APPENDIX 1.1:

APPROVED TRAFFIC STUDY SCOPING AGREEMENT

This Page Intentionally Left Blank

Exhibit B

SCOPING AGREEMENT FOR TRAFFIC IMPACT ANALYSIS

This following form shall be used to acknowledge preliminary approval of the scope for the traffic impact analysis (TIA) of the following project. The TIA must follow the City of Rialto Traffic Impact Analysis – Report Guidelines and Requirements, adopted by the City Council on February 5, 2014.

City of Rialto

Traffic Impact Analysis

Scoping Agreement

Case No. 2020-0013

Related Cases -

SP No. 2020-0001

EIR No. 2020-0007

GPA No. 2020-0001

ZC No. _____

Project Name: Valley Boulevard & Willow Avenue Warehouse

Project Address: Northwest corner of Valley Boulevard & Willow Avenue

Project Description: 492,410 square feet of warehousing use

	Consultant	Developer
Name:	Charlene So, Urban Crossroads	QR Birtcher Willow Ave Owner LLC
Address:		
Telephone:	949-861-0177	949-440-1052
Fax:		

1. Trip Generation Source: ITE 9th Ed. Trip Gen Manual (2012) + Rialto Truck Mix

Existing GP Land Use GC (General Commercial)/ BP (Business Park) Proposed Land Use BP (Business Park)

Current Zoning: M-1 (Light Industrial) - Gateway Specific Plan Proposed Zoning: M-1 (Light Industrial) - Gateway Specific Plan

Total Daily Project Trips: 1,522 (actual)

	Current Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips				107	22	129
PM Trips				32	109	141

Internal Trip Allowance Yes (No) (0 % Trip Discount)

Pass-By Trip Allowance Yes (No) (0 % Trip Discount)

For appropriate land uses, a pass-by trip discount may be allowed not to exceed 25%. Discount trips shall be indicated on a report figure for intersections and access locations.

2. Trip Geographic Distribution: N Varies% SVaries % EVaries % WVaries%

(Detailed exhibits of trip distribution must be attached with Trucks as a separate exhibit)

3. Background Growth Traffic

Project Completion Year: 2023 Annual Background Growth Rate: 2.0 %

Other Phase Years Not applicable

Other area projects to be considered: See Exhibit 6 & Table 6

(Contact Planning for Lists. Correlate projects to exhibit map and also indicate which projects have been included in study area forecasts for existing + background growth + project + cumulative)

Model/Forecast methodology: SBTAM

4. Study Intersections: (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies received.)

1. Dwy. 1 & Valley Bl.
2. Dwy. 2 & Valley Bl.
3. Willow Av. & Dwy. 3
4. Willow Av. & Valley Bl.
5. Riverside Dr. & Valley Bl.
6. Riverside Dr. & I-10 WB Ramps
7. Riverside Dr. & I-10 EB Ramps
8.
9.
10.

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

1. Valley Bl., btwn Willow Av. and Riverside Av.
2. Valley Bl., Willow Av. to Linden Av.
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

6. Other Jurisdictional Impacts

Is this project within any other Agency's Sphere of Influence or within one-mile of another jurisdictional boundary? _____YES X NO

If so, name of Jurisdiction: _____

7. Site Plan (please attach 11" x 17" legible copy)

8. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (to be filled out by the City of Rialto Public Works 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 un-signalized 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.)

1. Traffic signal warrant of study intersections
2. On-site circulation items (provide truck turn templates and identify any conflicts)
3. Queuing analysis at Willow Av. & Valley Bl., Riverside Av. & Valley Bl., Riverside Av. & I-10 WB Ramps

9. Existing Conditions

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

Date of counts: 2019

NOTE Fees are due and must be submitted with, or prior to submittal of this form. The City will not process the Scoping Agreement prior to the receipt of the processing fee.

Fees Paid: _____ Date _____

Recommended:

Scoping Agreement Submittal date 2/5/2021

Scoping Agreement Resubmittal date 4/27/2021

Charlene S 2/5/2021

Applicant/Engineer Date

Land Use Concurrence:

5-3-2021

Development Services Department Date

Approved by:

MP

5/4/2021

Public Works Department Date

NOTE:

The Applicant/Engineer acknowledges that the Scoping Agreement is intended to assist in the preparation of any required TIA. It is preliminary in nature and the City does not have sufficient data to determine the ultimate conditions that may be imposed for the project. It does not provide nor limit the requirements imposed on the Project but is intended only to provide initial input into the parameters for review of the traffic generated by the Project and the initial areas to be considered and studied. Subsequent changes to scope of required analysis to be included in the TIA may be required by the Transportation Commission, Planning Commission, and/or the City Council upon Public Works Director/City Engineer review and approval.

URBAN CROSSROADS

April 27, 2021

Mr. Daniel Casey
City of Rialto
335 W. Rialto Avenue
Rialto, CA 92376

SUBJECT: VALLEY BOULEVARD & WILLOW AVENUE WAREHOUSE TRAFFIC ANALYSIS – SCOPING AGREEMENT

Dear Mr. Daniel Casey:

Urban Crossroads, Inc. is pleased to submit this scoping letter to City of Rialto regarding the Traffic Analysis for the proposed Valley Boulevard & Willow Avenue Warehouse development (**Project**), which is located on the northwest corner of Valley Boulevard & Willow Avenue in the City of Rialto. The Project is to consist of the development of a 492,410 square foot warehouse building. This letter describes the draft proposed project trip generation, trip distribution, and analysis methodology, which have been used to establish the draft proposed project study area and analysis locations.

Exhibit 1 depicts the location of the proposed Project in relation to the existing roadway network while Exhibit 2 shows the preliminary site plan for the proposed Project. The proposed study area is shown on Exhibit 3. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2023. For the purpose of this analysis, the following driveways will be assumed to provide access to the Project site:

- Driveway 1 on Valley Boulevard – Full Access (passenger cars and trucks)
- Driveway 2 on Valley Boulevard – Right-in/Right-out Only Access (passenger cars only)
- Driveway 3 on Willow Avenue – Full Access (passenger cars and trucks)

TRIP GENERATION

EXISTING USE

The site is currently occupied by a variety of users. Trip generation estimates for the existing uses have been developed using site specific data collected at the existing driveways on Willow Avenue and Valley Boulevard. The existing site was surveyed during typical weekday conditions on August 19, 2020 (Wednesday). Vehicle trips were categorized by vehicle type at each location (i.e., passenger vehicles and heavy trucks, by axle type). Although the traffic counts were conducted during the ongoing COVID-19 pandemic, the purpose of surveying the existing uses is to take credit against the proposed use. As such, understated driveway counts would result in identifying a conservative net change between the existing uses and proposed Project.

