

# MAJESTIC FREEWAY BUSINESS CENTER (BUILDING 13) PPT220008)

TRAFFIC ANALYSIS

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## LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CAMUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
EAP	Existing Plus Ambient Growth Plus Project
EAPC	Existing Plus Ambient Growth Plus Project Plus Cumulative
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
OPR	Office of Planning and Research
PHF	Peak Hour Factor
Project	Majestic Freeway Business Center (Building 13)
RCTC	Riverside County Transportation Commission
RTA	Riverside Transit Authority
SCAG	Southern California Association of Governments
sf	Square Feet
SHS	State Highway System
TA	Traffic Analysis
TUMF	Transportation Uniform Mitigation Fee
WRCOG	Western Riverside Council of Governments
v/c	Volume to Capacity
VMT	Vehicle Miles Traveled
vphgpl	Vehicles per Hour Green per Lane

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# 1 INTRODUCTION

This report presents the results of the Traffic Analysis (TA) for Majestic Freeway Business Center (Building 13) development ("Project"), which is located on the southwest corner of Harvill Avenue and Perry Street in the County of Riverside, as shown on Exhibit 1-1. The purpose of this TA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and where necessary recommend improvements to achieve acceptable operations consistent with the County's General Plan level of service goals and policies. This TA has been prepared in accordance with the County of Riverside's Transportation Analysis Guidelines for Level of Service and Vehicle Miles Traveled (December 2020) and through consultation with County of Riverside staff during the scoping process. (1) The Project traffic study scoping agreement is provided in Appendix 1.1 of this TA, which has been reviewed and approved by the County of Riverside.

## 1.1 SUMMARY OF FINDINGS

The Project is to construct the following improvements as design features in conjunction with development of the site:

- Harvill Avenue is currently built to its ultimate cross-section as a Major Highway (118-foot right-of-way) along the Project's frontage between Perry Street and Martin Street consistent with the County's standards. However, the Project should modify the existing curb-and-gutter improvements to accommodate the proposed access at Driveway 4 on Harvill Avenue.
- Project to construct the ultimate half-section of Perry Street as an Industrial Collector (78-foot right-of-way) along the Project's frontage between the western Project boundary and Harvill Avenue consistent with the County's standards. Frontage improvements include pavement, curb-and-gutter, sidewalk, and landscaping improvements.
- Project to construct the ultimate half-section of Martin Street as a Collector (74-foot right-of-way) along the Project's frontage between the western Project boundary and Harvill Avenue consistent with the County's standards. Frontage improvements include pavement, curb-and-gutter, sidewalk, and landscaping improvements.
- Project to install stop controls for all egress traffic from each Project driveway. All driveways will allow full turning movements, however, only Driveway 1 on Perry Street and Driveway 2 on Martin Street are proposed to accommodate site access for trucks.

Additional details and intersection lane geometrics are provided in Section 1.6 Recommendations of this report. The proposed Project is not anticipated to require the construction of any off-site improvements but would need to contribute to improvement needs identified at off-site intersections for future near-term cumulative traffic conditions. As such, the Project Applicant's responsibility for the Project's contributions towards deficient off-site intersections is fulfilled through payment into pre-existing fee programs (if applicable) and/or fair share contributions that would be assigned to the future construction of the identified recommended improvements. The Project Applicant would be required to pay requisite fees consistent with the County's requirements (see Section 7 Local and Regional Funding Mechanisms).

**EXHIBIT 1-1: LOCATION MAP**



## 1.2 PROJECT OVERVIEW

A preliminary site plan for the proposed Project is shown on Exhibit 1-2. The proposed Project building is 307,616 square feet of building space, however, in an effort to conduct a conservative analysis a 322,997 square foot warehouse building has been evaluated in order to account for any future minor revisions in building size (approximately a 5% buffer). As indicated on Exhibit 1-2, vehicular access will be provided to Perry Street, Martin Street, and Harvill Avenue. All driveways are proposed to accommodate full access and only Driveway 1 on Perry Street and Driveway 2 on Martin Street would serve heavy trucks. Regional access to the Project site is available from the I-215 Freeway via Harley Knox Boulevard and Ramona Expressway interchanges. In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual for the proposed high-cube transload and short-term storage warehouse land use. (2) The Project is anticipated to generate a net total of 454 two-way trips per day with 27 AM peak hour trips and 31 PM peak hour trips (actual vehicles). The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 Project Trip Generation of this report.

## 1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential deficiencies to traffic and circulation have been assessed for each of the following conditions:

- Existing (2022) Conditions
- Existing plus Ambient Growth plus Project (EAP) (2025) Conditions
- Existing plus Ambient Growth plus Project plus Cumulative (EAPC) (2025) Conditions

### 1.3.1 EXISTING (2022) CONDITIONS

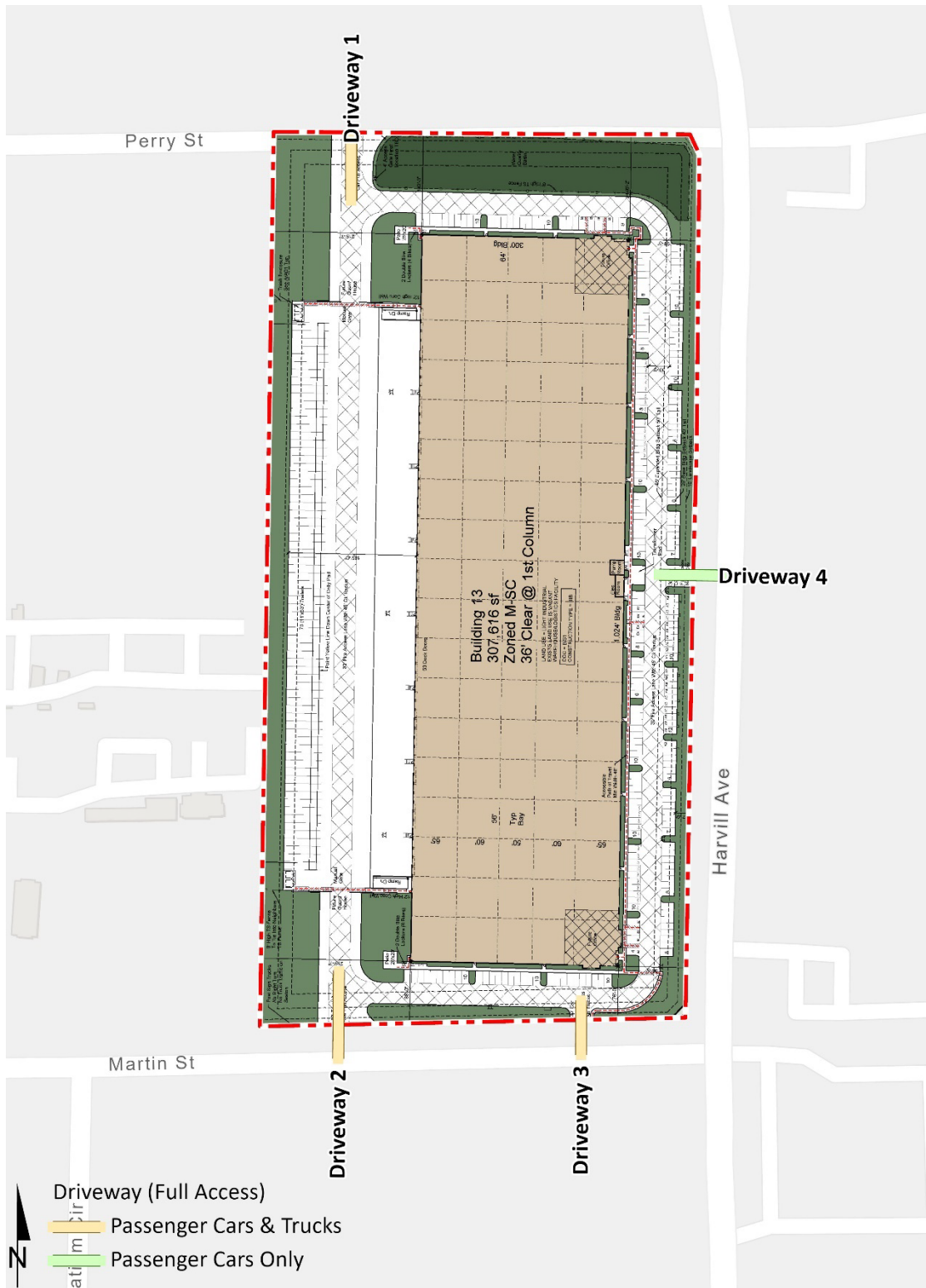
Information for Existing (2022) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. For a detailed discussion on the existing traffic counts, see Section 3.7 Existing Traffic Counts.

### 1.3.2 EAP (2025) CONDITIONS

The EAP (2025) conditions analysis determines the potential circulation system deficiencies based on a comparison of the EAP traffic conditions to Existing conditions. The roadway network is similar to Existing conditions except for new connections to be constructed by the Project. To account for background traffic growth, an ambient growth factor from Existing (2022) conditions of 6.12% (2 percent per year, compounded over 3 years) is included for EAP (2025) traffic conditions. The assumed ambient growth factor is based on the requirements per the County of Riverside traffic study guidelines. Consistent with County traffic study guidelines, the EAP analysis is intended to identify "Opening Year" deficiencies associated with the development of the proposed Project based on the expected background growth within the study area.



**EXHIBIT 1-2: PRELIMINARY SITE PLAN**





### 1.3.3 EAPC (2025) CONDITIONS

The EAPC (2025) traffic conditions analysis determines the potential near-term cumulative circulation system deficiencies. The roadway network is similar to Existing conditions except for new connections to be constructed by the Project. To account for background traffic growth, an ambient growth factor from Existing (2022) conditions of 6.12% (2 percent per year, compounded over 3 years) is included for EAPC (2025) traffic. Conservatively, this TA estimates the area ambient traffic growth and then adds traffic generated by other known or probable related projects. These related projects are at least in part already accounted for in the assumed ambient growth rates; and some of these related projects may not be implemented and operational within the 2025 Opening Year time frame assumed for the Project. The resulting traffic growth utilized in the TA (ambient growth factor plus traffic generated by related projects) would therefore tend to overstate rather than understate background cumulative traffic deficiencies under 2025 conditions.

## 1.4 STUDY AREA

To ensure that this TA satisfies the County of Riverside’s traffic study requirements, Urban Crossroads, Inc. prepared a Project traffic study scoping package for review by County of Riverside staff prior to the preparation of this report. This agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology. The agreement approved by the County is included in Appendix 1.1 of this TA.

The 9 study area intersections shown on Exhibit 1-3 and listed in Table 1-1 were selected for evaluation in this TA based on consultation with County of Riverside staff. At a minimum, the study area includes intersections where the Project is anticipated to contribute 50 or more peak hour trips per the County’s Guidelines. (1) The “50 peak hour trip” criterion represents a minimum number of trips at which a typical intersection would have the potential to be affected by a given development proposal. The 50 peak hour trip criterion is a traffic engineering rule of thumb that is accepted and used throughout the County for the purposes of estimating a potential area of influence (i.e., study area).

**TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS**

#	Intersection	Jurisdiction	CMP?
1	Driveway 1 & Perry St.	County of Riverside	No
2	Driveway 2 & Martin St.	County of Riverside	No
3	Driveway 3 & Martin St.	County of Riverside	No
4	Harvill Av. & Perry St.	County of Riverside	No
5	Harvill Av. & Driveway 4	County of Riverside	No
6	Harvill Av. & Martin St.	County of Riverside	No
7	Harvill Av. & Cajalco Exwy.	County of Riverside	No
8	I-215 SB Ramps & Ramona Exwy.	County, Perris, Caltrans	No
9	I-215 NB Ramps & Ramona Exwy.	Perris, Caltrans	No

EXHIBIT 1-3: STUDY AREA



The intent of a Congestion Management Program (CMP) is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related deficiencies, and improve air quality. The County of Riverside CMP became effective with the passage of Proposition 111 in 1990 and most recently updated in 2019 as part of the Riverside County Long Range Transportation Study. The Riverside County Transportation Commission (RCTC) adopted the 2019 CMP for the County of Riverside in December 2019. (3) There are no study area intersections identified as a Riverside County CMP intersection.

## 1.5 DEFICIENCIES

This section provides a summary of deficiencies by analysis scenario. Section 2 Methodologies provides information on the methodologies used in the analysis and Section 5 EAP (2025) Traffic Conditions and Section 6 EAPC (2025) Traffic Conditions include the detailed analysis. A summary of LOS results for all analysis scenarios is presented on Table 1-2.

**TABLE 1-2: SUMMARY OF LOS**

# Intersection	Existing		EAP		EAPC	
	AM	PM	AM	PM	AM	PM
1 Driveway 1 & Perry St.	N/A	N/A	●	●	●	●
2 Driveway 2 & Martin St.	N/A	N/A	●	●	●	●
3 Driveway 3 & Martin St.	N/A	N/A	●	●	●	●
4 Harvill Av. & Perry St.	●	●	●	●	●	●
5 Harvill Av. & Driveway 4	N/A	N/A	●	●	●	●
6 Harvill Av. & Martin St.	●	●	●	●	●	●
7 Harvill Av. & Cajalco Exwy.	●	●	●	●	●	●
8 I-215 SB Ramps & Ramona Exwy.	●	●	●	●	●	●
9 I-215 NB Ramps & Ramona Exwy.	●	●	●	●	●	●

● = A - D   ● = E   ● = F

### 1.5.1 EXISTING (2022) CONDITIONS

#### Intersections

The study area intersections are currently operating at an acceptable LOS during the peak hours.

#### Queues

There are no movements that are currently experiencing queuing issues during the weekday AM or weekday PM peak 95<sup>th</sup> percentile traffic flows.

### 1.5.2 EAP (2025) CONDITIONS

#### Intersections

The study area intersections are anticipated to continue to operate at an acceptable LOS with the addition of Project traffic under EAP (2025) traffic conditions.

#### Queues

Consistent with Existing traffic conditions, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95<sup>th</sup> percentile traffic flows with the addition of Project traffic for EAP (2025) traffic conditions.

### 1.5.3 EAPC (2025) CONDITIONS

#### Intersections

The following study area intersections are anticipated to operate at an unacceptable LOS under EAPC (2025) traffic conditions:

- Harvill Av. & Perry St. (#4) – LOS F AM peak hour; LOS E PM peak hour
- Harvill Av. & Cajalco Exwy. (#7) – LOS F AM and PM peak hours
- I-215 SB Ramps & Ramona Exwy. (#8) – LOS F AM and PM peak hours
- I-215 NB Ramps & Ramona Exwy. (#9) – LOS F AM and PM peak hours

#### Queues

The following turning movements are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95<sup>th</sup> percentile traffic flows for EAPC (2025) traffic conditions:

- I-215 SB Ramps & Ramona Exwy. (#8): Southbound Left (AM and PM peak hours, Southbound Left-Through (AM and PM peak hours), and Southbound Right (AM peak hour only)
- I-215 NB Ramps & Ramona Exwy. (#9): Northbound Right (AM peak hour only)

## 1.6 RECOMMENDATIONS

### 1.6.1 SITE ADJACENT AND SITE ACCESS RECOMMENDATIONS

The following recommendations are based on the minimum improvements needed to accommodate site access and maintain acceptable peak hour operations for the proposed Project. The site adjacent recommendations are shown on Exhibit 1-4.

Recommendation 1 – Driveway 1 & Perry Street (#1) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the northbound approach (egress Project traffic) to implement a cross-street stop-controlled intersection. Driveway will allow full access and will serve both passenger cars and trucks.
- Project should construct and accommodate a minimum 100-foot westbound left turn lane at Driveway 1.

Recommendation 2 – Driveway 2 & Martin Street (#2) – The following improvement is necessary to accommodate site access:

- Project to install a stop control on the southbound approach (egress Project traffic) to implement a cross-street stop-controlled intersection. Driveway will allow full access and will serve both passenger cars and trucks.

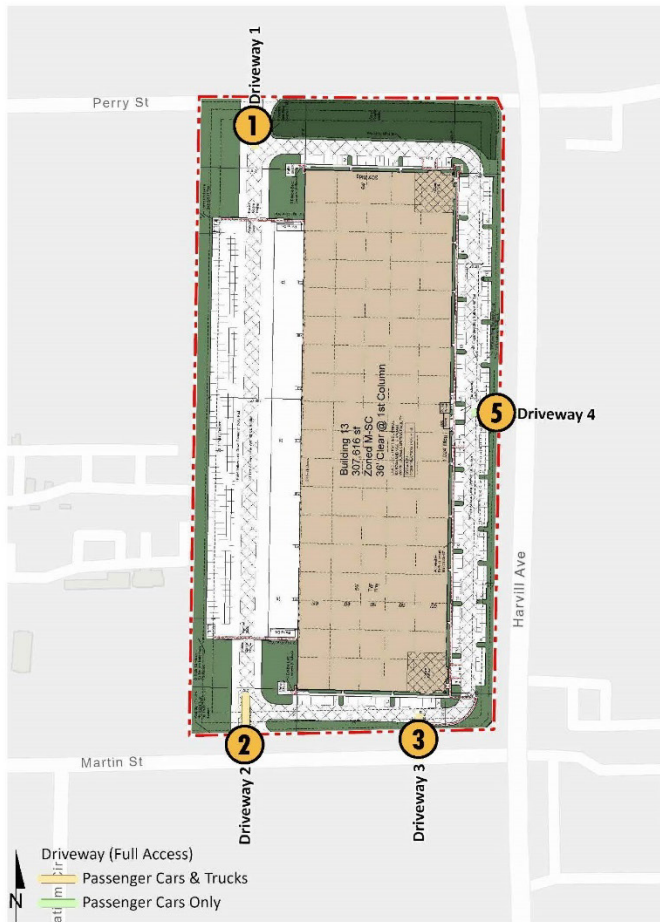
Recommendation 3 – Driveway 3 & Martin Street (#3) – The following improvement is necessary to accommodate site access:

- Project to install a stop control on the southbound approach (egress Project traffic) to implement a cross-street stop-controlled intersection. Driveway will allow full access and will serve passenger cars only.

Recommendation 4 – Harvill Avenue & Driveway 4 (#5) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the eastbound approach (egress Project traffic) to implement a cross-street stop-controlled intersection. Driveway will allow full access and will serve passenger cars only.
- Project should construct and accommodate a minimum 50-foot northbound left turn lane at Driveway 2 within the existing painted median.

**EXHIBIT 1-4: SITE ACCESS RECOMMENDATIONS**



1	Dwy. 1 & Perry St.	2	Dwy. 2 & Martin St.	3	Dwy. 3 & Martin St.	5	Harvill Av. & Dwy. 4

- = Stop Sign Improvement
- = Existing Lane
- = Lane Improvement
- TWTL** = Two Way Left turn Lane

Recommendation 5 – Harvill Avenue is a north-south oriented roadway located on the Project's eastern boundary. Harvill Avenue is currently constructed to its ultimate cross-section as a Major Arterial (118-foot right-of-way) consistent with the County's standards; however, the Project should construct the driveways necessary to accommodate site access, including a 50-foot northbound left turn lane at Driveway 4.

Recommendation 6 – Perry Street is an east-west oriented roadway located along the Project's northern boundary. Project to construct Perry Street at its ultimate half-section width as an Industrial Collector (78-foot right-of-way) from the Project's western boundary to Harvill Avenue consistent with the County's standards. Frontage improvements include pavement, curb-and-gutter, sidewalk, and landscaping improvements.

Recommendation 7 – Martin Street is an east-west oriented roadway located along the Project's southern boundary. Project to construct Martin Street at its ultimate half-section width as a Collector (74-foot right-of-way) from the Project's western boundary to Harvill Avenue consistent with the County's standards. Frontage improvements include pavement, curb-and-gutter, sidewalk, and landscaping improvements.

On-site traffic signing and striping should be implemented agreeable with the provisions of the California Manual on Uniform Traffic Control Devices (CA MUTCD) and in conjunction with detailed construction plans for the Project site.

Sight distance at each project access point should be reviewed with respect to standard Caltrans and County of Riverside sight distance standards at the time of preparation of final grading, landscape, and street improvement plans.

## 1.6.2 OFF-SITE RECOMMENDATIONS

The recommended improvements needed to address the deficiencies identified under Existing (2022), EAP (2025), and EAPC (2025) traffic conditions are shown in Table 1-3. Improvements that appear under EAP (2025) that are not also identified for Existing (2022) traffic conditions would be the Project's responsibility to implement/construct in order to maintain acceptable LOS. For those remaining improvements listed in Table 1-3 and not constructed as part of the Project, the Project Applicant's responsibility for the Project's contributions towards deficient intersections is fulfilled through payment of fair share or payment of fees (if applicable) that would be assigned to construction of the identified recommended improvements. The Project Applicant would be required to pay fair share fees and participate in pre-existing fee programs consistent with the County's requirements (see Section 7 Local and Regional Funding Mechanisms).

## 1.7 TRUCK ACCESS

Due to the typical wide turning radius of large trucks, a truck turning template has been overlaid on the site plan at each applicable Project driveway anticipated to be utilized by heavy trucks in order to determine appropriate curb radii and to verify that trucks will have sufficient space to execute turning maneuvers (see Exhibit 1-5). A WB-67 truck (53-foot trailer) has been utilized for the purposes of this analysis. As shown on Exhibit 1-5, Driveway 1 and Driveway 2 are anticipated to accommodate the ingress and egress of heavy trucks as currently designed.

**TABLE 1-3: SUMMARY OF IMPROVEMENTS BY ANALYSIS SCENARIO**

#	Intersection Location	Jurisdiction	EAP	Analysis Scenario EAPC	Improvements in DIF, TUMF, etc. <sup>1</sup>	Project Responsibility <sup>2</sup>	Project Fair Share <sup>3</sup>
4	Harvill Av. & Perry St.	County	- None	- Install a Traffic Signal	No	Fair Share	1.3%
				- Add EB left turn lane	No	Fair Share	
7	Harvill Av. & Cajalco Exwy.	County	- None	- Add 3rd EB through lane	No	Fair Share	0.8%
				- Add 3rd WB through lane	No	Fair Share	
8	I-215 SB Ramps & Ramona Exwy.	Caltrans, Perris, County	- None	- Add 2nd WB left turn lane	Yes (TUMF)	Fees	0.6%
				- Add 3rd EB through lane	Yes (TUMF)	Fees	
				- Add 3rd WB through lane	Yes (TUMF)	Fees	
				- Add 2nd SB left turn lane	No	Fair Share	
				- Add EB right turn lane	No	Fair Share	
9	I-215 NB Ramps & Ramona Exwy.	Caltrans, Perris, County	- None	- Add 2nd EB left turn lane	Yes (TUMF)	Fees	0.3%
				- Add 3rd EB through lane	Yes (TUMF)	Fees	
				- Add 3rd WB through lane	Yes (TUMF)	Fees	
				- Add WB free-right turn lane	No	Fair Share	

<sup>1</sup> Improvements included in TUMF Nexus or County DIF programs have been identified as such.

<sup>2</sup> Program improvements constructed by Project may be eligible for fee credit. In lieu fee payment is at discretion of County.

Represents the fair share percentage for the Project during the most impacted peak hour. Identifies the Project's responsibility to construct an off-site improvement, contribute fair share, or fee payment towards the improvements shown. If identified as a Project construct obligation/in a fee program, then no fair share percentage has been identified.

<sup>3</sup> Total project fair share is applicable to the improvements which are not already included in the County DIF/TUMF for those intersections wholly or partially within the County.





## 1.8 QUEUING ANALYSIS

The traffic modeling and signal timing optimization software package SimTraffic has been utilized to assess the queues. SimTraffic is designed to model networks of signalized and unsignalized intersections, with the primary purpose of checking and fine-tuning signal operations. SimTraffic uses the input parameters from Synchro to generate random simulations. These random simulations generated by SimTraffic have been utilized to determine the 95<sup>th</sup> percentile queue lengths observed for each applicable turn lane. A SimTraffic simulation has been recorded up to 5 times, during the weekday AM and weekday PM peak hours, and has been seeded for 15-minute periods with 60-minute recording intervals. The results of the queuing analysis are shown in Table 1-4 and the worksheets for the weekday AM and PM peak hours are provided in Appendix 1.2 of this report for EAPC (2025) traffic conditions. No site adjacent queues are anticipated with the proposed improvements.

**TABLE 1-4: PEAK HOUR QUEUING ANALYSIS FOR SITE ADJACENT INTERSECTIONS**

Intersection	Movement	Available Stacking Distance (Feet) <sup>3</sup>	95th Percentile Queue (Feet)		Acceptable? <sup>1</sup>	
			AM Peak	PM Peak	AM	PM
Driveway 1 & Perry St.	NBL/R	100	27	0	Yes	Yes
	EBT/R	760	0	51	Yes	Yes
	WBL	100	5	0	Yes	Yes
Driveway 2 & Martin St.	SBL/R	150	19	21	Yes	Yes
Driveway 3 & Martin St.	SBL/R	35	11	29	Yes	Yes
Harvill Av. & Perry St.	NBL	150	82	34	Yes	Yes
	NBT/R	615	179	133	Yes	Yes
	SBL	160	9	19	Yes	Yes
	SBT/R	1,090	153	232	Yes	Yes
	EBL	100	29	33	Yes	Yes
	EBT/R	500	40	62	Yes	Yes
	WBL	100	30	31	Yes	Yes
	WBT/R	700	14	26	Yes	Yes
Harvill Av. & Driveway 4	NBL	50	15	11	Yes	Yes
	EBL/R	75	8	27	Yes	Yes
Harvill Av. & Martin St.	NBL	160	41	54	Yes	Yes
	SBT/R	585	5	3	Yes	Yes
	EBL/T/R	120	68	77	Yes	Yes

<sup>1</sup> Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

## 2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are consistent with County of Riverside's Traffic Study Guidelines.

### 2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors, such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

### 2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The 6<sup>th</sup> Edition Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (4) The HCM uses different procedures depending on the type of intersection control.

#### 2.2.1 SIGNALIZED INTERSECTIONS

The County of Riverside, City of Perris, and California Department of Transportation (Caltrans) require signalized intersection operations analysis based on the methodology described in the HCM. (4) Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is related to the average control delay per vehicle and is correlated to a LOS designation as described on Table 2-1.

The traffic modeling and signal timing optimization software package Synchro (Version 11) has been utilized to analyze signalized intersections. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

**TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS**

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0 <sup>1</sup>
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80.01 and up	F

Source: HCM, 6th Edition

<sup>1</sup> If V/C is greater than 1.0 then LOS is F per HCM.

A saturation flow rate of 1900 has been utilized for all study area intersections. The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Customary practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g.,  $PHF = \frac{\text{Hourly Volume}}{4 \times \text{Peak 15-minute Flow Rate}}$ ). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (4)

### 2.2.2 UNSIGNALIZED INTERSECTIONS

The County of Riverside requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (4) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2). At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. Delay for the intersection is reported for the worst individual movement at a two-way stop-controlled intersection. For all-way stop controlled intersections, LOS is computed for the intersection as a whole (average delay).

**TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS**

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0 <sup>1</sup>
Little or no delays.	0 to 10.00	A
Short traffic delays.	10.01 to 15.00	B
Average traffic delays.	15.01 to 25.00	C
Long traffic delays.	25.01 to 35.00	D
Very long traffic delays.	35.01 to 50.00	E
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F

Source: HCM, 6th Edition

<sup>1</sup> If V/C is greater than 1.0 then LOS is F per HCM.

### 2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term “signal warrants” refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or determine the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD). (5)

The signal warrant criteria for Existing study area intersections are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (5) Specifically, this TA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions and for all future analysis scenarios for existing unsignalized intersections. Warrant 3 is appropriate to use for this TA because it provides specialized warrant criteria for intersections with rural characteristics. For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection. Rural warrants have been used as posted speed limits on the major roadways with unsignalized intersections are over 40 miles per hour while urban warrants have been used where speeds are 40 miles per hour or below.

Future intersections that do not currently exist have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets. Similarly, the speed limit has been used as the basis for determining the use of Urban and Rural warrants. Traffic signal warrant analyses were performed for the following study area intersection shown on Table 2-3:

**TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS**

#	Intersection
1	Driveway 1 & Perry St.
2	Driveway 2 & Martin St.
3	Driveway 3 & Martin St.
4	Harvill Av. & Perry St.
5	Harvill Av. & Driveway 4

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 Area Conditions of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 EAP (2025) Traffic Conditions and Section 6 EAPC (2025) Traffic Conditions of this report. It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

## 2.4 QUEUING ANALYSIS

Consistent with Caltrans requirements, the 95<sup>th</sup> percentile queuing of vehicles has been assessed at the off-ramps to determine potential queuing deficiencies at the freeway ramp intersections at the I-215 Freeway at the existing Ramona Expressway interchange. Specifically, the off-ramp queuing analysis is utilized to identify any potential queuing and “spill back” onto the I-215 Freeway mainline from the off-ramps. The 95<sup>th</sup> percentile queue has also been utilized to assess the queues at Ramona Expressway to identify any potential queuing.

The traffic progression analysis tool and HCM intersection analysis program, Synchro, has been used to assess the potential deficiencies/needs of the intersections with traffic added from the proposed Project. Storage (turn-pocket) length recommendations at the ramps have been based upon the 95<sup>th</sup> percentile queue resulting from the Synchro progression analysis. The footnote from the Synchro output sheets indicates if the 95<sup>th</sup> percentile cycle exceeds capacity. Traffic is simulated for two complete cycles of the 95<sup>th</sup> percentile traffic in Synchro in order to account for the effects of spillover between cycles. In practice, the 95<sup>th</sup> percentile queue shown will rarely be exceeded and the queues shown with the footnote are acceptable for the design of storage bays. The 95<sup>th</sup> percentile queue is derived from the average queue plus 1.65 standard deviations.



## 2.5 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS)

Minimum Acceptable LOS and associated definitions of intersection deficiencies has been obtained from each of the applicable surrounding jurisdictions.

### 2.5.1 COUNTY OF RIVERSIDE

The definition of an intersection deficiency has been obtained from the County of Riverside General Plan. Riverside County General Plan Policy C 2.1 states that the County will maintain the following County-wide target LOS:

The following minimum target levels of service have been designated for the review of development proposals in the unincorporated areas of Riverside County with respect to transportation impacts on roadways designated in the Riverside County Circulation Plan which are currently County maintained, or are intended to be accepted into the County maintained roadway system:

- LOS C shall apply to all development proposals in any area of the Riverside County not located within the boundaries of an Area Plan, as well as those areas located within the following Area Plans: REMAP, Eastern Coachella Valley, Desert Center, Palo Verde Valley, and those non-Community Development areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.
- LOS D shall apply to all development proposals located within any of the following Area Plans: Eastvale, Jurupa, Highgrove, Reche Canyon/Badlands, Lakeview/Nuevo, Sun City/Menifee Valley, Harvest Valley/Winchester, Southwest Area, The Pass, San Jacinto Valley, Western Coachella Valley and those Community Development Areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.
- LOS E may be allowed by the Board of Supervisors within designated areas where transit-oriented development and walkable communities are proposed.

The applicable minimum LOS utilized for the purposes of this analysis is LOS D per the County-wide target LOS for projects located within the Mead Valley Area Plan.

### 2.5.2 CITY OF PERRIS

Required LOS for roadway segments and intersections within the City of Perris is LOS D. An exception to the local road standard is LOS E, at intersections of any Arterials and Expressways with SR-74, the Ramona-Cajalco Expressway or at I-215 Freeway ramps. For the purposes of this traffic impact analysis, LOS D has also been considered the acceptable threshold for all intersections within the study area.

### 2.5.3 CALTRANS

Senate Bill 743 (SB 743), approved in 2013, endeavors to change the way transportation impacts will be determined according to the California Environmental Quality Act (CEQA). The Office of Planning and Research (OPR) has recommended the use of vehicle miles traveled (VMT) as the replacement for automobile delay-based LOS. Caltrans acknowledges automobile delay will no longer be considered a CEQA impact for development projects and will use VMT as the metric for determining impacts on

the State Highway System (SHS). However, LOS D has been utilized as the target LOS for Caltrans facilities, consistent with the County of Riverside.

## 2.6 DEFICIENCY CRITERIA

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies. The following deficiency criteria has been utilized for the County of Riverside. To determine whether the addition of project-related traffic at a study intersection would result in a deficiency, the following will be utilized:

- A deficiency occurs at study area intersections if the pre-Project condition is at or better than LOS D (i.e., acceptable LOS), and the addition of project trips causes the peak hour LOS of the study area intersection to operate at unacceptable LOS (i.e., LOS E or F). Per the County of Riverside traffic study guidelines, for intersections currently operating at unacceptable LOS (LOS E or F), a deficiency will occur if the Project contributes peak hour trips to pre-project traffic conditions.

## 2.7 PROJECT FAIR SHARE CALCULATION METHODOLOGY

Improvements found to be included in the TUMF and/or DIF will be identified as such. For improvements that do not appear to be in either of the pre-existing fee programs, a fair share contribution based on the Project's proportional share may be imposed in order to address the Project's share of deficiencies in lieu of construction. It should be noted that fair share calculations are for informational purposes only and the County Traffic Engineer will determine the appropriate improvements to be implemented by a project (to be identified in the conditions of approval). The Project's fair share contribution is determined based on the following equations, which are the ratio of Project traffic to net new traffic (where net new traffic is the future traffic less existing traffic):

$$\text{Project Fair Share \%} = \text{Project (EAPC) Traffic} / (\text{EAPC Total Traffic} - \text{Existing Traffic})$$



### 3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the County of Riverside General Plan Circulation Network, and a review of existing peak hour intersection operations, traffic signal warrant, and off-ramp queuing analyses.

#### 3.1 EXISTING CIRCULATION NETWORK

Pursuant to the scoping agreement with County of Riverside staff (Appendix 1.1), the study area includes a total of 9 existing and future intersections as shown previously on Exhibit 1-3, where the Project is anticipated to contribute 50 or more peak hour trips or were added at the County's request during the scoping process. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

#### 3.2 COUNTY OF RIVERSIDE GENERAL PLAN CIRCULATION ELEMENT

As noted previously, the Project site is located within the County of Riverside. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on County of Riverside General Plan Circulation Element, are described subsequently. Exhibit 3-2 shows the County of Riverside General Plan Circulation Element and Exhibit 3-3 illustrates the County of Riverside General Plan roadway cross-sections.

**Expressways** are six to eight-lane divided roadways (typically divided by a raised median) with a 220-foot right-of-way and a 134-foot curb-to-curb measurement. These roadways serve regional through-traffic. The following study area roadway within the County of Riverside is classified as an Expressway:

- Ramona Expressway/Cajalco Expressway

**Major Highways** are four-lane roadways and may include a painted median. These roadways typically have a 118-foot right-of-way and a 76-foot curb-to-curb measurement. These roadways typically direct traffic through major development areas. The following study area roadway within the County of Riverside is classified as a Major Highway:

- Harvill Avenue

**EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS**



1	2	3	4	5
Dwy. 1 & Perry St.	Dwy. 2 & Martin St.	Dwy. 3 & Martin St.	Harvill Av. & Perry St.	Harvill Av. & Dwy. 4
Future Intersection	Future Intersection	Future Intersection		Future Intersection
6	7	8	9	<ul style="list-style-type: none"> <li> = Traffic Signal</li> <li> = Stop Sign</li> <li><b>4</b> = Number of Lanes</li> <li><b>D</b> = Divided</li> <li><b>U</b> = Undivided</li> <li><b>DEF</b> = Defacto Right Turn</li> <li><b>RTO</b> = Right Turn Overlap</li> <li> = Speed Limit (MPH)</li> </ul>
Harvill Av. & Martin St.	Harvill Av. & Cajalco Expy	I-215 SB Ramps & Ramona Expy.	I-215 NB Ramps & Ramona Expy.	

EXHIBIT 3-2: COUNTY OF RIVERSIDE GENERAL PLAN CIRCULATION ELEMENT

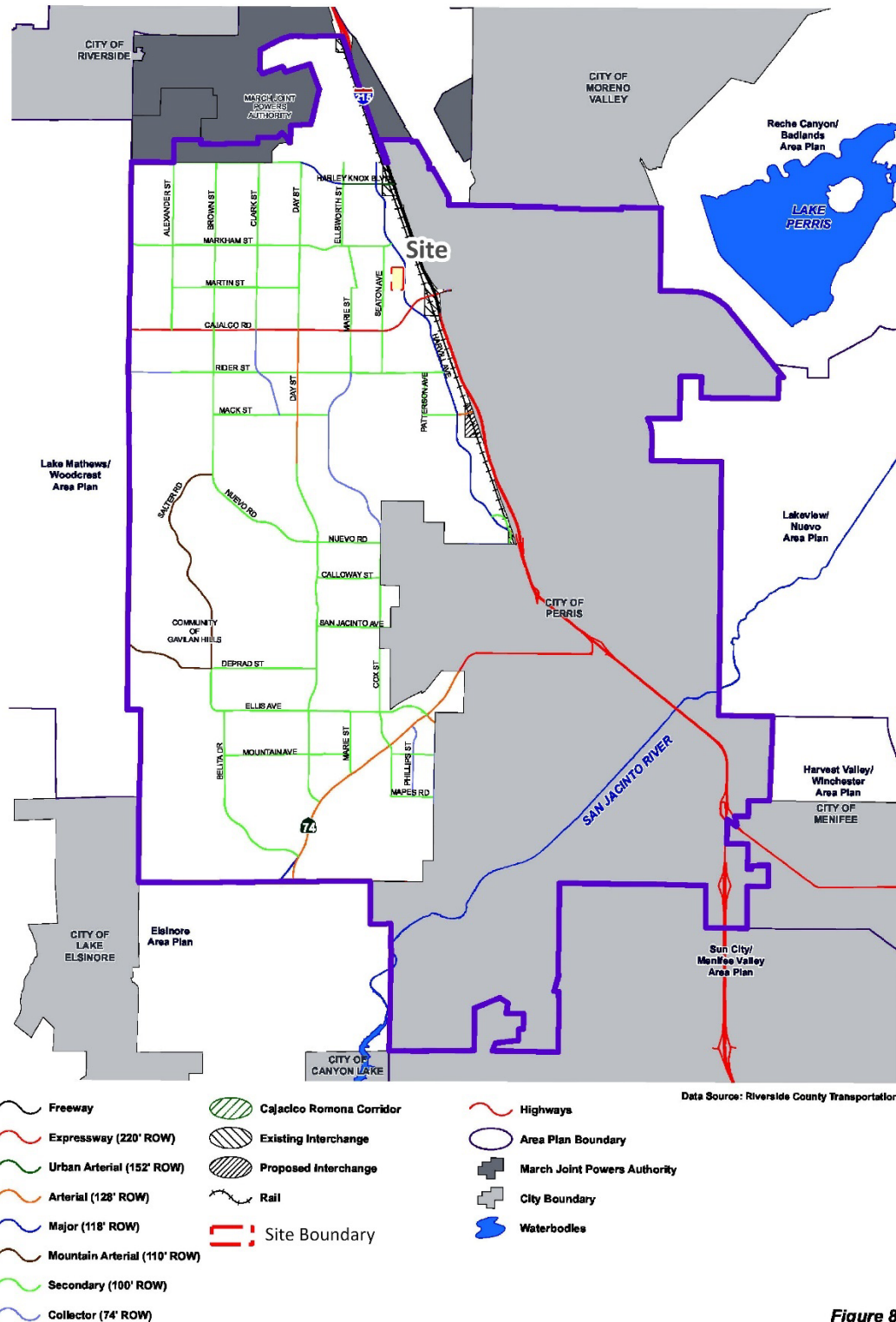
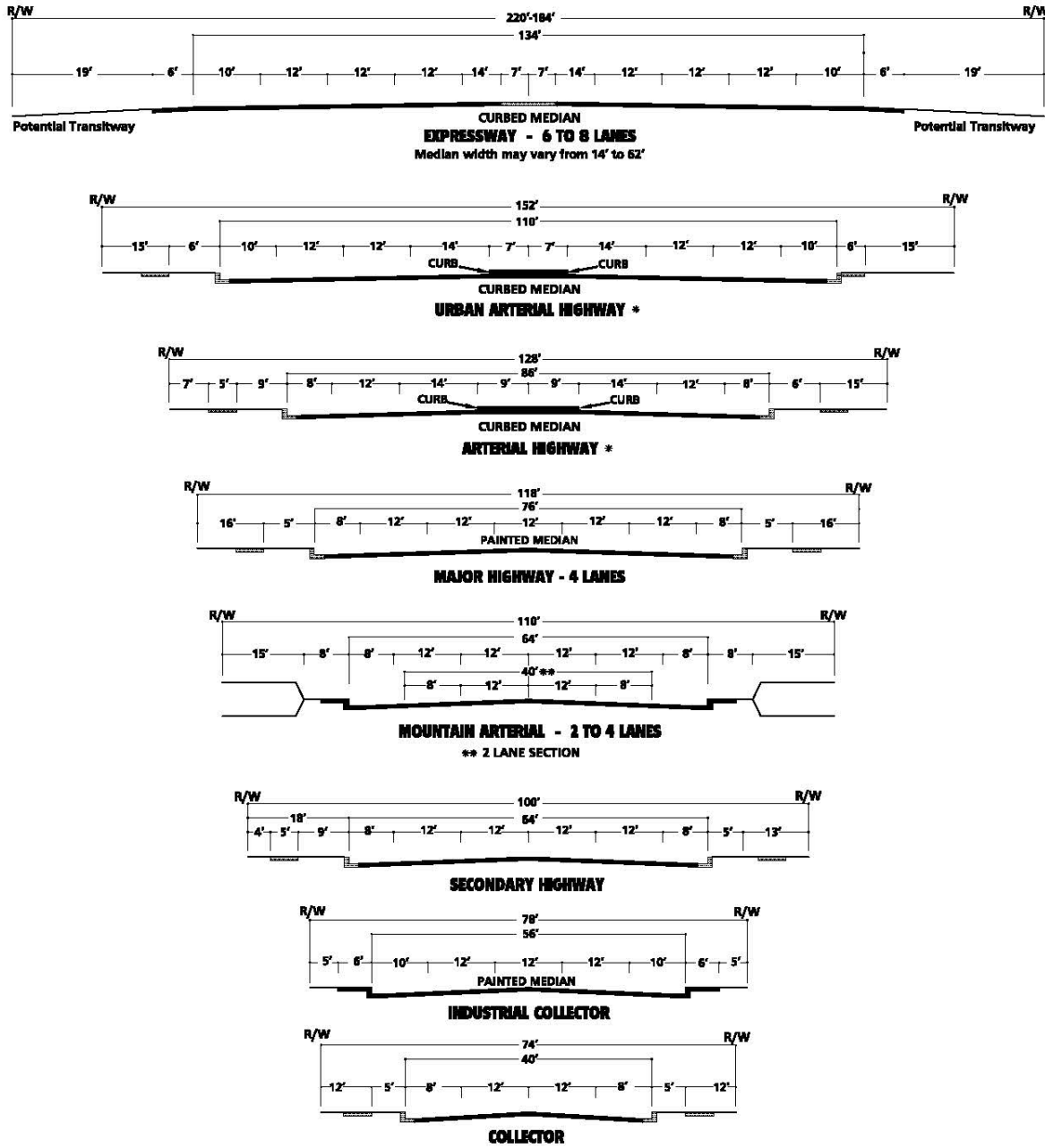


Figure 8

EXHIBIT 3-3: COUNTY OF RIVERSIDE GENERAL PLAN ROADWAY CROSS-SECTIONS



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

NOT TO SCALE

SOURCE: COUNTY OF RIVERSIDE  
 July 7, 2020

### 3.3 CITY OF PERRIS GENERAL PLAN CIRCULATION ELEMENT

Exhibits 3-4 and 3-5 show the City of Perris General Plan Circulation Element and roadway cross-sections, respectively.

### 3.4 BICYCLE & PEDESTRIAN FACILITIES

The County of Riverside and City of Perris bike networks are shown on Exhibit 3-6 and Exhibit 3-7, respectively. As shown on Exhibit 3-6, there is a planned Regional Trail (Urban/Suburban) trail proposed along Harvill Avenue south of the Project, a Community Trail along Harvill Avenue north of the Project and west of the Project along Martin Street, and a Class II (on-street, striped) bike lane along Ramona Expressway/Cajalco Expressway. Exhibit 3-8 illustrates the existing crosswalks throughout the study area. As shown on Exhibit 3-8, there are pedestrian facilities in place in the vicinity of the Project site on either side of Harvill Avenue and along Martin Street on the south side of the roadway. Development of the proposed Project would connect to these existing pedestrian facilities to those to be constructed by the Project along its frontages on Perry Street, Martin Street, and Harvill Avenue.

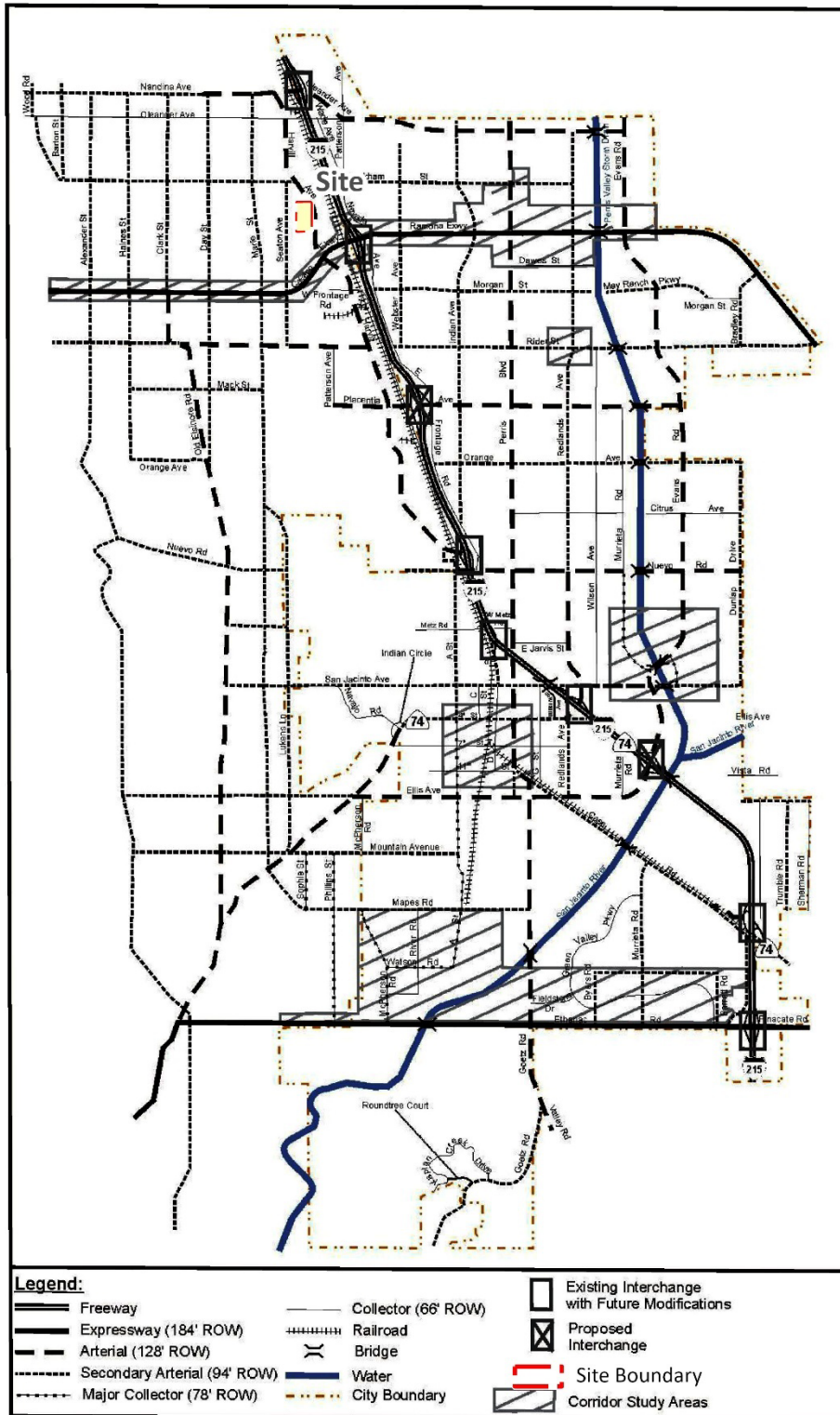
### 3.5 TRANSIT SERVICE

The study area is currently served by Riverside Transit Agency (RTA) with bus service along the I-215 Freeway and Cajalco Expressway/Ramona Expressway. RTA Route 27 runs along the I-215 Freeway and stops at Perris High School (on Nuevo Road) and runs between the Perris Station Transit Center and the Galleria at Tyler in the City of Riverside. RTA Route 41 runs along Ramona/Cajalco Expressway and has existing bus stops to the west and east of Harvill Avenue, which is located approximately ¼ mile from the Project. There are currently no transit routes or stops along the Harvill Avenue corridor near the proposed Project. The transit services are illustrated on Exhibit 3-9. As shown, the closest existing transit route that could potentially serve the site is along Cajalco Expressway. Transit service is reviewed and updated by RTA periodically to address ridership, budget, and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

### 3.6 TRUCK ROUTES

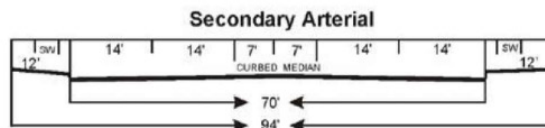
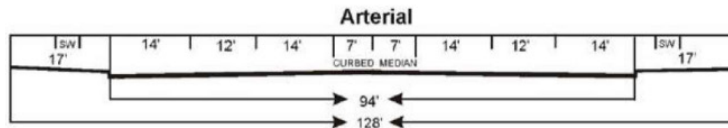
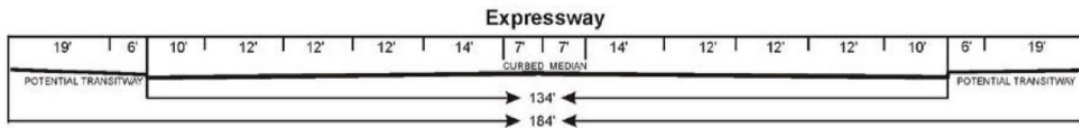
The County of Riverside's General Plan does not provide designated truck routes, and the City of Perris' truck routes are shown on Exhibit 3-10. Trucks are prohibited on certain County roadways through the Municipal Code through weight restrictions. Truck routes for the proposed Project have been determined based on discussions with County staff and takes into consideration the approved truck routes within the adjacent City of Perris. These truck routes serve both the proposed Project and future cumulative development projects throughout the study area. Sensitive land uses have also been taken into consideration as part of determining the best routes for future trucks.

**EXHIBIT 3-4: CITY OF PERRIS GENERAL PLAN CIRCULATION ELEMENT**

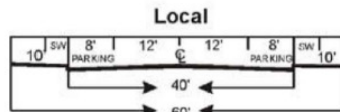
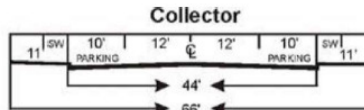
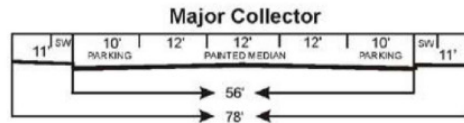
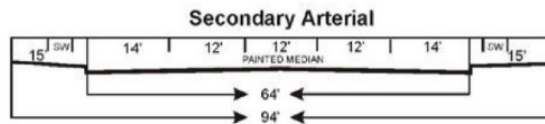




**EXHIBIT 3-5: CITY OF PERRIS GENERAL PLAN ROADWAY CROSS-SECTIONS**



or



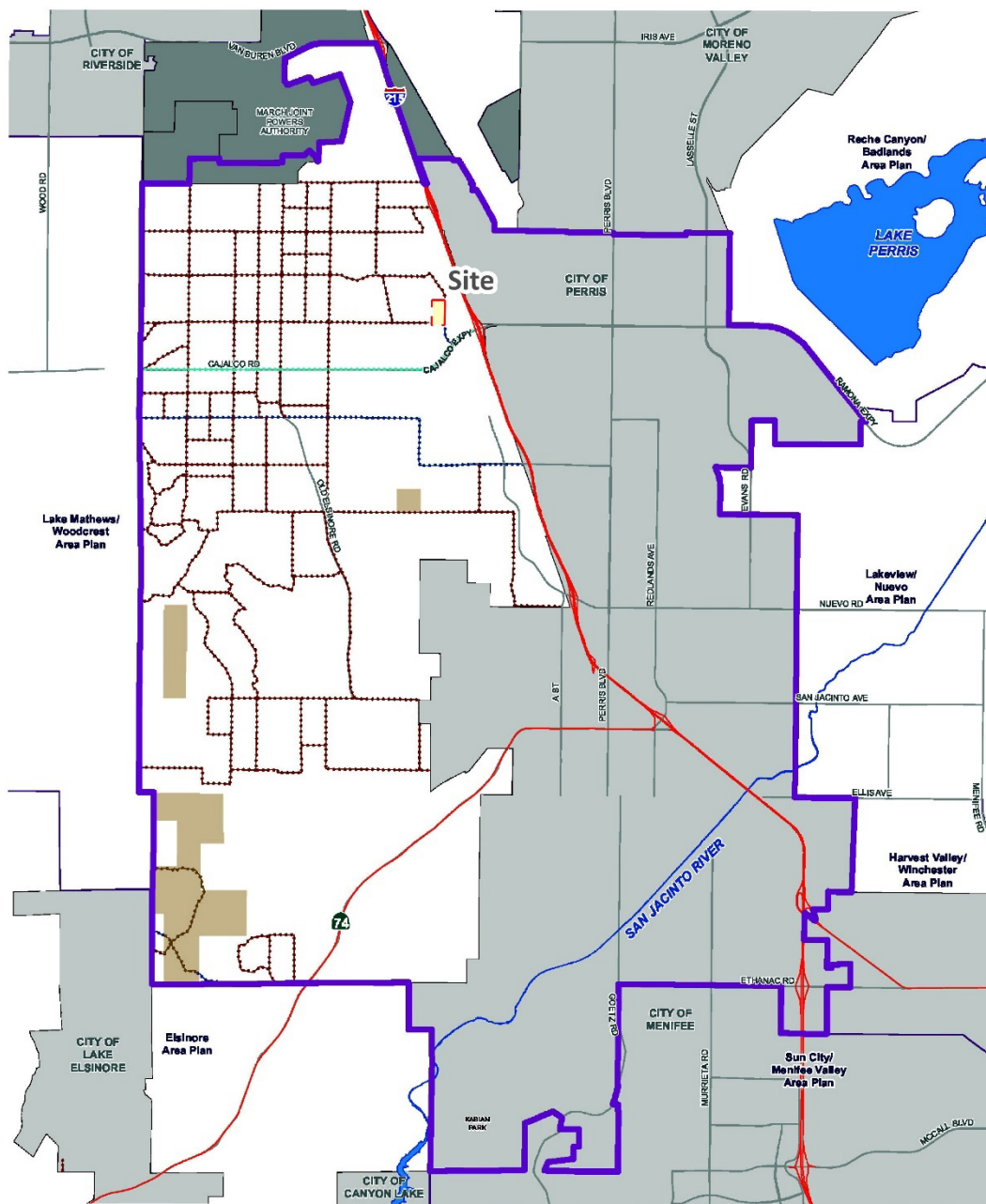
Specific details for each cross-section follow in Figures 4.1 A - 4.1 F

**Legend**

- SW Sidewalk or Trail (at least 4 feet)
- PARKING Parking or Bike Lane
- PAINTED MEDIAN Center Median and/or Continuous Left Turning Lane
- CURBED MEDIAN Landscaped Center Median

Source: City of Perris  
General Plan  
1-11-2022

EXHIBIT 3-6: COUNTY OF RIVERSIDE GENERAL PLAN BIKE NETWORK



Data Source: Riverside County Parks

- Regional Trail: Urban/Suburban
- Community Trail
- Class II Bike Path
- Non-County Trail (Public and Quasi-Public Lands)
- Site Boundary
- Highways
- Area Plan Boundary
- March Joint Powers Authority
- City Boundary
- Waterbodies
- Bureau of Land Management (BLM) Lands

Note: Trails shown in non-county jurisdictions for informational coordination purposes only.  
 Data Source: Primarily Riverside County Regional Park and Open Space District, with additional data from Riverside County Trails/Changemakers and Planning Department, Riverside County Regional Development Agency, and other local, state, and federal governmental entities agencies.  
 Note: Trails and bikeways maps are a guide to represent and identify the general location and distribution of existing and proposed trails and bikeways in the unincorporated area of the County. All specific project details, alignment, or approved specifications should be referred to the Riverside County Regional Park and Open Space District.  
 Note: Trails and bikeways maps are a guide to represent and identify the general location and distribution of existing and proposed trails and bikeways in the unincorporated area of the County. All specific project details, alignment, or approved specifications should be referred to the Riverside County Regional Park and Open Space District.  
 Note: Trails and bikeways maps are a guide to represent and identify the general location and distribution of existing and proposed trails and bikeways in the unincorporated area of the County. All specific project details, alignment, or approved specifications should be referred to the Riverside County Regional Park and Open Space District.

Figure 9



EXHIBIT 3-7: CITY OF PERRIS BIKE PLAN



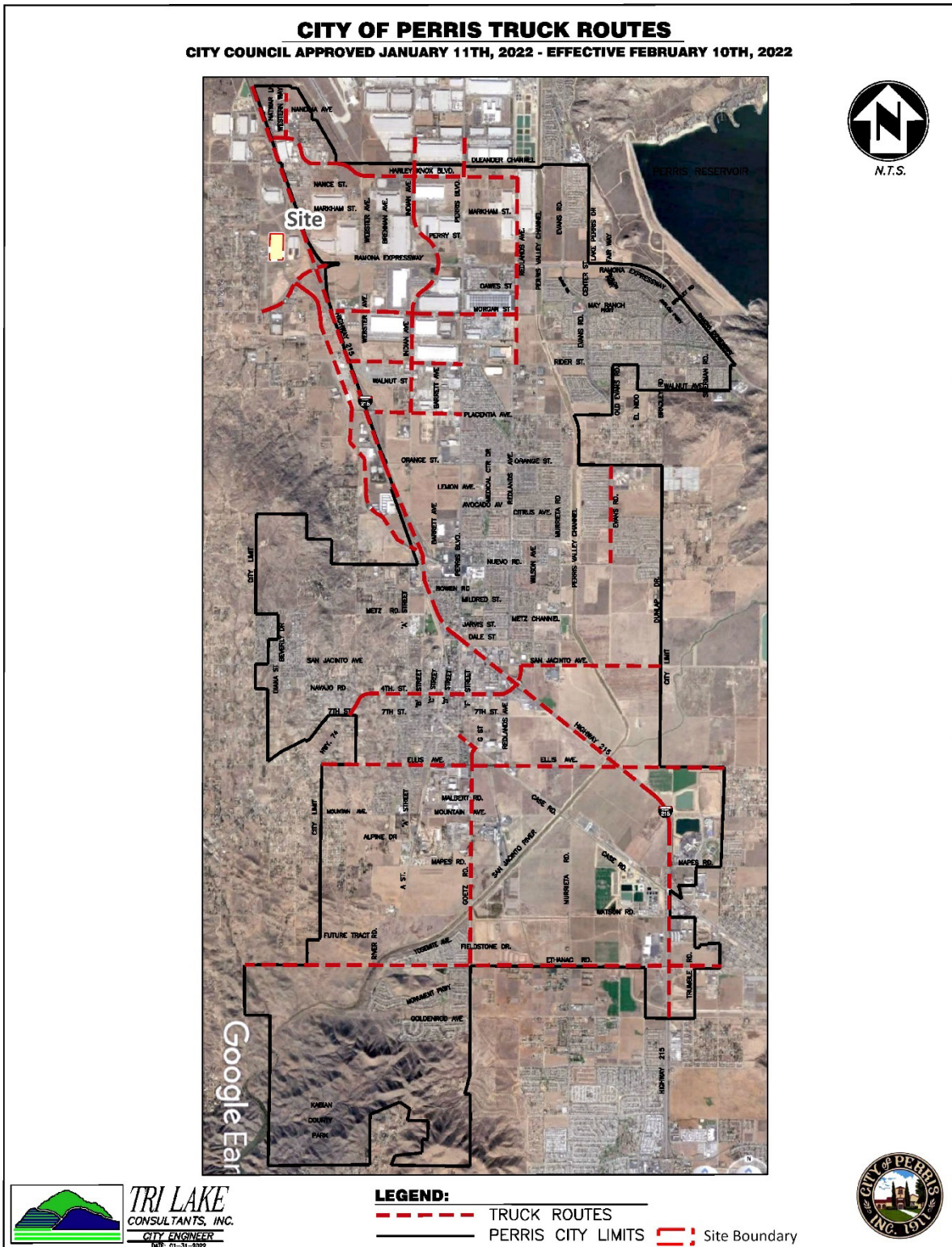


EXHIBIT 3-9: EXISTING TRANSIT ROUTES





EXHIBIT 3-10: CITY OF PERRIS TRUCK ROUTES



### 3.7 EXISTING (2022) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in January and February 2022 when local schools were in session and operating on normal bell schedules. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1.

Existing weekday ADT volumes on arterial highways throughout the study area are shown on Exhibit 3-11. Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

$$\text{Weekday PM Peak Hour (Approach Volume + Exit Volume)} \times 13.47 = \text{Leg Volume}$$

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 7.4 percent. As such, the above equation utilizing a factor of 13.47 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 7.4 percent (i.e.,  $1/0.074 = 13.47$ ) and was assumed to sufficiently estimate ADT volumes for planning-level analyses. This factor is consistent with that used for other traffic studies within the study area. Existing weekday AM and weekday PM peak hour intersection volumes are shown on Exhibit 3-11.

Volumes reported on the exhibits are expressed in actual vehicles. However, consistent with the County's guidelines, the peak hour intersection operations analysis utilizes passenger car equivalent (PCE) volumes. PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. The PCE factors are consistent with the recommended PCE factors in the County's Guidelines. PCE volumes can be found in Appendix 3.1.



### 3.8 INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 Intersection Capacity Analysis of this report. The intersection operations analysis results are summarized on Table 3-1, which indicates that all existing study area intersections are currently operating at acceptable LOS during the peak hours. The intersection operations analysis worksheets are included in Appendix 3.2 of this TA.

**TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2022) CONDITIONS**

# Intersection	Traffic Control <sup>2</sup>	Delay <sup>1</sup> (secs.)		Level of Service	
		AM	PM	AM	PM
1 Driveway 1 & Perry St.		Future Intersection			
2 Driveway 2 & Martin St.		Future Intersection			
3 Driveway 3 & Martin St.		Future Intersection			
4 Harvill Av. & Perry St.	CSS	15.5	13.9	C	B
5 Harvill Av. & Driveway 4		Future Intersection			
6 Harvill Av. & Martin St.	CSS	10.2	10.5	B	B
7 Harvill Av. & Cajalco Exwy.	TS	38.4	37.8	D	D
8 I-215 SB Ramps & Ramona Exwy.	TS	36.7	43.9	D	D
9 I-215 NB Ramps & Ramona Exwy.	TS	25.5	18.4	C	B

<sup>1</sup> Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

<sup>2</sup> TS = Traffic Signal; CSS = Cross-street Stop

### 3.9 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. There are no unsignalized study area intersections that currently warrant a traffic signal for Existing traffic conditions. Existing conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

### 3.10 QUEUING ANALYSIS

A queuing analysis was performed for the off-ramps at the I-215 Freeway at Ramona Expressway interchange. Queuing analysis findings are presented in Table 3-2. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown in Table 3-2, there are no movements that are currently experiencing queuing issues during the weekday AM or weekday PM peak 95<sup>th</sup> percentile traffic flows. Worksheets for Existing (2022) traffic conditions off-ramp queuing analysis are provided in Appendix 3.4.



**TABLE 3-2: PEAK HOUR QUEUING SUMMARY FOR EXISTING (2022) CONDITIONS**

Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet)		Acceptable? <sup>1</sup>	
			AM Peak Hour	PM Peak Hour	AM	PM
I-215 SB Ramps & Ramona Exwy.	SBL	530	445 <sup>2</sup>	468 <sup>2</sup>	Yes	Yes
	SBT	1,100	448 <sup>2</sup>	481 <sup>2</sup>	Yes	Yes
	SBR	530	138	78	Yes	Yes
I-215 NB Ramps & Ramona Exwy.	NBL	520	184	176	Yes	Yes
	NBT	1,120	187	181	Yes	Yes
	NBR	520	685 <sup>2,3</sup>	457 <sup>2</sup>	Yes	Yes

<sup>1</sup> Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

<sup>2</sup> 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

<sup>3</sup> Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the I-215 Freeway mainline.

## 4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment onto the study area roadway network. The proposed Project building is 307,616 square feet of building space, however, in an effort to conduct a conservative analysis a 322,997 square foot warehouse building has been evaluated in order to account for any future minor revisions in building size (approximately a 5% buffer). For the purposes of this TA, the building has been evaluated assuming high-cube short-term storage and transload warehouse use. Access to the Project site will be accommodated via Perry Street, Martin Street, and Harvill Avenue. Regional access to the Project site is available from the I-215 Freeway via the existing Harley Knox Boulevard and Ramona Expressway interchanges.

### 4.1 PROJECT TRIP GENERATION

#### 4.1.1 PROPOSED PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development. In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the ITE Trip Generation Manual (11<sup>th</sup> Edition, 2021) was used to calculate the trip generation. (2) The following trip generation rates and vehicle mix were utilized for calculating the trip generation for the proposed Project:

- ITE land use code 154 (High-Cube Transload and Short-Term Storage Warehouse) has been used to derive site specific trip generation estimates for the Project. High-cube transload/short-term storage warehouse data regarding the truck percentage and vehicle mix has also been obtained from the latest Trip Generation Manual. The SCAQMD recommended truck mix, by axle type for high-cube warehouses has been utilized for the 2-axle, 3-axle, and 4+-axle trucks: 2-Axle = 16.7%; 3-Axle = 20.7%; 4+-Axle = 62.6%.

PCE factors were applied to the trip generation rates for heavy trucks (large 2-axles, 3-axles, 4+-axles). PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and LOS analyses. The PCE factors are consistent with the recommended PCE factors In the County's Guidelines. Trip generation rates are summarized on Table 4-1 for actual vehicles and PCE.

**TABLE 4-1: TRIP GENERATION RATES**

Land Use <sup>1</sup>	Units <sup>2</sup>	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
<b>Actual Vehicle Trip Generation Rates</b>									
High-Cube Transload and Short-Term Storage	TSF	154	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars			0.052	0.008	0.060	0.023	0.067	0.090	1.180
2-Axle Trucks			0.002	0.001	0.003	0.001	0.001	0.002	0.037
3-Axle Trucks			0.002	0.002	0.004	0.001	0.001	0.002	0.046
4+-Axle Trucks			0.006	0.007	0.013	0.003	0.003	0.006	0.138
<b>Passenger Car Equivalent (PCE) Trip Generation Rates<sup>4</sup></b>									
High-Cube Transload and Short-Term Storage	TSF	154	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars			0.052	0.008	0.060	0.023	0.067	0.090	1.180
2-Axle Trucks (PCE = 1.5)			0.003	0.002	0.005	0.002	0.001	0.003	0.055
3-Axle Trucks (PCE = 2.0)			0.004	0.004	0.008	0.002	0.002	0.004	0.091
4+-Axle Trucks (PCE = 3.0)			0.018	0.020	0.038	0.009	0.010	0.019	0.413

<sup>1</sup> Trip Generation & Vehicle Mix Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).

<sup>2</sup> TSF = thousand square feet

<sup>3</sup> Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type.

Normalized % - Without Cold Storage: 16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.6% 4-Axle trucks.

<sup>4</sup> PCE factors: 2-axle = 1.5; 3-axle = 2.0; 4+-axle = 3.0.

Per the County's Guidelines, peak hour intersection operations analyses are to utilize the PCE trip generation. The trip generation summary illustrating daily and peak hour trip generation estimates for the Project in actual vehicles are shown on Table 4-2. The proposed Project is anticipated to generate 454 two-way trip-ends per day with 27 AM peak hour trips and 31 PM peak hour trips (see Table 4-2, in actual vehicles). PCE based trip generation for the Project are also summarized on Table 4-2.

**TABLE 4-2: PROJECT TRIP GENERATION SUMMARY**

Land Use	Quantity Units <sup>1</sup>	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
<b>Actual Vehicles:</b>								
High-Cube Short-Term Storage/Transload	322.997 TSF							
Passenger Cars:		17	3	20	7	22	29	382
2-axle Trucks:		1	0	1	0	0	0	12
3-axle Trucks:		1	1	2	0	0	0	16
4+-axle Trucks:		2	2	4	1	1	2	44
Total Truck Trips (Actual Vehicles):		4	3	7	1	1	2	72
<b>Total Trips (Actual Vehicles)<sup>2</sup></b>		<b>21</b>	<b>6</b>	<b>27</b>	<b>8</b>	<b>23</b>	<b>31</b>	<b>454</b>
<b>Passenger Car Equivalent (PCE):</b>								
High-Cube Short-Term Storage/Transload	322.997 TSF							
Passenger Cars:		17	3	20	7	22	29	382
2-axle Trucks:		1	1	2	0	0	0	18
3-axle Trucks:		1	1	2	1	1	2	30
4+-axle Trucks:		6	6	12	3	3	6	134
Total Truck Trips (PCE):		8	8	16	4	4	8	182
<b>Total Trips (PCE)<sup>2</sup></b>		<b>25</b>	<b>11</b>	<b>36</b>	<b>11</b>	<b>26</b>	<b>37</b>	<b>564</b>

<sup>1</sup> TSF = thousand square feet

<sup>2</sup> Total Trips = Passenger Cars + Truck Trips.

