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INTERNATIONAL

TRAFFIC IMPACT ANALYSIS

CarMax
Victorville, California

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TABLE OF CONTENTS

LIST OF EXHIBITS

LIST OF TABLES

APPENDICES

1 EXECUTIVE SUMMARY

This study analyzes the forecast traffic conditions associated with the proposed development of a CarMax used car dealership located along Civic Drive in the City of Victorville. This traffic impact study has been prepared in accordance with the *County of San Bernardino Traffic Impact Study Guidelines* (Revised April 9, 2014), the *Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County* (2016 Update), and the City of Victorville *General Plan 2030*. The scope of this traffic study was coordinated with the City of Victorville staff.

The proposed project is forecast to generate 205 daily trips which includes 32 Midday Peak Hour trips and 28 PM Peak Hour trips during a typical weekday.

Traffic operations analysis was conducted to determine the existing and projected capacity based on the *Highway Capacity Manual*, 6th edition (*HCM*), published by the Transportation Research Board in 2016. Analysis was conducted for Midday Peak Hour and PM Peak Hour. The study scenarios considered in detail in this analysis include:

- Existing Year 2018;
- Existing Year 2018 With Project;
- Forecast Project Opening Year 2021 Without Project;
- Forecast Project Opening Year 2021 With Project;
- Forecast Project Horizon Year 2031 Without Project; and
- Forecast Project Horizon Year 2031 With Project.

The With Project scenarios include full Buildout of the project site. Additionally, for informational purposes, a "Vacant Parcels Alternative Development Scenario" analysis is provided. This analytic scenario provides an indication of likely traffic impacts that would result assuming development of site adjacent parcels within the Horizon Year (2031) timeframe.

Both City of Victorville and San Bernardino County thresholds of significance have been referenced in this evaluation.

The project proposes to construct a 7,590 square foot (SF) CarMax (used car dealership) located along Civic Drive, south of Roy Rogers Drive, within the City of Victorville. The proposed project is forecast to generate 205 daily trips which includes 32 Midday Peak Hour trips and 28 PM Peak Hour trips during a typical weekday.

Existing Year 2018 With Project

Under the Existing Year 2018 With Project conditions, the study intersections are forecast to operate at LOS D or better during both Peak Hours with the following exception:

- #2 – Civic Drive and Home Depot North Driveway/Project Site Driveway #2 (LOS E in the Midday Peak Hour and LOS E in the PM Peak Hour).

All roadway segments are projected to operate at LOS D or better under the Existing Year 2018 With Project condition.

Forecast Project Opening Year 2021 With Project

Under the Forecast Project Opening Year 2021 With Project conditions, the study intersections are forecast to operate at LOS D or better during both Peak Hours with the following exceptions:

- #2 – Civic Drive and Home Depot North Driveway/Project Site Driveway #2 (LOS F in the Midday Peak Hour and LOS E in the PM Peak Hour).
- #5 – Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive (LOS E in the PM Peak Hour)

All roadway segments are projected to operate at LOS D or better during the Forecast Project Opening Year 2021 Without Project scenario.

Forecast Project Horizon Year 2031 With Project

Under the Forecast Project Horizon Year 2031 With Project conditions, the study intersections are forecast to operate at LOS D or better during both Peak Hours with the following exceptions:

- #2 – Civic Drive and Home Depot North Driveway/Project Site Driveway #2 (LOS F in the Midday Peak Hour and LOS F in the PM Peak Hour).
- #5 – Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive (LOS F in the Midday Peak Hour and LOS F in the PM Peak Hour).

All roadway segments are projected to operate at LOS D or better during the Forecast Project Horizon Year 2031 With Project scenario.

Forecast Project Horizon Year 2031 With Vacant Parcels With Project (Vacant Parcels Alternative Development Scenario)

Under the Forecast Project Horizon Year 2031 With Vacant Parcels With Project conditions, the study intersections are forecast to operate at LOS D or better during both Peak Hours with the following exceptions:

- #2 – Civic Drive and Home Depot North Driveway/Project Site Driveway #2 (LOS F in the Midday Peak Hour and LOS F in the PM Peak Hour).

All roadway segments are projected to operate at LOS D or better under this scenario.

Mitigation Measure #1 – Intersection #2 (Civic Drive and Home Depot North Driveway/Project Site Driveway #2)

The deficient with-Project LOS conditions at study intersection #2 under Existing Year, Opening Year, and Horizon Year Conditions are attributed to the side street vehicle delays, particularly the eastbound and westbound left turns and through movements. The eastbound and westbound movements comprise local development traffic.

Given the proximity of intersection #2 to the existing signal at intersection #3, a traffic signal at this location is not considered feasible. Thus, signalization of intersection #1 was evaluated as a means to mitigate the projected impact at intersection #2 by providing an alternative safe and relatively convenient route for left turning traffic during the peak periods.

Although signalization of Intersection #1 could mitigate the impact under Existing Year and Opening Year Conditions, a traffic signal is not warranted at this intersection until sometime after the Project Opening Year and prior to Horizon Year conditions. Signalization of an intersection prior to warrant(s) satisfaction could result in unintended adverse impacts such as an increase in vehicle delay for all movements and an increase in traffic violations at the intersection. For this reason, it is recommended that a signal at intersection #1 not be installed until such time the City determines that applicable signal warrants have been met. Reflecting the above considerations, the following mitigation is proposed:

> *Following Project Opening, warrants should be evaluated at Intersection #1 and Intersection #2 with each subsequent development of the remaining three vacant parcels to determine when signal warrant(s) have been satisfied.*

Pending installation of this signal, LOS deficiencies would persist at study intersection #2. This is a significant and unavoidable impact.

Mitigation Measure #2 – Intersection #5 (Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive)

Impacts have been identified at the intersection of Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive (#5) during the Opening Year 2021 and the Horizon Year 2031. The recommended mitigation at this intersection involves the retiming of the traffic signals in order to accommodate the project site traffic. The retiming recommendation does not include modifications to the cycle length, but rather minor changes to the cycle splits. The Synchro analysis conducted for this intersection shows that shifting one second of green time from the Northbound approach to the Eastbound approach for the With Project conditions is projected to reduce the projected average delay to values equal to or less than the Without Project conditions, thus resulting in a mitigated condition. The following mitigation is proposed:

> *The City should communicate with Caltrans if Intersection #5 experiences excessive delays such that its operating efficiency would benefit from retiming of the traffic signal.*

Since study intersection #5 is under Caltrans jurisdiction, the City nor the applicant have plenary control over improvements at this location, and timely completion of required improvements cannot be assured. On this basis, pending completion of required improvements, project impacts at study intersection #5 would be significant and unavoidable.

Table 1-1 summarizes the proposed mitigation.

TABLE 1-1: SUMMARY OF PEAK HOUR INTERSECTION OPERATIONS WITH MITIGATION

Study Intersection	Without Project		With Project		Recommended Mitigation	With Project - WITH MITIGATION		Project Responsibility (% or $)
	MIDDAY	PM	MIDDAY	PM		MIDDAY	PM	
	Delay[1] - LOS	Delay[1] - LOS	Delay[1] - LOS	Delay[1] - LOS		Delay[1] - LOS	Delay[1] - LOS	
Existing Year 2018								
No impacts identified under this condition.								
Opening Year 2021								
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	**58.4 - F**	**44.7 - E**	**57.4 - F**	**48.5 - E**	None (2)	(2)	(2)	(2)
5 - Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive	50.9 - D	**58.3 - E**	52.2 - D	**58.9 - E**	Adjust traffic signal timing (minor modifications)	52.1 - D	**57.2 - E**	(3)
Horizon Year 2031								
1 - Civic Drive and Home Depot South Driveway / Project Site Driveway #1	18.4 - C	16.1 - C	18.7 - C	16.3 - C	Signalize	9.9 - A	11.1 - B	8.7% (4)
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	**126.2 - F**	**59.9 - F**	**130.9 - F**	**69.0 - F**	Traffic Volume Shift to New Signalized Intersection #1	31.2 - D	24.1 - C	--
5 - Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive	**96.6 - F**	**102.0 - F**	**97.6 - F**	**103.1 - F**	(4)	**95.0 - F**	**100.6 - F**	(4)
Horizon Year 2031 With Vacant Pads								
1 - Civic Drive and Home Depot South Driveway / Project Site Driveway #1	33.9 - D	25.3 - D	34.4 - D	25.5 - D	Signalize	12.4 - B	13.1 - B	4.7% (4)
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	**439.3 - F**	**206.6 - F**	**514.4 - F**	**242.1 - F**	Traffic Volume Shift to New Signalized Intersection #1	**41.9 - E**	30.3 - D	--

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

LOS = level of service.

[1] Seconds of delay per vehicle.

[2] Recommendation identified in the Horizon Year given the timing in which a signal warrant is projected to be met.

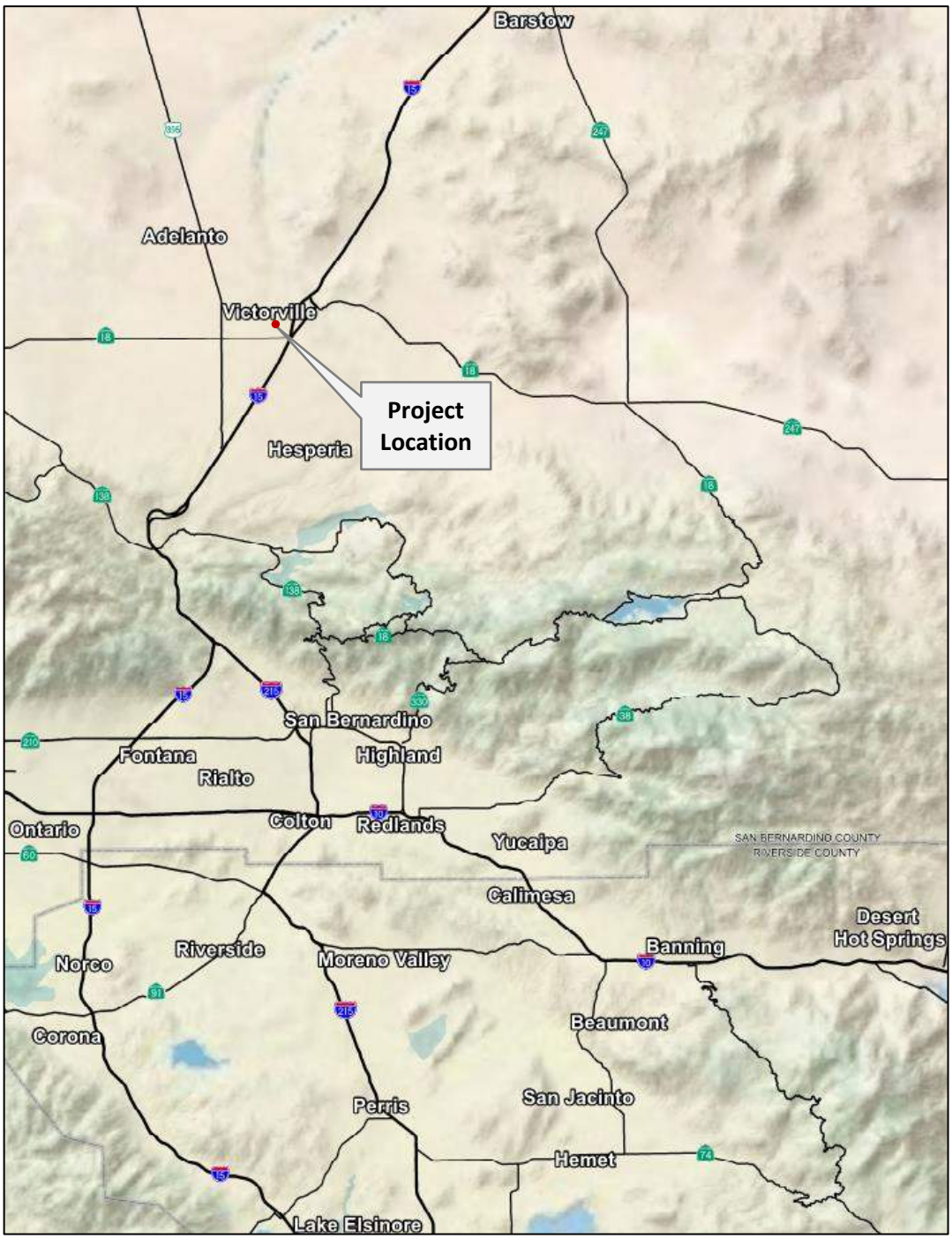
[3] Funding contribution for regional improvements to be based on the City of Victorville Development Impact Fee (DIF) Program.

[4] Mitigation measure and fair share responsibility determined in Opening Year 2021 With Project Conditions.

2 INTRODUCTION

This study analyzes the forecast traffic conditions associated with the proposed development of a CarMax used car dealership located along Civic Drive in the City of Victorville. **Exhibit 2-1** shows the project within the region. The proposed project includes a total building size of 7,590 square-feet.

EXHIBIT 2-1: PROJECT LOCATION



The proposed project is forecast to generate 205 daily trips which includes 32 Midday Peak Hour trips and 28 PM Peak Hour trips during a typical weekday. The Midday peak was evaluated as opposed to a more typical AM peak per the request of City staff during the traffic study scoping agreement phase of the study since the Midday peak is generally more congested near the site than the AM peak.

This traffic impact study has been prepared in accordance with the *County of San Bernardino Traffic Impact Study Guidelines* (Revised April 9, 2014), the *Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County* (2016 Update), and the City of Victorville *General Plan 2030*. The scope of this traffic study was coordinated with the City of Victorville.

2.1 STUDY AREA

The study evaluates five (5) intersections during the Midday Peak Hour and PM Peak Hour near the project site as listed in **Table 2-1** and shown in **Exhibit 2-2**:

TABLE 2-1: STUDY INTERSECTIONS

ID	Intersection	Existing Control	Jurisdiction
1	Civic Drive and Home Depot South Driveway/ Project Site Driveway #1	Stop-Controlled on Side Street	City
2	Civic Drive and Home Depot North Driveway/ Project Site Driveway #2	Stop-Controlled on Side Streets	City
3	Civic Drive and Roy Rogers Drive	Signalized	City
4	Roy Rogers Drive and I-15 Southbound Ramps	Signalized	Caltrans (CMP) [1]
5	Roy Rogers Drive and I-15 Northbound Ramps/La Paz Drive	Signalized	Caltrans (CMP)[1]

[1] I-15 has been identified as part of the Congestion Management Program (CMP) Road System, Victor Valley Region.

EXHIBIT 2-2: PROJECT STUDY INTERSECTIONS

2.2 ANALYSIS SCENARIOS

These study locations will be analyzed in the following study scenarios:

- Existing Year 2018;
- Existing Year 2018 With Project;
- Forecast Project Opening Year 2021 Without Project;
- Forecast Project Opening Year 2021 With Project;
- Forecast Project Horizon Year 2031 Without Project; and
- Forecast Project Horizon Year 2031 With Project.

The With Project scenarios include full Buildout of the project site. Analysis is conducted for Midday Peak Hour and PM Peak Hour.

Additionally, Horizon Year analysis will be conducted for an alternative development scenario which includes potential development at the currently vacant adjacent parcels (see **Section 10**).

2.3 ANALYSIS METHODOLOGY

Traffic operations analysis was conducted to determine the existing and projected capacity based on the *Highway Capacity Manual*, 6th edition (*HCM*), published by the Transportation Research Board in 2016. Level of Service (LOS), a qualitative measure describing traffic operational conditions, is a standard index of the service provided by a transportation facility and can range from LOS A (free-flow conditions) through LOS F (severely congested conditions).

2.3.1 Intersection Analysis Methodology

The *HCM* analysis methodology describes the operation of an intersection using a range of level of service from LOS A to LOS F, based on the corresponding stopped delay experienced per vehicle as shown in **Table 2-2**.

TABLE 2-2: HCM INTERSECTION LEVEL OF SERVICE & DELAY THRESHOLDS

Level of Service	Signalized Intersection Average Delay (seconds/vehicle)	Two-Way Stop-Controlled (seconds/vehicle)
LOS A	$x \leq 10$	$x \leq 10$
LOS B	$10 < x \leq 20$	$10 < x \leq 15$
LOS C	$20 < x \leq 35$	$15 < x \leq 25$
LOS D	$35 < x \leq 55$	$25 < x \leq 35$
LOS E	$55 < x \leq 80$	$35 < x \leq 50$
LOS F	$80 < x$	$50 < x$

Note: If the volume-to-capacity ratio (v/c) > 1.0, LOS = F.
Source: Highway Capacity Manual, 6th Edition.

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

The computer software program called *Synchro* (version 10) was used to analyze the study intersections. HCM 6th Edition results were obtained from Synchro output.

2.3.2 Roadway Analysis Methodology

Roadway segment LOS was examined for the City of Victorville local roadway segments within the project area using the LOS average daily traffic volume thresholds provided in the *Civic Center Community Sustainability Plan Traffic Study* (January 2014) prepared by the City. Capacity is determined by the number of lanes and roadway classification. The roadway LOS thresholds by roadway classification are summarized in **Table 2-3**.

TABLE 2-3: ROADWAY LEVEL OF SERVICE & VOLUME THRESHOLDS

Classification	Capacity				
	LOS A	LOS B	LOS C	LOS D	LOS E
Super Arterial (6)	33,900	39,400	45,000	50,600	56,300
Super Arterial (5)	28,250	32,830	37,500	42,170	46,920
Arterial-Divided (4)	22,500	26,300	30,000	33,800	37,500
Arterial-Undivided (4)	15,000	17,500	20,000	22,500	25,000
Collector (2)	11,300	13,200	15,000	17,000	18,800
Local (2)	7,500	8,800	10,000	11,300	12,500

2.4 THRESHOLDS OF SIGNIFICANCE

Both City of Victorville and San Bernardino County thresholds of significance have been referenced in this evaluation. Application of thresholds of significance vary by location. Detail regarding which thresholds apply to the individual analysis locations is contained in later sections of this document.

2.4.1 City of Victorville

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

- If a development project would worsen an intersection peak hour LOS to E or worse, it is considered a significant impact that must be mitigated.
- If a development project would worsen an already deficient intersection by **two percent or more**, it is considered a significant impact that must be mitigated.

These thresholds of significance apply to both intersections and roadway segments.

2.4.2 County of San Bernardino

To determine whether the addition of project-generated trips results in a significant impact at a study intersection, and thus requires mitigation, San Bernardino County TIA Guidelines utilizes the thresholds of significance defined below.

<u>Signalized Intersections:</u>

Any study intersection that is operating at a LOS 'A', 'B', 'C' or 'D' for any study scenario without project traffic in which the addition of project traffic causes the intersection to degrade to a LOS 'E' or 'F' shall mitigate the impact to bring the intersection back to at least LOS 'D'. Any study intersection that is operating at LOS 'E' or 'F' for any study scenario without project traffic shall mitigate any impacts to bring the intersection back to the overall level of delay established prior to project traffic being added.

<u>Un-signalized Intersections:</u>

An impact is considered significant if the study determines that either criteria a) or both criteria b) and c) occur.

The addition of project related traffic causes the intersection LOS to change from a LOS 'D' or better to a LOS 'E' or worse

OR

The project contributes additional traffic to an intersection that is already projected to operate at a LOS 'E' or 'F' with background traffic

AND

At least one or both of the following conditions are met:

1.) The project adds ten (10) or more trips to any approach

2.) The intersection meets the peak hour traffic signal warrant after the addition of project traffic

2.4.3 Caltrans

Caltrans does not have specific significance thresholds for determining project-related impacts at study intersections. Consistent with the Scoping Agreement, the above-noted San Bernardino County impact criteria were applied to Caltrans intersections in the study area.

2.5 CITY COORDINATION

A traffic study scoping agreement was prepared which incorporated comments from City staff. The scoping agreement coordination was conducted at a time when the proposed site included 11,447 square feet of space. The site plan was later reduced in size. The approach and assumptions contained in the scoping agreement were carried forward since the change in square footage resulted in a reduction in the number of project trips rather an increase. The scoping agreement and coordination documentation are contained in **Appendix A**.

An addendum to the scoping agreement was prepared to examine the potential vacant parcel development. This scoping agreement is contained in **Appendix B**.

3 EXISTING YEAR 2018 CONDITIONS

3.1 SURROUNDING ROADWAY NETWORK

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

Civic Drive is a four-lane roadway with a center two-way left turn lane (TWLTL) within the City of Victorville. It extends from Roy Rogers Drive in the north, through the Seneca Road intersection, and then turns to the west to connect to Amargosa Road. Civic Drive measures approximately 1 mile in length and includes two travel lanes per direction. Civic Drive is currently classified as an Arterial per the City of Victorville General Plan Circulation Element with the ultimate condition also classified as an Arterial. The posted speed limit is 45 miles per hour.

Roy Rogers Drive is an east-west roadway that varies between two and three travel lanes per direction. Roy Rogers Drive extends to the west beyond the City limits. West of the study area, Roy Rogers Drive changes names to Hook Boulevard. East of the I-15 Northbound Ramps, the roadway changes names to La Paz Drive and extends to the southeast. Roy Rogers Drive has an interchange with I-15 just east of Civic Drive. Roy Rogers Drive is currently classified as an Arterial per the City of Victorville General Plan Circulation Element. Under the ultimate condition, this roadway is classified as a Super Arterial Modified near Civic Drive and through the I-15 interchange, and a Super Arterial east of I-15. The posted speed limit is 45 miles per hour.

I-15 (Mojave Freeway) provides north-south regional access to the Victorville area with six-lanes plus paved shoulders. Interstate 15 originates in San Diego County, trending northeast-southwest through the City of Victorville. Interstate 15 is currently built to its ultimate classification as a four to six-lane freeway.

Exhibit 3-1 shows the Existing study intersection lane geometry.

3.2 EXISTING CITY OF VICTORVILLE CIRCULATION PLAN

Exhibit 3-2 shows the proposed City of Victorville General Plan Circulation Element Roadway System. This shows the classification and configuration of arterial highways planned to serve the ultimate development defined by the land use element of the General Plan.

Exhibit 3-3A and **Exhibit 3-3B** shows the proposed City of Victorville General Plan Circulation Element Roadway Classification Standards for the study area classifications.

EXHIBIT 3-1: EXISTING INTERSECTION LANE CONFIGURATIONS

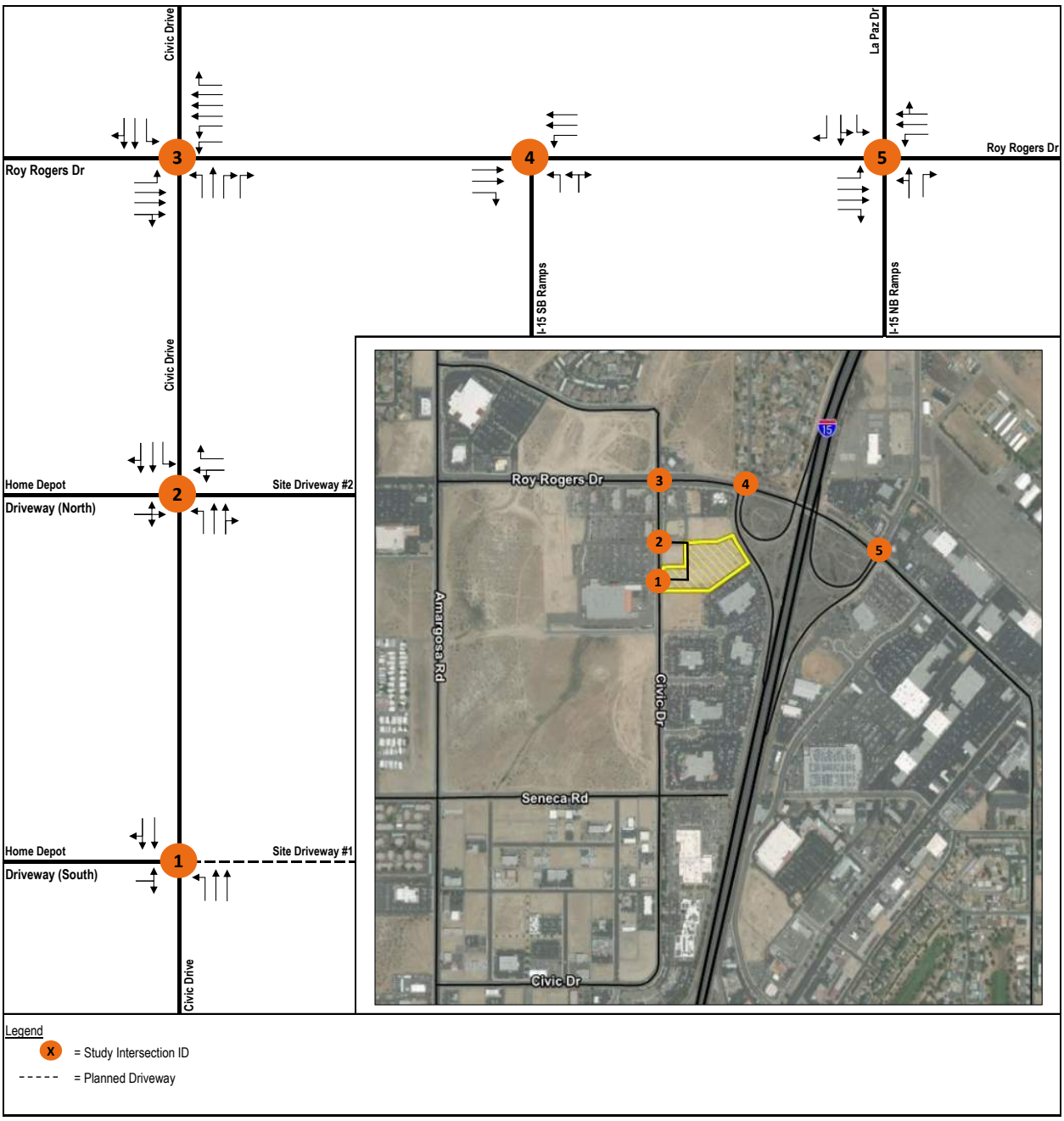


EXHIBIT 3-2: VICTORVILLE CIRCULATION ELEMENT ROADWAY SYSTEM

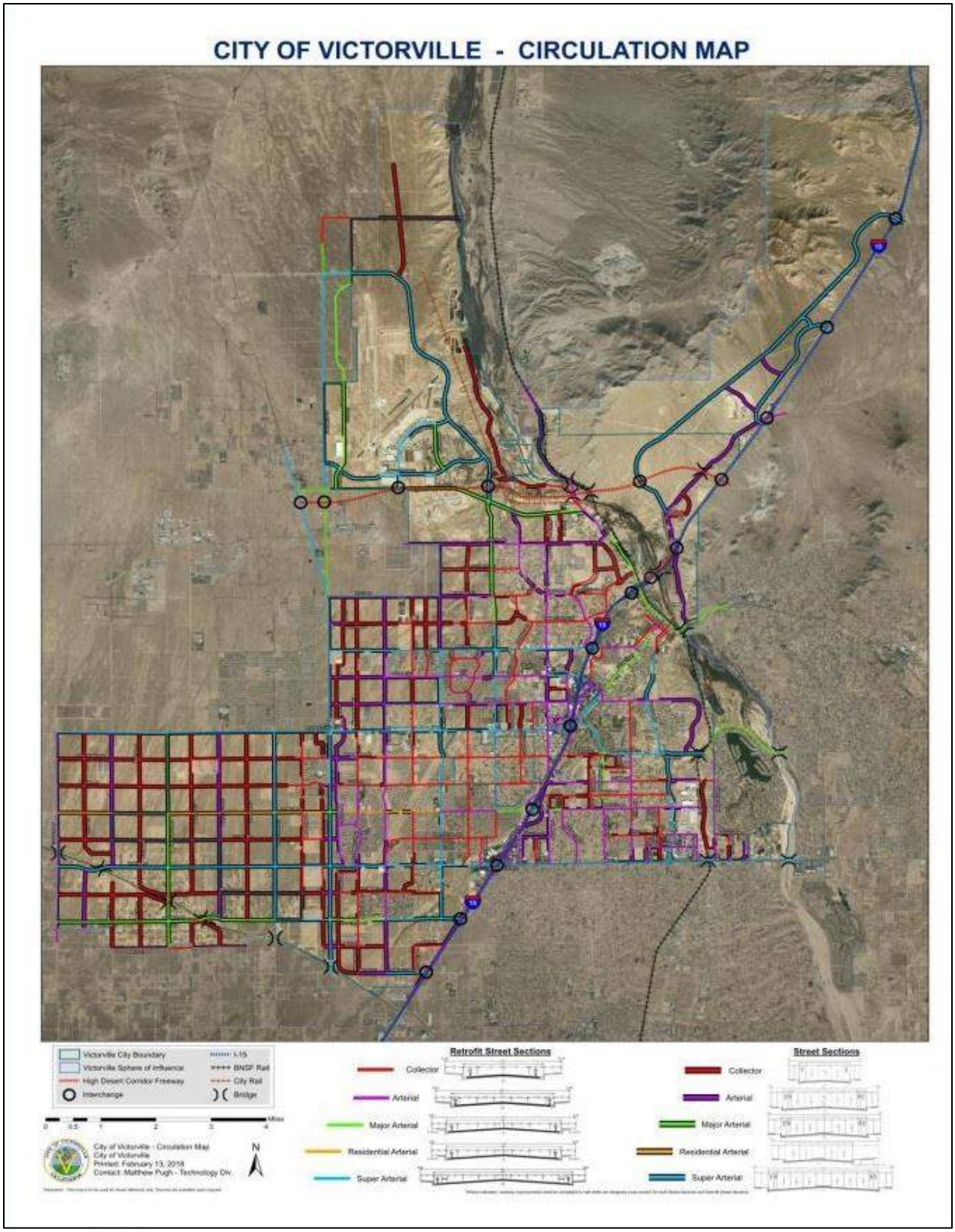


EXHIBIT 3-3A: CITY OF VICTORVILLE CIRCULATION ELEMENT ROADWAY CLASSIFICATION STANDARDS

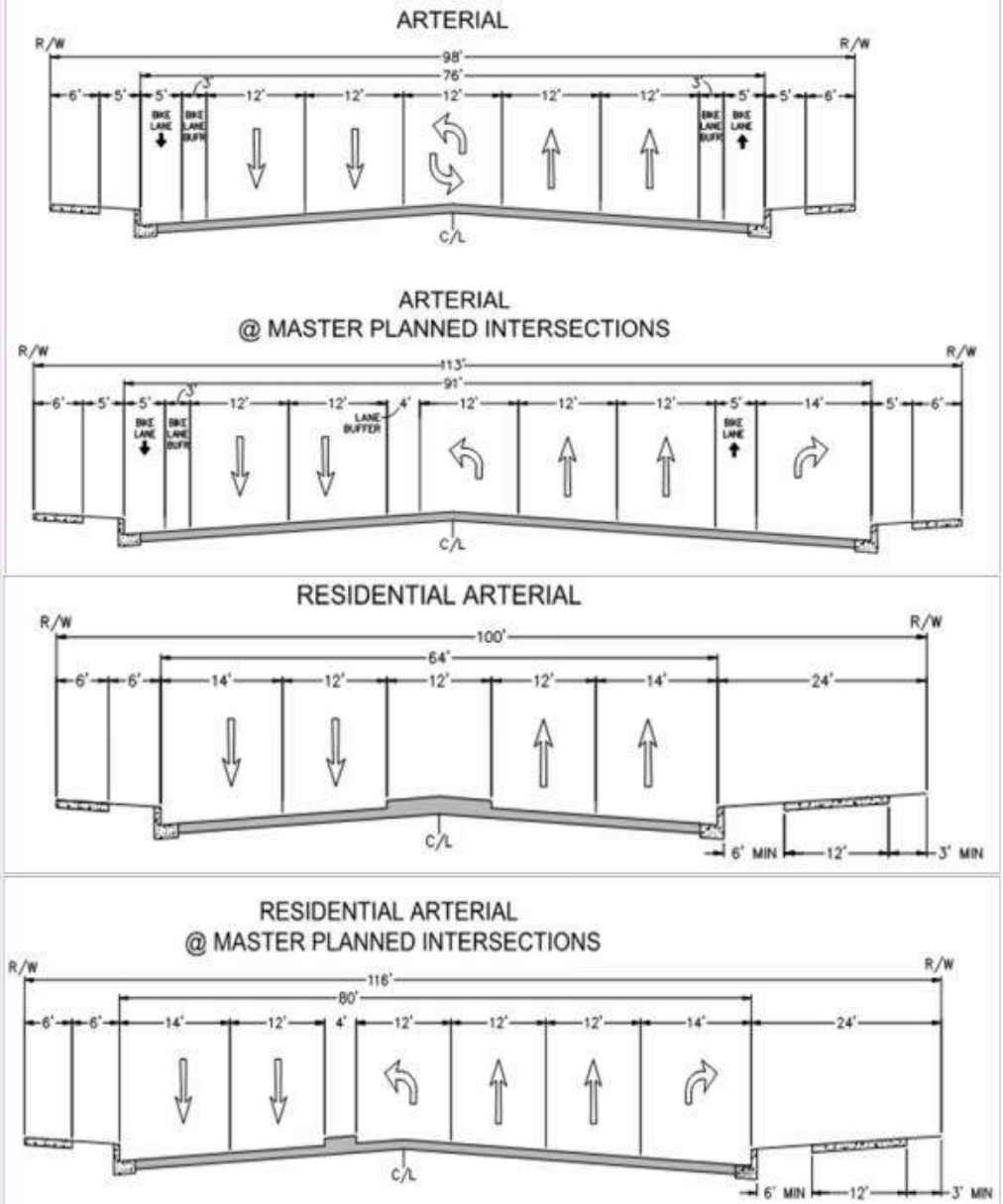


FIGURE CIRC-3B: STREET SECTIONS FOR NEW DEVELOPMENT

EXHIBIT 3-3B: CITY OF VICTORVILLE CIRCULATION ELEMENT ROADWAY CLASSIFICATION STANDARDS (CONT'D)

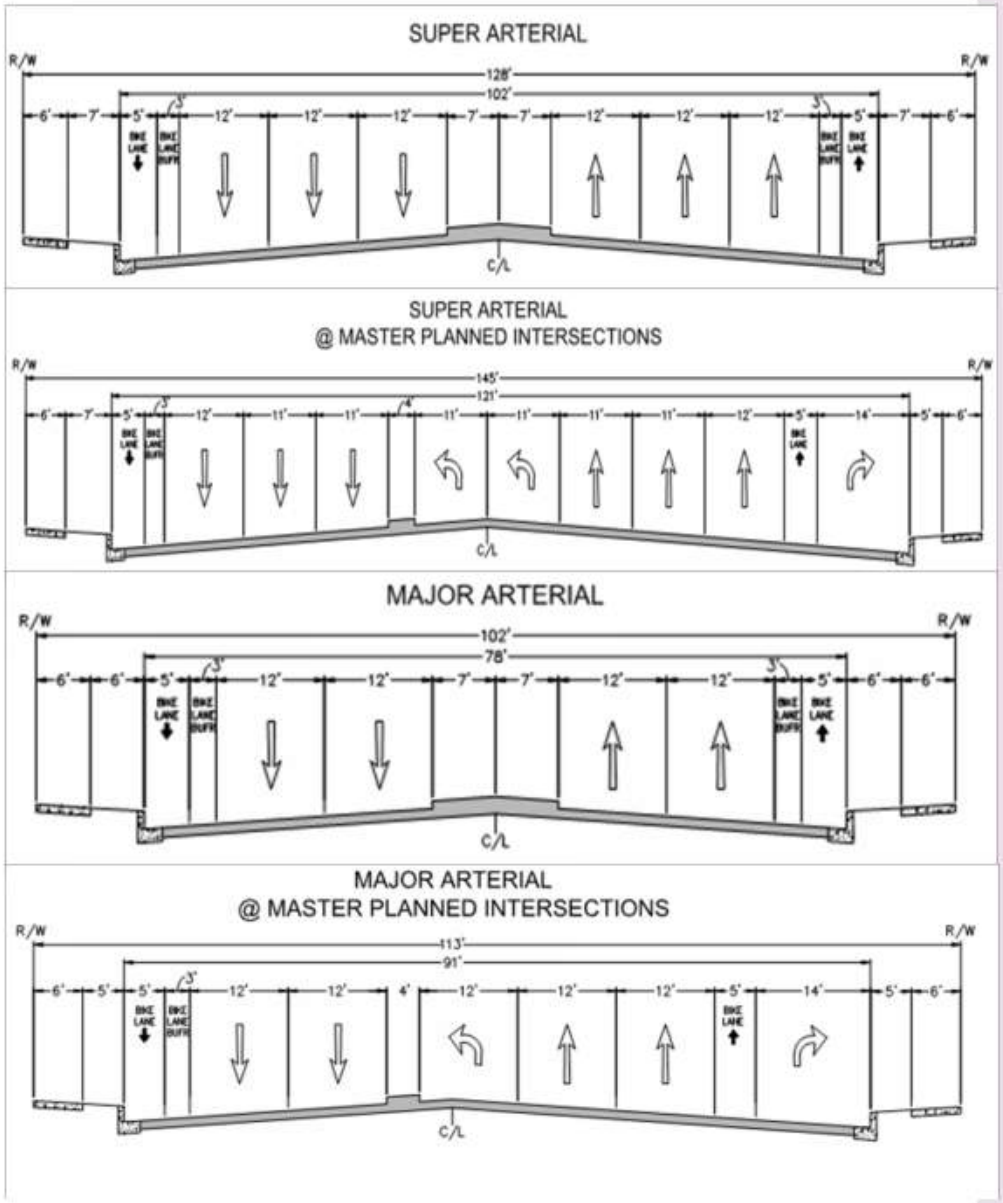


FIGURE CIRC-3B: STREET SECTIONS FOR NEW DEVELOPMENT

3.3 EXISTING YEAR 2018 TRAFFIC VOLUMES

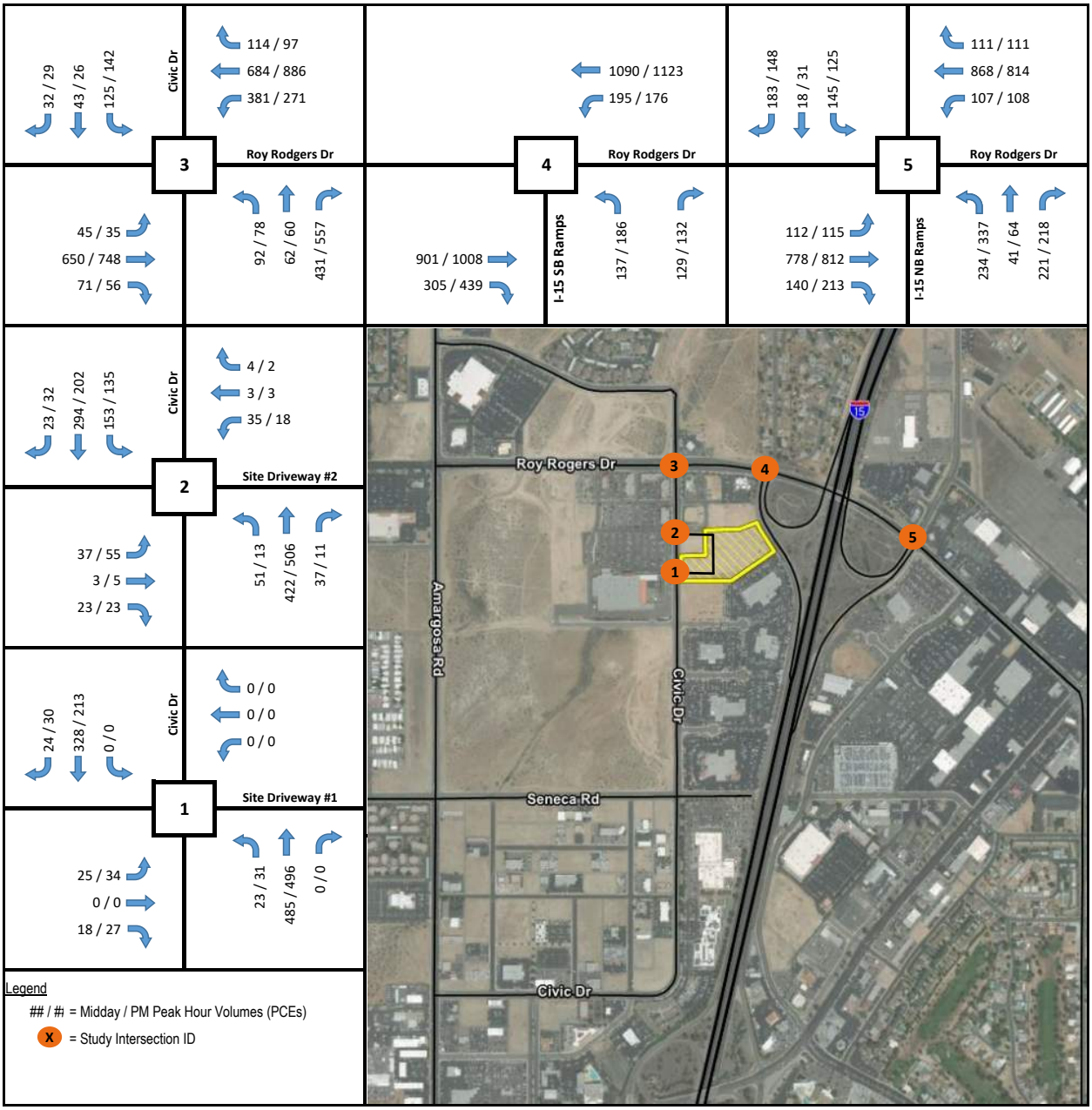
To determine the existing operations at the study intersections, peak hour intersection movement counts were collected in July 2018. The Midday peak period counts were collected between 11:30 AM and 1:30 PM and the PM peak period counts were collected from 4:00 PM to 6:00 PM. The counts used in this analysis were taken from the highest hour within the peak periods counted for each intersection. These counts were axle-specific and identified passenger cars, 2-axle trucks, 3-axle trucks, and 4+ axle trucks.

In order to account for truck traffic in the area, these raw volumes were converted to passenger car equivalents (PCE) in accordance with the *Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County*. The following factors were used to convert truck trips to PCE's:

- 2-axle trucks = 1.5 PCE
- 3-axle trucks = 2.0 PCE
- 4+ axle trucks = 3.0 PCE

Exhibit 3-4 shows the Existing Year 2018 Midday Peak Hour and PM Peak Hour traffic volumes at each of the study intersections. Detailed count data is contained in **Appendix C**.

EXHIBIT 3-4: EXISTING YEAR 2018 PEAK HOUR TRAFFIC VOLUMES



While daily traffic volume counts were not conducted, Average Daily Traffic (ADT) volumes were estimated by applying a factor to the peak hour traffic volumes at key locations within the traffic study area. The factor was calculated using data from the ITE *Trip Generation Manual,* specifically average daily versus peak hour ratios for land use codes likely served by these roadway facilities (New Automobile Sales, Used Automobile Sales, Home Improvement Superstore, Single Family Detached Housing, and Supermarket). The factor applied was 10.6, which equates to a K-factor (peak hour volume divided by ADT) of 0.094. Per the *HCM* 6th edition, K-factors for many rural and urban highways fall between 0.09 and 0.10. Thus, the factor utilized in this study to estimate the ADTs is consistent with *HCM* guidance.

Table 3-1 summarizes the Existing Year 2018 ADTs.

TABLE 3-1: EXISTING YEAR 2018 AVERAGE DAILY TRAFFIC VOLUMES

Segment	Location	Existing ADT
Civic Drive	Seneca Drive to South Driveway	8,130
	South Driveway to North Driveway	8,190
	North Driveway to Roy Rogers Drive	11,280
Roy Rogers Drive	Amargosa Road to Civic Drive	19,420
	Civic Drive to I-15 SB Ramps	28,630
	I-15 SB Ramps to I-15 NB Ramps	25,850
	East of I-15 NB Ramps	23,190

Note: Civic Drive and Roy Rogers Drive are City roadways.

3.4 EXISTING YEAR 2018 OPERATIONS ANALYSIS

Table 3-2 summarizes existing conditions Midday Peak Hour and PM Peak Hour level of service for all study intersections. Detailed analysis sheets are contained in **Appendix D**.

TABLE 3-2: EXISTING YEAR 2018 PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Existing Conditions	
		MIDDAY Delay[1] - LOS	PM Delay[1] - LOS
1 - Civic Drive and Home Depot South Driveway / Project Site Driveway #1	OWSC	14.5 - B	14.6 - B
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	TWSC	**47.0 - E**	**38.0 - E**
3 - Civic Drive and Roy Rogers Drive	Signal	16.0 - B	16.3 - B
4 - Roy Rogers Drive and I-15 Southbound Ramps	Signal	11.2 - B	13.5 - B
5 - Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive	Signal	41.2 - D	46.8 - D

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

[1] Average seconds of delay per vehicle.

LOS = level of service.

TWSC = Two-Way Stop Control

OWSC = One-Way Stop Control

As shown in **Table 3-2**, the study intersections are forecast to operate at LOS D or better during both Peak Hours with the following exception:

- #2 – Civic Drive and Home Depot North Driveway/Project Site Driveway #2 (LOS E in the Midday Peak Hour and LOS E in the PM Peak Hour).

As stated previously, the LOS for the stop-controlled intersections is based on the worst stop-controlled approach. **Table 3-3** summarizes Existing daily volume level of service for the roadway segments.

TABLE 3-3: EXISTING YEAR 2018 ROADWAY LOS

Segment	Location	Classification (No. Lanes)	LOS D Capacity	Existing		
				ADT	V/C	LOS
Civic Drive	Seneca Drive to South Driveway	Arterial-Divided (4)	33,800	8,130	0.241	A
	South Driveway to North Driveway	Arterial-Divided (4)	33,800	8,190	0.242	A
	North Driveway to Roy Rogers Drive	Arterial-Divided (4)	33,800	11,280	0.334	A
Roy Rogers Drive	Amargosa Road to Civic Drive	Super Arterial (5)	42,170	19,420	0.461	A
	Civic Drive to I-15 SB Ramps	Super Arterial (5)	42,170	28,630	0.679	B
	I-15 SB Ramps to I-15 NB Ramps	Arterial-Divided (4)	33,800	25,850	0.765	B
	East of I-15 NB Ramps	Arterial-Divided (4)	33,800	23,190	0.686	B

Note: Deficient roadway segment operations shown in **bold**

LOS= Level of Service

ADT= Average Daily Traffic

V/C= Volume to Capacity Ratio

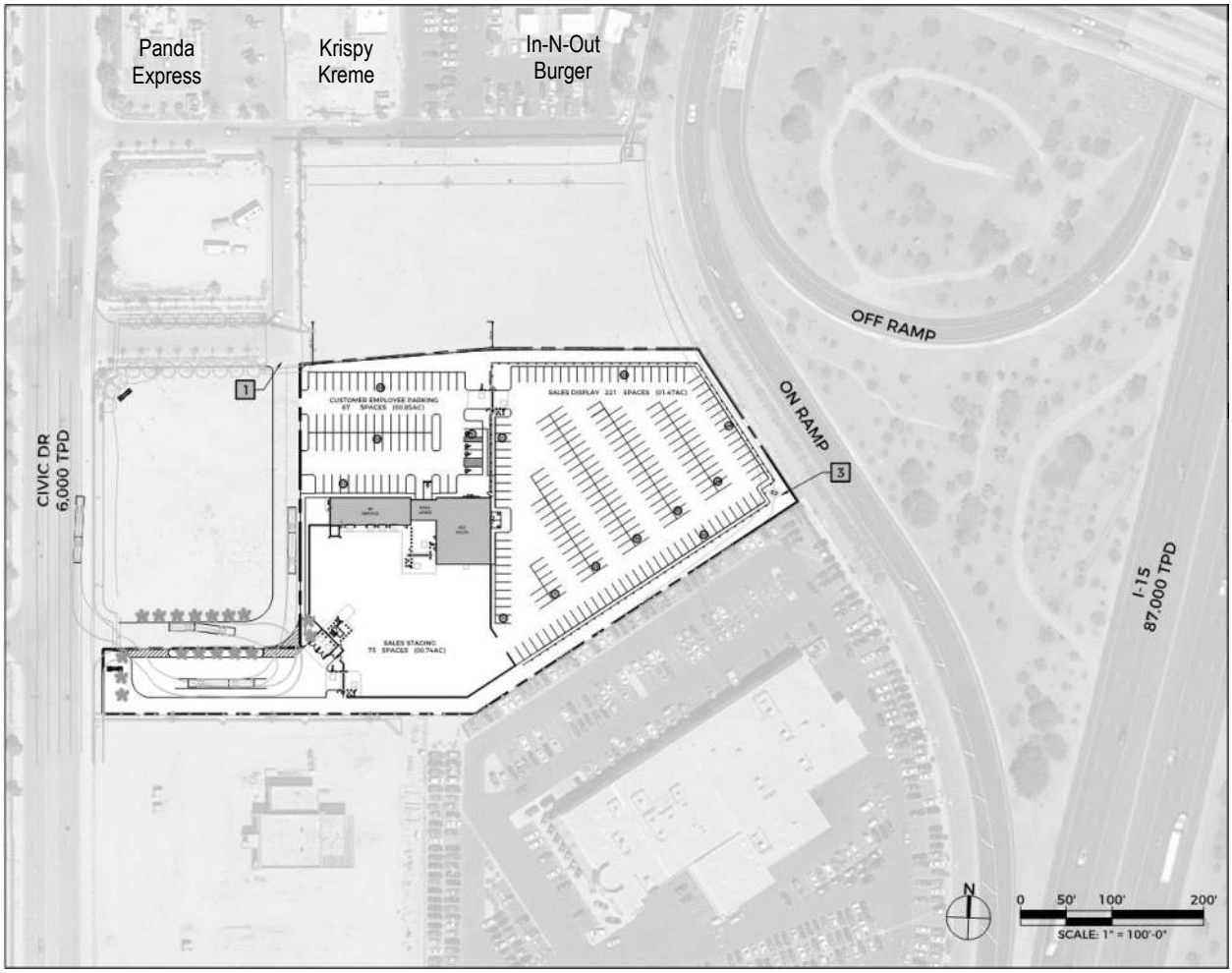
LOS D Capacity used to calculate v/c; LOS determined based on ADT volume thresholds

As shown, all roadway segments are currently operating at LOS D or better.

4 PROPOSED PROJECT

The project proposes to construct a 7,590 square foot (SF) CarMax (used car dealership) on 4.76 acres, located along Civic Drive, south of Roy Rogers Drive, within the City of Victorville. **Exhibit 4-1** shows the project site plan.

EXHIBIT 4-1: PROJECT SITE PLAN



The site is located on the east side of Civic Drive and two (2) points of vehicular access are proposed along Civic Drive. The northern site access (Site Driveway #2) is proposed to connect to an existing roadway which also connects to the three (3) existing restaurants (Panda Express, Krispy Kreme, and In-N-Out Burger) to the north. The southern site access (Site Driveway #1) provides direct site access along Civic Drive. A curb cut currently exits at the southern site driveway location which provides access to the undeveloped property. The southern driveway lines up with a driveway to the existing Home Depot located on the west side of Civic Drive.

Project Opening Year is expected to be 2021.

4.1 PROJECT FORECAST TRIP GENERATION

In order to calculate vehicle trips forecast to be generated by the proposed projects, the *Institute of Transportation Engineers (ITE) 10th Edition Trip Generation Manual* trip generation rates were utilized. **Table 4-1** summarizes the ITE trip generation rates utilized for this project.

TABLE 4-1: ITE TRIP GENERATION RATES

Land Use	ITE Code	Daily Trips		Midday Peak Hour Trips		PM Peak Hour Trips	
		Rate	In : Out	Rate	In : Out	Rate	In : Out
Automobile Sales (Used)	841	27.06 / KSF	50% : 50%	4.21 / KSF	58% : 42%	3.75 / KSF	47% : 53%

Notes:
Source: ITE Trip Generation Manual, 10th Edition
Midday Peak Hour trip rate based on AM Peak Hour of Generator
PM Peak Hour trip rate based on PM Peak of Adjacent Street.
KSF = Thousand Square Feet

Table 4-2 shows the vehicular trip generation forecast to be generated for the proposed project. PCE conversion factors were not applied to the project trips given the passenger car nature of the proposed project.

TABLE 4-2: PROPOSED PROJECT TRIP SUMMARY

Land Use	ITE Code	Intensity		Daily Trips			Midday Peak Hour Trips			PM Peak Hour Trips		
				Total	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound
Automobile Sales (Used)	841	7,590	SF	205	103	103	32	19	13	28	13	15

Notes:
Source: ITE Trip Generation Manual, 10th Edition
Midday Peak Hour trip rate based on AM Peak Hour of Generator
PM Peak Hour trip rate based on PM Peak of Adjacent Street.
KSF = Thousand Square Feet

As shown in **Table 4-2**, the project is forecast to generate 205 daily trips with 32 trips occurring during the Midday Peak Hour (19 in / 13 out) and 28 trips occurring during the PM Peak Hour (13 in / 15 out).

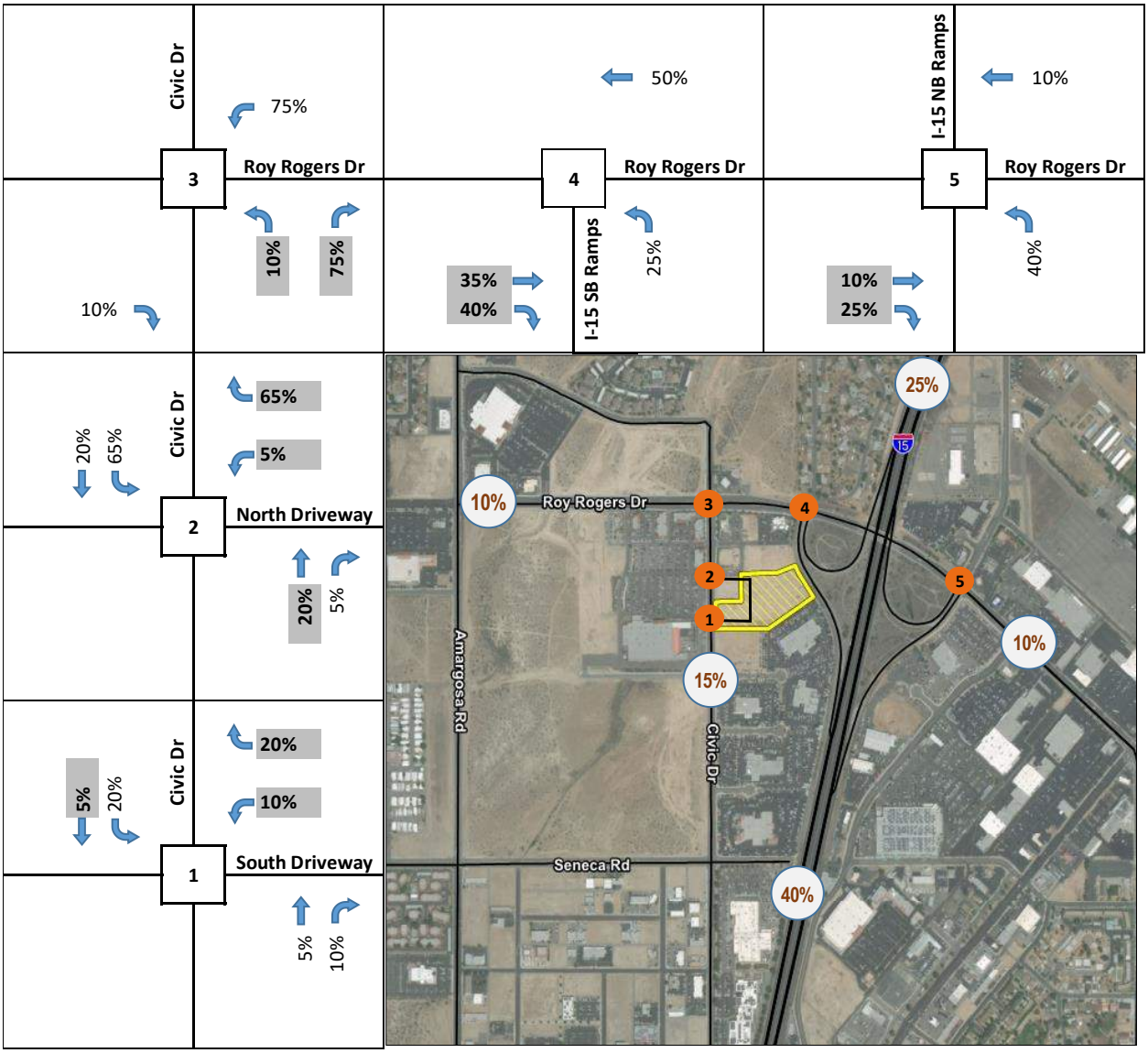
4.2 TRIP DISTRIBUTION AND TRIP ASSIGNMENT OF PROPOSED PROJECT

Trip distribution was projected based on existing traffic patterns in the area and the nature of the proposed project use. The trip distribution was coordinated with City staff. The forecast trip percent distribution for the proposed project is as follows:

- Civic Drive to the South = 15%
- Roy Rogers Drive to the East (East of I-15) = 10%
- Roy Rogers Drive to the West (West of I-15) = 10%
- I-15 to the North = 25%
- I-15 to the South = 40%

Exhibit 4-2 shows the forecast trip percent distribution of the proposed project within the study area and the trip assignment percentages for each intersection movement.

EXHIBIT 4-2: PROJECT TRAFFIC DISTRIBUTION AND ASSIGNMENT PERCENTAGES



Legend

XX% = Inbound Intersection Distribution Percentage

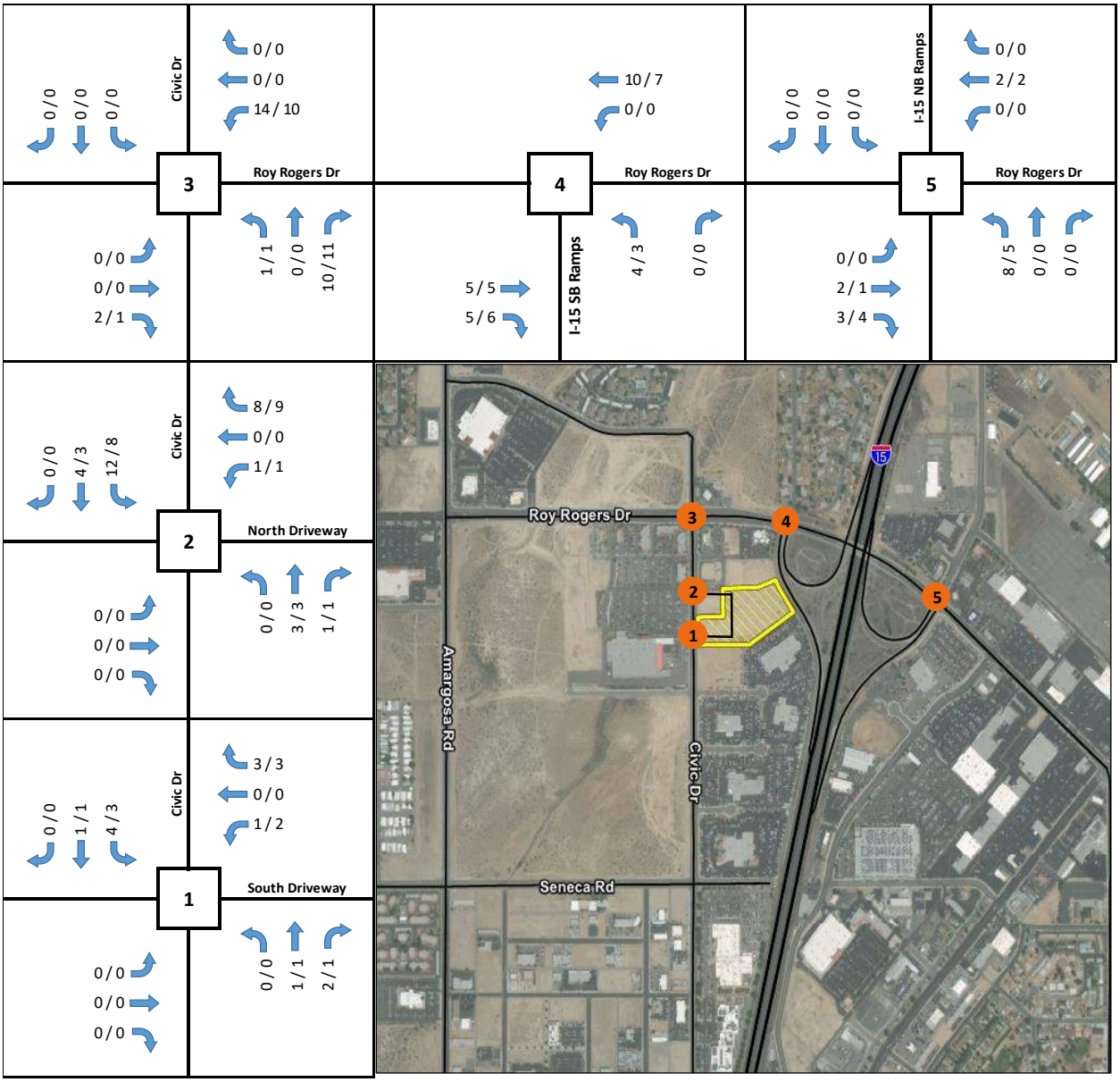
XX% = Outbound Intersection Distribution Percentage

X% = Regional Distribution Percentage

X = Study Intersection ID

Exhibit 4-3 shows the corresponding forecast assignment of Midday Peak Hour and PM Peak Hour project-generated trips assuming the trip percent distribution shown in **Exhibit 4-2**.

EXHIBIT 4-3: PROJECT TRAFFIC PEAK HOUR TRIP ASSIGNMENT

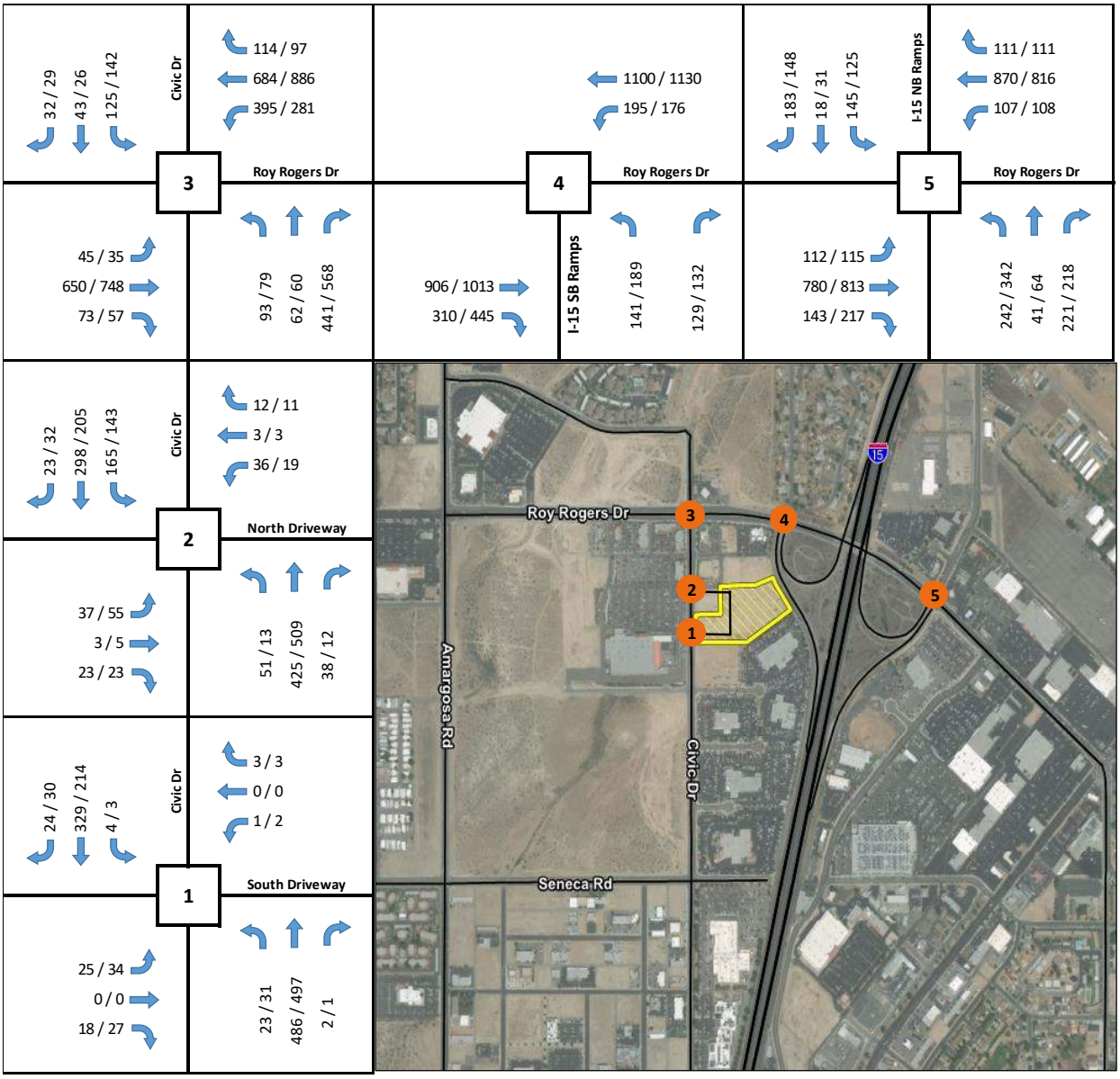


5 EXISTING YEAR 2018 WITH PROJECT

5.1 EXISTING YEAR 2018 WITH PROJECT TRAFFIC VOLUMES

Existing Year 2018 With Project traffic volumes are derived by adding trips forecast to be generated by the proposed project to Existing traffic volumes. **Exhibit 5-1** shows the forecast Existing Year 2018 With Project Midday Peak Hour and PM Peak Hour volumes at each of study intersections.

EXHIBIT 5-1: EXISTING YEAR 2018 WITH PROJECT PEAK HOUR VOLUMES



Legend

/ # = Midday / PM Peak Hour Volumes

X = Study Intersection ID

Average Daily Traffic (ADT) volumes were estimated by applying a factor of 10.6 to the peak hour traffic volumes at key locations within the traffic study area. **Table 5-1** summarizes the Existing With Project ADTs.

TABLE 5-1: EXISTING YEAR 2018 WITH PROJECT AVERAGE DAILY TRAFFIC VOLUMES

Segment	Location	Existing With Project ADT
Civic Drive	Seneca Drive to South Driveway	8,161
	South Driveway to North Driveway	8,241
	North Driveway to Roy Rogers Drive	11,454
Roy Rogers Drive	Amargosa Road to Civic Drive	19,441
	Civic Drive to I-15 SB Ramps	28,784
	I-15 SB Ramps to I-15 NB Ramps	25,953
	East of I-15 NB Ramps	23,211

Note: Civic Drive and Roy Rogers Drive are City roadways.

5.2 EXISTING YEAR 2018 WITH PROJECT OPERATIONS ANALYSIS

Table 5-2 summarizes Existing With Project Peak Hour level of service for all study intersections. Detailed analysis sheets are contained in **Appendix E**.

TABLE 5-2: EXISTING YEAR 2018 WITH PROJECT PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Existing With Project Conditions	
		MIDDAY Delay[1] - LOS	PM Delay[1] - LOS
1 - Civic Drive and Home Depot South Driveway / Project Site Driveway #1	OWSC	14.6 - B	14.9 - B
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	TWSC	**45.7 - E**	**38.1 - E**
3 - Civic Drive and Roy Rogers Drive	Signal	16.1 - B	16.5 - B
4 - Roy Rogers Drive and I-15 Southbound Ramps	Signal	11.2 - B	13.7 - B
5 - Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive	Signal	42.1 - D	47.5 - D

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

[1] Average seconds of delay per vehicle.

LOS = level of service.

TWSC = Two-Way Stop Control

OWSC = One-Way Stop Control

As shown in **Table 5-2**, the study intersections are forecast to operate at LOS D or better during both Peak Hours with the addition of project-related traffic to existing traffic volumes, with the following exception:

- #2 – Civic Drive and Home Depot North Driveway/Project Site Driveway #2 (LOS E in the Midday Peak Hour and LOS E in the PM Peak Hour).

As mentioned previously, the LOS for the stop-controlled intersections is based on the worst stop-controlled approach.

Table 5-3 summarizes Existing With Project roadway segment level of service.

TABLE 5-3: EXISTING YEAR 2018 WITH PROJECT ROADWAY LOS

Segment	Location	Classification (No. Lanes)	LOS D Capacity	Existing With Project		
				ADT	V/C	LOS
Civic Drive	Seneca Drive to South Driveway	Arterial-Divided (4)	33,800	8,161	0.241	A
	South Driveway to North Driveway	Arterial-Divided (4)	33,800	8,241	0.244	A
	North Driveway to Roy Rogers Drive	Arterial-Divided (4)	33,800	11,454	0.339	A
Roy Rogers Drive	Amargosa Road to Civic Drive	Super Arterial (5)	42,170	19,441	0.461	A
	Civic Drive to I-15 SB Ramps	Super Arterial (5)	42,170	28,784	0.683	B
	I-15 SB Ramps to I-15 NB Ramps	Arterial-Divided (4)	33,800	25,953	0.768	B
	East of I-15 NB Ramps	Arterial-Divided (4)	33,800	23,211	0.687	B

Note: Deficient roadway segment operations shown in **bold**

LOS= Level of Service

ADT= Average Daily Traffic

V/C= Volume to Capacity Ratio

LOS D Capacity used to calculate v/c; LOS determined based on ADT volume thresholds

As shown, all roadway segments are projected to operate at LOS D or better under the Existing Year 2018 With Project condition.

5.3 EXISTING YEAR 2018 COMPARISON

Table 5-4 summarizes Existing Year 2018 Without Project and With Project intersection analysis comparison, including identification of impacted intersections.

TABLE 5-4: EXISTING YEAR 2018 INTERSECTION OPERATIONS COMPARISON

Study Intersection	Existing Conditions		Existing With Project Conditions		Change in Delay (sec.)		Significance Criteria	Significant Impact?	
	MIDDAY	PM	MIDDAY	PM					
	Delay[1] - LOS	Delay[1] - LOS	Delay[1] - LOS	Delay[1] - LOS	MIDDAY	PM		MIDDAY	PM
1 - Civic Drive and Home Depot South Driveway / Project Site Driveway #1	14.5 - B	14.6 - B	14.6 - B	14.9 - B	0.1	0.3	City	No	No
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	**47.0 - E**	**38.0 - E**	**45.7 - E**	**38.1 - E**	-1.3	0.1	City	No	No
3 - Civic Drive and Roy Rogers Drive	16.0 - B	16.3 - B	16.1 - B	16.5 - B	0.1	0.2	City	No	No
4 - Roy Rogers Drive and I-15 Southbound Ramps	11.2 - B	13.5 - B	11.2 - B	13.7 - B	0.0	0.2	County	No	No
5 - Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive	41.2 - D	46.8 - D	42.1 - D	47.5 - D	0.9	0.7	County	No	No

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

[1] Seconds of delay per vehicle.

LOS = level of service.

As shown in **Table 5-4**, impacts which require mitigation have not been identified.

Table 5-5 summarizes Existing Year 2018 Without Project and With Project roadway segment analysis comparison, including identification impacted segments.

TABLE 5-5: EXISTING YEAR 2018 ROADWAY SEGMENT OPERATIONS COMPARISON

Segment	Location	Classification (No. Lanes)	LOS D Capacity	Existing			Existing Plus Project			Δ V/C	Signficant Impact?
				ADT	V/C	LOS	ADT	V/C	LOS		
Civic Drive	Seneca Drive to South Driveway	Arterial-Divided (4)	33,800	8,130	0.241	A	8,161	0.241	A	0.001	No
	South Driveway to North Driveway	Arterial-Divided (4)	33,800	8,190	0.242	A	8,241	0.244	A	0.002	No
	North Driveway to Roy Rogers Drive	Arterial-Divided (4)	33,800	11,280	0.334	A	11,454	0.339	A	0.005	No
Roy Rogers Drive	Amargosa Road to Civic Drive	Super Arterial (5)	42,170	19,420	0.461	A	19,441	0.461	A	0.000	No
	Civic Drive to I-15 SB Ramps	Super Arterial (5)	42,170	28,630	0.679	B	28,784	0.683	B	0.004	No
	I-15 SB Ramps to I-15 NB Ramps	Arterial-Divided (4)	33,800	25,850	0.765	B	25,953	0.768	B	0.003	No
	East of I-15 NB Ramps	Arterial-Divided (4)	33,800	23,190	0.686	B	23,211	0.687	B	0.001	No

LOS= Level of Service

V/C= Volume to Capacity Ratio

Δ= Difference

LOS D Capacity used to calculate v/c; LOS determined based on ADT volume thresholds

As shown in **Table 5-5**, impacts have not been identified as part of the roadway segment analysis.

6 FORECAST PROJECT OPENING YEAR 2021 WITHOUT PROJECT

6.1 FORECAST PROJECT OPENING YEAR 2021 WITHOUT PROJECT TRAFFIC VOLUMES

To derive the Forecast Project Opening Year 2021 Without Project traffic volumes, an annual growth rate of 2% per year was applied to Existing Year 2018 traffic volumes to account for general regional growth in the vicinity of the project site. The 2% growth rate was provided by City staff. Additionally, approved or pending projects within the City of Victorville that are anticipated to be completed prior to project opening and forecast to contribute traffic to the study area were identified. Forecast traffic related to these future developments were added to the Existing plus ambient growth traffic volumes to develop the Forecast Opening Year 2021 Without Project traffic volumes.

Table 6-1 presents the list of cumulative projects and estimated forecast project trips identified with the direction of City staff and through additional research. Three (3) cumulative projects were found to contribute traffic to the project's study area

TABLE 6-1: CUMULATIVE PROJECTS LIST AND FORECAST TRIPS

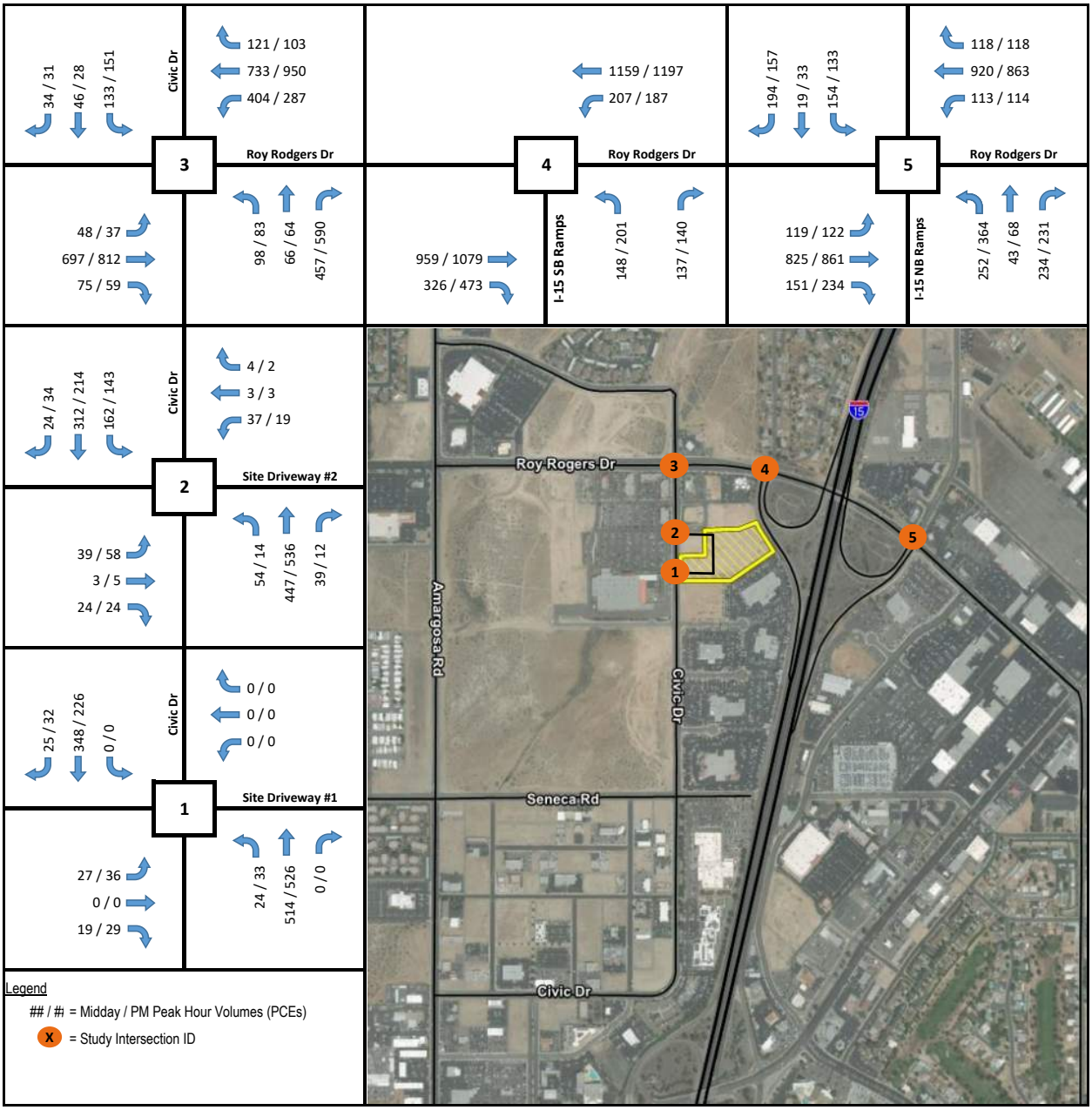
Project		Land Use	Size		ADT	Midday Peak Hour			PM Peak Hour		
						Total	Inbound	Outbound	Total	Inbound	Outbound
1	TT-05-047	Single Family Dwelling Units	288	DU's	2,752	149	74	74	285	180	105
2	TT-05-046	Single Family Dwelling Units	165	DU's	1,648	89	44	44	164	103	61
3	TT-05-026	Single Family Dwelling Units	171	DU's	1,703	92	46	46	170	107	63
Total Cumulative Project Trips					6,103	330	164	164	619	390	229

Note: all volumes are in passenger car equivalents (PCE's)
DU = Dwelling Units

Exhibit 6-1 shows the Forecast Project Opening Year 2021 Without Project Peak Hour volumes at each of the study intersections.

Additionally, the property near the site includes three (3) vacant parcels. Development is currently not planned or approved for those parcels; however, an additional analysis scenario which examines potential development at those parcels is include in **Section 10** of this report.

EXHIBIT 6-1: FORECAST PROJECT OPENING YEAR 2021 WITHOUT PROJECT PEAK HOUR VOLUMES



Average Daily Traffic (ADT) volumes were estimated by applying a factor of 10.6 to the peak hour traffic volumes at key locations within the traffic study area. **Table 6-2** summarizes the Forecast Project Opening Year 2021 Without Project ADTs.

TABLE 6-2: FORECAST PROJECT OPENING YEAR 2021 WITHOUT PROJECT AVERAGE DAILY TRAFFIC VOLUMES

Segment	Location	Opening Year Without Project ADT
Civic Drive	Seneca Drive to South Driveway	8,630
	South Driveway to North Driveway	8,690
	North Driveway to Roy Rogers Drive	11,960
Roy Rogers Drive	Amargosa Road to Civic Drive	20,900
	Civic Drive to I-15 SB Ramps	30,660
	I-15 SB Ramps to I-15 NB Ramps	27,540
	East of I-15 NB Ramps	24,590

Note: Civic Drive and Roy Rogers Drive are City roadways.

6.2 FORECAST PROJECT OPENING YEAR 2021 WITHOUT PROJECT OPERATIONS ANALYSIS

Table 6-3 summarizes Forecast Project Opening Year 2021 Without Project Peak Hour level of service for all study intersections. Detailed analysis sheets are contained in **Appendix F**.

TABLE 6-3: FORECAST PROJECT OPENING YEAR 2021 WITHOUT PROJECT PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Opening Year 2021 Conditions					
		MIDDAY			PM		
		Delay[1]	-	LOS	Delay[1]	-	LOS
1 - Civic Drive and Home Depot South Driveway / Project Site Driveway #1	OWSC	15.2	-	C	15.4	-	C
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	TWSC	**58.4**	-	**F**	**44.7**	-	**E**
3 - Civic Drive and Roy Rogers Drive	Signal	16.7	-	B	17.3	-	B
4 - Roy Rogers Drive and I-15 Southbound Ramps	Signal	11.9	-	B	15.3	-	B
5 - Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive	Signal	50.9	-	D	**58.3**	-	**E**

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

[1] Average seconds of delay per vehicle.

LOS = level of service.

TWSC = Two-Way Stop Control

OWSC = One-Way Stop Control

As shown in **Table 6-3**, the study intersections are forecast to operate at LOS D or better during both Peak Hours under the Forecast Project Opening Year 2021 Without Project conditions with the following exceptions:

- #2 – Civic Drive and Home Depot North Driveway/Project Site Driveway #2 (LOS F in the Midday Peak Hour and LOS E in the PM Peak Hour).
- #5 – Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive (LOS E in the PM Peak Hour).

Table 6-4 summarizes Forecast Project Opening Year 2021 Without Project roadway segment level of service.

TABLE 6-4: FORECAST PROJECT OPENING YEAR 2021 WITHOUT PROJECT ROADWAY LOS

Segment	Location	Classification (No. Lanes)	LOS D Capacity	Opening Year Without Project		
				ADT	V/C	LOS
Civic Drive	Seneca Drive to South Driveway	Arterial-Divided (4)	33,800	8,630	0.255	A
	South Driveway to North Driveway	Arterial-Divided (4)	33,800	8,690	0.257	A
	North Driveway to Roy Rogers Drive	Arterial-Divided (4)	33,800	11,960	0.354	A
Roy Rogers Drive	Amargosa Road to Civic Drive	Super Arterial (5)	42,170	20,900	0.496	A
	Civic Drive to I-15 SB Ramps	Super Arterial (5)	42,170	30,660	0.727	B
	I-15 SB Ramps to I-15 NB Ramps	Arterial-Divided (4)	33,800	27,540	0.815	C
	East of I-15 NB Ramps	Arterial-Divided (4)	33,800	24,590	0.728	B

Note: Deficient roadway segment operations shown in **bold** LOS= Level of Service
ADT= Average Daily Traffic V/C= Volume to Capacity Ratio
LOS D Capacity used to calculate v/c; LOS determined based on ADT volume thresholds

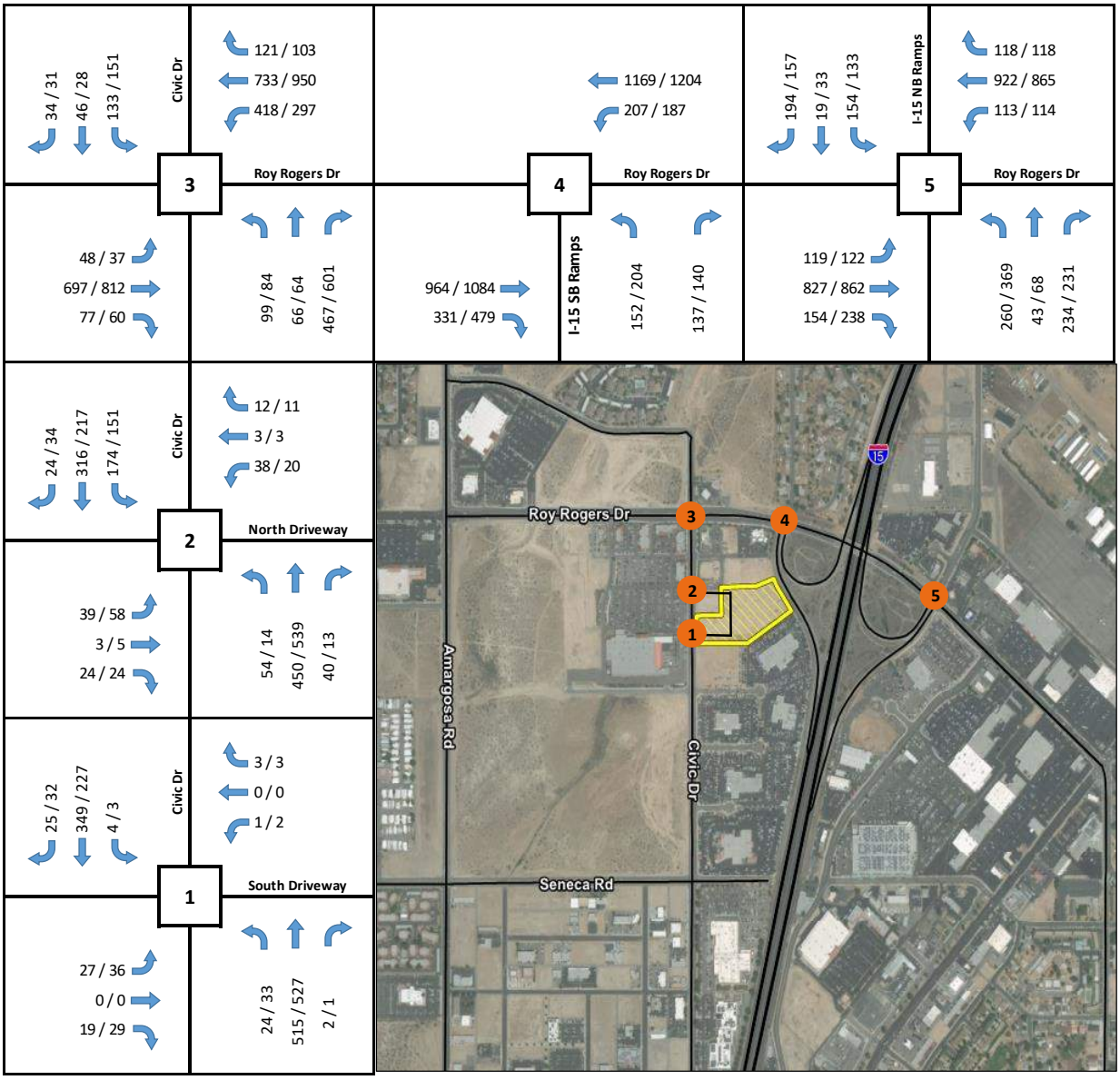
As shown in **Table 6-4**, all roadway segments are projected to operate at LOS D or better during the Forecast Project Opening Year 2021 Without Project scenario.

7 FORECAST PROJECT OPENING YEAR 2021 WITH PROJECT

7.1 FORECAST PROJECT OPENING YEAR 2021 WITH PROJECT TRAFFIC VOLUMES

Forecast Project Opening Year 2021 With Project traffic volumes are derived by adding trips forecast to be generated by the proposed project to Forecast Opening Year 2021 Without Project conditions. **Exhibit 7-1** shows the Forecast Project Opening Year 2021 With Project Peak Hour volumes at each of the study intersections.

EXHIBIT 7-1: FORECAST PROJECT OPENING YEAR 2021 WITH PROJECT PEAK HOUR VOLUMES



Legend

/ #: = Midday / PM Peak Hour Volumes

X = Study Intersection ID

Average Daily Traffic (ADT) volumes were estimated by applying a factor of 10.6 to the peak hour traffic volumes at key locations within the traffic study area. **Table 7-1** summarizes the Forecast Project Opening Year 2021 With Project ADTs.

TABLE 7-1: FORECAST PROJECT OPENING YEAR 2021 WITH PROJECT AVERAGE DAILY TRAFFIC VOLUMES

Segment	Location	Opening Year With Project ADT
Civic Drive	Seneca Drive to South Driveway	8,661
	South Driveway to North Driveway	8,741
	North Driveway to Roy Rogers Drive	12,134
Roy Rogers Drive	Amargosa Road to Civic Drive	20,921
	Civic Drive to I-15 SB Ramps	30,814
	I-15 SB Ramps to I-15 NB Ramps	27,673
	East of I-15 NB Ramps	24,611

Note: Civic Drive and Roy Rogers Drive are City roadways.

7.2 FORECAST PROJECT OPENING YEAR 2021 WITH PROJECT OPERATIONS ANALYSIS

Table 7-2 summarizes Forecast Project Opening Year 2021 With Project Peak Hour level of service for all study intersections. Detailed analysis sheets are contained in **Appendix G**.

TABLE 7-2: FORECAST PROJECT OPENING YEAR 2021 WITH PROJECT PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Opening Year 2021 With Project Conditions					
		MIDDAY			PM		
		Delay[1]	-	LOS	Delay[1]	-	LOS
1 - Civic Drive and Home Depot South Driveway / Project Site Driveway #1	TWSC	15.5	-	C	15.7	-	C
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	TWSC	**57.4**	-	**F**	**48.5**	-	**E**
3 - Civic Drive and Roy Rogers Drive	Signal	16.8	-	B	17.5	-	B
4 - Roy Rogers Drive and I-15 Southbound Ramps	Signal	12.1	-	B	15.4	-	B
5 - Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive	Signal	52.2	-	D	**58.9**	-	**E**

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

[1] Average seconds of delay per vehicle.

LOS = level of service.

TWSC = Two-Way Stop Control

OWSC = One-Way Stop Control

As shown in **Table 7-2**, the study intersections are forecast to operate at LOS D or better during both Peak Hours under the Forecast Project Opening Year 2021 With Project conditions with the following exceptions:

- #2 – Civic Drive and Home Depot North Driveway/Project Site Driveway #2 (LOS F in the Midday Peak Hour and LOS E in the PM Peak Hour).
- #5 – Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive (LOS E in the PM Peak Hour).

Table 7-3 summarizes Forecast Project Opening Year 2021 With Project roadway segment level of service.

TABLE 7-3: FORECAST PROJECT OPENING YEAR 2021 WITH PROJECT ROADWAY LOS

Segment	Location	Classification (No. Lanes)	LOS D Capacity	Opening Year With Project		
				ADT	V/C	LOS
Civic Drive	Seneca Drive to South Driveway	Arterial-Divided (4)	33,800	8,661	0.256	A
	South Driveway to North Driveway	Arterial-Divided (4)	33,800	8,741	0.259	A
	North Driveway to Roy Rogers Drive	Arterial-Divided (4)	33,800	12,134	0.359	A
Roy Rogers Drive	Amargosa Road to Civic Drive	Super Arterial (5)	42,170	20,921	0.496	A
	Civic Drive to I-15 SB Ramps	Super Arterial (5)	42,170	30,814	0.731	B
	I-15 SB Ramps to I-15 NB Ramps	Arterial-Divided (4)	33,800	27,673	0.819	C
	East of I-15 NB Ramps	Arterial-Divided (4)	33,800	24,611	0.728	B

Note: Deficient roadway segment operations shown in **bold**

LOS= Level of Service

ADT= Average Daily Traffic

V/C= Volume to Capacity Ratio

LOS D Capacity used to calculate v/c; LOS determined based on ADT volume thresholds

As shown in **Table 7-3**, all roadway segments are projected to operate at LOS D or better during the Forecast Project Opening Year 2021 With Project scenario.

7.3 OPENING YEAR 2021 COMPARISON

Table 7-4 summarizes Forecast Project Opening Year 2021 Without Project and With Project intersection analysis comparison, including identification impacted intersections.

TABLE 7-4: FORECAST PROJECT OPENING YEAR 2021 INTERSECTION OPERATIONS COMPARISON

Study Intersection	Opening Year 2021 Conditions		Opening Year 2021 With Project Conditions		Change in Delay (sec.)		Significance Criteria	Significant Impact?	
	MIDDAY	PM	MIDDAY	PM					
	Delay[1] - LOS	Delay[1] - LOS	Delay[1] - LOS	Delay[1] - LOS	MIDDAY	PM		MIDDAY	PM
1 - Civic Drive and Home Depot South Driveway / Project Site Driveway #1	15.2 - C	15.4 - C	15.5 - C	15.7 - C	0.3	0.3	City	No	No
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	**58.4 - F**	**44.7 - E**	**57.4 - F**	**48.5 - E**	-1.0	3.8	City	No	**YES**
3 - Civic Drive and Roy Rogers Drive	16.7 - B	17.3 - B	16.8 - B	17.5 - B	0.1	0.2	City	No	No
4 - Roy Rogers Drive and I-15 Southbound Ramps	11.9 - B	15.3 - B	12.1 - B	15.4 - B	0.2	0.1	County	No	No
5 - Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive	50.9 - D	**58.3 - E**	52.2 - D	**58.9 - E**	1.3	0.6	County	No	**YES**

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

[1] Seconds of delay per vehicle.

LOS = level of service.

As shown in **Table 7-4**, impacts have been identified at the following intersections:

- #2 – Civic Drive and Home Depot North Driveway / Project Site Driveway #2
- #5 – Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive

Refer to **Section 11** of this report for the discussion of mitigation.

Table 7-5 summarizes Forecast Project Opening Year 2021 Without Project and With Project roadway segment analysis comparison, including identification impacted segments.

TABLE 7-5: FORECAST PROJECT OPENING YEAR 2021 ROADWAY SEGMENT OPERATIONS COMPARISON

Segment	Location	Classification (No. Lanes)	LOS D Capacity	Opening Year Without Project			Opening Year With Project			Δ V/C	Signficant Impact?
				ADT	V/C	LOS	ADT	V/C	LOS		
Civic Drive	Seneca Drive to South Driveway	Arterial-Divided (4)	33,800	8,630	0.255	A	8,661	0.256	A	0.001	No
	South Driveway to North Driveway	Arterial-Divided (4)	33,800	8,690	0.257	A	8,741	0.259	A	0.002	No
	North Driveway to Roy Rogers Drive	Arterial-Divided (4)	33,800	11,960	0.354	A	12,134	0.359	A	0.005	No
Roy Rogers Drive	Amargosa Road to Civic Drive	Super Arterial (5)	42,170	20,900	0.496	A	20,921	0.496	A	0.000	No
	Civic Drive to I-15 SB Ramps	Super Arterial (5)	42,170	30,660	0.727	B	30,814	0.731	B	0.004	No
	I-15 SB Ramps to I-15 NB Ramps	Arterial-Divided (4)	33,800	27,570	0.816	C	27,673	0.819	C	0.003	No
	East of I-15 NB Ramps	Arterial-Divided (4)	33,800	24,590	0.728	B	24,611	0.728	B	0.001	No

LOS= Level of Service
V/C= Volume to Capacity Ratio
Δ= Difference
LOS D Capacity used to calculate v/c; LOS determined based on ADT volume thresholds

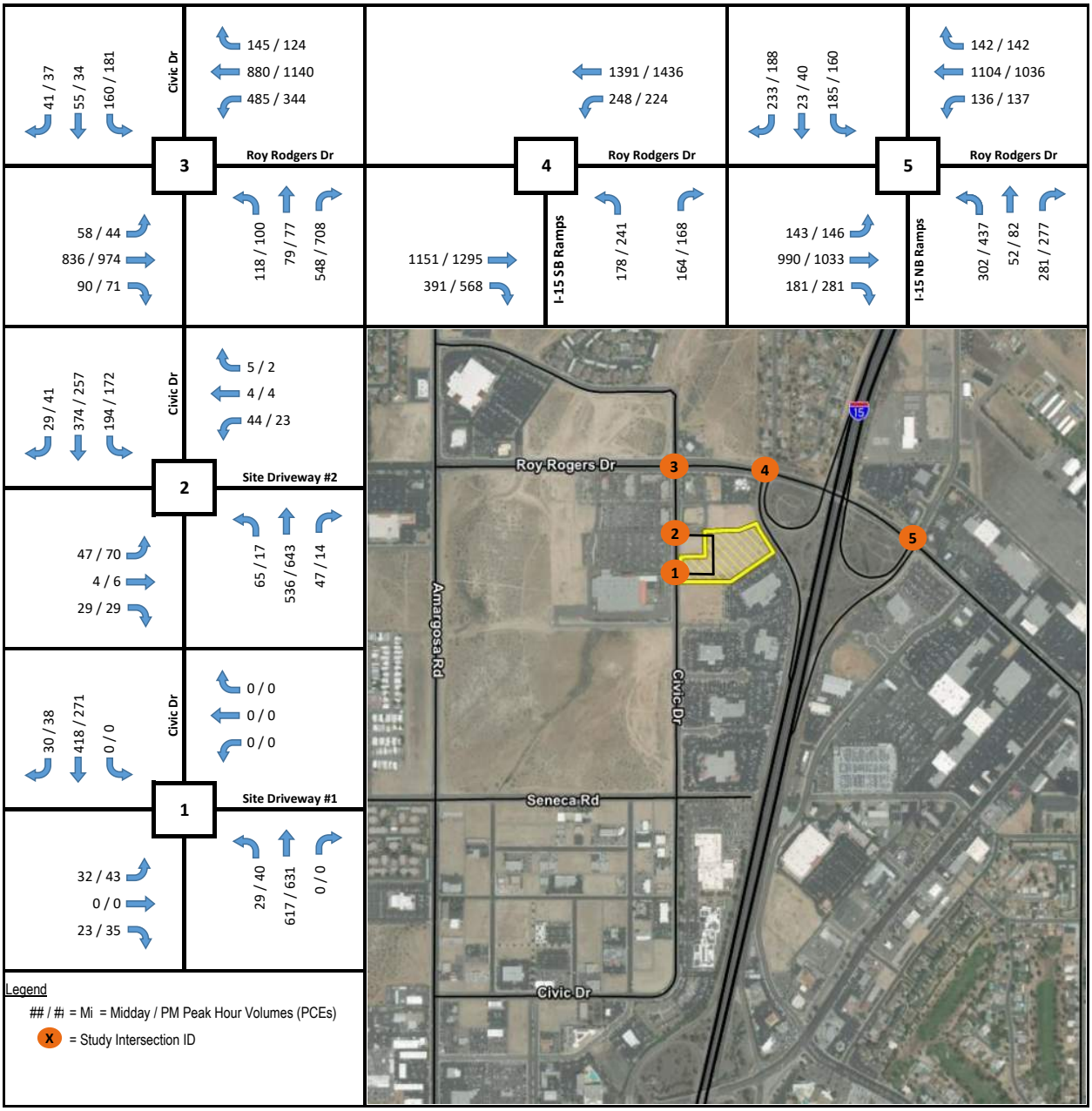
As shown in **Table 7-5**, impacts have not been identified as part of the roadway segment analysis.

