	3	9			17:00	101	41		
05:15	0	17			17:15	65	67		
05:30	4	20			17:30	67	82		
05:45	4	11	22	68	17:45	56	289	76	266
									555
06:00	5	16			18:00	43	55		
06:15	1	27			18:15	38	43		
06:30	14	38			18:30	50	37		
06:45	10	30	27	108	18:45	45	176	32	167
									343
07:00	19	38			19:00	53	21		
07:15	40	39			19:15	42	27		
07:30	59	86			19:30	47	23		
07:45	54	172	104	267	19:45	37	179	21	92
									271
08:00	23	96			20:00	35	29		
08:15	22	60			20:15	41	19		
08:30	19	43			20:30	34	22		
08:45	20	84	36	235	20:45	18	128	18	88
									216
09:00	23	41			21:00	28	16		
09:15	25	37			21:15	40	14		
09:30	26	38			21:30	26	12		
09:45	14	88	29	145	21:45	19	113	9	51
									164
10:00	30	50			22:00	25	4		
10:15	26	31			22:15	17	8		
10:30	22	36			22:30	19	9		
10:45	19	97	32	149	22:45	6	67	3	24
									91
11:00	24	31			23:00	9	2		
11:15	22	40			23:15	6	2		
11:30	30	31			23:30	11	4		
11:45	20	96	57	159	23:45	2	28	0	8
									36
<b>Total Vol.</b>	615	1191			<b>1806</b>	1894	1520		<b>3414</b>

GPS Coordinates:

	<b>Daily Totals</b>			
	NB	SB	EB	WB
	2509	2711		5220

**AM**

<b>Split %</b>	34.1%	65.9%	<b>34.6%</b>	55.5%	44.5%	<b>65.4%</b>
<b>Peak Hour</b>	07:15	07:30	<b>07:30</b>	16:45	17:15	<b>17:00</b>
<b>Volume</b>	176	346	<b>504</b>	312	280	<b>555</b>
<b>P.H.F.</b>	0.75	0.83	<b>0.80</b>	0.77	0.85	<b>0.93</b>

**Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745**

Volumes for: Thursday, May 19, 2016

City: Murrieta

Project #: 16-1199-003

Location: Clinton Keith Rd btwn. George Ave. & Iodine Springs Rd.

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00			35	25	12:00			194	212
00:15			24	19	12:15			219	215
00:30			28	19	12:30			191	208
00:45			20	107	19	82	189	12:45	225 829 224 859 1688
01:00			22	11				223	183
01:15			17	15				204	203
01:30			21	14				211	206
01:45			11	71	6	46	117	13:45	227 865 173 765 1630
02:00			13	10				264	193
02:15			7	10				231	217
02:30			13	7				235	228
02:45			10	43	12	39	82	14:45	264 994 221 859 1853
03:00			8	20				247	235
03:15			15	24				249	225
03:30			14	28				272	293
03:45			4	41	46	118	159	15:45	292 1060 239 992 2052
04:00			11	48				249	280
04:15			16	79				299	315
04:30			24	84				228	274
04:45			30	81	88	299	380	16:45	236 1012 266 1135 2147
05:00			39	104				254	271
05:15			43	86				277	243
05:30			50	108				285	219
05:45			73	205	118	416	621	17:45	284 1100 204 937 2037
06:00			87	143				239	205
06:15			94	151				275	192
06:30			123	190				240	212
06:45			159	463	182	666	1129	18:45	252 1006 161 770 1776
07:00			166	180				227	160
07:15			159	235				188	140
07:30			199	246				177	159
07:45			238	762	243	904	1666	19:45	161 753 131 590 1343
08:00			236	199				165	140
08:15			229	169				158	141
08:30			224	214				175	119
08:45			236	925	203	785	1710	20:45	139 637 120 520 1157
09:00			214	198				122	98
09:15			185	167				123	115
09:30			166	226				99	76
09:45			181	746	197	788	1534	21:45	106 450 77 366 816
10:00			166	205				77	58
10:15			163	191				77	42
10:30			184	158				61	45
10:45			178	691	199	753	1444	22:45	58 273 43 188 461
11:00			158	196				55	35
11:15			171	222				44	35
11:30			187	216				44	30
11:45			182	698	230	864	1562	23:45	42 185 25 125 310

**Total Vol.** 4833 5760 **10593** 9164 8106 **17270**

**GPS Coordinates:**

		<b>Daily Totals</b>		
		NB	SB	EB
				WB
				Combined

13997 13866 **27863**

**AM**

<b>Split %</b>	45.6%	54.4%	<b>38.0%</b>		53.1%	46.9%	<b>62.0%</b>
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53.1% 46.9% **62.0%**

<b>Peak Hour</b>	07:45	07:15	<b>07:30</b>		15:30	16:00	<b>15:30</b>
------------------	-------	-------	--------------	--	-------	-------	--------------

15:30 16:00 **15:30**

<b>Volume P.H.F.</b>	927	923	<b>1759</b>		1112	1135	<b>2239</b>
----------------------	-----	-----	-------------	--	------	------	-------------

1112 1135 **2239**

<b>Volume P.H.F.</b>	0.97	0.94	<b>0.91</b>		0.93	0.90	<b>0.91</b>
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0.93 0.90 **0.91**

**Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745**

Volumes for: Thursday, May 19, 2016

City: Murrieta

Project #: 16-1199-002

Location: Clinton Keith Rd btwn. Arya Rd. & I-15 SB Ramps

**Total Vol.**

5804 5479 11283

9891 9636 19527

## **GPS Coordinates:**

## Daily Totals

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NB	SB	EB	WB	Combined
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15695      15115    30810

**AM**

50.7% 49.3% **63.4%**

split 98

51.4% 48.6% **50.0%**

50.7% 47.5% 63.4%

## Peak Hour

07.45 07.15 07.

10.45 10.45 10.45

Volume  
P.H.F.

0.93      0.91      0.9

0.97      0.95      **0.97**

**Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745**

Volumes for: Thursday, May 19, 2016

City: Murrieta

Project #: 16-1199-001

Location: Clinton Keith Rd btwn. Hidden Springs Rd. & I-15 SB Ramps

AM Period	NB	SB	EB	WB		PM Period	NB	SB	EB	WB
00:00			57	32		12:00			268	259
00:15			68	29		12:15			263	256
00:30			33	23		12:30			235	244
00:45			35	193	27	111	304	12:45	195	961
01:00			36	18		13:00			226	259
01:15			44	27		13:15			198	242
01:30			35	8		13:30			205	247
01:45			41	156	11	64	220	13:45	223	852
02:00			43	10		14:00			213	230
02:15			27	11		14:15			200	283
02:30			22	10		14:30			183	317
02:45			23	115	7	38	153	14:45	198	794
03:00			29	10		15:00			237	287
03:15			15	10		15:15			215	324
03:30			13	7		15:30			292	276
03:45			16	73	8	35	108	15:45	237	981
04:00			12	12		16:00			295	315
04:15			21	15		16:15			305	277
04:30			25	23		16:30			279	308
04:45			21	79	27	77	156	16:45	300	1179
05:00			42	27		17:00			322	358
05:15			41	29		17:15			277	306
05:30			54	49		17:30			269	281
05:45			63	200	54	159	359	17:45	277	1145
06:00			69	68		18:00			232	300
06:15			130	58		18:15			264	293
06:30			122	109		18:30			267	265
06:45			196	517	165	400	917	18:45	232	995
07:00			246	188		19:00			196	238
07:15			328	200		19:15			205	241
07:30			322	189		19:30			192	232
07:45			344	1240	191	768	2008	19:45	182	775
08:00			285	177		20:00			173	218
08:15			226	143		20:15			145	196
08:30			256	141		20:30			201	187
08:45			244	1011	166	627	1638	20:45	177	696
09:00			205	161		21:00			187	177
09:15			214	162		21:15			149	161
09:30			222	154		21:30			146	116
09:45			216	857	185	662	1519	21:45	166	648
10:00			195	193		22:00			128	109
10:15			181	187		22:15			113	88
10:30			170	163		22:30			101	82
10:45			221	767	216	759	1526	22:45	113	455
11:00			241	199		23:00			88	60
11:15			216	230		23:15			68	61
11:30			216	248		23:30			75	58
11:45			227	900	252	929	1829	23:45	67	298

**Total Vol.**

6108 4629 10737

9779 10797 20576

## **GPS Coordinates:**

## Daily Totals

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NB	SB	EB	WB	Combined
----	----	----	----	----------

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15887 15426 31313

**AM**

PM

Split %

**56.9% 43.1% 34.3%**

**47.5% 52.5% 65.1%**

## Peak Hour

07:15 11:30 07:15

16:15                  16:30          16:30

Volume  
RHE

1279 1015 2036

1206 1283 2461  
0.84 0.80 0.80

**Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745**

Volumes for: Sunday, June 3, 2018

City: Wildomar

Project #: 18-1252-003

Location: Depasquale Rd. approx. 100' south of Glazebrook Rd.

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00	0	0			12:00	2	0		
00:15	0	0			12:15	0	0		
00:30	0	0			12:30	1	1		
00:45	0	0	0	0	12:45	3	6	5	6
									12
01:00	0	0			13:00	0	0		
01:15	0	0			13:15	1	0		
01:30	0	0			13:30	0	1		
01:45	0	0	0	0	13:45	0	1	0	1
									2
02:00	0	0			14:00	2	2		
02:15	0	0			14:15	3	0		
02:30	1	0			14:30	0	2		
02:45	0	1	0	0	14:45	2	7	0	4
									11
03:00	0	0			15:00	1	0		
03:15	0	0			15:15	0	0		
03:30	0	0			15:30	0	0		
03:45	0	0	0	0	15:45	0	1	1	1
									2
04:00	0	0			16:00	1	0		
04:15	0	0			16:15	0	1		
04:30	0	0			16:30	0	0		
04:45	0	0	0	0	16:45	2	3	1	2
									5
05:00	0	0			17:00	0	0		
05:15	0	0			17:15	0	0		
05:30	0	0			17:30	2	0		
05:45	1	1	0	0	17:45	2	4	2	2
									6
06:00	0	0			18:00	0	0		
06:15	0	0			18:15	0	1		
06:30	1	0			18:30	1	0		
06:45	1	2	1	1	18:45	1	2	1	2
									4
07:00	0	0			19:00	2	0		
07:15	0	1			19:15	1	2		
07:30	0	0			19:30	1	2		
07:45	0	0	2	3	19:45	0	4	2	6
									10
08:00	0	0			20:00	0	0		
08:15	0	0			20:15	0	0		
08:30	0	0			20:30	1	0		
08:45	0	0	1	1	20:45	0	1	0	0
									1
09:00	2	2			21:00	1	0		
09:15	0	2			21:15	0	0		
09:30	0	2			21:30	0	0		
09:45	0	2	0	6	21:45	0	1	0	0
									1
10:00	0	0			22:00	3	0		
10:15	0	2			22:15	0	2		
10:30	0	0			22:30	0	0		
10:45	1	1	1	3	22:45	0	3	0	2
									5
11:00	0	0			23:00	0	0		
11:15	1	3			23:15	0	0		
11:30	0	0			23:30	0	0		
11:45	1	2	1	4	23:45	0	0	0	0
<b>Total Vol.</b>	9	18			<b>27</b>	33	26		<b>59</b>

GPS Coordinates: 33.602821, -117.249302

**Daily Totals**

NB	SB	EB	WB	Combined
42	44			<b>86</b>

**AM**

Split %	33.3%	66.7%	<b>31.4%</b>	55.9%	44.1%	<b>68.6%</b>
<b>Peak Hour</b>	11:15	08:45	<b>08:45</b>	14:00	12:00	<b>12:00</b>
<b>Volume</b>	4	7	<b>9</b>	7	6	<b>12</b>
<b>P.H.F.</b>	0.50	0.88	<b>0.56</b>	0.58	0.30	<b>0.38</b>

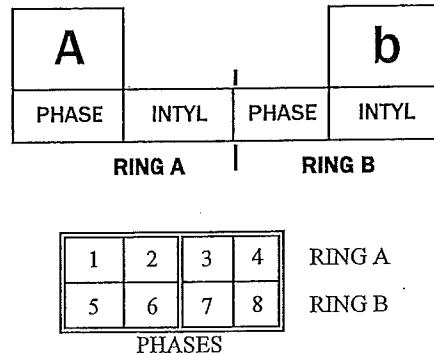
INTERSECTION: Clinton Keith  
By: \_\_\_\_\_

at: Hidden Springs  
Date Prepared: 1/27/2009

COORDINATION  
DEMAND (VEH & PEDS)  
PREEMPTION

0
1
2
3
4
5
6
7
8
9

### BASE DISPLAY



### INTERVALS

- 0 - WALK
- 1 - FLASH DONT WALK
- 2 - MINIMUM GREEN
- 3 -
- 4 - VARIABLE INITIAL
- 5 - EXTENSION
- 6 -
- 7 - REDUCED GAP
- 8 - RED REST
- 9 - PREEMPTION
- A - STOP TIME
- B - RED REVERT
- C - GAP TERMINATION
- D - MAX TERMINATION
- E - FORCEOFF
- F - RED CLEARANCE

OVERLAP  
LOAD SWITCH  
ASSIGNMENT

D-O-

OVERLAP A	(0-8)
OVERLAP B	(0-8)
OVERLAP C	(0-8)
OVERLAP D	(0-8)

bAdE	EPROM ERROR, SEE C-E-D WATCHDOG STOPS IF F-C-F = 0
bAdA	TURN STOPTIME SW ON THEN OFF TO REINITIALIZE

### CONFIGURATION DATA

NOTE: "E" KEY ENABLED (F-9-E ≠ 0)

KEYSTROKES: E + E + INTERVAL

INTERVAL	PHASE							
	1	2	3	4	5	6	7	8
0	EXCLU PH							
1	RR 1 GRN CL							
2	RR2 GRN CL							
3	RR2 LTD							
4	PROT/PERM							
5	OLA GOMIT							
6	OLB GOMIT							
7	OLC GOMIT							
8	OLD GOMIT							
9	OV FL YEL							
A	EMVEH A	X		X			X	
B	EMVEH B		X		X			X
C	EMVEH C	X			X			
D	EMVEH D		X	X		X	X	
E	EXTRA	X						
F	IC SELECT		X					

EXTRA (E + E + E)

- 1 - TBC TYPE 1
- 3 - DAYLIGHT SAV
- 4 - EV ADVANCE
- 5 - RESERVED
- 6 - SPECIAL EVENT
- 7 - PRETIMED
- 8 - SPLIT RING

IC SELECT (E + E + F)

- 2 - DUPLEX LOCAL
- 3 - 7 WIRE IN
- 4 - FLH/FREE
- 6 - SIMPLEX MASTER
- 7 - 7 WIRE OUT
- 8 - OFFSET INTERRUPTER

ASSIGNS (E + F + F)

- 1 - RT OVERLAP
- 2 - TOD OUTPUTS
- 3 - STEADY EV BEACON
- 4 - FLASH EV BEACON
- 5 - RESERVED
- 6 - PHASES 3 & 7 PED
- 7 - ADVANCE  
WARNING BEACON
- 8 - SPECIAL EVENT

KEYSTROKES: E + F + INTERVAL

INTERVAL	PHASE							
	1	2	3	4	5	6	7	8
0								
1	RR OLAP A							
2	RR OLAP B							
3	RR OLAP C							
4	RR OLAP D							
5	PED2P							
6	PED6P							
7	PED4P							
8	PED8P							
9	FLH YELO							
A	OVERLAP A							
B	OVERLAP B							
C	OVERLAP C							
D	OVERLAP D							
E	RESTRICT							
F	ASSIGNS							

INTERSECTION:

Clinton Keith and Hidden Springs

Date Prepared:

Sheet: 2 of 4

**PHASE TIMING**  
**KEYSTROKES: F + PHASE + INTERVAL**

INTERVAL	PHASE								PREEMPT	
	1	2	3	4	5	6	7	8		E
WALK	0		5		5	5		5	RR-1 Delay	0
Ped D/W	1		11		15	11		15	RR-1 Clear	1
Min Green	2	4	6		5	4	6	5	EVA Delay	2
Type 3 Det	3								EVA Clear	1 3
Add / Veh	4		1.5				1.5		EVB Delay	4
Veh Exten *	5	2	4.0		3	2	4.0	3	EVB Clear	1 5
Max Gap *	6	2	5.0		3	2	5.0	3	EVC Delay	6
Min Gap *	7	2	3.0		3	2	3.0	3	EVC Clear	1 7
Max Exten	8	25	45		30	25	45	30	EVD Delay	8
Max 2	9								EVD Clear	1 9
	A								RR-2 Delay	A
Call To Phase	B								RR-2 Clear	B
Reduce By	C		0.1				0.1		View EV Delay	C
Reduce Every	D		1.0			1.0			View EV Clear	D
Yellow Change	E	3.0	4.3		3.9	3.0	4.3	3.9	View RR Delay	E
Red Clear	F	0.5	1.0		0.5	0.5	1.0	1.0	View RR Clear	F

Max Initial <F-0-E> = 20Red Revert <F-0-F> = 2  
All Red Start <F-C-0> = 3

\* Must be same for non-density operation

**PHASE FUNCTION FLAGS**  
**KEYSTROKES: F + F + FUNCTION#**

FUNCTION

FUNCTION	PHASE							
	1	2	3	4	5	6	7	8
Permit	0	X	X		X	X	X	
Red Lock	1							
Yellow Lock	2							
Veh Recall	3	X			X			
Ped Recall	4							
Peds	5	.	.	X	.	X	.	.
Rest in Walk	6							
Red Rest	7							
Double Entry	8	X	X	X	X	X		
Max Recall	9							
Soft Recall	A							
Max 2	B							
Cond Serve	C							
Man Cont Recall	D							
Startup	E	X			X			
First Phases	F	X			X			

**OVERLAP TIMING**  
**KEYSTROKE: F + COLOR CODE + OVERLAP**

	9	C	D
	Green	Yello	Red
Overlap A			
Overlap B			
Overlap C			
Overlap D			

INTERSECTION: Clinton Keith and Hidden Springs

Date Prepared:

Sheet: 4 of 4

### 9 - KEY

		TIME OF DAY DISPLAYS							
DAY OF WEEK	0	EVENT NO.	PLAN/OFFSET						
	1	2	3	4	5	6	7	8	9
		HOUR (00-23)		MINUTE (00-59)					

9 KEY TABLE

### 16 EVENT TABLE

TIME BASE COORDINATION  
KEYSTROKES: 9+EVENT#

EVENT	TIME	PLAN	OFFSET	DAY OF WEEK						
				S	M	T	W	T	F	S
	0 05 : 00	1	A		X	X	X	X	X	
	1 07 : 00	2	A		X	X	X	X	X	
	2 13 : 00	3	A		X	X	X	X	X	
	3 19 : 00	E	A		X	X	X	X	X	
	4 07 : 00	1	A	X	X	X	X	X	X	
	5 19 : 00	E	A	X	X	X	X	X	X	
	6 :									
	7 :									
	8 :									
	9 :									
A	:									
B	:									
C	:									
D	:									
E	:									
F	:									

fwd, 2000 F →

fwd, 1900 F →

fwd, 530 EA

PLAN = 1...9 (DIAL)

E (FREE)

F (FLASH)

OFFSET = A...C

INTERSECTION:

Clinton Keith and Hidden Springs

Date Prepared:

Sheet: 3 of 4

## COORDINATION TIMING

## KEYSTROKES: C + PLAN + FEATURE

↓

FEATURE	PLAN									
	1	2	3	4	5	6	7	8	9	
CYCLE	0	80	90	90						0
FORCE 1	1	14	16	123	18	20				1
FORCE 2	2	0	0	0						2
FORCE 3	3									3
FORCE 4	4	39	48	52	54					4
FORCE 5	5	55	65	66	18	20				5
FORCE 6	6	0	0	0						6
FORCE 7	7									7
FORCE 8	8	39	48	52	54	56				8
RING OFFSET	9		36							9
OFFSET A	A	82	67	64	82	78				A
OFFSET B	B	64	80							B
OFFSET C	C									C
PERMISSIVE	D	5	5	5						D
HOLD RELEASE	E	255	255	255						E
ZONE OFFSET	F									F

## ADDRESS

(C-0-0) = 4

## MANUAL PLAN:

(C-A-1) = 0

AUTO = 0

PLAN = 1-9

FREE = 14

FLASH = 15

## MANUAL OFFSET:

(C-B-1) = 0

AUTO = 0

OFFSET A = 1

OFFSET B = 2

OFFSET C = 3

## TRANSITION TYPE

(C-D-D) = 0

SHORTWAY = 0

DWELL &gt; 0

## SYNCHRONIZED PHASES

## KEYSTROKES: C + E + PLAN

PLAN	PHASE							
	1	2	3	4	5	6	7	8
0		X			X			
1 SYNC 1		X	X					
2 SYNC 2		X	X		X	X		
3 SYNC 3		X	X			X		
4 SYNC 4								
5 SYNC 5								
6 SYNC 6								
7 SYNC 7								
8 SYNC 8								
9 SYNC 9								
A CPEDRCL								
B NEMA HLD								
C SCANMEM								
D BADPROM								
E TODFN E								
F TODFN F								

## PHASE SEQUENCES

## KEYSTROKES: C + F + FUNCTION #

FUNCTION	PHASE							
	1	2	3	4	5	6	7	8
0 LAG 0 (FREE)		X			X	X	X	X
1 LAG 1		X	X					
2 LAG 2			X	X				
3 LAG 3			X	X				
4 LAG 4								
5 LAG 5								
6 LAG 6								
7 LAG 7								
8 LAG 8								
9 LAG 9								
A COOR MAX RECALL								
B COOR LAG RECALL								
C SYNC PHASES								
D HOLD								
E NEXT PHASE								
F FORCE OFF								

Location: CLINTON KEITH ROAD @ I-15 SOUTHBOUND RAMP  
 System: District:  
 Master At: I-15 N/B RAMP I/C:

Designed By:  
 Installed By: JP / KT  
 Service Info:

Timing Change: 1/8/2014	Date Start: 6/10/2010	Date End:	Designed:	Installed: 4/10/2002
----------------------------	--------------------------	-----------	-----------	-------------------------

### Intersection Layout

#### FLASH

1)	WESTBOUND CLINTON KEITH RD---L	[ ]
P	2) EASTBOUND CLINTON KEITH RD	[ ]
H	3)	[ ]
A	4) I-15 SOUTHBOUND OFF RAMP	[ ]
S	5)	[ ]
E	6) WESTBOUND CLINTON KEITH RD	[ ]
	7)	[ ]
	8)	[ ]

O	A)	[ ]
V	B)	[ ]
E	C)	[ ]
R	D)	[ ]
L	E)	[ ]
A	F)	[ ]

Comments and Notes:

RAM Checksum

Page 2: 29D8	Page 7: D2FD
Page 3: CC5D	Page 8: 6E4B
Page 4: 4149	Page 9: 0ED8
Page 5: 522D	Page 10: 1611
Page 6: 26C1	Page 11: C381

Phases ( 2-1-1-1 ) *	
Permitted	1 2 . 4 . 6 ..
Restricted	.....

Phase Recalls ( 2-1-1-2 )	
Vehicle Min	. 2 ... 6 ..
Vehicle Max	.....
Pedestrian	.....
Bicycle	.....

## CONFIGURATION PHASE FLAGS

Phase Locks ( 2-1-1-3 ) *	
Red	.....
Yellow	.....
Force/Max	.....

Phase Features ( 2-1-1-4 )	
Double Entry	.....
Rest In Walk	.....
Rest In Red	.....
Walk 2	.....
Max Green 2	.....
Max Green 3	.....

Startup ( 2-1-1-5 ) *	
First Green Phases	... 4 ..
Yellow Start Phases	. 2 ... 6 ..
Yellow Start Overlaps	.....
Startup All-Red	5.0
Vehicle Calls	1 2 . 4 . 6 ..
Pedestrian Calls	. 2 ... 6 ..

Call To Phase ( 2-1-2-1 ) Omit On Green	
1	.....
2	.....
3	.....
4	.....
5	.....
6	.....
7	.....
8	.....

Flashing Colors ( 2-1-2-2 )	
Yellow Flash Phases	.....
Yellow Flash Overlap	.....
Flash In Red Phases	.....
Flash In Red Overlap	.....

Special Operation ( 2-1-2-3 )	
Single Exit Phase	.....
Driveway Signal Phases	.....
Driveway Signal Overlaps	.....
Leading Ped Phases	.....

Protected Permissive ( 2-1-2-4 )	
Protected Permissive	.....

Pedestrian ( 2-1-3 ) *	
P1	.....
P2	. 2 .....
P3	.....
P4	.....
P5	.....
P6	.... 6 ..
P7	.....
P8	.....

Overlap ( 2-1-4 )				
Overlap	Parent	Omit	No Start	Not
A	.....	.....	.....	.....
B	.....	.....	.....	.....
C	.....	.....	.....	.....
D	.....	.....	.....	.....
E	.....	.....	.....	.....
F	.....	.....	.....	.....

P  
H  
A  
S  
E  
  
T  
I  
M  
I  
N  
G

Phase ( 2-2 )	-1- *	-2- *	-3- *	-4- *	-5- *	-6- *	-7- *	-8- *
--- Walk 1 ---	0	7	0	0	0	7	0	0
Flash Don't Walk	0	14	0	0	0	17	0	0
Minimum Green	5	8	0	5	0	7	0	0
Det Limit	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0
Max Green 1	25	45	0	45	0	45	0	0
Max Green 2	0	0	0	0	0	0	0	0
Max Green 3	0	0	0	0	0	0	0	0
Extension	2.0	2.0	0.0	2.0	0.0	2.0	0.0	0.0
Maximum Gap	2.0	2.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Gap	2.0	2.0	0.0	2.0	0.0	2.0	0.0	0.0
Add Per Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Gap By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.6	4.3	3.0	4.3	3.0	4.3	3.0	3.0
All-Red	1.0	1.0	0.0	1.0	0.0	1.0	0.0	0.0
Ped/Bike (2-3 )	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

## OVERLAP TIMING

Overlap ( 2-4 )	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

## Red Revert

Red Revert ( 2-5 )
Time 5.0
Red To Sec ( 2-6 )
Red To Sec OFF

## COORDINATION

## Local Plan (7-1...9) TIMING DATA [ Offsets ]

*	Cycle	Multi	Perm	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor	90					15	38		20		58		
Plan 2	Green Factor	90					18	35		20		58		
Plan 3	Green Factor	90					14	28		31		47		
Plan 4	Green Factor													
Plan 5	Green Factor													
Plan 6	Green Factor													
Plan 7	Green Factor													
Plan 8	Green Factor													
Plan 9	Green Factor													

## Local Plan (7-1...9) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	.2.4.6.8	.2...6...	.....	.....	1.....	.....	.....	.....
Plan 2	.2.4.6.8	.2...6...	.....	.....	1.....	.....	.....	.....
Plan 3	.2.4.6.8	.2...6...	.....	.....	1.....	.....	.....	.....
Plan 4	.....	.....	.....	.....	.....	.....	.....	.....
Plan 5	.....	.....	.....	.....	.....	.....	.....	.....
Plan 6	.....	.....	.....	.....	.....	.....	.....	.....
Plan 7	.....	.....	.....	.....	.....	.....	.....	.....
Plan 8	.....	.....	.....	.....	.....	.....	.....	.....
Plan 9	.....	.....	.....	.....	.....	.....	.....	.....

Master Timer Sync ( 7-A )
Enable in Plans
.....
Master Sub Master
Input
Output

## FREE PLAN PHASE FLAGS

( 7-E ) Free
Lag
Omit
.2.4.6.8
.....
Veh Min
Veh Max
.2...6...
.....
Ped
Bike
.....
Cond
Cond Grn
.....
10

## MANUAL COMMANDS

Manual Plan (4-1)
Plan: 1-9
15 or 254 = Flash
14 or 255 = Free
Offset A, B, or C

## Special Function Override (4-2)

#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

## DETECTORS

Detector Attributes (5-1) *				Slot	Detector Configuration (5-2)				
Det	Type	Phases	Lock		Det	Delay	Extend	Recall	Port
1	COUNT+CALL+EXTEND	.2.....	NO	I2U	1			10	1.1
2	COUNT+CALL+EXTEND	.....6..	NO	J2U	2			10	1.2
3	COUNT+CALL+EXTEND	...4....	NO	I6U	3			10	1.3
4	COUNT+CALL+EXTEND	.....8	NO	J6U	4			10	1.4
5	COUNT+CALL+EXTEND	.2.....	NO	I2L	5			10	1.5
6	COUNT+CALL+EXTEND	.....6..	NO	J2L	6			10	1.6
7	COUNT+CALL+EXTEND	...4....	NO	I6L	7			10	1.7
8	COUNT+CALL+EXTEND	.....8	NO	J6L	8			10	1.8
9	CALL+EXTEND	.2.....	NO	I4	9			10	2.1
10	CALL+EXTEND	.....6..	NO	J4	10			10	2.2
11	CALL+EXTEND	...4....	NO	I8	11			10	2.3
12	CALL+EXTEND	.....8	NO	J8	12			10	2.4
13	COUNT+CALL+EXTEND	....5...	NO	J1	13			10	3.1
14	COUNT+CALL+EXTEND	1.....	NO	I1	14			10	3.2
15	COUNT+CALL+EXTEND	.....7.	NO	J5	15			10	3.3
16	COUNT+CALL+EXTEND	..3.....	NO	I5	16			10	3.4
17	COUNT+CALL+EXTEND	....5...	NO	J9U	17			10	3.5
18	COUNT+CALL+EXTEND	1.....	NO	I9U	18			10	3.6
19	COUNT+CALL+EXTEND	.....7.	NO	J9L	19			10	3.7
20	COUNT+CALL+EXTEND	..3.....	NO	I9L	20			10	3.8
21	CALL+EXTEND	.2.....	NO	I3L	21			10	6.2
22	CALL+EXTEND	.....6..	NO	J3L	22			10	6.3
23	CALL+EXTEND	...4....	NO	I7L	23			10	6.4
24	CALL+EXTEND	.....8	NO	J7L	24			10	6.5
25	COUNT+CALL+EXTEND	.2.....	NO	I3U	25			10	4.5
26	COUNT+CALL+EXTEND	.....6..	NO	J3U	26			10	4.6
27	COUNT+CALL+EXTEND	...4....	NO	I7U	27			10	4.7
28	COUNT+CALL+EXTEND	.....8	NO	J7U	28			10	4.8
29	PEDESTRIAN	.2.....	NO	I12U	29			10	5.1
30	PEDESTRIAN	.....6..	NO	I13U	30			10	5.2
31	PEDESTRIAN	...4....	NO	I12L	31			10	5.3
32	PEDESTRIAN	.....8	NO	I13L	32			10	5.4

Failure Times(5-3)	
Maximum On Time	.....
Fail Reset Time	.....

Failure Override (5-4)	
Detectors 1-8	.....
Detectors 9-16	.....
Detectors 17-24	.....
Detectors 25-32	.....