## 4.2 PROJECT TRIP DISTRIBUTION

The Project trip distribution represents the directional orientation of traffic to and from the Project site. Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute. In addition, truck routes for neighboring agencies have been taken into consideration in the development of the trip distribution patterns for heavy trucks. Exhibits 4-1 and 4-2 show the Project truck and passenger car trip distribution patterns, respectively. Note that the Project Truck distribution shows two alternatives that have been evaluated in this TA.

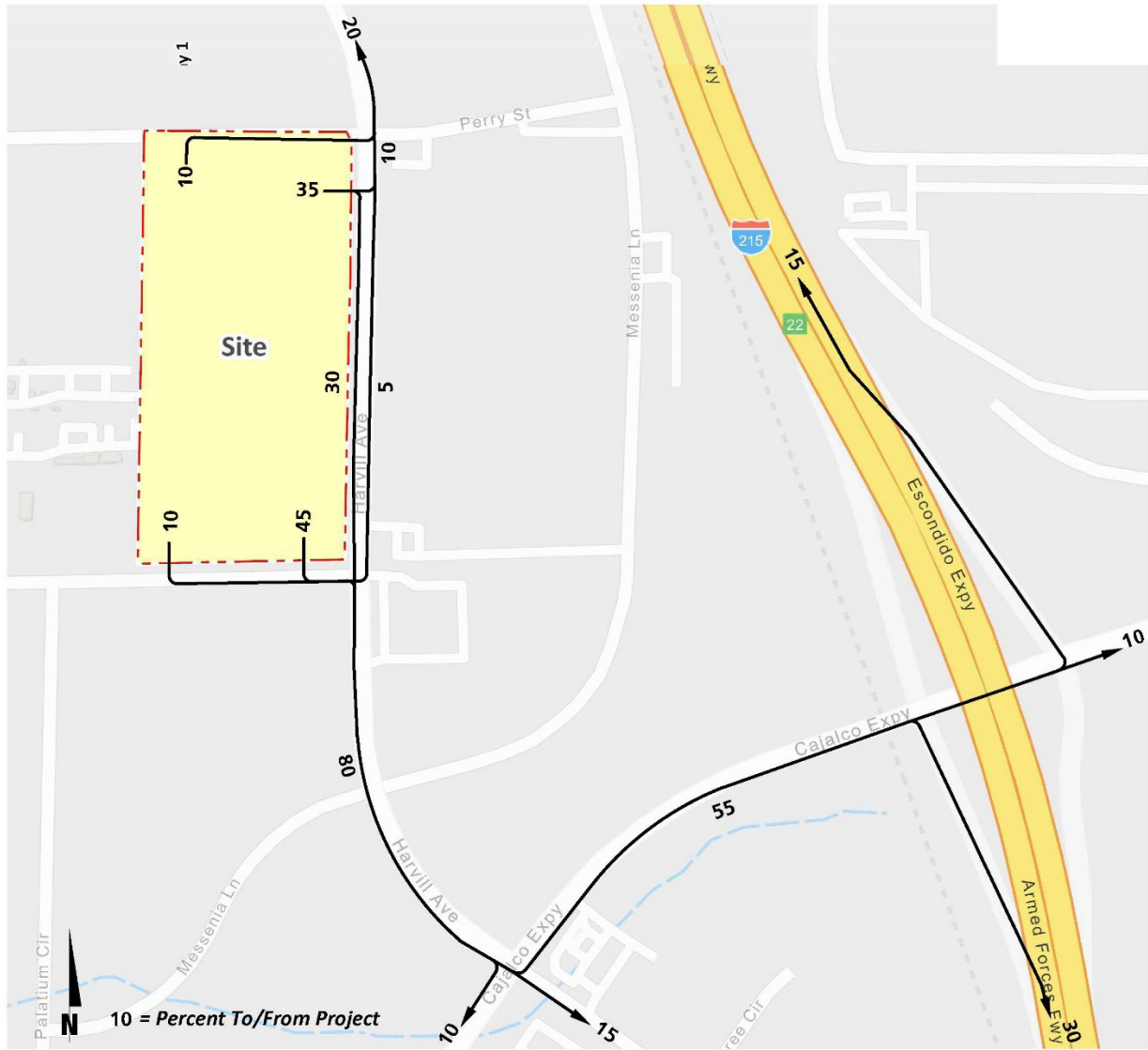
## 4.3 MODAL SPLIT

The potential for Project trips (non-truck) to be reduced by the use of public transit, walking or bicycling have not been included as part of the Project’s estimated trip generation. Essentially, the Project’s traffic projections are "conservative" in that these alternative travel modes would reduce the forecasted traffic volumes.

EXHIBIT 4-1: PROJECT (TRUCK) TRIP DISTRIBUTION



EXHIBIT 4-2: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION



#### 4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, the Project only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-3.

#### 4.5 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon background (ambient) growth at 2% per year, compounded annually, for 2025 conditions. The total ambient growth is 6.12% for 2025 traffic conditions (compounded growth of 2 percent per year over 3 years or  $1.02^{3\text{years}}$ ). The ambient growth factor is intended to approximate regional traffic growth. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies.

The currently adopted Southern California Association of Governments (SCAG) 2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) growth forecasts for the County of Riverside identifies projected growth in population of 370,500 in 2016 to 525,600 in 2045, or a 41.9 percent increase over the 29-year period. (6) The change in population equates to roughly a 1.21 percent growth rate, compounded annually. Similarly, growth over the same 29-year period in households is projected to increase by 59.2 percent, or 1.62 percent annual growth rate. Finally, growth in employment over the same 29-year period is projected to increase by 83.4 percent, or a 2.11 percent annual growth rate. This results in an average of 1.65 percent annual growth rate. As such, the 2.0 percent per year ambient growth rate utilized in this TA would appear to conservatively estimate annual traffic growth and overstate as opposed to understate future traffic forecasts.



EXHIBIT 4-3: PROJECT ONLY TRAFFIC VOLUMES



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<b>1 Driveway 1 &amp; Perry St.</b> <table border="1"> <tr> <td>100</td> <td></td> </tr> <tr> <td></td> <td>4(1)</td> </tr> <tr> <td></td> <td>2(3)</td> </tr> <tr> <td></td> <td>100</td> </tr> </table>	100			4(1)		2(3)		100	<b>2 Driveway 2 &amp; Martin St.</b> <table border="1"> <tr> <td>Nominal</td> <td></td> </tr> <tr> <td></td> <td>3(1)</td> </tr> <tr> <td></td> <td>2(3)</td> </tr> <tr> <td></td> <td>Nominal</td> </tr> </table>	Nominal			3(1)		2(3)		Nominal	<b>3 Driveway 3 &amp; Martin St.</b> <table border="1"> <tr> <td>150</td> <td></td> </tr> <tr> <td></td> <td>8(3)</td> </tr> <tr> <td></td> <td>3(1)</td> </tr> <tr> <td></td> <td>4(10)</td> </tr> <tr> <td></td> <td>2(3)</td> </tr> <tr> <td></td> <td>150</td> </tr> </table>	150			8(3)		3(1)		4(10)		2(3)		150	<b>4 Harvill Av. &amp; Perry St.</b> <table border="1"> <tr> <td>150</td> <td></td> </tr> <tr> <td></td> <td>3(1)</td> </tr> <tr> <td></td> <td>4(1)</td> </tr> <tr> <td></td> <td>2(3)</td> </tr> <tr> <td></td> <td>1(2)</td> </tr> <tr> <td></td> <td>Nominal</td> </tr> </table>	150			3(1)		4(1)		2(3)		1(2)		Nominal												
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##(##) AM(PM) Peak Hour Intersection Volumes  
 ## Average Daily Trips

## 4.6 CUMULATIVE DEVELOPMENT TRAFFIC

A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the County of Riverside. The cumulative project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections.

Where applicable, cumulative projects anticipated to contribute measurable traffic (i.e., 50 or more peak hour trips) to study area intersections have been manually added to the study area network to generate EAPC forecasts. In other words, this list of cumulative development projects has been reviewed to determine which projects would likely contribute measurable traffic through the study area intersections (e.g., those cumulative projects in close proximity to the proposed Project). For the purposes of this analysis, the cumulative projects that were determined to affect one or more of the study area intersections are shown on Exhibit 4-4, listed in Table 4-3, and have been considered for inclusion. Any additional traffic generated by other projects not on the cumulative projects list is likely accounted for through background ambient growth factors that have been applied to the peak hour volumes at study area intersections as discussed in Section 4.5 Background Traffic. Cumulative development projects shown in Exhibit 4-4 and listed in Table 4-3. Cumulative Only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-5.

## 4.7 NEAR-TERM TRAFFIC CONDITIONS

The “buildup” approach combines existing traffic counts with a background ambient growth factor to forecast EAP (2025) and EAPC (2025) traffic conditions. An ambient growth factor accounts for background (area-wide) traffic increases that occur over time up to the year 2025 from the year 2022. Traffic volumes generated by the Project are then added to assess the near-term traffic conditions. The 2025 roadway network is similar to the Existing conditions roadway network, with the exception of future driveways proposed to be developed by the Project. The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

- Existing Plus Ambient Growth Plus Project (2025)
  - Existing 2022 counts
  - Ambient growth traffic (6.12%)
  - Project traffic
- Existing Plus Ambient Growth Plus Project Plus Cumulative (2025)
  - Existing 2022 counts
  - Ambient growth traffic (6.12%)
  - Cumulative Development traffic
  - Project traffic

EXHIBIT 4-4: CUMULATIVE DEVELOPMENT LOCATION MAP

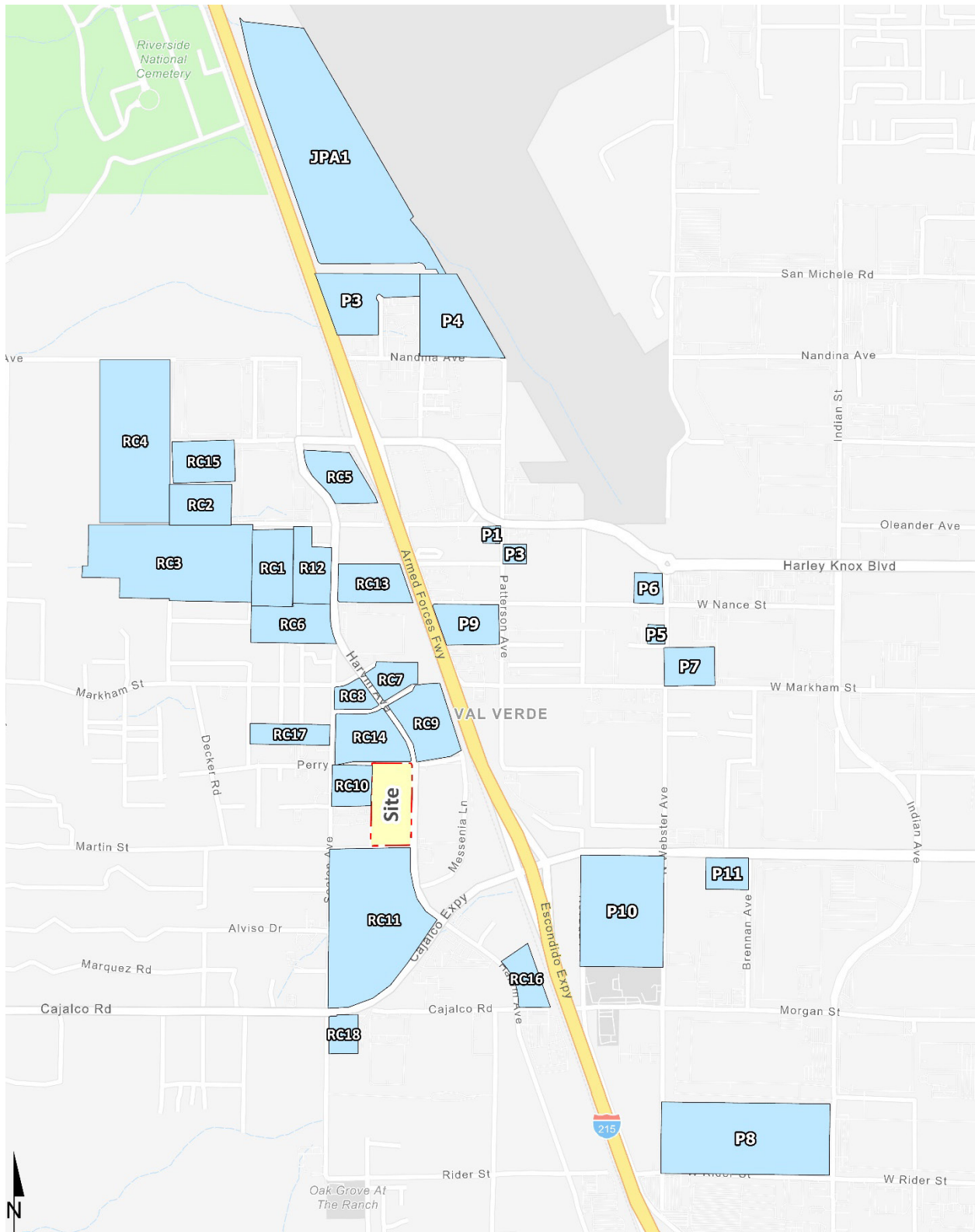


EXHIBIT 4-5: CUMULATIVE ONLY TRAFFIC VOLUMES



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<b>Driveway 1 &amp; Perry St.</b>	<b>Driveway 2 &amp; Martin St.</b>	<b>Driveway 3 &amp; Martin St.</b>	<b>Harvill Av. &amp; Perry St.</b>																																			
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**TABLE 4-7: CUMULATIVE DEVELOPMENT LAND USE SUMMARY**

No.	Project Name / Case Number	Land Use	Quantity	Units <sup>1</sup>
RC1	Majestic Freeway Business Center - Building 20	High-Cube Warehouse	426.821	TSF
RC2	Majestic Freeway Business Center - Building	Warehousing	241.059	TSF
RC3	Knox Logistics Center	High-Cube Warehouse	1,259.410	TSF
RC4	Oleander Business Park	High-Cube Warehouse	680.000	TSF
RC5	PPT190031	High-Cube Warehouse	418.000	TSF
RC6	Majestic Freeway Business Center - Building 19	Warehousing	364.560	TSF
RC7	Majestic Freeway Business Center - Building 12	Warehousing	154.751	TSF
RC8	Majestic Freeway Business Center - Building 15	Warehousing	90.279	TSF
RC9	Majestic Freeway Business Center - Building 11	High-Cube Warehouse	391.045	TSF
RC10	PPT180025: Seaton Commerce Center	High-Cube Warehouse	210.800	TSF
RC11	Majestic Freeway Business Center - Buildings 1, 3 & 4	Warehousing	48.930	TSF
		High-Cube Warehouse	1,195.740	TSF
RC12	Majestic Freeway Business Center - Building 18	High-Cube Warehouse	333.648	TSF
RC13	Majestic Freeway Business Center - Building 17	High-Cube Warehouse	268.955	TSF
RC14	Majestic Freeway Business Center - Building	Warehousing	354.583	TSF
RC15	PPT210130	Warehousing	239.308	TSF
RC16	Harvill & Cajalco Warehouse	General Light Industrial	99.770	TSF
		Truck Trailer Yard	133	Spaces
RC17	PPT210022	General Light Industrial	98.940	TSF
RC18	PPT210133	Warehousing	350.481	TSF
P1	Canyon Steel (CS)	Industrial	25.000	TSF
P2	First March Logistics	Warehousing	589.971	TSF
P3	Duke - Patterson at Nance	High-Cube Warehouse	580.000	TSF
P4	Western Industrial (DRP19-00003)	High-Cube Warehouse	250.000	TSF
P5	Marijuana Manufacturing (MM)	Industrial	1.000	TSF
P6	AAA	Industrial	2.000	TSF
P7	Integra Expansion / MMOD 17-05075	High-Cube Warehouse	273.000	TSF
P8	Rados / DPR 07-0119	High-Cube Warehouse	1,200.000	TSF
P9	Patterson Commerce Center	High-Cube Fulfillment	224.247	TSF
		High-Cube Cold Storage	39.573	TSF
P10	Ramona Gateway Commerce Center	High-Cube Fulfillment	902.713	TSF
		High-Cube Cold Storage	47.511	TSF
		Fast-Food Restaurant w/	16.500	TSF
		Fast-Food Restaurant w/	10.200	TSF
		Coffee Shop w/ DT	2.400	TSF
		Automated Car Wash	1.000	Tunnel
P11	Ramona & Brennan	Gas Station w/ Market	16.000	VFP
		Warehousing	162.871	TSF
JPA1	VIP 215	High-Cube Warehouse	2,219.850	TSF

<sup>1</sup> TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions

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## 5 EAP (2025) TRAFFIC CONDITIONS

This section discusses the traffic forecasts for EAP (2025) conditions and the resulting intersection operations, traffic signal warrant, and queuing analyses.

### 5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAP (2025) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for EAP conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- The I-215 Freeway at Placentia Avenue interchange which is anticipated to be completed and open in Fall of 2022 has been assumed to be completed with improvements in place for EAP (2025) traffic conditions.

### 5.2 EAP (2025) TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2022) traffic volumes plus an ambient growth factor of 6.12% and the addition of Project traffic. The weekday ADT volumes and peak hour volumes which can be expected for EAP (2025) traffic conditions are shown on Exhibit 5-1.

### 5.3 INTERSECTION OPERATIONS ANALYSIS

EAP (2025) peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 Methodologies of this TA. The intersection analysis results are summarized on Table 5-1 for EAP traffic conditions, which indicate that all of the study area intersections are anticipated to continue to operate at an acceptable LOS under EAP traffic conditions. Intersection operations improve at the I-215 Freeway and Ramona Expressway interchange for EAP traffic conditions as there are reductions to the baseline traffic volumes with the opening of the I-215 Freeway and Placentia Avenue interchange. The intersection operations analysis worksheets for EAP traffic conditions are included in Appendix 5.1 of this TA.





**TABLE 5-1: INTERSECTION ANALYSIS FOR EAP (2025) CONDITIONS**

# Intersection	Traffic Control <sup>2</sup>	Existing (2022)				EAP (2025)			
		Delay <sup>1</sup> (secs.)		Level of Service		Delay <sup>1</sup> (secs.)		Level of Service	
		AM	PM	AM	PM	AM	PM	AM	PM
1 Driveway 1 & Perry St.	<b>CSS</b>	Future Intersection				8.4	0.0	A	A
2 Driveway 2 & Martin St.	<b>CSS</b>	Future Intersection				9.2	9.3	A	A
3 Driveway 3 & Martin St.	<b>CSS</b>	Future Intersection				9.3	9.4	A	A
4 Harvill Av. & Perry St.	CSS	15.5	13.9	C	B	16.3	13.9	C	B
5 Harvill Av. & Driveway 4	<b>CSS</b>	Future Intersection				9.9	11.6	A	B
6 Harvill Av. & Martin St.	CSS	10.2	10.5	B	B	10.7	11.0	B	B
7 Harvill Av. & Cajalco Exwy.	TS	38.4	37.8	D	D	40.2	39.7	D	D
8 I-215 SB Ramps & Ramona Exwy.	TS	36.7	43.9	D	D	33.6	35.3	C	D
9 I-215 NB Ramps & Ramona Exwy.	TS	25.5	18.4	C	B	18.8	15.4	B	B

<sup>1</sup> Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

<sup>2</sup> TS = Traffic Signal; CSS = Cross-street Stop; **CSS** = Improvement

## 5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for EAP (2025) traffic conditions are based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. No study area intersections are anticipated to meet either peak hour volume or ADT volume-based warrants with the addition of Project traffic (see Appendix 5.2).

## 5.5 QUEUING ANALYSIS

Queuing analysis findings for EAP (2025) are presented on Table 5-2. As shown on Table 5-2, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95<sup>th</sup> percentile traffic flows with the addition of Project traffic. Worksheets for EAP (2025) traffic conditions queuing analysis are provided in Appendix 5.3.

**TABLE 5-2: PEAK HOUR QUEUING SUMMARY FOR EAP (2025) CONDITIONS**

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2022)				EAP (2025)			
			95th Percentile Queue (Feet)		Acceptable? <sup>1</sup>		95th Percentile Queue (Feet)		Acceptable? <sup>1</sup>	
			AM Peak	PM Peak	AM	PM	AM Peak	PM Peak	AM	PM
I-215 SB Ramps & Ramona Exwy.	SBL	530	445 <sup>2</sup>	468 <sup>2</sup>	Yes	Yes	468 <sup>2</sup>	424 <sup>2</sup>	Yes	Yes
	SBT	1,100	448 <sup>2</sup>	481 <sup>2</sup>	Yes	Yes	469 <sup>2</sup>	437 <sup>2</sup>	Yes	Yes
	SBR	530	138	78	Yes	Yes	79	46	Yes	Yes
I-215 NB Ramps & Ramona Exwy.	NBL	520	184	176	Yes	Yes	153	147	Yes	Yes
	NBT	1,120	187	181	Yes	Yes	151	144	Yes	Yes
	NBR	520	685 <sup>2,3</sup>	457 <sup>2</sup>	Yes	Yes	478 <sup>2</sup>	302	Yes	Yes

<sup>1</sup> Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

<sup>2</sup> 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

<sup>3</sup> Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the I-215 Freeway mainline.

## 5.6 PROJECT DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

The study area intersections are anticipated to operate at an acceptable LOS with the addition of Project traffic. As such, no additional improvements aside from those that are needed to facilitate site access have been recommended. As shown previously in Table 5-2, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95<sup>th</sup> percentile traffic flows for EAP (2025) traffic conditions. As such, no improvements have been identified for the off-ramps.

## 6 EAPC (2025) TRAFFIC CONDITIONS

This section discusses the traffic forecasts for EAPC (2025) conditions and the resulting intersection operations, traffic signal warrant, and queuing analyses.

### 6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAPC (2025) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for EAPC (2025) conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for EAPC (2025) conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages).
- The I-215 Freeway at Placentia Avenue interchange which is anticipated to be completed and open in Fall of 2022 has been assumed to be completed with improvements in place for EAPC (2025) traffic conditions.

### 6.2 EAPC (2025) TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2022) traffic volumes plus an ambient growth factor of 6.12%, traffic from pending and approved cumulative development projects, and the addition of Project traffic. The weekday ADT volumes and peak hour volumes which can be expected for EAPC (2025) traffic conditions are shown on Exhibit 6-1.

### 6.3 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under EAPC (2025) conditions with roadway and intersection geometrics consistent with Section 6.1 Roadway Improvements. As shown on Table 6-1, the study area intersections are anticipated to operate at an acceptable LOS under EAPC (2025) traffic conditions with the exception of the following intersections:

- Harvill Av. & Perry St. (#4) – LOS F AM peak hour; LOS E PM peak hour
- Harvill Av. & Cajalco Exwy. (#7) – LOS F AM and PM peak hours
- I-215 SB Ramps & Ramona Exwy. (#8) – LOS F AM and PM peak hours
- I-215 NB Ramps & Ramona Exwy. (#9) – LOS F AM and PM peak hours

The intersection operations analysis worksheets for EAPC (2025) traffic conditions are included in Appendix 6.1 of this TA.

EXHIBIT 6-1: EAPC (2025) TRAFFIC VOLUMES



1	2	3	4																																																							
<b>Driveway 1 &amp; Perry St.</b>	<b>Driveway 2 &amp; Martin St.</b>	<b>Driveway 3 &amp; Martin St.</b>	<b>Harvill Av. &amp; Perry St.</b>																																																							
<table border="1"> <tr> <td>1,000</td> <td>1,900</td> <td>150</td> <td>2,050</td> </tr> <tr> <td>                     ← 67(18)                      ↑ 4(1)                 </td> <td>                     ↓ 2(3)                      ↑ 3(1)                      ← 54(63)                 </td> <td>                     ↓ 1(10)                      ↑ 8(3)                      ← 57(64)                 </td> <td>                     ↓ 11(5)                      ↓ 597(1182)                      ↓ 2(5)                      ↑ 6(16)                      ↑ 2(5)                      ↓ 0(2)                 </td> </tr> <tr> <td>21(65) →</td> <td>58(72) →</td> <td>60(75) →</td> <td>                     ↑ 69(14)                      ↑ 1286(799)                      ↓ 16(13)                 </td> </tr> <tr> <td>950</td> <td>100</td> <td>1,900</td> <td>700</td> </tr> </table>	1,000	1,900	150	2,050	← 67(18) ↑ 4(1)	↓ 2(3) ↑ 3(1) ← 54(63)	↓ 1(10) ↑ 8(3) ← 57(64)	↓ 11(5) ↓ 597(1182) ↓ 2(5) ↑ 6(16) ↑ 2(5) ↓ 0(2)	21(65) →	58(72) →	60(75) →	↑ 69(14) ↑ 1286(799) ↓ 16(13)	950	100	1,900	700	<table border="1"> <tr> <td>Nominal</td> <td>1,800</td> <td>1,900</td> <td>1,150</td> </tr> <tr> <td>                     ↓ 2(3)                 </td> <td>                     ↓ 9(3)                      ↓ 611(1265)                 </td> <td>                     ↓ 73(166)                      ↓ 209(302)                      ↓ 406(904)                 </td> <td>                     ↓ 725(376)                      ↓ 1(4)                      ↓ 1508(1860)                 </td> </tr> <tr> <td>21(65) →</td> <td>7(4) →</td> <td>175(120) →</td> <td>735(1559) →</td> </tr> <tr> <td>2(3) →</td> <td>54(80) →</td> <td>784(1199) →</td> <td>420(869) ↓</td> </tr> <tr> <td>100</td> <td>2,050</td> <td>27,500</td> <td>26,650</td> </tr> </table>	Nominal	1,800	1,900	1,150	↓ 2(3)	↓ 9(3) ↓ 611(1265)	↓ 73(166) ↓ 209(302) ↓ 406(904)	↓ 725(376) ↓ 1(4) ↓ 1508(1860)	21(65) →	7(4) →	175(120) →	735(1559) →	2(3) →	54(80) →	784(1199) →	420(869) ↓	100	2,050	27,500	26,650	<table border="1"> <tr> <td>1,900</td> <td>52,050</td> <td>27,500</td> <td>48,700</td> </tr> <tr> <td>                     ↓ 1(10)                      ↑ 8(3)                      ← 57(64)                 </td> <td>                     ↑ 740(458)                      ← 1078(887)                      ↓ 604(313)                 </td> <td>                     ↑ 355(335)                      ↓ 420(265)                      ↑ 225(577)                 </td> <td>                     ↑ 1717(1155)                      ↓ 475(727)                 </td> </tr> <tr> <td>60(75) →</td> <td>210(284) ↓</td> <td>210(284) ↓</td> <td>475(727) ↓</td> </tr> <tr> <td>1,900</td> <td>34,200</td> <td>27,500</td> <td>16,550</td> </tr> </table>	1,900	52,050	27,500	48,700	↓ 1(10) ↑ 8(3) ← 57(64)	↑ 740(458) ← 1078(887) ↓ 604(313)	↑ 355(335) ↓ 420(265) ↑ 225(577)	↑ 1717(1155) ↓ 475(727)	60(75) →	210(284) ↓	210(284) ↓	475(727) ↓	1,900	34,200	27,500	16,550				
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<b>Harvill Av. &amp; Driveway 4</b>	<b>Harvill Av. &amp; Martin St.</b>	<b>Harvill Av. &amp; Cajalco Exwy.</b>	<b>I-215 SB Ramps &amp; Ramona Exwy.</b>																																																							
<table border="1"> <tr> <td>25,550</td> <td>25,650</td> <td>27,500</td> <td>26,650</td> </tr> <tr> <td>                     ↓ 1(0)                      ↓ 820(1561)                 </td> <td>                     ↓ 9(3)                      ↓ 611(1265)                 </td> <td>                     ↓ 73(166)                      ↓ 209(302)                      ↓ 406(904)                 </td> <td>                     ↓ 725(376)                      ↓ 1(4)                      ↓ 1508(1860)                 </td> </tr> <tr> <td>0(1) →</td> <td>7(4) →</td> <td>175(120) →</td> <td>735(1559) →</td> </tr> <tr> <td>1(7) ↓</td> <td>54(80) ↓</td> <td>784(1199) →</td> <td>420(869) ↓</td> </tr> <tr> <td>150</td> <td>2,050</td> <td>27,500</td> <td>26,650</td> </tr> </table>	25,550	25,650	27,500	26,650	↓ 1(0) ↓ 820(1561)	↓ 9(3) ↓ 611(1265)	↓ 73(166) ↓ 209(302) ↓ 406(904)	↓ 725(376) ↓ 1(4) ↓ 1508(1860)	0(1) →	7(4) →	175(120) →	735(1559) →	1(7) ↓	54(80) ↓	784(1199) →	420(869) ↓	150	2,050	27,500	26,650	<table border="1"> <tr> <td>2,050</td> <td>27,500</td> <td>34,200</td> <td>27,500</td> </tr> <tr> <td>                     ↓ 9(3)                      ↓ 611(1265)                 </td> <td>                     ↓ 73(166)                      ↓ 209(302)                      ↓ 406(904)                 </td> <td>                     ↓ 73(166)                      ↓ 209(302)                      ↓ 406(904)                 </td> <td>                     ↓ 725(376)                      ↓ 1(4)                      ↓ 1508(1860)                 </td> </tr> <tr> <td>7(4) →</td> <td>175(120) →</td> <td>175(120) →</td> <td>735(1559) →</td> </tr> <tr> <td>54(80) ↓</td> <td>784(1199) →</td> <td>784(1199) →</td> <td>420(869) ↓</td> </tr> <tr> <td>2,050</td> <td>27,500</td> <td>34,200</td> <td>27,500</td> </tr> </table>	2,050	27,500	34,200	27,500	↓ 9(3) ↓ 611(1265)	↓ 73(166) ↓ 209(302) ↓ 406(904)	↓ 73(166) ↓ 209(302) ↓ 406(904)	↓ 725(376) ↓ 1(4) ↓ 1508(1860)	7(4) →	175(120) →	175(120) →	735(1559) →	54(80) ↓	784(1199) →	784(1199) →	420(869) ↓	2,050	27,500	34,200	27,500	<table border="1"> <tr> <td>27,500</td> <td>34,200</td> <td>27,500</td> <td>26,650</td> </tr> <tr> <td>                     ↓ 73(166)                      ↓ 209(302)                      ↓ 406(904)                 </td> <td>                     ↓ 73(166)                      ↓ 209(302)                      ↓ 406(904)                 </td> <td>                     ↓ 73(166)                      ↓ 209(302)                      ↓ 406(904)                 </td> <td>                     ↓ 725(376)                      ↓ 1(4)                      ↓ 1508(1860)                 </td> </tr> <tr> <td>210(284) ↓</td> <td>210(284) ↓</td> <td>210(284) ↓</td> <td>735(1559) →</td> </tr> <tr> <td>27,500</td> <td>34,200</td> <td>27,500</td> <td>26,650</td> </tr> </table>	27,500	34,200	27,500	26,650	↓ 73(166) ↓ 209(302) ↓ 406(904)	↓ 73(166) ↓ 209(302) ↓ 406(904)	↓ 73(166) ↓ 209(302) ↓ 406(904)	↓ 725(376) ↓ 1(4) ↓ 1508(1860)	210(284) ↓	210(284) ↓	210(284) ↓	735(1559) →	27,500	34,200	27,500	26,650
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27,500	34,200	27,500	26,650																																																							
<b>I-215 NB Ramps &amp; Ramona Exwy.</b>	###(##) AM(PM) Peak Hour Intersection Volumes ## Average Daily Trips																																																									
<table border="1"> <tr> <td>20,900</td> <td>60,350</td> <td>20,900</td> <td>16,700</td> </tr> <tr> <td>                     ↑ 1313(1529)                      ↑ 1365(1342)                 </td> <td>                     ↑ 1313(1529)                      ↑ 1365(1342)                 </td> <td>                     ↑ 1313(1529)                      ↑ 1365(1342)                 </td> <td>                     ↑ 1313(1529)                      ↑ 1365(1342)                 </td> </tr> <tr> <td>270(675) →</td> <td>270(675) →</td> <td>270(675) →</td> <td>270(675) →</td> </tr> <tr> <td>1975(2747) →</td> <td>1975(2747) →</td> <td>1975(2747) →</td> <td>1975(2747) →</td> </tr> <tr> <td>20,900</td> <td>60,350</td> <td>20,900</td> <td>16,700</td> </tr> </table>	20,900	60,350	20,900	16,700	↑ 1313(1529) ↑ 1365(1342)	↑ 1313(1529) ↑ 1365(1342)	↑ 1313(1529) ↑ 1365(1342)	↑ 1313(1529) ↑ 1365(1342)	270(675) →	270(675) →	270(675) →	270(675) →	1975(2747) →	1975(2747) →	1975(2747) →	1975(2747) →	20,900	60,350	20,900	16,700																																						
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**TABLE 6-1: INTERSECTION ANALYSIS FOR EAPC (2025) CONDITIONS**

# Intersection	Traffic Control <sup>2</sup>	EAPC (2025)			
		Delay <sup>1</sup> (secs.)		Level of Service	
		AM	PM	AM	PM
1 Driveway 1 & Perry St.	<b>CSS</b>	8.5	0.0	A	A
2 Driveway 2 & Martin St.	<b>CSS</b>	9.2	9.3	A	A
3 Driveway 3 & Martin St.	<b>CSS</b>	9.3	9.4	A	A
4 Harvill Av. & Perry St.	CSS	<b>85.0</b>	<b>41.7</b>	<b>F</b>	<b>E</b>
5 Harvill Av. & Driveway 4	<b>CSS</b>	11.7	20.8	B	C
6 Harvill Av. & Martin St.	CSS	15.5	24.9	C	C
7 Harvill Av. & Cajalco Exwy.	TS	<b>153.8</b>	<b>&gt;200.0</b>	<b>F</b>	<b>F</b>
8 I-215 SB Ramps & Ramona Exwy.	TS	<b>183.5</b>	<b>&gt;200.0</b>	<b>F</b>	<b>F</b>
9 I-215 NB Ramps & Ramona Exwy.	TS	<b>&gt;200.0</b>	<b>&gt;200.0</b>	<b>F</b>	<b>F</b>

\* **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable L

<sup>1</sup> Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

<sup>2</sup> TS = Traffic Signal; CSS = Cross-street Stop; **CSS** = Improvement

## 6.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for EAPC (2025) traffic conditions are based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. The intersections of Harvill Avenue at Perry Street and Harvill Avenue at Martin Street are anticipated to meet peak hour volume-based warrant for EAPC (2025) traffic conditions (see Appendix 6.2).



## 6.5 QUEUING ANALYSIS

Queuing analysis findings for EAPC (2025) are presented on Table 6-2. As shown on Table 6-2, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95<sup>th</sup> percentile traffic flows with the addition of Project traffic, with the exception of the following movements:

- I-215 SB Ramps & Ramona Exwy. (#8): Southbound Left (AM and PM peak hours, Southbound Left-Through (AM and PM peak hours), and Southbound Right (AM peak hour only)
- I-215 NB Ramps & Ramona Exwy. (#9): Northbound Right (AM peak hour only)

Worksheets for EAPC (2025) traffic conditions queuing analysis are provided in Appendix 6.3.

**TABLE 6-2: PEAK HOUR QUEUING SUMMARY FOR EAPC (2025) CONDITIONS**

Intersection	Movement	Available Stacking Distance	95th Percentile Queue (Feet)		Acceptable? <sup>1</sup>	
			AM Peak	PM Peak	AM	PM
I-215 SB Ramps & Ramona Exwy.	SBL	530	1,312 <sup>2</sup>	1,423 <sup>2</sup>	<b>No</b>	<b>No</b>
	SBT	1,100	1,316 <sup>2</sup>	1,434 <sup>2</sup>	<b>No</b>	<b>No</b>
	SBR	530	980 <sup>2</sup>	377	<b>No</b>	Yes
I-215 NB Ramps & Ramona Exwy.	NBL	520	493	284	Yes	Yes
	NBT	1,120	500 <sup>2</sup>	289	Yes	Yes
	NBR	520	1,008 <sup>2</sup>	631 <sup>2,3</sup>	<b>No</b>	Yes

<sup>1</sup> Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

<sup>2</sup> 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

<sup>3</sup> Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the I-215 Freeway mainline.

## 6.6 NEAR-TERM DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

This section provides a summary of Project deficiencies and recommended improvements. Based on the County of Riverside deficiency criteria discussed in Section 2.6 Deficiency Criteria, roadway intersections were found to be deficient. Improvements necessary to improve project-related traffic deficiencies are shown in Table 6-3. Table 6-3 indicates the physical improvements needed to address LOS deficiencies at each of the study area intersections under EAPC (2025) traffic conditions. The improvements have been identified to improve the EAPC (2025) deficiencies back to acceptable levels.

Although the intersection of Harvill Avenue at Martin Street is anticipated to meet peak hour volume-based traffic signal warrants under EAPC traffic conditions, the intersection is anticipated to operate at an acceptable LOS under peak hour conditions. As such, no improvements have been recommended. Intersection analysis worksheets for EAPC (2025) traffic conditions, with improvements, are provided in Appendix 6.4.

**TABLE 6-3: INTERSECTION ANALYSIS FOR EAPC (2025) CONDITIONS WITH IMPROVEMENTS**

# Intersection	Traffic Control <sup>3</sup>	Intersection Approach Lanes <sup>1</sup>												Delay <sup>2</sup> (secs.)		Level of Service		
		Northbound			Southbound			Eastbound			Westbound			AM	PM	AM	PM	
		L	T	R	L	T	R	L	T	R	L	T	R					
4 Harvill Av. & Perry St.																		
- Without Improvements	CSS	1	2	0	1	2	0	0	1	d	1	1	0	<b>85.0</b>	<b>41.7</b>	<b>F</b>	<b>E</b>	
- With Improvements	<b>TS</b>	1	2	0	1	2	0	<b>1</b>	1	<b>0</b>	1	1	0	10.3	10.9	B	B	
7 Harvill Av. & Cajalco Exwy.																		
- Without Improvements	TS	2	2	0	2	2	0	1	2	1	2	2	1>	<b>153.8</b>	<b>&gt;200.0</b>	<b>F</b>	<b>F</b>	
- With Improvements	TS	2	2	0	2	2	0	1	<b>3</b>	1	2	<b>3</b>	1	53.4	54.1	D	D	
8 I-215 SB Ramps & Ramona Exwy.																		
- Without Improvements	TS	0	0	0	1	1	1	0	2	0	1	2	0	<b>183.5</b>	<b>&gt;200.0</b>	<b>F</b>	<b>F</b>	
- With Improvements	TS	0	0	0	<b>2</b>	1	1	0	<b>3</b>	<b>1</b>	<b>2</b>	<b>3</b>	0	35.8	54.6	D	D	
9 I-215 NB Ramps & Ramona Exwy.																		
- Without Improvements	TS	1	1	1	0	0	0	1	2	0	0	2	1	<b>&gt;200.0</b>	<b>&gt;200.0</b>	<b>F</b>	<b>F</b>	
- With Improvements	TS	1	1	1	0	0	0	<b>2</b>	<b>3</b>	0	0	<b>3</b>	<b>1&gt;&gt;</b>	36.3	33.3	D	C	

**BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

<sup>1</sup> When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; >> = Free Right Turn Lane; **1** = Improvement

<sup>2</sup> Per the Highway Capacity Manual 6th Edition, overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>3</sup> TS = Traffic Signal; CSS = Cross-street Stop; **CSS** = Improvement

With the proposed intersection improvements at the I-215 Southbound Ramps and Ramona Expressway, the peak hour queues are also anticipated to improve (see Table 6-4). The I-215 Southbound Ramps also require southbound left turn storage of 700-feet to accommodate the anticipated future peak hour queues.

**TABLE 6-4: PEAK HOUR QUEUING SUMMARY FOR EAPC (2025) CONDITIONS WITH IMPROVEMENTS**

Intersection	Movement	Available Stacking Distance	95th Percentile Queue (Feet)		Acceptable? <sup>1</sup>	
			AM Peak	PM Peak	AM	PM
I-215 SB Ramps & Ramona Exwy.	SBL	<b>700</b>	429	708 <sup>2,3</sup>	Yes	Yes
	SBT	1,100	482	805 <sup>2</sup>	Yes	Yes
	SBR	530	804 <sup>2,3</sup>	355	Yes	Yes
I-215 NB Ramps & Ramona Exwy.	NBL	520	390	311	Yes	Yes
	NBT	1,120	393 <sup>2</sup>	317	Yes	Yes
	NBR	520	930 <sup>2,3</sup>	696 <sup>2,3</sup>	Yes	Yes

<sup>1</sup> Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

<sup>2</sup> 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

<sup>3</sup> Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the I-215 Freeway mainline.

## 7 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the County of Riverside are funded through a combination of improvements constructed by the Project, development impact fee programs. Fee programs applicable to the Project are described below.

### 7.1 RIVERSIDE COUNTY TRANSPORTATION UNIFORM MITIGATION FEE (TUMF)

The TUMF program is administered by the WRCOG based upon a regional Nexus Study most recently updated in 2016 to address major changes in right of way acquisition and improvement cost factors. (7) This regional program was put into place to ensure that development pays its fair share, and that funding is in place for construction of facilities needed to maintain the requisite level of service and critical to mobility in the region. TUMF is a truly regional mitigation fee program and is imposed and implemented in every jurisdiction in Western Riverside County.

### 7.2 RIVERSIDE COUNTY DEVELOPMENT IMPACT FEE (DIF) PROGRAM

The Project is located within the County's Mead Valley Area Plan and therefore will be subject to County of Riverside DIF in an effort by the County to address development throughout its unincorporated area. The DIF program consists of two separate transportation components: the Roads, Bridges and Major Improvements component and the Traffic Signals component. Eligible facilities for funding by the County DIF program are identified on the County's Public Needs List, which currently extends through the year 2020. (8) A comprehensive review of the DIF program is now planned in order to update the nexus study. This will result in development of a revised "needs list" extending the program time horizon from 2010 to 2030.

The cost of signaling DIF network intersections is identified under the Traffic Signals component of the DIF program. County staff generally defines DIF eligible intersections as those consisting of two intersecting general plan roadways. If the intersection meets this requirement, it is potentially eligible for up to \$235,000 of credit, which is subject to negotiations with the County.

### 7.3 MEASURE A

Measure A, Riverside County's half-cent sales tax for transportation, was adopted by voters in 1988 and extended in 2002. It will continue to fund transportation improvements through 2038. Measure A funds a wide variety of transportation projects and services throughout the County. Riverside County Transportation Commission (RCTC) is responsible for administering the program. Measure A dollars are spent in accordance with a voter-approved expenditure plan that was adopted as part of the 1988 election.

## 7.4 FAIR SHARE CONTRIBUTION

Project improvements may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate. When off-site improvements are identified with a minor share of responsibility assigned to proposed development, the approving jurisdiction may elect to collect a fair share contribution or require the development to construct improvements. Detailed fair share calculations, for each peak hour, have been provided in Table 7-1 for the applicable deficient study area intersections. These fees are collected with the proceeds solely used as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected population increases.

**TABLE 7-1: PROJECT FAIR SHARE CALCULATIONS**

#	Intersection	Existing	Project Only	EAPC	Net New Traffic	Project % of New Traffic	
4	Harvill Av. & Perry St.	AM:	805	17	2,125	1,320	<b>1.3%</b>
		PM:	753	12	2,186	1,433	0.8%
7	Harvill Av. & Cajalco Exwy.	AM:	2,761	21	5,569	2,808	0.7%
		PM:	2,811	25	5,973	3,162	<b>0.8%</b>
8	I-215 SB Ramps & Ramona Exwy.	AM:	3,599	16	6,310	2,711	<b>0.6%</b>
		PM:	3,586	19	7,033	3,447	0.6%
9	I-215 NB Ramps & Ramona Exwy.	AM:	4,379	10	7,344	2,965	<b>0.3%</b>
		PM:	4,164	9	8,000	3,836	0.2%

**BOLD** = Denotes highest fair share percentage.

## 8 REFERENCES

1. **County of Riverside Transportation Department.** Transportation Analysis Guidelines for Level of Service and Vehicle Miles Traveled. County of Riverside : s.n., December 2020.
2. **Institute of Transportation Engineers.** Trip Generation Manual. 11th Edition. 2021.
3. **VRPA Technologies, Inc. for Riverside County Transportation Commission.** Riverside County Long Range Transportation Study. County of Riverside : VRPA Technologies, Inc., December 2019.
4. **Transportation Research Board.** Highway Capacity Manual (HCM). 6th Edition. s.l. : National Academy of Sciences, 2016.
5. **California Department of Transportation.** California Manual on Uniform Traffic Control Devices (CA MUTCD). [book auth.] California Department of Transportation. California Manual on Uniform Traffic Control Devices (CA MUTCD). 2014, Updated March 30, 2021 (Revision 6).
6. **Southern California Association of Governments (SCAG).** 2020 Regional Transportation Plan / Sustainable Communities Strategy. Adopted September 2020.
7. **Western Riverside Council of Governments.** TUMF Nexus Study, 2016 Program Update. July 2017.
8. **Willdan Financial Services.** County of Riverside Development Impact Fee Study Update. County of Riverside : s.n., 2013.

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## **APPENDIX 1.1: APPROVED TRAFFIC STUDY SCOPING AGREEMENT**

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**EXHIBIT B**

**SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY**

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

Case No. PPT220008

Related Cases-

    SP No. 341

    EIR No. 466

    GPA No. \_\_\_\_\_

    CZ No. \_\_\_\_\_

Project Name: Majestic Freeway Business Center Specific Plan - Building 13

Project Address: Southwest corner of Harvill Avenue and Perry Street

Project Description: 322,997 square feet of high-cube transload and short-term storage warehouse use

	<u>Consultant</u>	<u>Developer - Representative</u>
Name:	<u>Urban Crossroads Inc. - Charlene So</u>	<u>T&amp;B Planning</u>
Address:	<u>1133 Camelback St. #8329</u> <u>Newport Beach, CA 92658</u>	<u>3200 El Caminio Real, Suite 100</u> <u>Irvine, CA 92602</u>
Telephone:	<u>949-861-0177</u>	_____
Fax:	_____	_____

**A. Trip Generation Source:** ITE Trip Generation Manual, 11th Edition (2021)

Current GP Land Use	<u>SP</u>	Proposed Land Use	<u>SP</u>
Current Zoning	<u>SP</u>	Proposed Zoning	<u>SP</u>

	<u>Current Trip Generation</u>			<u>Proposed Trip Generation</u>			
	<u>In</u>	<u>Out</u>	<u>Total</u>	<u>In</u>	<u>Out</u>	<u>Total</u>	
AM Trips				<u>25</u>	<u>11</u>	<u>36</u>	(PCE)
PM Trips				<u>11</u>	<u>26</u>	<u>37</u>	(PCE)

Internal Trip Allowance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	( <u>0</u> % Trip Discount)
Pass-By Trip Allowance	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	( <u>0</u> % Trip Discount)

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

**B. Trip Geographic Distribution:** (see distribution exhibits - varies)

N varies %      S varies %      E varies %      W varies %

**C. Background Traffic**

Project Build-out Year: 2025      Annual Ambient Growth Rate: 2 %

Phase Year(s) N/A

Other area Projects to be analyzed: County to provide updated list

Model/Forecast Methodology: Not Applicable



**D. Study Intersections:** (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments form other agencies). (See Exhibit 1)

- |                                  |           |
|----------------------------------|-----------|
| 1. Driveway 1 & Perry St.        | 13. _____ |
| 2. Driveway 2 & Martin St.       | 14. _____ |
| 3. Driveway 3 & Martin St.       | 15. _____ |
| 4. Harvill Av. & Perry St.       | 16. _____ |
| 5. Harvill Av. & Driveway 4      | 17. _____ |
| 6. Harvill Av. & Martin St.      | 18. _____ |
| 7. Harvill Av. & Cajalco Exwy.   | 19. _____ |
| 8. I-215 SB Ramps & Ramona Exwy. | 20. _____ |
| 9. I-215 NB Ramps & Ramona Exwy. | 21. _____ |
| 10. _____                        | 22. _____ |
| 11. _____                        | 23. _____ |
| 12. _____                        | 24. _____ |

**E. Study Roadway Segments:** (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments form other agencies).

1. \_\_\_\_\_ 2. \_\_\_\_\_

**F. Other Jurisdictional Impacts**

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

If so, name of City jurisdiction: City of Perris, Caltrans (I-215 Freeway)

**G. Site Plan** (please attach reduced copy)

**H. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline)** (To be filled out by Transportation Department)

(NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted", or similar statement) at an existing unsignalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.

Fair share percentages and rough order of magnitude fair share costs will be calculated for intersections not analyzed in this traffic study, but identified in the project conditions of approval.

**I. Existing Conditions**

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.

Date of counts: Traffic counts conducted in February 2022

**\*NOTE\* Traffic Study Submittal Form and appropriate fee must be submitted with, or prior to submittal of this form. Transportation Department staff will not process the Scoping Agreement prior to receipt of the fee.**

Recommended by:

Charlene S 3/4/2022  
 Consultant's Representative Date

Approved Scoping Agreement:

Eva Covarrubias 8/10/2022  
 Riverside County Transportation Department Date

Scoping Agreement Revised on 8/8/2022

August 9, 2022

Mr. Kevin Tsang  
County of Riverside, Transportation Department  
4080 Lemon Street, 8th Floor  
Riverside, CA 92501

**SUBJECT: BUILDING 13 OF THE MAJESTIC FREEWAY BUSINESS CENTER SPECIFIC PLAN TRAFFIC IMPACT ANALYSIS SCOPING AGREEMENT (REVISED)**

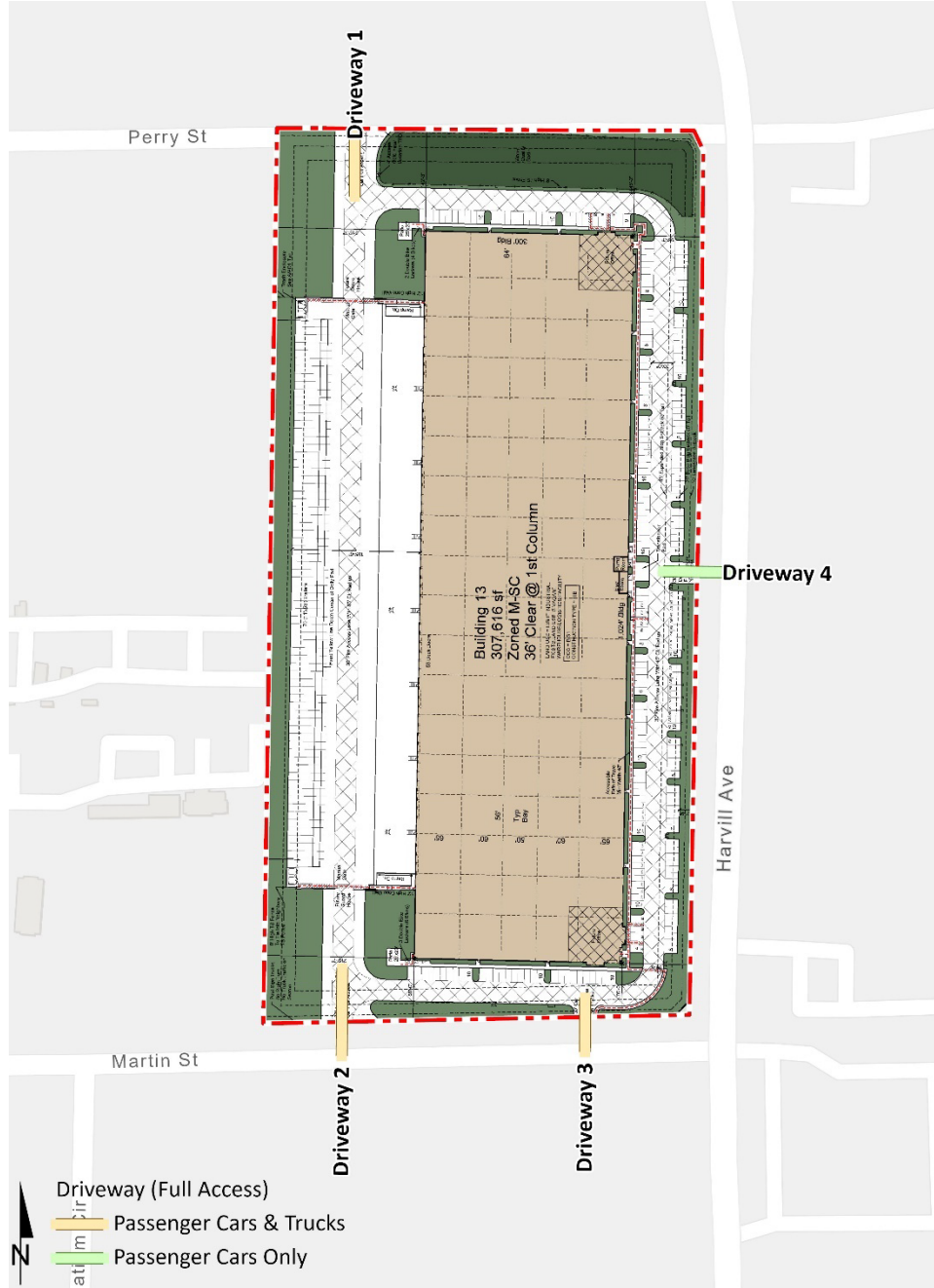
Dear Mr. Kevin Tsang:

The firm of Urban Crossroads, Inc. is pleased to submit this scoping letter regarding the traffic impact analysis for Building 13 of the Majestic Freeway Business Center Specific Plan (**Project**), which is located on the southwest corner of Harvill Avenue and Perry Street in the County of Riverside. This letter describes the proposed Project trip generation, trip distribution, and analysis methodology, which have been used to establish the draft proposed Project study area and analysis locations.

## **PROJECT DESCRIPTION**

A preliminary site use plan for the proposed Project is shown on Exhibit 1. Exhibit 2 depicts the location of the proposed project in relation to the existing roadway network. The Project is anticipated to have an Opening Year of 2025. Access to the Project site will be provided via Old Oleander Avenue and Harvill Avenue. The proposed Project consists of 322,997 square feet of high-cube transload and short-term storage warehouse use (Building 13).

# EXHIBIT 1: PRELIMINARY SITE PLAN







storage warehouse data regarding the truck percentage and vehicle mix has also been obtained from the latest Trip Generation Manual. The SCAQMD recommended truck mix, by axle type for high-cube warehouses has been utilized for the 2-axle, 3-axle, and 4+-axle trucks: 2-Axle = 16.7%; 3-Axle = 20.7%; 4+-Axle = 62.6%.

**TABLE 1: TRIP GENERATION RATES**

Land Use <sup>1</sup>	Units <sup>2</sup>	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
<b>Actual Vehicle Trip Generation Rates</b>									
High-Cube Transload and Short-Term Storage Warehouse <sup>3</sup>	TSF	154	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars			0.046	0.014	0.060	0.025	0.065	0.090	1.180
2-Axle Trucks			0.002	0.001	0.003	0.001	0.001	0.002	0.037
3-Axle Trucks			0.002	0.002	0.004	0.001	0.001	0.002	0.046
4+-Axle Trucks			0.006	0.007	0.013	0.003	0.003	0.006	0.138
<b>Passenger Car Equivalent (PCE) Trip Generation Rates<sup>4</sup></b>									
High-Cube Transload and Short-Term Storage Warehouse <sup>3</sup>	TSF	154	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars			0.046	0.014	0.060	0.025	0.065	0.090	1.180
2-Axle Trucks (PCE = 1.5)			0.003	0.002	0.005	0.002	0.001	0.003	0.055
3-Axle Trucks (PCE = 2.0)			0.004	0.004	0.008	0.002	0.002	0.004	0.091
4+-Axle Trucks (PCE = 3.0)			0.018	0.020	0.038	0.009	0.010	0.019	0.413

<sup>1</sup> Trip Generation & Vehicle Mix Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).

<sup>2</sup> TSF = thousand square feet

<sup>3</sup> Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type. Normalized % - Without Cold Storage: 16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.6% 4-Axle trucks.

<sup>4</sup> PCE factors: 2-axle = 1.5; 3-axle = 2.0; 4+-axle = 3.0.

Finally, PCE factors were applied to the trip generation rates for heavy trucks (large 2-axes, 3-axes, 4+-axes). PCEs allow the typical “real-world” mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. The PCE factors are consistent with the recommended PCE factors in the latest County Guidelines.

As shown on Table 2, the proposed Project is anticipated to generate a net total of 454 two-way trips per day with 27 AM peak hour trips and 31 PM peak hour trips (actual vehicles). The operations analyses for the Traffic Study will utilize the PCE trip generation consistent with the County Guidelines and other traffic studies prepared in the County of Riverside.

**TABLE 2: PROJECT TRIP GENERATION**

Land Use	Quantity Units <sup>1</sup>	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
<b>Actual Vehicles:</b>								
High-Cube Short-Term Storage/Transload	322.997 TSF							
Passenger Cars:		17	3	20	7	22	29	382
2-axle Trucks:		1	0	1	0	0	0	12
3-axle Trucks:		1	1	2	0	0	0	16
4+-axle Trucks:		2	2	4	1	1	2	44
Total Truck Trips (Actual Vehicles):		4	3	7	1	1	2	72
<b>Total Trips (Actual Vehicles)<sup>2</sup></b>		<b>21</b>	<b>6</b>	<b>27</b>	<b>8</b>	<b>23</b>	<b>31</b>	<b>454</b>
<b>Passenger Car Equivalent (PCE):</b>								
High-Cube Short-Term Storage/Transload	322.997 TSF							
Passenger Cars:		17	3	20	7	22	29	382
2-axle Trucks:		1	1	2	0	0	0	18
3-axle Trucks:		1	1	2	1	1	2	30
4+-axle Trucks:		6	6	12	3	3	6	134
Total Truck Trips (PCE):		8	8	16	4	4	8	182
<b>Total Trips (PCE)<sup>2</sup></b>		<b>25</b>	<b>11</b>	<b>36</b>	<b>11</b>	<b>26</b>	<b>37</b>	<b>564</b>

<sup>1</sup> TSF = thousand square feet

<sup>2</sup> Total Trips = Passenger Cars + Truck Trips.

## TRIP DISTRIBUTION

The Project trip distribution represents the directional orientation of traffic to and from the Project site. Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute. Exhibit 3 illustrates the truck trip distribution patterns for the Project and Exhibit 4 illustrates the passenger car trip distribution patterns. Project passenger car and truck trip distribution patterns have been developed to be consistent with existing driveway and intersection counts conducted for locations along the Harvill Avenue corridor.

### EXHIBIT 3: PROJECT (TRUCK) TRIP DISTRIBUTION



### EXHIBIT 4: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION



## ANALYSIS SCENARIOS

Consistent with the County Guidelines, intersection analysis will be provided for the following analysis scenarios:

- Existing (2022) Conditions
- Existing plus Ambient Growth plus Project (EAP) Conditions
- Existing plus Ambient Growth plus Project plus Cumulative (EAPC) Conditions

All study area intersections will be evaluated using the Highway Capacity Manual (HCM) 6<sup>th</sup> Edition analysis methodology.

## CUMULATIVE PROJECTS

A preliminary list of cumulative projects is provided in Table 3 and are shown on Exhibit 5. These cumulative projects are based on information collected from the County of Riverside.

**TABLE 3: CUMULATIVE DEVELOPMENT LAND USE SUMMARY**

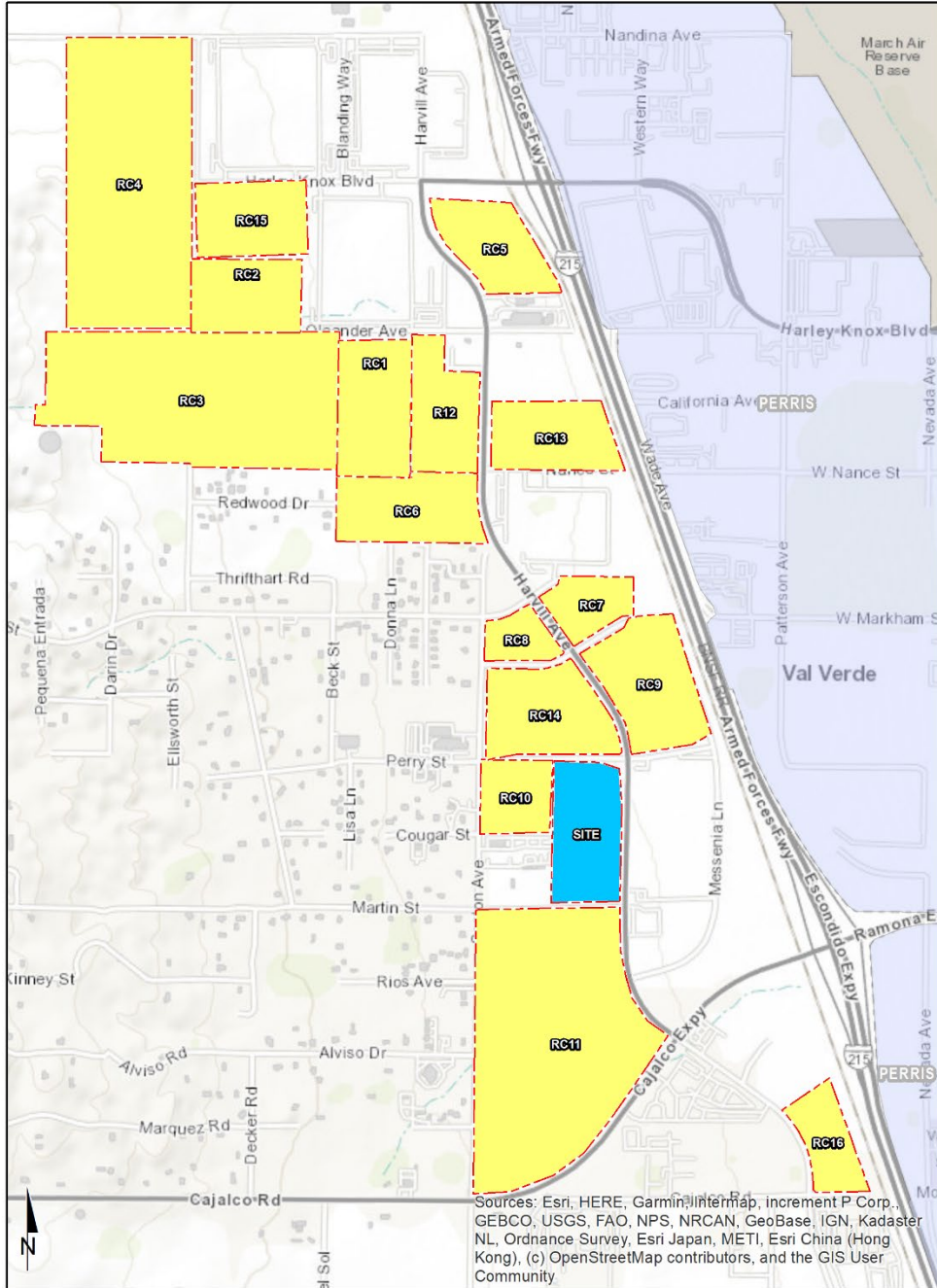
No.	Project Name / Case Number	Land Use	Quantity	Units <sup>1</sup>	Location
<b>Riverside County:</b>					
RC1	Majestic Freeway Business Center - Building 20	High-Cube Warehouse	426.821	TSF	S OF OLEANDER AV. AND W OF HARVILL AV.
RC2	Majestic Freeway Business Center - Building 21,22	Warehousing	241.059	TSF	NEC OF DECKER RD. & OLD OLEANDER AVE.
RC3	Knox Logistics Center	High-Cube Warehouse	1,259.410	TSF	NWC OF DECKER RD. & OLD OLEANDER AVE.
RC4	Oleander Business Park	High-Cube Warehouse	680.000	TSF	NWC OF DECKER RD. & HARLEY KNOX BLVD.
RC5	PPT190031	High-Cube Warehouse	418.000	TSF	SEC OF HARVILL AV. & HARLEY KNOX BL.
RC6	Majestic Freeway Business Center - Building 19	Warehousing	364.560	TSF	SWC OF HARVILL AVE. & OLD OLEANDER AVE.
RC7	Majestic Freeway Business Center - Building 12	Warehousing	154.751	TSF	NEC OF HARVILL AVE. & COMMERCE CENTER DR.
RC8	Majestic Freeway Business Center - Building 15	Warehousing	90.279	TSF	NWC OF HARVILL AVE. & COMMERCE CENTER DR.
RC9	Majestic Freeway Business Center - Building 11	High-Cube Warehouse	391.045	TSF	NEC OF HARVILL AVE. & PERRY ST.
RC10	PPT180025: Seaton Commerce Center	High-Cube Warehouse	210.800	TSF	SEC OF SEATON AV. & PERRY ST.
RC11	Majestic Freeway Business Center - Buildings 1, 3 & 4	Warehousing	48.930	TSF	NWC OF HARVILL AVE. & CAJALCO RD.
		High-Cube Warehouse	1,195.740	TSF	
RC12	Majestic Freeway Business Center - Building 18	High-Cube Warehouse	333.648	TSF	SWC OF HARVILL AVE. & PEREGRINE WY.
RC13	Majestic Freeway Business Center - Building 17	High-Cube Warehouse	268.955	TSF	NEC OF HARVILL AVE. & AMERICA'S TIRE DR.
RC14	Majestic Freeway Business Center - Building 14A/B	Warehousing	354.583	TSF	SWC OF HARVILL AVE. & COMMERCE CENTER DR.
RC15	PPT210130	Warehousing	239.308	TSF	SEC OF DECKER RD. & HARLEY KNOX BL.
RC16	Harvill & Cajalco Warehouse	General Light Industrial	99.770	TSF	NEC OF HARVILL AV. & CAJALCO RD.
		Truck Trailer Yard	133	Spaces	

<sup>1</sup> TSF = Thousand Square Feet

## TRAFFIC COUNTS

Traffic counts (classified by vehicle type) were conducted in February 2022 when local schools were in session and operating on a typical bell schedule.

**EXHIBIT 5: CUMULATIVE DEVELOPMENT LOCATION MAP**



## CONCLUSION

Urban Crossroads, Inc. is pleased to submit this letter documenting the Project trip generation, trip distribution, and the recommended intersection analysis locations for the Building 13 of the Majestic Freeway Business Center Specific Plan Traffic Impact Study. We will continue to move forward towards completing the traffic study after receiving jurisdiction approval or comments finalizing the study area.

If you have any questions, please contact me directly at [cso@urbanxroads.com](mailto:cso@urbanxroads.com).

Respectfully submitted,

URBAN CROSSROADS, INC.

A handwritten signature in cursive script that reads "Charlene So".

Charlene So, PE  
Principal

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## **APPENDIX 1.2: SITE ADJACENT QUEUES**

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Queuing and Blocking Report  
 EAPC (2025) Conditions - AM Peak Hour WITH IMPROVEMENTS

09/21/2022

Intersection: 1: Driveway 1 & Perry St.

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	7	30
Average Queue (ft)	0	6
95th Queue (ft)	5	27
Link Distance (ft)		181
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Martin St. & Driveway 2

Movement	SB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	3
95th Queue (ft)	19
Link Distance (ft)	159
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Martin St. & Driveway 3

Movement	SB
Directions Served	LR
Maximum Queue (ft)	22
Average Queue (ft)	1
95th Queue (ft)	11
Link Distance (ft)	35
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report  
 EAPC (2025) Conditions - AM Peak Hour WITH IMPROVEMENTS

09/21/2022

Intersection: 4: Harvill Av. & Perry St.

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	35	45	39	15	125	213	200	20	164	145
Average Queue (ft)	8	15	8	2	37	83	77	1	81	46
95th Queue (ft)	29	40	30	14	82	179	174	9	153	110
Link Distance (ft)		497		701		613	613		1092	1092
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		100		150			160		
Storage Blk Time (%)						1			1	
Queuing Penalty (veh)						1			0	

Intersection: 5: Harvill Av. & Driveway 4

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	14	28
Average Queue (ft)	1	2
95th Queue (ft)	8	15
Link Distance (ft)	74	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		50
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 6: Harvill Av. & Martin St.

Movement	EB	NB	SB
Directions Served	LTR	L	TR
Maximum Queue (ft)	90	48	6
Average Queue (ft)	37	15	0
95th Queue (ft)	68	41	5
Link Distance (ft)	118		584
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)		160	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 1
---------------------------------

Intersection: 1: Driveway 1 & Perry St.