8 FORECAST PROJECT HORIZON YEAR 2031 WITHOUT PROJECT

8.1 FORECAST HORIZON YEAR 2031 WITHOUT PROJECT TRAFFIC VOLUMES

To derive the Forecast Project Horizon Year 2031 Without Project traffic volumes, an annual growth rate of 2% per year was applied to the Forecast Project Opening Year 2021 Without Project traffic volumes to account for general regional growth in the vicinity of the project site. **Exhibit 8-1** shows the Forecast Project Horizon Year 2031 Without Project Peak Hour volumes at each of the study intersections.

EXHIBIT 8-1: FORECAST PROJECT HORIZON YEAR 2031 WITHOUT PROJECT PEAK HOUR VOLUMES



Average Daily Traffic (ADT) volumes were estimated by applying a factor of 10.6 to the peak hour traffic volumes at key locations within the traffic study area. **Table 8-1** summarizes the Opening Year Without Project ADTs.

TABLE 8-1: FORECAST PROJECT HORIZON YEAR 2031 WITHOUT PROJECT AVERAGE DAILY TRAFFIC VOLUMES

Segment	Location	Horizon Year 2031 Without Project ADT
Civic Drive	Seneca Drive to South Driveway	10,360
	South Driveway to North Driveway	10,420
	North Driveway to Roy Rogers Drive	14,360
Roy Rogers Drive	Amargosa Road to Civic Drive	24,790
	Civic Drive to I-15 SB Ramps	36,790
	I-15 SB Ramps to I-15 NB Ramps	33,070
	East of I-15 NB Ramps	29,520

Note: Civic Drive and Roy Rogers Drive are City roadways.

8.2 FORECAST PROJECT HORIZON YEAR 2031 WITHOUT PROJECT OPERATIONS ANALYSIS

Table 8-2 summarizes Forecast Project Horizon Year 2031 Without Project Peak Hour level of service for all study intersections. Detailed analysis sheets are contained in **Appendix H**.

TABLE 8-2: FORECAST PROJECT HORIZON YEAR 2031 WITHOUT PROJECT PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Horizon Year 2031 Conditions					
		MIDDAY			PM		
		Delay[1]	-	LOS	Delay[1]	-	LOS
1 - Civic Drive and Home Depot South Driveway / Project Site Driveway #1	OWSC	18.4	-	C	16.1	-	C
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	TWSC	**126.2**	-	**F**	**59.9**	-	**F**
3 - Civic Drive and Roy Rogers Drive	Signal	20.3	-	C	22.3	-	C
4 - Roy Rogers Drive and I-15 Southbound Ramps	Signal	15.5	-	B	21.3	-	C
5 - Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive	Signal	**96.6**	-	**F**	**102.0**	-	**F**

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

[1] Average seconds of delay per vehicle.

LOS = level of service.

TWSC = Two-Way Stop Control

OWSC = One-Way Stop Control

As shown in **Table 8-2**, the study intersections are forecast to operate at LOS D or better during both Peak Hours under the Forecast Project Opening Year 2021 Without Project conditions with the following exceptions:

- #2 – Civic Drive and Home Depot North Driveway/Project Site Driveway #2 (LOS F in the Midday Peak Hour and LOS F in the PM Peak Hour).
- #5 – Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive (LOS F in the Midday Peak Hour and LOS F in the PM Peak Hour).

Table 8-3 summarizes Forecast Project Horizon Year 2031 Without Project roadway segment level of service.

TABLE 8-3: FORECAST PROJECT HORIZON YEAR 2031 WITHOUT PROJECT ROADWAY LOS

Segment	Location	Classification (No. Lanes) [1]	LOS D Capacity	Horizon Year 2031 Without Project		
				ADT	V/C	LOS
Civic Drive	Seneca Drive to South Driveway	Arterial-Divided (4)	33,800	10,360	0.307	A
	South Driveway to North Driveway	Arterial-Divided (4)	33,800	10,420	0.308	A
	North Driveway to Roy Rogers Drive	Arterial-Divided (4)	33,800	14,360	0.425	A
Roy Rogers Drive	Amargosa Road to Civic Drive	Super Arterial (6)	50,600	24,790	0.490	A
	Civic Drive to I-15 SB Ramps	Super Arterial (6)	50,600	36,790	0.727	B
	I-15 SB Ramps to I-15 NB Ramps	Super Arterial (5)	42,170	33,070	0.784	C
	East of I-15 NB Ramps	Super Arterial (5)	42,170	29,520	0.700	B

Note: Deficient roadway segment operations shown in **bold**

LOS= Level of Service

ADT = Average Daily Traffic

V/C= Volume to Capacity Ratio

[1] Classifications based on Civic Center Community Sustainability Plan

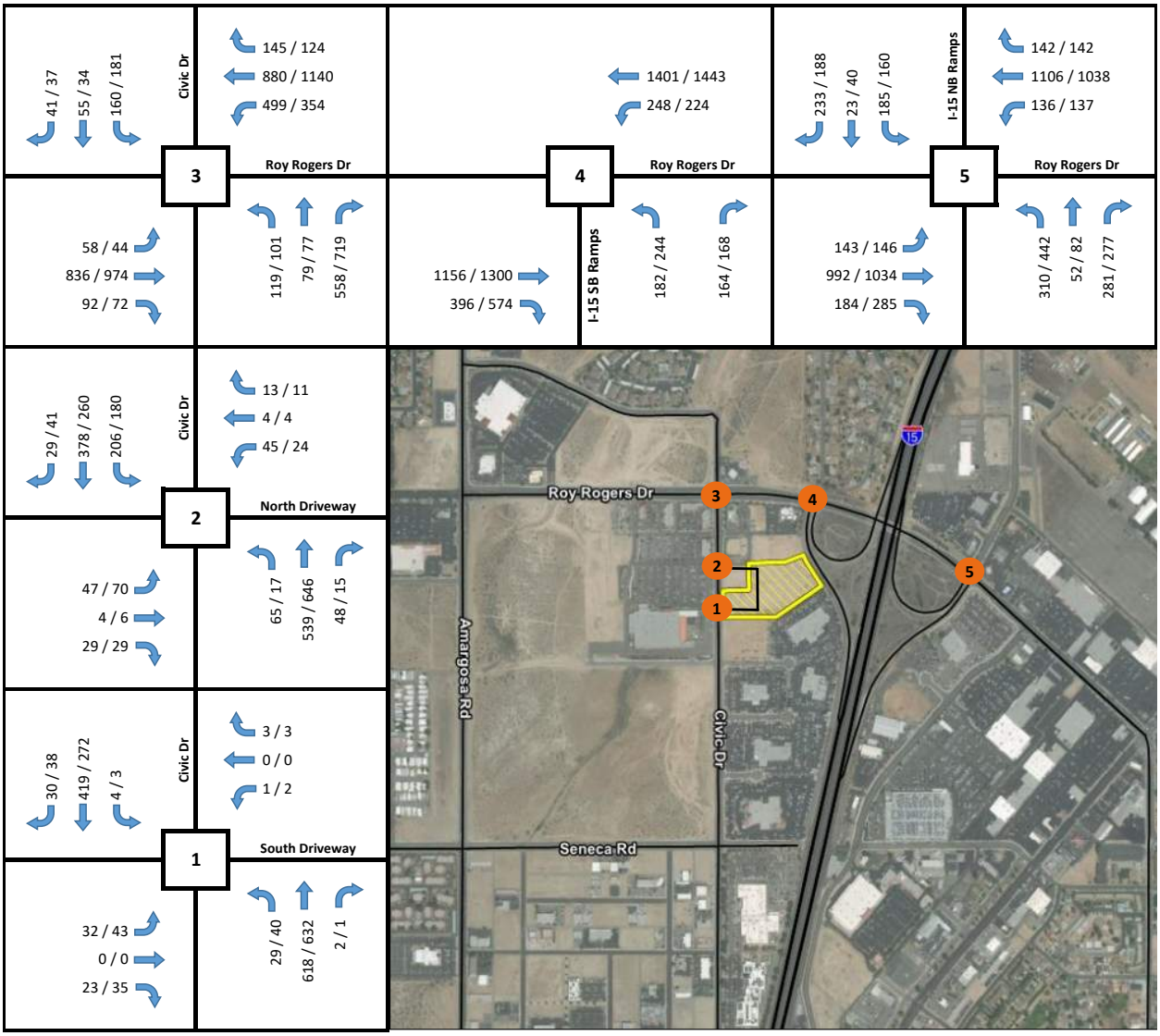
As shown in **Table 8-3**, all roadway segments are projected to operate at LOS D or better during the Forecast Project Horizon Year 2031 Without Project scenario.

9 FORECAST PROJECT HORIZON YEAR 2031 WITH PROJECT

9.1 FORECAST HORIZON YEAR 2031 WITH PROJECT TRAFFIC VOLUMES

Forecast Project Horizon Year 2031 With Project traffic volumes were derived by adding trips forecast to be generated by the proposed project to Forecast Horizon Year 2021 Without Project conditions. **Exhibit 9-1** shows the Forecast Project Horizon Year 2031 With Project Peak Hour volumes at each of the study intersections.

EXHIBIT 9-1: FORECAST PROJECT HORIZON YEAR 2031 WITH PROJECT PEAK HOUR VOLUMES



Legend

/ # = Midday / PM Peak Hour Volumes

X = Study Intersection ID

Average Daily Traffic (ADT) volumes were estimated by applying a factor of 10.6 to the peak hour traffic volumes at key locations within the traffic study area. **Table 9-1** summarizes the Forecast Project Horizon Year 2031 With Project ADTs.

TABLE 9-1: FORECAST PROJECT HORIZON YEAR 2031 WITH PROJECT AVERAGE DAILY TRAFFIC VOLUMES

Segment	Location	Horizon Year 2031 With Project ADT
Civic Drive	Seneca Drive to South Driveway	10,391
	South Driveway to North Driveway	10,471
	North Driveway to Roy Rogers Drive	14,534
Roy Rogers Drive	Amargosa Road to Civic Drive	24,811
	Civic Drive to I-15 SB Ramps	36,944
	I-15 SB Ramps to I-15 NB Ramps	33,173
	East of I-15 NB Ramps	29,541

9.2 FORECAST PROJECT HORIZON YEAR 2031 WITH PROJECT OPERATIONS ANALYSIS

Table 9-2 summarizes Forecast Project Horizon Year 2031 With Project Peak Hour level of service for all study intersections. Detailed analysis sheets are contained in **Appendix I**.

TABLE 9-2: FORECAST PROJECT HORIZON YEAR 2031 WITH PROJECT PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Horizon Year 2031 With Project Conditions					
		MIDDAY			PM		
		Delay[1]	-	LOS	Delay[1]	-	LOS
1 - Civic Drive and Home Depot South Driveway / Project Site Driveway #1	TWSC	18.7	-	C	16.3	-	C
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	TWSC	**130.9**	-	**F**	**69.0**	-	**F**
3 - Civic Drive and Roy Rogers Drive	Signal	20.6	-	C	22.7	-	C
4 - Roy Rogers Drive and I-15 Southbound Ramps	Signal	15.6	-	B	21.6	-	C
5 - Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive	Signal	**97.6**	-	**F**	**103.1**	-	**F**

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

[1] Average seconds of delay per vehicle.

LOS = level of service.

TWSC = Two-Way Stop Control

OWSC = One-Way Stop Control

As shown in **Table 9-2**, the study intersections are forecast to operate at LOS D or better during both Peak Hours under the Forecast Project Horizon Year 2031 With Project conditions with the following exceptions:

- #2 – Civic Drive and Home Depot North Driveway/Project Site Driveway #2 (LOS F in the Midday Peak Hour and LOS F in the PM Peak Hour).
- #5 – Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive (LOS F in the Midday Peak Hour and LOS F in the PM Peak Hour).

Table 9-3 summarizes Forecast Project Horizon Year 2031 With Project roadway segment level of service.

TABLE 9-3: FORECAST PROJECT HORIZON YEAR 2031 WITH PROJECT ROADWAY LOS

Segment	Location	Classification (No. Lanes) [1]	LOS D Capacity	Horizon Year 2031 With Project		
				ADT	V/C	LOS
Civic Drive	Seneca Drive to South Driveway	Arterial-Divided (4)	33,800	10,391	0.307	A
	South Driveway to North Driveway	Arterial-Divided (4)	33,800	10,471	0.310	A
	North Driveway to Roy Rogers Drive	Arterial-Divided (4)	33,800	14,534	0.430	A
Roy Rogers Drive	Amargosa Road to Civic Drive	Super Arterial (6)	50,600	24,811	0.490	A
	Civic Drive to I-15 SB Ramps	Super Arterial (6)	50,600	36,944	0.730	B
	I-15 SB Ramps to I-15 NB Ramps	Super Arterial (5)	42,170	33,173	0.787	C
	East of I-15 NB Ramps	Super Arterial (5)	42,170	29,541	0.701	B

Note: Deficient roadway segment operations shown in **bold**

LOS= Level of Service

ADT= Average Daily Traffic

V/C= Volume to Capacity Ratio

[1] Classifications based on Civic Center Community Sustainability Plan

LOS D Capacity used to calculate v/c; LOS determined based on ADT volume thresholds

As shown in **Table 9-3**, all roadway segments are projected to operate at LOS D or better during the Forecast Project Horizon Year 2031 With Project scenario.

9.3 HORIZON YEAR 2031 COMPARISON

Table 9-4 summarizes Forecast Project Horizon Year 2031 Without Project and With Project intersection analysis comparison, including identification impacted intersections.

TABLE 9-4: FORECAST PROJECT HORIZON YEAR 2031 INTERSECTION OPERATIONS COMPARISON

Study Intersection	Horizon Year 2031 Conditions		Horizon Year 2031 With Project Conditions		Change in Delay (sec.)		Significant Impact?	
	MIDDAY	PM	MIDDAY	PM				
	Delay[1] - LOS	Delay[1] - LOS	Delay[1] - LOS	Delay[1] - LOS	MIDDAY	PM	MIDDAY	PM
1 - Civic Drive and Home Depot South Driveway / Project Site Driveway #1	18.4 - C	16.1 - C	18.7 - C	16.3 - C	0.3	0.2	No	No
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	**126.2 - F**	**59.9 - F**	**130.9 - F**	**69.0 - F**	4.7	9.1	**YES**	**YES**
3 - Civic Drive and Roy Rogers Drive	20.3 - C	22.3 - C	20.6 - C	22.7 - C	0.3	0.4	No	No
4 - Roy Rogers Drive and I-15 Southbound Ramps	15.5 - B	21.3 - C	15.6 - B	21.6 - C	0.1	0.3	No	No
5 - Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive	**96.6 - F**	**102.0 - F**	**97.6 - F**	**103.1 - F**	1.0	1.1	**YES**	**YES**

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

[1] Seconds of delay per vehicle.

LOS = level of service.

Based on thresholds of significance, the addition of project related traffic results in impacts at the following intersections which require mitigation:

- #2 – Civic Drive and Home Depot North Driveway / Project Site Driveway #2
- #5 – Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive

Refer to **Section 11** of this report for the discussion of mitigation.

Table 9-5 summarizes Forecast Project Horizon Year 2031 Without Project and With Project roadway segment analysis comparison, including identification impacted segments.

TABLE 9-5: FORECAST PROJECT HORIZON YEAR 2031 ROADWAY SEGMENT OPERATIONS COMPARISON

Segment	Location	Classification (No. Lanes) [1]	LOS D Capacity	Horizon Year 2031 Without Project			Horizon Year 2031 With Project			Δ V/C	Signficant Impact?
				ADT	V/C	LOS	ADT	V/C	LOS		
Civic Drive	Seneca Drive to South Driveway	Arterial-Divided (4)	33,800	10,360	0.307	A	10,391	0.307	A	0.001	No
	South Driveway to North Driveway	Arterial-Divided (4)	33,800	10,420	0.308	A	10,471	0.310	A	0.002	No
	North Driveway to Roy Rogers Drive	Arterial-Divided (4)	33,800	14,360	0.425	A	14,534	0.430	A	0.005	No
Roy Rogers Drive	Amargosa Road to Civic Drive	Super Arterial (6)	50,600	24,790	0.490	A	24,811	0.490	A	0.000	No
	Civic Drive to I-15 SB Ramps	Super Arterial (6)	50,600	36,790	0.727	B	36,944	0.730	B	0.003	No
	I-15 SB Ramps to I-15 NB Ramps	Super Arterial (5)	42,170	33,070	0.784	C	33,173	0.787	C	0.002	No
	East of I-15 NB Ramps	Super Arterial (5)	42,170	29,520	0.700	B	29,541	0.701	B	0.000	No

LOS= Level of Service ADT= Average Daily Traffic
V/C= Volume to Capacity Ratio Δ= Difference
[1] Classifications based on Civic Center Community Sustainability Plan
LOS D Capacity used to calculate v/c; LOS determined based on ADT volume thresholds

As shown in **Table 9-5**, impacts have not been identified as part of the roadway segment analysis.

10 VACANT PARCELS ALTERNATIVE DEVELOPMENT SCENARIO

A concern was raised by the City of Victorville regarding the traffic operations of the Civic Drive corridor if the nearby vacant parcels were to be developed. These parcels are located east of Civic Drive, south of the existing restaurants, and north of the proposed CarMax. An additional alternative development analysis scenario was conducted to consider potential development on these parcels.

The development of the vacant parcels was added to the Horizon Year 2031 condition. These trips were not added to the cumulative projects lists since development of the parcels is not currently planned or approved and thus are not anticipated to be constructed prior to the project Opening Year. This analysis does not seek to obtain approval of development on the existing vacant parcels and is instead provided for informational purposes only.

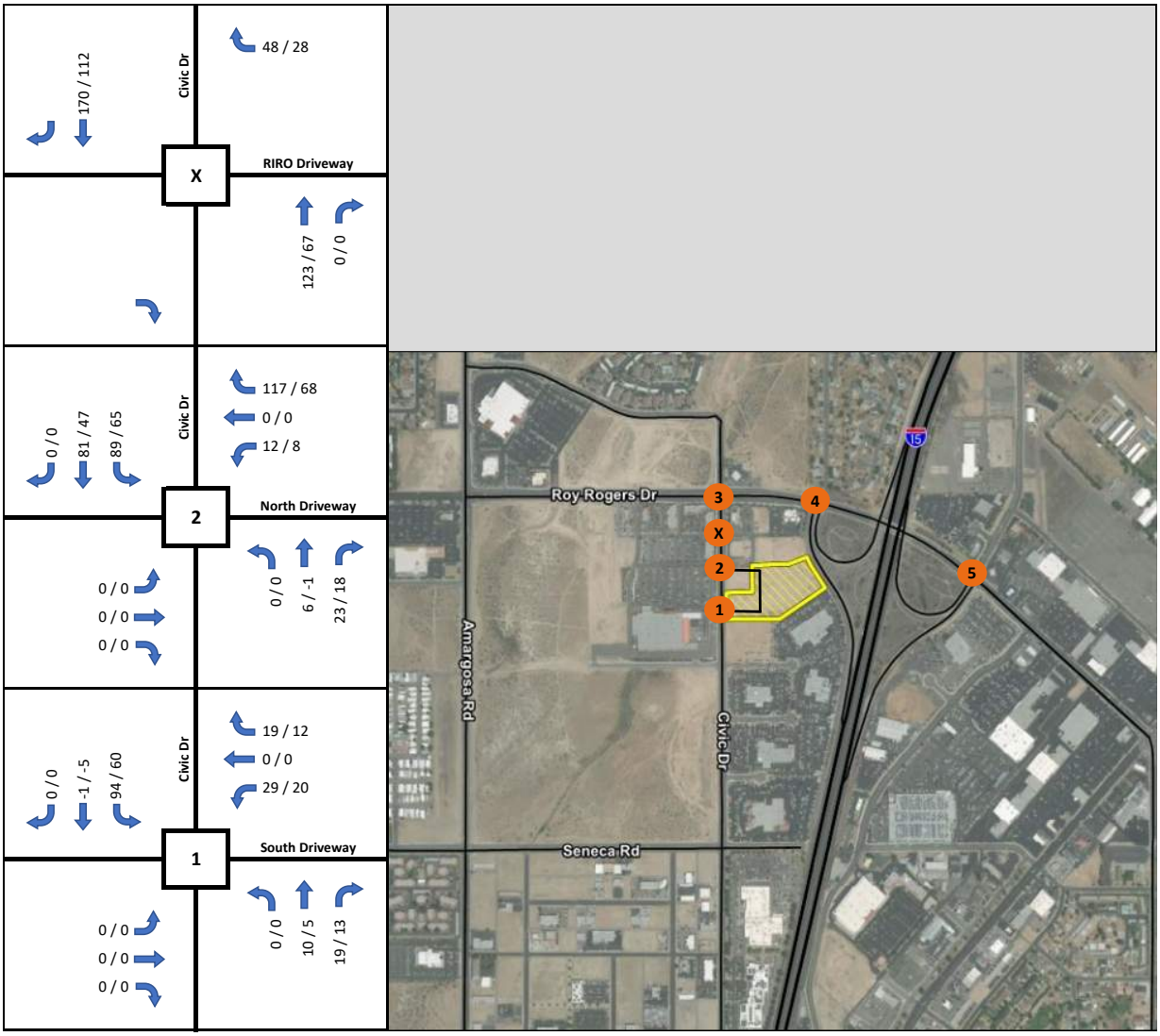
The development of the vacant parcels was assumed to include the following:

- Pad 1
  - 3,000 square-foot Shopping Center
  - 3,000 square-foot Fast-Food Restaurant with Drive-Through
- Pad 4
  - 2,000 square-foot Shopping Center
  - 2,000 square-foot Fast-Food Restaurant with Drive-Through
- Pad 5
  - 8,650 square-foot High-Turnover Restaurant

Exhibit 10-1 shows the site trips anticipated to be generated by potential development at the vacant parcels. **Exhibit 10-2** shows the traffic volumes at Intersections #1 and #2 under the Horizon Year 2031 With Vacant Parcels development, but without the proposed CarMax project. **Exhibit 10-3** shows the traffic volumes at Intersections #1 and #2 under the Horizon Year 2031 With Vacant Parcels development with the proposed CarMax project. **Appendix B** contains additional information regarding the development of the anticipated site trips for the vacant parcels.

For the purposes of this study, the "With Vacant Parcels" scenario includes the assumed development of the currently vacant parcels as described above. Additionally, only Intersections #1 and #2 were evaluated as part of this scenario.

EXHIBIT 10-1: VACANT PARCEL SITE TRIPS

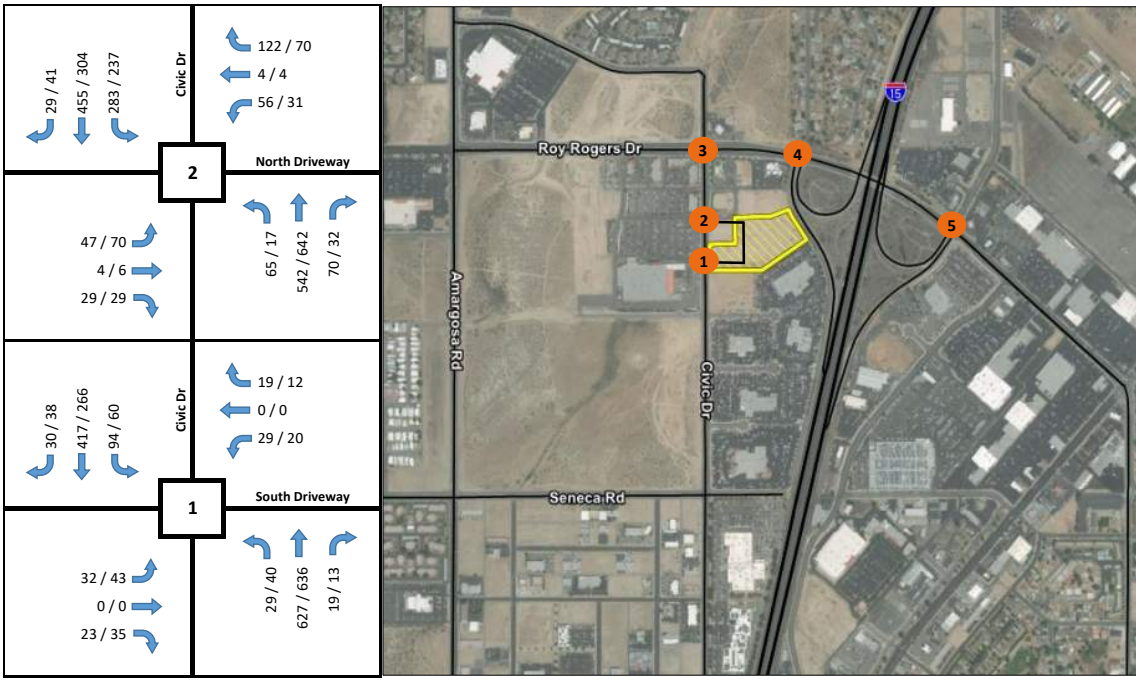


Legend

/ # = Midday / PM Peak Hour Volumes

X = Study Intersection ID

EXHIBIT 10-2: FORECAST PROJECT HORIZON YEAR 2031 WITH VACANT PARCELS PEAK HOUR VOLUMES

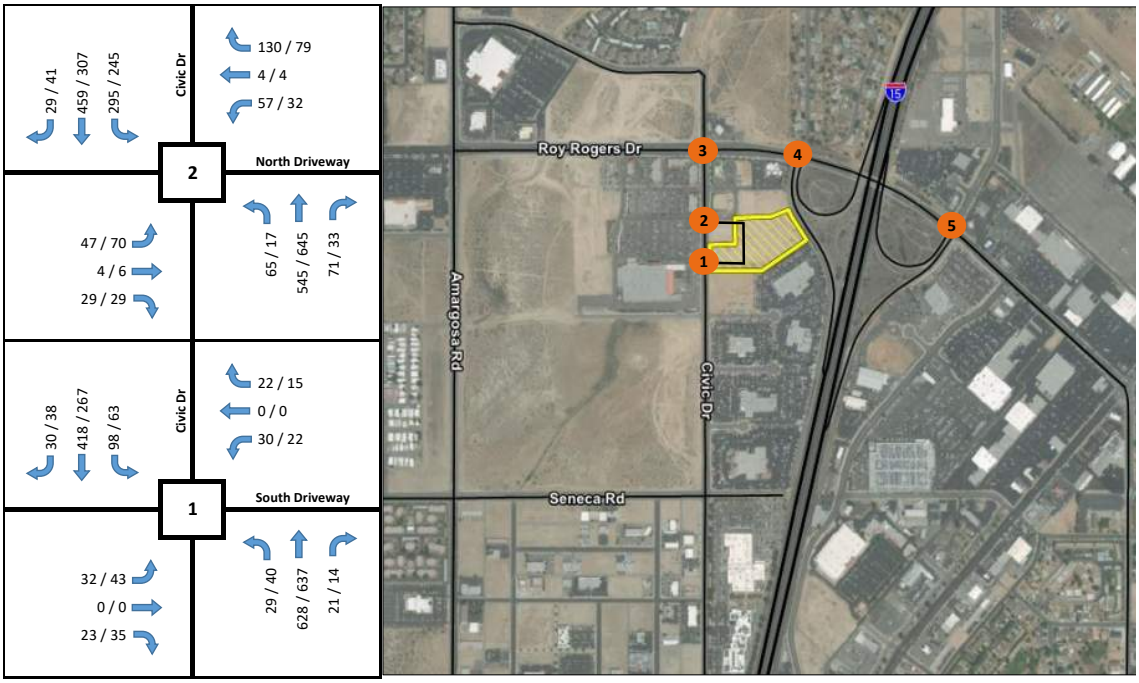


Legend

/ # = Midday / PM Peak Hour Volumes

X = Study Intersection ID

EXHIBIT 10-3: FORECAST PROJECT HORIZON YEAR 2031 W/ VACANT PARCELS W/ PROJECT PEAK HOUR VOLUMES



Legend

/ # = Midday / PM Peak Hour Volumes

X = Study Intersection ID

10.1 ROADWAY SEGMENT ANALYSIS

Average Daily Traffic (ADT) volumes were estimated by applying a factor of 10.6 to the peak hour traffic volumes at key locations within the traffic study area. **Table 10-1** summarizes the ADTs for the Forecast Project Horizon Year 2031 scenario with the Vacant Parcels developed, both without and with the proposed CarMax project.

TABLE 10-1: FORECAST PROJECT HORIZON YEAR 2031 WITH VACANT PARCELS AVERAGE DAILY TRAFFIC VOLUMES

Segment	Location	Horizon Year 2031 With Vacant Parcels Without Project	Horizon Year 2031 With Vacant Parcels With Project
		ADT	ADT
Civic Drive	Seneca Drive to South Driveway	10,710	10,741
	South Driveway to North Driveway	11,180	11,231
	North Driveway to Roy Rogers Drive	16,590	16,764
Roy Rogers Drive	Amargosa Road to Civic Drive	25,340	25,361
	Civic Drive to I-15 SB Ramps	38,740	38,894
	I-15 SB Ramps to I-15 NB Ramps	34,200	34,303
	East of I-15 NB Ramps	29,790	29,811

Table 10-2 summarizes the roadway segment level of service for Forecast Project Horizon Year 2031 scenario with the Vacant Parcels developed both without and with the proposed CarMax project.

TABLE 10-2: FORECAST PROJECT HORIZON YEAR 2031 WITH VACANT PARCELS ROADWAY LOS

Segment	Location	Classification (No. Lanes) [1]	LOS D Capacity	Horizon Year 2031 With Vacant Parcels Without Project			Horizon Year 2031 With Vacant Parcels With Project			Δ V/C	Signficant Impact?
				ADT	V/C	LOS	ADT	V/C	LOS		
Civic Drive	Seneca Drive to South Driveway	Arterial-Divided (4)	33,800	10,710	0.317	A	10,741	0.318	A	0.001	No
	South Driveway to North Driveway	Arterial-Divided (4)	33,800	11,180	0.331	A	11,231	0.332	A	0.002	No
	North Driveway to Roy Rogers Drive	Arterial-Divided (4)	33,800	16,590	0.491	A	16,764	0.496	A	0.005	No
Roy Rogers Drive	Amargosa Road to Civic Drive	Super Arterial (6)	50,600	25,340	0.501	A	25,361	0.501	A	0.000	No
	Civic Drive to I-15 SB Ramps	Super Arterial (6)	50,600	38,740	0.766	B	38,894	0.769	B	0.003	No
	I-15 SB Ramps to I-15 NB Ramps	Super Arterial (5)	42,170	34,200	0.811	C	34,303	0.813	C	0.002	No
	East of I-15 NB Ramps	Super Arterial (5)	42,170	29,790	0.706	B	29,811	0.707	B	0.000	No

LOS= Level of Service ADT= Average Daily Traffic
V/C= Volume to Capacity Ratio Δ= Difference
[1] Classifications based on Civic Center Community Sustainability Plan
LOS D Capacity used to calculate v/c; LOS determined based on ADT volume thresholds

As shown in **Table 10-2**, all roadway segments are projected to operate at LOS D or better during the Forecast Project Horizon Year 2031 With Vacant Parcels under both the Without Project and With Project scenarios.

10.2 INTERSECTION ANALYSIS

Table 10-3 summarizes Forecast Project Horizon Year 2031 With Vacant Parcels Peak Hour level of service. Detailed analysis sheets are contained in **Appendix J**.

TABLE 10-3: FORECAST PROJECT HORIZON YEAR 2031 WITH VACANT PARCELS INTERSECTION LOS

Study Intersection	Horizon Year 2031 With Vacant Parcels Conditions		Horizon Year 2031 With Vacant Parcels With Project Conditions		Change in Delay (sec.)		Significant Impact?	
	MIDDAY	PM	MIDDAY	PM				
	Delay[1] - LOS	Delay[1] - LOS	Delay[1] - LOS	Delay[1] - LOS	MIDDAY	PM	MIDDAY	PM
1 - Civic Drive and Home Depot South Driveway / Project Site Driveway #1	33.9 - D	25.3 - D	34.4 - D	25.5 - D	0.5	0.2	No	No
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	**439.3 - F**	**206.6 - F**	**514.4 - F**	**242.1 - F**	75.1	35.5	**YES**	**YES**

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

[1] Seconds of delay per vehicle.

LOS = level of service.

As shown in **Table 10-3,** based on thresholds of significance, the addition of project related traffic would result in impacts at the following intersections which require mitigation:

- #2 – Civic Drive and Home Depot North Driveway / Project Site Driveway #2

Refer to **Section 11** of this report for the discussion of mitigation.

10.3 QUEUE ANALYSIS

A queue length evaluation was conducted using Synchro 95th Percentile queue analysis results. The results show that adequate queue lengths were estimated with the exception of the Horizon Year 2031 With Vacant Parcels Midday Peak scenario in which westbound traffic is projected to extend beyond the available space at Intersection #2. However, this queue would exist on the development property, not along Civic Drive.

TABLE 10-4: FORECAST PROJECT HORIZON YEAR 2031 WITH VACANT PARCELS INTERSECTION LOS

#	Intersection / Movement		Turn Pocket Length (feet)	No. of Lanes	Without Project						With Project					
					Volume (vph)		95th Percentile		Adequate Storage?		Volume (vph)		95th Percentile		Adequate Storage?	
					Midday	PM	Midday	PM	Midday	PM	Midday	PM	Midday	PM	Midday	PM
Existing																
1	Civic Drive / Home Depot South Driveway-Carmax South Driveway	SB L	150	1	Not Applicable						4	3	**0**	**0**	Yes	Yes
		WB LTR	165	1							4	5	**0**	**3**	Yes	Yes
2	Civic Drive / Home Depot North Driveway-Carmax North Driveway	SB L	105	1	153	135	**15**	**15**	Yes	Yes	165	143	**18**	**18**	Yes	Yes
		WB LT	165	1	38	21	**38**	**18**	Yes	Yes	39	22	**43**	**20**	Yes	Yes
		WB R	165	1	4	2	**0**	**0**	Yes	Yes	12	11	**3**	**3**	Yes	Yes
Opening Year 2021																
1	Civic Drive / Home Depot South Driveway-Carmax South Driveway	SB L	150	1	Not Applicable						4	3	**0**	**0**	Yes	Yes
		WB LTR	165	1							4	5	**0**	**3**	Yes	Yes
2	Civic Drive / Home Depot North Driveway-Carmax North Driveway	SB L	105	1	162	143	**18**	**18**	Yes	Yes	174	151	**18**	**20**	Yes	Yes
		WB LT	165	1	40	22	**48**	**23**	Yes	Yes	41	23	**53**	**25**	Yes	Yes
		WB R	165	1	4	2	**0**	**0**	Yes	Yes	12	11	**3**	**3**	Yes	Yes
Horizon Year 2031																
1	Civic Drive / Home Depot South Driveway-Carmax South Driveway	SB L	150	1	Not Applicable						4	3	**0**	**0**	Yes	Yes
		WB LTR	165	1							4	5	**0**	**0**	Yes	Yes
2	Civic Drive / Home Depot North Driveway-Carmax North Driveway	SB L	105	1	194	172	**23**	**20**	Yes	Yes	206	180	**23**	**23**	Yes	Yes
		WB LT	165	1	48	27	**88**	**30**	Yes	Yes	49	28	**95**	**35**	Yes	Yes
		WB R	165	1	5	2	**0**	**0**	Yes	Yes	13	11	**3**	**3**	Yes	Yes
Horizon Year 2031 Plus Vacant Parcels																
1	Civic Drive / Home Depot South Driveway-Carmax South Driveway	SB L	150	1	94	60	**10**	**5**	Yes	Yes	98	63	**10**	**8**	Yes	Yes
		WB LTR	165	1	48	32	**30**	**15**	Yes	Yes	52	37	**33**	**18**	Yes	Yes
2	Civic Drive / Home Depot North Driveway-Carmax North Driveway	SB L	105	1	283	237	**38**	**33**	Yes	Yes	295	245	**40**	**35**	Yes	Yes
		WB LT	165	1	60	35	**175**	**65**	NO	Yes	61	36	**183**	**73**	NO	Yes
		WB R	165	1	122	70	**20**	**10**	Yes	Yes	130	79	**20**	**13**	Yes	Yes

Note: SB Left-turn pocket at Intersection #1 is part of the two-way left-turn lane. Length assumed to be a total of 250 feet minus 100 feet for NB left at Intersection #2.

11 MITIGATION

The results of the traffic operations analysis and assessment of thresholds of significance

Existing Year 2018 With Project

- None identified

Forecast Project Opening Year 2021 With Project

- #2 – Civic Drive and Home Depot North Driveway / Project Site Driveway #2
- #5 – Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive

Forecast Project Horizon Year 2031 With Project

- #2 – Civic Drive and Home Depot North Driveway / Project Site Driveway #2
- #5 – Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive

The roadway segment analysis showed mitigation measures are not required along any of the analysis segments. The mitigation analysis process and resulting recommendations are discussed in the sections below.

11.1 MITIGATION AT INTERSECTION #2

This intersection (Civic Drive and Home Depot North Driveway / Project Site Driveway #2) operates as a two-way stop-controlled condition with Civic Drive operating uninterrupted and the existing driveways on the east and west side of Civic Drive operating as stop-controlled. The deficient LOS identified at this intersection can be attributed to the side street vehicle delays, particularly the eastbound and westbound left turns and through movements. The major street at this intersection (Civic Drive) generally experiences LOS B or better. The eastbound and westbound movements are comprised of local development traffic including the proposed CarMax site, Panda Express, Krispy Kreme, and In-N-Out Burger from the east, as well as Home Depot and other various restaurants and businesses from the west.

Various mitigation options were explored at this intersection to offset the side street operational impacts. Widening to provide additional lanes on both the eastbound and westbound approaches was explored, however maximizing to three lanes on each approach does not mitigate the deficient LOS during the Horizon Year. Thus, a traffic signal warrant analysis was conducted. The *California Manual on Uniform Traffic Control Devices* (CA MUTCD) signal warrant analysis methodology for Warrant 3: Peak Hour was utilized to determine whether installation of a traffic control signal is justified at a particular location.

11.1.1 Traffic Signal Warrant Assessment Methodologies

Warrant 3 (Peak Hour) is intended for use at a location where traffic conditions are such that for a minimum of one hour of an average day, the minor street traffic suffers undue delay when entering or crossing the major street. In accordance with CA MUTCD guidelines, the need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:

A. If all three of the following conditions exist for the same one hour (any four consecutive 15-minute periods) of an average day
   a. The total stop delay experienced by the traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; **and**
   b. The volume on the same minor street approach equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; **and**
   c. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher volume minor street approach (one direction only) for one hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.

If the posted or statutory speed limit or the 85th percentile speed on the major street exceeds 40 MPH, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-4 (70%) may be used in place of 4C-3.

11.1.2 Traffic Signal Warrant Analysis

Since the posted speed limit on Civic Drive is 45 MPH, the 70% criterion was used for Condition B. The Warrant 3, Peak Hour, Figure 4C-4 (70%) traffic signal analysis results are shown in **Table 11-1**. The analysis shows that a signal is projected to be warranted during the Horizon Year 2031 Without and With Project scenarios at Intersection #2. Warrant worksheets are contained in **Appendix K**.

TABLE 11-1: TRAFFIC SIGNAL WARRANT SUMMARY

Study Intersection		Warrant 3: Peak Hour Warrant Met?											
		Opening Year 2021				Horizon Year 2031				Horizon Year 2031 With Vacant Parcels			
		Without Project		With Project		Without Project		With Project		Without Project		With Project	
		MIDDAY	PM	MIDDAY	PM	MIDDAY	PM	MIDDAY	PM	MIDDAY	PM	MIDDAY	PM
1 -	Civic Drive and Home Depot South Driveway / Project Site Driveway #1	N/A	N/A	N/A	N/A	No	No	No	No	No	No	No	No
2 -	Civic Drive and Home Depot North Driveway / Project Site Driveway #2	No	No	No	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Source: California MUTCD 2014 Revision 1

Note: N/A = Not applicable since Horizon Year warrant not met.

11.1.3 Recommended Mitigation Summary – Mitigation Measure #1

The deficient with-Project LOS conditions at study intersection #2 under Existing Year, Opening Year, and Horizon Year Conditions are attributed to the side street vehicle delays, particularly the eastbound and westbound left turns and through movements. The major street at this intersection (Civic Drive) generally experiences LOS B or better.

Although signalization of Intersection #2 is projected to be warranted under the Horizon Year 2031 conditions, the City has indicated that the distance between Intersection #2 and the existing signal at Civic

Drive and Roy Rogers Drive (approximately 500 feet center-to-center) is insufficient. Thus, a scenario was examined where a signal was assumed at Intersection #1.

Consideration of a traffic signal at Intersection #1 would also require a shift in traffic as traffic would tend to filter to a controlled intersection if heavy delays are experienced at a stop-controlled location. The following general assumptions were evaluated as part of the traffic volume shift:

1) 80% of the Westbound Left movement at Intersection #2 was shifted to Intersection #1
2) 80% of the Eastbound Left movement at Intersection #2 was shifted to Intersection #1
3) 50% of the Southbound Left movement at Intersection #2 was shifted to Intersection #1

Exhibits 11-1 and **11-2** show the traffic volume shift under the Horizon Year 2031 conditions. A lower shift in traffic would be anticipated on the southbound left turn movement under Opening Year 2021 conditions.

EXHIBIT 11-1: FORECAST PROJECT HORIZON YEAR 2031 WITH PROJECT WITH MITIGATION TRAFFIC SHIFT

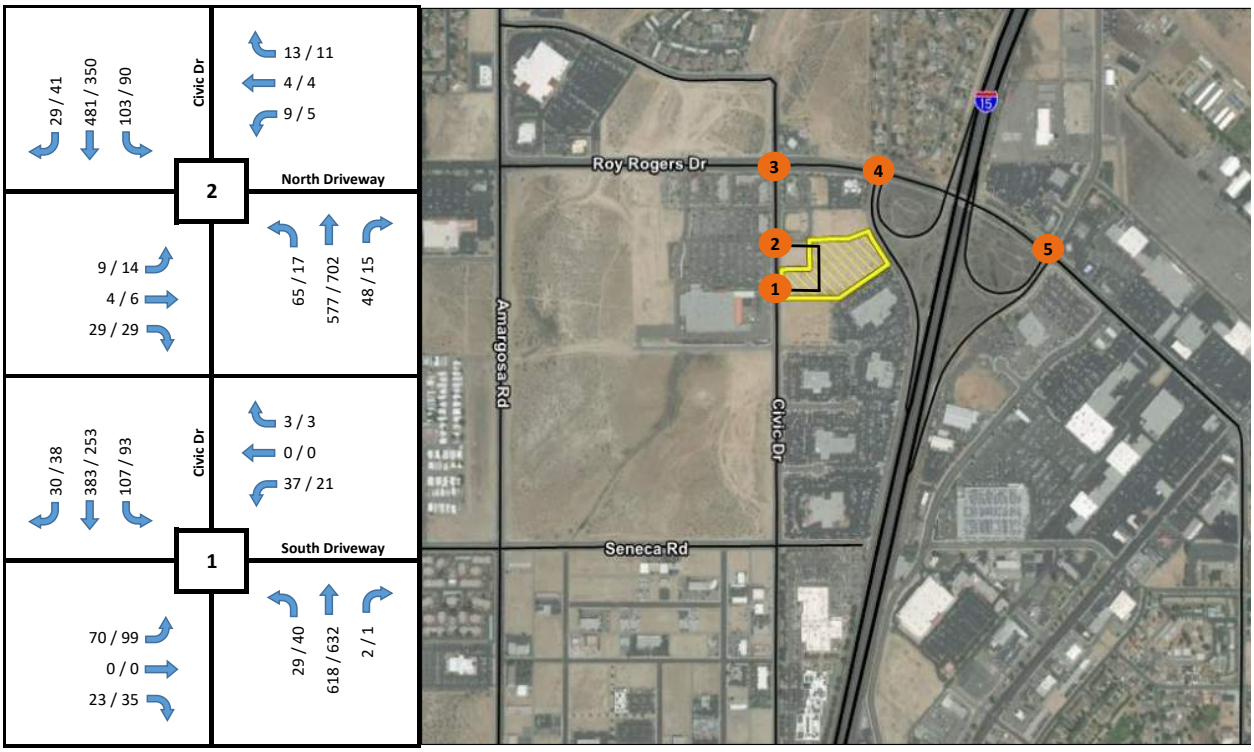
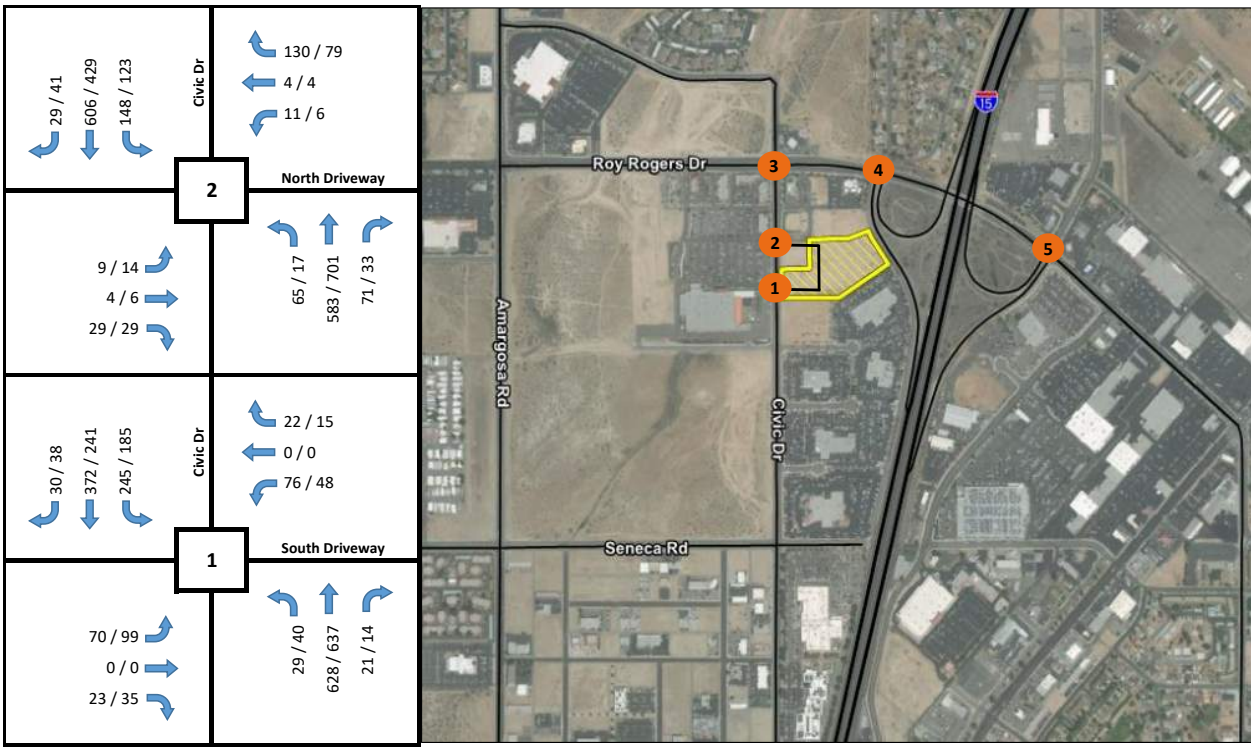


EXHIBIT 11-2: FORECAST PROJECT HORIZON YEAR 2031 WITH VACANT PARCELS WITH MITIGATION TRAFFIC SHIFT



A traffic signal warrant was conducted using the traffic volumes under the volume shift scenario. The results of this analysis are shown in **Table 11-2**.

TABLE 11-2: TRAFFIC SIGNAL WARRANT SUMMARY (MITIGATION)

Study Intersection		Warrant 3: Peak Hour Warrant Met?					
		Opening Year 2021		Horizon Year 2031		Horizon Year 2031 With Vacant	
		With Project with Mitigation		With Project with Mitigation		With Project with Mitigation	
		MIDDAY	PM	MIDDAY	PM	MIDDAY	PM
1 -	Civic Drive and Home Depot South Driveway / Project Site Driveway #1	No	No	**Yes**	**Yes**	**Yes**	**Yes**
2 -	Civic Drive and Home Depot North Driveway / Project Site Driveway #2	No	No	No	No	No	No

Signalization of intersection #1 is intended to mitigate the projected impact at intersection #2. Signalization of an intersection prior to warrant(s) satisfaction could result in unintended adverse impacts such as an increase in vehicle delay for all movements or an increase in traffic violations at the intersection. For this reason, it is recommended that a signal at intersection #1 not be installed until such time the City determines that applicable signal warrants have been met. Reflecting the above considerations, the following is mitigation is proposed:

Mitigation Measure #1

> *Following Project Opening, warrants should be evaluated at Intersection #1 and Intersection #2 with each subsequent development of the remaining vacant three parcels to determine when signal warrant(s) have been satisfied.*

Pending installation of this signal, LOS deficiencies would persist at study intersection #2. This is a significant and unavoidable impact.

It should be noted that drivers may slightly alter their driving behavior prior to signal installation, such as changing their planned trip path, to minimize their delay times at intersection #2.

The mitigated condition operations analysis worksheets are contained in **Appendix L**. Updated traffic signal warrant worksheets for the mitigated traffic volumes are contained in **Appendix M.**

11.2 MITIGATION AT INTERSECTION #5

Impacts have been identified at the intersection of Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive (#5) during the Opening Year 2021 and the Horizon Year 2031. The recommended mitigation at this intersection involves the retiming of the traffic signals in order to accommodate the project site traffic. The retiming recommendation does not include modifications to the cycle length, but rather minor changes to the cycle splits. The Synchro analysis conducted for this intersection shows that shifting one second of green time from the Northbound approach to the Eastbound approach for the With Project conditions is projected to reduce the projected average delay to values equal to or less than the Without Project conditions, thus resulting in a mitigated condition.

11.2.1 Recommended Mitigation Summary – Mitigation Measure #2

Mitigation Measure #2

> *The City should communicate with Caltrans if Intersection #5 experiences excessive delays such that its operating efficiency would benefit from retiming of the traffic signal.*

11.3 FEE ASSESSMENT AND FAIR SHARE

Mitigation Measure #1

For Mitigation Measure #1, the costs associated with mitigation fee have been estimated based upon a fair share calculation. Mitigation Measure #1 is located at Civic Drive and Home Depot South Driveway/Project Site Driveway #1 (intersection #1), a City intersection. Based upon the additional number of project trips, a project fair-share of 8.7% has been calculated (see **Appendix N**). With development of the existing vacant parcels, the estimated fair share value is 4.7%. The fair share information is provided for informational purposes only and may be used for further discussions between the land owner, the developer, and the City regarding what is appropriate in this case. Upon City review of this TIA, the City has recommended that the full cost of the traffic signal be divided equally among the currently undeveloped parcels, including CarMax. It is anticipated that the cost allocation will be coordinated beyond this TIA.

Mitigation Measure #2

For Mitigation Measure #2, funding for the regional improvements at the Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive (#5) intersection would be accommodated via fees collected as part of the City of Victorville Development Impact Fee (DIF) Program.

12 FINDINGS AND RECOMMENDATIONS

The project proposes to construct a 7,590 square foot (SF) CarMax (used car dealership) located along Civic Drive, south of Roy Rogers Drive, within the City of Victorville. The proposed project is forecast to generate 205 daily trips which includes 32 Midday Peak Hour trips and 28 PM Peak Hour trips during a typical weekday.

Existing Year 2018 With Project

Under the Existing Year 2018 With Project conditions, the study intersections are forecast to operate at LOS D or better during both Peak Hours with the addition of project-related traffic to existing traffic volumes at all intersections.

- #2 – Civic Drive and Home Depot North Driveway/Project Site Driveway #2 (LOS E in the Midday Peak Hour and LOS E in the PM Peak Hour).

All roadway segments are projected to operate at LOS D or better under the Existing Year 2018 With Project condition.

Forecast Project Opening Year 2021 With Project

Under the Forecast Project Opening Year 2021 With Project conditions, the study intersections are forecast to operate at LOS D or better during both Peak Hours with the following exceptions:

- #2 – Civic Drive and Home Depot North Driveway/Project Site Driveway #2 (LOS F in the Midday Peak Hour and LOS E in the PM Peak Hour).
- #5 – Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive (LOS E in the PM Peak Hour)

All roadway segments are projected to operate at LOS D or better during the Forecast Project Opening Year 2021 Without Project scenario.

Forecast Project Horizon Year 2031 With Project

Under the Forecast Project Horizon Year 2031 With Project conditions, the study intersections are forecast to operate at LOS D or better during both Peak Hours with the following exceptions:

- #2 – Civic Drive and Home Depot North Driveway/Project Site Driveway #2 (LOS F in the Midday Peak Hour and LOS F in the PM Peak Hour).
- #5 – Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive (LOS F in the Midday Peak Hour and LOS F in the PM Peak Hour).

All roadway segments are projected to operate at LOS D or better during the Forecast Project Horizon Year 2031 With Project scenario.

Forecast Project Horizon Year 2031 With Vacant Parcels With Project

Under the Forecast Project Horizon Year 2031 With Vacant Parcels With Project conditions, the study intersections are forecast to operate at LOS D or better during both Peak Hours with the following exceptions:

- #2 – Civic Drive and Home Depot North Driveway/Project Site Driveway #2 (LOS F in the Midday Peak Hour and LOS F in the PM Peak Hour).

All roadway segments are projected to operate at LOS D or better under this scenario.

Mitigation

The following mitigation measures have been identified to mitigate project forecast significant impacts at the study intersections:

- **Mitigation Measure #1 (Horizon Year)** – Intersection #1 – Civic Drive and Home Depot South Driveway/Project Site Driveway #1
    - Signalize Intersection
- **Mitigation Measure #2 (Opening Year & Horizon Year)** – Intersection #5 – Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive
    - Adjust traffic signal timing (minor modifications)

The signal warrant analysis shows that a traffic signal is projected to be warranted at the intersection of Civic Drive and Home Depot North Driveway/Project Site Driveway #1 (Intersection #1) under the Forecast Project Horizon Year 2031 With Project mitigated peak hour conditions.

Operations at intersection #2 are projected to improve with the installation of a traffic signal at intersection #1 to LOS E with 41.9 seconds of delay per vehicle. Since the delay under the mitigated condition is projected to be less than Existing, the impact at intersection #2 is considered to be mitigated with installation of a traffic signal at intersection #1.

Table 12-1 summarizes the recommended mitigation, projected delay and LOS with mitigation, and the project responsibility values.

TABLE 12-1: PROJECT MITIGATION SUMMARY

Study Intersection	Without Project		With Project		Recommended Mitigation	With Project - WITH MITIGATION		Project Responsibility (% or $)
	MIDDAY	PM	MIDDAY	PM		MIDDAY	PM	
	Delay[1] - LOS	Delay[1] - LOS	Delay[1] - LOS	Delay[1] - LOS		Delay[1] - LOS	Delay[1] - LOS	
Existing Year 2018								
No impacts identified under this condition.								
Opening Year 2021								
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	**58.4 - F**	**44.7 - E**	**57.4 - F**	**48.5 - E**	None (2)	(2)	(2)	(2)
5 - Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive	50.9 - D	**58.3 - E**	52.2 - D	**58.9 - E**	Adjust traffic signal timing (minor modifications)	52.1 - D	**57.2 - E**	(3)
Horizon Year 2031								
1 - Civic Drive and Home Depot South Driveway / Project Site Driveway #1	18.4 - C	16.1 - C	18.7 - C	16.3 - C	Signalize	9.9 - A	11.1 - B	8.7% (4)
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	**126.2 - F**	**59.9 - F**	**130.9 - F**	**69.0 - F**	Traffic Volume Shift to New Signalized Intersection #1	31.2 - D	24.1 - C	--
5 - Roy Rogers Drive and I-15 Northbound Ramps / La Paz Drive	**96.6 - F**	**102.0 - F**	**97.6 - F**	**103.1 - F**	(4)	**95.0 - F**	**100.6 - F**	(4)
Horizon Year 2031 With Vacant Pads								
1 - Civic Drive and Home Depot South Driveway / Project Site Driveway #1	33.9 - D	25.3 - D	34.4 - D	25.5 - D	Signalize	12.4 - B	13.1 - B	4.7% (4)
2 - Civic Drive and Home Depot North Driveway / Project Site Driveway #2	**439.3 - F**	**206.6 - F**	**514.4 - F**	**242.1 - F**	Traffic Volume Shift to New Signalized Intersection #1	**41.9 - E**	30.3 - D	--

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

LOS = level of service.

[1] Seconds of delay per vehicle.

[2] Recommendation identified in the Horizon Year given the timing in which a signal warrant is projected to be met.

[3] Funding contribution for regional improvements to be based on the City of Victorville Development Impact Fee (DIF) Program.

[4] Mitigation measure and fair share responsibility determined in Opening Year 2021 With Project Conditions.

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Appendix A: Traffic Study Scoping Agreement

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Traffic Study Scoping Agreement
Project Location: CarMax, City of Victorville

Project Location:	Civic Drive, Victorville, CA
Project Description:	Proposed Used Auto Sales (CarMax)
Project Opening Year:	2021
Location:	Along east side of Civic Drive, between Roy Rogers Drive and Seneca Drive, north of the existing Valley Hi Honda Dealership

	Engineer	**Applicant**
Company:	Michael Baker International	Centerpoint Integrated Solutions
Name:	Carla Dietrich	Brad Lauth
Address:	3536 Concours, Suite 100	355 Union Boulevard, Suite 301
City, State, Zip Code:	Ontario, CA 91764	Lakewood, CO 80228
Phone #:	(909) 974-4908	(720) 735-0442
Fax #:	(909) 974-4004	N/A
Email:	cdietrich@mbakerintl.com	blauth@centerpoint-is.com

By:		**Reviewed By:**	
Print Name:	**Carla Dietrich**	**Print Name:**	**Anwar Wagdy**
Transportation Engineer	**7/3/2018**	**Traffic Division Representative**	**7/1/2018**

Traffic Scoping Agreement
Project Location: CarMax, City of Victorville

1. Trip Credit

No trip generation credits are being proposed for this project.

Transportation Demand Management (TDM)	No	Not Anticipated
Existing Active Land Use	No	Vacant Land
Previous Land Use	No	Undeveloped
Internal Trip Reduction	No	Not Applicable
Pass-by Trip Reduction	No	Not Applicable

2. Trip Generation

See **Table 1** for the trip generation rates and **Table 2** for the project trip summary. The trip generation source is the *ITE Trip Generation Manual*, 10th Edition. The proposed building includes 11,447 square-feet of building space including sales, presentation, retail service, carwash, and other.

Table 1: Trip Generation Rates

Land Use	ITE Code	Daily Trips		Midday Peak Hour Trips		PM Peak Hour Trips	
		Rate	In : Out	Rate	In : Out	Rate	In : Out
Automobile Sales (Used)	841	27.06 / KSF	50% : 50%	4.21 / KSF	58% : 42%	3.75 / KSF	47% : 53%

Notes:

Source: ITE Trip Generation Manual, 10th Edition
Midday Peak Hour trip rate based on AM Peak Hour of Generator
PM Peak Hour trip rate based on PM Peak of Adjacent Street.
KSF = Thousand Square Feet

Table 2: Estimated Number of Project Trips

Land Use	ITE Code	Intensity		Daily Trips			Midday Peak Hour Trips			PM Peak Hour Trips		
				Total	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound
Automobile Sales (Used)	841	11.447	KSF	310	155	155	48	28	20	43	20	23

Notes:

Source: ITE Trip Generation Manual, 10th Edition
Midday Peak Hour trip rate based on AM Peak Hour of Generator
PM Peak Hour trip rate based on PM Peak of Adjacent Street.
Project trips not converted to PCEs.
KSF = Thousand Square Feet

3. Traffic Distribution

Exhibit 1 (attached) shows the proposed project site plan. **Exhibit 2** shows distribution percentages at the proposed project site driveway and **Exhibit 3** shows the projected Weekday Midday Peak Hour and Weekday PM Peak Hour project trips.

The regional distributions are as follows:

- Civic Drive to the South = 15%
- Roy Rogers Drive to the East = 10% (East of I-15)
- Roy Rogers Drive to the West = 10% (West of I-15)
- I-15 to the North = 25%
- I-15 to the South = 40%

4. Freeway Analysis

The proposed project is projected to add the following trips to I-15:

- I-15 to the North = 12 (11)
- I-15 to the South = 19 (18)

The traffic assessment will not include a freeway analysis on Interstate 15 since the project is projected to add significantly less trips than the 100 (two-way) peak hour trips required for analysis per the San Bernardino County Congestion Management Program, 2016 Update, Appendix B (Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County).

5. Study Intersections

The study shall include the following intersections as shown in **Exhibit 4**. In an effort to conduct a conservative analysis, the study intersection locations have been extended beyond those required based on the typical 50 peak hour trip threshold.

ID	N-S / E-W Street Name	Signalized	Number of Midday Peak (PM Peak) Project Trips
1	Civic Drive @ South Driveway	No	24 (21)
2	Civic Drive @ North Driveway	No	43 (39)
3	Civic Drive @ Roy Rogers Dr	Yes	41 (37)
4	Roy Rogers Dr @ I-15 Southbound Ramps	Yes	36 (33)
5	Roy Rogers Dr @ I-15 Northbound Ramps	Yes	21 (18)

6. Analysis Scenarios

The analysis scenarios are anticipated as follows:

1. Existing Conditions
2. Existing Conditions + Project
3. Opening Year Base
4. Opening Year Base + Other Proposed Projects
5. Opening Year Base + Other Proposed Projects + Project
6. Opening Year Base + Other Proposed Projects + Project + Mitigation (if necessary)
7. Horizon Year Base + Other Proposed Projects
8. Horizon Year Base + Other Proposed Projects + Project
9. Horizon Year Base + Other Proposed Projects + Project + Mitigation (if necessary)

Traffic Scoping Agreement
Project Location: CarMax, City of Victorville

7. Traffic Growth

Ambient Growth Rate (to Opening Year) Per Year =	2%
Horizon Year Growth Rate =	2%

8. Cumulative Projects

Coordination will be conducted with the City of Victorville Planning Department staff to identify cumulative projects in the area that may add traffic to the study area.

9. Coordination

Other agencies to be consulted: None identified.

10. Traffic Counts

1) Traffic counts guidelines:
   a. Must be taken on Tuesdays, Wednesdays or Thursdays
   b. Must exclude holidays.
   c. Must be taken on days of good weather, and avoid atypical conditions (e.g., road construction, detours, or major traffic incidents).
   d. School seasonal adjustment factor not required.
   e. Count time periods
      - 11:30 AM to 1:30 PM
      - 4:00 PM to 6:00 PM

11. Roadway Segment Analysis

Segment analysis is not proposed.

12. Study Guidelines & Methodologies

1) The Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County will be utilized.
2) Use of the Highway Capacity Manual, 6th edition, and Synchro Software is anticipated.
3) The analysis will be conducted using passenger car equivalents (PCEs).

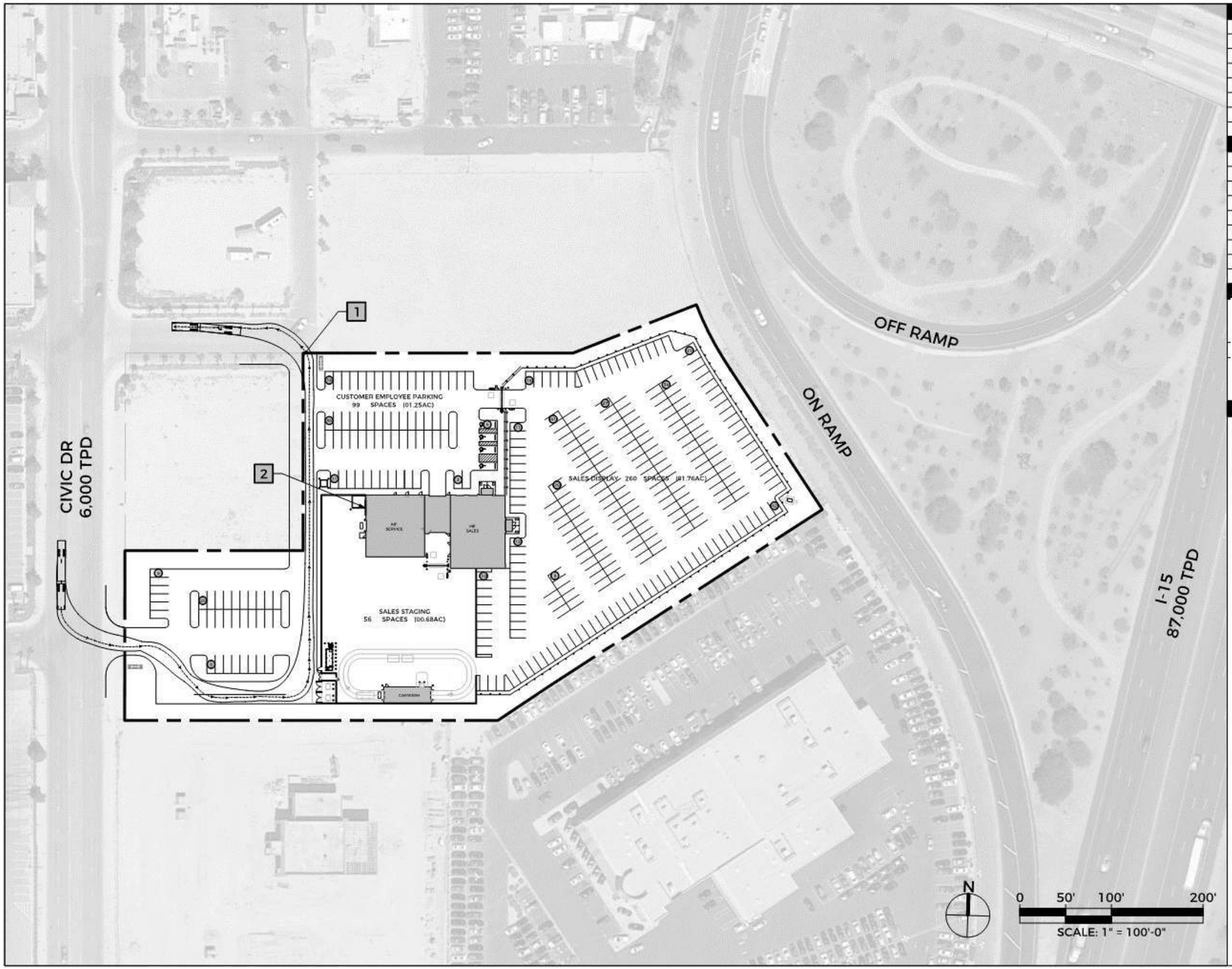
13. Additional Items

1) Count Adjustment Factor – Since the traffic counts will be conducted while school is not in session, the City to provide a seasonal adjustment factor to apply to the existing traffic count data. – NOT REQUIRED based on input from City.
2) Long Range Forecasts – 2% annual growth rate for 10-year horizon year

EXHIBITS

Traffic Study Scoping Agreement
Project Location: CarMax, City of Victorville

Exhibit 1: Site Plan



SITE INFORMATION	
DEVELOPED	4.98
DETENTION	0
WETLANDS	0
EASEMENTS	0
BUFFERS	0
EXPANSION	0
SURPLUS	0
TOTAL	4.98

BUILDING INFORMATION	
	"MFS"
SALES	4,909 SF
PRESENTATION	1,197 SF
RETAIL SERVICE	4,309 SF
PRODUCTION	0
CARWASH	936 SF
FQC	0
OTHER	96 SF
TOTAL	11,447 SF

DESIGN BASIS

NOTES

GENERAL
- CLIMATE ZONE 3

KEY
1. EXISTING CURB CUT
2. WALL MOUNTED CABINET SIGN

CARMAX
12800 TUCKAHOE CREEK PKWY RICHMOND, VA 23238
804-747-0422 | CARMAX.COM

VICTORVILLE, CA

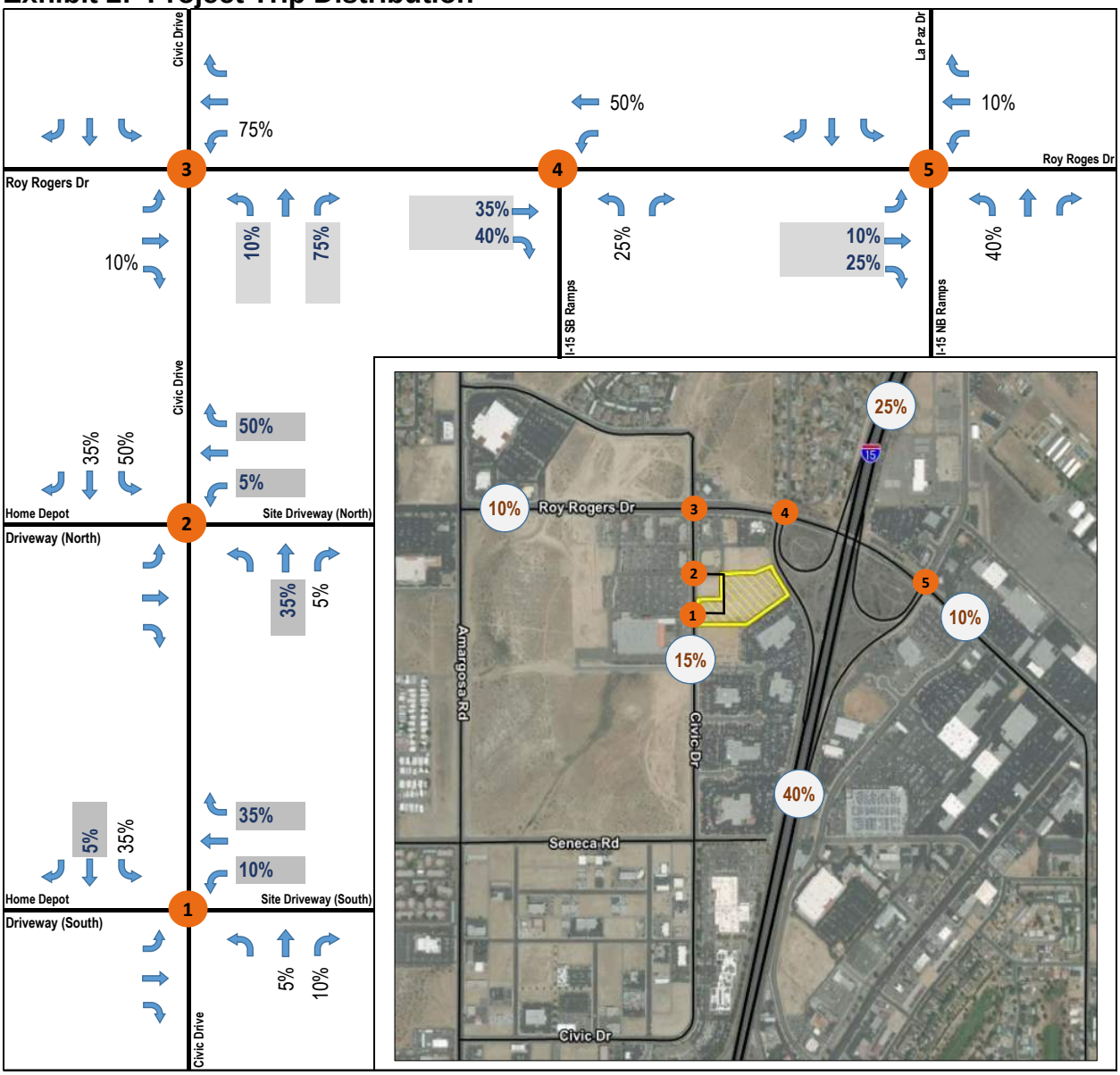
CONFIDENTIAL
NOT RELEASED FOR CONSTRUCTION

PROJECT NO. 6157
DATE 03.13.18
SHEET TITLE
PRELIM. SITE PLAN

SHEET NO.
SP-07

Traffic Study Scoping Agreement
Project Location: CarMax, City of Victorville

Exhibit 2: Project Trip Distribution



Legend

XX% = Inbound Intersection Distribution Percentage

XX% = Outbound Intersection Distribution Percentage

X% = Regional Distribution Percentage

X = Study Intersection ID

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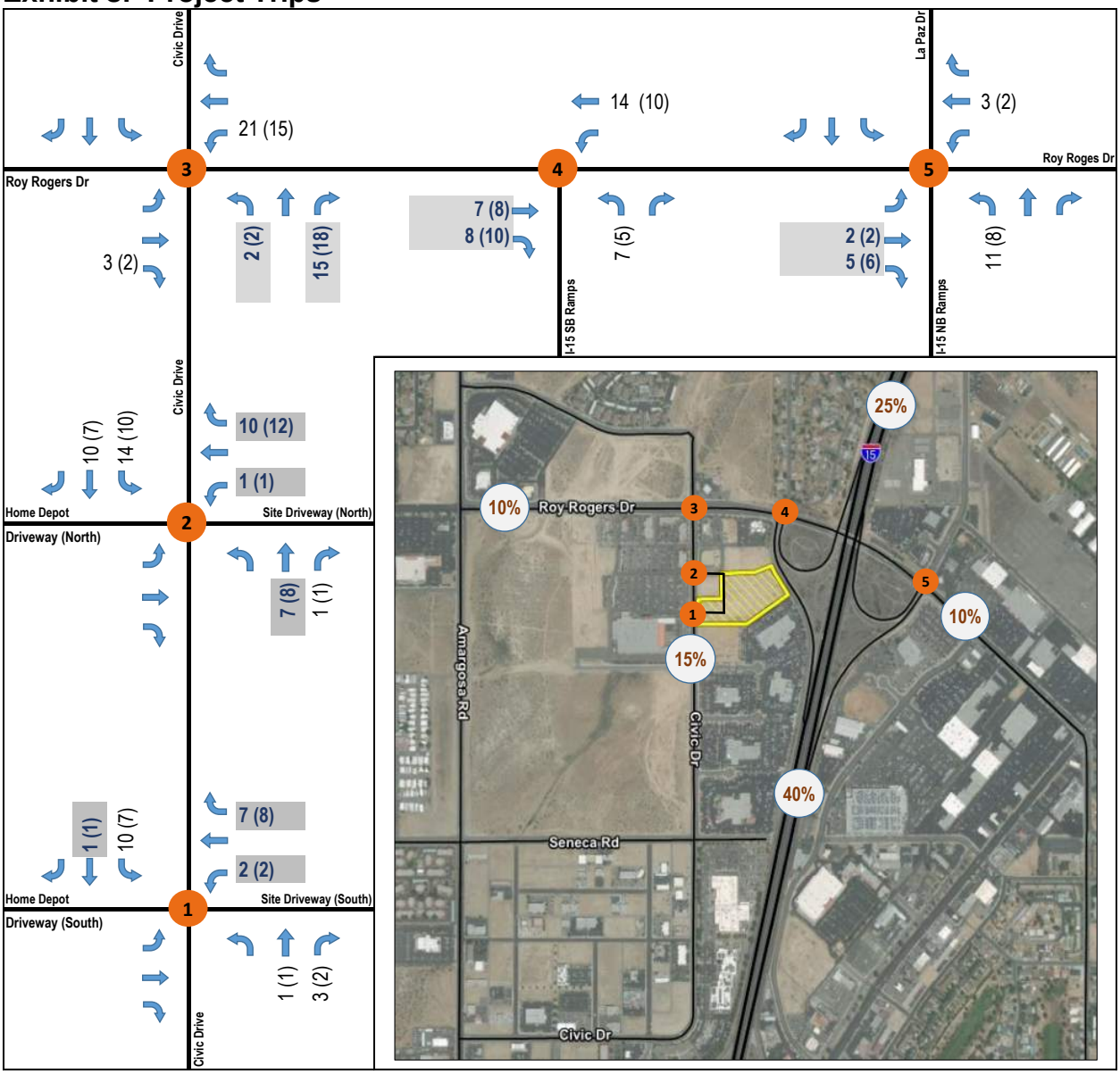
Project Inbound / Outbound Distribution

Traffic Scoping Agreement
Project Location: CarMax, City of Victorville

Exhibit 3: Project Trips



Legend

XX = Inbound Peak Hour Traffic Volume

XX = Outbound Peak Hour Traffic Volume

X (X) = Midday (PM) Peak Hour

X = Study Intersection ID

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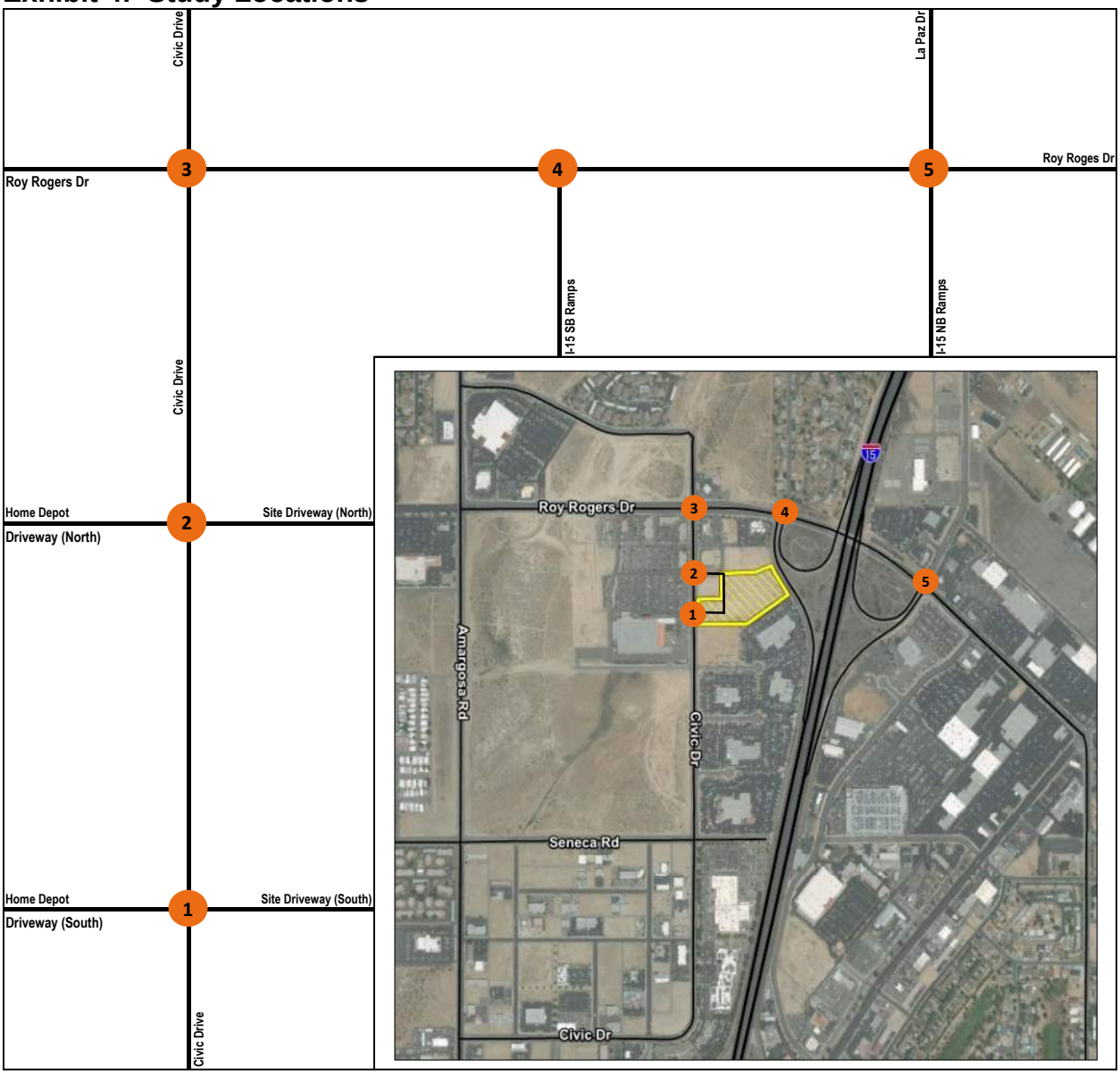
Traffic Scoping Agreement
Project Location: CarMax, City of Victorville

Exhibit 4: Study Locations



Legend
X = Study Intersection ID

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Study Intersections

Dietrich, Carla

From: Anwar Wagdy <awagdy@victorvilleca.gov>
Sent: Tuesday, July 10, 2018 9:39 AM
To: Dietrich, Carla
Subject: RE: EXTERNAL: RE: Proposed Civic Drive Development - Traffic Study Scoping Agreement - For City Review

Carla,

The attached scoping proposal looks fine to proceed.
Thanks,
Anwar

From: Dietrich, Carla [mailto:CDietrich@mbakerintl.com]
Sent: Tuesday, July 10, 2018 9:29 AM
To: Anwar Wagdy
Subject: FW: EXTERNAL: RE: Proposed Civic Drive Development - Traffic Study Scoping Agreement - For City Review

Anwar,

I know that we discussed the final CarMax scoping agreement on 7/3/2018 and you agreed that no other changes are required. However, can you please confirm this fact via a response to this email so that I have a record for our files?

Thank you,
Carla

From: Dietrich, Carla
Sent: Tuesday, July 03, 2018 7:10 AM
To: Anwar Wagdy <awagdy@victorvilleca.gov>
Subject: RE: EXTERNAL: RE: Proposed Civic Drive Development - Traffic Study Scoping Agreement - For City Review

Anwar,

Thanks again for all of your input! I've updated the scoping document to reflect your comments. Regarding the switch from AM to Midday, I updated the project trips in the attached document. The previous version of the document calculated AM based on the peak of the adjacent street. I removed AM and provided the showed the ITE trip generation manual AM peak of the generator as the Midday Peak. This is probably a bit more conservative, but I think it is the best approach.

Please let me know if you have any additional questions or concerns. The traffic counts will be scheduled for next week.

Thanks,
Carla

From: Anwar Wagdy [mailto:awagdy@victorvilleca.gov]
Sent: Monday, July 02, 2018 1:24 PM
To: Dietrich, Carla <CDietrich@mbakerintl.com>
Subject: RE: EXTERNAL: RE: Proposed Civic Drive Development - Traffic Study Scoping Agreement - For City Review

Carla,

Noon time traffic in this area is often heavier. Although AM traffic at the intersections is heavy, the project's driveways will be minimum.
Therefore, I accept substituting the AM for midday analysis. Weekday is sufficient.
I suggest the following times for counts:

Mid-day: 11:30 to 1:30
PM: 4:00 to 6:00

Thanks,
Anwar

From: Dietrich, Carla [mailto:CDietrich@mbakerintl.com]
Sent: Monday, July 02, 2018 11:50 AM
To: Anwar Wagdy
Subject: RE: EXTERNAL: RE: Proposed Civic Drive Development - Traffic Study Scoping Agreement - For City Review

Anwar,

Thank you for the input. Should the mid-day analysis replace the AM Peak Hour, or do you think there needs to be three analysis periods (AM Peak, Mid-day Peak, and PM Peak)? And by Mid-day analysis, do you mean Weekday or Saturday?

Thanks,
Carla

From: Anwar Wagdy [mailto:awagdy@victorvilleca.gov]
Sent: Monday, July 02, 2018 11:36 AM
To: Dietrich, Carla <CDietrich@mbakerintl.com>
Subject: RE: EXTERNAL: RE: Proposed Civic Drive Development - Traffic Study Scoping Agreement - For City Review

Hi Carla,

Please see my comments below.
Thanks,
Anwar

From: Dietrich, Carla [mailto:CDietrich@mbakerintl.com]
Sent: Wednesday, June 27, 2018 9:11 AM
To: Anwar Wagdy
Cc: Adam Lewis
Subject: RE: EXTERNAL: RE: Proposed Civic Drive Development - Traffic Study Scoping Agreement - For City Review

Anwar,

Can you please provide the following:

1. Any comments/concerns with the scoping agreement (ambient growth rate, trip distributions, methodologies, etc.)
   Use 2% annual growth rate. Everything else looks reasonable. Additionally, I would appreciate doing a mid-day analysis. Correct the street name to Roy Rogers.
2. Does the City have a seasonal adjustment factor that can be applied to July 2018 counts in order to account for school not being in session?

No seasonal adjustment needed.

3. Does the City have a long-range growth rate that can be utilized for this area? Perhaps a TDM run from the general plan?
   Just use the annual 2% for 10-year horizon year.
4. Does the City maintain a list of current projects that we can use as the basis for the cumulative projects?
   I am not aware of cumulative projects in this general area, but you should contact or planning dept. for their input.

Thanks again for your help with this project.

Carla

From: Anwar Wagdy [mailto:awagdy@victorvilleca.gov]
Sent: Tuesday, June 26, 2018 2:34 PM
To: Dietrich, Carla <CDietrich@mbakerintl.com>
Cc: Adam Lewis <alewis@victorvilleca.gov>
Subject: RE: EXTERNAL: RE: Proposed Civic Drive Development - Traffic Study Scoping Agreement - For City Review

Carla,

I am ok with the study if this satisfies your client's needs.
Let me know if you need anything.

Anwar

From: Dietrich, Carla [mailto:CDietrich@mbakerintl.com]
Sent: Tuesday, June 26, 2018 1:38 PM
To: Anwar Wagdy
Cc: Adam Lewis
Subject: RE: EXTERNAL: RE: Proposed Civic Drive Development - Traffic Study Scoping Agreement - For City Review

Anwar,

Thank you for that observation! However, the applicant feels strongly that they need a traffic study to cover all bases in the CEQA process since an EIR may be required. Even though the study is technically not required from a traffic perspective, would you mind if we still proceed with the study and obtain City input and comment on the scoping agreement and the study itself? It would still be important to the process to obtain general guidance and verification of results from the City. Please let me know if this is an option.

Thanks,
Carla

From: Anwar Wagdy [mailto:awagdy@victorvilleca.gov]
Sent: Tuesday, June 26, 2018 10:37 AM
To: Dietrich, Carla <CDietrich@mbakerintl.com>
Cc: Adam Lewis <alewis@victorvilleca.gov>
Subject: EXTERNAL: RE: Proposed Civic Drive Development - Traffic Study Scoping Agreement - For City Review

Hi Carla,

I appreciate tour offer to conduct a focused traffic study; however, I really don't see a need for one since the peak traffic from the project is very low and not expected to cause any significant impact to the surrounding system.
Please feel free to call me if you have any questions.
Thanks,

ANWAR WAGDY, P.E.
City Traffic Engineer
Public Works Dept./Engineering
(760) 955-5160

From: Dietrich, Carla [mailto:CDietrich@mbakerintl.com]
Sent: Monday, June 25, 2018 3:51 PM
To: Anwar Wagdy
Subject: Proposed Civic Drive Development - Traffic Study Scoping Agreement - For City Review

Anwar:

I would like the submit the attached Traffic Study scoping agreement for the City's review and comment. This document is in reference to the proposed CarMax development along Civic Drive, south of Roy Rodgers Drive.

We spoke in May regarding this project and at the time we had anticipated a focused traffic study. While the projected traffic volumes support a focused study, the applicant has asked that we prepare a study that is more conservative in nature. Thus, the proposal outlined in the attached is more involved than would be anticipated.

We can discuss the level of effort further if you would like. Please review the attached and let me know any comments or concerns. I look forward to your response.

Thank you,
Carla Dietrich, PTOE | Engineer - Transportation | Michael Baker International
3536 Concours, Suite 100 | Ontario, CA 91764 | [O] 909-974-4908
cdietrich@mbakerintl.com | www.mbakerintl.com

Michael Baker
INTERNATIONAL

Appendix B: Traffic Study Scoping Agreement Addendum

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Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

To: Anwar Wagdy, City of Victorville

From: Carla Dietrich, Michael Baker International

CC: Brad Lauth, Centerpoint Integrated Solutions

Date: April 22, 2019 (Revised, previous version dated April 1, 2019)

Subject: Proposed CarMax – Addendum to Scoping Agreement for Supplemental Analysis of Vacant Parcels

This memorandum is intended to serve as an addendum to the Scoping Agreement to address the City request for supplemental analysis that was not identified during the initial project scoping. City input and approval of the traffic volume development and assumptions contained within this memorandum is requested. Traffic operations analysis and revision of the TIA will be conducted once City approval of this document is received.

Background

Michael Baker International prepared and submitted traffic impact analysis documents for the City of Victorville relative to the proposed CarMax project located along Civic Drive. Specifically, a scoping agreement dated July 3, 2018 was approved by City representatives and a Traffic Impact Analysis (TIA) was prepared to reflect the methodologies and assumptions contained in the scoping agreement. The draft TIA dated September 14, 2018 was submitted for review and comment. The City provided comment on the TIA via an e-mail dated January 3, 2019, as follows:

- The northerly driveway on Civic Drive is currently operating at a level-of-service E, which is unacceptable.
- The report failed to recognize the cumulative trips that will be generated from the three adjacent vacant parcels.
- The existing southbound left-turn lane pocket of the northerly driveway is only 90 feet long and is already substandard. It can only stack about 4-5 vehicles and cannot accommodate future demands.
- Signalizing the northerly driveway is unacceptable option, due to its close spacing with the Roy Rogers intersection.
- Weighing in all of the above situations would indicate that the internal and external circulation is deficient.
- To resolve these issues we propose that the developer to revise the site plan to allow the majority of trips, from CarMax and all adjacent businesses, to utilize the southerly driveway instead of the northerly one. This driveway would eventually be signalized and will have much longer space for southbound left turn storage.
- Failure to rectify these problems would result in perpetuating the deficiency at the northerly driveway and rendering the adjacent 3 vacant parcels in limbo since they cannot mitigate their impact.

The following actions have been identified to address the City comments:

1) Revise the site plan revision to allow traffic from other parcels to utilize the southern CarMax driveway (study intersection #1). See **Attachment A** for the revised site plan.
2) Develop an additional analysis scenario which would represent development of the existing vacant parcels, and thus full build-out of the area bounded by Roy Rogers Drive to the north, the proposed CarMax site to the south, Civic Drive to the west, and the I-15 to the east.

This evaluation focuses on the following two (2) of the study intersections:

- Intersection #1 – Civic Drive and Home Depot South Driveway / Project Site Driveway #1
- Intersection #2 – Civic Drive and Home Depot Driveway/Project Site Driveway #2

Comments on this Memorandum

A meeting was held on April 16, 2019 for the City to provide comments on this memorandum. Key items of direction provided by the City that have been incorporated into this updated version of the memorandum include the following:

1) The pass-by trip percentages provided in the original memorandum were too high. The City would accept 10% during the Midday Peak and 15% during the PM Peak.
2) The internal capture percentage assumption of 10% can continue to be used.
3) Vacant parcel trip distribution percentages were adjusted to shift trips from Intersection #2 to Intersection #1.
4) The right-in/right-out intersection north of Intersection #2 should be added to the trip exhibits. Analysis of this location is not required.
5) An exhibit showing cumulative site trips (all existing, potential on vacant parcels, and CarMax) should be provided.
6) Operations analysis to include traffic signal warrants.

Additional Analysis Scenario – Description

The potential vacant parcels are anticipated to include the development summarized in **Table 1**, as provided by development team.

Table 1: Vacant Parcel Development Description

Pad	Location	Potential Development		
		Type (ITE Land Use Description)	Size	ITE Land Use Code
1	West of CarMax site	Shopping Center	3,000 SF	820
		Fast-Food Restaurant with Drive-Through	3,000 SF	934
4	Northwest of CarMax site	Shopping Center	2,000 SF	820
		Fast-Food Restaurant with Drive-Through	2,000 SF	934
5	North of CarMax site	High-Turnover Restaurant	8,650 SF	932

SF = Square Feet

Additional Analysis Scenario – Trip Generation, Distribution, and Assignment

Table 2 shows the estimated trip generation for Pads 1, 4, and 5.

Table 2: Vacant Parcel Development Trip Generation

Parcel	ITE Code	ITE Land Use Description	Size	ADT	Midday Peak Hour			PM Peak Hour		
					Total	Inbound	Outbound	Total	Inbound	Outbound
Pad 1	820	Shopping Center	3 KSF	554	55	28	28	41	19	22
	934	Fast-Food w/ Drive Thru	3 KSF	1,413	167	83	83	98	51	47
		Pad 1 Total Trips		1,967	222	111	111	139	70	69
		Pass-By Trip Reduction (1)		-197	-22	-11	-11	-21	-11	-10
		Internal Trip Reduction (10%) (2)		-177	-20	-10	-10	-12	-6	-6
		Pad 1 Net-New Trips Sub-Total		1,593	180	90	90	106	53	53
Pad 4	820	Shopping Center	2 KSF	420	42	21	21	30	14	16
	934	Fast-Food w/ Drive Thru	2 KSF	942	111	56	56	65	34	31
		Pad 4 Total Trips		1,362	153	77	77	95	48	47
		Pass-By Trip Reduction (1)		-136	-15	-8	-8	-14	-7	-7
		Internal Trip Reduction (10%) (2)		-123	-14	-7	-7	-8	-4	-4
		Pad 4 Net-New Trips Sub-Total		1,103	124	62	62	73	37	36
Pad 5	932	High-Turnover Restaurant	8.65 KSF	970	118	59	59	85	52	33
		Pad 5 Total Trips		970	118	59	59	85	52	33
		Pass-By Trip Reduction (1)		-97	-12	-6	-6	-13	-8	-5
		Internal Trip Reduction (10%) (2)		-87	-11	-5	-5	-7	-4	-3
		Pad 5 Net-New Trips Sub-Total		786	95	48	48	65	40	25
Total Pass-By Trips				-430	-49	-25	-25	-48	-26	-22
Total Internal Trips				-387	-45	-22	-22	-27	-14	-13
Total Net New Trips				3,482	400	200	200	244	130	114

Note: all volumes are in passenger car equivalents (PCE's)

Midday Peak Hour assumed to be a portion of ADT with a 50/50 split as follows: Shopping Center = 10.0%; Fast-Food = 11.8%; High-Turnover Restaurant = 12.2%. These values are based on the ITE Trip Generation Manual, 10th Edition, Appendix A - Percent of Daily Traffic.