System Detector Assignment (5-5)								
Sys Det	1	2	3	4	5	6	7	8
Det Num								
Sys Det	9	10	11	12	13	14	15	16
Det Num								

CIC Operation (5-6-1)	
Enable in Plans	.....

CIC Values (5-6-2)		Volume	Occupancy	Demand
Smoothing	.....	0.66	0.66	0.66
Multiplier	.....	4.0	0.33	
Exponent	.....	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)								
Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

## Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6		6.6	5.1	5.2	6.7
		1.5	6.2			1.7	6.4		3.8		2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5		2.8	5.5	5.6	2.5
		1.6	6.3			1.8	6.5		3.7		6.1	5.7	5.8	2.6

**TOD SCHEDULE****Table 1 (8-2-1) \***

Time	Plan	OS
0630	1	A
0900	255	A
1100	2	A
1300	255	A
1430	3	A
1830	255	A
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	

**Table 2 (8-2-2)**

Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

**Table 3 (8-2-3)**

Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

**Table 4 (8-2-4)**

Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

**Table 5 (8-2-5)**

Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

**Table 6 (8-2-6)**

Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

**WEEKDAY ASSIGNMENT****Weekday Table Assignments (8-2-7)**

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

**HOLIDAY TABLES****Floating Holiday Table (8-2-8)**

#	Mnth	Week	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

**Fixed Holiday Table (8-2-9)**

#	Mnth	Day	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

**Solar Clock Data (8-4)**

North Latitude	34
West Longitude	118
Local Time Zone	8

**Sabbatical Clock (8-5)**

Hebrew	Ped Recall
Sabbath	.....
Holiday	.....

**Daylight Saving (8-6)**

Enabled	YES
---------	-----

**TOD FUNCTIONS****TOD Functions (8-3)**

#	Start	End	DOW	Action	Phases
1			.....		.....
2			.....		.....
3			.....		.....
4			.....		.....
5			.....		.....
6			.....		.....
7			.....		.....
8			.....		.....
9			.....		.....
10			.....		.....
11			.....		.....
12			.....		.....
13			.....		.....
14			.....		.....
15			.....		.....
16			.....		.....

**Action Codes:**

- 0. None
- 1. Permitted
- 2. Restricted
- 4. Veh Min Recall
- 5. Veh Max Recall
- 6. Ped Recall
- 7. Bike Recall
- 8. Red Lock
- 9. Yellow Lock
- 10. Force/Max Lock
- 11. Double Entry
- 12. Y-Coord C
- 13. Y-Coord D
- 14. Free
- 15. Flashing
- 16. Walk 2
- 17. Max Green 2
- 18. Max Green 3
- 19. Rest in Walk
- 20. Rest in Red
- 21. Free Lag Phases
- 22. Special Functions
- 23. Truck Preempt
- 24. Conditional Service
- 25. Conditional Service
- 26. Leading Ped
- 41. Protected Permissive
- 42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

## COMMUNICATIONS

C2 (6-1-1)	
	*
Address	1
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

### Limit Access:

- 0-None
- 1-Status Only
- 2-Status, Set Pattern, Time
- 3-Status, Set Pattern, Time, Manual Plan

## SOFT LOGIC

Soft Logic ( 6-2 )							
#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

\*Refer to User's Manual for Data and OP Codes

## CALLBACK NUMBERS

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

## RAILROAD PREEMPTION

RR 1	( 3-1-1 )	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
	Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
	Clear1	10	.2 .5 ...	.....	.....	.....	.....	.2 .4 .6 .8	.....	.....	.....
	Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Hold		.....	.....	1 2 3 4 5 6 7 8	.....	.....	.....	.....	.....	A B C D E F
	Exit	5	Exit Parameters (3-1-5)				Configuration (3-1-6)				
	Min Grn		Phase Green	Overlap Green	Vehicle Recall	Ped Call	Port	Latching	Power-Up		
	Ped Clr		.....	.....	1 2 3 4 5 6 7 8	.2 .4 .6 .8	2.5	YES	FLASHING		

RR 2	( 3-2-1 )	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
	Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
	Clear1	10	...4 .7 .	.....	.....	.....	.....	.2 .4 .6 .8	.....	.....	.....
	Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Hold		1 2 3 .6 ..	.....	.....	.2 .6 ..	.....	.4 .8 ..	.....	.....	.....
	Exit		Exit Parameters (3-2-5)				Configuration (3-2-6)				
	Min Grn		Phase Green	Overlap Green	Vehicle Recall	Ped Recall	Port	Latching	Power-up		
	Ped Clr		.....	.....	...4 .7 .	.....	2.6	YES	DARK		

## EMERGENCY VEHICLE PREEMPTION

EVA (3-A)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
	30	30	.2 .5 ...	.....	
Port		Latching	Phase Termination		
5.5		NO	ADVANCE		

EVB (3-B)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
	30	30	...4 .7 ..	.....	
Port		Latching	Phase Termination		
5.6		NO	ADVANCE		

EVC (3-C)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
	30	30	1 .6 ..	.....	
Port		Latching	Phase Termination		
5.7		NO	ADVANCE		

EVD (3-D)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
	30	30	..3 .8 ..	.....	
Port		Latching	Phase Termination		
5.8		NO	ADVANCE		

## INPUTS

7 Wire I/C ( 2-1-5-1 )					
	Input	Port	Input	Port	
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control ( 2-1-5-2 )		
	Input	Port
Manual Advance		6.6
Advance Enable		6.6

Battery Backup ( 2-1-5-5 ) *		
	Port	Operation
	2.7	NORMAL
Y-Coordination ( 2-1-5-6 )		
Port C	Port D	
6.1	2.8	

Cabinet Status ( 2-1-5-3 )	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function ( 2-1-5-4 )	
Input	Port
1	
2	
3	
4	

## OUTPUTS

Loadswitch Assignments ( 2-1-6 )							
	+						
A	1	2	22	3	4	24	9
B	5	6	26	7	8	28	10
X	13	14	0	11	12	0	0

### Loadswitch Codes:

0 Unused (no output)

1-8 Vehicle 1-8

9-14 Overlap A-F

21-28 Ped 1-8

41-47 Special Functions

41 Protected Permissive Flashing Phase 1

43 Protected Permissive Flashing Phase 3

45 Protected Permissive Flashing Phase 5

47 Protected Permissive Flashing Phase 7

51-57 Special Functions

71-72 Seven Wire I/C

+ middle output of  
loadswitches 3 and 6

Channel 9 and 10

## YELLOW YIELD COOORDINATION

Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	Force-Offs								Coord	Lag	Min Recall	Restricted
					-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-				
Plan C													.2 .6 .2 .4 .6 .8	.....	.....	.....
Plan D													.2 .6 .2 .4 .6 .8	.....	.....	.....

## TRANSIT PRIORITY

Local Plans (3-E1...9)		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											

Enable Priority (3-E-A)	
Enable in Plan	.....

Free Plans (3-E-F)	
Max Green Hold	Hold Phase
	.....

Access Utilities (9-5)	
Password	***
Timeout	

## TRUCK PREEMPTION

Truck Preemption (3-F)	Passage	CarryOver	Clearance	Next Preempt	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output

Location: CLINTON KEITH ROAD @ I-15 NORTHBOUND RAMP		Designed By:		
System: Master At: THIS LOCATION	District: I/C:	Installed By: JP/KT Service Info:		
Timing Change: 1/8/2014	Date Start: 6/10/2010	Date End:	Designed:	Installed: 4/10/2002
<b>FLASH</b> 1) P 2) EASTBOUND CLINTON KEITH RD H 3) A 4) S 5) EASTBOUND CLINTON KEITH RD--LE E 6) WESTBOUND CLINTON KEITH RD 7) 8) I-15 NORTHBOUND OFF RAMP		<b>Intersection Layout</b>		
O A) V B) E C) R D) L E) A F) P F)				
Comments and Notes:			<b>RAM Checksum</b> <div style="border: 1px solid black; padding: 5px;">           Page 2: 4E33      Page 7: D2FD            Page 3: 0CBB      Page 8: A12B            Page 4: 2A5E      Page 9: 0ED8            Page 5: 522D      Page 10: 1611            Page 6: 26C1      Page 11: C381         </div>	

Phases ( 2-1-1-1 ) *	
Permitted	. 2 . 5 6 . 8
Restricted	.....

Phase Recalls ( 2-1-1-2 )	
Vehicle Min	. 2 . 6 ..
Vehicle Max	.....
Pedestrian	.....
Bicycle	.....

## CONFIGURATION PHASE FLAGS

Phase Locks ( 2-1-1-3 ) *	
Red	.....
Yellow	.....
Force/Max	.....

Phase Features ( 2-1-1-4 )	
Double Entry	.....
Rest In Walk	.....
Rest In Red	.....
Walk 2	.....
Max Green 2	.....
Max Green 3	.....

Startup ( 2-1-1-5 ) *	
First Green Phases	..... 8
Yellow Start Phases	. 2 . 6 ..
Yellow Start Overlaps	.....
Startup All-Red	5.0
Vehicle Calls	.... 5 6 . 8
Pedestrian Calls	. 2 . 6 ..

Call To Phase ( 2-1-2-1 ) Omit On Green	
1	.....
2	.....
3	.....
4	.....
5	.....
6	.....
7	.....
8	.....

Flashing Colors ( 2-1-2-2 )	
Yellow Flash Phases	.....
Yellow Flash Overlap	.....
Flash In Red Phases	.....
Flash In Red Overlap	.....

Special Operation ( 2-1-2-3 )	
Single Exit Phase	.....
Driveway Signal Phases	.....
Driveway Signal Overlaps	.....
Leading Ped Phases	.....

Protected Permissive ( 2-1-2-4 )	
Protected Permissive	.....

Pedestrian ( 2-1-3 ) *	
P1	.....
P2	. 2 .....
P3	.....
P4	.....
P5	.....
P6	.... 6 ..
P7	.....
P8	.....

Overlap ( 2-1-4 )				
Overlap	Parent	Omit	No Start	Not
A	.....	.....	.....	.....
B	.....	.....	.....	.....
C	.....	.....	.....	.....
D	.....	.....	.....	.....
E	.....	.....	.....	.....
F	.....	.....	.....	.....

P  
H  
A  
S  
E  
  
T  
I  
M  
I  
N  
G

Phase ( 2-2 )	-1- *	-2- *	-3- *	-4- *	-5- *	-6- *	-7- *	-8- *
--- Walk 1 ---	0	7	0	0	0	7	0	0
Flash Don't Walk	0	15	0	0	0	14	0	0
Minimum Green	0	7	0	0	5	8	0	5
Det Limit	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0
Max Green 1	0	45	0	0	25	45	0	35
Max Green 2	0	0	0	0	0	0	0	0
Max Green 3	0	0	0	0	0	0	0	0
Extension	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0
Maximum Gap	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0
Minimum Gap	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0
Add Per Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Gap By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	4.3	3.0	3.0	3.6	4.3	3.0	4.3
All-Red	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0
Ped/Bike (2-3 )	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

## OVERLAP TIMING

Overlap ( 2-4 )	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

## Red Revert

Red Revert ( 2-5 )
Time 5.0
Red To Sec ( 2-6 )
Red To Sec OFF

## COORDINATION

## Local Plan (7-1...9) TIMING DATA [ Offsets ]

*	Cycle	Multi	Perm	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor	90			47			54			19	30		24
Plan 2	Green Factor	90			37			50			16	29		28
Plan 3	Green Factor	90			46			44			13	26		34
Plan 4	Green Factor													
Plan 5	Green Factor													
Plan 6	Green Factor													
Plan 7	Green Factor													
Plan 8	Green Factor													
Plan 9	Green Factor													

## Local Plan (7-1...9) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	.2.4.6.8	.2...6...	.....	.....	.....8	.....	.....	.....
Plan 2	.2.4.6.8	.2...6...	.....	.....	.....8	.....	.....	.....
Plan 3	.2.4.6.8	.2...6...	.....	.....	.....8	.....	.....	.....
Plan 4	.....	.....	.....	.....	.....	.....	.....	.....
Plan 5	.....	.....	.....	.....	.....	.....	.....	.....
Plan 6	.....	.....	.....	.....	.....	.....	.....	.....
Plan 7	.....	.....	.....	.....	.....	.....	.....	.....
Plan 8	.....	.....	.....	.....	.....	.....	.....	.....
Plan 9	.....	.....	.....	.....	.....	.....	.....	.....

Master Timer Sync ( 7-A )
Enable in Plans
.....
Master Sub Master
Input
Output

## FREE PLAN PHASE FLAGS

( 7-E ) Free
Lag
Omit
.2.4.6.8
.....
Veh Min
Veh Max
.2...6...
.....
Ped
Bike
.....
Cond
Cond Grn
.....
10

## MANUAL COMMANDS

Manual Plan (4-1)
Plan: 1-9
15 or 254 = Flash
14 or 255 = Free
Offset A, B, or C

## Special Function Override (4-2)

#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

## DETECTORS

Detector Attributes (5-1) *				Slot	Detector Configuration (5-2)				
Det	Type	Phases	Lock		Det	Delay	Extend	Recall	Port
1	COUNT+CALL+EXTEND	.2.....	NO	I2U	1			10	1.1
2	COUNT+CALL+EXTEND	.....6..	NO	J2U	2			10	1.2
3	COUNT+CALL+EXTEND	...4....	NO	I6U	3			10	1.3
4	COUNT+CALL+EXTEND	.....8	NO	J6U	4			10	1.4
5	COUNT+CALL+EXTEND	.2.....	NO	I2L	5			10	1.5
6	COUNT+CALL+EXTEND	.....6..	NO	J2L	6			10	1.6
7	COUNT+CALL+EXTEND	...4....	NO	I6L	7			10	1.7
8	COUNT+CALL+EXTEND	.....8	NO	J6L	8			10	1.8
9	CALL+EXTEND	.2.....	NO	I4	9			10	2.1
10	CALL+EXTEND	.....6..	NO	J4	10			10	2.2
11	CALL+EXTEND	...4....	NO	I8	11			10	2.3
12	CALL+EXTEND	.....8	NO	J8	12			10	2.4
13	COUNT+CALL+EXTEND	....5...	NO	J1	13			10	3.1
14	COUNT+CALL+EXTEND	1.....	NO	I1	14			10	3.2
15	COUNT+CALL+EXTEND	.....7.	NO	J5	15			10	3.3
16	COUNT+CALL+EXTEND	..3.....	NO	I5	16			10	3.4
17	COUNT+CALL+EXTEND	....5...	NO	J9U	17			10	3.5
18	COUNT+CALL+EXTEND	1.....	NO	I9U	18			10	3.6
19	COUNT+CALL+EXTEND	.....7.	NO	J9L	19			10	3.7
20	COUNT+CALL+EXTEND	..3.....	NO	I9L	20			10	3.8
21	CALL+EXTEND	.2.....	NO	I3L	21			10	6.2
22	CALL+EXTEND	.....6..	NO	J3L	22			10	6.3
23	CALL+EXTEND	...4....	NO	I7L	23			10	6.4
24	CALL+EXTEND	.....8	NO	J7L	24			10	6.5
25	COUNT+CALL+EXTEND	.2.....	NO	I3U	25			10	4.5
26	COUNT+CALL+EXTEND	.....6..	NO	J3U	26			10	4.6
27	COUNT+CALL+EXTEND	...4....	NO	I7U	27			10	4.7
28	COUNT+CALL+EXTEND	.....8	NO	J7U	28			10	4.8
29	PEDESTRIAN	.2.....	NO	I12U	29			10	5.1
30	PEDESTRIAN	.....6..	NO	I13U	30			10	5.2
31	PEDESTRIAN	...4....	NO	I12L	31			10	5.3
32	PEDESTRIAN	.....8	NO	I13L	32			10	5.4

Failure Times(5-3)	
Maximum On Time	.....
Fail Reset Time	.....

Failure Override (5-4)	
Detectors 1-8	.....
Detectors 9-16	.....
Detectors 17-24	.....
Detectors 25-32	.....

System Detector Assignment (5-5)								
Sys Det	1	2	3	4	5	6	7	8
Det Num								
Sys Det	9	10	11	12	13	14	15	16
Det Num								

CIC Operation (5-6-1)	
Enable in Plans	.....

CIC Values (5-6-2)		Volume	Occupancy	Demand
Smoothing	.....	0.66	0.66	0.66
Multiplier	.....	4.0	0.33	
Exponent	.....	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)								
Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

## Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6		6.6	5.1	5.2	6.7
		1.5	6.2			1.7	6.4		3.8		2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5		2.8	5.5	5.6	2.5
		1.6	6.3			1.8	6.5		3.7		6.1	5.7	5.8	2.6

**TOD SCHEDULE****Table 1 (8-2-1) \***

Time	Plan	OS
0630	1	A
0900	255	A
1100	2	A
1300	255	A
1430	3	A
1830	255	A
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	
	A	

**Table 2 (8-2-2)**

Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

**Table 3 (8-2-3)**

Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

**Table 4 (8-2-4)**

Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

**Table 5 (8-2-5)**

Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

**Table 6 (8-2-6)**

Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

**WEEKDAY ASSIGNMENT**

Weekday Table Assignments (8-2-7)

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

**HOLIDAY TABLES****Floating Holiday Table (8-2-8)**

#	Mnth	Week	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

**Fixed Holiday Table (8-2-9)**

#	Mnth	Day	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

**Solar Clock Data (8-4)**

North Latitude	34
West Longitude	118
Local Time Zone	8

**Sabbatical Clock (8-5)**

Hebrew	Ped Recall
Sabbath	.....
Holiday	.....

**Daylight Saving (8-6)**

Enabled	YES
---------	-----

**TOD FUNCTIONS****TOD Functions (8-3)**

#	Start	End	DOW	Action	Phases
1			.....		.....
2			.....		.....
3			.....		.....
4			.....		.....
5			.....		.....
6			.....		.....
7			.....		.....
8			.....		.....
9			.....		.....
10			.....		.....
11			.....		.....
12			.....		.....
13			.....		.....
14			.....		.....
15			.....		.....
16			.....		.....

**Action Codes:**

- 0. None
- 1. Permitted
- 2. Restricted
- 4. Veh Min Recall
- 5. Veh Max Recall
- 6. Ped Recall
- 7. Bike Recall
- 8. Red Lock
- 9. Yellow Lock
- 10. Force/Max Lock
- 11. Double Entry
- 12. Y-Coord C
- 13. Y-Coord D
- 14. Free
- 15. Flashing
- 16. Walk 2
- 17. Max Green 2
- 18. Max Green 3
- 19. Rest in Walk
- 20. Rest in Red
- 21. Free Lag Phases
- 22. Special Functions
- 23. Truck Preempt
- 24. Conditional Service
- 25. Conditional Service
- 26. Leading Ped
- 41. Protected Permissive
- 42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

## COMMUNICATIONS

C2 (6-1-1) *	
Address	2
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

### Limit Access:

- 0-None
- 1-Status Only
- 2-Status, Set Pattern, Time
- 3-Status, Set Pattern, Time, Manual Plan

## SOFT LOGIC

Soft Logic ( 6-2 )							
#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

\*Refer to User's Manual for Data and OP Codes

## CALLBACK NUMBERS

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

## RAILROAD PREEMPTION

RR 1	( 3-1-1 )	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
	Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
	Clear1	10	.2 .5 ...	.....	.....	.....	.....	.2 .4 .6 .8	.....	.....	.....
	Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Hold		.....	.....	1 2 3 4 5 6 7 8	.....	.....	.....	.....	.....	A B C D E F
	Exit	5	Exit Parameters (3-1-5)				Configuration (3-1-6)				
	Min Grn		Phase Green	Overlap Green	Vehicle Recall	Ped Call	Port	Latching	Power-Up		
	Ped Clr		.....	.....	1 2 3 4 5 6 7 8	.2 .4 .6 .8	2.5	YES	FLASHING		

RR 2	( 3-2-1 )	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
	Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
	Clear1	10	...4 .7 .	.....	.....	.....	.....	.2 .4 .6 .8	.....	.....	.....
	Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Hold		1 2 3 .6 ..	.....	.....	.2 .6 ..	.....	.4 .8 ..	.....	.....	.....
	Exit		Exit Parameters (3-2-5)				Configuration (3-2-6)				
	Min Grn		Phase Green	Overlap Green	Vehicle Recall	Ped Recall	Port	Latching	Power-up		
	Ped Clr		.....	.....	...4 .7 .	.....	2.6	YES	DARK		

## EMERGENCY VEHICLE PREEMPTION

EVA (3-A)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
	30	30	.2 .5 ...	.....	
Port		Latching	Phase Termination		
5.5		NO	ADVANCE		

EVB (3-B)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
	30	30	. .4 .7 .	.....	
Port		Latching	Phase Termination		
5.6		NO	ADVANCE		

EVC (3-C)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
	30	30	1 . .6 ..	.....	
Port		Latching	Phase Termination		
5.7		NO	ADVANCE		

EVD (3-D)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
	30	30	. .3 . .8 ..	.....	
Port		Latching	Phase Termination		
5.8		NO	ADVANCE		

## INPUTS

7 Wire I/C ( 2-1-5-1 )					
	Input	Port	Input	Port	
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control ( 2-1-5-2 )	
Input	Port
Manual Advance	6.6
Advance Enable	6.6

Battery Backup ( 2-1-5-5 ) *	
Port	Operation
2.7	NORMAL
Y-Coordination ( 2-1-5-6 )	
Port C	Port D
6.1	2.8

Cabinet Status ( 2-1-5-3 )	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function ( 2-1-5-4 )	
Input	Port
1	
2	
3	
4	

## OUTPUTS

Loadswitch Assignments ( 2-1-6 )							
	+						
A	1	2	22	3	4	24	9
B	5	6	26	7	8	28	10
X	13	14	0	11	12	0	0

### Loadswitch Codes:

0 Unused (no output)

1-8 Vehicle 1-8

9-14 Overlap A-F

21-28 Ped 1-8

41-47 Special Functions

41 Protected Permissive Flashing Phase 1

43 Protected Permissive Flashing Phase 3

45 Protected Permissive Flashing Phase 5

47 Protected Permissive Flashing Phase 7

51-57 Special Functions

71-72 Seven Wire I/C

+ middle output of  
loadswitches 3 and 6

Channel 9 and 10

## YELLOW YIELD COOORDINATION

Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	Force-Offs								Coord	Lag	Min Recall	Restricted
					-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-				
Plan C													.2 .6 .2 .4 .6 .8	.....	.....	.....
Plan D													.2 .6 .2 .4 .6 .8	.....	.....	.....

## TRANSIT PRIORITY

Local Plans (3-E1...9)		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											

Enable Priority (3-E-A)	
Enable in Plan	.....

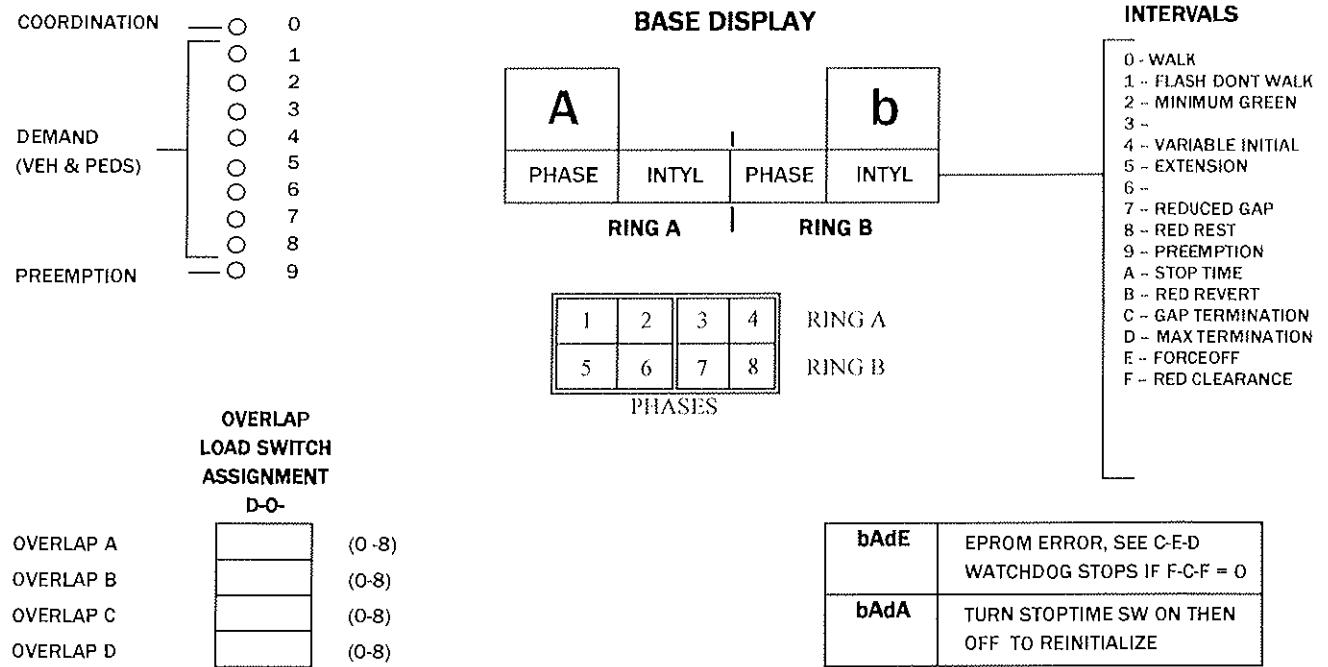
Free Plans (3-E-F)	
Max Green Hold	Hold Phase
	.....

Access Utilities (9-5)	
Password	***
Timeout	

## TRUCK PREEMPTION

Truck Preemption (3-F)	Passage	CarryOver	Clearance	Next Preempt	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output

INTERSECTION:	Clinton Keith	at:	Arya
By:		Date Prepared:	1/27/2009



KEYSTROKES: E + E + INTERVAL

INTERVAL	PHASE							
	1	2	3	4	5	6	7	8
0 EXCLU PH								
1 RR 1 GRN CL								
2 RR2 GRN CL								
3 RR2 LTD								
4 PROT/PERM								
5 OLA GOMIT								
6 OLB GOMIT								
7 OLC GOMIT								
8 OLD GOMIT								
9 OV FL YEL								
A EMVEH A	X		X					
B EMVEH B		X		X				X
C EMVEH C	X			X				
D EMVEH D		X			X			
E EXTRA	X							
F IC SELECT		X						

EXTRA (E + E + E)

- 1 - TBC TYPE 1
- 3 - DAYLIGHT SAV
- 4 - EV ADVANCE
- 5 - RESERVED
- 6 - SPECIAL EVENT
- 7 - PRETIMED
- 8 - SPLIT RING

IC SELECT (E + E + F)

- 2 - DUPLEX LOCAL
- 3 - 7 WIRE IN
- 4 - FLH/FREE
- 6 - SIMPLEX MASTER
- 7 - 7 WIRE OUT
- 8 - OFFSET INTERRUPTER

ASSIGNS (E + F + F)

- 1 - RT OVERLAP
- 2 - TOD OUTPUTS
- 3 - STEADY EV BEACON
- 4 - FLASH EV BEACON
- 5 - RESERVED
- 6 - PHASES 3 & 7 PED
- 7 - ADVANCE  
WARNING BEACON
- 8 - SPECIAL EVENT

KEYSTROKES: E + F + INTERVAL

INTERVAL	PHASE							
	1	2	3	4	5	6	7	8
0								
1 RR OLAP A								
2 RR OLAP B								
3 RR OLAP C								
4 RR OLAP D								
5 PED2P							X	
6 PED6P								X
7 PED4P								
8 PED8P								
9 FLH YELO								
A OVERLAP A								
B OVERLAP B								
C OVERLAP C								
D OVERLAP D								
E RESTRICT								
F ASSIGNS								

PED PHASE : 2, 6, 8

INTERSECTION:

Clinton Keith and Arya

Date Prepared:

Sheet: 2 of 4

**PHASE TIMING**  
**KEYSTROKES: F + PHASE + INTERVAL**

INTERVAL	PHASE								PREEMPT	
	1	2	3	4	5	6	7	8		E
WALK	0		5		5	5	7	9	RR-1 Delay	0
Ped D/W	1		16		20	16	20	20	RR-1 Clear	1
Min Green	2	4	6		5	4	6	5	EVA Delay	2
Type 3 Det	3								EVA Clear	1 3
Add / Veh	4		1.5				1.5		EVB Delay	4
Veh Exten *	5	2	4.0		3	2	4.0	3	EVB Clear	1 5
Max Gap *	6	2	5.0		3	2	5.0	3	EVC Delay	6
Min Gap *	7	2	3.0		3	2	3.0	3	EVC Clear	1 7
Max Exten	8	25	45		30	25	45	30	EVD Delay	8
Max 2	9								EVD Clear	1 9
	A								RR-2 Delay	A
Call To Phase	B								RR-2 Clear	B
Reduce By	C		0.1				0.1		View EV Delay	C
Reduce Every	D		100				100		View EV Clear	D
Yellow Change	E	3.0	4.3		3.9	3.0	4.3	3.9	View RR Delay	E
Red Clear	F	0.5	1.0		1.0	0.5	1.0	1.0	View RR Clear	F

Max Initial <F-0-E> = 20Red Revert <F-0-F> = 2  
All Red Start <F-C-0> = 35

\* Must be same for non-density operation

**PHASE FUNCTION FLAGS**  
**KEYSTROKES: F + F + FUNCTION#**

FUNCTION	PHASE							
	1	2	3	4	5	6	7	8
Permit	0	X	X	X	X	X	X	X
Red Lock	1							
Yellow Lock	2							
Veh Recall	3	X			X			
Ped Recall	4							
Peds	5	.	.	.	.	.	.	.
Rest in Walk	6							
Red Rest	7							
Double Entry	8	X		X	X		X	
Max Recall	9							
Soft Recall	A							
Max 2	B							
Cond Serve	C							
Man Cont Recall	D							
Startup	E	X			X		X	
First Phases	F		X		X		X	

**OVERLAP TIMING**  
**KEYSTROKE: F + COLOR CODE + OVERLAP**

	9 Green	C Yello	D Red
Overlap A			
Overlap B			
Overlap C			
Overlap D			

INTERSECTION:

Clinton Keith and Arya

Date Prepared:

Sheet: 3 of 4

**COORDINATION TIMING**  
**KEYSTROKES: C + PLAN + FEATURE**

FEATURE	PLAN									
	1	2	3	4	5	6	7	8	9	
CYCLE	0	80	90	90						0
FORCE 1	1	141	20	17						1
FORCE 2	2	0	0	0						2
FORCE 3	3	47								3
FORCE 4	4	4445	5051	51						4
FORCE 5	5	6360	6042	17						5
FORCE 6	6	0	0	0						6
FORCE 7	7									7
FORCE 8	8	47 4445	5051	51						8
RING OFFSET	9									9
OFFSET A	A	24	21	36						A
OFFSET B	B									B
OFFSET C	C									C
PERMISSIVE	D	5	5	5						D
HOLD RELEASE	E	255	255	255						E
ZONE OFFSET	F									F

ADDRESS

(C-0-0) =   3  

MANUAL PLAN:

(C-A-1) =   0  

AUTO = 0

PLAN = 1-9

FREE = 14

FLASH = 15

MANUAL OFFSET:

(C-B-1) =   0  

AUTO = 0

OFFSET A = 1

OFFSET B = 2

OFFSET C = 3

TRANSITION TYPE

(C-D-D) =   0  

SHORTWAY = 0

DWELL &gt; 0

**SYNCHRONIZED PHASES**

KEYSTROKES: C + E + PLAN

**PHASE SEQUENCES**

KEYSTROKES: C + F + FUNCTION #

PLAN	PHASE							
	1	2	3	4	5	6	7	8
0		X			X			
1 SYNC 1		X	X			X		
2 SYNC 2		X	X		X	X		
3 SYNC 3		X			X	X		
4 SYNC 4								
5 SYNC 5								
6 SYNC 6								
7 SYNC 7								
8 SYNC 8								
9 SYNC 9								
A CPEDRCL								
B NEMA HLD								
C SCANMEM								
D BADPROM								
E TODFN E								
F TODFN F								

FUNCTION

FUNCTION	PHASE							
	1	2	3	4	5	6	7	8
0 LAG 0 (FREE)		X			X	X	X	X
1 LAG 1		X			X	X	X	X
2 LAG 2		X	X			X	X	X
3 LAG 3		X			X	X	X	X
4 LAG 4								
5 LAG 5								
6 LAG 6								
7 LAG 7								
8 LAG 8								
9 LAG 9								
A COOR MAX RECALL								
B COOR LAG RECALL		X						
C SYNC PHASES								
D HOLD								
E NEXT PHASE								
F FORCE OFF								

FORCEOFF SHIFT FOR

PEDESTRIAN

(C-D-F) \_\_\_\_\_

FOR OBSERVATION ONLY

MASTER PLAN (C-A-2)

CURRENT PLAN (C-A-3)

TOD PLAN (C-A-5)

MASTER CYCLE (C-A-0)

RING A CYCLE (C-B-0)

RING B CYCLE (C-D-0)

MINIMUM CYCLE (C-A-E)

MAXIMUM CYCLE (C-B-E)

INTERSECTION: Clinton Keith and George

Date Prepared: \_\_\_\_\_ Sheet: 4 of 4

### 9 - KEY

TIME OF DAY DISPLAYS																															
DAY OF WEEK	<table border="1"><tr><td>0</td><td>EVENT NO.</td><td>PLAN/ OFFSET</td></tr><tr><td>1</td><td></td><td></td></tr><tr><td>2</td><td></td><td></td></tr><tr><td>3</td><td></td><td></td></tr><tr><td>4</td><td>HOUR (00-23)</td><td>MINUTE (00-59)</td></tr><tr><td>5</td><td></td><td></td></tr><tr><td>6</td><td></td><td></td></tr><tr><td>7</td><td></td><td></td></tr><tr><td>8</td><td></td><td></td></tr><tr><td>9 KEY TABLE</td><td>9</td><td></td></tr></table>	0	EVENT NO.	PLAN/ OFFSET	1			2			3			4	HOUR (00-23)	MINUTE (00-59)	5			6			7			8			9 KEY TABLE	9	
0	EVENT NO.	PLAN/ OFFSET																													
1																															
2																															
3																															
4	HOUR (00-23)	MINUTE (00-59)																													
5																															
6																															
7																															
8																															
9 KEY TABLE	9																														

### 16 EVENT TABLE

TIME BASE COORDINATION  
KEYSTROKES: 9+EVENT#

EVENT	DAY OF WEEK								
	S	M	T	W	T	F	S		
TIME	PLAN	OFFSET	1	2	3	4	5	6	7
0 05 : 00	1	A							
1 07 : 00	2	A							
2 13 : 00	3	A							
3 19 : 00	E	A							
4 07 : 00	1	A	X	X	X	X	X	X	X
5 19 : 00	E	A	X	X	X	X	X	X	X
6 :									
7 :									
8 :									
9 :									
A :									
B :									
C :									
D :									
E :									
F :									

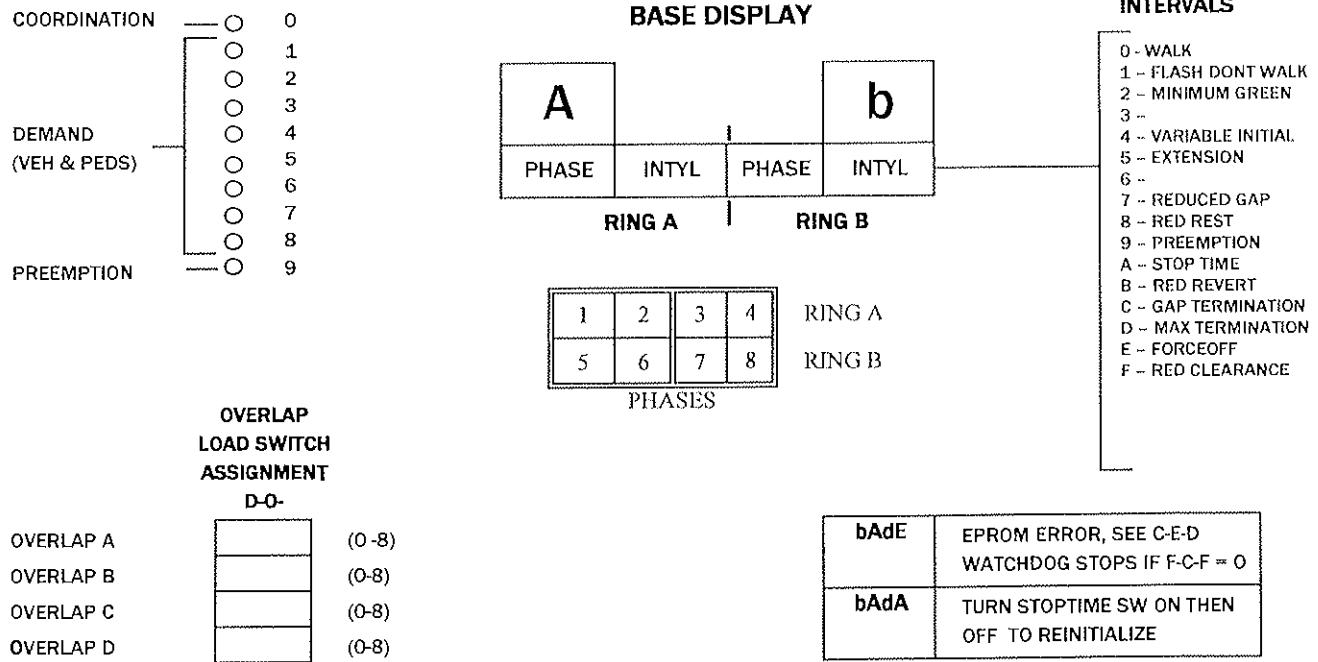
PLAN = 1 . . . 9 (DIAL)

E (FREE)

F (FLASH)

OFFSET = A . . . C

INTERSECTION:	Clinton Keith	at:	George
By:		Date Prepared:	1/27/2009



**KEYSTROKES: E + E + INTERVAL**

INTERVAL	PHASE							
	1	2	3	4	5	6	7	8
0 EXCLU PH								
1 RR 1 GRN CL								
2 RR2 GRN CL								
3 RR2 LTD								
4 PROT/PERM								
5 OLA GOMIT								
6 OLB GOMIT								
7 OLC GOMIT								
8 OLD GOMIT								
9 OV FL YEL								
A EMVEH A	X		X		X			
B EMVEH B		X		X		X		
C EMVEH C	X			X			X	
D EMVEH D		X			X			X
E EXTRA	X		X			X		
F IC SELECT		X						

**EXTRA (E + E + E)**

- 1 - TBC TYPE 1
- 3 - DAYLIGHT SAV
- 4 - EV ADVANCE
- 5 - RESERVED
- 6 - SPECIAL EVENT
- 7 - PRETIMED
- 8 - SPLIT RING

**IC SELECT (E + E + F)**

- 2 - DUPLEX LOCAL
- 3 - 7 WIRE IN
- 4 - FLH/FREE
- 6 - SIMPLEX MASTER
- 7 - 7 WIRE OUT
- 8 - OFFSET INTERRUPTER

**ASSIGNS (E + F + F)**

- 1 - RT OVERLAP
- 2 - TOD OUTPUTS
- 3 - STEADY EV BEACON
- 4 - FLASH EV BEACON
- 5 - RESERVED
- 6 - PHASES 3 & 7 PED
- 7 - ADVANCE  
WARNING BEACON
- 8 - SPECIAL EVENT

**KEYSTROKES: E + F + INTERVAL**

INTERVAL	PHASE							
	1	2	3	4	5	6	7	8
0								
1 RR OLAP A								
2 RR OLAP B								
3 RR OLAP C								
4 RR OLAP D								
5 PED2P						X		
6 PED6P							X	
7 PED4P								X
8 PED8P								X
9 FLH YELO								
A OVERLAP A								
B OVERLAP B								
C OVERLAP C								
D OVERLAP D								
E RESTRICT								
F ASSIGNS								

INTERSECTION:

Clinton Keith and George

Date Prepared:

Sheet: 2 of 4

**PHASE TIMING**  
**KEYSTROKES: F + PHASE + INTERVAL**

INTERVAL	PHASE								PREEMPT		
	1	2	3	4	5	6	7	8		E	
WALK	0		5		5		5		5	RR-1 Delay	0
Ped D/W	1		18		21		18		18	RR-1 Clear	1
Min Green	2	4	6	4	5	4	6	4	5	EVA Delay	2
Type 3 Det	3									EVA Clear	1 3
Add / Veh	4		1.5				1.5			EVB Delay	4
Veh Exten *	5	2	4.0	2	3	2	4.0	2	3	EVB Clear	1 5
Max Gap *	6	2	5.0	2	3	2	5.0	2	3	EVC Delay	6
Min Gap *	7	2	3.0	2	3	2	3.0	2	3	EVC Clear	1 7
Max Exten	8	25	45	30	30	25	45	25	30	EVD Delay	8
Max 2	9									EVD Clear	1 9
	A									RR-2 Delay	A
Call To Phase	B									RR-2 Clear	B
Reduce By	C		0.1				0.1			View EV Delay	C
Reduce Every	D		10.0				10.0			View EV Clear	D
Yellow Change	E	3.0	4.3	3.6	3.9	3.6	4.3	3.0	3.9	View RR Delay	E
Red Clear	F	0.5	1.0	0.5	1.0	0.5	1.0	0.5	1.0	View RR Clear	F

Max Initial <F-0-E> = 20Red Revert <F-0-F> = 2All Red Start <F-C-0> = 3

\* Must be same for non-density operation

**PHASE FUNCTION FLAGS**  
**KEYSTROKES: F + F + FUNCTION#**

FUNCTION	PHASE							
	1	2	3	4	5	6	7	8
Permit	0	X	X	X	X	X	X	X
Red Lock	1							
Yellow Lock	2							
Veh Recall	3	X			X			
Ped Recall	4							
Peds	5							
Rest in Walk	6							
Red Rest	7							
Double Entry	8	X		X		X		X
Max Recall	9							
Soft Recall	A							
Max 2	B							
Cond Serve	C							
Man Cont Recall	D							
Startup	E	X			X		X	
First Phases	F	X	X			X	X	

**OVERLAP TIMING**  
**KEYSTROKE: F + COLOR CODE + OVERLAP**

	9	C	D
Overlap A			
Overlap B			
Overlap C			
Overlap D			

INTERSECTION: Clinton Keith and George

Date Prepared:

Sheet: 3 of 4

**COORDINATION TIMING**  
**KEYSTROKES: C + PLAN + FEATURE**

FEATURE	PLAN									
	1	2	3	4	5	6	7	8	9	
CYCLE	0	80	90	90						0
FORCE 1	1	58 <sub>64</sub>	63 <sub>46</sub>	18 <sub>67</sub>						1
FORCE 2	2	0	0	0						2
FORCE 3	3									3
FORCE 4	4	44 <sub>49</sub>	47 <sub>30</sub>	47 <sub>49</sub>						4
FORCE 5	5	64 <sub>18</sub>	14 <sub>44</sub>	18 <sub>17</sub>						5
FORCE 6	6	0	0	0						6
FORCE 7	7									7
FORCE 8	8	44 <sub>49</sub>	47 <sub>30</sub>	47 <sub>49</sub>						8
RING OFFSET	9	37								9
OFFSET A	A	25	30	37						A
OFFSET B	B		31							B
OFFSET C	C									C
PERMISSIVE	D	5	5	5						D
HOLD RELEASE	E	255	255	255						E
ZONE OFFSET	F									F

**ADDRESS**(C-0-0) = 5**MANUAL PLAN:**(C-A-1) = 0

AUTO = 0

PLAN = 1-9

FREE = 14

FLASH = 15

**MANUAL OFFSET:**(C-B-1) = 0

AUTO = 0

OFFSET A = 1

OFFSET B = 2

OFFSET C = 3

**TRANSITION TYPE**(C-D-D) = 0

SHORTWAY = 0

DWELL &gt; 0

**SYNCHRONIZED PHASES**

KEYSTROKES: C + E + PLAN

**PHASE SEQUENCES**

KEYSTROKES: C + F + FUNCTION #

PLAN	PHASE							
	1	2	3	4	5	6	7	8
0		X			X			
1 SYNC 1		X	X			X		
2 SYNC 2		X	X		X			
3 SYNC 3		X	X					
4 SYNC 4								
5 SYNC 5								
6 SYNC 6								
7 SYNC 7								
8 SYNC 8								
9 SYNC 9								
A CPEDRCL								
B NEMA HLD								
C SCANMEM								
D BADPROM								
E TODFN E								
F TODFN F								

**FUNCTION**

FUNCTION	PHASE							
	1	2	3	4	5	6	7	8
0 LAG 0 (FREE)		X			X			
1 LAG 1			X	X		X		
2 LAG 2		X	X			X		
3 LAG 3			X	X				
4 LAG 4								
5 LAG 5								
6 LAG 6								
7 LAG 7								
8 LAG 8								
9 LAG 9								
A COOR MAX RECALL								
B COOR LAG RECALL						X		
C SYNC PHASES								
D HOLD								
E NEXT PHASE								
F FORCE OFF								

**FORCEOFF SHIFT FOR**

(PEDESTRIAN)

(C-D-F) 1**FOR OBSERVATION ONLY**

MASTER PLAN (C-A-2)

CURRENT PLAN (C-A-3)

TOD PLAN (C-A-5)

MASTER CYCLE (C-A-0)

RING A CYCLE (C-B-0)

RING B CYCLE (C-D-0)

MINIMUM CYCLE (C-A-E)

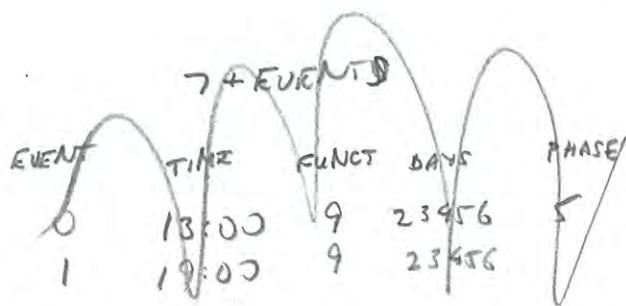
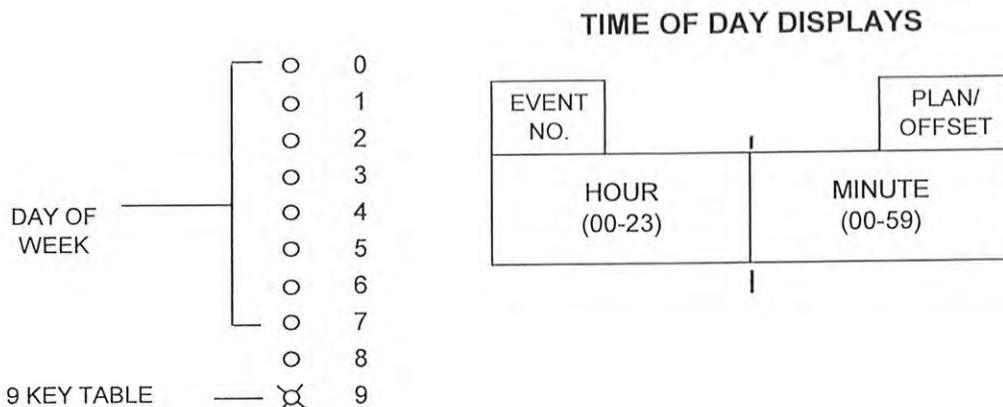
MAXIMUM CYCLE (C-B-E)

INTERSECTION:

Clinton Keith and George

Date Prepared:

Sheet: 4 of 4

**9 - KEY****16 EVENT TABLE**

TIME BASE COORDINATION  
KEYSTROKES: 9+EVENT#

EVENT	DAY OF WEEK								
	S	M	T	W	T	F	S		
TIME	PLAN	OFFSET	1	2	3	4	5	6	7
0 05 : 00	1	A							
1 07 : 00	2	A							
2 13 : 00	3	A							
3 19 : 00	E	A							
4 07 : 00	1	A	X	X	X	X	X	X	X
5 19 : 00	E	A	X	X	X	X	X	X	X
6 :									
7 :									
8 :									
9 :									
A :									
B :									
C :									
D :									
E :									
F :									

PLAN = 1 ... 9 (DIAL)

E (FREE)

F (FLASH)

OFFSET = A ... C

2005A

VERSION 1.1  
OCT 1991

## PHASE TIMING

KEYSTROKES: F+PHASE+INTERVAL

INTERVAL	PHASE								PREEMPT
	1	2	3	4	5	6	7	8	
WALK	0	5					9		E
FLASH DAY	1		12				11		0
MIN GREEN	2	5	10		5	10	6		1
TYPE 3 DET	3								2
RED/WHITE	4								3
WALK EXTER +	5	1.5	2.5		1.5	2.5	3.5		4
MIN GRP +	6	1.5	2.5		1.5	2.5	3.5		5
MIN GRP *	7	1.5	2.5		1.5	2.5	3.5		6
WALK EXTER	8	3.0	4.0		3.0	4.0	7.0		7
WALK 2	9								8
	H								
CALL TO PHASE	B								A
REDUCE BY	C								B
REDUCE EVERY	D								C
YELLOW	E	4.0	4.5		4.0	4.5	4.0		D
RED CLEAR	F	1.0	1.0		1.0	1.0	1.0		E
WALK INITIAL (F-D-E) =	2.0								F

\* MUST BE SHALLOW FOR HIGH-DENSITY OPERATION

## PHASE FUNCTION FLAGS

KEYSTROKES: F+F+FUNCTION

FUNCTION	PHASE							
	1	2	3	4	5	6	7	8
PERMIT	0	1	2	3	4	5	6	7
RED LOCK	1							
YELLOW LOCK	2							
GREEN RECALL	3	X						
RED RECALL	4							
PEDS	5	X	X	X	X	X	X	X
REST IN WALK	6							
RED REST	7							
DOUBLE ENTRY	8							
WALK RECALL	9							
SOFT RECALL	10							
WALK 2	11							
SECOND STAGE	12							
WALK CONT RECALL	13							
SYNTHUP	14							
FIRST PHASES	F	T	T	T	T	T	T	T

## OVERLAP TIMING

KEYSTROKE: F+ COLOR CODE(OVERLAP)

	9	10	11
OVERLAP A			
OVERLAP B			
OVERLAP C			
OVERLAP D			

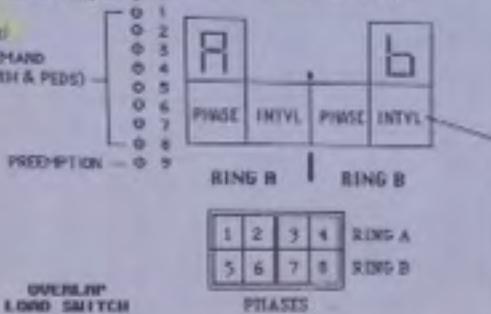
INTERSECTION: Clark Ave at 1st St. SW by: \_\_\_\_\_ Date: \_\_\_\_\_

PROGRAM  
2005A

VERSION 1.1  
OCT. 1991

Unofficial timing sheet  
copy from cab  
COORDINATION - 0 0  
Traffic L-L  
(0-7)-(0)

DEMAND  
(VTH & PDS)



### INTERVALS

- 0 - WALK
- 1 - FLASH CONT. WALK
- 2 - MINIMUM GREEN
- 3 -
- 4 - VARIABLE GREEN
- 5 - EXTENSION
- 6 -
- 7 - REDUCED GAP
- 8 - RED REST
- 9 - PRESCRIPTION
- R - STOP TIME
- S - RED RESTART
- G - GAP TERMINATION
- H - HGT TERMINATION
- F - FORGE OFF
- F - RED CLEARANCE

b8dE ERROR: ARE C-E-D  
WITCHDOO STOPS IF F-C-F = 0

b8dR TURN STOP TIME IN OR THEN OFF  
TO REINITIALIZE

### CONFIGURATION DATA

NOTE: 'E' KEY ENFORCED (F-G-F = 0)

KEYSTROKES: E+F+INTERVAL

EXTRA CEEHEF

- 1-HGT TYPE 1
- 2-DUAL LIGHT SW
- 3-HGT ADVANCE
- 4-RESERVED
- 5-SPECIAL EVENT
- 6-SPLIT PHASE
- 7-SPLIT RING

1C SELECT (E+F+F)

- 2-DUPLEX LOCAL
- 3-7 HIRE IN
- 4-PLURIFREE
- 5-SIMPLEX PASTOR
- 7-7 VBS OUT
- 8-OFFSET INTERRUPTOR

ASSIGNING CEHEF

- 1-RT OVERLAP
- 2-TOD OUTPUTS
- 3-STEADY EV BEACON
- 4-FLASH EV BEACON
- 5-RESERVED
- 6-PHASES 1 & 2 PED
- 7-ADVANCE WARNING BEACON
- 8-SPECIAL EVENT

KEYSTROKES: E+F+INTERVAL

INTERVAL

	1	2	3	4	5	6	7	8
0	RR1.DLM A							
1	RR1.DLM B							
2	RR1.DLM C							
3	RR1.DLM D							
4	RR2.DLM A							
5	RR2.DLM B							
6	RR2.DLM C							
7	RR2.DLM D							
8	RR2.DLM E							
9	RR2.DLM F							
U	RR2.DLM G							
V	RR2.DLM H							
W	RR2.DLM I							
X	RR2.DLM J							
Y	RR2.DLM K							
Z	RR2.DLM L							
E	RR2.DLM M							
I	RR2.DLM N							
C	RR2.DLM O							
S	RR2.DLM P							

## **Appendix E**

### **Existing Synchro Worksheets**

# HCM Unsignalized Intersection Capacity Analysis

## 1: Baxter Rd. & I-15 SB Ramps

Existing Midday

9/2/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control				Stop		Stop			Stop			Stop
Volume (vph)	0	152	149	180	149	0	0	0	0	35	2	77
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	165	162	196	162	0	0	0	0	38	2	84
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2							
Volume Total (vph)	327	196	162	40	84							
Volume Left (vph)	0	196	0	38	0							
Volume Right (vph)	162	0	0	0	84							
Hadj (s)	-0.26	0.53	0.03	0.51	-0.67							
Departure Headway (s)	5.0	5.7	5.2	6.7	5.5							
Degree Utilization, x	0.46	0.31	0.23	0.07	0.13							
Capacity (veh/h)	692	611	669	498	596							
Control Delay (s)	12.2	10.1	8.6	9.0	8.1							
Approach Delay (s)	12.2	9.4		8.4								
Approach LOS	B	A		A								
Intersection Summary												
Delay					10.4							
Level of Service					B							
Intersection Capacity Utilization				40.4%		ICU Level of Service						A
Analysis Period (min)					15							

HCM Unsignalized Intersection Capacity Analysis  
2: I-15 NB Ramps & Baxter Rd.

Existing Midday

9/2/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑			↑		↑	↑	↑			
Sign Control			Stop			Stop			Stop			Stop
Volume (vph)	102	89	0	0	227	34	114	3	103	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	111	97	0	0	247	37	124	3	112	0	0	0
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2							
Volume Total (vph)	111	97	284	127	112							
Volume Left (vph)	111	0	0	124	0							
Volume Right (vph)	0	0	37	0	112							
Hadj (s)	0.53	0.03	-0.04	0.52	-0.67							
Departure Headway (s)	6.1	5.5	5.4	6.3	5.1							
Degree Utilization, x	0.19	0.15	0.43	0.22	0.16							
Capacity (veh/h)	564	617	641	538	654							
Control Delay (s)	9.2	8.3	12.4	9.9	7.9							
Approach Delay (s)	8.8		12.4	9.0								
Approach LOS	A		B	A								
Intersection Summary												
Delay			10.3									
Level of Service			B									
Intersection Capacity Utilization		40.4%		ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
3: Baxter Rd. & Monte Vista Dr.

Existing Midday  
9/2/2016

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗		↖ ↗	
Volume (veh/h)	180	40	50	19	42	151
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	196	43	54	21	46	164
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	75			499	65	
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vCu, unblocked vol	75			499	65	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	87			90	84	
cM capacity (veh/h)	1524			463	999	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	239	75	210			
Volume Left	196	0	46			
Volume Right	0	21	164			
cSH	1524	1700	798			
Volume to Capacity	0.13	0.04	0.26			
Queue Length 95th (ft)	11	0	26			
Control Delay (s)	6.5	0.0	11.1			
Lane LOS	A		B			
Approach Delay (s)	6.5	0.0	11.1			
Approach LOS			B			
Intersection Summary						
Average Delay		7.4				
Intersection Capacity Utilization		37.0%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis  
4: George Ave./Porras Rd. & La Estrella St.

Existing Midday  
9/2/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	2	0	16	1	9	2	69	7	8	99	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	0	17	1	10	2	75	8	9	108	0
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	2	28	2	83	9	108						
Volume Left (vph)	0	17	2	0	9	0						
Volume Right (vph)	0	10	0	8	0	0						
Hadj (s)	0.03	-0.05	0.53	-0.03	0.53	0.03						
Departure Headway (s)	4.4	4.3	5.2	4.6	5.2	4.7						
Degree Utilization, x	0.00	0.03	0.00	0.11	0.01	0.14						
Capacity (veh/h)	773	795	679	763	680	757						
Control Delay (s)	7.4	7.5	7.0	7.0	7.0	7.2						
Approach Delay (s)	7.4	7.5	7.0		7.2							
Approach LOS	A	A	A		A							
Intersection Summary												
Delay					7.2							
Level of Service					A							
Intersection Capacity Utilization				21.5%		ICU Level of Service				A		
Analysis Period (min)				15								

HCM 2010 TWSC  
5: Depasquale Rd. & Poplar Crest Rd.

Existing Midday

9/2/2016

Intersection

Int Delay, s/veh 1.7

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	36	1	4	33	4	0	0	7	7	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	39	1	4	36	4	0	0	8	8	0	0

Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	40	0	0	40	0	0	87	89	40	90	87	38
Stage 1	-	-	-	-	-	-	40	40	-	47	47	-
Stage 2	-	-	-	-	-	-	47	49	-	43	40	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1570	-	-	1570	-	-	899	801	1031	895	803	1034
Stage 1	-	-	-	-	-	-	975	862	-	967	856	-
Stage 2	-	-	-	-	-	-	967	854	-	971	862	-
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	1570	-	-	1570	-	-	897	799	1031	886	801	1034
Mov Cap-2 Maneuver	-	-	-	-	-	-	897	799	-	886	801	-
Stage 1	-	-	-	-	-	-	975	862	-	967	853	-
Stage 2	-	-	-	-	-	-	964	851	-	964	862	-

Approach	SE	NW			NE			SW		
HCM Control Delay, s	0	0.7			8.5			9.1		
HCM LOS					A			A		

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SERSWLn1
Capacity (veh/h)	1031	1570	-	-	1570	-	886
HCM Lane V/C Ratio	0.007	0.003	-	-	-	-	0.009
HCM Control Delay (s)	8.5	7.3	0	-	0	-	9.1
HCM Lane LOS	A	A	A	-	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	0

HCM Unsignalized Intersection Capacity Analysis  
6: George Ave. & Depasquale Rd.

Existing Midday

9/2/2016

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	3	40	41	86	114	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	43	45	93	124	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				828		
pX, platoon unblocked						
vC, conflicting volume	309	127	129			
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vCu, unblocked vol	309	127	129			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	95	97			
cM capacity (veh/h)	662	924	1456			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	47	138	129			
Volume Left	3	45	0			
Volume Right	43	0	5			
cSH	899	1456	1700			
Volume to Capacity	0.05	0.03	0.08			
Queue Length 95th (ft)	4	2	0			
Control Delay (s)	9.2	2.6	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.2	2.6	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		2.5				
Intersection Capacity Utilization		23.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis  
7: Clinton Keith Rd. & Hidden Springs Rd.