Movement	EB
Directions Served	TR
Maximum Queue (ft)	49
Average Queue (ft)	30
95th Queue (ft)	51
Link Distance (ft)	762
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Martin St. & Driveway 2

Movement	SB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	4
95th Queue (ft)	21
Link Distance (ft)	159
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Martin St. & Driveway 3

Movement	SB
Directions Served	LR
Maximum Queue (ft)	29
Average Queue (ft)	8
95th Queue (ft)	29
Link Distance (ft)	35
Upstream Blk Time (%)	1
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report  
 EAPC (2025) Conditions - PM Peak Hour WITH IMPROVEMENTS

09/21/2022

Intersection: 4: Harvill Av. & Perry St.

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	45	73	29	40	34	157	165	30	250	252
Average Queue (ft)	8	32	9	6	11	74	75	4	141	119
95th Queue (ft)	33	62	31	26	34	127	133	19	232	224
Link Distance (ft)		497		701		613	613		1092	1092
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		100		150			160		
Storage Blk Time (%)						0			5	
Queuing Penalty (veh)						0			0	

Intersection: 5: Harvill Av. & Driveway 4

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	29	23
Average Queue (ft)	7	1
95th Queue (ft)	27	11
Link Distance (ft)	74	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		50
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 6: Harvill Av. & Martin St.

Movement	EB	NB	SB
Directions Served	LTR	L	TR
Maximum Queue (ft)	101	65	5
Average Queue (ft)	43	26	0
95th Queue (ft)	77	54	3
Link Distance (ft)	118		584
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)		160	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0

## **APPENDIX 3.1: TRAFFIC COUNTS**



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**Volume Development  
AM Peak Hour**

**1: Driveway 1 & Perry St.**

	PHF: 0.920		Count Date:										
	<u>NBL</u>	<u>NBT</u>	<u>NBR</u>	<u>SBL</u>	<u>SBT</u>	<u>SBR</u>	<u>EBL</u>	<u>EBT</u>	<u>EBR</u>	<u>WBL</u>	<u>WBT</u>	<u>WBR</u>	<u>TOTAL</u>
<b>2022 PCE:</b>	0	0	0	0	0	0	0	14	0	0	4	0	18
EAP 2025 PCE:	0	0	5	0	0	0	0	15	0	6	4	0	30
EAPC 2025 PCE:	0	0	5	0	0	0	0	29	0	6	77	0	117

**2: Driveway 2 & Martin St.**

	PHF: 0.920		Count Date:										
	<u>NBL</u>	<u>NBT</u>	<u>NBR</u>	<u>SBL</u>	<u>SBT</u>	<u>SBR</u>	<u>EBL</u>	<u>EBT</u>	<u>EBR</u>	<u>WBL</u>	<u>WBT</u>	<u>WBR</u>	<u>TOTAL</u>
<b>2022 PCE:</b>	0	0	0	0	0	0	0	61	0	0	56	0	117
EAP 2025 PCE:	0	0	0	4	0	0	0	65	0	0	59	5	133
EAPC 2025 PCE:	0	0	0	4	0	0	0	65	0	0	59	5	133

**3: Driveway 3 & Martin St.**

	PHF: 0.920		Count Date:										
	<u>NBL</u>	<u>NBT</u>	<u>NBR</u>	<u>SBL</u>	<u>SBT</u>	<u>SBR</u>	<u>EBL</u>	<u>EBT</u>	<u>EBR</u>	<u>WBL</u>	<u>WBT</u>	<u>WBR</u>	<u>TOTAL</u>
<b>2022 PCE:</b>	0	0	0	0	0	0	0	61	0	0	56	0	117
EAP 2025 PCE:	0	0	0	1	0	0	0	69	0	0	64	8	142
EAPC 2025 PCE:	0	0	0	1	0	0	0	69	0	0	64	8	142

**4: Harvill Av. & Perry St.**

	PHF: 0.787		7:15	Count Date: 2/8/2022									
	<u>NBL</u>	<u>NBT</u>	<u>NBR</u>	<u>SBL</u>	<u>SBT</u>	<u>SBR</u>	<u>EBL</u>	<u>EBT</u>	<u>EBR</u>	<u>WBL</u>	<u>WBT</u>	<u>WBR</u>	<u>TOTAL</u>
<b>2022 PCE:</b>	4	521	3	0	257	0	5	0	9	5	0	1	805
EAP 2025 PCE:	5	555	3	0	276	6	9	0	11	5	0	1	871
EAPC 2025 PCE:	80	1,321	16	2	642	14	12	0	26	9	0	2	2,125

**5: Harvill Av. & Driveway 4**

	PHF: 0.920		Count Date:										
	<u>NBL</u>	<u>NBT</u>	<u>NBR</u>	<u>SBL</u>	<u>SBT</u>	<u>SBR</u>	<u>EBL</u>	<u>EBT</u>	<u>EBR</u>	<u>WBL</u>	<u>WBT</u>	<u>WBR</u>	<u>TOTAL</u>
<b>2022 PCE:</b>	0	528	0	0	271	0	0	0	0	0	0	0	799
EAP 2025 PCE:	5	863	0	0	491	1	0	0	1	0	0	0	1,360
EAPC 2025 PCE:	5	1,717	0	0	876	1	0	0	1	0	0	0	2,601

**6: Harvill Av. & Martin St.**

	PHF: 0.888		7:00	Count Date: 2/8/2022									
	<u>NBL</u>	<u>NBT</u>	<u>NBR</u>	<u>SBL</u>	<u>SBT</u>	<u>SBR</u>	<u>EBL</u>	<u>EBT</u>	<u>EBR</u>	<u>WBL</u>	<u>WBT</u>	<u>WBR</u>	<u>TOTAL</u>
<b>2022 PCE:</b>	48	519	0	0	263	8	9	0	52	0	0	0	898
EAP 2025 PCE:	60	556	0	0	281	10	12	0	58	0	0	0	978
EAPC 2025 PCE:	60	1,411	0	0	667	10	12	0	58	0	0	0	2,218

**7: Harvill Av. & Cajalco Exwy.**

	PHF: 0.930		7:00	Count Date: 2/8/2022									
	<u>NBL</u>	<u>NBT</u>	<u>NBR</u>	<u>SBL</u>	<u>SBT</u>	<u>SBR</u>	<u>EBL</u>	<u>EBT</u>	<u>EBR</u>	<u>WBL</u>	<u>WBT</u>	<u>WBR</u>	<u>TOTAL</u>
<b>2022 PCE:</b>	297	337	75	189	116	27	47	680	50	167	677	102	2,761
EAP 2025 PCE:	315	360	80	205	123	28	51	721	53	177	718	120	2,950
EAPC 2025 PCE:	373	435	240	427	229	83	191	841	218	640	1,130	761	5,569

**8: I-215 SB Ramps & Ramona Exwy.**

	PHF: 0.982		7:15	Count Date: 1/25/2022									
	<u>NBL</u>	<u>NBT</u>	<u>NBR</u>	<u>SBL</u>	<u>SBT</u>	<u>SBR</u>	<u>EBL</u>	<u>EBT</u>	<u>EBR</u>	<u>WBL</u>	<u>WBT</u>	<u>WBR</u>	<u>TOTAL</u>
<b>2022 PCE:</b>	0	0	0	817	2	210	0	759	364	328	1,121	0	3,599
EAP 2025 PCE:	0	0	0	843	2	170	0	415	293	280	960	0	2,962
EAPC 2025 PCE:	0	0	0	1,847	2	780	0	786	473	547	1,877	0	6,310

**Volume Development  
AM Peak Hour**

**9: I-215 NB Ramps & Ramona Exwy.**

	PHF: 0.967		7:15		Count Date: 1/25/2022								
	<u>NBL</u>	<u>NBT</u>	<u>NBR</u>	<u>SBL</u>	<u>SBT</u>	<u>SBR</u>	<u>EBL</u>	<u>EBT</u>	<u>EBR</u>	<u>WBL</u>	<u>WBT</u>	<u>WBR</u>	<u>TOTAL</u>
<b>2022 PCE:</b>	<b>398</b>	<b>4</b>	<b>612</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>159</b>	<b>1,417</b>	<b>0</b>	<b>0</b>	<b>1,051</b>	<b>740</b>	<b>4,379</b>
EAP 2025 PCE:	324	4	487	0	0	0	126	1,136	0	0	918	589	3,585
EAPC 2025 PCE:	906	4	808	0	0	0	319	2,316	0	0	1,520	1,471	7,344

**Volume Development  
PM Peak Hour**

**1: Driveway 1 & Perry St.**

	PHF: 0.920		Count Date:										TOTAL
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
2022 PCE:	0	0	0	0	0	0	0	4	0	0	5	0	9
EAP 2025 PCE:	0	0	5	0	0	0	0	4	0	3	5	0	18
EAPC 2025 PCE:	0	0	5	0	0	0	0	75	0	3	23	0	105

**2: Driveway 2 & Martin St.**

	PHF: 0.920		Count Date:										TOTAL
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
2022 PCE:	0	0	0	0	0	0	0	70	0	0	63	0	133
EAP 2025 PCE:	0	0	0	4	0	0	0	74	0	0	67	2	147
EAPC 2025 PCE:	0	0	0	4	0	0	0	74	0	0	67	2	147

**3: Driveway 3 & Martin St.**

	PHF: 0.920		Count Date:										TOTAL
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
2022 PCE:	0	0	0	0	0	0	0	70	0	0	63	0	133
EAP 2025 PCE:	0	0	0	10	0	0	0	78	0	0	69	3	160
EAPC 2025 PCE:	0	0	0	10	0	0	0	78	0	0	69	3	160

**4: Harvill Av. & Perry St.**

	PHF: 0.889		4:00		Count Date: 2/8/2022										TOTAL
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			
2022 PCE:	0	335	10	4	389	3	0	4	0	3	2	4	753		
EAP 2025 PCE:	0	358	11	4	414	6	4	4	0	3	2	4	811		
EAPC 2025 PCE:	18	793	16	5	1,230	10	13	4	73	16	2	6	2,186		

**5: Harvill Av. & Driveway 4**

	PHF: 0.920		Count Date:										TOTAL
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
2022 PCE:	0	345	0	0	392	0	0	0	0	0	0	0	736
EAP 2025 PCE:	2	568	0	0	717	0	1	0	7	0	0	0	1,295
EAPC 2025 PCE:	2	1,025	0	0	1,619	0	1	0	7	0	0	0	2,654

**6: Harvill Av. & Martin St.**

	PHF: 0.863		4:00		Count Date: 2/8/2022										TOTAL
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			
2022 PCE:	59	341	1	0	388	4	4	0	66	0	0	0	862		
EAP 2025 PCE:	67	365	1	0	418	5	6	0	82	0	0	0	944		
EAPC 2025 PCE:	67	823	1	0	1,319	5	6	0	82	0	0	0	2,303		

**7: Harvill Av. & Cajalco Exwy.**

	PHF: 0.934		4:00		Count Date: 2/8/2022										TOTAL
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			
2022 PCE:	165	144	125	222	211	35	24	723	207	132	637	187	2,811		
EAP 2025 PCE:	175	154	132	249	227	39	26	767	220	140	676	203	3,008		
EAPC 2025 PCE:	312	241	591	920	320	175	124	1,238	297	350	929	477	5,973		

**8: I-215 SB Ramps & Ramona Exwy.**

	PHF: 0.990		5:00		Count Date: 1/25/2022										TOTAL
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			
2022 PCE:	0	0	0	853	8	184	0	911	348	369	915	0	3,586		
EAP 2025 PCE:	0	0	0	802	8	147	0	639	285	322	749	0	2,952		
EAPC 2025 PCE:	0	0	0	2,002	8	418	0	1,622	900	844	1,240	0	7,033		

**Volume Development  
PM Peak Hour**

**9: I-215 NB Ramps & Ramona Exwy.**

	PHF: 0.940		5:00		Count Date: 1/25/2022								
	<u>NBL</u>	<u>NBT</u>	<u>NBR</u>	<u>SBL</u>	<u>SBT</u>	<u>SBR</u>	<u>EBL</u>	<u>EBT</u>	<u>EBR</u>	<u>WBL</u>	<u>WBT</u>	<u>WBR</u>	<u>TOTAL</u>
<b>2022 PCE:</b>	<b>371</b>	<b>4</b>	<b>461</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>121</b>	<b>1,643</b>	<b>0</b>	<b>0</b>	<b>913</b>	<b>652</b>	<b>4,164</b>
EAP 2025 PCE:	298	4	367	0	0	0	99	1,344	0	0	775	519	3,407
EAPC 2025 PCE:	589	4	561	0	0	0	695	2,932	0	0	1,497	1,722	8,000

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

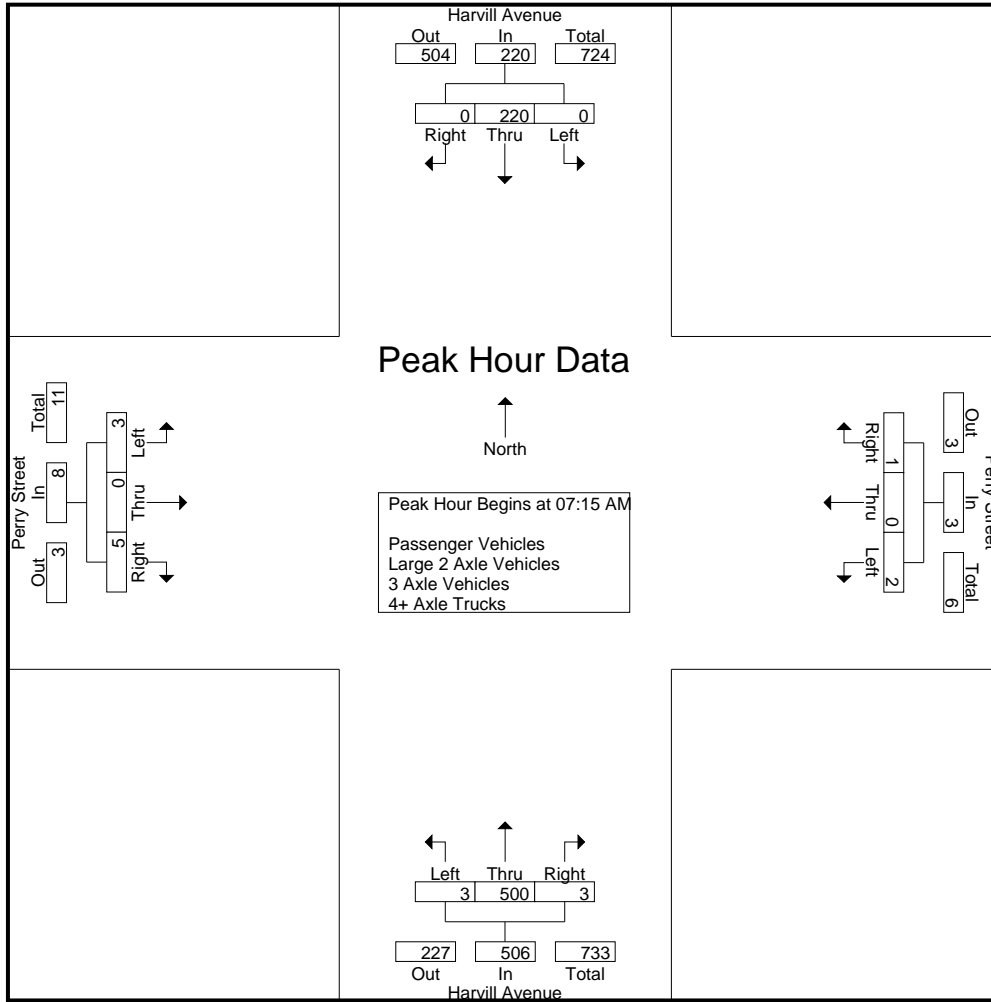
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	55	1	56	2	0	1	3	0	90	1	91	0	0	1	1	151
07:15 AM	0	48	0	48	1	0	0	1	2	102	0	104	2	0	2	4	157
07:30 AM	0	60	0	60	0	0	0	0	0	171	1	172	0	0	2	2	234
07:45 AM	0	63	0	63	0	0	0	0	1	122	1	124	0	0	0	0	187
<b>Total</b>	<b>0</b>	<b>226</b>	<b>1</b>	<b>227</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>3</b>	<b>485</b>	<b>3</b>	<b>491</b>	<b>2</b>	<b>0</b>	<b>5</b>	<b>7</b>	<b>729</b>
08:00 AM	0	49	0	49	1	0	1	2	0	105	1	106	1	0	1	2	159
08:15 AM	0	70	0	70	1	0	0	1	1	61	2	64	0	0	3	3	138
08:30 AM	0	47	0	47	1	0	0	1	0	60	1	61	1	0	2	3	112
08:45 AM	0	37	0	37	1	0	1	2	1	51	3	55	1	0	2	3	97
<b>Total</b>	<b>0</b>	<b>203</b>	<b>0</b>	<b>203</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>6</b>	<b>2</b>	<b>277</b>	<b>7</b>	<b>286</b>	<b>3</b>	<b>0</b>	<b>8</b>	<b>11</b>	<b>506</b>
<b>Grand Total</b>	<b>0</b>	<b>429</b>	<b>1</b>	<b>430</b>	<b>7</b>	<b>0</b>	<b>3</b>	<b>10</b>	<b>5</b>	<b>762</b>	<b>10</b>	<b>777</b>	<b>5</b>	<b>0</b>	<b>13</b>	<b>18</b>	<b>1235</b>
Apprch %	0	99.8	0.2		70	0	30		0.6	98.1	1.3		27.8	0	72.2		
Total %	0	34.7	0.1	34.8	0.6	0	0.2	0.8	0.4	61.7	0.8	62.9	0.4	0	1.1	1.5	
Passenger Vehicles	0	397	1	398	1	0	3	4	3	728	6	737	3	0	6	9	1148
% Passenger Vehicles	0	92.5	100	92.6	14.3	0	100	40	60	95.5	60	94.9	60	0	46.2	50	93
Large 2 Axle Vehicles	0	16	0	16	1	0	0	1	2	15	3	20	0	0	1	1	38
% Large 2 Axle Vehicles	0	3.7	0	3.7	14.3	0	0	10	40	2	30	2.6	0	0	7.7	5.6	3.1
3 Axle Vehicles	0	3	0	3	1	0	0	1	0	8	0	8	0	0	0	0	12
% 3 Axle Vehicles	0	0.7	0	0.7	14.3	0	0	10	0	1	0	1	0	0	0	0	1
4+ Axle Trucks	0	13	0	13	4	0	0	4	0	11	1	12	2	0	6	8	37
% 4+ Axle Trucks	0	3	0	3	57.1	0	0	40	0	1.4	10	1.5	40	0	46.2	44.4	3

Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	48	0	48	1	0	0	1	2	102	0	104	2	0	2	4	157
07:30 AM	0	60	0	60	0	0	0	0	0	171	1	172	0	0	2	2	234
07:45 AM	0	63	0	63	0	0	0	0	1	122	1	124	0	0	0	0	187
08:00 AM	0	49	0	49	1	0	1	2	0	105	1	106	1	0	1	2	159
Total Volume	0	220	0	220	2	0	1	3	3	500	3	506	3	0	5	8	737
% App. Total	0	100	0		66.7	0	33.3		0.6	98.8	0.6		37.5	0	62.5		
PHF	.000	.873	.000	.873	.500	.000	.250	.375	.375	.731	.750	.735	.375	.000	.625	.500	.787

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



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

	07:30 AM				08:00 AM				07:15 AM				08:00 AM			
+0 mins.	0	60	0	60	1	0	1	2	2	102	0	104	1	0	1	2
+15 mins.	0	63	0	63	1	0	0	1	0	171	1	172	0	0	3	3
+30 mins.	0	49	0	49	1	0	0	1	1	122	1	124	1	0	2	3
+45 mins.	0	<b>70</b>	0	<b>70</b>	1	0	1	2	0	105	1	106	1	0	2	3
Total Volume	0	242	0	242	4	0	2	6	3	500	3	506	3	0	8	11
% App. Total	0	100	0		66.7	0	33.3		0.6	98.8	0.6		27.3	0	72.7	
PHF	.000	.864	.000	.864	1.000	.000	.500	.750	.375	.731	.750	.735	.750	.000	.667	.917

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	4
07:15 AM	0	2	0	2	0	0	0	0	1	1	0	2	0	0	0	0	4
07:30 AM	0	1	0	1	0	0	0	0	0	4	0	4	0	0	0	0	5
07:45 AM	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	4
Total	0	7	0	7	0	0	0	0	1	9	0	10	0	0	0	0	17
08:00 AM	0	2	0	2	0	0	0	0	0	2	0	2	0	0	0	0	4
08:15 AM	0	3	0	3	0	0	0	0	1	1	2	4	0	0	0	0	7
08:30 AM	0	4	0	4	0	0	0	0	0	0	0	0	0	0	1	1	5
08:45 AM	0	0	0	0	1	0	0	1	0	3	1	4	0	0	0	0	5
Total	0	9	0	9	1	0	0	1	1	6	3	10	0	0	1	1	21
Grand Total	0	16	0	16	1	0	0	1	2	15	3	20	0	0	1	1	38
Apprch %	0	100	0		100	0	0		10	75	15		0	0	100		
Total %	0	42.1	0	42.1	2.6	0	0	2.6	5.3	39.5	7.9	52.6	0	0	2.6	2.6	

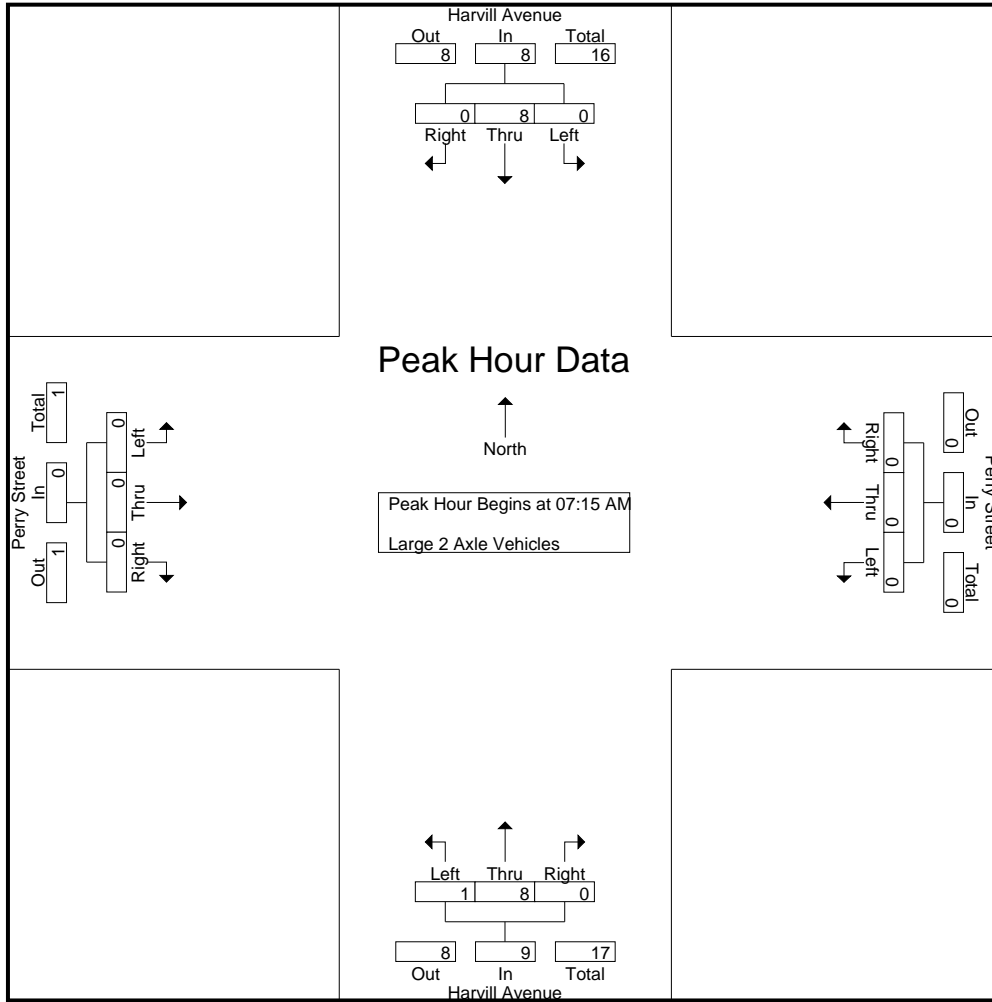
Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:15 AM	0	2	0	2	0	0	0	0	1	1	0	2	0	0	0	0	4
07:30 AM	0	1	0	1	0	0	0	0	0	4	0	4	0	0	0	0	5
07:45 AM	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	4
08:00 AM	0	2	0	2	0	0	0	0	0	2	0	2	0	0	0	0	4
Total Volume	0	8	0	8	0	0	0	0	1	8	0	9	0	0	0	0	17
% App. Total	0	100	0		0	0	0		11.1	88.9	0		0	0	0		
PHF	.000	.667	.000	.667	.000	.000	.000	.000	.250	.500	.000	.563	.000	.000	.000	.000	.850

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:15 AM



County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	2	0	2	0	0	0	0	1	1	0	2	0	0	0	0
+15 mins.	0	1	0	1	0	0	0	0	0	4	0	4	0	0	0	0
+30 mins.	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0
+45 mins.	0	2	0	2	0	0	0	0	0	2	0	2	0	0	0	0
Total Volume	0	8	0	8	0	0	0	0	1	8	0	9	0	0	0	0
% App. Total	0	100	0	0	0	0	0	0	11.1	88.9	0	0	0	0	0	0
PHF	.000	.667	.000	.667	.000	.000	.000	.000	.250	.500	.000	.563	.000	.000	.000	.000

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

Groups Printed- 3 Axle Vehicles

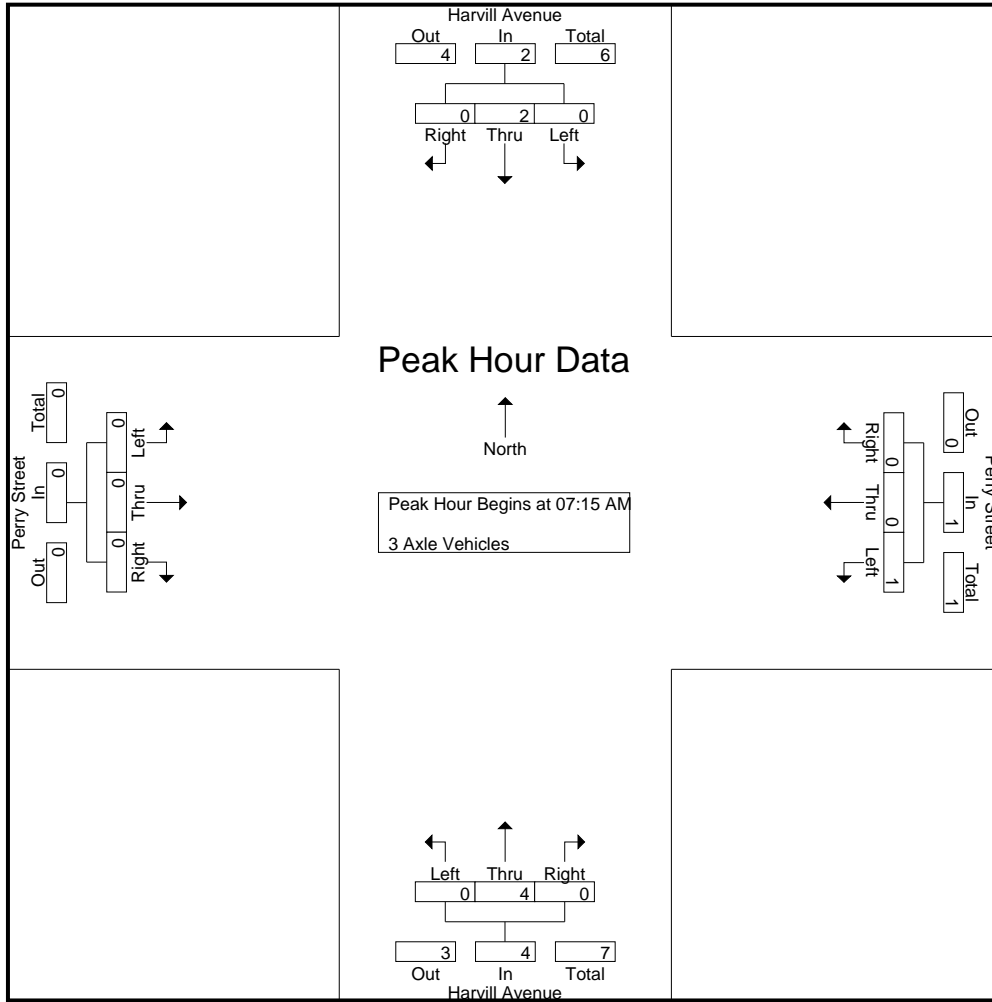
Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	1	0	1	1	0	0	1	0	2	0	2	0	0	0	0	0	4
07:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
Total	0	1	0	1	1	0	0	1	0	4	0	4	0	0	0	0	0	6
08:00 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	2
08:45 AM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	2
Total	0	2	0	2	0	0	0	0	0	4	0	4	0	0	0	0	0	6
Grand Total	0	3	0	3	1	0	0	1	0	8	0	8	0	0	0	0	0	12
Apprch %	0	100	0		100	0	0		0	100	0		0	0	0			
Total %	0	25	0	25	8.3	0	0	8.3	0	66.7	0	66.7	0	0	0	0	0	

Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
07:15 AM	0	1	0	1	1	0	0	1	0	2	0	2	0	0	0	0	0	4
07:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
08:00 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	2	0	2	1	0	0	1	0	4	0	4	0	0	0	0	0	7
% App. Total	0	100	0		100	0	0		0	100	0		0	0	0			
PHF	.000	.500	.000	.500	.250	.000	.000	.250	.000	.500	.000	.500	.000	.000	.000	.000	.000	.438

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:15 AM

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM							
+0 mins.	0	1	0	1	1	0	0	1	0	2	0	2	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	1	0	1	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	0	0	0	0
Total Volume	0	2	0	2	1	0	0	1	0	4	0	4	0	0	0	0	0	0	0	0
% App. Total	0	100	0	0	100	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0
PHF	.000	.500	.000	.500	.250	.000	.000	.250	.000	.500	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

Groups Printed- 4+ Axle Trucks

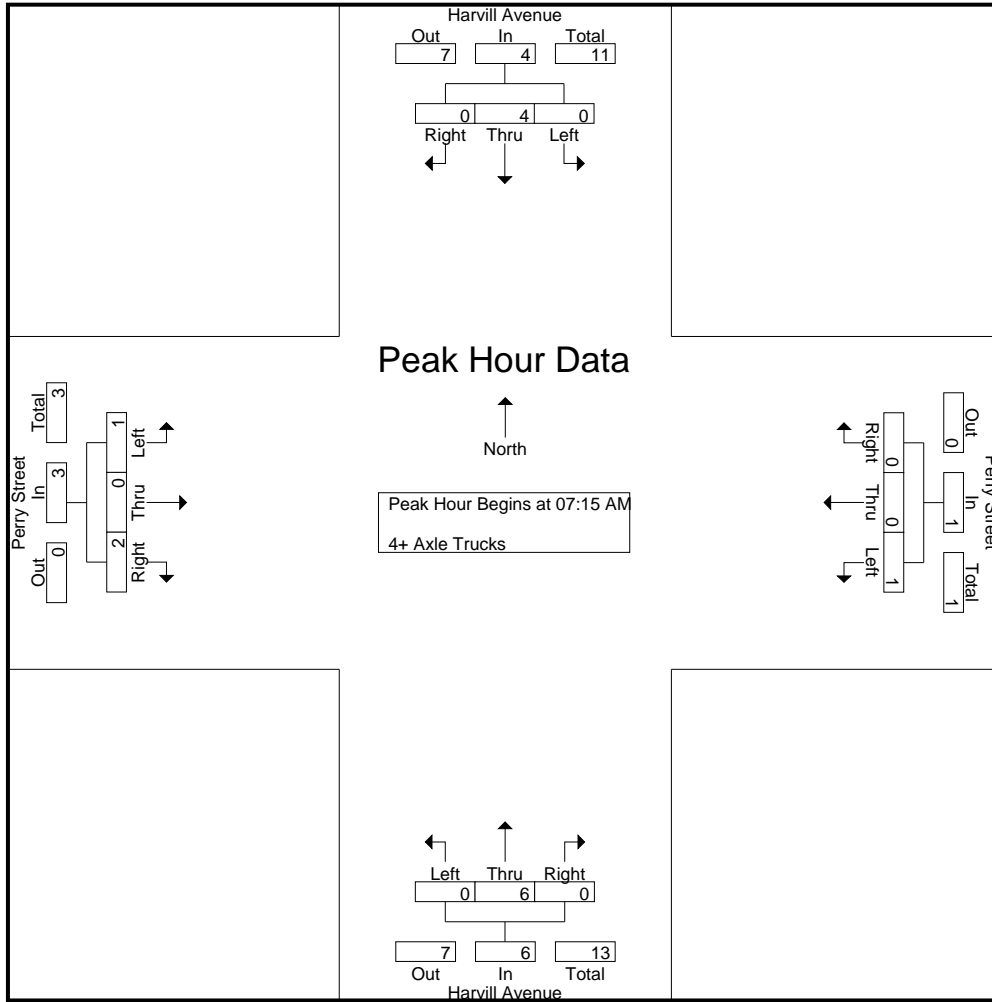
Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	4	0	4	1	0	0	1	0	1	1	2	0	0	1	1	8
07:15 AM	0	2	0	2	0	0	0	0	0	2	0	2	1	0	1	2	6
07:30 AM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	1	1	3
07:45 AM	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
Total	0	8	0	8	1	0	0	1	0	6	1	7	1	0	3	4	20
08:00 AM	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0	2
08:15 AM	0	2	0	2	1	0	0	1	0	1	0	1	0	0	2	2	6
08:30 AM	0	1	0	1	1	0	0	1	0	1	0	1	1	0	0	1	4
08:45 AM	0	2	0	2	0	0	0	0	0	2	0	2	0	0	1	1	5
Total	0	5	0	5	3	0	0	3	0	5	0	5	1	0	3	4	17
Grand Total	0	13	0	13	4	0	0	4	0	11	1	12	2	0	6	8	37
Apprch %	0	100	0		100	0	0		0	91.7	8.3		25	0	75		
Total %	0	35.1	0	35.1	10.8	0	0	10.8	0	29.7	2.7	32.4	5.4	0	16.2	21.6	

Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:15 AM	0	2	0	2	0	0	0	0	0	2	0	2	1	0	1	2	6
07:30 AM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	1	1	3
07:45 AM	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
08:00 AM	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0	2
Total Volume	0	4	0	4	1	0	0	1	0	6	0	6	1	0	2	3	14
% App. Total	0	100	0		100	0	0		0	100	0		33.3	0	66.7		
PHF	.000	.500	.000	.500	.250	.000	.000	.250	.000	.750	.000	.750	.250	.000	.500	.375	.583

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:15 AM

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	2	0	2	0	0	0	0	0	2	0	2	1	0	1	2
+15 mins.	0	1	0	1	0	0	0	0	0	1	0	1	0	0	1	1
+30 mins.	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0
+45 mins.	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0
Total Volume	0	4	0	4	1	0	0	1	0	6	0	6	1	0	2	3
% App. Total	0	100	0		100	0	0		0	100	0		33.3	0	66.7	
PHF	.000	.500	.000	.500	.250	.000	.000	.250	.000	.750	.000	.750	.250	.000	.500	.375

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

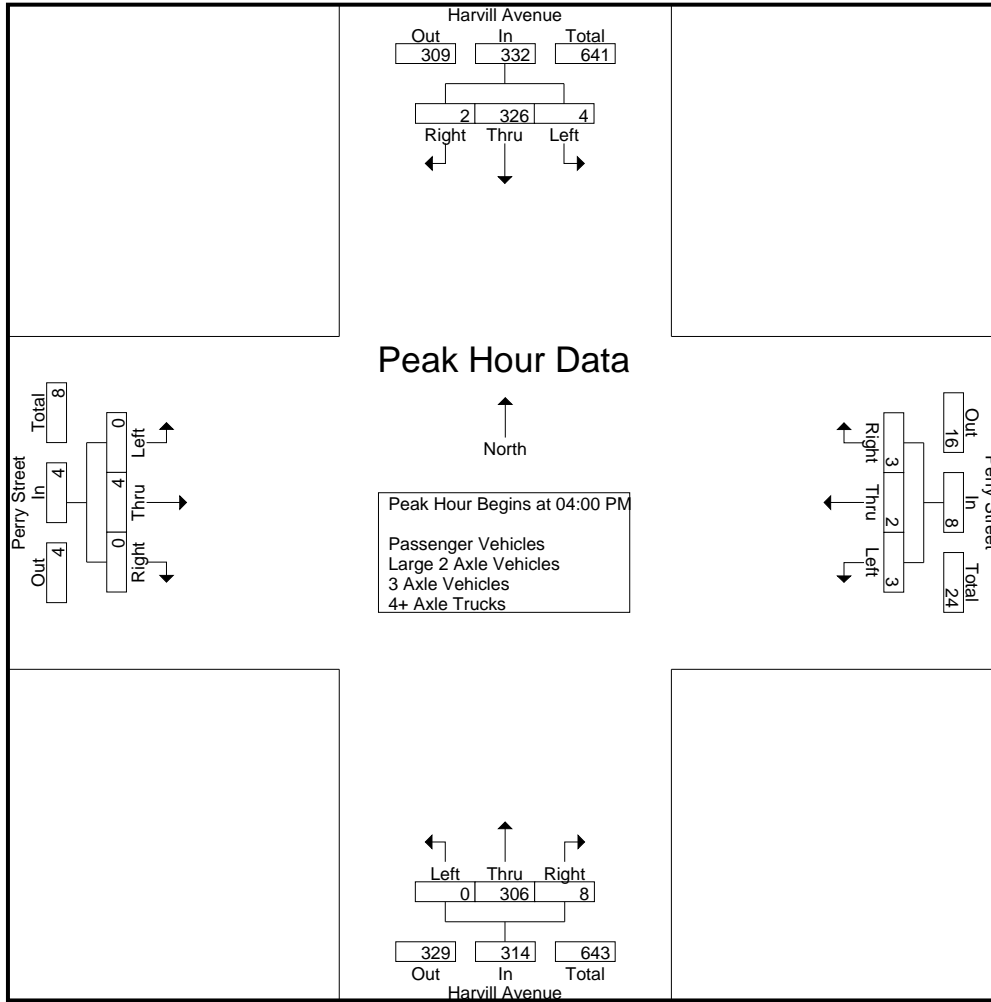
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	1	71	2	74	0	2	0	2	0	88	4	92	0	4	0	4	172
04:15 PM	1	73	0	74	1	0	1	2	0	77	0	77	0	0	0	0	153
04:30 PM	2	93	0	95	1	0	1	2	0	86	2	88	0	0	0	0	185
04:45 PM	0	89	0	89	1	0	1	2	0	55	2	57	0	0	0	0	148
<b>Total</b>	<b>4</b>	<b>326</b>	<b>2</b>	<b>332</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>8</b>	<b>0</b>	<b>306</b>	<b>8</b>	<b>314</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>658</b>
05:00 PM	0	86	0	86	1	0	1	2	2	56	2	60	1	0	0	1	149
05:15 PM	1	84	0	85	4	0	2	6	0	65	5	70	0	0	0	0	161
05:30 PM	0	75	0	75	2	0	1	3	0	61	1	62	0	0	0	0	140
05:45 PM	0	87	0	87	0	0	0	0	0	50	0	50	0	0	0	0	137
<b>Total</b>	<b>1</b>	<b>332</b>	<b>0</b>	<b>333</b>	<b>7</b>	<b>0</b>	<b>4</b>	<b>11</b>	<b>2</b>	<b>232</b>	<b>8</b>	<b>242</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>587</b>
<b>Grand Total</b>	<b>5</b>	<b>658</b>	<b>2</b>	<b>665</b>	<b>10</b>	<b>2</b>	<b>7</b>	<b>19</b>	<b>2</b>	<b>538</b>	<b>16</b>	<b>556</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>5</b>	<b>1245</b>
Apprch %	0.8	98.9	0.3		52.6	10.5	36.8		0.4	96.8	2.9		20	80	0		
Total %	0.4	52.9	0.2	53.4	0.8	0.2	0.6	1.5	0.2	43.2	1.3	44.7	0.1	0.3	0	0.4	
Passenger Vehicles	5	629	1	635	9	2	6	17	2	515	13	530	0	4	0	4	1186
% Passenger Vehicles	100	95.6	50	95.5	90	100	85.7	89.5	100	95.7	81.2	95.3	0	100	0	80	95.3
Large 2 Axle Vehicles	0	6	0	6	0	0	0	0	0	13	1	14	0	0	0	0	20
% Large 2 Axle Vehicles	0	0.9	0	0.9	0	0	0	0	0	2.4	6.2	2.5	0	0	0	0	1.6
3 Axle Vehicles	0	4	1	5	0	0	1	1	0	7	0	7	1	0	0	1	14
% 3 Axle Vehicles	0	0.6	50	0.8	0	0	14.3	5.3	0	1.3	0	1.3	100	0	0	20	1.1
4+ Axle Trucks	0	19	0	19	1	0	0	1	0	3	2	5	0	0	0	0	25
% 4+ Axle Trucks	0	2.9	0	2.9	10	0	0	5.3	0	0.6	12.5	0.9	0	0	0	0	2

Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	71	2	74	0	2	0	2	0	88	4	92	0	4	0	4	172
04:15 PM	1	73	0	74	1	0	1	2	0	77	0	77	0	0	0	0	153
04:30 PM	2	93	0	95	1	0	1	2	0	86	2	88	0	0	0	0	185
04:45 PM	0	89	0	89	1	0	1	2	0	55	2	57	0	0	0	0	148
Total Volume	4	326	2	332	3	2	3	8	0	306	8	314	0	4	0	4	658
% App. Total	1.2	98.2	0.6		37.5	25	37.5		0	97.5	2.5		0	100	0		
PHF	.500	.876	.250	.874	.750	.250	.750	1.00	.000	.869	.500	.853	.000	.250	.000	.250	.889

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



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

	04:30 PM				04:45 PM				04:00 PM				04:00 PM			
+0 mins.	2	93	0	95	1	0	1	2	0	88	4	92	0	4	0	4
+15 mins.	0	89	0	89	1	0	1	2	0	77	0	77	0	0	0	0
+30 mins.	0	86	0	86	4	0	2	6	0	86	2	88	0	0	0	0
+45 mins.	1	84	0	85	2	0	1	3	0	55	2	57	0	0	0	0
Total Volume	3	352	0	355	8	0	5	13	0	306	8	314	0	4	0	4
% App. Total	0.8	99.2	0		61.5	0	38.5		0	97.5	2.5		0	100	0	
PHF	.375	.946	.000	.934	.500	.000	.625	.542	.000	.869	.500	.853	.000	.250	.000	.250

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	1	0	1	0	0	0	0	0	1	0	1	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	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	2	0	2	0	0	0	0	2
Total	0	2	0	2	0	0	0	0	0	5	0	5	0	0	0	0	7
05:00 PM	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3
05:15 PM	0	1	0	1	0	0	0	0	0	3	1	4	0	0	0	0	5
05:30 PM	0	2	0	2	0	0	0	0	0	2	0	2	0	0	0	0	4
05:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	4	0	4	0	0	0	0	0	8	1	9	0	0	0	0	13
Grand Total	0	6	0	6	0	0	0	0	0	13	1	14	0	0	0	0	20
Apprch %	0	100	0		0	0	0		0	92.9	7.1		0	0	0		
Total %	0	30	0	30	0	0	0	0	0	65	5	70	0	0	0	0	

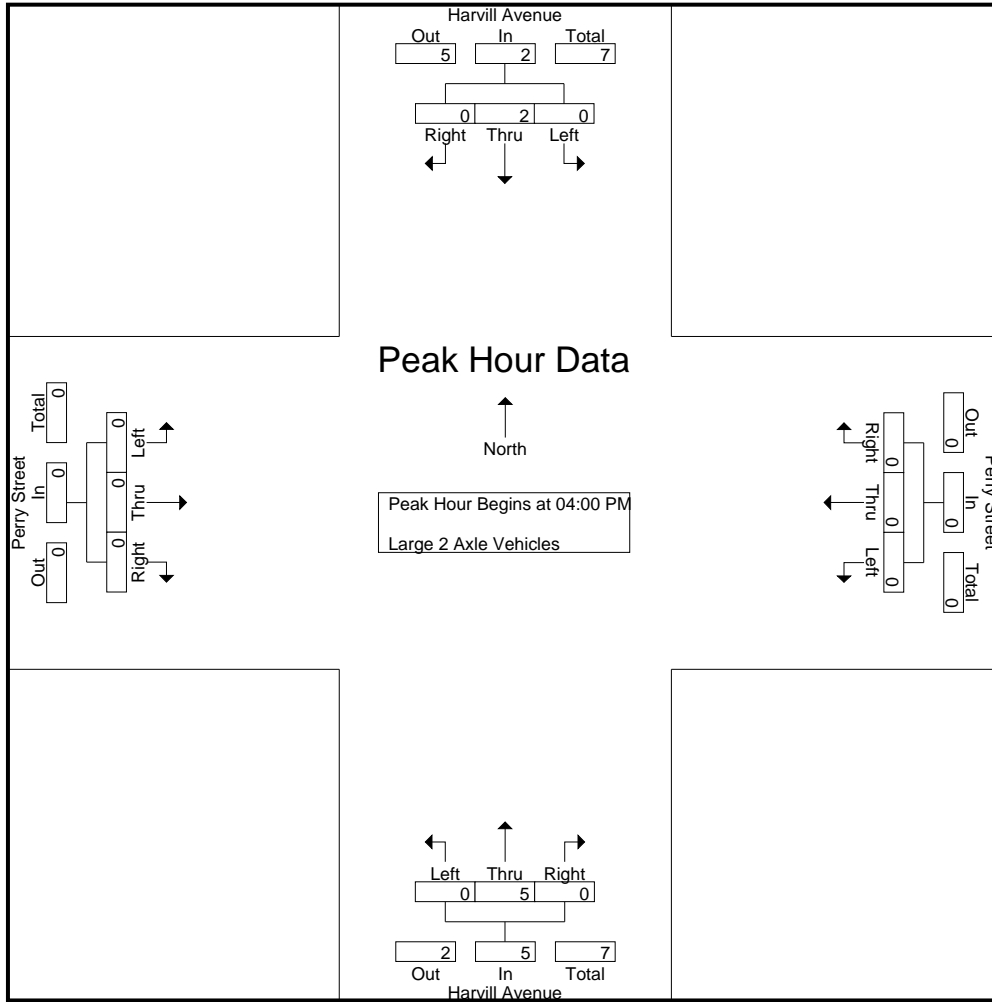
Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
04:15 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
04:30 PM	0	0	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	2	0	2	0	0	0	0	2
Total Volume	0	2	0	2	0	0	0	0	0	5	0	5	0	0	0	0	7
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.000	.625	.000	.625	.000	.000	.000	.000	.875

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:00 PM



County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



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

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	1	0	1	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	2	0	2	0	0	0	0
Total Volume	0	2	0	2	0	0	0	0	0	5	0	5	0	0	0	0
% App. Total	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.000	.625	.000	.625	.000	.000	.000	.000

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

Groups Printed- 3 Axle Vehicles

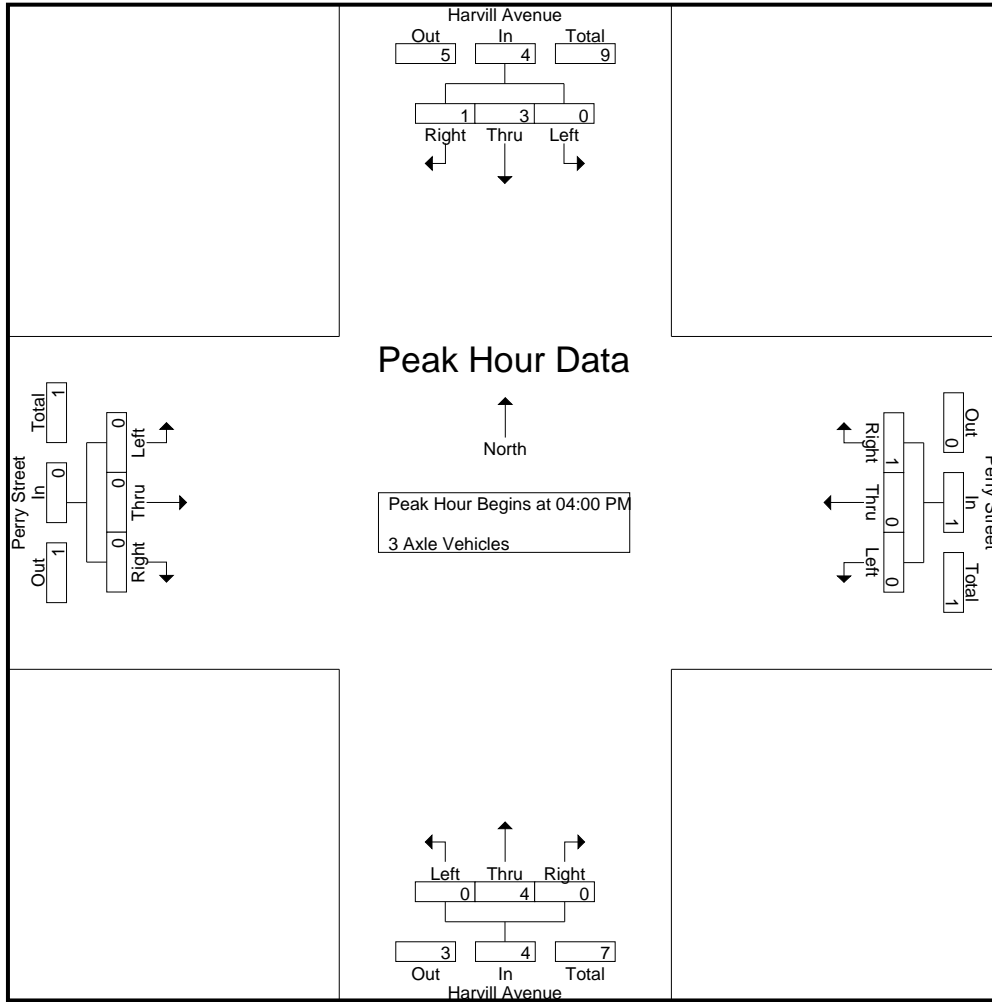
Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	1	1	2	0	0	0	0	0	3	0	3	0	0	0	0	5
04:15 PM	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	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	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	3	1	4	0	0	1	1	0	4	0	4	0	0	0	0	9
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
05:15 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
05:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
05:45 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	1	0	0	1	5
Grand Total	0	4	1	5	0	0	1	1	0	7	0	7	1	0	0	1	14
Apprch %	0	80	20		0	0	100		0	100	0		100	0	0		
Total %	0	28.6	7.1	35.7	0	0	7.1	7.1	0	50	0	50	7.1	0	0	7.1	

Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	1	1	2	0	0	0	0	0	3	0	3	0	0	0	0	5
04:15 PM	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	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	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	3	1	4	0	0	1	1	0	4	0	4	0	0	0	0	9
% App. Total	0	75	25		0	0	100		0	100	0		0	0	0		
PHF	.000	.375	.250	.500	.000	.000	.250	.250	.000	.333	.000	.333	.000	.000	.000	.000	.450

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:00 PM

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



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

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	1	1	2	0	0	0	0	0	3	0	3	0	0	0	0
+15 mins.	0	0	0	0	0	0	1	1	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	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	3	1	4	0	0	1	1	0	4	0	4	0	0	0	0
% App. Total	0	.75	.25		0	0	100		0	100	0		0	0	0	
PHF	.000	.375	.250	.500	.000	.000	.250	.250	.000	.333	.000	.333	.000	.000	.000	.000

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

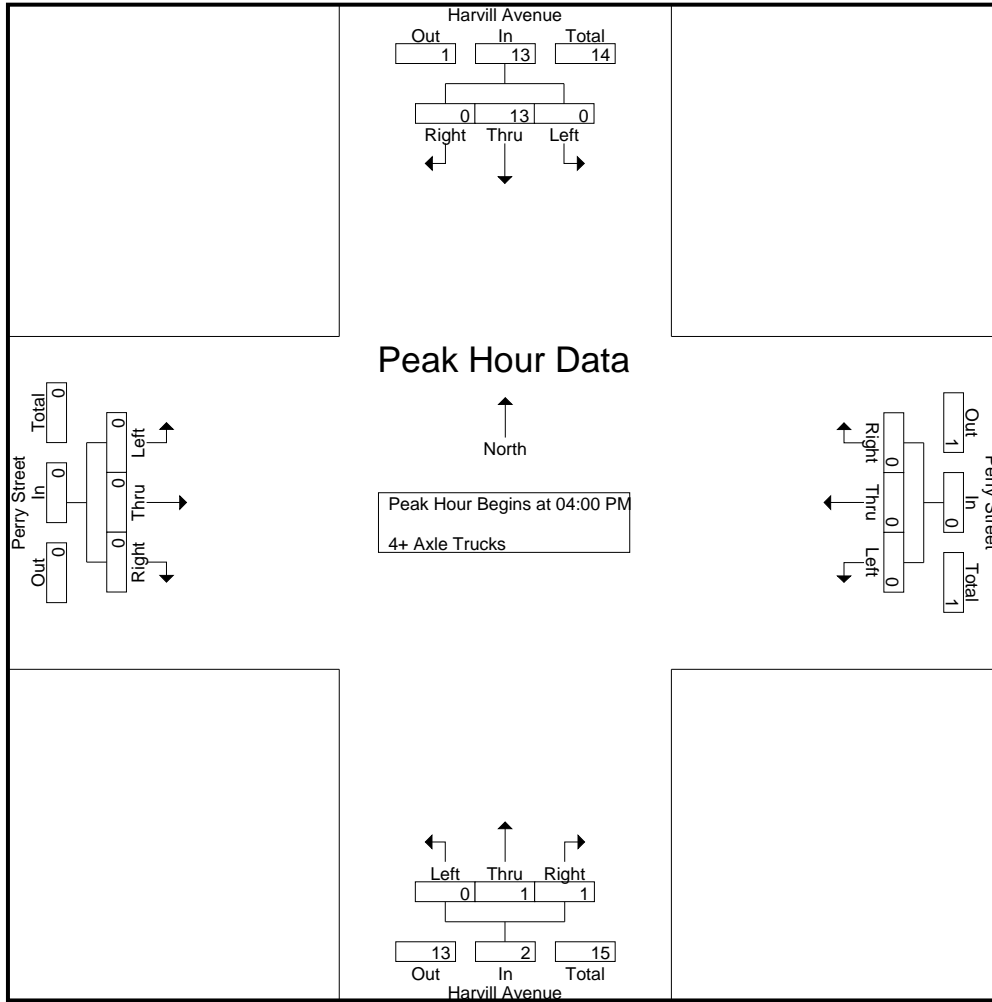
Groups Printed- 4+ Axle Trucks

Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	4	0	4	0	0	0	0	0	1	1	2	0	0	0	0	6
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
04:45 PM	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
<b>Total</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>15</b>
05:00 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
05:15 PM	0	3	0	3	1	0	0	1	0	1	1	2	0	0	0	0	6
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
<b>Total</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>
<b>Grand Total</b>	<b>0</b>	<b>19</b>	<b>0</b>	<b>19</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>25</b>
Apprch %	0	100	0		100	0	0		0	60	40		0	0	0		
Total %	0	76	0	76	4	0	0	4	0	12	8	20	0	0	0	0	

Start Time	Harvill Avenue Southbound				Perry Street Westbound				Harvill Avenue Northbound				Perry Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	4	0	4	0	0	0	0	0	1	1	2	0	0	0	0	6
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
04:45 PM	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
Total Volume	0	13	0	13	0	0	0	0	0	1	1	2	0	0	0	0	15
% App. Total	0	100	0		0	0	0		0	50	50		0	0	0		
PHF	.000	.542	.000	.542	.000	.000	.000	.000	.000	.250	.250	.250	.000	.000	.000	.000	.625

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street  
 Weather: Clear

File Name : 11\_CRV\_Har\_Perry PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



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

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	4	0	4	0	0	0	0	0	1	1	2	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	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	13	0	13	0	0	0	0	0	1	1	2	0	0	0	0
% App. Total	0	100	0	0	0	0	0	0	0	50	50	0	0	0	0	0
PHF	.000	.542	.000	.542	.000	.000	.000	.000	.000	.250	.250	.250	.000	.000	.000	.000

Location: County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street



Date: 2/8/2022  
 Day: Tuesday

**PEDESTRIANS**

	North Leg Harvill Avenue	East Leg Perry Street	South Leg Harvill Avenue	West Leg Perry Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
<b>TOTAL VOLUMES:</b>	0	0	0	0	0

	North Leg Harvill Avenue	East Leg Perry Street	South Leg Harvill Avenue	West Leg Perry Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	2	0	0	0	2
5:45 PM	0	0	0	0	0
<b>TOTAL VOLUMES:</b>	2	0	0	0	2

Location: County of Riverside  
 N/S: Harvill Avenue  
 E/W: Perry Street



Date: 2/8/2022  
 Day: Tuesday

BICYCLES

	Southbound Harvill Avenue			Westbound Perry Street			Northbound Harvill Avenue			Eastbound Perry Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Harvill Avenue			Westbound Perry Street			Northbound Harvill Avenue			Eastbound Perry Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	1	0	0	0	0	0	1	0	0	0	0	2

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

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

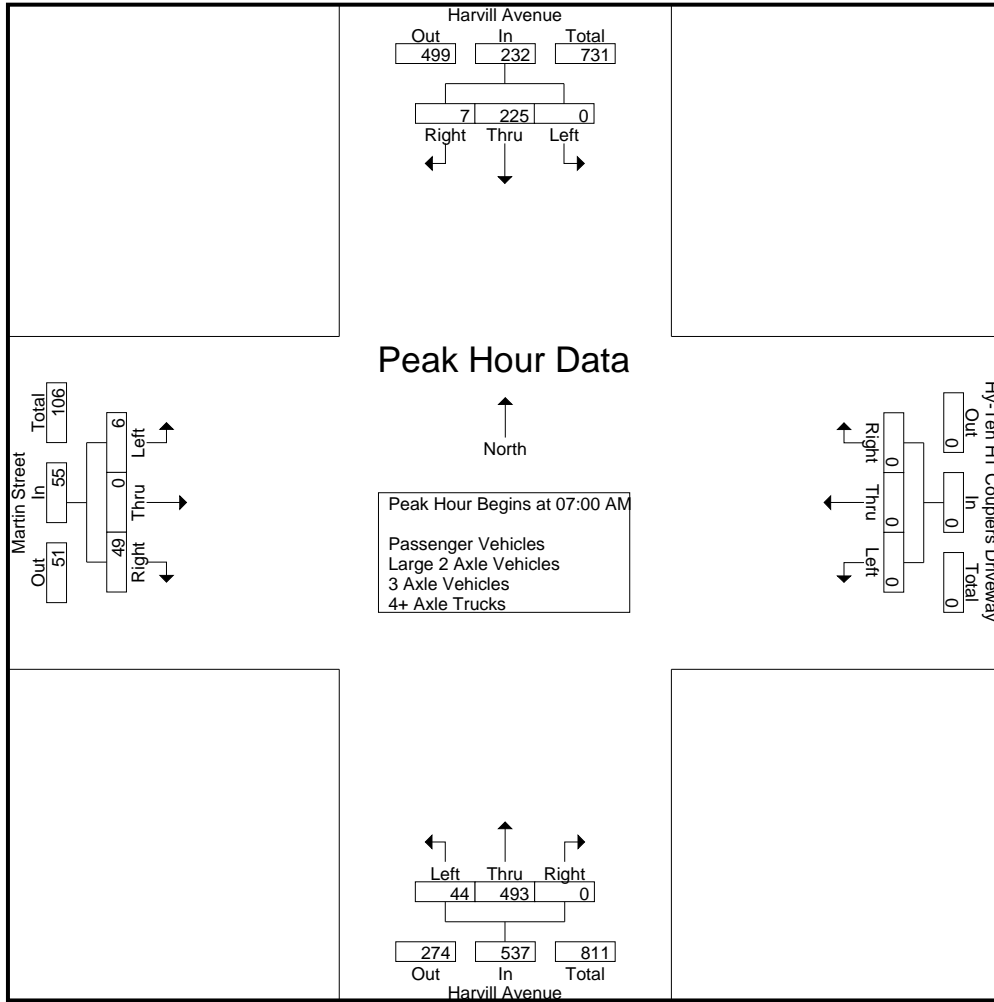
Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	55	2	57	0	0	0	0	17	103	0	120	1	0	15	16	193
07:15 AM	0	50	0	50	0	0	0	0	5	103	0	108	4	0	12	16	174
07:30 AM	0	56	1	57	0	0	0	0	10	153	0	163	1	0	11	12	232
07:45 AM	0	64	4	68	0	0	0	0	12	134	0	146	0	0	11	11	225
<b>Total</b>	<b>0</b>	<b>225</b>	<b>7</b>	<b>232</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>44</b>	<b>493</b>	<b>0</b>	<b>537</b>	<b>6</b>	<b>0</b>	<b>49</b>	<b>55</b>	<b>824</b>
08:00 AM	0	53	0	53	0	0	0	0	16	108	0	124	1	0	14	15	192
08:15 AM	0	74	1	75	0	0	0	0	15	63	0	78	1	0	10	11	164
08:30 AM	0	50	0	50	0	0	0	0	6	61	0	67	0	0	16	16	133
08:45 AM	0	36	0	36	0	0	1	1	13	53	0	66	1	0	11	12	115
<b>Total</b>	<b>0</b>	<b>213</b>	<b>1</b>	<b>214</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>50</b>	<b>285</b>	<b>0</b>	<b>335</b>	<b>3</b>	<b>0</b>	<b>51</b>	<b>54</b>	<b>604</b>
<b>Grand Total</b>	<b>0</b>	<b>438</b>	<b>8</b>	<b>446</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>94</b>	<b>778</b>	<b>0</b>	<b>872</b>	<b>9</b>	<b>0</b>	<b>100</b>	<b>109</b>	<b>1428</b>
Apprch %	0	98.2	1.8		0	0	100		10.8	89.2	0		8.3	0	91.7		
Total %	0	30.7	0.6	31.2	0	0	0.1	0.1	6.6	54.5	0	61.1	0.6	0	7	7.6	
Passenger Vehicles	0	390	6	396	0	0	1	1	88	746	0	834	6	0	90	96	1327
% Passenger Vehicles	0	89	75	88.8	0	0	100	100	93.6	95.9	0	95.6	66.7	0	90	88.1	92.9
Large 2 Axle Vehicles	0	20	2	22	0	0	0	0	3	15	0	18	2	0	7	9	49
% Large 2 Axle Vehicles	0	4.6	25	4.9	0	0	0	0	3.2	1.9	0	2.1	22.2	0	7	8.3	3.4
3 Axle Vehicles	0	2	0	2	0	0	0	0	2	8	0	10	0	0	1	1	13
% 3 Axle Vehicles	0	0.5	0	0.4	0	0	0	0	2.1	1	0	1.1	0	0	1	0.9	0.9
4+ Axle Trucks	0	26	0	26	0	0	0	0	1	9	0	10	1	0	2	3	39
% 4+ Axle Trucks	0	5.9	0	5.8	0	0	0	0	1.1	1.2	0	1.1	11.1	0	2	2.8	2.7

Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	55	2	57	0	0	0	0	17	103	0	120	1	0	15	16	193
07:15 AM	0	50	0	50	0	0	0	0	5	103	0	108	4	0	12	16	174
07:30 AM	0	56	1	57	0	0	0	0	10	153	0	163	1	0	11	12	232
07:45 AM	0	64	4	68	0	0	0	0	12	134	0	146	0	0	11	11	225
Total Volume	0	225	7	232	0	0	0	0	44	493	0	537	6	0	49	55	824
% App. Total	0	97	3		0	0	0		8.2	91.8	0		10.9	0	89.1		
PHF	.000	.879	.438	.853	.000	.000	.000	.000	.647	.806	.000	.824	.375	.000	.817	.859	.888



County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



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

	07:30 AM				08:00 AM				07:15 AM				07:00 AM			
+0 mins.	0	56	1	57	0	0	0	0	5	103	0	108	1	0	15	16
+15 mins.	0	64	4	68	0	0	0	0	10	153	0	163	4	0	12	16
+30 mins.	0	53	0	53	0	0	0	0	12	134	0	146	1	0	11	12
+45 mins.	0	74	1	75	0	0	1	1	16	108	0	124	0	0	11	11
Total Volume	0	247	6	253	0	0	1	1	43	498	0	541	6	0	49	55
% App. Total	0	97.6	2.4		0	0	100		7.9	92.1	0		10.9	0	89.1	
PHF	.000	.834	.375	.843	.000	.000	.250	.250	.672	.814	.000	.830	.375	.000	.817	.859

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

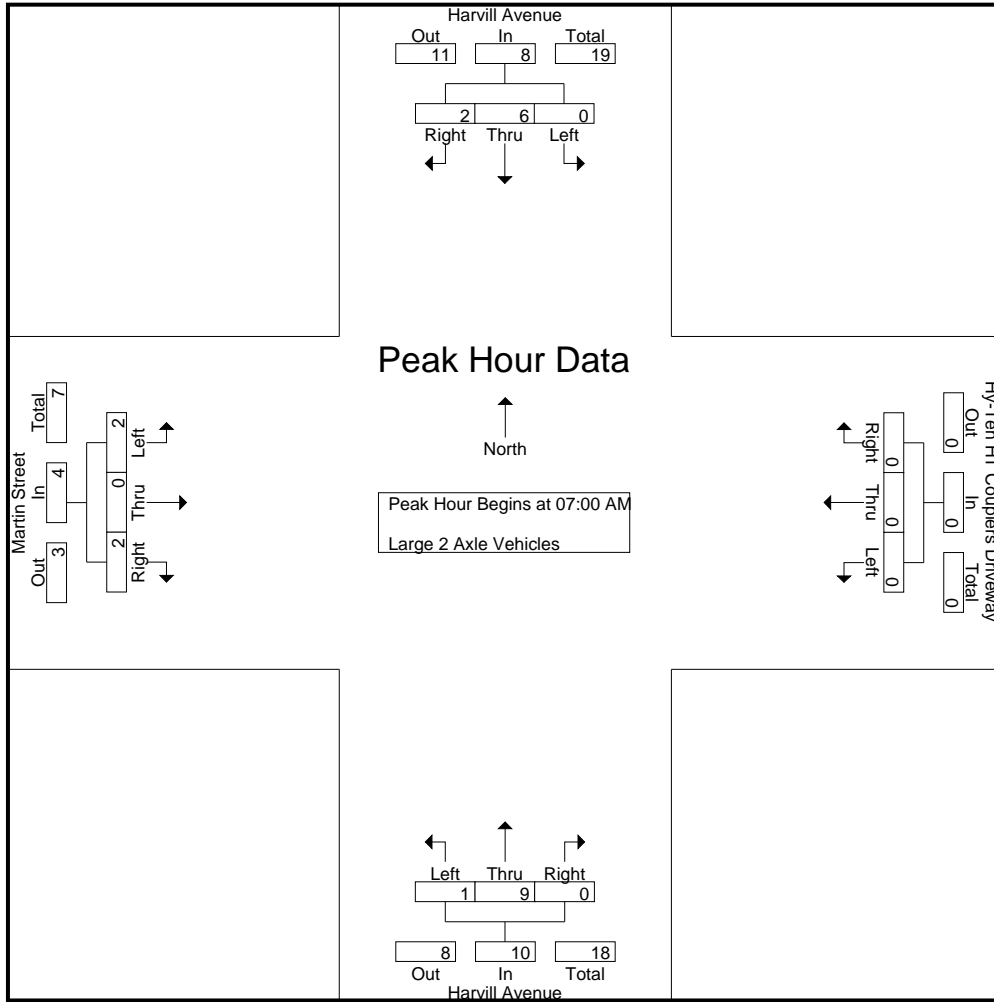
Groups Printed- Large 2 Axle Vehicles

Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	2	0	2	0	0	0	0	1	3	0	4	0	0	1	1	7
07:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	2
07:30 AM	0	1	1	2	0	0	0	0	0	3	0	3	1	0	0	1	6
07:45 AM	0	2	1	3	0	0	0	0	0	3	0	3	0	0	1	1	7
Total	0	6	2	8	0	0	0	0	1	9	0	10	2	0	2	4	22
08:00 AM	0	2	0	2	0	0	0	0	1	3	0	4	0	0	2	2	8
08:15 AM	0	3	0	3	0	0	0	0	1	0	0	1	0	0	0	0	4
08:30 AM	0	8	0	8	0	0	0	0	0	1	0	1	0	0	2	2	11
08:45 AM	0	1	0	1	0	0	0	0	0	2	0	2	0	0	1	1	4
Total	0	14	0	14	0	0	0	0	2	6	0	8	0	0	5	5	27
Grand Total	0	20	2	22	0	0	0	0	3	15	0	18	2	0	7	9	49
Apprch %	0	90.9	9.1		0	0	0		16.7	83.3	0		22.2	0	77.8		
Total %	0	40.8	4.1	44.9	0	0	0	0	6.1	30.6	0	36.7	4.1	0	14.3	18.4	

Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	2	0	2	0	0	0	0	1	3	0	4	0	0	1	1	7
07:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	2
07:30 AM	0	1	1	2	0	0	0	0	0	3	0	3	1	0	0	1	6
07:45 AM	0	2	1	3	0	0	0	0	0	3	0	3	0	0	1	1	7
Total Volume	0	6	2	8	0	0	0	0	1	9	0	10	2	0	2	4	22
% App. Total	0	75	25		0	0	0		10	90	0		50	0	50		
PHF	.000	.750	.500	.667	.000	.000	.000	.000	.250	.750	.000	.625	.500	.000	.500	1.00	.786

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



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

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	2	0	2	0	0	0	0	1	3	0	4	0	0	1	1
+15 mins.	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1
+30 mins.	0	1	1	2	0	0	0	0	0	3	0	3	1	0	0	1
+45 mins.	0	2	1	3	0	0	0	0	0	3	0	3	0	0	1	1
Total Volume	0	6	2	8	0	0	0	0	1	9	0	10	2	0	2	4
% App. Total	0	75	25		0	0	0		10	90	0		50	0	50	
PHF	.000	.750	.500	.667	.000	.000	.000	.000	.250	.750	.000	.625	.500	.000	.500	1.000

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

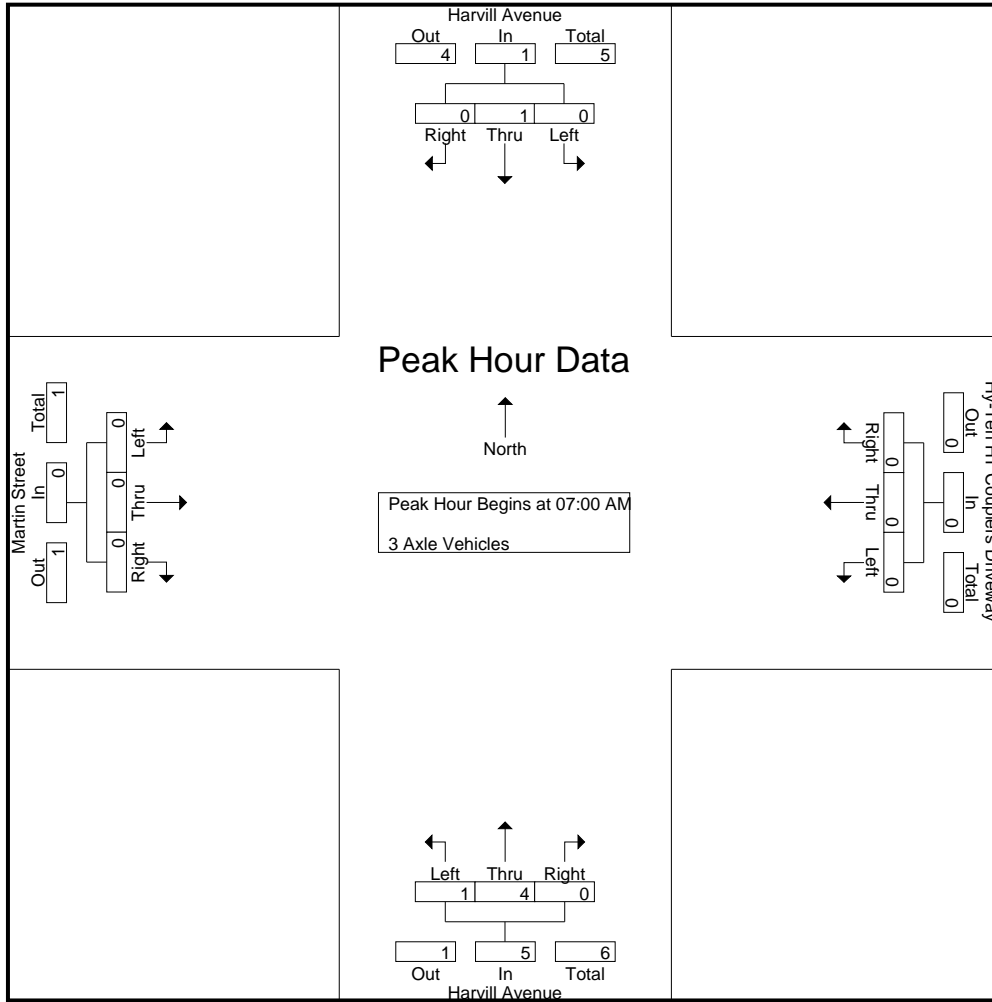
Groups Printed- 3 Axle Vehicles

Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
07:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
07:15 AM	0	1	0	1	0	0	0	0	0	0	2	0	2	0	0	0	0	3
07:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
<b>Total</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>
08:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
08:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
08:45 AM	0	1	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	2
<b>Total</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>7</b>
<b>Grand Total</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>8</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>13</b>
Apprch %	0	100	0		0	0	0			20	80	0		0	0	100		
Total %	0	15.4	0	15.4	0	0	0	0	0	15.4	61.5	0	76.9	0	0	7.7	7.7	

Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:00 AM																		
07:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
07:15 AM	0	1	0	1	0	0	0	0	0	0	2	0	2	0	0	0	0	3
07:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
<b>Total Volume</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>
% App. Total	0	100	0		0	0	0			20	80	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.500	.000	.625	.000	.000	.000	.000	.500

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



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

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
+15 mins.	0	1	0	1	0	0	0	0	0	2	0	0	2	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Total Volume	0	1	0	1	0	0	0	0	1	4	0	5	0	0	0	0
% App. Total	0	100	0	0	0	0	0	0	20	80	0	0	0	0	0	0
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.250	.500	.000	.625	.000	.000	.000	.000

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

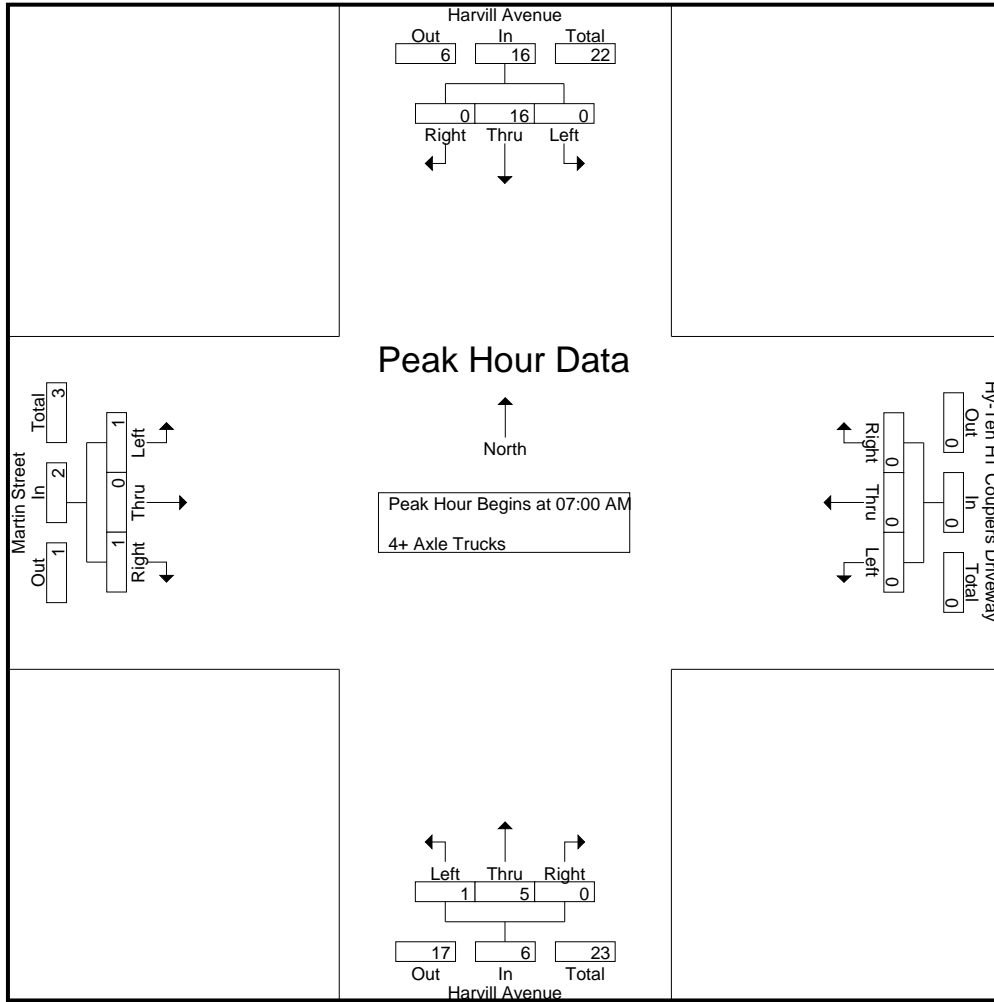
Groups Printed- 4+ Axle Trucks

Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	6	0	6	0	0	0	0	0	2	0	2	1	0	1	2	10
07:15 AM	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	4
07:30 AM	0	4	0	4	0	0	0	0	0	1	0	1	0	0	0	0	5
07:45 AM	0	3	0	3	0	0	0	0	1	1	0	2	0	0	0	0	5
<b>Total</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>24</b>
08:00 AM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
08:15 AM	0	4	0	4	0	0	0	0	0	2	0	2	0	0	1	1	7
08:30 AM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
08:45 AM	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	4
<b>Total</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>15</b>
<b>Grand Total</b>	<b>0</b>	<b>26</b>	<b>0</b>	<b>26</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>9</b>	<b>0</b>	<b>10</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>39</b>
Apprch %	0	100	0		0	0	0		10	90	0		33.3	0	66.7		
Total %	0	66.7	0	66.7	0	0	0	0	2.6	23.1	0	25.6	2.6	0	5.1	7.7	

Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	6	0	6	0	0	0	0	0	2	0	2	1	0	1	2	10
07:15 AM	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	4
07:30 AM	0	4	0	4	0	0	0	0	0	1	0	1	0	0	0	0	5
07:45 AM	0	3	0	3	0	0	0	0	1	1	0	2	0	0	0	0	5
<b>Total Volume</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>24</b>
% App. Total	0	100	0		0	0	0		16.7	83.3	0		50	0	50		
PHF	.000	.667	.000	.667	.000	.000	.000	.000	.250	.625	.000	.750	.250	.000	.250	.250	.600

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



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

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	6	0	6	0	0	0	0	0	2	0	2	1	0	1	2
+15 mins.	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0
+30 mins.	0	4	0	4	0	0	0	0	0	1	0	1	0	0	0	0
+45 mins.	0	3	0	3	0	0	0	0	1	1	0	2	0	0	0	0
Total Volume	0	16	0	16	0	0	0	0	1	5	0	6	1	0	1	2
% App. Total	0	100	0		0	0	0		16.7	83.3	0		50	0	50	
PHF	.000	.667	.000	.667	.000	.000	.000	.000	.250	.625	.000	.750	.250	.000	.250	.250

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

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

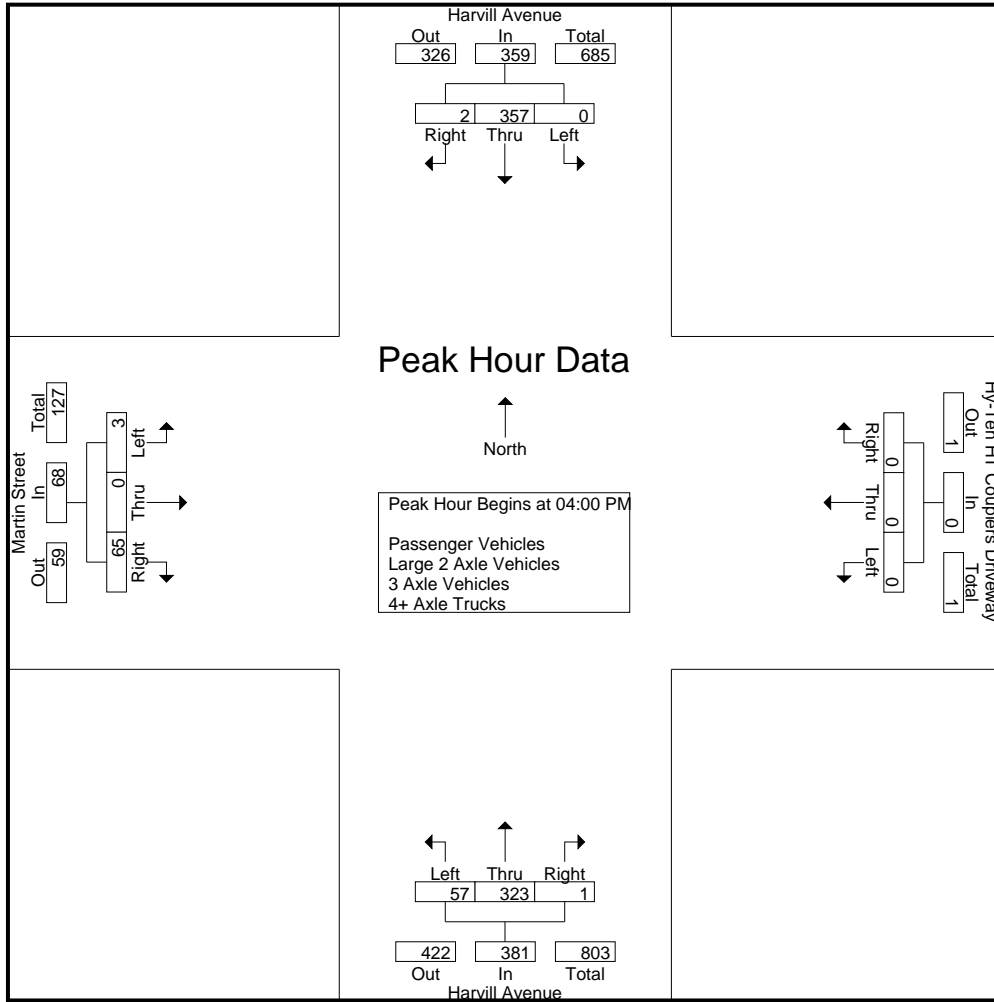
Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	78	1	79	0	0	0	0	16	100	1	117	0	0	12	12	208
04:15 PM	0	80	0	80	0	0	0	0	14	79	0	93	1	0	12	13	186
04:30 PM	0	101	1	102	0	0	0	0	14	88	0	102	2	0	28	30	234
04:45 PM	0	98	0	98	0	0	0	0	13	56	0	69	0	0	13	13	180
<b>Total</b>	<b>0</b>	<b>357</b>	<b>2</b>	<b>359</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>57</b>	<b>323</b>	<b>1</b>	<b>381</b>	<b>3</b>	<b>0</b>	<b>65</b>	<b>68</b>	<b>808</b>
05:00 PM	0	92	1	93	0	1	0	1	18	66	0	84	1	0	19	20	198
05:15 PM	0	86	1	87	0	0	0	0	13	66	0	79	1	0	23	24	190
05:30 PM	0	86	1	87	0	0	0	0	14	68	0	82	3	0	16	19	188
05:45 PM	0	89	1	90	0	0	0	0	14	56	0	70	0	0	19	19	179
<b>Total</b>	<b>0</b>	<b>353</b>	<b>4</b>	<b>357</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>59</b>	<b>256</b>	<b>0</b>	<b>315</b>	<b>5</b>	<b>0</b>	<b>77</b>	<b>82</b>	<b>755</b>
<b>Grand Total</b>	<b>0</b>	<b>710</b>	<b>6</b>	<b>716</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>116</b>	<b>579</b>	<b>1</b>	<b>696</b>	<b>8</b>	<b>0</b>	<b>142</b>	<b>150</b>	<b>1563</b>
Apprch %	0	99.2	0.8		0	100	0		16.7	83.2	0.1		5.3	0	94.7		
Total %	0	45.4	0.4	45.8	0	0.1	0	0.1	7.4	37	0.1	44.5	0.5	0	9.1	9.6	
Passenger Vehicles	0	676	5	681	0	1	0	1	110	545	1	656	5	0	138	143	1481
% Passenger Vehicles	0	95.2	83.3	95.1	0	100	0	100	94.8	94.1	100	94.3	62.5	0	97.2	95.3	94.8
Large 2 Axle Vehicles	0	14	0	14	0	0	0	0	4	17	0	21	3	0	3	6	41
% Large 2 Axle Vehicles	0	2	0	2	0	0	0	0	3.4	2.9	0	3	37.5	0	2.1	4	2.6
3 Axle Vehicles	0	5	0	5	0	0	0	0	1	6	0	7	0	0	0	0	12
% 3 Axle Vehicles	0	0.7	0	0.7	0	0	0	0	0.9	1	0	1	0	0	0	0	0.8
4+ Axle Trucks	0	15	1	16	0	0	0	0	1	11	0	12	0	0	1	1	29
% 4+ Axle Trucks	0	2.1	16.7	2.2	0	0	0	0	0.9	1.9	0	1.7	0	0	0.7	0.7	1.9

Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	78	1	79	0	0	0	0	16	100	1	117	0	0	12	12	208
04:15 PM	0	80	0	80	0	0	0	0	14	79	0	93	1	0	12	13	186
04:30 PM	0	101	1	102	0	0	0	0	14	88	0	102	2	0	28	30	234
04:45 PM	0	98	0	98	0	0	0	0	13	56	0	69	0	0	13	13	180
Total Volume	0	357	2	359	0	0	0	0	57	323	1	381	3	0	65	68	808
% App. Total	0	99.4	0.6		0	0	0		15	84.8	0.3		4.4	0	95.6		
PHF	.000	.884	.500	.880	.000	.000	.000	.000	.891	.808	.250	.814	.375	.000	.580	.567	.863



County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



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

	04:30 PM				04:15 PM				04:00 PM				04:30 PM				
+0 mins.	0	<b>101</b>	<b>1</b>	<b>102</b>	0	0	0	0	<b>16</b>	<b>100</b>	<b>1</b>	<b>117</b>	<b>2</b>	0	0	<b>28</b>	<b>30</b>
+15 mins.	0	98	0	98	0	0	0	0	14	79	0	93	0	0	0	13	13
+30 mins.	0	92	1	93	0	0	0	0	14	88	0	102	1	0	0	19	20
+45 mins.	0	86	1	87	0	<b>1</b>	0	<b>1</b>	13	56	0	69	1	0	0	23	24
Total Volume	0	377	3	380	0	1	0	1	57	323	1	381	4	0	0	83	87
% App. Total	0	99.2	0.8		0	100	0		15	84.8	0.3		4.6	0	0	95.4	
PHF	.000	.933	.750	.931	.000	.250	.000	.250	.891	.808	.250	.814	.500	.000	.741	.725	

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

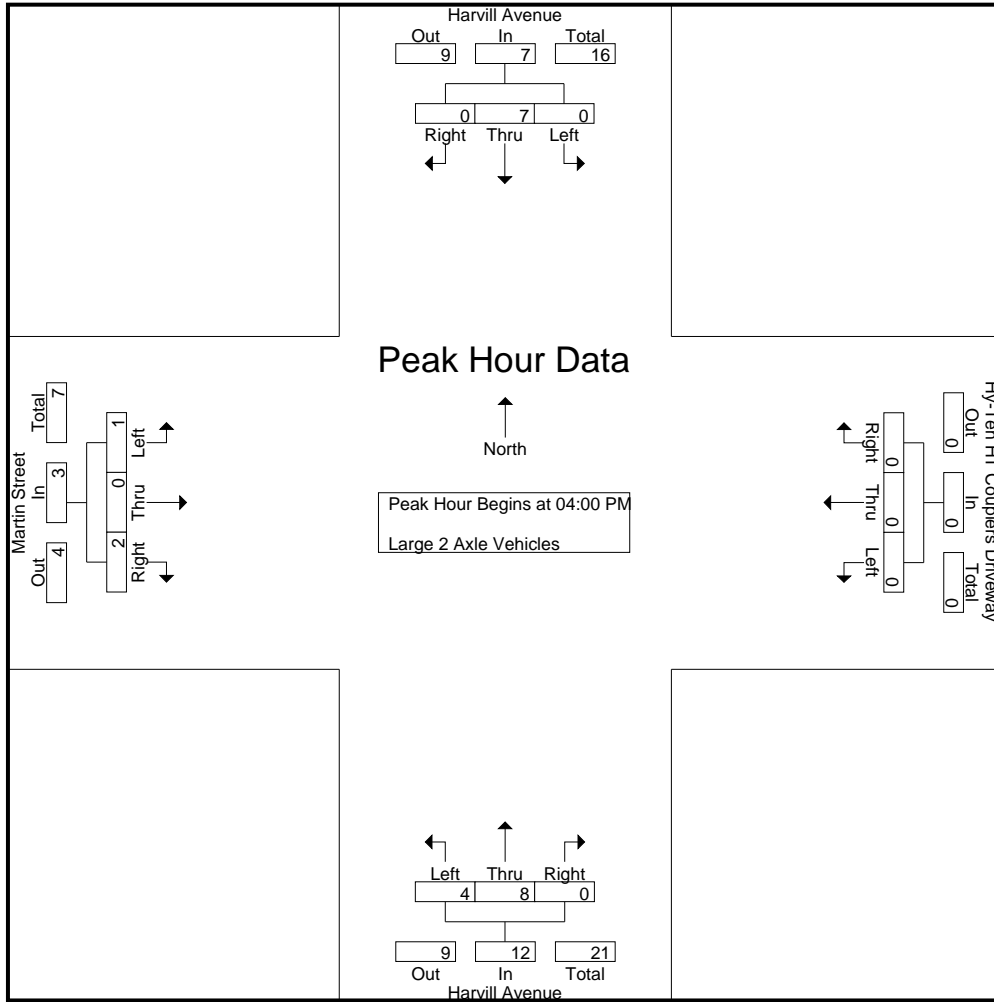
Groups Printed- Large 2 Axle Vehicles

Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	3	0	3	0	0	0	0	1	3	0	4	0	0	0	0	7
04:15 PM	0	2	0	2	0	0	0	0	0	2	0	2	0	0	1	1	5
04:30 PM	0	0	0	0	0	0	0	0	2	2	0	4	1	0	0	1	5
04:45 PM	0	2	0	2	0	0	0	0	1	1	0	2	0	0	1	1	5
Total	0	7	0	7	0	0	0	0	4	8	0	12	1	0	2	3	22
05:00 PM	0	2	0	2	0	0	0	0	0	3	0	3	0	0	0	0	5
05:15 PM	0	2	0	2	0	0	0	0	0	5	0	5	0	0	0	0	7
05:30 PM	0	2	0	2	0	0	0	0	0	1	0	1	2	0	0	2	5
05:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	2
Total	0	7	0	7	0	0	0	0	0	9	0	9	2	0	1	3	19
Grand Total	0	14	0	14	0	0	0	0	4	17	0	21	3	0	3	6	41
Apprch %	0	100	0		0	0	0		19	81	0		50	0	50		
Total %	0	34.1	0	34.1	0	0	0	0	9.8	41.5	0	51.2	7.3	0	7.3	14.6	

Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	3	0	3	0	0	0	0	1	3	0	4	0	0	0	0	7
04:15 PM	0	2	0	2	0	0	0	0	0	2	0	2	0	0	1	1	5
04:30 PM	0	0	0	0	0	0	0	0	2	2	0	4	1	0	0	1	5
04:45 PM	0	2	0	2	0	0	0	0	1	1	0	2	0	0	1	1	5
Total Volume	0	7	0	7	0	0	0	0	4	8	0	12	1	0	2	3	22
% App. Total	0	100	0		0	0	0		33.3	66.7	0		33.3	0	66.7		
PHF	.000	.583	.000	.583	.000	.000	.000	.000	.500	.667	.000	.750	.250	.000	.500	.750	.786

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



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

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	3	0	3	0	0	0	0	1	3	0	4	0	0	0	0
+15 mins.	0	2	0	2	0	0	0	0	0	2	0	2	0	0	0	1
+30 mins.	0	0	0	0	0	0	0	0	2	2	0	4	1	0	0	1
+45 mins.	0	2	0	2	0	0	0	0	1	1	0	2	0	0	1	1
Total Volume	0	7	0	7	0	0	0	0	4	8	0	12	1	0	2	3
% App. Total	0	100	0		0	0	0		33.3	66.7	0		33.3	0	66.7	
PHF	.000	.583	.000	.583	.000	.000	.000	.000	.500	.667	.000	.750	.250	.000	.500	.750

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

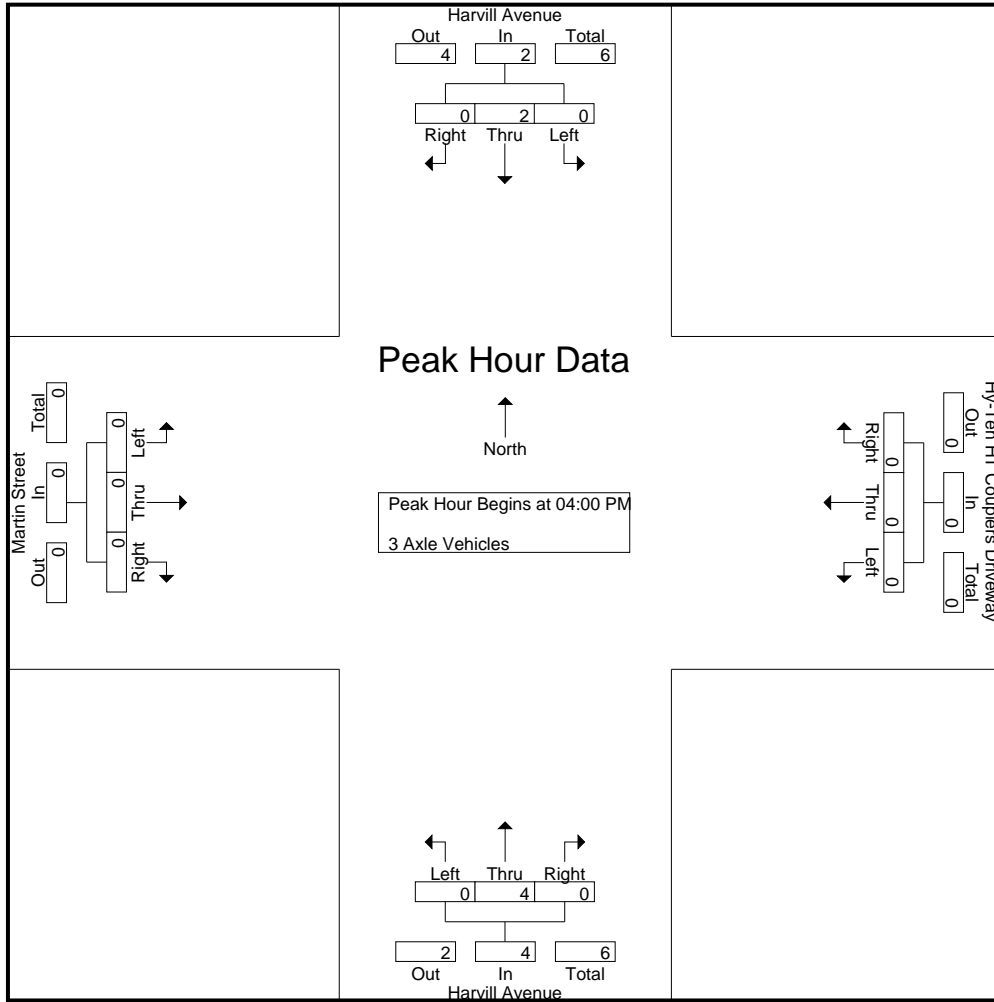
Groups Printed- 3 Axle Vehicles

Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	4
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	0	0	0	0	0	0	0	0
04:45 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	4	0	4	0	0	0	0	6
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	0	1	0	0	0	0	1	1	0	2	0	0	0	0	3
05:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Total	0	3	0	3	0	0	0	0	1	2	0	3	0	0	0	0	6
Grand Total	0	5	0	5	0	0	0	0	1	6	0	7	0	0	0	0	12
Apprch %	0	100	0		0	0	0		14.3	85.7	0		0	0	0		
Total %	0	41.7	0	41.7	0	0	0	0	8.3	50	0	58.3	0	0	0	0	

Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	4
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	0	0	0	0	0	0	0	0
04:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	2	0	2	0	0	0	0	0	4	0	4	0	0	0	0	6
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.000	.333	.000	.333	.000	.000	.000	.000	.375

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



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

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	1	0	1	0	0	0	0	0	3	0	3	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	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	2	0	0	0	0	0	4	0	4	0	0	0	0
% App. Total	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.000	.333	.000	.333	.000	.000	.000	.000

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

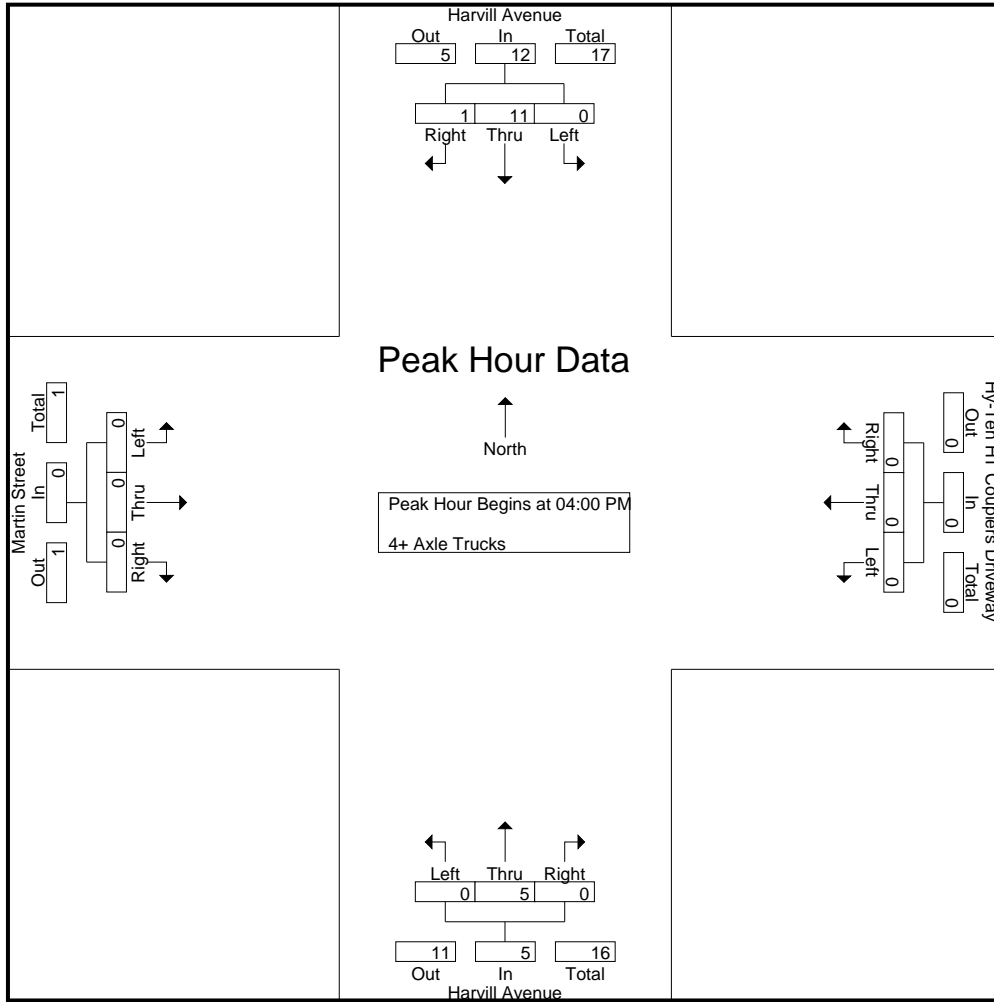
Groups Printed- 4+ Axle Trucks

Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	3	1	4	0	0	0	0	0	2	0	2	0	0	0	0	6
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	4	0	4	0	0	0	0	0	1	0	1	0	0	0	0	5
04:45 PM	0	4	0	4	0	0	0	0	0	2	0	2	0	0	0	0	6
<b>Total</b>	<b>0</b>	<b>11</b>	<b>1</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>17</b>
05:00 PM	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	4
05:15 PM	0	2	0	2	0	0	0	0	0	3	0	3	0	0	0	0	5
05:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
05:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	2
<b>Total</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>6</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>12</b>
<b>Grand Total</b>	<b>0</b>	<b>15</b>	<b>1</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>11</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>29</b>
Apprch %	0	93.8	6.2		0	0	0		8.3	91.7	0		0	0	100		
Total %	0	51.7	3.4	55.2	0	0	0	0	3.4	37.9	0	41.4	0	0	3.4	3.4	

Start Time	Harvill Avenue Southbound				Hy-Ten HT Couplers Driveway Westbound				Harvill Avenue Northbound				Martin Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	3	1	4	0	0	0	0	0	2	0	2	0	0	0	0	6
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	4	0	4	0	0	0	0	0	1	0	1	0	0	0	0	5
04:45 PM	0	4	0	4	0	0	0	0	0	2	0	2	0	0	0	0	6
<b>Total Volume</b>	<b>0</b>	<b>11</b>	<b>1</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>17</b>
% App. Total	0	91.7	8.3		0	0	0		0	100	0		0	0	0		
PHF	.000	.688	.250	.750	.000	.000	.000	.000	.000	.625	.000	.625	.000	.000	.000	.000	.708

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street  
 Weather: Clear

File Name : 15\_CRV\_Har\_Martin PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



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

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	3	1	4	0	0	0	0	0	2	0	2	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	4	0	4	0	0	0	0	0	1	0	1	0	0	0	0
+45 mins.	0	4	0	4	0	0	0	0	0	2	0	2	0	0	0	0
Total Volume	0	11	1	12	0	0	0	0	0	5	0	5	0	0	0	0
% App. Total	0	91.7	8.3		0	0	0	0	0	100	0		0	0	0	
PHF	.000	.688	.250	.750	.000	.000	.000	.000	.000	.625	.000	.625	.000	.000	.000	.000

Location: County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street



Date: 2/8/2022  
 Day: Tuesday

**PEDESTRIANS**

	North Leg Harvill Avenue	East Leg Hy-Ten HT Driveway	South Leg Harvill Avenue	West Leg Martin Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
<b>TOTAL VOLUMES:</b>	0	0	0	0	0

	North Leg Harvill Avenue	East Leg Hy-Ten HT Driveway	South Leg Harvill Avenue	West Leg Martin Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
<b>TOTAL VOLUMES:</b>	0	0	0	0	0



Location: County of Riverside  
 N/S: Harvill Avenue  
 E/W: Martin Street



Date: 2/8/2022  
 Day: Tuesday

BICYCLES

	Southbound Harvill Avenue			Westbound Hy-Ten HT Driveway			Northbound Harvill Avenue			Eastbound Martin Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Harvill Avenue			Westbound Hy-Ten HT Driveway			Northbound Harvill Avenue			Eastbound Martin Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	1	0	0	0	0	0	0	0	1	0	0	2

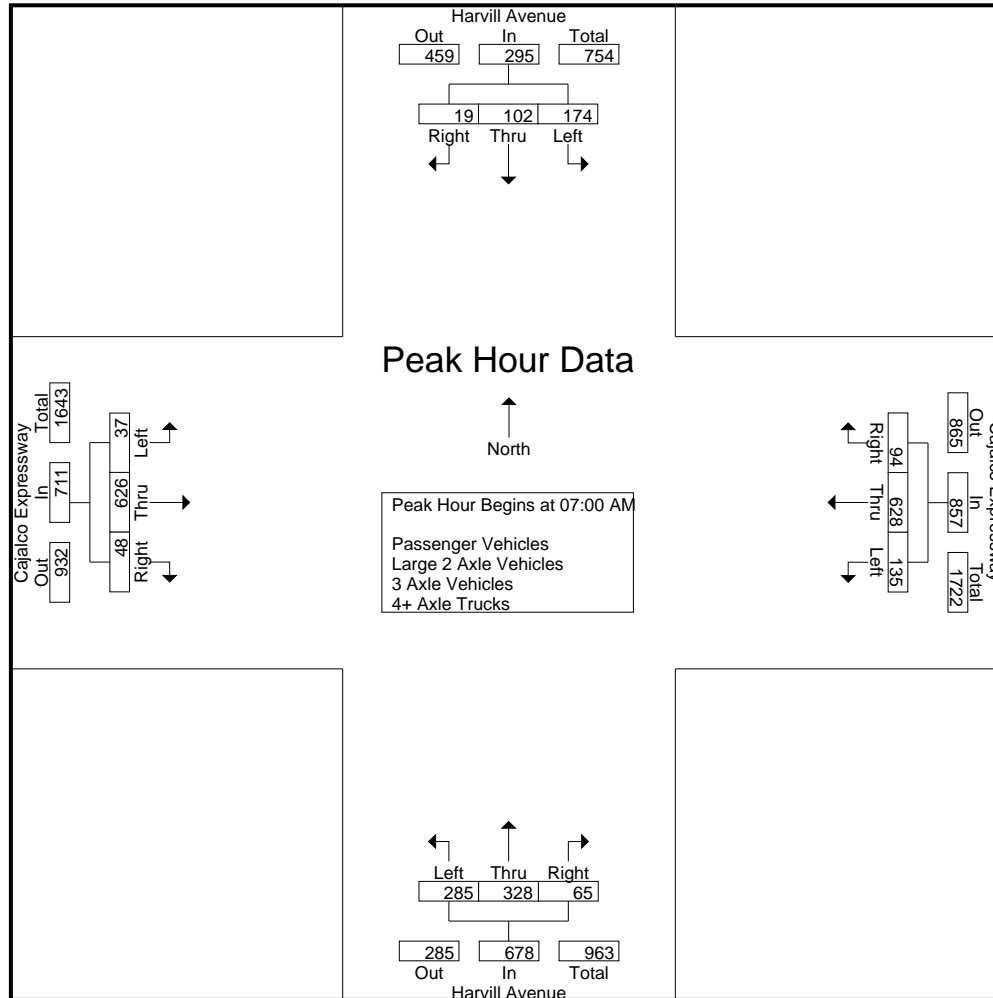
County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

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

Start Time	Harvill Avenue Southbound					Cajalco Expressway Westbound					Harvill Avenue Northbound					Cajalco Expressway Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total			
07:00 AM	52	24	5	1	81	34	177	13	12	224	79	80	10	14	169	9	130	7	6	146	33	620	653
07:15 AM	41	23	6	0	70	28	154	16	13	198	91	68	18	15	177	6	149	11	10	166	38	611	649
07:30 AM	35	23	6	1	64	43	167	34	23	244	61	94	13	10	168	9	180	18	16	207	50	683	733
07:45 AM	46	32	2	0	80	30	130	31	15	191	54	86	24	11	164	13	167	12	15	192	41	627	668
Total	174	102	19	2	295	135	628	94	63	857	285	328	65	50	678	37	626	48	47	711	162	2541	2703
08:00 AM	42	30	2	0	74	31	154	28	11	213	54	61	17	15	132	8	133	19	5	160	31	579	610
08:15 AM	56	31	3	4	90	25	132	18	24	175	31	32	5	16	68	9	130	13	11	152	55	485	540
08:30 AM	40	27	0	0	67	29	124	17	10	170	29	29	2	20	60	5	134	14	12	153	42	450	492
08:45 AM	31	17	7	3	55	29	175	21	7	225	27	21	2	13	50	5	131	20	7	156	30	486	516
Total	169	105	12	7	286	114	585	84	52	783	141	143	26	64	310	27	528	66	35	621	158	2000	2158
Grand Total	343	207	31	9	581	249	1213	178	115	1640	426	471	91	114	988	64	1154	114	82	1332	320	4541	4861
Apprch %	59	35.6	5.3			15.2	74	10.9			43.1	47.7	9.2			4.8	86.6	8.6					
Total %	7.6	4.6	0.7		12.8	5.5	26.7	3.9		36.1	9.4	10.4	2		21.8	1.4	25.4	2.5		29.3	6.6	93.4	
Passenger Vehicles	314	187	19		525	191	1118	161		1579	407	460	75		1036	51	1064	107		1301	0	0	4441
% Passenger Vehicles	91.5	90.3	61.3	55.6	89	76.7	92.2	90.4	94.8	90	95.5	97.7	82.4	82.5	94	79.7	92.2	93.9	96.3	92	0	0	91.4
Large 2 Axle Vehicles	17	10	5		33	23	47	12		85	13	3	6		30	3	41	0		46	0	0	194
% Large 2 Axle Vehicles	5	4.8	16.1	11.1	5.6	9.2	3.9	6.7	2.6	4.8	3.1	0.6	6.6	7	2.7	4.7	3.6	0	2.4	3.3	0	0	4
3 Axle Vehicles	3	1	0		5	5	9	1		17	2	3	1		8	3	10	1		14	0	0	44
% 3 Axle Vehicles	0.9	0.5	0	11.1	0.8	2	0.7	0.6	1.7	1	0.5	0.6	1.1	1.8	0.7	4.7	0.9	0.9	0	1	0	0	0.9
4+ Axle Trucks	9	9	7		27	30	39	4		74	4	5	9		28	7	39	6		53	0	0	182
% 4+ Axle Trucks	2.6	4.3	22.6	22.2	4.6	12	3.2	2.2	0.9	4.2	0.9	1.1	9.9	8.8	2.5	10.9	3.4	5.3	1.2	3.7	0	0	3.7

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	52	24	5	81	34	177	13	224	79	80	10	169	9	130	7	146	620
07:15 AM	41	23	6	70	28	154	16	198	91	68	18	177	6	149	11	166	611
07:30 AM	35	23	6	64	43	167	34	244	61	94	13	168	9	180	18	207	683
07:45 AM	46	32	2	80	30	130	31	191	54	86	24	164	13	167	12	192	627
Total Volume	174	102	19	295	135	628	94	857	285	328	65	678	37	626	48	711	2541
% App. Total	59	34.6	6.4		15.8	73.3	11		42	48.4	9.6		5.2	88	6.8		
PHF	.837	.797	.792	.910	.785	.887	.691	.878	.783	.872	.677	.958	.712	.869	.667	.859	.930



County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 3

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:45 AM				07:00 AM				07:00 AM				07:15 AM				
+0 mins.	46	<b>32</b>	2	80	34	<b>177</b>	13	224	79	80	10	169	6	149	11	166	
+15 mins.	42	30	2	74	28	154	16	198	<b>91</b>	68	18	<b>177</b>	9	<b>180</b>	18	<b>207</b>	
+30 mins.	<b>56</b>	31	<b>3</b>	<b>90</b>	<b>43</b>	167	<b>34</b>	<b>244</b>	61	<b>94</b>	13	168	<b>13</b>	167	12	192	
+45 mins.	40	27	0	67	30	130	31	191	54	86	<b>24</b>	164	8	133	<b>19</b>	160	
Total Volume	184	120	7	311	135	628	94	857	285	328	65	678	36	629	60	725	
% App. Total	59.2	38.6	2.3		15.8	73.3	11		42	48.4	9.6		5	86.8	8.3		
PHF	.821	.938	.583	.864	.785	.887	.691	.878	.783	.872	.677	.958	.692	.874	.789	.876	

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

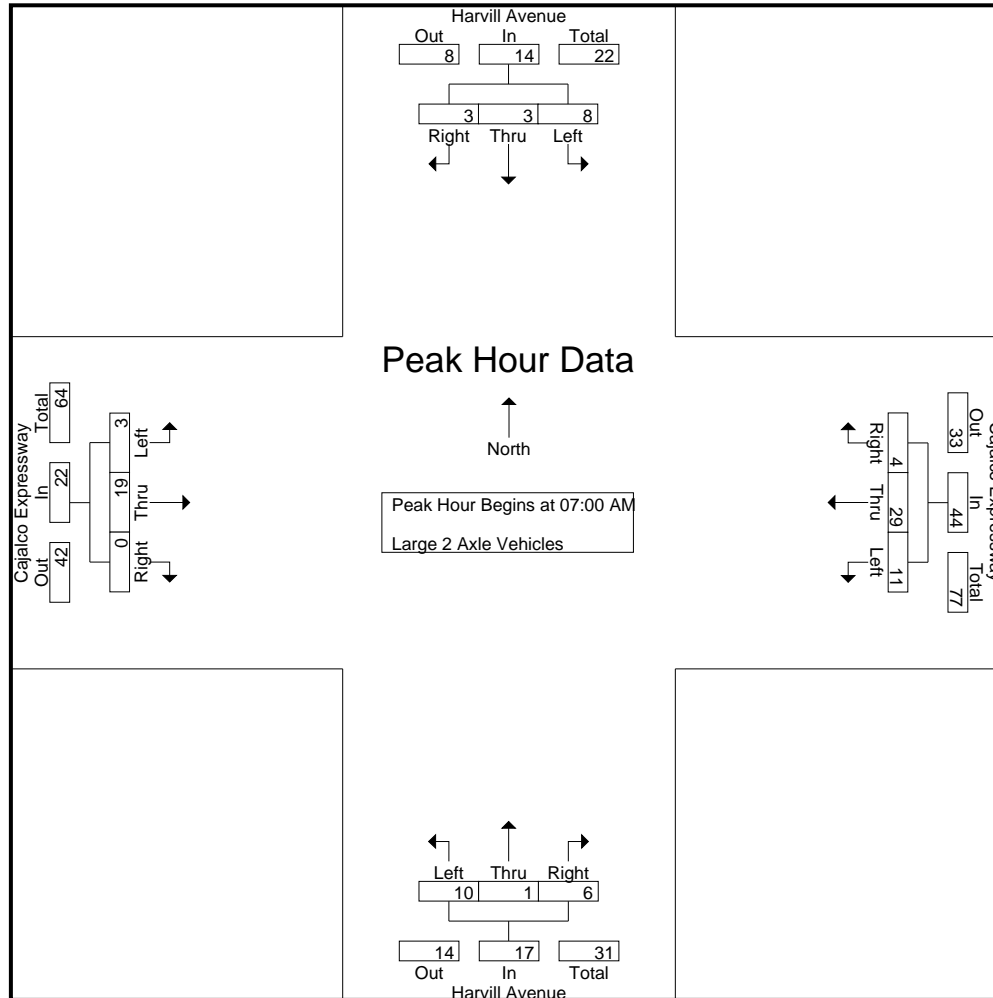
Groups Printed- Large 2 Axle Vehicles

Start Time	Harvill Avenue Southbound					Cajalco Expressway Westbound					Harvill Avenue Northbound					Cajalco Expressway Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total			
07:00 AM	3	0	1	0	4	4	6	2	1	12	5	1	3	2	9	0	2	0	0	2	3	27	30
07:15 AM	2	0	0	0	2	3	5	1	0	9	4	0	1	0	5	0	5	0	1	5	1	21	22
07:30 AM	0	2	1	1	3	1	10	1	0	12	0	0	1	0	1	1	7	0	0	8	1	24	25
07:45 AM	3	1	1	0	5	3	8	0	0	11	1	0	1	1	2	2	5	0	0	7	1	25	26
Total	8	3	3	1	14	11	29	4	1	44	10	1	6	3	17	3	19	0	1	22	6	97	103
08:00 AM	4	2	0	0	6	1	5	3	0	9	0	1	0	1	1	0	6	0	0	6	1	22	23
08:15 AM	0	3	0	0	3	3	3	2	1	8	1	1	0	1	2	0	8	0	0	8	2	21	23
08:30 AM	4	2	0	0	6	3	5	0	0	8	1	0	0	1	1	0	3	0	1	3	2	18	20
08:45 AM	1	0	2	0	3	5	5	3	1	13	1	0	0	2	1	0	5	0	0	5	3	22	25
Total	9	7	2	0	18	12	18	8	2	38	3	2	0	5	5	0	22	0	1	22	8	83	91
Grand Total	17	10	5	1	32	23	47	12	3	82	13	3	6	8	22	3	41	0	2	44	14	180	194
Apprch %	53.1	31.2	15.6			28	57.3	14.6			59.1	13.6	27.3			6.8	93.2	0					
Total %	9.4	5.6	2.8		17.8	12.8	26.1	6.7		45.6	7.2	1.7	3.3		12.2	1.7	22.8	0		24.4	7.2	92.8	

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	3	0	1	4	4	6	2	12	5	1	3	9	0	2	0	2	27
07:15 AM	2	0	0	2	3	5	1	9	4	0	1	5	0	5	0	5	21
07:30 AM	0	2	1	3	1	10	1	12	0	0	1	1	1	7	0	8	24
07:45 AM	3	1	1	5	3	8	0	11	1	0	1	2	2	5	0	7	25
Total Volume	8	3	3	14	11	29	4	44	10	1	6	17	3	19	0	22	97
% App. Total	57.1	21.4	21.4		25	65.9	9.1		58.8	5.9	35.3		13.6	86.4	0		
PHF	.667	.375	.750	.700	.688	.725	.500	.917	.500	.250	.500	.472	.375	.679	.000	.688	.898

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 3

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	3	0	1	4	4	6	2	12	5	1	3	9	0	2	0	2	
+15 mins.	2	0	0	2	3	5	1	9	4	0	1	5	0	5	0	5	
+30 mins.	0	2	1	3	1	10	1	12	0	0	1	1	1	7	0	8	
+45 mins.	3	1	1	5	3	8	0	11	1	0	1	2	2	5	0	7	
Total Volume	8	3	3	14	11	29	4	44	10	1	6	17	3	19	0	22	
% App. Total	57.1	21.4	21.4		25	65.9	9.1		58.8	5.9	35.3		13.6	86.4	0		
PHF	.667	.375	.750	.700	.688	.725	.500	.917	.500	.250	.500	.472	.375	.679	.000	.688	

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

Groups Printed- 3 Axle Vehicles

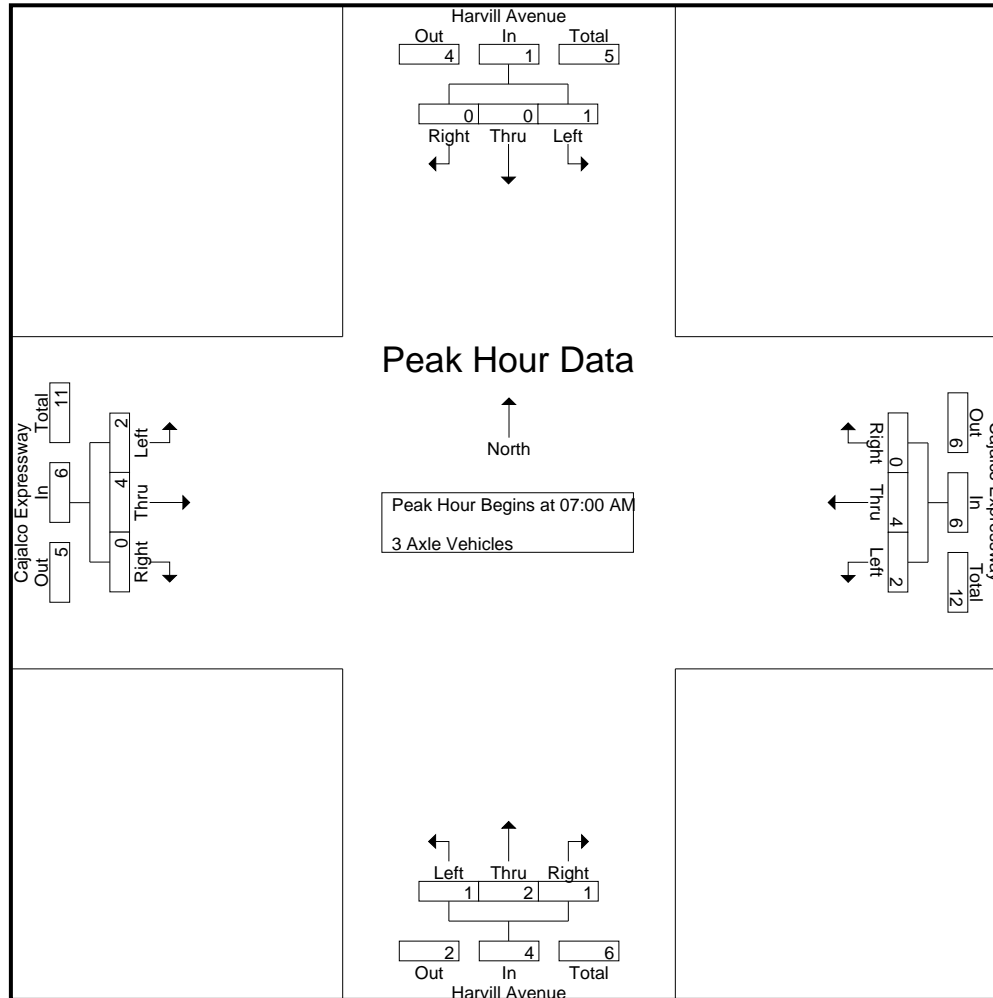
Start Time	Harvill Avenue Southbound					Cajalco Expressway Westbound					Harvill Avenue Northbound					Cajalco Expressway Eastbound					Exclu. Total	Inclu. Total	Int. Total					
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total								
07:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2	0	2	2	0	0	2
07:15 AM	1	0	0	0	1	1	2	0	0	3	0	1	0	0	1	1	0	0	0	1	0	0	0	1	0	6	0	6
07:30 AM	0	0	0	0	0	1	1	0	0	2	0	0	1	1	1	1	2	0	0	3	1	0	0	1	1	6	0	7
07:45 AM	0	0	0	0	0	0	1	0	0	1	1	1	0	0	2	0	2	0	0	2	0	0	0	2	0	5	0	5
Total	1	0	0	0	1	2	4	0	1	6	1	2	1	2	4	2	4	0	0	6	3	0	0	3	3	17	0	20
08:00 AM	1	1	0	0	2	0	2	0	0	2	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	7	0	7
08:15 AM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3	0	3
08:30 AM	1	0	0	0	1	0	2	0	1	2	0	0	0	0	0	1	1	0	0	2	1	0	0	1	1	5	0	6
08:45 AM	0	0	0	1	0	2	0	1	0	3	1	0	0	0	1	0	2	1	0	3	1	0	0	1	1	7	0	8
Total	2	1	0	1	3	3	5	1	1	9	1	1	0	0	2	1	6	1	0	8	2	0	0	2	2	22	0	24
Grand Total	3	1	0	1	4	5	9	1	2	15	2	3	1	2	6	3	10	1	0	14	5	0	0	5	5	39	0	44
Apprch %	75	25	0			33.3	60	6.7			33.3	50	16.7			21.4	71.4	7.1										
Total %	7.7	2.6	0		10.3	12.8	23.1	2.6		38.5	5.1	7.7	2.6		15.4	7.7	25.6	2.6		35.9	11.4			88.6				

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	1	0	0	1	1	2	0	3	0	1	0	1	1	0	0	1	6
07:30 AM	0	0	0	0	1	1	0	2	0	0	1	1	1	2	0	3	6
07:45 AM	0	0	0	0	0	1	0	1	1	1	0	2	0	2	0	2	5
Total Volume	1	0	0	1	2	4	0	6	1	2	1	4	2	4	0	6	17
% App. Total	100	0	0		33.3	66.7	0		25	50	25		33.3	66.7	0		
PHF	.250	.000	.000	.250	.500	.500	.000	.500	.250	.500	.250	.500	.500	.500	.000	.500	.708



County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 3

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	1	0	0	1	1	2	0	3	0	1	0	1	1	0	0	1	
+30 mins.	0	0	0	0	1	1	0	2	0	0	1	1	1	2	0	3	
+45 mins.	0	0	0	0	0	1	0	1	1	1	0	2	0	2	0	2	
Total Volume	1	0	0	1	2	4	0	6	1	2	1	4	2	4	0	6	
% App. Total	100	0	0		33.3	66.7	0		25	50	25		33.3	66.7	0		
PHF	.250	.000	.000	.250	.500	.500	.000	.500	.250	.500	.250	.500	.500	.500	.000	.500	

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

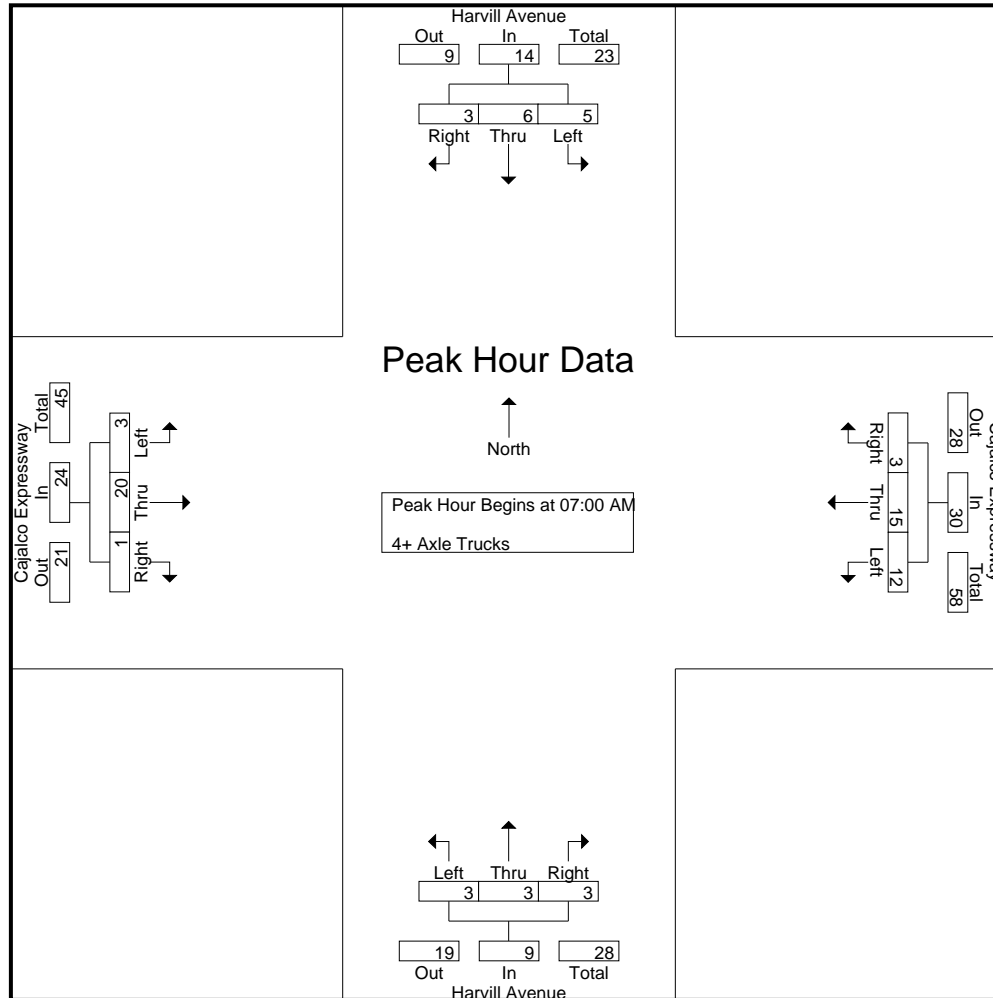
Groups Printed- 4+ Axle Trucks

Start Time	Harvill Avenue Southbound					Cajalco Expressway Westbound					Harvill Avenue Northbound					Cajalco Expressway Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total			
07:00 AM	2	2	2	0	6	4	5	1	0	10	1	0	1	1	2	1	7	0	0	8	1	26	27
07:15 AM	2	2	0	0	4	3	1	0	0	4	1	2	1	1	4	0	4	0	0	4	1	16	17
07:30 AM	1	0	1	0	2	3	4	1	0	8	0	1	0	1	1	0	4	0	0	4	1	15	16
07:45 AM	0	2	0	0	2	2	5	1	0	8	1	0	1	2	2	2	5	1	1	8	3	20	23
Total	5	6	3	0	14	12	15	3	0	30	3	3	3	5	9	3	20	1	1	24	6	77	83
08:00 AM	1	1	1	0	3	4	7	1	0	12	0	1	3	0	4	0	5	3	0	8	0	27	27
08:15 AM	2	0	2	1	4	4	3	0	1	7	0	0	1	1	1	3	5	1	0	9	3	21	24
08:30 AM	1	0	0	0	1	5	5	0	0	10	0	0	2	1	2	1	6	0	0	7	1	20	21
08:45 AM	0	2	1	1	3	5	9	0	0	14	1	1	0	3	2	0	3	1	0	4	4	23	27
Total	4	3	4	2	11	18	24	1	1	43	1	2	6	5	9	4	19	5	0	28	8	91	99
Grand Total	9	9	7	2	25	30	39	4	1	73	4	5	9	10	18	7	39	6	1	52	14	168	182
Apprch %	36	36	28			41.1	53.4	5.5			22.2	27.8	50			13.5	75	11.5					
Total %	5.4	5.4	4.2		14.9	17.9	23.2	2.4		43.5	2.4	3	5.4		10.7	4.2	23.2	3.6		31	7.7	92.3	

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	2	2	2	6	4	5	1	10	1	0	1	2	1	7	0	8	26
07:15 AM	2	2	0	4	3	1	0	4	1	2	1	4	0	4	0	4	16
07:30 AM	1	0	1	2	3	4	1	8	0	1	0	1	0	4	0	4	15
07:45 AM	0	2	0	2	2	5	1	8	1	0	1	2	2	5	1	8	20
Total Volume	5	6	3	14	12	15	3	30	3	3	3	9	3	20	1	24	77
% App. Total	35.7	42.9	21.4		40	50	10		33.3	33.3	33.3		12.5	83.3	4.2		
PHF	.625	.750	.375	.583	.750	.750	.750	.750	.750	.375	.750	.563	.375	.714	.250	.750	.740

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
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County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj AM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 3

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	2	2	2	6	4	5	1	10	1	0	1	2	1	7	0	8	
+15 mins.	2	2	0	4	3	1	0	4	1	2	1	4	0	4	0	4	
+30 mins.	1	0	1	2	3	4	1	8	0	1	0	1	0	4	0	4	
+45 mins.	0	2	0	2	2	5	1	8	1	0	1	2	2	5	1	8	
Total Volume	5	6	3	14	12	15	3	30	3	3	3	9	3	20	1	24	
% App. Total	35.7	42.9	21.4		40	50	10		33.3	33.3	33.3		12.5	83.3	4.2		
PHF	.625	.750	.375	.583	.750	.750	.750	.750	.750	.375	.750	.563	.375	.714	.250	.750	

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

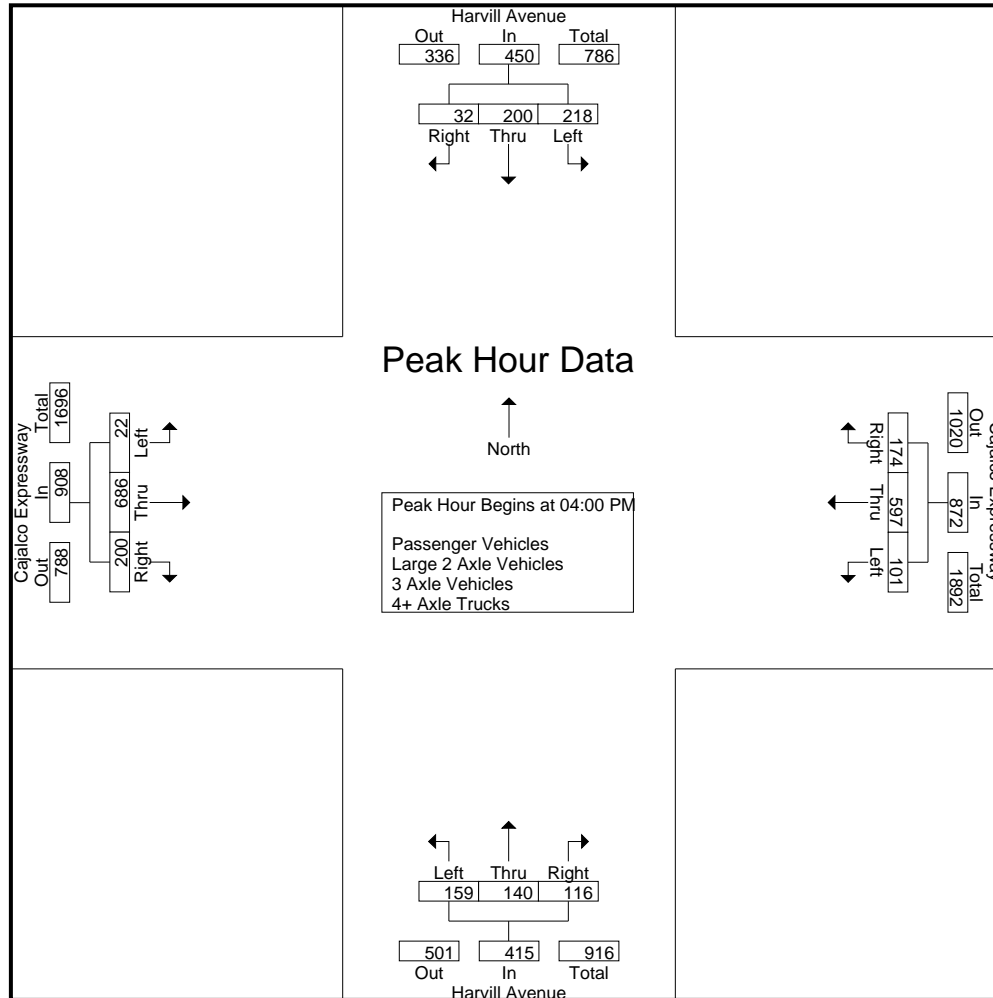
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Harvill Avenue Southbound					Cajalco Expressway Westbound					Harvill Avenue Northbound					Cajalco Expressway Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total			
04:00 PM	42	48	14	7	104	31	173	64	31	268	50	40	30	11	120	5	147	64	29	216	78	708	786
04:15 PM	46	46	5	2	97	23	139	33	7	195	33	33	25	15	91	11	158	44	29	213	53	596	649
04:30 PM	77	51	8	0	136	25	151	42	22	218	38	39	25	11	102	4	196	52	26	252	59	708	767
04:45 PM	53	55	5	1	113	22	134	35	14	191	38	28	36	26	102	2	185	40	21	227	62	633	695
Total	218	200	32	10	450	101	597	174	74	872	159	140	116	63	415	22	686	200	105	908	252	2645	2897
05:00 PM	60	42	6	2	108	21	150	45	19	216	39	22	26	14	87	7	189	30	20	226	55	637	692
05:15 PM	68	44	7	2	119	22	174	47	20	243	33	27	24	16	84	7	166	41	20	214	58	660	718
05:30 PM	43	49	4	0	96	20	166	40	17	226	41	29	19	14	89	4	229	33	12	266	43	677	720
05:45 PM	63	35	6	1	104	27	157	35	16	219	46	21	26	17	93	2	209	32	8	243	42	659	701
Total	234	170	23	5	427	90	647	167	72	904	159	99	95	61	353	20	793	136	60	949	198	2633	2831
Grand Total	452	370	55	15	877	191	1244	341	146	1776	318	239	211	124	768	42	1479	336	165	1857	450	5278	5728
Apprch %	51.5	42.2	6.3			10.8	70	19.2			41.4	31.1	27.5			2.3	79.6	18.1					
Total %	8.6	7	1		16.6	3.6	23.6	6.5		33.6	6	4.5	4		14.6	0.8	28	6.4		35.2	7.9	92.1	
Passenger Vehicles	443	354	50		861	148	1190	322		1799	311	230	201		859	37	1426	320		1942	0	0	5461
% Passenger Vehicles	98	95.7	90.9	93.3	96.5	77.5	95.7	94.4	95.2	93.6	97.8	96.2	95.3	94.4	96.3	88.1	96.4	95.2	96.4	96	0	0	95.3
Large 2 Axle Vehicles	4	5	2		11	7	19	15		47	2	2	2		8	0	26	9		40	0	0	106
% Large 2 Axle Vehicles	0.9	1.4	3.6	0	1.2	3.7	1.5	4.4	4.1	2.4	0.6	0.8	0.9	1.6	0.9	0	1.8	2.7	3	2	0	0	1.9
3 Axle Vehicles	2	2	0		4	5	9	0		14	2	5	2		11	1	5	1		7	0	0	36
% 3 Axle Vehicles	0.4	0.5	0	0	0.4	2.6	0.7	0	0	0.7	0.6	2.1	0.9	1.6	1.2	2.4	0.3	0.3	0	0.3	0	0	0.6
4+ Axle Trucks	3	9	3		16	31	26	4		62	3	2	6		14	4	22	6		33	0	0	125
% 4+ Axle Trucks	0.7	2.4	5.5	6.7	1.8	16.2	2.1	1.2	0.7	3.2	0.9	0.8	2.8	2.4	1.6	9.5	1.5	1.8	0.6	1.6	0	0	2.2

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	42	48	14	104	31	173	64	268	50	40	30	120	5	147	64	216	786
04:15 PM	46	46	5	97	23	139	33	195	33	33	25	91	11	158	44	213	596
04:30 PM	77	51	8	136	25	151	42	218	38	39	25	102	4	196	52	252	708
04:45 PM	53	55	5	113	22	134	35	191	38	28	36	102	2	185	40	227	633
Total Volume	218	200	32	450	101	597	174	872	159	140	116	415	22	686	200	908	2645
% App. Total	48.4	44.4	7.1		11.6	68.5	20		38.3	33.7	28		2.4	75.6	22		
PHF	.708	.909	.571	.827	.815	.863	.680	.813	.795	.875	.806	.865	.500	.875	.781	.901	.934