SBC = San Bernardino County; KSF = Thousand Square Feet; VFP = Vehical Fuel Pump

(1) Pass-By Percentages for Daily & Midday = 10% reduction; PM = 15% reduction

(2) Internal Trip Reductions conservatively assumes 10% reduction after accounting for pass-by trip reductions

The estimated trip distributions for each of the three (3) potential development pads were based upon the site plan (**Figure A-1**) and considers how motorists are likely to distribute considering local conditions. Modifications to the trip distribution may be considered upon review of the analysis findings and consideration of motorists desire to avoid congestion. The trip distribution values are included in **Attachment B**, including the following exhibits:

- **Exhibit B-1**: Pad 1 Trip Distribution
- **Exhibit B-2**: Pad 4 Trip Distribution
- **Exhibit B-3**: Pad 5 Trip Distribution

The site trips were assigned according to the trip distributions, thus resulting in the following base site trip exhibits (without internal capture or pass-by trips):

- **Exhibit C-1**: Pad 1 Site Trips
- **Exhibit C-2**: Pad 4 Site Trips
- **Exhibit C-3**: Pad 5 Site Trips

An internal capture adjustment of 10% was applied. Pass-by trips were assumed given the nature of the potential development. The pass-by trip percentages were provided by the City . **Exhibit C-4** shows the total site trips for Pads 1, 4, and 5 including internal capture and pass-by trips.

Revisions to CarMax Trip Generation, Distribution, and Assignment

The CarMax building trip generation was modified slightly as a result of the site reconfiguration as follows:

- The previous TIA evaluated a building that was 7,480 square feet, while the revised site plan shows a building of 7,590 square feet.
- The distribution of the CarMax site trips were shifted slightly to intersection #2 given the removal of the parking in the southern portion of the site near intersection #1.

Table 3 shows the revised trip distribution. Increasing the square footage of the building has very minimal impacts compared to the values shows in the TIA. The revised trip distribution and site trips for the proposed CarMax building are shown in **Attachment D**, **Exhibits D-1** and **D-2**.

Table 3: Proposed Project Trip Generation

Land Use	ITE Code	Intensity		Daily Trips			Midday Peak Hour Trips			PM Peak Hour Trips		
				Total	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound
Automobile Sales (Used)	841	7,590	SF	205	103	103	32	19	13	28	13	15

Notes:
Source: ITE Trip Generation Manual, 10th Edition
Midday Peak Hour trip rate based on AM Peak Hour of Generator
PM Peak Hour trip rate based on PM Peak of Adjacent Street.
KSF = Thousand Square Feet

Additional Analysis Scenario – Assumptions

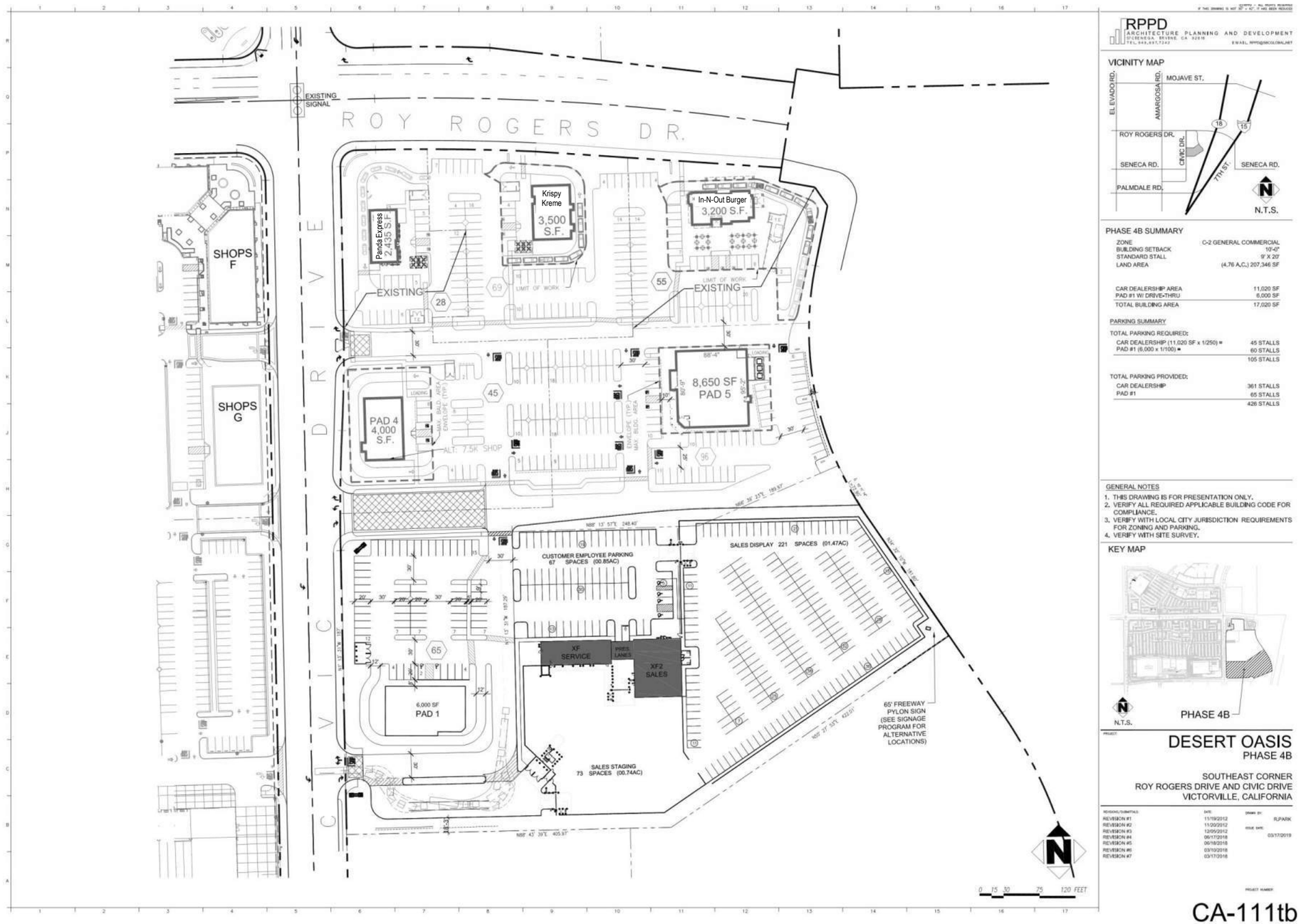
The following key assumptions will be utilized in the proposed analysis which will be conducted upon approval of this document:

1) The development at the vacant parcels will not be added to the "cumulative projects" list since the vacant parcels are not currently planned or programmed and they are NOT anticipated to be built and open prior to the CarMax opening in Year 2021. Instead, the potential traffic related to the vacant parcels will be included in the future Year 2031 traffic volumes in addition to the 2% per year background growth rate.
2) The TIA will be updated to include the following scenarios:
    a. Opening Year 2021 With Project (revised with updated CarMax distributions/site trips)
    b. Horizon Year 2031 With Project (revised with updated CarMax distributions/site trips)
    c. Horizon Year 2031 With Vacant Parcels Without Project (new scenario)
    d. Horizon Year 2031 With Vacant Parcels With Project (new scenario)

    Note: Mitigation will be examined under the With Project scenarios to address any impacts identified. Mitigation measures may include traffic signalization in which a peak hour traffic signal warrant will be evaluated.
3) The additional analysis scenarios with the vacant parcels will focus only on operations at two (2) of the study intersections:
    a. Intersection #1 – Civic Drive and Home Depot South Driveway/Project Site Driveway #1
    b. Intersection #2 – Civic Drive and Home Depot Driveway/Project Site Driveway #2
4) Analysis will continue to focus on Midday Peak and PM Peak conditions.
5) NO new data collection or traffic counts are proposed.
6) As was as the case in the TIA, the right-in/right-out driveway located north of the proposed CarMax site driveway will not be included in this analysis. This intersection is shown in the trip assignment exhibits for Parcels 1, 4, and 5 for informational purposes only.

7) The purpose of the proposed analysis is to address the proposed CarMax development traffic impacts. The analysis is NOT being conducted to seek approval of the other vacant parcels in the area.
8) The analysis may consider shifting of traffic depending on the available capacity at Intersection #2. An exhibit showing cumulative site trips (all existing, potential on vacant parcels, and CarMax) is included in **Attachment E**.

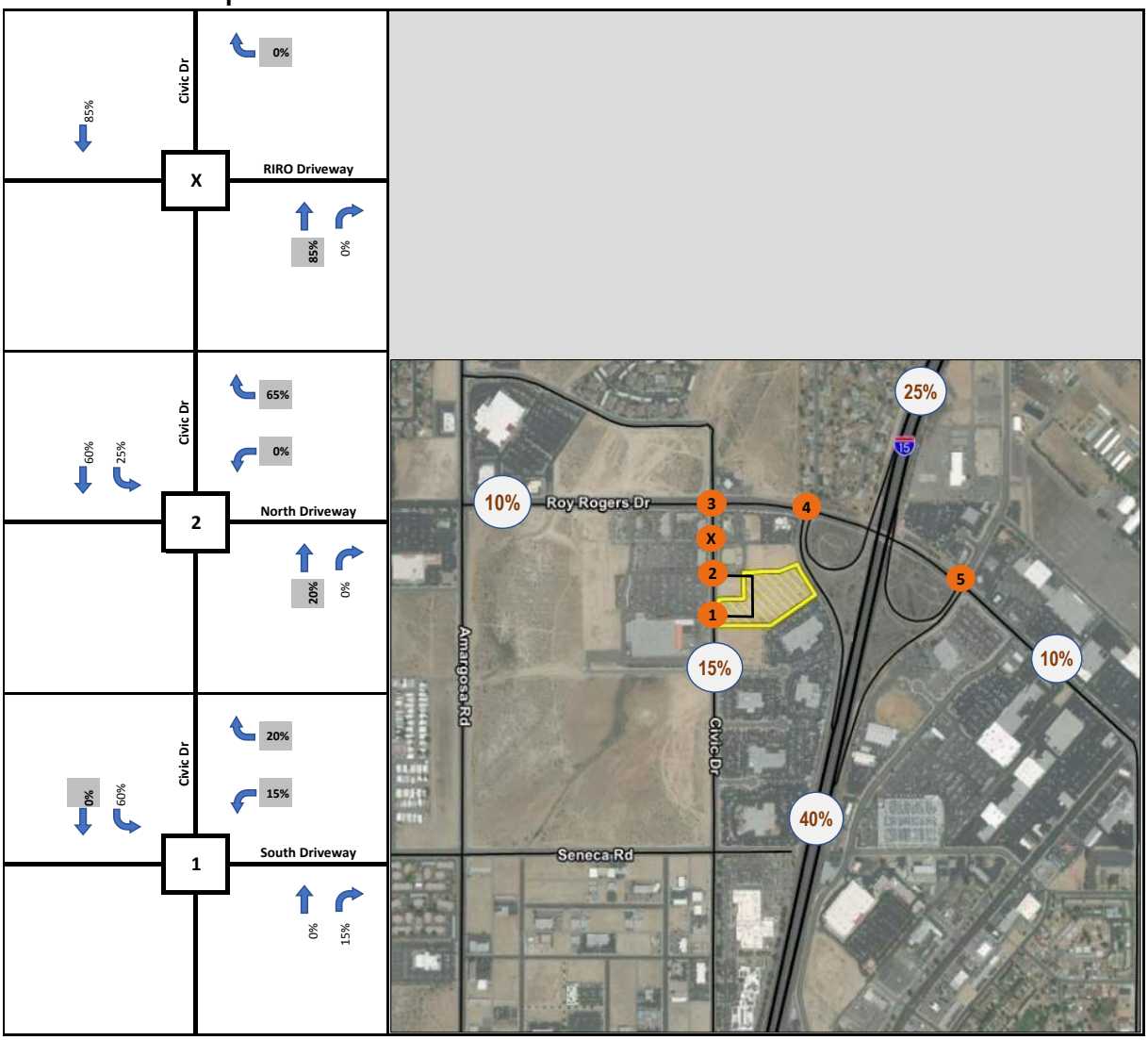
Attachment A – Potential Revised Site Plan



Note: Pads on the north side (Panda Express, Krispy Kreme, and In-N-Out Burger have already been constructed and are open to traffic. Pads 1, 4, and 5 show potential future development on vacant parcels near the proposed CarMax site.

Attachment B – Additional Analysis Scenario – Trip Distribution

Exhibit B-1: Pad 1 Trip Distribution



Legend

XX% = Inbound Intersection Distribution Percentage

XX% = Outbound Intersection Distribution Percentage

X% = Regional Distribution Percentage

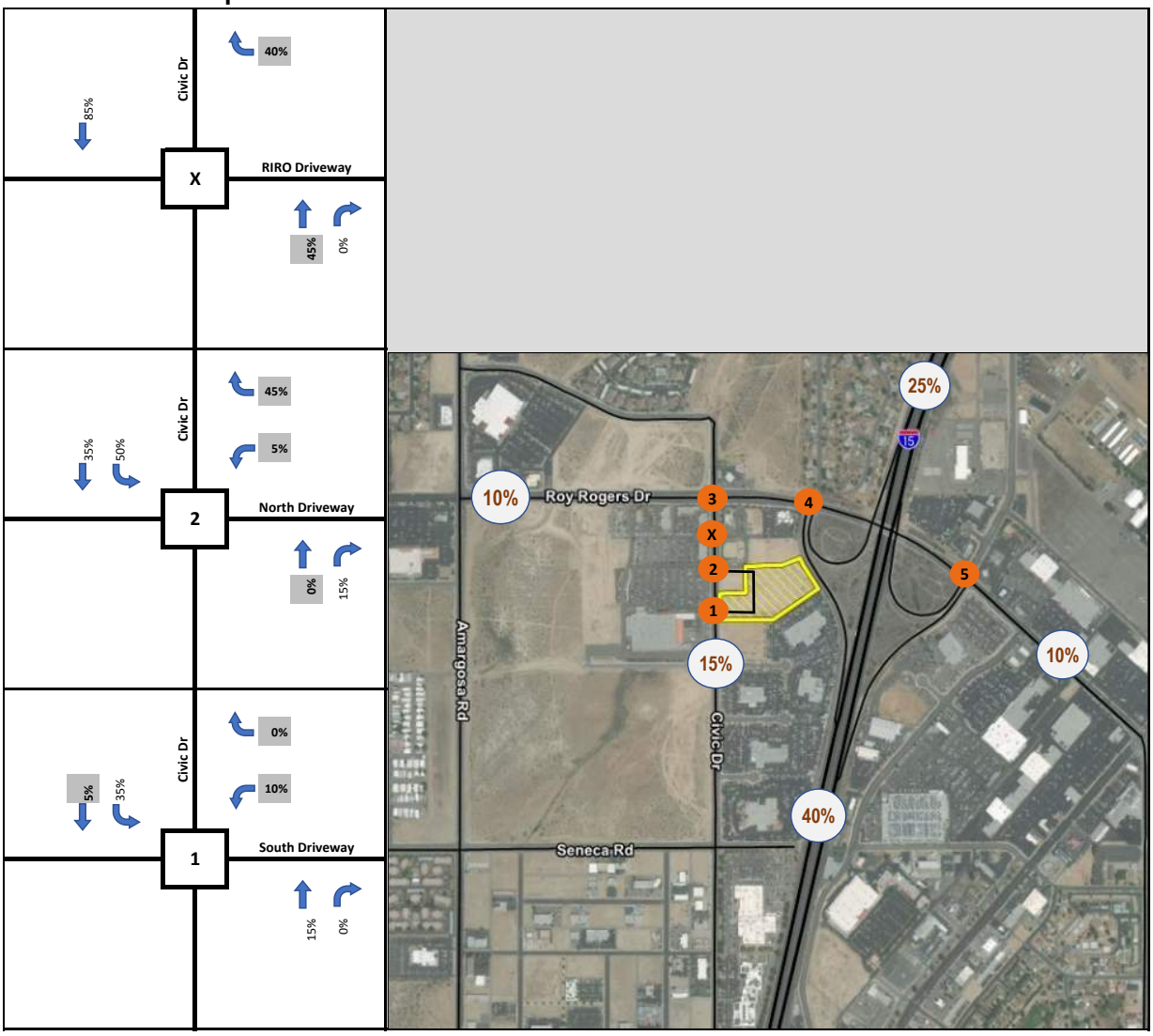
X = Study Intersection ID

Note: Intersection "X" is not an analysis study intersection. Volumes provided for informational purposes only.

Michael Baker INTERNATIONAL

Pad 1 New Trips Inbound / Outbound Distribution

Exhibit B-2: Pad 4 Trip Distribution



Legend

XX% = Inbound Intersection Distribution Percentage

XX% = Outbound Intersection Distribution Percentage

X% = Regional Distribution Percentage

X = Study Intersection ID

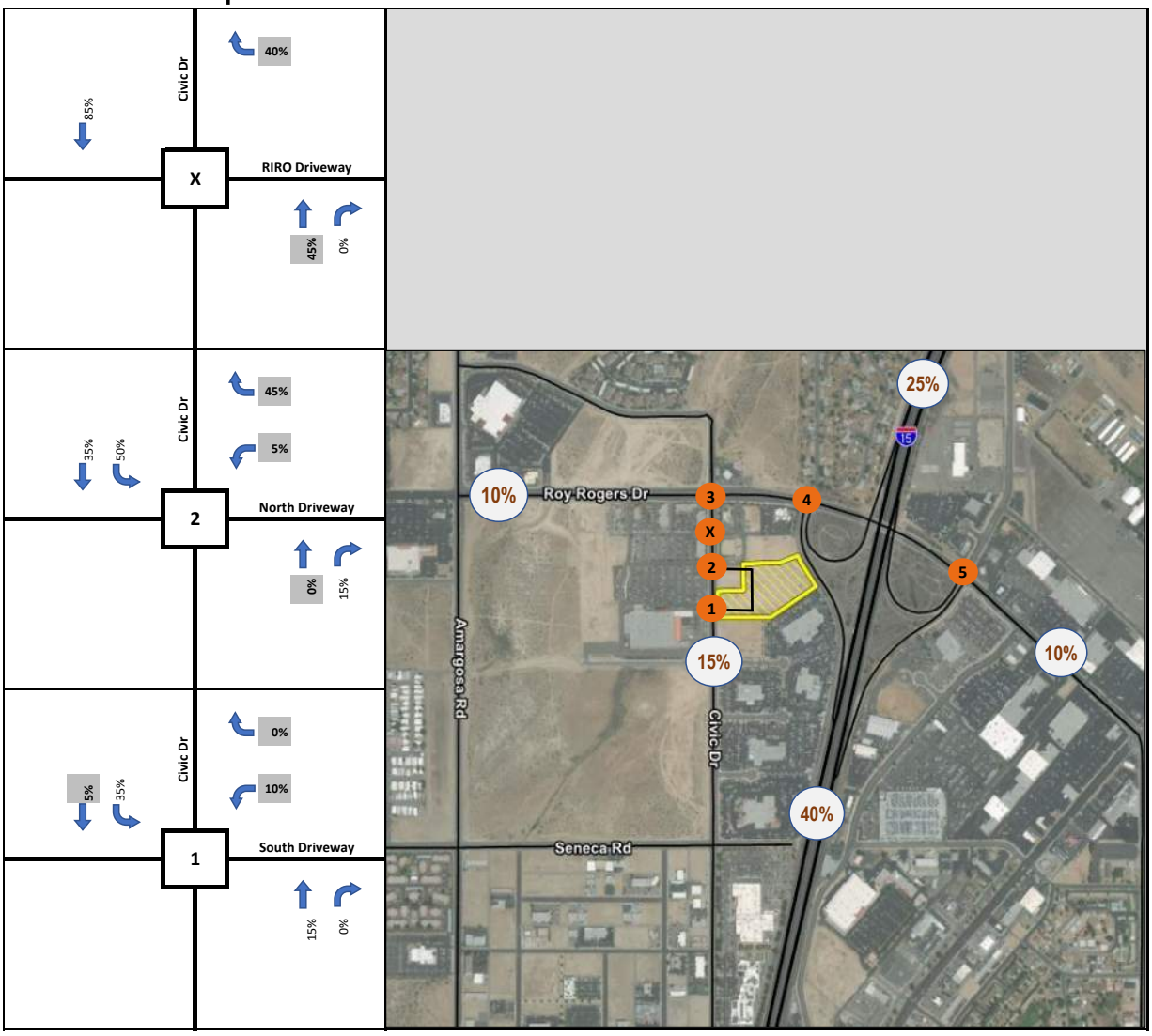
Note: Westbound-left percentage at Int. 2 may be shifted to westbound-left at Int. 1 based on available capacity

Note: Intersection "X" is not an analysis study intersection. Volumes provided for informational purposes only.

Michael Baker INTERNATIONAL

Pad 4 New Trips Inbound / Outbound Distribution

Exhibit B-3: Pad 5 Trip Distribution



Legend

XX% = Inbound Intersection Distribution Percentage

XX% = Outbound Intersection Distribution Percentage

X% = Regional Distribution Percentage

X = Study Intersection ID

Note: Westbound-left percentage at Int. 2 may be shifted to westbound-left at Int. 1 based on available capacity

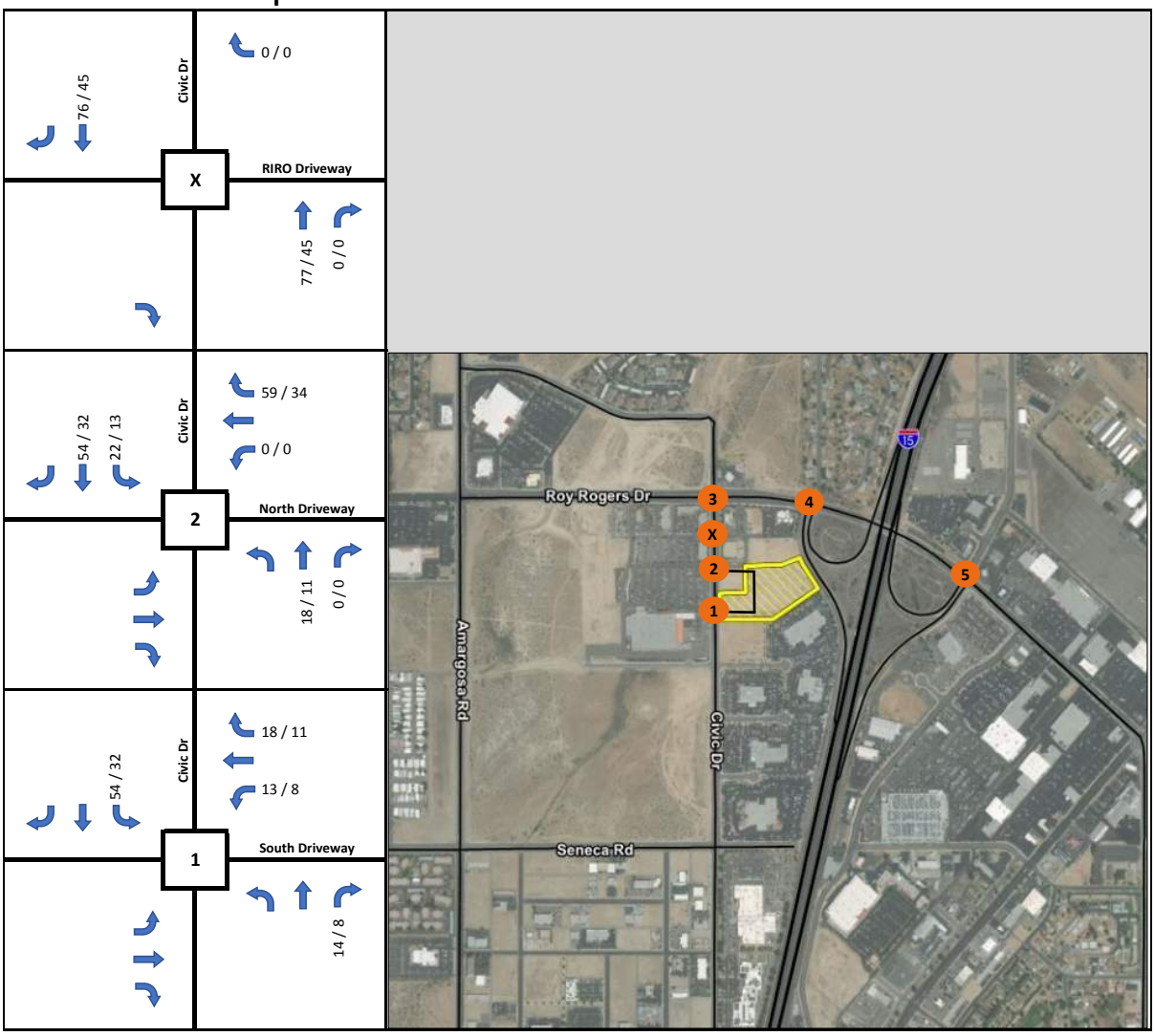
Note: Intersection "X" is not an analysis study intersection. Volumes provided for informational purposes only.

Michael Baker INTERNATIONAL

Pad 5 New Trips Inbound / Outbound Distribution

Attachment C – Additional Analysis Scenario – Site Trips

Exhibit C-1: Pad 1 Site Trips



Legend

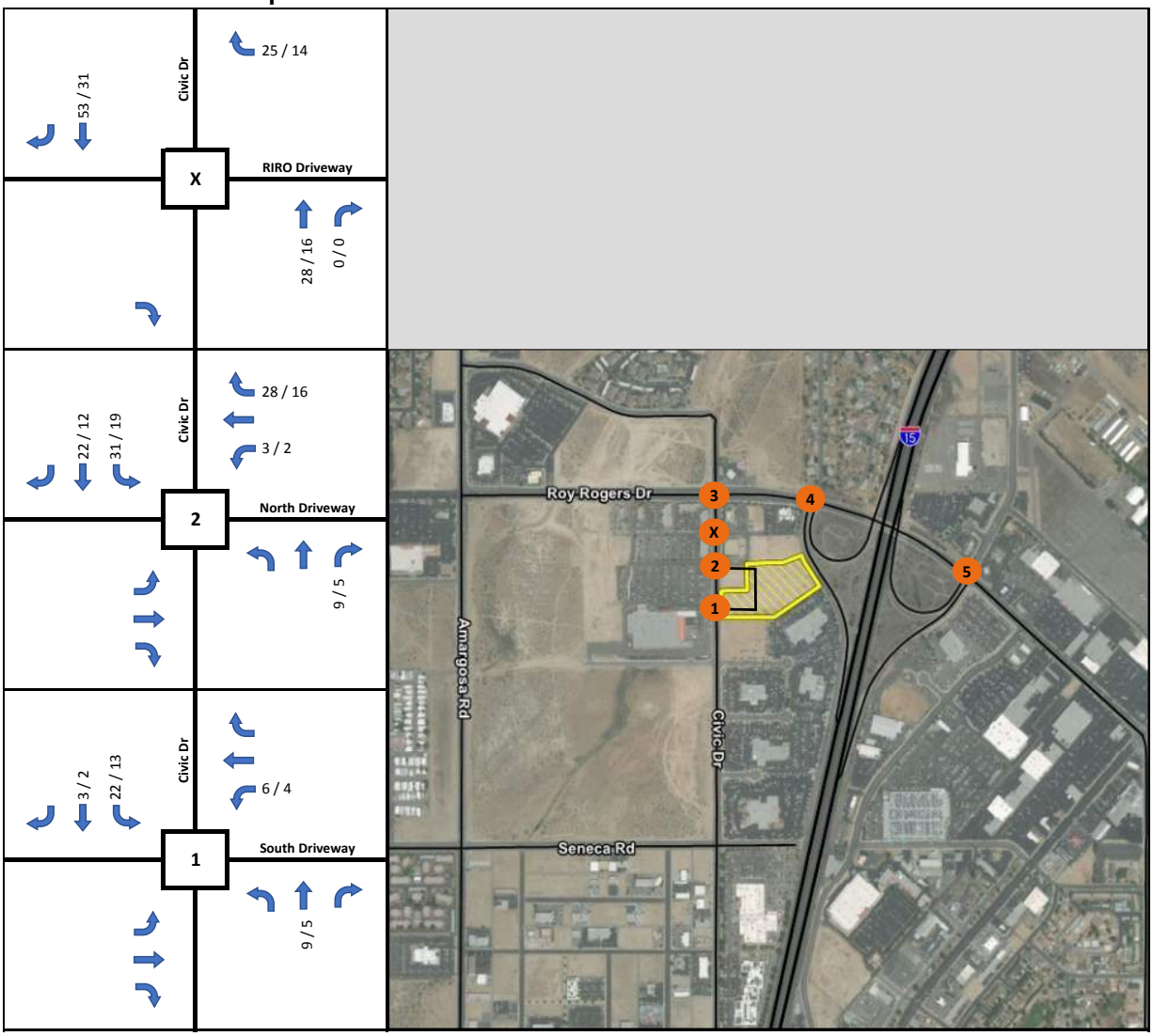
/ # = Midday / PM Peak Hour Volumes

X = Study Intersection ID

Michael Baker INTERNATIONAL

Pad 1 New Trips Midday/PM Peak Hour Volumes

Exhibit C-2: Pad 4 Site Trips



Legend

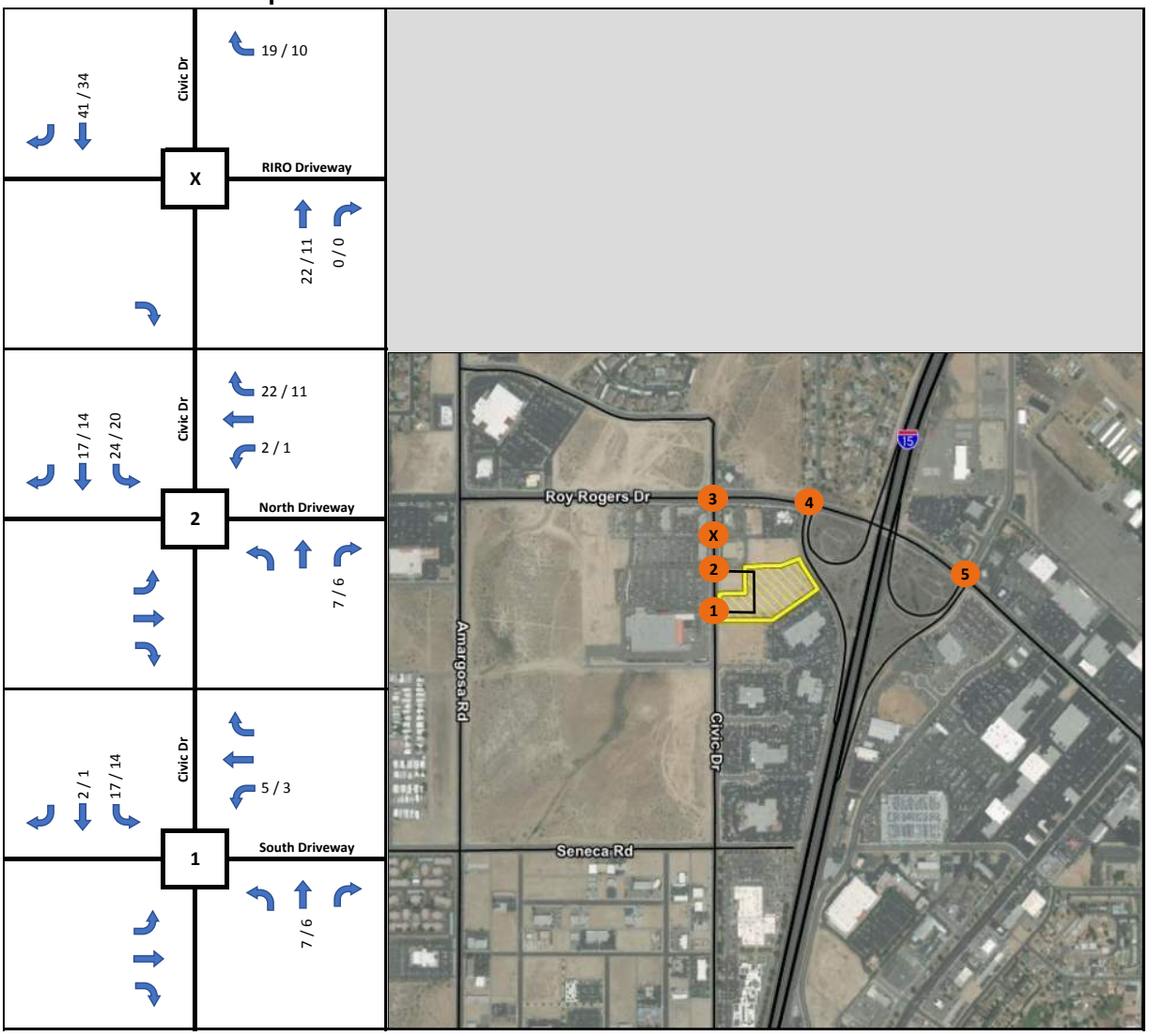
/ # = Midday / PM Peak Hour Volumes

X = Study Intersection ID

Michael Baker INTERNATIONAL

Pad 4 New Trips Midday/PM Peak Hour Volumes

Exhibit C-3: Pad 5 Site Trips



Legend

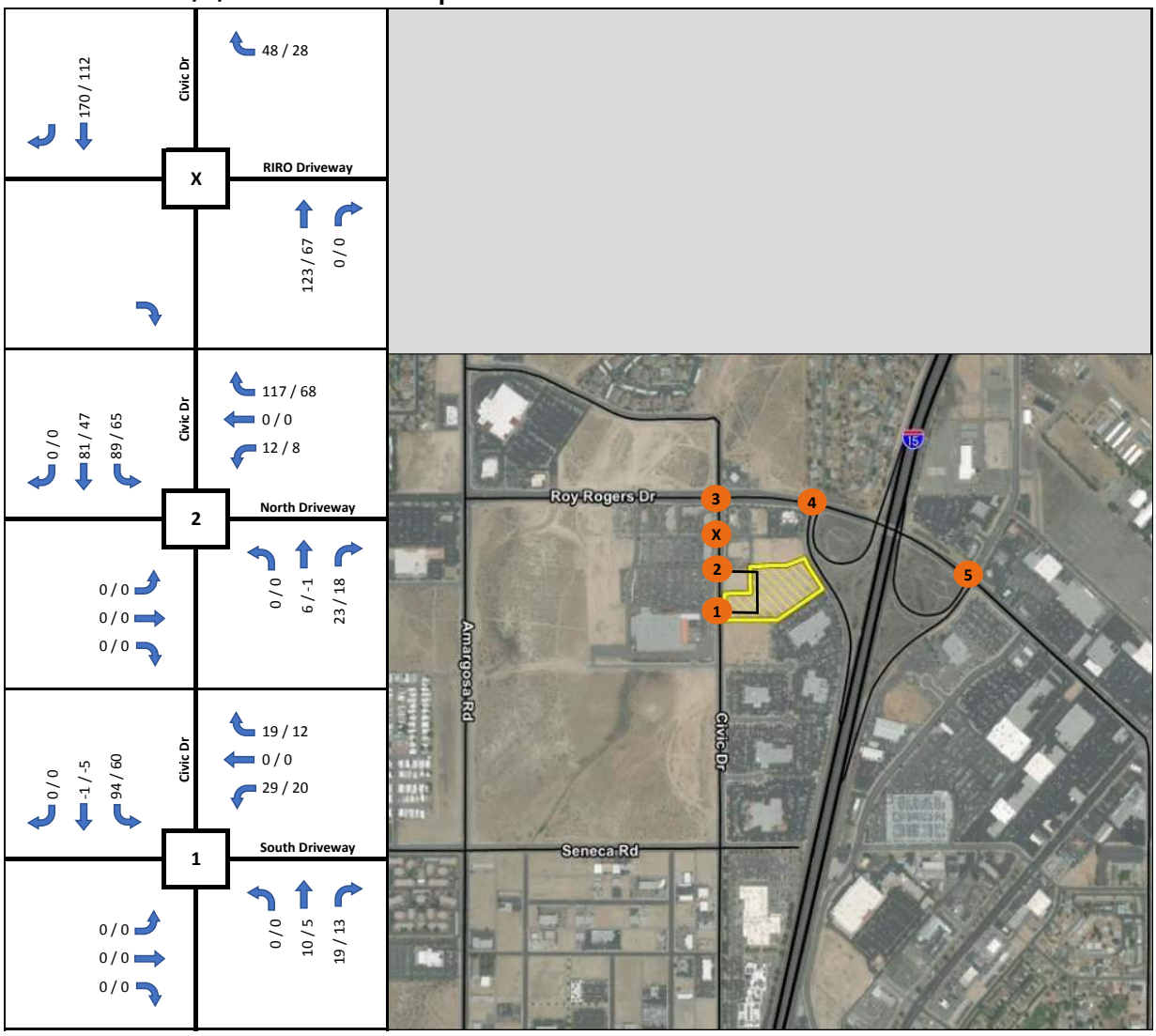
/ # = Midday / PM Peak Hour Volumes

X = Study Intersection ID

Michael Baker INTERNATIONAL

Pad 5 New Trips Midday/PM Peak Hour Volumes

Exhibit C-4: Pads 1, 4, and 5 - Total Site Trips



Legend

/ # = Midday / PM Peak Hour Volumes

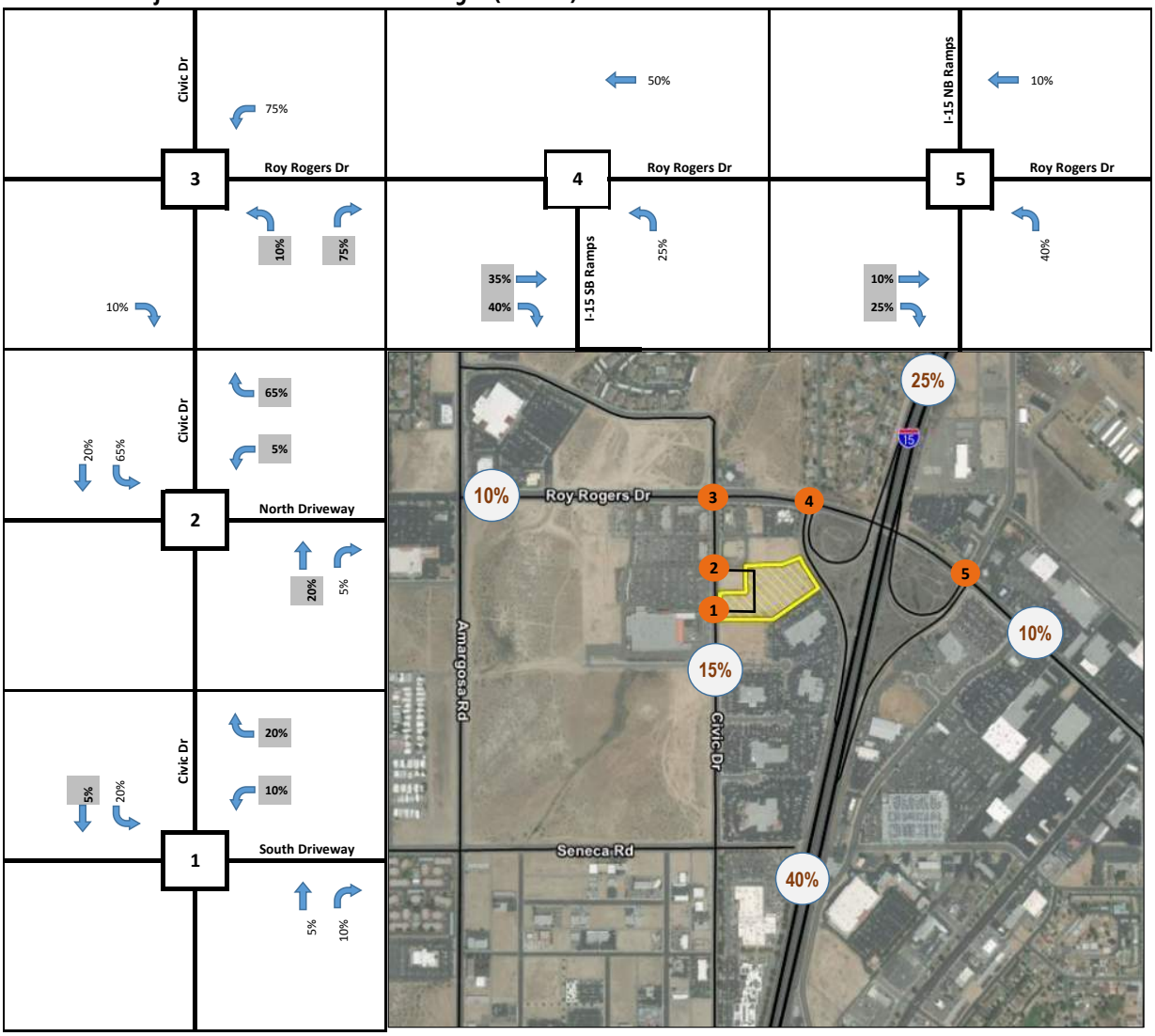
X = Study Intersection ID

Michael Baker INTERNATIONAL

Vacant Pads - Total Trips - Midday/PM Peak Hour Volumes

Attachment D – Revised CarMax Distributions and Site Trips

Exhibit D-1: Project Traffic Distribution Percentages (CarMax)



Legend

XX% = Inbound Intersection Distribution Percentage

XX% = Outbound Intersection Distribution Percentage

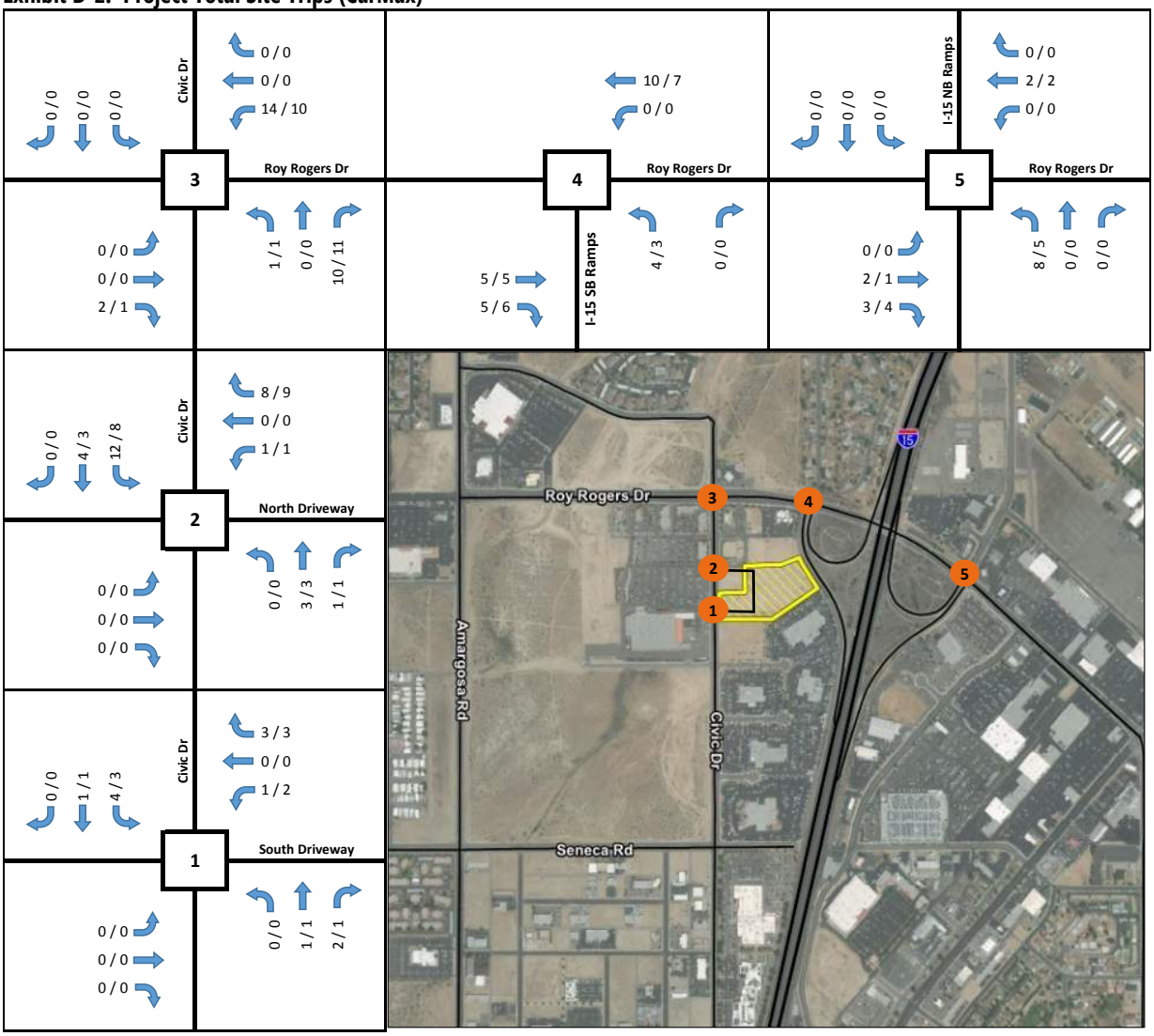
X% = Regional Distribution Percentage

X = Study Intersection ID

Michael Baker INTERNATIONAL

Project Inbound / Outbound Distribution

Exhibit D-2: Project Total Site Trips (CarMax)



Legend

/ # = Midday / PM Peak Hour Volumes

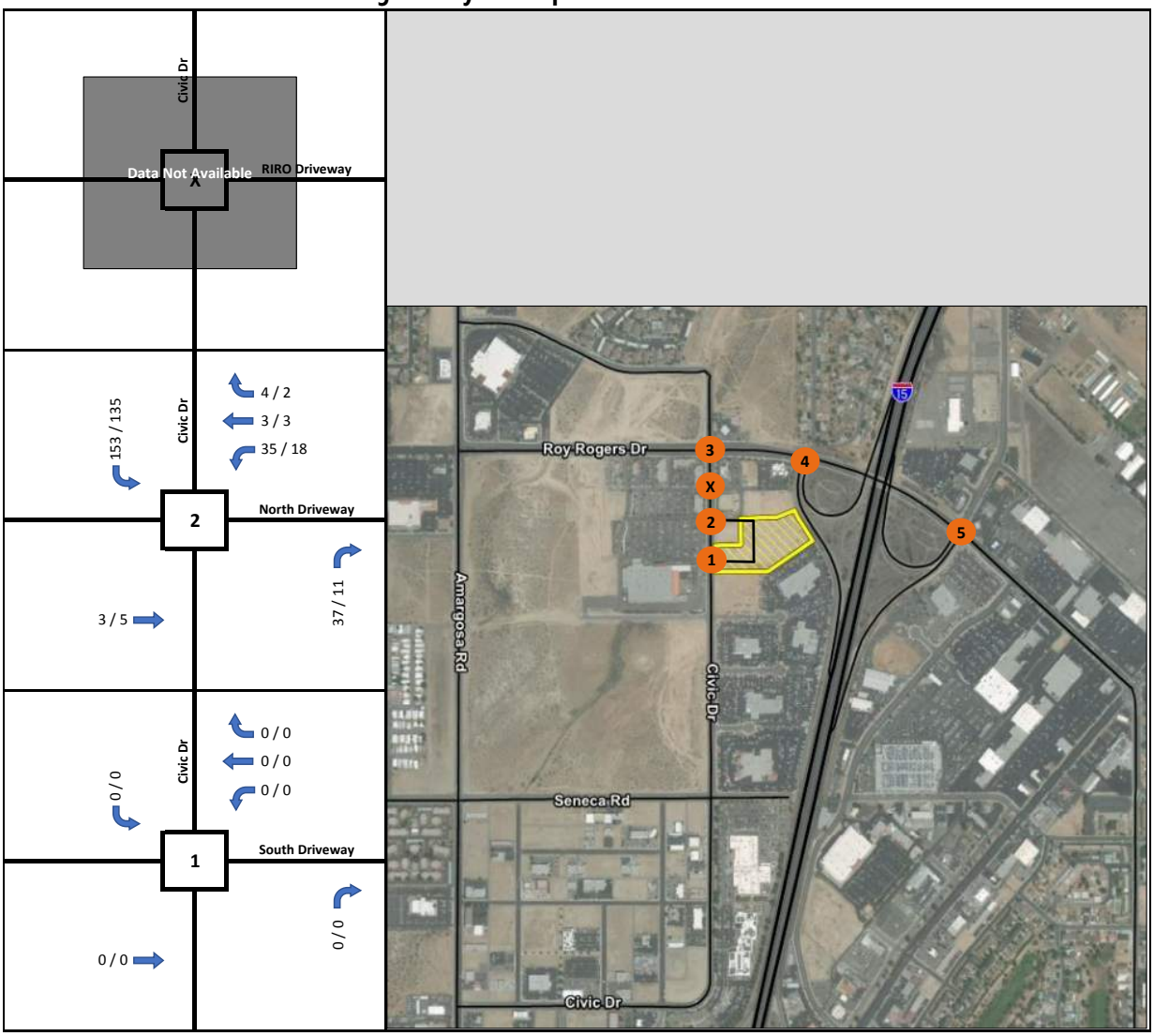
X = Study Intersection ID

Michael Baker INTERNATIONAL

Project Only Midday/PM Peak Hour Volumes

Attachment E – Site Trips Summaries

Exhibit E-1: Traffic Volumes - Existing Already Developed Parcels



Legend

/ # = Midday / PM Peak Hour Volumes

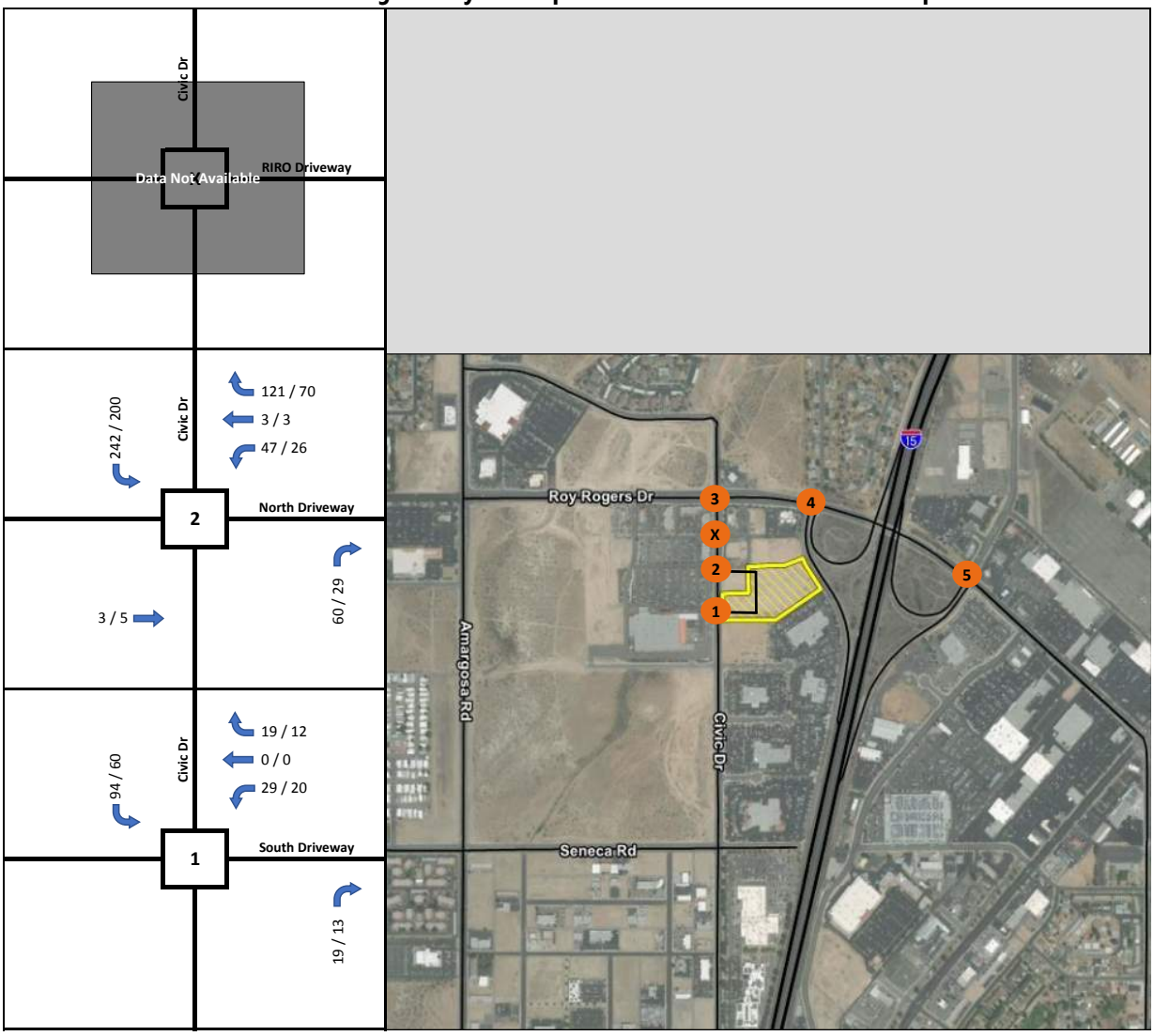
X = Study Intersection ID

Note: Volumes shown represent existing traffic to/from Panda Express, Krispy Kreme, and In-N-Out Burger

Michael Baker INTERNATIONAL

Existing Midday/PM Peak Hour Volumes - Currently Developed Parcels

Exhibit E-2: Traffic Volumes - Existing Already Developed Parcels + Vacant Parcels Site Trips



Legend

/ #: = Midday / PM Peak Hour Volumes

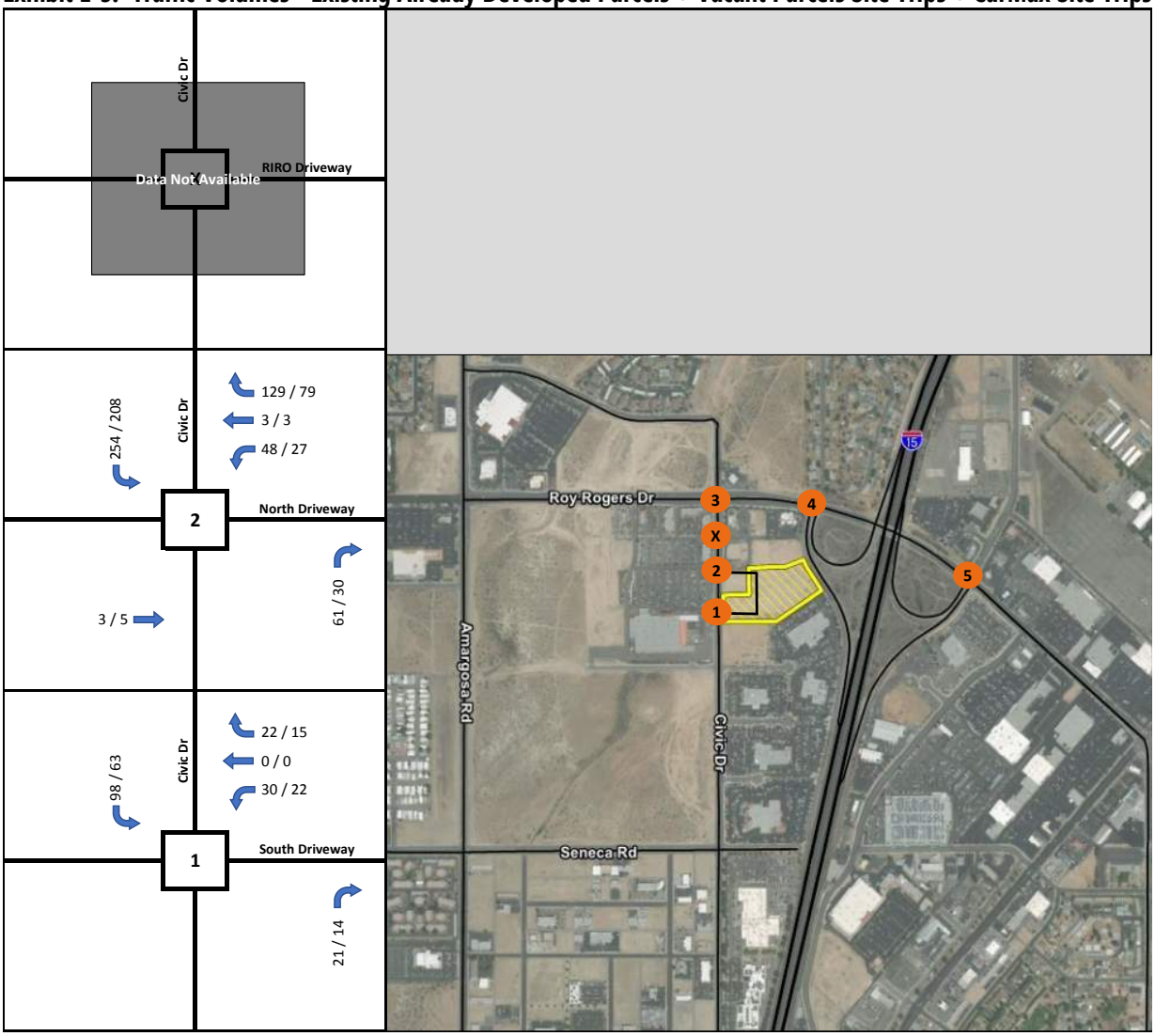
X = Study Intersection ID

Note: Volumes shown represent existing traffic and traffic forecast to be generated by the vacant parcels

Michael Baker INTERNATIONAL

Existing With Vacant Parcels - Midday/PM Peak Hour Volumes

Exhibit E-3: Traffic Volumes - Existing Already Developed Parcels + Vacant Parcels Site Trips + CarMax Site Trips



Legend

/ #. = Midday / PM Peak Hour Volumes

X = Study Intersection ID

Note: Volumes shown represent existing traffic and traffic forecast to be generated by the vacant parcels and the proposed Carmax Project

Michael Baker INTERNATIONAL

Existing With Vacant Parcels With Carmax - Midday/PM Peak Hour Volumes

Dietrich, Carla

From: Anwar Wagdy <awagdy@victorvilleca.gov>
Sent: Monday, April 22, 2019 2:34 PM
To: Dietrich, Carla
Subject: RE: EXTERNAL: RE: Proposed CarMax Scoping Agreement Addendum - For your review

Hi Carla,

Thanks so much for attending our meeting and understanding our concerns.

Your revised scoping looks great. As we discussed in the meeting, when you do the analysis on driveway #2, the very heavy southbound L/T volumes (254/208) can't be accommodated, so you need to shift more trips toward #1.
Let me know if you have any questions.
Thanks
Anwar

From: Dietrich, Carla [mailto:CDietrich@mbakerintl.com]
Sent: Monday, April 22, 2019 6:52 AM
To: Anwar Wagdy
Cc: Brad Lauth; Tylman, Michael; Sandstoe, Wayne; Scott Webb; Brian Gengler
Subject: RE: EXTERNAL: RE: Proposed CarMax Scoping Agreement Addendum - For your review

Anwar,

Thank you for taking the time to review the addendum to the scoping agreement for the proposed CarMax project and for meeting with me on April 16th to discuss your comments. The revised addendum is attached for your review. Please let me know if you are in agreement with this updated version or if you have any questions or comments.

I look forward to hearing from you.

Thanks,

Carla Dietrich, P.E. (PA), PTOE | Engineer - Transportation
3536 Concours, Suite 100 | Ontario, CA 91764 | [O] 909-974-4908
cdietrich@mbakerintl.com | www.mbakerintl.com |

From: Anwar Wagdy <awagdy@victorvilleca.gov>
Sent: Tuesday, April 09, 2019 2:34 PM
To: Dietrich, Carla <CDietrich@mbakerintl.com>
Cc: Brad Lauth <blauth@centerpoint-is.com>; Tylman, Michael <MTylman@mbakerintl.com>; Sandstoe, Wayne <Wayne.Sandstoe@mbakerintl.com>; Scott Webb <SWebb@victorvilleca.gov>; Brian Gengler <BGengler@victorvilleca.gov>
Subject: EXTERNAL: RE: Proposed CarMax Scoping Agreement Addendum - For your review

Hi Carla,

Hope all is well.

I appreciate your efforts revising the study scoping. While I agree with your assumption for the potential trip generation of the vacant parcels, I can offer the following preliminary comments:

- The pass-by trip reduction rates (34 to 50%) are too high for these type of facilities, especially during the mid-day period when motorists travel specifically to have lunch at one of these fast food restaurants. Same applies to the internal reduction, a customer is unlikely to visit multiple restaurants and there is no large retailer to attract secondary visits.

- I disagree with the assumptions of the trip distribution. It doesn't take in consideration the capacity and storage constrains at the northerly #2 driveway. We need to work together to come up with a realistic distribution that can actually work.

- Missing an exhibit of total cumulative site trips that includes trips from the 3 existing restaurants.

- You also will need to analyze signal warrants of driveway #1, under all future scenarios.

I highly suggest scheduling a sit-down meeting to resolve the above issues so the study and the project can proceed smoothly.
Thanks for your cooperation.

ANWAR WAGDY, P.E.
City Traffic Engineer
Public Works Dept./Engineering
(760) 955-5160

From: Dietrich, Carla [mailto:CDietrich@mbakerintl.com]
Sent: Monday, April 01, 2019 4:18 PM
To: Anwar Wagdy
Cc: Brad Lauth; Tylman, Michael; Sandstoe, Wayne
Subject: Proposed CarMax Scoping Agreement Addendum - For your review

Good Afternoon Anwar,

As a follow up to the conference call held on 2/20/2019 regarding the comments received on the proposed CarMax traffic study via an email on January 3, 2019, I would like to submit the attached addendum to the scoping agreement for your review. The attached memorandum includes estimated traffic volumes for the existing vacant parcels located near the proposed CarMax. The project development team provided information regarding what may be built on these sites. The vacant parcel site volumes would be added to the future year 2031 analysis scenarios.

Please review and provide comment or approval of the traffic volume development for the vacant parcels in addition to the analysis assumptions detailed in the memorandum that would be implemented in the revised CarMax traffic study. The traffic operations analysis will be conducted once we receive your input on the attached memorandum.

Thanks,

Carla Dietrich, P.E. (PA), PTOE | Engineer - Transportation
3536 Concours, Suite 100 | Ontario, CA 91764 | [O] 909-974-4908
cdietrich@mbakerintl.com | www.mbakerintl.com |

Michael Baker
INTERNATIONAL

Appendix C:
Traffic Count Data

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

City of Victorville
N/S: Civic Drive
E/W: Home Depot South Driveway
Weather: Clear

File Name : 01_VIC_Civic_HD DW S MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	0	60	6	66	1	0	0	1	12	79	1	92	8	0	5	13	172
11:45 AM	0	77	7	84	0	0	0	0	5	121	0	126	3	0	4	7	217
Total	0	137	13	150	1	0	0	1	17	200	1	218	11	0	9	20	389
12:00 PM	1	66	5	72	1	0	2	3	2	148	1	151	8	0	9	17	243
12:15 PM	0	88	6	94	0	0	0	0	6	100	0	106	8	0	2	10	210
12:30 PM	0	88	6	94	0	0	0	0	10	86	0	96	3	0	3	6	196
12:45 PM	1	98	5	104	0	0	0	0	9	70	0	79	6	0	9	15	198
Total	2	340	22	364	1	0	2	3	27	404	1	432	25	0	23	48	847
01:00 PM	0	80	7	87	0	0	0	0	4	100	0	104	3	0	7	10	201
01:15 PM	0	94	9	103	0	0	0	0	5	85	0	90	8	0	5	13	206
Grand Total	2	651	51	704	2	0	2	4	53	789	2	844	47	0	44	91	1643
Apprch %	0.3	92.5	7.2		50	0	50		6.3	93.5	0.2		51.6	0	48.4		
Total %	0.1	39.6	3.1	42.8	0.1	0	0.1	0.2	3.2	48	0.1	51.4	2.9	0	2.7	5.5	
Passenger Vehicles	2	640	51	693	2	0	2	4	53	778	2	833	44	0	44	88	1618
% Passenger Vehicles	100	98.3	100	98.4	100	0	100	100	100	98.6	100	98.7	93.6	0	100	96.7	98.5
Large 2 Axle Vehicles	0	8	0	8	0	0	0	0	0	8	0	8	1	0	0	1	17
% Large 2 Axle Vehicles	0	1.2	0	1.1	0	0	0	0	0	1	0	0.9	2.1	0	0	1.1	1
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0.1
4+ Axle Trucks	0	3	0	3	0	0	0	0	0	2	0	2	2	0	0	2	7
% 4+ Axle Trucks	0	0.5	0	0.4	0	0	0	0	0	0.3	0	0.2	4.3	0	0	2.2	0.4

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	0	77	**7**	84	0	0	0	0	5	121	0	126	3	0	4	7	217
12:00 PM	**1**	66	5	72	**1**	0	**2**	**3**	2	**148**	**1**	**151**	**8**	0	**9**	**17**	**243**
12:15 PM	0	**88**	6	**94**	0	0	0	0	6	100	0	106	8	0	2	10	210
12:30 PM	0	88	6	94	0	0	0	0	**10**	86	0	96	3	0	3	6	196
Total Volume	1	319	24	344	1	0	2	3	23	455	1	479	22	0	18	40	866
% App. Total	0.3	92.7	7		33.3	0	66.7		4.8	95	0.2		55	0	45		
PHF	.250	.906	.857	.915	.250	.000	.250	.250	.575	.769	.250	.793	.688	.000	.500	.588	.891

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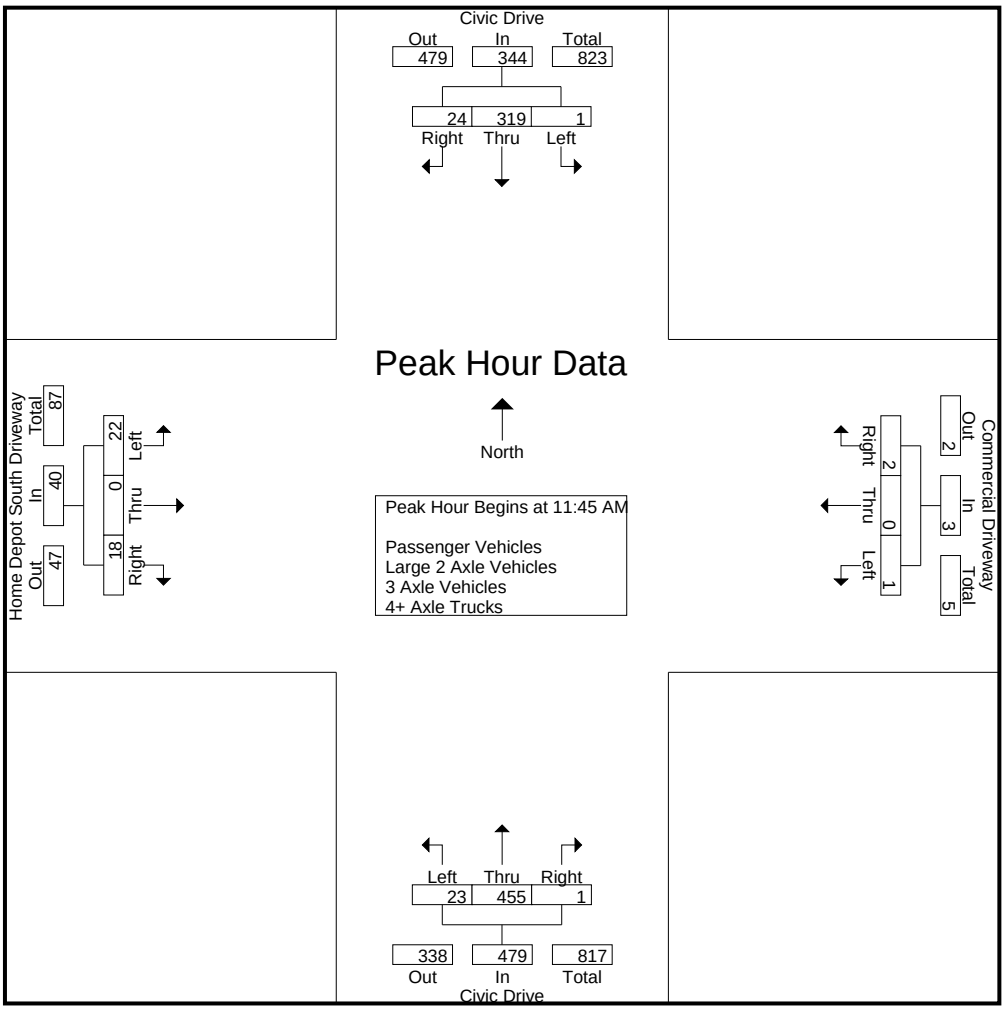
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:30 PM				11:30 AM				11:45 AM				12:00 PM			
+0 mins.	0	88	6	94	**1**	0	0	1	5	121	0	126	**8**	0	**9**	**17**
+15 mins.	**1**	**98**	5	**104**	0	0	0	0	2	**148**	**1**	**151**	8	0	2	10
+30 mins.	0	80	7	87	1	0	**2**	**3**	6	100	0	106	3	0	3	6
+45 mins.	0	94	**9**	103	0	0	0	0	**10**	86	0	96	6	0	9	15
Total Volume	1	360	27	388	2	0	2	4	23	455	1	479	25	0	23	48
% App. Total	0.3	92.8	7		50	0	50		4.8	95	0.2		52.1	0	47.9	
PHF	.250	.918	.750	.933	.500	.000	.250	.333	.575	.769	.250	.793	.781	.000	.639	.706

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Start Date : 7/12/2018
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Groups Printed- Passenger Vehicles

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	0	60	6	66	1	0	0	1	12	78	1	91	8	0	5	13	171
11:45 AM	0	76	7	83	0	0	0	0	5	120	0	125	3	0	4	7	215
Total	0	136	13	149	1	0	0	1	17	198	1	216	11	0	9	20	386
12:00 PM	1	65	5	71	1	0	2	3	2	148	1	151	6	0	9	15	240
12:15 PM	0	86	6	92	0	0	0	0	6	96	0	102	8	0	2	10	204
12:30 PM	0	87	6	93	0	0	0	0	10	86	0	96	3	0	3	6	195
12:45 PM	1	95	5	101	0	0	0	0	9	69	0	78	5	0	9	14	193
Total	2	333	22	357	1	0	2	3	27	399	1	427	22	0	23	45	832
01:00 PM	0	77	7	84	0	0	0	0	4	100	0	104	3	0	7	10	198
01:15 PM	0	94	9	103	0	0	0	0	5	81	0	86	8	0	5	13	202
Grand Total	2	640	51	693	2	0	2	4	53	778	2	833	44	0	44	88	1618
Apprch %	0.3	92.4	7.4		50	0	50		6.4	93.4	0.2		50	0	50		
Total %	0.1	39.6	3.2	42.8	0.1	0	0.1	0.2	3.3	48.1	0.1	51.5	2.7	0	2.7	5.4	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	0	76	**7**	83	0	0	0	0	5	120	0	125	3	0	4	7	215
12:00 PM	**1**	65	5	71	**1**	0	**2**	**3**	2	**148**	**1**	**151**	6	0	**9**	**15**	**240**
12:15 PM	0	86	6	92	0	0	0	0	6	96	0	102	**8**	0	2	10	204
12:30 PM	0	**87**	6	**93**	0	0	0	0	**10**	86	0	96	3	0	3	6	195
Total Volume	1	314	24	339	1	0	2	3	23	450	1	474	20	0	18	38	854
% App. Total	0.3	92.6	7.1		33.3	0	66.7		4.9	94.9	0.2		52.6	0	47.4		
PHF	.250	.902	.857	.911	.250	.000	.250	.250	.575	.760	.250	.785	.625	.000	.500	.633	.890

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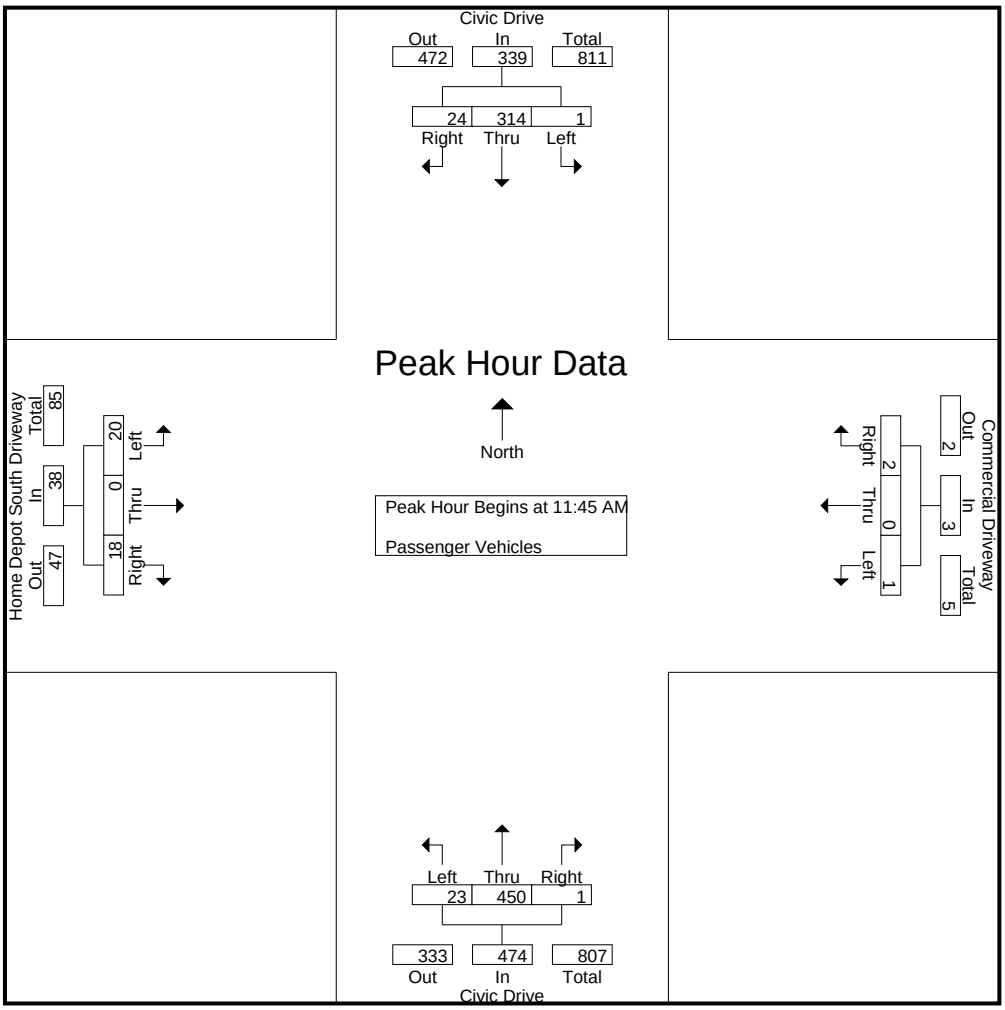

Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				11:45 AM				11:45 AM				11:45 AM			
+0 mins.	0	76	**7**	83	0	0	0	0	5	120	0	125	3	0	4	7
+15 mins.	**1**	65	5	71	**1**	0	**2**	**3**	2	**148**	**1**	**151**	6	0	**9**	**15**
+30 mins.	0	86	6	92	0	0	0	0	6	96	0	102	**8**	0	2	10
+45 mins.	0	**87**	6	**93**	0	0	0	0	**10**	86	0	96	3	0	3	6
Total Volume	1	314	24	339	1	0	2	3	23	450	1	474	20	0	18	38
% App. Total	0.3	92.6	7.1		33.3	0	66.7		4.9	94.9	0.2		52.6	0	47.4	
PHF	.250	.902	.857	.911	.250	.000	.250	.250	.575	.760	.250	.785	.625	.000	.500	.633

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Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
11:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
12:15 PM	0	2	0	2	0	0	0	0	0	3	0	3	0	0	0	0	5
12:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Total	0	4	0	4	0	0	0	0	0	4	0	4	1	0	0	1	9
01:00 PM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
01:15 PM	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3
Grand Total	0	8	0	8	0	0	0	0	0	8	0	8	1	0	0	1	17
Apprch %	0	100	0		0	0	0		0	100	0		100	0	0		
Total %	0	47.1	0	47.1	0	0	0	0	0	47.1	0	47.1	5.9	0	0	5.9	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	1
12:15 PM	0	**2**	0	**2**	0	0	0	0	0	**3**	0	**3**	0	0	0	0	**5**
12:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	4	0	4	0	0	0	0	0	3	0	3	1	0	0	1	8
% App. Total	0	100	0		0	0	0		0	100	0		100	0	0		
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.000	.250	.000	.250	.250	.000	.000	.250	.400

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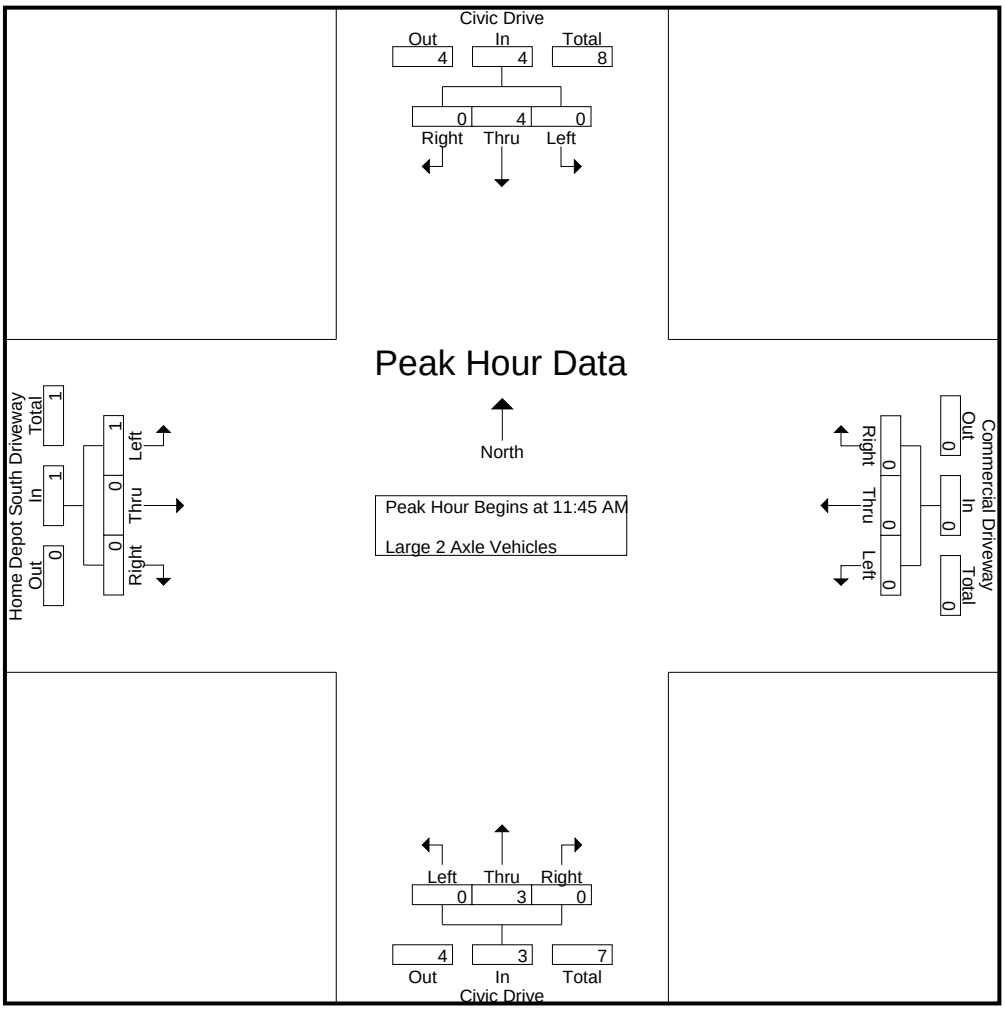

Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				11:45 AM				11:45 AM				11:45 AM			
+0 mins.	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**
+30 mins.	0	**2**	0	**2**	0	0	0	0	0	**3**	0	**3**	0	0	0	0
+45 mins.	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	4	0	4	0	0	0	0	0	3	0	3	1	0	0	1
% App. Total	0	100	0		0	0	0		0	100	0		100	0	0	
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.000	.250	.000	.250	.250	.000	.000	.250

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Groups Printed- 3 Axle Vehicles

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Apprch %	0	0	0		0	0	0		0	100	0		0	0	0		
Total %	0	0	0	0	0	0	0	0	0	100	0	100	0	0	0	0	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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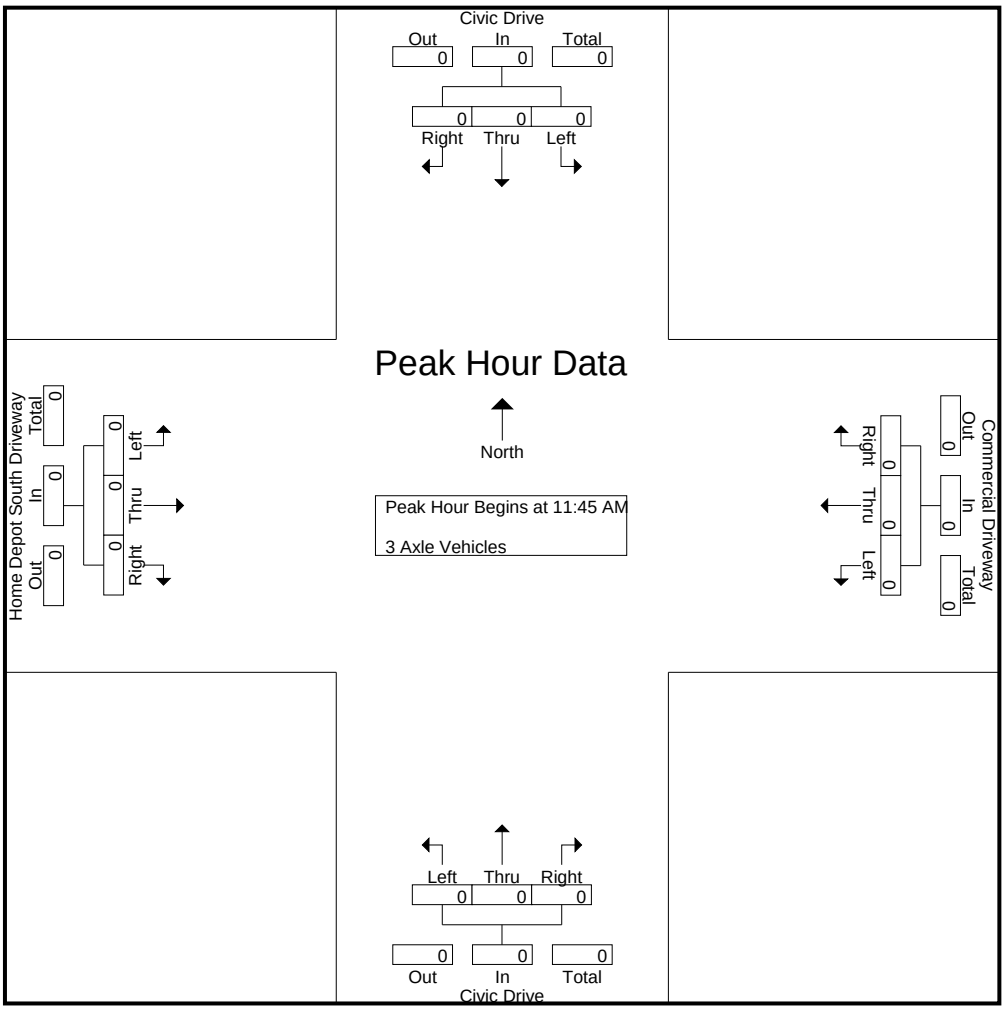

Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				11:45 AM				11:45 AM				11:45 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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Groups Printed- 4+ Axle Trucks

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
12:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	2
12:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	2	0	2	0	0	0	0	0	0	0	0	1	0	0	1	3
Total	0	3	0	3	0	0	0	0	0	1	0	1	2	0	0	2	6
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	3	0	3	0	0	0	0	0	2	0	2	2	0	0	2	7
Apprch %	0	100	0		0	0	0		0	100	0		100	0	0		
Total %	0	42.9	0	42.9	0	0	0	0	0	28.6	0	28.6	28.6	0	0	28.6	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	1
12:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	**1**	0	0	**1**	**2**
12:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	2	0	2	1	0	0	1	4
% App. Total	0	100	0		0	0	0		0	100	0		100	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.500	.000	.500	.250	.000	.000	.250	.500

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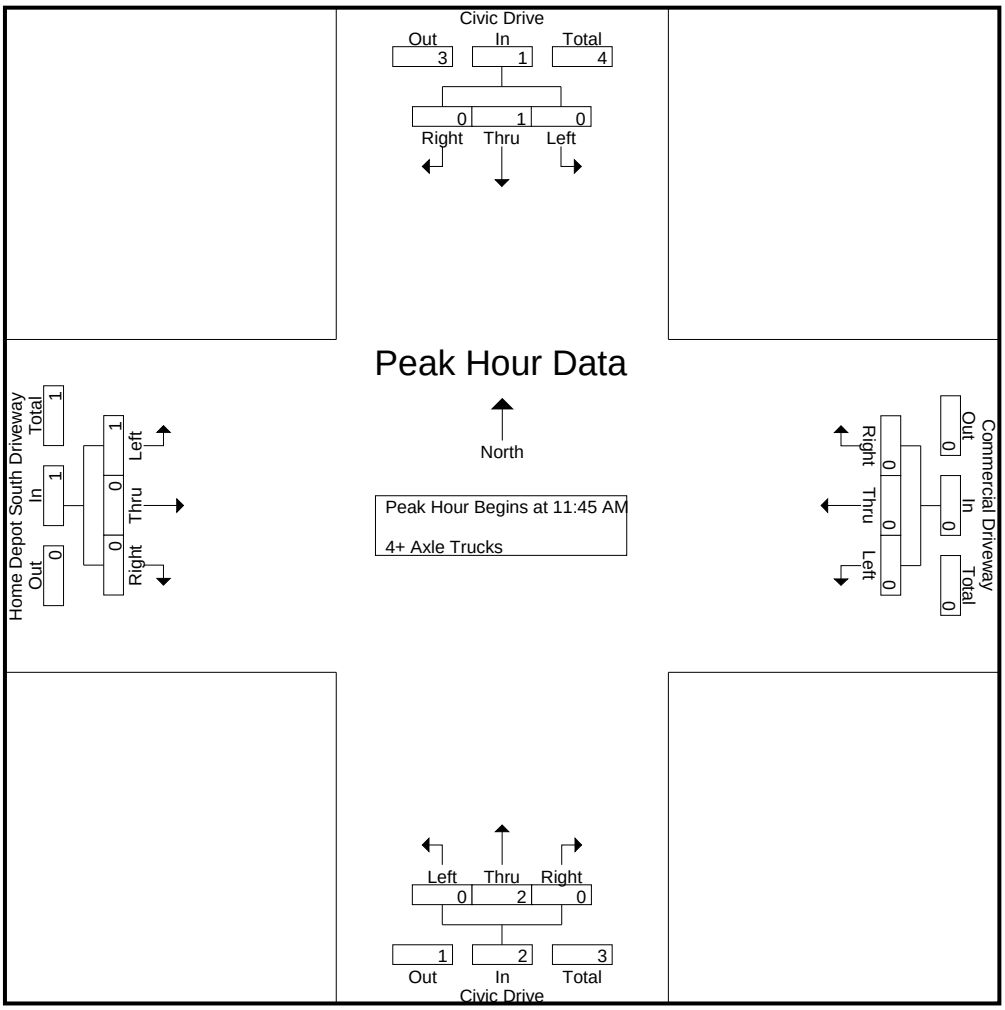
E/W: Home Depot South Driveway
Weather: Clear

File Name : 01_VIC_Civic_HD DW S MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				11:45 AM				11:45 AM				11:45 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+15 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	**1**	0	0	**1**
+30 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	2	0	2	1	0	0	1
% App. Total	0	100	0		0	0	0		0	100	0		100	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.500	.000	.500	.250	.000	.000	.250

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File Name : 01_VIC_Civic_HD DW S PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	44	6	50	0	0	0	0	11	130	0	141	7	0	3	10	201
04:15 PM	0	56	5	61	0	0	0	0	5	82	0	87	4	0	6	10	158
04:30 PM	0	56	9	65	0	0	0	0	10	112	0	122	5	0	3	8	195
04:45 PM	0	49	9	58	1	0	0	1	6	71	1	78	10	0	10	20	157
Total	0	205	29	234	1	0	0	1	32	395	1	428	26	0	22	48	711
05:00 PM	0	50	3	53	0	0	0	0	8	197	0	205	1	0	5	6	264
05:15 PM	0	53	8	61	0	0	0	0	7	110	0	117	18	0	9	27	205
05:30 PM	0	40	4	44	0	0	0	0	3	90	0	93	8	0	8	16	153
05:45 PM	0	33	2	35	0	0	0	0	3	83	0	86	4	0	4	8	129
Total	0	176	17	193	0	0	0	0	21	480	0	501	31	0	26	57	751
Grand Total	0	381	46	427	1	0	0	1	53	875	1	929	57	0	48	105	1462
Apprch %	0	89.2	10.8		100	0	0		5.7	94.2	0.1		54.3	0	45.7		
Total %	0	26.1	3.1	29.2	0.1	0	0	0.1	3.6	59.8	0.1	63.5	3.9	0	3.3	7.2	
Passenger Vehicles	0	375	45	420	1	0	0	1	53	867	1	921	57	0	48	105	1447
% Passenger Vehicles	0	98.4	97.8	98.4	100	0	0	100	100	99.1	100	99.1	100	0	100	100	99
Large 2 Axle Vehicles	0	3	1	4	0	0	0	0	0	4	0	4	0	0	0	0	8
% Large 2 Axle Vehicles	0	0.8	2.2	0.9	0	0	0	0	0	0.5	0	0.4	0	0	0	0	0.5
3 Axle Vehicles	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	4
% 3 Axle Vehicles	0	0.3	0	0.2	0	0	0	0	0	0.3	0	0.3	0	0	0	0	0.3
4+ Axle Trucks	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
% 4+ Axle Trucks	0	0.5	0	0.5	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0.2

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	**56**	**9**	**65**	0	0	0	0	**10**	112	0	122	5	0	3	8	195
04:45 PM	0	49	9	58	**1**	0	0	**1**	6	71	**1**	78	10	0	**10**	20	157
05:00 PM	0	50	3	53	0	0	0	0	8	**197**	0	**205**	1	0	5	6	**264**
05:15 PM	0	53	8	61	0	0	0	0	7	110	0	117	**18**	0	9	**27**	205
Total Volume	0	208	29	237	1	0	0	1	31	490	1	522	34	0	27	61	821
% App. Total	0	87.8	12.2		100	0	0		5.9	93.9	0.2		55.7	0	44.3		
PHF	.000	.929	.806	.912	.250	.000	.000	.250	.775	.622	.250	.637	.472	.000	.675	.565	.777

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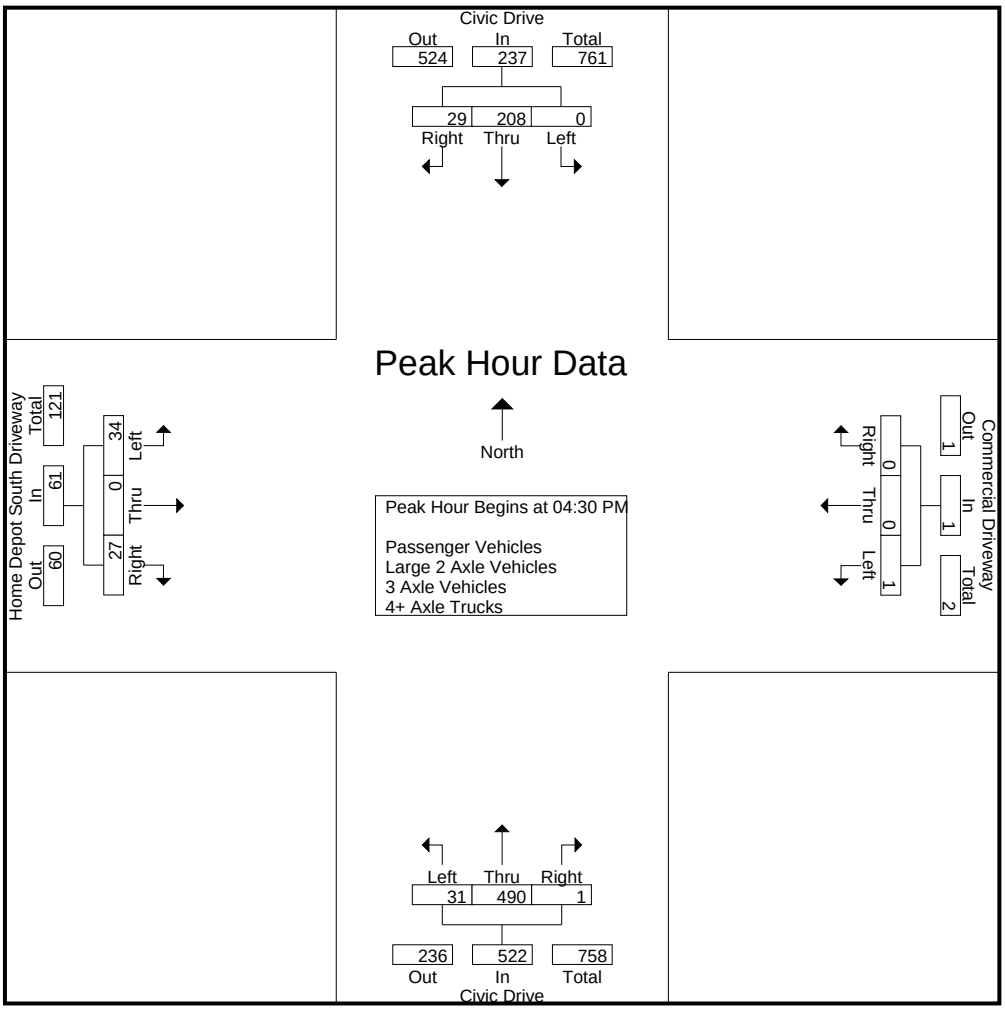
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



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

	04:15 PM				04:00 PM				04:30 PM				04:45 PM			
+0 mins.	0	**56**	5	61	0	0	0	0	**10**	112	0	122	10	0	**10**	20
+15 mins.	0	56	**9**	**65**	0	0	0	0	6	71	**1**	78	1	0	5	6
+30 mins.	0	49	9	58	0	0	0	0	8	**197**	0	**205**	**18**	0	9	**27**
+45 mins.	0	50	3	53	**1**	0	0	**1**	7	110	0	117	8	0	8	16
Total Volume	0	211	26	237	1	0	0	1	31	490	1	522	37	0	32	69
% App. Total	0	89	11		100	0	0		5.9	93.9	0.2		53.6	0	46.4	
PHF	.000	.942	.722	.912	.250	.000	.000	.250	.775	.622	.250	.637	.514	.000	.800	.639