Existing Midday

9/2/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑	↑	↑	↑↑	↑	↓	↔	↑	↑	↓	↔
Volume (vph)	114	745	38	71	591	342	57	18	60	328	14	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.3	5.3	3.5	5.3	5.3		4.9		4.4	4.4	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00		1.00		1.00	1.00	
Fr <sub>t</sub>	1.00	1.00	0.85	1.00	1.00	0.85		0.94		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	3539	1583		1715		1770	1613	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.83		0.66	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	3539	1583		1457		1235	1613	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	810	41	77	642	372	62	20	65	357	15	124
RTOR Reduction (vph)	0	0	23	0	0	224	0	36	0	0	82	0
Lane Group Flow (vph)	124	810	18	77	642	148	0	111	0	357	57	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	10.1	39.1	39.1	6.9	35.9	35.9		30.3		30.8	30.8	
Effective Green, g (s)	10.1	39.1	39.1	6.9	35.9	35.9		30.3		30.8	30.8	
Actuated g/C Ratio	0.11	0.43	0.43	0.08	0.40	0.40		0.34		0.34	0.34	
Clearance Time (s)	3.5	5.3	5.3	3.5	5.3	5.3		4.9		4.4	4.4	
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	198	2209	687	135	1411	631		490		422	552	
v/s Ratio Prot	c0.07	c0.16		0.04	c0.18						0.04	
v/s Ratio Perm			0.01			0.09		0.08		c0.29		
v/c Ratio	0.63	0.37	0.03	0.57	0.45	0.24		0.23		0.85	0.10	
Uniform Delay, d1	38.1	17.1	14.6	40.1	19.9	17.9		21.4		27.4	20.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	4.4	0.5	0.1	3.6	1.1	0.9		0.2		14.4	0.1	
Delay (s)	42.5	17.6	14.6	43.7	20.9	18.8		21.7		41.8	20.3	
Level of Service	D	B	B	D	C	B		C		D	C	
Approach Delay (s)		20.6			21.8			21.7			35.8	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay		23.9										C
HCM 2000 Volume to Capacity ratio		0.62										
Actuated Cycle Length (s)		90.0										13.7
Intersection Capacity Utilization		64.1%										C
Analysis Period (min)		15										
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 8: Clinton Keith Rd. & I-15 SB Ramps

Existing Midday

9/2/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑	↑	↑↑
Volume (vph)	0	663	430	238	706	0	0	0	0	338	3	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3	5.3	4.6	5.3					5.3	5.3	5.3
Lane Util. Factor		0.91	1.00	0.97	0.91					0.95	0.95	0.88
Fr <sub>t</sub>		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1583	3433	5085					1681	1687	2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1583	3433	5085					1681	1687	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	721	467	259	767	0	0	0	0	367	3	339
RTOR Reduction (vph)	0	0	242	0	0	0	0	0	0	0	0	255
Lane Group Flow (vph)	0	721	225	259	767	0	0	0	0	183	187	84
Turn Type	NA	Perm	Prot	NA						Split	NA	Perm
Protected Phases	2		1	6						4	4	
Permitted Phases		2										4
Actuated Green, G (s)	48.2	48.2	11.9	64.7						24.7	24.7	24.7
Effective Green, g (s)	48.2	48.2	11.9	64.7						24.7	24.7	24.7
Actuated g/C Ratio	0.48	0.48	0.12	0.65						0.25	0.25	0.25
Clearance Time (s)	5.3	5.3	4.6	5.3						5.3	5.3	5.3
Vehicle Extension (s)	2.0	2.0	2.0	2.0						2.0	2.0	2.0
Lane Grp Cap (vph)	2450	763	408	3289						415	416	688
v/s Ratio Prot	0.14		c0.08	0.15						0.11	c0.11	
v/s Ratio Perm		c0.14										0.03
v/c Ratio	0.29	0.30	0.63	0.23						0.44	0.45	0.12
Uniform Delay, d1	15.6	15.6	42.0	7.3						31.8	31.9	29.2
Progression Factor	1.00	1.00	0.93	0.91						1.00	1.00	1.00
Incremental Delay, d2	0.3	1.0	2.2	0.2						3.4	3.5	0.4
Delay (s)	15.9	16.6	41.1	6.8						35.2	35.4	29.6
Level of Service	B	B	D	A						D	D	C
Approach Delay (s)	16.2			15.5				0.0			32.6	
Approach LOS	B			B				A			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay	19.9									B		
HCM 2000 Volume to Capacity ratio	0.39											
Actuated Cycle Length (s)	100.0									15.2		
Intersection Capacity Utilization	55.7%									B		
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
9: I-15 NB Ramps & Clinton Keith Rd.

Existing Midday

9/2/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑			↑↑↑	↑	↑	↔	↑			
Volume (vph)	263	735	0	0	561	357	383	0	273	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.3			5.3	5.3	5.3	5.3	5.3			
Lane Util. Factor	0.97	0.91			0.91	1.00	0.95	0.91	0.95			
Fr <sub>t</sub>	1.00	1.00			1.00	0.85	1.00	0.95	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (prot)	3433	5085			5085	1583	1681	1563	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (perm)	3433	5085			5085	1583	1681	1563	1504			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	286	799	0	0	610	388	416	0	297	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	231	0	52	127	0	0	0
Lane Group Flow (vph)	286	799	0	0	610	157	250	188	96	0	0	0
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6				8			
Permitted Phases						6	8		8			
Actuated Green, G (s)	13.6	58.7			40.5	40.5	30.7	30.7	30.7			
Effective Green, g (s)	13.6	58.7			40.5	40.5	30.7	30.7	30.7			
Actuated g/C Ratio	0.14	0.59			0.40	0.40	0.31	0.31	0.31			
Clearance Time (s)	4.6	5.3			5.3	5.3	5.3	5.3	5.3			
Vehicle Extension (s)	3.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lane Grp Cap (vph)	466	2984			2059	641	516	479	461			
v/s Ratio Prot	c0.08	0.16			c0.12							
v/s Ratio Perm						0.10	c0.15	0.12	0.06			
v/c Ratio	0.61	0.27			0.30	0.25	0.48	0.39	0.21			
Uniform Delay, d1	40.7	10.1			20.1	19.7	28.2	27.3	25.7			
Progression Factor	1.26	0.97			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	2.3	0.2			0.4	0.9	3.2	2.4	1.0			
Delay (s)	53.7	10.0			20.5	20.6	31.4	29.7	26.7			
Level of Service	D	B			C	C	C	C	C			
Approach Delay (s)		21.5			20.5			29.4		0.0		
Approach LOS		C			C			C		A		
Intersection Summary												
HCM 2000 Control Delay		23.2			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.42										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			15.2				
Intersection Capacity Utilization		55.7%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

10: Clinton Keith Rd. & Arya Rd.

Existing Midday

9/2/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑↑			↑	↑		↔	
Volume (vph)	21	701	222	77	596	54	295	8	62	20	5	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.3	5.3	3.5	5.3			4.9	4.9		4.9	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91			1.00	1.00		1.00	
Fr <sub>t</sub>	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1770	3539	1583	1770	5022			1776	1583		1668	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.67	1.00		0.89	
Satd. Flow (perm)	1770	3539	1583	1770	5022			1246	1583		1503	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	762	241	84	648	59	321	9	67	22	5	60
RTOR Reduction (vph)	0	0	155	0	12	0	0	0	40	0	36	0
Lane Group Flow (vph)	23	762	86	84	695	0	0	330	27	0	51	0
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8		4	
Actuated Green, G (s)	1.8	28.4	28.4	5.8	32.4			32.1	32.1		32.1	
Effective Green, g (s)	1.8	28.4	28.4	5.8	32.4			32.1	32.1		32.1	
Actuated g/C Ratio	0.02	0.35	0.35	0.07	0.40			0.40	0.40		0.40	
Clearance Time (s)	3.5	5.3	5.3	3.5	5.3			4.9	4.9		4.9	
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	39	1256	561	128	2033			499	635		603	
v/s Ratio Prot	0.01	c0.22		c0.05	0.14							
v/s Ratio Perm			0.05					c0.26	0.02		0.03	
v/c Ratio	0.59	0.61	0.15	0.66	0.34			0.66	0.04		0.08	
Uniform Delay, d1	38.7	21.2	17.6	36.1	16.4			19.5	14.6		14.8	
Progression Factor	1.00	1.00	1.00	1.14	1.11			1.00	1.00		1.00	
Incremental Delay, d2	13.8	2.2	0.6	8.7	0.4			6.7	0.1		0.3	
Delay (s)	52.6	23.4	18.2	50.0	18.7			26.3	14.7		15.1	
Level of Service	D	C	B	D	B			C	B		B	
Approach Delay (s)		22.8			22.0			24.3			15.1	
Approach LOS		C			C			C			B	
Intersection Summary												
HCM 2000 Control Delay		22.5				HCM 2000 Level of Service		C				
HCM 2000 Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		80.0				Sum of lost time (s)		13.7				
Intersection Capacity Utilization		58.9%				ICU Level of Service		B				
Analysis Period (min)		15										
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

11: Clinton Keith Rd. & George Ave.

Existing Midday

9/2/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑		↑	↑↑	↑	↑	↑	↑	↑	↑	↑
Volume (vph)	97	670	28	78	539	14	47	26	53	39	37	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.3		3.5	5.3	5.3	3.5	4.9		3.5	4.9	4.9
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Fr <sub>t</sub>	1.00	0.99		1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5055		1770	3539	1583	1770	1674		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5055		1770	3539	1583	1770	1674		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	728	30	85	586	15	51	28	58	42	40	89
RTOR Reduction (vph)	0	4	0	0	0	7	0	51	0	0	0	78
Lane Group Flow (vph)	105	754	0	85	586	8	51	35	0	42	40	11
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						4
Actuated Green, G (s)	8.7	43.4		6.8	41.5	41.5	2.7	9.3		3.3	9.9	9.9
Effective Green, g (s)	8.7	43.4		6.8	41.5	41.5	2.7	9.3		3.3	9.9	9.9
Actuated g/C Ratio	0.11	0.54		0.08	0.52	0.52	0.03	0.12		0.04	0.12	0.12
Clearance Time (s)	3.5	5.3		3.5	5.3	5.3	3.5	4.9		3.5	4.9	4.9
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	3.0		2.0	3.0	3.0
Lane Grp Cap (vph)	192	2742		150	1835	821	59	194		73	230	195
v/s Ratio Prot	c0.06	0.15		0.05	c0.17		c0.03	0.02		0.02	c0.02	
v/s Ratio Perm						0.00						0.01
v/c Ratio	0.55	0.28		0.57	0.32	0.01	0.86	0.18		0.58	0.17	0.06
Uniform Delay, d1	33.8	9.8		35.2	11.1	9.3	38.5	31.9		37.7	31.4	30.9
Progression Factor	1.32	0.28		1.06	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.5	0.2		2.7	0.4	0.0	68.5	0.4		6.7	0.4	0.1
Delay (s)	46.0	3.0		40.0	11.0	9.3	107.0	32.3		44.3	31.8	31.1
Level of Service	D	A		D	B	A	F	C		D	C	C
Approach Delay (s)		8.2			14.6			60.1			34.5	
Approach LOS		A			B			E			C	
Intersection Summary												
HCM 2000 Control Delay		16.8								B		
HCM 2000 Volume to Capacity ratio		0.34										
Actuated Cycle Length (s)		80.0							17.2			
Intersection Capacity Utilization		41.4%							A			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
12: Inland Valley Dr. & Clinton Keith Rd.

Existing Midday

9/2/2016

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑↑	↑	↑	↑	↑	↑
Volume (vph)	0	536	205	12	442	189	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.0	5.5	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>	1.00	0.85	1.00	1.00	1.00	0.85	
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	3539	1583	1770	1863	1770	1583	
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	3539	1583	1770	1863	1770	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	583	223	13	480	205	11
RTOR Reduction (vph)	0	0	105	0	0	0	8
Lane Group Flow (vph)	0	583	118	13	480	205	3
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm
Protected Phases	5	2		1	6		
Permitted Phases			2			8	8
Actuated Green, G (s)	42.5	42.5	1.0	48.5	21.0	21.0	
Effective Green, g (s)	42.5	42.5	1.0	48.5	21.0	21.0	
Actuated g/C Ratio	0.53	0.53	0.01	0.61	0.26	0.26	
Clearance Time (s)	5.5	5.5	5.0	5.5	5.0	5.0	
Vehicle Extension (s)	2.5	2.5	1.5	2.5	3.5	3.5	
Lane Grp Cap (vph)	1880	840	22	1129	464	415	
v/s Ratio Prot	0.16		0.01	c0.26			
v/s Ratio Perm		0.07			c0.12	0.00	
v/c Ratio	0.31	0.14	0.59	0.43	0.44	0.01	
Uniform Delay, d1	10.5	9.5	39.3	8.4	24.6	21.8	
Progression Factor	0.68	1.81	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.3	25.2	1.2	3.0	0.0	
Delay (s)	7.6	17.5	64.5	9.5	27.6	21.8	
Level of Service	A	B	E	A	C	C	
Approach Delay (s)	10.3			11.0	27.3		
Approach LOS	B			B	C		
Intersection Summary							
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio	0.46						
Actuated Cycle Length (s)	80.0	Sum of lost time (s)			15.5		
Intersection Capacity Utilization	42.5%	ICU Level of Service			A		
Analysis Period (min)	15						
c Critical Lane Group							

Intersection

Int Delay, s/veh 3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	B	B		A	
Traffic Vol, veh/h	6	0	0	6	0	0
Future Vol, veh/h	6	0	0	6	0	0
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	58	58	58	58	58	58
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	0	0	10	0	0

Major/Minor	Major2	Major1	Minor2			
Conflicting Flow All	10	-	0	0	5	31
Stage 1	-	-	-	-	0	21
Stage 2	-	-	-	-	5	10
Critical Hdwy	4.12	-	-	-	6.42	6.52
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	5.42	5.52
Follow-up Hdwy	2.218	-	-	-	3.518	4.018
Pot Cap-1 Maneuver	1610	-	-	-	1017	862
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	1018	887
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1610	-	-	-	1011	0
Mov Cap-2 Maneuver	-	-	-	-	1011	0
Stage 1	-	-	-	-	-	0
Stage 2	-	-	-	-	1018	0

Approach	WB	NB	SB
HCM Control Delay, s	7.3	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBT	NBR	WBL	WBR	SBLn1
Capacity (veh/h)	-	-	1610	-	-
HCM Lane V/C Ratio	-	-	0.006	-	-
HCM Control Delay (s)	-	-	7.2	-	0
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	-

## **Appendix F**

### **Cumulative Project Information**

### Cumulative Projects Trip Generation

ID No.	Planning Application No.	Project Name	Land Use	ITE Code <sup>1</sup>	Intensity	ADT	Peak Hour Volume	In	Out
1	12-0053 (PM 36492)	Rancon Medical & Retail Center	Medical Office	720	31.42 KSF	49	13	7	6
			Commercial	820	19.40 KSF	490	61	30	31
			Fast Food w/ Drive Thru	934	3.00 KSF	1,628	218	105	113
			Office	710	42.42 KSF	45	7	4	3
			Business Park <sup>2</sup>	770	294.90 KSF				
								Non Trip Generating	
								-122	-15
								-7	-8
								-814	-109
								-52	-57
								-221	-30
								-14	-15
								Subtotal	1,053
								144	71
								73	
2	14-0069	Grove Park Mixed Use	Commercial	820	50.00 KSF	1,262	156	76	80
			Apartment	220	162 DU	949	83	41	41
						-752	-81	-40	-41
						Subtotal	1,459	157	78
3	15-0013	Clinton Keith Village Retail Center	Commercial	820	31.09 KSF	785	97	48	49
			Fast Food w/ Drive Thru	934	5.94 KSF	3,224	432	207	225
			Gas Station with Market <sup>3</sup>	945	12 VFP	1,953	127	63	63
						Pass-by Reduction (25%)	-1,490	-164	-80
						Subtotal	4,471	492	239
								253	
4	13-0082 (TPM 36122)	Westpark Promenade	Supermarket	850	85.00 KSF	14,147	1,609	805	805
			Commercial	820	17.35 KSF	438	54	27	28
			Restaurant	932	16.00 KSF	2,109	295	162	133
			Condominium	230	191 DU	924	86	42	44
						Pass-by Reduction (15%)	-1,762	-204	-104
						Internal Trips (15%)	-1,762	-204	-104
						Subtotal	14,095	1,636	828
5	08-0072 (PM 36080)	Wildomar Square Retail Center	Commercial	820	46.60 KSF	1,176	145	71	74
ID No.	Planning Application No.	Project Name	Land Use	ITE Code <sup>1</sup>	Intensity	ADT	Peak Hour Volume	In	Out
6	08-0166	Stable Lanes Retail Center	Commercial	820	20.89 KSF	527	65	32	33
			Daycare	565	9.31 KSF	58	16	10	6
						Subtotal	585	81	42
7	14-0002	Baxter Village Mixed Use	Apartment	220	204 DU	1,195	104	52	52
			Commercial	820	75.00 KSF	1,893	234	115	119
			SFDR	210	67 DU	578	58	31	27
						Pass-by Reduction (34%)	-1,246	-135	-67
						Internal Trips (12%)	-440	-47	-24
						Subtotal	1,980	214	106
8	12-0194	Cornerstone Church Preschool & Admin. Bldg.	Preschool	565	17.14 KSF	106	29	18	11
			Administration (Church) <sup>4</sup>	560	23.02 KSF			Non Trip Generating	
						Subtotal	106	29	18
9	08-0179 (TPM 32557)	Bundy Canyon Plaza <sup>5</sup>	Gas Station with Market <sup>3</sup>	945	Complete			Not Included <sup>5</sup>	
10	13-0086 (PM 36652)	Walmart Retail Project	Fast Food w/ Drive Thru	934	6.20 KSF				
			Commercial	820	33.80 KSF				
						Freestanding Discount Superstore	813	185.99 KSF	10,438
						Commercial	820	7.80 KSF	197
									962
						Pass-by Reduction (49% Commercial only)	-96	-12	-6
						Internal Trips (20% Commercial only)	-39	-5	-2
						Subtotal	10,499	971	495
11	14-040	Horizons/Strata Mixed Use	Assisted Living	254	86 Beds	210	35	15	20
			Condominium	230	138 DU	668	62	30	32
						Subtotal	878	97	46
12	15-0051	Baxter/Susan GPA/TTM	SFDR	210	48 DU	414	41	22	19
13	15-0123	Nova Homes Residential	SFDR	210	77 DU	664	66	35	31
14	14-0081 (TTM 31479)	Diversified Pacific Homes	SFDR	210	51 DU	440	44	23	21
15	13-0089	Villa Siena Apartments	Apartment	220	170 DU	996	87	43	43
16	12-0364 (TTM 36497)	Lennar Residential (Briarwood)	SFDR	210	67 DU	578	58	31	27
17	TTM 32535 PPN 14-0100	Lennar North Ranch	SFDR	210	84 DU	724	72	38	34
18	TTM 31667	Beazer Homes	SFDR	210	108 DU	931	93	49	44
19	TTM 31896	Rhoades Residential	SFDR	210	131 DU	1,129	113	60	53
20	TM 25122 & TM 32078	Richmond American	SFDR	210	149 DU	1,284	128	68	60
21	16-0070	Camelia Townhouse Project	Condominium	230	163 DU	789	73	36	37
<b>Total Cumulative Project Trips</b>							44,252	4,741	2,399
4,742									

Notes:

ADT = Average Daily Trips; SFDR = Single Family Detached Residential; VHDR = Very High Density Residential;

DU = Dwelling Units; VFP = Vehicle Fueling Pumps; KSF = Thousand Square Feet

<sup>1</sup> Trip generation weekend or Sunday rates based on *ITE Trip Generation* 9th Edition

<sup>2</sup>For purposes of this analysis, Rancon business park is considered a future development and not included in the cumulative project's trip generation.

<sup>3</sup>Sunday rates for a gas station are not available, therefore weekday rates were conservatively used.

<sup>4</sup>Church administration building is expected to be closed on Sundays and not expected to generate trips.

<sup>5</sup>Traffic from Bundy Canyon Plaza is not expected to contribute to the study area and therefore not included in cumulative project's trip generation.

Int. 1

^ Will not contribute to study area

## outbound

## nbound

Int. 2

		Cumulative Projects																				
1-Falcon	2- Grove Park	3-CK Village	4-Westpark	5-Wildomar Sq.	6-Stable	7-Baxter Village	8-Cornerstone	9-Bundy Cyn	10-Walmart	11-Horizons/Strata	12-Baxter/Susan	13-Nova	14-Diversified	15-Villa Sienna	16-Briarwood	17-North Ranch	18-Beazer	19-Rhoades	20-Richmond	21-Camelia	Total	
% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	
NBL	0%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
NBT	0%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
NBR	0%	0%				0%	0%	0%	20%	4	0%	0%	0%	25%	5	0%	0%	0%	0%	0%	0%	49
SBL	0%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
SBT	0%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
SBR	0%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
EFL	0%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
EBT	0%	0%	5%	4	5%	12	5%	22	0%	0%	0%	40%	43	20%	4	0%	0%	12%	59	0%	35%	8
EBR	0%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
WBL	0%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
WBT	0%	0%	5%	4	5%	13	5%	21	0%	0%	0%	40%	43	20%	2	0%	0%	12%	57	0%	35%	7
WBR	0%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	5	0%	0

3

## Outbound

118

11

## outbound

Int. 4

Cumulative Projects																									
1-Rancon	2- Grove Park	3-C Village	4-Westpark	5-Wildomar Sq.	6-Stable	7-Baxter Village	8-Cornerstone	9-Bundy Cyn	10-Walmart	11-Horizons/Strata	12-Baxter/Susan	13-Nova	14-Diversified	15-Villa Sienna	16-Briarwood	17-North Ranch	18-Beazer	19-Rhoades	20-Richmond	21-Camelia	Total				
% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	
NBL	0%	0						0%	0	0	0%	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
NBT	0%	0	10%	8	5%	13	15%	63	10%	7	10%	4	0%	0	0	0%	0%	2%	10	0%	0	40%	9	15%	5
NBR	0%	0			5%	13							0%	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
SLB	0%	0										0%	0	0	0%	0%	6%	29	0%	0	0%	0%	0%	0%	0
SBT	0%	0	10%	8	5%	12	15%	67	10%	7	10%	4	0%	0	0	0%	0%	2%	10	0%	0	40%	8	15%	5
SBR	0%	0										0%	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
EBL	0%	0										0%	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
EBT	0%	0										0%	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
EBC	0%	0										0%	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
EBC	0%	0										0%	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
WBL	0%	0										0%	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
WBT	0%	0										0%	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
WBR	0%	0										0%	0	0	0	0%	0%	6%	30	0%	0	0%	0%	0%	0

– 10 –

## Outbound

Int 5

authored

Int. 6

inbound

Cumulative Projects																								Total
1-Rancon	2-Grove Park	3-CK Village	4-Westpark	5-Wildomar Sq.	6-Stable	7-Baxter Village	8-Cornerstone	9-Bundy Cyn	10-Walmart	11-Horizons/Strata	12-Baxter/Susan	13-Nova	14-Diversified	15-Villa Sienna	16-Briarwood	17-North Ranch	18-Beazer	19-Rhodes	20-Richmond	21-Camelia				
% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	Total
NBL	0%	0%	5%	13%	5%	22	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
NBT	0%	0%	10%	8	25%	0%	10%	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	35
NBR	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	56
SBL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	23
SBT	0%	0%	10%	8	10%	24	0%	10%	7	10%	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	35
SBR	0%	0%	0%	0%	15%	67	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	67
EBL	0%	0%	0%	0%	15%	63	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	63
EBT	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
EBC	0%	0%	5%	12	5%	21	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33
WBL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	23
WBT	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
WBR	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5

outbound

inbound

Int. 7

Cumulative Projects

1-Rancon	2-Grove Park	3-CK Village	4-Westpark	5-Wildomar Sq.	6-Stable	7-Baxter Village	8-Cornerstone	9-Bundy Cyn	10-Walmart	11-Horizons/Strata	12-Baxter/Susan	13-Nova	14-Diversified	15-Villa Sienna	16-Briarwood	17-North Ranch	18-Beazer	19-Rhodes	20-Richmond	21-Camelia	Total			
% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	Total	
NBL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
NBT	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
NBR	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
SBL	0%	0%	5%	22	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	22	
SBT	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
SBR	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
EBL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
EBT	5%	4	15%	12	10%	24	15%	67	20%	15	20%	8	0%	0%	0%	0%	0%	5	10%	2	15%	5	15%	264
EBC	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
EBR	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
WBL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
WBT	5%	4	15%	12	10%	25	15%	63	20%	14	20%	8	0%	0%	0%	0%	0%	5	10%	2	15%	5	15%	272
WBR	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	21	

outbound

inbound

Int. 8

Cumulative Projects

1-Rancon	2-Grove Park	3-CK Village	4-Westpark	5-Wildomar Sq.	6-Stable	7-Baxter Village	8-Cornerstone	9-Bundy Cyn	10-Walmart	11-Horizons/Strata	12-Baxter/Susan	13-Nova	14-Diversified	15-Villa Sienna	16-Briarwood	17-North Ranch	18-Beazer	19-Rhodes	20-Richmond	21-Camelia	Total			
% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	Total	
NBL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
NBT	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
NBR	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
SBL	40%	28	20%	16	15%	36	15%	67	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	9	20%	6	172	0	
SBT	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
SBR	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	79	
EBL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
EBT	5%	4	15%	12	10%	24	20%	90	55%	41	55%	22	0%	0%	0%	0%	0%	5	10%	2	15%	5	15%	269
EBC	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	85	
EBR	40%	29	20%	16	15%	38	15%	63	20%	14	20%	8	0%	0%	0%	0%	0%	9	10%	2	15%	5	15%	188
WBL	45%	33	55%	44	25%	63	35%	147	30%	21	30%	13	0%	0%	0%	0%	0%	16	20%	4	15%	5	15%	379
WBT	40%	29	20%	16	15%	38	15%	63	0%	0%	0%	0%	0%	0%	0%	0%	0%	10	20%	5	20%	9	20%	170

outbound

inbound

Int. 10

Cumulative Projects

1-Rancon	2-Grove Park	3-CK Village	4-Westpark	5-Wildomar Sq.	6-Stable	7-Baxter Village	8-Cornerstone	9-Bundy Cyn	10-Walmart	11-Horizons/Strata	12-Baxter/Susan	13-Nova	14-Diversified	15-Villa Sienna	16-Briarwood	17-North Ranch	18-Beazer	19-Rhodes	20-Richmond	21-Camelia	Total		
% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	Total
NBL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
NBT	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45
NBR	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	70
SBL	5%	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	84
SBT	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	42
SBR	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	210
EBL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	225
EBT	85%	60	55%	43	40%	95	0%	30%	22	30%													

## Int. 11

		Cumulative Projects																						
	1-Rancon	2-Grove Park	3-CK Village	4-Westpark	5-Wildomar Sq	6-Stable	7-Baxter Village	8-Cornerstone	9-Bundy Cyn	10-Walmart	11-Horizons/Strata	12-Baxter/Susan	13-Nova	14-Diversified	15-Villa Sienna	16-Briarwood	17-North Ranch	18-Beazer	19-Rhoades	20-Richmond	21-Camelia	Total		
	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	
NBL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
NBT	0%	5%	12%	0%					0%	0%	0%	0%	0%	5%	1	10%	4	10%	2					19
NBR	0%	0%	0%	0%					0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
SBL	10%	8	40%	101	5%	21			0%	0%	0%	0%	0%	2	15%	3	25%	8	25%	5				148
SBT	0%	5%	13%	0%					0%	0%	0%	0%	0%	5%	1	10%	3	10%	2					60
SBR	0%	10%	25%	0%	10%	7	10%	4	0%	0%	0%	0%	0%	20%	4	40%	12	40%	8					60
EBL	0%	40%	95%	0%	10%	7	10%	4	0%	0%	0%	0%	0%	20%	4	50%	18	50%	12					140
EBT	85%	60	60%	47	0%	20%	84	20%	15	20%	8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	271
EBR	0%	0%	0%	0%					0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
WBL	0%	0%	0%	0%					0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
WBT	85%	62	60%	48	30%	0%	20%	14	20%	8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	190	
WBR	10%	8	0%	25%	112				0%	0%	0%	0%	0%	3	15%	3	0%	0%	0%	0%	0%	0%	0	126

outbound  
inbound

## Int. 12

		Cumulative Projects																														
	1-Rancon	2-Grove Park	3-CK Village	4-Westpark	5-Wildomar Sq	6-Stable	7-Baxter Village	8-Cornerstone	9-Bundy Cyn	10-Walmart	11-Horizons/Strata	12-Baxter/Susan	13-Nova	14-Diversified	15-Villa Sienna	16-Briarwood	17-North Ranch	18-Beazer	19-Rhoades	20-Richmond	21-Camelia	Total										
	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.	% Vol.									
NBL		15%	36%	5%	22				0%	0	0	0%	0	0%	0%	0%	0%	45%	20	45%	12	0%	0%	90								
NBT		0%	0%	0%					0%	0	0	0%	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0								
NBR		0%	0%	0%					0%	0	0	0%	0	0%	0%	0%	0%	25%	11	20%	5	0%	0%	16								
SBL		0%	0%	0%					0%	0	0	0%	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0									
SBT		0%	0%	0%					0%	0	0	0%	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0									
SBR		0%	0%	0%					0%	0	0	0%	0	0%	0%	0%	0%	10%	3	10%	2	0%	0%	5								
EBL		0%	0%	0%					0%	0	0	0%	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0									
EBT	85%	60	70%	54	25%	63	20%	84	20%	15	20%	8	0%	0	0	0%	0	55%	25	15%	3	25%	5	0%	0	0%	0%	0%	0%	0%	0	325
EBC		15%	38%	5%	21				0%	0	0	0%	0	0%	0%	0%	0%	45%	20	45%	14	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	93
WBL		0%	0%	0%					0%	0	0	0%	0	0%	0%	0%	0%	25%	11	20%	6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	17
WBT	85%	62	70%	56	25%	60	20%	90	20%	14	20%	8	0%	0	0	0%	0	55%	28	15%	3	0%	0%	0%	0	0%	0	0%	0	0%	0	321
WBR		0%	0%	0%					0%	0	0	0%	0	0%	0%	0%	0%	5%	2	5%	1										0	3

outbound  
inbound

Notes:  
Source Cum. Proj. # 8 Cornerstone Church TIA  
Source Cum. Proj. # 13 George Ave/Iodine Springs TIA  
Source Cum. Proj. # 3 CK Village TIA  
Source Cum. Proj. # 4 Westpark TIA  
Source Cum. Proj. # 11 Horizons TIA  
Source Cum. Proj. # 2 Grove Park TIA

## **Appendix G**

### **Existing Plus Project Synchro Worksheets**

# HCM Unsignalized Intersection Capacity Analysis

## 1: Baxter Rd. & I-15 SB Ramps

E+P Midday

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑	↑				↑	↑	↑
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	169	149	180	166	0	0	0	0	62	2	77
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	184	162	196	180	0	0	0	0	67	2	84
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2							
Volume Total (vph)	346	196	180	70	84							
Volume Left (vph)	0	196	0	67	0							
Volume Right (vph)	162	0	0	0	84							
Hadj (s)	-0.25	0.53	0.03	0.52	-0.67							
Departure Headway (s)	5.2	5.9	5.4	6.8	5.6							
Degree Utilization, x	0.50	0.32	0.27	0.13	0.13							
Capacity (veh/h)	672	594	650	490	586							
Control Delay (s)	13.2	10.4	9.1	9.6	8.2							
Approach Delay (s)	13.2	9.8		8.8								
Approach LOS	B	A		A								
Intersection Summary												
Delay						10.9						
Level of Service						B						
Intersection Capacity Utilization				41.5%			ICU Level of Service				A	
Analysis Period (min)						15						

HCM Unsignalized Intersection Capacity Analysis  
2: I-15 NB Ramps & Baxter Rd.

E+P Midday

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑			↑		↑	↑	↑			
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	102	133	0	0	244	61	114	3	103	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	111	145	0	0	265	66	124	3	112	0	0	0
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2							
Volume Total (vph)	111	145	332	127	112							
Volume Left (vph)	111	0	0	124	0							
Volume Right (vph)	0	0	66	0	112							
Hadj (s)	0.53	0.03	-0.09	0.52	-0.67							
Departure Headway (s)	6.1	5.6	5.5	6.6	5.4							
Degree Utilization, x	0.19	0.23	0.50	0.23	0.17							
Capacity (veh/h)	557	610	638	515	622							
Control Delay (s)	9.4	9.1	13.8	10.3	8.2							
Approach Delay (s)	9.2		13.8	9.3								
Approach LOS	A		B	A								
Intersection Summary												
Delay						11.1						
Level of Service						B						
Intersection Capacity Utilization			41.5%				ICU Level of Service					A
Analysis Period (min)						15						

HCM Unsignalized Intersection Capacity Analysis  
3: Baxter Rd. & Monte Vista Dr.