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 3

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
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				05:00 PM				04:00 PM				05:00 PM				
+0 mins.	<b>77</b>	51	<b>8</b>	<b>136</b>	21	150	45	216	<b>50</b>	<b>40</b>	30	<b>120</b>	<b>7</b>	189	30	226	
+15 mins.	53	<b>55</b>	5	113	22	<b>174</b>	<b>47</b>	<b>243</b>	33	33	25	91	7	166	<b>41</b>	214	
+30 mins.	60	42	6	108	20	166	40	226	38	39	25	102	4	<b>229</b>	33	<b>266</b>	
+45 mins.	68	44	7	119	<b>27</b>	157	35	219	38	28	<b>36</b>	102	2	209	32	243	
Total Volume	258	192	26	476	90	647	167	904	159	140	116	415	20	793	136	949	
% App. Total	54.2	40.3	5.5		10	71.6	18.5		38.3	33.7	28		2.1	83.6	14.3		
PHF	.838	.873	.813	.875	.833	.930	.888	.930	.795	.875	.806	.865	.714	.866	.829	.892	



County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

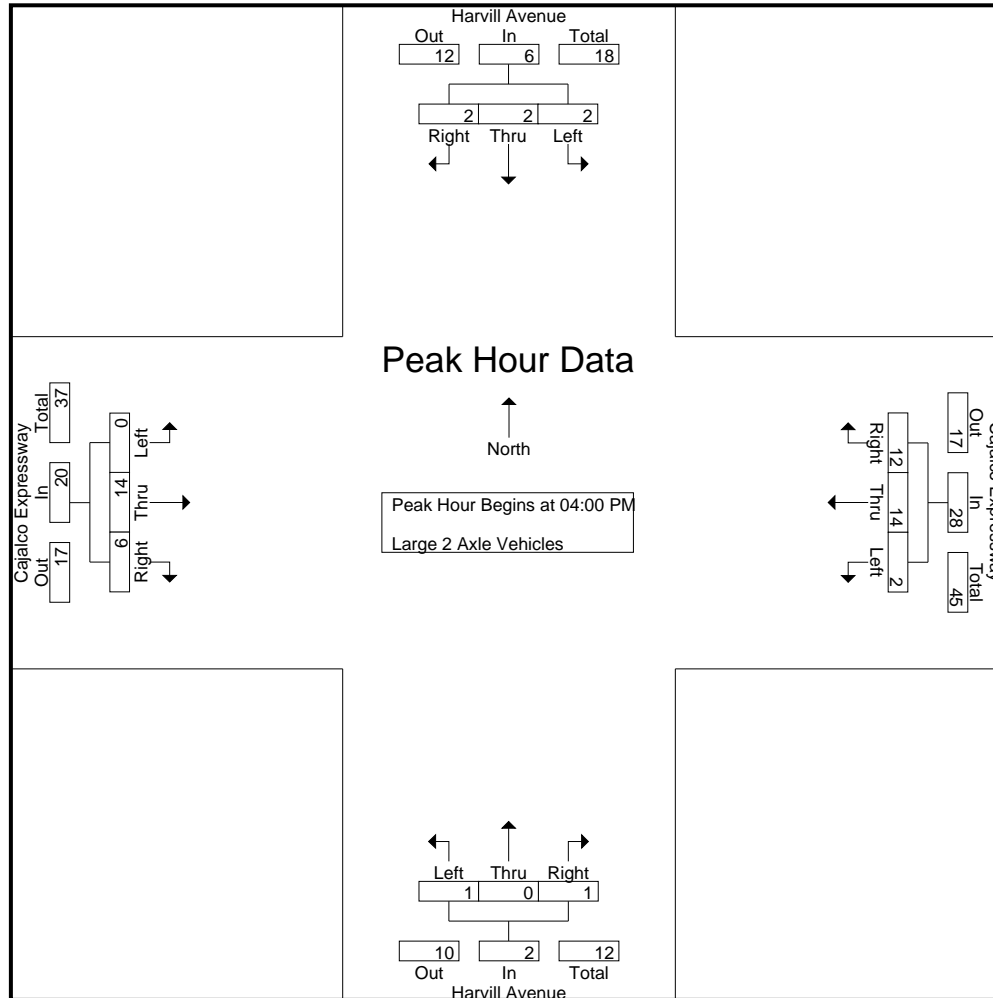
Groups Printed- Large 2 Axle Vehicles

Start Time	Harvill Avenue Southbound					Cajalco Expressway Westbound					Harvill Avenue Northbound					Cajalco Expressway Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total			
04:00 PM	1	0	1	0	2	1	7	3	2	11	0	0	1	1	1	0	5	3	1	8	4	22	26
04:15 PM	0	0	0	0	0	1	3	2	0	6	1	0	0	0	1	0	2	1	1	3	1	10	11
04:30 PM	1	1	0	0	2	0	3	4	2	7	0	0	0	0	0	0	3	1	0	4	2	13	15
04:45 PM	0	1	1	0	2	0	1	3	0	4	0	0	0	0	0	0	4	1	1	5	1	11	12
Total	2	2	2	0	6	2	14	12	4	28	1	0	1	1	2	0	14	6	3	20	8	56	64
05:00 PM	1	0	0	0	1	2	2	0	0	4	0	1	0	0	1	0	1	1	1	2	1	8	9
05:15 PM	1	0	0	0	1	2	0	3	2	5	0	1	1	1	2	0	1	0	0	1	3	9	12
05:30 PM	0	2	0	0	2	1	3	0	0	4	0	0	0	0	0	0	7	2	1	9	1	15	16
05:45 PM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	3	0	0	3	0	5	5
Total	2	3	0	0	5	5	5	3	2	13	1	2	1	1	4	0	12	3	2	15	5	37	42
Grand Total	4	5	2	0	11	7	19	15	6	41	2	2	2	2	6	0	26	9	5	35	13	93	106
Apprch %	36.4	45.5	18.2			17.1	46.3	36.6			33.3	33.3	33.3			0	74.3	25.7					
Total %	4.3	5.4	2.2		11.8	7.5	20.4	16.1		44.1	2.2	2.2	2.2		6.5	0	28	9.7		37.6	12.3	87.7	

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	0	1	2	1	7	3	11	0	0	1	1	0	5	3	8	22
04:15 PM	0	0	0	0	1	3	2	6	1	0	0	1	0	2	1	3	10
04:30 PM	1	1	0	2	0	3	4	7	0	0	0	0	0	3	1	4	13
04:45 PM	0	1	1	2	0	1	3	4	0	0	0	0	0	4	1	5	11
Total Volume	2	2	2	6	2	14	12	28	1	0	1	2	0	14	6	20	56
% App. Total	33.3	33.3	33.3		7.1	50	42.9		50	0	50		0	70	30		
PHF	.500	.500	.500	.750	.500	.500	.750	.636	.250	.000	.250	.500	.000	.700	.500	.625	.636

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 3

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	1	0	1	2	1	7	3	11	0	0	1	1	0	5	3	8	
+15 mins.	0	0	0	0	1	3	2	6	1	0	0	1	0	2	1	3	
+30 mins.	1	1	0	2	0	3	4	7	0	0	0	0	0	3	1	4	
+45 mins.	0	1	1	2	0	1	3	4	0	0	0	0	0	4	1	5	
Total Volume	2	2	2	6	2	14	12	28	1	0	1	2	0	14	6	20	
% App. Total	33.3	33.3	33.3		7.1	50	42.9		50	0	50		0	70	30		
PHF	.500	.500	.500	.750	.500	.500	.750	.636	.250	.000	.250	.500	.000	.700	.500	.625	

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

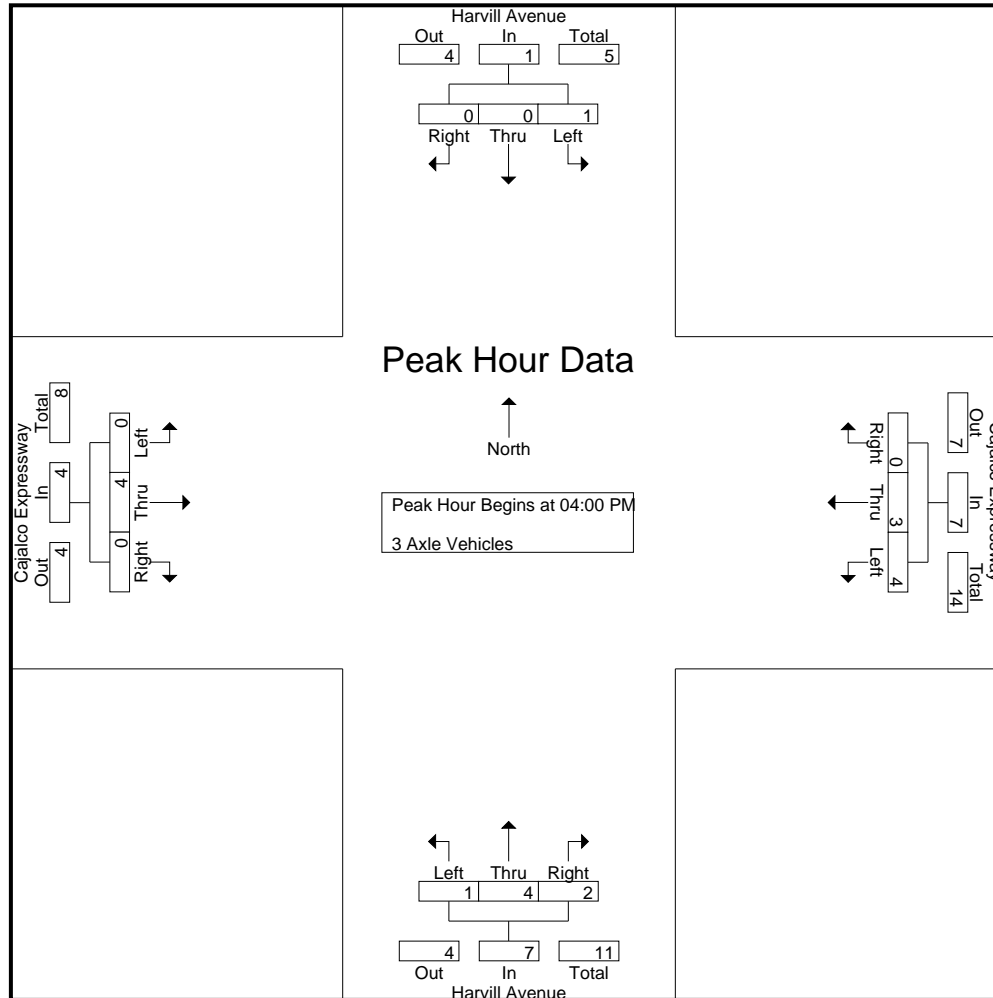
Groups Printed- 3 Axle Vehicles

Start Time	Harvill Avenue Southbound					Cajalco Expressway Westbound					Harvill Avenue Northbound					Cajalco Expressway Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total			
04:00 PM	1	0	0	0	1	0	2	0	0	2	0	3	1	1	4	0	2	0	0	2	1	9	10
04:15 PM	0	0	0	0	0	2	1	0	0	3	0	1	1	1	2	0	1	0	0	1	1	6	7
04:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
04:45 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	2	2
Total	1	0	0	0	1	4	3	0	0	7	1	4	2	2	7	0	4	0	0	4	2	19	21
05:00 PM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	3
05:15 PM	0	2	0	0	2	0	2	0	0	2	0	1	0	0	1	0	0	1	0	1	0	6	6
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
05:45 PM	0	0	0	0	0	1	1	0	0	2	1	0	0	0	1	1	1	0	0	2	0	5	5
Total	1	2	0	0	3	1	6	0	0	7	1	1	0	0	2	1	1	1	0	3	0	15	15
Grand Total	2	2	0	0	4	5	9	0	0	14	2	5	2	2	9	1	5	1	0	7	2	34	36
Aprpch %	50	50	0			35.7	64.3	0			22.2	55.6	22.2			14.3	71.4	14.3					
Total %	5.9	5.9	0		11.8	14.7	26.5	0		41.2	5.9	14.7	5.9		26.5	2.9	14.7	2.9		20.6	5.6	94.4	

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	0	0	1	0	2	0	2	0	3	1	4	0	2	0	2	9
04:15 PM	0	0	0	0	2	1	0	3	0	1	1	2	0	1	0	1	6
04:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	2
04:45 PM	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	2
Total Volume	1	0	0	1	4	3	0	7	1	4	2	7	0	4	0	4	19
% App. Total	100	0	0		57.1	42.9	0		14.3	57.1	28.6		0	100	0		
PHF	.250	.000	.000	.250	.500	.375	.000	.583	.250	.333	.500	.438	.000	.500	.000	.500	.528

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2



County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 3

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	1	0	0	1	0	2	0	2	0	3	1	4	0	2	0	2	
+15 mins.	0	0	0	0	2	1	0	3	0	1	1	2	0	1	0	1	
+30 mins.	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	
+45 mins.	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	
Total Volume	1	0	0	1	4	3	0	7	1	4	2	7	0	4	0	4	
% App. Total	100	0	0		57.1	42.9	0		14.3	57.1	28.6		0	100	0		
PHF	.250	.000	.000	.250	.500	.375	.000	.583	.250	.333	.500	.438	.000	.500	.000	.500	

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 1

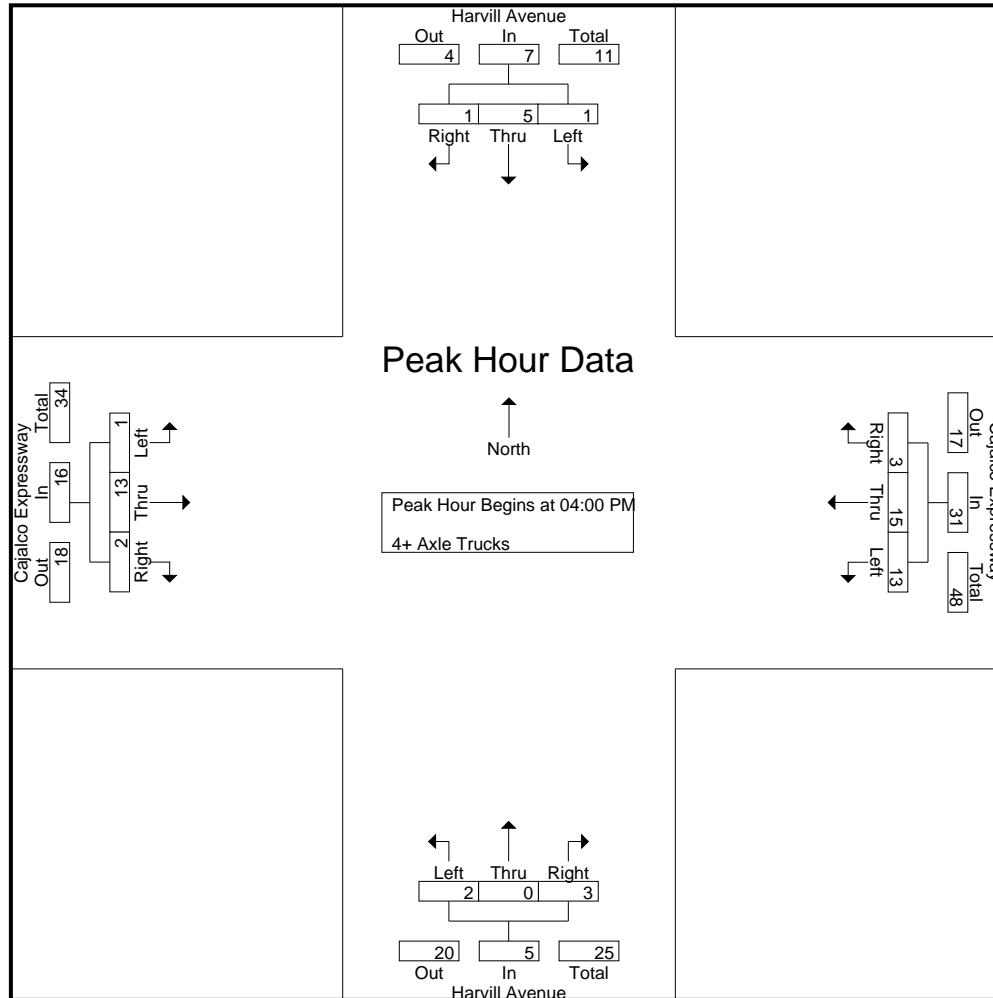
Groups Printed- 4+ Axle Trucks

Start Time	Harvill Avenue Southbound					Cajalco Expressway Westbound					Harvill Avenue Northbound					Cajalco Expressway Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total			
04:00 PM	0	2	1	1	3	8	5	1	1	14	1	0	1	1	2	1	4	1	0	6	3	25	28
04:15 PM	0	0	0	0	0	2	4	0	0	6	0	0	1	0	1	0	6	0	0	6	0	13	13
04:30 PM	1	1	0	0	2	2	3	1	0	6	1	0	0	0	1	0	2	0	0	2	0	11	11
04:45 PM	0	2	0	0	2	1	3	1	0	5	0	0	1	0	1	0	1	1	0	2	0	10	10
Total	1	5	1	1	7	13	15	3	1	31	2	0	3	1	5	1	13	2	0	16	3	59	62
05:00 PM	1	1	1	0	3	3	4	1	0	8	0	1	1	0	2	0	1	1	1	2	1	15	16
05:15 PM	0	2	0	0	2	5	2	0	0	7	0	1	0	0	1	3	3	0	0	6	0	16	16
05:30 PM	0	0	0	0	0	6	3	0	0	9	0	0	1	1	1	0	2	1	0	3	1	13	14
05:45 PM	1	1	1	0	3	4	2	0	0	6	1	0	1	1	2	0	3	2	0	5	1	16	17
Total	2	4	2	0	8	18	11	1	0	30	1	2	3	2	6	3	9	4	1	16	3	60	63
Grand Total	3	9	3	1	15	31	26	4	1	61	3	2	6	3	11	4	22	6	1	32	6	119	125
Apprch %	20	60	20			50.8	42.6	6.6			27.3	18.2	54.5			12.5	68.8	18.8					
Total %	2.5	7.6	2.5		12.6	26.1	21.8	3.4		51.3	2.5	1.7	5		9.2	3.4	18.5	5		26.9	4.8	95.2	

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	2	1	3	8	5	1	14	1	0	1	2	1	4	1	6	25
04:15 PM	0	0	0	0	2	4	0	6	0	0	1	1	0	6	0	6	13
04:30 PM	1	1	0	2	2	3	1	6	1	0	0	1	0	2	0	2	11
04:45 PM	0	2	0	2	1	3	1	5	0	0	1	1	0	1	1	2	10
Total Volume	1	5	1	7	13	15	3	31	2	0	3	5	1	13	2	16	59
% App. Total	14.3	71.4	14.3		41.9	48.4	9.7		40	0	60		6.2	81.2	12.5		
PHF	.250	.625	.250	.583	.406	.750	.750	.554	.500	.000	.750	.625	.250	.542	.500	.667	.590

County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 2





County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway  
 Weather: Clear

File Name : 18\_CRV\_Har\_Caj PM  
 Site Code : 05122112  
 Start Date : 2/8/2022  
 Page No : 3

Start Time	Harvill Avenue Southbound				Cajalco Expressway Westbound				Harvill Avenue Northbound				Cajalco Expressway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	0	2	1	3	8	5	1	14	1	0	1	2	1	4	1	6	
+15 mins.	0	0	0	0	2	4	0	6	0	0	1	1	0	6	0	6	
+30 mins.	1	1	0	2	2	3	1	6	1	0	0	1	0	2	0	2	
+45 mins.	0	2	0	2	1	3	1	5	0	0	1	1	0	1	1	2	
Total Volume	1	5	1	7	13	15	3	31	2	0	3	5	1	13	2	16	
% App. Total	14.3	71.4	14.3		41.9	48.4	9.7		40	0	60		6.2	81.2	12.5		
PHF	.250	.625	.250	.583	.406	.750	.750	.554	.500	.000	.750	.625	.250	.542	.500	.667	

Location: County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway



Date: 2/8/2022  
 Day: Tuesday

**PEDESTRIANS**

	North Leg Harvill Avenue	East Leg Cajalco Expressway	South Leg Harvill Avenue	West Leg Cajalco Expressway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
<b>TOTAL VOLUMES:</b>	0	0	0	0	0

	North Leg Harvill Avenue	East Leg Cajalco Expressway	South Leg Harvill Avenue	West Leg Cajalco Expressway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
<b>TOTAL VOLUMES:</b>	0	0	0	0	0

Location: County of Riverside  
 N/S: Harvill Avenue  
 E/W: Cajalco Expressway



Date: 2/8/2022  
 Day: Tuesday

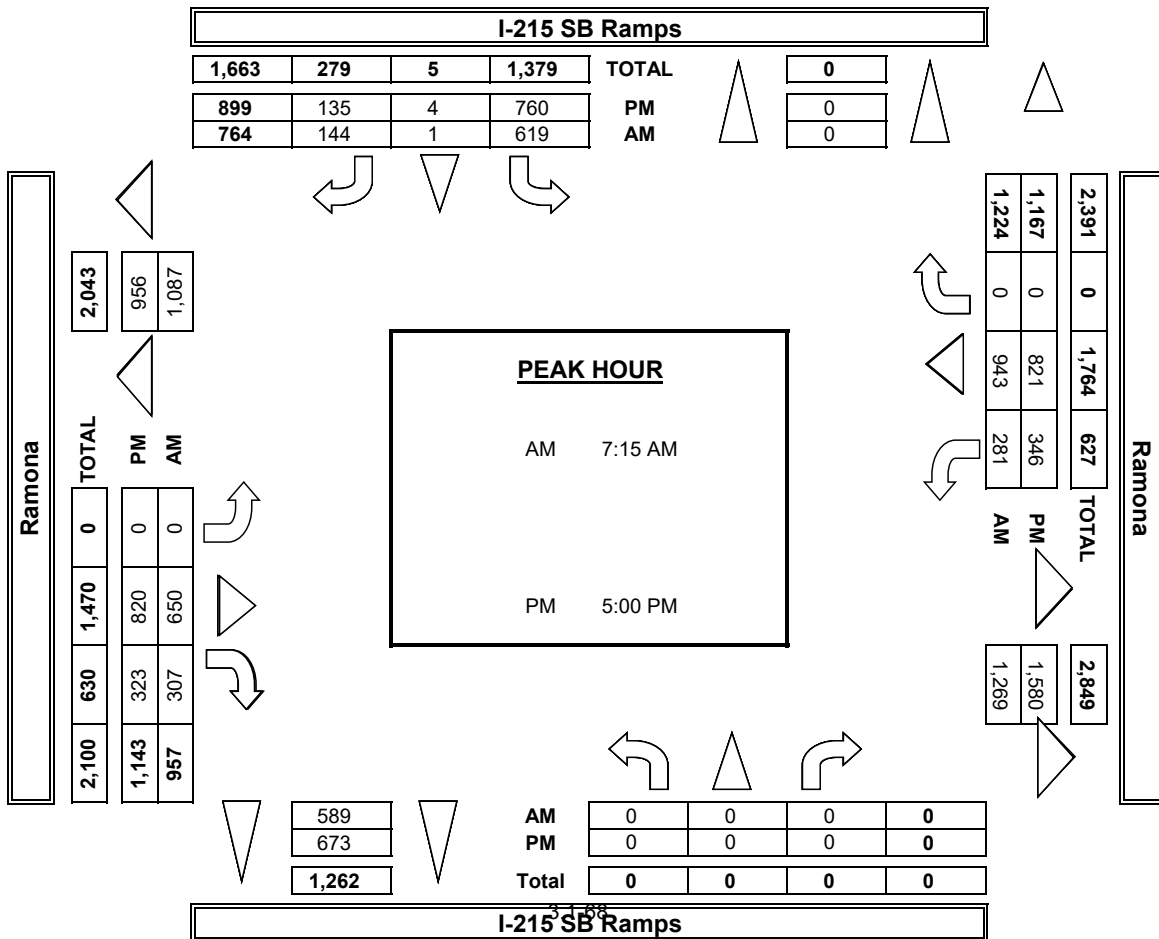
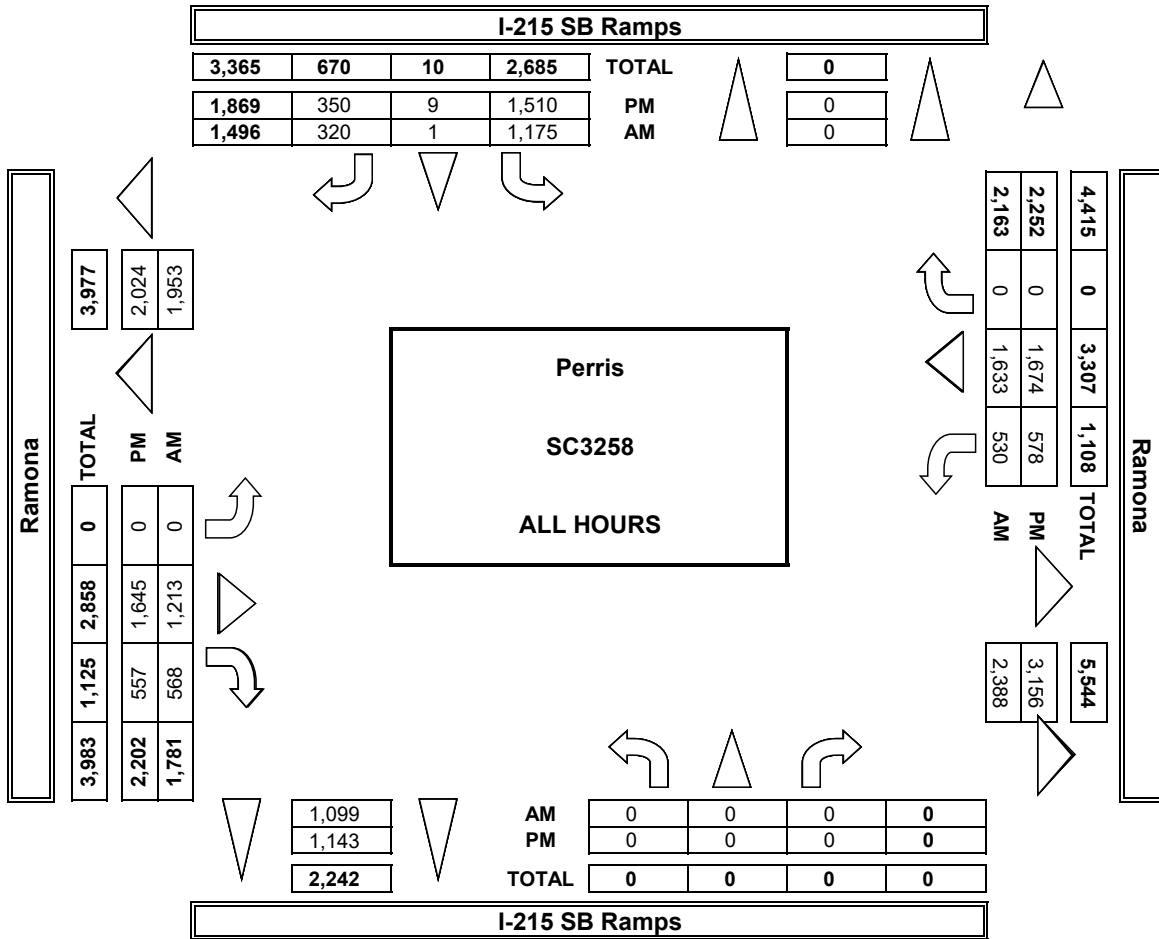
BICYCLES

	Southbound Harvill Avenue			Westbound Cajalco Expressway			Northbound Harvill Avenue			Eastbound Cajalco Expressway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	1	1

	Southbound Harvill Avenue			Westbound Cajalco Expressway			Northbound Harvill Avenue			Eastbound Cajalco Expressway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	0	0	0	1	0	0	1	0	2



**AimTD LLC**  
TURNING MOVEMENT COUNTS





### INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 1/25/22 TUESDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	Perris I-215 SB Ramps Ramona	PROJECT #: LOCATION #: CONTROL:	SC3258 1 SIGNAL
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<b>CLASS 3:</b> 3-AXLE TRUCKS	<b>NOTES:</b>	AM PM MD OTHER	◀ W S ▶	▲ N ▼	E ▶
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	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL			
	I-215 SB Ramps			I-215 SB Ramps			Ramona			Ramona						
LANES:	NL X	NT X	NR X	SL 1.5	ST 0.5	SR 1	EL X	ET 2	ER 0	WL 1	WT 2	WR X				
<b>AM</b>																
7:00 AM	0	0	0	7	0	0	0	7	7	0	1	0	22			
7:15 AM	0	0	0	4	0	0	0	18	4	1	11	0	38			
7:30 AM	0	0	0	3	0	0	0	5	5	0	2	0	15			
7:45 AM	0	0	0	2	0	1	0	5	2	0	4	0	14			
8:00 AM	0	0	0	5	0	1	0	4	5	1	6	0	22			
8:15 AM	0	0	0	1	0	3	0	8	2	2	7	0	23			
8:30 AM	0	0	0	2	0	2	0	8	3	0	0	0	15			
8:45 AM	0	0	0	2	0	2	0	11	3	1	4	0	23			
VOLUMES	0	0	0	26	0	9	0	66	31	5	35	0	172			
APPROACH %	0%	0%	0%	74%	0%	26%	0%	68%	32%	13%	88%	0%				
APP/DEPART	0	/	0	35	/	36	97	/	92	40	/	44	0			
BEGIN PEAK HR	7:15 AM															
VOLUMES	0	0	0	14	0	2	0	32	16	2	23	0	89			
APPROACH %	0%	0%	0%	88%	0%	13%	0%	67%	33%	8%	92%	0%				
PEAK HR FACTOR	0.000			0.667			0.545			0.521			0.586			
APP/DEPART	0	/	0	16	/	18	48	/	46	25	/	25	0			
<b>PM</b>																
4:00 PM	0	0	0	1	0	3	0	4	2	0	2	0	12			
4:15 PM	0	0	0	5	0	1	0	2	0	0	2	0	10			
4:30 PM	0	0	0	2	0	0	0	7	1	0	0	0	10			
4:45 PM	0	0	0	2	0	0	0	5	2	0	4	0	13			
5:00 PM	0	0	0	2	0	1	0	1	0	0	2	0	6			
5:15 PM	0	0	0	1	0	0	0	1	1	1	2	0	6			
5:30 PM	0	0	0	1	0	2	0	1	0	1	4	0	9			
5:45 PM	0	0	0	2	0	0	0	0	0	0	4	0	6			
VOLUMES	0	0	0	16	0	7	0	21	6	2	20	0	72			
APPROACH %	0%	0%	0%	70%	0%	30%	0%	78%	22%	9%	91%	0%				
APP/DEPART	0	/	0	23	/	8	27	/	37	22	/	27	0			
BEGIN PEAK HR	5:00 PM															
VOLUMES	0	0	0	6	0	3	0	3	1	2	12	0	27			
APPROACH %	0%	0%	0%	67%	0%	33%	0%	75%	25%	14%	86%	0%				
PEAK HR FACTOR	0.000			0.750			0.500			0.700			0.750			
APP/DEPART	0	/	0	9	/	3	4	/	9	14	/	15	0			

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

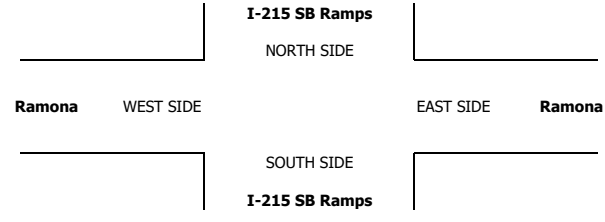
RTOR			
NRR	SRR	ERR	WRR
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0	0	2	0
0	0	2	0
0	1	0	0
0	0	0	0
0	3	1	0
0	1	2	0
0	0	1	0
0	5	10	0

0	1	4	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

0	0	1	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0
0	1	0	0
0	0	0	0
0	1	2	0

0	1	1	0
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### INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 1/25/22 TUESDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	Perris I-215 SB Ramps Ramona	PROJECT #: LOCATION #: CONTROL:	SC3258 1 SIGNAL																				
<b>CLASS 4:</b> 4 OR MORE AXLE TRUCKS	<b>NOTES:</b>		<table border="1" style="margin: auto;"> <tr><td>AM</td><td></td><td>▲</td><td></td></tr> <tr><td>PM</td><td></td><td>N</td><td></td></tr> <tr><td>MD</td><td>◀ W</td><td></td><td>E ▶</td></tr> <tr><td>OTHER</td><td></td><td>S</td><td></td></tr> <tr><td></td><td></td><td>▼</td><td></td></tr> </table>	AM		▲		PM		N		MD	◀ W		E ▶	OTHER		S				▼		
AM		▲																						
PM		N																						
MD	◀ W		E ▶																					
OTHER		S																						
		▼																						

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	I-215 SB Ramps			I-215 SB Ramps			Ramona			Ramona			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	X	X	X	1.5	0.5	1	X	2	0	1	2	X	

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	0

RTOR			
NRR	SRR	ERR	WRR
X	0	0	X

AM	7:00 AM	0	0	0	11	0	9	0	16	6	1	15	0	58
	7:15 AM	0	0	0	14	0	1	0	5	2	4	17	0	43
	7:30 AM	0	0	0	21	0	6	0	3	5	4	15	0	54
	7:45 AM	0	0	0	21	0	7	0	9	3	5	9	0	54
	8:00 AM	0	0	0	16	0	14	0	9	3	0	13	0	55
	8:15 AM	0	0	0	20	0	6	0	10	8	3	14	0	61
	8:30 AM	0	0	0	25	0	5	0	14	3	3	1	0	51
	8:45 AM	0	0	0	22	0	8	0	10	3	2	17	0	62
	VOLUMES	0	0	0	150	0	56	0	76	33	22	101	0	438
	APPROACH %	0%	0%	0%	73%	0%	27%	0%	70%	30%	18%	82%	0%	
APP/DEPART	0	/	0	206	/	55	109	/	226	123	/	157	0	
BEGIN PEAK HR	7:15 AM													
VOLUMES	0	0	0	72	0	28	0	26	13	13	54	0	206	
APPROACH %	0%	0%	0%	72%	0%	28%	0%	67%	33%	19%	81%	0%		
PEAK HR FACTOR	0.000			0.833			0.813			0.798			0.936	
APP/DEPART	0	/	0	100	/	26	39	/	98	67	/	82	0	
PM	4:00 PM	0	0	0	7	0	3	0	6	2	0	5	0	23
	4:15 PM	0	0	0	7	0	6	0	5	0	2	12	0	32
	4:30 PM	0	0	0	9	0	3	0	3	1	0	9	0	25
	4:45 PM	0	0	0	11	0	2	0	3	3	2	5	0	26
	5:00 PM	0	0	0	11	0	9	0	4	3	3	5	0	35
	5:15 PM	0	0	0	10	0	5	0	7	3	2	6	0	33
	5:30 PM	0	0	0	7	1	4	0	2	1	1	7	0	23
	5:45 PM	0	0	0	6	0	2	0	5	0	2	4	0	19
	VOLUMES	0	0	0	68	1	34	0	35	13	12	53	0	216
	APPROACH %	0%	0%	0%	66%	1%	33%	0%	73%	27%	18%	82%	0%	
APP/DEPART	0	/	0	103	/	26	48	/	103	65	/	87	0	
BEGIN PEAK HR	5:00 PM													
VOLUMES	0	0	0	34	1	20	0	18	7	8	22	0	110	
APPROACH %	0%	0%	0%	62%	2%	36%	0%	72%	28%	27%	73%	0%		
PEAK HR FACTOR	0.000			0.688			0.625			0.938			0.786	
APP/DEPART	0	/	0	55	/	16	25	/	52	30	/	42	0	

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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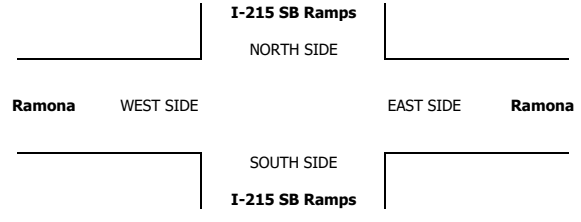
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0	5	1	0
0	2	2	0
0	3	1	0
0	5	1	0
0	22	9	0

0	12	4	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0

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0	1	0	0
0	0	1	0
0	4	2	0
0	3	1	0
0	0	0	0
0	0	0	0
0	0	0	0
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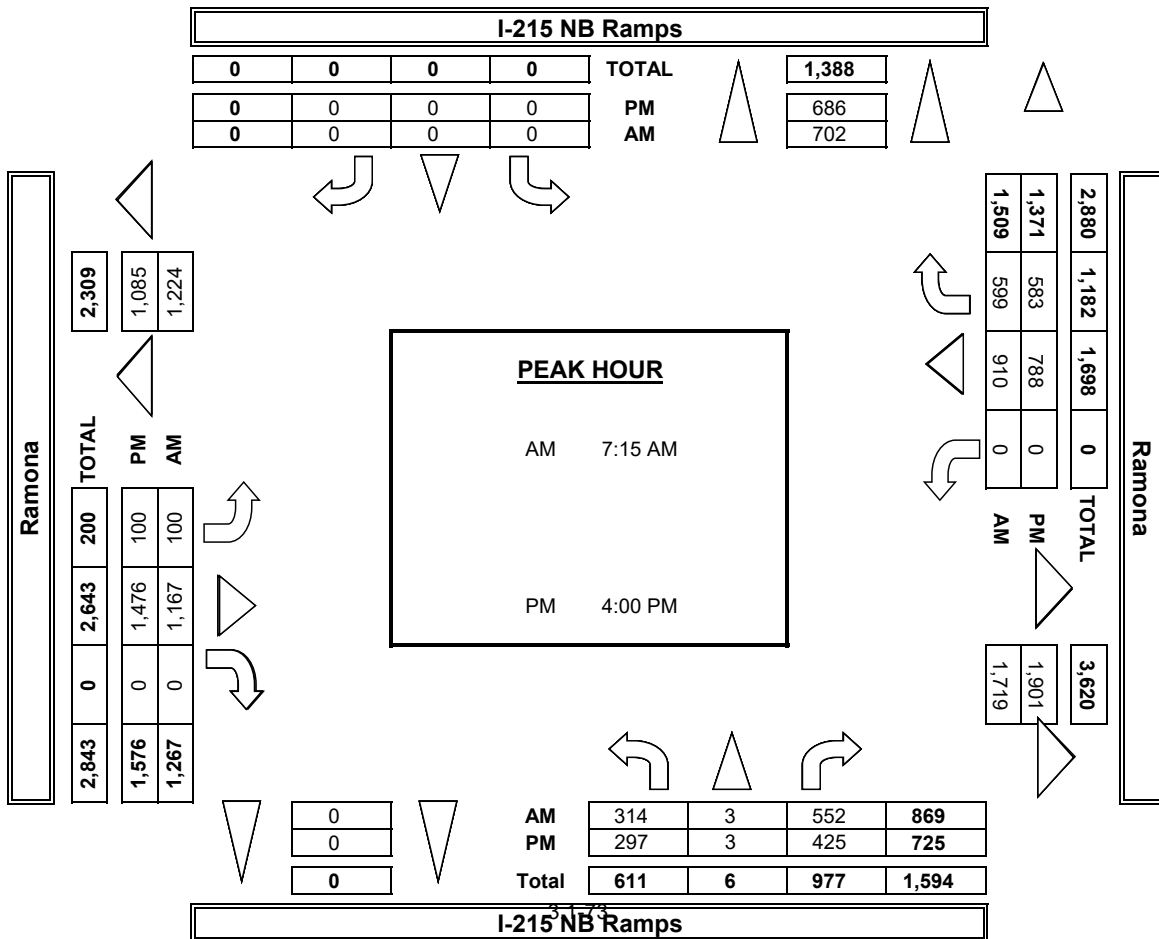
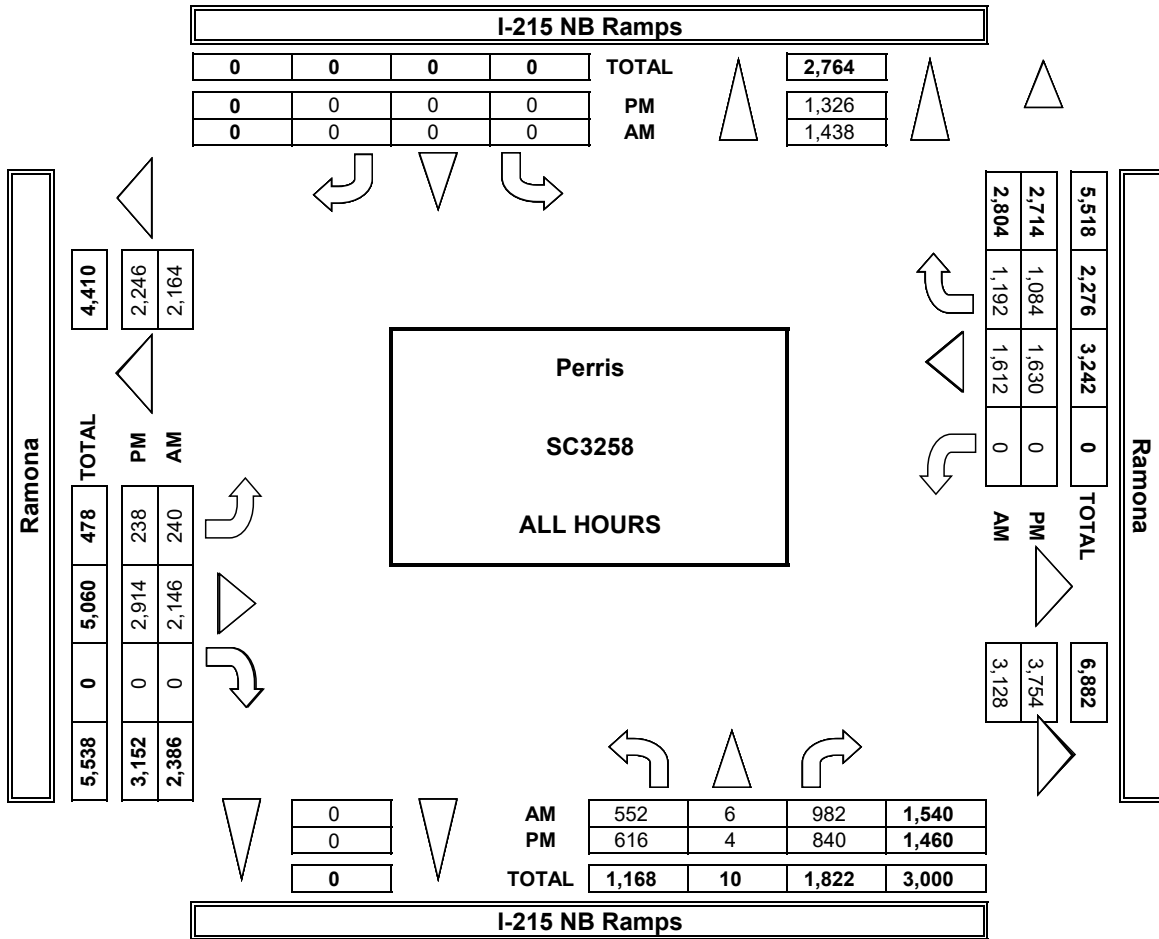
0	7	3	0
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**AimTD LLC**  
TURNING MOVEMENT COUNTS





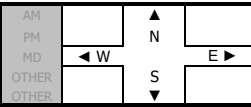


### INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 1/25/22 TUESDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	Perris I-215 NB Ramps Ramona	PROJECT #: LOCATION #: CONTROL:	SC3258 2 SIGNAL
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<b>CLASS 4:</b> 4 OR MORE AXLE TRUCKS	<b>NOTES:</b>
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LANES:	NORTHBOUND I-215 NB Ramps			SOUTHBOUND I-215 NB Ramps			EASTBOUND Ramona			WESTBOUND Ramona			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1.5	0.5	1	X	X	X	1	2	X	X	2	1	

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	0

RTOR			
NRR	SRR	ERR	WRR
0	X	X	0

AM	7:00 AM	12	0	8	0	0	0	12	15	0	0	4	10	61
	7:15 AM	7	0	7	0	0	0	3	16	0	0	14	13	60
	7:30 AM	8	0	2	0	0	0	3	21	0	0	11	14	59
	7:45 AM	5	0	5	0	0	0	5	25	0	0	9	10	59
	8:00 AM	7	0	8	0	0	0	6	19	0	0	6	16	62
	8:15 AM	8	0	6	0	0	0	5	25	0	0	9	16	69
	8:30 AM	1	0	4	0	0	0	6	33	0	0	3	11	58
	8:45 AM	9	0	6	0	0	0	8	24	0	0	10	19	76
	VOLUMES	57	0	46	0	0	0	48	178	0	0	66	109	504
	APPROACH %	55%	0%	45%	0%	0%	0%	21%	79%	0%	0%	38%	62%	
APP/DEPART	103	/	157	0	/	0	226	/	224	175	/	123	0	
BEGIN PEAK HR	7:15 AM													
VOLUMES	27	0	22	0	0	0	17	81	0	0	40	53	240	
APPROACH %	55%	0%	45%	0%	0%	0%	17%	83%	0%	0%	43%	57%		
PEAK HR FACTOR	0.817			0.000			0.817			0.861			0.968	
APP/DEPART	49	/	70	0	/	0	98	/	103	93	/	67	0	
PM	4:00 PM	1	0	1	0	0	0	2	11	0	0	4	7	26
	4:15 PM	6	0	2	0	0	0	2	10	0	0	8	7	35
	4:30 PM	6	0	2	0	0	0	0	12	0	0	3	6	29
	4:45 PM	3	0	1	0	0	0	1	13	0	0	4	4	26
	5:00 PM	0	0	1	0	0	0	1	14	0	0	8	7	31
	5:15 PM	5	0	0	0	0	0	4	13	0	0	3	13	38
	5:30 PM	4	0	1	0	0	0	2	7	0	0	4	8	26
	5:45 PM	2	0	1	0	0	0	1	10	0	0	4	4	22
	VOLUMES	27	0	9	0	0	0	13	90	0	0	38	56	233
	APPROACH %	75%	0%	25%	0%	0%	0%	13%	87%	0%	0%	40%	60%	
APP/DEPART	36	/	69	0	/	0	103	/	99	94	/	65	0	
BEGIN PEAK HR	4:00 PM													
VOLUMES	16	0	6	0	0	0	5	46	0	0	19	24	116	
APPROACH %	73%	0%	27%	0%	0%	0%	10%	90%	0%	0%	44%	56%		
PEAK HR FACTOR	0.688			0.000			0.911			0.717			0.829	
APP/DEPART	22	/	29	0	/	0	51	/	52	43	/	35	0	

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

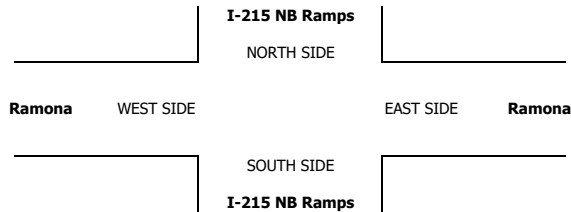
2	0	0	4
1	0	0	2
0	0	0	5
0	0	0	2
4	0	0	2
2	0	0	3
2	0	0	1
1	0	0	4
12	0	0	23

5	0	0	11
---	---	---	----

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

0	0	0	3
0	0	0	0
0	0	0	1
1	0	0	1
1	0	0	1
0	0	0	3
0	0	0	1
0	0	0	0
2	0	0	10

1	0	0	5
---	---	---	---



Counts Unlimited, Inc.

County of Riverside  
 Harvill Avenue  
 N/ Perry Street  
 24 Hour Directional Classification Count

PO Box 1178  
 Corona, CA 92878  
 Phone: (951) 268-6268  
 email: counts@countsunlimited.com

CRV003  
 Site Code: 051-22112

Northbound, Southbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
02/08/22	0	35	1	0	0	0	0	1	6	0	0	0	0	43
01:00	0	22	2	0	0	0	0	0	3	0	0	0	0	27
02:00	0	22	0	0	0	0	0	0	1	0	0	0	0	23
03:00	1	37	1	0	2	1	0	0	6	0	0	0	0	48
04:00	0	78	3	0	2	0	0	0	5	0	0	0	0	88
05:00	0	172	6	1	3	2	0	0	3	0	0	0	0	187
06:00	0	290	36	6	5	5	0	2	12	0	0	0	0	356
07:00	<b>2</b>	<b>521</b>	<b>132</b>	1	13	3	<b>2</b>	5	11	<b>4</b>	0	<b>1</b>	0	<b>695</b>
08:00	1	420	118	<b>7</b>	9	4	1	2	10	1	0	0	0	573
09:00	0	221	64	1	13	7	1	1	10	3	0	1	0	322
10:00	0	222	62	0	13	<b>13</b>	1	3	<b>22</b>	1	<b>2</b>	0	0	339
11:00	1	204	73	0	<b>16</b>	10	0	<b>7</b>	17	0	2	0	0	330
12 PM	1	268	66	3	9	<b>10</b>	<b>2</b>	6	19	0	0	0	0	384
13:00	0	314	88	<b>6</b>	10	9	1	4	14	0	1	0	0	447
14:00	<b>2</b>	413	115	2	15	8	0	3	15	0	0	0	0	573
15:00	1	474	<b>137</b>	4	15	5	0	<b>10</b>	<b>21</b>	<b>1</b>	<b>5</b>	0	0	673
16:00	2	<b>562</b>	121	0	<b>18</b>	6	0	0	18	0	0	0	0	<b>727</b>
17:00	2	484	71	5	13	2	0	0	7	0	0	0	<b>1</b>	585
18:00	0	411	13	1	4	1	0	0	6	0	0	0	0	436
19:00	1	256	8	0	5	2	0	0	11	0	0	0	0	283
20:00	0	157	10	0	1	0	0	3	5	0	0	0	0	176
21:00	0	159	10	0	1	1	0	0	3	0	0	0	0	174
22:00	0	112	6	0	1	1	0	1	9	0	0	0	0	130
23:00	0	84	3	0	0	2	0	0	7	0	0	0	0	96
Total	14	5938	1146	37	168	92	8	48	241	10	10	2	1	7715
Percent	0.2%	77.0%	14.9%	0.5%	2.2%	1.2%	0.1%	0.6%	3.1%	0.1%	0.1%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	08:00	11:00	10:00	07:00	11:00	10:00	07:00	10:00	07:00		07:00
Vol.	2	521	132	7	16	13	2	7	22	4	2	1		695
PM Peak	14:00	16:00	15:00	13:00	16:00	12:00	12:00	15:00	15:00	15:00	15:00		17:00	16:00
Vol.	2	562	137	6	18	10	2	10	21	1	5		1	727
Grand Total	14	5938	1146	37	168	92	8	48	241	10	10	2	1	7715
Percent	0.2%	77.0%	14.9%	0.5%	2.2%	1.2%	0.1%	0.6%	3.1%	0.1%	0.1%	0.0%	0.0%	

### Counts Unlimited, Inc.

County of Riverside  
 Perry Street  
 W/ Harvill Avenue  
 24 Hour Directional Classification Count

PO Box 1178  
 Corona, CA 92878  
 Phone: (951) 268-6268  
 email: counts@countsunlimited.com

CRV004  
 Site Code: 051-22112

**Eastbound, Westbound**

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
02/08/22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
05:00	0	<b>9</b>	3	0	0	0	0	0	4	0	0	0	0	<b>16</b>
06:00	0	9	2	0	0	<b>1</b>	0	0	3	0	0	0	0	15
07:00	0	5	2	0	0	0	0	0	<b>5</b>	0	0	0	0	12
08:00	0	4	4	0	1	0	0	<b>1</b>	4	0	0	0	0	14
09:00	0	7	2	0	2	0	0	0	2	0	0	0	0	13
10:00	0	1	3	0	<b>4</b>	1	0	0	0	0	0	0	0	9
11:00	<b>1</b>	0	<b>5</b>	0	0	0	0	0	1	0	0	0	0	7
12 PM	0	1	2	0	<b>1</b>	0	0	0	<b>1</b>	0	0	0	0	5
13:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
14:00	0	<b>11</b>	<b>8</b>	0	0	<b>2</b>	0	0	0	0	0	0	0	<b>21</b>
15:00	0	0	1	0	1	0	0	0	0	0	0	0	0	2
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	2	0	0	0	0	<b>1</b>	0	0	0	0	0	0	3
18:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
19:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
20:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
21:00	0	1	0	0	0	0	0	0	1	0	0	0	0	2
22:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
23:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
<b>Total</b>	<b>1</b>	<b>71</b>	<b>34</b>	<b>0</b>	<b>9</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>142</b>
<b>Percent</b>	<b>0.7%</b>	<b>50.0%</b>	<b>23.9%</b>	<b>0.0%</b>	<b>6.3%</b>	<b>2.8%</b>	<b>0.7%</b>	<b>0.7%</b>	<b>14.8%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	
<b>AM Peak</b>	<b>11:00</b>	<b>05:00</b>	<b>11:00</b>		<b>10:00</b>	<b>06:00</b>		<b>08:00</b>	<b>07:00</b>					<b>05:00</b>
<b>Vol.</b>	<b>1</b>	<b>9</b>	<b>5</b>		<b>4</b>	<b>1</b>		<b>1</b>	<b>5</b>					<b>16</b>
<b>PM Peak</b>		<b>14:00</b>	<b>14:00</b>		<b>12:00</b>	<b>14:00</b>	<b>17:00</b>		<b>12:00</b>					<b>14:00</b>
<b>Vol.</b>		<b>11</b>	<b>8</b>		<b>1</b>	<b>2</b>	<b>1</b>		<b>1</b>					<b>21</b>
<b>Grand Total</b>	<b>1</b>	<b>71</b>	<b>34</b>	<b>0</b>	<b>9</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>142</b>
<b>Percent</b>	<b>0.7%</b>	<b>50.0%</b>	<b>23.9%</b>	<b>0.0%</b>	<b>6.3%</b>	<b>2.8%</b>	<b>0.7%</b>	<b>0.7%</b>	<b>14.8%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	

**24-HOUR ROADWAY SEGMENT COUNTS (WITH FHWA CLASSIFICATION)**

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tuesday, May 10, 2022  
JOB #: SC3419

CITY: Perris  
LOCATION: CLASS2 Harvill N of Cajalco

AM TIME	NORTHBOUND													TOTAL	PM Time	NORTHBOUND													TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13			1	2	3	4	5	6	7	8	9	10	11	12	13	
0:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5	12:00	1	74	6	0	0	2	0	0	5	0	0	0	88	
0:15	0	5	0	0	0	0	0	0	0	0	0	0	0	5	12:15	0	54	3	0	2	2	0	0	3	0	2	0	66	
0:30	0	17	0	0	0	0	0	0	0	1	0	0	0	18	12:30	0	54	5	1	2	2	0	0	6	0	2	0	72	
0:45	0	5	0	0	0	0	0	0	0	0	0	0	0	5	12:45	1	51	5	0	8	5	0	0	4	0	0	74		
1:00	1	6	0	0	0	0	0	0	0	2	0	0	0	9	13:00	0	43	4	0	2	4	0	0	4	0	1	0	58	
1:15	0	4	0	0	0	0	0	0	0	2	0	0	0	6	13:15	0	55	1	1	1	3	0	0	6	0	0	0	67	
1:30	0	4	0	0	0	0	0	0	0	1	0	0	0	5	13:30	0	105	7	0	0	2	0	0	3	0	1	0	118	
1:45	0	5	0	0	0	0	0	0	0	2	0	0	0	7	13:45	1	89	5	0	5	0	0	0	5	0	1	0	106	
2:00	0	3	0	0	0	1	0	0	0	3	0	0	0	7	14:00	0	85	4	0	2	1	0	0	2	0	0	0	94	
2:15	0	2	0	0	0	0	0	0	0	1	0	0	0	3	14:15	0	85	4	0	1	2	0	1	3	0	3	0	99	
2:30	0	4	0	0	0	0	0	0	0	0	0	0	0	4	14:30	1	162	9	0	1	1	0	0	4	0	0	0	178	
2:45	0	3	0	0	0	0	0	0	0	1	0	0	0	4	14:45	0	105	3	0	4	1	1	0	2	0	0	0	116	
3:00	0	6	0	0	0	1	0	0	0	2	0	0	0	9	15:00	0	99	3	0	1	0	0	0	1	0	1	0	105	
3:15	1	8	1	0	0	0	0	0	0	0	0	0	0	10	15:15	0	113	7	0	2	3	0	0	1	0	0	0	126	
3:30	0	14	0	0	0	1	0	0	0	1	0	0	0	16	15:30	0	120	10	0	2	0	0	0	2	0	0	0	134	
3:45	0	12	0	0	0	0	0	0	0	1	0	0	0	13	15:45	0	101	5	1	3	0	1	0	3	0	0	0	114	
4:00	0	18	0	0	1	0	0	0	0	2	0	0	0	21	16:00	0	96	8	0	0	2	1	0	2	0	2	0	111	
4:15	0	28	0	0	0	0	0	0	0	0	0	0	0	28	16:15	0	84	6	0	0	3	0	0	3	0	0	0	96	
4:30	0	21	0	0	2	1	0	0	0	6	0	0	0	30	16:30	0	92	8	2	1	1	0	0	0	0	0	0	104	
4:45	0	23	1	0	2	0	0	0	0	1	0	0	0	27	16:45	0	76	4	0	1	0	1	0	1	0	0	0	83	
5:00	0	27	0	0	1	0	0	0	0	4	0	0	0	32	17:00	1	63	5	0	0	1	0	0	3	0	0	0	73	
5:15	1	42	2	0	1	1	0	0	0	3	0	0	0	50	17:15	1	69	4	0	0	0	0	0	0	0	0	0	74	
5:30	1	53	3	0	3	1	0	0	0	5	0	0	0	66	17:30	0	69	2	0	1	1	0	0	1	0	0	0	74	
5:45	0	46	3	1	2	1	0	0	0	5	0	0	0	58	17:45	0	49	3	0	0	0	0	0	0	0	0	0	52	
6:00	0	50	6	3	5	0	0	0	0	1	0	0	0	65	18:00	0	56	4	0	0	0	0	0	2	0	0	0	62	
6:15	0	70	6	2	1	2	0	0	0	0	0	1	0	82	18:15	0	62	1	0	0	2	0	0	0	0	0	0	65	
6:30	0	117	9	1	3	1	0	0	0	3	0	0	0	134	18:30	0	58	1	0	0	0	0	0	2	0	0	0	61	
6:45	0	172	12	2	4	1	0	0	0	2	0	1	0	194	18:45	1	48	2	0	0	1	0	0	1	0	0	0	53	
7:00	0	164	4	0	5	1	1	0	0	4	0	1	0	180	19:00	0	40	2	0	0	1	0	0	3	0	0	0	46	
7:15	0	170	7	0	7	0	1	0	0	3	0	0	0	188	19:15	0	40	3	0	0	3	0	0	1	0	1	0	48	
7:30	0	161	12	0	6	1	0	0	0	3	0	1	0	184	19:30	0	37	0	0	0	0	0	0	1	0	0	0	38	
7:45	0	141	8	0	4	1	0	0	0	5	0	3	0	162	19:45	2	30	0	0	0	0	0	1	2	0	0	0	35	
8:00	0	123	5	0	2	1	0	0	0	5	0	0	0	136	20:00	0	31	0	0	0	0	0	1	0	0	0	0	32	
8:15	0	86	2	0	5	2	0	0	0	5	0	1	0	101	20:15	1	48	0	0	0	0	1	0	1	0	0	0	51	
8:30	0	57	5	0	2	0	0	0	0	2	0	1	0	67	20:30	0	29	1	0	0	0	0	0	1	0	0	0	31	
8:45	0	50	3	0	1	0	0	0	0	6	0	1	1	62	20:45	0	39	0	0	0	0	0	0	0	0	0	0	39	
9:00	0	60	8	0	1	0	0	0	0	5	0	0	0	74	21:00	0	36	1	0	0	0	0	0	1	0	0	0	38	
9:15	0	38	1	0	6	2	0	0	0	1	0	1	0	49	21:15	0	23	0	0	0	0	0	0	0	0	0	0	23	
9:30	0	36	9	0	1	3	0	0	0	2	0	0	0	51	21:30	0	15	0	0	0	0	0	0	1	0	0	0	16	
9:45	0	49	6	0	5	0	1	0	0	4	0	0	0	65	21:45	0	27	1	0	0	0	0	0	0	0	0	0	28	
10:00	1	55	4	0	2	1	0	0	0	4	0	0	0	67	22:00	0	24	1	0	0	0	0	0	0	0	0	0	25	
10:15	0	45	1	0	2	1	0	0	0	6	0	0	0	55	22:15	0	14	0	0	0	3	0	0	0	0	0	0	17	
10:30	0	52	5	0	1	1	0	0	0	12	0	0	0	71	22:30	0	18	0	0	0	0	0	0	1	0	0	0	19	
10:45	0	41	1	0	1	2	0	0	0	5	0	1	0	51	22:45	0	13	0	0	0	0	0	0	0	0	0	0	13	
11:00	1	65	7	0	2	2	0	0	0	7	0	0	0	84	23:00	0	14	0	0	0	0	0	0	0	0	0	0	14	
11:15	0	50	4	0	2	1	0	0	0	4	0	1	0	62	23:15	0	13	0	0	0	0	0	0	0	0	0	0	13	
11:30	0	50	5	0	2	3	0	0	0	4	0	0	0	64	23:30	0	11	0	0	0	0	0	0	0	0	0	0	11	
11:45	0	45	6	1	6	1	0	0	0	2	0	0	0	61	23:45	0	5	0	0	0	0	0	0	0	0	0	0	5	
<b>TOTAL</b>	<b>6</b>	<b>2,308</b>	<b>146</b>	<b>10</b>	<b>88</b>	<b>34</b>	<b>3</b>	<b>0</b>	<b>138</b>	<b>0</b>	<b>13</b>	<b>1</b>	<b>0</b>	<b>2,747</b>	<b>TOTAL</b>	<b>10</b>	<b>2,724</b>	<b>138</b>	<b>5</b>	<b>39</b>	<b>46</b>	<b>5</b>	<b>3</b>	<b>81</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>3,065</b>

AM PEAK HOUR 6:45 AM  
AM PEAK VOLUME 746

PM PEAK HOUR 2:30 PM  
PM PEAK VOLUME 525

<b>CLASS 1</b>	Class 1 — Motorcycles	<b>CLASS 8</b>	3 to 4 Axles, Single Trailer
<b>CLASS 2</b>	Passenger Cars	<b>CLASS 9</b>	5 Axles, Single Trailer
<b>CLASS 3</b>	2 Axles, 4-Tire Single Units	<b>CLASS 10</b>	6 or More Axles, Single Trailer
<b>CLASS 4</b>	Buses	<b>CLASS 11</b>	5 or Less Axles, Multi-Trailers
<b>CLASS 5</b>	2 Axles, 6-Tire Single Units	<b>CLASS 12</b>	6 Axles, Multi-Trailers
<b>CLASS 6</b>	3 Axles, Single Unit	<b>CLASS 13</b>	7 or More Axles, Multi-Trailers
<b>CLASS 7</b>	4 or More Axles, Single Unit		

<b>TOTAL: AM+PM</b>	16	5,032	284	15	127	80	8	3	219	0	27	1	0	5,812
<b>% OF TOTAL</b>	0.3%	86.6%	4.9%	0.3%	2.2%	1.4%	0.1%	0.1%	3.8%	0.0%	0.5%	0.0%	0.0%	100.0%

<b>Class</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>
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<b>TOTAL: ALL</b>	29	9,355	525	30	247	151	17	7	457	1	49	1	0	10,869
<b>% OF TOTAL</b>	0.5%	161.0%	9.0%	0.5%	4.2%	2.6%	0.3%	0.1%	7.9%	0.0%	0.8%	0.0%	0.0%	100.0%



**24-HOUR ROADWAY SEGMENT COUNTS (WITH FHWA CLASSIFICATION)**

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tuesday, May 10, 2022  
JOB #: SC3419

CITY: Perris  
LOCATION: CLASS2 Harvill N of Cajalco

AM TIME	SOUTHBOUND													TOTAL	PM Time	SOUTHBOUND													TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13			1	2	3	4	5	6	7	8	9	10	11	12	13	
0:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7	12:00	0	56	4	0	2	3	0	0	6	0	0	0	71	
0:15	0	3	0	0	0	0	0	0	0	0	0	0	0	3	12:15	0	58	9	0	0	1	0	0	11	0	0	0	79	
0:30	0	9	0	0	0	1	0	0	0	0	0	0	0	10	12:30	0	58	5	0	2	2	0	0	8	0	0	0	75	
0:45	0	7	0	0	0	0	0	0	0	0	0	0	0	7	12:45	1	70	4	0	1	1	0	0	9	0	0	0	86	
1:00	1	4	0	0	0	0	0	0	0	0	0	0	0	5	13:00	2	53	3	0	1	0	0	0	3	0	2	0	64	
1:15	0	3	0	0	0	0	0	0	0	0	0	0	0	3	13:15	0	46	2	0	3	0	0	0	3	0	0	0	54	
1:30	0	4	0	0	0	0	0	0	0	0	0	0	0	4	13:30	1	58	2	0	1	2	1	0	4	0	0	0	69	
1:45	0	10	0	0	0	0	1	0	0	0	0	0	0	11	13:45	0	59	4	0	2	1	0	0	4	0	1	0	71	
2:00	0	10	0	0	0	0	0	0	1	0	0	0	0	11	14:00	0	88	10	0	3	1	0	0	6	0	1	0	109	
2:15	0	5	0	0	0	0	0	0	0	0	0	0	0	5	14:15	1	93	5	1	2	3	0	0	5	0	1	0	111	
2:30	0	3	0	0	0	0	0	0	0	0	0	0	0	3	14:30	0	118	8	0	6	2	0	0	3	0	0	0	137	
2:45	0	2	0	0	0	1	0	0	0	0	0	0	0	3	14:45	0	134	6	0	6	2	1	0	4	0	2	0	155	
3:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2	15:00	0	120	7	1	4	2	1	0	3	0	1	0	139	
3:15	0	9	0	0	0	1	0	0	1	0	0	0	0	11	15:15	0	102	12	0	4	1	1	1	2	0	3	0	126	
3:30	0	8	1	0	1	0	0	0	0	0	0	0	0	10	15:30	0	94	3	1	2	1	0	0	2	0	0	0	103	
3:45	0	6	0	0	0	0	0	0	1	0	0	0	0	7	15:45	0	92	8	2	3	0	0	1	9	0	0	0	115	
4:00	0	10	1	0	0	1	0	0	0	0	0	0	0	12	16:00	0	73	7	1	1	1	0	0	4	0	0	0	87	
4:15	0	16	0	0	0	0	0	0	2	0	0	0	0	18	16:15	0	109	8	0	1	2	0	0	2	0	0	0	122	
4:30	0	27	0	0	0	0	0	0	0	0	0	0	0	27	16:30	0	98	6	1	2	0	0	0	4	0	0	0	111	
4:45	0	49	1	0	1	1	0	0	0	0	0	0	0	52	16:45	0	103	13	1	1	0	1	0	3	0	0	0	122	
5:00	0	34	0	0	0	0	0	0	0	0	0	0	0	34	17:00	0	93	3	1	3	0	0	0	1	0	0	0	101	
5:15	0	34	0	0	0	3	0	0	0	0	0	0	0	37	17:15	0	86	4	1	0	1	0	0	1	0	0	0	93	
5:30	0	45	0	0	2	0	0	0	0	0	0	0	0	47	17:30	0	85	4	1	0	0	0	0	2	0	1	0	93	
5:45	0	99	3	0	2	1	0	0	1	0	0	0	0	106	17:45	0	67	3	0	1	1	0	0	3	0	0	0	75	
6:00	0	44	1	0	0	0	0	0	0	0	0	0	0	45	18:00	0	78	6	0	1	0	0	0	3	0	0	0	88	
6:15	0	32	1	0	2	1	0	0	0	0	1	0	0	37	18:15	0	63	1	0	0	1	0	1	4	0	0	0	70	
6:30	0	40	3	0	1	0	1	0	4	0	2	0	0	51	18:30	0	64	3	0	0	0	0	0	4	0	0	0	71	
6:45	0	48	2	0	0	0	1	0	6	0	2	0	0	59	18:45	0	68	2	0	0	2	0	0	6	0	0	0	78	
7:00	0	36	3	0	1	0	0	0	6	0	0	0	0	46	19:00	0	69	1	0	1	0	0	0	3	0	0	0	74	
7:15	0	46	3	0	1	1	0	0	1	1	0	0	0	53	19:15	1	33	1	0	0	1	0	0	4	0	0	0	40	
7:30	1	55	4	0	2	3	1	0	4	0	0	0	0	70	19:30	0	31	0	0	1	0	0	0	5	0	0	0	37	
7:45	0	65	3	0	4	0	0	0	2	0	0	0	0	74	19:45	0	36	0	0	1	0	0	0	2	0	0	0	39	
8:00	0	82	4	0	3	0	0	0	4	0	0	0	0	93	20:00	3	36	1	0	0	0	0	0	0	0	0	0	40	
8:15	0	56	1	0	4	1	0	0	0	0	2	0	0	64	20:15	0	30	0	0	0	0	0	0	0	0	0	0	30	
8:30	1	66	5	1	4	1	0	0	4	0	0	0	0	82	20:30	0	28	0	0	0	1	0	0	3	0	0	0	32	
8:45	0	42	3	2	2	0	0	0	2	0	1	0	0	52	20:45	0	33	0	0	1	0	0	0	0	0	0	0	34	
9:00	0	37	2	1	1	0	0	0	2	0	0	0	0	43	21:00	0	23	0	0	0	0	0	0	2	0	0	0	25	
9:15	1	41	6	0	4	3	0	0	5	0	0	0	0	60	21:15	0	29	1	0	0	1	0	0	0	0	0	0	31	
9:30	0	35	6	0	0	2	0	0	8	0	0	0	0	51	21:30	0	22	0	0	0	0	0	0	0	0	0	0	22	
9:45	0	47	4	0	1	2	0	0	5	0	0	0	0	59	21:45	0	18	0	0	0	0	0	0	0	0	0	0	18	
10:00	0	48	5	0	3	2	0	0	5	0	1	0	0	64	22:00	0	21	0	0	0	1	0	0	0	0	0	0	22	
10:15	0	38	2	0	2	3	0	0	8	0	0	0	0	53	22:15	0	16	0	0	0	0	0	0	1	0	0	0	17	
10:30	0	46	2	0	2	0	0	1	6	0	0	0	0	57	22:30	0	20	0	0	0	0	0	0	1	0	0	0	21	
10:45	0	44	6	0	2	2	0	0	6	0	0	0	0	60	22:45	0	12	0	0	1	0	0	0	0	0	0	0	13	
11:00	0	46	5	0	0	1	0	0	4	0	0	0	0	56	23:00	0	10	0	0	0	0	0	0	1	0	0	0	11	
11:15	0	43	3	0	9	1	0	0	2	0	0	0	0	58	23:15	0	14	0	0	1	1	0	0	1	0	0	0	17	
11:30	0	50	4	0	5	2	0	0	3	0	0	0	0	64	23:30	0	15	0	0	1	1	0	0	0	0	0	0	17	
11:45	0	44	1	0	2	1	0	0	3	0	1	0	0	52	23:45	0	4	0	0	0	0	0	0	0	0	0	0	4	
<b>TOTAL</b>	<b>4</b>	<b>1,537</b>	<b>85</b>	<b>4</b>	<b>61</b>	<b>35</b>	<b>4</b>	<b>1</b>	<b>96</b>	<b>1</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>1,838</b>	<b>TOTAL</b>	<b>9</b>	<b>2,786</b>	<b>156</b>	<b>11</b>	<b>59</b>	<b>36</b>	<b>5</b>	<b>3</b>	<b>142</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>3,219</b>