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File Name : 01_VIC_Civic_HD DW S PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	43	6	49	0	0	0	0	11	128	0	139	7	0	3	10	198
04:15 PM	0	55	5	60	0	0	0	0	5	81	0	86	4	0	6	10	156
04:30 PM	0	56	8	64	0	0	0	0	10	110	0	120	5	0	3	8	192
04:45 PM	0	49	9	58	1	0	0	1	6	70	1	77	10	0	10	20	156
Total	0	203	28	231	1	0	0	1	32	389	1	422	26	0	22	48	702
05:00 PM	0	47	3	50	0	0	0	0	8	195	0	203	1	0	5	6	259
05:15 PM	0	53	8	61	0	0	0	0	7	110	0	117	18	0	9	27	205
05:30 PM	0	40	4	44	0	0	0	0	3	90	0	93	8	0	8	16	153
05:45 PM	0	32	2	34	0	0	0	0	3	83	0	86	4	0	4	8	128
Total	0	172	17	189	0	0	0	0	21	478	0	499	31	0	26	57	745
Grand Total	0	375	45	420	1	0	0	1	53	867	1	921	57	0	48	105	1447
Apprch %	0	89.3	10.7		100	0	0		5.8	94.1	0.1		54.3	0	45.7		
Total %	0	25.9	3.1	29	0.1	0	0	0.1	3.7	59.9	0.1	63.6	3.9	0	3.3	7.3	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	**56**	8	**64**	0	0	0	0	**10**	110	0	120	5	0	3	8	192
04:45 PM	0	49	**9**	58	**1**	0	0	**1**	6	70	**1**	77	10	0	**10**	20	156
05:00 PM	0	47	3	50	0	0	0	0	8	**195**	0	**203**	1	0	5	6	**259**
05:15 PM	0	53	8	61	0	0	0	0	7	110	0	117	**18**	0	9	**27**	205
Total Volume	0	205	28	233	1	0	0	1	31	485	1	517	34	0	27	61	812
% App. Total	0	88	12		100	0	0		6	93.8	0.2		55.7	0	44.3		
PHF	.000	.915	.778	.910	.250	.000	.000	.250	.775	.622	.250	.637	.472	.000	.675	.565	.784

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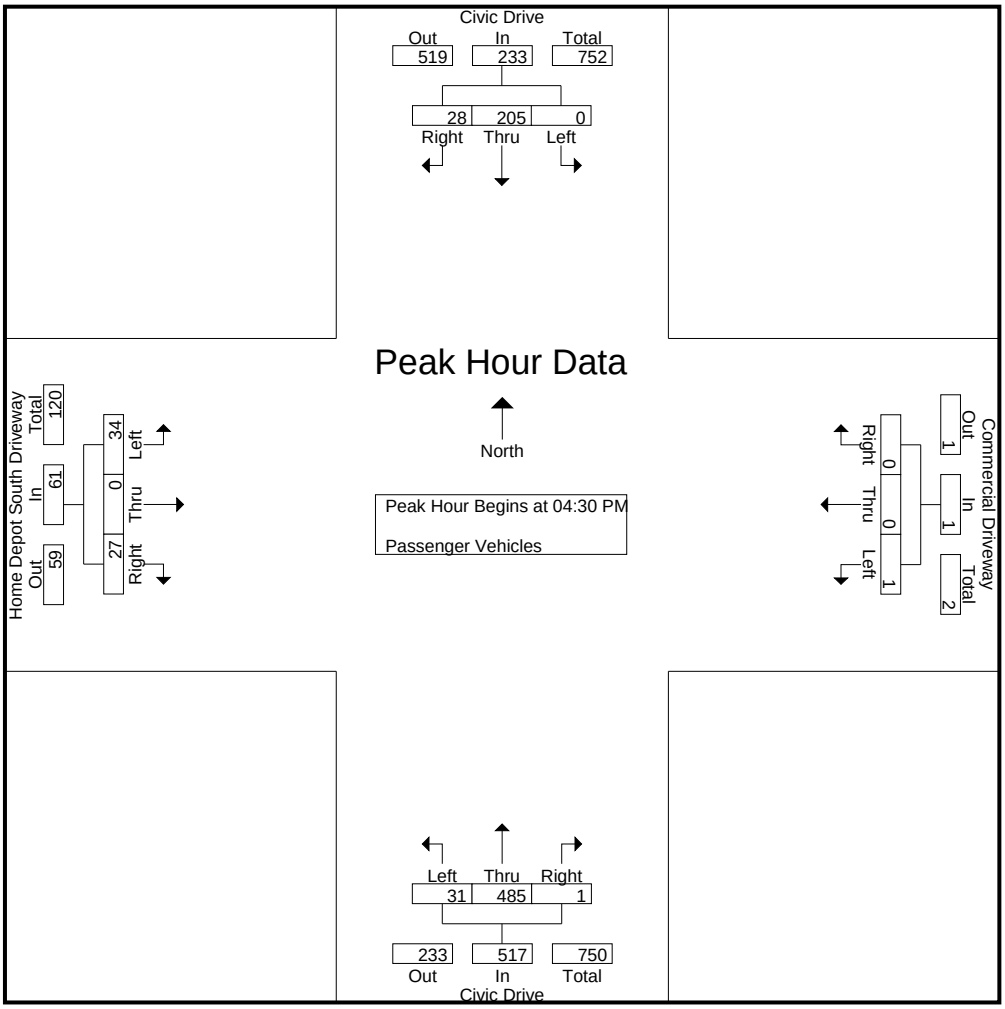
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	**56**	8	**64**	0	0	0	0	**10**	110	0	120	5	0	3	8
+15 mins.	0	49	**9**	58	**1**	0	0	**1**	6	70	**1**	77	10	0	**10**	20
+30 mins.	0	47	3	50	0	0	0	0	8	**195**	0	**203**	1	0	5	6
+45 mins.	0	53	8	61	0	0	0	0	7	110	0	117	**18**	0	9	**27**
Total Volume	0	205	28	233	1	0	0	1	31	485	1	517	34	0	27	61
% App. Total	0	88	12		100	0	0		6	93.8	0.2		55.7	0	44.3	
PHF	.000	.915	.778	.910	.250	.000	.000	.250	.775	.622	.250	.637	.472	.000	.675	.565

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File Name : 01_VIC_Civic_HD DW S PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
04:15 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
04:30 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	2	0	0	0	0	0	3	0	3	0	0	0	0	5
05:00 PM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
Grand Total	0	3	1	4	0	0	0	0	0	4	0	4	0	0	0	0	8
Apprch %	0	75	25		0	0	0		0	100	0		0	0	0		
Total %	0	37.5	12.5	50	0	0	0	0	0	50	0	50	0	0	0	0	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	**1**	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	**2**	0	**2**	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**3**
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	1	3	0	0	0	0	0	1	0	1	0	0	0	0	4
% App. Total	0	66.7	33.3		0	0	0		0	100	0		0	0	0		
PHF	.000	.250	.250	.375	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.333

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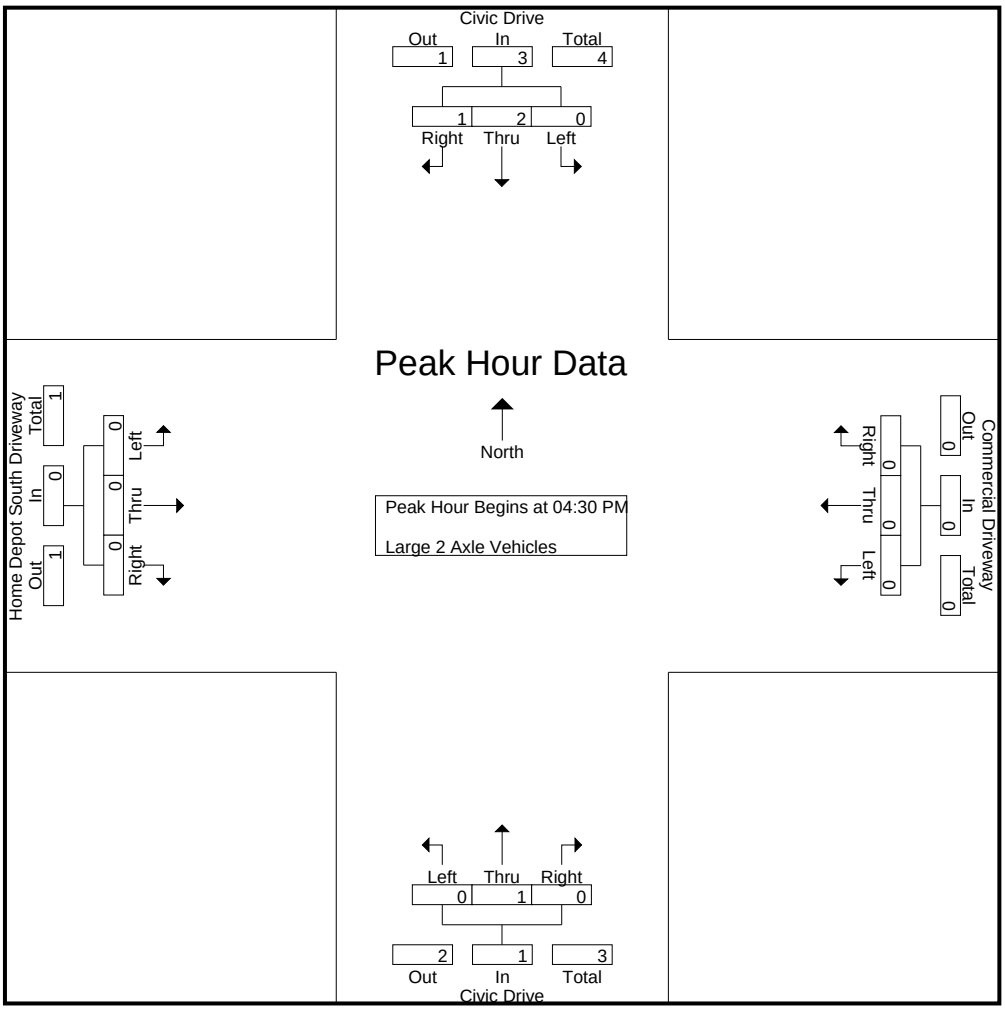
File Name : 01_VIC_Civic_HD DW S PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	**1**	1	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	**2**	0	**2**	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	1	3	0	0	0	0	0	1	0	1	0	0	0	0
% App. Total	0	66.7	33.3		0	0	0		0	100	0		0	0	0	
PHF	.000	.250	.250	.375	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000

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File Name : 01_VIC_Civic_HD DW S PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	4
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0		
Total %	0	25	0	25	0	0	0	0	0	75	0	75	0	0	0	0	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0	**2**
04:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.375	.000	.375	.000	.000	.000	.000	.375

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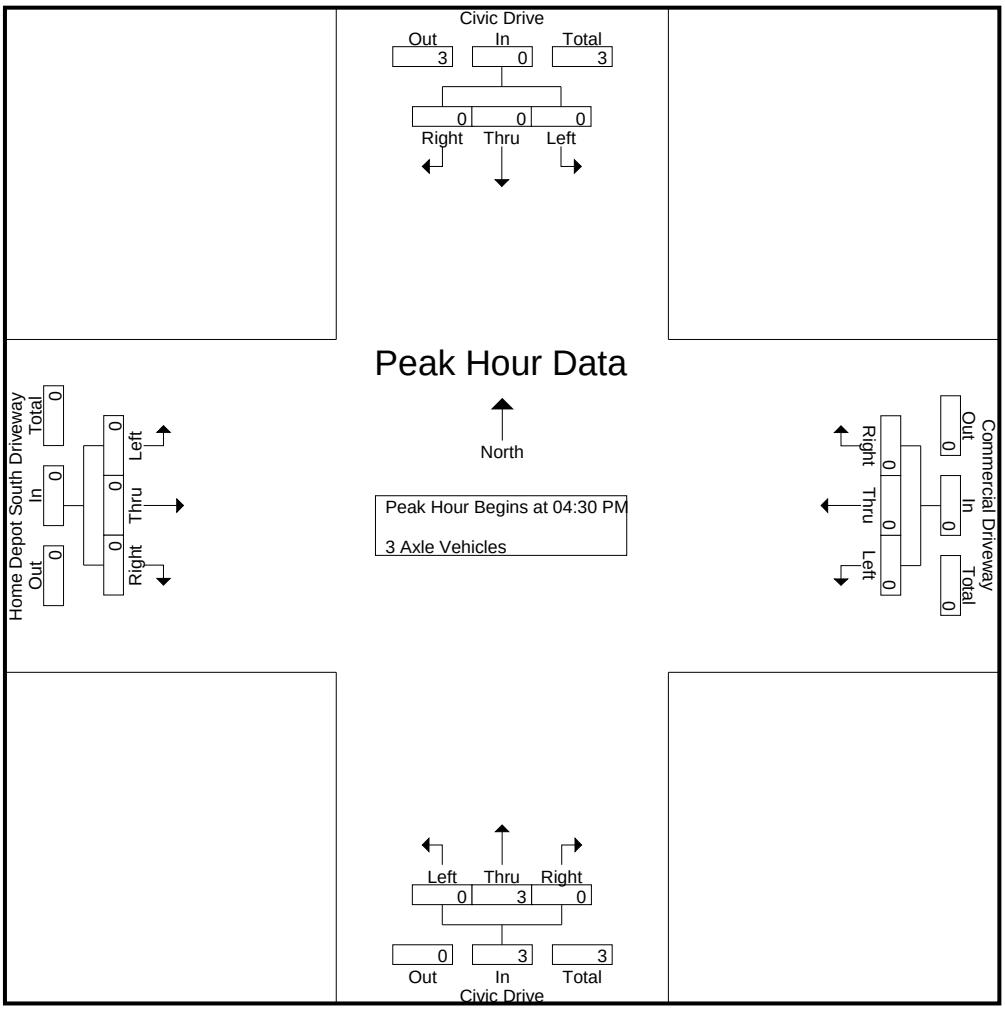
City of Victorville
N/S: Civic Drive
E/W: Home Depot South Driveway
Weather: Clear

File Name : 01_VIC_Civic_HD DW S PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.375	.000	.375	.000	.000	.000	.000

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File Name : 01_VIC_Civic_HD DW S PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
Grand Total	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0		
Total %	0	66.7	0	66.7	0	0	0	0	0	33.3	0	33.3	0	0	0	0	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot South Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**2**
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.250

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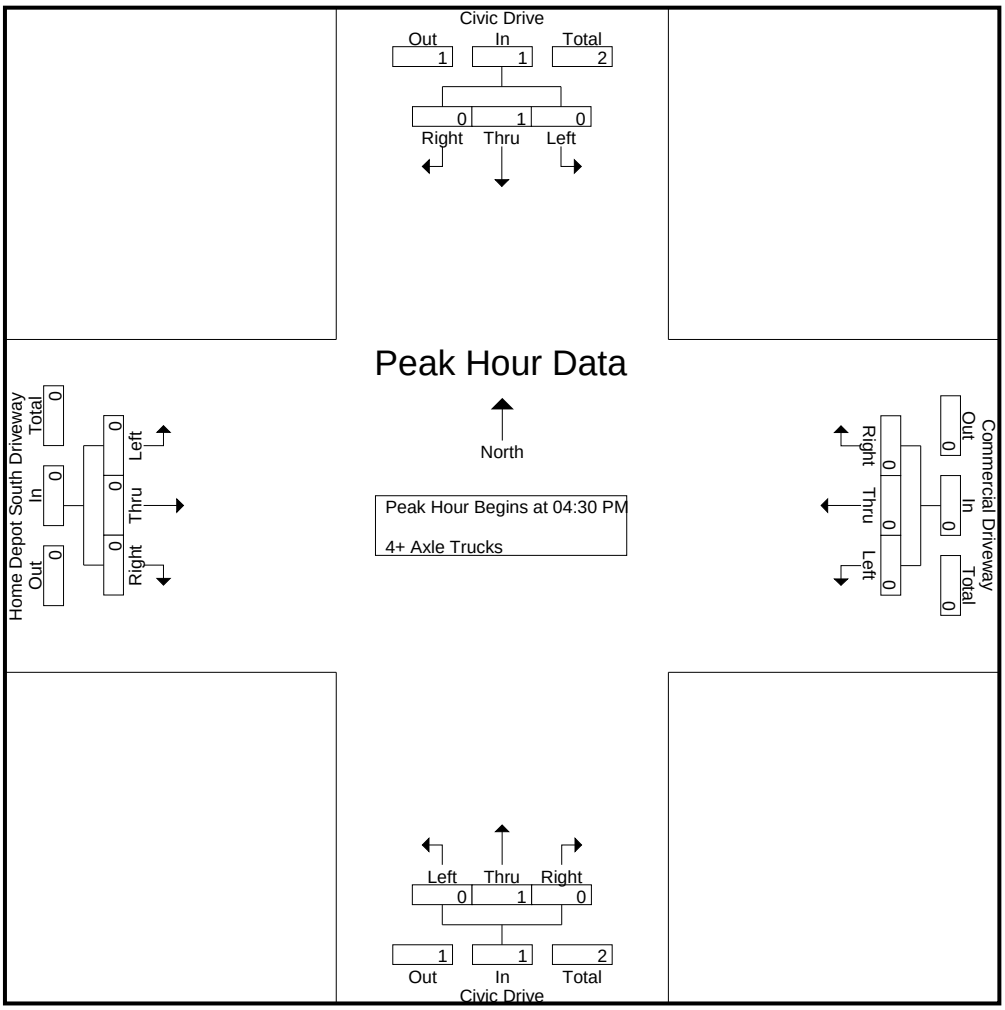
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000

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City of Victorville
N/S: Civic Drive
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Weather: Clear

File Name : 02_VIC_Civic_HD DW N MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	35	56	2	93	6	1	1	8	4	83	3	90	15	0	6	21	212
11:45 AM	35	74	7	116	3	1	0	4	17	105	7	129	11	1	4	16	265
Total	70	130	9	209	9	2	1	12	21	188	10	219	26	1	10	37	477
12:00 PM	47	67	6	120	6	1	0	7	16	146	13	175	4	0	5	9	311
12:15 PM	29	72	5	106	15	1	3	19	7	89	12	108	12	1	4	17	250
12:30 PM	40	77	5	122	11	0	0	11	11	73	5	89	10	0	10	20	242
12:45 PM	37	87	2	126	15	3	1	19	8	75	4	87	9	1	8	18	250
Total	153	303	18	474	47	5	4	56	42	383	34	459	35	2	27	64	1053
01:00 PM	40	72	5	117	10	1	3	14	6	92	4	102	7	0	4	11	244
01:15 PM	36	78	3	117	10	0	0	10	6	84	6	96	13	2	6	21	244
Grand Total	299	583	35	917	76	8	8	92	75	747	54	876	81	5	47	133	2018
Apprch %	32.6	63.6	3.8		82.6	8.7	8.7		8.6	85.3	6.2		60.9	3.8	35.3		
Total %	14.8	28.9	1.7	45.4	3.8	0.4	0.4	4.6	3.7	37	2.7	43.4	4	0.2	2.3	6.6	
Passenger Vehicles	296	573	35	904	76	8	7	91	75	734	53	862	81	4	45	130	1987
% Passenger Vehicles	99	98.3	100	98.6	100	100	87.5	98.9	100	98.3	98.1	98.4	100	80	95.7	97.7	98.5
Large 2 Axle Vehicles	3	5	0	8	0	0	1	1	0	7	1	8	0	1	2	3	20
% Large 2 Axle Vehicles	1	0.9	0	0.9	0	0	12.5	1.1	0	0.9	1.9	0.9	0	20	4.3	2.3	1
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0.3	0	0.2	0	0	0	0	0.1
4+ Axle Trucks	0	5	0	5	0	0	0	0	0	4	0	4	0	0	0	0	9
% 4+ Axle Trucks	0	0.9	0	0.5	0	0	0	0	0	0.5	0	0.5	0	0	0	0	0.4

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	35	74	**7**	116	3	**1**	0	4	**17**	105	7	129	11	**1**	4	16	265
12:00 PM	**47**	67	6	120	6	1	0	7	16	**146**	**13**	**175**	4	0	5	9	**311**
12:15 PM	29	72	5	106	**15**	1	**3**	**19**	7	89	12	108	**12**	1	4	17	250
12:30 PM	40	**77**	5	**122**	11	0	0	11	11	73	5	89	10	0	**10**	**20**	242
Total Volume	151	290	23	464	35	3	3	41	51	413	37	501	37	2	23	62	1068
% App. Total	32.5	62.5	5		85.4	7.3	7.3		10.2	82.4	7.4		59.7	3.2	37.1		
PHF	.803	.942	.821	.951	.583	.750	.250	.539	.750	.707	.712	.716	.771	.500	.575	.775	.859

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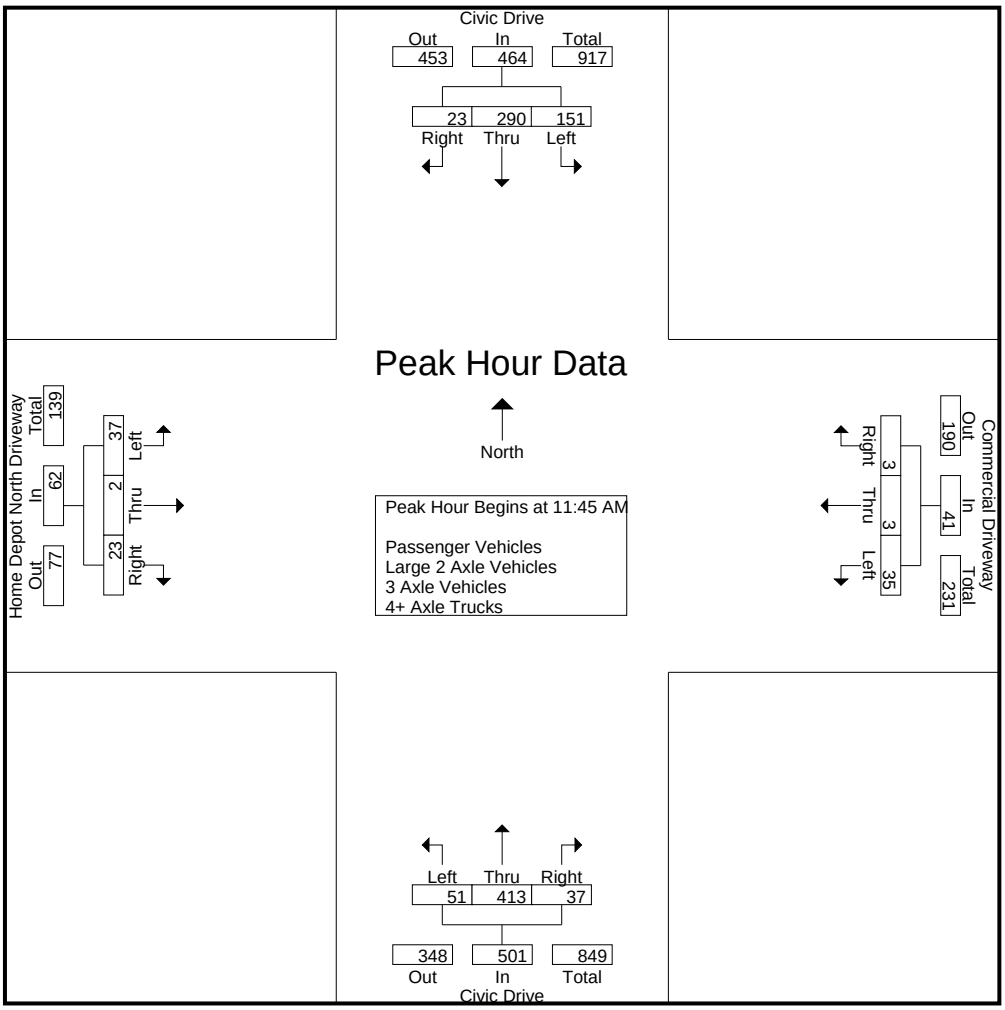
Weather: Clear

File Name : 02_VIC_Civic_HD DW N MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:30 PM				12:15 PM				11:30 AM				12:30 PM			
+0 mins.	**40**	77	**5**	122	**15**	1	**3**	**19**	4	83	3	90	10	0	**10**	20
+15 mins.	37	**87**	2	**126**	11	0	0	11	**17**	105	7	129	9	1	8	18
+30 mins.	40	72	5	117	15	**3**	1	19	16	**146**	**13**	**175**	7	0	4	11
+45 mins.	36	78	3	117	10	1	3	14	7	89	12	108	**13**	**2**	6	**21**
Total Volume	153	314	15	482	51	5	7	63	44	423	35	502	39	3	28	70
% App. Total	31.7	65.1	3.1		81	7.9	11.1		8.8	84.3	7		55.7	4.3	40	
PHF	.956	.902	.750	.956	.850	.417	.583	.829	.647	.724	.673	.717	.750	.375	.700	.833

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City of Victorville
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File Name : 02_VIC_Civic_HD DW N MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	35	54	2	91	6	1	1	8	4	82	3	89	15	0	6	21	209
11:45 AM	35	73	7	115	3	1	0	4	17	103	7	127	11	0	4	15	261
Total	70	127	9	206	9	2	1	12	21	185	10	216	26	0	10	36	470
12:00 PM	46	66	6	118	6	1	0	7	16	144	13	173	4	0	5	9	307
12:15 PM	27	71	5	103	15	1	2	18	7	85	12	104	12	1	4	17	242
12:30 PM	40	76	5	121	11	0	0	11	11	73	5	89	10	0	10	20	241
12:45 PM	37	84	2	123	15	3	1	19	8	73	4	85	9	1	7	17	244
Total	150	297	18	465	47	5	3	55	42	375	34	451	35	2	26	63	1034
01:00 PM	40	71	5	116	10	1	3	14	6	92	4	102	7	0	3	10	242
01:15 PM	36	78	3	117	10	0	0	10	6	82	5	93	13	2	6	21	241
Grand Total	296	573	35	904	76	8	7	91	75	734	53	862	81	4	45	130	1987
Apprch %	32.7	63.4	3.9		83.5	8.8	7.7		8.7	85.2	6.1		62.3	3.1	34.6		
Total %	14.9	28.8	1.8	45.5	3.8	0.4	0.4	4.6	3.8	36.9	2.7	43.4	4.1	0.2	2.3	6.5	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	35	73	**7**	115	3	**1**	0	4	**17**	103	7	127	11	0	4	15	261
12:00 PM	**46**	66	6	118	6	1	0	7	16	**144**	**13**	**173**	4	0	5	9	**307**
12:15 PM	27	71	5	103	**15**	1	**2**	**18**	7	85	12	104	**12**	**1**	4	17	242
12:30 PM	40	**76**	5	**121**	11	0	0	11	11	73	5	89	10	0	**10**	**20**	241
Total Volume	148	286	23	457	35	3	2	40	51	405	37	493	37	1	23	61	1051
% App. Total	32.4	62.6	5		87.5	7.5	5		10.3	82.2	7.5		60.7	1.6	37.7		
PHF	.804	.941	.821	.944	.583	.750	.250	.556	.750	.703	.712	.712	.771	.250	.575	.763	.856

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File Name : 02_VIC_Civic_HD DW N MD
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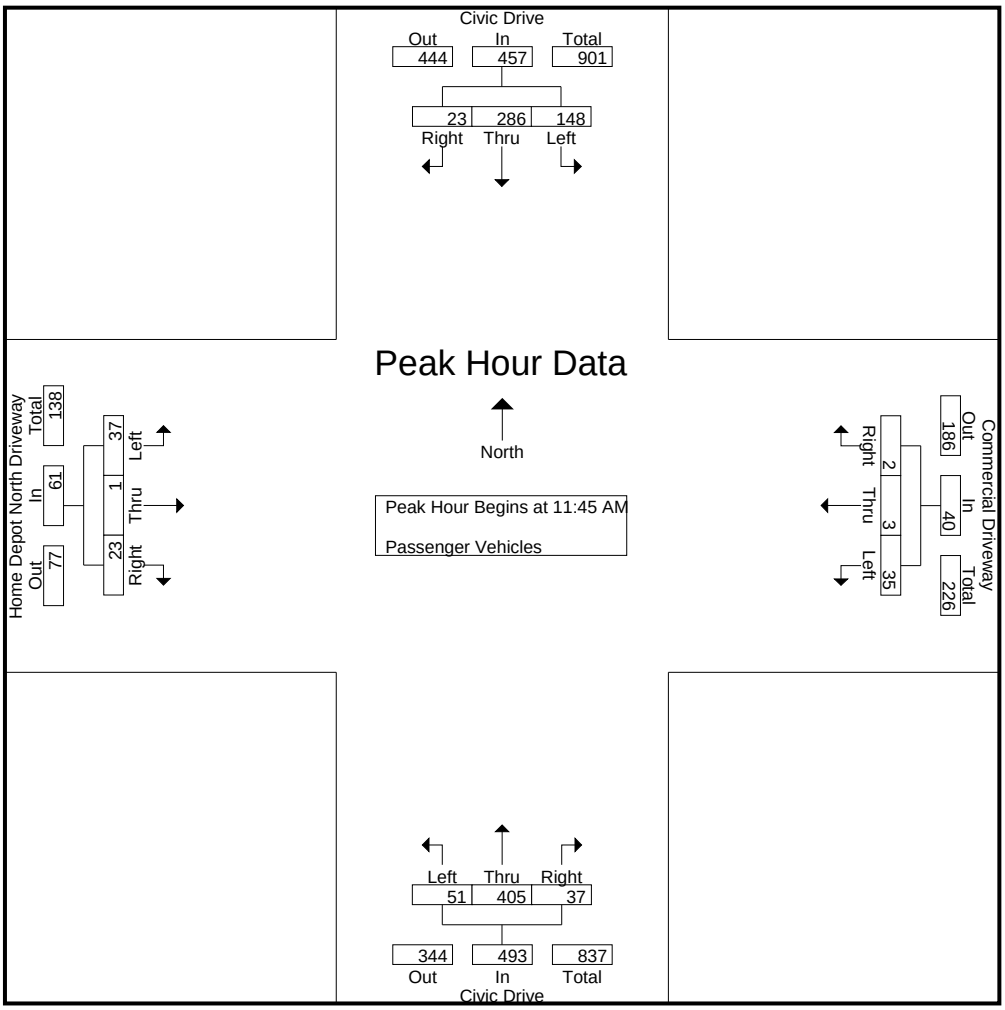
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				11:45 AM				11:45 AM				11:45 AM			
+0 mins.	35	73	**7**	115	3	**1**	0	4	**17**	103	7	127	11	0	4	15
+15 mins.	**46**	66	6	118	6	1	0	7	16	**144**	**13**	**173**	4	0	5	9
+30 mins.	27	71	5	103	**15**	1	**2**	**18**	7	85	12	104	**12**	**1**	4	17
+45 mins.	40	**76**	5	**121**	11	0	0	11	11	73	5	89	10	0	**10**	**20**
Total Volume	148	286	23	457	35	3	2	40	51	405	37	493	37	1	23	61
% App. Total	32.4	62.6	5		87.5	7.5	5		10.3	82.2	7.5		60.7	1.6	37.7	
PHF	.804	.941	.821	.944	.583	.750	.250	.556	.750	.703	.712	.712	.771	.250	.575	.763

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File Name : 02_VIC_Civic_HD DW N MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
11:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
Total	0	1	0	1	0	0	0	0	0	1	0	1	0	1	0	1	3
12:00 PM	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
12:15 PM	2	1	0	3	0	0	1	1	0	3	0	3	0	0	0	0	7
12:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	1	1	3
Total	3	3	0	6	0	0	1	1	0	5	0	5	0	0	1	1	13
01:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	2
01:15 PM	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	2
Grand Total	3	5	0	8	0	0	1	1	0	7	1	8	0	1	2	3	20
Apprch %	37.5	62.5	0		0	0	100		0	87.5	12.5		0	33.3	66.7		
Total %	15	25	0	40	0	0	5	5	0	35	5	40	0	5	10	15	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	0	**1**	0	1	0	0	0	0	0	0	0	0	0	**1**	0	**1**	2
12:00 PM	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
12:15 PM	**2**	1	0	**3**	0	0	**1**	**1**	0	**3**	0	**3**	0	0	0	0	**7**
12:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	3	3	0	6	0	0	1	1	0	4	0	4	0	1	0	1	12
% App. Total	50	50	0		0	0	100		0	100	0		0	100	0		
PHF	.375	.750	.000	.500	.000	.000	.250	.250	.000	.333	.000	.333	.000	.250	.000	.250	.429

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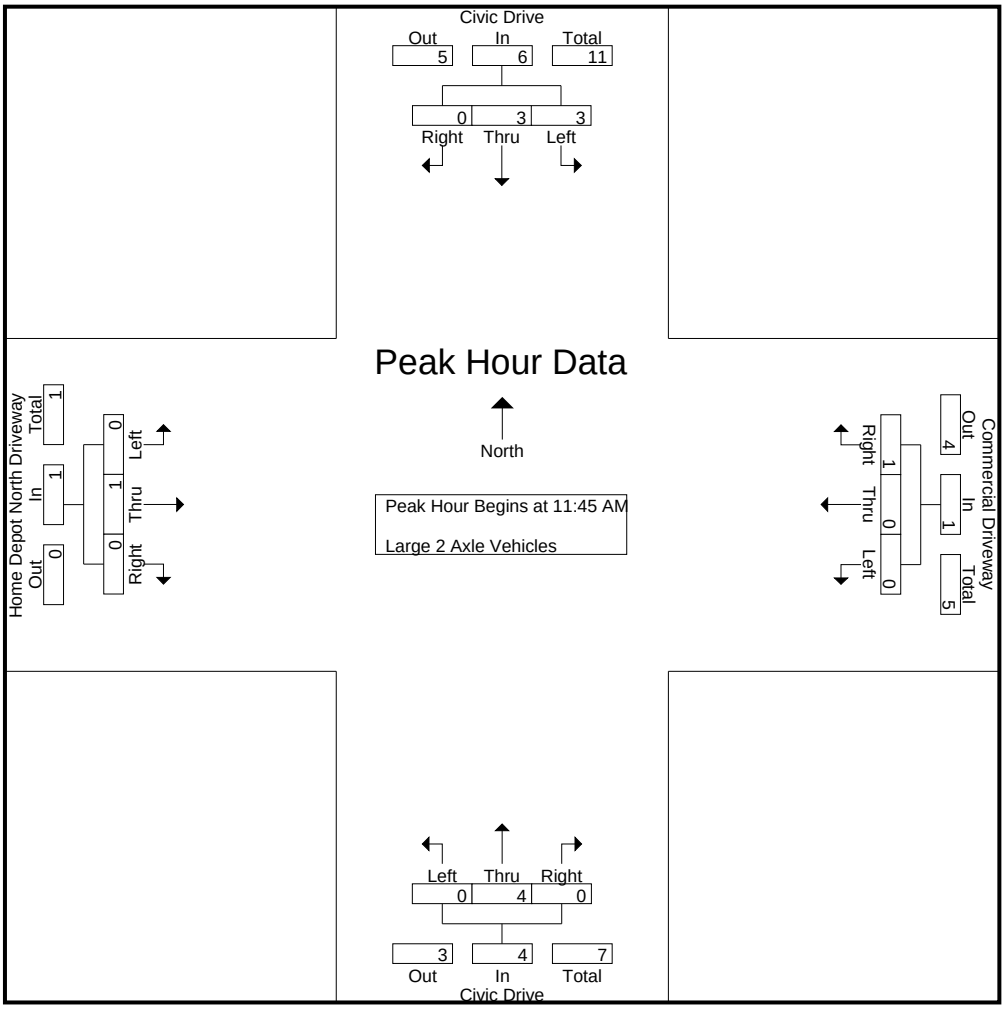
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				11:45 AM				11:45 AM				11:45 AM			
+0 mins.	0	**1**	0	1	0	0	0	0	0	0	0	0	0	**1**	0	**1**
+15 mins.	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0
+30 mins.	**2**	1	0	**3**	0	0	**1**	**1**	0	**3**	0	**3**	0	0	0	0
+45 mins.	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	3	3	0	6	0	0	1	1	0	4	0	4	0	1	0	1
% App. Total	50	50	0		0	0	100		0	100	0		0	100	0	
PHF	.375	.750	.000	.500	.000	.000	.250	.250	.000	.333	.000	.333	.000	.250	.000	.250

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City of Victorville
N/S: Civic Drive
E/W: Home Depot North Driveway
Weather: Clear

File Name : 02_VIC_Civic_HD DW N MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
Apprch %	0	0	0		0	0	0		0	100	0		0	0	0		
Total %	0	0	0	0	0	0	0	0	0	100	0	100	0	0	0	0	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**1**
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.250

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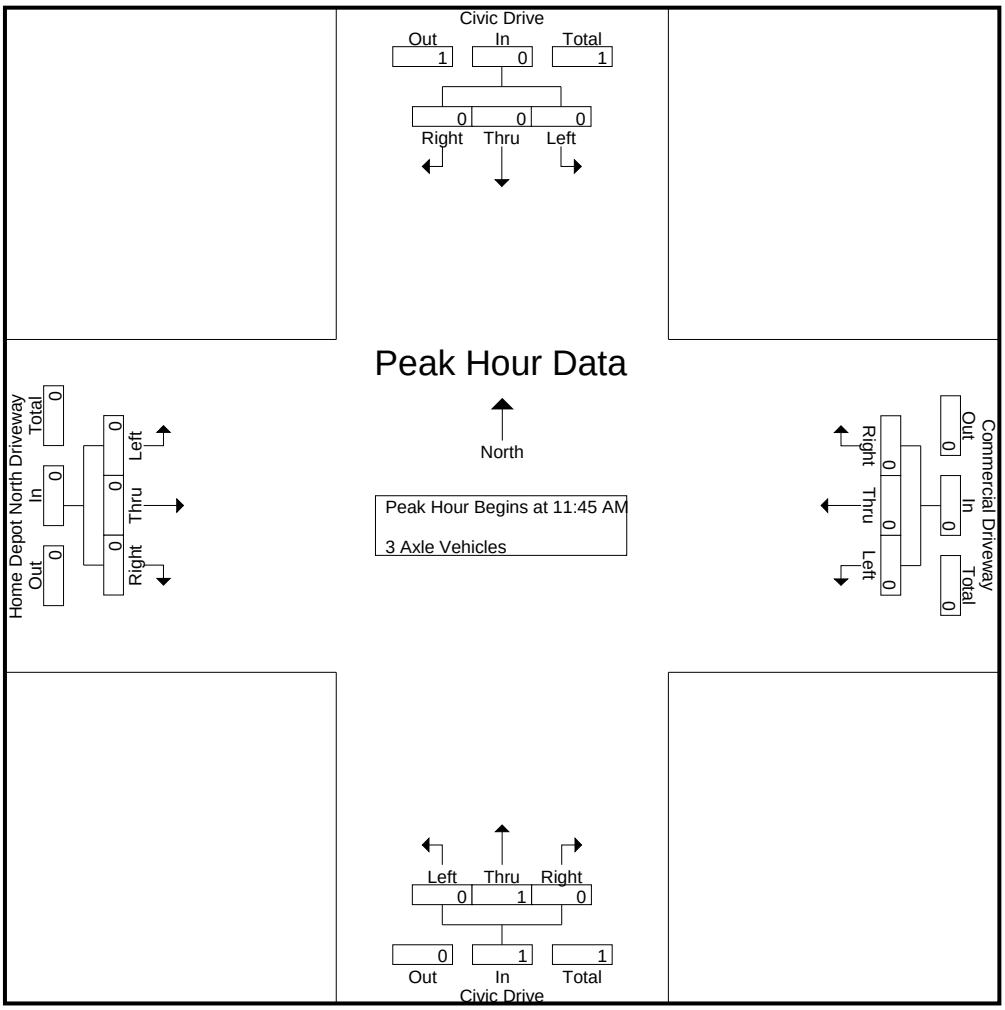
File Name : 02_VIC_Civic_HD DW N MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				11:45 AM				11:45 AM				11:45 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000

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File Name : 02_VIC_Civic_HD DW N MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
11:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
12:00 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
12:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
Total	0	3	0	3	0	0	0	0	0	3	0	3	0	0	0	0	6
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	5	0	5	0	0	0	0	0	4	0	4	0	0	0	0	9
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0		
Total %	0	55.6	0	55.6	0	0	0	0	0	44.4	0	44.4	0	0	0	0	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	1
12:00 PM	0	**1**	0	**1**	0	0	0	0	0	1	0	1	0	0	0	0	**2**
12:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	4
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.750	.000	.750	.000	.000	.000	.000	.500

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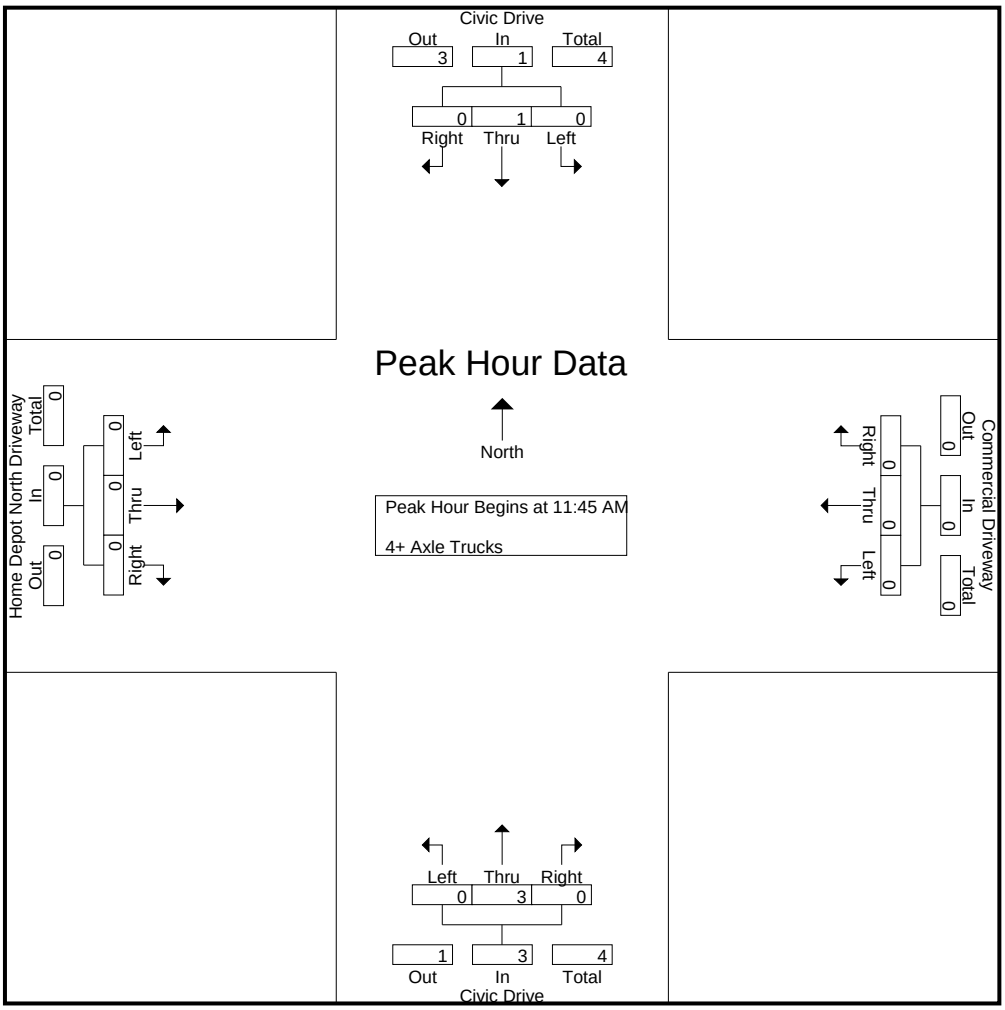
File Name : 02_VIC_Civic_HD DW N MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				11:45 AM				11:45 AM				11:45 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+15 mins.	0	**1**	0	**1**	0	0	0	0	0	1	0	1	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.750	.000	.750	.000	.000	.000	.000

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File Name : 02_VIC_Civic_HD DW N PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	27	52	7	86	4	1	1	6	8	126	10	144	10	2	1	13	249
04:15 PM	28	46	6	80	6	1	1	8	6	76	1	83	12	1	2	15	186
04:30 PM	33	55	3	91	4	2	0	6	1	116	3	120	6	1	8	15	232
04:45 PM	32	46	11	89	7	1	1	9	4	77	1	82	13	2	6	21	201
Total	120	199	27	346	21	5	3	29	19	395	15	429	41	6	17	64	868
05:00 PM	32	48	7	87	3	0	1	4	5	192	4	201	10	2	5	17	309
05:15 PM	37	50	11	98	4	0	0	4	2	113	3	118	25	0	4	29	249
05:30 PM	32	38	1	71	2	0	0	2	5	90	4	99	9	1	1	11	183
05:45 PM	31	31	2	64	4	1	1	6	5	84	1	90	12	2	3	17	177
Total	132	167	21	320	13	1	2	16	17	479	12	508	56	5	13	74	918
Grand Total	252	366	48	666	34	6	5	45	36	874	27	937	97	11	30	138	1786
Apprch %	37.8	55	7.2		75.6	13.3	11.1		3.8	93.3	2.9		70.3	8	21.7		
Total %	14.1	20.5	2.7	37.3	1.9	0.3	0.3	2.5	2	48.9	1.5	52.5	5.4	0.6	1.7	7.7	
Passenger Vehicles	250	360	48	658	34	6	5	45	35	868	27	930	96	11	30	137	1770
% Passenger Vehicles	99.2	98.4	100	98.8	100	100	100	100	97.2	99.3	100	99.3	99	100	100	99.3	99.1
Large 2 Axle Vehicles	2	3	0	5	0	0	0	0	1	4	0	5	1	0	0	1	11
% Large 2 Axle Vehicles	0.8	0.8	0	0.8	0	0	0	0	2.8	0.5	0	0.5	1	0	0	0.7	0.6
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0.2	0	0.2	0	0	0	0	0.1
4+ Axle Trucks	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
% 4+ Axle Trucks	0	0.8	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0.2

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	33	**55**	3	91	4	**2**	0	6	1	116	3	120	6	1	**8**	15	232
04:45 PM	32	46	**11**	89	**7**	1	**1**	**9**	4	77	1	82	13	**2**	6	21	201
05:00 PM	32	48	7	87	3	0	1	4	**5**	**192**	**4**	**201**	10	2	5	17	**309**
05:15 PM	**37**	50	11	**98**	4	0	0	4	2	113	3	118	**25**	0	4	**29**	249
Total Volume	134	199	32	365	18	3	2	23	12	498	11	521	54	5	23	82	991
% App. Total	36.7	54.5	8.8		78.3	13	8.7		2.3	95.6	2.1		65.9	6.1	28		
PHF	.905	.905	.727	.931	.643	.375	.500	.639	.600	.648	.688	.648	.540	.625	.719	.707	.802

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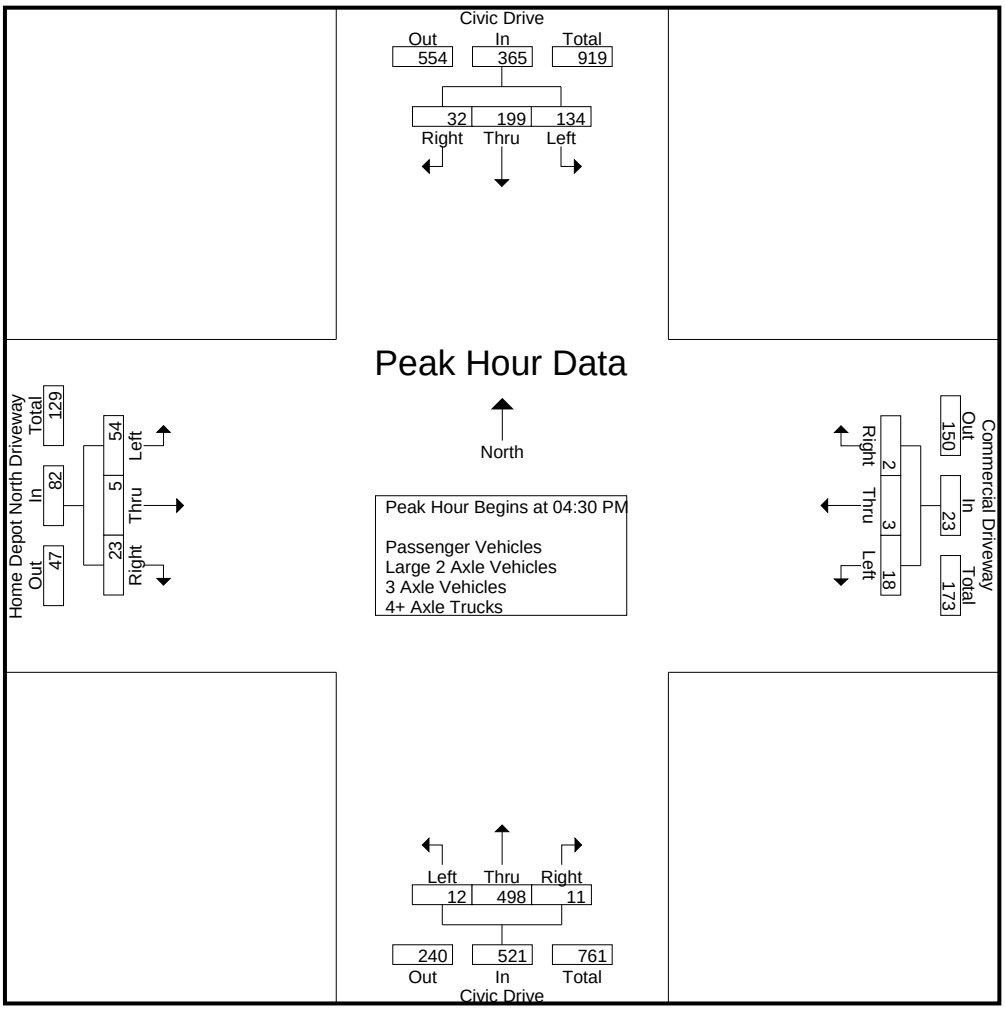
Weather: Clear

File Name : 02_VIC_Civic_HD DW N PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



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

	04:30 PM				04:00 PM				04:30 PM				04:30 PM			
+0 mins.	33	**55**	3	91	4	1	**1**	6	1	116	3	120	6	1	**8**	15
+15 mins.	32	46	**11**	89	6	1	1	8	4	77	1	82	13	**2**	6	21
+30 mins.	32	48	7	87	4	**2**	0	6	**5**	**192**	**4**	**201**	10	2	5	17
+45 mins.	**37**	50	11	**98**	**7**	1	1	**9**	2	113	3	118	**25**	0	4	**29**
Total Volume	134	199	32	365	21	5	3	29	12	498	11	521	54	5	23	82
% App. Total	36.7	54.5	8.8		72.4	17.2	10.3		2.3	95.6	2.1		65.9	6.1	28	
PHF	.905	.905	.727	.931	.750	.625	.750	.806	.600	.648	.688	.648	.540	.625	.719	.707

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File Name : 02_VIC_Civic_HD DW N PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	27	51	7	85	4	1	1	6	8	124	10	142	10	2	1	13	246
04:15 PM	28	46	6	80	6	1	1	8	6	75	1	82	12	1	2	15	185
04:30 PM	33	55	3	91	4	2	0	6	1	114	3	118	6	1	8	15	230
04:45 PM	31	46	11	88	7	1	1	9	4	76	1	81	12	2	6	20	198
Total	119	198	27	344	21	5	3	29	19	389	15	423	40	6	17	63	859
05:00 PM	31	45	7	83	3	0	1	4	4	192	4	200	10	2	5	17	304
05:15 PM	37	50	11	98	4	0	0	4	2	113	3	118	25	0	4	29	249
05:30 PM	32	38	1	71	2	0	0	2	5	90	4	99	9	1	1	11	183
05:45 PM	31	29	2	62	4	1	1	6	5	84	1	90	12	2	3	17	175
Total	131	162	21	314	13	1	2	16	16	479	12	507	56	5	13	74	911
Grand Total	250	360	48	658	34	6	5	45	35	868	27	930	96	11	30	137	1770
Apprch %	38	54.7	7.3		75.6	13.3	11.1		3.8	93.3	2.9		70.1	8	21.9		
Total %	14.1	20.3	2.7	37.2	1.9	0.3	0.3	2.5	2	49	1.5	52.5	5.4	0.6	1.7	7.7	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	33	**55**	3	91	4	**2**	0	6	1	114	3	118	6	1	**8**	15	230
04:45 PM	31	46	**11**	88	**7**	1	**1**	**9**	**4**	76	1	81	12	**2**	6	20	198
05:00 PM	31	45	7	83	3	0	1	4	4	**192**	**4**	**200**	10	2	5	17	**304**
05:15 PM	**37**	50	11	**98**	4	0	0	4	2	113	3	118	**25**	0	4	**29**	249
Total Volume	132	196	32	360	18	3	2	23	11	495	11	517	53	5	23	81	981
% App. Total	36.7	54.4	8.9		78.3	13	8.7		2.1	95.7	2.1		65.4	6.2	28.4		
PHF	.892	.891	.727	.918	.643	.375	.500	.639	.688	.645	.688	.646	.530	.625	.719	.698	.807

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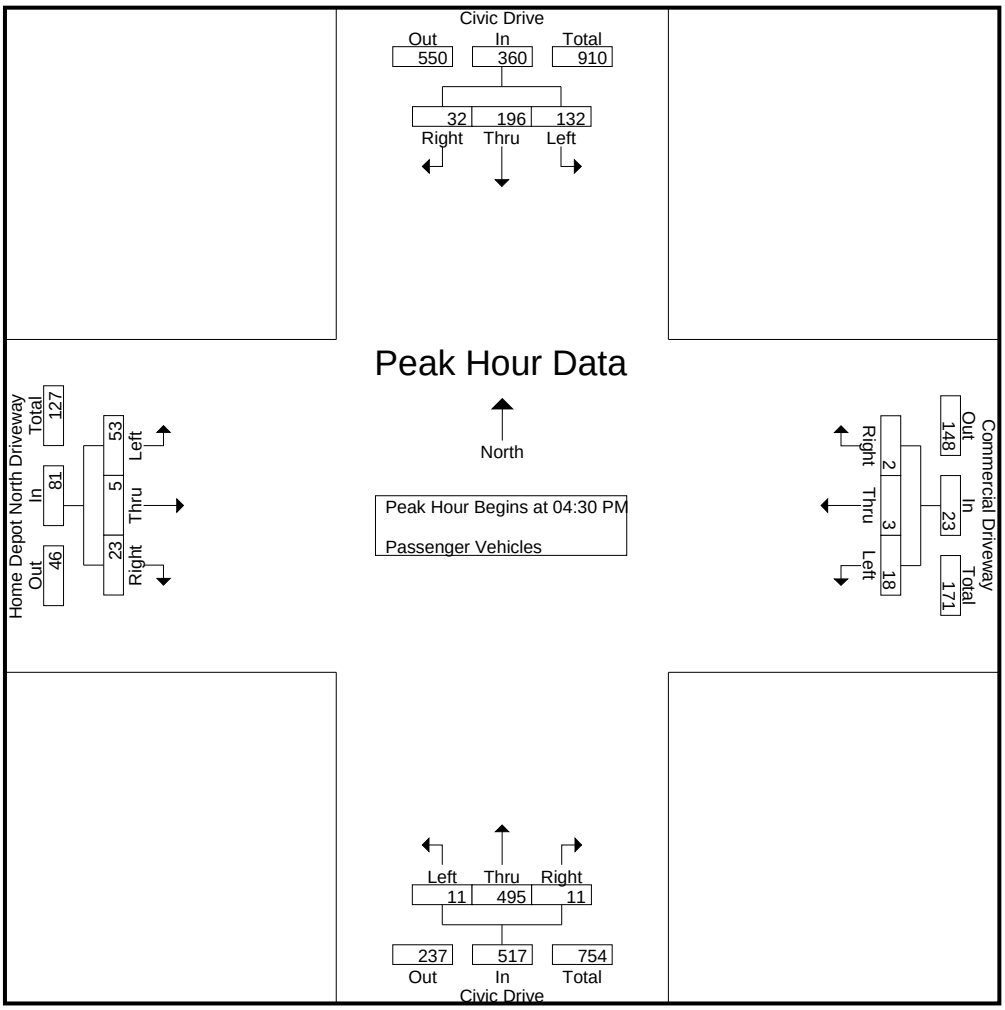
File Name : 02_VIC_Civic_HD DW N PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	33	**55**	3	91	4	**2**	0	6	1	114	3	118	6	1	**8**	15
+15 mins.	31	46	**11**	88	**7**	1	**1**	**9**	**4**	76	1	81	12	**2**	6	20
+30 mins.	31	45	7	83	3	0	1	4	4	**192**	**4**	**200**	10	2	5	17
+45 mins.	**37**	50	11	**98**	4	0	0	4	2	113	3	118	**25**	0	4	**29**
Total Volume	132	196	32	360	18	3	2	23	11	495	11	517	53	5	23	81
% App. Total	36.7	54.4	8.9		78.3	13	8.7		2.1	95.7	2.1		65.4	6.2	28.4	
PHF	.892	.891	.727	.918	.643	.375	.500	.639	.688	.645	.688	.646	.530	.625	.719	.698

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File Name : 02_VIC_Civic_HD DW N PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
04:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
04:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	2
Total	1	1	0	2	0	0	0	0	0	4	0	4	1	0	0	1	7
05:00 PM	1	2	0	3	0	0	0	0	1	0	0	1	0	0	0	0	4
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	2	0	3	0	0	0	0	1	0	0	1	0	0	0	0	4
Grand Total	2	3	0	5	0	0	0	0	1	4	0	5	1	0	0	1	11
Apprch %	40	60	0		0	0	0		20	80	0		100	0	0		
Total %	18.2	27.3	0	45.5	0	0	0	0	9.1	36.4	0	45.5	9.1	0	0	9.1	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	1
04:45 PM	**1**	0	0	1	0	0	0	0	0	0	0	0	**1**	0	0	**1**	2
05:00 PM	1	**2**	0	**3**	0	0	0	0	**1**	0	0	1	0	0	0	0	**4**
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	2	2	0	4	0	0	0	0	1	1	0	2	1	0	0	1	7
% App. Total	50	50	0		0	0	0		50	50	0		100	0	0		
PHF	.500	.250	.000	.333	.000	.000	.000	.000	.250	.250	.000	.500	.250	.000	.000	.250	.438

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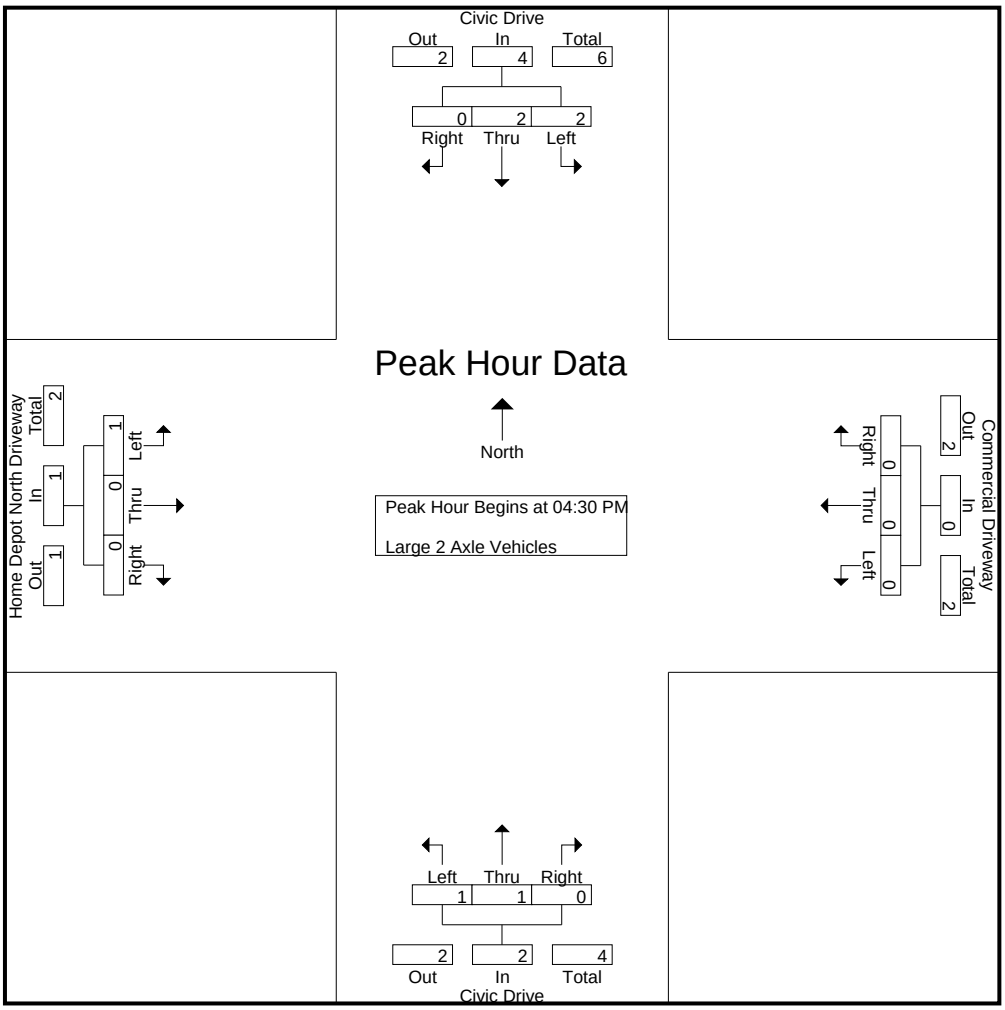
City of Victorville
N/S: Civic Drive
E/W: Home Depot North Driveway
Weather: Clear

File Name : 02_VIC_Civic_HD DW N PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+15 mins.	**1**	0	0	1	0	0	0	0	0	0	0	0	**1**	0	0	**1**
+30 mins.	1	**2**	0	**3**	0	0	0	0	**1**	0	0	1	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	2	2	0	4	0	0	0	0	1	1	0	2	1	0	0	1
% App. Total	50	50	0		0	0	0		50	50	0		100	0	0	
PHF	.500	.250	.000	.333	.000	.000	.000	.000	.250	.250	.000	.500	.250	.000	.000	.250

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Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
Apprch %	0	0	0		0	0	0		0	100	0		0	0	0		
Total %	0	0	0	0	0	0	0	0	0	100	0	100	0	0	0	0	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**1**
04:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.500

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Weather: Clear

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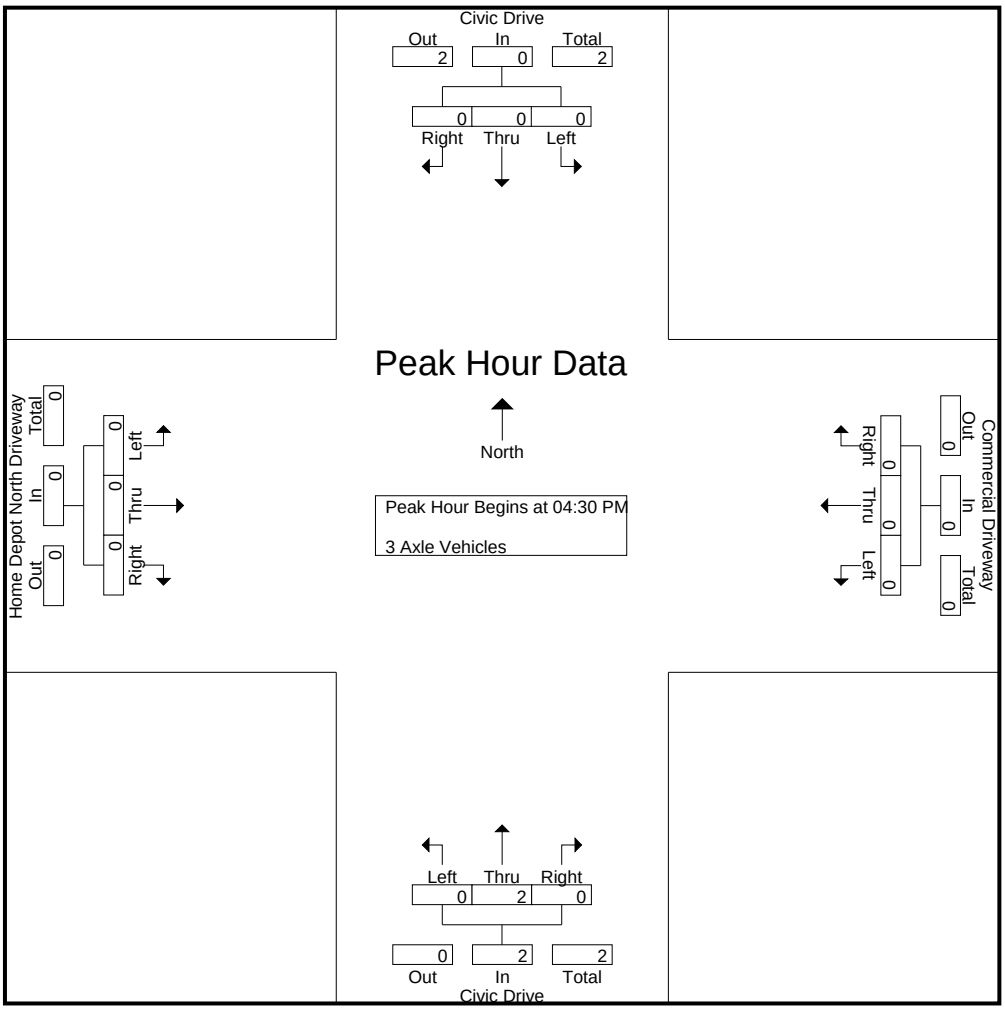
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000

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File Name : 02_VIC_Civic_HD DW N PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Grand Total	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Apprch %	0	100	0		0	0	0		0	0	0		0	0	0		
Total %	0	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	

	Civic Drive Southbound				Commercial Driveway Westbound				Civic Drive Northbound				Home Depot North Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

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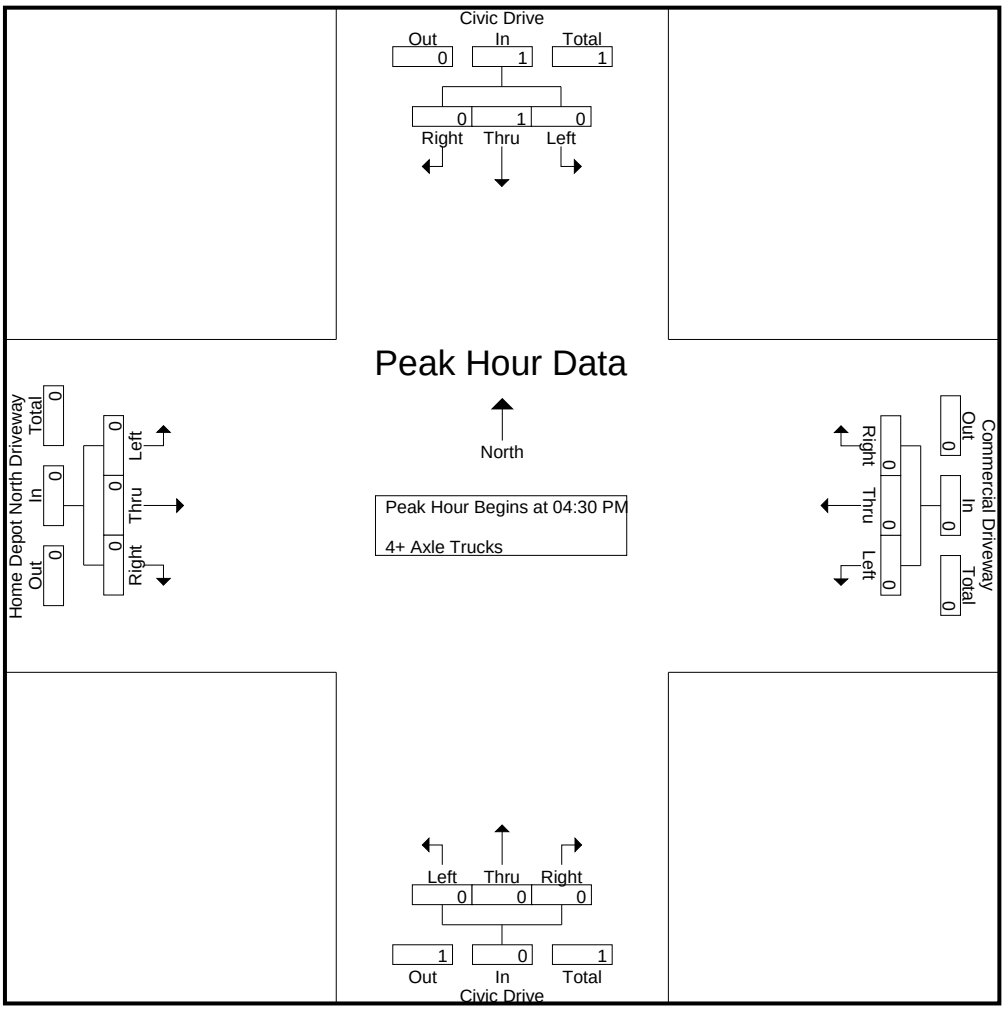
Weather: Clear

File Name : 02_VIC_Civic_HD DW N PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Victorville
N/S: Civic Drive
E/W: Roy Rogers Drive
Weather: Clear

File Name : 03_VIC_Civic_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	29	7	6	42	83	135	20	238	14	9	81	104	15	131	16	162	546
11:45 AM	42	12	9	63	98	171	32	301	19	19	97	135	16	175	14	205	704
Total	71	19	15	105	181	306	52	539	33	28	178	239	31	306	30	367	1250
12:00 PM	28	10	10	48	94	146	32	272	31	22	123	176	8	164	24	196	692
12:15 PM	24	12	9	45	78	181	22	281	20	13	110	143	10	159	12	181	650
12:30 PM	27	8	4	39	106	180	26	312	21	8	91	120	11	140	18	169	640
12:45 PM	26	10	8	44	80	167	33	280	15	16	76	107	5	172	26	203	634
Total	105	40	31	176	358	674	113	1145	87	59	400	546	34	635	80	749	2616
01:00 PM	20	6	6	32	99	164	26	289	23	21	110	154	12	182	13	207	682
01:15 PM	28	8	12	48	96	179	25	300	16	16	102	134	12	163	17	192	674
Grand Total	224	73	64	361	734	1323	216	2273	159	124	790	1073	89	1286	140	1515	5222
Apprch %	62	20.2	17.7		32.3	58.2	9.5		14.8	11.6	73.6		5.9	84.9	9.2		
Total %	4.3	1.4	1.2	6.9	14.1	25.3	4.1	43.5	3	2.4	15.1	20.5	1.7	24.6	2.7	29	
Passenger Vehicles	221	71	64	356	726	1307	213	2246	158	123	773	1054	89	1274	135	1498	5154
% Passenger Vehicles	98.7	97.3	100	98.6	98.9	98.8	98.6	98.8	99.4	99.2	97.8	98.2	100	99.1	96.4	98.9	98.7
Large 2 Axle Vehicles	1	1	0	2	6	12	2	20	1	1	11	13	0	11	3	14	49
% Large 2 Axle Vehicles	0.4	1.4	0	0.6	0.8	0.9	0.9	0.9	0.6	0.8	1.4	1.2	0	0.9	2.1	0.9	0.9
3 Axle Vehicles	0	0	0	0	0	1	0	1	0	0	2	2	0	0	0	0	3
% 3 Axle Vehicles	0	0	0	0	0	0.1	0	0	0	0	0.3	0.2	0	0	0	0	0.1
4+ Axle Trucks	2	1	0	3	2	3	1	6	0	0	4	4	0	1	2	3	16
% 4+ Axle Trucks	0.9	1.4	0	0.8	0.3	0.2	0.5	0.3	0	0	0.5	0.4	0	0.1	1.4	0.2	0.3

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	**42**	**12**	9	**63**	98	171	**32**	301	19	19	97	135	**16**	**175**	14	**205**	**704**
12:00 PM	28	10	**10**	48	94	146	32	272	**31**	**22**	**123**	**176**	8	164	**24**	196	692
12:15 PM	24	12	9	45	78	**181**	22	281	20	13	110	143	10	159	12	181	650
12:30 PM	27	8	4	39	**106**	180	26	**312**	21	8	91	120	11	140	18	169	640
Total Volume	121	42	32	195	376	678	112	1166	91	62	421	574	45	638	68	751	2686
% App. Total	62.1	21.5	16.4		32.2	58.1	9.6		15.9	10.8	73.3		6	85	9.1		
PHF	.720	.875	.800	.774	.887	.936	.875	.934	.734	.705	.856	.815	.703	.911	.708	.916	.954

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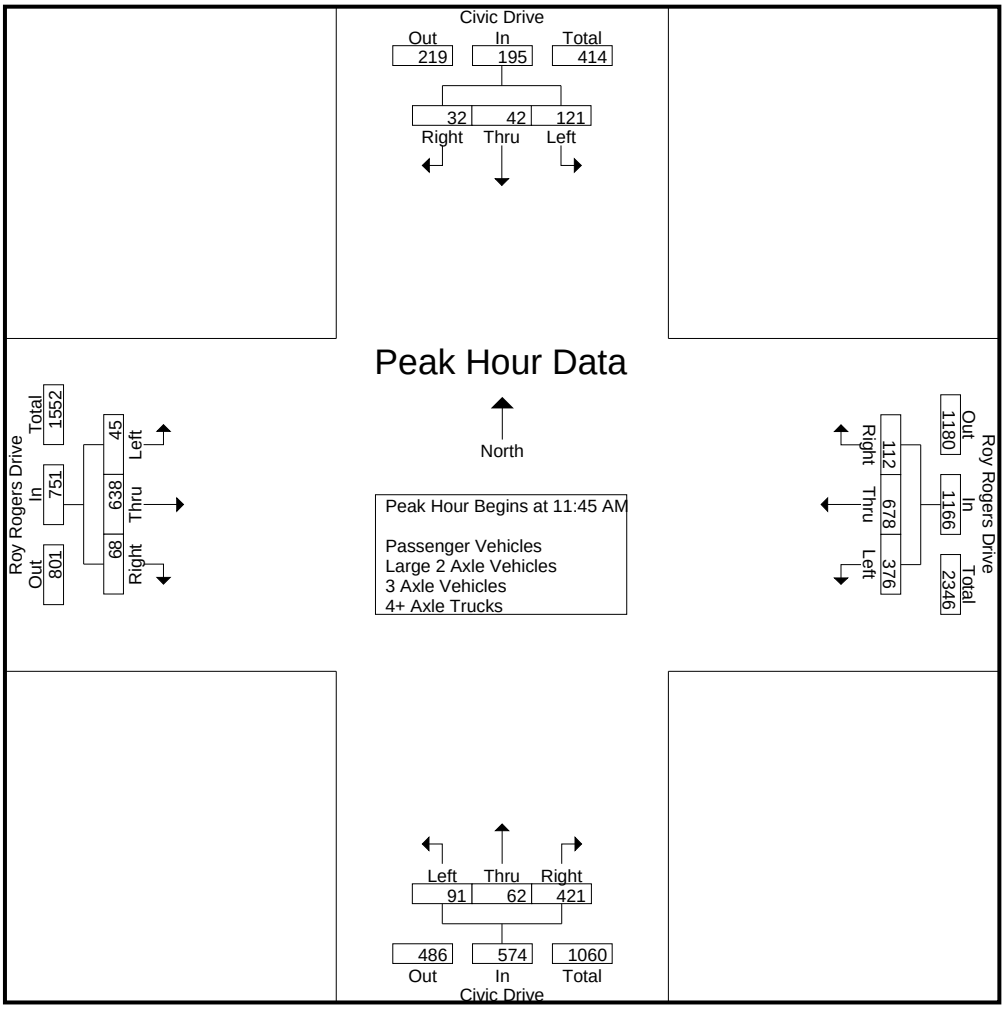
File Name : 03_VIC_Civic_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:30 AM				12:30 PM				11:45 AM				12:30 PM			
+0 mins.	29	7	6	42	**106**	**180**	26	**312**	19	19	97	135	11	140	18	169
+15 mins.	**42**	**12**	9	**63**	80	167	**33**	280	**31**	**22**	**123**	**176**	5	172	**26**	203
+30 mins.	28	10	**10**	48	99	164	26	289	20	13	110	143	**12**	**182**	13	**207**
+45 mins.	24	12	9	45	96	179	25	300	21	8	91	120	12	163	17	192
Total Volume	123	41	34	198	381	690	110	1181	91	62	421	574	40	657	74	771
% App. Total	62.1	20.7	17.2		32.3	58.4	9.3		15.9	10.8	73.3		5.2	85.2	9.6	
PHF	.732	.854	.850	.786	.899	.958	.833	.946	.734	.705	.856	.815	.833	.902	.712	.931

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Weather: Clear

File Name : 03_VIC_Civic_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	29	6	6	41	82	132	19	233	14	9	78	101	15	131	16	162	537
11:45 AM	41	11	9	61	98	170	31	299	19	19	96	134	16	174	13	203	697
Total	70	17	15	102	180	302	50	532	33	28	174	235	31	305	29	365	1234
12:00 PM	28	10	10	48	93	144	32	269	31	22	118	171	8	163	24	195	683
12:15 PM	23	12	9	44	74	179	22	275	19	13	106	138	10	157	12	179	636
12:30 PM	27	8	4	39	105	179	26	310	21	8	91	120	11	140	16	167	636
12:45 PM	26	10	8	44	79	166	33	278	15	15	73	103	5	170	24	199	624
Total	104	40	31	175	351	668	113	1132	86	58	388	532	34	630	76	740	2579
01:00 PM	19	6	6	31	99	162	25	286	23	21	110	154	12	178	13	203	674
01:15 PM	28	8	12	48	96	175	25	296	16	16	101	133	12	161	17	190	667
Grand Total	221	71	64	356	726	1307	213	2246	158	123	773	1054	89	1274	135	1498	5154
Apprch %	62.1	19.9	18		32.3	58.2	9.5		15	11.7	73.3		5.9	85	9		
Total %	4.3	1.4	1.2	6.9	14.1	25.4	4.1	43.6	3.1	2.4	15	20.5	1.7	24.7	2.6	29.1	

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	**41**	11	9	**61**	98	170	31	299	19	19	96	134	**16**	**174**	13	**203**	**697**
12:00 PM	28	10	**10**	48	93	144	**32**	269	**31**	**22**	**118**	**171**	8	163	**24**	195	683
12:15 PM	23	**12**	9	44	74	**179**	22	275	19	13	106	138	10	157	12	179	636
12:30 PM	27	8	4	39	**105**	179	26	**310**	21	8	91	120	11	140	16	167	636
Total Volume	119	41	32	192	370	672	111	1153	90	62	411	563	45	634	65	744	2652
% App. Total	62	21.4	16.7		32.1	58.3	9.6		16	11	73		6	85.2	8.7		
PHF	.726	.854	.800	.787	.881	.939	.867	.930	.726	.705	.871	.823	.703	.911	.677	.916	.951

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Weather: Clear

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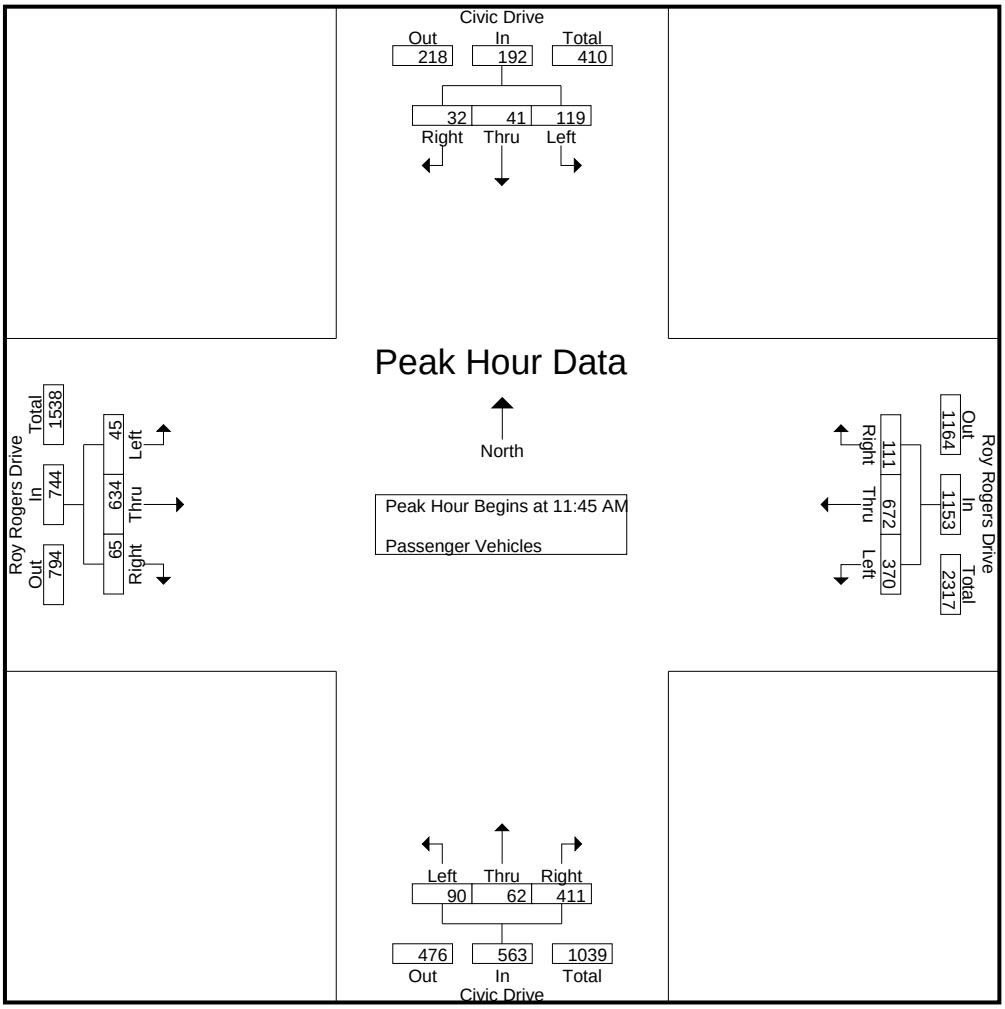
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				11:45 AM				11:45 AM				11:45 AM			
+0 mins.	**41**	11	9	**61**	98	170	31	299	19	19	96	134	**16**	**174**	13	**203**
+15 mins.	28	10	**10**	48	93	144	**32**	269	**31**	**22**	**118**	**171**	8	163	**24**	195
+30 mins.	23	**12**	9	44	74	**179**	22	275	19	13	106	138	10	157	12	179
+45 mins.	27	8	4	39	**105**	179	26	**310**	21	8	91	120	11	140	16	167
Total Volume	119	41	32	192	370	672	111	1153	90	62	411	563	45	634	65	744
% App. Total	62	21.4	16.7		32.1	58.3	9.6		16	11	73		6	85.2	8.7	
PHF	.726	.854	.800	.787	.881	.939	.867	.930	.726	.705	.871	.823	.703	.911	.677	.916

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Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	0	0	0	0	1	2	1	4	0	0	3	3	0	0	0	0	7
11:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1	2	3
Total	0	1	0	1	1	2	1	4	0	0	3	3	0	1	1	2	10
12:00 PM	0	0	0	0	0	2	0	2	0	0	3	3	0	0	0	0	5
12:15 PM	0	0	0	0	4	2	0	6	1	0	3	4	0	2	0	2	12
12:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	2
12:45 PM	0	0	0	0	0	1	0	1	0	1	1	2	0	2	1	3	6
Total	0	0	0	0	5	5	0	10	1	1	7	9	0	4	2	6	25
01:00 PM	1	0	0	1	0	2	1	3	0	0	0	0	0	4	0	4	8
01:15 PM	0	0	0	0	0	3	0	3	0	0	1	1	0	2	0	2	6
Grand Total	1	1	0	2	6	12	2	20	1	1	11	13	0	11	3	14	49
Apprch %	50	50	0		30	60	10		7.7	7.7	84.6		0	78.6	21.4		
Total %	2	2	0	4.1	12.2	24.5	4.1	40.8	2	2	22.4	26.5	0	22.4	6.1	28.6	

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	1	**1**	**2**	3
12:00 PM	0	0	0	0	0	**2**	0	2	0	0	**3**	3	0	0	0	0	5
12:15 PM	0	0	0	0	**4**	2	0	**6**	**1**	0	3	**4**	0	**2**	0	2	**12**
12:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	2
Total Volume	0	1	0	1	5	4	0	9	1	0	6	7	0	3	2	5	22
% App. Total	0	100	0		55.6	44.4	0		14.3	0	85.7		0	60	40		
PHF	.000	.250	.000	.250	.313	.500	.000	.375	.250	.000	.500	.438	.000	.375	.500	.625	.458

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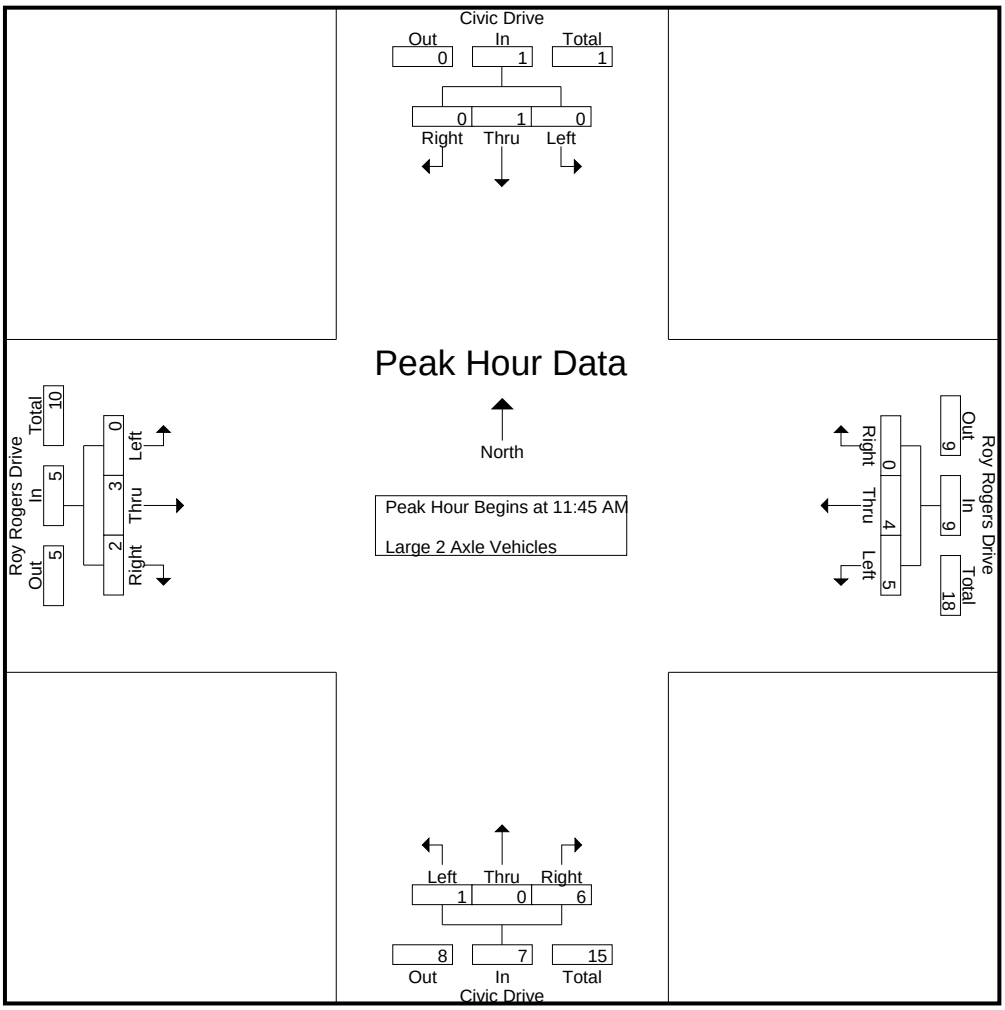
Page No : 2



Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				11:45 AM				11:45 AM				11:45 AM			
+0 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	1	**1**	**2**
+15 mins.	0	0	0	0	0	**2**	0	2	0	0	**3**	3	0	0	0	0
+30 mins.	0	0	0	0	**4**	2	0	**6**	**1**	0	3	**4**	0	**2**	0	2
+45 mins.	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
Total Volume	0	1	0	1	5	4	0	9	1	0	6	7	0	3	2	5
% App. Total	0	100	0		55.6	44.4	0		14.3	0	85.7		0	60	40	
PHF	.000	.250	.000	.250	.313	.500	.000	.375	.250	.000	.500	.438	.000	.375	.500	.625

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Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	1	0	1	0	0	2	2	0	0	0	0	3
Apprch %	0	0	0		0	100	0		0	0	100		0	0	0		
Total %	0	0	0	0	0	33.3	0	33.3	0	0	66.7	66.7	0	0	0	0	

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	**1**
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
% App. Total	0	0	0		0	0	0		0	0	100		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.250

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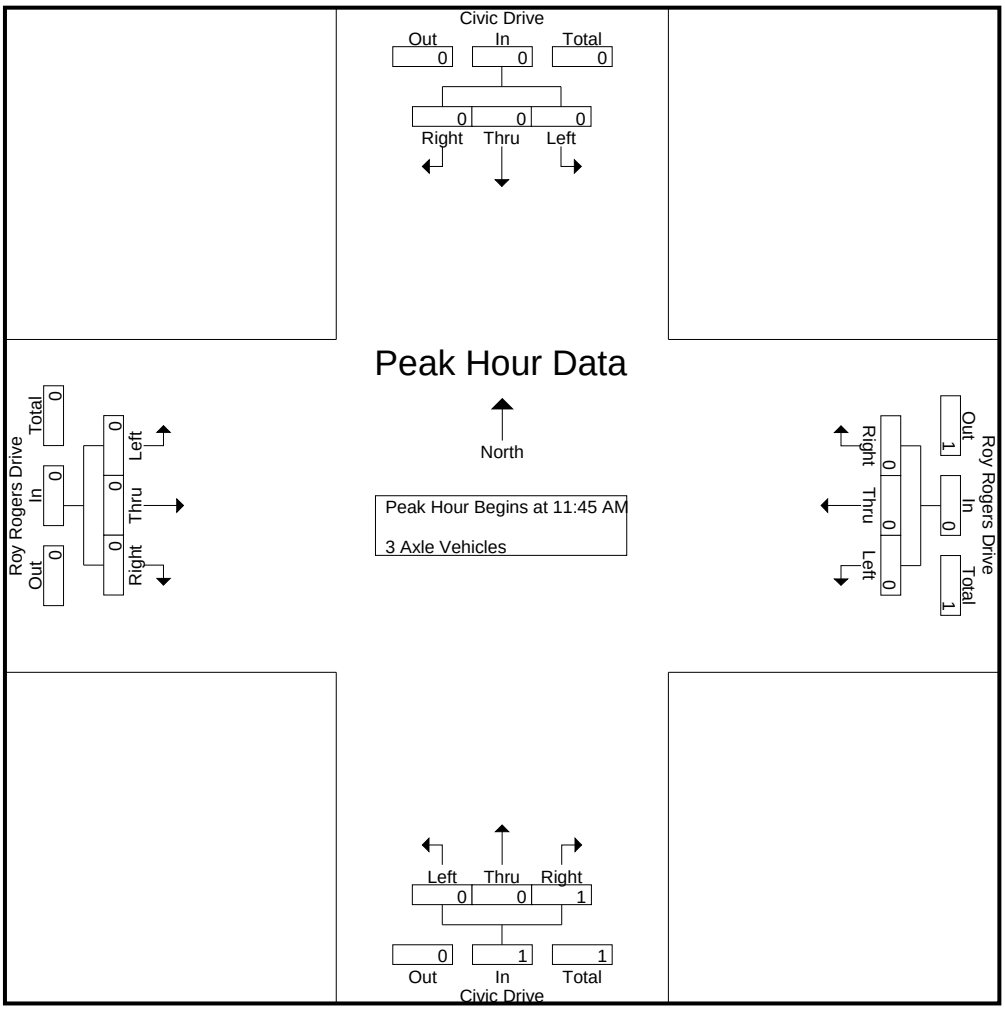
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				11:45 AM				11:45 AM				11:45 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	100		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000

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File Name : 03_VIC_Civic_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
11:45 AM	1	0	0	1	0	1	1	2	0	0	0	0	0	0	0	0	3
Total	1	1	0	2	0	2	1	3	0	0	0	0	0	0	0	0	5
12:00 PM	0	0	0	0	1	0	0	1	0	0	2	2	0	1	0	1	4
12:15 PM	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	2
12:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	2
12:45 PM	0	0	0	0	1	0	0	1	0	0	1	1	0	0	1	1	3
Total	1	0	0	1	2	1	0	3	0	0	4	4	0	1	2	3	11
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	2	1	0	3	2	3	1	6	0	0	4	4	0	1	2	3	16
Apprch %	66.7	33.3	0		33.3	50	16.7		0	0	100		0	33.3	66.7		
Total %	12.5	6.2	0	18.8	12.5	18.8	6.2	37.5	0	0	25	25	0	6.2	12.5	18.8	

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	**1**	0	0	**1**	0	**1**	**1**	**2**	0	0	0	0	0	0	0	0	3
12:00 PM	0	0	0	0	**1**	0	0	1	0	0	**2**	**2**	0	**1**	0	**1**	**4**
12:15 PM	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	2
12:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	**1**	1	2
Total Volume	2	0	0	2	1	2	1	4	0	0	3	3	0	1	1	2	11
% App. Total	100	0	0		25	50	25		0	0	100		0	50	50		
PHF	.500	.000	.000	.500	.250	.500	.250	.500	.000	.000	.375	.375	.000	.250	.250	.500	.688

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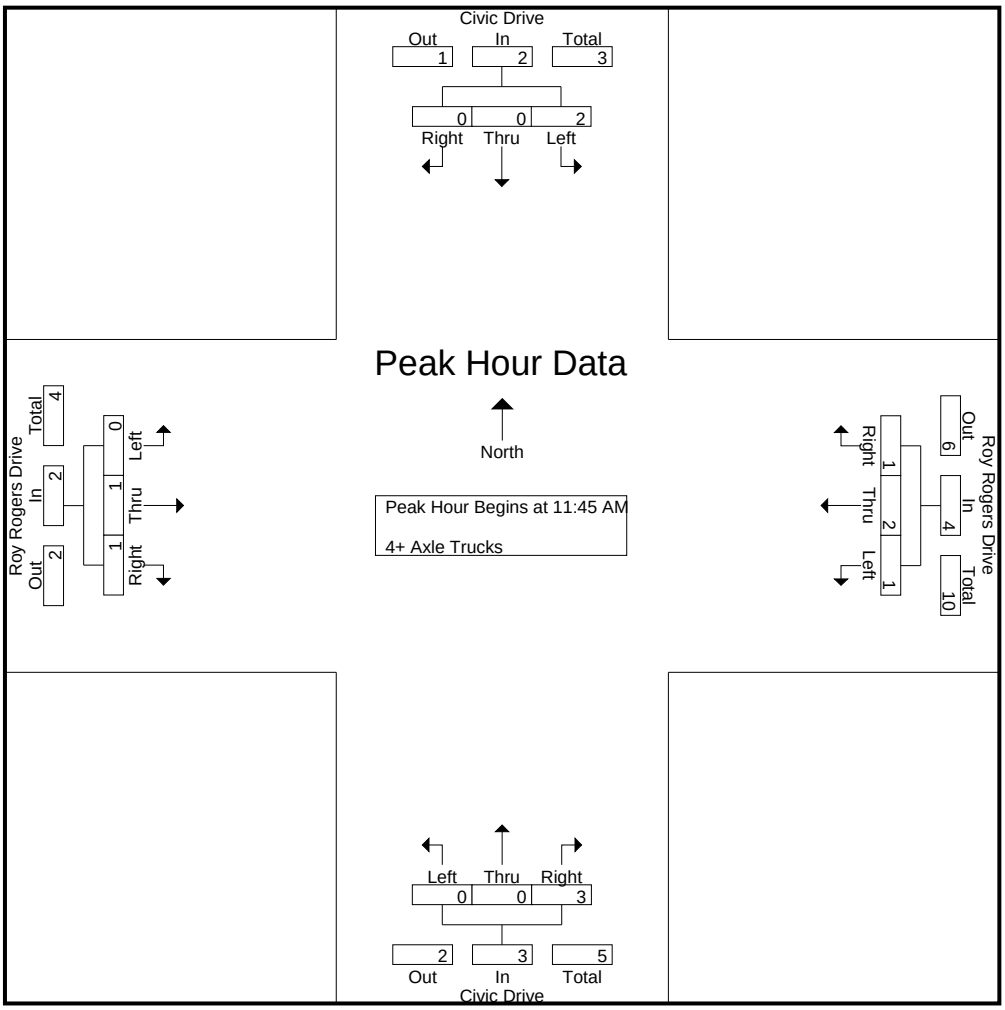
File Name : 03_VIC_Civic_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				11:45 AM				11:45 AM				11:45 AM			
+0 mins.	**1**	0	0	**1**	0	**1**	**1**	**2**	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	**1**	0	0	1	0	0	**2**	**2**	0	**1**	0	**1**
+30 mins.	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	**1**	1
Total Volume	2	0	0	2	1	2	1	4	0	0	3	3	0	1	1	2
% App. Total	100	0	0		25	50	25		0	0	100		0	50	50	
PHF	.500	.000	.000	.500	.250	.500	.250	.500	.000	.000	.375	.375	.000	.250	.250	.500