EXHIBIT 1: LOCATION MAP

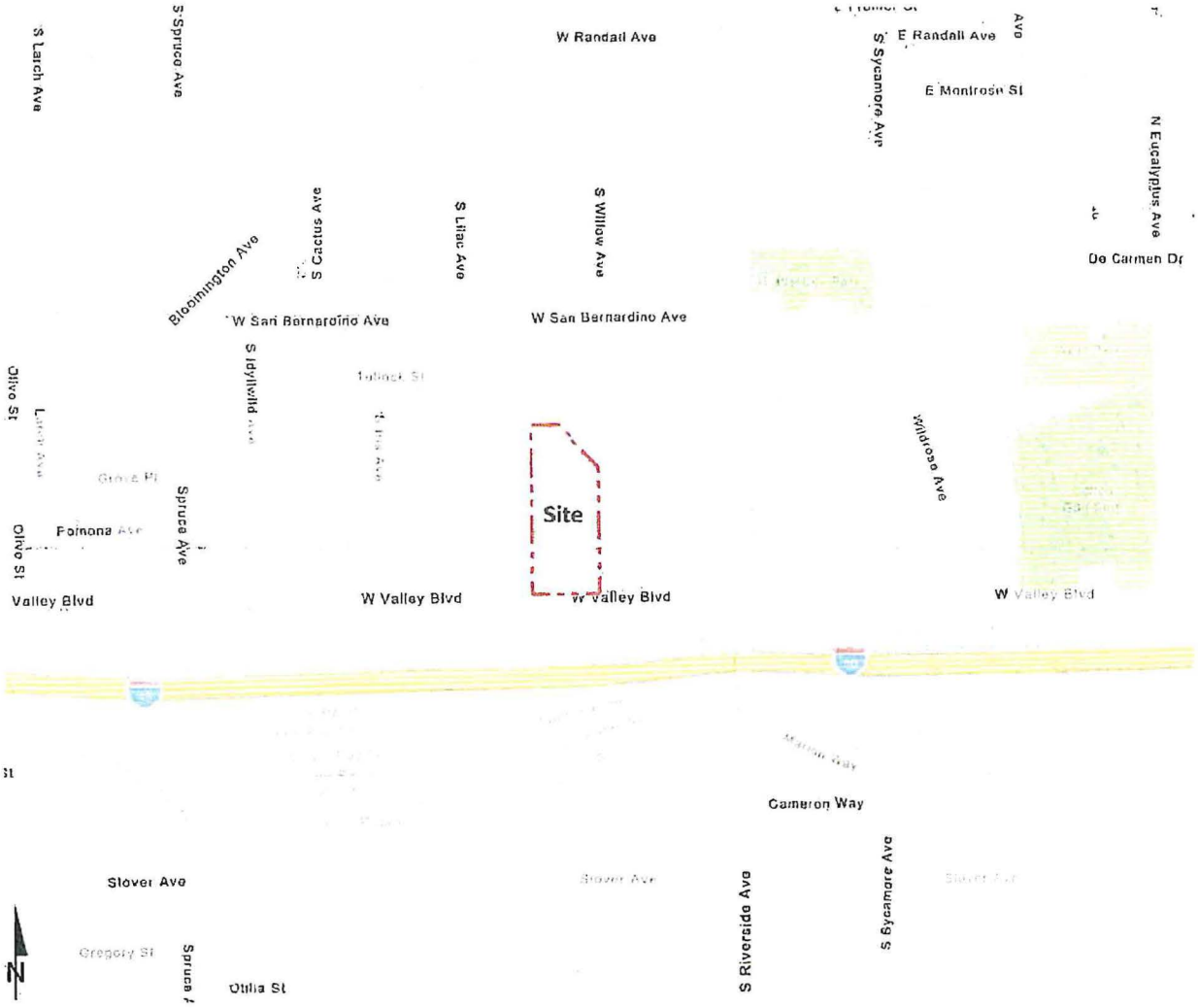


EXHIBIT 2: SITE MAP

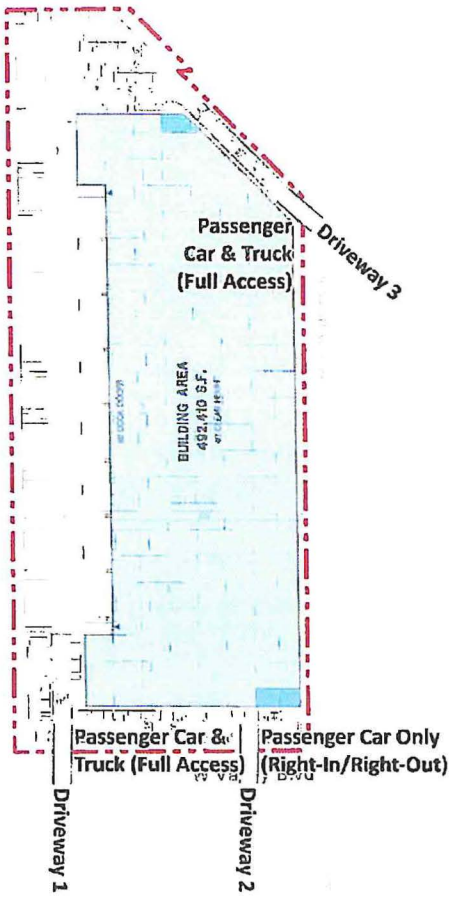
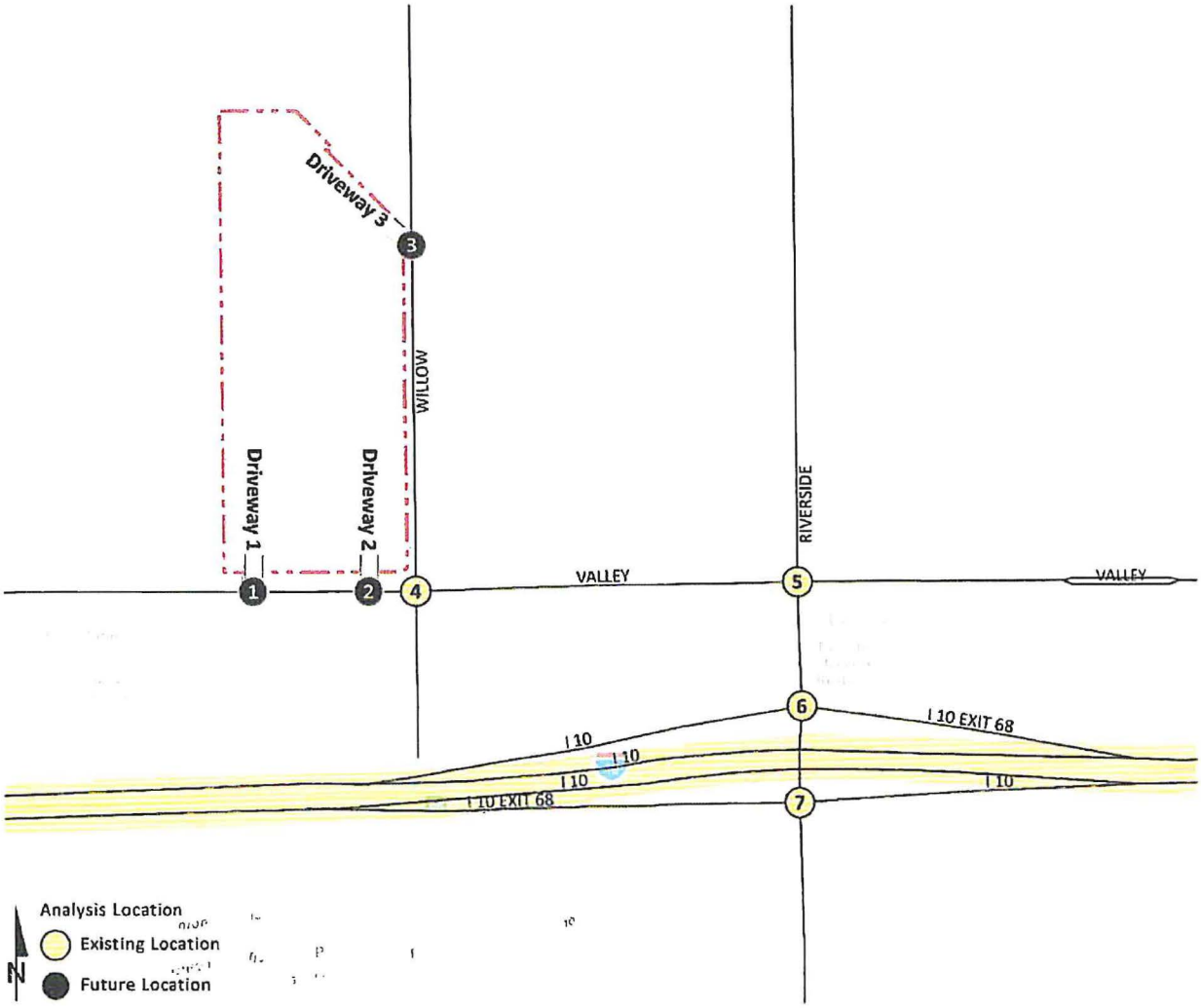


EXHIBIT 3: STUDY AREA



According to the existing site tenant information, all tenants were occupied and operating at full capacity at the time driveway traffic counts were collected. Table 1 presents the trip generation of the existing uses based on the data provided in Attachment A. The peak periods of 6-9 AM and 3-6 PM were observed to determine the peak one hour in the morning and evening peak hours. The trip generation summary illustrates the daily, and peak hour trip generation estimates for the proposed Project in actual and passenger car equivalent (PCE) vehicles. As shown in Table 1, the existing uses generates a total of 230 actual trip-ends per day with 18 actual AM peak hour trips and 16 actual PM peak hour trips.

TABLE 1: EXISTING TRIP GENERATION

	AM Peak Hour			PM Peak Hour			
Land Use	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**Daily**
Existing Trip Generation Summary (Actual Vehicles)							
Passenger Cars:	8	3	11	2	8	10	154
2-axle Trucks:	*0*	*0*	*0*	*0*	*0*	*0*	*4*
3-axle Trucks:	*1*	*0*	*1*	*2*	*1*	*3*	*20*
4+-axle Trucks:	*2*	*4*	*6*	*3*	*0*	*3*	*52*
Total Trucks:	3	4	7	5	1	6	76
Existing Use Total Trips (Actual Vehicles)[2]	**11**	**7**	**18**	**7**	**9**	**16**	**230**
Existing Trip Generation Summary (PCE)							
Passenger Cars:	8	3	11	2	8	10	154
2-axle Trucks:	*0*	*0*	*0*	*0*	*0*	*0*	*6*
3-axle Trucks:	*2*	*0*	*2*	*4*	*2*	*6*	*40*
4+-axle Trucks:	*6*	*12*	*18*	*9*	*0*	*9*	*156*
Total Trucks (PCE):	8	12	20	13	2	15	202
Existing Use Total Trips (PCE)[2]	**16**	**15**	**31**	**15**	**10**	**25**	**356**

[1] Total Trips = Passenger Cars + Truck Trips.

[2] PCE rates are per City of Rialto Public Works Department Traffic Impact Analysis Report Guidelines and Requirements (2013).

PROPOSED PROJECT

The trip generation rate and vehicle and truck mix are sourced from the City of Rialto's Public Works Department's Traffic Impact Analysis Report Guidelines and Requirements (2013). 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 (9th Edition, 2012) for Warehousing (ITE Land Use Code 150) were used. Table 2 presents the trip generation rates in both actual vehicles and PCE. The City of Rialto requires the following warehouse trip generation rates and vehicle mix for all warehousing projects within the City (no use of ITE high-cube warehouse trip generation rates are permitted).