E+P Midday  
9/8/2016

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Volume (veh/h)	180	84	94	19	42	151
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	196	91	102	21	46	164
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	123			595	112	
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vCu, unblocked vol	123			595	112	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	87			89	83	
cM capacity (veh/h)	1464			405	940	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	287	123	210			
Volume Left	196	0	46			
Volume Right	0	21	164			
cSH	1464	1700	730			
Volume to Capacity	0.13	0.07	0.29			
Queue Length 95th (ft)	12	0	30			
Control Delay (s)	5.7	0.0	11.9			
Lane LOS	A		B			
Approach Delay (s)	5.7	0.0	11.9			
Approach LOS			B			
Intersection Summary						
Average Delay		6.7				
Intersection Capacity Utilization		39.4%		ICU Level of Service		A
Analysis Period (min)		15				

# HCM Unsignalized Intersection Capacity Analysis

4: George Ave./Porras Rd. & La Estrella St.

E+P Midday

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑	↑		↑	↑	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	2	0	33	1	9	2	120	24	8	150	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	0	36	1	10	2	130	26	9	163	0
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	2	47	2	157	9	163						
Volume Left (vph)	0	36	2	0	9	0						
Volume Right (vph)	0	10	0	26	0	0						
Hadj (s)	0.03	0.06	0.53	-0.08	0.53	0.03						
Departure Headway (s)	4.8	4.7	5.3	4.7	5.3	4.8						
Degree Utilization, x	0.00	0.06	0.00	0.20	0.01	0.22						
Capacity (veh/h)	694	704	664	754	664	738						
Control Delay (s)	7.8	8.0	7.1	7.7	7.1	7.9						
Approach Delay (s)	7.8	8.0	7.6		7.8							
Approach LOS	A	A	A		A							
Intersection Summary												
Delay				7.8								
Level of Service				A								
Intersection Capacity Utilization			23.7%		ICU Level of Service					A		
Analysis Period (min)				15								

Intersection

Int Delay, s/veh 0.3

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	324	1	4	321	4	0	0	7	7	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	352	1	4	349	4	0	0	8	8	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	353	0	0	353	0	0	713	715	353	717	713	351
Stage 1	-	-	-	-	-	-	353	353	-	360	360	-
Stage 2	-	-	-	-	-	-	360	362	-	357	353	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1206	-	-	1206	-	-	347	356	691	345	357	692
Stage 1	-	-	-	-	-	-	664	631	-	658	626	-
Stage 2	-	-	-	-	-	-	658	625	-	661	631	-
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	1206	-	-	1206	-	-	346	355	691	340	356	692
Mov Cap-2 Maneuver	-	-	-	-	-	-	346	355	-	340	356	-
Stage 1	-	-	-	-	-	-	664	631	-	658	623	-
Stage 2	-	-	-	-	-	-	655	623	-	654	631	-

Approach	SE	NW			NE			SW		
HCM Control Delay, s	0	0.1			10.3			15.8		
HCM LOS					B			C		

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SERSWLn1
Capacity (veh/h)	691	1206	-	-	1206	-	340
HCM Lane V/C Ratio	0.011	0.004	-	-	-	-	0.022
HCM Control Delay (s)	10.3	8	0	-	0	-	15.8
HCM Lane LOS	B	A	A	-	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	0.1

HCM Unsignalized Intersection Capacity Analysis  
6: George Ave. & Depasquale Rd.

E+P Midday

9/8/2016

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	71	260	268	86	114	73
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	77	283	291	93	124	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				828		
pX, platoon unblocked						
vC, conflicting volume	840	164	203			
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vCu, unblocked vol	840	164	203			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	71	68	79			
cM capacity (veh/h)	264	881	1368			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	360	385	203			
Volume Left	77	291	0			
Volume Right	283	0	79			
cSH	587	1368	1700			
Volume to Capacity	0.61	0.21	0.12			
Queue Length 95th (ft)	104	20	0			
Control Delay (s)	20.4	6.8	0.0			
Lane LOS	C	A				
Approach Delay (s)	20.4	6.8	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			10.5			
Intersection Capacity Utilization		59.8%		ICU Level of Service		B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis  
7: Clinton Keith Rd. & Hidden Springs Rd.

E+P Midday

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑	↑	↑	↑↑	↑	↓	↔	↑	↑	↓	↔
Volume (vph)	114	786	38	71	632	342	57	18	60	328	14	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.3	5.3	3.5	5.3	5.3		4.9		4.4		4.4
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00		1.00		1.00		1.00
Fr <sub>t</sub>	1.00	1.00	0.85	1.00	1.00	0.85		0.94		1.00		0.87
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98		0.95		1.00
Satd. Flow (prot)	1770	5085	1583	1770	3539	1583		1715		1770		1613
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.83		0.66		1.00
Satd. Flow (perm)	1770	5085	1583	1770	3539	1583		1457		1235		1613
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	854	41	77	687	372	62	20	65	357	15	124
RTOR Reduction (vph)	0	0	23	0	0	223	0	36	0	0	82	0
Lane Group Flow (vph)	124	854	18	77	687	149	0	111	0	357	57	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	9.9	39.1	39.1	6.9	36.1	36.1		30.3		30.8		30.8
Effective Green, g (s)	9.9	39.1	39.1	6.9	36.1	36.1		30.3		30.8		30.8
Actuated g/C Ratio	0.11	0.43	0.43	0.08	0.40	0.40		0.34		0.34		0.34
Clearance Time (s)	3.5	5.3	5.3	3.5	5.3	5.3		4.9		4.4		4.4
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0		3.0		3.0		3.0
Lane Grp Cap (vph)	194	2209	687	135	1419	634		490		422		552
v/s Ratio Prot	c0.07	c0.17		0.04	c0.19						0.04	
v/s Ratio Perm			0.01			0.09		0.08		c0.29		
v/c Ratio	0.64	0.39	0.03	0.57	0.48	0.24		0.23		0.85		0.10
Uniform Delay, d1	38.3	17.3	14.6	40.1	20.0	17.8		21.4		27.4		20.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00		1.00		1.00
Incremental Delay, d2	5.0	0.5	0.1	3.6	1.2	0.9		0.2		14.4		0.1
Delay (s)	43.3	17.8	14.6	43.7	21.2	18.7		21.7		41.8		20.3
Level of Service	D	B	B	D	C	B		C		D		C
Approach Delay (s)		20.8			21.9			21.7			35.8	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay		24.0									C	
HCM 2000 Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		90.0									13.7	
Intersection Capacity Utilization		65.2%									C	
Analysis Period (min)		15										
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 8: Clinton Keith Rd. & I-15 SB Ramps

E+P Midday

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑↑	↑↑↑					↑	↑	↑↑↑
Volume (vph)	0	704	430	336	747	0	0	0	0	399	3	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3	5.3	4.6	5.3					5.3	5.3	5.3
Lane Util. Factor		0.91	1.00	0.97	0.91					0.95	0.95	0.88
Fr <sub>t</sub>		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1583	3433	5085					1681	1686	2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1583	3433	5085					1681	1686	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	765	467	365	812	0	0	0	0	434	3	339
RTOR Reduction (vph)	0	0	261	0	0	0	0	0	0	0	0	252
Lane Group Flow (vph)	0	765	206	365	812	0	0	0	0	217	220	87
Turn Type	NA	Perm	Prot	NA						Split	NA	Perm
Protected Phases	2		1	6						4	4	
Permitted Phases		2										4
Actuated Green, G (s)	44.2	44.2	14.9	63.7						25.7	25.7	25.7
Effective Green, g (s)	44.2	44.2	14.9	63.7						25.7	25.7	25.7
Actuated g/C Ratio	0.44	0.44	0.15	0.64						0.26	0.26	0.26
Clearance Time (s)	5.3	5.3	4.6	5.3						5.3	5.3	5.3
Vehicle Extension (s)	2.0	2.0	2.0	2.0						2.0	2.0	2.0
Lane Grp Cap (vph)	2247	699	511	3239						432	433	716
v/s Ratio Prot	c0.15		c0.11	0.16						0.13	c0.13	
v/s Ratio Perm		0.13										0.03
v/c Ratio	0.34	0.30	0.71	0.25						0.50	0.51	0.12
Uniform Delay, d1	18.3	17.9	40.5	7.8						31.7	31.7	28.5
Progression Factor	1.00	1.00	0.90	0.78						1.00	1.00	1.00
Incremental Delay, d2	0.4	1.1	3.7	0.2						4.1	4.2	0.3
Delay (s)	18.7	19.0	40.4	6.3						35.8	36.0	28.8
Level of Service	B	B	D	A						D	D	C
Approach Delay (s)	18.8			16.8				0.0			32.8	
Approach LOS	B			B				A			C	
Intersection Summary												
HCM 2000 Control Delay	21.5									C		
HCM 2000 Volume to Capacity ratio	0.46											
Actuated Cycle Length (s)	100.0									15.2		
Intersection Capacity Utilization	60.4%									B		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
9: I-15 NB Ramps & Clinton Keith Rd.

E+P Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑			↑↑↑	↑	↑	↔	↑			
Volume (vph)	263	837	0	0	602	418	383	0	371	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.3			5.3	5.3	5.3	5.3	5.3			
Lane Util. Factor	0.97	0.91			0.91	1.00	0.95	0.91	0.95			
Fr <sub>t</sub>	1.00	1.00			1.00	0.85	1.00	0.92	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (prot)	3433	5085			5085	1583	1681	1527	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (perm)	3433	5085			5085	1583	1681	1527	1504			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	286	910	0	0	654	454	416	0	403	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	269	0	52	98	0	0	0
Lane Group Flow (vph)	286	910	0	0	654	185	283	222	164	0	0	0
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6				8			
Permitted Phases						6	8		8			
Actuated Green, G (s)	13.4	58.7			40.7	40.7	30.7	30.7	30.7			
Effective Green, g (s)	13.4	58.7			40.7	40.7	30.7	30.7	30.7			
Actuated g/C Ratio	0.13	0.59			0.41	0.41	0.31	0.31	0.31			
Clearance Time (s)	4.6	5.3			5.3	5.3	5.3	5.3	5.3			
Vehicle Extension (s)	3.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lane Grp Cap (vph)	460	2984			2069	644	516	468	461			
v/s Ratio Prot	c0.08	c0.18			0.13							
v/s Ratio Perm						0.12	c0.17	0.15	0.11			
v/c Ratio	0.62	0.30			0.32	0.29	0.55	0.47	0.36			
Uniform Delay, d1	40.9	10.4			20.2	19.9	28.9	28.1	27.0			
Progression Factor	1.32	1.04			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	2.4	0.2			0.4	1.1	4.2	3.4	2.1			
Delay (s)	56.4	11.1			20.6	21.0	33.0	31.5	29.1			
Level of Service	E	B			C	C	C	C	C			
Approach Delay (s)		21.9			20.8			31.3		0.0		
Approach LOS		C			C			C		A		
Intersection Summary												
HCM 2000 Control Delay		24.0			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.45										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			15.2				
Intersection Capacity Utilization		60.4%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

10: Clinton Keith Rd. & Arya Rd.

E+P Midday

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑↑			↑	↑		↔	
Volume (vph)	65	857	222	77	752	54	295	8	62	27	5	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.3	5.3	3.5	5.3			4.9	4.9		4.9	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91			1.00	1.00		1.00	
Fr <sub>t</sub>	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1770	3539	1583	1770	5034			1776	1583		1655	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.65	1.00		0.90	
Satd. Flow (perm)	1770	3539	1583	1770	5034			1214	1583		1499	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	932	241	84	817	59	321	9	67	29	5	108
RTOR Reduction (vph)	0	0	149	0	10	0	0	0	42	0	67	0
Lane Group Flow (vph)	71	932	92	84	866	0	0	330	25	0	75	0
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8		8		4
Permitted Phases			2				8		8		4	
Actuated Green, G (s)	6.2	30.4	30.4	5.8	30.0			30.1	30.1		30.1	
Effective Green, g (s)	6.2	30.4	30.4	5.8	30.0			30.1	30.1		30.1	
Actuated g/C Ratio	0.08	0.38	0.38	0.07	0.38			0.38	0.38		0.38	
Clearance Time (s)	3.5	5.3	5.3	3.5	5.3			4.9	4.9		4.9	
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	137	1344	601	128	1887			456	595		563	
v/s Ratio Prot	0.04	c0.26		c0.05	0.17							
v/s Ratio Perm			0.06				c0.27	0.02		0.05		
v/c Ratio	0.52	0.69	0.15	0.66	0.46			0.72	0.04		0.13	
Uniform Delay, d1	35.5	20.9	16.3	36.1	18.9			21.4	15.8		16.4	
Progression Factor	1.00	1.00	1.00	0.94	1.86			1.00	1.00		1.00	
Incremental Delay, d2	1.4	3.0	0.5	8.1	0.7			9.6	0.1		0.5	
Delay (s)	36.8	23.8	16.9	42.0	35.9			31.0	15.9		16.9	
Level of Service	D	C	B	D	D			C	B		B	
Approach Delay (s)		23.2			36.5			28.4			16.9	
Approach LOS		C			D			C			B	
Intersection Summary												
HCM 2000 Control Delay		28.3				HCM 2000 Level of Service		C				
HCM 2000 Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		80.0				Sum of lost time (s)		13.7				
Intersection Capacity Utilization		63.2%				ICU Level of Service		B				
Analysis Period (min)		15										
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

11: Clinton Keith Rd. & George Ave.

E+P Midday

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑		↑	↑↑	↑	↑	↑	↑	↑	↑	↑
Volume (vph)	253	677	28	78	539	82	47	29	53	100	40	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.3		3.5	5.3	5.3	3.5	4.9		3.5	4.9	4.9
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Fr <sub>t</sub>	1.00	0.99		1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5055		1770	3539	1583	1770	1683		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5055		1770	3539	1583	1770	1683		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	275	736	30	85	586	89	51	32	58	109	43	259
RTOR Reduction (vph)	0	4	0	0	0	63	0	51	0	0	0	216
Lane Group Flow (vph)	275	762	0	85	586	26	51	39	0	109	43	43
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						4
Actuated Green, G (s)	23.5	40.0		6.8	23.3	23.3	2.7	9.4		6.6	13.3	13.3
Effective Green, g (s)	23.5	40.0		6.8	23.3	23.3	2.7	9.4		6.6	13.3	13.3
Actuated g/C Ratio	0.29	0.50		0.08	0.29	0.29	0.03	0.12		0.08	0.17	0.17
Clearance Time (s)	3.5	5.3		3.5	5.3	5.3	3.5	4.9		3.5	4.9	4.9
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	3.0		2.0	3.0	3.0
Lane Grp Cap (vph)	519	2527		150	1030	461	59	197		146	309	263
v/s Ratio Prot	c0.16	0.15		0.05	c0.17		0.03	0.02		c0.06	0.02	
v/s Ratio Perm						0.02						c0.03
v/c Ratio	0.53	0.30		0.57	0.57	0.06	0.86	0.20		0.75	0.14	0.16
Uniform Delay, d1	23.6	11.8		35.2	24.1	20.4	38.5	31.9		35.9	28.5	28.6
Progression Factor	1.73	0.38		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.2		2.9	2.3	0.2	68.5	0.5		16.5	0.2	0.3
Delay (s)	41.1	4.7		38.1	26.4	20.7	107.0	32.4		52.4	28.7	28.9
Level of Service	D	A		D	C	C	F	C		D	C	C
Approach Delay (s)		14.4			27.0			59.4			35.1	
Approach LOS		B			C			E			D	

## Intersection Summary

HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
12: Inland Valley Dr. & Clinton Keith Rd.

E+P Midday  
9/8/2016

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑↑	↑	↑	↑	↑	↑
Volume (vph)	0	604	205	12	510	189	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.0	5.5	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>	1.00	0.85	1.00	1.00	1.00	0.85	
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	3539	1583	1770	1863	1770	1583	
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	3539	1583	1770	1863	1770	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	657	223	13	554	205	11
RTOR Reduction (vph)	0	0	95	0	0	0	8
Lane Group Flow (vph)	0	657	128	13	554	205	3
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm
Protected Phases	5	2		1	6		
Permitted Phases			2			8	8
Actuated Green, G (s)	51.5	51.5	1.0	57.5	22.0	22.0	
Effective Green, g (s)	51.5	51.5	1.0	57.5	22.0	22.0	
Actuated g/C Ratio	0.57	0.57	0.01	0.64	0.24	0.24	
Clearance Time (s)	5.5	5.5	5.0	5.5	5.0	5.0	
Vehicle Extension (s)	2.5	2.5	1.5	2.5	3.5	3.5	
Lane Grp Cap (vph)	2025	905	19	1190	432	386	
v/s Ratio Prot	0.19		0.01	c0.30			
v/s Ratio Perm			0.08		c0.12	0.00	
v/c Ratio	0.32	0.14	0.68	0.47	0.47	0.01	
Uniform Delay, d1	10.1	9.0	44.3	8.4	29.1	25.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.3	58.7	1.3	3.7	0.0	
Delay (s)	10.5	9.3	103.0	9.7	32.8	25.8	
Level of Service	B	A	F	A	C	C	
Approach Delay (s)	10.2			11.8	32.4		
Approach LOS	B			B	C		
Intersection Summary							
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio	0.50						
Actuated Cycle Length (s)	90.0	Sum of lost time (s)			15.5		
Intersection Capacity Utilization	46.1%	ICU Level of Service			A		
Analysis Period (min)	15						
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis  
13: Depasquale Rd & Glazebrook Rd

E + P Sunday MD

09/17/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	85	40	0	0	85	220	40	0	220	0
Future Volume (Veh/h)	0	0	85	40	0	0	85	220	40	0	220	0
Sign Control	Free				Free			Stop			Stop	
Grade		0%				0%			0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	94	44	0	0	94	244	44	0	244	0
Pedestrians							85					
Lane Width (ft)							12.0					
Walking Speed (ft/s)							4.0					
Percent Blockage							7					
Right turn flare (veh)												
Median type		None					None					
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			94			257	135	132	386	182	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			94			257	135	132	386	182	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			81	67	95	100	65	100
cM capacity (veh/h)	1623			1500			495	734	852	366	691	1085
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	94	44	382	244								
Volume Left	0	44	94	0								
Volume Right	94	0	44	0								
cSH	1623	1500	665	691								
Volume to Capacity	0.00	0.03	0.57	0.35								
Queue Length 95th (ft)	0	2	92	40								
Control Delay (s)	0.0	7.5	17.5	13.0								
Lane LOS		A	C	B								
Approach Delay (s)	0.0	7.5	17.5	13.0								
Approach LOS			C	B								
Intersection Summary												
Average Delay			13.3									
Intersection Capacity Utilization		49.8%		ICU Level of Service								
Analysis Period (min)			15									

## **Appendix H**

### **Existing Plus Ambient Plus Project Synchro Worksheets**

HCM Unsignalized Intersection Capacity Analysis  
1: Baxter Rd. & I-15 SB Ramps

Existing + Ambient + Project Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↑		↑	↑				↑	↑	↑
Sign Control			Stop			Stop			Stop		Stop	
Volume (vph)	0	178	158	191	175	0	0	0	0	64	2	82
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	193	172	208	190	0	0	0	0	70	2	89
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2							
Volume Total (vph)	365	208	190	72	89							
Volume Left (vph)	0	208	0	70	0							
Volume Right (vph)	172	0	0	0	89							
Hadj (s)	-0.25	0.53	0.03	0.52	-0.67							
Departure Headway (s)	5.2	5.9	5.4	6.9	5.7							
Degree Utilization, x	0.53	0.34	0.29	0.14	0.14							
Capacity (veh/h)	666	589	643	482	575							
Control Delay (s)	14.0	10.8	9.4	9.8	8.4							
Approach Delay (s)	14.0	10.1		9.0								
Approach LOS	B	B		A								
Intersection Summary												
Delay						11.5						
Level of Service						B						
Intersection Capacity Utilization				43.3%			ICU Level of Service				A	
Analysis Period (min)						15						

HCM Unsignalized Intersection Capacity Analysis  
2: I-15 NB Ramps & Baxter Rd.

Existing + Ambient + Project Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑			↑		↑	↑	↑			
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	108	138	0	0	258	63	121	3	109	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	117	150	0	0	280	68	132	3	118	0	0	0
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2							
Volume Total (vph)	117	150	349	135	118							
Volume Left (vph)	117	0	0	132	0							
Volume Right (vph)	0	0	68	0	118							
Hadj (s)	0.53	0.03	-0.08	0.52	-0.67							
Departure Headway (s)	6.2	5.7	5.5	6.7	5.5							
Degree Utilization, x	0.20	0.24	0.54	0.25	0.18							
Capacity (veh/h)	549	601	630	508	612							
Control Delay (s)	9.6	9.3	14.8	10.7	8.5							
Approach Delay (s)	9.5		14.8	9.6								
Approach LOS	A		B	A								
Intersection Summary												
Delay					11.7							
Level of Service					B							
Intersection Capacity Utilization			43.3%			ICU Level of Service				A		
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis  
3: Baxter Rd. & Monte Vista Dr.

Existing + Ambient + Project Midday  
9/8/2016

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	191	86	97	20	45	160
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	208	93	105	22	49	174
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	127			625	116	
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vCu, unblocked vol	127			625	116	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	86			87	81	
cM capacity (veh/h)	1459			385	936	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	301	127	223			
Volume Left	208	0	49			
Volume Right	0	22	174			
cSH	1459	1700	712			
Volume to Capacity	0.14	0.07	0.31			
Queue Length 95th (ft)	12	0	33			
Control Delay (s)	5.8	0.0	12.3			
Lane LOS	A		B			
Approach Delay (s)	5.8	0.0	12.3			
Approach LOS			B			
Intersection Summary						
Average Delay		6.9				
Intersection Capacity Utilization		40.8%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis  
4: George Ave./Porras Rd. & La Estrella St.

Existing + Ambient + Project Midday

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	2	0	34	1	10	2	124	24	8	156	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	0	37	1	11	2	135	26	9	170	0
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	2	49	2	161	9	170						
Volume Left (vph)	0	37	2	0	9	0						
Volume Right (vph)	0	11	0	26	0	0						
Hadj (s)	0.03	0.05	0.53	-0.08	0.53	0.03						
Departure Headway (s)	4.8	4.7	5.3	4.7	5.3	4.8						
Degree Utilization, x	0.00	0.06	0.00	0.21	0.01	0.23						
Capacity (veh/h)	688	701	662	751	662	737						
Control Delay (s)	7.8	8.1	7.1	7.7	7.2	8.0						
Approach Delay (s)	7.8	8.1	7.7		7.9							
Approach LOS	A	A	A		A							
Intersection Summary												
Delay				7.9								
Level of Service				A								
Intersection Capacity Utilization			24.1%		ICU Level of Service					A		
Analysis Period (min)				15								

## Intersection

Int Delay, s/veh 0.3

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	326	1	4	323	4	0	0	7	7	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	354	1	4	351	4	0	0	8	8	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	355	0	0	355	0	0	717	719	355	721	717	353
Stage 1	-	-	-	-	-	-	355	355	-	362	362	-
Stage 2	-	-	-	-	-	-	362	364	-	359	355	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1204	-	-	1204	-	-	345	354	689	343	355	691
Stage 1	-	-	-	-	-	-	662	630	-	657	625	-
Stage 2	-	-	-	-	-	-	657	624	-	659	630	-
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	1204	-	-	1204	-	-	344	353	689	338	354	691
Mov Cap-2 Maneuver	-	-	-	-	-	-	344	353	-	338	354	-
Stage 1	-	-	-	-	-	-	662	630	-	657	623	-
Stage 2	-	-	-	-	-	-	654	622	-	652	630	-

Approach	SE	NW			NE			SW		
HCM Control Delay, s	0	0.1			10.3			15.9		
HCM LOS					B			C		

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SERSWLn1
Capacity (veh/h)	689	1204	-	-	1204	-	338
HCM Lane V/C Ratio	0.011	0.004	-	-	-	-	0.023
HCM Control Delay (s)	10.3	8	0	-	0	-	15.9
HCM Lane LOS	B	A	A	-	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	0.1

HCM Unsignalized Intersection Capacity Analysis  
6: George Ave. & Depasquale Rd.

Existing + Ambient + Project Midday  
9/8/2016

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	71	262	270	91	121	73
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	77	285	293	99	132	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				828		
pX, platoon unblocked						
vC, conflicting volume	857	171	211			
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vCu, unblocked vol	857	171	211			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	70	67	78			
cM capacity (veh/h)	257	873	1360			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	362	392	211			
Volume Left	77	293	0			
Volume Right	285	0	79			
cSH	578	1360	1700			
Volume to Capacity	0.63	0.22	0.12			
Queue Length 95th (ft)	108	21	0			
Control Delay (s)	21.1	6.7	0.0			
Lane LOS	C	A				
Approach Delay (s)	21.1	6.7	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			10.7			
Intersection Capacity Utilization		60.6%		ICU Level of Service		B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis  
7: Clinton Keith Rd. & Hidden Springs Rd.

Existing + Ambient + Project Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑	↑	↑	↑↑	↑	↓	↔	↑	↑	↓	↔
Volume (vph)	121	831	40	75	667	363	60	19	64	348	15	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.3	5.3	3.5	5.3	5.3		4.9		4.4		4.4
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00		1.00		1.00		1.00
Fr <sub>t</sub>	1.00	1.00	0.85	1.00	1.00	0.85		0.94		1.00		0.87
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98		0.95		1.00
Satd. Flow (prot)	1770	5085	1583	1770	3539	1583		1714		1770		1614
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.83		0.66		1.00
Satd. Flow (perm)	1770	5085	1583	1770	3539	1583		1451		1221		1614
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	903	43	82	725	395	65	21	70	378	16	132
RTOR Reduction (vph)	0	0	25	0	0	242	0	36	0	0	85	0
Lane Group Flow (vph)	132	903	18	82	725	153	0	120	0	378	63	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	9.8	37.7	37.7	7.0	34.9	34.9		31.6		32.1		32.1
Effective Green, g (s)	9.8	37.7	37.7	7.0	34.9	34.9		31.6		32.1		32.1
Actuated g/C Ratio	0.11	0.42	0.42	0.08	0.39	0.39		0.35		0.36		0.36
Clearance Time (s)	3.5	5.3	5.3	3.5	5.3	5.3		4.9		4.4		4.4
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0		3.0		3.0		3.0
Lane Grp Cap (vph)	192	2130	663	137	1372	613		509		435		575
v/s Ratio Prot	c0.07	c0.18		0.05	c0.20						0.04	
v/s Ratio Perm			0.01			0.10		0.08		c0.31		
v/c Ratio	0.69	0.42	0.03	0.60	0.53	0.25		0.24		0.87		0.11
Uniform Delay, d1	38.6	18.5	15.4	40.1	21.2	18.7		20.7		27.0		19.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00		1.00		1.00
Incremental Delay, d2	7.9	0.6	0.1	4.6	1.5	1.0		0.2		16.6		0.1
Delay (s)	46.5	19.1	15.4	44.8	22.7	19.7		20.9		43.6		19.5
Level of Service	D	B	B	D	C	B		C		D		B
Approach Delay (s)		22.3			23.2			20.9			36.8	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay		25.2									C	
HCM 2000 Volume to Capacity ratio		0.68										
Actuated Cycle Length (s)		90.0									13.7	
Intersection Capacity Utilization		68.2%									C	
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
8: Clinton Keith Rd. & I-15 SB Ramps

Existing + Ambient + Project Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑↑	↑↑↑					↑	↑	↑↑↑
Volume (vph)	0	744	456	350	789	0	0	0	0	419	3	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3	5.3	4.6	5.3					5.3	5.3	5.3
Lane Util. Factor		0.91	1.00	0.97	0.91					0.95	0.95	0.88
Fr <sub>t</sub>		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1583	3433	5085					1681	1686	2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1583	3433	5085					1681	1686	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	809	496	380	858	0	0	0	0	455	3	360
RTOR Reduction (vph)	0	0	279	0	0	0	0	0	0	0	0	244
Lane Group Flow (vph)	0	809	217	380	858	0	0	0	0	227	231	116
Turn Type	NA	Perm	Prot	NA						Split	NA	Perm
Protected Phases	2		1	6						4	4	
Permitted Phases		2										4
Actuated Green, G (s)	43.7	43.7	15.4	63.7						25.7	25.7	25.7
Effective Green, g (s)	43.7	43.7	15.4	63.7						25.7	25.7	25.7
Actuated g/C Ratio	0.44	0.44	0.15	0.64						0.26	0.26	0.26
Clearance Time (s)	5.3	5.3	4.6	5.3						5.3	5.3	5.3
Vehicle Extension (s)	2.0	2.0	2.0	2.0						2.0	2.0	2.0
Lane Grp Cap (vph)	2222	691	528	3239						432	433	716
v/s Ratio Prot	c0.16		c0.11	0.17						0.14	c0.14	
v/s Ratio Perm		0.14										0.04
v/c Ratio	0.36	0.31	0.72	0.26						0.53	0.53	0.16
Uniform Delay, d1	18.8	18.4	40.2	7.9						31.9	32.0	28.8
Progression Factor	1.00	1.00	0.91	0.78						1.00	1.00	1.00
Incremental Delay, d2	0.5	1.2	3.7	0.2						4.5	4.7	0.5
Delay (s)	19.3	19.6	40.3	6.4						36.4	36.6	29.3
Level of Service	B	B	D	A						D	D	C
Approach Delay (s)	19.4			16.8				0.0			33.3	
Approach LOS	B			B				A			C	
Intersection Summary												
HCM 2000 Control Delay	21.8									C		
HCM 2000 Volume to Capacity ratio	0.48											
Actuated Cycle Length (s)	100.0									15.2		
Intersection Capacity Utilization	63.0%									B		
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
9: I-15 NB Ramps & Clinton Keith Rd.

Existing + Ambient + Project Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑			↑↑↑	↑	↑	↓	↑			
Volume (vph)	279	881	0	0	636	439	406	0	387	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.3			5.3	5.3	5.3	5.3	5.3			
Lane Util. Factor	0.97	0.91			0.91	1.00	0.95	0.91	0.95			
Fr <sub>t</sub>	1.00	1.00			1.00	0.85	1.00	0.92	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (prot)	3433	5085			5085	1583	1681	1528	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (perm)	3433	5085			5085	1583	1681	1528	1504			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	303	958	0	0	691	477	441	0	421	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	289	0	51	83	0	0	0
Lane Group Flow (vph)	303	958	0	0	691	188	300	237	191	0	0	0
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6				8			
Permitted Phases						6	8		8			
Actuated Green, G (s)	13.7	57.7			39.4	39.4	31.7	31.7	31.7			
Effective Green, g (s)	13.7	57.7			39.4	39.4	31.7	31.7	31.7			
Actuated g/C Ratio	0.14	0.58			0.39	0.39	0.32	0.32	0.32			
Clearance Time (s)	4.6	5.3			5.3	5.3	5.3	5.3	5.3			
Vehicle Extension (s)	3.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lane Grp Cap (vph)	470	2934			2003	623	532	484	476			
v/s Ratio Prot	c0.09	c0.19			0.14							
v/s Ratio Perm						0.12	c0.18	0.15	0.13			
v/c Ratio	0.64	0.33			0.34	0.30	0.56	0.49	0.40			
Uniform Delay, d1	40.8	11.0			21.3	20.8	28.4	27.6	26.7			
Progression Factor	1.32	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	2.8	0.3			0.5	1.2	4.3	3.5	2.5			
Delay (s)	56.8	11.3			21.7	22.1	32.7	31.1	29.2			
Level of Service	E	B			C	C	C	C	C			
Approach Delay (s)		22.3			21.9			31.1		0.0		
Approach LOS		C			C			C		A		
Intersection Summary												
HCM 2000 Control Delay		24.4			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			15.2				
Intersection Capacity Utilization		63.0%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

10: Clinton Keith Rd. & Arya Rd.