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E/W: Roy Rogers Drive
Weather: Clear

File Name : 03_VIC_Civic_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	26	6	10	42	66	197	28	291	13	14	126	153	10	171	11	192	678
04:15 PM	26	3	6	35	77	197	27	301	24	6	104	134	12	171	15	198	668
04:30 PM	31	8	2	41	66	171	22	259	19	11	100	130	12	154	13	179	609
04:45 PM	34	6	8	48	84	225	23	332	25	21	104	150	4	176	12	192	722
Total	117	23	26	166	293	790	100	1183	81	52	434	567	38	672	51	761	2677
05:00 PM	35	6	6	47	52	231	24	307	13	17	177	207	10	168	15	193	754
05:15 PM	41	9	6	56	77	208	24	309	24	11	160	195	7	190	18	215	775
05:30 PM	28	4	8	40	54	219	25	298	14	10	114	138	14	175	10	199	675
05:45 PM	29	1	4	34	55	227	33	315	22	15	105	142	7	143	4	154	645
Total	133	20	24	177	238	885	106	1229	73	53	556	682	38	676	47	761	2849
Grand Total	250	43	50	343	531	1675	206	2412	154	105	990	1249	76	1348	98	1522	5526
Apprch %	72.9	12.5	14.6		22	69.4	8.5		12.3	8.4	79.3		5	88.6	6.4		
Total %	4.5	0.8	0.9	6.2	9.6	30.3	3.7	43.6	2.8	1.9	17.9	22.6	1.4	24.4	1.8	27.5	
Passenger Vehicles	247	41	49	337	525	1663	205	2393	151	104	984	1239	76	1329	97	1502	5471
% Passenger Vehicles	98.8	95.3	98	98.3	98.9	99.3	99.5	99.2	98.1	99	99.4	99.2	100	98.6	99	98.7	99
Large 2 Axle Vehicles	1	1	1	3	3	9	0	12	2	1	3	6	0	15	1	16	37
% Large 2 Axle Vehicles	0.4	2.3	2	0.9	0.6	0.5	0	0.5	1.3	1	0.3	0.5	0	1.1	1	1.1	0.7
3 Axle Vehicles	1	1	0	2	1	1	1	3	1	0	3	4	0	3	0	3	12
% 3 Axle Vehicles	0.4	2.3	0	0.6	0.2	0.1	0.5	0.1	0.6	0	0.3	0.3	0	0.2	0	0.2	0.2
4+ Axle Trucks	1	0	0	1	2	2	0	4	0	0	0	0	0	1	0	1	6
% 4+ Axle Trucks	0.4	0	0	0.3	0.4	0.1	0	0.2	0	0	0	0	0	0.1	0	0.1	0.1

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	34	6	**8**	48	**84**	225	23	**332**	**25**	**21**	104	150	4	176	12	192	722
05:00 PM	35	6	6	47	52	**231**	24	307	13	17	**177**	**207**	10	168	15	193	754
05:15 PM	**41**	**9**	6	**56**	77	208	24	309	24	11	160	195	7	**190**	**18**	**215**	**775**
05:30 PM	28	4	8	40	54	219	**25**	298	14	10	114	138	**14**	175	10	199	675
Total Volume	138	25	28	191	267	883	96	1246	76	59	555	690	35	709	55	799	2926
% App. Total	72.3	13.1	14.7		21.4	70.9	7.7		11	8.6	80.4		4.4	88.7	6.9		
PHF	.841	.694	.875	.853	.795	.956	.960	.938	.760	.702	.784	.833	.625	.933	.764	.929	.944

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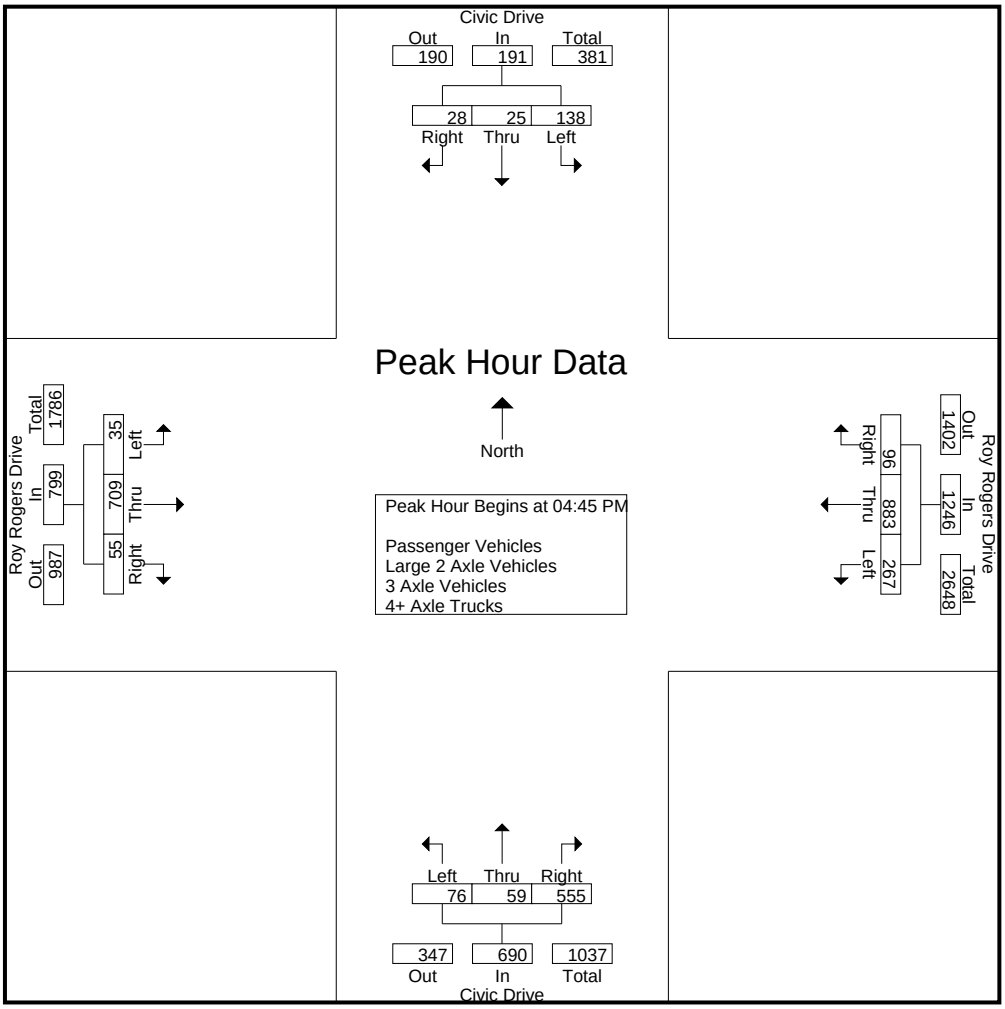
File Name : 03_VIC_Civic_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



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

	04:30 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	31	8	2	41	**84**	225	23	**332**	**25**	**21**	104	150	4	176	12	192
+15 mins.	34	6	**8**	48	52	**231**	24	307	13	17	**177**	**207**	10	168	15	193
+30 mins.	35	6	6	47	77	208	24	309	24	11	160	195	7	**190**	**18**	**215**
+45 mins.	**41**	**9**	6	**56**	54	219	**25**	298	14	10	114	138	**14**	175	10	199
Total Volume	141	29	22	192	267	883	96	1246	76	59	555	690	35	709	55	799
% App. Total	73.4	15.1	11.5		21.4	70.9	7.7		11	8.6	80.4		4.4	88.7	6.9	
PHF	.860	.806	.688	.857	.795	.956	.960	.938	.760	.702	.784	.833	.625	.933	.764	.929

Counts Unlimited
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City of Victorville
N/S: Civic Drive
E/W: Roy Rogers Drive
Weather: Clear

File Name : 03_VIC_Civic_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	26	5	10	41	66	192	28	286	13	14	125	152	10	169	11	190	669
04:15 PM	26	3	6	35	76	196	27	299	23	6	103	132	12	167	15	194	660
04:30 PM	31	8	2	41	66	170	22	258	19	11	98	128	12	150	13	175	602
04:45 PM	34	6	8	48	83	224	22	329	24	21	104	149	4	172	12	188	714
Total	117	22	26	165	291	782	99	1172	79	52	430	561	38	658	51	747	2645
05:00 PM	34	6	5	45	49	229	24	302	12	16	176	204	10	166	14	190	741
05:15 PM	40	8	6	54	77	208	24	309	24	11	159	194	7	189	18	214	771
05:30 PM	27	4	8	39	54	219	25	298	14	10	114	138	14	173	10	197	672
05:45 PM	29	1	4	34	54	225	33	312	22	15	105	142	7	143	4	154	642
Total	130	19	23	172	234	881	106	1221	72	52	554	678	38	671	46	755	2826
Grand Total	247	41	49	337	525	1663	205	2393	151	104	984	1239	76	1329	97	1502	5471
Apprch %	73.3	12.2	14.5		21.9	69.5	8.6		12.2	8.4	79.4		5.1	88.5	6.5		
Total %	4.5	0.7	0.9	6.2	9.6	30.4	3.7	43.7	2.8	1.9	18	22.6	1.4	24.3	1.8	27.5	

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	34	6	**8**	48	**83**	224	22	**329**	**24**	**21**	104	149	4	172	12	188	714
05:00 PM	34	6	5	45	49	**229**	24	302	12	16	**176**	**204**	10	166	14	190	741
05:15 PM	**40**	**8**	6	**54**	77	208	24	309	24	11	159	194	7	**189**	**18**	**214**	**771**
05:30 PM	27	4	8	39	54	219	**25**	298	14	10	114	138	**14**	173	10	197	672
Total Volume	135	24	27	186	263	880	95	1238	74	58	553	685	35	700	54	789	2898
% App. Total	72.6	12.9	14.5		21.2	71.1	7.7		10.8	8.5	80.7		4.4	88.7	6.8		
PHF	.844	.750	.844	.861	.792	.961	.950	.941	.771	.690	.786	.839	.625	.926	.750	.922	.940

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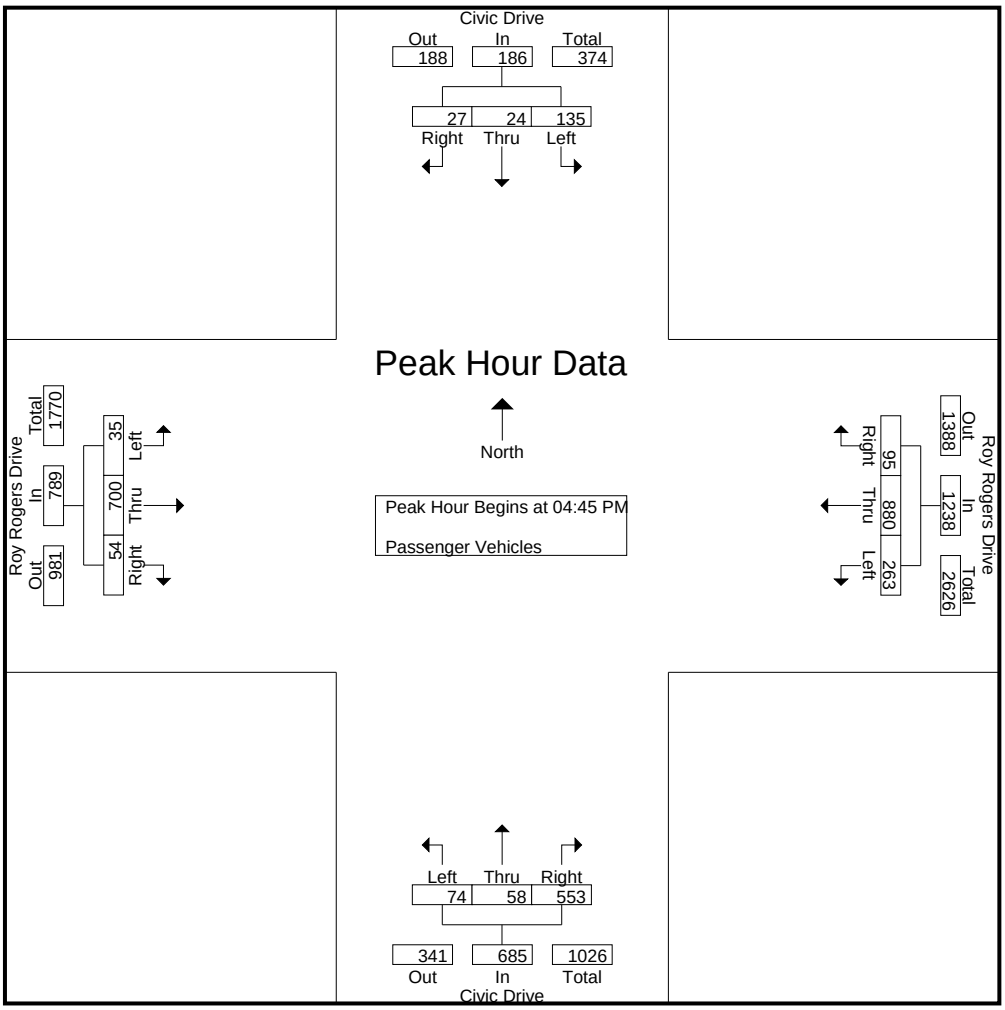
City of Victorville
N/S: Civic Drive
E/W: Roy Rogers Drive
Weather: Clear

File Name : 03_VIC_Civic_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	34	6	**8**	48	**83**	224	22	**329**	**24**	**21**	104	149	4	172	12	188
+15 mins.	34	6	5	45	49	**229**	24	302	12	16	**176**	**204**	10	166	14	190
+30 mins.	**40**	**8**	6	**54**	77	208	24	309	24	11	159	194	7	**189**	**18**	**214**
+45 mins.	27	4	8	39	54	219	**25**	298	14	10	114	138	**14**	173	10	197
Total Volume	135	24	27	186	263	880	95	1238	74	58	553	685	35	700	54	789
% App. Total	72.6	12.9	14.5		21.2	71.1	7.7		10.8	8.5	80.7		4.4	88.7	6.8	
PHF	.844	.750	.844	.861	.792	.961	.950	.941	.771	.690	.786	.839	.625	.926	.750	.922

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City of Victorville
N/S: Civic Drive
E/W: Roy Rogers Drive
Weather: Clear

File Name : 03_VIC_Civic_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	4	0	4	0	0	1	1	0	1	0	1	6
04:15 PM	0	0	0	0	1	1	0	2	1	0	1	2	0	4	0	4	8
04:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	4
04:45 PM	0	0	0	0	1	1	0	2	0	0	0	0	0	2	0	2	4
Total	0	0	0	0	2	7	0	9	1	0	2	3	0	10	0	10	22
05:00 PM	0	0	1	1	1	1	0	2	1	1	1	3	0	2	1	3	9
05:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
05:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	2	0	2	3
05:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	1	1	1	3	1	2	0	3	1	1	1	3	0	5	1	6	15
Grand Total	1	1	1	3	3	9	0	12	2	1	3	6	0	15	1	16	37
Apprch %	33.3	33.3	33.3		25	75	0		33.3	16.7	50		0	93.8	6.2		
Total %	2.7	2.7	2.7	8.1	8.1	24.3	0	32.4	5.4	2.7	8.1	16.2	0	40.5	2.7	43.2	

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	**1**	**1**	0	**2**	0	0	0	0	0	**2**	0	2	4
05:00 PM	0	0	**1**	**1**	1	1	0	2	**1**	**1**	**1**	**3**	0	2	**1**	**3**	**9**
05:15 PM	0	**1**	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
05:30 PM	**1**	0	0	1	0	0	0	0	0	0	0	0	0	2	0	2	3
Total Volume	1	1	1	3	2	2	0	4	1	1	1	3	0	7	1	8	18
% App. Total	33.3	33.3	33.3		50	50	0		33.3	33.3	33.3		0	87.5	12.5		
PHF	.250	.250	.250	.750	.500	.500	.000	.500	.250	.250	.250	.250	.000	.875	.250	.667	.500

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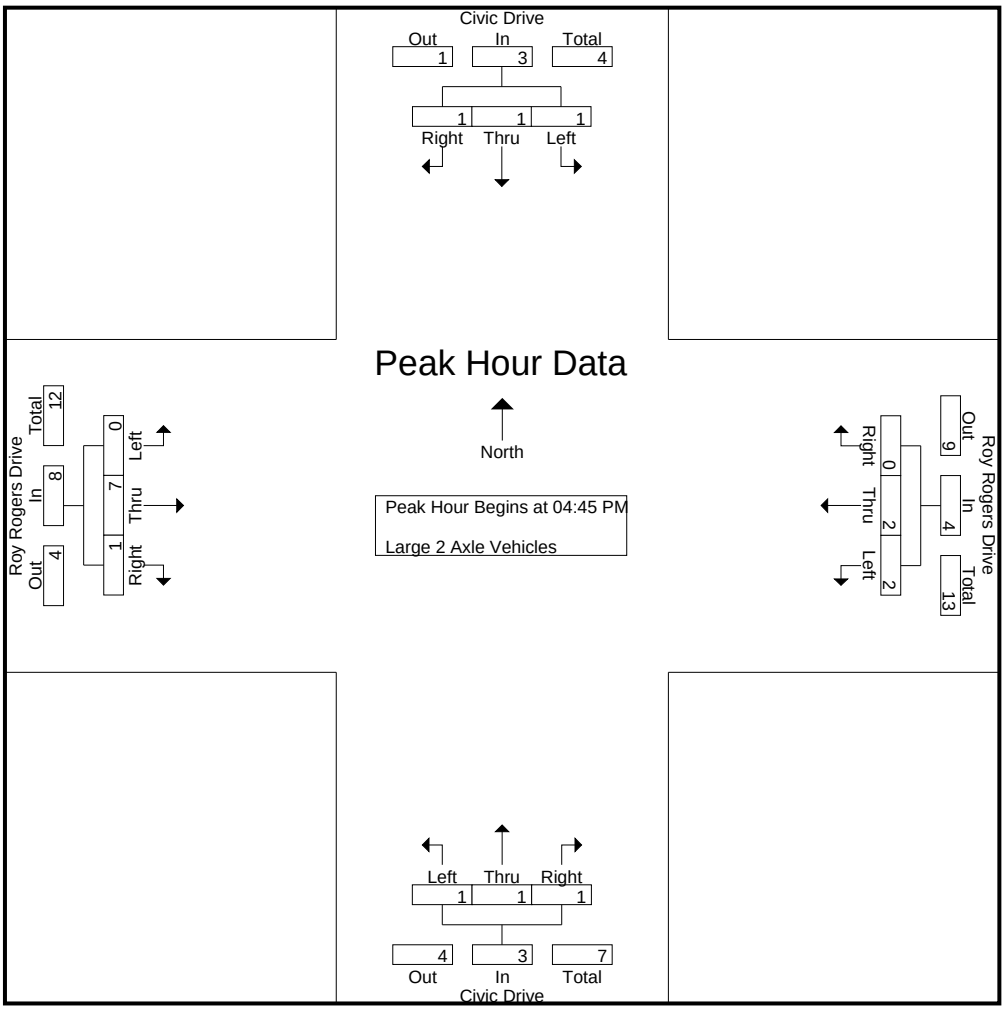
City of Victorville
N/S: Civic Drive
E/W: Roy Rogers Drive
Weather: Clear

File Name : 03_VIC_Civic_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	0	0	**1**	**1**	0	**2**	0	0	0	0	0	**2**	0	2
+15 mins.	0	0	**1**	**1**	1	1	0	2	**1**	**1**	**1**	**3**	0	2	**1**	**3**
+30 mins.	0	**1**	0	1	0	0	0	0	0	0	0	0	0	1	0	1
+45 mins.	**1**	0	0	1	0	0	0	0	0	0	0	0	0	2	0	2
Total Volume	1	1	1	3	2	2	0	4	1	1	1	3	0	7	1	8
% App. Total	33.3	33.3	33.3		50	50	0		33.3	33.3	33.3		0	87.5	12.5	
PHF	.250	.250	.250	.750	.500	.500	.000	.500	.250	.250	.250	.250	.000	.875	.250	.667

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City of Victorville
N/S: Civic Drive
E/W: Roy Rogers Drive
Weather: Clear

File Name : 03_VIC_Civic_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	1	1	1	0	0	1	0	2	0	2	4
Total	0	1	0	1	0	0	1	1	1	0	2	3	0	3	0	3	8
05:00 PM	1	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	1	0	0	1	1	1	0	2	0	0	1	1	0	0	0	0	4
Grand Total	1	1	0	2	1	1	1	3	1	0	3	4	0	3	0	3	12
Apprch %	50	50	0		33.3	33.3	33.3		25	0	75		0	100	0		
Total %	8.3	8.3	0	16.7	8.3	8.3	8.3	25	8.3	0	25	33.3	0	25	0	25	

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	**1**	**1**	**1**	0	0	**1**	0	**2**	0	**2**	**4**
05:00 PM	**1**	0	0	**1**	**1**	0	0	1	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	**1**	1	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	1	0	1	2	1	0	1	2	0	2	0	2	7
% App. Total	100	0	0		50	0	50		50	0	50		0	100	0		
PHF	.250	.000	.000	.250	.250	.000	.250	.500	.250	.000	.250	.500	.000	.250	.000	.250	.438

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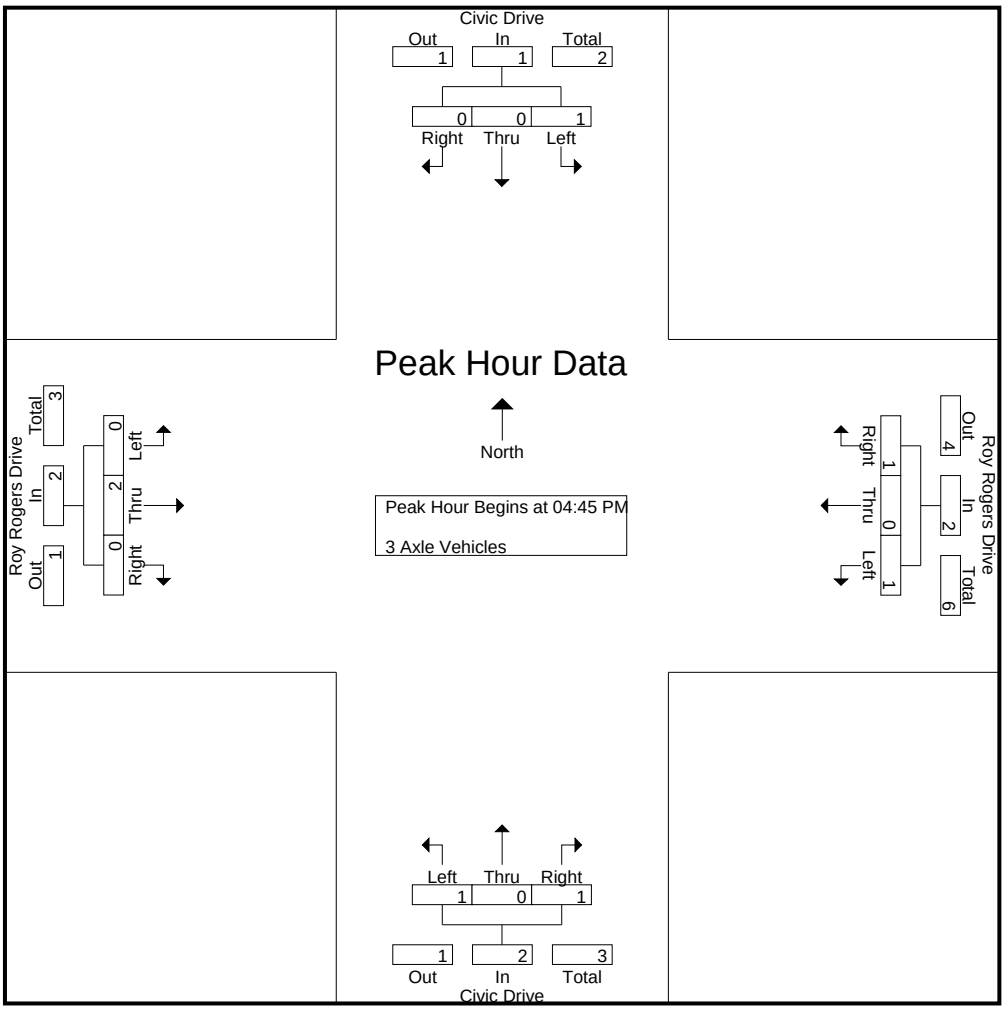
City of Victorville
N/S: Civic Drive
E/W: Roy Rogers Drive
Weather: Clear

File Name : 03_VIC_Civic_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	0	0	0	0	**1**	**1**	**1**	0	0	**1**	0	**2**	0	**2**
+15 mins.	**1**	0	0	**1**	**1**	0	0	1	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	**1**	1	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	1	0	1	2	1	0	1	2	0	2	0	2
% App. Total	100	0	0		50	0	50		50	0	50		0	100	0	
PHF	.250	.000	.000	.250	.250	.000	.250	.500	.250	.000	.250	.500	.000	.250	.000	.250

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City of Victorville
N/S: Civic Drive
E/W: Roy Rogers Drive
Weather: Clear

File Name : 03_VIC_Civic_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
05:00 PM	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	2
05:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	1	0	0	1	2	1	0	3	0	0	0	0	0	0	0	0	4
Grand Total	1	0	0	1	2	2	0	4	0	0	0	0	0	1	0	1	6
Apprch %	100	0	0		50	50	0		0	0	0		0	100	0		
Total %	16.7	0	0	16.7	33.3	33.3	0	66.7	0	0	0	0	0	16.7	0	16.7	

	Civic Drive Southbound				Roy Rogers Drive Westbound				Civic Drive Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	**1**	**1**	0	**2**	0	0	0	0	0	0	0	0	**2**
05:15 PM	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	1	1	0	2	0	0	0	0	0	0	0	0	3
% App. Total	100	0	0		50	50	0		0	0	0		0	0	0		
PHF	.250	.000	.000	.250	.250	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.375

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City of Victorville
N/S: Civic Drive
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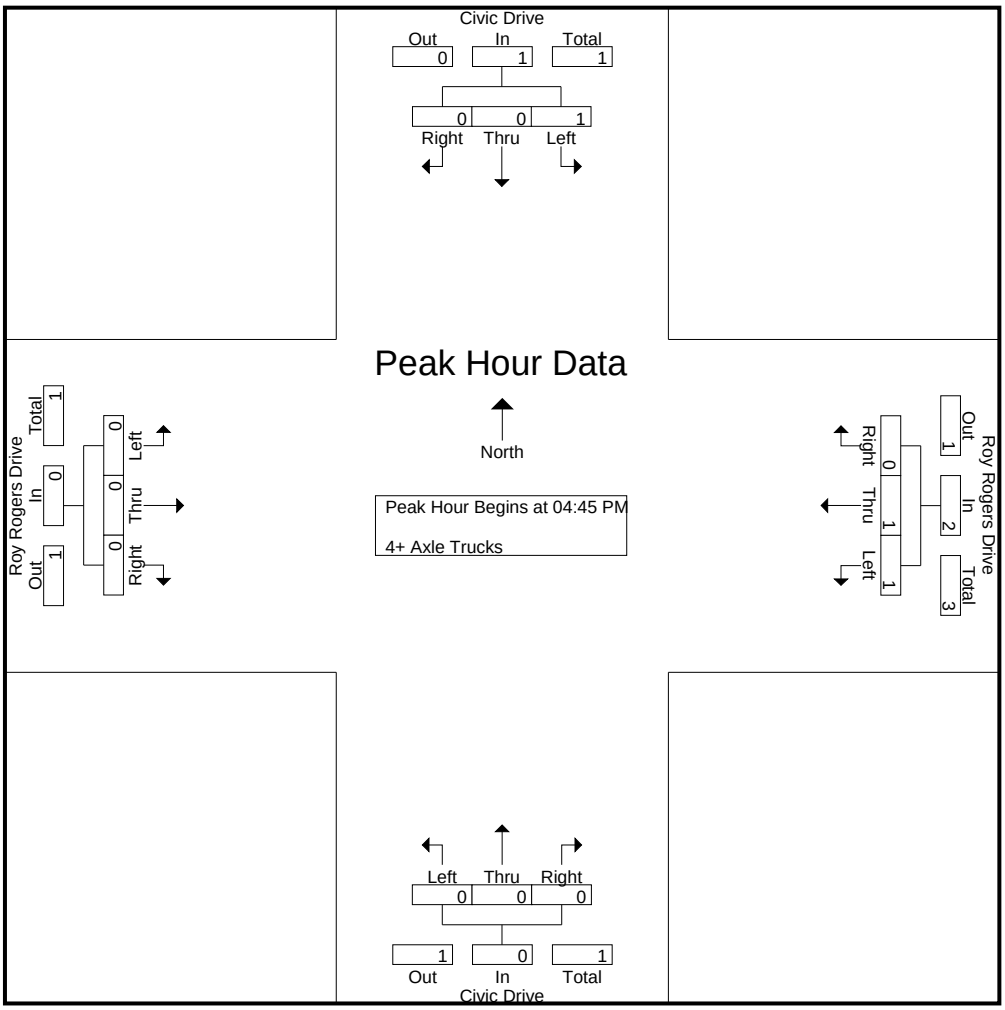
Weather: Clear

File Name : 03_VIC_Civic_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	**1**	**1**	0	**2**	0	0	0	0	0	0	0	0
+30 mins.	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	1	1	0	2	0	0	0	0	0	0	0	0
% App. Total	100	0	0		50	50	0		0	0	0		0	0	0	
PHF	.250	.000	.000	.250	.250	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000

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City of Victorville
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
11:30 AM	54	222	276	36	40	76	178	75	253	605
11:45 AM	46	256	302	34	31	65	229	70	299	666
Total	100	478	578	70	71	141	407	145	552	1271
12:00 PM	44	254	298	35	29	64	256	79	335	697
12:15 PM	55	275	330	31	40	71	226	66	292	693
12:30 PM	45	285	330	36	27	63	184	77	261	654
12:45 PM	39	265	304	39	28	67	195	54	249	620
Total	183	1079	1262	141	124	265	861	276	1137	2664
01:00 PM	57	286	343	32	28	60	246	71	317	720
01:15 PM	60	263	323	36	24	60	236	72	308	691
Grand Total	400	2106	2506	279	247	526	1750	564	2314	5346
Apprch %	16	84		53	47		75.6	24.4		
Total %	7.5	39.4	46.9	5.2	4.6	9.8	32.7	10.5	43.3	
Passenger Vehicles	396	2079	2475	274	243	517	1732	551	2283	5275
% Passenger Vehicles	99	98.7	98.8	98.2	98.4	98.3	99	97.7	98.7	98.7
Large 2 Axle Vehicles	2	20	22	3	1	4	16	6	22	48
% Large 2 Axle Vehicles										
3 Axle Vehicles	0	1	1	0	0	0	1	0	1	2
% 3 Axle Vehicles	0	0	0	0	0	0	0.1	0	0	0
4+ Axle Trucks	2	6	8	2	3	5	1	7	8	21
% 4+ Axle Trucks	0.5	0.3	0.3	0.7	1.2	1	0.1	1.2	0.3	0.4

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:45 AM										
11:45 AM	46	256	302	34	31	65	229	70	299	666
12:00 PM	44	254	298	35	29	64	**256**	**79**	**335**	**697**
12:15 PM	**55**	275	**330**	31	**40**	**71**	226	66	292	693
12:30 PM	45	**285**	330	**36**	27	63	184	77	261	654
Total Volume	190	1070	1260	136	127	263	895	292	1187	2710
% App. Total	15.1	84.9		51.7	48.3		75.4	24.6		
PHF	.864	.939	.955	.944	.794	.926	.874	.924	.886	.972

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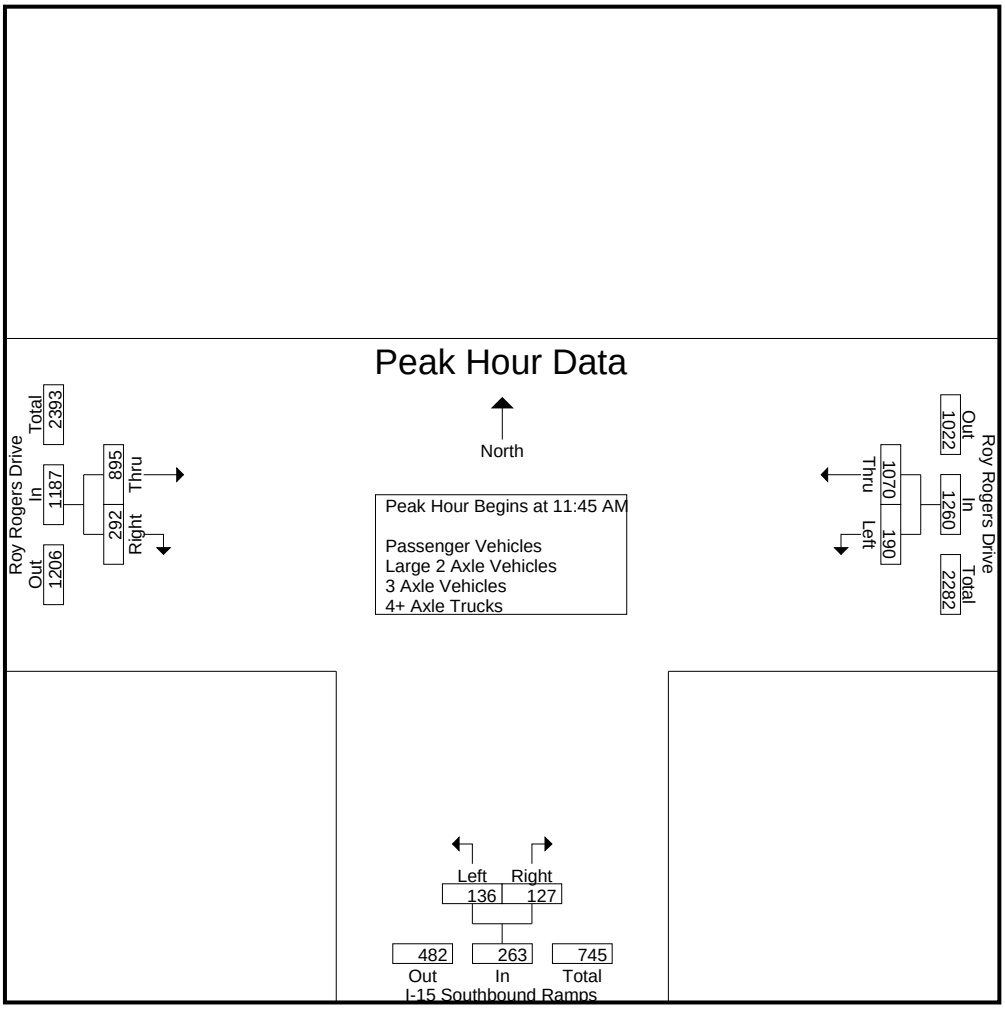
City of Victorville
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:15 PM			11:30 AM			11:45 AM		
+0 mins.	55	275	330	**36**	**40**	**76**	229	70	299
+15 mins.	45	285	330	34	31	65	**256**	**79**	**335**
+30 mins.	39	265	304	35	29	64	226	66	292
+45 mins.	**57**	**286**	**343**	31	40	71	184	77	261
Total Volume	196	1111	1307	136	140	276	895	292	1187
% App. Total	15	85		49.3	50.7		75.4	24.6	
PHF	.860	.971	.953	.944	.875	.908	.874	.924	.886

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City of Victorville
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
11:30 AM	54	218	272	33	38	71	178	72	250	593
11:45 AM	46	254	300	34	31	65	226	70	296	661
Total	100	472	572	67	69	136	404	142	546	1254
12:00 PM	43	252	295	35	29	64	255	76	331	690
12:15 PM	53	271	324	29	39	68	223	62	285	677
12:30 PM	44	283	327	36	27	63	184	76	260	650
12:45 PM	39	260	299	39	28	67	192	53	245	611
Total	179	1066	1245	139	123	262	854	267	1121	2628
01:00 PM	57	283	340	32	27	59	241	70	311	710
01:15 PM	60	258	318	36	24	60	233	72	305	683
Grand Total	396	2079	2475	274	243	517	1732	551	2283	5275
Apprch %	16	84		53	47		75.9	24.1		
Total %	7.5	39.4	46.9	5.2	4.6	9.8	32.8	10.4	43.3	

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:45 AM										
11:45 AM	46	254	300	34	31	65	226	70	296	661
12:00 PM	43	252	295	35	29	64	**255**	**76**	**331**	**690**
12:15 PM	**53**	271	324	29	**39**	**68**	223	62	285	677
12:30 PM	44	**283**	**327**	**36**	27	63	184	76	260	650
Total Volume	186	1060	1246	134	126	260	888	284	1172	2678
% App. Total	14.9	85.1		51.5	48.5		75.8	24.2		
PHF	.877	.936	.953	.931	.808	.956	.871	.934	.885	.970

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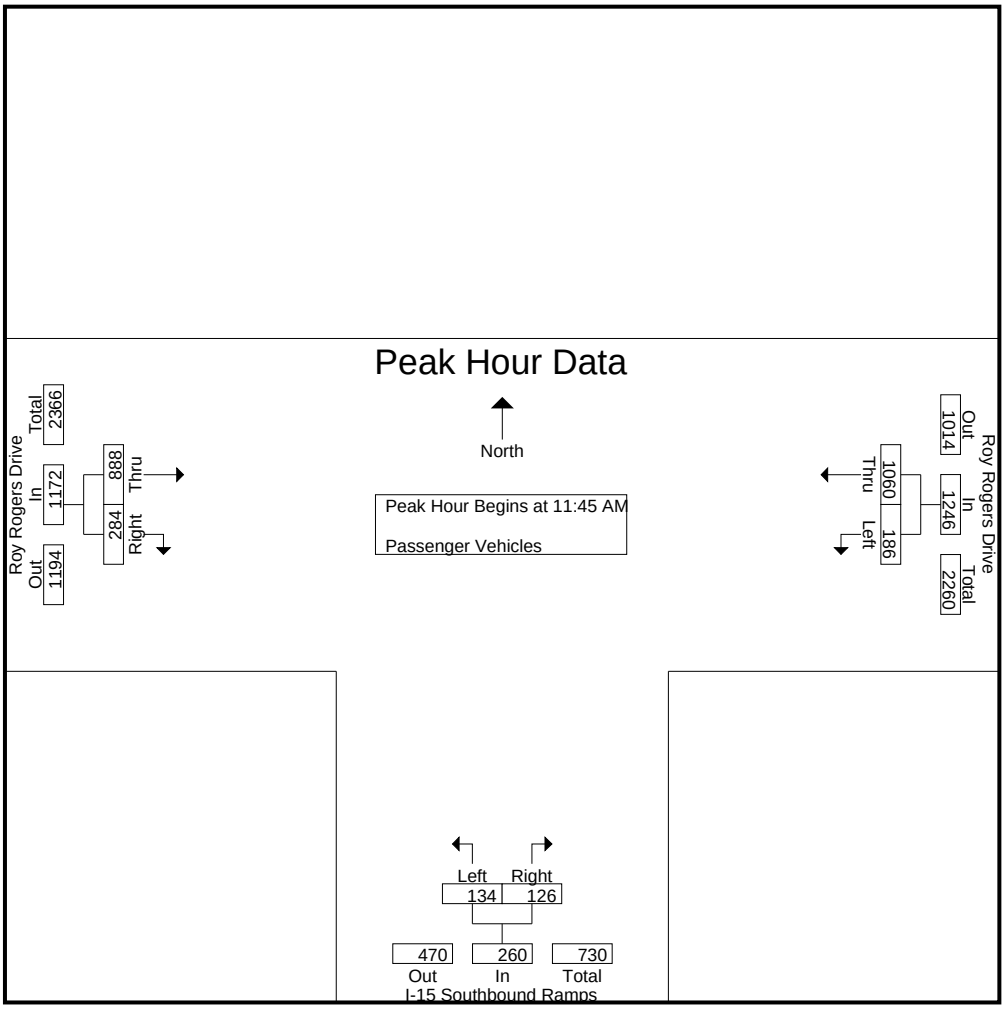
City of Victorville
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM			11:45 AM			11:45 AM		
+0 mins.	46	254	300	34	31	65	226	70	296
+15 mins.	43	252	295	35	29	64	**255**	**76**	**331**
+30 mins.	**53**	271	324	29	**39**	**68**	223	62	285
+45 mins.	44	**283**	**327**	**36**	27	63	184	76	260
Total Volume	186	1060	1246	134	126	260	888	284	1172
% App. Total	14.9	85.1		51.5	48.5		75.8	24.2	
PHF	.877	.936	.953	.931	.808	.956	.871	.934	.885

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City of Victorville
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
11:30 AM	0	3	3	1	1	2	0	3	3	8
11:45 AM	0	0	0	0	0	0	1	0	1	1
Total	0	3	3	1	1	2	1	3	4	9
12:00 PM	0	1	1	0	0	0	1	1	2	3
12:15 PM	1	4	5	2	0	2	3	1	4	11
12:30 PM	1	1	2	0	0	0	0	0	0	2
12:45 PM	0	4	4	0	0	0	3	0	3	7
Total	2	10	12	2	0	2	7	2	9	23
01:00 PM	0	3	3	0	0	0	5	1	6	9
01:15 PM	0	4	4	0	0	0	3	0	3	7
Grand Total	2	20	22	3	1	4	16	6	22	48
Apprch %	9.1	90.9		75	25		72.7	27.3		
Total %	4.2	41.7	45.8	6.2	2.1	8.3	33.3	12.5	45.8	

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:45 AM										
11:45 AM	0	0	0	0	0	0	1	0	1	1
12:00 PM	0	1	1	0	0	0	1	**1**	2	3
12:15 PM	**1**	**4**	**5**	**2**	0	**2**	**3**	1	**4**	**11**
12:30 PM	1	1	2	0	0	0	0	0	0	2
Total Volume	2	6	8	2	0	2	5	2	7	17
% App. Total	25	75		100	0		71.4	28.6		
PHF	.500	.375	.400	.250	.000	.250	.417	.500	.438	.386

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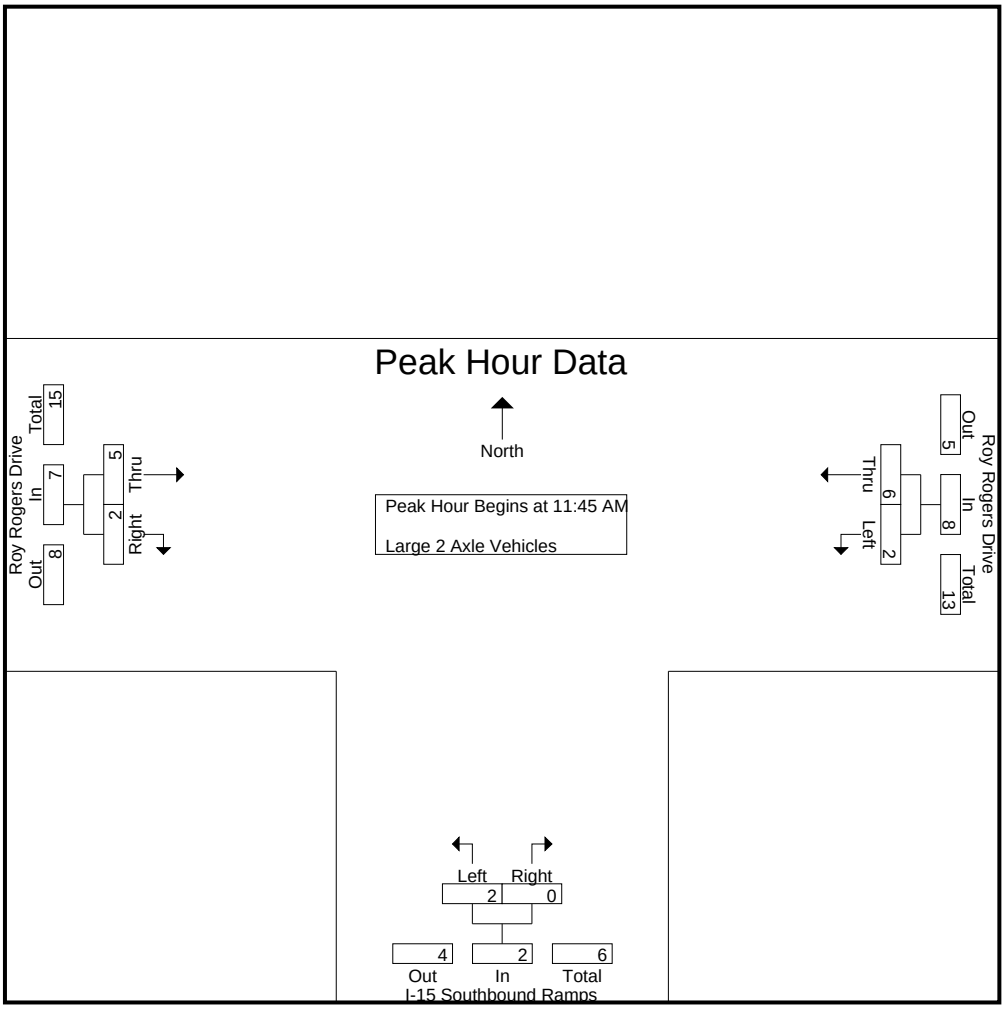
City of Victorville
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM			11:45 AM			11:45 AM		
+0 mins.	0	0	0	0	0	0	1	0	1
+15 mins.	0	1	1	0	0	0	1	**1**	2
+30 mins.	**1**	**4**	**5**	**2**	0	**2**	**3**	1	**4**
+45 mins.	1	1	2	0	0	0	0	0	0
Total Volume	2	6	8	2	0	2	5	2	7
% App. Total	25	75		100	0		71.4	28.6	
PHF	.500	.375	.400	.250	.000	.250	.417	.500	.438

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City of Victorville
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
11:30 AM	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	1	0	1	1
12:00 PM	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	1	1	0	0	0	0	0	0	1
Grand Total	0	1	1	0	0	0	1	0	1	2
Apprch %	0	100		0	0		100	0		
Total %	0	50	50	0	0	0	50	0	50	

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:45 AM										
11:45 AM	0	0	0	0	0	0	**1**	0	**1**	**1**
12:00 PM	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	1	1
% App. Total	0	0		0	0		100	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250

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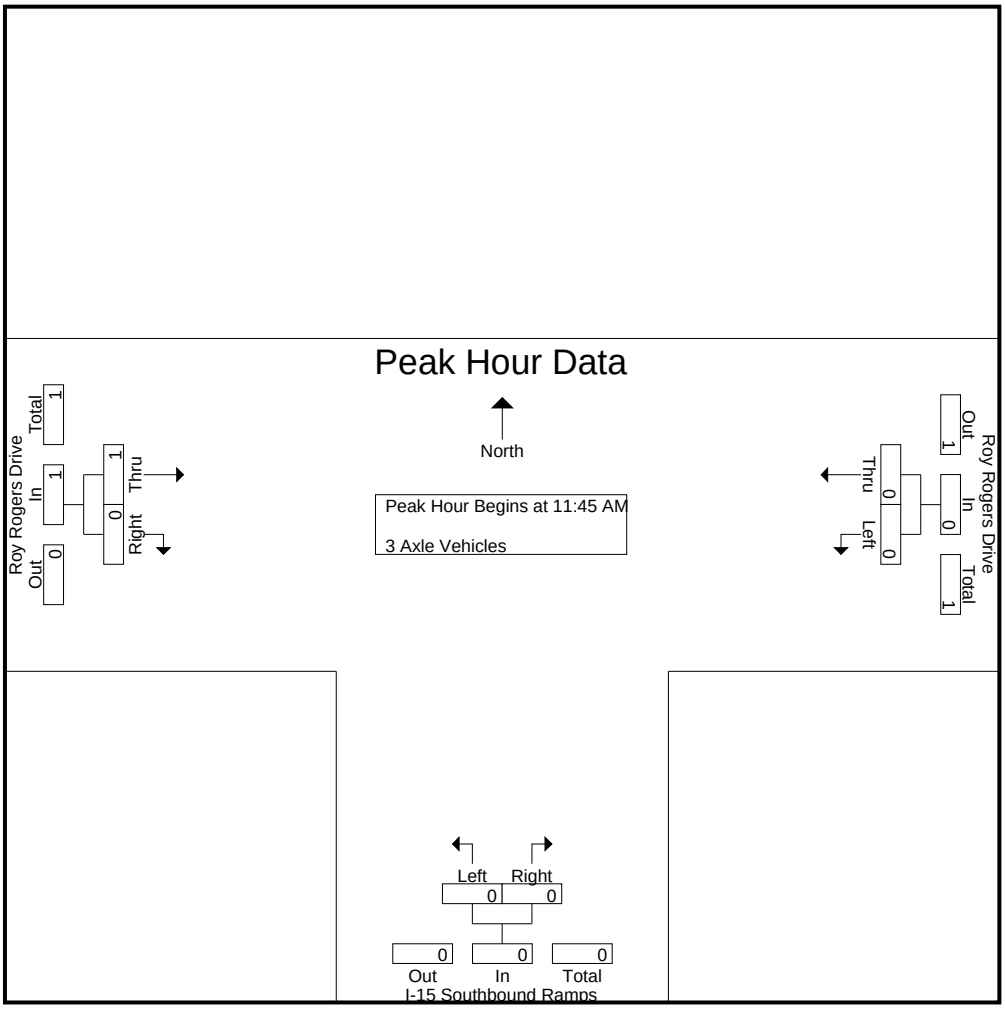
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM			11:45 AM			11:45 AM		
+0 mins.	0	0	0	0	0	0	**1**	0	**1**
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	1
% App. Total	0	0		0	0		100	0	
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250

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City of Victorville
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
11:30 AM	0	1	1	2	1	3	0	0	0	4
11:45 AM	0	2	2	0	0	0	1	0	1	3
Total	0	3	3	2	1	3	1	0	1	7
12:00 PM	1	1	2	0	0	0	0	2	2	4
12:15 PM	1	0	1	0	1	1	0	3	3	5
12:30 PM	0	1	1	0	0	0	0	1	1	2
12:45 PM	0	1	1	0	0	0	0	1	1	2
Total	2	3	5	0	1	1	0	7	7	13
01:00 PM	0	0	0	0	1	1	0	0	0	1
01:15 PM	0	0	0	0	0	0	0	0	0	0
Grand Total	2	6	8	2	3	5	1	7	8	21
Apprch %	25	75		40	60		12.5	87.5		
Total %	9.5	28.6	38.1	9.5	14.3	23.8	4.8	33.3	38.1	

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:45 AM										
11:45 AM	0	**2**	**2**	0	0	0	**1**	0	1	3
12:00 PM	**1**	1	2	0	0	0	0	2	2	4
12:15 PM	1	0	1	0	**1**	**1**	0	**3**	**3**	**5**
12:30 PM	0	1	1	0	0	0	0	1	1	2
Total Volume	2	4	6	0	1	1	1	6	7	14
% App. Total	33.3	66.7		0	100		14.3	85.7		
PHF	.500	.500	.750	.000	.250	.250	.250	.500	.583	.700

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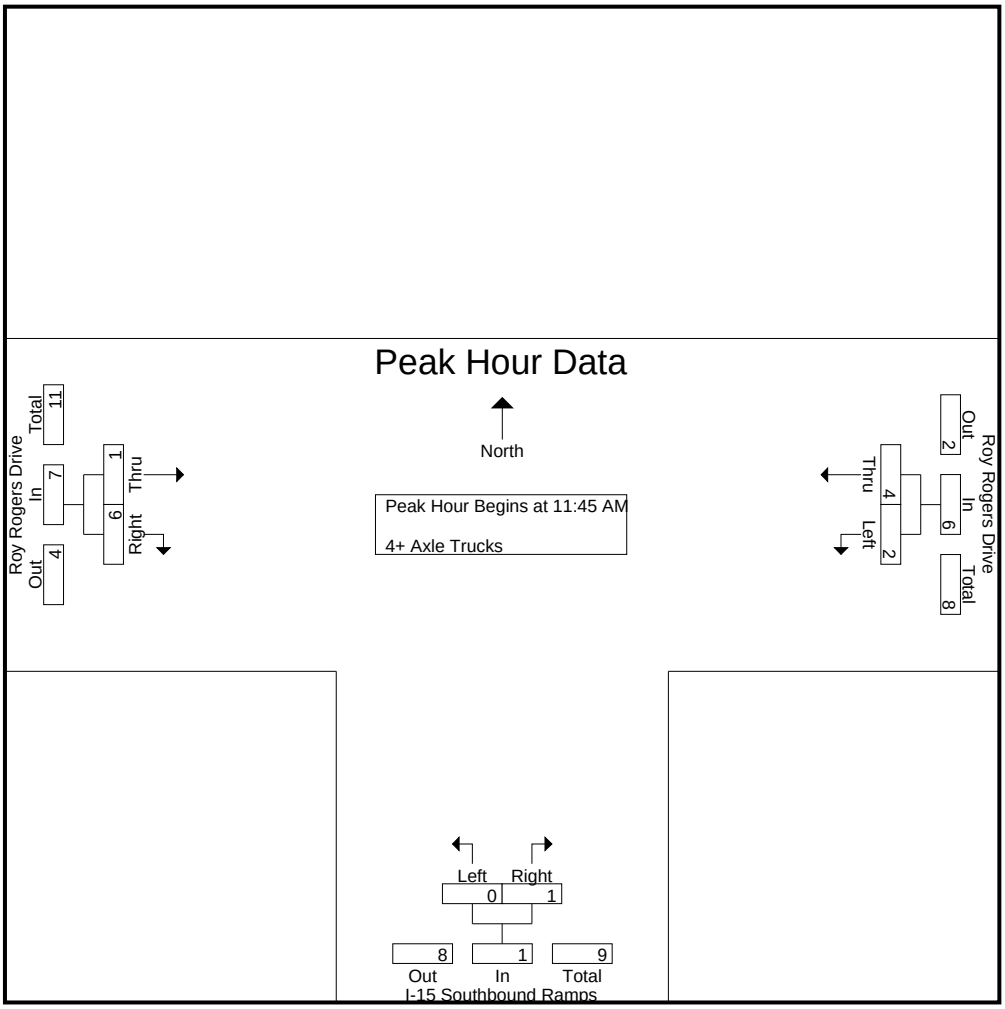
City of Victorville
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:45 AM to 12:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM			11:45 AM			11:45 AM		
+0 mins.	0	**2**	**2**	0	0	0	**1**	0	1
+15 mins.	**1**	1	2	0	0	0	0	2	2
+30 mins.	1	0	1	0	**1**	**1**	0	**3**	**3**
+45 mins.	0	1	1	0	0	0	0	1	1
Total Volume	2	4	6	0	1	1	1	6	7
% App. Total	33.3	66.7		0	100		14.3	85.7	
PHF	.500	.500	.750	.000	.250	.250	.250	.500	.583

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City of Victorville
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	39	252	291	32	30	62	221	77	298	651
04:15 PM	51	280	331	28	38	66	204	85	289	686
04:30 PM	54	244	298	41	39	80	218	80	298	676
04:45 PM	51	288	339	52	30	82	238	107	345	766
Total	195	1064	1259	153	137	290	881	349	1230	2779
05:00 PM	37	254	291	48	41	89	238	118	356	736
05:15 PM	50	279	329	55	26	81	287	129	416	826
05:30 PM	37	265	302	28	35	63	240	81	321	686
05:45 PM	34	293	327	34	33	67	211	80	291	685
Total	158	1091	1249	165	135	300	976	408	1384	2933
Grand Total	353	2155	2508	318	272	590	1857	757	2614	5712
Apprch %	14.1	85.9		53.9	46.1		71	29		
Total %	6.2	37.7	43.9	5.6	4.8	10.3	32.5	13.3	45.8	
Passenger Vehicles	348	2139	2487	314	268	582	1839	750	2589	5658
% Passenger Vehicles	98.6	99.3	99.2	98.7	98.5	98.6	99	99.1	99	99.1
Large 2 Axle Vehicles	4	10	14	2	3	5	15	4	19	38
% Large 2 Axle Vehicles										
3 Axle Vehicles	0	2	2	0	0	0	3	1	4	6
% 3 Axle Vehicles	0	0.1	0.1	0	0	0	0.2	0.1	0.2	0.1
4+ Axle Trucks	1	4	5	2	1	3	0	2	2	10
% 4+ Axle Trucks	0.3	0.2	0.2	0.6	0.4	0.5	0	0.3	0.1	0.2

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	**51**	**288**	**339**	52	30	82	238	107	345	766
05:00 PM	37	254	291	48	**41**	**89**	238	118	356	736
05:15 PM	50	279	329	**55**	26	81	**287**	**129**	**416**	**826**
05:30 PM	37	265	302	28	35	63	240	81	321	686
Total Volume	175	1086	1261	183	132	315	1003	435	1438	3014
% App. Total	13.9	86.1		58.1	41.9		69.7	30.3		
PHF	.858	.943	.930	.832	.805	.885	.874	.843	.864	.912

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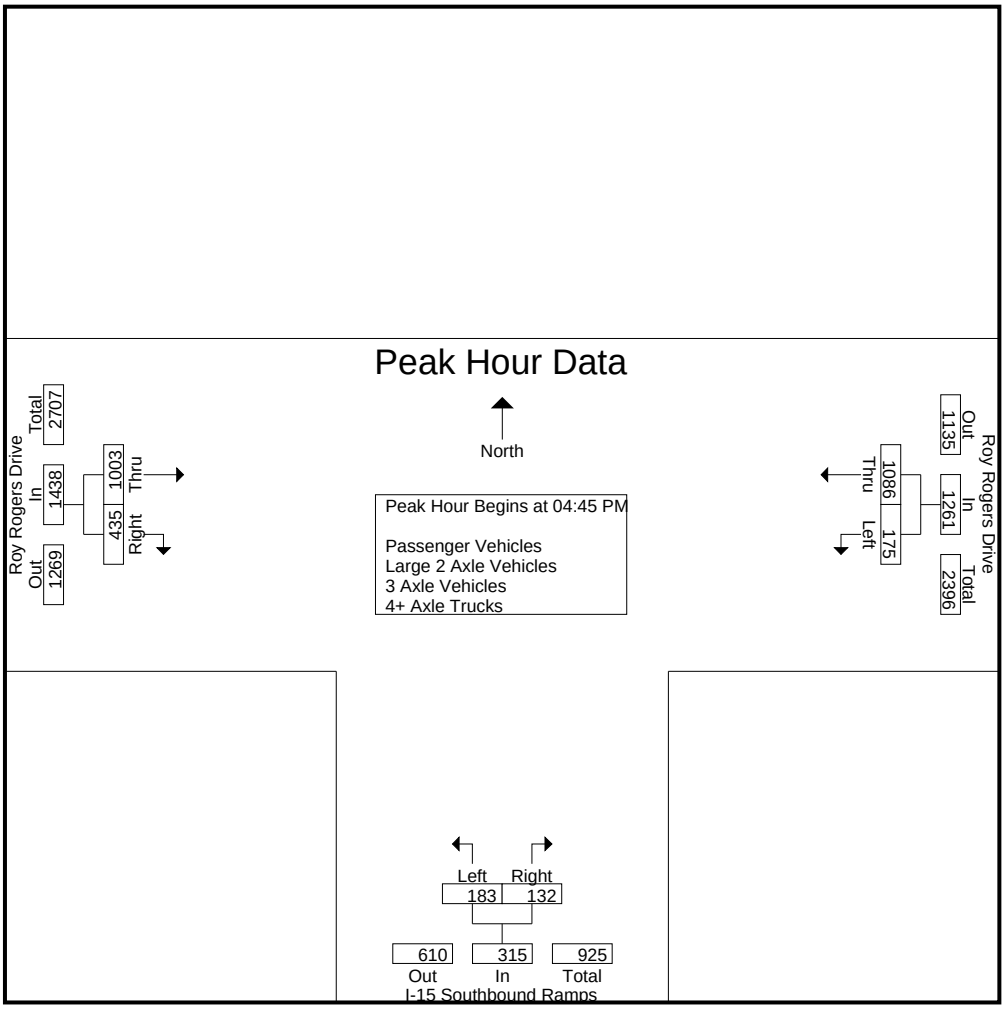
City of Victorville
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



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

	04:45 PM			04:30 PM			04:45 PM		
+0 mins.	**51**	**288**	**339**	41	39	80	238	107	345
+15 mins.	37	254	291	52	30	82	238	118	356
+30 mins.	50	279	329	48	**41**	**89**	**287**	**129**	**416**
+45 mins.	37	265	302	**55**	26	81	240	81	321
Total Volume	175	1086	1261	196	136	332	1003	435	1438
% App. Total	13.9	86.1		59	41		69.7	30.3	
PHF	.858	.943	.930	.891	.829	.933	.874	.843	.864

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City of Victorville
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	37	250	287	32	28	60	217	77	294	641
04:15 PM	51	275	326	28	37	65	201	85	286	677
04:30 PM	52	244	296	41	38	79	216	77	293	668
04:45 PM	51	285	336	52	30	82	233	107	340	758
Total	191	1054	1245	153	133	286	867	346	1213	2744
05:00 PM	37	253	290	47	41	88	237	118	355	733
05:15 PM	49	277	326	54	26	80	286	126	412	818
05:30 PM	37	265	302	27	35	62	239	80	319	683
05:45 PM	34	290	324	33	33	66	210	80	290	680
Total	157	1085	1242	161	135	296	972	404	1376	2914
Grand Total	348	2139	2487	314	268	582	1839	750	2589	5658
Apprch %	14	86		54	46		71	29		
Total %	6.2	37.8	44	5.5	4.7	10.3	32.5	13.3	45.8	

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	**51**	**285**	**336**	52	30	82	233	107	340	758
05:00 PM	37	253	290	47	**41**	**88**	237	118	355	733
05:15 PM	49	277	326	**54**	26	80	**286**	**126**	**412**	**818**
05:30 PM	37	265	302	27	35	62	239	80	319	683
Total Volume	174	1080	1254	180	132	312	995	431	1426	2992
% App. Total	13.9	86.1		57.7	42.3		69.8	30.2		
PHF	.853	.947	.933	.833	.805	.886	.870	.855	.865	.914

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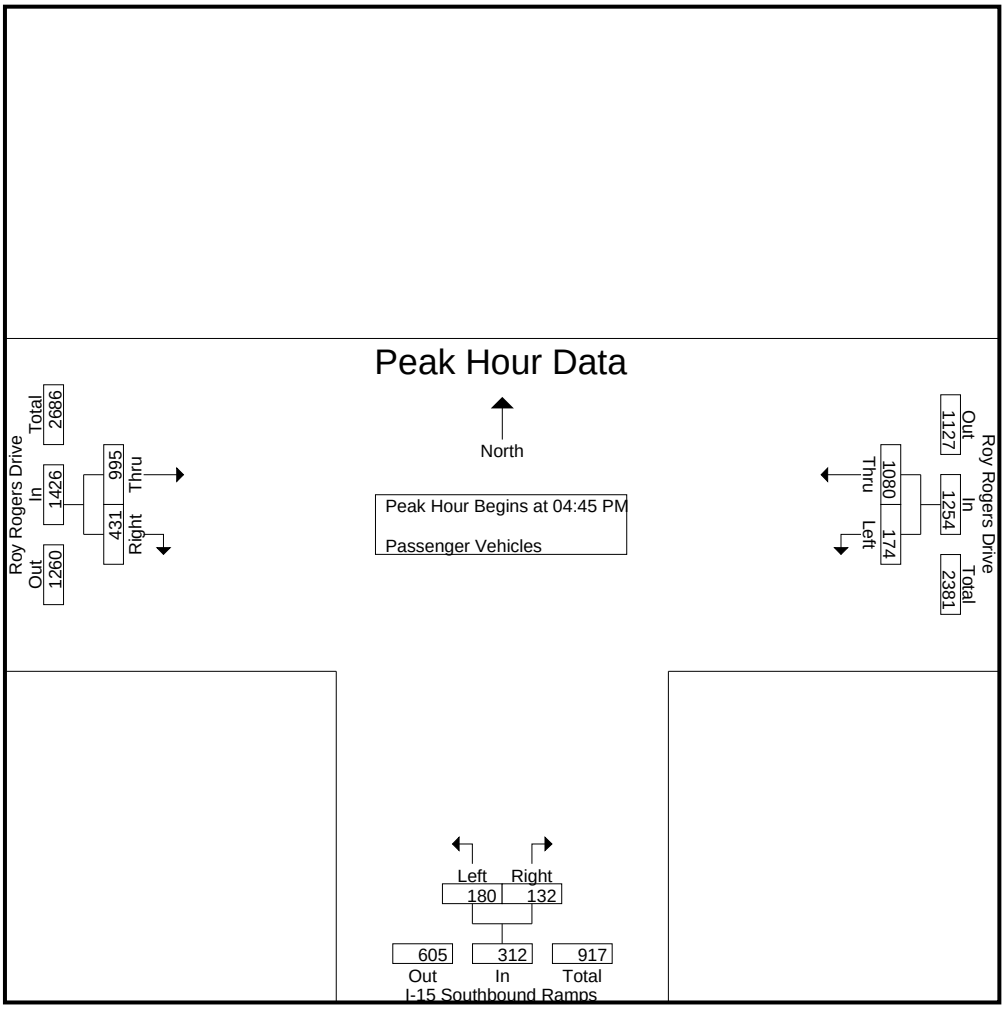
City of Victorville
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	**51**	**285**	**336**	52	30	82	233	107	340
+15 mins.	37	253	290	47	**41**	**88**	237	118	355
+30 mins.	49	277	326	**54**	26	80	**286**	**126**	**412**
+45 mins.	37	265	302	27	35	62	239	80	319
Total Volume	174	1080	1254	180	132	312	995	431	1426
% App. Total	13.9	86.1		57.7	42.3		69.8	30.2	
PHF	.853	.947	.933	.833	.805	.886	.870	.855	.865

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City of Victorville
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	2	2	4	0	2	2	3	0	3	9
04:15 PM	0	3	3	0	0	0	3	0	3	6
04:30 PM	1	0	1	0	1	1	2	1	3	5
04:45 PM	0	1	1	0	0	0	4	0	4	5
Total	3	6	9	0	3	3	12	1	13	25
05:00 PM	0	0	0	1	0	1	0	0	0	1
05:15 PM	1	2	3	0	0	0	1	2	3	6
05:30 PM	0	0	0	1	0	1	1	1	2	3
05:45 PM	0	2	2	0	0	0	1	0	1	3
Total	1	4	5	2	0	2	3	3	6	13
Grand Total	4	10	14	2	3	5	15	4	19	38
Apprch %	28.6	71.4		40	60		78.9	21.1		
Total %	10.5	26.3	36.8	5.3	7.9	13.2	39.5	10.5	50	

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	0	1	1	0	0	0	**4**	0	**4**	5
05:00 PM	0	0	0	**1**	0	**1**	0	0	0	1
05:15 PM	**1**	**2**	**3**	0	0	0	1	**2**	3	**6**
05:30 PM	0	0	0	1	0	1	1	1	2	3
Total Volume	1	3	4	2	0	2	6	3	9	15
% App. Total	25	75		100	0		66.7	33.3		
PHF	.250	.375	.333	.500	.000	.500	.375	.375	.563	.625

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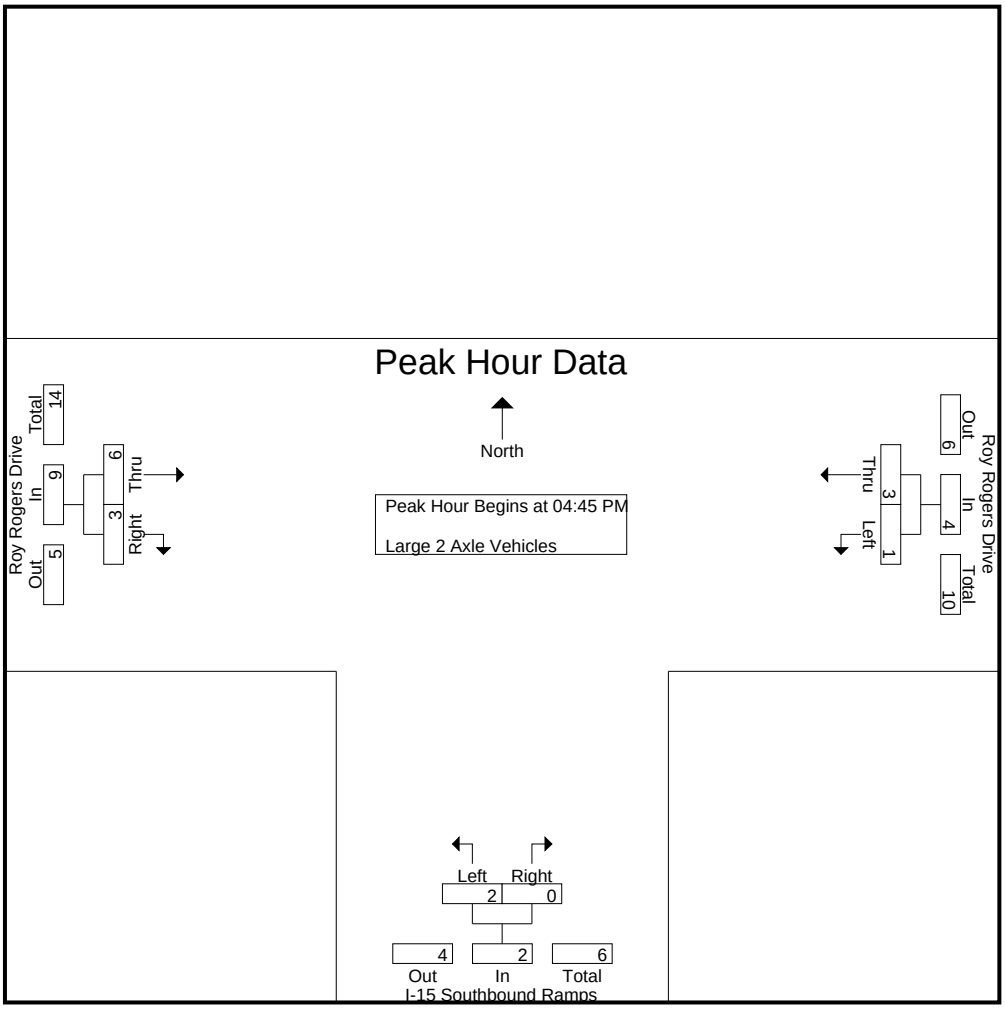
City of Victorville
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	0	1	1	0	0	0	**4**	0	**4**
+15 mins.	0	0	0	**1**	0	**1**	0	0	0
+30 mins.	**1**	**2**	**3**	0	0	0	1	**2**	3
+45 mins.	0	0	0	1	0	1	1	1	2
Total Volume	1	3	4	2	0	2	6	3	9
% App. Total	25	75		100	0		66.7	33.3	
PHF	.250	.375	.333	.500	.000	.500	.375	.375	.563

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City of Victorville
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E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	1	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	1	1	1
04:45 PM	0	1	1	0	0	0	1	0	1	2
Total	0	1	1	0	0	0	2	1	3	4
05:00 PM	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	1	1	0	0	0	0	0	0	1
Total	0	1	1	0	0	0	1	0	1	2
Grand Total	0	2	2	0	0	0	3	1	4	6
Apprch %	0	100		0	0		75	25		
Total %	0	33.3	33.3	0	0	0	50	16.7	66.7	

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	0	**1**	**1**	0	0	0	**1**	0	**1**	**2**
05:00 PM	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	2	0	2	3
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.500	.000	.500	.375

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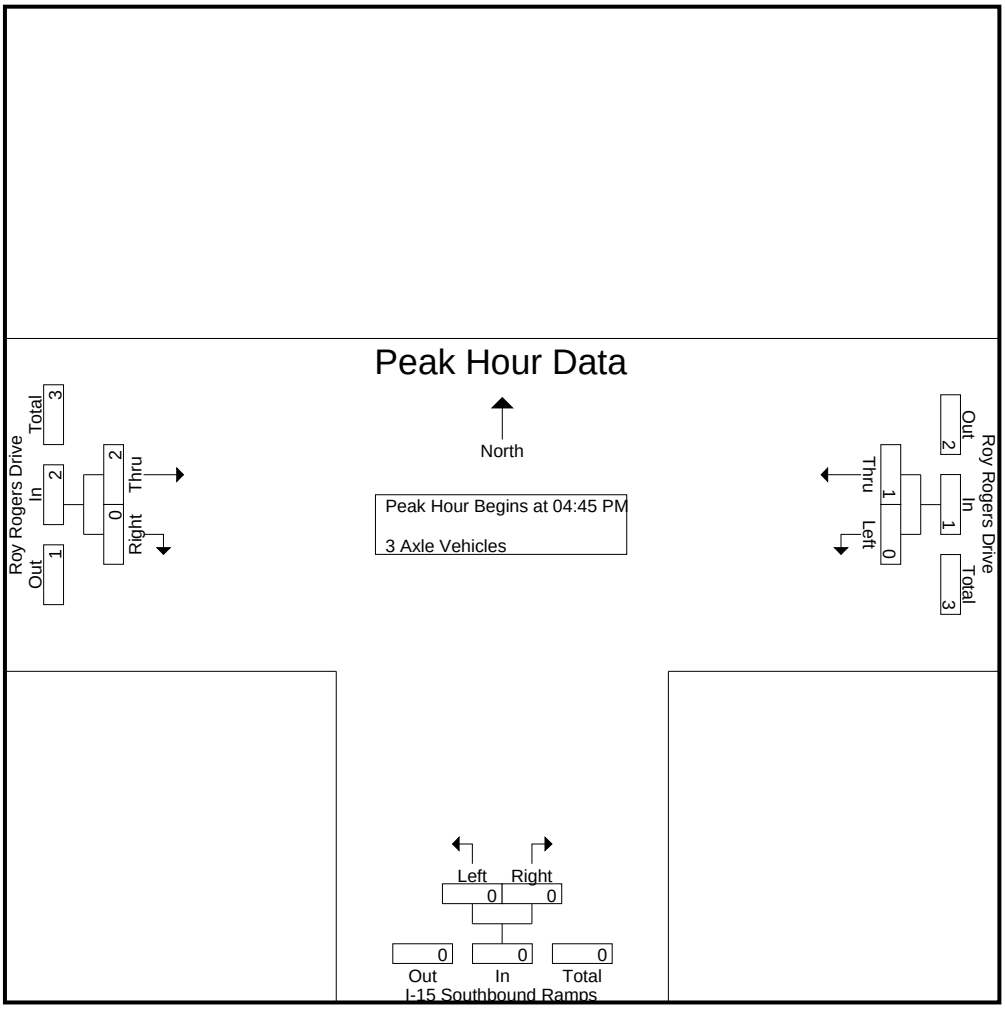
N/S: I-15 Southbound Ramps
E/W: Roy Rogers Drive
Weather: Clear

File Name : 04_VIC_15S_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	0	**1**	**1**	0	0	0	**1**	0	**1**
+15 mins.	0	0	0	0	0	0	1	0	1
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	2	0	2
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.500	.000	.500

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File Name : 04_VIC_15S_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	2	2	0	1	1	0	0	0	3
04:30 PM	1	0	1	0	0	0	0	1	1	2
04:45 PM	0	1	1	0	0	0	0	0	0	1
Total	1	3	4	0	1	1	0	1	1	6
05:00 PM	0	1	1	0	0	0	0	0	0	1
05:15 PM	0	0	0	1	0	1	0	1	1	2
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	1	0	1	0	0	0	1
Total	0	1	1	2	0	2	0	1	1	4
Grand Total	1	4	5	2	1	3	0	2	2	10
Apprch %	20	80		66.7	33.3		0	100		
Total %	10	40	50	20	10	30	0	20	20	

	Roy Rogers Drive Westbound			I-15 Southbound Ramps Northbound			Roy Rogers Drive Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	0	**1**	**1**	0	0	0	0	0	0	1
05:00 PM	0	1	1	0	0	0	0	0	0	1
05:15 PM	0	0	0	**1**	0	**1**	0	**1**	**1**	**2**
05:30 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	2	1	0	1	0	1	1	4
% App. Total	0	100		100	0		0	100		
PHF	.000	.500	.500	.250	.000	.250	.000	.250	.250	.500

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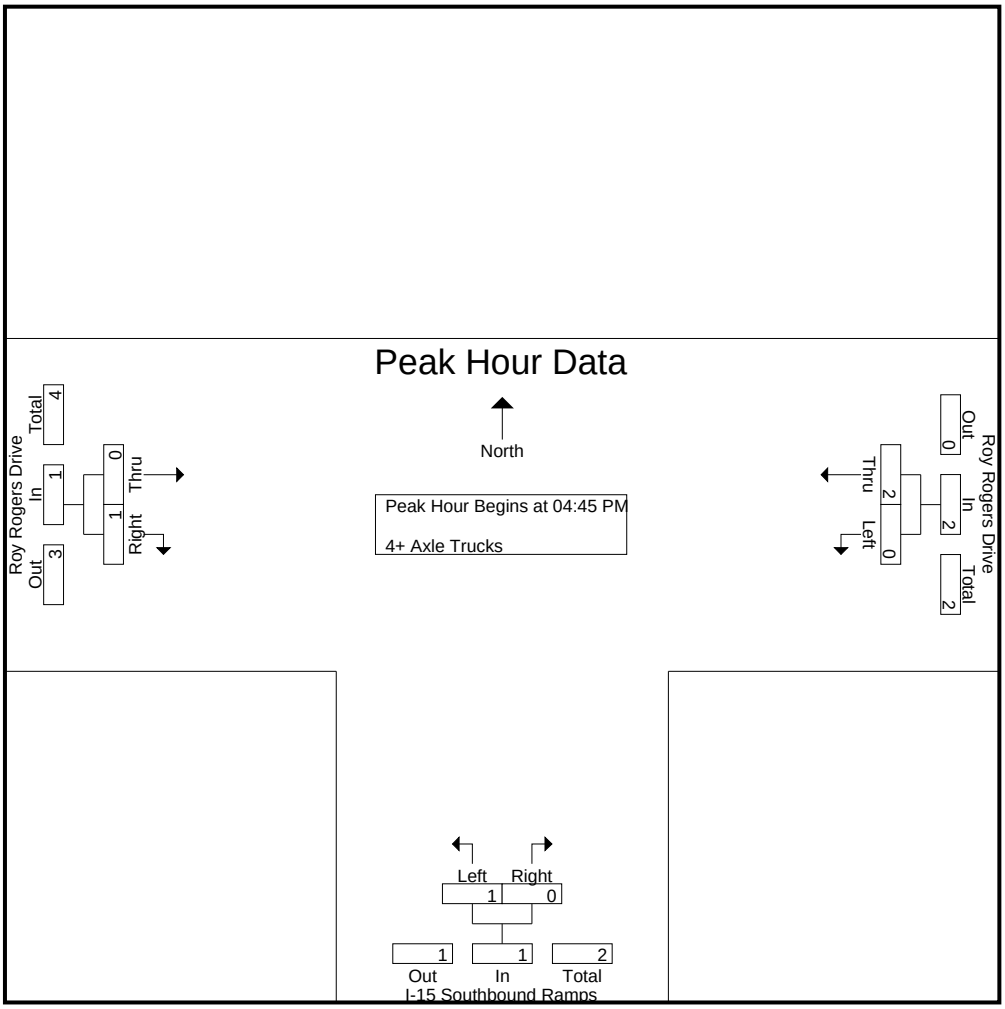
File Name : 04_VIC_15S_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	0	**1**	**1**	0	0	0	0	0	0
+15 mins.	0	1	1	0	0	0	0	0	0
+30 mins.	0	0	0	**1**	0	**1**	0	**1**	**1**
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	2	2	1	0	1	0	1	1
% App. Total	0	100		100	0		0	100	
PHF	.000	.500	.500	.250	.000	.250	.000	.250	.250

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Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	34	9	49	92	14	188	19	221	51	11	53	115	38	160	28	226	654
11:45 AM	37	10	41	88	24	212	28	264	46	16	54	116	29	187	39	255	723
Total	71	19	90	180	38	400	47	485	97	27	107	231	67	347	67	481	1377
12:00 PM	43	2	57	102	29	212	31	272	44	7	53	104	30	231	42	303	781
12:15 PM	32	2	49	83	31	225	29	285	63	7	54	124	27	187	30	244	736
12:30 PM	31	10	40	81	24	206	31	261	66	12	47	125	28	168	34	230	697
12:45 PM	39	4	35	78	23	225	20	268	60	15	67	142	27	182	32	241	729
Total	145	18	181	344	107	868	111	1086	233	41	221	495	112	768	138	1018	2943
01:00 PM	36	6	33	75	30	229	34	293	60	11	53	124	33	205	44	282	774
01:15 PM	31	8	47	86	23	239	33	295	52	15	44	111	26	181	30	237	729
Grand Total	283	51	351	685	198	1736	225	2159	442	94	425	961	238	1501	279	2018	5823
Apprch %	41.3	7.4	51.2		9.2	80.4	10.4		46	9.8	44.2		11.8	74.4	13.8		
Total %	4.9	0.9	6	11.8	3.4	29.8	3.9	37.1	7.6	1.6	7.3	16.5	4.1	25.8	4.8	34.7	
Passenger Vehicles	283	51	349	683	198	1735	225	2158	441	94	425	960	237	1498	277	2012	5813
% Passenger Vehicles	100	100	99.4	99.7	100	99.9	100	100	99.8	100	100	99.9	99.6	99.8	99.3	99.7	99.8
Large 2 Axle Vehicles	0	0	0	0	0	1	0	1	0	0	0	0	0	3	1	4	5
% Large 2 Axle Vehicles	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0.2	0.4	0.2	0.1
3 Axle Vehicles	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0.2	0	0	0.1	0	0	0.4	0	0
4+ Axle Trucks	0	0	2	2	0	0	0	0	0	0	0	0	1	0	0	1	3
% 4+ Axle Trucks	0	0	0.6	0.3	0	0	0	0	0	0	0	0	0.4	0	0	0	0.1

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	**43**	2	**57**	**102**	29	212	**31**	272	44	7	53	104	**30**	**231**	**42**	**303**	**781**
12:15 PM	32	2	49	83	**31**	**225**	29	**285**	63	7	54	124	27	187	30	244	736
12:30 PM	31	**10**	40	81	24	206	31	261	**66**	12	47	125	28	168	34	230	697
12:45 PM	39	4	35	78	23	225	20	268	60	**15**	**67**	**142**	27	182	32	241	729
Total Volume	145	18	181	344	107	868	111	1086	233	41	221	495	112	768	138	1018	2943
% App. Total	42.2	5.2	52.6		9.9	79.9	10.2		47.1	8.3	44.6		11	75.4	13.6		
PHF	.843	.450	.794	.843	.863	.964	.895	.953	.883	.683	.825	.871	.933	.831	.821	.840	.942

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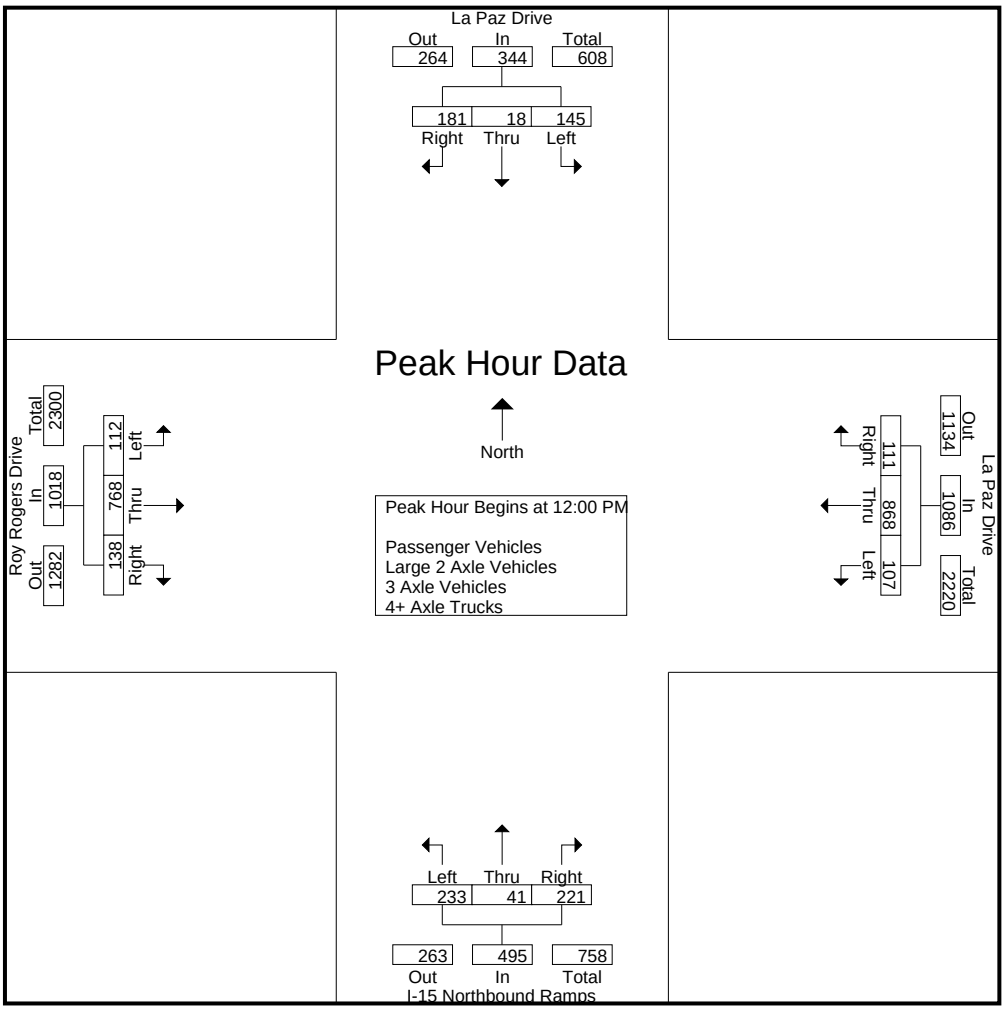
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:30 AM				12:30 PM				12:15 PM				11:45 AM			
+0 mins.	34	9	49	92	24	206	31	261	63	7	54	124	29	187	39	255
+15 mins.	37	**10**	41	88	23	225	20	268	**66**	12	47	125	**30**	**231**	**42**	**303**
+30 mins.	**43**	2	**57**	**102**	**30**	229	**34**	293	60	**15**	**67**	**142**	27	187	30	244
+45 mins.	32	2	49	83	23	**239**	33	**295**	60	11	53	124	28	168	34	230
Total Volume	146	23	196	365	100	899	118	1117	249	45	221	515	114	773	145	1032
% App. Total	40	6.3	53.7		9	80.5	10.6		48.3	8.7	42.9		11	74.9	14.1	
PHF	.849	.575	.860	.895	.833	.940	.868	.947	.943	.750	.825	.907	.950	.837	.863	.851

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N/S: I-15 Northbound Ramps/La Paz Drive
E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	34	9	49	92	14	188	19	221	51	11	53	115	38	160	28	226	654
11:45 AM	37	10	41	88	24	212	28	264	46	16	54	116	28	187	39	254	722
Total	71	19	90	180	38	400	47	485	97	27	107	231	66	347	67	480	1376
12:00 PM	43	2	57	102	29	212	31	272	44	7	53	104	30	230	41	301	779
12:15 PM	32	2	48	82	31	225	29	285	62	7	54	123	27	186	30	243	733
12:30 PM	31	10	40	81	24	206	31	261	66	12	47	125	28	168	34	230	697
12:45 PM	39	4	35	78	23	225	20	268	60	15	67	142	27	182	31	240	728
Total	145	18	180	343	107	868	111	1086	232	41	221	494	112	766	136	1014	2937
01:00 PM	36	6	33	75	30	229	34	293	60	11	53	124	33	205	44	282	774
01:15 PM	31	8	46	85	23	238	33	294	52	15	44	111	26	180	30	236	726
Grand Total	283	51	349	683	198	1735	225	2158	441	94	425	960	237	1498	277	2012	5813
Apprch %	41.4	7.5	51.1		9.2	80.4	10.4		45.9	9.8	44.3		11.8	74.5	13.8		
Total %	4.9	0.9	6	11.7	3.4	29.8	3.9	37.1	7.6	1.6	7.3	16.5	4.1	25.8	4.8	34.6	

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	**43**	2	**57**	**102**	29	212	**31**	272	44	7	53	104	**30**	**230**	**41**	**301**	**779**
12:15 PM	32	2	48	82	**31**	**225**	29	**285**	62	7	54	123	27	186	30	243	733
12:30 PM	31	**10**	40	81	24	206	31	261	**66**	12	47	125	28	168	34	230	697
12:45 PM	39	4	35	78	23	225	20	268	60	**15**	**67**	**142**	27	182	31	240	728
Total Volume	145	18	180	343	107	868	111	1086	232	41	221	494	112	766	136	1014	2937
% App. Total	42.3	5.2	52.5		9.9	79.9	10.2		47	8.3	44.7		11	75.5	13.4		
PHF	.843	.450	.789	.841	.863	.964	.895	.953	.879	.683	.825	.870	.933	.833	.829	.842	.943

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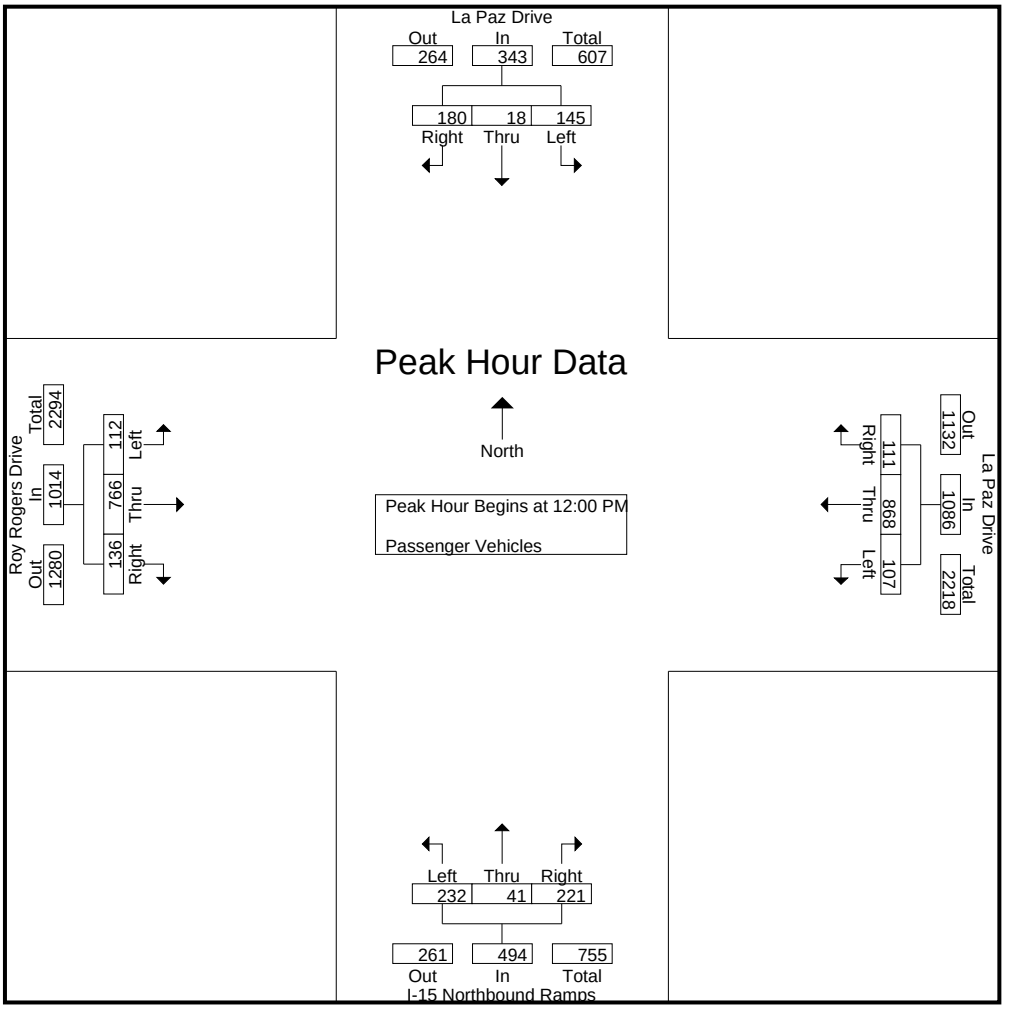
City of Victorville
N/S: I-15 Northbound Ramps/La Paz Drive
E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 12:00 PM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:00 PM				12:00 PM				12:00 PM				12:00 PM			
+0 mins.	**43**	2	**57**	**102**	29	212	**31**	272	44	7	53	104	**30**	**230**	**41**	**301**
+15 mins.	32	2	48	82	**31**	**225**	29	**285**	62	7	54	123	27	186	30	243
+30 mins.	31	**10**	40	81	24	206	31	261	**66**	12	47	125	28	168	34	230
+45 mins.	39	4	35	78	23	225	20	268	60	**15**	**67**	**142**	27	182	31	240
Total Volume	145	18	180	343	107	868	111	1086	232	41	221	494	112	766	136	1014
% App. Total	42.3	5.2	52.5		9.9	79.9	10.2		47	8.3	44.7		11	75.5	13.4	
PHF	.843	.450	.789	.841	.863	.964	.895	.953	.879	.683	.825	.870	.933	.833	.829	.842

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City of Victorville
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E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	3
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
Grand Total	0	0	0	0	0	1	0	1	0	0	0	0	0	3	1	4	5
Apprch %	0	0	0		0	100	0		0	0	0		0	75	25		
Total %	0	0	0	0	0	20	0	20	0	0	0	0	0	60	20	80	

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	**2**	**2**
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	3
% App. Total	0	0	0		0	0	0		0	0	0		0	66.7	33.3		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.250	.375	.375