TABLE 2: TRIP GENERATION RATES

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicle Trip Generation Rates									
Warehousing[3]	TSF	150	0.240	0.060	0.300	0.080	0.240	0.320	3.560
Passenger Cars (60.0%)			*0.144*	*0.036*	*0.180*	*0.048*	*0.144*	*0.192*	*2.136*
2-Axle Trucks (0.8%)			*0.002*	*0.001*	*0.003*	*0.001*	*0.002*	*0.003*	*0.029*
3-Axle Trucks (11.2%)			*0.027*	*0.007*	*0.034*	*0.009*	*0.027*	*0.036*	*0.399*
4-Axle+ Trucks (28.0%)			*0.067*	*0.016*	*0.083*	*0.022*	*0.067*	*0.089*	*0.996*
Passenger Car Equivalent (PCE) Trip Generation									
Warehousing[3]	TSF	150	0.240	0.060	0.300	0.080	0.240	0.320	3.560
Passenger Cars (60.0%)			*0.144*	*0.036*	*0.180*	*0.048*	*0.144*	*0.192*	*2.136*
2-Axle Trucks (0.8%) (PCE = 1.5)[4]			*0.003*	*0.002*	*0.005*	*0.002*	*0.003*	*0.005*	*0.044*
3-Axle Trucks (11.2%) (PCE = 2.0)[4]			*0.054*	*0.014*	*0.068*	*0.018*	*0.054*	*0.072*	*0.798*
4-Axle+ Trucks (28.0%) (PCE = 3.0)[4]			*0.201*	*0.048*	*0.249*	*0.066*	*0.201*	*0.267*	*2.988*

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Ninth Edition (2012).

[2] TSF = thousand square feet

[3] Vehicle and Truck Mix Source: City of Rialto Public Works Department Traffic Impact Analysis Report Guidelines and Requirements (2013).

[4] PCE rates are per City of Rialto Public Works Department Traffic Impact Analysis Report Guidelines and Requirements (2013).

The resulting trip generation summary for the proposed Project are shown on Table 3. As shown in Table 3, the Project is anticipated to generate a total of 1,752 actual trip-ends per day with 147 actual AM peak hour trips and 157 actual PM peak hour trips.

TABLE 3: PROJECT TRIP GENERATION SUMMARY

Land Use	Quantity Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Project Trip Generation Summary (Actual Vehicles):								
Warehousing	492.410 TSF							
Passenger Cars:		71	18	89	24	71	95	1,052
2-axle Trucks:		*1*	*0*	*1*	*0*	*1*	*1*	*14*
3-axle Trucks:		*13*	*3*	*16*	*4*	*13*	*17*	*196*
4+-axle Trucks:		*33*	*8*	*41*	*11*	*33*	*44*	*490*
Total Trucks:		47	11	58	15	47	62	700
Warehousing Total Trips (Actual Vehicles)[2]		**118**	**29**	**147**	**39**	**118**	**157**	**1,752**
Project Trip Generation Summary (PCE):								
Warehousing	492.410 TSF							
Passenger Cars:		71	18	89	24	71	95	1,052
2-axle Trucks:		1	1	2	1	1	2	22
3-axle Trucks:		27	7	34	9	27	36	394
4+-axle Trucks:		99	24	123	32	99	131	1,472
Total Trucks:		127	32	159	42	127	169	1,888
Warehousing Total Trips (PCE)[2]		**198**	**50**	**248**	**66**	**198**	**264**	**2,940**

[1] TSF = thousand square feet

[2] Total Trips = Passenger Cars + Truck Trips.

NET TRIP GENERATION

A trip generation comparison of the proposed Project less the trips associated with the existing uses is summarized on Table 4 for PCE and Table 5 for actual vehicles. As shown in Table 5, the proposed Project is anticipated to generate an additional 1,522 trip-ends per day with 129 more actual AM peak hour trips and 141 more actual PM peak hour trips in comparison to the existing uses. The net increase trip generation shown in Table 4 will be utilized for the purposes of the traffic study Level of Service (LOS) analysis.

TABLE 4: TRIP GENERATION COMPARISON (PCE)

Trip Generation Comparison	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Proposed Project Trip Generation (Table 3)							
Passenger Cars:	*71*	*18*	*89*	*24*	*71*	*95*	*1,052*
Trucks:	*127*	*32*	*159*	*42*	*127*	*169*	*1,888*
Total:	198	50	248	66	198	264	2,940
Existing Uses Trip Generation (Table 1)							
Passenger Cars:	*8*	*3*	*11*	*2*	*8*	*10*	*154*
Trucks:	*8*	*12*	*20*	*13*	*2*	*15*	*202*
Total:	16	15	31	15	10	25	356
Variance (Proposed - Existing)							
Passenger Cars:	***63***	***15***	***78***	***22***	***63***	***85***	***898***
Trucks:	***119***	***20***	***139***	***29***	***125***	***154***	***1,686***
Total Net Increase:	**182**	**35**	**217**	**51**	**188**	**239**	**2,584**

TABLE 5: TRIP GENERATION COMPARISON (ACTUAL VEHICLES)

Trip Generation Comparison	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Proposed Project Trip Generation (Table 3)							
Passenger Cars:	*71*	*18*	*89*	*24*	*71*	*95*	*1,052*
Trucks:	*47*	*11*	*58*	*15*	*47*	*62*	*700*
Total:	118	29	147	39	118	157	1,752
Existing Uses Trip Generation (Table 1)							
Passenger Cars:	*8*	*3*	*11*	*2*	*8*	*10*	*154*
Trucks:	*3*	*4*	*7*	*5*	*1*	*6*	*76*
Total:	11	7	18	7	9	16	230
Variance (Proposed - Existing)							
Passenger Cars:	***63***	***15***	***78***	***22***	***63***	***85***	***898***
Trucks:	***44***	***7***	***51***	***10***	***46***	***56***	***624***
Total Net Increase:	**107**	**22**	**129**	**32**	**109**	**141**	**1,522**

TRIP DISTRIBUTION

The trip distribution pattern is heavily influenced by the geographical location of the site, the location of surrounding uses, and the proximity to the regional freeway system. The Project trip distribution patterns are graphically depicted on Exhibit 4 for passenger cars and Exhibit 5 for trucks.

ANALYSIS SCENARIOS

Consistent with the City's TIA guidelines, intersection analysis will be provided for the following analysis scenarios:

- Existing (2021) Conditions
- Existing plus Ambient Growth plus Project (EAP) (2023) Conditions
- Existing plus Ambient Growth plus Project plus Cumulative (EAPC) (2023) Conditions
- Horizon Year (2040) Without Project Conditions
- Horizon Year (2040) With Project Conditions

All study area intersections will be analyzed using the HCM (6th Edition) methodology.

AMBIENT GROWTH

Pursuant to discussion with City staff and consistent with other studies performed in the area, an ambient growth rate of 2% per year is proposed for the study area intersection to approximate background growth not identified by nearby cumulative development projects.