**AM PEAK HOUR** 7:45 AM  
**AM PEAK VOLUME** 313

**PM PEAK HOUR** 2:30 PM  
**PM PEAK VOLUME** 557

<b>CLASS 1</b>	Class 1 — Motorcycles	<b>CLASS 8</b>	3 to 4 Axles, Single Trailer
<b>CLASS 2</b>	Passenger Cars	<b>CLASS 9</b>	5 Axles, Single Trailer
<b>CLASS 3</b>	2 Axles, 4-Tire Single Units	<b>CLASS 10</b>	6 or More Axles, Single Trailer
<b>CLASS 4</b>	Buses	<b>CLASS 11</b>	5 or Less Axles, Multi-Trailers
<b>CLASS 5</b>	2 Axles, 6-Tire Single Units	<b>CLASS 12</b>	6 Axles, Multi-Trailers
<b>CLASS 6</b>	3 Axles, Single Unit	<b>CLASS 13</b>	7 or More Axles, Multi-Trailers
<b>CLASS 7</b>	4 or More Axles, Single Unit		

<b>TOTAL: AM+PM</b>	13	4,323	241	15	120	71	9	4	238	1	22	0	0	5,057
<b>% OF TOTAL</b>	0.3%	85.5%	4.8%	0.3%	2.4%	1.4%	0.2%	0.1%	4.7%	0.0%	0.4%	0.0%	0.0%	100.0%

<b>Class</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>
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**APPENDIX 3.2: EXISTING (2022) CONDITIONS INTERSECTION  
OPERATIONS ANALYSIS WORKSHEETS**

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Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘		↖	↗		↖	↗	
Traffic Vol, veh/h	5	0	9	5	0	1	4	521	3	0	257	0
Future Vol, veh/h	5	0	9	5	0	1	4	521	3	0	257	0
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	-	-	50	100	-	-	150	-	-	160	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	6	0	11	6	0	1	5	659	4	0	325	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	665	998	163	834	996	332	325	0	0	663	0	0
Stage 1	325	325	-	671	671	-	-	-	-	-	-	-
Stage 2	340	673	-	163	325	-	-	-	-	-	-	-
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	349	246	859	264	246	670	1246	-	-	935	-	-
Stage 1	667	653	-	417	458	-	-	-	-	-	-	-
Stage 2	654	457	-	829	653	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	347	245	859	260	245	670	1246	-	-	935	-	-
Mov Cap-2 Maneuver	458	350	-	348	350	-	-	-	-	-	-	-
Stage 1	664	653	-	415	456	-	-	-	-	-	-	-
Stage 2	650	455	-	818	653	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.6	14.7	0.1	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1246	-	-	458	859	348	670	935	-	-
HCM Lane V/C Ratio	0.004	-	-	0.014	0.013	0.018	0.002	-	-	-
HCM Control Delay (s)	7.9	-	-	13	9.2	15.5	10.4	0	-	-
HCM Lane LOS	A	-	-	B	A	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.1	0	0	-	-

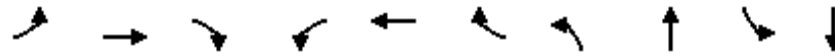
Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	9	0	52	0	0	0	48	519	0	0	263	8
Future Vol, veh/h	9	0	52	0	0	0	48	519	0	0	263	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	160	-	-	50	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	10	0	58	0	0	0	54	583	0	0	296	9

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	701	992	153	839	996	292	305	0	0	583	0	0
Stage 1	301	301	-	691	691	-	-	-	-	-	-	-
Stage 2	400	691	-	148	305	-	-	-	-	-	-	-
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	329	248	872	262	246	710	1267	-	-	1001	-	-
Stage 1	689	669	-	406	449	-	-	-	-	-	-	-
Stage 2	603	449	-	845	666	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	318	237	872	237	235	710	1267	-	-	1001	-	-
Mov Cap-2 Maneuver	425	338	-	323	332	-	-	-	-	-	-	-
Stage 1	659	669	-	389	430	-	-	-	-	-	-	-
Stage 2	577	430	-	788	666	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	0	0.7	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1267	-	-	755	-	1001	-
HCM Lane V/C Ratio	0.043	-	-	0.091	-	-	-
HCM Control Delay (s)	8	-	-	10.2	0	0	-
HCM Lane LOS	A	-	-	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	-	0	-

Timings  
7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

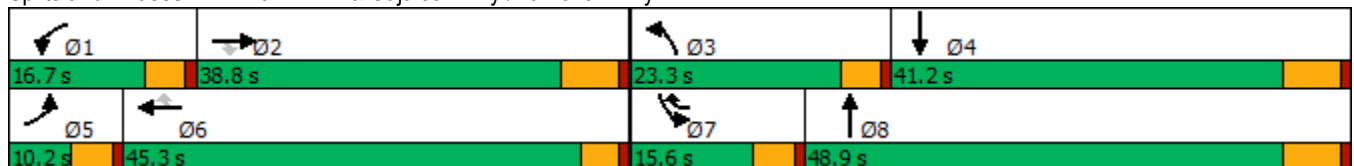


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↘	↑↑	↗	↘↗	↑↑	↗	↘↗	↑↘	↘↗	↑↘
Traffic Volume (vph)	47	680	50	167	677	102	297	337	189	116
Future Volume (vph)	47	680	50	167	677	102	297	337	189	116
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2		1	6	7	3	8	7	4
Permitted Phases			2			6				
Detector Phase	5	2	2	1	6	7	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	36.2	36.2	9.6	32.5	9.6	9.6	16.2	9.6	41.2
Total Split (s)	10.2	38.8	38.8	16.7	45.3	15.6	23.3	48.9	15.6	41.2
Total Split (%)	8.5%	32.3%	32.3%	13.9%	37.8%	13.0%	19.4%	40.8%	13.0%	34.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	3.5	3.6	3.6	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	4.5	4.6	4.6	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	5.5	27.8	27.8	9.9	36.1	50.6	14.5	42.9	9.9	38.4
Actuated g/C Ratio	0.05	0.25	0.25	0.09	0.32	0.45	0.13	0.38	0.09	0.34
v/c Ratio	0.58	0.82	0.10	0.58	0.63	0.14	0.71	0.33	0.66	0.13
Control Delay	80.7	48.2	0.4	58.3	35.5	3.6	56.6	25.0	61.5	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.7	48.2	0.4	58.3	35.5	3.6	56.6	25.0	61.5	24.0
LOS	F	D	A	E	D	A	E	C	E	C
Approach Delay		47.1			36.1			38.2		45.3
Approach LOS		D			D			D		D

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 112.3  
 Natural Cycle: 100  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 40.8  
 Intersection LOS: D  
 Intersection Capacity Utilization 58.7%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘↗	↑↑	↗	↘↗	↑↑		↘↗	↑↑	
Traffic Volume (veh/h)	47	680	50	167	677	102	297	337	75	189	116	27
Future Volume (veh/h)	47	680	50	167	677	102	297	337	75	189	116	27
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		0.99	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	51	731	3	180	728	42	319	362	27	203	125	27
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	67	874	390	246	993	566	390	1382	103	268	1102	232
Arrive On Green	0.04	0.24	0.24	0.07	0.28	0.28	0.11	0.41	0.41	0.08	0.37	0.37
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	3403	253	3510	2968	625
Grp Volume(v), veh/h	51	731	3	180	728	42	319	191	198	203	75	77
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1851	1755	1805	1788
Q Serve(g_s), s	2.9	20.2	0.1	5.3	19.3	1.8	9.3	7.4	7.5	6.0	2.9	3.0
Cycle Q Clear(g_c), s	2.9	20.2	0.1	5.3	19.3	1.8	9.3	7.4	7.5	6.0	2.9	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.14	1.00		0.35
Lane Grp Cap(c), veh/h	67	874	390	246	993	566	390	733	752	268	670	664
V/C Ratio(X)	0.77	0.84	0.01	0.73	0.73	0.07	0.82	0.26	0.26	0.76	0.11	0.12
Avail Cap(c_a), veh/h	96	1119	499	404	1401	748	624	733	752	367	670	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	50.2	37.9	30.3	47.9	34.6	22.7	45.7	20.7	20.8	47.6	21.7	21.7
Incr Delay (d2), s/veh	10.7	4.5	0.0	1.6	1.2	0.1	2.0	0.9	0.9	3.6	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	1.5	9.0	0.1	2.3	8.1	0.7	4.0	3.1	3.2	2.6	1.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.9	42.4	30.3	49.5	35.8	22.7	47.7	21.6	21.6	51.2	22.0	22.1
LnGrp LOS	E	D	C	D	D	C	D	C	C	D	C	C
Approach Vol, veh/h		785			950			708			355	
Approach Delay, s/veh		43.6			37.8			33.4			38.7	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	31.6	16.3	45.2	8.5	35.1	12.6	48.9				
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	* 6.2	4.6	6.2				
Max Green Setting (Gmax), s	12.1	32.6	18.7	35.0	5.6	* 41	11.0	42.7				
Max Q Clear Time (g_c+I1), s	7.3	22.2	11.3	5.0	4.9	21.3	8.0	9.5				
Green Ext Time (p_c), s	0.1	3.2	0.4	0.7	0.0	4.4	0.1	2.0				

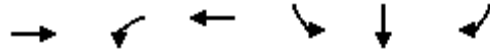
Intersection Summary

HCM 6th Ctrl Delay	38.4
HCM 6th LOS	D

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings  
8: I-215 SB Ramps & Ramona Exwy.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↖	↑↑	↖	↖	↖
Traffic Volume (vph)	759	328	1121	817	2	210
Future Volume (vph)	759	328	1121	817	2	210
Turn Type	NA	Prot	NA	Split	NA	Perm
Protected Phases	2	1	6	4	4	
Permitted Phases						4
Detector Phase	2	1	6	4	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	9.5	31.0	10.5	10.5	10.5
Total Split (s)	44.0	27.0	71.0	39.0	39.0	39.0
Total Split (%)	40.0%	24.5%	64.5%	35.5%	35.5%	35.5%
Yellow Time (s)	5.0	3.5	5.0	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.5	6.0	5.5	5.5	5.5
Lead/Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes				
Recall Mode	C-Max	None	C-Max	Max	Max	Max
Act Effct Green (s)	38.5	22.0	65.0	33.5	33.5	33.5
Actuated g/C Ratio	0.35	0.20	0.59	0.30	0.30	0.30
v/c Ratio	0.92	0.93	0.54	0.80	0.80	0.39
Control Delay	44.6	48.7	4.4	48.2	48.3	20.4
Queue Delay	0.6	0.0	0.7	61.7	61.7	0.0
Total Delay	45.2	48.7	5.1	109.9	110.0	20.4
LOS	D	D	A	F	F	C
Approach Delay	45.2		15.0		91.7	
Approach LOS	D		B		F	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 34 (31%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 46.3  
 Intersection LOS: D  
 Intersection Capacity Utilization 148.5%  
 ICU Level of Service H  
 Analysis Period (min) 15

Splits and Phases: 8: I-215 SB Ramps & Ramona Exwy.





HCM 6th Signalized Intersection Summary  
 8: I-215 SB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑					↖	↑↑	↖
Traffic Volume (veh/h)	0	759	364	328	1121	0	0	0	0	817	2	210
Future Volume (veh/h)	0	759	364	328	1121	0	0	0	0	817	2	210
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	774	242	335	1144	0				835	0	151
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	940	294	365	2133	0				1102	0	490
Arrive On Green	0.00	0.35	0.35	0.12	0.35	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	2792	843	1810	3705	0				3619	0	1610
Grp Volume(v), veh/h	0	518	498	335	1144	0				835	0	151
Grp Sat Flow(s),veh/h/ln	0	1805	1735	1810	1805	0				1810	0	1610
Q Serve(g_s), s	0.0	28.8	28.9	20.1	27.8	0.0				22.9	0.0	7.9
Cycle Q Clear(g_c), s	0.0	28.8	28.9	20.1	27.8	0.0				22.9	0.0	7.9
Prop In Lane	0.00		0.49	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	629	605	365	2133	0				1102	0	490
V/C Ratio(X)	0.00	0.82	0.82	0.92	0.54	0.00				0.76	0.00	0.31
Avail Cap(c_a), veh/h	0	629	605	370	2133	0				1102	0	490
HCM Platoon Ratio	1.00	1.00	1.00	0.60	0.60	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.53	0.53	0.64	0.64	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	32.8	32.8	47.4	23.5	0.0				34.6	0.0	29.4
Incr Delay (d2), s/veh	0.0	6.5	6.8	19.7	0.6	0.0				4.9	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.9	12.4	11.3	12.5	0.0				10.4	0.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	39.3	39.6	67.1	24.1	0.0				39.5	0.0	31.0
LnGrp LOS	A	D	D	E	C	A				D	A	C
Approach Vol, veh/h		1016			1479						986	
Approach Delay, s/veh		39.4			33.8						38.2	
Approach LOS		D			C						D	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	26.7	44.3		39.0		71.0						
Change Period (Y+Rc), s	4.5	6.0		5.5		6.0						
Max Green Setting (Gmax), s	22.5	38.0		33.5		65.0						
Max Q Clear Time (g_c+I1), s	22.1	30.9		24.9		29.8						
Green Ext Time (p_c), s	0.0	2.4		2.6		5.3						

Intersection Summary

HCM 6th Ctrl Delay	36.7
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Timings  
9: I-215 NB Ramps & Ramona Exwy.



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations	↶	↷	↶	↷	↶	↷	↷
Traffic Volume (vph)	159	1417	1051	740	398	4	612
Future Volume (vph)	159	1417	1051	740	398	4	612
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	5	2	6		8	8	
Permitted Phases				6			8
Detector Phase	5	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	11.0	26.0	26.0	10.5	10.5	10.5
Total Split (s)	23.0	68.0	45.0	45.0	42.0	42.0	42.0
Total Split (%)	20.9%	61.8%	40.9%	40.9%	38.2%	38.2%	38.2%
Yellow Time (s)	3.5	5.0	5.0	5.0	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.5	5.5	5.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None
Act Effct Green (s)	14.7	62.0	42.8	42.8	36.5	36.5	36.5
Actuated g/C Ratio	0.13	0.56	0.39	0.39	0.33	0.33	0.33
v/c Ratio	0.68	0.72	0.77	0.76	0.36	0.37	1.08
Control Delay	42.4	28.0	34.7	12.0	30.2	30.3	92.3
Queue Delay	0.0	49.5	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	77.5	34.7	12.0	30.2	30.3	92.3
LOS	D	E	C	B	C	C	F
Approach Delay		73.9	25.3			67.7	
Approach LOS		E	C			E	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.08  
 Intersection Signal Delay: 52.6  
 Intersection LOS: D  
 Intersection Capacity Utilization 148.5%  
 ICU Level of Service H  
 Analysis Period (min) 15

Splits and Phases: 9: I-215 NB Ramps & Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 9: I-215 NB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)  
 09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↑↑	↗	↘	↖	↗			
Traffic Volume (veh/h)	159	1417	0	0	1051	740	398	4	612	0	0	0
Future Volume (veh/h)	159	1417	0	0	1051	740	398	4	612	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	164	1461	0	0	1084	615	413	0	479			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	193	2089	0	0	1557	695	1146	0	510			
Arrive On Green	0.21	1.00	0.00	0.00	0.43	0.43	0.32	0.00	0.32			
Sat Flow, veh/h	1810	3705	0	0	3705	1610	3619	0	1610			
Grp Volume(v), veh/h	164	1461	0	0	1084	615	413	0	479			
Grp Sat Flow(s),veh/h/ln	1810	1805	0	0	1805	1610	1810	0	1610			
Q Serve(g_s), s	9.6	0.0	0.0	0.0	26.8	38.7	9.7	0.0	31.8			
Cycle Q Clear(g_c), s	9.6	0.0	0.0	0.0	26.8	38.7	9.7	0.0	31.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	193	2089	0	0	1557	695	1146	0	510			
V/C Ratio(X)	0.85	0.70	0.00	0.00	0.70	0.89	0.36	0.00	0.94			
Avail Cap(c_a), veh/h	304	2089	0	0	1557	695	1201	0	534			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.34	0.34	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	42.4	0.0	0.0	0.0	25.4	28.8	29.0	0.0	36.6			
Incr Delay (d2), s/veh	4.7	0.7	0.0	0.0	2.6	15.4	0.2	0.0	24.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.9	0.2	0.0	0.0	11.1	16.5	4.1	0.0	15.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.7	0.0	0.0	28.0	44.2	29.2	0.0	60.8			
LnGrp LOS	D	A	A	A	C	D	C	A	E			
Approach Vol, veh/h		1625			1699			892				
Approach Delay, s/veh		5.4			33.9			46.2				
Approach LOS		A			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		69.7			16.2	53.5		40.3				
Change Period (Y+Rc), s		6.0			4.5	6.0		5.5				
Max Green Setting (Gmax), s		62.0			18.5	39.0		36.5				
Max Q Clear Time (g_c+I1), s		2.0			11.6	40.7		33.8				
Green Ext Time (p_c), s		8.0			0.2	0.0		1.0				

Intersection Summary

HCM 6th Ctrl Delay	25.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔	↔	↔		↔	↔		↔	↔	
Traffic Vol, veh/h	0	4	0	3	2	4	0	335	10	4	389	3
Future Vol, veh/h	0	4	0	3	2	4	0	335	10	4	389	3
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	-	-	50	100	-	-	150	-	-	160	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	0	4	0	3	2	4	0	376	11	4	437	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	636	834	220	611	830	194	440	0	0	387	0	0
Stage 1	447	447	-	382	382	-	-	-	-	-	-	-
Stage 2	189	387	-	229	448	-	-	-	-	-	-	-
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	367	306	790	382	308	821	1131	-	-	1183	-	-
Stage 1	566	577	-	618	616	-	-	-	-	-	-	-
Stage 2	800	613	-	759	576	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	363	305	790	378	307	821	1131	-	-	1183	-	-
Mov Cap-2 Maneuver	457	409	-	478	411	-	-	-	-	-	-	-
Stage 1	566	575	-	618	616	-	-	-	-	-	-	-
Stage 2	793	613	-	751	574	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	13.9		11.5		0		0.1	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1131	-	-	409	-	478	616	1183	-	-
HCM Lane V/C Ratio	-	-	-	0.011	-	0.007	0.011	0.004	-	-
HCM Control Delay (s)	0	-	-	13.9	0	12.6	10.9	8.1	-	-
HCM Lane LOS	A	-	-	B	A	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	0	0	-	-

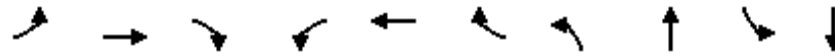
Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	4	0	66	0	0	0	59	341	1	0	388	4
Future Vol, veh/h	4	0	66	0	0	0	59	341	1	0	388	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	160	-	-	50	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	5	0	77	0	0	0	69	397	1	0	451	5

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	791	990	228	762	992	199	456	0	0	398	0	0
Stage 1	454	454	-	536	536	-	-	-	-	-	-	-
Stage 2	337	536	-	226	456	-	-	-	-	-	-	-
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	284	248	781	298	248	815	1115	-	-	1172	-	-
Stage 1	560	573	-	501	527	-	-	-	-	-	-	-
Stage 2	656	527	-	762	572	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	271	233	781	256	233	815	1115	-	-	1172	-	-
Mov Cap-2 Maneuver	381	347	-	356	334	-	-	-	-	-	-	-
Stage 1	525	573	-	470	494	-	-	-	-	-	-	-
Stage 2	615	494	-	687	572	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.5	0	1.2	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1115	-	-	737	-	1172	-
HCM Lane V/C Ratio	0.062	-	-	0.11	-	-	-
HCM Control Delay (s)	8.4	-	-	10.5	0	0	-
HCM Lane LOS	A	-	-	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	-	0	-

Timings  
7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

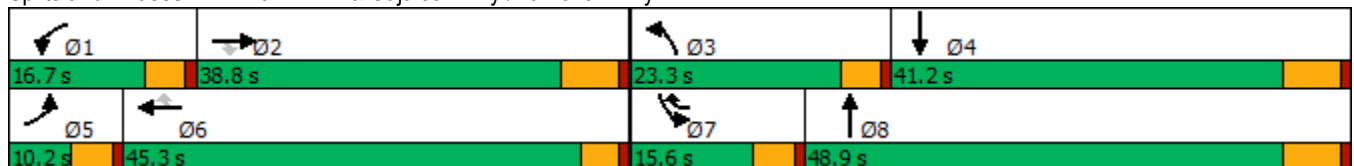


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↘	↑↑	↗	↘↗	↑↑	↗	↘↗	↑↗	↘↗	↑↗
Traffic Volume (vph)	24	723	207	132	637	187	165	144	222	211
Future Volume (vph)	24	723	207	132	637	187	165	144	222	211
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2		1	6	7	3	8	7	4
Permitted Phases			2			6				
Detector Phase	5	2	2	1	6	7	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	36.2	36.2	9.6	32.5	9.6	9.6	16.2	9.6	41.2
Total Split (s)	10.2	38.8	38.8	16.7	45.3	15.6	23.3	48.9	15.6	41.2
Total Split (%)	8.5%	32.3%	32.3%	13.9%	37.8%	13.0%	19.4%	40.8%	13.0%	34.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	3.5	3.6	3.6	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	4.5	4.6	4.6	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	5.4	29.4	29.4	9.0	38.9	53.8	10.1	42.9	10.4	43.2
Actuated g/C Ratio	0.05	0.26	0.26	0.08	0.34	0.47	0.09	0.38	0.09	0.38
v/c Ratio	0.31	0.83	0.38	0.51	0.55	0.23	0.57	0.21	0.74	0.20
Control Delay	64.0	48.5	6.4	57.6	32.9	3.2	57.5	13.8	65.8	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.0	48.5	6.4	57.6	32.9	3.2	57.5	13.8	65.8	24.0
LOS	E	D	A	E	C	A	E	B	E	C
Approach Delay		39.7			30.5			30.4		43.8
Approach LOS		D			C			C		D

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 113.4  
 Natural Cycle: 100  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 35.8  
 Intersection LOS: D  
 Intersection Capacity Utilization 56.8%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑	↗	↖↗	↑↑	↗	↖↗	↑↗		↖↗	↑↗	
Traffic Volume (veh/h)	24	723	207	132	637	187	165	144	125	222	211	35
Future Volume (veh/h)	24	723	207	132	637	187	165	144	125	222	211	35
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	26	777	110	142	685	121	177	155	66	239	227	27
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	46	918	409	205	1038	602	245	998	407	302	1352	159
Arrive On Green	0.03	0.25	0.25	0.06	0.29	0.29	0.07	0.40	0.40	0.09	0.42	0.42
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	2501	1020	3510	3253	383
Grp Volume(v), veh/h	26	777	110	142	685	121	177	110	111	239	125	129
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1716	1755	1805	1831
Q Serve(g_s), s	1.5	21.9	5.8	4.2	17.8	5.4	5.3	4.2	4.4	7.1	4.6	4.7
Cycle Q Clear(g_c), s	1.5	21.9	5.8	4.2	17.8	5.4	5.3	4.2	4.4	7.1	4.6	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.59	1.00		0.21
Lane Grp Cap(c), veh/h	46	918	409	205	1038	602	245	721	685	302	750	761
V/C Ratio(X)	0.57	0.85	0.27	0.69	0.66	0.20	0.72	0.15	0.16	0.79	0.17	0.17
Avail Cap(c_a), veh/h	95	1100	491	397	1377	753	614	721	685	361	750	761
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	51.6	37.9	31.9	49.4	33.5	22.7	48.7	20.6	20.6	47.9	19.6	19.6
Incr Delay (d2), s/veh	4.1	5.4	0.3	1.6	0.7	0.2	1.5	0.4	0.5	7.8	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	9.8	2.2	1.8	7.4	2.0	2.3	1.7	1.8	3.3	1.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.7	43.3	32.3	51.0	34.2	22.8	50.3	21.0	21.1	55.8	20.1	20.1
LnGrp LOS	E	D	C	D	C	C	D	C	C	E	C	C
Approach Vol, veh/h		913			948			398			493	
Approach Delay, s/veh		42.3			35.3			34.1			37.4	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	33.4	12.1	50.7	7.3	37.0	13.8	48.9				
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	* 6.2	4.6	6.2				
Max Green Setting (Gmax), s	12.1	32.6	18.7	35.0	5.6	* 41	11.0	42.7				
Max Q Clear Time (g_c+I1), s	6.2	23.9	7.3	6.7	3.5	19.8	9.1	6.4				
Green Ext Time (p_c), s	0.1	3.3	0.2	1.2	0.0	4.5	0.1	1.1				

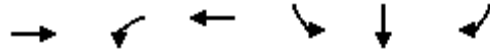
Intersection Summary

HCM 6th Ctrl Delay	37.8
HCM 6th LOS	D

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings  
8: I-215 SB Ramps & Ramona Exwy.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↖	↑↑	↖	↖	↖
Traffic Volume (vph)	911	369	915	853	8	184
Future Volume (vph)	911	369	915	853	8	184
Turn Type	NA	Prot	NA	Split	NA	Perm
Protected Phases	2	1	6	4	4	
Permitted Phases						4
Detector Phase	2	1	6	4	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	9.5	31.0	10.5	10.5	10.5
Total Split (s)	44.0	27.0	71.0	39.0	39.0	39.0
Total Split (%)	40.0%	24.5%	64.5%	35.5%	35.5%	35.5%
Yellow Time (s)	5.0	3.5	5.0	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.5	6.0	5.5	5.5	5.5
Lead/Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes				
Recall Mode	C-Max	None	C-Max	Max	Max	Max
Act Effct Green (s)	38.0	22.5	65.0	33.5	33.5	33.5
Actuated g/C Ratio	0.35	0.20	0.59	0.30	0.30	0.30
v/c Ratio	1.03	1.01	0.43	0.83	0.84	0.32
Control Delay	69.1	69.7	5.2	50.4	51.6	10.3
Queue Delay	12.9	0.0	0.4	72.5	72.1	0.0
Total Delay	82.0	69.7	5.6	122.9	123.7	10.3
LOS	F	E	A	F	F	B
Approach Delay	82.0		24.0		103.4	
Approach LOS	F		C		F	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 34 (31%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.03  
 Intersection Signal Delay: 67.5  
 Intersection LOS: E  
 Intersection Capacity Utilization 138.9%  
 ICU Level of Service H  
 Analysis Period (min) 15

Splits and Phases: 8: I-215 SB Ramps & Ramona Exwy.





HCM 6th Signalized Intersection Summary  
 8: I-215 SB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑					↖	↑	↖
Traffic Volume (veh/h)	0	911	348	369	915	0	0	0	0	853	8	184
Future Volume (veh/h)	0	911	348	369	915	0	0	0	0	853	8	184
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	920	244	373	924	0				868	0	127
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99				0.99	0.99	0.99
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	975	258	370	2133	0				1102	0	490
Arrive On Green	0.00	0.35	0.35	0.12	0.35	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	2918	747	1810	3705	0				3619	0	1610
Grp Volume(v), veh/h	0	588	576	373	924	0				868	0	127
Grp Sat Flow(s),veh/h/ln	0	1805	1765	1810	1805	0				1810	0	1610
Q Serve(g_s), s	0.0	34.8	34.9	22.5	21.5	0.0				24.1	0.0	6.6
Cycle Q Clear(g_c), s	0.0	34.8	34.9	22.5	21.5	0.0				24.1	0.0	6.6
Prop In Lane	0.00		0.42	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	624	610	370	2133	0				1102	0	490
V/C Ratio(X)	0.00	0.94	0.95	1.01	0.43	0.00				0.79	0.00	0.26
Avail Cap(c_a), veh/h	0	624	610	370	2133	0				1102	0	490
HCM Platoon Ratio	1.00	1.00	1.00	0.60	0.60	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.48	0.48	0.79	0.79	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	34.9	35.0	48.2	21.5	0.0				35.0	0.0	28.9
Incr Delay (d2), s/veh	0.0	14.5	15.1	43.5	0.5	0.0				5.7	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	16.6	16.4	14.8	9.7	0.0				11.0	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	49.5	50.1	91.8	22.0	0.0				40.7	0.0	30.2
LnGrp LOS	A	D	D	F	C	A				D	A	C
Approach Vol, veh/h		1164			1297						995	
Approach Delay, s/veh		49.8			42.0						39.4	
Approach LOS		D			D						D	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	27.0	44.0		39.0		71.0						
Change Period (Y+Rc), s	4.5	6.0		5.5		6.0						
Max Green Setting (Gmax), s	22.5	38.0		33.5		65.0						
Max Q Clear Time (g_c+I1), s	24.5	36.9		26.1		23.5						
Green Ext Time (p_c), s	0.0	0.6		2.4		4.0						

Intersection Summary

HCM 6th Ctrl Delay	43.9
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Timings  
9: I-215 NB Ramps & Ramona Exwy.

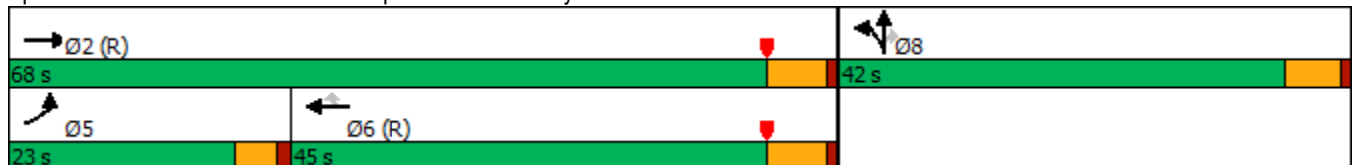


Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations	↶	↷	↶	↷	↶	↷	↷
Traffic Volume (vph)	121	1643	913	652	371	4	461
Future Volume (vph)	121	1643	913	652	371	4	461
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	5	2	6		8	8	
Permitted Phases				6			8
Detector Phase	5	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	11.0	26.0	26.0	10.5	10.5	10.5
Total Split (s)	23.0	68.0	45.0	45.0	42.0	42.0	42.0
Total Split (%)	20.9%	61.8%	40.9%	40.9%	38.2%	38.2%	38.2%
Yellow Time (s)	3.5	5.0	5.0	5.0	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.5	5.5	5.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None
Act Effct Green (s)	13.1	65.2	47.6	47.6	33.3	33.3	33.3
Actuated g/C Ratio	0.12	0.59	0.43	0.43	0.30	0.30	0.30
v/c Ratio	0.60	0.82	0.62	0.67	0.38	0.39	0.91
Control Delay	39.1	30.9	28.0	7.4	31.7	31.9	52.7
Queue Delay	0.0	48.6	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	79.4	28.0	7.4	31.7	31.9	52.7
LOS	D	E	C	A	C	C	D
Approach Delay		76.7	19.4			43.3	
Approach LOS		E	B			D	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 48.4  
 Intersection LOS: D  
 Intersection Capacity Utilization 138.9%  
 ICU Level of Service H  
 Analysis Period (min) 15

Splits and Phases: 9: I-215 NB Ramps & Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 9: I-215 NB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)  
 09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑			↑↑	↗	↗	↖	↖			
Traffic Volume (veh/h)	121	1643	0	0	913	652	371	4	461	0	0	0
Future Volume (veh/h)	121	1643	0	0	913	652	371	4	461	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	129	1748	0	0	971	544	398	0	409			
Peak Hour Factor	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			
Cap, veh/h	157	2220	0	0	1759	783	1015	0	452			
Arrive On Green	0.17	1.00	0.00	0.00	0.49	0.49	0.28	0.00	0.28			
Sat Flow, veh/h	1810	3705	0	0	3705	1607	3619	0	1610			
Grp Volume(v), veh/h	129	1748	0	0	971	544	398	0	409			
Grp Sat Flow(s),veh/h/ln	1810	1805	0	0	1805	1607	1810	0	1610			
Q Serve(g_s), s	7.6	0.0	0.0	0.0	20.8	28.9	9.8	0.0	27.0			
Cycle Q Clear(g_c), s	7.6	0.0	0.0	0.0	20.8	28.9	9.8	0.0	27.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	157	2220	0	0	1759	783	1015	0	452			
V/C Ratio(X)	0.82	0.79	0.00	0.00	0.55	0.69	0.39	0.00	0.91			
Avail Cap(c_a), veh/h	304	2220	0	0	1759	783	1201	0	534			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.14	0.14	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	44.6	0.0	0.0	0.0	19.8	21.9	32.0	0.0	38.2			
Incr Delay (d2), s/veh	1.6	0.4	0.0	0.0	1.3	5.0	0.2	0.0	17.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.1	0.1	0.0	0.0	8.2	10.8	4.2	0.0	12.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	0.4	0.0	0.0	21.0	26.9	32.2	0.0	55.4			
LnGrp LOS	D	A	A	A	C	C	C	A	E			
Approach Vol, veh/h		1877			1515			807				
Approach Delay, s/veh		3.6			23.1			44.0				
Approach LOS		A			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		73.7			14.0	59.6		36.3				
Change Period (Y+Rc), s		6.0			4.5	6.0		5.5				
Max Green Setting (Gmax), s		62.0			18.5	39.0		36.5				
Max Q Clear Time (g_c+I1), s		2.0			9.6	30.9		29.0				
Green Ext Time (p_c), s		11.2			0.2	3.4		1.9				

Intersection Summary

HCM 6th Ctrl Delay	18.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

**APPENDIX 3.3: EXISTING (2022) CONDITIONS TRAFFIC SIGNAL  
WARRANT ANALYSIS WORKSHEETS**

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

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = Existing (2022) Conditions - Weekday PM Peak Hour

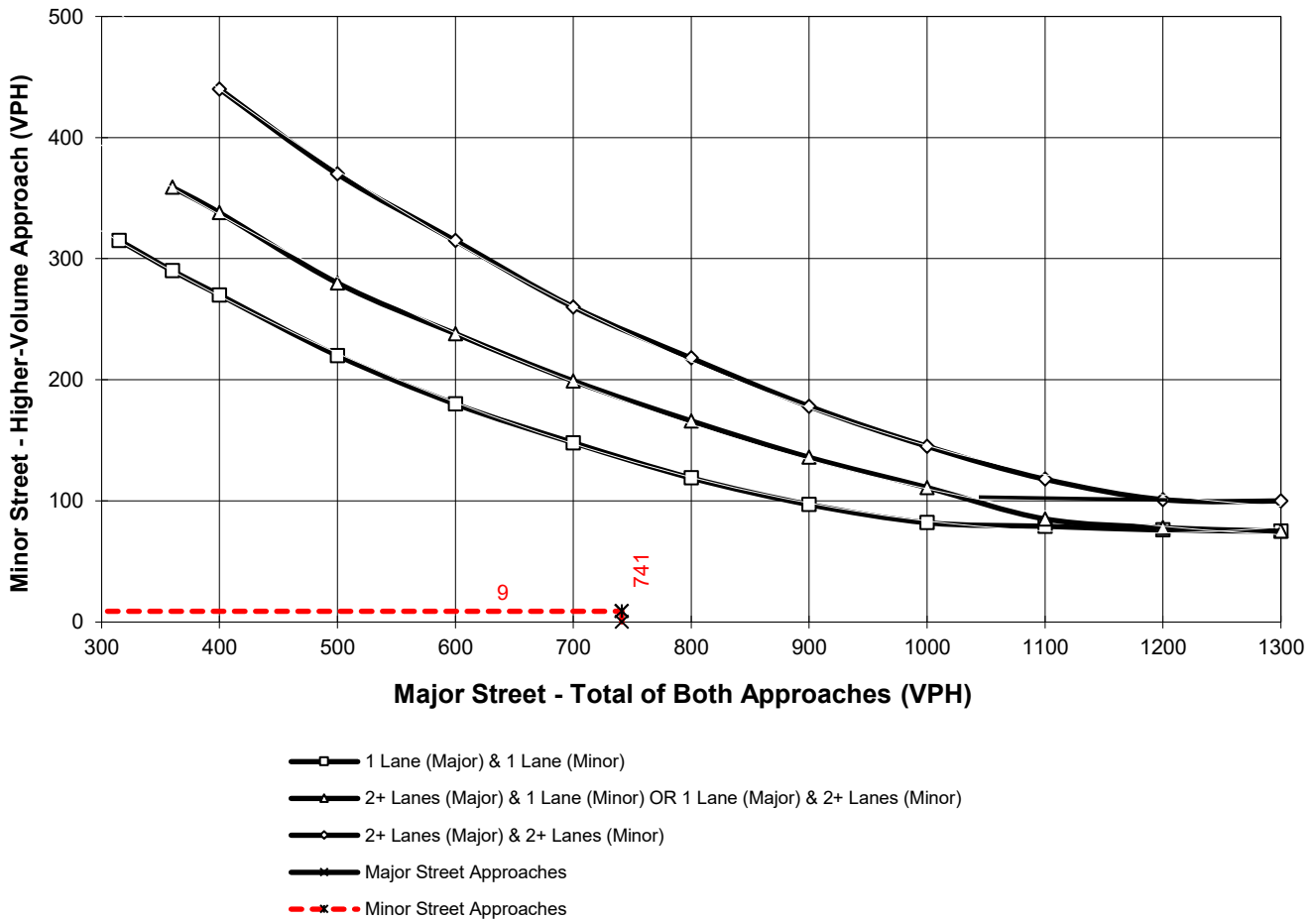
Major Street Name = Harvill Avenue

Total of Both Approaches (VPH) = 741  
 Number of Approach Lanes Major Street = 2

Minor Street Name = Perry St.

High Volume Approach (VPH) = 9  
 Number of Approach Lanes Minor Street = 1

**SIGNAL WARRANT NOT SATISFIED**



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



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

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2022) Conditions - Weekday PM Peak Hour**

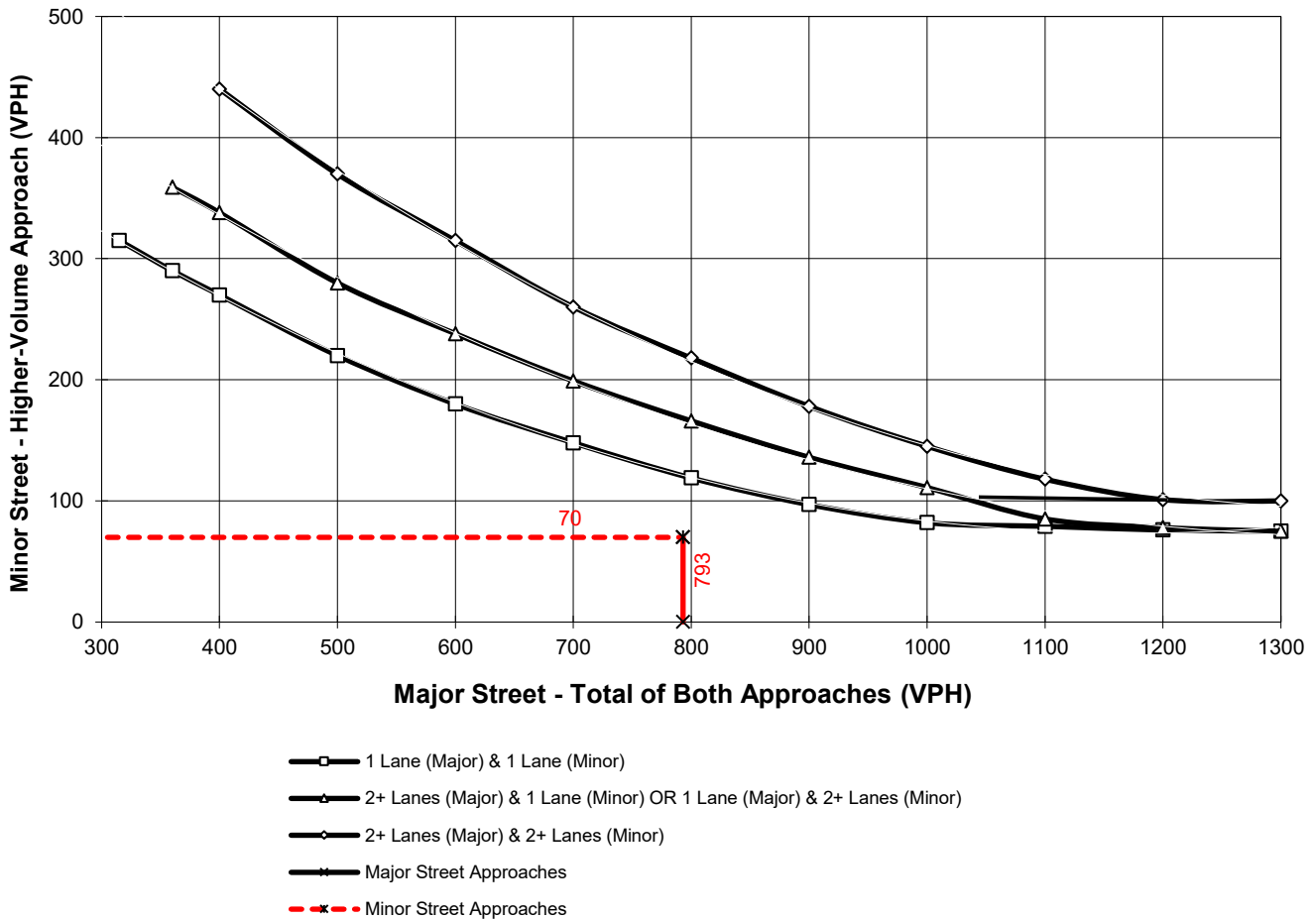
Major Street Name = **Harvill Avenue**

Total of Both Approaches (VPH) = **793**  
 Number of Approach Lanes Major Street = **2**

Minor Street Name = **Martin St.**

High Volume Approach (VPH) = **70**  
 Number of Approach Lanes Minor Street = **1**

**SIGNAL WARRANT NOT SATISFIED**



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

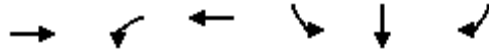


**APPENDIX 3.4: EXISTING (2022) CONDITIONS FREEWAY OFF-RAMP  
QUEUING ANALYSIS WORKSHEETS**



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## 8: I-215 SB Ramps &amp; Ramona Exwy.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1145	335	1144	417	419	214
v/c Ratio	0.92	0.93	0.54	0.80	0.80	0.39
Control Delay	44.6	48.7	4.4	48.2	48.3	20.4
Queue Delay	0.6	0.0	0.7	61.7	61.7	0.0
Total Delay	45.2	48.7	5.1	109.9	110.0	20.4
Queue Length 50th (ft)	383	93	54	284	285	70
Queue Length 95th (ft)	#523	m#346	24	#445	#448	138
Internal Link Dist (ft)	1408		344		1111	
Turn Bay Length (ft)		100		510		510
Base Capacity (vph)	1248	369	2133	522	523	549
Starvation Cap Reductn	0	0	579	0	0	0
Spillback Cap Reductn	14	0	0	325	326	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.91	0.74	2.12	2.13	0.39

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues  
 9: I-215 NB Ramps & Ramona Exwy.



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	164	1461	1084	763	205	209	631
v/c Ratio	0.68	0.72	0.77	0.76	0.36	0.37	1.08
Control Delay	42.4	28.0	34.7	12.0	30.2	30.3	92.3
Queue Delay	0.0	49.5	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	77.5	34.7	12.0	30.2	30.3	92.3
Queue Length 50th (ft)	120	576	349	76	114	117	~462
Queue Length 95th (ft)	m127	m634	457	268	184	187	#685
Internal Link Dist (ft)		344	532			1162	
Turn Bay Length (ft)	105			200			500
Base Capacity (vph)	303	2034	1403	1000	569	570	585
Starvation Cap Reductn	0	1006	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	1.42	0.77	0.76	0.36	0.37	1.08

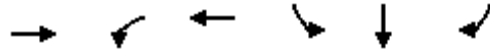
**Intersection Summary**

~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues  
8: I-215 SB Ramps & Ramona Exwy.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1272	373	924	431	439	186
v/c Ratio	1.03	1.01	0.43	0.83	0.84	0.32
Control Delay	69.1	69.7	5.2	50.4	51.6	10.3
Queue Delay	12.9	0.0	0.4	72.5	72.1	0.0
Total Delay	82.0	69.7	5.6	122.9	123.7	10.3
Queue Length 50th (ft)	~494	~242	74	296	304	24
Queue Length 95th (ft)	#633	#441	22	#468	#481	78
Internal Link Dist (ft)	1408		344		1111	
Turn Bay Length (ft)		100		510		510
Base Capacity (vph)	1231	369	2133	522	523	588
Starvation Cap Reductn	0	0	659	0	0	0
Spillback Cap Reductn	40	0	0	414	415	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.07	1.01	0.63	3.99	4.06	0.32

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Queues

9: I-215 NB Ramps & Ramona Exwy.



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	129	1748	971	694	197	202	490
v/c Ratio	0.60	0.82	0.62	0.67	0.38	0.39	0.91
Control Delay	39.1	30.9	28.0	7.4	31.7	31.9	52.7
Queue Delay	0.0	48.6	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	79.4	28.0	7.4	31.7	31.9	52.7
Queue Length 50th (ft)	88	664	289	32	109	112	276
Queue Length 95th (ft)	m82	m661	392	164	176	181	#457
Internal Link Dist (ft)		344	532			1162	
Turn Bay Length (ft)	105			200			500
Base Capacity (vph)	303	2139	1562	1038	569	570	585
Starvation Cap Reductn	0	992	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	1.52	0.62	0.67	0.35	0.35	0.84

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

## **APPENDIX 5.1: EAP (2025) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS**

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Intersection						
Int Delay, s/veh	2.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	
Traffic Vol, veh/h	15	0	6	4	0	5
Future Vol, veh/h	15	0	6	4	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	16	0	7	4	0	5

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	16	0	34
Stage 1	-	-	-	-	16
Stage 2	-	-	-	-	18
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1615	-	984
Stage 1	-	-	-	-	1012
Stage 2	-	-	-	-	1010
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1615	-	980
Mov Cap-2 Maneuver	-	-	-	-	908
Stage 1	-	-	-	-	1012
Stage 2	-	-	-	-	1006

Approach	EB	WB	NB
HCM Control Delay, s	0	4.3	8.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1069	-	-	1615	-
HCM Lane V/C Ratio	0.005	-	-	0.004	-
HCM Control Delay (s)	8.4	-	-	7.2	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-



Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	0	65	59	5	4	0
Future Vol, veh/h	0	65	59	5	4	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	71	64	5	4	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	69	0	-	0	138 67
Stage 1	-	-	-	-	67 -
Stage 2	-	-	-	-	71 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1545	-	-	-	860 1002
Stage 1	-	-	-	-	961 -
Stage 2	-	-	-	-	957 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1545	-	-	-	860 1002
Mov Cap-2 Maneuver	-	-	-	-	860 -
Stage 1	-	-	-	-	961 -
Stage 2	-	-	-	-	957 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1545	-	-	-	860
HCM Lane V/C Ratio	-	-	-	-	0.005
HCM Control Delay (s)	0	-	-	-	9.2
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	69	64	8	1	0
Future Vol, veh/h	0	69	64	8	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	75	70	9	1	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	79	0	-	0	150 75
Stage 1	-	-	-	-	75 -
Stage 2	-	-	-	-	75 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1532	-	-	-	847 992
Stage 1	-	-	-	-	953 -
Stage 2	-	-	-	-	953 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1532	-	-	-	847 992
Mov Cap-2 Maneuver	-	-	-	-	847 -
Stage 1	-	-	-	-	953 -
Stage 2	-	-	-	-	953 -

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1532	-	-	-	847
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s)	0	-	-	-	9.3
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘		↖	↗		↖	↗	
Traffic Vol, veh/h	9	0	11	5	0	1	5	555	3	0	276	6
Future Vol, veh/h	9	0	11	5	0	1	5	555	3	0	276	6
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	-	-	50	100	-	-	150	-	-	160	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	0	14	6	0	1	6	703	4	0	349	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	717	1072	179	892	1074	354	357	0	0	707	0	0
Stage 1	353	353	-	717	717	-	-	-	-	-	-	-
Stage 2	364	719	-	175	357	-	-	-	-	-	-	-
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	222	839	240	222	648	1213	-	-	901	-	-
Stage 1	642	634	-	391	437	-	-	-	-	-	-	-
Stage 2	633	436	-	816	632	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	319	221	839	235	221	648	1213	-	-	901	-	-
Mov Cap-2 Maneuver	435	330	-	325	330	-	-	-	-	-	-	-
Stage 1	639	634	-	389	435	-	-	-	-	-	-	-
Stage 2	629	434	-	802	632	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.2		15.4		0.1		0	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1213	-	-	435	839	325	648	901	-	-
HCM Lane V/C Ratio	0.005	-	-	0.026	0.017	0.019	0.002	-	-	-
HCM Control Delay (s)	8	-	-	13.5	9.4	16.3	10.6	0	-	-
HCM Lane LOS	A	-	-	B	A	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	0	0	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	5	863	491	1
Future Vol, veh/h	0	1	5	863	491	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1	5	938	534	1

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1014	268	535	0	-	0
Stage 1	535	-	-	-	-	-
Stage 2	479	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	238	736	1043	-	-	-
Stage 1	557	-	-	-	-	-
Stage 2	595	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	237	736	1043	-	-	-
Mov Cap-2 Maneuver	370	-	-	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	595	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1043	-	736	-	-
HCM Lane V/C Ratio	0.005	-	0.001	-	-
HCM Control Delay (s)	8.5	-	9.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

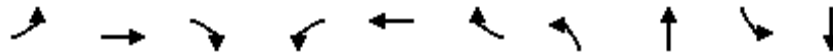
Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	12	0	58	0	0	0	60	556	0	0	281	10
Future Vol, veh/h	12	0	58	0	0	0	60	556	0	0	281	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	160	-	-	50	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	13	0	65	0	0	0	67	625	0	0	316	11

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	769	1081	164	917	1086	313	327	0	0	625	0	0
Stage 1	322	322	-	759	759	-	-	-	-	-	-	-
Stage 2	447	759	-	158	327	-	-	-	-	-	-	-
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	294	220	858	230	218	689	1244	-	-	966	-	-
Stage 1	670	655	-	369	418	-	-	-	-	-	-	-
Stage 2	566	418	-	834	651	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	282	208	858	204	206	689	1244	-	-	966	-	-
Mov Cap-2 Maneuver	392	310	-	289	303	-	-	-	-	-	-	-
Stage 1	634	655	-	349	395	-	-	-	-	-	-	-
Stage 2	536	395	-	771	651	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	0	0.8	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1244	-	-	713	-	966	-
HCM Lane V/C Ratio	0.054	-	-	0.11	-	-	-
HCM Control Delay (s)	8.1	-	-	10.7	0	0	-
HCM Lane LOS	A	-	-	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	-	0	-

Timings  
7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

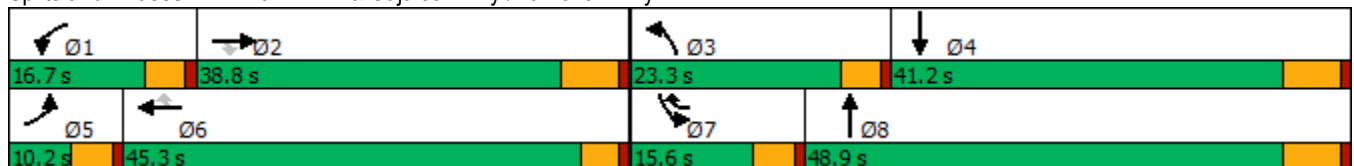


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↘	↑↑	↗	↘↗	↑↑	↗	↘↗	↑↔	↘↗	↑↔
Traffic Volume (vph)	51	721	53	177	718	120	315	360	205	123
Future Volume (vph)	51	721	53	177	718	120	315	360	205	123
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2		1	6	7	3	8	7	4
Permitted Phases			2			6				
Detector Phase	5	2	2	1	6	7	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	36.2	36.2	9.6	32.5	9.6	9.6	16.2	9.6	41.2
Total Split (s)	10.2	38.8	38.8	16.7	45.3	15.6	23.3	48.9	15.6	41.2
Total Split (%)	8.5%	32.3%	32.3%	13.9%	37.8%	13.0%	19.4%	40.8%	13.0%	34.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	3.5	3.6	3.6	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	4.5	4.6	4.6	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	5.5	29.1	29.1	10.2	37.7	52.3	15.1	42.9	10.1	37.9
Actuated g/C Ratio	0.05	0.26	0.26	0.09	0.33	0.46	0.13	0.38	0.09	0.33
v/c Ratio	0.64	0.84	0.10	0.61	0.65	0.16	0.73	0.35	0.71	0.14
Control Delay	86.8	49.7	0.4	59.5	35.9	3.6	57.8	26.0	64.5	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.8	49.7	0.4	59.5	35.9	3.6	57.8	26.0	64.5	25.1
LOS	F	D	A	E	D	A	E	C	E	C
Approach Delay		48.9			36.2			39.3		47.8
Approach LOS		D			D			D		D

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 114  
 Natural Cycle: 100  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.84  
 Intersection Signal Delay: 41.9  
 Intersection LOS: D  
 Intersection Capacity Utilization 61.3%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘↗	↑↑	↗	↘↗	↑↘		↘↗	↑↘	
Traffic Volume (veh/h)	51	721	53	177	718	120	315	360	80	205	123	28
Future Volume (veh/h)	51	721	53	177	718	120	315	360	80	205	123	28
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		0.99	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	55	775	6	190	772	61	339	387	32	220	132	28
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	71	907	405	254	1027	588	408	1334	110	283	1072	222
Arrive On Green	0.04	0.25	0.25	0.07	0.28	0.28	0.12	0.40	0.40	0.08	0.36	0.36
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	3373	278	3510	2978	616
Grp Volume(v), veh/h	55	775	6	190	772	61	339	206	213	220	79	81
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1846	1755	1805	1789
Q Serve(g_s), s	3.3	22.1	0.3	5.7	21.0	2.7	10.2	8.4	8.5	6.6	3.2	3.3
Cycle Q Clear(g_c), s	3.3	22.1	0.3	5.7	21.0	2.7	10.2	8.4	8.5	6.6	3.2	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.34
Lane Grp Cap(c), veh/h	71	907	405	254	1027	588	408	714	730	283	650	644
V/C Ratio(X)	0.77	0.85	0.01	0.75	0.75	0.10	0.83	0.29	0.29	0.78	0.12	0.13
Avail Cap(c_a), veh/h	94	1090	486	393	1364	738	608	714	730	358	650	644
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	51.4	38.5	30.4	49.1	35.2	22.6	46.7	22.3	22.3	48.7	23.1	23.2
Incr Delay (d2), s/veh	17.6	5.9	0.0	1.6	1.7	0.1	3.8	1.0	1.0	6.1	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	1.8	9.9	0.1	2.5	8.9	1.0	4.5	3.5	3.7	3.0	1.3	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.0	44.4	30.4	50.7	36.8	22.7	50.5	23.3	23.3	54.7	23.5	23.6
LnGrp LOS	E	D	C	D	D	C	D	C	C	D	C	C
Approach Vol, veh/h		836			1023			758			380	
Approach Delay, s/veh		45.9			38.6			35.5			41.6	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.4	33.3	17.2	45.1	8.8	36.9	13.3	48.9				
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	* 6.2	4.6	6.2				
Max Green Setting (Gmax), s	12.1	32.6	18.7	35.0	5.6	* 41	11.0	42.7				
Max Q Clear Time (g_c+I1), s	7.7	24.1	12.2	5.3	5.3	23.0	8.6	10.5				
Green Ext Time (p_c), s	0.1	3.0	0.4	0.7	0.0	4.6	0.1	2.2				

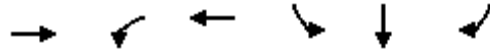
Intersection Summary

HCM 6th Ctrl Delay	40.2
HCM 6th LOS	D

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings  
8: I-215 SB Ramps & Ramona Exwy.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↖	↑↑	↖	↖	↖
Traffic Volume (vph)	415	280	960	843	2	170
Future Volume (vph)	415	280	960	843	2	170
Turn Type	NA	Prot	NA	Split	NA	Perm
Protected Phases	2	1	6	4	4	
Permitted Phases						4
Detector Phase	2	1	6	4	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	9.5	31.0	10.5	10.5	10.5
Total Split (s)	44.0	27.0	71.0	39.0	39.0	39.0
Total Split (%)	40.0%	24.5%	64.5%	35.5%	35.5%	35.5%
Yellow Time (s)	5.0	3.5	5.0	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.5	6.0	5.5	5.5	5.5
Lead/Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes				
Recall Mode	C-Max	None	C-Max	Max	Max	Max
Act Effct Green (s)	39.8	20.7	65.0	33.5	33.5	33.5
Actuated g/C Ratio	0.36	0.19	0.59	0.30	0.30	0.30
v/c Ratio	0.54	0.84	0.46	0.82	0.83	0.30
Control Delay	22.6	40.2	5.6	50.2	50.4	11.3
Queue Delay	0.0	0.0	0.5	53.1	53.0	0.0
Total Delay	22.6	40.2	6.1	103.3	103.4	11.3
LOS	C	D	A	F	F	B
Approach Delay	22.6		13.8		88.0	
Approach LOS	C		B		F	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 34 (31%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.84  
 Intersection Signal Delay: 41.3  
 Intersection LOS: D  
 Intersection Capacity Utilization 120.4%  
 ICU Level of Service H  
 Analysis Period (min) 15

Splits and Phases: 8: I-215 SB Ramps & Ramona Exwy.





HCM 6th Signalized Intersection Summary  
 8: I-215 SB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑					↖	↑	↗
Traffic Volume (veh/h)	0	415	293	280	960	0	0	0	0	843	2	170
Future Volume (veh/h)	0	415	293	280	960	0	0	0	0	843	2	170
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	423	170	286	980	0				861	0	110
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	938	373	320	2133	0				1102	0	490
Arrive On Green	0.00	0.37	0.37	0.11	0.35	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	2607	998	1810	3705	0				3619	0	1610
Grp Volume(v), veh/h	0	303	290	286	980	0				861	0	110
Grp Sat Flow(s),veh/h/ln	0	1805	1705	1810	1805	0				1810	0	1610
Q Serve(g_s), s	0.0	13.9	14.1	17.2	23.0	0.0				23.9	0.0	5.6
Cycle Q Clear(g_c), s	0.0	13.9	14.1	17.2	23.0	0.0				23.9	0.0	5.6
Prop In Lane	0.00		0.59	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	674	637	320	2133	0				1102	0	490
V/C Ratio(X)	0.00	0.45	0.46	0.89	0.46	0.00				0.78	0.00	0.22
Avail Cap(c_a), veh/h	0	674	637	370	2133	0				1102	0	490
HCM Platoon Ratio	1.00	1.00	1.00	0.60	0.60	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.48	0.48	0.80	0.80	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	25.9	26.0	48.2	22.0	0.0				34.9	0.0	28.6
Incr Delay (d2), s/veh	0.0	1.0	1.1	17.9	0.6	0.0				5.5	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.8	5.6	9.5	10.4	0.0				10.8	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	27.0	27.2	66.0	22.5	0.0				40.4	0.0	29.6
LnGrp LOS	A	C	C	E	C	A				D	A	C
Approach Vol, veh/h		593			1266						971	
Approach Delay, s/veh		27.1			32.4						39.2	
Approach LOS		C			C						D	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	23.9	47.1		39.0		71.0						
Change Period (Y+Rc), s	4.5	6.0		5.5		6.0						
Max Green Setting (Gmax), s	22.5	38.0		33.5		65.0						
Max Q Clear Time (g_c+I1), s	19.2	16.1		25.9		25.0						
Green Ext Time (p_c), s	0.3	1.9		2.4		4.3						

Intersection Summary

HCM 6th Ctrl Delay	33.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Timings  
 9: I-215 NB Ramps & Ramona Exwy.