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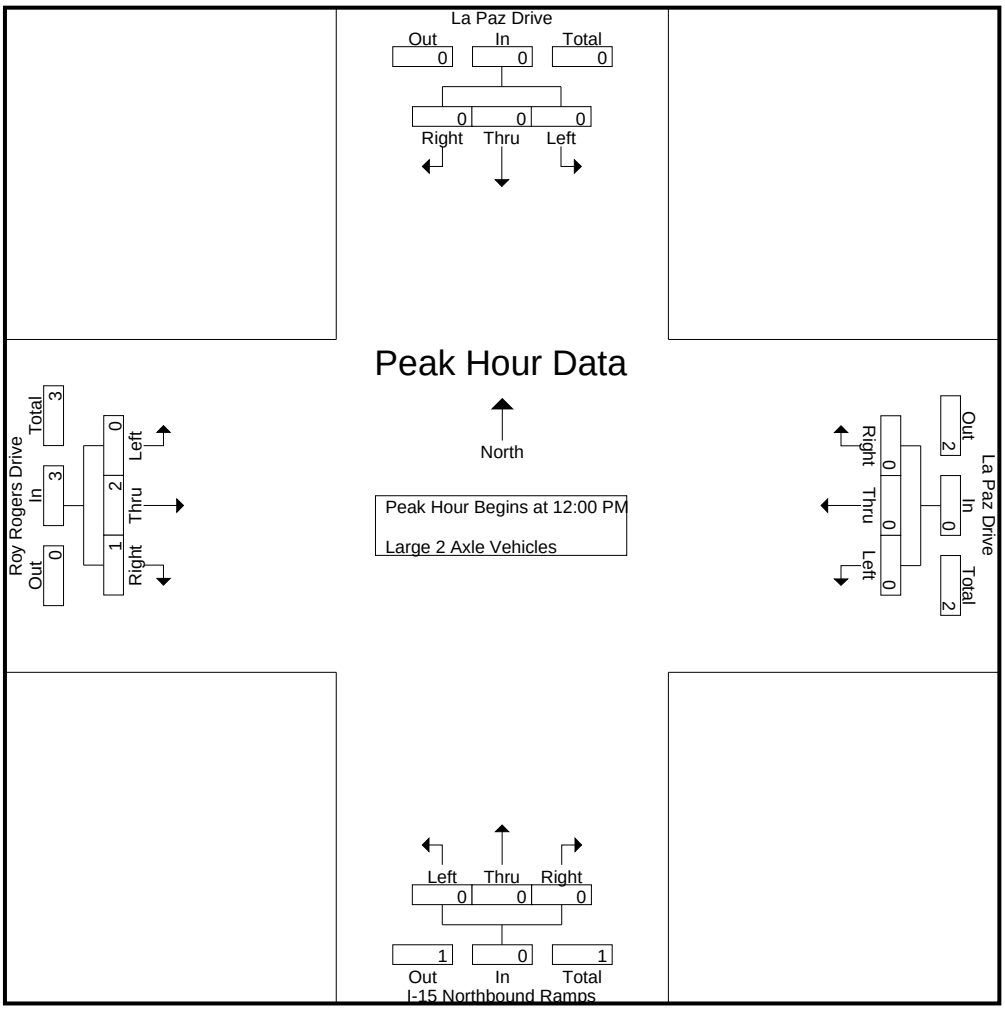
E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 12:00 PM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:00 PM				12:00 PM				12:00 PM				12:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	**2**
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3
% App. Total	0	0	0		0	0	0		0	0	0		0	66.7	33.3	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.250	.375

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City of Victorville
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E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
Apprch %	0	0	0		0	0	0		100	0	0		0	0	100		
Total %	0	0	0	0	0	0	0	0	50	0	0	50	0	0	50	50	

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	**1**	0	0	**1**	0	0	0	0	**1**
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	1
Total Volume	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
% App. Total	0	0	0		0	0	0		100	0	0		0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.250	.250	.500

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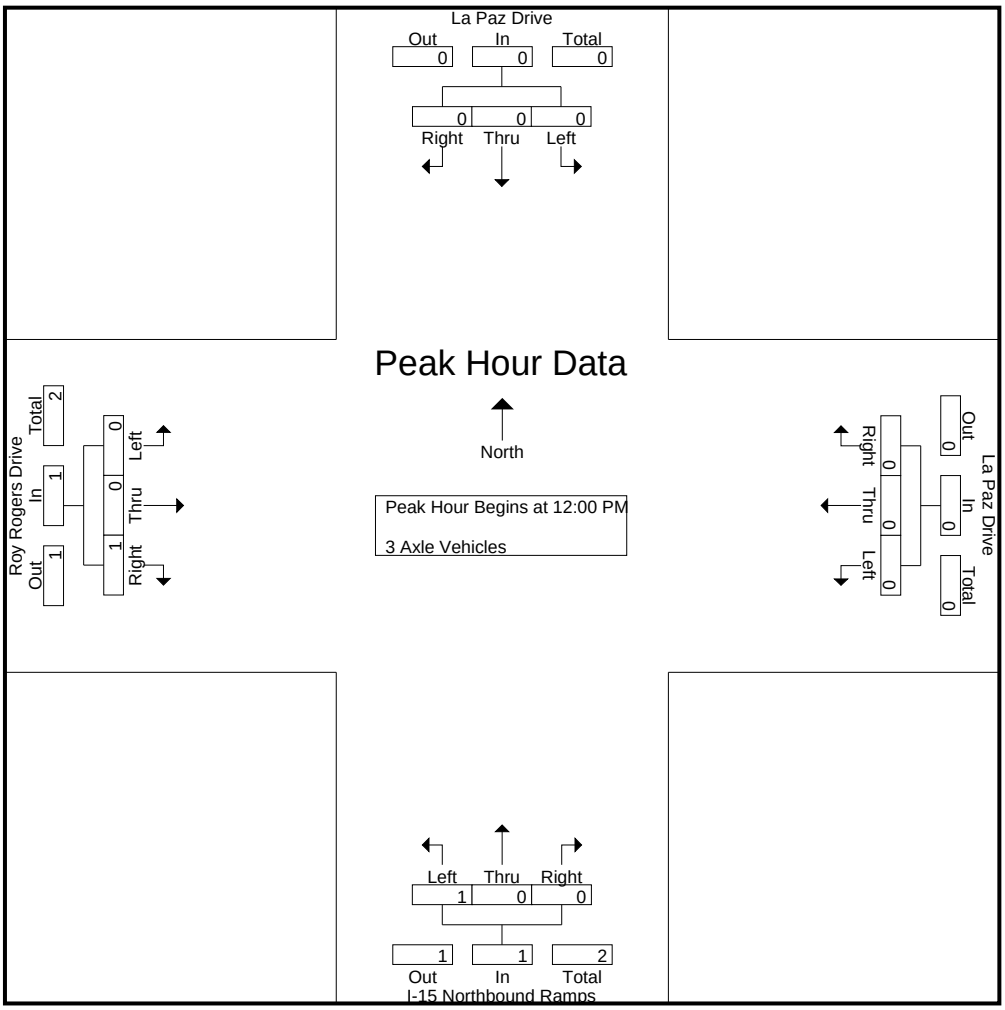
E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 12:00 PM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:00 PM				12:00 PM				12:00 PM				12:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	**1**	0	0	**1**	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**
Total Volume	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1
% App. Total	0	0	0		0	0	0		100	0	0		0	0	100	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.250	.250

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E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	2	2	0	0	0	0	0	0	0	0	1	0	0	1	3
Apprch %	0	0	100		0	0	0		0	0	0		100	0	0		
Total %	0	0	66.7	66.7	0	0	0	0	0	0	0	0	33.3	0	0	33.3	

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	100		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

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City of Victorville
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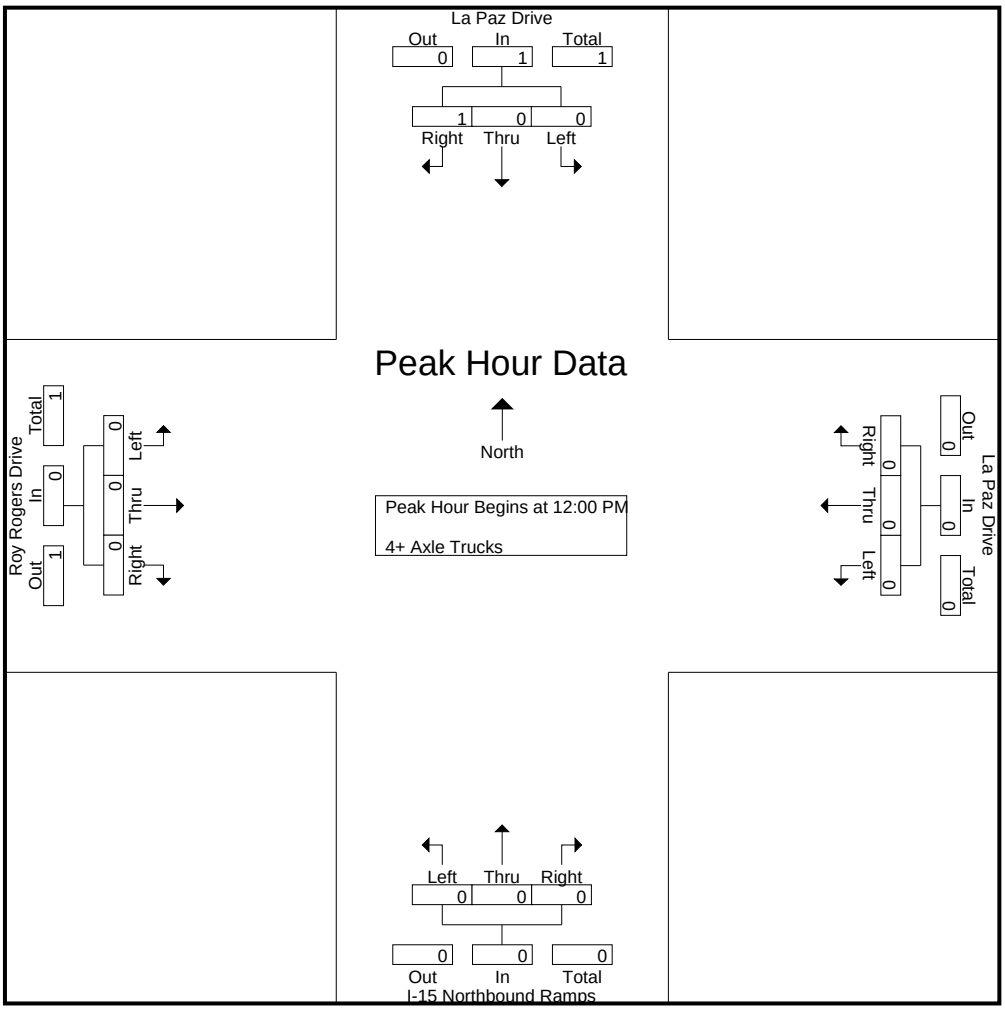
E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers MD
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 12:00 PM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:00 PM				12:00 PM				12:00 PM				12:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	100		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	37	2	33	72	25	206	22	253	69	13	57	139	26	195	44	265	729
04:15 PM	42	3	35	80	33	203	23	259	64	14	55	133	26	192	33	251	723
04:30 PM	38	7	45	90	25	187	32	244	87	13	53	153	20	182	55	257	744
04:45 PM	40	9	38	87	22	201	29	252	76	13	56	145	21	191	38	250	734
Total	157	21	151	329	105	797	106	1008	296	53	221	570	93	760	170	1023	2930
05:00 PM	23	5	39	67	32	200	30	262	81	12	51	144	28	205	63	296	769
05:15 PM	28	9	40	77	28	225	23	276	75	16	50	141	28	212	62	302	796
05:30 PM	33	7	31	71	24	186	29	239	101	23	59	183	37	174	48	259	752
05:45 PM	33	9	38	80	23	206	18	247	80	16	52	148	27	165	37	229	704
Total	117	30	148	295	107	817	100	1024	337	67	212	616	120	756	210	1086	3021
Grand Total	274	51	299	624	212	1614	206	2032	633	120	433	1186	213	1516	380	2109	5951
Apprch %	43.9	8.2	47.9		10.4	79.4	10.1		53.4	10.1	36.5		10.1	71.9	18		
Total %	4.6	0.9	5	10.5	3.6	27.1	3.5	34.1	10.6	2	7.3	19.9	3.6	25.5	6.4	35.4	
Passenger Vehicles	273	50	297	620	211	1605	206	2022	627	120	431	1178	210	1505	374	2089	5909
% Passenger Vehicles	99.6	98	99.3	99.4	99.5	99.4	100	99.5	99.1	100	99.5	99.3	98.6	99.3	98.4	99.1	99.3
Large 2 Axle Vehicles	1	0	1	2	0	8	0	8	2	0	1	3	2	9	3	14	27
% Large 2 Axle Vehicles	0.4	0	0.3	0.3	0	0.5	0	0.4	0.3	0	0.2	0.3	0.9	0.6	0.8	0.7	0.5
3 Axle Vehicles	0	1	0	1	0	1	0	1	1	0	0	1	1	1	3	5	8
% 3 Axle Vehicles	0	2	0	0.2	0	0.1	0	0	0.2	0	0	0.1	0.5	0.1	0.8	0.2	0.1
4+ Axle Trucks	0	0	1	1	1	0	0	1	3	0	1	4	0	1	0	1	7
% 4+ Axle Trucks	0	0	0.3	0.2	0.5	0	0	0	0.5	0	0.2	0.3	0	0.1	0	0	0.1

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**40**	**9**	38	**87**	22	201	29	252	76	13	56	145	21	191	38	250	734
05:00 PM	23	5	39	67	**32**	200	**30**	262	81	12	51	144	28	205	**63**	296	769
05:15 PM	28	9	**40**	77	28	**225**	23	**276**	75	16	50	141	28	**212**	62	**302**	**796**
05:30 PM	33	7	31	71	24	186	29	239	**101**	**23**	**59**	**183**	**37**	174	48	259	752
Total Volume	124	30	148	302	106	812	111	1029	333	64	216	613	114	782	211	1107	3051
% App. Total	41.1	9.9	49		10.3	78.9	10.8		54.3	10.4	35.2		10.3	70.6	19.1		
PHF	.775	.833	.925	.868	.828	.902	.925	.932	.824	.696	.915	.837	.770	.922	.837	.916	.958

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City of Victorville
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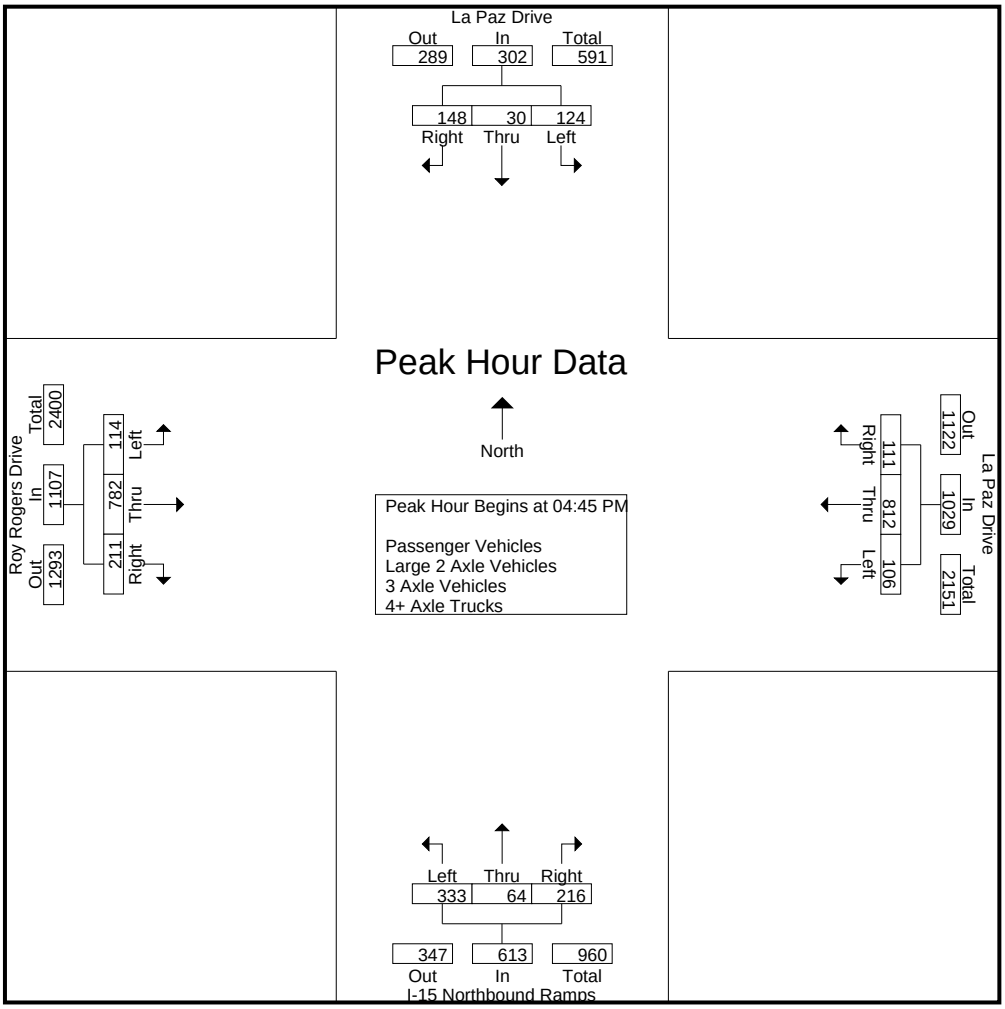
E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



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

	04:00 PM				04:30 PM				05:00 PM				04:45 PM			
+0 mins.	37	2	33	72	25	187	**32**	244	81	12	51	144	21	191	38	250
+15 mins.	**42**	3	35	80	22	201	29	252	75	16	50	141	28	205	**63**	296
+30 mins.	38	7	**45**	**90**	**32**	200	30	262	**101**	**23**	**59**	**183**	28	**212**	62	**302**
+45 mins.	40	**9**	38	87	28	**225**	23	**276**	80	16	52	148	**37**	174	48	259
Total Volume	157	21	151	329	107	813	114	1034	337	67	212	616	114	782	211	1107
% App. Total	47.7	6.4	45.9		10.3	78.6	11		54.7	10.9	34.4		10.3	70.6	19.1	
PHF	.935	.583	.839	.914	.836	.903	.891	.937	.834	.728	.898	.842	.770	.922	.837	.916

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City of Victorville
N/S: I-15 Northbound Ramps/La Paz Drive
E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Passenger Vehicles

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	37	2	33	72	25	204	22	251	68	13	56	137	24	194	43	261	721
04:15 PM	42	3	35	80	33	202	23	258	63	14	55	132	26	188	33	247	717
04:30 PM	38	7	44	89	25	186	32	243	87	13	53	153	20	181	52	253	738
04:45 PM	39	9	38	86	21	201	29	251	75	13	56	144	21	190	36	247	728
Total	156	21	150	327	104	793	106	1003	293	53	220	566	91	753	164	1008	2904
05:00 PM	23	5	39	67	32	198	30	260	80	12	50	142	28	204	63	295	764
05:15 PM	28	9	40	77	28	224	23	275	75	16	50	141	28	210	62	300	793
05:30 PM	33	6	31	70	24	185	29	238	99	23	59	181	36	174	48	258	747
05:45 PM	33	9	37	79	23	205	18	246	80	16	52	148	27	164	37	228	701
Total	117	29	147	293	107	812	100	1019	334	67	211	612	119	752	210	1081	3005
Grand Total	273	50	297	620	211	1605	206	2022	627	120	431	1178	210	1505	374	2089	5909
Apprch %	44	8.1	47.9		10.4	79.4	10.2		53.2	10.2	36.6		10.1	72	17.9		
Total %	4.6	0.8	5	10.5	3.6	27.2	3.5	34.2	10.6	2	7.3	19.9	3.6	25.5	6.3	35.4	

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**39**	**9**	38	**86**	21	201	29	251	75	13	56	144	21	190	36	247	728
05:00 PM	23	5	39	67	**32**	198	**30**	260	80	12	50	142	28	204	**63**	295	764
05:15 PM	28	9	**40**	77	28	**224**	23	**275**	75	16	50	141	28	**210**	62	**300**	**793**
05:30 PM	33	6	31	70	24	185	29	238	**99**	**23**	**59**	**181**	**36**	174	48	258	747
Total Volume	123	29	148	300	105	808	111	1024	329	64	215	608	113	778	209	1100	3032
% App. Total	41	9.7	49.3		10.3	78.9	10.8		54.1	10.5	35.4		10.3	70.7	19		
PHF	.788	.806	.925	.872	.820	.902	.925	.931	.831	.696	.911	.840	.785	.926	.829	.917	.956

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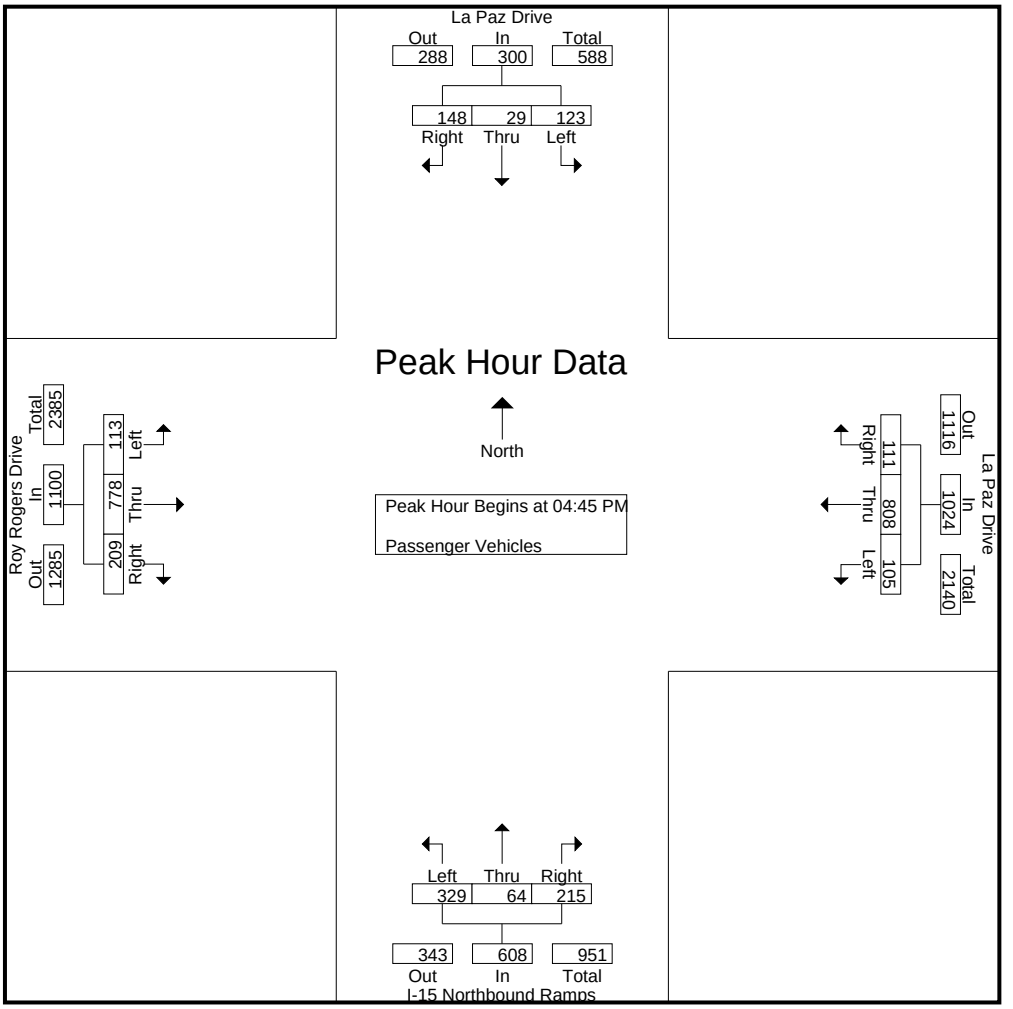
E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	**39**	**9**	38	**86**	21	201	29	251	75	13	56	144	21	190	36	247
+15 mins.	23	5	39	67	**32**	198	**30**	260	80	12	50	142	28	204	**63**	295
+30 mins.	28	9	**40**	77	28	**224**	23	**275**	75	16	50	141	28	**210**	62	**300**
+45 mins.	33	6	31	70	24	185	29	238	**99**	**23**	**59**	**181**	**36**	174	48	258
Total Volume	123	29	148	300	105	808	111	1024	329	64	215	608	113	778	209	1100
% App. Total	41	9.7	49.3		10.3	78.9	10.8		54.1	10.5	35.4		10.3	70.7	19	
PHF	.788	.806	.925	.872	.820	.902	.925	.931	.831	.696	.911	.840	.785	.926	.829	.917

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City of Victorville
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E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	2	0	2	0	0	1	1	1	1	1	3	6
04:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	4
04:30 PM	0	0	1	1	0	1	0	1	0	0	0	0	0	1	2	3	5
04:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
Total	1	0	1	2	0	4	0	4	0	0	1	1	1	6	3	10	17
05:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
05:30 PM	0	0	0	0	0	1	0	1	2	0	0	2	1	0	0	1	4
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	4	0	4	2	0	0	2	1	3	0	4	10
Grand Total	1	0	1	2	0	8	0	8	2	0	1	3	2	9	3	14	27
Apprch %	50	0	50		0	100	0		66.7	0	33.3		14.3	64.3	21.4		
Total %	3.7	0	3.7	7.4	0	29.6	0	29.6	7.4	0	3.7	11.1	7.4	33.3	11.1	51.9	

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	1	0	1	2
05:00 PM	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	**2**	0	**2**	3
05:30 PM	0	0	0	0	0	1	0	1	**2**	0	0	**2**	**1**	0	0	1	**4**
Total Volume	1	0	0	1	0	4	0	4	2	0	0	2	1	3	0	4	11
% App. Total	100	0	0		0	100	0		100	0	0		25	75	0		
PHF	.250	.000	.000	.250	.000	.500	.000	.500	.250	.000	.000	.250	.250	.375	.000	.500	.688

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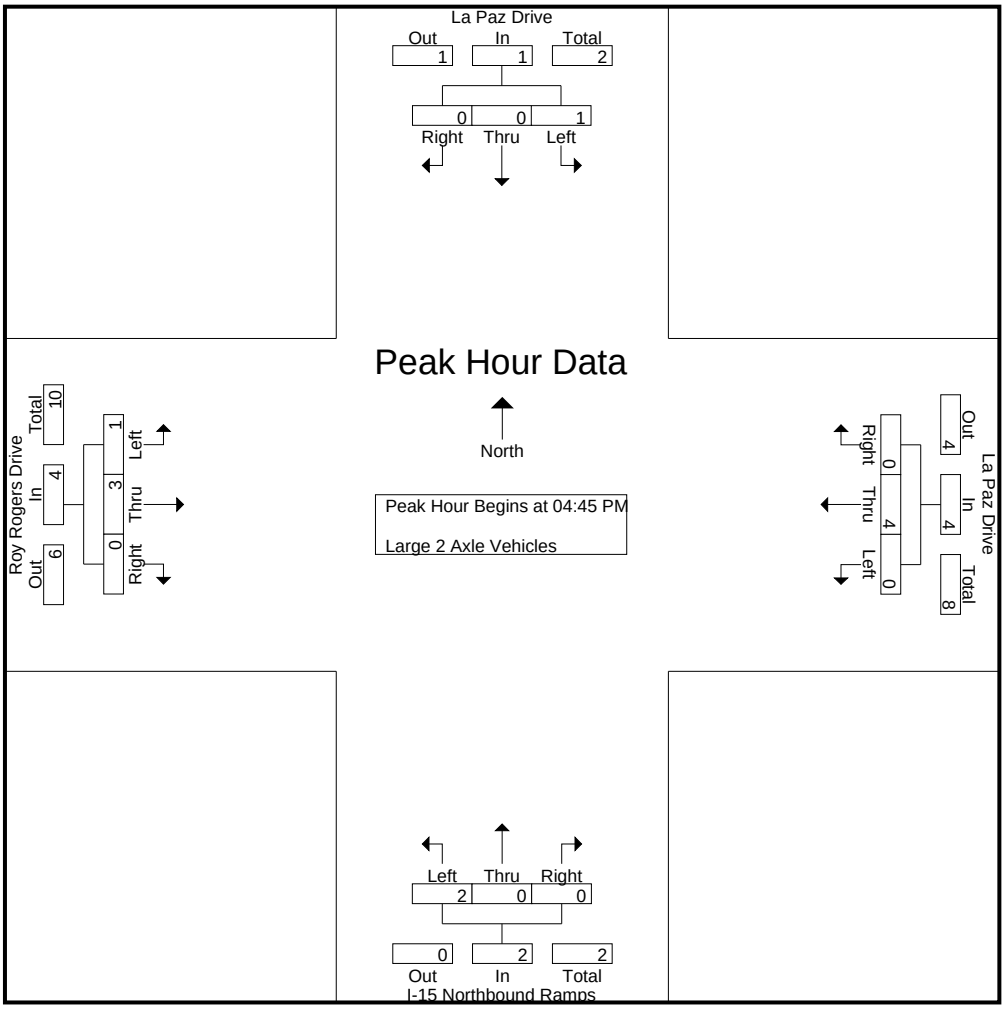
E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	1	0	1
+15 mins.	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	**2**	0	**2**
+45 mins.	0	0	0	0	0	1	0	1	**2**	0	0	**2**	**1**	0	0	1
Total Volume	1	0	0	1	0	4	0	4	2	0	0	2	1	3	0	4
% App. Total	100	0	0		0	100	0		100	0	0		25	75	0	
PHF	.250	.000	.000	.250	.000	.500	.000	.500	.250	.000	.000	.250	.250	.375	.000	.500

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City of Victorville
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E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	3
Total	0	0	0	0	0	0	0	0	1	0	0	1	1	0	3	4	5
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	1	0	1	0	1	0	1	0	0	0	0	0	1	0	1	3
Grand Total	0	1	0	1	0	1	0	1	1	0	0	1	1	1	3	5	8
Apprch %	0	100	0		0	100	0		100	0	0		20	20	60		
Total %	0	12.5	0	12.5	0	12.5	0	12.5	12.5	0	0	12.5	12.5	12.5	37.5	62.5	

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	**1**	0	0	**1**	0	0	**2**	**2**	**3**
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	1	0	1	0	0	0	0	1	0	0	1	0	1	2	3	5
% App. Total	0	100	0		0	0	0		100	0	0		0	33.3	66.7		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.250	.000	.000	.250	.000	.250	.250	.375	.417

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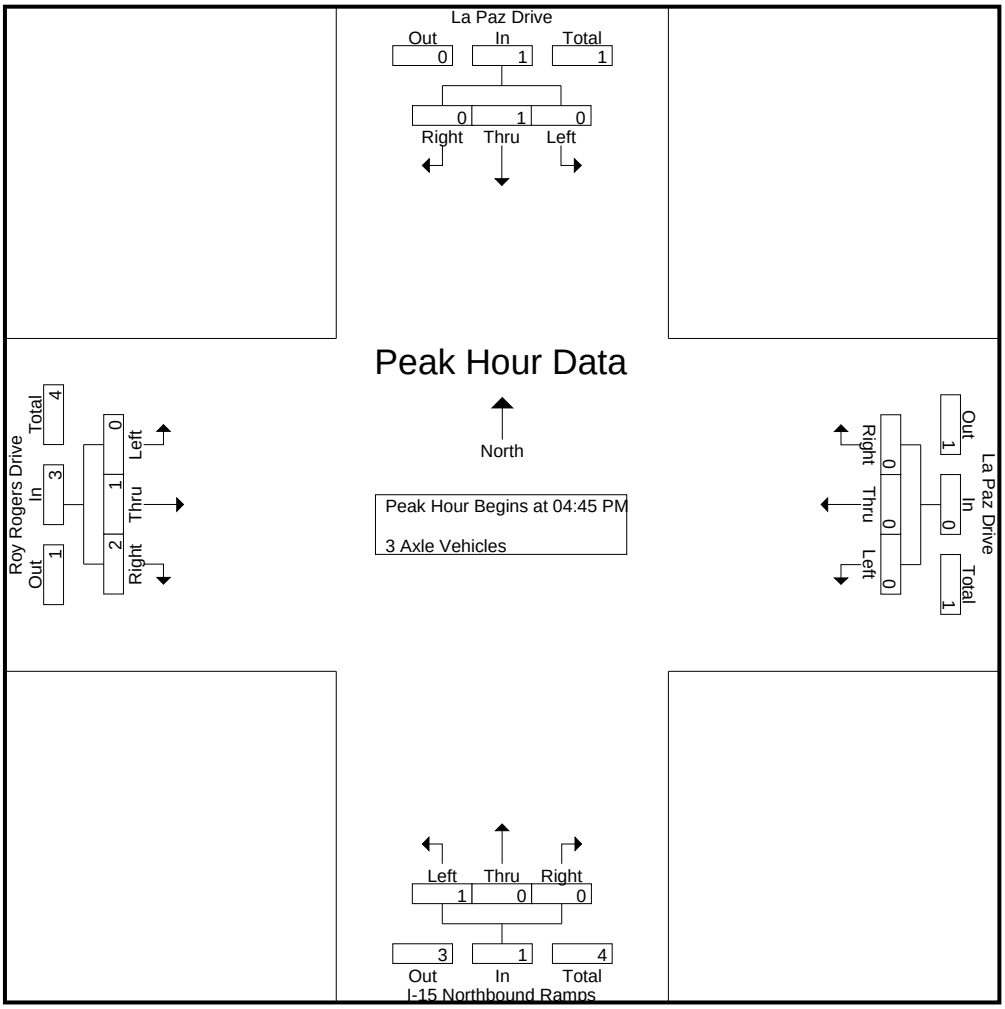
City of Victorville
N/S: I-15 Northbound Ramps/La Paz Drive
E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	0	0	0	0	0	0	**1**	0	0	**1**	0	0	**2**	**2**
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	1
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	1	0	0	1	0	1	2	3
% App. Total	0	100	0		0	0	0		100	0	0		0	33.3	66.7	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.250	.000	.000	.250	.000	.250	.250	.375

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City of Victorville
N/S: I-15 Northbound Ramps/La Paz Drive
E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	1	0	0	1	2	0	0	2	0	1	0	1	4
05:00 PM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	1	0	0	0	0	1	0	1	2	0	0	0	0	3
Grand Total	0	0	1	1	1	0	0	1	3	0	1	4	0	1	0	1	7
Apprch %	0	0	100		100	0	0		75	0	25		0	100	0		
Total %	0	0	14.3	14.3	14.3	0	0	14.3	42.9	0	14.3	57.1	0	14.3	0	14.3	

	La Paz Drive Southbound				La Paz Drive Westbound				I-15 Northbound Ramps Northbound				Roy Rogers Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	**1**	0	**1**	**2**	0	0	0	0	**2**
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	1	0	0	1	1	0	1	2	0	0	0	0	3
% App. Total	0	0	0		100	0	0		50	0	50		0	0	0		
PHF	.000	.000	.000	.000	.250	.000	.000	.250	.250	.000	.250	.250	.000	.000	.000	.000	.375

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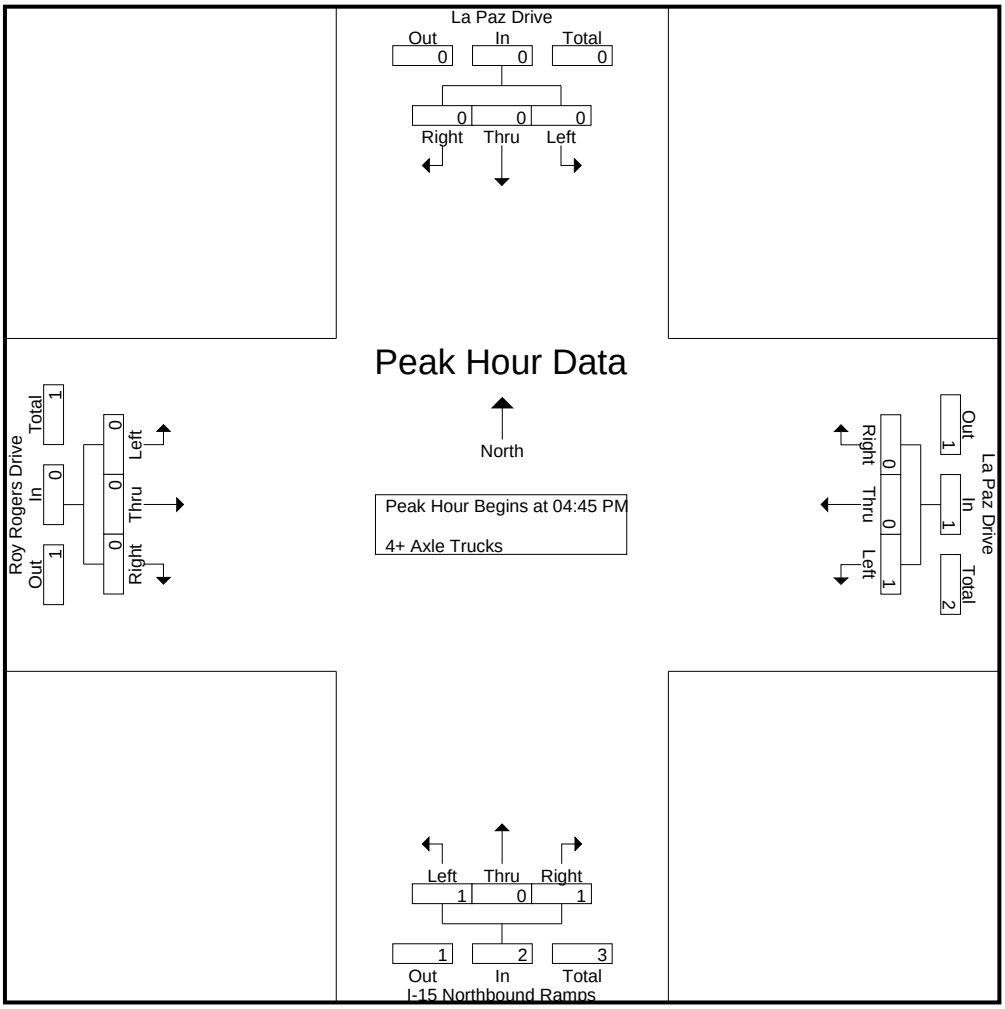
City of Victorville
N/S: I-15 Northbound Ramps/La Paz Drive
E/W: Roy Rogers Drive/La Paz Drive
Weather: Clear

File Name : 05_VIC_15N_La Paz_Roy Rogers PM
Site Code : 12218535
Start Date : 7/12/2018
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	**1**	0	**1**	**2**	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	1	0	0	1	1	0	1	2	0	0	0	0
% App. Total	0	0	0		100	0	0		50	0	50		0	0	0	
PHF	.000	.000	.000	.000	.250	.000	.000	.250	.250	.000	.250	.250	.000	.000	.000	.000

Michael Baker
INTERNATIONAL

Appendix D: Existing Without Project Synchro Worksheets

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Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	0	18	0	0	0	23	485	0	0	328	24
Future Vol, veh/h	25	0	18	0	0	0	23	485	0	0	328	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	28	0	20	0	0	0	26	545	0	0	369	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	708	980	198	782	993	273	396	0	0	545	0	0
Stage 1	383	383	-	597	597	-	-	-	-	-	-	-
Stage 2	325	597	-	185	396	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	326	252	816	288	247	731	1174	-	-	1034	-	-
Stage 1	617	616	-	461	495	-	-	-	-	-	-	-
Stage 2	667	495	-	805	607	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	320	246	816	276	242	731	1174	-	-	1034	-	-
Mov Cap-2 Maneuver	320	246	-	276	242	-	-	-	-	-	-	-
Stage 1	603	616	-	451	484	-	-	-	-	-	-	-
Stage 2	652	484	-	785	607	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.5	0	0.4	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1174	-	-	429	-	1034	-	-
HCM Lane V/C Ratio	0.022	-	-	0.113	-	-	-	-
HCM Control Delay (s)	8.1	-	-	14.5	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	-	0	-	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	3	23	35	3	4	51	422	37	153	294	23
Future Vol, veh/h	37	3	23	35	3	4	51	422	37	153	294	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	43	3	27	41	3	5	59	491	43	178	342	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1077	1364	185	1160	1356	267	369	0	0	534	0	0
Stage 1	712	712	-	631	631	-	-	-	-	-	-	-
Stage 2	365	652	-	529	725	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	176	149	832	153	151	737	1201	-	-	1044	-	-
Stage 1	394	439	-	440	477	-	-	-	-	-	-	-
Stage 2	632	467	-	506	433	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	143	118	832	121	119	737	1201	-	-	1044	-	-
Mov Cap-2 Maneuver	143	118	-	121	119	-	-	-	-	-	-	-
Stage 1	375	364	-	418	454	-	-	-	-	-	-	-
Stage 2	593	444	-	402	359	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	32.6	47	0.8	3
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1201	-	-	202	121	737	1044	-	-
HCM Lane V/C Ratio	0.049	-	-	0.363	0.365	0.006	0.17	-	-
HCM Control Delay (s)	8.2	-	-	32.6	50.9	9.9	9.2	-	-
HCM Lane LOS	A	-	-	D	F	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	1.6	1.5	0	0.6	-	-

Victorville CarMax
3: Civic Drive & Roy Rogers Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	650	71	381	684	114	92	62	431	125	43	32
Future Volume (veh/h)	45	650	71	381	684	114	92	62	431	125	43	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	47	684	75	401	720	120	97	65	454	132	45	34
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	77	1090	119	550	1871	738	121	208	810	167	280	191
Arrive On Green	0.05	0.24	0.24	0.19	0.38	0.38	0.07	0.12	0.12	0.10	0.14	0.14
Sat Flow, veh/h	1619	4499	489	2956	4914	1525	1619	1800	2685	1619	1946	1326
Grp Volume(v), veh/h	47	497	262	401	720	120	97	65	454	132	39	40
Grp Sat Flow(s),veh/h/ln	1619	1638	1712	1478	1638	1525	1619	1800	1342	1619	1710	1561
Q Serve(g_s), s	1.5	6.9	7.0	6.5	5.4	2.2	3.0	1.7	2.0	4.1	1.0	1.1
Cycle Q Clear(g_c), s	1.5	6.9	7.0	6.5	5.4	2.2	3.0	1.7	2.0	4.1	1.0	1.1
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		0.85
Lane Grp Cap(c), veh/h	77	794	415	550	1871	738	121	208	810	167	246	225
V/C Ratio(X)	0.61	0.63	0.63	0.73	0.38	0.16	0.80	0.31	0.56	0.79	0.16	0.18
Avail Cap(c_a), veh/h	292	1284	671	1072	2823	1034	365	706	1552	428	738	673
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.8	17.3	17.3	19.5	11.5	7.4	23.2	20.7	4.5	22.3	19.1	19.2
Incr Delay (d2), s/veh	7.5	0.8	1.6	1.9	0.1	0.1	11.5	0.8	0.6	8.1	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.2	2.4	2.0	1.5	0.5	1.4	0.7	0.4	1.7	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.4	18.1	18.9	21.4	11.6	7.5	34.7	21.5	5.1	30.4	19.4	19.6
LnGrp LOS	C	B	B	C	B	A	C	C	A	C	B	B
Approach Vol, veh/h		806			1241			616			211	
Approach Delay, s/veh		19.1			14.4			11.5			26.3	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	10.4	14.0	16.9	8.3	11.8	6.9	23.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	20.0	18.5	20.0	11.5	22.0	9.2	29.3
Max Q Clear Time (g_c+I1), s	6.1	4.0	8.5	9.0	5.0	3.1	3.5	7.4
Green Ext Time (p_c), s	0.2	1.9	1.0	3.4	0.1	0.3	0.0	5.0

Intersection Summary	
HCM 6th Ctrl Delay	16.0
HCM 6th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	901	305	195	1090	137	129
Future Volume (veh/h)	901	305	195	1090	137	129
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1700	1800	1600	1600
Adj Flow Rate, veh/h	929	314	201	1124	137	137
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1428	637	255	2240	221	197
Arrive On Green	0.42	0.42	0.16	0.66	0.15	0.15
Sat Flow, veh/h	3510	1525	1619	3510	1524	1356
Grp Volume(v), veh/h	929	314	201	1124	137	137
Grp Sat Flow(s),veh/h/ln	1710	1525	1619	1710	1524	1356
Q Serve(g_s), s	10.9	7.6	6.0	8.4	4.2	4.8
Cycle Q Clear(g_c), s	10.9	7.6	6.0	8.4	4.2	4.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1428	637	255	2240	221	197
V/C Ratio(X)	0.65	0.49	0.79	0.50	0.62	0.70
Avail Cap(c_a), veh/h	2802	1250	712	4579	548	488
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	10.7	20.3	4.4	20.1	20.3
Incr Delay (d2), s/veh	0.5	0.6	5.3	0.2	2.8	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	1.9	2.2	1.1	1.5	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.2	11.3	25.6	4.6	22.9	24.7
LnGrp LOS	B	B	C	A	C	C
Approach Vol, veh/h	1243			1325	274	
Approach Delay, s/veh	11.9			7.8	23.8	
Approach LOS	B			A	C	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		12.3	11.9	25.9		37.8
Change Period (Y+Rc), s		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s		18.0	22.0	41.0		67.0
Max Q Clear Time (g_c+I1), s		6.8	8.0	12.9		10.4
Green Ext Time (p_c), s		0.6	0.4	8.0		9.7

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	778	140	107	868	111	234	41	221	145	18	183
Future Volume (veh/h)	112	778	140	107	868	111	234	41	221	145	18	183
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	119	828	149	114	923	118	249	44	235	168	0	195
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	155	970	433	210	1006	129	287	51	316	505	0	238
Arrive On Green	0.10	0.28	0.28	0.13	0.33	0.33	0.21	0.21	0.21	0.16	0.00	0.16
Sat Flow, veh/h	1619	3420	1525	1619	3050	390	1386	245	1525	3238	0	1525
Grp Volume(v), veh/h	119	828	149	114	517	524	293	0	235	168	0	195
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1730	1631	0	1525	1619	0	1525
Q Serve(g_s), s	6.1	19.5	6.6	5.6	24.7	24.7	14.8	0.0	12.3	3.9	0.0	10.5
Cycle Q Clear(g_c), s	6.1	19.5	6.6	5.6	24.7	24.7	14.8	0.0	12.3	3.9	0.0	10.5
Prop In Lane	1.00		1.00	1.00		0.23	0.85		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	155	970	433	210	564	571	338	0	316	505	0	238
V/C Ratio(X)	0.77	0.85	0.34	0.54	0.92	0.92	0.87	0.00	0.74	0.33	0.00	0.82
Avail Cap(c_a), veh/h	171	1086	484	210	583	590	383	0	359	761	0	359
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.5	28.8	24.2	34.6	27.4	27.4	32.6	0.0	31.6	32.0	0.0	34.7
Incr Delay (d2), s/veh	17.3	6.2	0.5	2.8	19.2	19.1	17.2	0.0	7.2	0.4	0.0	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	8.1	2.3	2.2	12.1	12.2	7.2	0.0	4.8	1.5	0.0	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.9	35.0	24.7	37.4	46.6	46.4	49.8	0.0	38.8	32.3	0.0	43.6
LnGrp LOS	D	C	C	D	D	D	D	A	D	C	A	D
Approach Vol, veh/h		1096			1155			528			363	
Approach Delay, s/veh		35.7			45.6			44.9			38.4	
Approach LOS		D			D			D			D	

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		22.6	16.1	29.1		17.3	12.1	33.1
Change Period (Y+Rc), s		5.0	5.0	5.0		4.0	4.0	* 5
Max Green Setting (Gmax), s		20.0	9.0	27.0		20.0	9.0	* 29
Max Q Clear Time (g_c+I1), s		16.8	7.6	21.5		12.5	8.1	26.7
Green Ext Time (p_c), s		0.8	0.0	2.7		0.7	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	41.2
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	0	27	0	0	0	31	496	0	0	213	30
Future Vol, veh/h	34	0	27	0	0	0	31	496	0	0	213	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	44	0	35	0	0	0	40	636	0	0	273	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	690	1008	156	853	1027	318	311	0	0	636	0	0
Stage 1	292	292	-	716	716	-	-	-	-	-	-	-
Stage 2	398	716	-	137	311	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	335	242	868	256	236	684	1261	-	-	957	-	-
Stage 1	697	675	-	392	437	-	-	-	-	-	-	-
Stage 2	605	437	-	858	662	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	327	234	868	240	228	684	1261	-	-	957	-	-
Mov Cap-2 Maneuver	327	234	-	240	228	-	-	-	-	-	-	-
Stage 1	675	675	-	379	423	-	-	-	-	-	-	-
Stage 2	586	423	-	824	662	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.6	0	0.5	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1261	-	-	452	-	957	-	-
HCM Lane V/C Ratio	0.032	-	-	0.173	-	-	-	-
HCM Control Delay (s)	7.9	-	-	14.6	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	-	0	-	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	5	23	18	3	2	13	506	11	135	202	32
Future Vol, veh/h	55	5	23	18	3	2	13	506	11	135	202	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	69	6	29	23	4	3	16	633	14	169	253	40

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	962	1290	147	1140	1303	324	293	0	0	647	0	0
Stage 1	611	611	-	672	672	-	-	-	-	-	-	-
Stage 2	351	679	-	468	631	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	213	165	880	158	162	678	1280	-	-	948	-	-
Stage 1	453	487	-	416	458	-	-	-	-	-	-	-
Stage 2	644	454	-	550	477	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	178	134	880	126	132	678	1280	-	-	948	-	-
Mov Cap-2 Maneuver	178	134	-	126	132	-	-	-	-	-	-	-
Stage 1	448	400	-	411	453	-	-	-	-	-	-	-
Stage 2	628	449	-	430	392	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	34.5	38	0.2	3.5
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1280	-	-	223	127	678	948	-	-
HCM Lane V/C Ratio	0.013	-	-	0.465	0.207	0.004	0.178	-	-
HCM Control Delay (s)	7.8	-	-	34.5	40.6	10.3	9.6	-	-
HCM Lane LOS	A	-	-	D	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2.3	0.7	0	0.6	-	-

HCM 6th Signalized Intersection Summary
3: Civic Drive & Roy Rogers Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	748	56	271	886	97	78	60	557	142	26	29
Future Volume (veh/h)	35	748	56	271	886	97	78	60	557	142	26	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	37	796	60	288	943	103	83	64	593	151	28	31
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	64	1226	92	411	1782	734	108	254	753	191	330	295
Arrive On Green	0.04	0.26	0.26	0.14	0.36	0.36	0.07	0.14	0.14	0.12	0.19	0.19
Sat Flow, veh/h	1619	4663	350	2956	4914	1525	1619	1800	2685	1619	1710	1525
Grp Volume(v), veh/h	37	558	298	288	943	103	83	64	593	151	28	31
Grp Sat Flow(s),veh/h/ln	1619	1638	1737	1478	1638	1525	1619	1800	1342	1619	1710	1525
Q Serve(g_s), s	1.2	8.1	8.1	4.9	8.1	2.0	2.7	1.7	3.1	4.8	0.7	0.9
Cycle Q Clear(g_c), s	1.2	8.1	8.1	4.9	8.1	2.0	2.7	1.7	3.1	4.8	0.7	0.9
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	64	862	457	411	1782	734	108	254	753	191	330	295
V/C Ratio(X)	0.58	0.65	0.65	0.70	0.53	0.14	0.77	0.25	0.79	0.79	0.08	0.11
Avail Cap(c_a), veh/h	262	1324	702	806	2530	966	383	693	1408	472	752	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	17.4	17.4	21.8	13.4	7.7	24.4	20.3	5.5	22.8	17.6	17.7
Incr Delay (d2), s/veh	8.0	0.8	1.6	2.2	0.2	0.1	11.1	0.5	1.9	7.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.6	2.8	1.6	2.3	0.5	1.2	0.6	0.8	2.0	0.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.1	18.2	19.0	24.0	13.6	7.8	35.5	20.9	7.4	29.9	17.7	17.8
LnGrp LOS	C	B	B	C	B	A	D	C	A	C	B	B
Approach Vol, veh/h		893			1334			740			210	
Approach Delay, s/veh		19.1			15.4			11.7			26.5	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.8	12.0	11.9	18.5	8.0	14.8	6.6	23.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	20.5	14.5	21.5	12.6	23.4	8.6	27.4
Max Q Clear Time (g_c+I1), s	6.8	5.1	6.9	10.1	4.7	2.9	3.2	10.1
Green Ext Time (p_c), s	0.2	2.5	0.6	3.9	0.1	0.2	0.0	6.0

Intersection Summary	
HCM 6th Ctrl Delay	16.3
HCM 6th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1008	439	176	1123	186	132
Future Volume (veh/h)	1008	439	176	1123	186	132
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1700	1800	1600	1600
Adj Flow Rate, veh/h	1108	482	193	1234	174	177
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1569	700	240	2297	254	226
Arrive On Green	0.46	0.46	0.15	0.67	0.17	0.17
Sat Flow, veh/h	3510	1525	1619	3510	1524	1356
Grp Volume(v), veh/h	1108	482	193	1234	174	177
Grp Sat Flow(s),veh/h/ln	1710	1525	1619	1710	1524	1356
Q Serve(g_s), s	16.1	15.5	7.1	11.5	6.6	7.7
Cycle Q Clear(g_c), s	16.1	15.5	7.1	11.5	6.6	7.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1569	700	240	2297	254	226
V/C Ratio(X)	0.71	0.69	0.80	0.54	0.68	0.78
Avail Cap(c_a), veh/h	2376	1060	575	3812	394	350
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	13.3	25.5	5.2	24.3	24.7
Incr Delay (d2), s/veh	0.6	1.2	6.2	0.2	3.3	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	4.3	2.8	2.1	2.4	2.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.0	14.5	31.7	5.4	27.5	30.8
LnGrp LOS	B	B	C	A	C	C
Approach Vol, veh/h	1590			1427	351	
Approach Delay, s/veh	14.1			9.0	29.2	
Approach LOS	B			A	C	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		15.3	13.2	33.4		46.6
Change Period (Y+Rc), s		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s		16.0	22.0	43.0		69.0
Max Q Clear Time (g_c+I1), s		9.7	9.1	18.1		13.5
Green Ext Time (p_c), s		0.6	0.4	10.3		11.2

Intersection Summary	
HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
5: I-15 Northbound Ramps/La Paz Drive & Roy Rogers Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	812	213	108	814	111	337	64	218	125	31	148
Future Volume (veh/h)	115	812	213	108	814	111	337	64	218	125	31	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	120	846	222	112	848	116	351	67	227	81	101	154
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	132	932	416	157	906	124	382	73	425	212	222	199
Arrive On Green	0.08	0.27	0.27	0.10	0.30	0.30	0.28	0.28	0.28	0.13	0.13	0.13
Sat Flow, veh/h	1619	3420	1525	1619	3022	413	1370	262	1525	1619	1700	1525
Grp Volume(v), veh/h	120	846	222	112	480	484	418	0	227	81	101	154
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1726	1632	0	1525	1619	1700	1525
Q Serve(g_s), s	6.3	20.6	10.7	5.8	23.5	23.5	21.4	0.0	10.8	3.9	4.7	8.4
Cycle Q Clear(g_c), s	6.3	20.6	10.7	5.8	23.5	23.5	21.4	0.0	10.8	3.9	4.7	8.4
Prop In Lane	1.00		1.00	1.00		0.24	0.84		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	132	932	416	157	513	517	455	0	425	212	222	199
V/C Ratio(X)	0.91	0.91	0.53	0.71	0.94	0.94	0.92	0.00	0.53	0.38	0.45	0.77
Avail Cap(c_a), veh/h	132	954	426	157	517	522	474	0	443	377	395	355
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	30.2	26.6	37.7	29.3	29.3	30.1	0.0	26.3	34.2	34.5	36.1
Incr Delay (d2), s/veh	52.1	12.1	1.2	14.0	24.5	24.4	22.6	0.0	1.1	1.1	1.4	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	9.3	3.7	2.8	12.3	12.4	10.8	0.0	3.8	1.6	2.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.3	42.3	27.9	51.7	53.8	53.7	52.7	0.0	27.4	35.3	36.0	42.4
LnGrp LOS	F	D	C	D	D	D	D	A	C	D	D	D
Approach Vol, veh/h		1188			1076			645			336	
Approach Delay, s/veh		44.6			53.5			43.8			38.8	
Approach LOS		D			D			D			D	

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		29.0	13.4	28.4		15.2	11.0	30.8
Change Period (Y+Rc), s		5.0	5.0	5.0		4.0	4.0	* 5
Max Green Setting (Gmax), s		25.0	7.0	24.0		20.0	7.0	* 26
Max Q Clear Time (g_c+I1), s		23.4	7.8	22.6		10.4	8.3	25.5
Green Ext Time (p_c), s		0.6	0.0	0.9		0.9	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	46.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Michael Baker
INTERNATIONAL

Appendix E: Existing With Project Synchro Worksheets

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Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	0	18	1	0	3	23	486	2	4	329	24
Future Vol, veh/h	25	0	18	1	0	3	23	486	2	4	329	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	28	0	20	1	0	3	26	546	2	4	370	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	717	992	199	792	1004	274	397	0	0	548	0	0
Stage 1	392	392	-	599	599	-	-	-	-	-	-	-
Stage 2	325	600	-	193	405	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	321	248	815	283	244	730	1173	-	-	1032	-	-
Stage 1	610	610	-	460	494	-	-	-	-	-	-	-
Stage 2	667	493	-	796	602	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	313	242	815	271	238	730	1173	-	-	1032	-	-
Mov Cap-2 Maneuver	313	242	-	271	238	-	-	-	-	-	-	-
Stage 1	597	608	-	450	483	-	-	-	-	-	-	-
Stage 2	649	482	-	773	600	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.6	12.1	0.4	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1173	-	-	422	513	1032	-	-
HCM Lane V/C Ratio	0.022	-	-	0.114	0.009	0.004	-	-
HCM Control Delay (s)	8.1	-	-	14.6	12.1	8.5	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0	0	-	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	3	23	36	3	12	51	425	38	165	298	23
Future Vol, veh/h	37	3	23	36	3	12	51	425	38	165	298	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	43	3	27	42	3	14	59	494	44	192	347	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1112	1401	187	1193	1392	269	374	0	0	538	0	0
Stage 1	745	745	-	634	634	-	-	-	-	-	-	-
Stage 2	367	656	-	559	758	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	166	141	830	145	143	735	1196	-	-	1040	-	-
Stage 1	377	424	-	439	476	-	-	-	-	-	-	-
Stage 2	630	465	-	486	418	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	131	109	830	113	111	735	1196	-	-	1040	-	-
Mov Cap-2 Maneuver	131	109	-	113	111	-	-	-	-	-	-	-
Stage 1	359	346	-	417	453	-	-	-	-	-	-	-
Stage 2	583	442	-	380	341	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	36.1	45.7	0.8	3.1
HCM LOS	E	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1196	-	-	187	113	735	1040	-	-
HCM Lane V/C Ratio	0.05	-	-	0.392	0.401	0.019	0.184	-	-
HCM Control Delay (s)	8.2	-	-	36.1	56.7	10	9.2	-	-
HCM Lane LOS	A	-	-	E	F	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	1.7	1.7	0.1	0.7	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	650	73	395	684	114	93	62	441	125	43	32
Future Volume (veh/h)	45	650	73	395	684	114	93	62	441	125	43	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	47	684	77	416	720	120	98	65	464	132	45	34
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	77	1083	121	564	1890	744	122	209	824	167	280	191
Arrive On Green	0.05	0.24	0.24	0.19	0.38	0.38	0.08	0.12	0.12	0.10	0.14	0.14
Sat Flow, veh/h	1619	4485	501	2956	4914	1525	1619	1800	2685	1619	1946	1326
Grp Volume(v), veh/h	47	498	263	416	720	120	98	65	464	132	39	40
Grp Sat Flow(s),veh/h/ln	1619	1638	1710	1478	1638	1525	1619	1800	1342	1619	1710	1561
Q Serve(g_s), s	1.5	7.0	7.1	6.8	5.5	2.3	3.1	1.7	2.1	4.1	1.0	1.2
Cycle Q Clear(g_c), s	1.5	7.0	7.1	6.8	5.5	2.3	3.1	1.7	2.1	4.1	1.0	1.2
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		0.85
Lane Grp Cap(c), veh/h	77	791	413	564	1890	744	122	209	824	167	246	225
V/C Ratio(X)	0.61	0.63	0.64	0.74	0.38	0.16	0.80	0.31	0.56	0.79	0.16	0.18
Avail Cap(c_a), veh/h	288	1268	662	1059	2787	1023	360	697	1552	423	728	665
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.1	17.5	17.6	19.7	11.5	7.4	23.5	20.9	4.5	22.6	19.4	19.4
Incr Delay (d2), s/veh	7.6	0.8	1.6	1.9	0.1	0.1	11.3	0.8	0.6	8.1	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.2	2.5	2.1	1.5	0.5	1.4	0.7	0.4	1.7	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.8	18.4	19.2	21.6	11.6	7.5	34.8	21.8	5.1	30.7	19.7	19.8
LnGrp LOS	C	B	B	C	B	A	C	C	A	C	B	B
Approach Vol, veh/h		808			1256			627			211	
Approach Delay, s/veh		19.4			14.5			11.5			26.6	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	10.5	14.4	17.0	8.4	11.9	7.0	24.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	20.0	18.5	20.0	11.5	22.0	9.2	29.3
Max Q Clear Time (g_c+I1), s	6.1	4.1	8.8	9.1	5.1	3.2	3.5	7.5
Green Ext Time (p_c), s	0.2	1.9	1.0	3.3	0.1	0.3	0.0	5.0

Intersection Summary	
HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	906	310	195	1100	141	129
Future Volume (veh/h)	906	310	195	1100	141	129
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1700	1800	1600	1600
Adj Flow Rate, veh/h	934	320	201	1134	139	139
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1431	638	255	2241	223	199
Arrive On Green	0.42	0.42	0.16	0.66	0.15	0.15
Sat Flow, veh/h	3510	1525	1619	3510	1524	1356
Grp Volume(v), veh/h	934	320	201	1134	139	139
Grp Sat Flow(s),veh/h/ln	1710	1525	1619	1710	1524	1356
Q Serve(g_s), s	11.0	7.8	6.0	8.6	4.3	4.9
Cycle Q Clear(g_c), s	11.0	7.8	6.0	8.6	4.3	4.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1431	638	255	2241	223	199
V/C Ratio(X)	0.65	0.50	0.79	0.51	0.62	0.70
Avail Cap(c_a), veh/h	2779	1240	706	4542	544	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	10.8	20.4	4.5	20.2	20.5
Incr Delay (d2), s/veh	0.5	0.6	5.4	0.2	2.8	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	2.0	2.3	1.1	1.5	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.2	11.4	25.8	4.7	23.1	24.9
LnGrp LOS	B	B	C	A	C	C
Approach Vol, veh/h	1254			1335	278	
Approach Delay, s/veh	12.0			7.8	24.0	
Approach LOS	B			A	C	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		12.4	11.9	26.1		38.1
Change Period (Y+Rc), s		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s		18.0	22.0	41.0		67.0
Max Q Clear Time (g_c+I1), s		6.9	8.0	13.0		10.6
Green Ext Time (p_c), s		0.6	0.4	8.1		9.8

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	780	143	107	870	111	242	41	221	145	18	183
Future Volume (veh/h)	112	780	143	107	870	111	242	41	221	145	18	183
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	119	830	152	114	926	118	257	44	235	168	0	195
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	154	968	432	210	1004	128	293	50	321	504	0	237
Arrive On Green	0.10	0.28	0.28	0.13	0.33	0.33	0.21	0.21	0.21	0.16	0.00	0.16
Sat Flow, veh/h	1619	3420	1525	1619	3051	389	1392	238	1525	3238	0	1525
Grp Volume(v), veh/h	119	830	152	114	519	525	301	0	235	168	0	195
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1730	1630	0	1525	1619	0	1525
Q Serve(g_s), s	6.2	19.7	6.8	5.7	25.1	25.1	15.3	0.0	12.3	4.0	0.0	10.6
Cycle Q Clear(g_c), s	6.2	19.7	6.8	5.7	25.1	25.1	15.3	0.0	12.3	4.0	0.0	10.6
Prop In Lane	1.00		1.00	1.00		0.22	0.85		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	154	968	432	210	562	569	343	0	321	504	0	237
V/C Ratio(X)	0.77	0.86	0.35	0.54	0.92	0.92	0.88	0.00	0.73	0.33	0.00	0.82
Avail Cap(c_a), veh/h	170	1076	480	210	578	585	380	0	355	754	0	355
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.9	29.1	24.5	35.0	27.7	27.8	32.8	0.0	31.6	32.3	0.0	35.1
Incr Delay (d2), s/veh	17.8	6.5	0.5	2.9	20.3	20.1	18.9	0.0	6.8	0.4	0.0	9.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	8.3	2.3	2.3	12.4	12.6	7.6	0.0	4.8	1.5	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.7	35.6	25.0	37.9	48.0	47.9	51.7	0.0	38.4	32.7	0.0	44.2
LnGrp LOS	E	D	C	D	D	D	D	A	D	C	A	D
Approach Vol, veh/h		1101			1158			536			363	
Approach Delay, s/veh		36.3			46.9			45.9			38.9	
Approach LOS		D			D			D			D	

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		23.1	16.1	29.3		17.4	12.2	33.2
Change Period (Y+Rc), s		5.0	5.0	5.0		4.0	4.0	* 5
Max Green Setting (Gmax), s		20.0	9.0	27.0		20.0	9.0	* 29
Max Q Clear Time (g_c+I1), s		17.3	7.7	21.7		12.6	8.2	27.1
Green Ext Time (p_c), s		0.7	0.0	2.6		0.7	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	42.1
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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	34	0	27	2	0	3	31	497	1	3	214	30
Future Vol, veh/h	34	0	27	2	0	3	31	497	1	3	214	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	44	0	35	3	0	4	40	637	1	4	274	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	700	1019	156	863	1038	319	312	0	0	638	0	0
Stage 1	301	301	-	718	718	-	-	-	-	-	-	-
Stage 2	399	718	-	145	320	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	330	239	868	252	233	683	1260	-	-	956	-	-
Stage 1	689	669	-	391	436	-	-	-	-	-	-	-
Stage 2	604	436	-	849	656	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	319	230	868	235	225	683	1260	-	-	956	-	-
Mov Cap-2 Maneuver	319	230	-	235	225	-	-	-	-	-	-	-
Stage 1	667	666	-	378	422	-	-	-	-	-	-	-
Stage 2	582	422	-	812	653	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.9	14.4	0.5	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1260	-	-	443	388	956	-	-
HCM Lane V/C Ratio	0.032	-	-	0.177	0.017	0.004	-	-
HCM Control Delay (s)	8	-	-	14.9	14.4	8.8	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	5	23	19	3	11	13	509	12	143	205	32
Future Vol, veh/h	55	5	23	19	3	11	13	509	12	143	205	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	69	6	29	24	4	14	16	636	15	179	256	40

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	986	1317	148	1165	1330	326	296	0	0	651	0	0
Stage 1	634	634	-	676	676	-	-	-	-	-	-	-
Stage 2	352	683	-	489	654	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	205	159	878	152	156	676	1277	-	-	945	-	-
Stage 1	439	476	-	414	456	-	-	-	-	-	-	-
Stage 2	643	452	-	534	466	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	166	127	878	120	125	676	1277	-	-	945	-	-
Mov Cap-2 Maneuver	166	127	-	120	125	-	-	-	-	-	-	-
Stage 1	433	386	-	409	450	-	-	-	-	-	-	-
Stage 2	617	446	-	412	378	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	38.1	32.3	0.2	3.6
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1277	-	-	209	121	676	945	-	-
HCM Lane V/C Ratio	0.013	-	-	0.496	0.227	0.02	0.189	-	-
HCM Control Delay (s)	7.9	-	-	38.1	43.3	10.4	9.7	-	-
HCM Lane LOS	A	-	-	E	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2.5	0.8	0.1	0.7	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	748	57	281	886	97	79	60	568	142	26	29
Future Volume (veh/h)	35	748	57	281	886	97	79	60	568	142	26	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	37	796	61	299	943	103	84	64	604	151	28	31
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	64	1220	93	422	1795	738	108	256	765	191	332	296
Arrive On Green	0.04	0.26	0.26	0.14	0.37	0.37	0.07	0.14	0.14	0.12	0.19	0.19
Sat Flow, veh/h	1619	4657	355	2956	4914	1525	1619	1800	2685	1619	1710	1525
Grp Volume(v), veh/h	37	559	298	299	943	103	84	64	604	151	28	31
Grp Sat Flow(s),veh/h/ln	1619	1638	1736	1478	1638	1525	1619	1800	1342	1619	1710	1525
Q Serve(g_s), s	1.2	8.2	8.2	5.2	8.1	2.0	2.7	1.7	3.2	4.9	0.7	0.9
Cycle Q Clear(g_c), s	1.2	8.2	8.2	5.2	8.1	2.0	2.7	1.7	3.2	4.9	0.7	0.9
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	64	858	455	422	1795	738	108	256	765	191	332	296
V/C Ratio(X)	0.58	0.65	0.66	0.71	0.53	0.14	0.78	0.25	0.79	0.79	0.08	0.10
Avail Cap(c_a), veh/h	259	1310	694	797	2504	957	379	686	1407	467	744	664
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	17.7	17.7	22.0	13.4	7.7	24.7	20.5	5.6	23.1	17.8	17.8
Incr Delay (d2), s/veh	8.0	0.8	1.6	2.2	0.2	0.1	11.5	0.5	1.9	7.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.6	2.9	1.7	2.3	0.5	1.3	0.7	0.8	2.0	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	18.5	19.3	24.2	13.6	7.8	36.2	21.0	7.4	30.1	17.9	18.0
LnGrp LOS	C	B	B	C	B	A	D	C	A	C	B	B
Approach Vol, veh/h		894			1345			752			210	
Approach Delay, s/veh		19.4			15.5			11.8			26.7	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	12.2	12.2	18.6	8.1	14.9	6.6	24.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	20.5	14.5	21.5	12.6	23.4	8.6	27.4
Max Q Clear Time (g_c+I1), s	6.9	5.2	7.2	10.2	4.7	2.9	3.2	10.1
Green Ext Time (p_c), s	0.2	2.5	0.6	3.9	0.1	0.2	0.0	6.0

Intersection Summary	
HCM 6th Ctrl Delay	16.5
HCM 6th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1013	445	176	1130	189	132
Future Volume (veh/h)	1013	445	176	1130	189	132
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1700	1800	1600	1600
Adj Flow Rate, veh/h	1113	489	193	1242	176	179
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1571	701	240	2298	256	228
Arrive On Green	0.46	0.46	0.15	0.67	0.17	0.17
Sat Flow, veh/h	3510	1525	1619	3510	1524	1356
Grp Volume(v), veh/h	1113	489	193	1242	176	179
Grp Sat Flow(s),veh/h/ln	1710	1525	1619	1710	1524	1356
Q Serve(g_s), s	16.3	15.9	7.2	11.7	6.8	7.9
Cycle Q Clear(g_c), s	16.3	15.9	7.2	11.7	6.8	7.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1571	701	240	2298	256	228
V/C Ratio(X)	0.71	0.70	0.80	0.54	0.69	0.79
Avail Cap(c_a), veh/h	2358	1052	571	3783	391	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	13.4	25.7	5.3	24.4	24.9
Incr Delay (d2), s/veh	0.6	1.3	6.2	0.2	3.3	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	4.4	2.9	2.1	2.5	2.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.1	14.7	31.9	5.5	27.7	31.4
LnGrp LOS	B	B	C	A	C	C
Approach Vol, veh/h	1602			1435	355	
Approach Delay, s/veh	14.3			9.0	29.6	
Approach LOS	B			A	C	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		15.5	13.2	33.7		46.9
Change Period (Y+Rc), s		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s		16.0	22.0	43.0		69.0
Max Q Clear Time (g_c+I1), s		9.9	9.2	18.3		13.7
Green Ext Time (p_c), s		0.6	0.4	10.4		11.3

Intersection Summary	
HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	813	217	108	816	111	342	64	218	125	31	148
Future Volume (veh/h)	115	813	217	108	816	111	342	64	218	125	31	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	120	847	226	112	850	116	356	67	227	81	101	154
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	131	930	415	157	905	124	385	72	428	211	222	199
Arrive On Green	0.08	0.27	0.27	0.10	0.30	0.30	0.28	0.28	0.28	0.13	0.13	0.13
Sat Flow, veh/h	1619	3420	1525	1619	3023	413	1373	258	1525	1619	1700	1525
Grp Volume(v), veh/h	120	847	226	112	481	485	423	0	227	81	101	154
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1726	1631	0	1525	1619	1700	1525
Q Serve(g_s), s	6.4	20.7	10.9	5.8	23.7	23.7	21.8	0.0	10.9	4.0	4.7	8.4
Cycle Q Clear(g_c), s	6.4	20.7	10.9	5.8	23.7	23.7	21.8	0.0	10.9	4.0	4.7	8.4
Prop In Lane	1.00		1.00	1.00		0.24	0.84		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	131	930	415	157	512	517	458	0	428	211	222	199
V/C Ratio(X)	0.91	0.91	0.54	0.71	0.94	0.94	0.92	0.00	0.53	0.38	0.45	0.77
Avail Cap(c_a), veh/h	131	950	424	157	515	519	472	0	442	375	394	353
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	30.4	26.9	37.8	29.5	29.5	30.2	0.0	26.3	34.4	34.7	36.3
Incr Delay (d2), s/veh	53.3	12.5	1.4	14.2	25.2	25.1	23.7	0.0	1.1	1.1	1.5	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	9.4	3.8	2.8	12.5	12.5	11.1	0.0	3.8	1.6	2.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.7	42.9	28.3	52.0	54.7	54.6	53.9	0.0	27.4	35.5	36.2	42.6
LnGrp LOS	F	D	C	D	D	D	D	A	C	D	D	D
Approach Vol, veh/h		1193			1078			650			336	
Approach Delay, s/veh		45.1			54.4			44.7			38.9	
Approach LOS		D			D			D			D	

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		29.2	13.4	28.5		15.3	11.0	30.9
Change Period (Y+Rc), s		5.0	5.0	5.0		4.0	4.0	* 5
Max Green Setting (Gmax), s		25.0	7.0	24.0		20.0	7.0	* 26
Max Q Clear Time (g_c+I1), s		23.8	7.8	22.7		10.4	8.4	25.7
Green Ext Time (p_c), s		0.5	0.0	0.8		0.9	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	47.5
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Michael Baker
INTERNATIONAL

Appendix F: Forecast Opening Year 2021 Without Project Synchro Worksheets

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Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	0	19	0	0	0	24	514	0	0	348	25
Future Vol, veh/h	27	0	19	0	0	0	24	514	0	0	348	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	30	0	21	0	0	0	27	578	0	0	391	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	748	1037	210	828	1051	289	419	0	0	578	0	0
Stage 1	405	405	-	632	632	-	-	-	-	-	-	-
Stage 2	343	632	-	196	419	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	305	233	802	267	229	714	1151	-	-	1006	-	-
Stage 1	599	602	-	440	477	-	-	-	-	-	-	-
Stage 2	651	477	-	793	593	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	300	228	802	255	224	714	1151	-	-	1006	-	-
Mov Cap-2 Maneuver	300	228	-	255	224	-	-	-	-	-	-	-
Stage 1	585	602	-	430	466	-	-	-	-	-	-	-
Stage 2	636	466	-	772	593	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.2	0	0.4	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1151	-	-	405	-	1006	-	-
HCM Lane V/C Ratio	0.023	-	-	0.128	-	-	-	-
HCM Control Delay (s)	8.2	-	-	15.2	0	0	-	-
HCM Lane LOS	A	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	-	0	-	-

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	3	24	37	3	4	54	447	39	162	312	24
Future Vol, veh/h	39	3	24	37	3	4	54	447	39	162	312	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	45	3	28	43	3	5	63	520	45	188	363	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1141	1444	196	1228	1436	283	391	0	0	565	0	0
Stage 1	753	753	-	669	669	-	-	-	-	-	-	-
Stage 2	388	691	-	559	767	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	158	133	819	136	135	720	1179	-	-	1017	-	-
Stage 1	372	420	-	418	459	-	-	-	-	-	-	-
Stage 2	613	449	-	486	414	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	126	103	819	106	104	720	1179	-	-	1017	-	-
Mov Cap-2 Maneuver	126	103	-	106	104	-	-	-	-	-	-	-
Stage 1	352	342	-	396	435	-	-	-	-	-	-	-
Stage 2	572	425	-	379	337	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	39.4	58.4	0.8	3
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1179	-	-	179	106	720	1017	-	-
HCM Lane V/C Ratio	0.053	-	-	0.429	0.439	0.006	0.185	-	-
HCM Control Delay (s)	8.2	-	-	39.4	63.2	10	9.3	-	-
HCM Lane LOS	A	-	-	E	F	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2	1.9	0	0.7	-	-

HCM 6th Signalized Intersection Summary
3: Civic Drive & Roy Rogers Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	697	75	404	733	121	98	66	457	133	46	34
Future Volume (veh/h)	48	697	75	404	733	121	98	66	457	133	46	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	51	734	79	425	772	127	103	69	481	140	48	36
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	80	1119	120	567	1918	762	129	210	828	177	285	193
Arrive On Green	0.05	0.25	0.25	0.19	0.39	0.39	0.08	0.12	0.12	0.11	0.15	0.15
Sat Flow, veh/h	1619	4507	482	2956	4914	1525	1619	1800	2685	1619	1951	1321
Grp Volume(v), veh/h	51	532	281	425	772	127	103	69	481	140	41	43
Grp Sat Flow(s),veh/h/ln	1619	1638	1713	1478	1638	1525	1619	1800	1342	1619	1710	1562
Q Serve(g_s), s	1.7	7.9	7.9	7.3	6.1	2.4	3.4	1.9	2.3	4.5	1.1	1.3
Cycle Q Clear(g_c), s	1.7	7.9	7.9	7.3	6.1	2.4	3.4	1.9	2.3	4.5	1.1	1.3
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		0.85
Lane Grp Cap(c), veh/h	80	813	425	567	1918	762	129	210	828	177	250	229
V/C Ratio(X)	0.64	0.65	0.66	0.75	0.40	0.17	0.80	0.33	0.58	0.79	0.17	0.19
Avail Cap(c_a), veh/h	282	1216	636	1015	2653	990	345	668	1511	406	698	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	18.2	18.2	20.6	11.9	7.4	24.4	21.9	4.8	23.4	20.1	20.2
Incr Delay (d2), s/veh	8.1	0.9	1.8	2.0	0.1	0.1	10.6	0.9	0.6	7.7	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.5	2.8	2.3	1.7	0.6	1.5	0.7	0.5	1.9	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.2	19.1	20.0	22.6	12.0	7.5	35.0	22.8	5.5	31.1	20.4	20.6
LnGrp LOS	C	B	B	C	B	A	D	C	A	C	C	C
Approach Vol, veh/h		864			1324			653			224	
Approach Delay, s/veh		20.2			15.0			12.0			27.1	
Approach LOS		C			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	10.8	14.8	17.9	8.8	12.4	7.2	25.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	20.0	18.5	20.0	11.5	22.0	9.4	29.1
Max Q Clear Time (g_c+I1), s	6.5	4.3	9.3	9.9	5.4	3.3	3.7	8.1
Green Ext Time (p_c), s	0.2	2.0	1.0	3.4	0.1	0.3	0.0	5.3

Intersection Summary	
HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
4: I-15 Southbound Ramps & Roy Rogers Drive

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	959	326	207	1159	148	137
Future Volume (veh/h)	959	326	207	1159	148	137
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1700	1800	1600	1600
Adj Flow Rate, veh/h	989	336	213	1195	147	147
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1454	649	268	2272	229	204
Arrive On Green	0.43	0.43	0.17	0.66	0.15	0.15
Sat Flow, veh/h	3510	1525	1619	3510	1524	1356
Grp Volume(v), veh/h	989	336	213	1195	147	147
Grp Sat Flow(s),veh/h/ln	1710	1525	1619	1710	1524	1356
Q Serve(g_s), s	12.6	8.8	6.8	9.7	4.9	5.6
Cycle Q Clear(g_c), s	12.6	8.8	6.8	9.7	4.9	5.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1454	649	268	2272	229	204
V/C Ratio(X)	0.68	0.52	0.80	0.53	0.64	0.72
Avail Cap(c_a), veh/h	2469	1101	719	4241	508	452
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.6	11.4	21.7	4.7	21.6	21.9
Incr Delay (d2), s/veh	0.6	0.6	5.4	0.2	3.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	2.3	2.6	1.4	1.8	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.1	12.1	27.0	4.9	24.6	26.6
LnGrp LOS	B	B	C	A	C	C
Approach Vol, veh/h	1325			1408	294	
Approach Delay, s/veh	12.9			8.2	25.6	
Approach LOS	B			A	C	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		13.1	12.9	28.0		40.9
Change Period (Y+Rc), s		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s		18.0	24.0	39.0		67.0
Max Q Clear Time (g_c+I1), s		7.6	8.8	14.6		11.7
Green Ext Time (p_c), s		0.6	0.5	8.3		10.6

Intersection Summary	
HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
5: I-15 Northbound Ramps/La Paz Drive & Roy Rogers Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	825	151	113	920	118	252	43	234	154	19	194
Future Volume (veh/h)	119	825	151	113	920	118	252	43	234	154	19	194
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	127	878	161	120	979	126	268	46	249	178	0	206
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	160	983	438	202	988	127	298	51	327	522	0	246
Arrive On Green	0.10	0.29	0.29	0.12	0.32	0.32	0.21	0.21	0.21	0.16	0.00	0.16
Sat Flow, veh/h	1619	3420	1525	1619	3047	392	1392	239	1525	3238	0	1525
Grp Volume(v), veh/h	127	878	161	120	549	556	314	0	249	178	0	206
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1729	1630	0	1525	1619	0	1525
Q Serve(g_s), s	6.9	22.0	7.5	6.3	28.6	28.6	16.8	0.0	13.7	4.4	0.0	11.7
Cycle Q Clear(g_c), s	6.9	22.0	7.5	6.3	28.6	28.6	16.8	0.0	13.7	4.4	0.0	11.7
Prop In Lane	1.00		1.00	1.00		0.23	0.85		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	160	983	438	202	554	561	349	0	327	522	0	246
V/C Ratio(X)	0.79	0.89	0.37	0.59	0.99	0.99	0.90	0.00	0.76	0.34	0.00	0.84
Avail Cap(c_a), veh/h	163	1033	461	202	554	561	365	0	341	724	0	341
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.4	30.6	25.4	37.0	30.1	30.1	34.2	0.0	33.0	33.3	0.0	36.4
Incr Delay (d2), s/veh	22.5	9.8	0.5	4.6	35.7	35.6	23.7	0.0	9.4	0.4	0.0	12.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	9.7	2.6	2.6	16.2	16.4	8.7	0.0	5.6	1.7	0.0	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.9	40.3	25.9	41.6	65.7	65.7	57.9	0.0	42.4	33.7	0.0	48.6
LnGrp LOS	E	D	C	D	E	E	E	A	D	C	A	D
Approach Vol, veh/h		1166			1225			563			384	
Approach Delay, s/veh		40.7			63.4			51.0			41.7	
Approach LOS		D			E			D			D	

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		24.1	16.2	30.7		18.4	12.9	34.0
Change Period (Y+Rc), s		5.0	5.0	5.0		4.0	4.0	* 5
Max Green Setting (Gmax), s		20.0	9.0	27.0		20.0	9.0	* 29
Max Q Clear Time (g_c+I1), s		18.8	8.3	24.0		13.7	8.9	30.6
Green Ext Time (p_c), s		0.4	0.0	1.7		0.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	50.9
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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	36	0	29	0	0	0	33	526	0	0	226	32
Future Vol, veh/h	36	0	29	0	0	0	33	526	0	0	226	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	46	0	37	0	0	0	42	674	0	0	290	41

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	732	1069	166	903	1089	337	331	0	0	674	0	0
Stage 1	311	311	-	758	758	-	-	-	-	-	-	-
Stage 2	421	758	-	145	331	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	313	223	856	236	217	665	1240	-	-	927	-	-
Stage 1	680	662	-	370	418	-	-	-	-	-	-	-
Stage 2	586	418	-	849	649	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	305	215	856	220	210	665	1240	-	-	927	-	-
Mov Cap-2 Maneuver	305	215	-	220	210	-	-	-	-	-	-	-
Stage 1	657	662	-	357	404	-	-	-	-	-	-	-
Stage 2	566	404	-	812	649	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.4	0	0.5	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1240	-	-	428	-	927	-	-
HCM Lane V/C Ratio	0.034	-	-	0.195	-	-	-	-
HCM Control Delay (s)	8	-	-	15.4	0	0	-	-
HCM Lane LOS	A	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	-	0	-	-

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	58	5	24	19	3	2	14	536	12	143	214	34
Future Vol, veh/h	58	5	24	19	3	2	14	536	12	143	214	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	73	6	30	24	4	3	18	670	15	179	268	43

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1021	1369	156	1209	1383	343	311	0	0	685	0	0
Stage 1	648	648	-	714	714	-	-	-	-	-	-	-
Stage 2	373	721	-	495	669	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	193	148	868	141	145	659	1261	-	-	918	-	-
Stage 1	430	469	-	393	438	-	-	-	-	-	-	-
Stage 2	625	435	-	530	459	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	158	118	868	110	115	659	1261	-	-	918	-	-
Mov Cap-2 Maneuver	158	118	-	110	115	-	-	-	-	-	-	-
Stage 1	424	378	-	387	432	-	-	-	-	-	-	-
Stage 2	608	429	-	405	369	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	43	44.7	0.2	3.6
HCM LOS	E	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1261	-	-	199	111	659	918	-	-
HCM Lane V/C Ratio	0.014	-	-	0.546	0.248	0.004	0.195	-	-
HCM Control Delay (s)	7.9	-	-	43	47.8	10.5	9.9	-	-
HCM Lane LOS	A	-	-	E	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2.9	0.9	0	0.7	-	-

HCM 6th Signalized Intersection Summary
3: Civic Drive & Roy Rogers Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	812	59	287	950	103	83	64	590	151	28	31
Future Volume (veh/h)	37	812	59	287	950	103	83	64	590	151	28	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	39	864	63	305	1011	110	88	68	628	161	30	33
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	66	1269	92	423	1838	761	110	258	768	203	343	306
Arrive On Green	0.04	0.27	0.27	0.14	0.37	0.37	0.07	0.14	0.14	0.13	0.20	0.20
Sat Flow, veh/h	1619	4675	340	2956	4914	1525	1619	1800	2685	1619	1710	1525
Grp Volume(v), veh/h	39	605	322	305	1011	110	88	68	628	161	30	33
Grp Sat Flow(s),veh/h/ln	1619	1638	1739	1478	1638	1525	1619	1800	1342	1619	1710	1525
Q Serve(g_s), s	1.3	9.4	9.4	5.6	9.2	2.2	3.0	1.9	3.5	5.5	0.8	1.0
Cycle Q Clear(g_c), s	1.3	9.4	9.4	5.6	9.2	2.2	3.0	1.9	3.5	5.5	0.8	1.0
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	66	890	472	423	1838	761	110	258	768	203	343	306
V/C Ratio(X)	0.60	0.68	0.68	0.72	0.55	0.14	0.80	0.26	0.82	0.79	0.09	0.11
Avail Cap(c_a), veh/h	248	1259	668	761	2399	936	368	638	1335	442	684	610
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	18.5	18.5	23.2	14.0	7.7	26.1	21.6	6.1	24.1	18.5	18.5
Incr Delay (d2), s/veh	8.3	0.9	1.8	2.3	0.3	0.1	12.5	0.5	2.2	6.9	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.0	3.4	1.8	2.7	0.5	1.4	0.7	1.0	2.2	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	19.4	20.2	25.6	14.3	7.8	38.5	22.2	8.3	31.0	18.6	18.7
LnGrp LOS	D	B	C	C	B	A	D	C	A	C	B	B
Approach Vol, veh/h		966			1426			784			224	
Approach Delay, s/veh		20.3			16.2			12.9			27.5	
Approach LOS		C			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	12.6	12.6	19.9	8.4	15.9	6.8	25.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	20.1	14.6	21.8	12.9	22.7	8.7	27.7
Max Q Clear Time (g_c+I1), s	7.5	5.5	7.6	11.4	5.0	3.0	3.3	11.2
Green Ext Time (p_c), s	0.2	2.6	0.6	4.0	0.1	0.2	0.0	6.3

Intersection Summary	
HCM 6th Ctrl Delay	17.3
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
4: I-15 Southbound Ramps & Roy Rogers Drive

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1079	473	187	1197	201	140
Future Volume (veh/h)	1079	473	187	1197	201	140
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1700	1800	1600	1600
Adj Flow Rate, veh/h	1186	520	205	1315	188	190
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1599	713	250	2329	262	234
Arrive On Green	0.47	0.47	0.15	0.68	0.17	0.17
Sat Flow, veh/h	3510	1525	1619	3510	1524	1356
Grp Volume(v), veh/h	1186	520	205	1315	188	190
Grp Sat Flow(s),veh/h/ln	1710	1525	1619	1710	1524	1356
Q Serve(g_s), s	19.2	18.8	8.3	13.6	7.9	9.2
Cycle Q Clear(g_c), s	19.2	18.8	8.3	13.6	7.9	9.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1599	713	250	2329	262	234
V/C Ratio(X)	0.74	0.73	0.82	0.56	0.72	0.81
Avail Cap(c_a), veh/h	2159	963	523	3465	358	319
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	14.6	27.9	5.6	26.6	27.1
Incr Delay (d2), s/veh	0.9	1.9	6.5	0.2	4.3	10.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	5.5	3.4	2.7	3.0	3.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.7	16.5	34.4	5.8	30.9	38.1
LnGrp LOS	B	B	C	A	C	D
Approach Vol, veh/h	1706			1520	378	
Approach Delay, s/veh	16.0			9.7	34.5	
Approach LOS	B			A	C	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		16.7	14.5	36.9		51.4
Change Period (Y+Rc), s		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s		16.0	22.0	43.0		69.0
Max Q Clear Time (g_c+I1), s		11.2	10.3	21.2		15.6
Green Ext Time (p_c), s		0.6	0.4	10.6		12.4

Intersection Summary	
HCM 6th Ctrl Delay	15.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
5: I-15 Northbound Ramps/La Paz Drive & Roy Rogers Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	861	234	114	863	118	364	68	231	133	33	157
Future Volume (veh/h)	122	861	234	114	863	118	364	68	231	133	33	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	127	897	244	119	899	123	379	71	241	86	107	164
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	129	932	416	147	893	122	390	73	433	221	232	208
Arrive On Green	0.08	0.27	0.27	0.09	0.30	0.30	0.28	0.28	0.28	0.14	0.14	0.14
Sat Flow, veh/h	1619	3420	1525	1619	3022	413	1374	257	1525	1619	1700	1525
Grp Volume(v), veh/h	127	897	244	119	509	513	450	0	241	86	107	164
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1726	1631	0	1525	1619	1700	1525
Q Serve(g_s), s	6.9	22.8	12.2	6.3	26.0	26.0	24.0	0.0	11.8	4.3	5.1	9.2
Cycle Q Clear(g_c), s	6.9	22.8	12.2	6.3	26.0	26.0	24.0	0.0	11.8	4.3	5.1	9.2
Prop In Lane	1.00		1.00	1.00		0.24	0.84		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	129	932	416	147	505	510	463	0	433	221	232	208
V/C Ratio(X)	0.99	0.96	0.59	0.81	1.01	1.01	0.97	0.00	0.56	0.39	0.46	0.79
Avail Cap(c_a), veh/h	129	932	416	147	505	510	463	0	433	368	386	347
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	31.6	27.7	39.3	31.0	31.0	31.2	0.0	26.8	34.6	35.0	36.8
Incr Delay (d2), s/veh	75.0	20.8	2.1	27.5	41.8	41.7	34.3	0.0	1.6	1.1	1.4	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	11.3	4.4	3.5	15.7	15.8	13.4	0.0	4.2	1.7	2.1	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	115.4	52.3	29.9	66.7	72.8	72.7	65.5	0.0	28.4	35.8	36.4	43.2
LnGrp LOS	F	D	C	E	F	F	E	A	C	D	D	D
Approach Vol, veh/h		1268			1141			691			357	
Approach Delay, s/veh		54.3			72.1			52.6			39.4	
Approach LOS		D			E			D			D	

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		30.0	13.0	29.0		16.0	11.0	31.0
Change Period (Y+Rc), s		5.0	5.0	5.0		4.0	4.0	* 5
Max Green Setting (Gmax), s		25.0	7.0	24.0		20.0	7.0	* 26
Max Q Clear Time (g_c+I1), s		26.0	8.3	24.8		11.2	8.9	28.0
Green Ext Time (p_c), s		0.0	0.0	0.0		0.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	58.3
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Michael Baker
INTERNATIONAL

Appendix G:
Forecast Opening Year 2021
With Project
Synchro Worksheets

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Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	0	19	1	0	3	24	515	2	4	349	25
Future Vol, veh/h	27	0	19	1	0	3	24	515	2	4	349	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	30	0	21	1	0	3	27	579	2	4	392	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	758	1049	210	838	1062	291	420	0	0	581	0	0
Stage 1	414	414	-	634	634	-	-	-	-	-	-	-
Stage 2	344	635	-	204	428	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	300	229	802	262	225	712	1150	-	-	1003	-	-
Stage 1	592	597	-	439	476	-	-	-	-	-	-	-
Stage 2	650	476	-	785	588	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	292	223	802	250	219	712	1150	-	-	1003	-	-
Mov Cap-2 Maneuver	292	223	-	250	219	-	-	-	-	-	-	-
Stage 1	578	595	-	429	465	-	-	-	-	-	-	-
Stage 2	632	465	-	761	586	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.5	12.5	0.4	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1150	-	-	396	487	1003	-	-
HCM Lane V/C Ratio	0.023	-	-	0.131	0.009	0.004	-	-
HCM Control Delay (s)	8.2	-	-	15.5	12.5	8.6	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0	0	-	-