EXHIBIT 4 (PAGE 1 OF 2): INBOUND PROJECT (PASSENGER CAR) TRIP DISTRIBUTION

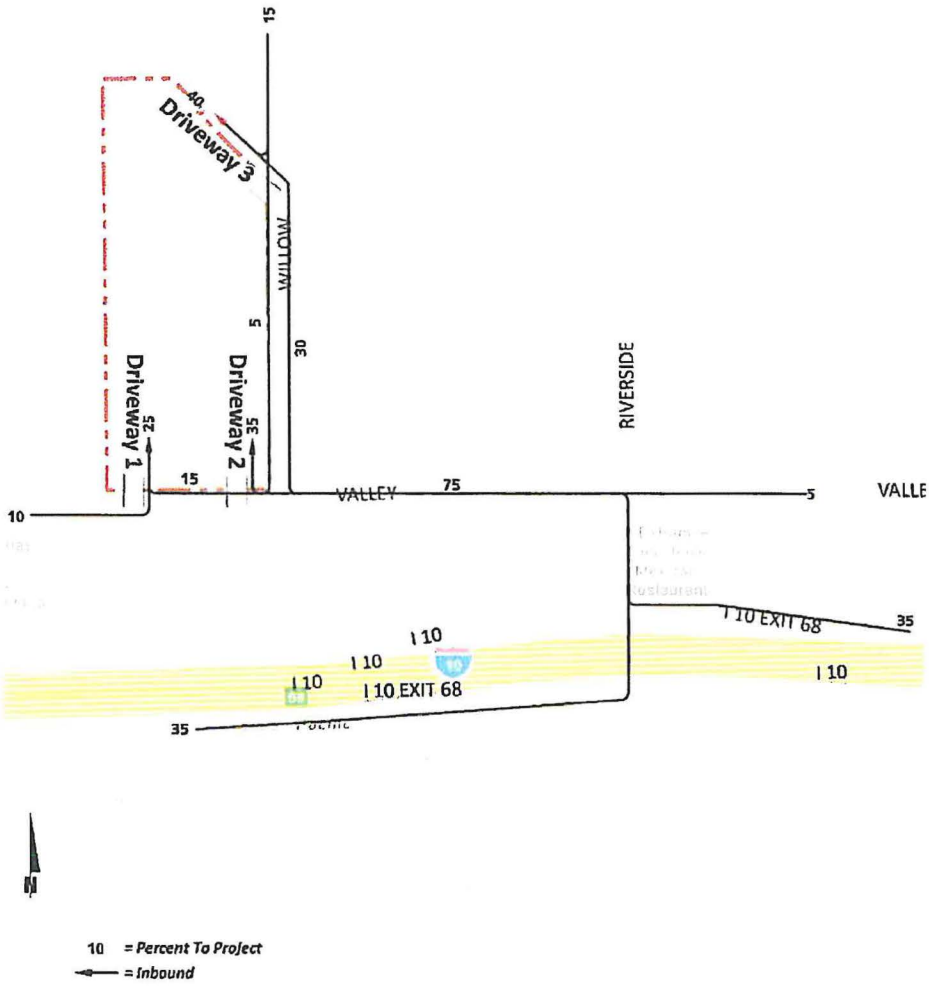


EXHIBIT 4 (PAGE 2 OF 2): OUTBOUND PROJECT (PASSENGER CAR) TRIP DISTRIBUTION

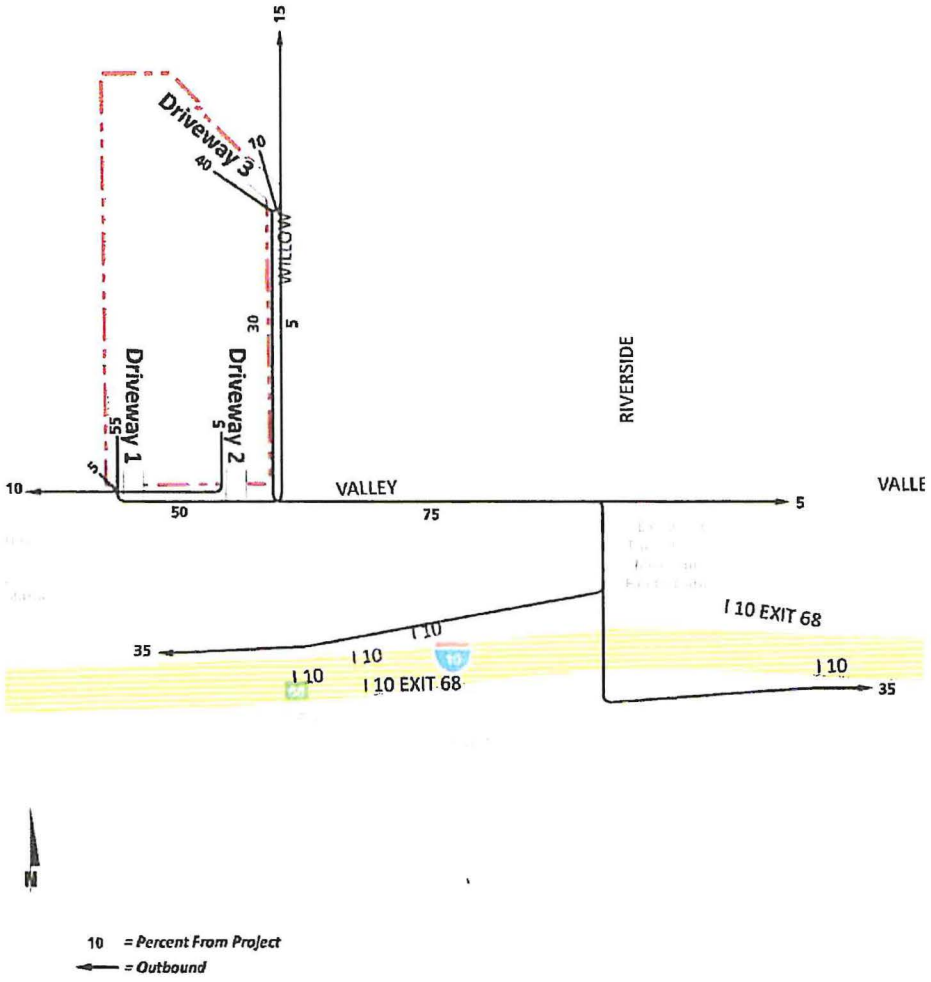


EXHIBIT 5: PROJECT (TRUCK) TRIP DISTRIBUTION

STUDY AREA

The traffic analysis study area was defined in conformance with the requirements of the City's traffic study guidelines, which state that the requirement to prepare a traffic study will be based upon, but not limited to, one or more of the following criteria:

- In general, the study area shall include any intersection of streets on which at least one street is classified as a Collector or above, where the proposed project, along with adjacent projects, opening in the same time frame, generate more than 50 peak hour trips (truck trips adjusted to PCE) up to 5 miles from the project site.
- The study area shall include any freeway interchanges within 2 miles that is designated to take more than 40% of total traffic from the project, irrespective of the total number.
- Any additional intersections of concern which include, but are not limited to, project driveways, additional intersections located in the vicinity of schools, shopping areas, or other locations of high trip generation and roadway links that exceed V/C ratio as a result of project traffic, as determined by the City of Rialto.

Exhibit 3 identifies the proposed study area intersections based on the aforementioned criteria.

ROADWAY SEGMENT ANALYSIS

Roadway segment analysis will be evaluated for Valley Boulevard, between Willow Avenue and Riverside Avenue, and for Valley Boulevard, west of Willow Avenue to Linden Avenue.

QUEUEING ANALYSIS

A queuing analysis will be performed for each movement at the following intersections:

- Willow Avenue & Valley Boulevard
- Riverside Avenue & Valley Boulevard
- Riverside Avenue & I-10 Westbound Ramps

ANALYSIS METHODOLOGY

The City of Rialto requires signalized intersection operations analysis based on the methodology described in the Highway Capacity Manual (HCM) (6th Edition). Intersection level of service (LOS) operations are based on an intersection's average control delay. Unsignalized intersections will be evaluated using the methodology described in the HCM (6th Edition). 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. For all-way stop controlled

intersections, LOS is computed for the intersection as a whole. The default parameters, including saturation flow rates, which will be utilized in the traffic analysis will be consistent with Exhibit C of the City of Rialto's TIA guidelines.

LEVEL OF SERVICE (LOS) CRITERIA

The City of Rialto 2010 General Plan Update has established minimum LOS standards. Specifically, General Plan Policies 4-1.20 and 4-1.21 establish the minimum standards to be applied to any TIA, as follows:

- Policy 4-1.20: Design City streets so that signalized intersections operate at Level of Service (LOS) D or better during the morning and evening peak hours and require new development to mitigate traffic impacts that degrade LOS below that level.
- Policy 4-1.21: Design City streets so that unsignalized intersections operate with no vehicular movement having an average delay greater than 120 seconds during the morning and evening peak hours, and require new development to mitigate traffic impacts that increase delay above that level.

EXISTING COUNT DATA

In light of the current ongoing COVID-19 pandemic, Urban Crossroads recommends using historic traffic counts in conjunction with a 2% per year, compounded annually, (or other growth as directed by City staff) adjustment to establish a 2021 baseline for the purposes of the traffic study. We have 2019 count data for all existing study area intersections:

- #4: Willow Avenue & Valley Boulevard: January 2019
- #5: Riverside Avenue & Valley Boulevard: February 2019
- #6: Riverside Avenue & I-10 Westbound Ramps: May 2019
- #7: Riverside Avenue & I-10 Eastbound Ramps: May 2019

FAIR SHARE CALCULATION METHODOLOGY

Improvements found to be included in a local or regional fee program will be identified as such in the fair share table. The fair share table will identify direct versus cumulative project-related deficiencies. For improvements that do not appear to be in either of the pre-existing fee programs, a fair share financial contribution based on the Project's fair share impact will be calculated in order to mitigate the Project's share of impacts. The City will collect fair share component or condition the Project to build an improvement as deemed appropriate. The Project's fair share cost of improvements would be determined based on the following equation, which is the ratio of Project traffic to new traffic, where new traffic is total future traffic less existing baseline traffic:

Project Fair Share % = Project Traffic / (Horizon Year ~~(2040)~~ With Project Total Traffic – Existing Traffic)

OPENING YEAR

SPECIAL ISSUES

The following special issue will also be addressed as part of the TIA:

- *Traffic Signal Warrant Analysis*: Traffic signal warrant analysis will be performed for all full-access unsignalized study area intersections utilizing the Caltrans peak-hour warrants for existing intersections, and the Caltrans daily warrant for new intersections.
- *Site Access Evaluation*: The turn pocket lengths will be determined through peak hour traffic simulations developed using Synchro and SimTraffic software in an effort to identify the required storage capacity for turn lanes at each Project driveway.
- *VMT*: Consistent with SB743, a vehicle-miles-traveled (VMT) assessment will be prepared for the proposed Project under separate cover in order to identify any traffic impacts and mitigation measures and will be used to support the California Environmental Quality Act (CEQA) environmental document.
- *Truck Turns:* Truck turning templates will be used to address how Project truck traffic (e.g., large trucks such as a WB-67) would enter and exit the Project site to determine radii at curb returns, radii of streets per Highway Design Manual, and widths/radii required for on-site maneuvering for two-way truck traffic at the Project driveways and the site adjacent intersection of Willow Avenue & Valley Boulevard. The traffic study will also include off-site improvement recommendations to the northeast corner which will be consistent with the scaled truck turn templates.
- *Signal Modification:* The traffic signal at the intersection of Willow Avenue & Valley Boulevard will be evaluated as protected-permissive phasing for all operational phases.
- *Willow Street Median:* The traffic study will evaluate two different scenarios for With Project conditions: with a striped median along Willow Avenue (allowing left turn lanes into the site), and without a striped median along Willow Avenue (existing striping). This includes analysis of the proposal to add a striped median on Willow Avenue to accommodate truck traffic.