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations	↶	↷	↶	↷	↶	↷	↷
Traffic Volume (vph)	126	1136	918	589	324	4	487
Future Volume (vph)	126	1136	918	589	324	4	487
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	5	2	6		8	8	
Permitted Phases				6			8
Detector Phase	5	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	11.0	26.0	26.0	10.5	10.5	10.5
Total Split (s)	23.0	68.0	45.0	45.0	42.0	42.0	42.0
Total Split (%)	20.9%	61.8%	40.9%	40.9%	38.2%	38.2%	38.2%
Yellow Time (s)	3.5	5.0	5.0	5.0	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.5	5.5	5.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None
Act Effct Green (s)	13.2	64.8	47.1	47.1	33.7	33.7	33.7
Actuated g/C Ratio	0.12	0.59	0.43	0.43	0.31	0.31	0.31
v/c Ratio	0.60	0.55	0.61	0.60	0.32	0.32	0.92
Control Delay	50.7	14.1	27.9	6.2	30.4	30.3	54.5
Queue Delay	0.0	24.6	0.0	0.0	0.0	0.0	0.0
Total Delay	50.7	38.7	27.9	6.2	30.4	30.3	54.5
LOS	D	D	C	A	C	C	D
Approach Delay		39.9	19.4			44.8	
Approach LOS		D	B			D	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 32.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 120.4%  
 ICU Level of Service H  
 Analysis Period (min) 15




















Splits and Phases: 9: I-215 NB Ramps & Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 9: I-215 NB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	1136	0	0	918	589	324	4	487	0	0	0
Future Volume (veh/h)	126	1136	0	0	918	589	324	4	487	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	130	1171	0	0	946	459	337	0	350			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	158	2347	0	0	1884	840	888	0	395			
Arrive On Green	0.17	1.00	0.00	0.00	0.52	0.52	0.25	0.00	0.25			
Sat Flow, veh/h	1810	3705	0	0	3705	1610	3619	0	1610			
Grp Volume(v), veh/h	130	1171	0	0	946	459	337	0	350			
Grp Sat Flow(s),veh/h/ln	1810	1805	0	0	1805	1610	1810	0	1610			
Q Serve(g_s), s	7.6	0.0	0.0	0.0	18.7	21.0	8.5	0.0	23.1			
Cycle Q Clear(g_c), s	7.6	0.0	0.0	0.0	18.7	21.0	8.5	0.0	23.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	158	2347	0	0	1884	840	888	0	395			
V/C Ratio(X)	0.82	0.50	0.00	0.00	0.50	0.55	0.38	0.00	0.89			
Avail Cap(c_a), veh/h	304	2347	0	0	1884	840	1201	0	534			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.72	0.72	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	44.6	0.0	0.0	0.0	17.0	17.6	34.5	0.0	40.0			
Incr Delay (d2), s/veh	7.5	0.5	0.0	0.0	1.0	2.5	0.3	0.0	13.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.4	0.2	0.0	0.0	7.2	7.5	3.7	0.0	10.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	0.5	0.0	0.0	18.0	20.1	34.8	0.0	53.0			
LnGrp LOS	D	A	A	A	B	C	C	A	D			
Approach Vol, veh/h		1301			1405			687				
Approach Delay, s/veh		5.7			18.7			44.1				
Approach LOS		A			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.5			14.1	63.4		32.5				
Change Period (Y+Rc), s		6.0			4.5	6.0		5.5				
Max Green Setting (Gmax), s		62.0			18.5	39.0		36.5				
Max Q Clear Time (g_c+I1), s		2.0			9.6	23.0		25.1				
Green Ext Time (p_c), s		5.6			0.2	4.4		1.9				

Intersection Summary

HCM 6th Ctrl Delay	18.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↔	↔	
Traffic Vol, veh/h	4	0	3	5	0	5
Future Vol, veh/h	4	0	3	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	0	3	5	0	5

Major/Minor	Minor2	Major2	
Conflicting Flow All	11	5	0
Stage 1	11	-	-
Stage 2	0	-	-
Critical Hdwy	6.5	6.2	4.1
Critical Hdwy Stg 1	5.5	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	4	3.3	2.2
Pot Cap-1 Maneuver	888	1084	-
Stage 1	890	-	-
Stage 2	-	-	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	0	1084	-
Mov Cap-2 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-

Approach	EB	WB
HCM Control Delay, s		
HCM LOS	-	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	74	67	2	4	0
Future Vol, veh/h	0	74	67	2	4	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	80	73	2	4	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	75	0	-	0	154 74
Stage 1	-	-	-	-	74 -
Stage 2	-	-	-	-	80 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1537	-	-	-	842 993
Stage 1	-	-	-	-	954 -
Stage 2	-	-	-	-	948 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1537	-	-	-	842 993
Mov Cap-2 Maneuver	-	-	-	-	842 -
Stage 1	-	-	-	-	954 -
Stage 2	-	-	-	-	948 -

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1537	-	-	-	842
HCM Lane V/C Ratio	-	-	-	-	0.005
HCM Control Delay (s)	0	-	-	-	9.3
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	78	69	3	10	0
Future Vol, veh/h	0	78	69	3	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	85	75	3	11	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	78	0	-	0	162 77
Stage 1	-	-	-	-	77 -
Stage 2	-	-	-	-	85 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1533	-	-	-	834 990
Stage 1	-	-	-	-	951 -
Stage 2	-	-	-	-	943 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1533	-	-	-	834 990
Mov Cap-2 Maneuver	-	-	-	-	834 -
Stage 1	-	-	-	-	951 -
Stage 2	-	-	-	-	943 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1533	-	-	-	834
HCM Lane V/C Ratio	-	-	-	-	0.013
HCM Control Delay (s)	0	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗		↖	↖↗		↖	↖↗	
Traffic Vol, veh/h	4	4	0	3	2	4	0	358	11	4	414	6
Future Vol, veh/h	4	4	0	3	2	4	0	358	11	4	414	6
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	-	-	50	100	-	-	150	-	-	160	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	4	4	0	3	2	4	0	402	12	4	465	7

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	679	891	236	651	888	207	472	0	0	414	0	0
Stage 1	477	477	-	408	408	-	-	-	-	-	-	-
Stage 2	202	414	-	243	480	-	-	-	-	-	-	-
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	341	284	772	358	285	805	1100	-	-	1156	-	-
Stage 1	543	559	-	596	600	-	-	-	-	-	-	-
Stage 2	787	597	-	745	558	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	337	283	772	354	284	805	1100	-	-	1156	-	-
Mov Cap-2 Maneuver	436	391	-	458	393	-	-	-	-	-	-	-
Stage 1	543	557	-	596	600	-	-	-	-	-	-	-
Stage 2	780	597	-	736	556	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.9	11.7	0	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1100	-	-	412	-	458	597	1156	-	-
HCM Lane V/C Ratio	-	-	-	0.022	-	0.007	0.011	0.004	-	-
HCM Control Delay (s)	0	-	-	13.9	0	12.9	11.1	8.1	-	-
HCM Lane LOS	A	-	-	B	A	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	0	0	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	↑↑	↑↑	
Traffic Vol, veh/h	1	7	2	568	717	0
Future Vol, veh/h	1	7	2	568	717	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	8	2	617	779	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1092	390	779	0	-	0
Stage 1	779	-	-	-	-	-
Stage 2	313	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	212	614	847	-	-	-
Stage 1	418	-	-	-	-	-
Stage 2	721	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	212	614	847	-	-	-
Mov Cap-2 Maneuver	327	-	-	-	-	-
Stage 1	417	-	-	-	-	-
Stage 2	721	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	847	-	553	-	-
HCM Lane V/C Ratio	0.003	-	0.016	-	-
HCM Control Delay (s)	9.3	-	11.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



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	6	0	82	0	0	0	67	365	1	0	418	5
Future Vol, veh/h	6	0	82	0	0	0	67	365	1	0	418	5
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	-	-	-	-	-	-	160	-	-	50	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	7	0	95	0	0	0	78	424	1	0	486	6

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	857	1070	246	824	1073	213	492	0	0	425	0	0
Stage 1	489	489	-	581	581	-	-	-	-	-	-	-
Stage 2	368	581	-	243	492	-	-	-	-	-	-	-
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	254	223	760	269	222	798	1082	-	-	1145	-	-
Stage 1	534	553	-	472	503	-	-	-	-	-	-	-
Stage 2	630	503	-	745	551	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	240	207	760	222	206	798	1082	-	-	1145	-	-
Mov Cap-2 Maneuver	353	324	-	325	309	-	-	-	-	-	-	-
Stage 1	496	553	-	438	467	-	-	-	-	-	-	-
Stage 2	585	467	-	652	551	-	-	-	-	-	-	-

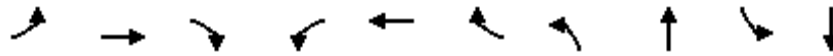
Approach	EB	WB	NB	SB
HCM Control Delay, s	11	0	1.3	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1082	-	-	705	-	1145	-
HCM Lane V/C Ratio	0.072	-	-	0.145	-	-	-
HCM Control Delay (s)	8.6	-	-	11	0	0	-
HCM Lane LOS	A	-	-	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.5	-	0	-

Timings  
7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022

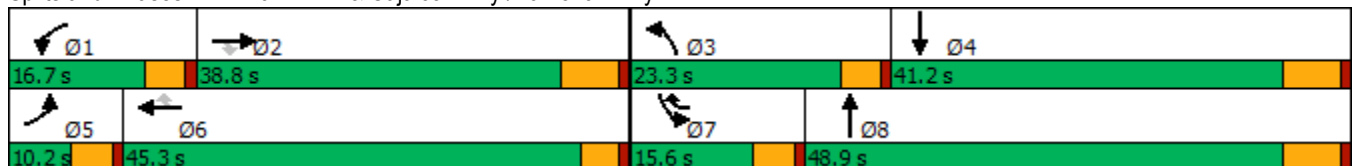


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↘	↑↑	↗	↘↗	↑↑	↗	↘↗	↑↔	↘↗	↑↔
Traffic Volume (vph)	26	767	220	140	676	203	175	154	249	227
Future Volume (vph)	26	767	220	140	676	203	175	154	249	227
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2		1	6	7	3	8	7	4
Permitted Phases			2			6				
Detector Phase	5	2	2	1	6	7	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	36.2	36.2	9.6	32.5	9.6	9.6	16.2	9.6	41.2
Total Split (s)	10.2	38.8	38.8	16.7	45.3	15.6	23.3	48.9	15.6	41.2
Total Split (%)	8.5%	32.3%	32.3%	13.9%	37.8%	13.0%	19.4%	40.8%	13.0%	34.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	3.5	3.6	3.6	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	4.5	4.6	4.6	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	5.4	30.4	30.4	9.3	40.0	55.3	10.6	42.8	10.7	42.9
Actuated g/C Ratio	0.05	0.26	0.26	0.08	0.35	0.48	0.09	0.37	0.09	0.37
v/c Ratio	0.33	0.86	0.39	0.54	0.58	0.24	0.58	0.23	0.82	0.22
Control Delay	65.3	51.0	6.3	58.4	33.3	3.1	58.0	14.1	72.3	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.3	51.0	6.3	58.4	33.3	3.1	58.0	14.1	72.3	24.9
LOS	E	D	A	E	C	A	E	B	E	C
Approach Delay		41.6			30.8			30.7		47.9
Approach LOS		D			C			C		D

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 114.8  
 Natural Cycle: 100  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 37.3  
 Intersection LOS: D  
 Intersection Capacity Utilization 59.0%  
 ICU Level of Service B  
 Analysis Period (min) 15

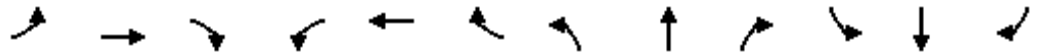
Splits and Phases: 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖↗	↗↘	↘	↖↗	↗↘		↖↗	↗↘	
Traffic Volume (veh/h)	26	767	220	140	676	203	175	154	132	249	227	39
Future Volume (veh/h)	26	767	220	140	676	203	175	154	132	249	227	39
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	28	825	124	151	727	138	188	166	74	268	244	31
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	47	949	423	213	1074	629	254	954	408	328	1317	166
Arrive On Green	0.03	0.26	0.26	0.06	0.30	0.30	0.07	0.39	0.39	0.09	0.41	0.41
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	2463	1052	3510	3227	405
Grp Volume(v), veh/h	28	825	124	151	727	138	188	120	120	268	135	140
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1711	1755	1805	1827
Q Serve(g_s), s	1.7	24.1	6.8	4.7	19.5	6.3	5.8	4.8	5.1	8.3	5.3	5.4
Cycle Q Clear(g_c), s	1.7	24.1	6.8	4.7	19.5	6.3	5.8	4.8	5.1	8.3	5.3	5.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.62	1.00		0.22
Lane Grp Cap(c), veh/h	47	949	423	213	1074	629	254	699	662	328	737	746
V/C Ratio(X)	0.59	0.87	0.29	0.71	0.68	0.22	0.74	0.17	0.18	0.82	0.18	0.19
Avail Cap(c_a), veh/h	92	1067	476	385	1336	746	595	699	662	350	737	746
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	53.1	38.8	32.5	50.8	34.1	22.4	50.1	22.2	22.3	49.1	20.9	20.9
Incr Delay (d2), s/veh	4.3	7.3	0.4	1.6	1.0	0.2	1.6	0.5	0.6	12.1	0.5	0.6
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	11.0	2.6	2.0	8.2	2.3	2.5	2.0	2.0	4.0	2.2	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.5	46.1	32.8	52.5	35.1	22.6	51.7	22.7	22.9	61.2	21.4	21.5
LnGrp LOS	E	D	C	D	D	C	D	C	C	E	C	C
Approach Vol, veh/h		977			1016			428			543	
Approach Delay, s/veh		44.7			36.0			35.5			41.1	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.3	35.2	12.6	51.2	7.5	39.0	14.9	48.9				
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	* 6.2	4.6	6.2				
Max Green Setting (Gmax), s	12.1	32.6	18.7	35.0	5.6	* 41	11.0	42.7				
Max Q Clear Time (g_c+I1), s	6.7	26.1	7.8	7.4	3.7	21.5	10.3	7.1				
Green Ext Time (p_c), s	0.1	2.9	0.2	1.3	0.0	4.7	0.0	1.2				

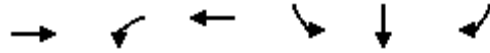
Intersection Summary

HCM 6th Ctrl Delay	39.7
HCM 6th LOS	D

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings  
8: I-215 SB Ramps & Ramona Exwy.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↑↑	↑	↑	↑
Traffic Volume (vph)	639	322	749	802	8	147
Future Volume (vph)	639	322	749	802	8	147
Turn Type	NA	Prot	NA	Split	NA	Perm
Protected Phases	2	1	6	4	4	
Permitted Phases						4
Detector Phase	2	1	6	4	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	9.5	31.0	10.5	10.5	10.5
Total Split (s)	44.0	27.0	71.0	39.0	39.0	39.0
Total Split (%)	40.0%	24.5%	64.5%	35.5%	35.5%	35.5%
Yellow Time (s)	5.0	3.5	5.0	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.5	6.0	5.5	5.5	5.5
Lead/Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes				
Recall Mode	C-Max	None	C-Max	Max	Max	Max
Act Effct Green (s)	38.7	21.8	65.0	33.5	33.5	33.5
Actuated g/C Ratio	0.35	0.20	0.59	0.30	0.30	0.30
v/c Ratio	0.74	0.91	0.35	0.78	0.79	0.25
Control Delay	33.2	52.0	6.7	46.5	47.5	5.8
Queue Delay	0.0	0.0	0.3	55.9	55.6	0.0
Total Delay	33.3	52.0	7.0	102.4	103.1	5.8
LOS	C	D	A	F	F	A
Approach Delay	33.3		20.5		87.9	
Approach LOS	C		C		F	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 34 (31%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 46.3  
 Intersection LOS: D  
 Intersection Capacity Utilization 113.9%  
 ICU Level of Service H  
 Analysis Period (min) 15

Splits and Phases: 8: I-215 SB Ramps & Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 8: I-215 SB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑					↖	↖	↖
Traffic Volume (veh/h)	0	639	285	322	749	0	0	0	0	802	8	147
Future Volume (veh/h)	0	639	285	322	749	0	0	0	0	802	8	147
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	645	180	325	757	0				816	0	89
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99				0.99	0.99	0.99
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	985	275	356	2133	0				1102	0	490
Arrive On Green	0.00	0.35	0.35	0.12	0.35	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	2883	777	1810	3705	0				3619	0	1610
Grp Volume(v), veh/h	0	417	408	325	757	0				816	0	89
Grp Sat Flow(s),veh/h/ln	0	1805	1760	1810	1805	0				1810	0	1610
Q Serve(g_s), s	0.0	21.4	21.4	19.5	17.0	0.0				22.3	0.0	4.5
Cycle Q Clear(g_c), s	0.0	21.4	21.4	19.5	17.0	0.0				22.3	0.0	4.5
Prop In Lane	0.00		0.44	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	638	622	356	2133	0				1102	0	490
V/C Ratio(X)	0.00	0.65	0.66	0.91	0.35	0.00				0.74	0.00	0.18
Avail Cap(c_a), veh/h	0	638	622	370	2133	0				1102	0	490
HCM Platoon Ratio	1.00	1.00	1.00	0.60	0.60	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.40	0.40	0.89	0.89	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	29.9	29.9	47.6	20.0	0.0				34.3	0.0	28.2
Incr Delay (d2), s/veh	0.0	2.1	2.2	23.8	0.4	0.0				4.5	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.1	8.9	11.3	7.7	0.0				10.0	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	32.0	32.1	71.4	20.4	0.0				38.8	0.0	29.0
LnGrp LOS	A	C	C	E	C	A				D	A	C
Approach Vol, veh/h		825			1082						905	
Approach Delay, s/veh		32.1			35.7						37.9	
Approach LOS		C			D						D	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	26.1	44.9		39.0		71.0						
Change Period (Y+Rc), s	4.5	6.0		5.5		6.0						
Max Green Setting (Gmax), s	22.5	38.0		33.5		65.0						
Max Q Clear Time (g_c+I1), s	21.5	23.4		24.3		19.0						
Green Ext Time (p_c), s	0.1	2.5		2.5		3.1						

Intersection Summary

HCM 6th Ctrl Delay	35.3
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Timings  
9: I-215 NB Ramps & Ramona Exwy.



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations	↙	↕↕	↕↕	↘	↙	↕	↘
Traffic Volume (vph)	99	1344	775	519	298	4	367
Future Volume (vph)	99	1344	775	519	298	4	367
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	5	2	6		8	8	
Permitted Phases				6			8
Detector Phase	5	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	11.0	26.0	26.0	10.5	10.5	10.5
Total Split (s)	23.0	68.0	45.0	45.0	42.0	42.0	42.0
Total Split (%)	20.9%	61.8%	40.9%	40.9%	38.2%	38.2%	38.2%
Yellow Time (s)	3.5	5.0	5.0	5.0	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.5	5.5	5.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None
Act Effct Green (s)	11.7	70.3	54.1	54.1	28.2	28.2	28.2
Actuated g/C Ratio	0.11	0.64	0.49	0.49	0.26	0.26	0.26
v/c Ratio	0.55	0.62	0.46	0.52	0.37	0.36	0.83
Control Delay	41.3	19.4	21.4	3.9	34.5	34.3	46.1
Queue Delay	0.0	48.4	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	67.8	21.4	3.9	34.5	34.3	46.1
LOS	D	E	C	A	C	C	D
Approach Delay		66.0	14.4			40.8	
Approach LOS		E	B			D	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 41.5  
 Intersection LOS: D  
 Intersection Capacity Utilization 113.9%  
 ICU Level of Service H  
 Analysis Period (min) 15

Splits and Phases: 9: I-215 NB Ramps & Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 9: I-215 NB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↑↑	↗	↘	↗	↗			
Traffic Volume (veh/h)	99	1344	0	0	775	519	298	4	367	0	0	0
Future Volume (veh/h)	99	1344	0	0	775	519	298	4	367	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	105	1430	0	0	824	402	320	0	309			
Peak Hour Factor	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			
Cap, veh/h	131	2437	0	0	2027	903	798	0	355			
Arrive On Green	0.15	1.00	0.00	0.00	0.56	0.56	0.22	0.00	0.22			
Sat Flow, veh/h	1810	3705	0	0	3705	1608	3619	0	1610			
Grp Volume(v), veh/h	105	1430	0	0	824	402	320	0	309			
Grp Sat Flow(s),veh/h/ln	1810	1805	0	0	1805	1608	1810	0	1610			
Q Serve(g_s), s	6.2	0.0	0.0	0.0	14.3	16.1	8.3	0.0	20.4			
Cycle Q Clear(g_c), s	6.2	0.0	0.0	0.0	14.3	16.1	8.3	0.0	20.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	131	2437	0	0	2027	903	798	0	355			
V/C Ratio(X)	0.80	0.59	0.00	0.00	0.41	0.45	0.40	0.00	0.87			
Avail Cap(c_a), veh/h	304	2437	0	0	2027	903	1201	0	534			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.58	0.58	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	46.2	0.0	0.0	0.0	13.7	14.1	36.7	0.0	41.4			
Incr Delay (d2), s/veh	6.4	0.6	0.0	0.0	0.6	1.6	0.3	0.0	9.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.7	0.2	0.0	0.0	5.3	5.5	3.6	0.0	8.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.6	0.6	0.0	0.0	14.3	15.7	37.0	0.0	51.2			
LnGrp LOS	D	A	A	A	B	B	D	A	D			
Approach Vol, veh/h		1535			1226			629				
Approach Delay, s/veh		4.2			14.8			44.0				
Approach LOS		A			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		80.2			12.5	67.8		29.8				
Change Period (Y+Rc), s		6.0			4.5	6.0		5.5				
Max Green Setting (Gmax), s		62.0			18.5	39.0		36.5				
Max Q Clear Time (g_c+I1), s		2.0			8.2	18.1		22.4				
Green Ext Time (p_c), s		7.7			0.1	3.9		1.9				

Intersection Summary

HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

## **APPENDIX 5.2: EAP (2025) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS**



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### Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

<u>DIST</u>	<u>CO</u>	<u>RTE</u>	<u>PM</u>	<u>CALC</u>	<u>TRAFFIC CONDITIONS</u>	<u>EAP (2025)</u>
Jurisdiction: <u>County of Riverside</u>				<u>CS</u>		<u>DATE 09/21/22</u>
Major Street: <u>Perry St.</u>				<u>CS</u>		<u>DATE 09/21/22</u>
Minor Street: <u>Driveway 1</u>					Critical Approach Speed (Major) <u>25</u> mph	Critical Approach Speed (Minor) <u>25</u> mph
Major Street Approach Lanes =		<u>1</u>	lane	Minor Street Approach Lanes =		<u>1</u> lane
Major Street Future ADT =		<u>192</u>	vpd	Minor Street Future ADT =		<u>41</u> vpd
Speed limit or critical speed on major street traffic > 64 km/h (40 mph); .....					<input type="text"/>	
In built up area of isolated community of < 10,000 population .....					or	<input type="text"/>

**URBAN (U)**

**(Based on Estimated Average Daily Traffic - See Note)**

<u>URBAN</u>	<u>RURAL</u>	Minimum Requirements EADT			
<b>XX</b>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<b>CONDITION A - Minimum Vehicular Volume</b>	<b>Not Satisfied</b>				
<u>Satisfied</u>	<b>XX</b>				
Number of lanes for moving traffic on each approach		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>	<u>Minor Street</u>				
1 <b>192</b>	1 <b>41</b>	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
<b>CONDITION B - Interruption of Continuous Traffic</b>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>	<b>XX</b>				
Number of lanes for moving traffic on each approach		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>	<u>Minor Street</u>				
1 <b>192</b>	1 <b>41</b>	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
<b>Combination of CONDITIONS A + B</b>		2 CONDITIONS 80%		2 CONDITIONS 80%	
<u>Satisfied</u>	<b>XX</b>				
No one condition satisfied, but following conditions fulfilled 80% of more .....					
	<u>A</u>				
	<b>2%</b>				
	<u>B</u>				
	<b>2%</b>				

**Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.**

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



### Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

<u>DIST</u>	<u>CO</u>	<u>RTE</u>	<u>PM</u>	<u>CALC</u>	<u>TRAFFIC CONDITIONS</u>	<u>EAP (2025)</u>
Jurisdiction: <u>County of Riverside</u>				<u>CS</u>		<u>DATE 09/21/22</u>
Major Street: <u>Martin St.</u>				<u>CS</u>		<u>DATE 09/21/22</u>
Minor Street: <u>Driveway 2</u>					Critical Approach Speed (Major) <u>25</u> mph	
					Critical Approach Speed (Minor) <u>25</u> mph	
Major Street Approach Lanes =		<u>1</u>	lane	Minor Street Approach Lanes =		<u>1</u> lane
Major Street Future ADT =		<u>1,851</u>	vpd	Minor Street Future ADT =		<u>34</u> vpd
Speed limit or critical speed on major street traffic > 64 km/h (40 mph); .....			<input type="checkbox"/>	or		<b>URBAN (U)</b>
In built up area of isolated community of < 10,000 population .....			<input type="checkbox"/>			

**(Based on Estimated Average Daily Traffic - See Note)**

<u>URBAN</u>	<u>RURAL</u>	Minimum Requirements			
<b>XX</b>		<b>EADT</b>			
<b>CONDITION A - Minimum Vehicular Volume</b>		Vehicles Per Day on Major Street		Vehicles Per Day on Higher-Volume Minor Street Approach	
<u>Satisfied</u>	<u>Not Satisfied</u>	(Total of Both Approaches)		(One Direction Only)	
	<b>XX</b>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
Number of lanes for moving traffic on each approach					
<u>Major Street</u>	<u>Minor Street</u>				
<u>1 1,851</u>	<u>1 34</u>	8,000	5,600	2,400	1,680
<u>2 +</u>	<u>1</u>	9,600	6,720	2,400	1,680
<u>2 +</u>	<u>2 +</u>	9,600	6,720	3,200	2,240
<u>1</u>	<u>2 +</u>	8,000	5,600	3,200	2,240
<b>CONDITION B - Interruption of Continuous Traffic</b>		Vehicles Per Day on Major Street		Vehicles Per Day on Higher-Volume Minor Street Approach	
<u>Satisfied</u>	<u>Not Satisfied</u>	(Total of Both Approaches)		(One Direction Only)	
	<b>XX</b>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
Number of lanes for moving traffic on each approach					
<u>Major Street</u>	<u>Minor Street</u>				
<u>1 1,851</u>	<u>1 34</u>	12,000	8,400	1,200	850
<u>2 +</u>	<u>1</u>	14,400	10,080	1,200	850
<u>2 +</u>	<u>2 +</u>	14,400	10,080	1,600	1,120
<u>1</u>	<u>2 +</u>	12,000	8,400	1,600	1,120
<b>Combination of CONDITIONS A + B</b>		2 CONDITIONS		2 CONDITIONS	
<u>Satisfied</u>	<u>Not Satisfied</u>	80%		80%	
No one condition satisfied, but following conditions fulfilled 80% of more .....	<b>XX</b>				
	<u>A</u>				
	<b>1%</b>				
	<u>B</u>				
	<b>3%</b>				

**Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.**

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



### Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

<u>DIST</u>	<u>CO</u>	<u>RTE</u>	<u>PM</u>	<u>CALC</u>	<u>TRAFFIC CONDITIONS</u>	<u>EAP (2025)</u>
Jurisdiction: <u>County of Riverside</u>				<u>CS</u>		<u>DATE 09/21/22</u>
Major Street: <u>Martin St.</u>				<u>CS</u>		<u>DATE 09/21/22</u>
Minor Street: <u>Driveway 3</u>					Critical Approach Speed (Major) <u>25</u> mph	Critical Approach Speed (Minor) <u>25</u> mph
Major Street Approach Lanes =		<u>1</u>	lane		Minor Street Approach Lanes =	<u>1</u> lane
Major Street Future ADT =		<u>1,971</u>	vpd		Minor Street Future ADT =	<u>86</u> vpd
Speed limit or critical speed on major street traffic > 64 km/h (40 mph); .....						<input type="checkbox"/>
						or
In built up area of isolated community of < 10,000 population .....						<input type="checkbox"/>

**URBAN (U)**

**(Based on Estimated Average Daily Traffic - See Note)**

<u>URBAN</u>	<u>RURAL</u>	Minimum Requirements			
<b>XX</b>		<b>EADT</b>			
<b>CONDITION A - Minimum Vehicular Volume</b>		Vehicles Per Day on Major Street		Vehicles Per Day on Higher-Volume Minor Street Approach	
<u>Satisfied</u>		<u>Not Satisfied</u>		<u>(One Direction Only)</u>	
		<b>XX</b>			
Number of lanes for moving traffic on each approach		(Total of Both Approaches)		(One Direction Only)	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 <b>1,971</b>	1 <b>86</b>	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
<b>CONDITION B - Interruption of Continuous Traffic</b>		Vehicles Per Day on Major Street		Vehicles Per Day on Higher-Volume Minor Street Approach	
<u>Satisfied</u>		<u>Not Satisfied</u>		<u>(One Direction Only)</u>	
		<b>XX</b>			
Number of lanes for moving traffic on each approach		(Total of Both Approaches)		(One Direction Only)	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 <b>1,971</b>	1 <b>86</b>	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
<b>Combination of CONDITIONS A + B</b>		2 CONDITIONS		2 CONDITIONS	
<u>Satisfied</u>		<u>Not Satisfied</u>		<u>80%</u>	
		<b>XX</b>		<u>80%</u>	
No one condition satisfied, but following conditions fulfilled 80% of more .....		80%		80%	
	<u>A</u>				
	<b>4%</b>				
	<u>B</u>				
	<b>7%</b>				

**Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.**

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



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

**(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)**

Traffic Conditions = **EAP (2025) Conditions - Weekday PM Peak Hour**

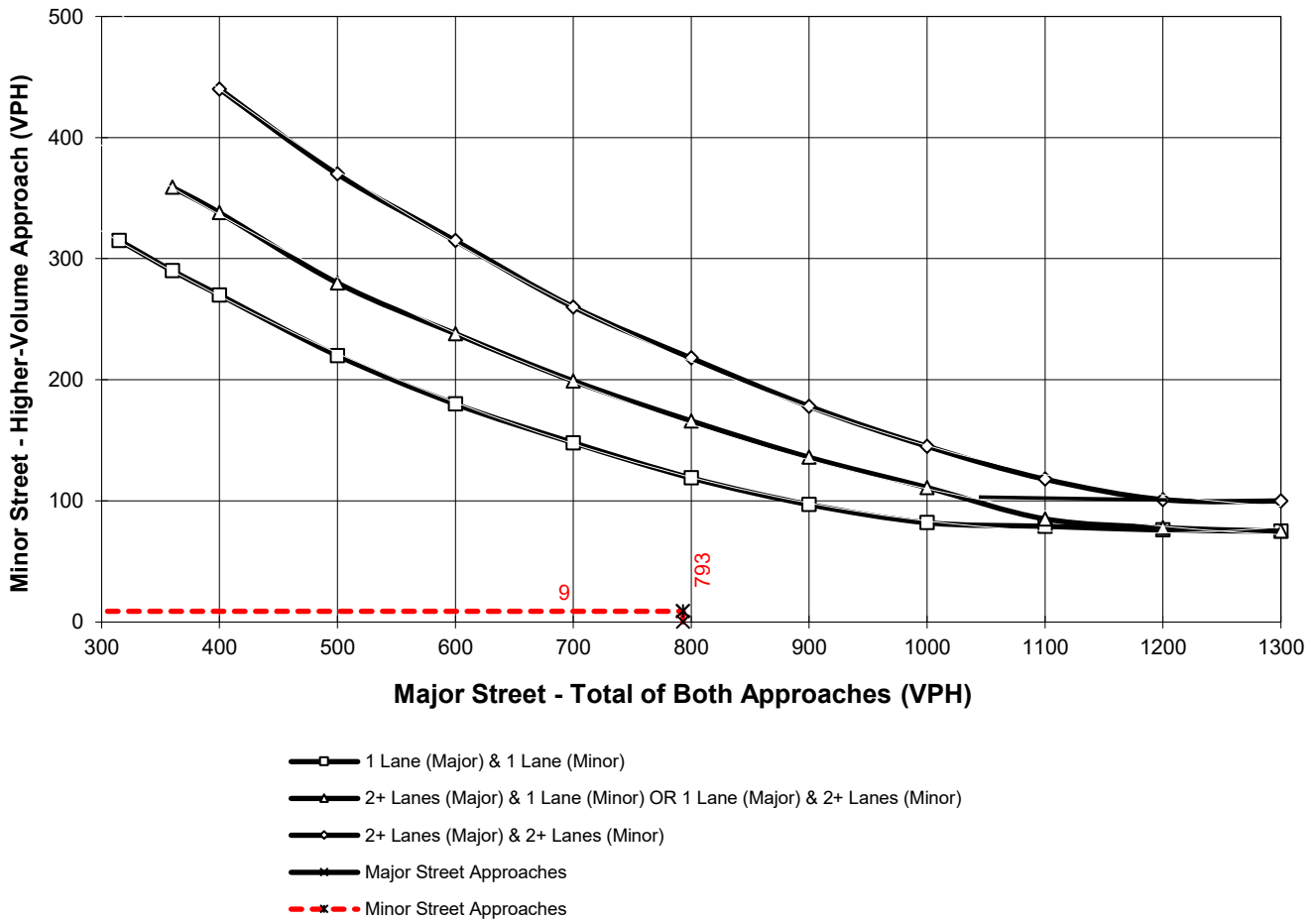
Major Street Name = **Harvill Avenue**

Total of Both Approaches (VPH) = **793**  
 Number of Approach Lanes Major Street = **2**

Minor Street Name = **Perry St.**

High Volume Approach (VPH) = **9**  
 Number of Approach Lanes Minor Street = **1**

**SIGNAL WARRANT NOT SATISFIED**



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

### Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

<u>DIST</u>	<u>CO</u>	<u>RTE</u>	<u>PM</u>	<u>CALC</u>	<u>TRAFFIC CONDITIONS</u>	<u>EAP (2025)</u>
Jurisdiction: <u>County of Riverside</u>				<u>CS</u>		<u>DATE 09/21/22</u>
Major Street: <u>Harvill Av.</u>				<u>CS</u>		<u>DATE 09/21/22</u>
Minor Street: <u>Driveway 4</u>					Critical Approach Speed (Major) <u>50</u> mph	Critical Approach Speed (Minor) <u>25</u> mph
Major Street Approach Lanes =		<u>1</u>	lane		Minor Street Approach Lanes =	<u>1</u> lane
Major Street Future ADT =		<u>9,907</u>	vpd		Minor Street Future ADT =	<u>67</u> vpd
Speed limit or critical speed on major street traffic > 64 km/h (40 mph); .....					<input checked="" type="checkbox"/>	
					or	<input type="checkbox"/>
In built up area of isolated community of < 10,000 population .....						<b>RURAL (R)</b>

**(Based on Estimated Average Daily Traffic - See Note)**

<u>URBAN</u>	<u>RURAL</u>	Minimum Requirements EADT			
<b>CONDITION A - Minimum Vehicular Volume</b>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>	<u>Not Satisfied</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
	<b>XX</b>				
Number of lanes for moving traffic on each approach					
<u>Major Street</u>	<u>Minor Street</u>				
<u>1 9,907</u>	<u>1 67</u>	8,000	5,600 *	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
<b>CONDITION B - Interruption of Continuous Traffic</b>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>	<u>Not Satisfied</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
	<b>XX</b>				
Number of lanes for moving traffic on each approach					
<u>Major Street</u>	<u>Minor Street</u>				
<u>1 9,907</u>	<u>1 67</u>	12,000	8,400 *	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
<b>Combination of CONDITIONS A + B</b>		2 CONDITIONS 80%		2 CONDITIONS 80%	
<u>Satisfied</u>	<u>Not Satisfied</u>				
No one condition satisfied, but following conditions fulfilled 80% of more .....	<b>XX</b>				
	<u>A</u>	<u>B</u>			
	<b>4%</b>	<b>8%</b>			

**Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.**

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



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

**(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)**

Traffic Conditions = **EAP (2025) Conditions - Weekday PM Peak Hour**

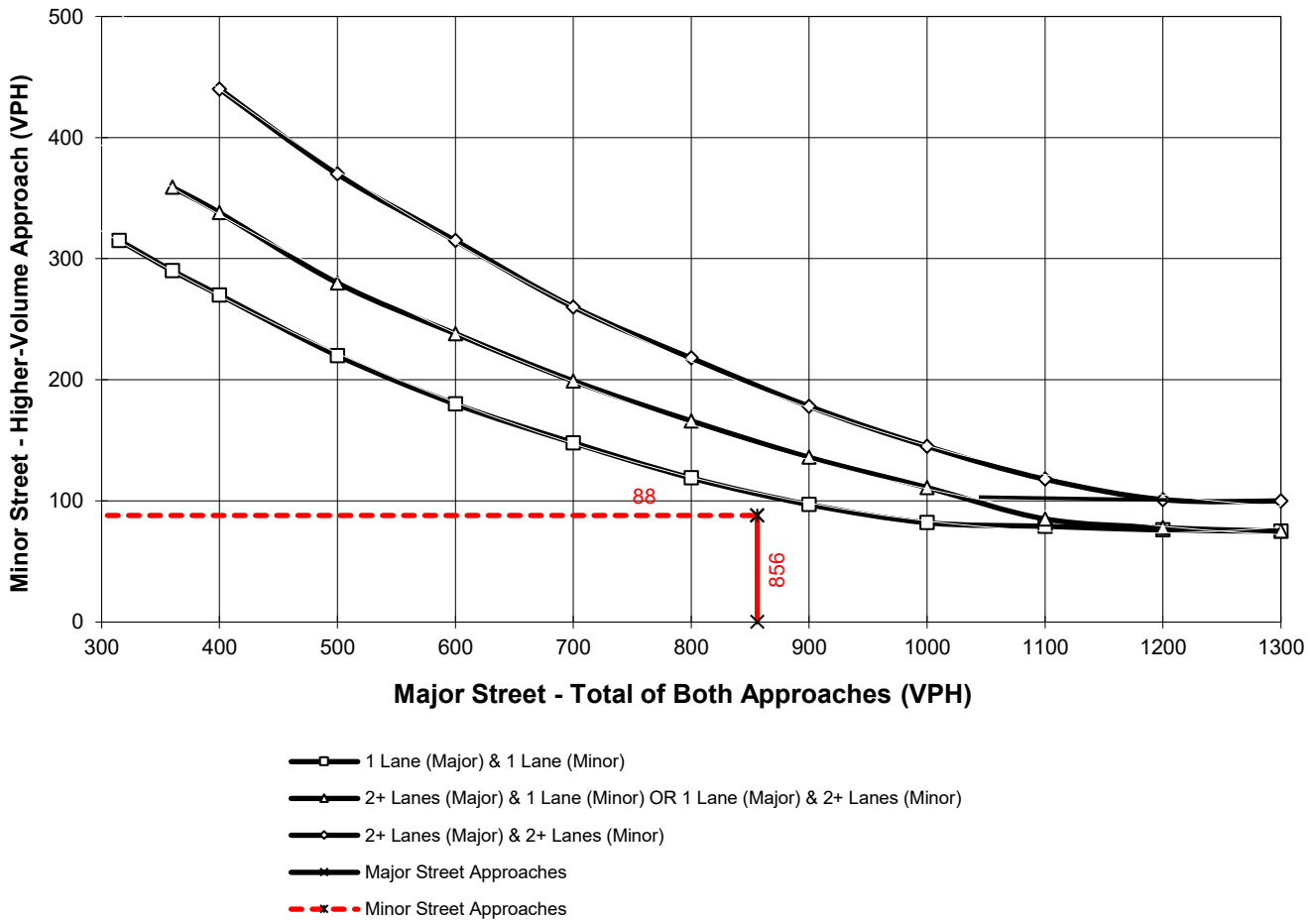
Major Street Name = **Harvill Avenue**

Total of Both Approaches (VPH) = **856**  
 Number of Approach Lanes Major Street = **2**

Minor Street Name = **Martin St.**

High Volume Approach (VPH) = **88**  
 Number of Approach Lanes Minor Street = **1**

**SIGNAL WARRANT NOT SATISFIED**



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

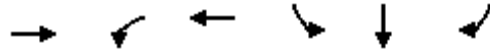
**APPENDIX 5.3: EAP (2025) CONDITIONS FREEWAY OFF-RAMP  
QUEUING ANALYSIS WORKSHEETS**



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Queues

8: I-215 SB Ramps & Ramona Exwy.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	722	286	980	430	432	173
v/c Ratio	0.54	0.84	0.46	0.82	0.83	0.30
Control Delay	22.6	40.2	5.6	50.2	50.4	11.3
Queue Delay	0.0	0.0	0.5	53.1	53.0	0.0
Total Delay	22.6	40.2	6.1	103.3	103.4	11.3
Queue Length 50th (ft)	162	100	100	295	296	26
Queue Length 95th (ft)	223	#288	20	#468	#469	79
Internal Link Dist (ft)	1408		344		1111	
Turn Bay Length (ft)		100		510		510
Base Capacity (vph)	1333	369	2133	522	523	576
Starvation Cap Reductn	0	0	664	0	0	0
Spillback Cap Reductn	16	0	0	157	157	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.78	0.67	1.18	1.18	0.30

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Queues

9: I-215 NB Ramps & Ramona Exwy.



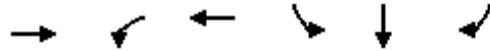
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	130	1171	946	607	170	168	502
v/c Ratio	0.60	0.55	0.61	0.60	0.32	0.32	0.92
Control Delay	50.7	14.1	27.9	6.2	30.4	30.3	54.5
Queue Delay	0.0	24.6	0.0	0.0	0.0	0.0	0.0
Total Delay	50.7	38.7	27.9	6.2	30.4	30.3	54.5
Queue Length 50th (ft)	91	445	280	22	93	91	287
Queue Length 95th (ft)	142	522	379	125	153	151	#478
Internal Link Dist (ft)		344	532			1162	
Turn Bay Length (ft)	105			200			500
Base Capacity (vph)	303	2126	1546	1009	569	570	585
Starvation Cap Reductn	0	995	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	1.04	0.61	0.60	0.30	0.29	0.86

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Queues

8: I-215 SB Ramps & Ramona Exwy.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	933	325	757	405	413	148
v/c Ratio	0.74	0.91	0.35	0.78	0.79	0.25
Control Delay	33.2	52.0	6.7	46.5	47.5	5.8
Queue Delay	0.0	0.0	0.3	55.9	55.6	0.0
Total Delay	33.3	52.0	7.0	102.4	103.1	5.8
Queue Length 50th (ft)	283	224	138	273	280	0
Queue Length 95th (ft)	361	#354	18	#424	#437	46
Internal Link Dist (ft)	1408		344		1111	
Turn Bay Length (ft)		100		510		510
Base Capacity (vph)	1258	369	2133	522	523	594
Starvation Cap Reductn	0	0	692	0	0	0
Spillback Cap Reductn	8	0	0	208	209	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.88	0.53	1.29	1.32	0.25

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Queues

9: I-215 NB Ramps & Ramona Exwy.



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	105	1430	824	552	162	159	390
v/c Ratio	0.55	0.62	0.46	0.52	0.37	0.36	0.83
Control Delay	41.3	19.4	21.4	3.9	34.5	34.3	46.1
Queue Delay	0.0	48.4	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	67.8	21.4	3.9	34.5	34.3	46.1
Queue Length 50th (ft)	70	517	196	0	98	96	214
Queue Length 95th (ft)	m88	580	310	71	147	144	302
Internal Link Dist (ft)		344	532			1162	
Turn Bay Length (ft)	105			200			500
Base Capacity (vph)	303	2308	1776	1061	569	571	585
Starvation Cap Reductn	0	1007	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	1.10	0.46	0.52	0.28	0.28	0.67

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

## **APPENDIX 6.1: EAPC (2025) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS**

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Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	29	0	6	77	0	5
Future Vol, veh/h	29	0	6	77	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	32	0	7	84	0	5

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	32	0	130
Stage 1	-	-	-	-	32
Stage 2	-	-	-	-	98
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1593	-	869
Stage 1	-	-	-	-	996
Stage 2	-	-	-	-	931
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1593	-	866
Mov Cap-2 Maneuver	-	-	-	-	828
Stage 1	-	-	-	-	996
Stage 2	-	-	-	-	927

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1048	-	-	1593	-
HCM Lane V/C Ratio	0.005	-	-	0.004	-
HCM Control Delay (s)	8.5	-	-	7.3	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-



Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	65	59	5	4	0
Future Vol, veh/h	0	65	59	5	4	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	71	64	5	4	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	69	0	-	0	138
Stage 1	-	-	-	-	67
Stage 2	-	-	-	-	71
Critical Hdwy	4.1	-	-	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	2.2	-	-	-	3.5
Pot Cap-1 Maneuver	1545	-	-	-	860
Stage 1	-	-	-	-	961
Stage 2	-	-	-	-	957
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1545	-	-	-	860
Mov Cap-2 Maneuver	-	-	-	-	860
Stage 1	-	-	-	-	961
Stage 2	-	-	-	-	957

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1545	-	-	-	860
HCM Lane V/C Ratio	-	-	-	-	0.005
HCM Control Delay (s)	0	-	-	-	9.2
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	69	64	8	1	0
Future Vol, veh/h	0	69	64	8	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	75	70	9	1	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	79	0	-	0	150 75
Stage 1	-	-	-	-	75 -
Stage 2	-	-	-	-	75 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1532	-	-	-	847 992
Stage 1	-	-	-	-	953 -
Stage 2	-	-	-	-	953 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1532	-	-	-	847 992
Mov Cap-2 Maneuver	-	-	-	-	847 -
Stage 1	-	-	-	-	953 -
Stage 2	-	-	-	-	953 -

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1532	-	-	-	847
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s)	0	-	-	-	9.3
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

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	12	0	26	9	0	2	80	1321	16	2	642	14
Future Vol, veh/h	12	0	26	9	0	2	80	1321	16	2	642	14
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	-	-	50	100	-	-	150	-	-	160	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	0	33	11	0	3	101	1672	20	3	813	18

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1866	2722	416	2297	2721	846	831	0	0	1692	0	0
Stage 1	828	828	-	1884	1884	-	-	-	-	-	-	-
Stage 2	1038	1894	-	413	837	-	-	-	-	-	-	-
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	46	21	591	21	21	310	810	-	-	382	-	-
Stage 1	336	389	-	75	121	-	-	-	-	-	-	-
Stage 2	251	119	-	592	385	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	41	18	591	18	18	310	810	-	-	382	-	-
Mov Cap-2 Maneuver	132	78	-	56	77	-	-	-	-	-	-	-
Stage 1	294	386	-	66	106	-	-	-	-	-	-	-
Stage 2	218	104	-	555	382	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.2	72.6	0.6	0
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	810	-	-	132	591	56	310	382	-	-
HCM Lane V/C Ratio	0.125	-	-	0.115	0.056	0.203	0.008	0.007	-	-
HCM Control Delay (s)	10.1	-	-	35.8	11.5	85	16.7	14.5	-	-
HCM Lane LOS	B	-	-	E	B	F	C	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.4	0.2	0.7	0	0	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	↑↑	↑↑	
Traffic Vol, veh/h	0	1	5	1717	876	1
Future Vol, veh/h	0	1	5	1717	876	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1	5	1866	952	1

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1896	477	953	0	-	0
Stage 1	953	-	-	-	-	-
Stage 2	943	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	63	540	729	-	-	-
Stage 1	340	-	-	-	-	-
Stage 2	344	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	63	540	729	-	-	-
Mov Cap-2 Maneuver	184	-	-	-	-	-
Stage 1	338	-	-	-	-	-
Stage 2	344	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	729	-	540	-	-
HCM Lane V/C Ratio	0.007	-	0.002	-	-
HCM Control Delay (s)	10	-	11.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

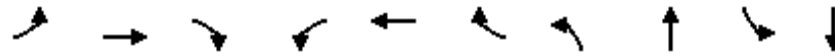
Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	12	0	58	0	0	0	60	1411	0	0	667	10
Future Vol, veh/h	12	0	58	0	0	0	60	1411	0	0	667	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	160	-	-	50	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	13	0	65	0	0	0	67	1585	0	0	749	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1682	2474	380	2094	2479	793	760	0	0	1585	0	0
Stage 1	755	755	-	1719	1719	-	-	-	-	-	-	-
Stage 2	927	1719	-	375	760	-	-	-	-	-	-	-
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	63	30	624	31	30	336	861	-	-	420	-	-
Stage 1	371	420	-	95	146	-	-	-	-	-	-	-
Stage 2	293	146	-	624	417	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	59	28	624	26	28	336	861	-	-	420	-	-
Mov Cap-2 Maneuver	164	102	-	74	99	-	-	-	-	-	-	-
Stage 1	342	420	-	88	135	-	-	-	-	-	-	-
Stage 2	270	135	-	559	417	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.5	0	0.4	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	861	-	-	421	-	420	-
HCM Lane V/C Ratio	0.078	-	-	0.187	-	-	-
HCM Control Delay (s)	9.5	-	-	15.5	0	0	-
HCM Lane LOS	A	-	-	C	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.7	-	0	-

Timings  
7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

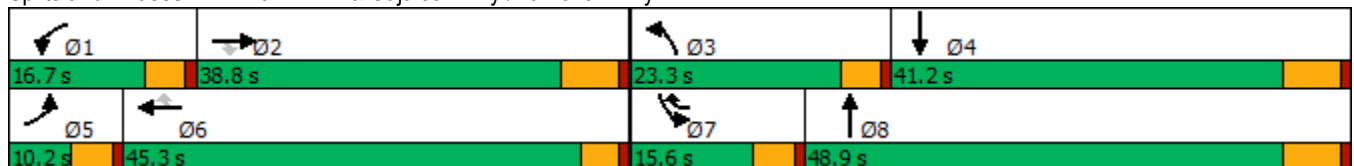


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↘	↑↑	↗	↘↗	↑↑	↗	↘↗	↑↑	↘↗	↑↑
Traffic Volume (vph)	191	841	218	640	1130	761	373	435	427	229
Future Volume (vph)	191	841	218	640	1130	761	373	435	427	229
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2		1	6	7	3	8	7	4
Permitted Phases			2			6				
Detector Phase	5	2	2	1	6	7	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	36.2	36.2	9.6	32.5	9.6	9.6	16.2	9.6	41.2
Total Split (s)	10.2	38.8	38.8	16.7	45.3	15.6	23.3	48.9	15.6	41.2
Total Split (%)	8.5%	32.3%	32.3%	13.9%	37.8%	13.0%	19.4%	40.8%	13.0%	34.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	3.5	3.6	3.6	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	4.5	4.6	4.6	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	5.6	32.6	32.6	12.1	40.8	56.3	16.9	42.7	11.0	36.8
Actuated g/C Ratio	0.05	0.27	0.27	0.10	0.34	0.47	0.14	0.36	0.09	0.31
v/c Ratio	2.44	0.92	0.39	1.95	0.99	0.97	0.81	0.57	1.43	0.31
Control Delay	706.8	58.0	7.3	466.5	63.1	48.8	63.6	28.8	249.8	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	706.8	58.0	7.3	466.5	63.1	48.8	63.6	28.8	249.8	28.9
LOS	F	E	A	F	E	D	E	C	F	C
Approach Delay		148.2			160.8			41.2		156.6
Approach LOS		F			F			D		F

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 130  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 2.44  
 Intersection Signal Delay: 134.9  
 Intersection LOS: F  
 Intersection Capacity Utilization 91.4%  
 ICU Level of Service F  
 Analysis Period (min) 15

Splits and Phases: 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	191	841	218	640	1130	761	373	435	240	427	229	83
Future Volume (veh/h)	191	841	218	640	1130	761	373	435	240	427	229	83
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		0.99	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	205	904	183	688	1215	750	401	468	204	459	246	87
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	83	1017	454	349	1210	685	459	857	371	317	818	282
Arrive On Green	0.05	0.28	0.28	0.10	0.34	0.34	0.13	0.35	0.35	0.09	0.31	0.31
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	2442	1056	3510	2634	908
Grp Volume(v), veh/h	205	904	183	688	1215	750	401	345	327	459	167	166
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1694	1755	1805	1737
Q Serve(g_s), s	5.6	29.2	11.2	12.1	40.8	40.8	13.6	18.7	18.9	11.0	8.5	8.9
Cycle Q Clear(g_c), s	5.6	29.2	11.2	12.1	40.8	40.8	13.6	18.7	18.9	11.0	8.5	8.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.62	1.00		0.52
Lane Grp Cap(c), veh/h	83	1017	454	349	1210	685	459	633	594	317	561	539
V/C Ratio(X)	2.46	0.89	0.40	1.97	1.00	1.09	0.87	0.54	0.55	1.45	0.30	0.31
Avail Cap(c_a), veh/h	83	1017	454	349	1210	685	539	633	594	317	561	539
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	58.0	41.9	35.4	54.8	40.5	34.9	51.9	31.7	31.8	55.3	31.9	32.0
Incr Delay (d2), s/veh	692.5	9.7	0.6	447.3	26.8	63.0	11.9	3.3	3.6	217.9	1.4	1.5
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	18.5	13.7	4.3	26.8	21.5	30.6	6.5	8.3	8.0	14.3	3.8	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	750.5	51.6	36.0	502.1	67.3	97.9	63.8	35.0	35.4	273.3	33.2	33.5
LnGrp LOS	F	D	D	F	F	F	E	D	D	F	C	C
Approach Vol, veh/h		1292			2653			1073			792	
Approach Delay, s/veh		160.3			188.7			45.9			172.4	
Approach LOS		F			F			D			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.7	40.5	20.5	44.0	10.2	47.0	15.6	48.9				
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	* 6.2	4.6	6.2				
Max Green Setting (Gmax), s	12.1	32.6	18.7	35.0	5.6	* 41	11.0	42.7				
Max Q Clear Time (g_c+I1), s	14.1	31.2	15.6	10.9	7.6	42.8	13.0	20.9				
Green Ext Time (p_c), s	0.0	0.9	0.3	1.7	0.0	0.0	0.0	3.7				

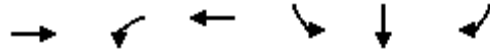
Intersection Summary

HCM 6th Ctrl Delay	153.8
HCM 6th LOS	F

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings  
8: I-215 SB Ramps & Ramona Exwy.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↖	↑↑	↖	↖	↖
Traffic Volume (vph)	786	547	1877	1847	2	780
Future Volume (vph)	786	547	1877	1847	2	780
Turn Type	NA	Prot	NA	Split	NA	Perm
Protected Phases	2	1	6	4	4	
Permitted Phases						4
Detector Phase	2	1	6	4	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	9.5	31.0	10.5	10.5	10.5
Total Split (s)	44.0	27.0	71.0	39.0	39.0	39.0
Total Split (%)	40.0%	24.5%	64.5%	35.5%	35.5%	35.5%
Yellow Time (s)	5.0	3.5	5.0	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.5	6.0	5.5	5.5	5.5
Lead/Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes				
Recall Mode	C-Max	None	C-Max	Max	Max	Max
Act Effct Green (s)	38.0	22.5	65.0	33.5	33.5	33.5
Actuated g/C Ratio	0.35	0.20	0.59	0.30	0.30	0.30
v/c Ratio	1.03	1.51	0.90	1.80	1.81	1.47
Control Delay	64.8	260.2	10.2	396.2	397.2	248.0
Queue Delay	6.9	0.0	46.1	12.6	12.6	0.0
Total Delay	71.8	260.2	56.3	408.8	409.8	248.0
LOS	E	F	E	F	F	F
Approach Delay	71.8		102.3		361.5	
Approach LOS	E		F		F	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 34 (31%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.81  
 Intersection Signal Delay: 204.2  
 Intersection LOS: F  
 Intersection Capacity Utilization 238.7%  
 ICU Level of Service H  
 Analysis Period (min) 15

Splits and Phases: 8: I-215 SB Ramps & Ramona Exwy.





HCM 6th Signalized Intersection Summary  
 8: I-215 SB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑					↖	↑↑	↖
Traffic Volume (veh/h)	0	786	473	547	1877	0	0	0	0	1847	2	780
Future Volume (veh/h)	0	786	473	547	1877	0	0	0	0	1847	2	780
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	802	354	558	1915	0				1886	0	733
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	839	369	370	2133	0				1102	0	490
Arrive On Green	0.00	0.35	0.35	0.12	0.35	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	2523	1069	1810	3705	0				3619	0	1610
Grp Volume(v), veh/h	0	596	560	558	1915	0				1886	0	733
Grp Sat Flow(s),veh/h/ln	0	1805	1692	1810	1805	0				1810	0	1610
Q Serve(g_s), s	0.0	35.5	35.7	22.5	55.2	0.0				33.5	0.0	33.5
Cycle Q Clear(g_c), s	0.0	35.5	35.7	22.5	55.2	0.0				33.5	0.0	33.5
Prop In Lane	0.00		0.63	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	624	584	370	2133	0				1102	0	490
V/C Ratio(X)	0.00	0.96	0.96	1.51	0.90	0.00				1.71	0.00	1.49
Avail Cap(c_a), veh/h	0	624	584	370	2133	0				1102	0	490
HCM Platoon Ratio	1.00	1.00	1.00	0.60	0.60	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	35.2	35.2	48.2	32.4	0.0				38.3	0.0	38.3
Incr Delay (d2), s/veh	0.0	4.5	5.1	229.7	0.7	0.0				323.9	0.0	233.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.2	14.4	34.0	24.7	0.0				63.6	0.0	44.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	39.7	40.3	278.0	33.0	0.0				362.2	0.0	271.5
LnGrp LOS	A	D	D	F	C	A				F	A	F
Approach Vol, veh/h		1156			2473						2619	
Approach Delay, s/veh		40.0			88.3						336.8	
Approach LOS		D			F						F	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	27.0	44.0		39.0		71.0						
Change Period (Y+Rc), s	4.5	6.0		5.5		6.0						
Max Green Setting (Gmax), s	22.5	38.0		33.5		65.0						
Max Q Clear Time (g_c+I1), s	24.5	37.7		35.5		57.2						
Green Ext Time (p_c), s	0.0	0.2		0.0		5.2						

Intersection Summary

HCM 6th Ctrl Delay	183.5
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

Timings  
9: I-215 NB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022

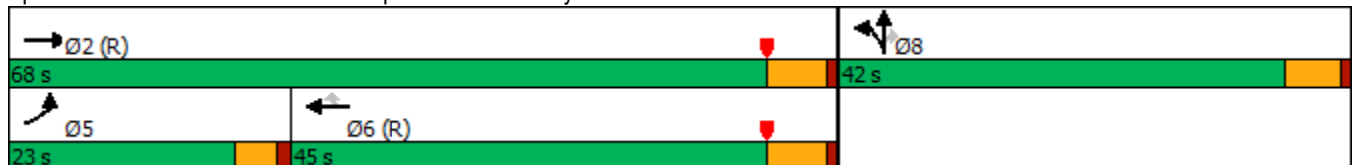


Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations	↶	↷	↶	↷	↶	↷	↷
Traffic Volume (vph)	319	2316	1520	1471	906	4	808
Future Volume (vph)	319	2316	1520	1471	906	4	808
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	5	2	6		8	8	
Permitted Phases				6			8
Detector Phase	5	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	11.0	26.0	26.0	10.5	10.5	10.5
Total Split (s)	23.0	68.0	45.0	45.0	42.0	42.0	42.0
Total Split (%)	20.9%	61.8%	40.9%	40.9%	38.2%	38.2%	38.2%
Yellow Time (s)	3.5	5.0	5.0	5.0	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.5	5.5	5.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None
Act Effct Green (s)	18.5	62.0	39.0	39.0	36.5	36.5	36.5
Actuated g/C Ratio	0.17	0.56	0.35	0.35	0.33	0.33	0.33
v/c Ratio	1.09	1.17	1.23	1.44	0.82	0.83	1.42
Control Delay	93.8	104.0	141.1	222.9	47.3	47.7	229.0
Queue Delay	0.0	2.4	0.9	0.0	0.0	0.0	0.0
Total Delay	93.8	106.4	142.0	222.9	47.3	47.7	229.0
LOS	F	F	F	F	D	D	F
Approach Delay		104.9	181.8			132.8	
Approach LOS		F	F			F	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.44  
 Intersection Signal Delay: 142.8  
 Intersection LOS: F  
 Intersection Capacity Utilization 238.7%  
 ICU Level of Service H  
 Analysis Period (min) 15

Splits and Phases: 9: I-215 NB Ramps & Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 9: I-215 NB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)  
 09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↑↑	↗	↘	↗	↗			
Traffic Volume (veh/h)	319	2316	0	0	1520	1471	906	4	808	0	0	0
Future Volume (veh/h)	319	2316	0	0	1520	1471	906	4	808	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	329	2388	0	0	1567	1368	937	0	681			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	304	2035	0	0	1280	571	1201	0	534			
Arrive On Green	0.22	0.75	0.00	0.00	0.35	0.35	0.33	0.00	0.33			
Sat Flow, veh/h	1810	3705	0	0	3705	1610	3619	0	1610			
Grp Volume(v), veh/h	329	2388	0	0	1567	1368	937	0	681			
Grp Sat Flow(s),veh/h/ln	1810	1805	0	0	1805	1610	1810	0	1610			
Q Serve(g_s), s	18.5	62.0	0.0	0.0	39.0	39.0	25.7	0.0	36.5			
Cycle Q Clear(g_c), s	18.5	62.0	0.0	0.0	39.0	39.0	25.7	0.0	36.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	304	2035	0	0	1280	571	1201	0	534			
V/C Ratio(X)	1.08	1.17	0.00	0.00	1.22	2.40	0.78	0.00	1.27			
Avail Cap(c_a), veh/h	304	2035	0	0	1280	571	1201	0	534			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	42.7	13.8	0.0	0.0	35.5	35.5	33.1	0.0	36.8			
Incr Delay (d2), s/veh	42.6	78.7	0.0	0.0	108.1	633.7	3.4	0.0	137.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	10.9	32.9	0.0	0.0	35.0	114.6	11.2	0.0	33.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.3	92.4	0.0	0.0	143.6	669.2	36.5	0.0	174.4			
LnGrp LOS	F	F	A	A	F	F	D	A	F			
Approach Vol, veh/h		2717			2935			1618				
Approach Delay, s/veh		91.6			388.6			94.5				
Approach LOS		F			F			F				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		68.0			23.0	45.0		42.0				
Change Period (Y+Rc), s		6.0			4.5	6.0		5.5				
Max Green Setting (Gmax), s		62.0			18.5	39.0		36.5				
Max Q Clear Time (g_c+I1), s		64.0			20.5	41.0		38.5				
Green Ext Time (p_c), s		0.0			0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	212.1
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	75	0	3	23	0	5
Future Vol, veh/h	75	0	3	23	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	82	0	3	25	0	5

Major/Minor	Minor2	Major2	
Conflicting Flow All	31	25	0
Stage 1	31	-	-
Stage 2	0	-	-
Critical Hdwy	6.5	6.2	4.1
Critical Hdwy Stg 1	5.5	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	4	3.3	2.2
Pot Cap-1 Maneuver	866	1057	-
Stage 1	873	-	-
Stage 2	-	-	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	0	1057	-
Mov Cap-2 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-

Approach	EB	WB
HCM Control Delay, s		
HCM LOS	-	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	74	67	2	4	0
Future Vol, veh/h	0	74	67	2	4	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	80	73	2	4	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	75	0	-	0	154 74
Stage 1	-	-	-	-	74 -
Stage 2	-	-	-	-	80 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1537	-	-	-	842 993
Stage 1	-	-	-	-	954 -
Stage 2	-	-	-	-	948 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1537	-	-	-	842 993
Mov Cap-2 Maneuver	-	-	-	-	842 -
Stage 1	-	-	-	-	954 -
Stage 2	-	-	-	-	948 -

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1537	-	-	-	842
HCM Lane V/C Ratio	-	-	-	-	0.005
HCM Control Delay (s)	0	-	-	-	9.3
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	78	69	3	10	0
Future Vol, veh/h	0	78	69	3	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	85	75	3	11	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	78	0	-	0	162 77
Stage 1	-	-	-	-	77 -
Stage 2	-	-	-	-	85 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1533	-	-	-	834 990
Stage 1	-	-	-	-	951 -
Stage 2	-	-	-	-	943 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1533	-	-	-	834 990
Mov Cap-2 Maneuver	-	-	-	-	834 -
Stage 1	-	-	-	-	951 -
Stage 2	-	-	-	-	943 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1533	-	-	-	834
HCM Lane V/C Ratio	-	-	-	-	0.013
HCM Control Delay (s)	0	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘		↖	↕		↖	↕	↘
Traffic Vol, veh/h	13	4	73	16	2	6	18	793	16	5	1230	10
Future Vol, veh/h	13	4	73	16	2	6	18	793	16	5	1230	10
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	-	-	50	100	-	-	150	-	-	160	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	15	4	82	18	2	7	20	891	18	6	1382	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1887	2349	697	1645	2345	455	1393	0	0	909	0	0
Stage 1	1400	1400	-	940	940	-	-	-	-	-	-	-
Stage 2	487	949	-	705	1405	-	-	-	-	-	-	-
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	44	36	388	67	37	558	497	-	-	757	-	-
Stage 1	150	209	-	287	345	-	-	-	-	-	-	-
Stage 2	536	342	-	398	208	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	41	34	388	50	35	558	497	-	-	757	-	-
Mov Cap-2 Maneuver	114	130	-	151	123	-	-	-	-	-	-	-
Stage 1	144	207	-	276	331	-	-	-	-	-	-	-
Stage 2	505	328	-	305	206	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	21.4		27.2		0.3		0	
HCM LOS	C		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	497	-	-	117	388	151	296	757	-	-
HCM Lane V/C Ratio	0.041	-	-	0.163	0.211	0.119	0.03	0.007	-	-
HCM Control Delay (s)	12.6	-	-	41.7	16.7	32	17.5	9.8	-	-
HCM Lane LOS	B	-	-	E	C	D	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.8	0.4	0.1	0	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘↗		↘	↑↑	↑↑	
Traffic Vol, veh/h	1	7	2	1025	1619	0
Future Vol, veh/h	1	7	2	1025	1619	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	8	2	1114	1760	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2321	880	1760	0	-	0
Stage 1	1760	-	-	-	-	-
Stage 2	561	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	32	294	360	-	-	-
Stage 1	126	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	32	294	360	-	-	-
Mov Cap-2 Maneuver	101	-	-	-	-	-
Stage 1	125	-	-	-	-	-
Stage 2	540	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	360	-	237	-	-
HCM Lane V/C Ratio	0.006	-	0.037	-	-
HCM Control Delay (s)	15.1	-	20.8	-	-
HCM Lane LOS	C	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



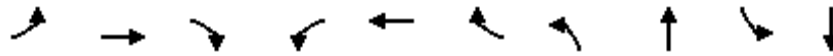
Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	6	0	82	0	0	0	67	823	1	0	1319	5
Future Vol, veh/h	6	0	82	0	0	0	67	823	1	0	1319	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	160	-	-	50	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	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	7	0	95	0	0	0	78	957	1	0	1534	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2172	2651	770	1881	2654	479	1540	0	0	958	0	0
Stage 1	1537	1537	-	1114	1114	-	-	-	-	-	-	-
Stage 2	635	1114	-	767	1540	-	-	-	-	-	-	-
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	27	23	348	45	23	538	437	-	-	726	-	-
Stage 1	124	179	-	225	286	-	-	-	-	-	-	-
Stage 2	438	286	-	365	179	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	23	19	348	28	19	538	437	-	-	726	-	-
Mov Cap-2 Maneuver	79	101	-	98	72	-	-	-	-	-	-	-
Stage 1	102	179	-	185	235	-	-	-	-	-	-	-
Stage 2	360	235	-	265	179	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24.9	0	1.1	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	437	-	-	282	-	726	-
HCM Lane V/C Ratio	0.178	-	-	0.363	-	-	-
HCM Control Delay (s)	15	-	-	24.9	0	0	-
HCM Lane LOS	C	-	-	C	A	A	-
HCM 95th %tile Q(veh)	0.6	-	-	1.6	-	0	-

Timings  
7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

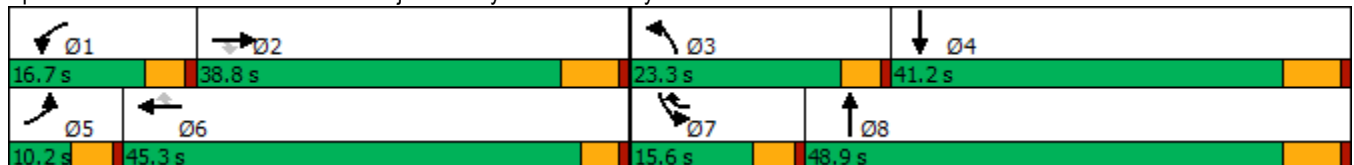


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↘	↑↑	↗	↘↗	↑↑	↗	↘↗	↑↗	↘↗	↑↗
Traffic Volume (vph)	124	1238	297	350	929	477	312	241	920	320
Future Volume (vph)	124	1238	297	350	929	477	312	241	920	320
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2		1	6	7	3	8	7	4
Permitted Phases			2			6				
Detector Phase	5	2	2	1	6	7	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	36.2	36.2	9.6	32.5	9.6	9.6	16.2	9.6	41.2
Total Split (s)	10.2	38.8	38.8	16.7	45.3	15.6	23.3	48.9	15.6	41.2
Total Split (%)	8.5%	32.3%	32.3%	13.9%	37.8%	13.0%	19.4%	40.8%	13.0%	34.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	3.5	3.6	3.6	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	4.5	4.6	4.6	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	5.6	32.6	32.6	12.1	40.8	56.3	15.5	42.7	11.0	38.2
Actuated g/C Ratio	0.05	0.27	0.27	0.10	0.34	0.47	0.13	0.36	0.09	0.32
v/c Ratio	1.58	1.36	0.54	1.07	0.81	0.54	0.74	0.94dr	3.08	0.46
Control Delay	348.3	203.2	16.7	117.3	42.6	7.9	60.6	30.8	963.6	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	348.3	203.2	16.7	117.3	42.6	7.9	60.6	30.8	963.6	29.0
LOS	F	F	B	F	D	A	E	C	F	C
Approach Delay		180.6			48.0			38.9		636.7
Approach LOS		F			D			D		F

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 150  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 3.08  
 Intersection Signal Delay: 222.5  
 Intersection LOS: F  
 Intersection Capacity Utilization 114.2%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

MFBC Building 13 (JN 13697)  
 09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘↗	↑↑	↗	↘↗	↑↑		↘↗	↑↑	
Traffic Volume (veh/h)	124	1238	297	350	929	477	312	241	591	920	320	175
Future Volume (veh/h)	124	1238	297	350	929	477	312	241	591	920	320	175
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	133	1331	206	376	999	433	335	259	567	989	344	177
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	84	981	437	354	1176	672	396	642	573	322	777	392
Arrive On Green	0.05	0.27	0.27	0.10	0.33	0.33	0.11	0.36	0.36	0.09	0.33	0.33
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	1805	1610	3510	2322	1172
Grp Volume(v), veh/h	133	1331	206	376	999	433	335	259	567	989	266	255
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1805	1689
Q Serve(g_s), s	5.6	32.6	12.8	12.1	31.0	25.7	11.2	12.9	42.0	11.0	13.8	14.2
Cycle Q Clear(g_c), s	5.6	32.6	12.8	12.1	31.0	25.7	11.2	12.9	42.0	11.0	13.8	14.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.69
Lane Grp Cap(c), veh/h	84	981	437	354	1176	672	396	642	573	322	604	565
V/C Ratio(X)	1.57	1.36	0.47	1.06	0.85	0.64	0.85	0.40	0.99	3.07	0.44	0.45
Avail Cap(c_a), veh/h	84	981	437	354	1227	695	547	642	573	322	604	565
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	57.2	43.7	36.5	53.9	37.7	27.8	52.2	29.1	38.4	54.5	31.2	31.3
Incr Delay (d2), s/veh	307.8	167.4	0.8	65.3	5.6	2.0	6.5	1.9	35.1	941.2	2.3	2.6
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	9.7	36.6	4.9	8.4	13.8	9.6	5.1	5.7	21.1	46.8	6.1	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	365.0	211.1	37.3	119.2	43.3	29.8	58.7	30.9	73.6	995.7	33.5	33.9
LnGrp LOS	F	F	D	F	D	C	E	C	E	F	C	C
Approach Vol, veh/h		1670			1808			1161			1510	
Approach Delay, s/veh		201.9			55.9			59.8			663.8	
Approach LOS		F			E			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.7	38.8	18.1	46.4	10.2	45.3	15.6	48.9				
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	* 6.2	4.6	6.2				
Max Green Setting (Gmax), s	12.1	32.6	18.7	35.0	5.6	* 41	11.0	42.7				
Max Q Clear Time (g_c+I1), s	14.1	34.6	13.2	16.2	7.6	33.0	13.0	44.0				
Green Ext Time (p_c), s	0.0	0.0	0.3	2.6	0.0	4.5	0.0	0.0				

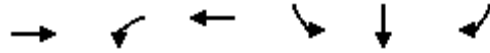
Intersection Summary

HCM 6th Ctrl Delay	245.6
HCM 6th LOS	F

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings  
8: I-215 SB Ramps & Ramona Exwy.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↖	↑↑	↖	↖	↖
Traffic Volume (vph)	1622	844	1240	2002	8	418
Future Volume (vph)	1622	844	1240	2002	8	418
Turn Type	NA	Prot	NA	Split	NA	Perm
Protected Phases	2	1	6	4	4	
Permitted Phases						4
Detector Phase	2	1	6	4	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	9.5	31.0	10.5	10.5	10.5
Total Split (s)	44.0	27.0	71.0	39.0	39.0	39.0
Total Split (%)	40.0%	24.5%	64.5%	35.5%	35.5%	35.5%
Yellow Time (s)	5.0	3.5	5.0	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.5	6.0	5.5	5.5	5.5
Lead/Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes				
Recall Mode	C-Max	None	C-Max	Max	Max	Max
Act Effct Green (s)	38.0	22.5	65.0	33.5	33.5	33.5
Actuated g/C Ratio	0.35	0.20	0.59	0.30	0.30	0.30
v/c Ratio	2.04	2.31	0.59	1.94	1.95	0.78
Control Delay	494.1	612.2	3.7	453.7	458.8	39.8
Queue Delay	0.7	0.0	0.8	28.8	28.8	0.0
Total Delay	494.8	612.2	4.5	482.6	487.6	39.8
LOS	F	F	A	F	F	D
Approach Delay	494.8		250.6		408.5	
Approach LOS	F		F		F	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 34 (31%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 2.31  
 Intersection Signal Delay: 392.6  
 Intersection LOS: F  
 Intersection Capacity Utilization 280.5%  
 ICU Level of Service H  
 Analysis Period (min) 15

Splits and Phases: 8: I-215 SB Ramps & Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 8: I-215 SB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑					↘	↖	↗
Traffic Volume (veh/h)	0	1622	900	844	1240	0	0	0	0	2002	8	418
Future Volume (veh/h)	0	1622	900	844	1240	0	0	0	0	2002	8	418
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	1638	801	853	1253	0				2028	0	363
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99				0.99	0.99	0.99
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	835	377	370	2133	0				1102	0	490
Arrive On Green	0.00	0.35	0.35	0.12	0.35	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	2513	1091	1810	3705	0				3619	0	1610
Grp Volume(v), veh/h	0	1188	1251	853	1253	0				2028	0	363
Grp Sat Flow(s),veh/h/ln	0	1805	1704	1810	1805	0				1810	0	1610
Q Serve(g_s), s	0.0	38.0	38.0	22.5	31.1	0.0				33.5	0.0	22.3
Cycle Q Clear(g_c), s	0.0	38.0	38.0	22.5	31.1	0.0				33.5	0.0	22.3
Prop In Lane	0.00		0.64	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	624	589	370	2133	0				1102	0	490
V/C Ratio(X)	0.00	1.91	2.13	2.30	0.59	0.00				1.84	0.00	0.74
Avail Cap(c_a), veh/h	0	624	589	370	2133	0				1102	0	490
HCM Platoon Ratio	1.00	1.00	1.00	0.60	0.60	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	36.0	36.0	48.2	24.6	0.0				38.3	0.0	34.3
Incr Delay (d2), s/veh	0.0	408.1	506.9	587.8	0.1	0.0				381.6	0.0	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	86.1	97.4	70.8	13.8	0.0				72.4	0.0	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	444.1	542.9	636.1	24.7	0.0				419.8	0.0	44.0
LnGrp LOS	A	F	F	F	C	A				F	A	D
Approach Vol, veh/h		2439			2106						2391	
Approach Delay, s/veh		494.7			272.3						362.7	
Approach LOS		F			F						F	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	27.0	44.0		39.0		71.0						
Change Period (Y+Rc), s	4.5	6.0		5.5		6.0						
Max Green Setting (Gmax), s	22.5	38.0		33.5		65.0						
Max Q Clear Time (g_c+I1), s	24.5	40.0		35.5		33.1						
Green Ext Time (p_c), s	0.0	0.0		0.0		6.0						