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	3	24	38	3	12	54	450	40	174	316	24
Future Vol, veh/h	39	3	24	38	3	12	54	450	40	174	316	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	45	3	28	44	3	14	63	523	47	202	367	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1174	1481	198	1262	1472	285	395	0	0	570	0	0
Stage 1	785	785	-	673	673	-	-	-	-	-	-	-
Stage 2	389	696	-	589	799	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	149	127	816	129	128	718	1175	-	-	1013	-	-
Stage 1	356	407	-	416	457	-	-	-	-	-	-	-
Stage 2	612	446	-	466	401	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	116	96	816	99	97	718	1175	-	-	1013	-	-
Mov Cap-2 Maneuver	116	96	-	99	97	-	-	-	-	-	-	-
Stage 1	337	326	-	394	432	-	-	-	-	-	-	-
Stage 2	563	422	-	356	321	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	44.1	57.4	0.8	3.2
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1175	-	-	166	99	718	1013	-	-
HCM Lane V/C Ratio	0.053	-	-	0.462	0.482	0.019	0.2	-	-
HCM Control Delay (s)	8.2	-	-	44.1	71.3	10.1	9.4	-	-
HCM Lane LOS	A	-	-	E	F	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2.2	2.1	0.1	0.7	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	697	77	418	733	121	99	66	467	133	46	34
Future Volume (veh/h)	48	697	77	418	733	121	99	66	467	133	46	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	51	734	81	440	772	127	104	69	492	140	48	36
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	80	1111	122	580	1937	768	130	212	843	177	285	193
Arrive On Green	0.05	0.25	0.25	0.20	0.39	0.39	0.08	0.12	0.12	0.11	0.15	0.15
Sat Flow, veh/h	1619	4495	493	2956	4914	1525	1619	1800	2685	1619	1951	1321
Grp Volume(v), veh/h	51	534	281	440	772	127	104	69	492	140	41	43
Grp Sat Flow(s),veh/h/ln	1619	1638	1711	1478	1638	1525	1619	1800	1342	1619	1710	1562
Q Serve(g_s), s	1.7	8.0	8.1	7.7	6.2	2.5	3.4	1.9	2.3	4.6	1.2	1.3
Cycle Q Clear(g_c), s	1.7	8.0	8.1	7.7	6.2	2.5	3.4	1.9	2.3	4.6	1.2	1.3
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		0.85
Lane Grp Cap(c), veh/h	80	810	423	580	1937	768	130	212	843	177	250	228
V/C Ratio(X)	0.64	0.66	0.67	0.76	0.40	0.17	0.80	0.33	0.58	0.79	0.17	0.19
Avail Cap(c_a), veh/h	279	1200	627	1002	2619	980	341	659	1511	400	689	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	18.5	18.5	20.7	11.9	7.3	24.7	22.1	4.9	23.7	20.4	20.5
Incr Delay (d2), s/veh	8.2	0.9	1.8	2.1	0.1	0.1	10.5	0.9	0.6	7.7	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.6	2.9	2.4	1.7	0.6	1.5	0.8	0.5	1.9	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	19.4	20.3	22.8	12.0	7.4	35.2	23.0	5.5	31.4	20.7	20.8
LnGrp LOS	C	B	C	C	B	A	D	C	A	C	C	C
Approach Vol, veh/h		866			1339			665			224	
Approach Delay, s/veh		20.5			15.1			12.0			27.4	
Approach LOS		C			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	10.9	15.2	18.0	8.9	12.5	7.2	26.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	20.0	18.5	20.0	11.5	22.0	9.4	29.1
Max Q Clear Time (g_c+I1), s	6.6	4.3	9.7	10.1	5.4	3.3	3.7	8.2
Green Ext Time (p_c), s	0.2	2.1	1.1	3.4	0.1	0.3	0.0	5.3

Intersection Summary	
HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	964	331	207	1169	152	137
Future Volume (veh/h)	964	331	207	1169	152	137
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1700	1800	1600	1600
Adj Flow Rate, veh/h	994	341	213	1205	149	150
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1456	649	267	2271	232	207
Arrive On Green	0.43	0.43	0.17	0.66	0.15	0.15
Sat Flow, veh/h	3510	1525	1619	3510	1524	1356
Grp Volume(v), veh/h	994	341	213	1205	149	150
Grp Sat Flow(s),veh/h/ln	1710	1525	1619	1710	1524	1356
Q Serve(g_s), s	12.8	9.0	6.9	10.0	5.0	5.7
Cycle Q Clear(g_c), s	12.8	9.0	6.9	10.0	5.0	5.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1456	649	267	2271	232	207
V/C Ratio(X)	0.68	0.53	0.80	0.53	0.64	0.73
Avail Cap(c_a), veh/h	2446	1091	713	4202	503	448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.7	11.6	21.9	4.7	21.7	22.0
Incr Delay (d2), s/veh	0.6	0.7	5.4	0.2	2.9	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	2.4	2.6	1.5	1.8	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.2	12.2	27.3	4.9	24.6	26.8
LnGrp LOS	B	B	C	A	C	C
Approach Vol, veh/h	1335			1418	299	
Approach Delay, s/veh	13.0			8.3	25.7	
Approach LOS	B			A	C	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		13.3	13.0	28.2		41.2
Change Period (Y+Rc), s		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s		18.0	24.0	39.0		67.0
Max Q Clear Time (g_c+I1), s		7.7	8.9	14.8		12.0
Green Ext Time (p_c), s		0.7	0.5	8.4		10.8

Intersection Summary	
HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	827	154	113	922	118	260	43	234	154	19	194
Future Volume (veh/h)	119	827	154	113	922	118	260	43	234	154	19	194
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	127	880	164	120	981	126	277	46	249	178	0	206
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	160	981	438	200	982	126	304	51	332	522	0	246
Arrive On Green	0.10	0.29	0.29	0.12	0.32	0.32	0.22	0.22	0.22	0.16	0.00	0.16
Sat Flow, veh/h	1619	3420	1525	1619	3048	391	1398	232	1525	3238	0	1525
Grp Volume(v), veh/h	127	880	164	120	550	557	323	0	249	178	0	206
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1730	1630	0	1525	1619	0	1525
Q Serve(g_s), s	6.9	22.2	7.7	6.3	28.9	29.0	17.4	0.0	13.7	4.4	0.0	11.8
Cycle Q Clear(g_c), s	6.9	22.2	7.7	6.3	28.9	29.0	17.4	0.0	13.7	4.4	0.0	11.8
Prop In Lane	1.00		1.00	1.00		0.23	0.86		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	160	981	438	200	551	557	355	0	332	522	0	246
V/C Ratio(X)	0.79	0.90	0.37	0.60	1.00	1.00	0.91	0.00	0.75	0.34	0.00	0.84
Avail Cap(c_a), veh/h	162	1026	458	200	551	557	362	0	339	720	0	339
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.6	30.8	25.6	37.4	30.5	30.5	34.3	0.0	32.9	33.5	0.0	36.6
Incr Delay (d2), s/veh	22.8	10.2	0.5	5.0	37.9	37.9	26.0	0.0	8.8	0.4	0.0	12.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	9.8	2.7	2.7	16.7	16.8	9.2	0.0	5.6	1.7	0.0	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.5	41.0	26.2	42.3	68.4	68.4	60.3	0.0	41.7	33.9	0.0	49.1
LnGrp LOS	E	D	C	D	E	E	E	A	D	C	A	D
Approach Vol, veh/h		1171			1227			572			384	
Approach Delay, s/veh		41.2			65.8			52.2			42.1	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	24.6	16.1	30.8	18.5	12.9	34.0
Change Period (Y+Rc), s	5.0	5.0	5.0	4.0	4.0	* 5
Max Green Setting (Gmax), s	20.0	9.0	27.0	20.0	9.0	* 29
Max Q Clear Time (g_c+I1), s	19.4	8.3	24.2	13.8	8.9	31.0
Green Ext Time (p_c), s	0.2	0.0	1.6	0.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	52.2
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	0	29	2	0	3	33	527	1	3	227	32
Future Vol, veh/h	36	0	29	2	0	3	33	527	1	3	227	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	46	0	37	3	0	4	42	676	1	4	291	41

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	742	1081	166	915	1101	339	332	0	0	677	0	0
Stage 1	320	320	-	761	761	-	-	-	-	-	-	-
Stage 2	422	761	-	154	340	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	308	220	856	231	214	663	1239	-	-	924	-	-
Stage 1	672	656	-	368	417	-	-	-	-	-	-	-
Stage 2	585	417	-	839	643	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	297	212	856	215	206	663	1239	-	-	924	-	-
Mov Cap-2 Maneuver	297	212	-	215	206	-	-	-	-	-	-	-
Stage 1	649	653	-	355	403	-	-	-	-	-	-	-
Stage 2	562	403	-	799	640	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.7	15.1	0.5	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1239	-	-	419	362	924	-	-
HCM Lane V/C Ratio	0.034	-	-	0.199	0.018	0.004	-	-
HCM Control Delay (s)	8	-	-	15.7	15.1	8.9	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.1	0	-	-

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	58	5	24	20	3	11	14	539	13	151	217	34
Future Vol, veh/h	58	5	24	20	3	11	14	539	13	151	217	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	73	6	30	25	4	14	18	674	16	189	271	43

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1046	1397	157	1235	1410	345	314	0	0	690	0	0
Stage 1	671	671	-	718	718	-	-	-	-	-	-	-
Stage 2	375	726	-	517	692	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	185	142	867	135	140	657	1258	-	-	914	-	-
Stage 1	417	458	-	391	436	-	-	-	-	-	-	-
Stage 2	624	433	-	515	448	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	147	111	867	104	109	657	1258	-	-	914	-	-
Mov Cap-2 Maneuver	147	111	-	104	109	-	-	-	-	-	-	-
Stage 1	411	363	-	386	430	-	-	-	-	-	-	-
Stage 2	597	427	-	388	355	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	48.5	38.4	0.2	3.7
HCM LOS	E	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1258	-	-	186	105	657	914	-	-
HCM Lane V/C Ratio	0.014	-	-	0.585	0.274	0.021	0.207	-	-
HCM Control Delay (s)	7.9	-	-	48.5	51.7	10.6	10	-	-
HCM Lane LOS	A	-	-	E	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	3.2	1	0.1	0.8	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	812	60	297	950	103	84	64	601	151	28	31
Future Volume (veh/h)	37	812	60	297	950	103	84	64	601	151	28	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	39	864	64	316	1011	110	89	68	639	161	30	33
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	65	1263	93	433	1851	765	111	259	780	202	343	306
Arrive On Green	0.04	0.27	0.27	0.15	0.38	0.38	0.07	0.14	0.14	0.13	0.20	0.20
Sat Flow, veh/h	1619	4669	345	2956	4914	1525	1619	1800	2685	1619	1710	1525
Grp Volume(v), veh/h	39	605	323	316	1011	110	89	68	639	161	30	33
Grp Sat Flow(s),veh/h/ln	1619	1638	1738	1478	1638	1525	1619	1800	1342	1619	1710	1525
Q Serve(g_s), s	1.4	9.5	9.5	5.9	9.3	2.2	3.1	1.9	3.6	5.5	0.8	1.0
Cycle Q Clear(g_c), s	1.4	9.5	9.5	5.9	9.3	2.2	3.1	1.9	3.6	5.5	0.8	1.0
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	65	886	470	433	1851	765	111	259	780	202	343	306
V/C Ratio(X)	0.60	0.68	0.69	0.73	0.55	0.14	0.80	0.26	0.82	0.80	0.09	0.11
Avail Cap(c_a), veh/h	246	1246	661	753	2460	954	364	631	1334	438	677	604
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	18.7	18.7	23.4	14.0	7.7	26.3	21.8	6.1	24.4	18.7	18.7
Incr Delay (d2), s/veh	8.4	0.9	1.8	2.4	0.3	0.1	12.3	0.5	2.2	6.9	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.1	3.4	1.9	2.7	0.5	1.4	0.7	1.1	2.2	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.5	19.7	20.5	25.8	14.3	7.8	38.6	22.4	8.3	31.3	18.8	18.9
LnGrp LOS	D	B	C	C	B	A	D	C	A	C	B	B
Approach Vol, veh/h		967			1437			796			224	
Approach Delay, s/veh		20.6			16.3			12.9			27.8	
Approach LOS		C			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	12.8	12.9	20.0	8.4	16.0	6.8	26.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	20.1	14.6	21.8	12.9	22.7	8.7	28.7
Max Q Clear Time (g_c+I1), s	7.5	5.6	7.9	11.5	5.1	3.0	3.4	11.3
Green Ext Time (p_c), s	0.2	2.6	0.6	4.0	0.1	0.2	0.0	6.5

Intersection Summary	
HCM 6th Ctrl Delay	17.5
HCM 6th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1084	479	187	1204	204	140
Future Volume (veh/h)	1084	479	187	1204	204	140
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1700	1800	1600	1600
Adj Flow Rate, veh/h	1191	526	205	1323	189	191
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1602	715	250	2330	263	234
Arrive On Green	0.47	0.47	0.15	0.68	0.17	0.17
Sat Flow, veh/h	3510	1525	1619	3510	1524	1356
Grp Volume(v), veh/h	1191	526	205	1323	189	191
Grp Sat Flow(s),veh/h/ln	1710	1525	1619	1710	1524	1356
Q Serve(g_s), s	19.5	19.2	8.4	13.8	8.0	9.3
Cycle Q Clear(g_c), s	19.5	19.2	8.4	13.8	8.0	9.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1602	715	250	2330	263	234
V/C Ratio(X)	0.74	0.74	0.82	0.57	0.72	0.82
Avail Cap(c_a), veh/h	2147	958	520	3446	356	317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	14.8	28.0	5.7	26.8	27.3
Incr Delay (d2), s/veh	1.0	2.0	6.5	0.2	4.5	11.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	5.7	3.4	2.8	3.1	3.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.8	16.8	34.6	5.9	31.2	38.6
LnGrp LOS	B	B	C	A	C	D
Approach Vol, veh/h	1717			1528	380	
Approach Delay, s/veh	16.1			9.7	34.9	
Approach LOS	B			A	C	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		16.8	14.6	37.1		51.7
Change Period (Y+Rc), s		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s		16.0	22.0	43.0		69.0
Max Q Clear Time (g_c+I1), s		11.3	10.4	21.5		15.8
Green Ext Time (p_c), s		0.5	0.4	10.6		12.6

Intersection Summary	
HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	862	238	114	865	118	369	68	231	133	33	157
Future Volume (veh/h)	122	862	238	114	865	118	369	68	231	133	33	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	127	898	248	119	901	123	384	71	241	86	107	164
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	129	932	416	147	893	122	391	72	433	221	232	208
Arrive On Green	0.08	0.27	0.27	0.09	0.30	0.30	0.28	0.28	0.28	0.14	0.14	0.14
Sat Flow, veh/h	1619	3420	1525	1619	3023	413	1377	255	1525	1619	1700	1525
Grp Volume(v), veh/h	127	898	248	119	510	514	455	0	241	86	107	164
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1726	1631	0	1525	1619	1700	1525
Q Serve(g_s), s	6.9	22.8	12.4	6.3	26.0	26.0	24.4	0.0	11.8	4.3	5.1	9.2
Cycle Q Clear(g_c), s	6.9	22.8	12.4	6.3	26.0	26.0	24.4	0.0	11.8	4.3	5.1	9.2
Prop In Lane	1.00		1.00	1.00		0.24	0.84		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	129	932	416	147	505	510	463	0	433	221	232	208
V/C Ratio(X)	0.99	0.96	0.60	0.81	1.01	1.01	0.98	0.00	0.56	0.39	0.46	0.79
Avail Cap(c_a), veh/h	129	932	416	147	505	510	463	0	433	368	386	347
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	31.6	27.8	39.3	31.0	31.0	31.3	0.0	26.8	34.6	35.0	36.8
Incr Delay (d2), s/veh	75.0	21.0	2.3	27.5	42.3	42.2	37.1	0.0	1.6	1.1	1.4	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	11.4	4.5	3.5	15.7	15.9	13.9	0.0	4.2	1.7	2.1	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	115.4	52.6	30.1	66.7	73.3	73.2	68.4	0.0	28.4	35.8	36.4	43.2
LnGrp LOS	F	D	C	E	F	F	E	A	C	D	D	D
Approach Vol, veh/h		1273			1143			696			357	
Approach Delay, s/veh		54.5			72.6			54.5			39.4	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	30.0	13.0	29.0	16.0	11.0	31.0
Change Period (Y+Rc), s	5.0	5.0	5.0	4.0	4.0	* 5
Max Green Setting (Gmax), s	25.0	7.0	24.0	20.0	7.0	* 26
Max Q Clear Time (g_c+I1), s	26.4	8.3	24.8	11.2	8.9	28.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	58.9
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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INTERNATIONAL

Appendix H: Forecast Horizon Year 2031 Without Project Synchro Worksheets

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Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	0	23	0	0	0	29	617	0	0	418	30
Future Vol, veh/h	32	0	23	0	0	0	29	617	0	0	418	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	36	0	26	0	0	0	32	686	0	0	464	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	888	1231	249	982	1247	343	497	0	0	686	0	0
Stage 1	481	481	-	750	750	-	-	-	-	-	-	-
Stage 2	407	750	-	232	497	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	241	179	757	206	175	659	1077	-	-	917	-	-
Stage 1	540	557	-	374	422	-	-	-	-	-	-	-
Stage 2	597	422	-	756	548	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	235	174	757	194	170	659	1077	-	-	917	-	-
Mov Cap-2 Maneuver	235	174	-	194	170	-	-	-	-	-	-	-
Stage 1	524	557	-	363	409	-	-	-	-	-	-	-
Stage 2	579	409	-	730	548	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.4	0	0.4	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1077	-	-	330	-	917	-	-
HCM Lane V/C Ratio	0.03	-	-	0.185	-	-	-	-
HCM Control Delay (s)	8.4	-	-	18.4	0	0	-	-
HCM Lane LOS	A	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	-	0	-	-

Intersection	
Int Delay, s/veh	11.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	4	29	44	4	5	65	536	47	194	374	29
Future Vol, veh/h	47	4	29	44	4	5	65	536	47	194	374	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	52	4	32	49	4	6	72	596	52	216	416	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1308	1656	224	1408	1646	324	448	0	0	648	0	0
Stage 1	864	864	-	766	766	-	-	-	-	-	-	-
Stage 2	444	792	-	642	880	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	119	99	786	100	100	678	1123	-	-	947	-	-
Stage 1	319	374	-	366	415	-	-	-	-	-	-	-
Stage 2	568	404	-	434	368	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	89	72	786	72	72	678	1123	-	-	947	-	-
Mov Cap-2 Maneuver	89	72	-	72	72	-	-	-	-	-	-	-
Stage 1	299	289	-	343	388	-	-	-	-	-	-	-
Stage 2	521	378	-	316	284	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	79.3	126.2	0.8	3.2
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1123	-	-	129	72	678	947	-	-
HCM Lane V/C Ratio	0.064	-	-	0.689	0.741	0.008	0.228	-	-
HCM Control Delay (s)	8.4	-	-	79.3	138.3	10.4	9.9	-	-
HCM Lane LOS	A	-	-	F	F	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	3.8	3.5	0	0.9	-	-

HCM 6th Signalized Intersection Summary
3: Civic Drive & Roy Rogers Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	836	90	485	880	145	118	79	548	160	55	41
Future Volume (veh/h)	58	836	90	485	880	145	118	79	548	160	55	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	61	880	95	511	926	153	124	83	577	168	58	43
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	83	1179	127	627	2077	839	155	218	895	206	300	202
Arrive On Green	0.05	0.26	0.26	0.21	0.42	0.42	0.10	0.12	0.12	0.13	0.15	0.15
Sat Flow, veh/h	1619	4504	484	2956	4914	1525	1619	1800	2685	1619	1957	1316
Grp Volume(v), veh/h	61	639	336	511	926	153	124	83	577	168	50	51
Grp Sat Flow(s),veh/h/ln	1619	1638	1713	1478	1638	1525	1619	1800	1342	1619	1710	1563
Q Serve(g_s), s	2.4	11.6	11.7	10.7	8.7	3.3	4.9	2.8	3.5	6.6	1.7	1.9
Cycle Q Clear(g_c), s	2.4	11.6	11.7	10.7	8.7	3.3	4.9	2.8	3.5	6.6	1.7	1.9
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		0.84
Lane Grp Cap(c), veh/h	83	858	448	627	2077	839	155	218	895	206	262	239
V/C Ratio(X)	0.73	0.75	0.75	0.81	0.45	0.18	0.80	0.38	0.64	0.81	0.19	0.21
Avail Cap(c_a), veh/h	284	1055	551	888	2195	876	257	530	1360	312	561	513
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	22.0	22.0	24.4	13.3	7.3	28.8	26.3	6.1	27.6	24.0	24.1
Incr Delay (d2), s/veh	11.7	2.3	4.5	4.0	0.2	0.1	9.2	1.1	0.8	9.5	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	4.1	4.6	3.6	2.6	0.8	2.1	1.1	1.0	2.8	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	24.3	26.5	28.4	13.5	7.4	37.9	27.4	6.9	37.0	24.3	24.5
LnGrp LOS	D	C	C	C	B	A	D	C	A	D	C	C
Approach Vol, veh/h		1036			1590			784			269	
Approach Delay, s/veh		26.0			17.7			14.0			32.3	
Approach LOS		C			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	12.4	18.3	21.5	10.7	14.4	7.8	31.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	19.1	19.5	20.9	10.3	21.3	11.4	29.0
Max Q Clear Time (g_c+I1), s	8.6	5.5	12.7	13.7	6.9	3.9	4.4	10.7
Green Ext Time (p_c), s	0.1	2.4	1.1	3.3	0.1	0.4	0.0	6.2

Intersection Summary	
HCM 6th Ctrl Delay	20.3
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
4: I-15 Southbound Ramps & Roy Rogers Drive

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1151	391	248	1391	178	164
Future Volume (veh/h)	1151	391	248	1391	178	164
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1700	1800	1600	1600
Adj Flow Rate, veh/h	1187	403	256	1434	176	177
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1543	688	303	2377	248	220
Arrive On Green	0.45	0.45	0.19	0.70	0.16	0.16
Sat Flow, veh/h	3510	1525	1619	3510	1524	1356
Grp Volume(v), veh/h	1187	403	256	1434	176	177
Grp Sat Flow(s),veh/h/ln	1710	1525	1619	1710	1524	1356
Q Serve(g_s), s	20.5	13.8	10.7	15.5	7.7	8.8
Cycle Q Clear(g_c), s	20.5	13.8	10.7	15.5	7.7	8.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1543	688	303	2377	248	220
V/C Ratio(X)	0.77	0.59	0.85	0.60	0.71	0.80
Avail Cap(c_a), veh/h	1995	890	530	3309	369	328
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	14.4	27.6	5.6	27.9	28.3
Incr Delay (d2), s/veh	1.4	0.8	6.4	0.2	3.7	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	4.1	4.3	3.0	2.9	3.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.6	15.2	34.0	5.9	31.6	36.8
LnGrp LOS	B	B	C	A	C	D
Approach Vol, veh/h	1590			1690	353	
Approach Delay, s/veh	17.0			10.1	34.2	
Approach LOS	B			B	C	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		16.4	17.1	36.7		53.8
Change Period (Y+Rc), s		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s		17.0	23.0	41.0		68.0
Max Q Clear Time (g_c+I1), s		10.8	12.7	22.5		17.5
Green Ext Time (p_c), s		0.6	0.5	9.2		14.3

Intersection Summary	
HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
5: I-15 Northbound Ramps/La Paz Drive & Roy Rogers Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	990	181	136	1104	142	302	52	281	185	23	233
Future Volume (veh/h)	143	990	181	136	1104	142	302	52	281	185	23	233
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	151	1042	191	143	1162	149	318	55	296	212	0	245
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	139	992	442	156	950	121	313	54	344	595	0	280
Arrive On Green	0.09	0.29	0.29	0.10	0.31	0.31	0.23	0.23	0.23	0.18	0.00	0.18
Sat Flow, veh/h	1619	3420	1525	1619	3050	390	1390	240	1525	3238	0	1525
Grp Volume(v), veh/h	151	1042	191	143	650	661	373	0	296	212	0	245
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1730	1630	0	1525	1619	0	1525
Q Serve(g_s), s	8.0	27.0	9.5	8.1	29.0	29.0	21.0	0.0	17.4	5.3	0.0	14.5
Cycle Q Clear(g_c), s	8.0	27.0	9.5	8.1	29.0	29.0	21.0	0.0	17.4	5.3	0.0	14.5
Prop In Lane	1.00		1.00	1.00		0.23	0.85		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	139	992	442	156	533	539	368	0	344	595	0	280
V/C Ratio(X)	1.09	1.05	0.43	0.91	1.22	1.23	1.01	0.00	0.86	0.36	0.00	0.87
Avail Cap(c_a), veh/h	139	992	442	156	533	539	368	0	344	695	0	328
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.6	33.1	26.8	41.7	32.1	32.1	36.1	0.0	34.6	33.2	0.0	36.9
Incr Delay (d2), s/veh	101.1	42.9	0.7	47.4	115.5	117.7	50.6	0.0	19.3	0.4	0.0	19.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	16.2	3.3	5.2	28.1	28.8	13.2	0.0	7.9	2.0	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	143.6	75.9	27.5	89.1	147.5	149.7	86.7	0.0	53.9	33.5	0.0	56.8
LnGrp LOS	F	F	C	F	F	F	F	A	D	C	A	E
Approach Vol, veh/h		1384			1454			669			457	
Approach Delay, s/veh		76.6			142.8			72.2			46.0	
Approach LOS		E			F			E			D	

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		26.0	14.0	32.0		21.1	12.0	34.0
Change Period (Y+Rc), s		5.0	5.0	5.0		4.0	4.0	* 5
Max Green Setting (Gmax), s		21.0	8.0	27.0		20.0	8.0	* 29
Max Q Clear Time (g_c+I1), s		23.0	10.1	29.0		16.5	10.0	31.0
Green Ext Time (p_c), s		0.0	0.0	0.0		0.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	96.6
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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	43	0	35	0	0	0	40	631	0	0	271	38
Future Vol, veh/h	43	0	35	0	0	0	40	631	0	0	271	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	48	0	39	0	0	0	44	701	0	0	301	42

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	761	1111	172	940	1132	351	343	0	0	701	0	0
Stage 1	322	322	-	789	789	-	-	-	-	-	-	-
Stage 2	439	789	-	151	343	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	298	211	848	221	205	651	1227	-	-	905	-	-
Stage 1	670	655	-	354	405	-	-	-	-	-	-	-
Stage 2	572	405	-	842	641	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	290	203	848	205	198	651	1227	-	-	905	-	-
Mov Cap-2 Maneuver	290	203	-	205	198	-	-	-	-	-	-	-
Stage 1	646	655	-	341	390	-	-	-	-	-	-	-
Stage 2	551	390	-	803	641	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.1	0	0.5	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1227	-	-	412	-	905	-	-
HCM Lane V/C Ratio	0.036	-	-	0.21	-	-	-	-
HCM Control Delay (s)	8	-	-	16.1	0	0	-	-
HCM Lane LOS	A	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	-	0	-	-

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	6	29	23	4	2	17	643	14	172	257	41
Future Vol, veh/h	70	6	29	23	4	2	17	643	14	172	257	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	78	7	32	26	4	2	19	714	16	191	286	46

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1088	1459	166	1289	1474	365	332	0	0	730	0	0
Stage 1	691	691	-	760	760	-	-	-	-	-	-	-
Stage 2	397	768	-	529	714	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	173	131	856	123	128	638	1239	-	-	883	-	-
Stage 1	406	449	-	369	417	-	-	-	-	-	-	-
Stage 2	605	414	-	506	438	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	137	101	856	93	99	638	1239	-	-	883	-	-
Mov Cap-2 Maneuver	137	101	-	93	99	-	-	-	-	-	-	-
Stage 1	400	352	-	363	411	-	-	-	-	-	-	-
Stage 2	587	408	-	374	343	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	59.9	56.9	0.2	3.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1239	-	-	174	94	638	883	-	-
HCM Lane V/C Ratio	0.015	-	-	0.67	0.319	0.003	0.216	-	-
HCM Control Delay (s)	8	-	-	59.9	60.3	10.7	10.2	-	-
HCM Lane LOS	A	-	-	F	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	3.9	1.2	0	0.8	-	-

HCM 6th Signalized Intersection Summary
3: Civic Drive & Roy Rogers Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	974	71	344	1140	124	100	77	708	181	34	37
Future Volume (veh/h)	44	974	71	344	1140	124	100	77	708	181	34	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	46	1025	75	362	1200	131	105	81	745	191	36	39
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	69	1341	98	458	1962	826	132	275	825	231	365	326
Arrive On Green	0.04	0.29	0.29	0.15	0.40	0.40	0.08	0.15	0.15	0.14	0.21	0.21
Sat Flow, veh/h	1619	4673	341	2956	4914	1525	1619	1800	2685	1619	1710	1525
Grp Volume(v), veh/h	46	718	382	362	1200	131	105	81	745	191	36	39
Grp Sat Flow(s),veh/h/ln	1619	1638	1739	1478	1638	1525	1619	1800	1342	1619	1710	1525
Q Serve(g_s), s	1.9	13.7	13.7	8.1	13.3	2.9	4.4	2.7	5.5	7.8	1.2	1.4
Cycle Q Clear(g_c), s	1.9	13.7	13.7	8.1	13.3	2.9	4.4	2.7	5.5	7.8	1.2	1.4
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	69	940	499	458	1962	826	132	275	825	231	365	326
V/C Ratio(X)	0.67	0.76	0.77	0.79	0.61	0.16	0.80	0.30	0.90	0.83	0.10	0.12
Avail Cap(c_a), veh/h	163	1125	597	635	2248	915	263	529	1205	324	567	506
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	22.3	22.3	27.8	16.3	7.9	30.9	25.7	7.9	28.5	21.6	21.7
Incr Delay (d2), s/veh	10.6	2.6	4.9	4.6	0.4	0.1	10.4	0.6	7.0	11.6	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.9	5.6	2.9	4.2	0.8	1.9	1.1	2.4	3.5	0.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	24.9	27.2	32.4	16.7	7.9	41.3	26.3	14.9	40.1	21.7	21.9
LnGrp LOS	D	C	C	C	B	A	D	C	B	D	C	C
Approach Vol, veh/h		1146			1693			931			266	
Approach Delay, s/veh		26.4			19.4			18.9			35.0	
Approach LOS		C			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.3	14.9	15.1	24.1	10.1	19.1	7.4	31.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.7	20.1	14.7	23.5	11.1	22.7	6.9	31.3
Max Q Clear Time (g_c+I1), s	9.8	7.5	10.1	15.7	6.4	3.4	3.9	15.3
Green Ext Time (p_c), s	0.2	3.0	0.5	3.9	0.1	0.3	0.0	7.5

Intersection Summary	
HCM 6th Ctrl Delay	22.3
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
4: I-15 Southbound Ramps & Roy Rogers Drive

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1295	568	224	1436	241	168
Future Volume (veh/h)	1295	568	224	1436	241	168
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1700	1800	1600	1600
Adj Flow Rate, veh/h	1363	598	236	1512	216	218
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1635	729	274	2378	281	250
Arrive On Green	0.48	0.48	0.17	0.70	0.18	0.18
Sat Flow, veh/h	3510	1525	1619	3510	1524	1356
Grp Volume(v), veh/h	1363	598	236	1512	216	218
Grp Sat Flow(s),veh/h/ln	1710	1525	1619	1710	1524	1356
Q Serve(g_s), s	28.7	28.0	11.8	20.1	11.2	13.0
Cycle Q Clear(g_c), s	28.7	28.0	11.8	20.1	11.2	13.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1635	729	274	2378	281	250
V/C Ratio(X)	0.83	0.82	0.86	0.64	0.77	0.87
Avail Cap(c_a), veh/h	1812	808	390	2800	312	278
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.8	18.6	33.6	6.9	32.2	32.9
Incr Delay (d2), s/veh	3.2	6.2	12.9	0.4	10.1	23.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	9.6	5.3	4.8	4.7	5.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.0	24.8	46.5	7.3	42.3	56.2
LnGrp LOS	C	C	D	A	D	E
Approach Vol, veh/h	1961			1748	434	
Approach Delay, s/veh	22.9			12.6	49.3	
Approach LOS	C			B	D	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		20.3	18.0	44.7		62.7
Change Period (Y+Rc), s		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s		17.0	20.0	44.0		68.0
Max Q Clear Time (g_c+I1), s		15.0	13.8	30.7		22.1
Green Ext Time (p_c), s		0.3	0.3	9.0		15.4

Intersection Summary	
HCM 6th Ctrl Delay	21.3
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
5: I-15 Northbound Ramps/La Paz Drive & Roy Rogers Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	1033	281	137	1036	142	437	82	277	160	40	188
Future Volume (veh/h)	146	1033	281	137	1036	142	437	82	277	160	40	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	152	1076	293	143	1079	148	455	85	289	104	129	196
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	126	986	440	144	939	129	351	66	389	254	267	239
Arrive On Green	0.08	0.29	0.29	0.09	0.31	0.31	0.26	0.26	0.26	0.16	0.16	0.16
Sat Flow, veh/h	1619	3420	1525	1619	3022	414	1375	257	1525	1619	1700	1525
Grp Volume(v), veh/h	152	1076	293	143	610	617	540	0	289	104	129	196
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1726	1631	0	1525	1619	1700	1525
Q Serve(g_s), s	7.0	26.0	15.2	8.0	28.0	28.0	23.0	0.0	15.7	5.2	6.2	11.2
Cycle Q Clear(g_c), s	7.0	26.0	15.2	8.0	28.0	28.0	23.0	0.0	15.7	5.2	6.2	11.2
Prop In Lane	1.00		1.00	1.00		0.24	0.84		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	126	986	440	144	531	536	416	0	389	254	267	239
V/C Ratio(X)	1.21	1.09	0.67	1.00	1.15	1.15	1.30	0.00	0.74	0.41	0.48	0.82
Avail Cap(c_a), veh/h	126	986	440	144	531	536	416	0	389	359	377	338
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	32.1	28.2	41.1	31.1	31.1	33.6	0.0	30.8	34.2	34.7	36.8
Incr Delay (d2), s/veh	147.0	56.7	3.8	73.5	86.8	87.9	150.6	0.0	7.5	1.1	1.4	10.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	17.6	5.6	6.0	23.4	23.7	26.1	0.0	6.2	2.0	2.6	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	188.6	88.7	32.0	114.6	117.9	119.0	184.2	0.0	38.3	35.3	36.0	47.0
LnGrp LOS	F	F	C	F	F	F	F	A	D	D	D	D
Approach Vol, veh/h		1521			1370			829			429	
Approach Delay, s/veh		87.8			118.1			133.3			40.9	
Approach LOS		F			F			F			D	

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		28.0	13.0	31.0		18.1	11.0	33.0
Change Period (Y+Rc), s		5.0	5.0	5.0		4.0	4.0	* 5
Max Green Setting (Gmax), s		23.0	7.0	26.0		20.0	7.0	* 28
Max Q Clear Time (g_c+I1), s		25.0	10.0	28.0		13.2	9.0	30.0
Green Ext Time (p_c), s		0.0	0.0	0.0		0.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	102.0
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Michael Baker
INTERNATIONAL

Appendix I: Forecast Horizon Year 2031 With Project Synchro Worksheets

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Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	0	23	1	0	3	29	618	2	4	419	30
Future Vol, veh/h	32	0	23	1	0	3	29	618	2	4	419	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	36	0	26	1	0	3	32	687	2	4	466	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	899	1244	250	993	1259	345	499	0	0	689	0	0
Stage 1	491	491	-	752	752	-	-	-	-	-	-	-
Stage 2	408	753	-	241	507	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	237	176	756	203	172	657	1075	-	-	915	-	-
Stage 1	533	552	-	373	421	-	-	-	-	-	-	-
Stage 2	596	420	-	747	543	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	230	170	756	191	166	657	1075	-	-	915	-	-
Mov Cap-2 Maneuver	230	170	-	191	166	-	-	-	-	-	-	-
Stage 1	517	550	-	362	408	-	-	-	-	-	-	-
Stage 2	575	407	-	719	541	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.7	13.9	0.4	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1075	-	-	324	408	915	-	-
HCM Lane V/C Ratio	0.03	-	-	0.189	0.011	0.005	-	-
HCM Control Delay (s)	8.5	-	-	18.7	13.9	9	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0	0	-	-

Intersection	
Int Delay, s/veh	13

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	4	29	45	4	13	65	539	48	206	378	29
Future Vol, veh/h	47	4	29	45	4	13	65	539	48	206	378	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	52	4	32	50	4	14	72	599	53	229	420	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1340	1690	226	1440	1680	326	452	0	0	652	0	0
Stage 1	894	894	-	770	770	-	-	-	-	-	-	-
Stage 2	446	796	-	670	910	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	113	94	783	95	96	676	1119	-	-	944	-	-
Stage 1	306	362	-	364	413	-	-	-	-	-	-	-
Stage 2	567	402	-	417	356	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	82	67	783	67	68	676	1119	-	-	944	-	-
Mov Cap-2 Maneuver	82	67	-	67	68	-	-	-	-	-	-	-
Stage 1	286	274	-	341	387	-	-	-	-	-	-	-
Stage 2	513	376	-	298	269	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	94.1	130.9	0.8	3.4
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1119	-	-	119	67	676	944	-	-
HCM Lane V/C Ratio	0.065	-	-	0.747	0.813	0.021	0.242	-	-
HCM Control Delay (s)	8.4	-	-	94.1	162.9	10.4	10	-	-
HCM Lane LOS	A	-	-	F	F	B	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	4.2	3.8	0.1	0.9	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	836	92	499	880	145	119	79	558	160	55	41
Future Volume (veh/h)	58	836	92	499	880	145	119	79	558	160	55	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	61	880	97	525	926	153	125	83	587	168	58	43
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	83	1172	129	639	2092	844	156	219	907	206	299	201
Arrive On Green	0.05	0.26	0.26	0.22	0.43	0.43	0.10	0.12	0.12	0.13	0.15	0.15
Sat Flow, veh/h	1619	4494	493	2956	4914	1525	1619	1800	2685	1619	1957	1316
Grp Volume(v), veh/h	61	641	336	525	926	153	125	83	587	168	50	51
Grp Sat Flow(s),veh/h/ln	1619	1638	1711	1478	1638	1525	1619	1800	1342	1619	1710	1563
Q Serve(g_s), s	2.4	11.8	11.9	11.1	8.8	3.3	5.0	2.8	3.6	6.6	1.7	1.9
Cycle Q Clear(g_c), s	2.4	11.8	11.9	11.1	8.8	3.3	5.0	2.8	3.6	6.6	1.7	1.9
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		0.84
Lane Grp Cap(c), veh/h	83	854	446	639	2092	844	156	219	907	206	261	239
V/C Ratio(X)	0.74	0.75	0.75	0.82	0.44	0.18	0.80	0.38	0.65	0.81	0.19	0.21
Avail Cap(c_a), veh/h	281	1042	544	877	2169	867	254	523	1361	308	554	507
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	22.3	22.4	24.5	13.3	7.3	29.1	26.6	6.2	27.9	24.3	24.4
Incr Delay (d2), s/veh	12.0	2.4	4.8	4.6	0.1	0.1	9.1	1.1	0.8	9.9	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	4.2	4.7	3.8	2.7	0.8	2.1	1.1	1.0	2.9	0.6	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	24.8	27.1	29.1	13.5	7.4	38.2	27.6	7.0	37.8	24.6	24.8
LnGrp LOS	D	C	C	C	B	A	D	C	A	D	C	C
Approach Vol, veh/h		1038			1604			795			269	
Approach Delay, s/veh		26.6			18.0			14.0			32.9	
Approach LOS		C			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	12.5	18.7	21.6	10.8	14.5	7.9	32.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	19.1	19.5	20.9	10.3	21.3	11.4	29.0
Max Q Clear Time (g_c+I1), s	8.6	5.6	13.1	13.9	7.0	3.9	4.4	10.8
Green Ext Time (p_c), s	0.1	2.4	1.1	3.2	0.1	0.4	0.0	6.2

Intersection Summary	
HCM 6th Ctrl Delay	20.6
HCM 6th LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1156	396	248	1401	182	164
Future Volume (veh/h)	1156	396	248	1401	182	164
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1700	1800	1600	1600
Adj Flow Rate, veh/h	1192	408	256	1444	178	179
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1544	689	303	2377	250	222
Arrive On Green	0.45	0.45	0.19	0.69	0.16	0.16
Sat Flow, veh/h	3510	1525	1619	3510	1524	1356
Grp Volume(v), veh/h	1192	408	256	1444	178	179
Grp Sat Flow(s),veh/h/ln	1710	1525	1619	1710	1524	1356
Q Serve(g_s), s	20.8	14.2	10.8	15.8	7.8	9.0
Cycle Q Clear(g_c), s	20.8	14.2	10.8	15.8	7.8	9.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1544	689	303	2377	250	222
V/C Ratio(X)	0.77	0.59	0.85	0.61	0.71	0.81
Avail Cap(c_a), veh/h	1982	884	526	3287	366	326
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	14.5	27.8	5.7	28.0	28.5
Incr Delay (d2), s/veh	1.5	0.8	6.5	0.3	3.8	9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	4.2	4.3	3.1	2.9	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.8	15.3	34.3	6.0	31.8	37.5
LnGrp LOS	B	B	C	A	C	D
Approach Vol, veh/h	1600			1700	357	
Approach Delay, s/veh	17.2			10.2	34.6	
Approach LOS	B			B	C	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		16.6	17.2	37.0		54.2
Change Period (Y+Rc), s		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s		17.0	23.0	41.0		68.0
Max Q Clear Time (g_c+I1), s		11.0	12.8	22.8		17.8
Green Ext Time (p_c), s		0.6	0.5	9.2		14.5

Intersection Summary	
HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	992	184	136	1106	142	310	52	281	185	23	233
Future Volume (veh/h)	143	992	184	136	1106	142	310	52	281	185	23	233
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	151	1044	194	143	1164	149	326	55	296	212	0	245
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	139	992	442	156	950	121	315	53	344	595	0	280
Arrive On Green	0.09	0.29	0.29	0.10	0.31	0.31	0.23	0.23	0.23	0.18	0.00	0.18
Sat Flow, veh/h	1619	3420	1525	1619	3050	389	1395	235	1525	3238	0	1525
Grp Volume(v), veh/h	151	1044	194	143	651	662	381	0	296	212	0	245
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1730	1630	0	1525	1619	0	1525
Q Serve(g_s), s	8.0	27.0	9.6	8.1	29.0	29.0	21.0	0.0	17.4	5.3	0.0	14.5
Cycle Q Clear(g_c), s	8.0	27.0	9.6	8.1	29.0	29.0	21.0	0.0	17.4	5.3	0.0	14.5
Prop In Lane	1.00		1.00	1.00		0.23	0.86		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	139	992	442	156	533	539	368	0	344	595	0	280
V/C Ratio(X)	1.09	1.05	0.44	0.91	1.22	1.23	1.04	0.00	0.86	0.36	0.00	0.87
Avail Cap(c_a), veh/h	139	992	442	156	533	539	368	0	344	695	0	328
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.6	33.1	26.9	41.7	32.1	32.1	36.1	0.0	34.6	33.2	0.0	36.9
Incr Delay (d2), s/veh	101.1	43.5	0.7	47.4	116.2	118.4	56.6	0.0	19.3	0.4	0.0	19.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	16.3	3.4	5.2	28.2	28.9	13.8	0.0	7.9	2.0	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	143.6	76.6	27.6	89.1	148.3	150.5	92.7	0.0	53.9	33.5	0.0	56.8
LnGrp LOS	F	F	C	F	F	F	F	A	D	C	A	E
Approach Vol, veh/h		1389			1456			677			457	
Approach Delay, s/veh		77.0			143.5			75.7			46.0	
Approach LOS		E			F			E			D	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	26.0	14.0	32.0	21.1	12.0	34.0
Change Period (Y+Rc), s	5.0	5.0	5.0	4.0	4.0	* 5
Max Green Setting (Gmax), s	21.0	8.0	27.0	20.0	8.0	* 29
Max Q Clear Time (g_c+I1), s	23.0	10.1	29.0	16.5	10.0	31.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	97.6
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	0	35	2	0	3	40	632	1	3	272	38
Future Vol, veh/h	43	0	35	2	0	3	40	632	1	3	272	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	48	0	39	2	0	3	44	702	1	3	302	42

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	768	1120	172	948	1141	352	344	0	0	703	0	0
Stage 1	329	329	-	791	791	-	-	-	-	-	-	-
Stage 2	439	791	-	157	350	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	295	208	848	218	202	650	1226	-	-	904	-	-
Stage 1	664	650	-	353	404	-	-	-	-	-	-	-
Stage 2	572	404	-	835	636	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	285	200	848	202	194	650	1226	-	-	904	-	-
Mov Cap-2 Maneuver	285	200	-	202	194	-	-	-	-	-	-	-
Stage 1	640	648	-	340	389	-	-	-	-	-	-	-
Stage 2	549	389	-	794	634	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.3	15.6	0.5	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1226	-	-	406	344	904	-	-
HCM Lane V/C Ratio	0.036	-	-	0.213	0.016	0.004	-	-
HCM Control Delay (s)	8	-	-	16.3	15.6	9	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0	0	-	-

Intersection	
Int Delay, s/veh	8.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	6	29	24	4	11	17	646	15	180	260	41
Future Vol, veh/h	70	6	29	24	4	11	17	646	15	180	260	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	78	7	32	27	4	12	19	718	17	200	289	46

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1111	1485	168	1313	1500	368	335	0	0	735	0	0
Stage 1	712	712	-	765	765	-	-	-	-	-	-	-
Stage 2	399	773	-	548	735	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	166	126	853	118	123	635	1236	-	-	879	-	-
Stage 1	394	439	-	366	415	-	-	-	-	-	-	-
Stage 2	604	412	-	493	428	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	128	96	853	88	93	635	1236	-	-	879	-	-
Mov Cap-2 Maneuver	128	96	-	88	93	-	-	-	-	-	-	-
Stage 1	388	339	-	361	409	-	-	-	-	-	-	-
Stage 2	577	406	-	359	330	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	69	50.3	0.2	3.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1236	-	-	163	89	635	879	-	-
HCM Lane V/C Ratio	0.015	-	-	0.716	0.35	0.019	0.228	-	-
HCM Control Delay (s)	8	-	-	69	65.8	10.8	10.3	-	-
HCM Lane LOS	A	-	-	F	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	4.3	1.4	0.1	0.9	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	974	72	354	1140	124	101	77	719	181	34	37
Future Volume (veh/h)	44	974	72	354	1140	124	101	77	719	181	34	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	46	1025	76	373	1200	131	106	81	757	191	36	39
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	69	1334	99	467	1972	829	133	277	837	230	366	326
Arrive On Green	0.04	0.29	0.29	0.16	0.40	0.40	0.08	0.15	0.15	0.14	0.21	0.21
Sat Flow, veh/h	1619	4668	346	2956	4914	1525	1619	1800	2685	1619	1710	1525
Grp Volume(v), veh/h	46	719	382	373	1200	131	106	81	757	191	36	39
Grp Sat Flow(s),veh/h/ln	1619	1638	1738	1478	1638	1525	1619	1800	1342	1619	1710	1525
Q Serve(g_s), s	1.9	13.9	13.9	8.4	13.4	3.0	4.4	2.8	5.6	7.9	1.2	1.4
Cycle Q Clear(g_c), s	1.9	13.9	13.9	8.4	13.4	3.0	4.4	2.8	5.6	7.9	1.2	1.4
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	69	936	496	467	1972	829	133	277	837	230	366	326
V/C Ratio(X)	0.67	0.77	0.77	0.80	0.61	0.16	0.80	0.29	0.90	0.83	0.10	0.12
Avail Cap(c_a), veh/h	162	1113	590	628	2224	907	260	523	1205	321	561	501
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	22.6	22.6	28.0	16.4	7.9	31.2	25.9	8.0	28.8	21.8	21.9
Incr Delay (d2), s/veh	10.7	2.8	5.2	5.2	0.4	0.1	10.4	0.6	7.3	12.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	5.0	5.7	3.0	4.3	0.8	2.0	1.1	2.5	3.6	0.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.3	25.4	27.8	33.3	16.8	8.0	41.5	26.5	15.3	40.8	21.9	22.1
LnGrp LOS	D	C	C	C	B	A	D	C	B	D	C	C
Approach Vol, veh/h		1147			1704			944			266	
Approach Delay, s/veh		26.9			19.7			19.2			35.5	
Approach LOS		C			B			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.3	15.1	15.4	24.3	10.2	19.3	7.4	32.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.7	20.1	14.7	23.5	11.1	22.7	6.9	31.3
Max Q Clear Time (g_c+I1), s	9.9	7.6	10.4	15.9	6.4	3.4	3.9	15.4
Green Ext Time (p_c), s	0.2	3.0	0.5	3.8	0.1	0.3	0.0	7.4

Intersection Summary	
HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1300	574	224	1443	244	168
Future Volume (veh/h)	1300	574	224	1443	244	168
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1700	1800	1600	1600
Adj Flow Rate, veh/h	1368	604	236	1519	217	220
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1635	729	274	2376	282	251
Arrive On Green	0.48	0.48	0.17	0.69	0.19	0.19
Sat Flow, veh/h	3510	1525	1619	3510	1524	1356
Grp Volume(v), veh/h	1368	604	236	1519	217	220
Grp Sat Flow(s),veh/h/ln	1710	1525	1619	1710	1524	1356
Q Serve(g_s), s	29.1	28.6	11.8	20.4	11.3	13.2
Cycle Q Clear(g_c), s	29.1	28.6	11.8	20.4	11.3	13.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1635	729	274	2376	282	251
V/C Ratio(X)	0.84	0.83	0.86	0.64	0.77	0.88
Avail Cap(c_a), veh/h	1802	804	388	2786	310	276
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.0	18.8	33.7	7.0	32.3	33.1
Incr Delay (d2), s/veh	3.4	6.7	13.2	0.4	10.2	24.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.5	9.9	5.3	4.9	4.8	5.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.3	25.5	46.9	7.4	42.5	57.1
LnGrp LOS	C	C	D	A	D	E
Approach Vol, veh/h	1972			1755	437	
Approach Delay, s/veh	23.3			12.7	49.8	
Approach LOS	C			B	D	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		20.5	18.1	44.9		63.0
Change Period (Y+Rc), s		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s		17.0	20.0	44.0		68.0
Max Q Clear Time (g_c+I1), s		15.2	13.8	31.1		22.4
Green Ext Time (p_c), s		0.3	0.3	8.9		15.5

Intersection Summary	
HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	1034	285	137	1038	142	442	82	277	160	40	188
Future Volume (veh/h)	146	1034	285	137	1038	142	442	82	277	160	40	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	152	1077	297	143	1081	148	460	85	289	104	129	196
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	126	986	440	144	939	128	351	65	389	254	267	239
Arrive On Green	0.08	0.29	0.29	0.09	0.31	0.31	0.26	0.26	0.26	0.16	0.16	0.16
Sat Flow, veh/h	1619	3420	1525	1619	3022	413	1377	254	1525	1619	1700	1525
Grp Volume(v), veh/h	152	1077	297	143	611	618	545	0	289	104	129	196
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1726	1631	0	1525	1619	1700	1525
Q Serve(g_s), s	7.0	26.0	15.5	8.0	28.0	28.0	23.0	0.0	15.7	5.2	6.2	11.2
Cycle Q Clear(g_c), s	7.0	26.0	15.5	8.0	28.0	28.0	23.0	0.0	15.7	5.2	6.2	11.2
Prop In Lane	1.00		1.00	1.00		0.24	0.84		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	126	986	440	144	531	536	416	0	389	254	267	239
V/C Ratio(X)	1.21	1.09	0.68	1.00	1.15	1.15	1.31	0.00	0.74	0.41	0.48	0.82
Avail Cap(c_a), veh/h	126	986	440	144	531	536	416	0	389	359	377	338
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	32.1	28.3	41.1	31.1	31.1	33.6	0.0	30.8	34.2	34.7	36.8
Incr Delay (d2), s/veh	147.0	57.0	4.1	73.5	87.5	88.6	155.6	0.0	7.5	1.1	1.4	10.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	17.7	5.8	6.0	23.5	23.8	26.7	0.0	6.2	2.0	2.6	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	188.6	89.1	32.4	114.6	118.6	119.7	189.2	0.0	38.3	35.3	36.0	47.0
LnGrp LOS	F	F	C	F	F	F	F	A	D	D	D	D
Approach Vol, veh/h		1526			1372			834			429	
Approach Delay, s/veh		88.0			118.7			136.9			40.9	
Approach LOS		F			F			F			D	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	28.0	13.0	31.0	18.1	11.0	33.0
Change Period (Y+Rc), s	5.0	5.0	5.0	4.0	4.0	* 5
Max Green Setting (Gmax), s	23.0	7.0	26.0	20.0	7.0	* 28
Max Q Clear Time (g_c+I1), s	25.0	10.0	28.0	13.2	9.0	30.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	103.1
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Michael Baker
INTERNATIONAL

Appendix J:
Vacant Parcels Scenario
Synchro Worksheets

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Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	0	23	29	0	19	29	627	19	94	417	30
Future Vol, veh/h	32	0	23	29	0	19	29	627	19	94	417	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	36	0	26	32	0	21	32	697	21	104	463	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1101	1470	248	1212	1476	359	496	0	0	718	0	0
Stage 1	688	688	-	772	772	-	-	-	-	-	-	-
Stage 2	413	782	-	440	704	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	169	129	758	140	127	643	1078	-	-	892	-	-
Stage 1	407	450	-	363	412	-	-	-	-	-	-	-
Stage 2	592	408	-	571	443	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	146	111	758	120	109	643	1078	-	-	892	-	-
Mov Cap-2 Maneuver	146	111	-	120	109	-	-	-	-	-	-	-
Stage 1	395	397	-	352	400	-	-	-	-	-	-	-
Stage 2	556	396	-	487	391	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27.5	33.9	0.4	1.7
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1078	-	-	220	177	892	-	-
HCM Lane V/C Ratio	0.03	-	-	0.278	0.301	0.117	-	-
HCM Control Delay (s)	8.4	-	-	27.5	33.9	9.6	-	-
HCM Lane LOS	A	-	-	D	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	1.2	0.4	-	-

Intersection	
Int Delay, s/veh	43.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	4	29	56	4	122	65	542	70	283	455	29
Future Vol, veh/h	47	4	29	56	4	122	65	542	70	283	455	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	52	4	32	62	4	136	72	602	78	314	506	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1597	1974	269	1668	1951	340	538	0	0	680	0	0
Stage 1	1150	1150	-	785	785	-	-	-	-	-	-	-
Stage 2	447	824	-	883	1166	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	73	63	735	64	65	662	1040	-	-	922	-	-
Stage 1	214	275	-	356	407	-	-	-	-	-	-	-
Stage 2	566	390	-	311	270	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 37	39	735	~ 39	40	662	1040	-	-	922	-	-
Mov Cap-2 Maneuver	~ 37	39	-	~ 39	40	-	-	-	-	-	-	-
Stage 1	199	181	-	331	379	-	-	-	-	-	-	-
Stage 2	414	363	-	191	178	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 439.3	195	0.8	4
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1040	-	-	57	39	662	922	-	-
HCM Lane V/C Ratio	0.069	-	-	1.559	1.709	0.205	0.341	-	-
HCM Control Delay (s)	8.7	-	-	$ 439.3	$ 567.5	11.8	10.9	-	-
HCM Lane LOS	A	-	-	F	F	B	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	8.1	7	0.8	1.5	-	-

Notes

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

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	43	0	35	20	0	12	40	636	13	60	266	38
Future Vol, veh/h	43	0	35	20	0	12	40	636	13	60	266	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	48	0	39	22	0	13	44	707	14	67	296	42

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	893	1260	169	1084	1274	361	338	0	0	721	0	0
Stage 1	451	451	-	802	802	-	-	-	-	-	-	-
Stage 2	442	809	-	282	472	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	239	172	852	174	169	641	1232	-	-	890	-	-
Stage 1	563	574	-	348	399	-	-	-	-	-	-	-
Stage 2	570	396	-	707	562	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	215	153	852	152	151	641	1232	-	-	890	-	-
Mov Cap-2 Maneuver	215	153	-	152	151	-	-	-	-	-	-	-
Stage 1	543	531	-	335	385	-	-	-	-	-	-	-
Stage 2	538	382	-	624	520	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.1	25.3	0.5	1.5
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1232	-	-	324	213	890	-	-
HCM Lane V/C Ratio	0.036	-	-	0.267	0.167	0.075	-	-
HCM Control Delay (s)	8	-	-	20.1	25.3	9.4	-	-
HCM Lane LOS	A	-	-	C	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	0.6	0.2	-	-

Intersection	
Int Delay, s/veh	20.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	6	29	31	4	70	17	642	32	237	304	41
Future Vol, veh/h	70	6	29	31	4	70	17	642	32	237	304	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	78	7	32	34	4	78	19	713	36	263	338	46

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1284	1674	192	1468	1679	375	384	0	0	749	0	0
Stage 1	887	887	-	769	769	-	-	-	-	-	-	-
Stage 2	397	787	-	699	910	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	124	97	823	91	96	628	1186	-	-	869	-	-
Stage 1	309	365	-	364	413	-	-	-	-	-	-	-
Stage 2	605	406	-	401	356	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	78	67	823	61	66	628	1186	-	-	869	-	-
Mov Cap-2 Maneuver	78	67	-	61	66	-	-	-	-	-	-	-
Stage 1	304	254	-	358	406	-	-	-	-	-	-	-
Stage 2	516	400	-	262	248	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	206.6	51.7	0.2	4.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1186	-	-	103	62	628	869	-	-
HCM Lane V/C Ratio	0.016	-	-	1.133	0.627	0.124	0.303	-	-
HCM Control Delay (s)	8.1	-	-	206.6	132.2	11.5	10.9	-	-
HCM Lane LOS	A	-	-	F	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	7.5	2.6	0.4	1.3	-	-

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	32	0	23	30	0	22	29	628	21	98	418	30
Future Vol, veh/h	32	0	23	30	0	22	29	628	21	98	418	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	36	0	26	33	0	24	32	698	23	109	464	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1112	1484	249	1224	1489	361	497	0	0	721	0	0
Stage 1	699	699	-	774	774	-	-	-	-	-	-	-
Stage 2	413	785	-	450	715	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	166	126	757	137	125	641	1077	-	-	890	-	-
Stage 1	401	445	-	362	411	-	-	-	-	-	-	-
Stage 2	592	407	-	564	438	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	141	107	757	117	107	641	1077	-	-	890	-	-
Mov Cap-2 Maneuver	141	107	-	117	107	-	-	-	-	-	-	-
Stage 1	389	391	-	351	399	-	-	-	-	-	-	-
Stage 2	553	395	-	478	385	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.4	34.4	0.4	1.7
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1077	-	-	214	179	890	-	-
HCM Lane V/C Ratio	0.03	-	-	0.286	0.323	0.122	-	-
HCM Control Delay (s)	8.4	-	-	28.4	34.4	9.6	-	-
HCM Lane LOS	A	-	-	D	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	1.3	0.4	-	-

Intersection	
Int Delay, s/veh	48.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	4	29	57	4	130	65	545	71	295	459	29
Future Vol, veh/h	47	4	29	57	4	130	65	545	71	295	459	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	52	4	32	63	4	144	72	606	79	328	510	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1631	2011	271	1703	1988	343	542	0	0	685	0	0
Stage 1	1182	1182	-	790	790	-	-	-	-	-	-	-
Stage 2	449	829	-	913	1198	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	69	60	733	~ 61	62	659	1037	-	-	918	-	-
Stage 1	205	266	-	354	404	-	-	-	-	-	-	-
Stage 2	564	388	-	298	261	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 34	36	733	~ 37	37	659	1037	-	-	918	-	-
Mov Cap-2 Maneuver	~ 34	36	-	~ 37	37	-	-	-	-	-	-	-
Stage 1	191	171	-	330	376	-	-	-	-	-	-	-
Stage 2	405	361	-	178	168	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 514.4	209	0.8	4.2
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1037	-	-	52	37	659	918	-	-
HCM Lane V/C Ratio	0.07	-	-	1.709	1.832	0.219	0.357	-	-
HCM Control Delay (s)	8.7	-	-	$ 514.4	$ 628.9	12	11.1	-	-
HCM Lane LOS	A	-	-	F	F	B	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	8.5	7.3	0.8	1.6	-	-

Notes

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

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	0	35	22	0	15	40	637	14	63	267	38
Future Vol, veh/h	43	0	35	22	0	15	40	637	14	63	267	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	48	0	39	24	0	17	44	708	16	70	297	42

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	900	1270	170	1093	1283	362	339	0	0	724	0	0
Stage 1	458	458	-	804	804	-	-	-	-	-	-	-
Stage 2	442	812	-	289	479	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	237	170	851	171	167	641	1231	-	-	888	-	-
Stage 1	557	570	-	347	398	-	-	-	-	-	-	-
Stage 2	570	395	-	700	558	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	211	151	851	149	148	641	1231	-	-	888	-	-
Mov Cap-2 Maneuver	211	151	-	149	148	-	-	-	-	-	-	-
Stage 1	537	525	-	335	384	-	-	-	-	-	-	-
Stage 2	535	381	-	615	514	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.5	25.5	0.5	1.6
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1231	-	-	318	216	888	-	-
HCM Lane V/C Ratio	0.036	-	-	0.273	0.19	0.079	-	-
HCM Control Delay (s)	8	-	-	20.5	25.5	9.4	-	-
HCM Lane LOS	A	-	-	C	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	0.7	0.3	-	-

Intersection	
Int Delay, s/veh	23

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	6	29	32	4	79	17	645	33	245	307	41
Future Vol, veh/h	70	6	29	32	4	79	17	645	33	245	307	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	78	7	32	36	4	88	19	717	37	272	341	46

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1307	1700	194	1492	1705	377	387	0	0	754	0	0
Stage 1	908	908	-	774	774	-	-	-	-	-	-	-
Stage 2	399	792	-	718	931	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	119	93	821	87	92	626	1183	-	-	865	-	-
Stage 1	301	357	-	362	411	-	-	-	-	-	-	-
Stage 2	604	404	-	391	348	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 73	63	821	58	62	626	1183	-	-	865	-	-
Mov Cap-2 Maneuver	~ 73	63	-	58	62	-	-	-	-	-	-	-
Stage 1	296	245	-	356	404	-	-	-	-	-	-	-
Stage 2	505	398	-	251	239	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	242.1	55.8	0.2	4.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1183	-	-	96	58	626	865	-	-
HCM Lane V/C Ratio	0.016	-	-	1.215	0.69	0.14	0.315	-	-
HCM Control Delay (s)	8.1	-	-	242.1	152.6	11.7	11.1	-	-
HCM Lane LOS	A	-	-	F	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	8	2.9	0.5	1.4	-	-

Notes

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

Michael Baker
INTERNATIONAL

Appendix K:
Signal Warrant Worksheets

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OPENING YEAR 2021 WITHOUT PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: Midday

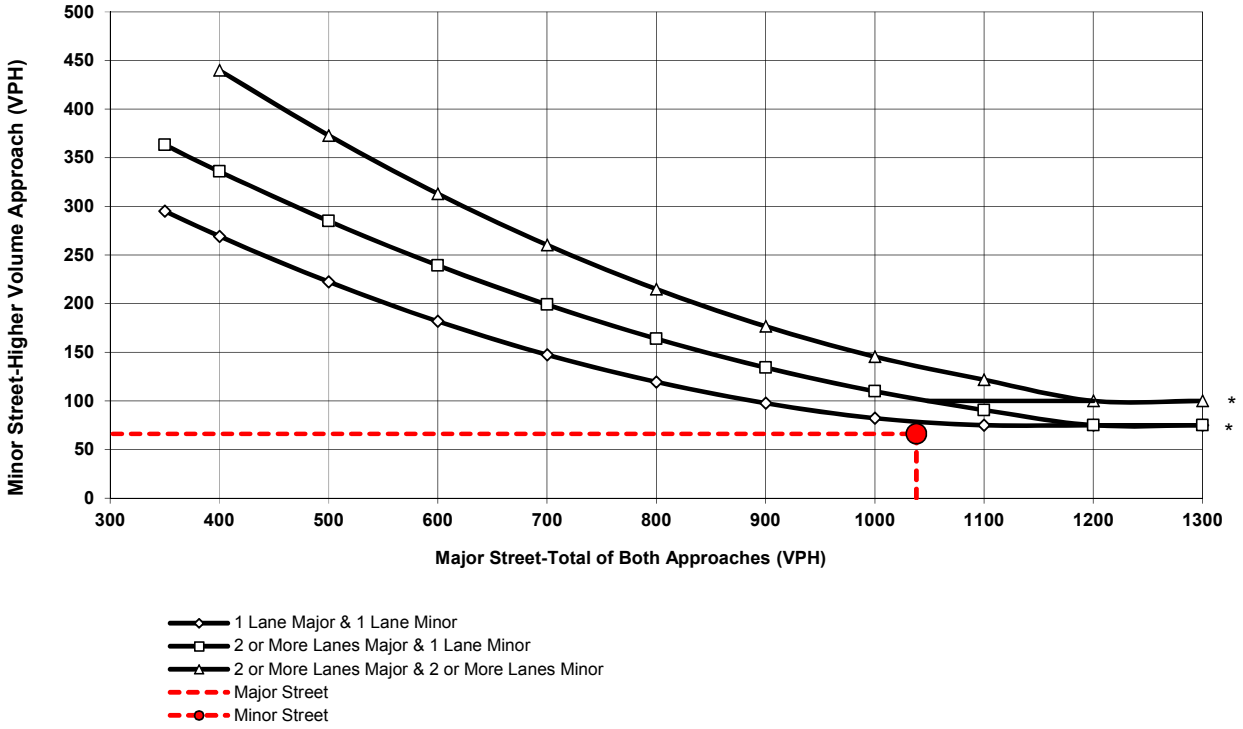
Major Street: Civic Drive

Minor Street: Home Depot North Driveway/Carmax North Driveway #2

Total of Both Approaches (VPH):	1038	Higher Volume Approach (VPH):	66
Number of Approach Lanes:	2	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 Revision 1

OPENING YEAR 2021 WITHOUT PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: PM

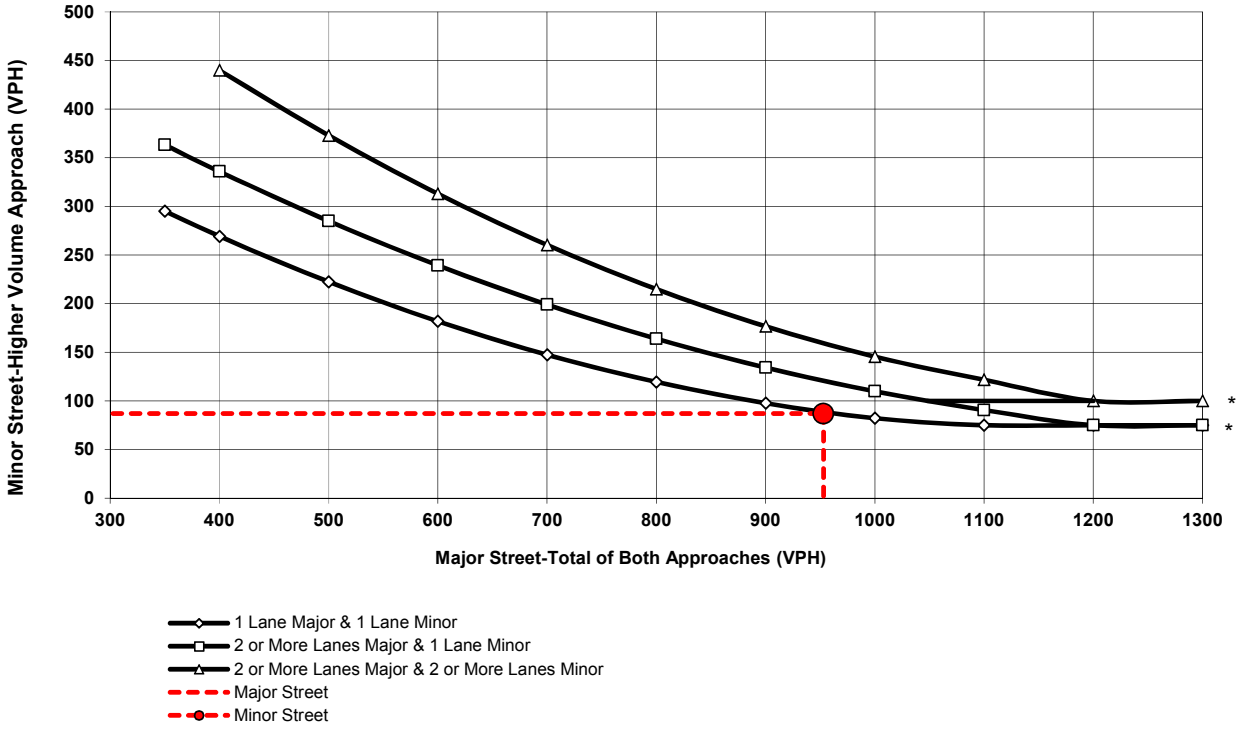
Major Street: Civic Drive

Minor Street: Home Depot North Driveway/Carmax North Driveway #2

Total of Both Approaches (VPH):	953	Higher Volume Approach (VPH):	87
Number of Approach Lanes:	2	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 Revision 1

OPENING YEAR 2021 WITH PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: **Midday**

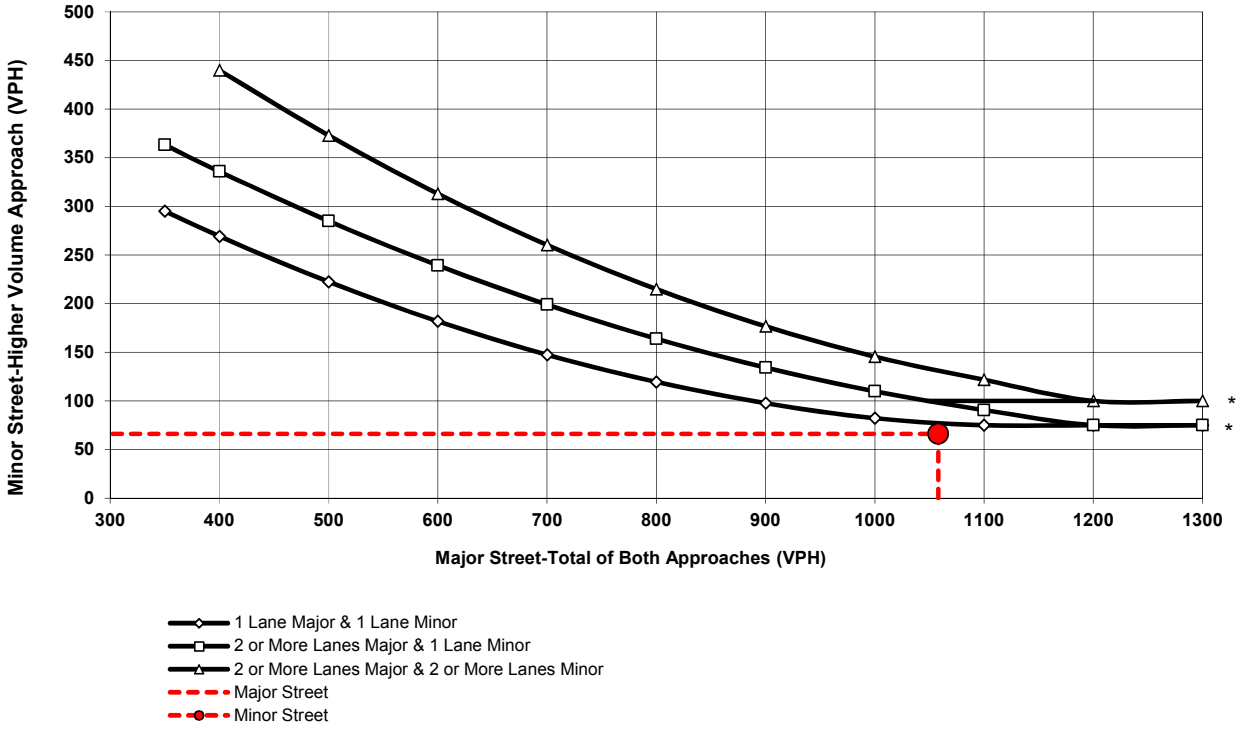
Major Street: **Civic Drive**

Minor Street: **Home Depot North Driveway/Carmax North Driveway #2**

Total of Both Approaches (VPH):	**1058**	Higher Volume Approach (VPH):	**66**
Number of Approach Lanes:	**2**	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 Revision 1

OPENING YEAR 2021 WITH PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: PM

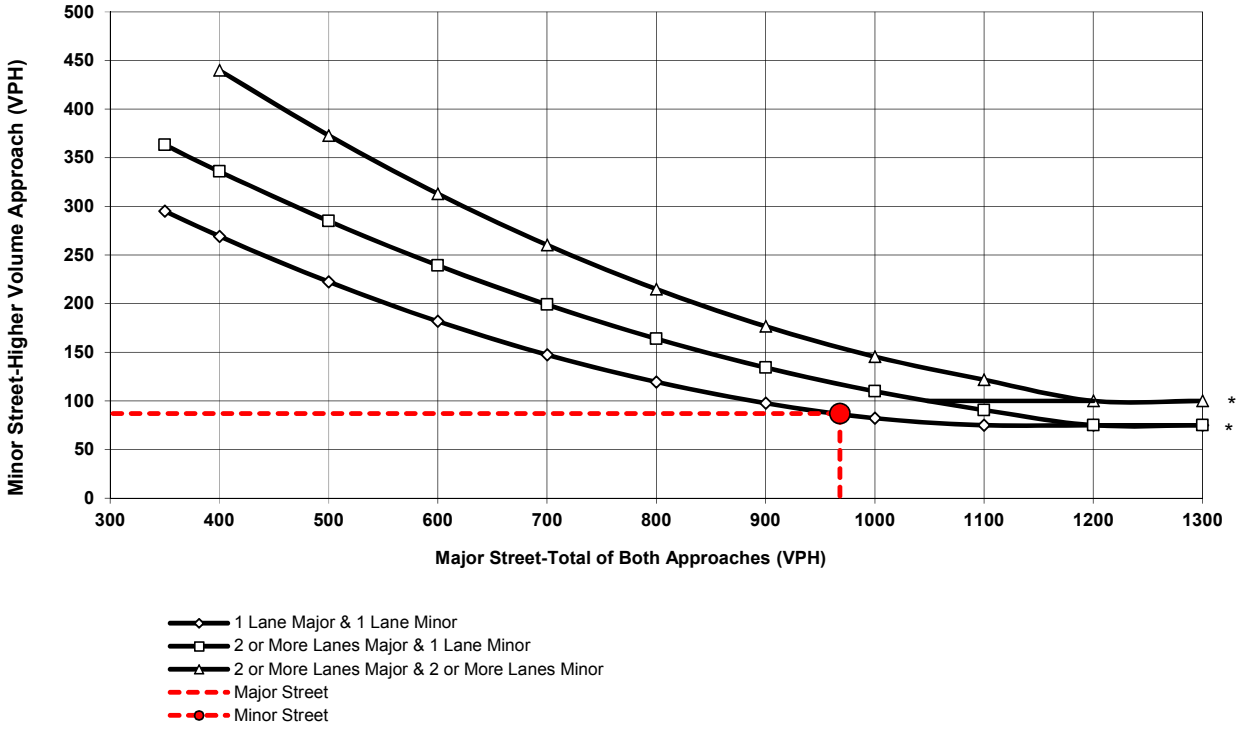
Major Street: Civic Drive

Minor Street: Home Depot North Driveway/Carmax North Driveway #2

Total of Both Approaches (VPH):	968	Higher Volume Approach (VPH):	87
Number of Approach Lanes:	2	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 Revision 1

HORIZON YEAR 2031 WITHOUT PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: Midday

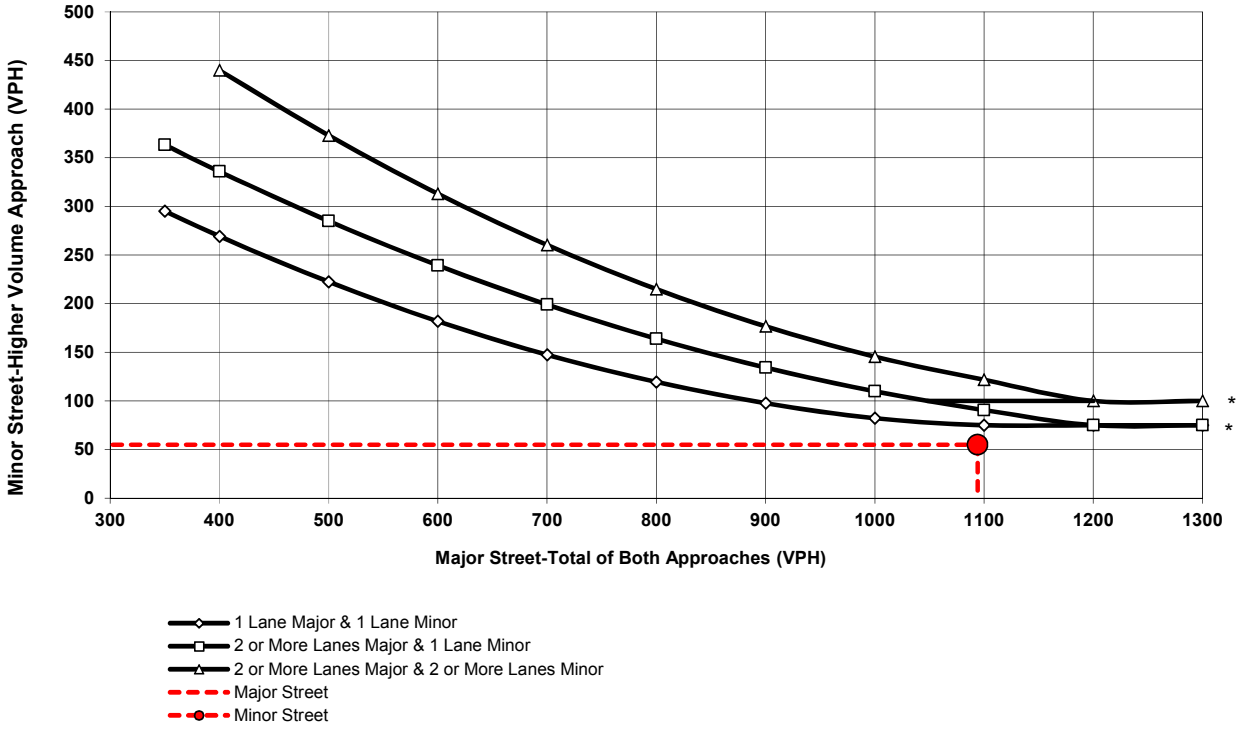
Major Street: Civic Drive

Minor Street: Home Depot South Driveway/Carmax South Driveway #1

Total of Both Approaches (VPH):	1094	Higher Volume Approach (VPH):	55
Number of Approach Lanes:	2	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 Revision 1

HORIZON YEAR 2031 WITHOUT PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: Midday

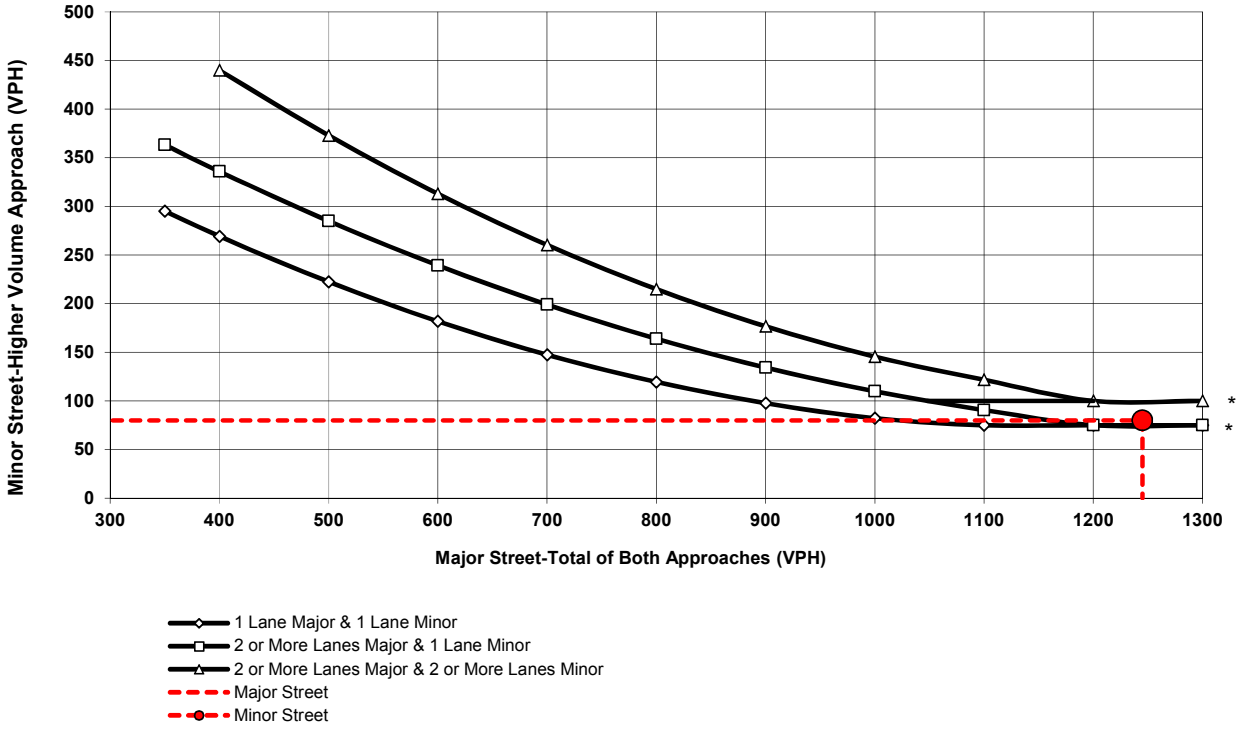
Major Street: Civic Drive

Minor Street: Home Depot North Driveway/Carmax North Driveway #2

Total of Both Approaches (VPH):	1245	Higher Volume Approach (VPH):	80
Number of Approach Lanes:	2	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: California MUTCD 2014 Revision 1

HORIZON YEAR 2031 WITHOUT PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: PM

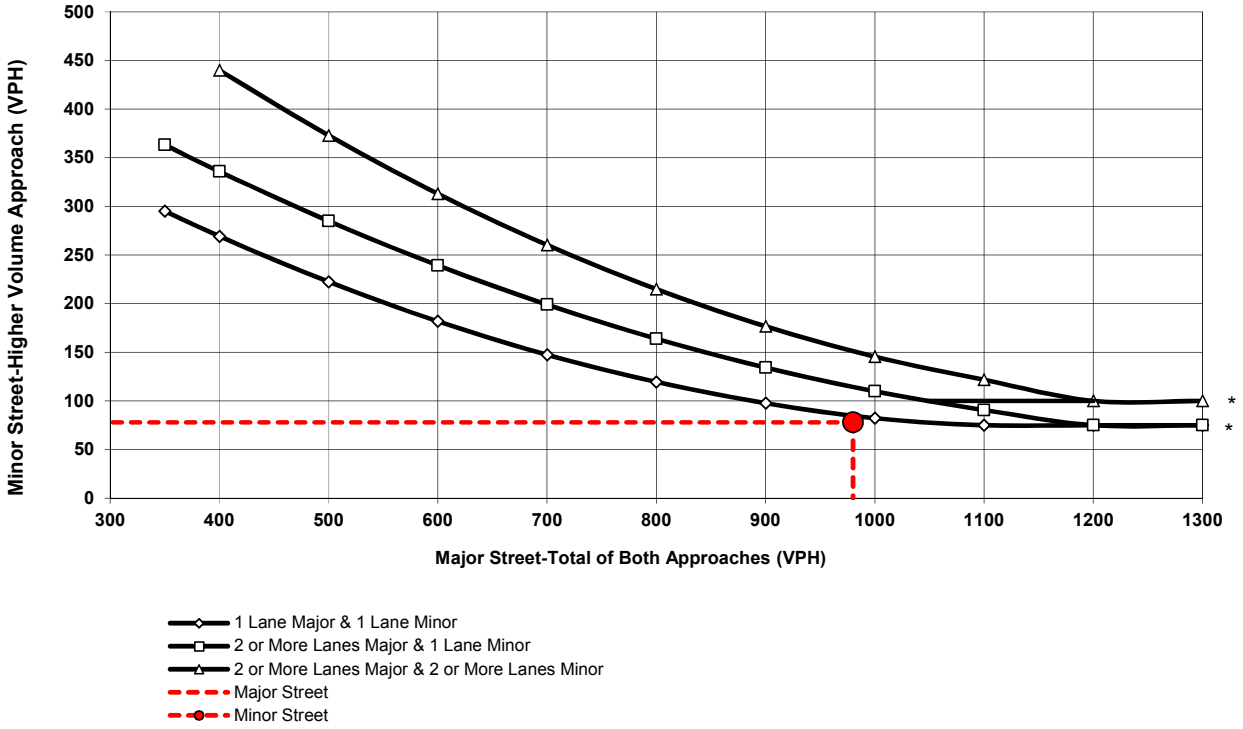
Major Street: Civic Drive

Minor Street: Home Depot South Driveway/Carmax South Driveway #1

Total of Both Approaches (VPH):	980	Higher Volume Approach (VPH):	78
Number of Approach Lanes:	2	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 Revision 1

HORIZON YEAR 2031 WITHOUT PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: PM

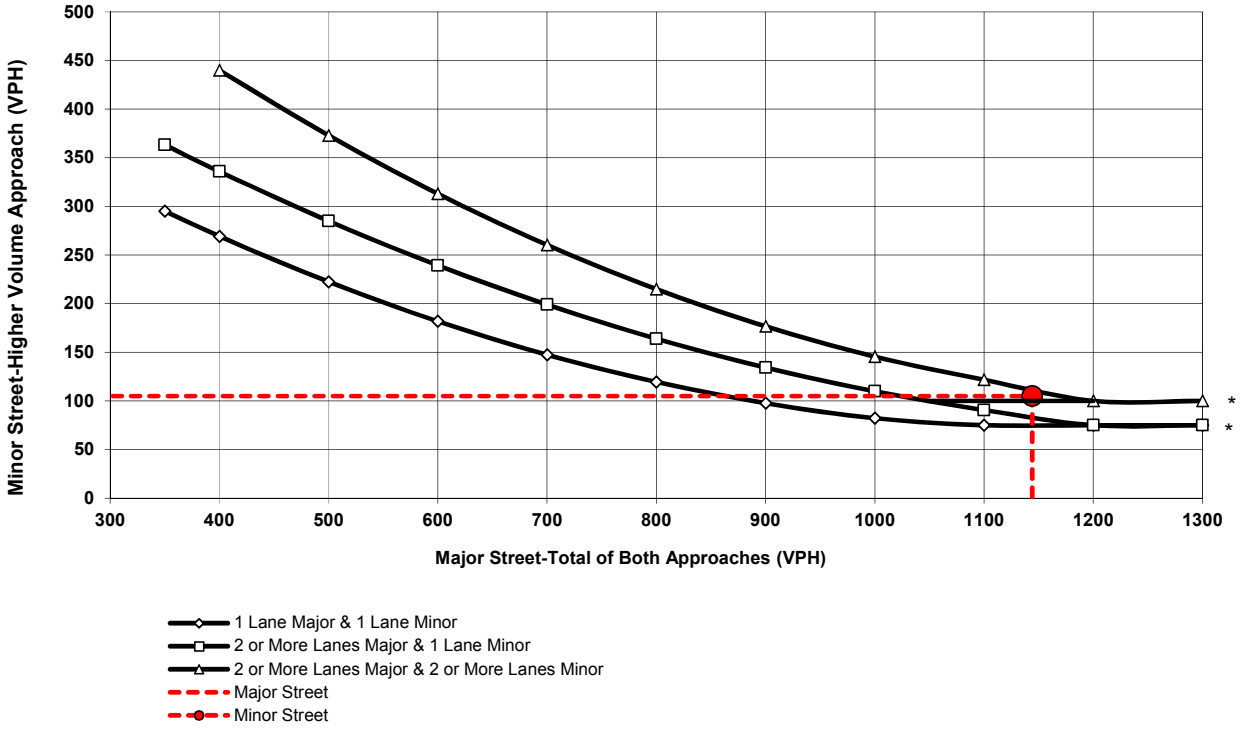
Major Street: Civic Drive

Minor Street: Home Depot North Driveway/Carmax North Driveway #2

Total of Both Approaches (VPH):	1144	Higher Volume Approach (VPH):	105
Number of Approach Lanes:	2	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: California MUTCD 2014 Revision 1

HORIZON YEAR 2031 WITH PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: Midday

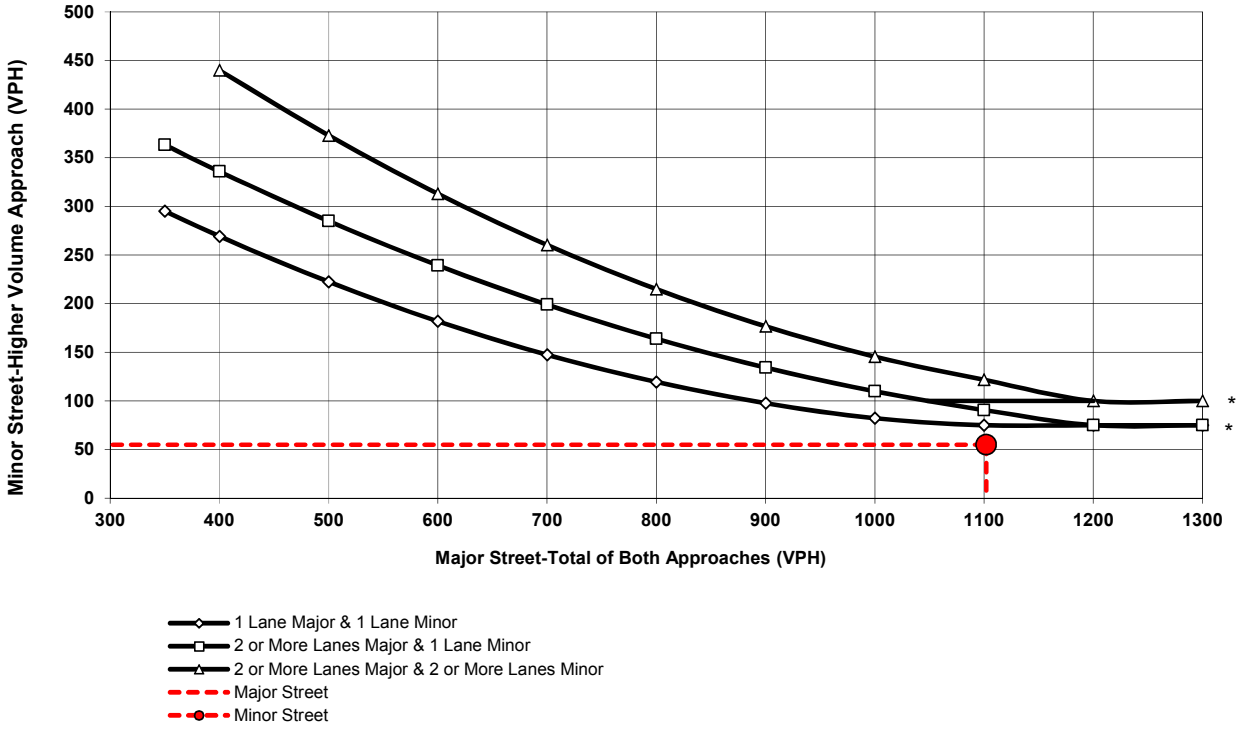
Major Street: Civic Drive

Minor Street: Home Depot South Driveway/Carmax South Driveway #1

Total of Both Approaches (VPH):	1102	Higher Volume Approach (VPH):	55
Number of Approach Lanes:	2	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 Revision 1

HORIZON YEAR 2031 WITH PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: Midday

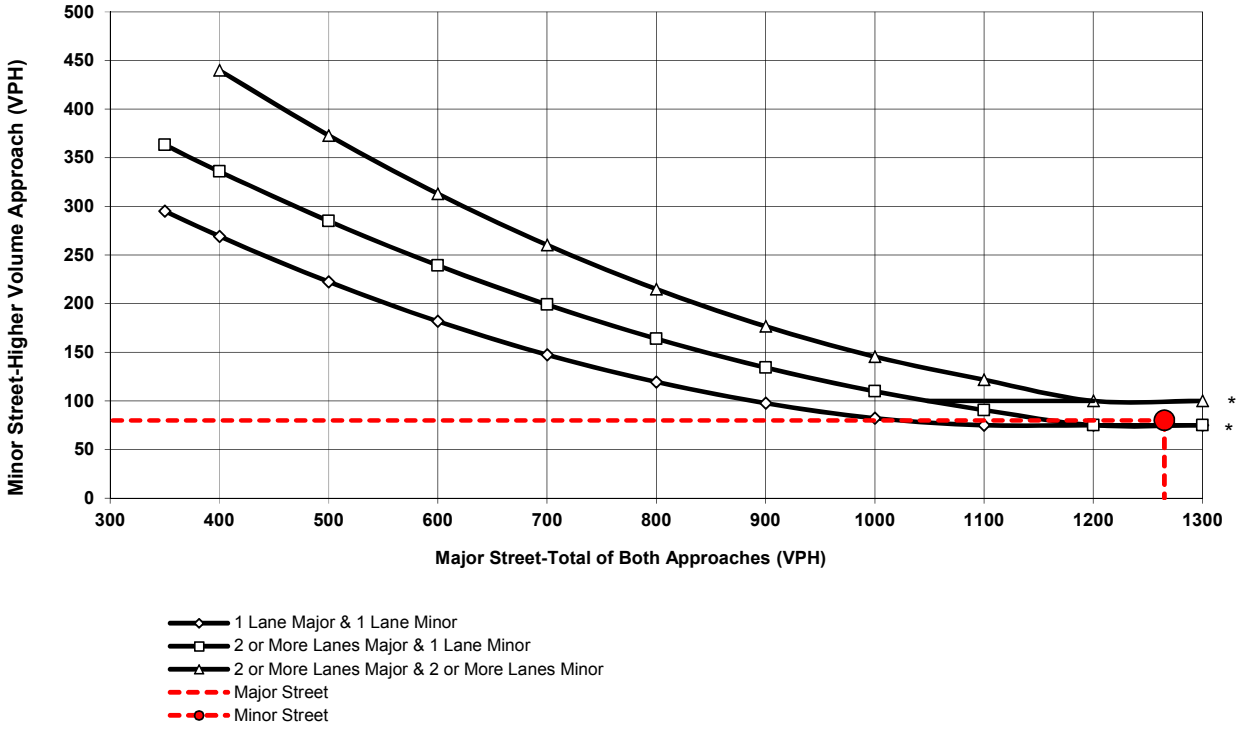
Major Street: Civic Drive

Minor Street: Home Depot North Driveway/Carmax North Driveway #2

Total of Both Approaches (VPH):	1265	Higher Volume Approach (VPH):	80
Number of Approach Lanes:	2	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: California MUTCD 2014 Revision 1

HORIZON YEAR 2031 WITH PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: PM

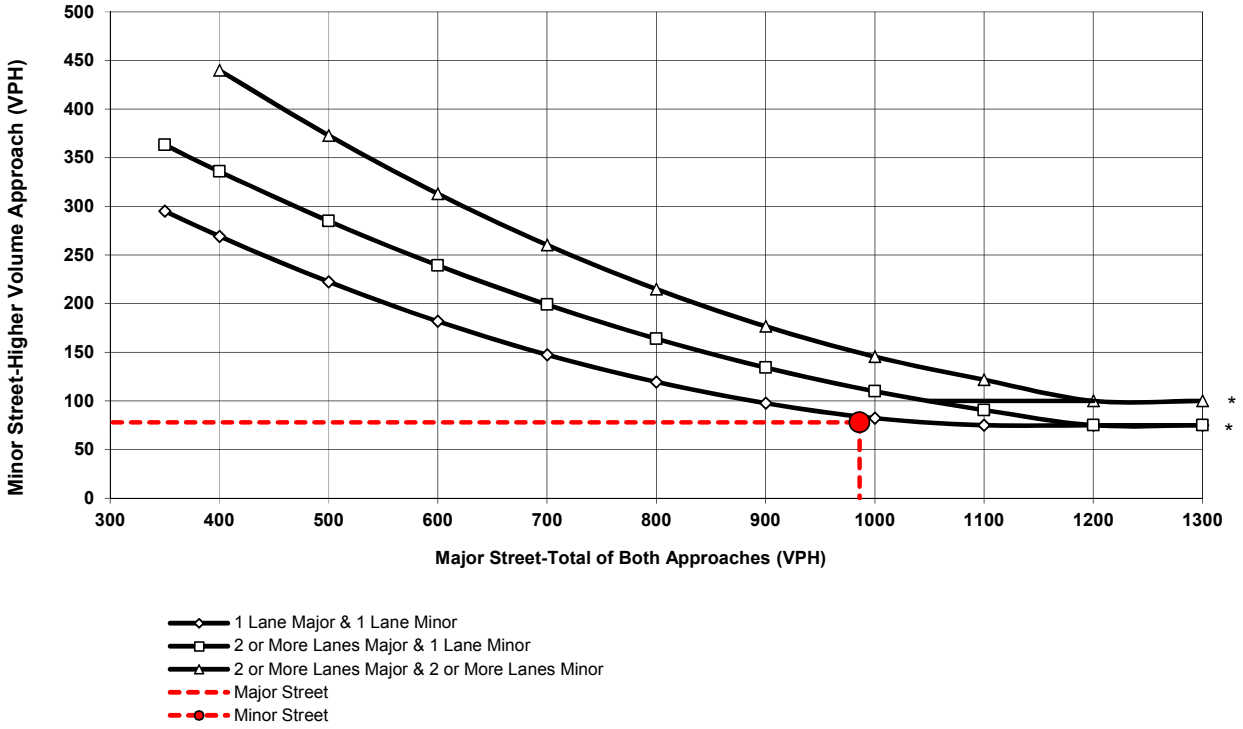
Major Street: Civic Drive

Minor Street: Home Depot South Driveway/Carmax South Driveway #1

Total of Both Approaches (VPH):	986	Higher Volume Approach (VPH):	78
Number of Approach Lanes:	2	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 Revision 1