CUMULATIVE DEVELOPMENT PROJECTS

A map of cumulative development projects can be found on Exhibit 6, with the list of projects on Table 6. Consistent with City guidance, the warehouse trip generation rate will be utilized for any high-cube warehouse/distribution center project within the City of Rialto as the City does not recognize the use of the high-cube warehouse/distribution center ITE trip generation rates/SCAQMD vehicle mix recommended for use by the SCAQMD.

EXHIBIT 6: CUMULATIVE DEVELOPMENT MAP

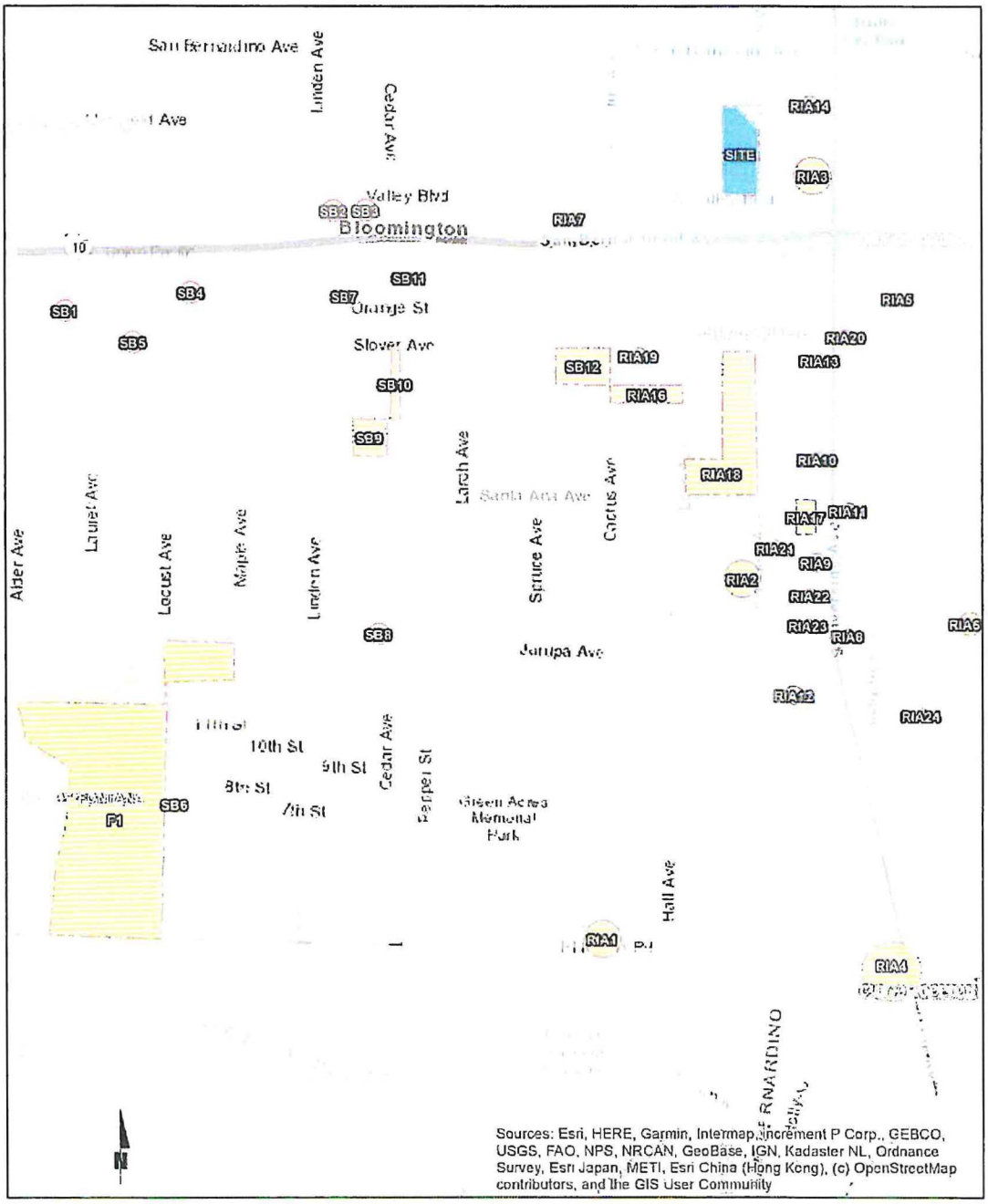


TABLE 6: CUMULATIVE DEVELOPMENT LAND USE SUMMARY

ID	Project Name	Land Use	Quantity	Units[1]
City of Rialto:				
RIA1	Panattoni I-10 (Cactus Av. & El Rivino Rd.)	Warehouse	2,475.745	TSF
RIA2	CapRock III	Warehouse	582.000	TSF
RIA3	Newmark Merrill Companies	Discount Super Store	198.000	TSF
		Tire Store	9.861	TSF
		Retail	25.436	TSF
		Fast Food w/ Drive-Thru	5.484	TSF
RIA4	Kore Infrastructure	Biosolids Facility	288	TPD
RIA5	NEC of Sycamore Av. and Cameron Wy.	Trucking	--[2]	--
RIA6	South of Santa Ana Av., East of Riverside Av.	Warehouse	370.000	TSF
RIA7	South of Valley Bl., West of Cactus Av.	Warehouse	--[2]	--
RIA8	SEC of Riverside Av. and Industrial Dr.	Trucking	--[2]	--
RIA9	NWC of Riversid Av. and Industrial Dr.	Truck Drop	--[2]	--
RIA10	NWC of Riverside Av. and Santa Ana Av.	Warehouse	527.900	TSF
RIA11	SEC of Riverside Av. and Santa Ana Av.	Super Convenience Market/Gas Station	16	VFP
		Diesel Station	2	VFP
RIA12	South of Jurupa Av., West of Riverside Av.	FedEx	--[2]	--
RIA13	SWC of Riverside Av. & Slover Av.	Speciality Retail & Fast Food w/ Drive-Thru	8.510	TSF
RIA14	North of Valley Bl., West of Riverside Av.	Warehouse	--[2]	--
RIA15	South of Slover Av., East of Cactus Av.	Wheeler Trucking	--[2]	--
RIA16	Lilac Avenue Warehouse	Warehouse	47.460	TSF
RIA17	SC Fuels (19839 Santa Ana Avenue)	Warehouse	48.302	TSF
RIA18	Old Dominion Freight Line Expansion	Truck Trailer Yard	407	Spaces
RIA19	Flyers Energy Addition	Warehouse	9.350	TSF
RIA20	Onyx Paving	Contractor's Yard	0.770	AC
RIA21	Bakery Addition	Bakery	14.000	TSF
RIA22	Lynn Trucking	Truck Parking Yard	3.070	AC
		Car Wash/Repair	8.827	TSF
RIA23	Riverside Pallet Yard	Pallet Yard	3.580	AC
RIA24	Angelus Black - Concrete Block	Manufacturing	178.475	TSF
County of San Bernardino:				
SB1	NWC of Slover Av. and Locust Av.	Fast Food Restaurant With Drive-Thru	3.265	TSF
		Retail Store	7.200	TSF
		Warehouse	20.750	TSF
SB2	SEC of Linden Av. and Valley Bl.	Fast Food Restaurant	1.500	TSF
SB3	Valley Bl., West of Linden Av.	Office Building	0.250	AC
SB4	Linden Av., north of Slover Av.	Tire Store	3.000	TSF
SB5	Slover Av. between Locust Av. and Laurel Av.	High-Cube Warehouse	344.000	TSF
SB6	Locust Av. and 7th St.	Single Family Residential	198	DU
SB7	NEC and NWC of Cedar Av. and Orange St.	Warehouse	395.000	TSF
SB8	NWC of Cedar Av. and Jurupa Av.	High-Cube Warehouse	677.000	TSF
SB9	Cedar Truck Yard	Truck Storage	8.940	AC
SB10	Cedar / Slover Retail	Super Convenience Market/Gas Station	12	VFP
		Automated Car Wash	1.000	Tunnel
		Fast Food Restaurant With Drive-Thru	9.907	TSF
SB11	Cedar Avenue Technology Center	Warehouse	184.770	TSF
SB12	Cactus and Slover Warehouse	Warehouse	257.855	TSF
City of Fontana:				
F1	West Valley Logistics Center	High-Cube Transload & Short-Term Storage	3183.100	TSF
		Warehouse	290.590	TSF

[1] DU = Dwelling Units; TSF = Thousand Square Feet; AC = Acres; TPD = Tons Per Day; VFP = Vehicle Fueling Positions
[2] Quantity and land use unknown. City of Rialto provided estimated trips and PCE AM and PM.

If you have any questions, please contact me directly at (949) 861-0177.

Respectfully submitted,

URBAN CROSSROADS, INC.