Intersection Summary

HCM 6th Ctrl Delay	381.7
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

Timings  
9: I-215 NB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations	↙	↕	↕	↘	↙	↕	↘
Traffic Volume (vph)	695	2932	1497	1722	589	4	561
Future Volume (vph)	695	2932	1497	1722	589	4	561
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	5	2	6		8	8	
Permitted Phases				6			8
Detector Phase	5	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	11.0	26.0	26.0	10.5	10.5	10.5
Total Split (s)	23.0	68.0	45.0	45.0	42.0	42.0	42.0
Total Split (%)	20.9%	61.8%	40.9%	40.9%	38.2%	38.2%	38.2%
Yellow Time (s)	3.5	5.0	5.0	5.0	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.5	5.5	5.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None
Act Effct Green (s)	18.5	62.0	39.0	39.0	36.5	36.5	36.5
Actuated g/C Ratio	0.17	0.56	0.35	0.35	0.33	0.33	0.33
v/c Ratio	2.44	1.53	1.25	1.79	0.55	0.56	1.02
Control Delay	669.0	265.7	149.6	377.9	34.5	34.7	75.3
Queue Delay	0.0	2.3	0.0	0.0	0.0	0.0	0.0
Total Delay	669.0	268.0	149.6	377.9	34.5	34.7	75.3
LOS	F	F	F	F	C	C	E
Approach Delay		344.8	271.7			54.4	
Approach LOS		F	F			D	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 2.44  
 Intersection Signal Delay: 273.5  
 Intersection LOS: F  
 Intersection Capacity Utilization 280.5%  
 ICU Level of Service H  
 Analysis Period (min) 15

Splits and Phases: 9: I-215 NB Ramps & Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 9: I-215 NB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↑↑	↗	↘	↗	↗			
Traffic Volume (veh/h)	695	2932	0	0	1497	1722	589	4	561	0	0	0
Future Volume (veh/h)	695	2932	0	0	1497	1722	589	4	561	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	739	3119	0	0	1593	1682	630	0	516			
Peak Hour Factor	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			
Cap, veh/h	304	2035	0	0	1280	569	1201	0	534			
Arrive On Green	0.17	0.56	0.00	0.00	0.35	0.35	0.33	0.00	0.33			
Sat Flow, veh/h	1810	3705	0	0	3705	1606	3619	0	1610			
Grp Volume(v), veh/h	739	3119	0	0	1593	1682	630	0	516			
Grp Sat Flow(s),veh/h/ln	1810	1805	0	0	1805	1606	1810	0	1610			
Q Serve(g_s), s	18.5	62.0	0.0	0.0	39.0	39.0	15.5	0.0	34.7			
Cycle Q Clear(g_c), s	18.5	62.0	0.0	0.0	39.0	39.0	15.5	0.0	34.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	304	2035	0	0	1280	569	1201	0	534			
V/C Ratio(X)	2.43	1.53	0.00	0.00	1.24	2.95	0.52	0.00	0.97			
Avail Cap(c_a), veh/h	304	2035	0	0	1280	569	1201	0	534			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	45.8	24.0	0.0	0.0	35.5	35.5	29.7	0.0	36.1			
Incr Delay (d2), s/veh	643.6	240.0	0.0	0.0	116.8	884.0	0.4	0.0	30.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	62.3	90.1	0.0	0.0	36.6	153.9	6.5	0.0	17.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	689.4	264.0	0.0	0.0	152.3	919.5	30.2	0.0	66.4			
LnGrp LOS	F	F	A	A	F	F	C	A	E			
Approach Vol, veh/h		3858			3275			1146				
Approach Delay, s/veh		345.5			546.3			46.5				
Approach LOS		F			F			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		68.0			23.0	45.0		42.0				
Change Period (Y+Rc), s		6.0			4.5	6.0		5.5				
Max Green Setting (Gmax), s		62.0			18.5	39.0		36.5				
Max Q Clear Time (g_c+I1), s		64.0			20.5	41.0		36.7				
Green Ext Time (p_c), s		0.0			0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	383.6
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

## **APPENDIX 6.2: EAPC (2025) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS**



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### Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

<u>DIST</u>	<u>CO</u>	<u>RTE</u>	<u>PM</u>	<u>CALC</u>	<u>TRAFFIC CONDITIONS</u>	<u>EAPC (2025)</u>
Jurisdiction: <u>County of Riverside</u>				<u>CS</u>		<u>DATE 09/21/22</u>
Major Street: <u>Perry St.</u>				<u>CS</u>		<u>DATE 09/21/22</u>
Minor Street: <u>Driveway 1</u>					Critical Approach Speed (Major) <u>25</u> mph	
					Critical Approach Speed (Minor) <u>25</u> mph	
Major Street Approach Lanes =		<u>1</u>	lane	Minor Street Approach Lanes =		<u>1</u> lane
Major Street Future ADT =		<u>975</u>	vpd	Minor Street Future ADT =		<u>41</u> vpd
Speed limit or critical speed on major street traffic > 64 km/h (40 mph); .....					<input type="checkbox"/>	
					or	<b>URBAN (U)</b>
In built up area of isolated community of < 10,000 population .....					<input type="checkbox"/>	

**(Based on Estimated Average Daily Traffic - See Note)**

<u>URBAN</u>	<u>RURAL</u>	Minimum Requirements			
<b>XX</b>		<b>EADT</b>			
<b>CONDITION A - Minimum Vehicular Volume</b>		Vehicles Per Day on Major Street		Vehicles Per Day on Higher-Volume Minor Street Approach	
<u>Satisfied</u>	<u>Not Satisfied</u>	(Total of Both Approaches)		(One Direction Only)	
	<b>XX</b>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
Number of lanes for moving traffic on each approach					
<u>Major Street</u>	<u>Minor Street</u>				
<u>1 975</u>	<u>1 41</u>	8,000	5,600	2,400	1,680
<u>2 +</u>	<u>1</u>	9,600	6,720	2,400	1,680
<u>2 +</u>	<u>2 +</u>	9,600	6,720	3,200	2,240
<u>1</u>	<u>2 +</u>	8,000	5,600	3,200	2,240
<b>CONDITION B - Interruption of Continuous Traffic</b>		Vehicles Per Day on Major Street		Vehicles Per Day on Higher-Volume Minor Street Approach	
<u>Satisfied</u>	<u>Not Satisfied</u>	(Total of Both Approaches)		(One Direction Only)	
	<b>XX</b>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
Number of lanes for moving traffic on each approach					
<u>Major Street</u>	<u>Minor Street</u>				
<u>1 975</u>	<u>1 41</u>	12,000	8,400	1,200	850
<u>2 +</u>	<u>1</u>	14,400	10,080	1,200	850
<u>2 +</u>	<u>2 +</u>	14,400	10,080	1,600	1,120
<u>1</u>	<u>2 +</u>	12,000	8,400	1,600	1,120
<b>Combination of CONDITIONS A + B</b>		2 CONDITIONS		2 CONDITIONS	
<u>Satisfied</u>	<u>Not Satisfied</u>	80%		80%	
No one condition satisfied, but following conditions fulfilled 80% of more .....	<b>XX</b>				
	<u>A</u>				
	<b>2%</b>				
	<u>B</u>				
	<b>3%</b>				

**Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.**

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



### Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

<u>DIST</u>	<u>CO</u>	<u>RTE</u>	<u>PM</u>	<u>CALC</u>	<u>TRAFFIC CONDITIONS</u>	<u>EAPC (2025)</u>
Jurisdiction: <u>County of Riverside</u>				CHK <u>CS</u>		DATE <u>09/21/22</u>
Major Street: <u>Martin St.</u>					Critical Approach Speed (Major) <u>25</u> mph	DATE <u>09/21/22</u>
Minor Street: <u>Driveway 2</u>					Critical Approach Speed (Minor) <u>25</u> mph	
Major Street Approach Lanes =		<u>1</u>	lane		Minor Street Approach Lanes =	<u>1</u> lane
Major Street Future ADT =		<u>1,851</u>	vpd		Minor Street Future ADT =	<u>34</u> vpd
Speed limit or critical speed on major street traffic > 64 km/h (40 mph); .....						<input type="checkbox"/>
						or
In built up area of isolated community of < 10,000 population .....						<input type="checkbox"/>

**URBAN (U)**

**(Based on Estimated Average Daily Traffic - See Note)**

<u>URBAN</u>	<u>RURAL</u>	Minimum Requirements			
<b>XX</b>		<b>EADT</b>			
<b>CONDITION A - Minimum Vehicular Volume</b>		Vehicles Per Day on Major Street		Vehicles Per Day on Higher-Volume Minor Street Approach	
<u>Satisfied</u>	<u>Not Satisfied</u>	(Total of Both Approaches)		(One Direction Only)	
	<b>XX</b>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
Number of lanes for moving traffic on each approach					
<u>Major Street</u>	<u>Minor Street</u>				
<u>1 1,851</u>	<u>1 34</u>	8,000	5,600	2,400	1,680
<u>2 +</u>	<u>1</u>	9,600	6,720	2,400	1,680
<u>2 +</u>	<u>2 +</u>	9,600	6,720	3,200	2,240
<u>1</u>	<u>2 +</u>	8,000	5,600	3,200	2,240
<b>CONDITION B - Interruption of Continuous Traffic</b>		Vehicles Per Day on Major Street		Vehicles Per Day on Higher-Volume Minor Street Approach	
<u>Satisfied</u>	<u>Not Satisfied</u>	(Total of Both Approaches)		(One Direction Only)	
	<b>XX</b>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
Number of lanes for moving traffic on each approach					
<u>Major Street</u>	<u>Minor Street</u>				
<u>1 1,851</u>	<u>1 34</u>	12,000	8,400	1,200	850
<u>2 +</u>	<u>1</u>	14,400	10,080	1,200	850
<u>2 +</u>	<u>2 +</u>	14,400	10,080	1,600	1,120
<u>1</u>	<u>2 +</u>	12,000	8,400	1,600	1,120
<b>Combination of CONDITIONS A + B</b>		2 CONDITIONS		2 CONDITIONS	
<u>Satisfied</u>	<u>Not Satisfied</u>	80%		80%	
No one condition satisfied, but following conditions fulfilled 80% of more .....	<b>XX</b>				
	<b>A</b>				
	<b>1%</b>				
	<b>B</b>				
	<b>3%</b>				

**Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.**

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



### Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

<u>DIST</u>	<u>CO</u>	<u>RTE</u>	<u>PM</u>	<u>CALC</u>	<u>TRAFFIC CONDITIONS</u>	<u>EAPC (2025)</u>
Jurisdiction: <u>County of Riverside</u>				<u>CS</u>		<u>DATE 09/21/22</u>
Major Street: <u>Martin St.</u>				<u>CHK CS</u>		<u>DATE 09/21/22</u>
Minor Street: <u>Driveway 3</u>					Critical Approach Speed (Major) <u>25</u> mph	
					Critical Approach Speed (Minor) <u>25</u> mph	
Major Street Approach Lanes =		<u>1</u>	lane		Minor Street Approach Lanes =	<u>1</u> lane
Major Street Future ADT =		<u>1,971</u>	vpd		Minor Street Future ADT =	<u>86</u> vpd
Speed limit or critical speed on major street traffic > 64 km/h (40 mph); .....						<input type="checkbox"/>
						or
In built up area of isolated community of < 10,000 population .....						<input type="checkbox"/>

**URBAN (U)**

**(Based on Estimated Average Daily Traffic - See Note)**

<u>URBAN</u>	<u>RURAL</u>	Minimum Requirements			
<b>XX</b>		<b>EADT</b>			
<b>CONDITION A - Minimum Vehicular Volume</b>		Vehicles Per Day on Major Street		Vehicles Per Day on Higher-Volume Minor Street Approach	
<u>Satisfied</u>		<u>Not Satisfied</u>		<u>(One Direction Only)</u>	
		<b>XX</b>			
Number of lanes for moving traffic on each approach		<u>(Total of Both Approaches)</u>		<u>(One Direction Only)</u>	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 <b>1,971</b>	1 <b>86</b>	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
<b>CONDITION B - Interruption of Continuous Traffic</b>		Vehicles Per Day on Major Street		Vehicles Per Day on Higher-Volume Minor Street Approach	
<u>Satisfied</u>		<u>Not Satisfied</u>		<u>(One Direction Only)</u>	
		<b>XX</b>			
Number of lanes for moving traffic on each approach		<u>(Total of Both Approaches)</u>		<u>(One Direction Only)</u>	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 <b>1,971</b>	1 <b>86</b>	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
<b>Combination of CONDITIONS A + B</b>		2 CONDITIONS		2 CONDITIONS	
<u>Satisfied</u>		<u>Not Satisfied</u>		<u>80%</u>	
		<b>XX</b>		<u>80%</u>	
No one condition satisfied, but following conditions fulfilled 80% of more .....					
	<u>A</u>				
	<b>4%</b>				
	<u>B</u>				
	<b>7%</b>				

**Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.**

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



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

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAPC (2025) Conditions - Weekday PM Peak Hour**

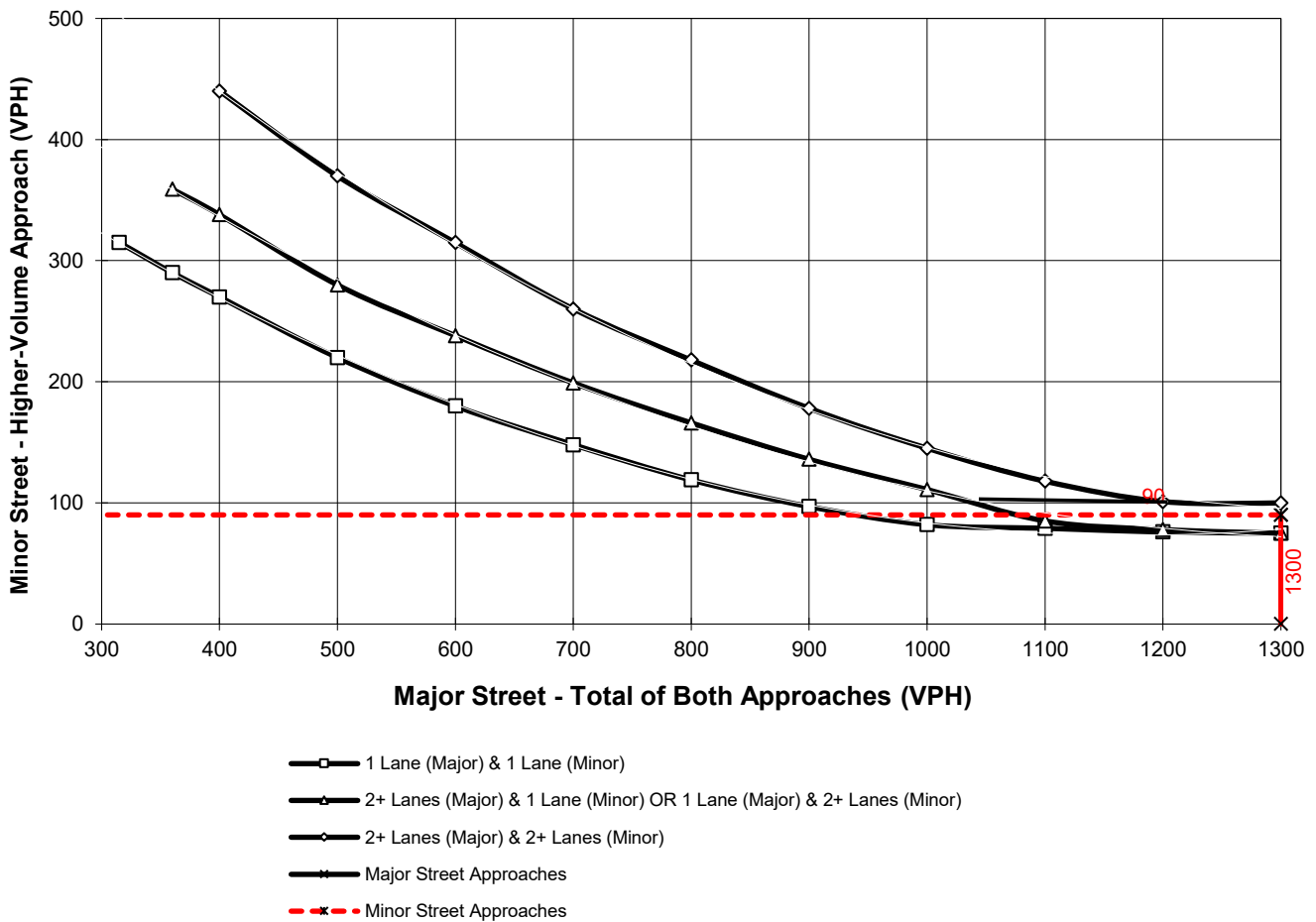
Major Street Name = **Harvill Avenue**

Total of Both Approaches (VPH) = **2072**  
 Number of Approach Lanes Major Street = **2**

Minor Street Name = **Perry St.**

High Volume Approach (VPH) = **90**  
 Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



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

### Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

<u>DIST</u>	<u>CO</u>	<u>RTE</u>	<u>PM</u>	<u>CALC</u>	<u>TRAFFIC CONDITIONS</u>	<u>EAPC (2025)</u>
Jurisdiction: <u>County of Riverside</u>				<u>CS</u>		<u>DATE 09/21/22</u>
Major Street: <u>Harvill Av.</u>				<u>CHK CS</u>		<u>DATE 09/21/22</u>
Minor Street: <u>Driveway 4</u>					Critical Approach Speed (Major) <u>50 mph</u>	
					Critical Approach Speed (Minor) <u>25 mph</u>	
Major Street Approach Lanes =		<u>1</u>	lane	Minor Street Approach Lanes =		<u>1</u> lane
Major Street Future ADT =		<u>14,104</u>	vpd	Minor Street Future ADT =		<u>67</u> vpd
Speed limit or critical speed on major street traffic > 64 km/h (40 mph); .....					<input checked="" type="checkbox"/>	
					or	<b>RURAL (R)</b>
In built up area of isolated community of < 10,000 population .....					<input type="checkbox"/>	

**(Based on Estimated Average Daily Traffic - See Note)**

<u>URBAN</u>	<u>RURAL</u>	Minimum Requirements			
<b>CONDITION A - Minimum Vehicular Volume</b> <u>Satisfied</u> <u>Not Satisfied</u> <span style="color: red; font-weight: bold;">XX</span>		EADT		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 <b>14,104</b>	1 <b>67</b>	8,000	5,600 *	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
<b>CONDITION B - Interruption of Continuous Traffic</b> <u>Satisfied</u> <u>Not Satisfied</u> <span style="color: red; font-weight: bold;">XX</span>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 <b>14,104</b>	1 <b>67</b>	12,000	8,400 *	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
<b>Combination of CONDITIONS A + B</b> <u>Satisfied</u> <u>Not Satisfied</u> <span style="color: red; font-weight: bold;">XX</span> No one condition satisfied, but following conditions fulfilled 80% of more .....		2 CONDITIONS 80%		2 CONDITIONS 80%	
	<u>A</u> <span style="color: red; font-weight: bold;">4%</span>		<u>B</u> <span style="color: red; font-weight: bold;">8%</span>		

**Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.**

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



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

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAPC (2025) Conditions - Weekday PM Peak Hour**

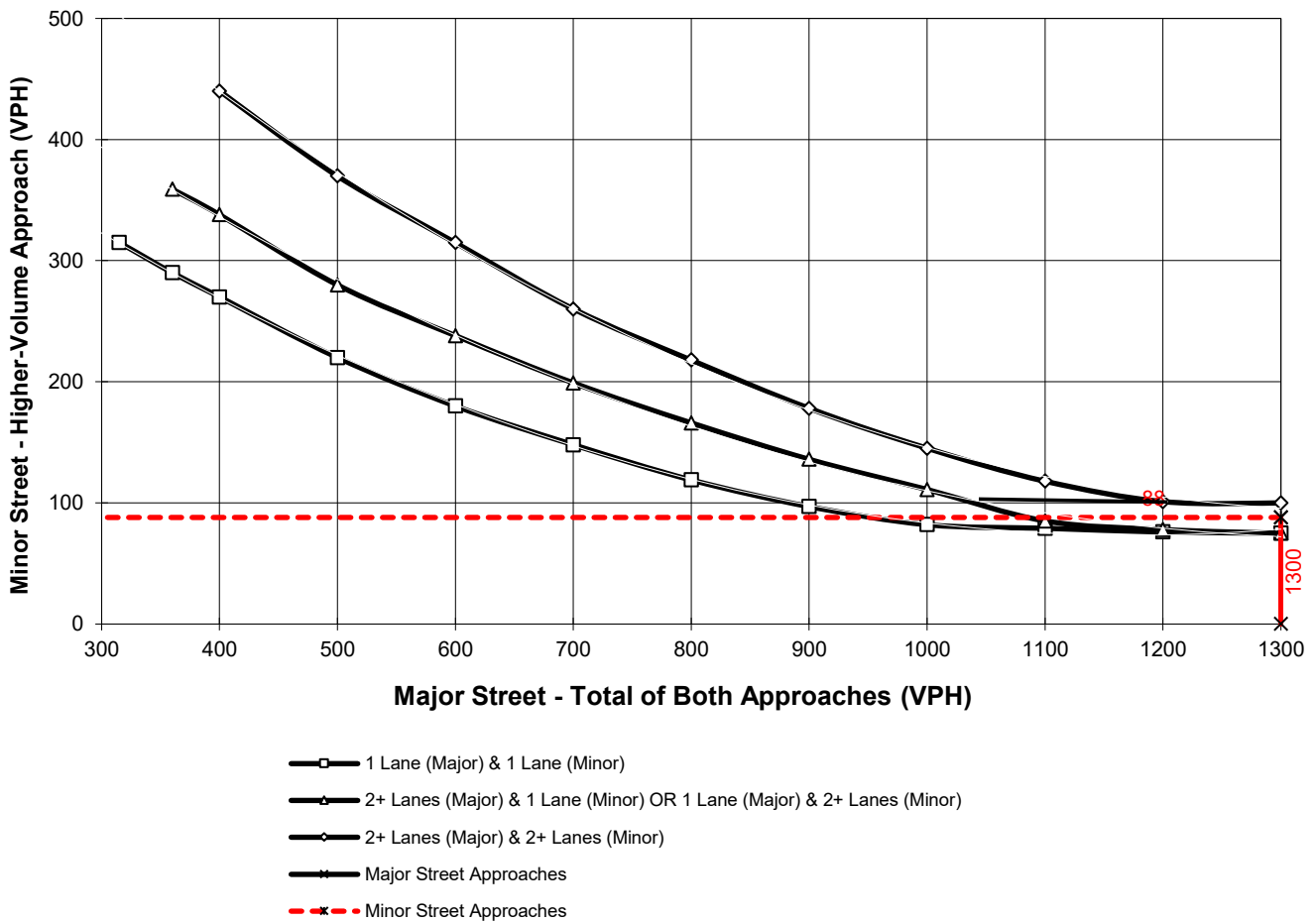
Major Street Name = **Harvill Avenue**

Total of Both Approaches (VPH) = **2215**  
 Number of Approach Lanes Major Street = **2**

Minor Street Name = **Martin St.**

High Volume Approach (VPH) = **88**  
 Number of Approach Lanes Minor Street = **1**

**WARRANTED FOR A SIGNAL**

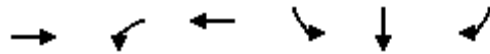


\*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

**APPENDIX 6.3: EAPC (2025) CONDITIONS FREEWAY OFF-RAMP  
QUEUING ANALYSIS WORKSHEETS**



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Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1285	558	1915	942	945	796
v/c Ratio	1.03	1.51	0.90	1.80	1.81	1.47
Control Delay	64.8	260.2	10.2	396.2	397.2	248.0
Queue Delay	6.9	0.0	46.1	12.6	12.6	0.0
Total Delay	71.8	260.2	56.3	408.8	409.8	248.0
Queue Length 50th (ft)	~477	~525	262	~1055	~1060	~740
Queue Length 95th (ft)	#615	m#375	m390	#1312	#1316	#980
Internal Link Dist (ft)	1408		344		1111	
Turn Bay Length (ft)		100		510		510
Base Capacity (vph)	1253	369	2133	522	523	543
Starvation Cap Reductn	0	0	406	0	0	0
Spillback Cap Reductn	24	0	0	341	342	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.05	1.51	1.11	5.20	5.22	1.47

#### Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

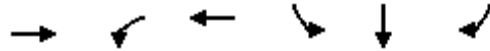
Queues  
9: I-215 NB Ramps & Ramona Exwy.



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	329	2388	1567	1516	467	471	833
v/c Ratio	1.09	1.17	1.23	1.44	0.82	0.83	1.42
Control Delay	93.8	104.0	141.1	222.9	47.3	47.7	229.0
Queue Delay	0.0	2.4	0.9	0.0	0.0	0.0	0.0
Total Delay	93.8	106.4	142.0	222.9	47.3	47.7	229.0
Queue Length 50th (ft)	~248	~1090	~718	~1107	316	320	~765
Queue Length 95th (ft)	m226	m607	#857	#1374	#493	#500	#1008
Internal Link Dist (ft)		344	532			1162	
Turn Bay Length (ft)	105			200			500
Base Capacity (vph)	303	2034	1279	1050	569	570	585
Starvation Cap Reductn	0	1000	0	0	0	0	0
Spillback Cap Reductn	0	0	241	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.09	2.31	1.51	1.44	0.82	0.83	1.42

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	2547	853	1253	1011	1019	422
v/c Ratio	2.04	2.31	0.59	1.94	1.95	0.78
Control Delay	494.1	612.2	3.7	453.7	458.8	39.8
Queue Delay	0.7	0.0	0.8	28.8	28.8	0.0
Total Delay	494.8	612.2	4.5	482.6	487.6	39.8
Queue Length 50th (ft)	~1481	~953	30	~1162	~1173	227
Queue Length 95th (ft)	#1618	m#708	m48	#1423	#1434	#377
Internal Link Dist (ft)	1408		344		1111	
Turn Bay Length (ft)		100		510		510
Base Capacity (vph)	1248	369	2133	522	523	543
Starvation Cap Reductn	0	0	528	0	0	0
Spillback Cap Reductn	182	0	0	438	439	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.39	2.31	0.78	12.04	12.13	0.78

#### Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	739	3119	1593	1832	313	318	597
v/c Ratio	2.44	1.53	1.25	1.79	0.55	0.56	1.02
Control Delay	669.0	265.7	149.6	377.9	34.5	34.7	75.3
Queue Delay	0.0	2.3	0.0	0.0	0.0	0.0	0.0
Total Delay	669.0	268.0	149.6	377.9	34.5	34.7	75.3
Queue Length 50th (ft)	~782	~1599	~738	~1615	189	192	~411
Queue Length 95th (ft)	m#296	m608	#877	#1885	284	289	#631
Internal Link Dist (ft)		344	532			1162	
Turn Bay Length (ft)	105			200			500
Base Capacity (vph)	303	2034	1279	1023	569	570	585
Starvation Cap Reductn	0	974	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	2.44	2.94	1.25	1.79	0.55	0.56	1.02

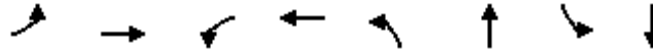
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

## **APPENDIX 6.4: EAPC (2025) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS**

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Timings  
4: Harvill Av. & Perry St.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↶	↷	↶	↷	↶	↷	↶	↷
Traffic Volume (vph)	12	0	9	0	80	1321	2	642
Future Volume (vph)	12	0	9	0	80	1321	2	642
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	31.6	31.6	31.6	31.6	9.6	28.2	9.6	28.2
Total Split (s)	31.6	31.6	31.6	31.6	16.4	48.7	9.7	42.0
Total Split (%)	35.1%	35.1%	35.1%	35.1%	18.2%	54.1%	10.8%	46.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	12.9	12.9	12.9	12.9	8.0	48.3	5.3	37.7
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.13	0.76	0.08	0.60
v/c Ratio	0.05	0.06	0.04	0.01	0.44	0.62	0.02	0.39
Control Delay	23.1	0.2	23.0	0.0	35.6	11.1	35.0	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	0.2	23.0	0.0	35.6	11.1	35.0	12.5
LOS	C	A	C	A	D	B	C	B
Approach Delay		7.4		18.1		12.5		12.5
Approach LOS		A		B		B		B

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 63.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 12.4	Intersection LOS: B
Intersection Capacity Utilization 62.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Harvill Av. & Perry St.





HCM 6th Signalized Intersection Summary  
 4: Harvill Av. & Perry St.

MFBC Building 13 (JN 13697)

09/21/2022

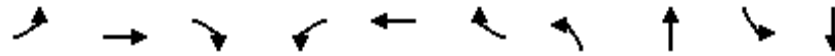


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (veh/h)	12	0	26	9	0	2	80	1321	16	2	642	14
Future Volume (veh/h)	12	0	26	9	0	2	80	1321	16	2	642	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	15	0	33	11	0	3	101	1672	20	3	813	18
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	292	0	181	264	0	181	131	2186	26	7	1914	42
Arrive On Green	0.11	0.00	0.11	0.11	0.00	0.11	0.07	0.60	0.60	0.00	0.53	0.53
Sat Flow, veh/h	1436	0	1610	1398	0	1610	1810	3653	44	1810	3611	80
Grp Volume(v), veh/h	15	0	33	11	0	3	101	825	867	3	406	425
Grp Sat Flow(s),veh/h/ln	1436	0	1610	1398	0	1610	1810	1805	1892	1810	1805	1886
Q Serve(g_s), s	0.5	0.0	1.0	0.4	0.0	0.1	3.0	18.2	18.3	0.1	7.4	7.4
Cycle Q Clear(g_c), s	0.6	0.0	1.0	1.4	0.0	0.1	3.0	18.2	18.3	0.1	7.4	7.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		0.04
Lane Grp Cap(c), veh/h	292	0	181	264	0	181	131	1080	1132	7	957	999
V/C Ratio(X)	0.05	0.00	0.18	0.04	0.00	0.02	0.77	0.76	0.77	0.41	0.42	0.42
Avail Cap(c_a), veh/h	850	0	806	807	0	806	396	1422	1490	171	1198	1251
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	21.7	22.3	0.0	21.3	24.6	8.0	8.0	26.8	7.7	7.7
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.1	0.0	0.0	3.6	1.8	1.8	12.8	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	0.2	0.0	0.4	0.1	0.0	0.0	1.2	3.9	4.1	0.1	1.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.6	0.0	22.2	22.4	0.0	21.3	28.2	9.8	9.8	39.6	8.0	8.0
LnGrp LOS	C	A	C	C	A	C	C	A	A	D	A	A
Approach Vol, veh/h		48			14			1793			834	
Approach Delay, s/veh		22.0			22.2			10.8			8.1	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	38.5		10.7	8.5	34.8		10.7				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.1	42.5		27.0	11.8	35.8		27.0				
Max Q Clear Time (g_c+I1), s	2.1	20.3		3.0	5.0	9.4		3.4				
Green Ext Time (p_c), s	0.0	12.0		0.2	0.1	4.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Timings  
7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

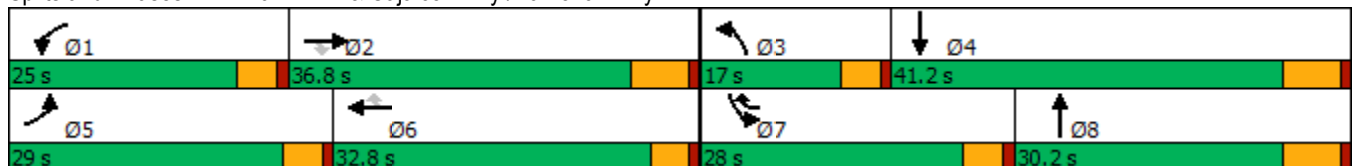


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↘	↑↑↑	↗	↘↗	↑↑↑	↗	↘↗	↑↑	↘↗	↑↑
Traffic Volume (vph)	191	841	218	640	1130	761	373	435	427	229
Future Volume (vph)	191	841	218	640	1130	761	373	435	427	229
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2		1	6	7	3	8	7	4
Permitted Phases			2			6				
Detector Phase	5	2	2	1	6	7	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	36.2	36.2	9.6	32.5	9.6	9.6	16.2	9.6	41.2
Total Split (s)	29.0	36.8	36.8	25.0	32.8	28.0	17.0	30.2	28.0	41.2
Total Split (%)	24.2%	30.7%	30.7%	20.8%	27.3%	23.3%	14.2%	25.2%	23.3%	34.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	3.5	3.6	3.6	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	4.5	4.6	4.6	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	17.4	26.1	26.1	20.4	30.8	58.0	12.4	24.8	22.6	35.0
Actuated g/C Ratio	0.15	0.23	0.23	0.18	0.27	0.50	0.11	0.21	0.20	0.30
v/c Ratio	0.76	0.70	0.43	1.08	0.80	0.92	1.04	0.86	0.65	0.29
Control Delay	64.5	44.3	7.1	104.6	44.8	38.6	105.9	50.6	48.1	27.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.5	44.3	7.1	104.6	44.8	38.6	105.9	50.6	48.1	27.6
LOS	E	D	A	F	D	D	F	D	D	C
Approach Delay		40.9			58.1			70.3		39.4
Approach LOS		D			E			E		D

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 115.6  
 Natural Cycle: 120  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.08  
 Intersection Signal Delay: 54.0  
 Intersection LOS: D  
 Intersection Capacity Utilization 90.2%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗	↖↗	↑↑↑	↗	↖↗	↑↑		↖↗	↑↑	
Traffic Volume (veh/h)	191	841	218	640	1130	761	373	435	240	427	229	83
Future Volume (veh/h)	191	841	218	640	1130	761	373	435	240	427	229	83
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		0.99	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	205	904	76	688	1215	452	401	468	134	459	246	46
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	236	1181	333	655	1469	651	398	776	221	531	969	178
Arrive On Green	0.13	0.21	0.21	0.18	0.26	0.26	0.11	0.27	0.27	0.15	0.31	0.31
Sat Flow, veh/h	1810	5700	1610	3619	5700	1610	3619	2837	806	3619	3122	574
Grp Volume(v), veh/h	205	904	76	688	1215	452	401	312	290	459	148	144
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	1900	1610	1810	1900	1743	1810	1900	1797
Q Serve(g_s), s	12.5	16.9	4.4	20.4	22.7	26.2	12.4	16.1	16.3	14.0	6.6	6.8
Cycle Q Clear(g_c), s	12.5	16.9	4.4	20.4	22.7	26.2	12.4	16.1	16.3	14.0	6.6	6.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		0.32
Lane Grp Cap(c), veh/h	236	1181	333	655	1469	651	398	520	477	531	590	558
V/C Ratio(X)	0.87	0.77	0.23	1.05	0.83	0.69	1.01	0.60	0.61	0.86	0.25	0.26
Avail Cap(c_a), veh/h	392	1547	437	655	1469	651	398	520	477	751	590	558
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	48.1	42.1	37.2	46.2	39.5	27.8	50.2	35.6	35.7	47.0	29.1	29.1
Incr Delay (d2), s/veh	5.7	1.7	0.3	49.2	4.0	3.2	47.0	5.1	5.7	5.6	1.0	1.1
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	5.8	7.7	1.7	13.2	10.6	9.9	8.0	7.8	7.3	6.4	3.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	43.8	37.5	95.4	43.5	31.0	97.2	40.6	41.3	52.7	30.1	30.3
LnGrp LOS	D	D	D	F	D	C	F	D	D	D	C	C
Approach Vol, veh/h		1185			2355			1003			751	
Approach Delay, s/veh		45.2			56.3			63.4			43.9	
Approach LOS		D			E			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	29.6	17.0	41.2	19.3	35.3	21.1	37.1				
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	* 6.2	4.6	6.2				
Max Green Setting (Gmax), s	20.4	30.6	12.4	35.0	24.4	* 28	23.4	24.0				
Max Q Clear Time (g_c+I1), s	22.4	18.9	14.4	8.8	14.5	28.2	16.0	18.3				
Green Ext Time (p_c), s	0.0	4.5	0.0	1.4	0.2	0.1	0.6	1.6				

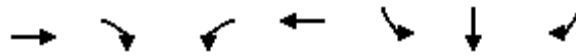
Intersection Summary

HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings  
8: I-215 SB Ramps & Ramona Exwy.

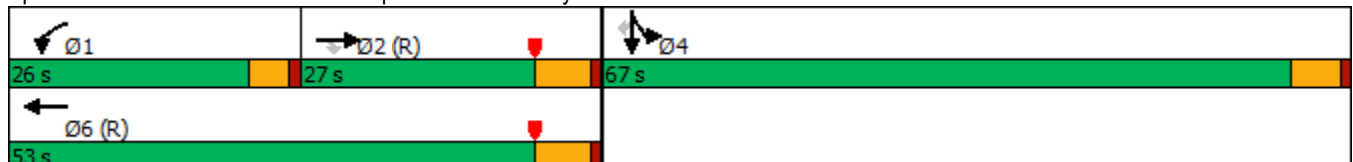


Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑	↔	↑↑↑	↔	↑	↑
Traffic Volume (vph)	786	473	547	1877	1847	2	780
Future Volume (vph)	786	473	547	1877	1847	2	780
Turn Type	NA	Perm	Prot	NA	Split	NA	Perm
Protected Phases	2		1	6	4	4	
Permitted Phases		2					4
Detector Phase	2	2	1	6	4	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	9.5	31.0	10.5	10.5	10.5
Total Split (s)	27.0	27.0	26.0	53.0	67.0	67.0	67.0
Total Split (%)	22.5%	22.5%	21.7%	44.2%	55.8%	55.8%	55.8%
Yellow Time (s)	5.0	5.0	3.5	5.0	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.5	6.0	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	Max
Act Effct Green (s)	21.5	21.5	21.0	47.0	61.5	61.5	61.5
Actuated g/C Ratio	0.18	0.18	0.18	0.39	0.51	0.51	0.51
v/c Ratio	0.78	0.71	0.89	0.86	0.68	0.67	0.93
Control Delay	53.4	10.3	83.1	34.0	24.3	26.3	42.9
Queue Delay	0.0	0.0	0.0	36.8	51.3	56.3	0.0
Total Delay	53.4	10.3	83.1	70.9	75.6	82.6	42.9
LOS	D	B	F	E	E	F	D
Approach Delay	37.2			73.6		67.5	
Approach LOS	D			E		E	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 63.8  
 Intersection LOS: E  
 Intersection Capacity Utilization 166.5%  
 ICU Level of Service H  
 Analysis Period (min) 15

Splits and Phases: 8: I-215 SB Ramps & Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 8: I-215 SB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↘↗	↑↑↑					↘↗	↖	↗
Traffic Volume (veh/h)	0	786	473	547	1877	0	0	0	0	1847	2	780
Future Volume (veh/h)	0	786	473	547	1877	0	0	0	0	1847	2	780
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	802	259	558	1915	0				1886	0	413
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	1046	292	617	2232	0				2782	0	825
Arrive On Green	0.00	0.18	0.18	0.17	0.39	0.00				0.51	0.00	0.51
Sat Flow, veh/h	0	5700	1589	3619	5700	0				5429	0	1610
Grp Volume(v), veh/h	0	802	259	558	1915	0				1886	0	413
Grp Sat Flow(s),veh/h/ln	0	1900	1589	1810	1900	0				1810	0	1610
Q Serve(g_s), s	0.0	16.0	19.1	18.1	36.9	0.0				31.1	0.0	20.2
Cycle Q Clear(g_c), s	0.0	16.0	19.1	18.1	36.9	0.0				31.1	0.0	20.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1046	292	617	2233	0				2782	0	825
V/C Ratio(X)	0.00	0.77	0.89	0.90	0.86	0.00				0.68	0.00	0.50
Avail Cap(c_a), veh/h	0	1046	292	648	2233	0				2782	0	825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.67	0.67	0.33	0.33	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	46.5	47.8	48.8	33.4	0.0				21.9	0.0	19.2
Incr Delay (d2), s/veh	0.0	3.7	22.6	6.2	1.6	0.0				1.3	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.6	9.1	8.4	16.2	0.0				12.6	0.0	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	50.2	70.4	55.0	35.0	0.0				23.2	0.0	21.3
LnGrp LOS	A	D	E	D	D	A				C	A	C
Approach Vol, veh/h		1061			2473						2299	
Approach Delay, s/veh		55.1			39.5						22.9	
Approach LOS		E			D						C	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	25.0	28.0		67.0		53.0						
Change Period (Y+Rc), s	4.5	6.0		5.5		6.0						
Max Green Setting (Gmax), s	21.5	21.0		61.5		47.0						
Max Q Clear Time (g_c+I1), s	20.1	21.1		33.1		38.9						
Green Ext Time (p_c), s	0.3	0.0		12.3		5.2						

Intersection Summary

HCM 6th Ctrl Delay	35.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Timings  
9: I-215 NB Ramps & Ramona Exwy.

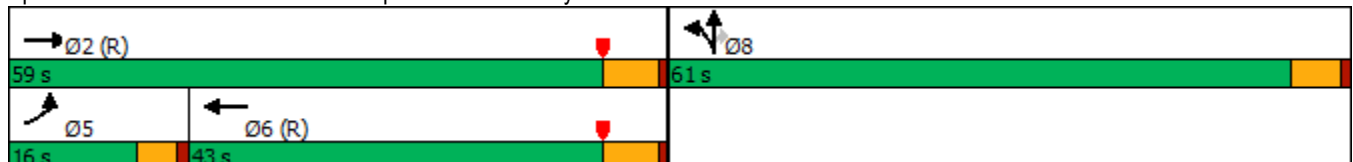


Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations	↶↷	↑↑↑	↶↶↶	↷	↶	↶	↷
Traffic Volume (vph)	319	2316	1520	1471	906	4	808
Future Volume (vph)	319	2316	1520	1471	906	4	808
Turn Type	Prot	NA	NA	Free	Split	NA	Perm
Protected Phases	5	2	6		8	8	
Permitted Phases				Free			8
Detector Phase	5	2	6		8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	11.0	26.0		10.5	10.5	10.5
Total Split (s)	16.0	59.0	43.0		61.0	61.0	61.0
Total Split (%)	13.3%	49.2%	35.8%		50.8%	50.8%	50.8%
Yellow Time (s)	3.5	5.0	5.0		4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0		5.5	5.5	5.5
Lead/Lag	Lead		Lag				
Lead-Lag Optimize?	Yes		Yes				
Recall Mode	None	C-Max	C-Max		None	None	None
Act Effct Green (s)	11.5	53.0	37.0	120.0	55.5	55.5	55.5
Actuated g/C Ratio	0.10	0.44	0.31	1.00	0.46	0.46	0.46
v/c Ratio	0.98	1.04	0.98	0.94	0.59	0.59	1.06
Control Delay	112.8	72.2	59.6	13.4	27.6	27.7	80.2
Queue Delay	0.0	24.6	40.6	0.0	0.2	0.2	0.0
Total Delay	112.8	96.8	100.1	13.4	27.8	27.9	80.2
LOS	F	F	F	B	C	C	F
Approach Delay		98.7	57.5			52.5	
Approach LOS		F	E			D	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.06  
 Intersection Signal Delay: 71.1  
 Intersection LOS: E  
 Intersection Capacity Utilization 166.5%  
 ICU Level of Service H  
 Analysis Period (min) 15

























Splits and Phases: 9: I-215 NB Ramps & Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 9: I-215 NB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  							
Traffic Volume (veh/h)	319	2316	0	0	1520	1471	906	4	808	0	0	0
Future Volume (veh/h)	319	2316	0	0	1520	1471	906	4	808	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	329	2388	0	0	1567	0	937	0	681			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	336	2376	0	0	1684		1615	0	718			
Arrive On Green	0.19	0.92	0.00	0.00	0.32	0.00	0.45	0.00	0.45			
Sat Flow, veh/h	3510	5358	0	0	5358	1610	3619	0	1610			
Grp Volume(v), veh/h	329	2388	0	0	1567	0	937	0	681			
Grp Sat Flow(s),veh/h/ln	1755	1729	0	0	1729	1610	1810	0	1610			
Q Serve(g_s), s	11.2	55.0	0.0	0.0	35.1	0.0	23.2	0.0	48.7			
Cycle Q Clear(g_c), s	11.2	55.0	0.0	0.0	35.1	0.0	23.2	0.0	48.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	336	2376	0	0	1684		1615	0	718			
V/C Ratio(X)	0.98	1.01	0.00	0.00	0.93		0.58	0.00	0.95			
Avail Cap(c_a), veh/h	336	2376	0	0	1684		1674	0	745			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.62	0.62	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	48.4	5.0	0.0	0.0	39.2	0.0	24.8	0.0	31.9			
Incr Delay (d2), s/veh	32.9	15.8	0.0	0.0	10.7	0.0	0.5	0.0	20.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.8	5.4	0.0	0.0	15.7	0.0	9.5	0.0	21.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.3	20.8	0.0	0.0	49.9	0.0	25.3	0.0	52.8			
LnGrp LOS	F	F	A	A	D		C	A	D			
Approach Vol, veh/h		2717			1567			1618				
Approach Delay, s/veh		28.1			49.9			36.9				
Approach LOS		C			D			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		61.0			16.0	45.0		59.0				
Change Period (Y+Rc), s		6.0			4.5	6.0		5.5				
Max Green Setting (Gmax), s		53.0			11.5	37.0		55.5				
Max Q Clear Time (g_c+I1), s		57.0			13.2	37.1		50.7				
Green Ext Time (p_c), s		0.0			0.0	0.0		2.8				

Intersection Summary

HCM 6th Ctrl Delay	36.3
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.  
 Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Timings  
4: Harvill Av. & Perry St.

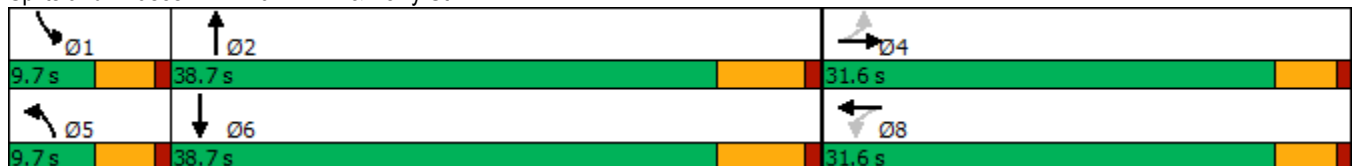


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↕	↖	↕
Traffic Volume (vph)	13	4	16	2	18	793	5	1230
Future Volume (vph)	13	4	16	2	18	793	5	1230
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	31.6	31.6	31.6	31.6	9.6	28.2	9.6	28.2
Total Split (s)	31.6	31.6	31.6	31.6	9.7	38.7	9.7	38.7
Total Split (%)	39.5%	39.5%	39.5%	39.5%	12.1%	48.4%	12.1%	48.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	13.1	13.1	13.1	13.1	5.3	38.8	5.3	38.8
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.09	0.66	0.09	0.66
v/c Ratio	0.05	0.20	0.06	0.02	0.12	0.38	0.04	0.58
Control Delay	18.4	6.7	18.7	12.2	30.7	9.1	29.8	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.4	6.7	18.7	12.2	30.7	9.1	29.8	12.2
LOS	B	A	B	B	C	A	C	B
Approach Delay		8.5		16.5		9.5		12.2
Approach LOS		A		B		A		B

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 58.5	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.58	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 51.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Harvill Av. & Perry St.





HCM 6th Signalized Intersection Summary  
4: Harvill Av. & Perry St.

MFBC Building 13 (JN 13697)

09/21/2022

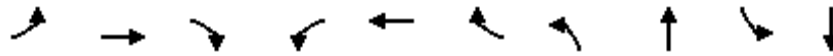


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕	↗	↖	↕	↗
Traffic Volume (veh/h)	13	4	73	16	2	6	18	793	16	5	1230	10
Future Volume (veh/h)	13	4	73	16	2	6	18	793	16	5	1230	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	15	4	82	18	2	7	20	891	18	6	1382	11
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	371	12	255	299	61	214	44	1893	38	14	1861	15
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.02	0.52	0.52	0.01	0.51	0.51
Sat Flow, veh/h	1428	75	1546	1332	370	1296	1810	3619	73	1810	3671	29
Grp Volume(v), veh/h	15	0	86	18	0	9	20	444	465	6	679	714
Grp Sat Flow(s),veh/h/ln	1428	0	1622	1332	0	1667	1810	1805	1887	1810	1805	1895
Q Serve(g_s), s	0.5	0.0	2.4	0.6	0.0	0.2	0.6	7.9	7.9	0.2	15.1	15.1
Cycle Q Clear(g_c), s	0.7	0.0	2.4	3.0	0.0	0.2	0.6	7.9	7.9	0.2	15.1	15.1
Prop In Lane	1.00		0.95	1.00		0.78	1.00		0.04	1.00		0.02
Lane Grp Cap(c), veh/h	371	0	267	299	0	275	44	944	987	14	915	960
V/C Ratio(X)	0.04	0.00	0.32	0.06	0.00	0.03	0.46	0.47	0.47	0.41	0.74	0.74
Avail Cap(c_a), veh/h	897	0	864	790	0	888	182	1158	1211	182	1158	1216
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	18.7	20.0	0.0	17.8	24.4	7.6	7.6	25.0	9.9	9.9
Incr Delay (d2), s/veh	0.0	0.0	0.7	0.1	0.0	0.0	2.7	0.4	0.3	6.9	2.0	1.9
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	0.1	0.0	0.9	0.2	0.0	0.1	0.3	2.4	2.5	0.1	4.9	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	0.0	19.3	20.1	0.0	17.8	27.1	8.0	8.0	31.9	11.8	11.8
LnGrp LOS	B	A	B	C	A	B	C	A	A	C	B	B
Approach Vol, veh/h		101			27			929			1399	
Approach Delay, s/veh		19.2			19.3			8.4			11.9	
Approach LOS		B			B			A			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.0	32.7		12.9	5.8	31.9		12.9				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.1	32.5		27.0	5.1	32.5		27.0				
Max Q Clear Time (g_c+I1), s	2.2	9.9		4.4	2.6	17.1		5.0				
Green Ext Time (p_c), s	0.0	6.2		0.5	0.0	8.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

Timings  
7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

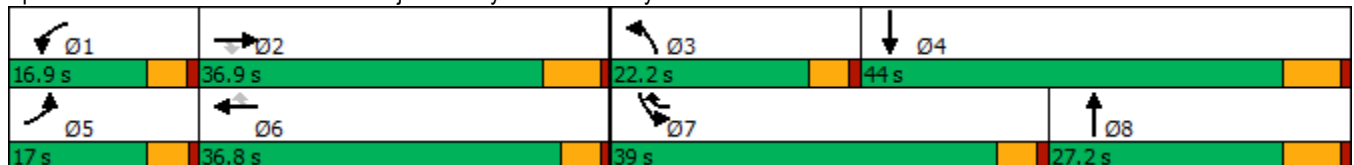


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↙	↑↑↑	↘	↙↘	↑↑↑	↘	↙↘	↑↘	↙↘	↑↘
Traffic Volume (vph)	124	1238	297	350	929	477	312	241	920	320
Future Volume (vph)	124	1238	297	350	929	477	312	241	920	320
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2		1	6	7	3	8	7	4
Permitted Phases			2			6				
Detector Phase	5	2	2	1	6	7	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	36.2	36.2	9.6	32.5	9.6	9.6	16.2	9.6	41.2
Total Split (s)	17.0	36.9	36.9	16.9	36.8	39.0	22.2	27.2	39.0	44.0
Total Split (%)	14.2%	30.8%	30.8%	14.1%	30.7%	32.5%	18.5%	22.7%	32.5%	36.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	3.5	3.6	3.6	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	4.5	4.6	4.6	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	11.4	30.7	30.7	12.3	33.3	71.9	15.0	21.0	34.1	40.1
Actuated g/C Ratio	0.10	0.26	0.26	0.10	0.28	0.60	0.13	0.18	0.28	0.34
v/c Ratio	0.78	0.91	0.49	1.01	0.63	0.49	0.74	1.45dr	0.96	0.42
Control Delay	81.7	53.5	6.6	103.6	40.2	10.5	60.9	133.2	62.7	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.7	53.5	6.6	103.6	40.2	10.5	60.9	133.2	62.7	25.8
LOS	F	D	A	F	D	B	E	F	E	C
Approach Delay		47.2			44.8			113.5		49.8
Approach LOS		D			D			F		D

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 119.7  
 Natural Cycle: 130  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.19  
 Intersection Signal Delay: 59.8  
 Intersection LOS: E  
 Intersection Capacity Utilization 103.9%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 7: Harvill Av. & Cajalco Exwy./Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘↗	↑↑↑	↗	↘↗	↑↑		↘↗	↑↑	
Traffic Volume (veh/h)	124	1238	297	350	929	477	312	241	591	920	320	175
Future Volume (veh/h)	124	1238	297	350	929	477	312	241	591	920	320	175
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	133	1331	168	376	999	218	335	259	352	989	344	100
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	159	1445	408	374	1535	892	395	336	284	1030	1000	286
Arrive On Green	0.13	0.38	0.38	0.16	0.40	0.40	0.16	0.26	0.26	0.43	0.53	0.53
Sat Flow, veh/h	1810	5700	1610	3619	5700	1610	3619	1900	1610	3619	2840	813
Grp Volume(v), veh/h	133	1331	168	376	999	218	335	259	352	989	228	216
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	1900	1610	1810	1900	1610	1810	1900	1754
Q Serve(g_s), s	8.5	26.5	9.1	12.3	16.8	7.3	10.7	15.0	21.0	31.6	8.2	8.5
Cycle Q Clear(g_c), s	8.5	26.5	9.1	12.3	16.8	7.3	10.7	15.0	21.0	31.6	8.2	8.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.46
Lane Grp Cap(c), veh/h	159	1445	408	374	1535	892	395	336	284	1030	669	617
V/C Ratio(X)	0.84	0.92	0.41	1.00	0.65	0.24	0.85	0.77	1.24	0.96	0.34	0.35
Avail Cap(c_a), veh/h	189	1472	416	374	1549	896	536	336	284	1047	669	617
HCM Platoon Ratio	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
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	50.8	35.7	30.3	50.2	30.9	11.0	48.7	41.5	43.7	33.4	20.1	20.2
Incr Delay (d2), s/veh	20.9	9.7	0.7	47.5	1.0	0.1	7.1	15.7	133.3	18.6	1.4	1.6
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	4.5	11.4	3.3	7.5	6.6	2.2	4.8	7.6	17.7	13.8	3.5	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.6	45.4	31.0	97.7	31.9	11.1	55.9	57.2	177.0	52.0	21.5	21.7
LnGrp LOS	E	D	C	F	C	B	E	E	F	D	C	C
Approach Vol, veh/h		1632			1593			946			1433	
Approach Delay, s/veh		46.0			44.6			101.3			42.6	
Approach LOS		D			D			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.9	36.3	17.6	48.1	15.0	38.2	38.4	27.2				
Change Period (Y+Rc), s	4.6	6.2	4.6	6.2	4.6	* 6.2	4.6	6.2				
Max Green Setting (Gmax), s	12.3	30.7	17.6	37.8	12.4	* 32	34.4	21.0				
Max Q Clear Time (g_c+I1), s	14.3	28.5	12.7	10.5	10.5	18.8	33.6	23.0				
Green Ext Time (p_c), s	0.0	1.7	0.3	2.3	0.0	5.8	0.3	0.0				

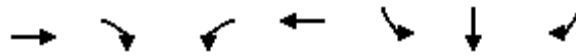
Intersection Summary

HCM 6th Ctrl Delay	54.1
HCM 6th LOS	D

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings  
8: I-215 SB Ramps & Ramona Exwy.

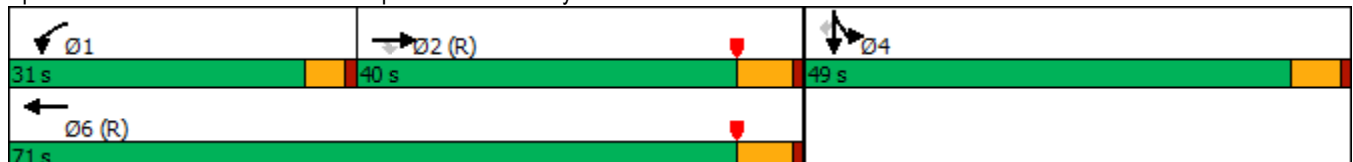


Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑	↔	↑↑↑	↔	↑	↑
Traffic Volume (vph)	1622	900	844	1240	2002	8	418
Future Volume (vph)	1622	900	844	1240	2002	8	418
Turn Type	NA	Perm	Prot	NA	Split	NA	Perm
Protected Phases	2		1	6	4	4	
Permitted Phases		2					4
Detector Phase	2	2	1	6	4	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	9.5	31.0	10.5	10.5	10.5
Total Split (s)	40.0	40.0	31.0	71.0	49.0	49.0	49.0
Total Split (%)	33.3%	33.3%	25.8%	59.2%	40.8%	40.8%	40.8%
Yellow Time (s)	5.0	5.0	3.5	5.0	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.5	6.0	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	Max
Act Effct Green (s)	34.0	34.0	26.5	65.0	43.5	43.5	43.5
Actuated g/C Ratio	0.28	0.28	0.22	0.54	0.36	0.36	0.36
v/c Ratio	1.01	0.98	1.07	0.41	1.04	1.03	0.67
Control Delay	68.7	36.6	116.1	20.7	72.5	80.9	33.0
Queue Delay	0.0	0.0	9.8	0.6	28.9	32.2	0.0
Total Delay	68.7	36.6	125.9	21.3	101.4	113.1	33.0
LOS	E	D	F	C	F	F	C
Approach Delay	57.3			63.6		92.8	
Approach LOS	E			E		F	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.07  
 Intersection Signal Delay: 71.4  
 Intersection LOS: E  
 Intersection Capacity Utilization 166.0%  
 ICU Level of Service H  
 Analysis Period (min) 15

Splits and Phases: 8: I-215 SB Ramps & Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 8: I-215 SB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)

09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↘↗	↑↑↑					↘↗	↖	↗
Traffic Volume (veh/h)	0	1622	900	844	1240	0	0	0	0	2002	8	418
Future Volume (veh/h)	0	1622	900	844	1240	0	0	0	0	2002	8	418
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	1638	386	853	1253	0				2028	0	240
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99				0.99	0.99	0.99
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	1615	456	799	3088	0				1968	0	584
Arrive On Green	0.00	0.28	0.28	0.22	0.54	0.00				0.36	0.00	0.36
Sat Flow, veh/h	0	5700	1610	3619	5700	0				5429	0	1610
Grp Volume(v), veh/h	0	1638	386	853	1253	0				2028	0	240
Grp Sat Flow(s),veh/h/ln	0	1900	1610	1810	1900	0				1810	0	1610
Q Serve(g_s), s	0.0	34.0	27.1	26.5	15.5	0.0				43.5	0.0	13.4
Cycle Q Clear(g_c), s	0.0	34.0	27.1	26.5	15.5	0.0				43.5	0.0	13.4
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1615	456	799	3088	0				1968	0	584
V/C Ratio(X)	0.00	1.01	0.85	1.07	0.41	0.00				1.03	0.00	0.41
Avail Cap(c_a), veh/h	0	1615	456	799	3088	0				1968	0	584
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.24	0.24	0.36	0.36	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	43.0	40.5	46.8	16.2	0.0				38.3	0.0	28.7
Incr Delay (d2), s/veh	0.0	14.7	4.9	40.0	0.1	0.0				28.6	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	17.3	10.8	15.8	6.2	0.0				23.4	0.0	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	57.7	45.4	86.8	16.3	0.0				66.8	0.0	30.8
LnGrp LOS	A	F	D	F	B	A				F	A	C
Approach Vol, veh/h		2024			2106						2268	
Approach Delay, s/veh		55.4			44.8						63.0	
Approach LOS		E			D						E	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	31.0	40.0		49.0		71.0						
Change Period (Y+Rc), s	4.5	6.0		5.5		6.0						
Max Green Setting (Gmax), s	26.5	34.0		43.5		65.0						
Max Q Clear Time (g_c+I1), s	28.5	36.0		45.5		17.5						
Green Ext Time (p_c), s	0.0	0.0		0.0		6.0						

Intersection Summary

HCM 6th Ctrl Delay	54.6
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Timings  
9: I-215 NB Ramps & Ramona Exwy.



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations	↖ ↗	↕ ↕ ↕	↖ ↖ ↖	↖	↖	↕	↗
Traffic Volume (vph)	695	2932	1497	1722	589	4	561
Future Volume (vph)	695	2932	1497	1722	589	4	561
Turn Type	Prot	NA	NA	Free	Split	NA	Perm
Protected Phases	5	2	6		8	8	
Permitted Phases				Free			8
Detector Phase	5	2	6		8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	11.0	26.0		10.5	10.5	10.5
Total Split (s)	30.8	76.0	45.2		44.0	44.0	44.0
Total Split (%)	25.7%	63.3%	37.7%		36.7%	36.7%	36.7%
Yellow Time (s)	3.5	5.0	5.0		4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0		5.5	5.5	5.5
Lead/Lag	Lead		Lag				
Lead-Lag Optimize?	Yes		Yes				
Recall Mode	None	C-Max	C-Max		None	None	None
Act Effct Green (s)	26.3	70.0	39.2	120.0	38.5	38.5	38.5
Actuated g/C Ratio	0.22	0.58	0.33	1.00	0.32	0.32	0.32
v/c Ratio	0.96	1.03	0.94	1.15	0.57	0.58	1.06
Control Delay	86.8	50.3	51.2	82.1	38.7	39.0	89.7
Queue Delay	0.0	29.4	31.0	0.0	0.0	0.0	0.0
Total Delay	86.8	79.7	82.3	82.1	38.7	39.0	89.7
LOS	F	E	F	F	D	D	F
Approach Delay		81.1	82.2			63.6	
Approach LOS		F	F			E	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.15  
 Intersection Signal Delay: 79.0  
 Intersection LOS: E  
 Intersection Capacity Utilization 166.0%  
 ICU Level of Service H  
 Analysis Period (min) 15

Splits and Phases: 9: I-215 NB Ramps & Ramona Exwy.



HCM 6th Signalized Intersection Summary  
 9: I-215 NB Ramps & Ramona Exwy.

MFBC Building 13 (JN 13697)  
 09/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑			↑↑↑	↔	↔	↔	↔			
Traffic Volume (veh/h)	695	2932	0	0	1497	1722	589	4	561	0	0	0
Future Volume (veh/h)	695	2932	0	0	1497	1722	589	4	561	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	739	3119	0	0	1593	0	630	0	516			
Peak Hour Factor	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			
Cap, veh/h	769	3026	0	0	1694		1161	0	517			
Arrive On Green	0.44	1.00	0.00	0.00	0.33	0.00	0.32	0.00	0.32			
Sat Flow, veh/h	3510	5358	0	0	5358	1610	3619	0	1610			
Grp Volume(v), veh/h	739	3119	0	0	1593	0	630	0	516			
Grp Sat Flow(s),veh/h/ln	1755	1729	0	0	1729	1610	1810	0	1610			
Q Serve(g_s), s	24.5	0.0	0.0	0.0	35.8	0.0	17.2	0.0	38.4			
Cycle Q Clear(g_c), s	24.5	0.0	0.0	0.0	35.8	0.0	17.2	0.0	38.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	769	3026	0	0	1694		1161	0	517			
V/C Ratio(X)	0.96	1.03	0.00	0.00	0.94		0.54	0.00	1.00			
Avail Cap(c_a), veh/h	769	3026	0	0	1694		1161	0	517			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	33.2	0.0	0.0	0.0	39.3	0.0	33.5	0.0	40.7			
Incr Delay (d2), s/veh	3.9	15.5	0.0	0.0	11.6	0.0	0.5	0.0	39.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.5	4.3	0.0	0.0	16.1	0.0	7.3	0.0	20.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.1	15.5	0.0	0.0	50.9	0.0	34.0	0.0	80.0			
LnGrp LOS	D	F	A	A	D		C	A	F			
Approach Vol, veh/h		3858			1593			1146				
Approach Delay, s/veh		19.6			50.9			54.7				
Approach LOS		B			D			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		76.0			30.8	45.2		44.0				
Change Period (Y+Rc), s		6.0			4.5	6.0		5.5				
Max Green Setting (Gmax), s		70.0			26.3	39.2		38.5				
Max Q Clear Time (g_c+I1), s		2.0			26.5	37.8		40.4				
Green Ext Time (p_c), s		38.7			0.0	1.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	33.3
HCM 6th LOS	C

Notes

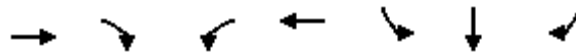
User approved volume balancing among the lanes for turning movement.  
 Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

**APPENDIX 6.5: EAPC (2025) CONDITIONS FREEWAY OFF-RAMP  
QUEUING ANALYSIS WORKSHEETS WITH IMPROVEMENTS**



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Queues  
8: I-215 SB Ramps & Ramona Exwy.



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	802	483	558	1915	1263	624	796
v/c Ratio	0.78	0.71	0.89	0.86	0.68	0.67	0.93
Control Delay	53.4	10.3	83.1	34.0	24.3	26.3	42.9
Queue Delay	0.0	0.0	0.0	36.8	51.3	56.3	0.0
Total Delay	53.4	10.3	83.1	70.9	75.6	82.6	42.9
Queue Length 50th (ft)	201	0	195	305	354	347	518
Queue Length 95th (ft)	245	104	m199	m356	429	482	#804
Internal Link Dist (ft)	1408			344		1111	
Turn Bay Length (ft)		300	100		510		510
Base Capacity (vph)	1023	682	646	2232	1850	928	860
Starvation Cap Reductn	0	0	0	453	0	0	0
Spillback Cap Reductn	0	0	0	0	1109	556	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.71	0.86	1.08	1.70	1.68	0.93

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

9: I-215 NB Ramps & Ramona Exwy.

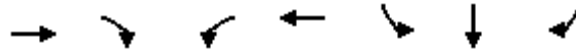


Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	329	2388	1567	1516	467	471	833
v/c Ratio	0.98	1.04	0.98	0.94	0.59	0.59	1.06
Control Delay	112.8	72.2	59.6	13.4	27.6	27.7	80.2
Queue Delay	0.0	24.6	40.6	0.0	0.2	0.2	0.0
Total Delay	112.8	96.8	100.1	13.4	27.8	27.9	80.2
Queue Length 50th (ft)	135	~715	439	0	274	277	~682
Queue Length 95th (ft)	m#186	#806	#550	#105	390	393	#930
Internal Link Dist (ft)		344	532			1162	
Turn Bay Length (ft)	105			200			500
Base Capacity (vph)	335	2290	1599	1615	793	795	783
Starvation Cap Reductn	0	692	0	0	0	0	0
Spillback Cap Reductn	0	0	264	0	42	42	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	1.49	1.17	0.94	0.62	0.63	1.06

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues  
8: I-215 SB Ramps & Ramona Exwy.



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1638	909	853	1253	1355	675	422
v/c Ratio	1.01	0.99	1.03	0.40	1.06	1.05	0.69
Control Delay	68.7	40.0	105.0	20.1	80.6	88.4	34.2
Queue Delay	0.0	0.0	23.8	0.6	20.0	24.4	0.0
Total Delay	68.7	40.0	128.8	20.7	100.6	112.8	34.2
Queue Length 50th (ft)	~434	273	~365	178	~577	~571	234
Queue Length 95th (ft)	#535	#590	m#408	m205	#708	#802	355
Internal Link Dist (ft)	1408			344		1111	
Turn Bay Length (ft)		300	100		510		510
Base Capacity (vph)	1615	920	827	3135	1278	641	615
Starvation Cap Reductn	0	0	48	1346	0	0	0
Spillback Cap Reductn	0	0	0	0	665	333	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.99	1.09	0.70	2.21	2.19	0.69

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	739	3119	1593	1832	313	318	597
v/c Ratio	0.96	1.03	0.94	1.15	0.57	0.58	1.06
Control Delay	86.8	50.3	51.2	82.1	38.7	39.0	89.7
Queue Delay	0.0	29.4	31.0	0.0	0.0	0.0	0.0
Total Delay	86.8	79.7	82.3	82.1	38.7	39.0	89.7
Queue Length 50th (ft)	283	752	437	~384	211	215	~470
Queue Length 95th (ft)	m257	m622	#537	#648	311	317	#696
Internal Link Dist (ft)		344	532			1162	
Turn Bay Length (ft)	105			200			500
Base Capacity (vph)	767	3025	1694	1594	550	551	564
Starvation Cap Reductn	0	1049	0	0	0	0	0
Spillback Cap Reductn	0	0	202	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	1.58	1.07	1.15	0.57	0.58	1.06

**Intersection Summary**

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.