HORIZON YEAR 2031 WITH PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: PM

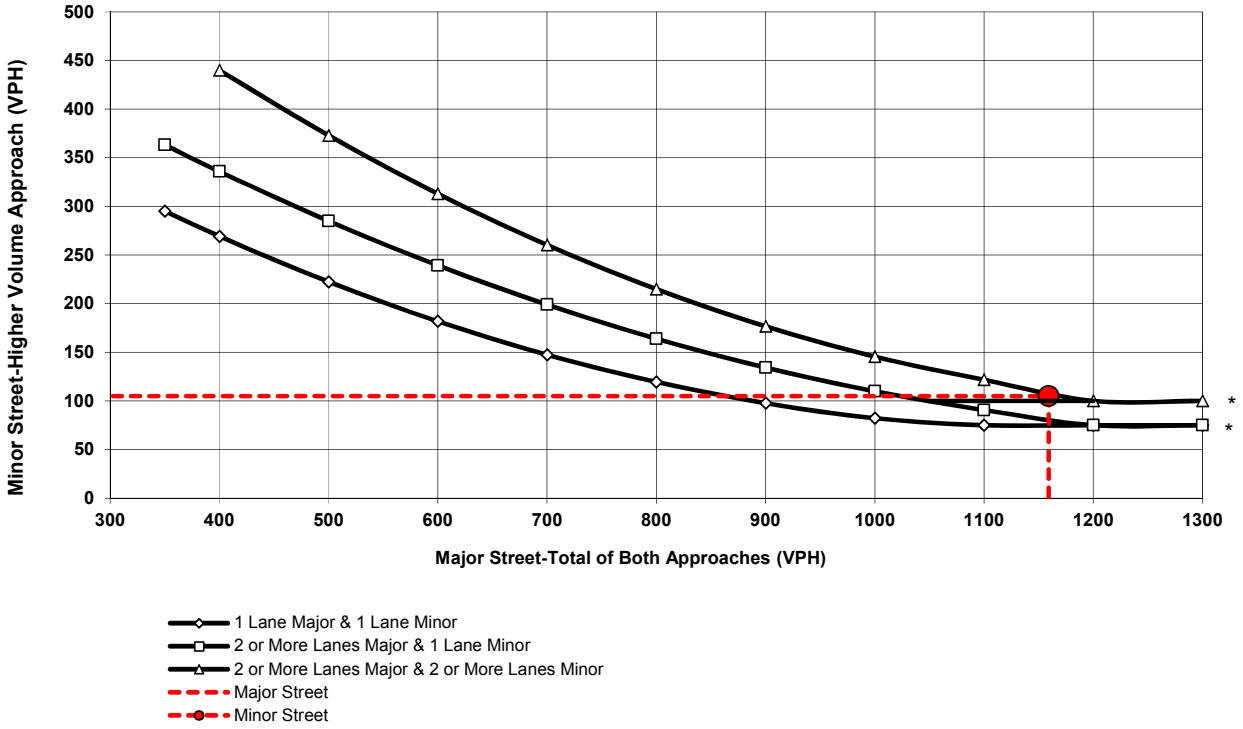
Major Street: Civic Drive

Minor Street: Home Depot North Driveway/Carmax North Driveway #2

Total of Both Approaches (VPH):	1159	Higher Volume Approach (VPH):	105
Number of Approach Lanes:	2	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: California MUTCD 2014 Revision 1

HORIZON YEAR 2031 WITHOUT PROJECT WITH VACANT PARCELS CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: Midday

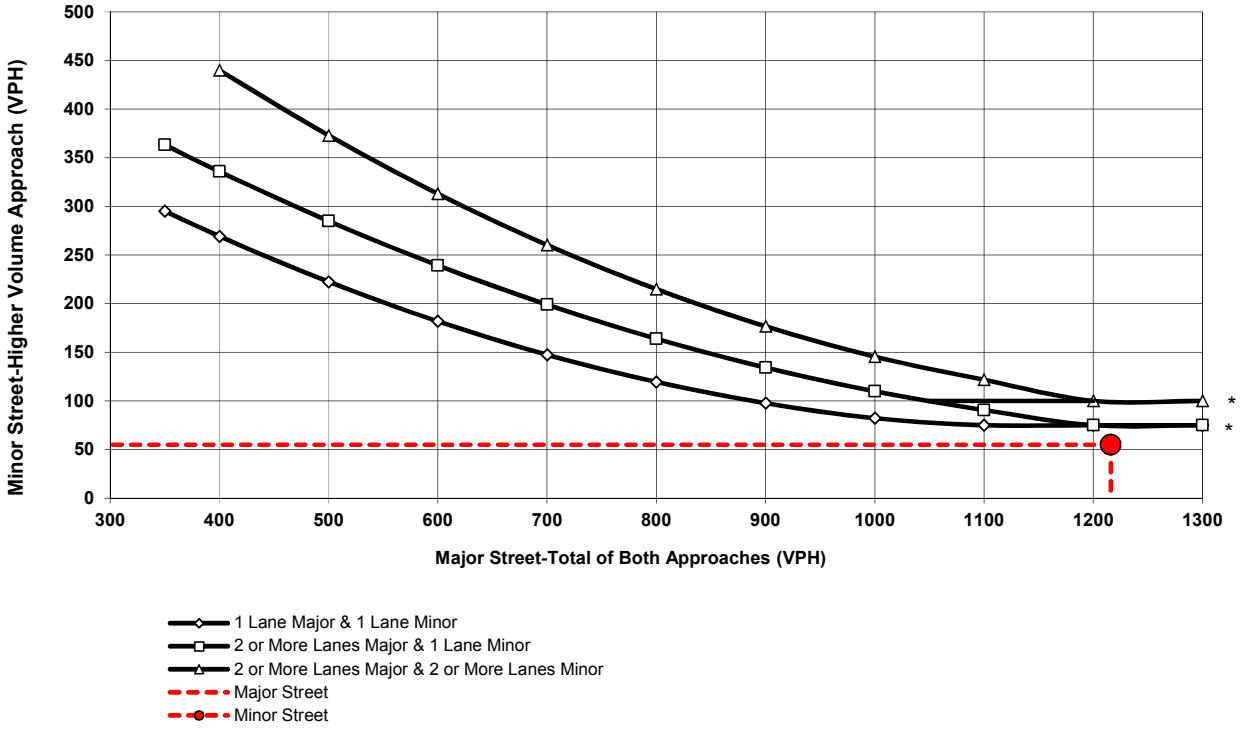
Major Street: Civic Drive

Minor Street: Home Depot South Driveway/Carmax South Driveway #1

Total of Both Approaches (VPH):	1216	Higher Volume Approach (VPH):	55
Number of Approach Lanes:	2	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 Revision 1

HORIZON YEAR 2031 WITHOUT PROJECT WITH VACANT PARCELS CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: **Midday**

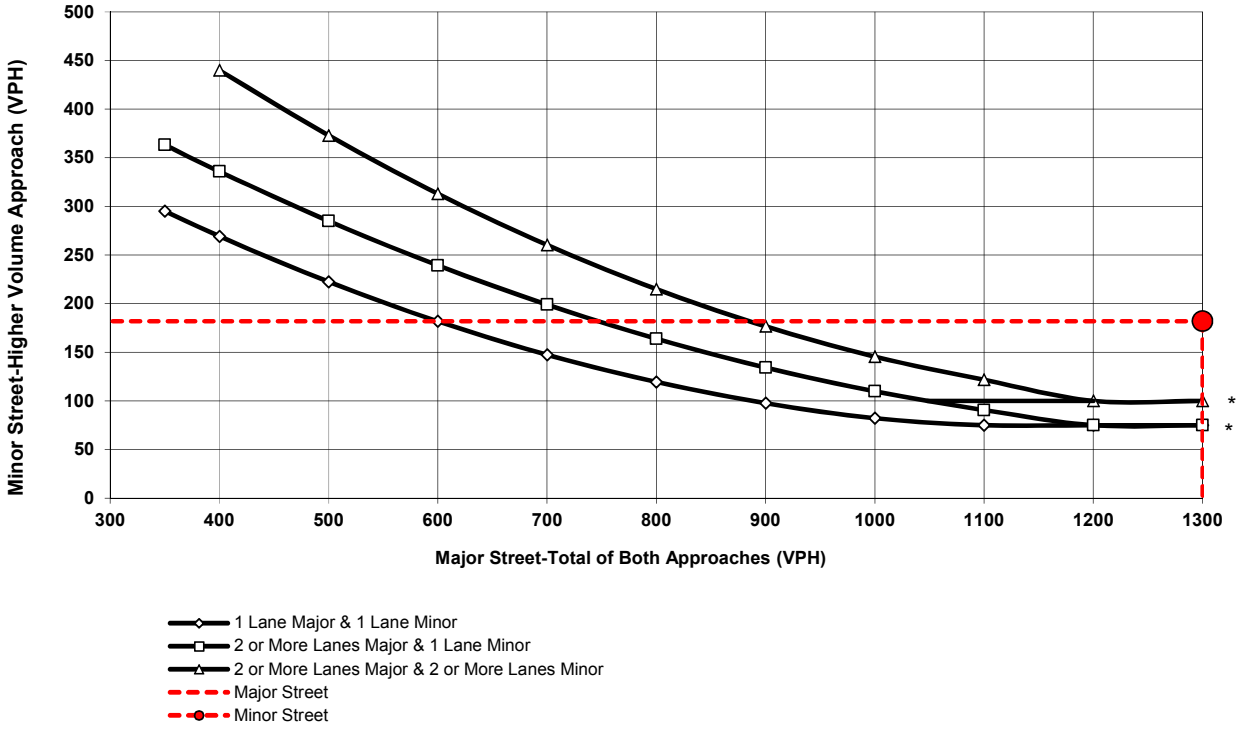
Major Street: **Civic Drive**

Minor Street: **Home Depot North Driveway/Carmax North Driveway #2**

Total of Both Approaches (VPH):	**1444**	Higher Volume Approach (VPH):	**182**
Number of Approach Lanes:	**2**	Number of Approach Lanes:	**2**

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: California MUTCD 2014 Revision 1

HORIZON YEAR 2031 WITHOUT PROJECT WITH VACANT PARCELS CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: PM

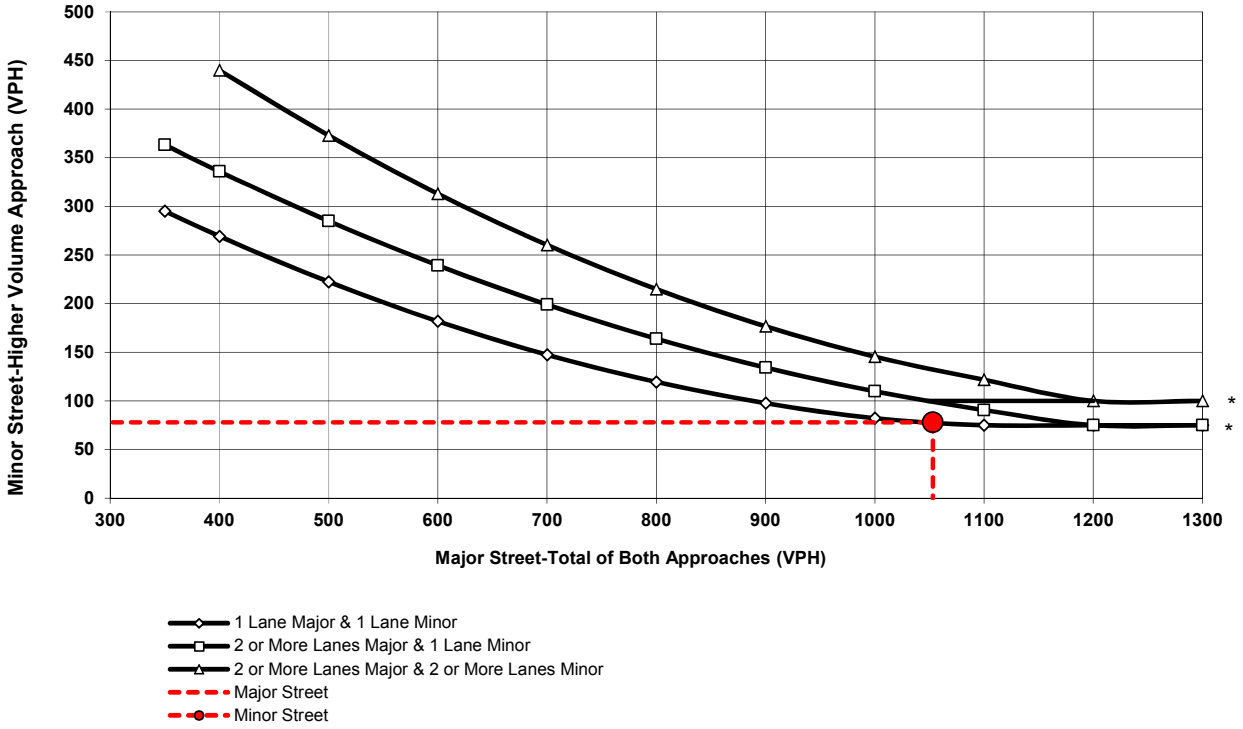
Major Street: Civic Drive

Minor Street: Home Depot South Driveway/Carmax South Driveway #1

Total of Both Approaches (VPH):	1053	Higher Volume Approach (VPH):	78
Number of Approach Lanes:	2	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 Revision 1

HORIZON YEAR 2031 WITHOUT PROJECT WITH VACANT PARCELS CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: PM

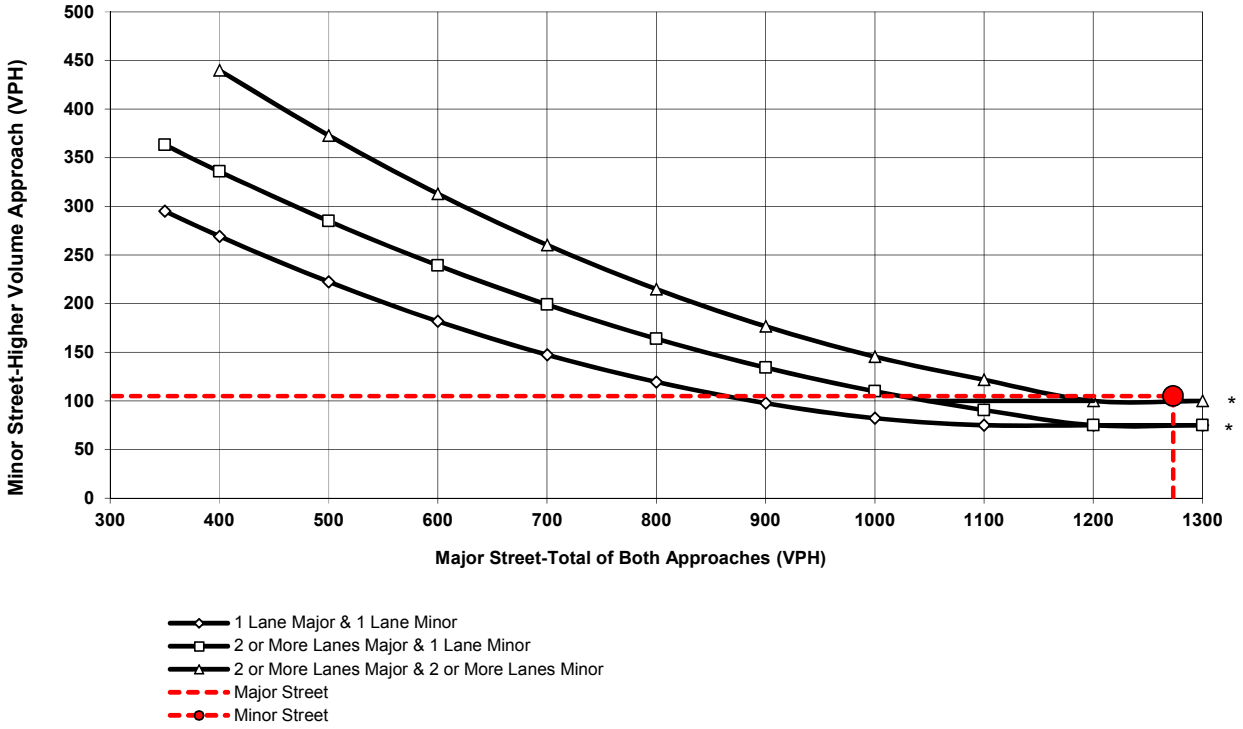
Major Street: Civic Drive

Minor Street: Home Depot North Driveway/Carmax North Driveway #2

Total of Both Approaches (VPH):	1273	Higher Volume Approach (VPH):	105
Number of Approach Lanes:	2	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: California MUTCD 2014 Revision 1

HORIZON YEAR 2031 WITH PROJECT WITH VACANT PARCELS CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: **Midday**

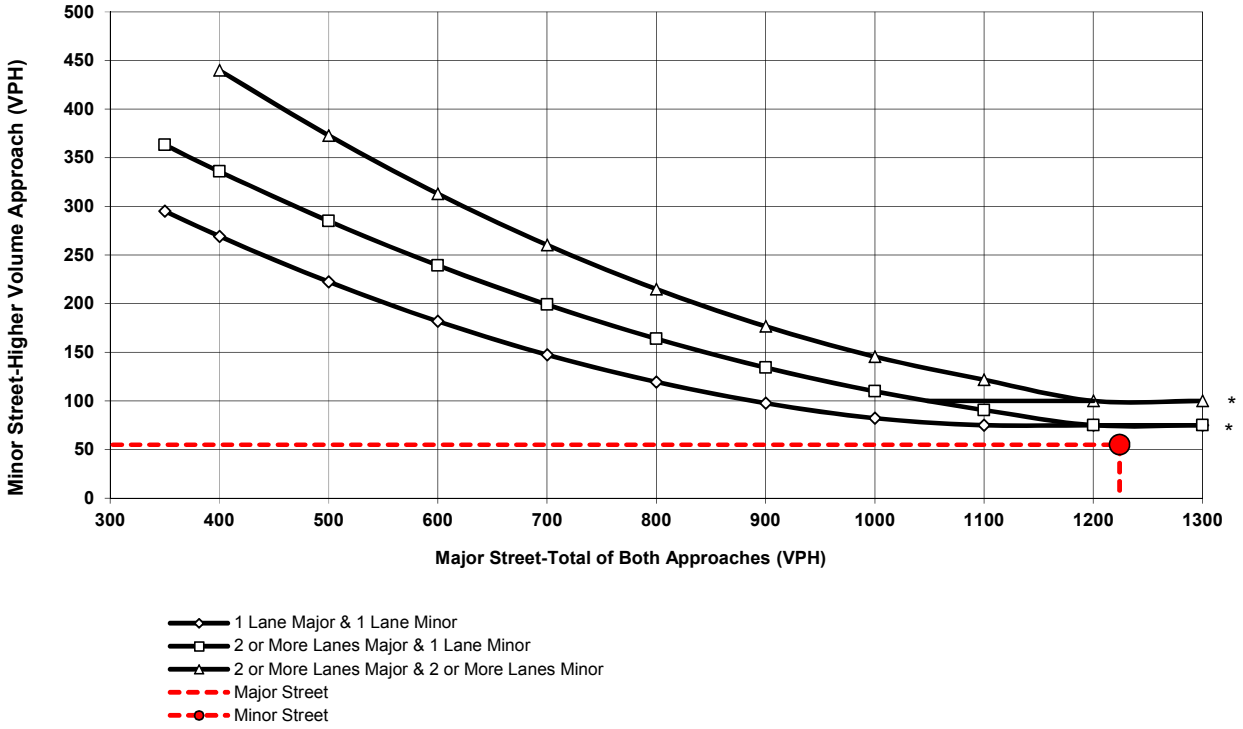
Major Street: **Civic Drive**

Minor Street: **Home Depot South Driveway/Carmax South Driveway #1**

Total of Both Approaches (VPH):	**1224**	Higher Volume Approach (VPH):	**55**
Number of Approach Lanes:	**2**	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 Revision 1

HORIZON YEAR 2031 WITH PROJECT WITH VACANT PARCELS CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: **Midday**

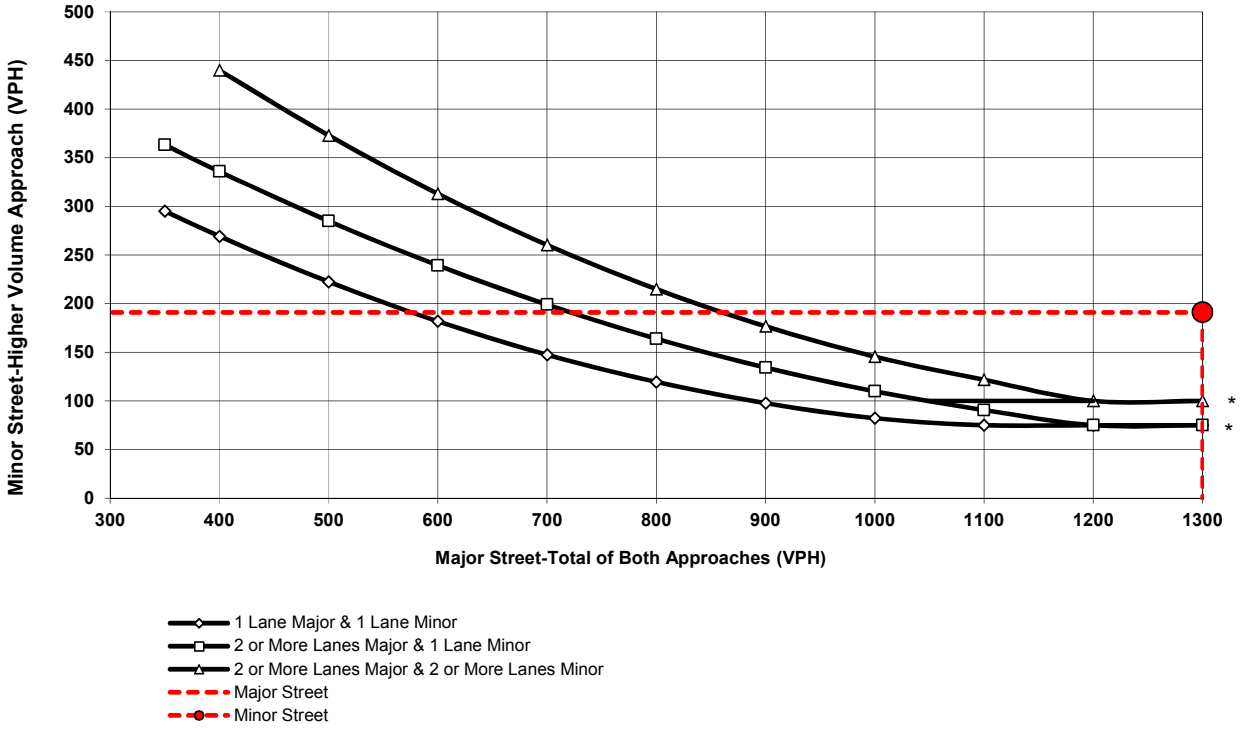
Major Street: **Civic Drive**

Minor Street: **Home Depot North Driveway/Carmax North Driveway #2**

Total of Both Approaches (VPH):	**1464**	Higher Volume Approach (VPH):	**191**
Number of Approach Lanes:	**2**	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: California MUTCD 2014 Revision 1

HORIZON YEAR 2031 WITH PROJECT WITH VACANT PARCELS CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: **PM**

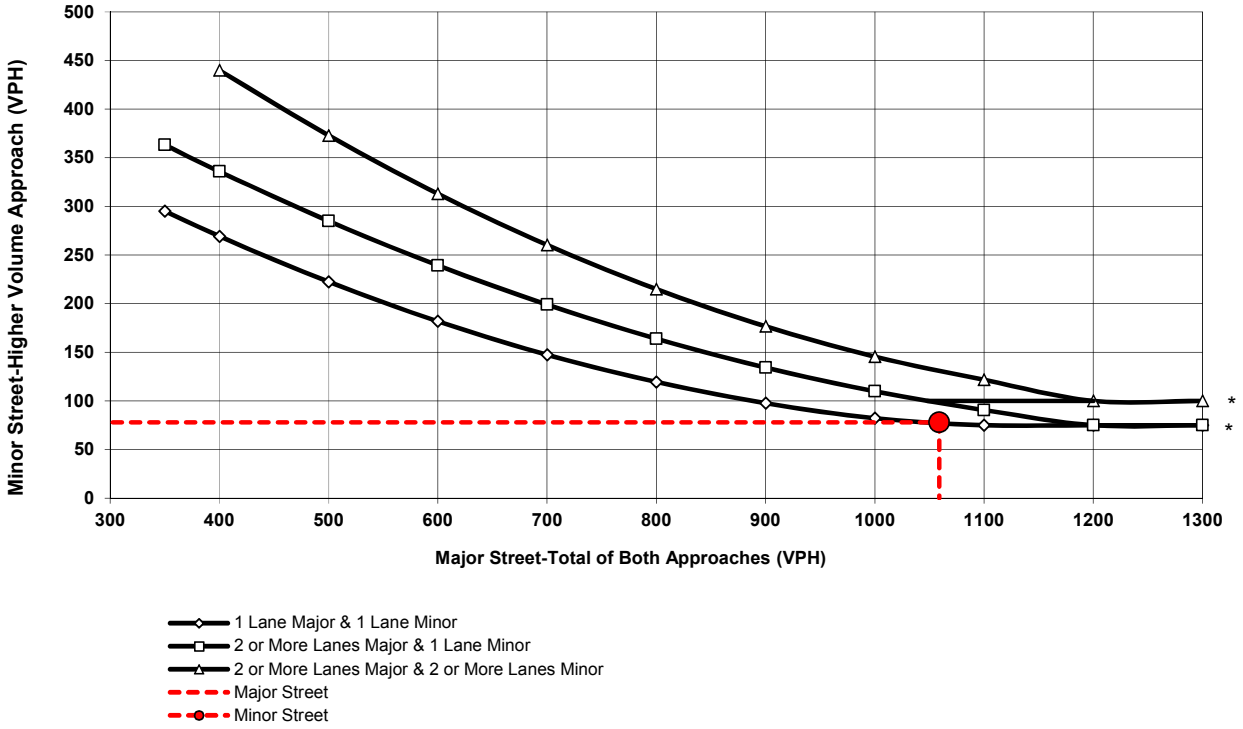
Major Street: **Civic Drive**

Minor Street: **Home Depot South Driveway/Carmax South Driveway #1**

Total of Both Approaches (VPH):	**1059**	Higher Volume Approach (VPH):	**78**
Number of Approach Lanes:	**2**	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 Revision 1

HORIZON YEAR 2031 WITH PROJECT WITH VACANT PARCELS CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: PM

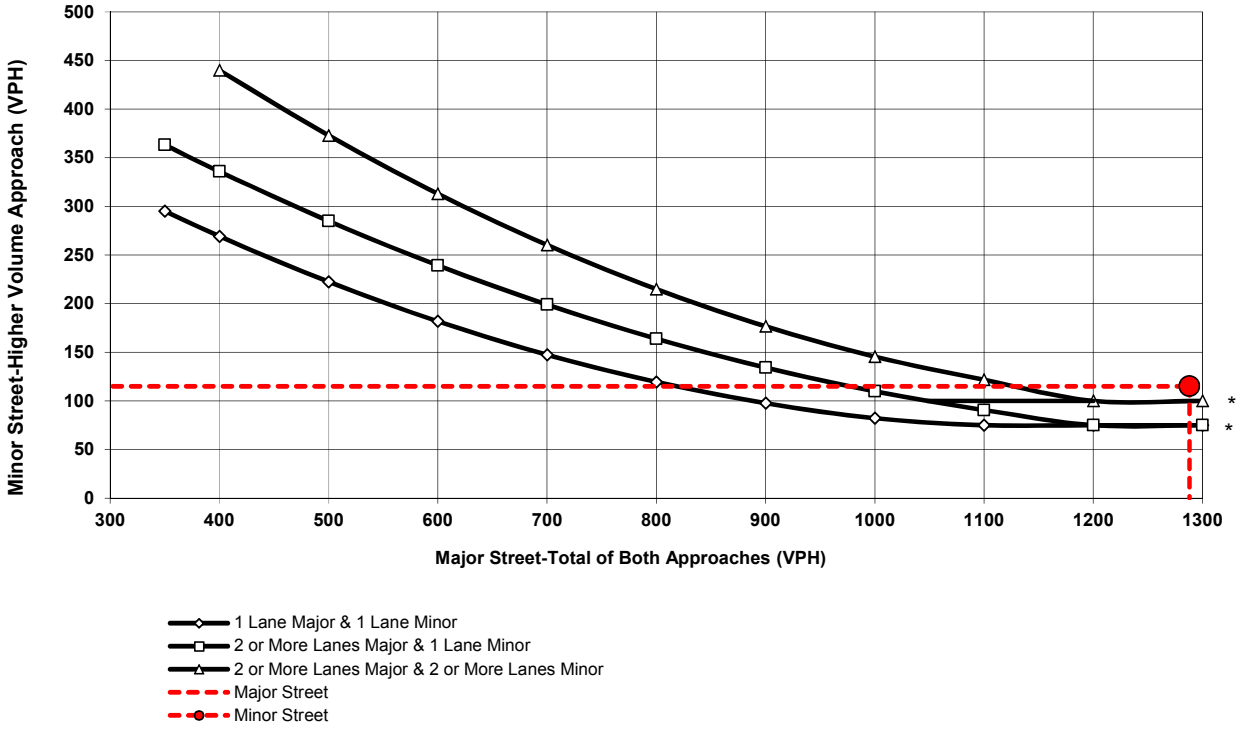
Major Street: Civic Drive

Minor Street: Home Depot North Driveway/Carmax North Driveway #2

Total of Both Approaches (VPH):	1288	Higher Volume Approach (VPH):	115
Number of Approach Lanes:	2	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: California MUTCD 2014 Revision 1

Michael Baker
INTERNATIONAL

Appendix L: Mitigation Synchro Worksheets

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	826	155	113	922	118	259	43	234	154	19	194
Future Volume (veh/h)	119	826	155	113	922	118	259	43	234	154	19	194
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	127	879	165	120	981	126	276	46	249	178	0	206
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	160	981	437	200	983	126	304	51	332	522	0	246
Arrive On Green	0.10	0.29	0.29	0.12	0.32	0.32	0.22	0.22	0.22	0.16	0.00	0.16
Sat Flow, veh/h	1619	3420	1525	1619	3048	391	1397	233	1525	3238	0	1525
Grp Volume(v), veh/h	127	879	165	120	550	557	322	0	249	178	0	206
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1730	1630	0	1525	1619	0	1525
Q Serve(g_s), s	6.9	22.2	7.8	6.3	28.9	28.9	17.3	0.0	13.7	4.4	0.0	11.8
Cycle Q Clear(g_c), s	6.9	22.2	7.8	6.3	28.9	28.9	17.3	0.0	13.7	4.4	0.0	11.8
Prop In Lane	1.00		1.00	1.00		0.23	0.86		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	160	981	437	200	551	558	354	0	332	522	0	246
V/C Ratio(X)	0.79	0.90	0.38	0.60	1.00	1.00	0.91	0.00	0.75	0.34	0.00	0.84
Avail Cap(c_a), veh/h	162	1027	458	200	551	558	363	0	339	720	0	339
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.6	30.8	25.6	37.3	30.4	30.4	34.3	0.0	32.9	33.5	0.0	36.6
Incr Delay (d2), s/veh	22.8	10.1	0.5	4.9	37.7	37.7	25.7	0.0	8.9	0.4	0.0	12.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	9.8	2.7	2.6	16.6	16.8	9.1	0.0	5.6	1.7	0.0	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.4	40.9	26.2	42.2	68.1	68.1	60.0	0.0	41.8	33.9	0.0	49.0
LnGrp LOS	E	D	C	D	E	E	E	A	D	C	A	D
Approach Vol, veh/h		1171			1227			571			384	
Approach Delay, s/veh		41.1			65.6			52.1			42.0	
Approach LOS		D			E			D			D	

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		24.5	16.1	30.8		18.5	12.9	34.0
Change Period (Y+Rc), s		5.0	5.0	5.0		4.0	4.0	* 5
Max Green Setting (Gmax), s		20.0	9.0	27.0		20.0	9.0	* 29
Max Q Clear Time (g_c+I1), s		19.3	8.3	24.2		13.8	8.9	30.9
Green Ext Time (p_c), s		0.2	0.0	1.6		0.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	52.1
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	862	237	114	864	118	369	68	231	133	33	157
Future Volume (veh/h)	122	862	237	114	864	118	369	68	231	133	33	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	127	898	247	119	900	123	384	71	241	86	107	164
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	147	965	430	150	893	122	375	69	416	221	232	208
Arrive On Green	0.09	0.28	0.28	0.09	0.30	0.30	0.27	0.27	0.27	0.14	0.14	0.14
Sat Flow, veh/h	1619	3420	1525	1619	3023	413	1377	255	1525	1619	1700	1525
Grp Volume(v), veh/h	127	898	247	119	509	514	455	0	241	86	107	164
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1726	1631	0	1525	1619	1700	1525
Q Serve(g_s), s	6.8	22.5	12.2	6.3	26.0	26.0	24.0	0.0	12.0	4.3	5.1	9.2
Cycle Q Clear(g_c), s	6.8	22.5	12.2	6.3	26.0	26.0	24.0	0.0	12.0	4.3	5.1	9.2
Prop In Lane	1.00		1.00	1.00		0.24	0.84		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	147	965	430	150	505	510	445	0	416	221	232	208
V/C Ratio(X)	0.86	0.93	0.57	0.79	1.01	1.01	1.02	0.00	0.58	0.39	0.46	0.79
Avail Cap(c_a), veh/h	147	971	433	150	505	510	445	0	416	368	386	347
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	30.8	27.1	39.1	31.0	31.0	32.0	0.0	27.7	34.6	35.0	36.8
Incr Delay (d2), s/veh	37.6	15.0	1.8	24.4	42.1	41.9	48.7	0.0	2.0	1.1	1.4	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	10.5	4.3	3.4	15.7	15.8	15.0	0.0	4.3	1.7	2.1	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.1	45.7	28.9	63.5	73.1	72.9	80.7	0.0	29.7	35.8	36.4	43.2
LnGrp LOS	E	D	C	E	F	F	F	A	C	D	D	D
Approach Vol, veh/h		1272			1142			696			357	
Approach Delay, s/veh		45.6			72.0			63.0			39.4	
Approach LOS		D			E			E			D	

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		29.0	13.2	29.8		16.0	12.0	31.0
Change Period (Y+Rc), s		5.0	5.0	5.0		4.0	4.0	* 5
Max Green Setting (Gmax), s		24.0	7.0	25.0		20.0	8.0	* 26
Max Q Clear Time (g_c+I1), s		26.0	8.3	24.5		11.2	8.8	28.0
Green Ext Time (p_c), s		0.0	0.0	0.3		0.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	57.2
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	0	23	37	0	3	29	618	2	107	383	30
Future Volume (veh/h)	70	0	23	37	0	3	29	618	2	107	383	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1700	1700	1700	1700	1700	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	78	0	26	41	0	3	32	687	2	119	426	33
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
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	301	0	33	357	0	10	63	1212	4	167	1321	102
Arrive On Green	0.09	0.00	0.09	0.09	0.00	0.09	0.04	0.35	0.35	0.10	0.41	0.41
Sat Flow, veh/h	1054	0	351	1429	0	105	1619	3498	10	1619	3217	248
Grp Volume(v), veh/h	104	0	0	44	0	0	32	336	353	119	226	233
Grp Sat Flow(s),veh/h/ln	1405	0	0	1534	0	0	1619	1710	1798	1619	1710	1755
Q Serve(g_s), s	1.4	0.0	0.0	0.0	0.0	0.0	0.6	5.0	5.0	2.2	2.8	2.8
Cycle Q Clear(g_c), s	2.2	0.0	0.0	0.8	0.0	0.0	0.6	5.0	5.0	2.2	2.8	2.8
Prop In Lane	0.75		0.25	0.93		0.07	1.00		0.01	1.00		0.14
Lane Grp Cap(c), veh/h	334	0	0	367	0	0	63	592	623	167	702	721
V/C Ratio(X)	0.31	0.00	0.00	0.12	0.00	0.00	0.51	0.57	0.57	0.71	0.32	0.32
Avail Cap(c_a), veh/h	1682	0	0	1663	0	0	325	1700	1788	490	1875	1924
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	0.0	0.0	13.2	0.0	0.0	14.8	8.3	8.3	13.6	6.3	6.3
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.1	0.0	0.0	6.3	0.9	0.8	5.6	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.2	0.0	0.0	0.3	1.0	1.1	0.8	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.3	0.0	0.0	13.4	0.0	0.0	21.0	9.2	9.2	19.2	6.5	6.5
LnGrp LOS	B	A	A	B	A	A	C	A	A	B	A	A
Approach Vol, veh/h		104			44			721			578	
Approach Delay, s/veh		14.3			13.4			9.7			9.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.7	16.2		7.5	5.7	18.2		7.5
Change Period (Y+Rc), s	4.5	5.3		4.5	4.5	5.3		4.5
Max Green Setting (Gmax), s	9.5	31.2		35.0	6.3	34.4		35.0
Max Q Clear Time (g_c+I1), s	4.2	7.0		4.2	2.6	4.8		2.8
Green Ext Time (p_c), s	0.1	3.9		0.6	0.0	2.5		0.2

Intersection Summary	
HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	4	29	9	4	13	65	577	48	103	481	29
Future Vol, veh/h	9	4	29	9	4	13	65	577	48	103	481	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	10	4	32	10	4	14	72	641	53	114	534	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1245	1616	283	1309	1606	347	566	0	0	694	0	0
Stage 1	778	778	-	812	812	-	-	-	-	-	-	-
Stage 2	467	838	-	497	794	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	133	105	720	119	106	655	1016	-	-	911	-	-
Stage 1	360	410	-	343	395	-	-	-	-	-	-	-
Stage 2	551	384	-	529	403	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	107	85	720	94	86	655	1016	-	-	911	-	-
Mov Cap-2 Maneuver	107	85	-	94	86	-	-	-	-	-	-	-
Stage 1	334	359	-	319	367	-	-	-	-	-	-	-
Stage 2	495	357	-	437	353	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.1	31.2	0.8	1.6
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1016	-	-	245	91	655	911	-	-
HCM Lane V/C Ratio	0.071	-	-	0.19	0.159	0.022	0.126	-	-
HCM Control Delay (s)	8.8	-	-	23.1	51.9	10.6	9.5	-	-
HCM Lane LOS	A	-	-	C	F	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.7	0.5	0.1	0.4	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	991	185	136	1106	142	309	52	281	185	23	233
Future Volume (veh/h)	143	991	185	136	1106	142	309	52	281	185	23	233
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	151	1043	195	143	1164	149	325	55	296	212	0	245
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	156	1028	459	156	950	121	299	51	328	595	0	280
Arrive On Green	0.10	0.30	0.30	0.10	0.31	0.31	0.21	0.21	0.21	0.18	0.00	0.18
Sat Flow, veh/h	1619	3420	1525	1619	3050	389	1394	236	1525	3238	0	1525
Grp Volume(v), veh/h	151	1043	195	143	651	662	380	0	296	212	0	245
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1730	1630	0	1525	1619	0	1525
Q Serve(g_s), s	8.7	28.0	9.5	8.1	29.0	29.0	20.0	0.0	17.6	5.3	0.0	14.5
Cycle Q Clear(g_c), s	8.7	28.0	9.5	8.1	29.0	29.0	20.0	0.0	17.6	5.3	0.0	14.5
Prop In Lane	1.00		1.00	1.00		0.23	0.86		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	156	1028	459	156	533	539	350	0	328	595	0	280
V/C Ratio(X)	0.96	1.01	0.43	0.91	1.22	1.23	1.09	0.00	0.90	0.36	0.00	0.87
Avail Cap(c_a), veh/h	156	1028	459	156	533	539	350	0	328	695	0	328
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.9	32.6	26.1	41.7	32.1	32.1	36.6	0.0	35.6	33.2	0.0	36.9
Incr Delay (d2), s/veh	61.3	31.6	0.6	47.4	116.2	118.4	72.8	0.0	26.9	0.4	0.0	19.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	15.2	3.3	5.2	28.2	28.9	14.8	0.0	8.6	2.0	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	103.2	64.2	26.7	89.1	148.3	150.5	109.4	0.0	62.5	33.5	0.0	56.8
LnGrp LOS	F	F	C	F	F	F	F	A	E	C	A	E
Approach Vol, veh/h		1389			1456			676			457	
Approach Delay, s/veh		63.2			143.5			88.9			46.0	
Approach LOS		E			F			F			D	

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		25.0	14.0	33.0		21.1	13.0	34.0
Change Period (Y+Rc), s		5.0	5.0	5.0		4.0	4.0	* 5
Max Green Setting (Gmax), s		20.0	8.0	28.0		20.0	9.0	* 29
Max Q Clear Time (g_c+I1), s		22.0	10.1	30.0		16.5	10.7	31.0
Green Ext Time (p_c), s		0.0	0.0	0.0		0.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	95.0
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	0	35	21	0	3	40	632	1	93	253	38
Future Volume (veh/h)	99	0	35	21	0	3	40	632	1	93	253	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1700	1700	1700	1700	1700	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	110	0	39	23	0	3	44	702	1	103	281	42
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
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	327	0	50	383	11	25	81	1199	2	149	1148	170
Arrive On Green	0.14	0.00	0.14	0.14	0.00	0.14	0.05	0.34	0.34	0.09	0.38	0.38
Sat Flow, veh/h	999	0	354	1279	80	177	1619	3504	5	1619	2989	442
Grp Volume(v), veh/h	149	0	0	26	0	0	44	343	360	103	159	164
Grp Sat Flow(s),veh/h/ln	1353	0	0	1536	0	0	1619	1710	1799	1619	1710	1720
Q Serve(g_s), s	3.1	0.0	0.0	0.0	0.0	0.0	0.9	5.6	5.6	2.1	2.1	2.2
Cycle Q Clear(g_c), s	3.5	0.0	0.0	0.5	0.0	0.0	0.9	5.6	5.6	2.1	2.1	2.2
Prop In Lane	0.74		0.26	0.88		0.12	1.00		0.00	1.00		0.26
Lane Grp Cap(c), veh/h	378	0	0	419	0	0	81	585	616	149	657	661
V/C Ratio(X)	0.39	0.00	0.00	0.06	0.00	0.00	0.54	0.59	0.59	0.69	0.24	0.25
Avail Cap(c_a), veh/h	1307	0	0	1307	0	0	360	1658	1744	696	2012	2025
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.9	0.0	0.0	12.6	0.0	0.0	15.6	9.1	9.1	14.9	7.1	7.1
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.1	0.0	0.0	5.5	0.9	0.9	5.7	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.1	0.0	0.0	0.4	1.3	1.3	0.8	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.6	0.0	0.0	12.7	0.0	0.0	21.2	10.1	10.0	20.5	7.2	7.3
LnGrp LOS	B	A	A	B	A	A	C	B	B	C	A	A
Approach Vol, veh/h		149			26			747			426	
Approach Delay, s/veh		14.6			12.7			10.7			10.5	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.6	16.8		9.3	6.2	18.3		9.3
Change Period (Y+Rc), s	4.5	5.3		4.5	4.5	5.3		4.5
Max Green Setting (Gmax), s	14.5	32.7		28.5	7.5	39.7		28.5
Max Q Clear Time (g_c+I1), s	4.1	7.6		5.5	2.9	4.2		2.5
Green Ext Time (p_c), s	0.1	4.0		0.8	0.0	1.7		0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.1
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	6	29	5	4	11	17	702	15	90	350	41
Future Vol, veh/h	14	6	29	5	4	11	17	702	15	90	350	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	16	7	32	6	4	12	19	780	17	100	389	46

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1042	1447	218	1225	1462	399	435	0	0	797	0	0
Stage 1	612	612	-	827	827	-	-	-	-	-	-	-
Stage 2	430	835	-	398	635	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	187	133	792	137	130	606	1135	-	-	834	-	-
Stage 1	452	487	-	336	389	-	-	-	-	-	-	-
Stage 2	579	386	-	605	476	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	160	115	792	113	112	606	1135	-	-	834	-	-
Mov Cap-2 Maneuver	160	115	-	113	112	-	-	-	-	-	-	-
Stage 1	444	429	-	330	382	-	-	-	-	-	-	-
Stage 2	551	379	-	503	419	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.1	24.1	0.2	1.9
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1135	-	-	278	113	606	834	-	-
HCM Lane V/C Ratio	0.017	-	-	0.196	0.088	0.02	0.12	-	-
HCM Control Delay (s)	8.2	-	-	21.1	39.9	11.1	9.9	-	-
HCM Lane LOS	A	-	-	C	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.3	0.1	0.4	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	1034	284	137	1037	142	442	82	277	160	40	188
Future Volume (veh/h)	146	1034	284	137	1037	142	442	82	277	160	40	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1700	1800	1700	1700	1800
Adj Flow Rate, veh/h	152	1077	296	143	1080	148	460	85	289	104	129	196
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	144	1024	457	144	939	128	336	62	372	254	267	239
Arrive On Green	0.09	0.30	0.30	0.09	0.31	0.31	0.24	0.24	0.24	0.16	0.16	0.16
Sat Flow, veh/h	1619	3420	1525	1619	3022	413	1377	254	1525	1619	1700	1525
Grp Volume(v), veh/h	152	1077	296	143	610	618	545	0	289	104	129	196
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1726	1631	0	1525	1619	1700	1525
Q Serve(g_s), s	8.0	27.0	15.2	8.0	28.0	28.0	22.0	0.0	15.9	5.2	6.2	11.2
Cycle Q Clear(g_c), s	8.0	27.0	15.2	8.0	28.0	28.0	22.0	0.0	15.9	5.2	6.2	11.2
Prop In Lane	1.00		1.00	1.00		0.24	0.84		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	144	1024	457	144	531	536	398	0	372	254	267	239
V/C Ratio(X)	1.06	1.05	0.65	1.00	1.15	1.15	1.37	0.00	0.78	0.41	0.48	0.82
Avail Cap(c_a), veh/h	144	1024	457	144	531	536	398	0	372	359	377	338
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	31.6	27.4	41.1	31.1	31.1	34.1	0.0	31.8	34.2	34.7	36.8
Incr Delay (d2), s/veh	91.3	42.6	3.2	73.5	87.2	88.3	181.4	0.0	9.9	1.1	1.4	10.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	16.3	5.5	6.0	23.4	23.8	28.4	0.0	6.5	2.0	2.6	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	132.4	74.2	30.6	114.6	118.3	119.4	215.5	0.0	41.7	35.3	36.0	47.0
LnGrp LOS	F	F	C	F	F	F	F	A	D	D	D	D
Approach Vol, veh/h		1525			1371			834			429	
Approach Delay, s/veh		71.5			118.4			155.3			40.9	
Approach LOS		E			F			F			D	

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		27.0	13.0	32.0		18.1	12.0	33.0
Change Period (Y+Rc), s		5.0	5.0	5.0		4.0	4.0	* 5
Max Green Setting (Gmax), s		22.0	7.0	27.0		20.0	8.0	* 28
Max Q Clear Time (g_c+I1), s		24.0	10.0	29.0		13.2	10.0	30.0
Green Ext Time (p_c), s		0.0	0.0	0.0		0.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	100.6
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	0	23	76	0	22	29	628	21	245	372	30
Future Volume (veh/h)	70	0	23	76	0	22	29	628	21	245	372	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1700	1700	1700	1700	1700	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	78	0	26	84	0	24	32	698	23	272	413	33
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
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	268	0	35	273	0	30	61	1097	36	347	1608	128
Arrive On Green	0.09	0.00	0.09	0.09	0.00	0.09	0.04	0.32	0.32	0.21	0.50	0.50
Sat Flow, veh/h	1160	0	387	1190	0	340	1619	3379	111	1619	3209	255
Grp Volume(v), veh/h	104	0	0	108	0	0	32	353	368	272	219	227
Grp Sat Flow(s),veh/h/ln	1546	0	0	1530	0	0	1619	1710	1780	1619	1710	1754
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	0.7	6.8	6.8	6.1	2.8	2.8
Cycle Q Clear(g_c), s	2.4	0.0	0.0	2.5	0.0	0.0	0.7	6.8	6.8	6.1	2.8	2.8
Prop In Lane	0.75		0.25	0.78		0.22	1.00		0.06	1.00		0.15
Lane Grp Cap(c), veh/h	302	0	0	303	0	0	61	555	578	347	857	879
V/C Ratio(X)	0.34	0.00	0.00	0.36	0.00	0.00	0.53	0.64	0.64	0.78	0.26	0.26
Avail Cap(c_a), veh/h	1132	0	0	1129	0	0	265	1164	1212	904	1839	1887
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	0.0	0.0	17.1	0.0	0.0	18.2	11.1	11.1	14.3	5.5	5.5
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.7	0.0	0.0	6.8	1.2	1.2	3.9	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.9	0.0	0.0	0.3	1.8	1.9	2.0	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	0.0	0.0	17.8	0.0	0.0	25.0	12.3	12.2	18.2	5.6	5.7
LnGrp LOS	B	A	A	B	A	A	C	B	B	B	A	A
Approach Vol, veh/h		104			108			753			718	
Approach Delay, s/veh		17.7			17.8			12.8			10.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	17.8		7.9	5.9	24.6		7.9
Change Period (Y+Rc), s	4.5	5.3		4.5	4.5	5.3		4.5
Max Green Setting (Gmax), s	21.5	26.2		28.0	6.3	41.4		28.0
Max Q Clear Time (g_c+I1), s	8.1	8.8		4.4	2.7	4.8		4.5
Green Ext Time (p_c), s	0.6	3.7		0.5	0.0	2.5		0.5

Intersection Summary		
HCM 6th Ctrl Delay		12.4
HCM 6th LOS		B

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	4	29	11	4	130	65	583	71	148	606	29
Future Vol, veh/h	9	4	29	11	4	130	65	583	71	148	606	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	10	4	32	12	4	144	72	648	79	164	673	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1487	1888	353	1499	1865	364	705	0	0	727	0	0
Stage 1	1017	1017	-	832	832	-	-	-	-	-	-	-
Stage 2	470	871	-	667	1033	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	88	71	649	86	74	639	902	-	-	886	-	-
Stage 1	258	318	-	334	387	-	-	-	-	-	-	-
Stage 2	548	371	-	419	312	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	52	53	649	62	56	639	902	-	-	886	-	-
Mov Cap-2 Maneuver	52	53	-	62	56	-	-	-	-	-	-	-
Stage 1	237	259	-	307	356	-	-	-	-	-	-	-
Stage 2	385	341	-	319	254	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	41.9	20	0.8	1.9
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	902	-	-	143	60	639	886	-	-
HCM Lane V/C Ratio	0.08	-	-	0.326	0.278	0.226	0.186	-	-
HCM Control Delay (s)	9.3	-	-	41.9	86.6	12.3	10	-	-
HCM Lane LOS	A	-	-	E	F	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	1.3	1	0.9	0.7	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	0	35	48	0	15	40	637	14	185	241	38
Future Volume (veh/h)	99	0	35	48	0	15	40	637	14	185	241	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1700	1700	1700	1700	1700	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	110	0	39	53	0	17	44	708	16	206	268	42
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
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	303	1	51	305	20	52	79	1117	25	267	1313	203
Arrive On Green	0.14	0.00	0.14	0.14	0.00	0.14	0.05	0.33	0.33	0.16	0.44	0.44
Sat Flow, veh/h	1024	11	367	1020	146	374	1619	3419	77	1619	2968	459
Grp Volume(v), veh/h	149	0	0	70	0	0	44	354	370	206	153	157
Grp Sat Flow(s),veh/h/ln	1402	0	0	1540	0	0	1619	1710	1786	1619	1710	1717
Q Serve(g_s), s	2.4	0.0	0.0	0.0	0.0	0.0	1.0	6.8	6.8	4.7	2.1	2.2
Cycle Q Clear(g_c), s	3.8	0.0	0.0	1.5	0.0	0.0	1.0	6.8	6.8	4.7	2.1	2.2
Prop In Lane	0.74		0.26	0.76		0.24	1.00		0.04	1.00		0.27
Lane Grp Cap(c), veh/h	355	0	0	376	0	0	79	559	583	267	757	760
V/C Ratio(X)	0.42	0.00	0.00	0.19	0.00	0.00	0.56	0.63	0.63	0.77	0.20	0.21
Avail Cap(c_a), veh/h	1130	0	0	1137	0	0	298	1207	1260	857	1797	1804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.9	0.0	0.0	15.0	0.0	0.0	17.9	11.0	11.0	15.4	6.6	6.6
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.2	0.0	0.0	6.0	1.2	1.1	4.7	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.5	0.0	0.0	0.4	1.8	1.9	1.6	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.7	0.0	0.0	15.2	0.0	0.0	24.0	12.2	12.2	20.2	6.7	6.7
LnGrp LOS	B	A	A	B	A	A	C	B	B	C	A	A
Approach Vol, veh/h		149			70			768			516	
Approach Delay, s/veh		16.7			15.2			12.9			12.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.8	17.9		9.8	6.4	22.4		9.8
Change Period (Y+Rc), s	4.5	5.3		4.5	4.5	5.3		4.5
Max Green Setting (Gmax), s	20.4	27.2		28.1	7.1	40.5		28.1
Max Q Clear Time (g_c+I1), s	6.7	8.8		5.8	3.0	4.2		3.5
Green Ext Time (p_c), s	0.4	3.8		0.8	0.0	1.7		0.3

Intersection Summary	
HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	6	29	6	4	79	17	701	33	123	429	41
Future Vol, veh/h	14	6	29	6	4	79	17	701	33	123	429	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	100	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	16	7	32	7	4	88	19	779	37	137	477	46

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1204	1628	262	1352	1633	408	523	0	0	816	0	0
Stage 1	774	774	-	836	836	-	-	-	-	-	-	-
Stage 2	430	854	-	516	797	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	142	103	743	111	102	598	1054	-	-	820	-	-
Stage 1	362	411	-	332	385	-	-	-	-	-	-	-
Stage 2	579	378	-	515	401	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	100	84	743	86	83	598	1054	-	-	820	-	-
Mov Cap-2 Maneuver	100	84	-	86	83	-	-	-	-	-	-	-
Stage 1	355	342	-	326	378	-	-	-	-	-	-	-
Stage 2	479	371	-	402	334	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30.3	16.8	0.2	2.1
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1054	-	-	196	85	598	820	-	-
HCM Lane V/C Ratio	0.018	-	-	0.278	0.131	0.147	0.167	-	-
HCM Control Delay (s)	8.5	-	-	30.3	53.6	12.1	10.3	-	-
HCM Lane LOS	A	-	-	D	F	B	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	0.4	0.5	0.6	-	-

Michael Baker
INTERNATIONAL

Appendix M: Mitigated Condition Signal Warrant Worksheets

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OPENING YEAR 2021 WITH PROJECT WITH MITIGATION CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: **Midday**

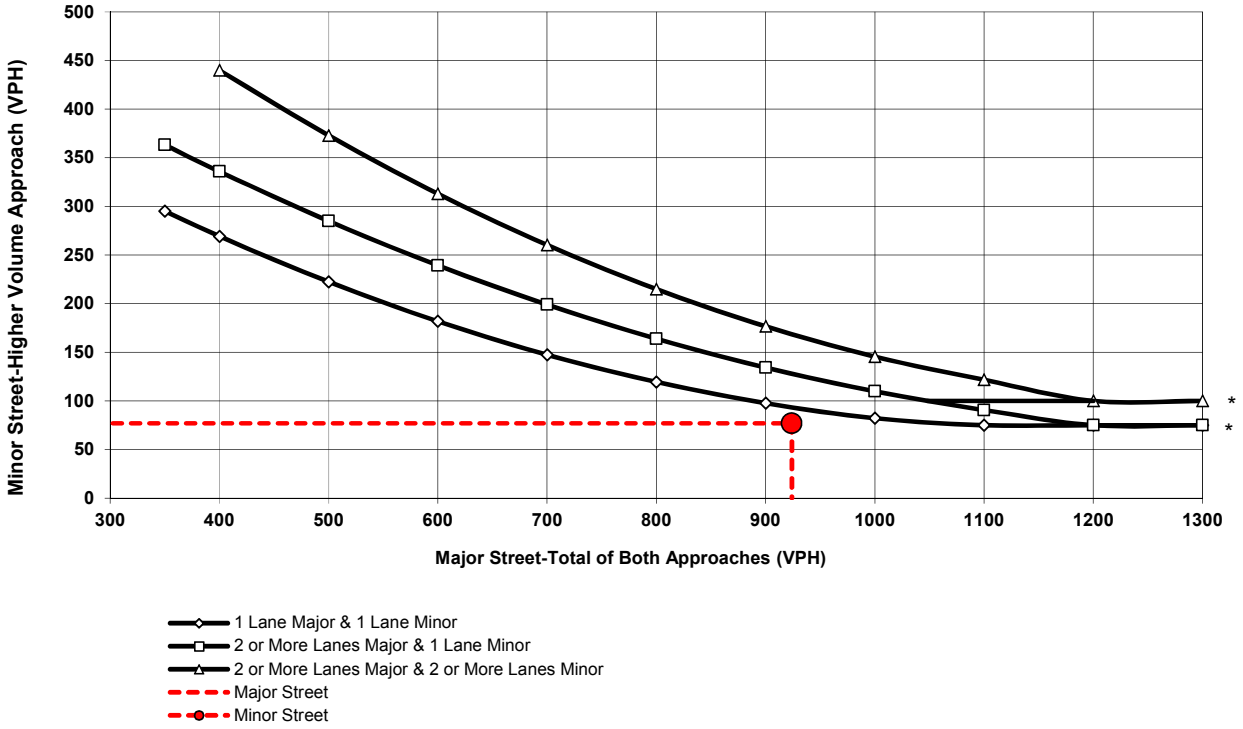
Major Street: **Civic Drive**

Minor Street: **Home Depot South Driveway/Carmax South Driveway #1**

Total of Both Approaches (VPH):	**924**	Higher Volume Approach (VPH):	**77**
Number of Approach Lanes:	**2**	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 Revision 1

OPENING YEAR 2021 WITH PROJECT WITH MITIGATION CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: PM

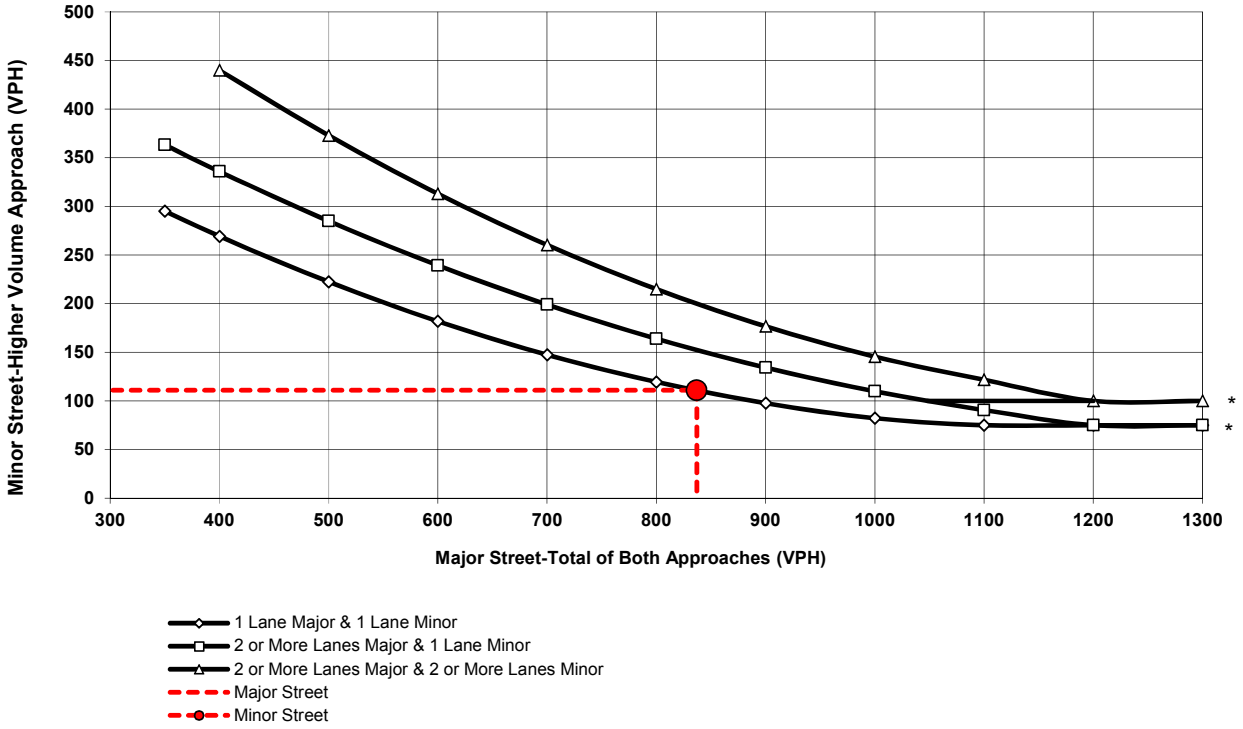
Major Street: Civic Drive

Minor Street: Home Depot South Driveway/Carmax South Driveway #1

Total of Both Approaches (VPH):	837	Higher Volume Approach (VPH):	111
Number of Approach Lanes:	2	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 Revision 1

OPENING YEAR 2021 WITH PROJECT WITH MITIGATION CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: Midday

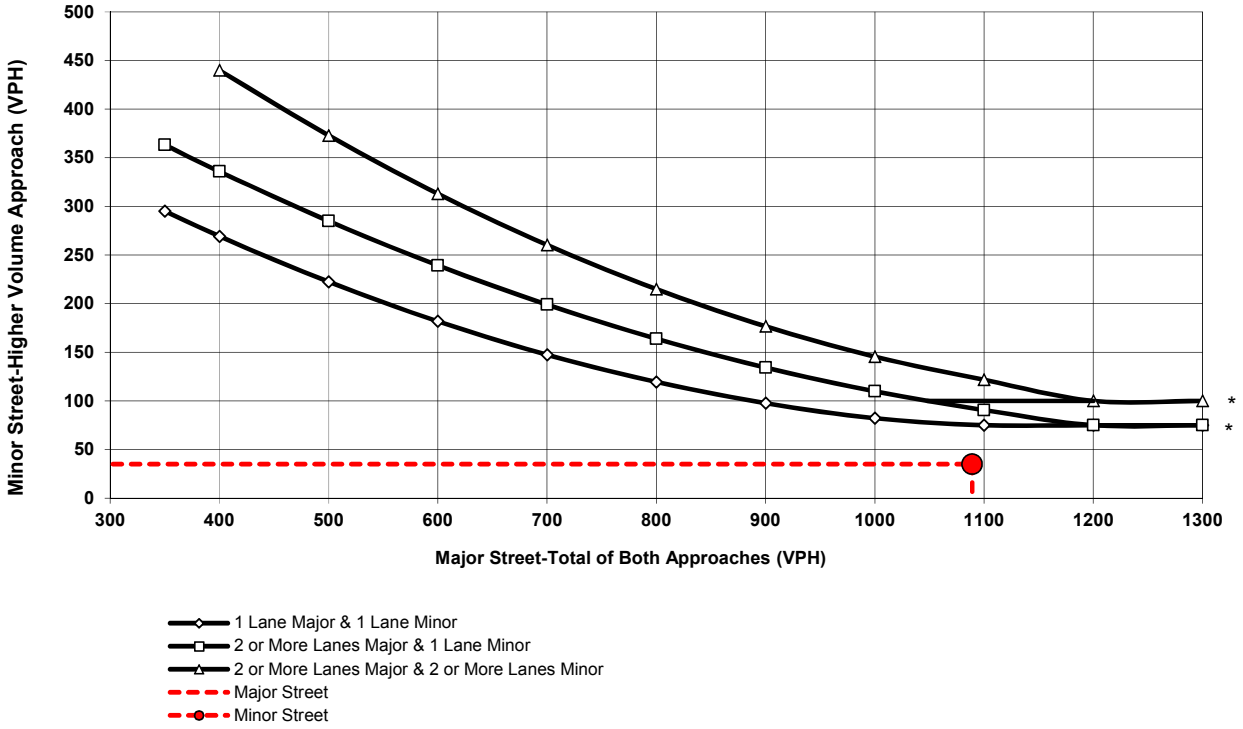
Major Street: Civic Drive

Minor Street: Home Depot North Driveway/Carmax North Driveway #2

Total of Both Approaches (VPH):	1089	Higher Volume Approach (VPH):	35
Number of Approach Lanes:	2	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 Revision 1

OPENING YEAR 2021 WITH PROJECT WITH MITIGATION CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: PM

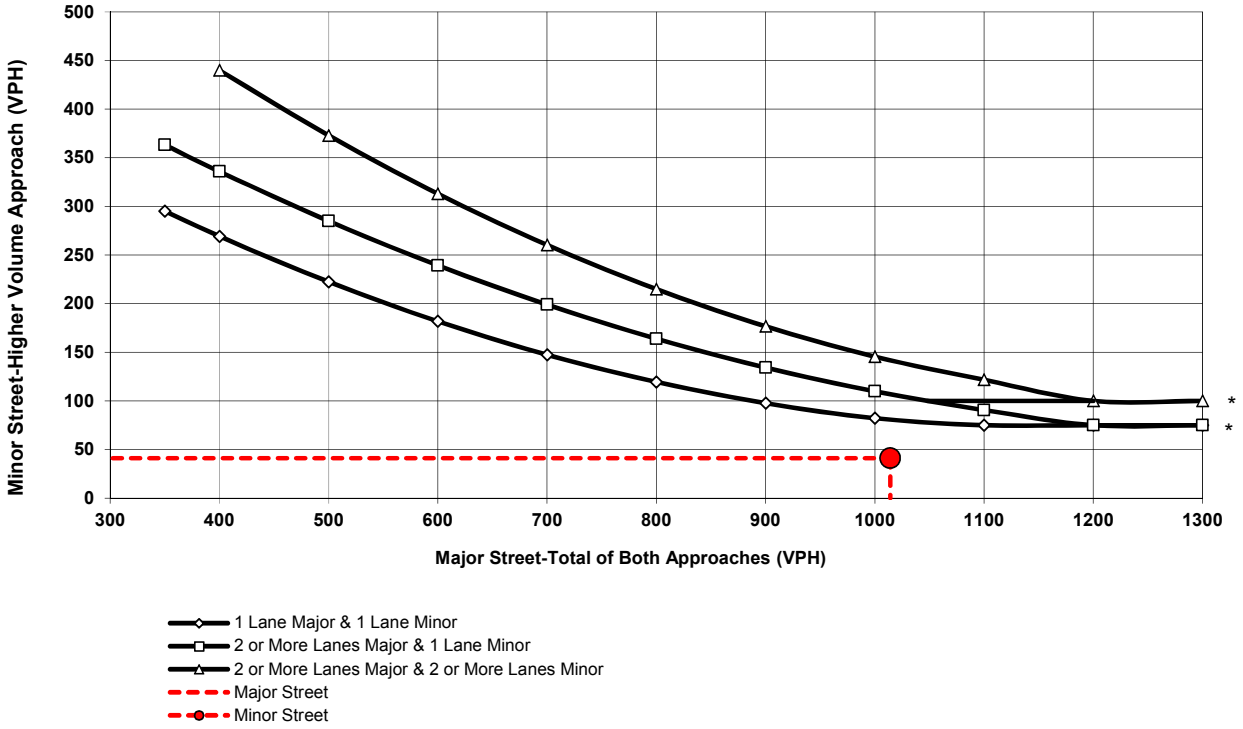
Major Street: Civic Drive

Minor Street: Home Depot North Driveway/Carmax North Driveway #2

Total of Both Approaches (VPH):	1014	Higher Volume Approach (VPH):	41
Number of Approach Lanes:	2	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 Revision 1

HORIZON YEAR 2031 WITH PROJECT WITH MITIGATION CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: Midday

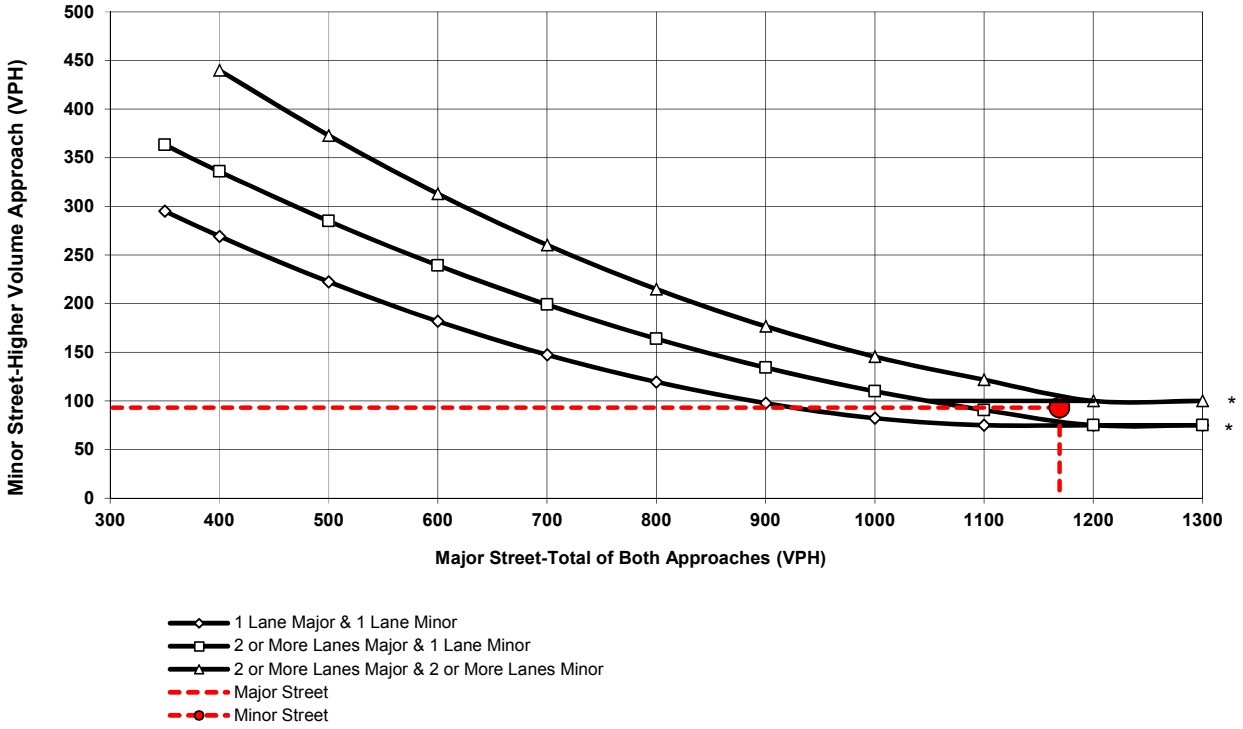
Major Street: Civic Drive

Minor Street: Home Depot South Driveway/Carmax South Driveway #1

Total of Both Approaches (VPH):	1169	Higher Volume Approach (VPH):	93
Number of Approach Lanes:	2	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: California MUTCD 2014 Revision 1

HORIZON YEAR 2031 WITH PROJECT WITH MITIGATION CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: PM

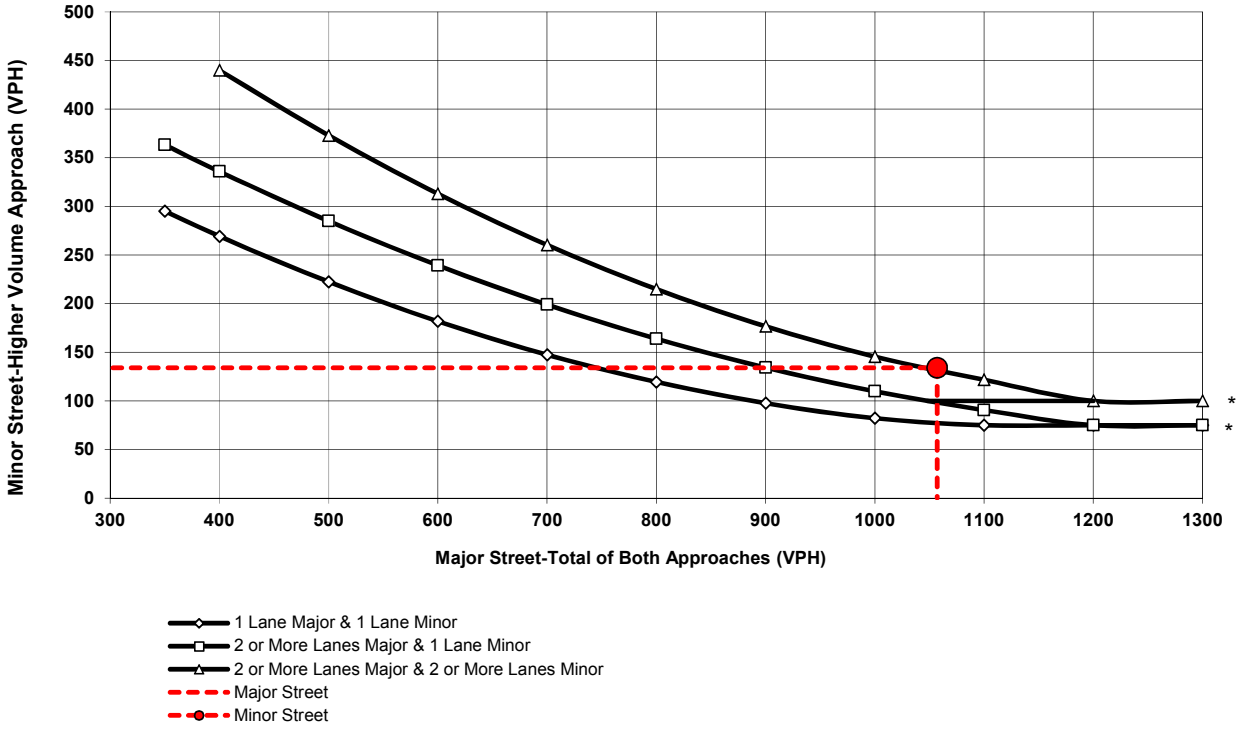
Major Street: Civic Drive

Minor Street: Home Depot South Driveway/Carmax South Driveway #1

Total of Both Approaches (VPH):	1057	Higher Volume Approach (VPH):	134
Number of Approach Lanes:	2	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: California MUTCD 2014 Revision 1

HORIZON YEAR 2031 WITH PROJECT WITH MITIGATION CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: Midday

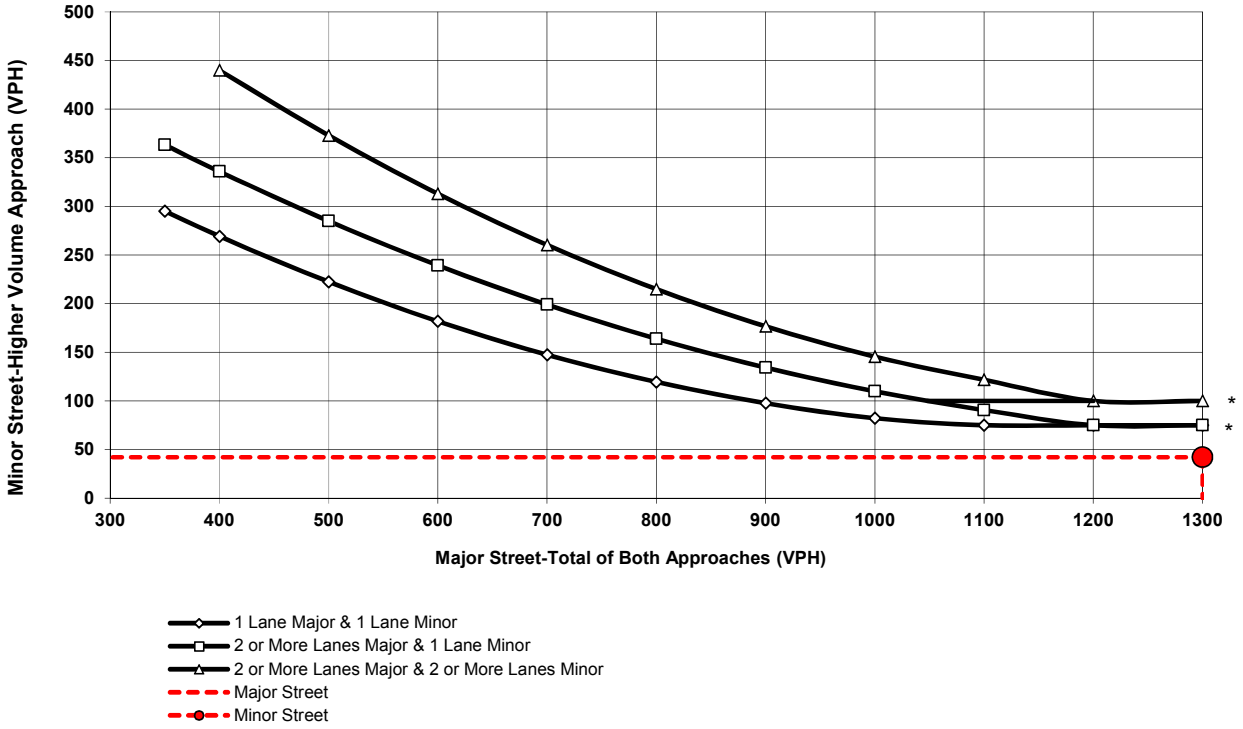
Major Street: Civic Drive

Minor Street: Home Depot North Driveway/Carmax North Driveway #2

Total of Both Approaches (VPH):	1303	Higher Volume Approach (VPH):	42
Number of Approach Lanes:	2	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 Revision 1

HORIZON YEAR 2031 WITH PROJECT WITH MITIGATION CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: PM

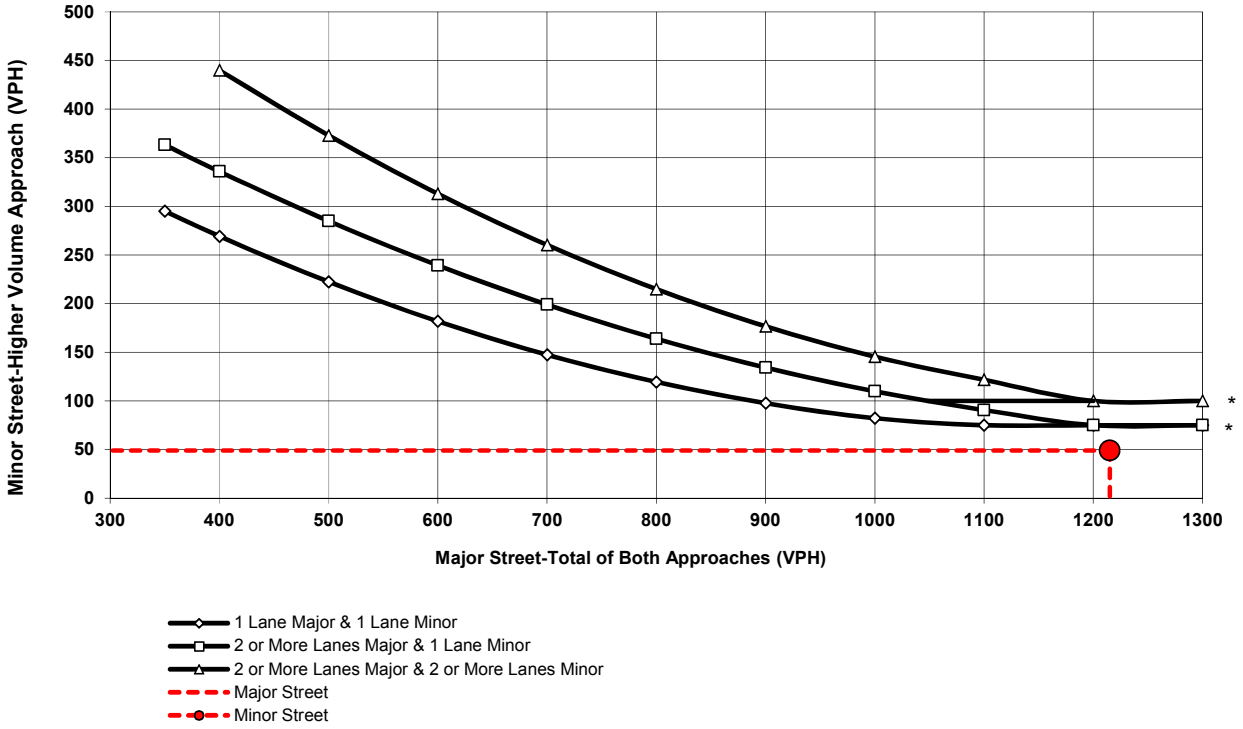
Major Street: Civic Drive

Minor Street: Home Depot North Driveway/Carmax North Driveway #2

Total of Both Approaches (VPH):	1215	Higher Volume Approach (VPH):	49
Number of Approach Lanes:	2	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 Revision 1

HORIZON YEAR 2031 WITH PROJECT WITH VACANT PARCELS WITH MITIGATION CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: Midday

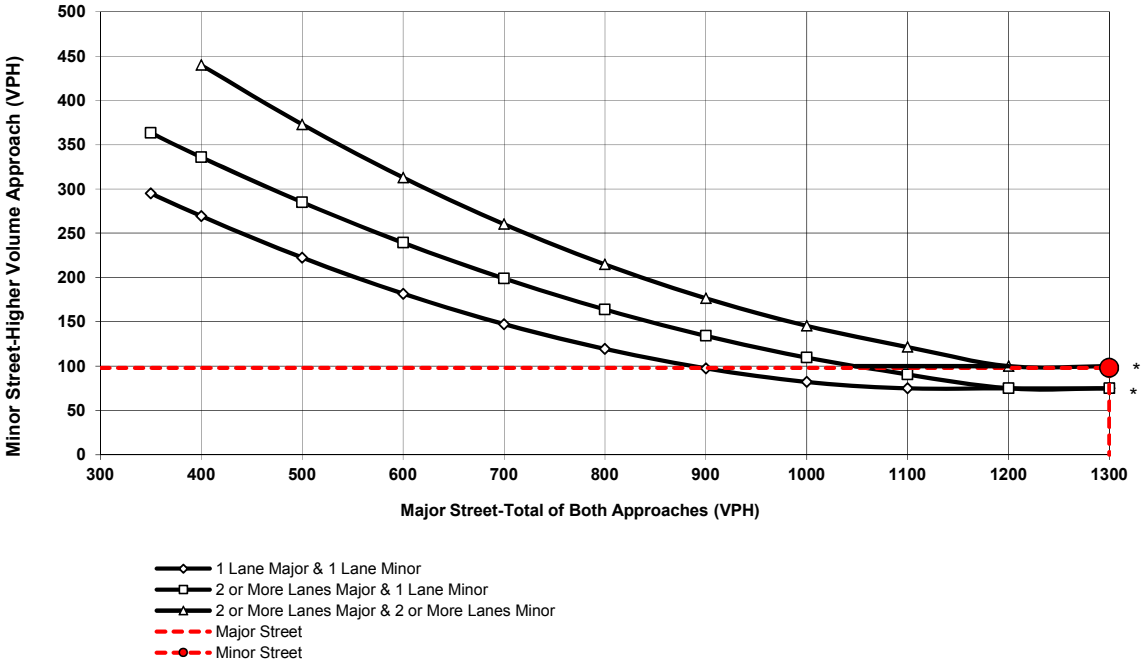
Major Street: Civic Drive

Minor Street: Home Depot South Driveway/Carmax South Driveway #1

Total of Both Approaches (VPH):	1325	Higher Volume Approach (VPH):	98
Number of Approach Lanes:	2	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: California MUTCD 2014 Revision 1

HORIZON YEAR 2031 WITH PROJECT WITH VACANT PARCELS WITH MITIGATION CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: PM

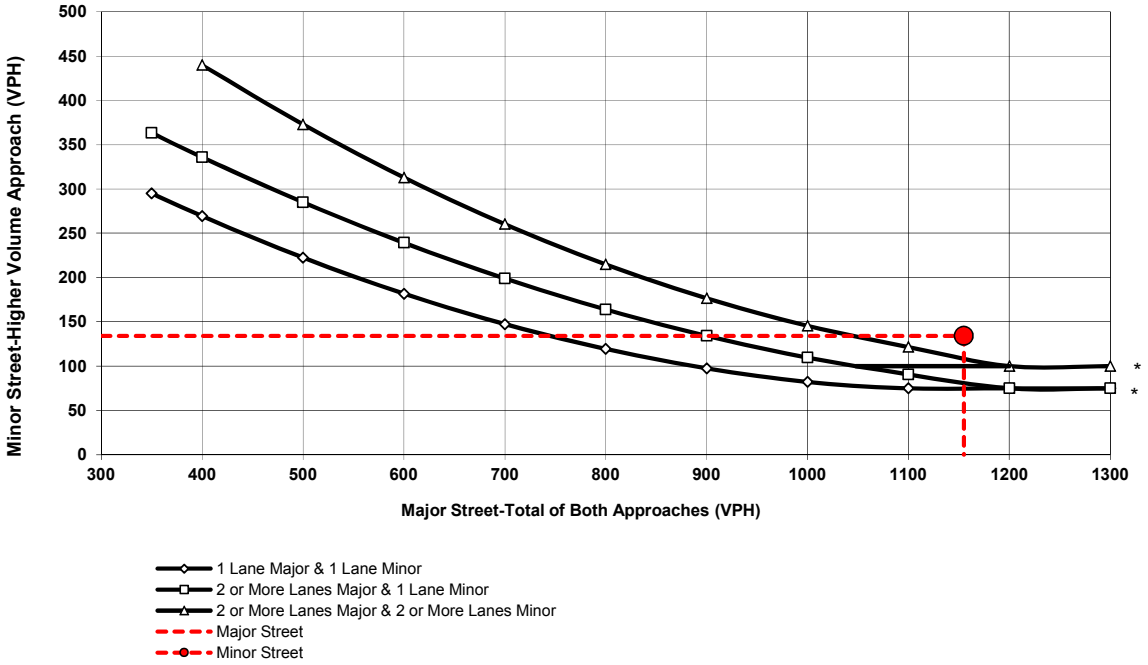
Major Street: Civic Drive

Minor Street: Home Depot South Driveway/Carmax South Driveway #1

Total of Both Approaches (VPH):	1155	Higher Volume Approach (VPH):	134
Number of Approach Lanes:	2	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: California MUTCD 2014 Revision 1

HORIZON YEAR 2031 WITH PROJECT WITH VACANT PARCELS WITH MITIGATION CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: Midday

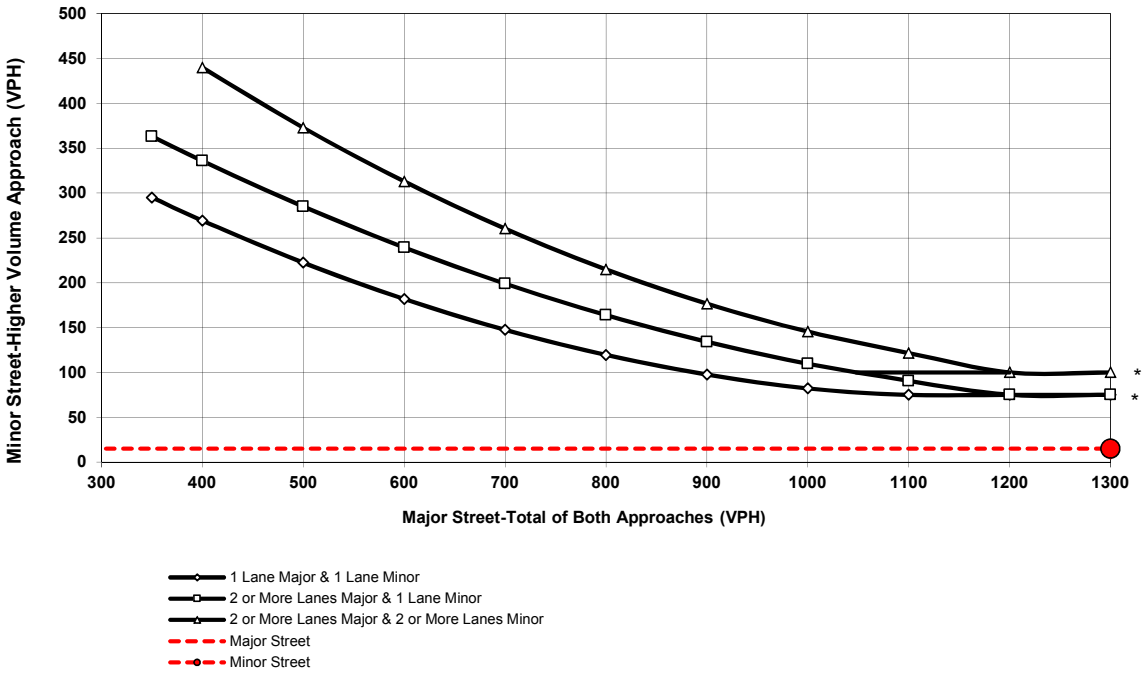
Major Street: Civic Drive

Minor Street: Home Depot North Driveway/Carmax North Driveway #2

Total of Both Approaches (VPH):	1502	Higher Volume Approach (VPH):	15	**
Number of Approach Lanes:	2	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.

** Right turn volume in dedicated right turn lane not included in analysis per CA MUTCD Note 10 on page 828.

Source: California MUTCD 2014 Revision 1

HORIZON YEAR 2031 WITH PROJECT WITH VACANT PARCELS WITH MITIGATION CONDITIONS
PEAK HOUR VOLUME WARRANT
RURAL CONDITIONS

Peak Hour: PM

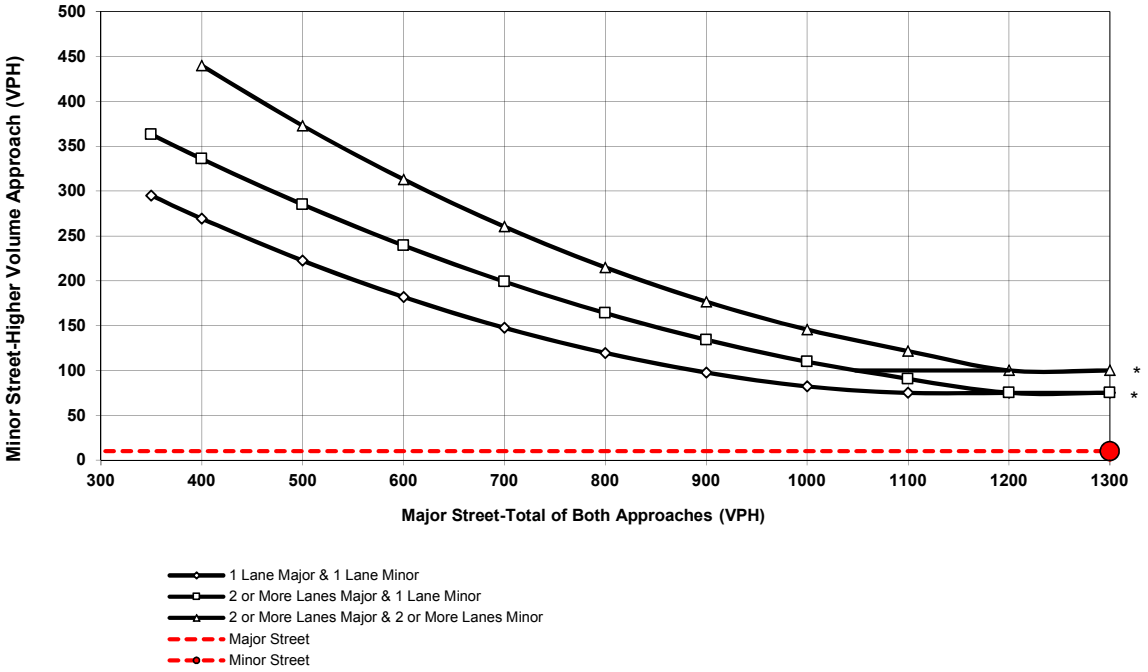
Major Street: Civic Drive

Minor Street: Home Depot North Driveway/Carmax North Driveway #2

Total of Both Approaches (VPH):	1344	Higher Volume Approach (VPH):	10	**
Number of Approach Lanes:	2	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.

** Right turn volume in dedicated right turn lane not included in analysis per CA MUTCD Note 10 on page 828.

Source: California MUTCD 2014 Revision 1

Michael Baker
INTERNATIONAL

Appendix N:
Fair Share Calculations

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Intersection #2
Horizon Year
AM Peak Hour =MIDDAY

Movement	Existing	Horizon Year Without Project	Horizon Year With Project	WITH VACANT PARCELS Horizon Year Without Project	WITH VACANT PARCELS Horizon Year With Project
NBL	51	65	65	65	65
NBT	422	536	539	542	545
NBR	37	47	48	70	71
SBL	153	194	206	283	295
SBT	294	374	378	455	459
SBR	23	29	29	29	29
EBL	37	47	47	47	47
EBT	3	4	4	4	4
EBR	23	29	29	29	29
WBL	35	44	45	56	57
WBT	3	4	4	4	4
WBR	4	5	13	122	130
Total	**1,085**	**1,378**	**1,407**	**1,706**	**1,735**
Project Trips (With Project - No Project) >>			29		29
Intersection Volume Increase (Scenario - Existing) >>			322		650
% (Project Trips / Total Existing to Cumulative Volume Increase) >>			**9.0%**		**4.5%**

Intersection #2
Horizon Year
PM Peak Hour

Movement	Existing	Horizon Year Without Project	Horizon Year With Project	WITH VACANT PARCELS Horizon Year Without Project	WITH VACANT PARCELS Horizon Year With Project
NBL	13	17	17	17	17
NBT	506	643	646	642	645
NBR	11	14	15	32	33
SBL	135	172	180	237	245
SBT	202	257	260	304	307
SBR	32	41	41	41	41
EBL	55	70	70	70	70
EBT	5	6	6	6	6
EBR	23	29	29	29	29
WBL	18	23	24	31	32
WBT	3	4	4	4	4
WBR	2	2	11	70	79
Total	**1,005**	**1,278**	**1,303**	**1,483**	**1,508**
Project Trips (With Project - No Project) >>			25		25
Intersection Volume Increase (Scenario - Existing) >>			298		503
% (Project Trips / Total Existing to Cumulative Volume Increase) >>			**8.4%**		**5.0%**
Average >>			**8.7%**		**4.7%**