Charlene So

Charlene So, PE
Associate Principal

ATTACHMENT A: EXISTING DRIVEWAY COUNTS, AUGUST 19, 2020

Table A-1

Detail of Driveway Counts

	Valley Driveway							Willow Avenue - Northern Driveway							Willow Avenue - Southern Driveway						
	AM Peak Hour			PM Peak Hour				AM Peak Hour			PM Peak Hour				AM Peak Hour			PM Peak Hour			
Land Use	In	Out	Total	In	Out	Total	Daily	In	Out	Total	In	Out	Total	Daily	In	Out	Total	In	Out	Total	Daily
Wednesday, August 19, 2020																					
Passenger Cars:																					
Passenger Vehicles:	5	3	8	1	6	7	83	1	0	1	0	0	0	31	2	0	2	1	2	3	40
Truck Trips:																					
2-Axle Trucks:	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0
3-Axle Trucks:	0	0	0	2	1	3	11	1	0	1	0	0	0	6	0	0	0	0	0	0	3
4+-Axle Trucks:	2	3	5	3	0	3	39	0	0	0	0	0	0	4	0	1	1	0	0	0	9
- Truck Trips	2	3	5	5	1	6	52	1	0	1	0	0	0	12	0	1	1	0	0	0	12
TOTAL TRIPS (Actual Vehicles) [2]	**7**	**6**	**13**	**6**	**7**	**13**	**135**	**2**	**0**	**2**	**0**	**0**	**0**	**43**	**2**	**1**	**3**	**1**	**2**	**3**	**52**

[1] TSF = thousand square feet

[2] TOTAL TRIPS = Passenger Cars + Truck Trips.

City: Rialto
Location: Valley Driveway - West of Willow Ave
Date: 8/19/2020
Count Type: Driveway Classification

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0
0:15	0	0	0	0	0
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	0	0	0	0	0
1:45	0	0	0	0	0
2:00	0	0	0	0	0
2:15	0	0	0	0	0
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	0	0	0	0	0
3:15	0	0	0	0	0
3:30	0	0	0	0	0
3:45	0	0	0	0	0
4:00	0	0	0	0	0
4:15	0	0	0	0	0
4:30	1	0	0	0	1
4:45	1	0	0	0	1
5:00	0	0	0	0	0
5:15	1	0	0	0	1
5:30	1	0	0	0	1
5:45	0	0	0	0	0
6:00	1	0	0	0	1
6:15	0	0	0	0	0
6:30	0	0	0	0	0
6:45	3	0	0	0	3
7:00	0	0	0	1	1
7:15	2	0	0	0	2
7:30	0	0	0	1	1
7:45	0	0	0	1	1
8:00	0	0	0	0	0
8:15	1	0	0	0	1
8:30	1	0	0	0	1
8:45	2	0	0	0	2
9:00	0	1	0	0	1
9:15	1	0	0	0	1
9:30	0	0	0	0	0
9:45	0	0	0	1	1
10:00	0	0	0	0	0
10:15	1	0	0	0	1
10:30	0	0	0	0	0
10:45	1	0	0	0	1
11:00	0	0	1	1	2
11:15	0	0	0	1	1
11:30	0	0	0	1	1
11:45	4	0	0	1	5

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0
0:15	0	0	0	0	0
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	0	0	0	0	0
1:45	0	0	0	0	0
2:00	0	0	0	0	0
2:15	0	0	0	0	0
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	0	0	0	0	0
3:15	0	0	0	0	0
3:30	0	0	0	0	0
3:45	0	0	0	0	0
4:00	0	0	0	0	0
4:15	0	0	0	0	0
4:30	1	0	0	1	2
4:45	0	0	0	0	0
5:00	0	0	0	1	1
5:15	0	0	0	0	0
5:30	0	0	2	0	2
5:45	0	0	0	0	0
6:00	0	0	0	0	0
6:15	0	0	0	0	0
6:30	0	0	0	0	0
6:45	1	0	0	0	1
7:00	0	0	0	1	1
7:15	1	0	0	0	1
7:30	1	0	0	2	3
7:45	0	0	0	0	0
8:00	0	0	0	0	0
8:15	0	0	0	0	0
8:30	0	0	0	2	2
8:45	1	0	0	0	1
9:00	0	0	0	0	0
9:15	1	1	0	0	2
9:30	0	0	0	0	0
9:45	0	0	0	0	0
10:00	1	0	0	0	1
10:15	0	0	0	0	0
10:30	0	0	0	0	0
10:45	0	0	0	0	0
11:00	0	0	0	1	1
11:15	1	0	0	2	3
11:30	1	0	0	0	1
11:45	4	0	0	0	4

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

City: Rialto
Location: Valley Driveway - West of Willow Ave
Date: 8/19/2020
Count Type: Driveway Classification

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	2	0	0	1	3
12:15	2	0	1	0	3
12:30	2	0	0	0	2
12:45	0	0	0	0	0
13:00	0	0	0	0	0
13:15	0	0	0	0	0
13:30	2	0	0	1	3
13:45	2	0	0	0	2
14:00	2	0	1	0	3
14:15	0	0	0	0	0
14:30	0	0	1	0	1
14:45	1	0	0	0	1
15:00	0	0	0	1	1
15:15	0	0	1	1	2
15:30	1	0	0	1	2
15:45	0	0	1	0	1
16:00	0	0	0	1	1
16:15	0	0	0	0	0
16:30	0	0	0	0	0
16:45	1	0	0	0	1
17:00	0	0	0	0	0
17:15	1	0	0	1	2
17:30	0	0	0	0	0
17:45	0	0	0	0	0
18:00	0	0	0	0	0
18:15	1	0	0	1	2
18:30	0	0	1	0	1
18:45	0	0	0	0	0
19:00	0	0	0	0	0
19:15	1	0	0	0	1
19:30	0	0	0	0	0
19:45	0	0	0	0	0
20:00	0	0	0	0	0
20:15	1	0	0	0	1
20:30	0	0	0	0	0
20:45	0	0	0	0	0
21:00	3	0	0	0	3
21:15	0	0	0	0	0
21:30	0	0	0	0	0
21:45	0	0	0	0	0
22:00	0	0	0	0	0
22:15	0	0	0	0	0
22:30	0	0	0	0	0
22:45	0	0	0	0	0
23:00	0	0	0	0	0
23:15	0	0	0	0	0
23:30	0	0	0	1	1
23:45	0	0	0	1	1
TOTAL	43	1	7	18	69

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	4	0	0	0	4
12:15	0	0	0	2	2
12:30	1	0	0	1	2
12:45	0	0	0	0	0
13:00	0	0	0	1	1
13:15	1	0	1	0	2
13:30	1	0	0	0	1
13:45	1	0	0	1	2
14:00	2	0	0	1	3
14:15	2	0	0	1	3
14:30	0	0	0	0	0
14:45	0	0	0	0	0
15:00	0	0	0	0	0
15:15	2	0	1	0	3
15:30	3	0	0	0	3
15:45	0	0	0	0	0
16:00	1	0	0	0	1
16:15	0	0	0	0	0
16:30	0	0	0	0	0
16:45	0	0	0	0	0
17:00	1	0	0	0	1
17:15	0	0	0	0	0
17:30	1	0	0	0	1
17:45	0	0	0	0	0
18:00	0	0	0	0	0
18:15	0	0	0	0	0
18:30	2	0	0	1	3
18:45	0	0	0	0	0
19:00	0	0	0	0	0
19:15	0	0	0	0	0
19:30	0	0	0	1	1
19:45	0	0	0	0	0
20:00	2	0	0	0	2
20:15	0	0	0	0	0
20:30	0	0	0	1	1
20:45	0	0	0	0	0
21:00	0	0	0	0	0
21:15	1	0	0	1	2
21:30	0	0	0	0	0
21:45	0	0	0	0	0
22:00	1	0	0	0	1
22:15	0	0	0	0	0
22:30	0	0	0	0	0
22:45	0	0	0	0	0
23:00	0	0	0	0	0
23:15	0	0	0	0	0
23:30	0	0	0	0	0
23:45	1	0	0	0	1
	40	1	4	21	66

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

City: Rialto
Location: Willow North Driveway
Date: 8/19/2020
Count Type: Driveway Classification

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0
0:15	0	0	0	0	0
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	0	0	0	0	0
1:45	0	0	0	0	0
2:00	0	0	1	0	1
2:15	0	0	0	0	0
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	1	0	0	0	1
3:15	0	0	0	0	0
3:30	0	0	0	0	0
3:45	0	0	0	0	0
4:00	0	0	0	0	0
4:15	0	0	0	0	0
4:30	0	0	0	0	0
4:45	0	0	0	0	0
5:00	0	0	0	0	0
5:15	0	0	0	0	0
5:30	0	0	0	0	0
5:45	0	0	0	0	0
6:00	0	0	0	0	0
6:15	0	0	0	0	0
6:30	0	0	0	0	0
6:45	0	0	1	0	1
7:00	0	0	0	0	0
7:15	1	0	0	0	1
7:30	0	0	0	0	0
7:45	0	0	0	0	0
8:00	0	0	0	0	0
8:15	0	0	1	0	1
8:30	0	0	0	0	0
8:45	0	0	0	0	0
9:00	0	0	0	0	0
9:15	0	0	0	0	0
9:30	0	0	0	0	0
9:45	0	0	0	0	0
10:00	0	0	0	0	0
10:15	0	0	0	0	0
10:30	0	0	0	0	0
10:45	0	0	0	0	0
11:00	1	0	0	0	1
11:15	0	0	0	0	0
11:30	1	0	0	0	1
11:45	0	0	0	0	0