Existing + Ambient + Project Midday

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑↑			↑	↑		↔	
Volume (vph)	66	899	235	82	788	57	313	8	66	28	5	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.3	5.3	3.5	5.3			4.9	4.9		4.9	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91			1.00	1.00		1.00	
Fr <sub>t</sub>	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1770	3539	1583	1770	5034			1776	1583		1655	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.65	1.00		0.89	
Satd. Flow (perm)	1770	3539	1583	1770	5034			1204	1583		1490	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	977	255	89	857	62	340	9	72	30	5	111
RTOR Reduction (vph)	0	0	156	0	10	0	0	0	45	0	69	0
Lane Group Flow (vph)	72	977	99	89	909	0	0	349	27	0	77	0
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8		8		4
Permitted Phases			2				8		8		4	
Actuated Green, G (s)	6.2	31.0	31.0	5.2	30.0			30.1	30.1		30.1	
Effective Green, g (s)	6.2	31.0	31.0	5.2	30.0			30.1	30.1		30.1	
Actuated g/C Ratio	0.08	0.39	0.39	0.07	0.38			0.38	0.38		0.38	
Clearance Time (s)	3.5	5.3	5.3	3.5	5.3			4.9	4.9		4.9	
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	137	1371	613	115	1887			453	595		560	
v/s Ratio Prot	0.04	c0.28		c0.05	0.18							
v/s Ratio Perm			0.06					c0.29	0.02		0.05	
v/c Ratio	0.53	0.71	0.16	0.77	0.48			0.77	0.05		0.14	
Uniform Delay, d1	35.5	20.7	16.0	36.8	19.1			21.9	15.8		16.4	
Progression Factor	1.00	1.00	1.00	0.91	1.97			1.00	1.00		1.00	
Incremental Delay, d2	1.7	3.2	0.6	22.6	0.8			12.0	0.1		0.5	
Delay (s)	37.2	23.9	16.6	56.0	38.3			33.9	16.0		16.9	
Level of Service	D	C	B	E	D			C	B		B	
Approach Delay (s)		23.2			39.9			30.8			16.9	
Approach LOS		C			D			C			B	
Intersection Summary												
HCM 2000 Control Delay		29.8				HCM 2000 Level of Service		C				
HCM 2000 Volume to Capacity ratio		0.74										
Actuated Cycle Length (s)		80.0				Sum of lost time (s)		13.7				
Intersection Capacity Utilization		65.7%				ICU Level of Service		C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
11: Clinton Keith Rd. & George Ave.

Existing + Ambient + Project Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑		↑	↑↑	↑	↑	↑	↑	↑	↑	↑
Volume (vph)	259	717	30	83	571	83	50	31	56	102	42	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.3		3.5	5.3	5.3	3.5	4.9		3.5	4.9	4.9
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Fr <sub>t</sub>	1.00	0.99		1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5054		1770	3539	1583	1770	1683		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5054		1770	3539	1583	1770	1683		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	282	779	33	90	621	90	54	34	61	111	46	264
RTOR Reduction (vph)	0	4	0	0	0	64	0	53	0	0	0	223
Lane Group Flow (vph)	282	808	0	90	621	26	54	42	0	111	46	41
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						4
Actuated Green, G (s)	23.8	39.6		7.2	23.0	23.0	3.6	10.0		6.0	12.4	12.4
Effective Green, g (s)	23.8	39.6		7.2	23.0	23.0	3.6	10.0		6.0	12.4	12.4
Actuated g/C Ratio	0.30	0.50		0.09	0.29	0.29	0.05	0.12		0.08	0.16	0.16
Clearance Time (s)	3.5	5.3		3.5	5.3	5.3	3.5	4.9		3.5	4.9	4.9
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	3.0		2.0	3.0	3.0
Lane Grp Cap (vph)	526	2501		159	1017	455	79	210		132	288	245
v/s Ratio Prot	c0.16	0.16		0.05	c0.18		0.03	0.02		c0.06	0.02	
v/s Ratio Perm						0.02						c0.03
v/c Ratio	0.54	0.32		0.57	0.61	0.06	0.68	0.20		0.84	0.16	0.17
Uniform Delay, d1	23.5	12.1		34.9	24.6	20.6	37.6	31.4		36.5	29.3	29.3
Progression Factor	1.80	0.38		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.3		2.7	2.7	0.2	17.7	0.5		34.6	0.3	0.3
Delay (s)	42.7	4.9		37.6	27.4	20.9	55.3	31.9		71.1	29.5	29.6
Level of Service	D	A		D	C	C	E	C		E	C	C
Approach Delay (s)		14.6			27.8			40.4			40.6	
Approach LOS		B			C			D			D	
Intersection Summary												
HCM 2000 Control Delay		24.9										C
HCM 2000 Volume to Capacity ratio		0.52										
Actuated Cycle Length (s)		80.0										17.2
Intersection Capacity Utilization		54.3%										A
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
12: Inland Valley Dr. & Clinton Keith Rd.

Existing + Ambient + Project Midday  
9/8/2016

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑↑	↑	↑	↑	↑	↑
Volume (vph)	0	636	217	13	537	200	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.0	5.5	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>	1.00	0.85	1.00	1.00	1.00	0.85	
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	3539	1583	1770	1863	1770	1583	
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	3539	1583	1770	1863	1770	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	691	236	14	584	217	12
RTOR Reduction (vph)	0	0	101	0	0	0	9
Lane Group Flow (vph)	0	691	135	14	584	217	3
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm
Protected Phases	5	2		1	6		
Permitted Phases			2			8	8
Actuated Green, G (s)	51.5	51.5	1.0	57.5	22.0	22.0	
Effective Green, g (s)	51.5	51.5	1.0	57.5	22.0	22.0	
Actuated g/C Ratio	0.57	0.57	0.01	0.64	0.24	0.24	
Clearance Time (s)	5.5	5.5	5.0	5.5	5.0	5.0	
Vehicle Extension (s)	2.5	2.5	1.5	2.5	3.5	3.5	
Lane Grp Cap (vph)	2025	905	19	1190	432	386	
v/s Ratio Prot	0.20		0.01	c0.31			
v/s Ratio Perm			0.09		c0.12	0.00	
v/c Ratio	0.34	0.15	0.74	0.49	0.50	0.01	
Uniform Delay, d1	10.2	9.0	44.4	8.5	29.3	25.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.3	79.4	1.4	4.1	0.0	
Delay (s)	10.7	9.4	123.8	10.0	33.4	25.8	
Level of Service	B	A	F	A	C	C	
Approach Delay (s)	10.4			12.7	33.0		
Approach LOS	B			B	C		
Intersection Summary							
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio	0.53						
Actuated Cycle Length (s)	90.0	Sum of lost time (s)			15.5		
Intersection Capacity Utilization	48.1%	ICU Level of Service			A		
Analysis Period (min)	15						
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis  
13: Depasquale Rd & Glazebrook Rd

PC Sunday MD

09/17/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	85	40	0	0	85	220	40	0	220	0
Future Volume (Veh/h)	0	0	85	40	0	0	85	220	40	0	220	0
Sign Control	Free				Free			Stop			Stop	
Grade		0%				0%			0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	94	44	0	0	94	244	44	0	244	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			94			257	135	47	301	182	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			94			257	135	47	301	182	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			81	67	96	100	65	100
cM capacity (veh/h)	1623			1500			495	734	1022	453	691	1085
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	94	44	382	244								
Volume Left	0	44	94	0								
Volume Right	94	0	44	0								
cSH	1623	1500	675	691								
Volume to Capacity	0.00	0.03	0.57	0.35								
Queue Length 95th (ft)	0	2	89	40								
Control Delay (s)	0.0	7.5	17.0	13.0								
Lane LOS		A	C	B								
Approach Delay (s)	0.0	7.5	17.0	13.0								
Approach LOS			C	B								
Intersection Summary												
Average Delay			13.1									
Intersection Capacity Utilization		49.2%			ICU Level of Service					A		
Analysis Period (min)			15									

## **Appendix I**

### **Existing Plus Ambient Plus Cumulative Synchro Worksheets**

HCM Unsignalized Intersection Capacity Analysis  
1: Baxter Rd. & I-15 SB Ramps

Existing+Ambient+Cumulative Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control				Stop		Stop		Stop			Stop	
Volume (vph)	0	332	158	233	277	0	0	0	0	42	2	89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	361	172	253	301	0	0	0	0	46	2	97
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2							
Volume Total (vph)	533	253	301	48	97							
Volume Left (vph)	0	253	0	46	0							
Volume Right (vph)	172	0	0	0	97							
Hadj (s)	-0.16	0.53	0.03	0.51	-0.67							
Departure Headway (s)	5.5	6.1	5.6	7.6	6.4							
Degree Utilization, x	0.81	0.43	0.47	0.10	0.17							
Capacity (veh/h)	646	575	627	448	525							
Control Delay (s)	27.5	12.5	12.3	10.3	9.5							
Approach Delay (s)	27.5	12.4		9.8								
Approach LOS		D	B		A							
Intersection Summary												
Delay				18.6								
Level of Service				C								
Intersection Capacity Utilization			53.3%		ICU Level of Service					A		
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis  
2: I-15 NB Ramps & Baxter Rd.

Existing+Ambient+Cumulative Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑			↑		↑	↑	↑			
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	108	263	0	0	405	41	130	3	158	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	117	286	0	0	440	45	141	3	172	0	0	0
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2							
Volume Total (vph)	117	286	485	145	172							
Volume Left (vph)	117	0	0	141	0							
Volume Right (vph)	0	0	45	0	172							
Hadj (s)	0.53	0.03	-0.02	0.52	-0.67							
Departure Headway (s)	6.8	6.3	6.1	7.5	6.3							
Degree Utilization, x	0.22	0.50	0.82	0.30	0.30							
Capacity (veh/h)	507	555	575	445	536							
Control Delay (s)	10.5	14.2	30.9	12.4	10.7							
Approach Delay (s)	13.1		30.9	11.5								
Approach LOS	B		D	B								
Intersection Summary												
Delay						19.9						
Level of Service						C						
Intersection Capacity Utilization				53.3%		ICU Level of Service				A		
Analysis Period (min)					15							

HCM Unsignalized Intersection Capacity Analysis  
3: Baxter Rd. & Monte Vista Dr.

Existing+Ambient+Cumulative Midday  
9/8/2016

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↓		↑	↓
Volume (veh/h)	324	126	136	156	181	286
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	352	137	148	170	197	311
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	317			1074	233	
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vCu, unblocked vol	317			1074	233	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	72			0	61	
cM capacity (veh/h)	1243			174	807	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	489	317	508			
Volume Left	352	0	197			
Volume Right	0	170	311			
cSH	1243	1700	335			
Volume to Capacity	0.28	0.19	1.51			
Queue Length 95th (ft)	29	0	706			
Control Delay (s)	7.3	0.0	274.9			
Lane LOS	A		F			
Approach Delay (s)	7.3	0.0	274.9			
Approach LOS			F			
Intersection Summary						
Average Delay		108.9				
Intersection Capacity Utilization		78.9%	ICU Level of Service		D	
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis  
3: Baxter Rd. & Monte Vista Dr.

Existing + Ambient + Cumulative Midday  
With Improvements 9/8/2016

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↓		↑	↓
Volume (vph)	324	126	136	156	181	286
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			
Lane Util. Factor	1.00	1.00	1.00			
Fr <sub>t</sub>	1.00	0.93	0.92			
Flt Protected	0.97	1.00	0.98			
Satd. Flow (prot)	1798	1728	1676			
Flt Permitted	0.56	1.00	0.98			
Satd. Flow (perm)	1043	1728	1676			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	352	137	148	170	197	311
RTOR Reduction (vph)	0	0	49	0	63	0
Lane Group Flow (vph)	0	489	269	0	445	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)	39.3	39.3	23.6			
Effective Green, g (s)	39.3	39.3	23.6			
Actuated g/C Ratio	0.55	0.55	0.33			
Clearance Time (s)	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	578	957	557			
v/s Ratio Prot		0.16	c0.27			
v/s Ratio Perm	c0.47					
v/c Ratio	0.85	0.28	0.80			
Uniform Delay, d1	13.3	8.3	21.5			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	11.0	0.2	7.8			
Delay (s)	24.2	8.5	29.3			
Level of Service	C	A	C			
Approach Delay (s)	24.2	8.5	29.3			
Approach LOS	C	A	C			
Intersection Summary						
HCM 2000 Control Delay	22.4		HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.83					
Actuated Cycle Length (s)	70.9		Sum of lost time (s)	8.0		
Intersection Capacity Utilization	78.9%		ICU Level of Service	D		
Analysis Period (min)	15					
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis  
4: George Ave./Porras Rd. & La Estrella St.

Existing+Ambient+Cumulative Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑	↑		↑	↑	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	2	0	29	1	40	2	238	20	37	271	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	0	32	1	43	2	259	22	40	295	0
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	2	76	2	280	40	295						
Volume Left (vph)	0	32	2	0	40	0						
Volume Right (vph)	0	43	0	22	0	0						
Hadj (s)	0.03	-0.23	0.53	-0.02	0.53	0.03						
Departure Headway (s)	5.5	5.1	5.5	5.0	5.5	5.0						
Degree Utilization, x	0.00	0.11	0.00	0.39	0.06	0.41						
Capacity (veh/h)	575	632	630	706	637	708						
Control Delay (s)	8.5	8.7	7.4	9.9	7.6	10.2						
Approach Delay (s)	8.5	8.7	9.9		9.8							
Approach LOS	A	A	A		A							
Intersection Summary												
Delay				9.7								
Level of Service				A								
Intersection Capacity Utilization			38.4%		ICU Level of Service					A		
Analysis Period (min)				15								

## Intersection

Int Delay, s/veh 0.5

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	179	1	4	180	4	0	0	7	7	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	195	1	4	196	4	0	0	8	8	0	0

Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	200	0	0	196	0	0	402	404	195	406	403	198
Stage 1	-	-	-	-	-	-	195	195	-	207	207	-
Stage 2	-	-	-	-	-	-	207	209	-	199	196	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1372	-	-	1377	-	-	559	536	846	555	536	843
Stage 1	-	-	-	-	-	-	807	739	-	795	731	-
Stage 2	-	-	-	-	-	-	795	729	-	803	739	-
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	1372	-	-	1377	-	-	558	534	846	549	534	843
Mov Cap-2 Maneuver	-	-	-	-	-	-	558	534	-	549	534	-
Stage 1	-	-	-	-	-	-	807	739	-	795	729	-
Stage 2	-	-	-	-	-	-	793	727	-	796	739	-

Approach	SE	NW			NE			SW		
HCM Control Delay, s	0	0.2			9.3			11.7		
HCM LOS					A			B		

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SERSWLn1
Capacity (veh/h)	846	1377	-	-	1372	-	549
HCM Lane V/C Ratio	0.009	0.003	-	-	-	-	0.014
HCM Control Delay (s)	9.3	7.6	0	-	0	-	11.7
HCM Lane LOS	A	A	A	-	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	0

HCM Unsignalized Intersection Capacity Analysis  
6: George Ave. & Depasquale Rd.

Existing+Ambient+Cumulative Midday  
9/8/2016

Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	109	0	89	23	0	5	92	147	23	35	174	114
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	118	0	97	25	0	5	100	160	25	38	189	124
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								828				
pX, platoon unblocked												
vC, conflicting volume	705	712	251	796	761	172	313			185		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	705	712	251	796	761	172	313			185		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	63	100	88	90	100	99	92			97		
cM capacity (veh/h)	321	320	788	246	300	871	1247			1390		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	215	30	285	351								
Volume Left	118	25	100	38								
Volume Right	97	5	25	124								
cSH	437	282	1247	1390								
Volume to Capacity	0.49	0.11	0.08	0.03								
Queue Length 95th (ft)	66	9	7	2								
Control Delay (s)	20.9	19.3	3.3	1.1								
Lane LOS	C	C	A	A								
Approach Delay (s)	20.9	19.3	3.3	1.1								
Approach LOS	C	C										
Intersection Summary												
Average Delay			7.3									
Intersection Capacity Utilization		51.4%		ICU Level of Service				A				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis  
7: Clinton Keith Rd. & Hidden Springs Rd.

Existing+Ambient+Cumulative Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑	↑	↑	↑↑	↑	↓	↔	↑	↑	↑	↓
Volume (vph)	121	1096	40	75	941	398	60	19	64	384	15	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.3	5.3	3.5	5.3	5.3		4.9		4.4		4.4
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00		1.00		1.00		1.00
Fr <sub>t</sub>	1.00	1.00	0.85	1.00	1.00	0.85		0.94		1.00		0.87
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98		0.95		1.00
Satd. Flow (prot)	1770	5085	1583	1770	3539	1583		1714		1770		1614
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.83		0.66		1.00
Satd. Flow (perm)	1770	5085	1583	1770	3539	1583		1453		1225		1614
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	1191	43	82	1023	433	65	21	70	417	16	132
RTOR Reduction (vph)	0	0	25	0	0	267	0	34	0	0	83	0
Lane Group Flow (vph)	132	1191	18	82	1023	166	0	122	0	417	65	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	9.0	36.7	36.7	6.9	34.6	34.6		32.7		33.2		33.2
Effective Green, g (s)	9.0	36.7	36.7	6.9	34.6	34.6		32.7		33.2		33.2
Actuated g/C Ratio	0.10	0.41	0.41	0.08	0.38	0.38		0.36		0.37		0.37
Clearance Time (s)	3.5	5.3	5.3	3.5	5.3	5.3		4.9		4.4		4.4
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0		3.0		3.0		3.0
Lane Grp Cap (vph)	177	2073	645	135	1360	608		527		451		595
v/s Ratio Prot	c0.07	0.23		0.05	c0.29						0.04	
v/s Ratio Perm			0.01			0.11		0.08		c0.34		
v/c Ratio	0.75	0.57	0.03	0.61	0.75	0.27		0.23		0.92		0.11
Uniform Delay, d1	39.4	20.6	16.0	40.2	24.0	19.1		19.9		27.2		18.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00		1.00		1.00
Incremental Delay, d2	13.8	1.2	0.1	5.2	3.9	1.1		0.2		24.7		0.1
Delay (s)	53.2	21.8	16.0	45.4	27.9	20.2		20.1		51.9		18.8
Level of Service	D	C	B	D	C	C		C		D		B
Approach Delay (s)		24.6			26.6			20.1			43.2	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay		28.2									C	
HCM 2000 Volume to Capacity ratio		0.82										
Actuated Cycle Length (s)		90.0									13.7	
Intersection Capacity Utilization		77.7%									D	
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
8: Clinton Keith Rd. & I-15 SB Ramps

Existing+Ambient+Cumulative Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑↑					↑	↑	↑↑
Volume (vph)	0	1027	541	483	1075	0	0	0	0	527	3	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3	5.3	4.6	5.3					5.3	5.3	5.3
Lane Util. Factor		0.91	1.00	0.97	0.91					0.95	0.95	0.88
Fr <sub>t</sub>		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1583	3433	5085					1681	1686	2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1583	3433	5085					1681	1686	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1116	588	525	1168	0	0	0	0	573	3	446
RTOR Reduction (vph)	0	0	365	0	0	0	0	0	0	0	0	112
Lane Group Flow (vph)	0	1116	223	525	1168	0	0	0	0	286	290	334
Turn Type	NA	Perm	Prot	NA						Split	NA	Perm
Protected Phases	2		1	6						4	4	
Permitted Phases		2										4
Actuated Green, G (s)	37.9	37.9	19.2	61.7						27.7	27.7	27.7
Effective Green, g (s)	37.9	37.9	19.2	61.7						27.7	27.7	27.7
Actuated g/C Ratio	0.38	0.38	0.19	0.62						0.28	0.28	0.28
Clearance Time (s)	5.3	5.3	4.6	5.3						5.3	5.3	5.3
Vehicle Extension (s)	2.0	2.0	2.0	2.0						2.0	2.0	2.0
Lane Grp Cap (vph)	1927	599	659	3137						465	467	771
v/s Ratio Prot	c0.22		c0.15	0.23						0.17	c0.17	
v/s Ratio Perm		0.14										0.12
v/c Ratio	0.58	0.37	0.80	0.37						0.62	0.62	0.43
Uniform Delay, d1	24.7	22.4	38.5	9.5						31.5	31.6	29.7
Progression Factor	1.00	1.00	0.91	1.33						1.00	1.00	1.00
Incremental Delay, d2	1.3	1.8	4.9	0.3						6.0	6.1	1.8
Delay (s)	26.0	24.2	39.8	12.9						37.5	37.7	31.5
Level of Service	C	C	D	B						D	D	C
Approach Delay (s)	25.4			21.3				0.0			34.9	
Approach LOS	C			C				A			C	
Intersection Summary												
HCM 2000 Control Delay	26.0									C		
HCM 2000 Volume to Capacity ratio	0.64											
Actuated Cycle Length (s)	100.0									15.2		
Intersection Capacity Utilization	77.6%									D		
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
9: I-15 NB Ramps & Clinton Keith Rd.

Existing+Ambient+Cumulative Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑			↑↑↑	↑	↑	↔	↑			
Volume (vph)	325	1252	0	0	1074	591	498	0	519	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.3			5.3	5.3	5.3	5.3	5.3			
Lane Util. Factor	0.97	0.91			0.91	1.00	0.95	0.91	0.95			
Fr <sub>t</sub>	1.00	1.00			1.00	0.85	1.00	0.91	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (prot)	3433	5085			5085	1583	1681	1516	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (perm)	3433	5085			5085	1583	1681	1516	1504			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	353	1361	0	0	1167	642	541	0	564	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	399	0	50	50	0	0	0
Lane Group Flow (vph)	353	1361	0	0	1167	243	384	321	300	0	0	0
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6				8			
Permitted Phases						6	8		8			
Actuated Green, G (s)	14.3	56.7			37.8	37.8	32.7	32.7	32.7			
Effective Green, g (s)	14.3	56.7			37.8	37.8	32.7	32.7	32.7			
Actuated g/C Ratio	0.14	0.57			0.38	0.38	0.33	0.33	0.33			
Clearance Time (s)	4.6	5.3			5.3	5.3	5.3	5.3	5.3			
Vehicle Extension (s)	3.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lane Grp Cap (vph)	490	2883			1922	598	549	495	491			
v/s Ratio Prot	c0.10	0.27			c0.23							
v/s Ratio Perm						0.15	c0.23	0.21	0.20			
v/c Ratio	0.72	0.47			0.61	0.41	0.70	0.65	0.61			
Uniform Delay, d1	40.9	12.8			25.1	22.8	29.4	28.7	28.3			
Progression Factor	1.36	0.87			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	4.2	0.5			1.4	2.0	7.2	6.4	5.6			
Delay (s)	60.1	11.6			26.5	24.9	36.6	35.2	33.8			
Level of Service	E	B			C	C	D	D	C			
Approach Delay (s)		21.6			26.0			35.2			0.0	
Approach LOS		C			C			D			A	
Intersection Summary												
HCM 2000 Control Delay		26.5			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			15.2				
Intersection Capacity Utilization		77.6%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

## HCM Signalized Intersection Capacity Analysis

10: Clinton Keith Rd. &amp; Arya Rd.

Existing+Ambient+Cumulative Midday

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑↑			↑	↑	↑	↑	↑
Volume (vph)	384	1078	235	86	973	202	313	80	70	162	76	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.3	5.3	3.5	5.3			4.9	4.9	4.9	4.9	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91			1.00	1.00	1.00	1.00	
Fr <sub>t</sub>	1.00	1.00	0.85	1.00	0.97			1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	4954			1791	1583	1770	1627	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.33	1.00	0.41	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	4954			614	1583	759	1627	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	404	1135	247	91	1024	213	329	84	74	171	80	433
RTOR Reduction (vph)	0	0	149	0	29	0	0	0	38	0	177	0
Lane Group Flow (vph)	404	1135	98	91	1208	0	0	413	36	171	336	0
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2				4		4		8	
Actuated Green, G (s)	16.5	37.7	37.7	4.5	25.7			54.1	54.1	54.1	54.1	
Effective Green, g (s)	16.5	37.7	37.7	4.5	25.7			54.1	54.1	54.1	54.1	
Actuated g/C Ratio	0.15	0.34	0.34	0.04	0.23			0.49	0.49	0.49	0.49	
Clearance Time (s)	3.5	5.3	5.3	3.5	5.3			4.9	4.9	4.9	4.9	
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	265	1212	542	72	1157			301	778	373	800	
v/s Ratio Prot	c0.23	0.32		0.05	c0.24						0.21	
v/s Ratio Perm			0.06				c0.67	0.02	0.23			
v/c Ratio	1.52	0.94	0.18	1.26	1.04			1.37	0.05	0.46	0.42	
Uniform Delay, d1	46.8	35.0	25.3	52.8	42.1			27.9	14.5	18.3	17.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	254.4	14.5	0.7	192.6	38.7			187.2	0.1	4.0	1.6	
Delay (s)	301.1	49.5	26.1	245.3	80.8			215.1	14.7	22.4	19.5	
Level of Service	F	D	C	F	F			F	B	C	B	
Approach Delay (s)		103.2			92.1			184.7			20.2	
Approach LOS		F			F			F			C	
Intersection Summary												
HCM 2000 Control Delay		95.8				HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio		1.31										
Actuated Cycle Length (s)		110.0				Sum of lost time (s)			13.7			
Intersection Capacity Utilization		111.4%				ICU Level of Service			H			
Analysis Period (min)		15										
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

10: Clinton Keith Rd. & Arya Rd.

Existing + Ambient + Cumulative Midday

With Improvements

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↓		↑	↑↑↓		↑	↑		↑	↑	
Volume (vph)	384	1078	235	86	973	202	313	80	70	162	76	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	5.3		4.0	5.3		4.0	4.9		4.0	4.9	
Lane Util. Factor	1.00	*1.00		1.00	*1.00		1.00	1.00		1.00	1.00	
Fr <sub>t</sub>	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5438		1770	5444		1770	1732		1770	1627	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5438		1770	5444		1770	1732		1770	1627	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	404	1135	247	91	1024	213	329	84	74	171	80	433
RTOR Reduction (vph)	0	29	0	0	29	0	0	24	0	0	150	0
Lane Group Flow (vph)	404	1353	0	91	1208	0	329	134	0	171	363	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	26.0	47.0		10.7	31.7		24.6	34.1		20.0	29.5	
Effective Green, g (s)	26.0	47.0		10.7	31.7		24.6	34.1		20.0	29.5	
Actuated g/C Ratio	0.20	0.36		0.08	0.24		0.19	0.26		0.15	0.23	
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	4.9		4.0	4.9	
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	3.0		2.0	3.0	
Lane Grp Cap (vph)	354	1966		145	1327		334	454		272	369	
v/s Ratio Prot	c0.23	0.25		0.05	c0.22		c0.19	0.08		0.10	c0.22	
v/s Ratio Perm												
v/c Ratio	1.14	0.69		0.63	0.91		0.99	0.29		0.63	0.98	
Uniform Delay, d1	52.0	35.3		57.7	47.8		52.5	38.3		51.5	50.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	92.0	2.0		6.0	10.9		44.7	1.6		3.3	43.0	
Delay (s)	144.0	37.3		63.7	58.6		97.3	40.0		54.8	93.0	
Level of Service	F	D		E	E		F	D		D	F	
Approach Delay (s)		61.4			59.0			78.7			83.4	
Approach LOS		E			E			E			F	
<b>Intersection Summary</b>												
HCM 2000 Control Delay		66.1										E
HCM 2000 Volume to Capacity ratio		1.00										
Actuated Cycle Length (s)		130.0										18.2
Intersection Capacity Utilization		106.4%										G
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
11: Clinton Keith Rd. & George Ave.

Existing+Ambient+Cumulative Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑		↑	↑↑	↑	↑	↑	↑	↑	↑	↑
Volume (vph)	243	1038	30	83	761	210	50	47	56	203	58	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.3		3.5	5.3	5.3	3.5	4.9		3.5	4.9	4.9
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Fr <sub>t</sub>	1.00	1.00		1.00	1.00	0.85	1.00	0.92		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5064		1770	3539	1583	1770	1711		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5064		1770	3539	1583	1770	1711		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	264	1128	33	90	827	228	54	51	61	221	63	160
RTOR Reduction (vph)	0	3	0	0	0	142	0	51	0	0	0	130
Lane Group Flow (vph)	264	1158	0	90	827	86	54	61	0	221	63	30
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						4
Actuated Green, G (s)	20.1	49.6		8.1	37.6	37.6	6.1	11.6		13.5	19.0	19.0
Effective Green, g (s)	20.1	49.6		8.1	37.6	37.6	6.1	11.6		13.5	19.0	19.0
Actuated g/C Ratio	0.20	0.50		0.08	0.38	0.38	0.06	0.12		0.14	0.19	0.19
Clearance Time (s)	3.5	5.3		3.5	5.3	5.3	3.5	4.9		3.5	4.9	4.9
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	3.0		2.0	3.0	3.0
Lane Grp Cap (vph)	355	2511		143	1330	595	107	198		238	353	300
v/s Ratio Prot	c0.15	0.23		0.05	c0.23		0.03	c0.04		c0.12	0.03	
v/s Ratio Perm						0.05						0.02
v/c Ratio	0.74	0.46		0.63	0.62	0.14	0.50	0.31		0.93	0.18	0.10
Uniform Delay, d1	37.5	16.5		44.5	25.4	20.6	45.5	40.5		42.8	34.0	33.4
Progression Factor	1.00	1.00		1.01	1.11	1.67	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.2	0.6		3.9	1.4	0.3	1.4	0.9		38.4	0.2	0.1
Delay (s)	44.7	17.1		48.7	29.6	34.6	46.8	41.4		81.1	34.2	33.6
Level of Service	D	B		D	C	C	D	D		F	C	C
Approach Delay (s)		22.2			32.1			43.2			57.3	
Approach LOS		C			C			D			E	
Intersection Summary												
HCM 2000 Control Delay		31.8										C
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		100.0										17.2
Intersection Capacity Utilization		64.2%										C
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
12: Inland Valley Dr. & Clinton Keith Rd.