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	1	1
0:15	0	0	0	0	0
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	0	0	0	0	0
1:45	0	0	0	0	0
2:00	0	0	0	0	0
2:15	0	0	0	1	1
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	0	0	0	0	0
3:15	0	0	0	0	0
3:30	0	0	0	0	0
3:45	0	0	0	0	0
4:00	0	0	0	0	0
4:15	0	0	0	0	0
4:30	0	0	0	0	0
4:45	0	0	0	0	0
5:00	0	0	0	0	0
5:15	0	0	0	0	0
5:30	0	0	0	0	0
5:45	0	0	0	0	0
6:00	0	0	0	0	0
6:15	1	0	0	0	1
6:30	0	0	0	0	0
6:45	0	0	0	0	0
7:00	0	0	0	0	0
7:15	0	0	0	0	0
7:30	0	0	0	0	0
7:45	1	0	1	0	2
8:00	1	0	0	0	1
8:15	0	0	1	0	1
8:30	0	0	0	0	0
8:45	0	0	0	0	0
9:00	0	0	0	0	0
9:15	0	0	0	0	0
9:30	0	0	0	0	0
9:45	0	0	0	0	0
10:00	0	0	0	0	0
10:15	1	0	0	0	1
10:30	0	0	0	0	0
10:45	0	0	0	0	0
11:00	0	0	0	0	0
11:15	0	0	0	0	0
11:30	2	0	0	0	2
11:45	0	0	0	0	0

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

City: Rialto
Location: Willow North Driveway
Date: 8/19/2020
Count Type: Driveway Classification

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	0	0	0	0	0
12:15	0	0	0	0	0
12:30	0	0	0	0	0
12:45	0	0	0	0	0
13:00	1	0	0	0	1
13:15	0	0	0	0	0
13:30	1	0	0	0	1
13:45	0	0	0	0	0
14:00	0	0	0	0	0
14:15	0	0	0	0	0
14:30	0	0	0	0	0
14:45	1	0	0	0	1
15:00	0	0	0	0	0
15:15	0	0	0	0	0
15:30	0	0	0	0	0
15:45	0	0	0	0	0
16:00	0	0	0	0	0
16:15	0	0	0	0	0
16:30	0	0	0	0	0
16:45	1	0	0	0	1
17:00	0	0	0	0	0
17:15	0	0	0	0	0
17:30	0	0	0	0	0
17:45	0	0	0	0	0
18:00	1	0	0	1	2
18:15	0	0	0	0	0
18:30	0	0	0	0	0
18:45	0	0	0	0	0
19:00	1	0	0	0	1
19:15	0	1	0	0	1
19:30	1	0	0	0	1
19:45	0	0	0	0	0
20:00	2	0	0	0	2
20:15	0	0	0	0	0
20:30	0	0	0	0	0
20:45	0	0	0	0	0
21:00	0	0	0	0	0
21:15	0	0	0	0	0
21:30	0	0	0	0	0
21:45	0	0	0	0	0
22:00	0	0	0	0	0
22:15	0	0	0	0	0
22:30	0	0	0	0	0
22:45	1	0	0	0	1
23:00	0	0	0	0	0
23:15	0	0	0	0	0
23:30	0	0	0	0	0
23:45	0	0	0	0	0
TOTAL	14	1	3	1	19

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	0	0	0	0	0
12:15	0	0	0	0	0
12:30	0	0	0	0	0
12:45	0	0	0	0	0
13:00	0	0	0	0	0
13:15	0	0	0	0	0
13:30	0	0	0	0	0
13:45	1	0	0	0	1
14:00	0	0	0	0	0
14:15	2	0	1	0	3
14:30	1	0	0	0	1
14:45	0	0	0	0	0
15:00	0	0	0	0	0
15:15	0	0	0	0	0
15:30	0	0	0	0	0
15:45	0	0	0	0	0
16:00	0	0	0	0	0
16:15	1	0	0	0	1
16:30	0	0	0	0	0
16:45	1	0	0	0	1
17:00	0	0	0	0	0
17:15	0	0	0	0	0
17:30	0	0	0	0	0
17:45	0	0	0	0	0
18:00	0	0	0	0	0
18:15	0	1	0	0	1
18:30	0	0	0	0	0
18:45	1	0	0	0	1
19:00	0	0	0	0	0
19:15	0	0	0	0	0
19:30	2	0	0	1	3
19:45	0	0	0	0	0
20:00	0	0	0	0	0
20:15	0	0	0	0	0
20:30	1	0	0	0	1
20:45	0	0	0	0	0
21:00	0	0	0	0	0
21:15	0	0	0	0	0
21:30	0	0	0	0	0
21:45	0	0	0	0	0
22:00	0	0	0	0	0
22:15	0	0	0	0	0
22:30	0	0	0	0	0
22:45	1	0	0	0	1
23:00	0	0	0	0	0
23:15	0	0	0	0	0
23:30	0	0	0	0	0
23:45	0	0	0	0	0
	17	1	3	3	24

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

City: Rialto
Location: Willow South Driveway
Date: 8/19/2020
Count Type: Driveway Classification

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0
0:15	0	0	0	0	0
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	0	0	0	0	0
1:45	1	0	0	0	1
2:00	0	0	0	0	0
2:15	0	0	0	0	0
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	0	0	0	0	0
3:15	0	0	0	0	0
3:30	0	0	0	0	0
3:45	0	0	0	0	0
4:00	0	0	0	0	0
4:15	0	0	0	0	0
4:30	1	0	0	0	1
4:45	2	0	0	0	2
5:00	0	0	0	0	0
5:15	0	0	0	0	0
5:30	0	0	0	0	0
5:45	0	0	0	0	0
6:00	0	0	0	0	0
6:15	0	0	0	0	0
6:30	0	0	0	0	0
6:45	0	0	0	0	0
7:00	2	0	0	0	2
7:15	0	0	0	0	0
7:30	0	0	0	0	0
7:45	0	0	0	0	0
8:00	0	0	0	0	0
8:15	1	0	0	0	1
8:30	0	0	0	0	0
8:45	1	0	0	0	1
9:00	0	0	0	0	0
9:15	0	0	0	0	0
9:30	0	0	0	0	0
9:45	0	0	0	0	0
10:00	0	0	0	1	1
10:15	0	0	0	0	0
10:30	0	0	0	1	1
10:45	0	0	0	0	0
11:00	1	0	0	0	1
11:15	0	0	0	0	0
11:30	0	0	0	0	0
11:45	0	0	0	0	0

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0
0:15	0	0	0	0	0
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	0	0	0	0	0
1:45	0	0	1	0	1
2:00	0	0	0	0	0
2:15	0	0	0	0	0
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	0	0	0	0	0
3:15	0	0	0	0	0
3:30	0	0	0	0	0
3:45	0	0	0	0	0
4:00	0	0	0	0	0
4:15	0	0	0	0	0
4:30	0	0	0	0	0
4:45	0	0	0	1	1
5:00	0	0	0	2	2
5:15	0	0	0	0	0
5:30	0	0	0	0	0
5:45	0	0	0	0	0
6:00	0	0	0	0	0
6:15	0	0	0	0	0
6:30	1	0	0	0	1
6:45	0	0	0	0	0
7:00	0	0	0	0	0
7:15	0	0	0	1	1
7:30	0	0	0	0	0
7:45	0	0	0	0	0
8:00	0	0	0	0	0
8:15	1	0	0	0	1
8:30	0	0	0	0	0
8:45	2	0	0	0	2
9:00	0	0	0	0	0
9:15	0	0	0	0	0
9:30	0	0	0	0	0
9:45	0	0	0	0	0
10:00	0	0	0	0	0
10:15	0	0	0	0	0
10:30	0	0	0	1	1
10:45	0	0	0	0	0
11:00	0	0	0	0	0
11:15	1	0	0	0	1
11:30	0	0	0	0	0
11:45	0	0	0	0	0

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

City: Rialto
Location: Willow South Driveway
Date: 8/19/2020
Count Type: Driveway Classification

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	0	0	0	0	0
12:15	1	0	0	0	1
12:30	1	0	0	0	1
12:45	1	0	1	0	2
13:00	1	0	0	0	1
13:15	1	0	0	0	1
13:30	0	0	0	0	0
13:45	1	0	0	0	1
14:00	0	0	0	0	0
14:15	0	0	0	0	0
14:30	1	0	0	0	1
14:45	0	0	0	0	0
15:00	0	0	0	0	0
15:15	0	0	0	0	0
15:30	0	0	0	0	0
15:45	0	0	0	0	0
16:00	1	0	0	0	1
16:15	0	0	0	0	0
16:30	0	0	0	0	0
16:45	0	0	0	0	0
17:00	0	0	0	0	0
17:15	1	0	0	0	1
17:30	0	0	0	0	0
17:45	1	0	0	0	1
18:00	0	0	0	0	0
18:15	0	0	0	0	0
18:30	0	0	0	0	0
18:45	0	0	0	0	0
19:00	1	0	0	0	1
19:15	1	0	0	0	1
19:30	0	0	0	0	0
19:45	0	0	0	1	1
20:00	0	0	0	0	0
20:15	0	0	0	0	0
20:30	0	0	0	0	0
20:45	0	0	0	0	0
21:00	0	0	0	0	0
21:15	0	0	0	0	0
21:30	0	0	0	0	0
21:45	0	0	0	0	0
22:00	0	0	0	0	0
22:15	0	0	0	0	0
22:30	0	0	0	0	0
22:45	0	0	0	0	0
23:00	0	0	0	0	0
23:15	0	0	0	1	1
23:30	0	0	0	0	0
23:45	0	0	0	0	0
TOTAL	21	0	1	4	26