Existing+Ambient+Cumulative Midday  
9/8/2016

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑↑	↑	↑	↑	↑	↑
Volume (vph)	0	950	324	30	845	304	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.0	5.5	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>	1.00	0.85	1.00	1.00	1.00	0.85	
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	3539	1583	1770	1863	1770	1583	
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	3539	1583	1770	1863	1770	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1033	352	33	918	330	29
RTOR Reduction (vph)	0	0	148	0	0	0	22
Lane Group Flow (vph)	0	1033	204	33	918	330	7
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm
Protected Phases	5	2		1	6		
Permitted Phases			2			8	8
Actuated Green, G (s)	57.9	57.9	3.6	66.5	23.0	23.0	
Effective Green, g (s)	57.9	57.9	3.6	66.5	23.0	23.0	
Actuated g/C Ratio	0.58	0.58	0.04	0.66	0.23	0.23	
Clearance Time (s)	5.5	5.5	5.0	5.5	5.0	5.0	
Vehicle Extension (s)	2.5	2.5	1.5	2.5	3.5	3.5	
Lane Grp Cap (vph)	2049	916	63	1238	407	364	
v/s Ratio Prot	0.29		0.02	c0.49			
v/s Ratio Perm		0.13			c0.19	0.00	
v/c Ratio	0.50	0.22	0.52	0.74	0.81	0.02	
Uniform Delay, d1	12.5	10.2	47.4	11.1	36.4	29.8	
Progression Factor	0.51	0.37	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	0.5	3.6	4.0	16.0	0.1	
Delay (s)	7.2	4.2	50.9	15.1	52.4	29.9	
Level of Service	A	A	D	B	D	C	
Approach Delay (s)	6.4			16.3	50.6		
Approach LOS	A			B	D		
Intersection Summary							
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio	0.80						
Actuated Cycle Length (s)	100.0	Sum of lost time (s)			15.5		
Intersection Capacity Utilization	70.1%	ICU Level of Service			C		
Analysis Period (min)	15						
c Critical Lane Group							

Intersection

Int Delay, s/veh 3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	B	B		A	
Traffic Vol, veh/h	6	0	0	6	0	0
Future Vol, veh/h	6	0	0	6	0	0
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	58	58	58	58	58	58
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	0	0	10	0	0

Major/Minor	Major2	Major1	Minor2			
Conflicting Flow All	10	-	0	0	5	31
Stage 1	-	-	-	-	0	21
Stage 2	-	-	-	-	5	10
Critical Hdwy	4.12	-	-	-	6.42	6.52
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	5.42	5.52
Follow-up Hdwy	2.218	-	-	-	3.518	4.018
Pot Cap-1 Maneuver	1610	-	-	-	1017	862
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	1018	887
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1610	-	-	-	1011	0
Mov Cap-2 Maneuver	-	-	-	-	1011	0
Stage 1	-	-	-	-	-	0
Stage 2	-	-	-	-	1018	0

Approach	WB	NB	SB		
HCM Control Delay, s	7.3	0	0		
HCM LOS			A		

Minor Lane/Major Mvmt	NBT	NBR	WBL	WBR	SBLn1	
Capacity (veh/h)	-	-	1610	-	-	
HCM Lane V/C Ratio	-	-	0.006	-	-	
HCM Control Delay (s)	-	-	7.2	-	0	
HCM Lane LOS	-	-	A	-	A	
HCM 95th %tile Q(veh)	-	-	0	-	-	

Intersection

Intersection Delay, s/veh 20.4

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑			↔		↓	↓	↑	0	0	0
Traffic Vol, veh/h	108	263	0	0	405	41	130	3	158	0	0	0
Future Vol, veh/h	108	263	0	0	405	41	130	3	158	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	117	286	0	0	440	45	141	3	172	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	1	0	0	0
Approach	EB			WB			NB					
Opposing Approach	WB				EB							
Opposing Lanes	1				2			0				
Conflicting Approach Left						NB		EB				
Conflicting Lanes Left	0					2		2				
Conflicting Approach Right	NB						WB					
Conflicting Lanes Right	2					0		1				
HCM Control Delay	14					31		12.5				
HCM LOS	B					D		B				

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1
Vol Left, %	98%	0%	100%	0%	0%
Vol Thru, %	2%	0%	0%	100%	91%
Vol Right, %	0%	100%	0%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	133	158	108	263	446
LT Vol	130	0	108	0	0
Through Vol	3	0	0	263	405
RT Vol	0	158	0	0	41
Lane Flow Rate	145	172	117	286	485
Geometry Grp	7	7	7	7	6
Degree of Util (X)	0.299	0.298	0.221	0.497	0.819
Departure Headway (Hd)	7.454	6.242	6.766	6.257	6.079
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	481	574	529	575	596
Service Time	5.217	4.003	4.522	4.012	4.126
HCM Lane V/C Ratio	0.301	0.3	0.221	0.497	0.814
HCM Control Delay	13.4	11.7	11.4	15.1	31
HCM Lane LOS	B	B	B	C	D
HCM 95th-tile Q	1.2	1.2	0.8	2.8	8.3



Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	341	133	307	492
v/c Ratio	0.70	0.13	0.80	0.77
Control Delay	33.6	10.3	45.0	28.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	33.6	10.3	45.0	28.2
Queue Length 50th (ft)	141	29	121	172
Queue Length 95th (ft)	259	68	#327	325
Internal Link Dist (ft)		316	5146	601
Turn Bay Length (ft)	200			
Base Capacity (vph)	1384	1767	386	862
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.25	0.08	0.80	0.57

#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

## **Appendix J**

# **Existing Plus Ambient Plus Cumulative Plus Project Synchro Worksheets**

## HCM Unsignalized Intersection Capacity Analysis

1: Baxter Rd. &amp; I-15 SB Ramps

Existing + Amb. + Cum.+ Proj. Midday

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control				Stop		Stop		Stop			Stop	
Volume (vph)	0	349	158	233	294	0	0	0	0	69	2	89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	379	172	253	320	0	0	0	0	75	2	97
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2							
Volume Total (vph)	551	253	320	77	97							
Volume Left (vph)	0	253	0	75	0							
Volume Right (vph)	172	0	0	0	97							
Hadj (s)	-0.15	0.53	0.03	0.52	-0.67							
Departure Headway (s)	5.6	6.3	5.8	7.7	6.5							
Degree Utilization, x	0.86	0.44	0.52	0.17	0.18							
Capacity (veh/h)	629	558	607	446	523							
Control Delay (s)	33.8	13.1	13.6	11.1	9.7							
Approach Delay (s)	33.8	13.4		10.3								
Approach LOS		D	B		B							
Intersection Summary												
Delay					21.6							
Level of Service					C							
Intersection Capacity Utilization				54.8%		ICU Level of Service				A		
Analysis Period (min)					15							

HCM Unsignalized Intersection Capacity Analysis  
2: I-15 NB Ramps & Baxter Rd.

Existing + Amb. + Cum.+ Proj. Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑			↑		↑	↑	↑			
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	108	307	0	0	422	68	130	3	158	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	117	334	0	0	459	74	141	3	172	0	0	0
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2							
Volume Total (vph)	117	334	533	145	172							
Volume Left (vph)	117	0	0	141	0							
Volume Right (vph)	0	0	74	0	172							
Hadj (s)	0.53	0.03	-0.05	0.52	-0.67							
Departure Headway (s)	6.9	6.4	6.2	7.7	6.5							
Degree Utilization, x	0.23	0.59	0.91	0.31	0.31							
Capacity (veh/h)	501	538	574	454	534							
Control Delay (s)	10.7	17.2	43.6	12.9	11.2							
Approach Delay (s)	15.5		43.6	12.0								
Approach LOS	C		E	B								
Intersection Summary												
Delay					26.2							
Level of Service					D							
Intersection Capacity Utilization			54.8%			ICU Level of Service			A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis  
3: Baxter Rd. & Monte Vista Dr.

Existing + Amb. + Cum.+ Proj. Midday  
9/8/2016

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗		↖ ↗	
Volume (veh/h)	324	170	180	156	181	286
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	352	185	196	170	197	311
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	365			1170	280	
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vCu, unblocked vol	365			1170	280	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	70			0	59	
cM capacity (veh/h)	1193			150	758	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	537	365	508			
Volume Left	352	0	197			
Volume Right	0	170	311			
cSH	1193	1700	295			
Volume to Capacity	0.30	0.21	1.72			
Queue Length 95th (ft)	31	0	810			
Control Delay (s)	7.1	0.0	367.4			
Lane LOS	A		F			
Approach Delay (s)	7.1	0.0	367.4			
Approach LOS			F			
Intersection Summary						
Average Delay		135.0				
Intersection Capacity Utilization		83.5%	ICU Level of Service		E	
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis  
3: Baxter Rd. & Monte Vista Dr.

Existing + Amb. + Cum.+ Proj. Midday  
With Improvements 9/8/2016

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	324	170	180	156	181	286
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			
Lane Util. Factor	1.00	1.00	1.00			
Fr <sub>t</sub>	1.00	0.94	0.92			
Flt Protected	0.97	1.00	0.98			
Satd. Flow (prot)	1804	1746	1676			
Flt Permitted	0.53	1.00	0.98			
Satd. Flow (perm)	994	1746	1676			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	352	185	196	170	197	311
RTOR Reduction (vph)	0	0	38	0	61	0
Lane Group Flow (vph)	0	537	328	0	447	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)	47.1	47.1	28.4			
Effective Green, g (s)	47.1	47.1	28.4			
Actuated g/C Ratio	0.56	0.56	0.34			
Clearance Time (s)	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	560	984	570			
v/s Ratio Prot		0.19	c0.27			
v/s Ratio Perm	c0.54					
v/c Ratio	0.96	0.33	0.78			
Uniform Delay, d1	17.3	9.8	24.8			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	27.7	0.2	10.4			
Delay (s)	44.9	10.0	35.2			
Level of Service	D	A	D			
Approach Delay (s)	44.9	10.0	35.2			
Approach LOS	D	A	D			
Intersection Summary						
HCM 2000 Control Delay	32.4		HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.89					
Actuated Cycle Length (s)	83.5		Sum of lost time (s)	8.0		
Intersection Capacity Utilization	83.5%		ICU Level of Service	E		
Analysis Period (min)	15					
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis  
4: George Ave./Porras Rd. & La Estrella St.

Existing + Amb. + Cum.+ Proj. Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control			Stop			Stop			Stop			Stop
Volume (vph)	0	2	0	46	1	40	2	289	37	37	322	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	0	50	1	43	2	314	40	40	350	0
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	2	95	2	354	40	350						
Volume Left (vph)	0	50	2	0	40	0						
Volume Right (vph)	0	43	0	40	0	0						
Hadj (s)	0.03	-0.14	0.53	-0.05	0.53	0.03						
Departure Headway (s)	5.9	5.5	5.7	5.1	5.6	5.1						
Degree Utilization, x	0.00	0.14	0.00	0.50	0.06	0.50						
Capacity (veh/h)	522	582	613	691	618	687						
Control Delay (s)	8.9	9.4	7.5	11.9	7.8	11.9						
Approach Delay (s)	8.9	9.4	11.9		11.5							
Approach LOS	A	A	B		B							
Intersection Summary												
Delay						11.4						
Level of Service						B						
Intersection Capacity Utilization				42.5%			ICU Level of Service					A
Analysis Period (min)						15						

## Intersection

Int Delay, s/veh 0.3

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	467	1	4	468	4	0	0	7	7	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	508	1	4	509	4	0	0	8	8	0	0

Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	513	0	0	509	0	0	1028	1030	508	1032	1029	511
Stage 1	-	-	-	-	-	-	508	508	-	520	520	-
Stage 2	-	-	-	-	-	-	520	522	-	512	509	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1052	-	-	1056	-	-	212	233	565	211	234	563
Stage 1	-	-	-	-	-	-	547	539	-	539	532	-
Stage 2	-	-	-	-	-	-	539	531	-	545	538	-
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	1052	-	-	1056	-	-	211	232	565	207	233	563
Mov Cap-2 Maneuver	-	-	-	-	-	-	211	232	-	207	233	-
Stage 1	-	-	-	-	-	-	547	539	-	539	529	-
Stage 2	-	-	-	-	-	-	536	528	-	538	538	-

Approach	SE	NW			NE			SW		
HCM Control Delay, s	0	0.1			11.5			23.1		
HCM LOS					B			C		

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SERSWLn1
Capacity (veh/h)	565	1056	-	-	1052	-	207
HCM Lane V/C Ratio	0.013	0.004	-	-	-	-	0.037
HCM Control Delay (s)	11.5	8.4	0	-	0	-	23.1
HCM Lane LOS	B	A	A	-	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	0.1

HCM Unsignalized Intersection Capacity Analysis  
6: George Ave. & Depasquale Rd.

Existing + Amb. + Cum.+ Proj. Midday

9/8/2016

Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	177	0	309	23	0	5	319	147	23	35	174	182
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	192	0	336	25	0	5	347	160	25	38	189	198
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								828				
pX, platoon unblocked												
vC, conflicting volume	1235	1242	288	1566	1329	172	387			185		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1235	1242	288	1566	1329	172	387			185		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	55	34	100	99	70			97		
cM capacity (veh/h)	115	120	751	38	106	871	1172			1390		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	528	30	532	425								
Volume Left	192	25	347	38								
Volume Right	336	5	25	198								
cSH	249	46	1172	1390								
Volume to Capacity	2.12	0.67	0.30	0.03								
Queue Length 95th (ft)	996	64	31	2								
Control Delay (s)	549.6	180.9	7.2	0.9								
Lane LOS	F	F	A	A								
Approach Delay (s)	549.6	180.9	7.2	0.9								
Approach LOS	F	F										
Intersection Summary												
Average Delay			198.0									
Intersection Capacity Utilization		86.4%		ICU Level of Service				E				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
6: George Ave. & Depasquale Rd.

Existing + Amb. + Cum.+ Proj. Midday  
With Improvements 9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control			Stop			Stop			Stop			Stop
Volume (vph)	177	0	309	23	0	5	319	147	23	35	174	182
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	186	0	325	24	0	5	336	155	24	37	183	192
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total (vph)	186	325	29	515	412							
Volume Left (vph)	186	0	24	336	37							
Volume Right (vph)	0	325	5	24	192							
Hadj (s)	0.53	-0.67	0.09	0.14	-0.23							
Departure Headway (s)	7.9	6.7	8.6	6.5	6.4							
Degree Utilization, x	0.41	0.61	0.07	0.93	0.73							
Capacity (veh/h)	443	524	377	545	543							
Control Delay (s)	15.2	18.3	12.2	47.9	24.6							
Approach Delay (s)	17.2		12.2	47.9	24.6							
Approach LOS	C		B	E	C							
Intersection Summary												
Delay						29.9						
Level of Service						D						
Intersection Capacity Utilization				70.1%			ICU Level of Service				C	
Analysis Period (min)						15						

HCM Signalized Intersection Capacity Analysis  
7: Clinton Keith Rd. & Hidden Springs Rd.

Existing + Amb. + Cum.+ Proj. Midday

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑	↑	↑	↑↑	↑	↓	↔	↑	↑	↓	↔
Volume (vph)	121	1137	40	75	982	398	60	19	64	384	15	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.3	5.3	3.5	5.3	5.3		4.9		4.4		4.4
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00		1.00		1.00		1.00
Fr <sub>t</sub>	1.00	1.00	0.85	1.00	1.00	0.85		0.94		1.00		0.87
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98		0.95		1.00
Satd. Flow (prot)	1770	5085	1583	1770	3539	1583		1714		1770		1614
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.83		0.66		1.00
Satd. Flow (perm)	1770	5085	1583	1770	3539	1583		1453		1225		1614
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	1236	43	82	1067	433	65	21	70	417	16	132
RTOR Reduction (vph)	0	0	25	0	0	265	0	34	0	0	83	0
Lane Group Flow (vph)	132	1236	18	82	1067	168	0	122	0	417	65	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	8.6	36.7	36.7	6.9	35.0	35.0		32.7		33.2		33.2
Effective Green, g (s)	8.6	36.7	36.7	6.9	35.0	35.0		32.7		33.2		33.2
Actuated g/C Ratio	0.10	0.41	0.41	0.08	0.39	0.39		0.36		0.37		0.37
Clearance Time (s)	3.5	5.3	5.3	3.5	5.3	5.3		4.9		4.4		4.4
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0		3.0		3.0		3.0
Lane Grp Cap (vph)	169	2073	645	135	1376	615		527		451		595
v/s Ratio Prot	c0.07	0.24		0.05	c0.30						0.04	
v/s Ratio Perm			0.01			0.11		0.08		c0.34		
v/c Ratio	0.78	0.60	0.03	0.61	0.78	0.27		0.23		0.92		0.11
Uniform Delay, d1	39.8	20.9	16.0	40.2	24.1	18.8		19.9		27.2		18.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00		1.00		1.00
Incremental Delay, d2	19.1	1.3	0.1	5.2	4.3	1.1		0.2		24.7		0.1
Delay (s)	58.9	22.1	16.0	45.4	28.4	19.9		20.1		51.9		18.8
Level of Service	E	C	B	D	C	B		C		D		B
Approach Delay (s)		25.4			27.0			20.1			43.2	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay		28.5									C	
HCM 2000 Volume to Capacity ratio		0.84										
Actuated Cycle Length (s)		90.0									13.7	
Intersection Capacity Utilization		78.9%									D	
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
8: Clinton Keith Rd. & I-15 SB Ramps

Existing + Amb. + Cum.+ Proj. Midday

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑	↑	↑↑
Volume (vph)	0	1068	541	581	1116	0	0	0	0	633	3	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3	5.3	4.6	5.3					5.3	5.3	5.3
Lane Util. Factor		0.91	1.00	0.97	0.91					0.95	0.95	0.88
Fr <sub>t</sub>		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1583	3433	5085					1681	1686	2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1583	3433	5085					1681	1686	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1161	588	632	1213	0	0	0	0	688	3	446
RTOR Reduction (vph)	0	0	386	0	0	0	0	0	0	0	0	96
Lane Group Flow (vph)	0	1161	202	632	1213	0	0	0	0	344	347	350
Turn Type	NA	Perm	Prot	NA						Split	NA	Perm
Protected Phases	2		1	6						4	4	
Permitted Phases		2										4
Actuated Green, G (s)	34.3	34.3	21.8	60.7						28.7	28.7	28.7
Effective Green, g (s)	34.3	34.3	21.8	60.7						28.7	28.7	28.7
Actuated g/C Ratio	0.34	0.34	0.22	0.61						0.29	0.29	0.29
Clearance Time (s)	5.3	5.3	4.6	5.3						5.3	5.3	5.3
Vehicle Extension (s)	2.0	2.0	2.0	2.0						2.0	2.0	2.0
Lane Grp Cap (vph)	1744	542	748	3086						482	483	799
v/s Ratio Prot	c0.23		c0.18	0.24						0.20	c0.21	
v/s Ratio Perm		0.13										0.13
v/c Ratio	0.67	0.37	0.84	0.39						0.71	0.72	0.44
Uniform Delay, d1	28.0	24.7	37.5	10.1						32.0	32.0	29.1
Progression Factor	1.00	1.00	0.93	1.53						1.00	1.00	1.00
Incremental Delay, d2	2.0	2.0	6.5	0.3						8.7	8.9	1.7
Delay (s)	30.0	26.7	41.5	15.8						40.7	40.9	30.8
Level of Service	C	C	D	B						D	D	C
Approach Delay (s)	28.9			24.6				0.0			36.9	
Approach LOS	C			C				A			D	
Intersection Summary												
HCM 2000 Control Delay	29.1									C		
HCM 2000 Volume to Capacity ratio	0.73											
Actuated Cycle Length (s)	100.0									15.2		
Intersection Capacity Utilization	82.4%									E		
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
9: I-15 NB Ramps & Clinton Keith Rd.

Existing + Amb. + Cum.+ Proj. Midday  
9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑			↑↑↑	↑	↑	↔	↑			
Volume (vph)	325	1354	0	0	1115	652	498	0	617	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	5.3			5.3	5.3	5.3	5.3	5.3			
Lane Util. Factor	0.97	0.91			0.91	1.00	0.95	0.91	0.95			
Fr <sub>t</sub>	1.00	1.00			1.00	0.85	1.00	0.89	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	3433	5085			5085	1583	1681	1494	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3433	5085			5085	1583	1681	1494	1504			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	353	1472	0	0	1212	709	541	0	671	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	448	0	50	50	0	0	0
Lane Group Flow (vph)	353	1472	0	0	1212	261	422	351	339	0	0	0
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6				8			
Permitted Phases						6	8		8			
Actuated Green, G (s)	14.3	55.7			36.8	36.8	33.7	33.7	33.7			
Effective Green, g (s)	14.3	55.7			36.8	36.8	33.7	33.7	33.7			
Actuated g/C Ratio	0.14	0.56			0.37	0.37	0.34	0.34	0.34			
Clearance Time (s)	4.6	5.3			5.3	5.3	5.3	5.3	5.3			
Vehicle Extension (s)	3.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lane Grp Cap (vph)	490	2832			1871	582	566	503	506			
v/s Ratio Prot	c0.10	0.29			c0.24							
v/s Ratio Perm						0.16	c0.25	0.24	0.23			
v/c Ratio	0.72	0.52			0.65	0.45	0.75	0.70	0.67			
Uniform Delay, d1	40.9	13.8			26.2	23.9	29.4	28.7	28.4			
Progression Factor	1.33	0.89			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	3.8	0.5			1.8	2.5	8.7	7.8	6.9			
Delay (s)	58.4	12.7			28.0	26.4	38.0	36.6	35.3			
Level of Service	E	B			C	C	D	D	D			
Approach Delay (s)		21.6			27.4			36.7		0.0		
Approach LOS		C			C			D		A		
Intersection Summary												
HCM 2000 Control Delay		27.5				HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		100.0				Sum of lost time (s)			15.2			
Intersection Capacity Utilization		82.4%				ICU Level of Service			E			
Analysis Period (min)		15										
c Critical Lane Group												

## HCM Signalized Intersection Capacity Analysis

10: Clinton Keith Rd. &amp; Arya Rd.

Existing + Amb. + Cum.+ Proj. Midday

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑↑			↑	↑	↑	↑	↑
Volume (vph)	428	1234	235	86	1129	202	313	80	70	169	76	455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.3	5.3	3.5	5.3			4.9	4.9	4.9	4.9	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91			1.00	1.00	1.00	1.00	
Fr <sub>t</sub>	1.00	1.00	0.85	1.00	0.98			1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	4969			1791	1583	1770	1623	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.29	1.00	0.41	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	4969			543	1583	759	1623	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	451	1299	247	91	1188	213	329	84	74	178	80	479
RTOR Reduction (vph)	0	0	130	0	23	0	0	0	38	0	172	0
Lane Group Flow (vph)	451	1299	117	91	1378	0	0	413	36	178	387	0
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2				4		4		8	
Actuated Green, G (s)	15.5	37.7	37.7	4.5	26.7			54.1	54.1	54.1	54.1	
Effective Green, g (s)	15.5	37.7	37.7	4.5	26.7			54.1	54.1	54.1	54.1	
Actuated g/C Ratio	0.14	0.34	0.34	0.04	0.24			0.49	0.49	0.49	0.49	
Clearance Time (s)	3.5	5.3	5.3	3.5	5.3			4.9	4.9	4.9	4.9	
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	249	1212	542	72	1206			267	778	373	798	
v/s Ratio Prot	c0.25	c0.37		0.05	0.28						0.24	
v/s Ratio Perm			0.07					c0.76	0.02	0.23		
v/c Ratio	1.81	1.07	0.22	1.26	1.14			1.55	0.05	0.48	0.48	
Uniform Delay, d1	47.2	36.1	25.7	52.8	41.6			27.9	14.5	18.6	18.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	380.5	47.4	0.9	192.6	74.3			263.9	0.1	4.3	2.1	
Delay (s)	427.8	83.6	26.6	245.3	116.0			291.8	14.7	22.9	20.8	
Level of Service	F	F	C	F	F			F	B	C	C	
Approach Delay (s)		154.3			123.9			249.7			21.3	
Approach LOS		F			F			F			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay		133.7				HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio		1.48										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			13.7				
Intersection Capacity Utilization		119.6%			ICU Level of Service			H				
Analysis Period (min)		15										
c Critical Lane Group												

## HCM Signalized Intersection Capacity Analysis

10: Clinton Keith Rd. &amp; Arya Rd.

Existing + Amb. + Cum.+ Proj. Midday

With Improvements

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↓		↑	↑↑↓		↑	↑		↑	↑	
Volume (vph)	428	1234	235	86	1129	202	313	80	70	169	76	455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	5.3		4.0	5.3		4.0	4.9		4.0	4.9	
Lane Util. Factor	1.00	*1.00		1.00	*1.00		1.00	1.00		1.00	1.00	
Fr <sub>t</sub>	1.00	0.98		1.00	0.98		1.00	0.93		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5454		1770	5461		1770	1732		1770	1623	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5454		1770	5461		1770	1732		1770	1623	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	451	1299	247	91	1188	213	329	84	74	178	80	479
RTOR Reduction (vph)	0	25	0	0	23	0	0	23	0	0	166	0
Lane Group Flow (vph)	451	1521	0	91	1378	0	329	135	0	178	393	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	30.0	51.0		10.5	31.5		22.0	33.5		16.8	28.3	
Effective Green, g (s)	30.0	51.0		10.5	31.5		22.0	33.5		16.8	28.3	
Actuated g/C Ratio	0.23	0.39		0.08	0.24		0.17	0.26		0.13	0.22	
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	4.9		4.0	4.9	
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	3.0		2.0	3.0	
Lane Grp Cap (vph)	408	2139		142	1323		299	446		228	353	
v/s Ratio Prot	c0.25	0.28		0.05	c0.25		c0.19	0.08		0.10	c0.24	
v/s Ratio Perm												
v/c Ratio	1.11	0.71		0.64	1.04		1.10	0.30		0.78	1.11	
Uniform Delay, d1	50.0	33.3		57.9	49.2		54.0	38.8		54.8	50.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	76.2	2.0		7.2	36.2		81.7	1.7		14.7	82.3	
Delay (s)	126.2	35.3		65.1	85.4		135.7	40.6		69.5	133.1	
Level of Service	F	D		E	F		F	D		E	F	
Approach Delay (s)		55.9			84.2			104.8			117.7	
Approach LOS		E			F			F			F	
<b>Intersection Summary</b>												
HCM 2000 Control Delay		79.6										E
HCM 2000 Volume to Capacity ratio		1.09										
Actuated Cycle Length (s)		130.0										18.2
Intersection Capacity Utilization		114.6%										H
Analysis Period (min)		15										
c Critical Lane Group												

## HCM Signalized Intersection Capacity Analysis

11: Clinton Keith Rd. &amp; George Ave.

Existing + Amb. + Cum.+ Proj. Midday

9/8/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑		↑	↑↑	↑	↑	↑	↑	↑	↑	↑
Volume (vph)	399	1045	30	83	761	278	50	50	56	264	61	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.3		3.5	5.3	5.3	3.5	4.9		3.5	4.9	4.9
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Fr <sub>t</sub>	1.00	1.00		1.00	1.00	0.85	1.00	0.92		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5064		1770	3539	1583	1770	1715		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5064		1770	3539	1583	1770	1715		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	434	1136	33	90	827	302	54	54	61	287	66	329
RTOR Reduction (vph)	0	3	0	0	0	230	0	49	0	0	0	266
Lane Group Flow (vph)	434	1166	0	90	827	72	54	66	0	287	66	63
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						4
Actuated Green, G (s)	33.5	49.4		8.1	24.0	24.0	6.1	11.8		13.5	19.2	19.2
Effective Green, g (s)	33.5	49.4		8.1	24.0	24.0	6.1	11.8		13.5	19.2	19.2
Actuated g/C Ratio	0.34	0.49		0.08	0.24	0.24	0.06	0.12		0.14	0.19	0.19
Clearance Time (s)	3.5	5.3		3.5	5.3	5.3	3.5	4.9		3.5	4.9	4.9
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	3.0		2.0	3.0	3.0
Lane Grp Cap (vph)	592	2501		143	849	379	107	202		238	357	303
v/s Ratio Prot	c0.25	0.23		0.05	c0.23		0.03	c0.04		c0.16	0.04	
v/s Ratio Perm						0.05						0.04
v/c Ratio	0.73	0.47		0.63	0.97	0.19	0.50	0.33		1.21	0.18	0.21
Uniform Delay, d1	29.3	16.6		44.5	37.7	30.3	45.5	40.5		43.2	33.8	34.0
Progression Factor	1.00	1.00		0.94	1.11	1.74	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.0	0.6		3.5	17.8	0.6	1.4	1.0		125.4	0.3	0.3
Delay (s)	33.3	17.3		45.4	59.6	53.5	46.8	41.4		168.6	34.1	34.3
Level of Service	C	B		D	E	D	D	D		F	C	C
Approach Delay (s)		21.6			57.0			43.2			90.8	
Approach LOS		C			E			D			F	

## Intersection Summary

HCM 2000 Control Delay	47.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
12: Inland Valley Dr. & Clinton Keith Rd.

Existing + Amb. + Cum.+ Proj. Midday  
9/8/2016

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑↑	↑	↑	↑	↑	↑
Volume (vph)	0	1018	324	30	913	304	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.0	5.5	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>	1.00	0.85	1.00	1.00	1.00	0.85	
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	3539	1583	1770	1863	1770	1583	
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	3539	1583	1770	1863	1770	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	1107	352	33	992	330	29
RTOR Reduction (vph)	0	0	141	0	0	0	23
Lane Group Flow (vph)	0	1107	211	33	992	330	6
Turn Type	Prot	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	5	2		1	6	8	
Permitted Phases			2			8	8
Actuated Green, G (s)	59.9	59.9	3.6	68.5	21.0	21.0	
Effective Green, g (s)	59.9	59.9	3.6	68.5	21.0	21.0	
Actuated g/C Ratio	0.60	0.60	0.04	0.68	0.21	0.21	
Clearance Time (s)	5.5	5.5	5.0	5.5	5.0	5.0	
Vehicle Extension (s)	2.5	2.5	1.5	2.5	3.5	3.5	
Lane Grp Cap (vph)	2119	948	63	1276	371	332	
v/s Ratio Prot	0.31		0.02	c0.53	c0.19		
v/s Ratio Perm		0.13			0.00		
v/c Ratio	0.52	0.22	0.52	0.78	0.89	0.02	
Uniform Delay, d1	11.7	9.3	47.4	10.6	38.4	31.3	
Progression Factor	0.77	0.83	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	0.4	3.6	4.7	25.7	0.1	
Delay (s)	9.8	8.1	50.9	15.3	64.1	31.4	
Level of Service	A	A	D	B	E	C	
Approach Delay (s)	9.4			16.5	61.5		
Approach LOS	A			B	E		
Intersection Summary							
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio	0.85						
Actuated Cycle Length (s)	100.0	Sum of lost time (s)			15.5		
Intersection Capacity Utilization	73.6%	ICU Level of Service			D		
Analysis Period (min)	15						
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis  
13: Depasquale Rd. & Glazebrook Rd

C + P Sunday MD

09/17/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	85	40	0	0	85	220	40	0	220	0
Future Volume (Veh/h)	0	0	85	40	0	0	85	220	40	0	220	0
Sign Control	Free				Free			Stop			Stop	
Grade		0%				0%			0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	94	44	0	0	94	244	44	0	244	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			94			257	135	47	301	182	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			94			257	135	47	301	182	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			81	67	96	100	65	100
cM capacity (veh/h)	1623			1500			495	734	1022	453	691	1085
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	94	44	382	244								
Volume Left	0	44	94	0								
Volume Right	94	0	44	0								
cSH	1623	1500	675	691								
Volume to Capacity	0.00	0.03	0.57	0.35								
Queue Length 95th (ft)	0	2	89	40								
Control Delay (s)	0.0	7.5	17.0	13.0								
Lane LOS		A	C	B								
Approach Delay (s)	0.0	7.5	17.0	13.0								
Approach LOS			C	B								
Intersection Summary												
Average Delay			13.1									
Intersection Capacity Utilization		49.2%			ICU Level of Service					A		
Analysis Period (min)			15									

Intersection

Intersection Delay, s/veh 26.5

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑			↔		↓	↓	↑	0	0	0
Traffic Vol, veh/h	108	307	0	0	422	68	130	3	158	0	0	0
Future Vol, veh/h	108	307	0	0	422	68	130	3	158	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	117	334	0	0	459	74	141	3	172	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	1	0	0	0
Approach	EB			WB			NB					
Opposing Approach	WB				EB							
Opposing Lanes	1				2		0					
Conflicting Approach Left						NB		EB				
Conflicting Lanes Left	0					2		2				
Conflicting Approach Right	NB						WB					
Conflicting Lanes Right	2					0		1				
HCM Control Delay	16.3					43.3		12.9				
HCM LOS	C					E		B				

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1
Vol Left, %	98%	0%	100%	0%	0%
Vol Thru, %	2%	0%	0%	100%	86%
Vol Right, %	0%	100%	0%	0%	14%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	133	158	108	307	490
LT Vol	130	0	108	0	0
Through Vol	3	0	0	307	422
RT Vol	0	158	0	0	68
Lane Flow Rate	145	172	117	334	533
Geometry Grp	7	7	7	7	6
Degree of Util (X)	0.309	0.309	0.224	0.59	0.91
Departure Headway (Hd)	7.691	6.475	6.875	6.365	6.153
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	466	553	520	564	586
Service Time	5.46	4.243	4.642	4.132	4.209
HCM Lane V/C Ratio	0.311	0.311	0.225	0.592	0.91
HCM Control Delay	13.9	12.1	11.6	18	43.3
HCM Lane LOS	B	B	B	C	E
HCM 95th-tile Q	1.3	1.3	0.9	3.8	11.2



Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	341	179	353	492
v/c Ratio	0.79	0.18	0.75	0.74
Control Delay	42.8	9.9	37.7	28.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	42.8	9.9	37.7	28.0
Queue Length 50th (ft)	167	44	151	182
Queue Length 95th (ft)	261	75	#305	#368
Internal Link Dist (ft)		316	5146	601
Turn Bay Length (ft)	200			
Base Capacity (vph)	572	1159	472	662
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.60	0.15	0.75	0.74

#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

## **Appendix K**

### **Weekday Analysis Synchro Worksheets**

Intersection

Intersection Delay, s/veh 12.6

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑	↑		↑	↑	
Traffic Vol, veh/h	14	13	42	28	23	42	46	107	9	31	208	18
Future Vol, veh/h	14	13	42	28	23	42	46	107	9	31	208	18
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	21	69	46	38	69	75	175	15	51	341	30
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			2			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	2			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			2			1			1		
HCM Control Delay	10			10.6			10.8			15.1		
HCM LOS	A			B			B			C		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	20%	30%	100%	0%
Vol Thru, %	0%	92%	19%	25%	0%	92%
Vol Right, %	0%	8%	61%	45%	0%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	46	116	69	93	31	226
LT Vol	46	0	14	28	31	0
Through Vol	0	107	13	23	0	208
RT Vol	0	9	42	42	0	18
Lane Flow Rate	75	190	113	152	51	370
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.134	0.307	0.18	0.243	0.087	0.579
Departure Headway (Hd)	6.377	5.814	5.716	5.738	6.19	5.627
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	563	618	626	625	579	641
Service Time	4.115	3.553	3.768	3.787	3.923	3.361
HCM Lane V/C Ratio	0.133	0.307	0.181	0.243	0.088	0.577
HCM Control Delay	10.1	11.1	10	10.6	9.5	15.9
HCM Lane LOS	B	B	A	B	A	C
HCM 95th-tile Q	0.5	1.3	0.7	0.9	0.3	3.7

Intersection

Int Delay, s/veh 1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		A	B		
Traffic Vol, veh/h	8	53	25	147	289	9
Future Vol, veh/h	8	53	25	147	289	9
Conflicting Peds, #/hr	2	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	64	64	58	58
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	59	39	230	498	16

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	817	507	515	0	-	0
Stage 1	507	-	-	-	-	-
Stage 2	310	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	346	566	1051	-	-	-
Stage 1	605	-	-	-	-	-
Stage 2	744	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	331	566	1051	-	-	-
Mov Cap-2 Maneuver	331	-	-	-	-	-
Stage 1	604	-	-	-	-	-
Stage 2	711	-	-	-	-	-

Approach	EB	NB	SB			
HCM Control Delay, s	13	1.2	0			
HCM LOS	B					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1051	-	518	-	-	
HCM Lane V/C Ratio	0.037	-	0.131	-	-	
HCM Control Delay (s)	8.6	0	13	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-	

Intersection

Intersection Delay, s/veh 9.9

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖ ↗			↖ ↗		↑ ↘	↑ ↗		↑ ↘	↑ ↗	
Traffic Vol, veh/h	17	9	39	28	8	30	24	166	24	49	137	24
Future Vol, veh/h	17	9	39	28	8	30	24	166	24	49	137	24
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	12	51	36	10	39	31	216	31	64	178	31
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Approach	EB		WB			NB			SB			
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			2			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	2			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			2			1			1		
HCM Control Delay	8.8			9			10.5			9.9		
HCM LOS	A			A			B			A		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	26%	42%	100%	0%
Vol Thru, %	0%	87%	14%	12%	0%	85%
Vol Right, %	0%	13%	60%	45%	0%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	24	190	65	66	49	161
LT Vol	24	0	17	28	49	0
Through Vol	0	166	9	8	0	137
RT Vol	0	24	39	30	0	24
Lane Flow Rate	31	247	84	86	64	209
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.05	0.353	0.119	0.123	0.101	0.298
Departure Headway (Hd)	5.736	5.143	5.067	5.182	5.734	5.126
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	621	696	701	687	622	696
Service Time	3.499	2.906	3.14	3.256	3.499	2.889
HCM Lane V/C Ratio	0.05	0.355	0.12	0.125	0.103	0.3
HCM Control Delay	8.8	10.7	8.8	9	9.1	10.1
HCM Lane LOS	A	B	A	A	A	B
HCM 95th-tile Q	0.2	1.6	0.4	0.4	0.3	1.2

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		A	B		
Traffic Vol, veh/h	4	39	23	249	210	14
Future Vol, veh/h	4	39	23	249	210	14
Conflicting Peds, #/hr	6	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	57	57
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	47	28	300	368	25

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	744	383	395	0	-	0
Stage 1	383	-	-	-	-	-
Stage 2	361	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	382	664	1164	-	-	-
Stage 1	689	-	-	-	-	-
Stage 2	705	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	370	663	1164	-	-	-
Mov Cap-2 Maneuver	370	-	-	-	-	-
Stage 1	688	-	-	-	-	-
Stage 2	683	-	-	-	-	-

Approach	EB	NB	SB			
HCM Control Delay, s	11.4	0.7	0			
HCM LOS	B					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1164	-	618	-	-	
HCM Lane V/C Ratio	0.024	-	0.084	-	-	
HCM Control Delay (s)	8.2	0	11.4	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-	

Intersection

Intersection Delay, s/veh 12.8

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑	↑		↑	↑	
Traffic Vol, veh/h	14	13	42	29	23	42	46	109	10	31	212	18
Future Vol, veh/h	14	13	42	29	23	42	46	109	10	31	212	18
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	21	69	48	38	69	75	179	16	51	348	30
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			2			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	2			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			2			1			1		
HCM Control Delay	10.1			10.7			11			15.5		
HCM LOS	B			B			B			C		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	20%	31%	100%	0%
Vol Thru, %	0%	92%	19%	24%	0%	92%
Vol Right, %	0%	8%	61%	45%	0%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	46	119	69	94	31	230
LT Vol	46	0	14	29	31	0
Through Vol	0	109	13	23	0	212
RT Vol	0	10	42	42	0	18
Lane Flow Rate	75	195	113	154	51	377
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.134	0.316	0.181	0.247	0.088	0.591
Departure Headway (Hd)	6.398	5.831	5.755	5.776	6.208	5.646
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	560	616	621	619	577	641
Service Time	4.138	3.571	3.809	3.827	3.942	3.38
HCM Lane V/C Ratio	0.134	0.317	0.182	0.249	0.088	0.588
HCM Control Delay	10.1	11.3	10.1	10.7	9.5	16.3
HCM Lane LOS	B	B	B	B	A	C
HCM 95th-tile Q	0.5	1.4	0.7	1	0.3	3.9

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		A	B		
Traffic Vol, veh/h	11	63	42	147	289	14
Future Vol, veh/h	11	63	42	147	289	14
Conflicting Peds, #/hr	2	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	64	64	58	58
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	70	66	230	498	24

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	874	511	523	0	-	0
Stage 1	511	-	-	-	-	-
Stage 2	363	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	320	563	1043	-	-	-
Stage 1	602	-	-	-	-	-
Stage 2	704	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	296	563	1043	-	-	-
Mov Cap-2 Maneuver	296	-	-	-	-	-
Stage 1	601	-	-	-	-	-
Stage 2	652	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	1.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1043	-	496	-	-
HCM Lane V/C Ratio	0.063	-	0.166	-	-
HCM Control Delay (s)	8.7	0	13.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.6	-	-

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	17	9	39	30	8	30	24	170	25	49	142	24
Future Vol, veh/h	17	9	39	30	8	30	24	170	25	49	142	24
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	12	51	39	10	39	31	221	32	64	184	31
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			2			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	2			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			2			1			1		
HCM Control Delay	8.9			9.1			10.7			10		
HCM LOS	A			A			B			A		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	26%	44%	100%	0%
Vol Thru, %	0%	87%	14%	12%	0%	86%
Vol Right, %	0%	13%	60%	44%	0%	14%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	24	195	65	68	49	166
LT Vol	24	0	17	30	49	0
Through Vol	0	170	9	8	0	142
RT Vol	0	25	39	30	0	24
Lane Flow Rate	31	253	84	88	64	216
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.05	0.363	0.12	0.128	0.102	0.308
Departure Headway (Hd)	5.753	5.159	5.102	5.224	5.752	5.146
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	619	694	696	680	620	694
Service Time	3.52	2.926	3.181	3.303	3.519	2.913
HCM Lane V/C Ratio	0.05	0.365	0.121	0.129	0.103	0.311
HCM Control Delay	8.8	10.9	8.9	9.1	9.2	10.2
HCM Lane LOS	A	B	A	A	A	B
HCM 95th-tile Q	0.2	1.7	0.4	0.4	0.3	1.3

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		A	B		
Traffic Vol, veh/h	10	58	47	249	210	21
Future Vol, veh/h	10	58	47	249	210	21
Conflicting Peds, #/hr	6	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	57	57
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	70	57	300	368	37

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	808	389	407	0	-	0
Stage 1	389	-	-	-	-	-
Stage 2	419	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	350	659	1152	-	-	-
Stage 1	685	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	328	658	1152	-	-	-
Mov Cap-2 Maneuver	328	-	-	-	-	-
Stage 1	684	-	-	-	-	-
Stage 2	624	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.3	1.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1152	-	573	-	-
HCM Lane V/C Ratio	0.049	-	0.143	-	-
HCM Control Delay (s)	8.3	0	12.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.5	-	-

Intersection

Intersection Delay, s/veh 13.2

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖ ↗			↖ ↗		↑ ↘	↑ ↗		↑ ↘	↑ ↗	
Traffic Vol, veh/h	14	13	43	30	24	43	47	112	10	32	218	19
Future Vol, veh/h	14	13	43	30	24	43	47	112	10	32	218	19
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	21	70	49	39	70	77	184	16	52	357	31
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			2			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	2			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			2			1			1		
HCM Control Delay	10.2			10.9			11.1			16.2		
HCM LOS	B			B			B			C		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	20%	31%	100%	0%
Vol Thru, %	0%	92%	19%	25%	0%	92%
Vol Right, %	0%	8%	61%	44%	0%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	122	70	97	32	237
LT Vol	47	0	14	30	32	0
Through Vol	0	112	13	24	0	218
RT Vol	0	10	43	43	0	19
Lane Flow Rate	77	200	115	159	52	389
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.138	0.327	0.186	0.258	0.091	0.614
Departure Headway (Hd)	6.452	5.886	5.827	5.843	6.25	5.687
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	556	610	613	612	573	633
Service Time	4.197	3.631	3.886	3.898	3.989	3.425
HCM Lane V/C Ratio	0.138	0.328	0.188	0.26	0.091	0.615
HCM Control Delay	10.2	11.5	10.2	10.9	9.6	17.1
HCM Lane LOS	B	B	B	B	A	C
HCM 95th-tile Q	0.5	1.4	0.7	1	0.3	4.2

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		A	B		
Traffic Vol, veh/h	11	65	43	151	298	14
Future Vol, veh/h	11	65	43	151	298	14
Conflicting Peds, #/hr	2	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	64	64	58	58
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	72	67	236	514	24

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	899	527	539	0	-	0
Stage 1	527	-	-	-	-	-
Stage 2	372	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	309	551	1029	-	-	-
Stage 1	592	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	285	551	1029	-	-	-
Mov Cap-2 Maneuver	285	-	-	-	-	-
Stage 1	592	-	-	-	-	-
Stage 2	644	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14	1.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1029	-	485	-	-
HCM Lane V/C Ratio	0.065	-	0.174	-	-
HCM Control Delay (s)	8.7	0	14	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.6	-	-

Intersection

Intersection Delay, s/veh 10.2

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖ ↗			↖ ↗		↑ ↘	↑ ↗		↑ ↘	↑ ↗	
Traffic Vol, veh/h	18	9	40	31	8	31	25	175	26	50	146	25
Future Vol, veh/h	18	9	40	31	8	31	25	175	26	50	146	25
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	12	52	40	10	40	32	227	34	65	190	32
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			2			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	2			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			2			1			1		
HCM Control Delay	9			9.2			10.9			10.1		
HCM LOS	A			A			B			B		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	27%	44%	100%	0%
Vol Thru, %	0%	87%	13%	11%	0%	85%
Vol Right, %	0%	13%	60%	44%	0%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	201	67	70	50	171
LT Vol	25	0	18	31	50	0
Through Vol	0	175	9	8	0	146
RT Vol	0	26	40	31	0	25
Lane Flow Rate	32	261	87	91	65	222
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.052	0.376	0.125	0.133	0.104	0.319
Departure Headway (Hd)	5.78	5.185	5.153	5.271	5.779	5.172
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	616	689	689	674	616	691
Service Time	3.552	2.956	3.235	3.353	3.552	2.945
HCM Lane V/C Ratio	0.052	0.379	0.126	0.135	0.106	0.321
HCM Control Delay	8.9	11.1	9	9.2	9.2	10.4
HCM Lane LOS	A	B	A	A	A	B
HCM 95th-tile Q	0.2	1.8	0.4	0.5	0.3	1.4

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		A	B		
Traffic Vol, veh/h	10	59	48	256	216	21
Future Vol, veh/h	10	59	48	256	216	21
Conflicting Peds, #/hr	6	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	57	57
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	71	58	308	379	37

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	829	399	418	0	-	0
Stage 1	399	-	-	-	-	-
Stage 2	430	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	340	651	1141	-	-	-
Stage 1	678	-	-	-	-	-
Stage 2	656	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	318	650	1141	-	-	-
Mov Cap-2 Maneuver	318	-	-	-	-	-
Stage 1	677	-	-	-	-	-
Stage 2	615	-	-	-	-	-

Approach	EB	NB	SB			
HCM Control Delay, s	12.5	1.3	0			
HCM LOS	B					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1141	-	565	-	-	
HCM Lane V/C Ratio	0.051	-	0.147	-	-	
HCM Control Delay (s)	8.3	0	12.5	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.5	-	-	

Intersection

Intersection Delay, s/veh 17.1

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↖		↑	↑		↑	↑	
Traffic Vol, veh/h	14	13	43	31	24	44	47	158	10	34	261	19
Future Vol, veh/h	14	13	43	31	24	44	47	158	10	34	261	19
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	21	70	51	39	72	77	259	16	56	428	31
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			2			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	2			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			2			1			1		
HCM Control Delay	11			11.8			13.3			22.7		
HCM LOS	B			B			B			C		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	20%	31%	100%	0%
Vol Thru, %	0%	94%	19%	24%	0%	93%
Vol Right, %	0%	6%	61%	44%	0%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	168	70	99	34	280
LT Vol	47	0	14	31	34	0
Through Vol	0	158	13	24	0	261
RT Vol	0	10	43	44	0	19
Lane Flow Rate	77	275	115	162	56	459
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.142	0.466	0.2	0.283	0.1	0.75
Departure Headway (Hd)	6.646	6.095	6.288	6.272	6.439	5.884
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	537	589	566	570	555	610
Service Time	4.416	3.865	4.379	4.354	4.198	3.643
HCM Lane V/C Ratio	0.143	0.467	0.203	0.284	0.101	0.752
HCM Control Delay	10.5	14.1	11	11.8	9.9	24.3
HCM Lane LOS	B	B	B	B	A	C
HCM 95th-tile Q	0.5	2.5	0.7	1.2	0.3	6.7

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	9	0	57	35	0	7	28	196	10	3	385	11
Future Vol, veh/h	9	0	57	35	0	7	28	196	10	3	385	11
Conflicting Peds, #/hr	2	0	0	0	0	2	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	64	64	64	58	58	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	0	63	39	0	8	44	306	16	5	664	19

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	1092	1095	674	1118	1097	317	684	0	0	323	0	0
Stage 1	685	685	-	403	403	-	-	-	-	-	-	-
Stage 2	407	410	-	715	694	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	192	214	455	184	213	724	909	-	-	1237	-	-
Stage 1	438	448	-	624	600	-	-	-	-	-	-	-
Stage 2	621	595	-	422	444	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	180	200	455	150	199	722	909	-	-	1235	-	-
Mov Cap-2 Maneuver	180	200	-	150	199	-	-	-	-	-	-	-
Stage 1	412	444	-	587	564	-	-	-	-	-	-	-
Stage 2	577	559	-	361	441	-	-	-	-	-	-	-

Approach	EB	WB			NB		SB	
HCM Control Delay, s	16.8	33.3			1.1		0.1	
HCM LOS	C	D						
<hr/>								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	909	-	-	377	173	1235	-	-
HCM Lane V/C Ratio	0.048	-	-	0.195	0.27	0.004	-	-
HCM Control Delay (s)	9.2	0	-	16.8	33.3	7.9	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.7	1	0	-	-

Intersection

Intersection Delay, s/veh 14.3

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖ ↗			↖ ↗		↑ ↘	↑ ↗		↑ ↘	↑ ↗	
Traffic Vol, veh/h	18	9	40	29	8	31	25	291	25	50	245	25
Future Vol, veh/h	18	9	40	29	8	31	25	291	25	50	245	25
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	12	52	38	10	40	32	378	32	65	318	32
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			2			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	2			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			2			1			1		
HCM Control Delay	10			10.2			16.5			13.7		
HCM LOS	A			B			C			B		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	27%	43%	100%	0%
Vol Thru, %	0%	92%	13%	12%	0%	91%
Vol Right, %	0%	8%	60%	46%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	316	67	68	50	270
LT Vol	25	0	18	29	50	0
Through Vol	0	291	9	8	0	245
RT Vol	0	25	40	31	0	25
Lane Flow Rate	32	410	87	88	65	351
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.055	0.628	0.144	0.149	0.11	0.538
Departure Headway (Hd)	6.072	5.511	5.971	6.081	6.094	5.523
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	591	657	600	589	589	652
Service Time	3.802	3.24	4.019	4.129	3.824	3.253
HCM Lane V/C Ratio	0.054	0.624	0.145	0.149	0.11	0.538
HCM Control Delay	9.2	17.1	10	10.2	9.6	14.5
HCM Lane LOS	A	C	A	B	A	B
HCM 95th-tile Q	0.2	4.4	0.5	0.5	0.4	3.2

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	4	0	40	12	0	2	24	276	31	9	230	14
Future Vol, veh/h	4	0	40	12	0	2	24	276	31	9	230	14
Conflicting Peds, #/hr	6	0	0	0	0	6	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	57	57	57
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	48	14	0	2	29	333	37	16	404	25

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	865	879	418	882	873	359	430	0	0	372	0	0
Stage 1	449	449	-	411	411	-	-	-	-	-	-	-
Stage 2	416	430	-	471	462	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	274	286	635	267	289	685	1129	-	-	1186	-	-
Stage 1	589	572	-	618	595	-	-	-	-	-	-	-
Stage 2	614	583	-	573	565	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	261	271	634	237	274	680	1129	-	-	1180	-	-
Mov Cap-2 Maneuver	261	271	-	237	274	-	-	-	-	-	-	-
Stage 1	569	561	-	597	575	-	-	-	-	-	-	-
Stage 2	589	563	-	520	554	-	-	-	-	-	-	-

Approach	EB	WB			NB			SB				
HCM Control Delay, s	12.1	19.7			0.6			0.3				
HCM LOS	B	C										
<hr/>												
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1129	-	-	561	261	1180	-	-				
HCM Lane V/C Ratio	0.026	-	-	0.094	0.065	0.013	-	-				
HCM Control Delay (s)	8.3	0	-	12.1	19.7	8.1	0	-				
HCM Lane LOS	A	A	-	B	C	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.2	0	-	-				

Intersection

Intersection Delay, s/veh 17.7

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖ ↗			↖ ↗		↑ ↘	↑ ↗		↑ ↘	↑ ↗	
Traffic Vol, veh/h	14	13	43	32	24	44	47	160	11	34	265	19
Future Vol, veh/h	14	13	43	32	24	44	47	160	11	34	265	19
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	21	70	52	39	72	77	262	18	56	434	31
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			2			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	2			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			2			1			1		
HCM Control Delay	11			12			13.6			23.7		
HCM LOS	B			B			B			C		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	20%	32%	100%	0%
Vol Thru, %	0%	94%	19%	24%	0%	93%
Vol Right, %	0%	6%	61%	44%	0%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	171	70	100	34	284
LT Vol	47	0	14	32	34	0
Through Vol	0	160	13	24	0	265
RT Vol	0	11	43	44	0	19
Lane Flow Rate	77	280	115	164	56	466
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.143	0.476	0.202	0.287	0.1	0.764
Departure Headway (Hd)	6.672	6.117	6.332	6.311	6.46	5.905
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	535	586	562	566	553	610
Service Time	4.443	3.888	4.426	4.4	4.221	3.666
HCM Lane V/C Ratio	0.144	0.478	0.205	0.29	0.101	0.764
HCM Control Delay	10.6	14.4	11	12	9.9	25.4
HCM Lane LOS	B	B	B	B	A	D
HCM 95th-tile Q	0.5	2.6	0.7	1.2	0.3	7

Intersection

Int Delay, s/veh 3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	0	67	35	0	7	45	196	10	3	385	16
Future Vol, veh/h	12	0	67	35	0	7	45	196	10	3	385	16
Conflicting Peds, #/hr	2	0	0	0	0	2	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	64	64	64	58	58	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	0	74	39	0	8	70	306	16	5	664	28

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	1150	1153	679	1181	1159	317	692	0	0	323	0	0
Stage 1	689	689	-	456	456	-	-	-	-	-	-	-
Stage 2	461	464	-	725	703	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	175	197	452	167	196	724	903	-	-	1237	-	-
Stage 1	436	446	-	584	568	-	-	-	-	-	-	-
Stage 2	581	564	-	416	440	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	159	177	452	129	176	722	903	-	-	1235	-	-
Mov Cap-2 Maneuver	159	177	-	129	176	-	-	-	-	-	-	-
Stage 1	394	443	-	528	514	-	-	-	-	-	-	-
Stage 2	519	510	-	345	437	-	-	-	-	-	-	-

Approach	EB	WB			NB			SB				
HCM Control Delay, s	18.5	39.8			1.7			0.1				
HCM LOS	C	E										
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Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	903	-	-	353	149	1235	-	-				
HCM Lane V/C Ratio	0.078	-	-	0.249	0.313	0.004	-	-				
HCM Control Delay (s)	9.3	0	-	18.5	39.8	7.9	0	-				
HCM Lane LOS	A	A	-	C	E	A	A	-				
HCM 95th %tile Q(veh)	0.3	-	-	1	1.2	0	-	-				

Intersection

Intersection Delay, s/veh 14.7

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖ ↗			↖ ↗		↑ ↘	↑ ↗		↑ ↘	↑ ↗	
Traffic Vol, veh/h	18	9	40	31	8	31	25	295	26	50	250	25
Future Vol, veh/h	18	9	40	31	8	31	25	295	26	50	250	25
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	12	52	40	10	40	32	383	34	65	325	32
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			2			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	2			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			2			1			1		
HCM Control Delay	10.1			10.3			17.1			14.1		
HCM LOS	B			B			C			B		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	27%	44%	100%	0%
Vol Thru, %	0%	92%	13%	11%	0%	91%
Vol Right, %	0%	8%	60%	44%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	321	67	70	50	275
LT Vol	25	0	18	31	50	0
Through Vol	0	295	9	8	0	250
RT Vol	0	26	40	31	0	25
Lane Flow Rate	32	417	87	91	65	357
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.055	0.641	0.145	0.155	0.11	0.551
Departure Headway (Hd)	6.098	5.535	6.019	6.131	6.12	5.55
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	588	655	594	584	586	650
Service Time	3.828	3.265	4.07	4.182	3.85	3.28
HCM Lane V/C Ratio	0.054	0.637	0.146	0.156	0.111	0.549
HCM Control Delay	9.2	17.7	10.1	10.3	9.6	14.9
HCM Lane LOS	A	C	B	B	A	B
HCM 95th-tile Q	0.2	4.6	0.5	0.5	0.4	3.4

Intersection

Int Delay, s/veh 2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	59	12	0	2	48	276	31	9	230	21
Future Vol, veh/h	10	0	59	12	0	2	48	276	31	9	230	21
Conflicting Peds, #/hr	6	0	0	0	0	6	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	57	57	57
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	0	71	14	0	2	58	333	37	16	404	37

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	930	944	424	958	943	359	442	0	0	372	0	0
Stage 1	456	456	-	469	469	-	-	-	-	-	-	-
Stage 2	474	488	-	489	474	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	248	262	630	237	263	685	1118	-	-	1186	-	-
Stage 1	584	568	-	575	561	-	-	-	-	-	-	-
Stage 2	571	550	-	561	558	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	230	240	629	197	240	680	1118	-	-	1180	-	-
Mov Cap-2 Maneuver	230	240	-	197	240	-	-	-	-	-	-	-
Stage 1	545	557	-	536	523	-	-	-	-	-	-	-
Stage 2	529	513	-	489	547	-	-	-	-	-	-	-

Approach	EB	WB			NB			SB				
HCM Control Delay, s	13.6	22.8			1.1			0.3				
HCM LOS	B	C										
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Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1118	-	-	503	219	1180	-	-				
HCM Lane V/C Ratio	0.052	-	-	0.165	0.077	0.013	-	-				
HCM Control Delay (s)	8.4	0	-	13.6	22.8	8.1	0	-				
HCM Lane LOS	A	A	-	B	C	A	A	-				
HCM 95th %tile Q(veh)	0.2	-	-	0.6	0.2	0	-	-				

Intersection

Intersection Delay, s/veh 28

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↑		↔			↔			↔	
Traffic Vol, veh/h	12	0	67	35	0	7	45	196	10	3	385	16
Future Vol, veh/h	12	0	67	35	0	7	45	196	10	3	385	16
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	0	106	56	0	11	71	311	16	5	611	25
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			2			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			2			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			2		
HCM Control Delay	11			11.3			16.9			40		
HCM LOS	B			B			C			E		

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	18%	100%	0%	83%	1%
Vol Thru, %	78%	0%	0%	0%	95%
Vol Right, %	4%	0%	100%	17%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	251	12	67	42	404
LT Vol	45	12	0	35	3
Through Vol	196	0	0	0	385
RT Vol	10	0	67	7	16
Lane Flow Rate	398	19	106	67	641
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.609	0.041	0.195	0.132	0.92
Departure Headway (Hd)	5.505	7.822	6.59	7.102	5.163
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	653	456	541	501	699
Service Time	3.568	5.605	4.372	5.199	3.214
HCM Lane V/C Ratio	0.609	0.042	0.196	0.134	0.917
HCM Control Delay	16.9	10.9	11	11.3	40
HCM Lane LOS	C	B	B	B	E
HCM 95th-tile Q	4.1	0.1	0.7	0.5	12.4

Intersection

Intersection Delay, s/veh 11.6

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖			↖			↖	
Traffic Vol, veh/h	10	0	59	12	0	2	48	276	31	9	230	21
Future Vol, veh/h	10	0	59	12	0	2	48	276	31	9	230	21
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	0	71	14	0	2	58	333	37	11	277	25
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			2			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			2			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			2		
HCM Control Delay	9			9.2			12.8			10.8		
HCM LOS	A			A			B			B		

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	14%	100%	0%	86%	3%
Vol Thru, %	78%	0%	0%	0%	88%
Vol Right, %	9%	0%	100%	14%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	355	10	59	14	260
LT Vol	48	10	0	12	9
Through Vol	276	0	0	0	230
RT Vol	31	0	59	2	21
Lane Flow Rate	428	12	71	17	313
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.538	0.022	0.108	0.028	0.403
Departure Headway (Hd)	4.529	6.701	5.482	5.921	4.631
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	796	531	648	599	774
Service Time	2.573	4.482	3.263	4.014	2.679
HCM Lane V/C Ratio	0.538	0.023	0.11	0.028	0.404
HCM Control Delay	12.8	9.6	8.9	9.2	10.8
HCM Lane LOS	B	A	A	A	B
HCM 95th-tile Q	3.3	0.1	0.4	0.1	2



PREPARED BY:

**FMCIVIL**  
ENGINEERS INC.

29995 TECHNOLOGY DRIVE, SUITE 306 | MURRIETA | CA 92563  
951.973.0201 - FMCIVIL.COM

**FAITH BIBLE CHURCH**  
**STREET STOP SIGN EXHIBIT**  
**FOR GLAZEBROOK RD. / DEPASQUALE RD.**  
**CITY OF WILDOMAR**

DATE: 1/23/2019

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OF 1 SHEETS