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	0	0	0	0	0
12:15	0	0	0	0	0
12:30	2	0	0	0	2
12:45	0	0	0	0	0
13:00	0	0	0	0	0
13:15	0	0	0	0	0
13:30	2	0	0	0	2
13:45	0	0	0	0	0
14:00	1	0	0	0	1
14:15	0	0	0	0	0
14:30	0	0	1	0	1
14:45	0	0	0	0	0
15:00	1	0	0	0	1
15:15	0	0	0	0	0
15:30	2	0	0	0	2
15:45	0	0	0	0	0
16:00	0	0	0	0	0
16:15	0	0	0	0	0
16:30	0	0	0	0	0
16:45	1	0	0	0	1
17:00	0	0	0	0	0
17:15	0	0	0	0	0
17:30	0	0	0	0	0
17:45	1	0	0	0	1
18:00	0	0	0	0	0
18:15	0	0	0	0	0
18:30	0	0	0	0	0
18:45	1	0	0	0	1
19:00	1	0	0	0	1
19:15	0	0	0	0	0
19:30	0	0	0	0	0
19:45	0	0	0	0	0
20:00	0	0	0	0	0
20:15	2	0	0	0	2
20:30	0	0	0	0	0
20:45	0	0	0	0	0
21:00	0	0	0	0	0
21:15	0	0	0	0	0
21:30	0	0	0	0	0
21:45	0	0	0	0	0
22:00	0	0	0	0	0
22:15	0	0	0	0	0
22:30	0	0	0	0	0
22:45	0	0	0	0	0
23:00	0	0	0	0	0
23:15	0	0	0	0	0
23:30	0	0	0	0	0
23:45	0	0	0	0	0
	19	0	2	5	26

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

APPENDIX 1.2:

VEHICLE MILES TRAVELED (VMT) ANALYSIS

This Page Intentionally Left Blank

December 14, 2021

Mr. David Ornelas
T&B Planning, Inc.
3200 El Camino Real, Suite 100
Irvine, CA 92602

SUBJECT: VALLEY BOULEVARD AND WILLOW AVENUE VEHICLE MILES TRAVELED (VMT) ANALYSIS

Dear Mr. David Ornelas:

The following VMT Analysis has been prepared for the proposed Valley Boulevard and Willow Avenue (**Project**), which is located at the northwest corner of Valley Boulevard and Willow Avenue in the City of Rialto.

PROJECT OVERVIEW

The current subject property is developed/disturbed and used for the outdoor storage of trailers, construction equipment, and construction materials. The proposed Project would result in the re-development of the property as a warehouse distribution building with approximately 492,410 square feet (sf) of building area (See Attachment A).

BACKGROUND

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which requires all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. This statewide mandate went into effect July 1, 2020. To aid in the transition from LOS to VMT, the Governor's Office of Planning and Research (OPR) published its Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory). (1) It is our understanding that the City of Rialto is currently in development of City specific VMT analysis guidelines and impact thresholds based on OPR's Technical Advisory. As such, City Staff has provided Urban Crossroads with draft guidelines that the City intends to adopt. The City of Rialto Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS) (October 2021) (2) (**City Guidelines**) It is our understanding the City of Rialto utilizes the San Bernardino County Transportation Authority (SBCTA) VMT Screening Tool (**Screening Tool**). The Screening Tool allows users to select an assessor's parcel number (APN) to determine if a project's location meets one or more of the screening thresholds for land use projects identified in the City Guidelines. The City Guidelines have been utilized to prepare this VMT analysis.

VMT SCREENING EVALUATION

City Guidelines identify Projects that meet certain VMT screening criteria may be presumed to result in a less than significant transportation impact. The City Guidelines lists the following VMT screening criteria:

Step 1: Transit Priority Area (TPA) Screening

Step 2: Low VMT Area Screening

Step 3: Project Type Screening

A land use project only needs to meet one of the above screening thresholds to result in a less than significant impact.

TPA SCREENING

Consistent with guidance identified in the City Guidelines, projects located within a Transit Priority Area (TPA) (i.e., within ½ mile of an existing "major transit stop"[1] or an existing stop along a "high-quality transit corridor"[2]) may be presumed to have a less than significant impact absent substantial evidence to the contrary. However, the presumption may not be appropriate if a project:

- Has a Floor Area Ratio (FAR) of less than 0.75;
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

The Project site is not located within ½ mile of an existing major transit stop, or along a high-quality transit corridor, and would not meet the FAR threshold of 0.75 or greater. (See Attachment B)

TPA screening criteria is not met.

LOW VMT AREA SCREENING

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

[1] Pub. Resources Code, § 21064.3 ("'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.").

[2] Pub. Resources Code, § 21155 ("For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.").

service population that is similar to the existing land uses in the low VMT area." The Screening Tool uses the sub-regional San Bernardino Transportation Analysis Model (SBTAM) to measure VMT performance within individual traffic analysis zones (TAZ's) within the region. The Project's physical location based on parcel number is selected in the Screening Tool to determine the TAZ in which the Project will reside. The Project's TAZ VMT per employee was compared to the County of San Bernardino baseline average VMT per employee. The parcel containing the proposed Project was selected and the Screening Tool was run for Production/Attraction (PA) home-based work (HBW) VMT per employee (see Attachment B), the Project is not located within a low VMT generating zone.

Low VMT Area screening criteria is not met.

PROJECT TYPE SCREENING

The City Guidelines describe that local serving retail projects less than 50,000 square feet may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition to local serving retail, the City Guidelines also provides a list of land use projects that may be presumed to cause a less than significant impact based on size or quantity:

- 11 single family housing units
- 16 multi-family housing units
- 10,000 sf of office
- 15,000 sf of light industrial
- 63,000 sf of warehousing
- 79,000 sf of high cube transload short-term storage warehouse

The Project proposes to develop a warehouse distribution building totaling of 493,590 sf which exceeds the 63,000 sf project type screening size identified by the City Guidelines.

Project Type screening criteria is not met.

As the Project was not found to meet any of the aforementioned VMT screening criteria, a project level VMT analysis is prepared to assess the Project's potential impact to VMT.

VMT ANALYSIS

VMT MODELING

City Guidelines identify San Bernardino Transportation Analysis Model (SBTAM) as the appropriate tool for conducting VMT analysis for land use projects in San Bernardino County. SBTAM is a useful tool to estimate VMT as it considers interaction between different land uses based on socio-economic data such as population, households and employment. The calculation of VMT for land use projects is based on the total number of trips generated and the average trip length of each vehicle. SBTAM is also consistent with the model used to develop the City's VMT impact thresholds listed by the City Guidelines. Therefore,

the vehicle trips and average daily trip length for project-related vehicle trips are model derived from SBTAM.

VMT METRIC AND SIGNIFICANCE THRESHOLD

Through consultation with City Staff, it was identified that the appropriate VMT metric for employment generating industrial land uses the to be utilized for the purposes of this VMT Analysis is VMT per employee[3]. As noted in the City Guidelines, the Project would result in a significant project generated VMT impact if either of the following conditions is met for industrial projects:

- Baseline project generated VMT per employee exceeds the County of San Bernardino VMT per employee, or
- Cumulative project generated VMT per employee exceeds the County of San Bernardino VMT per employee.

PROJECT LAND USE CONVERSION

In order to evaluate Project VMT, standard land use information must first be converted into a SBTAM compatible dataset. The SBTAM model utilizes socio-economic data (SED) (e.g., population, households, employment, etc.) instead of land use information for the purposes of vehicle trip estimation. Project land use information such as building square footage must first be converted to SED for input into SBTAM. Table 1 summarizes the employment based on a fiscal report prepared for the proposed Project[4]. Employment projections provided by the Project applicant estimate up to 542 full-time equivalent employees and 639 actual employees, which includes a combination of full time, part time and seasonal jobs. The more conservative estimate based on 639 actual employees will be used for this analysis.

TABLE 1: EMPLOYMENT ESTIMATES

Land Use	Building Area	Estimated Employees
Industrial Warehouse	492,410 sf	639

PROJECT VMT CALCULATION

Adjustments to employment for the Project's TAZ were made to the SBTAM base year (2016) and cumulative year (2040) traffic models, and each model was then run inclusive of the SED factors. The ability to capture commute trips can be achieved with the SBTAM model by using the Production/Attraction (PA) trip matrices exclusive of truck trips[5]. Using these matrices, the HBW VMT

[3] J. Schlaefli (personal communication, November 18,2021)
[4] Birtcher –Executive Summary of Economic Analysis; Page 3
[5] CEQA Guidelines Section 15064.3, subdivision (a) states "For purposes of this section "vehicle miles traveled" refers to the amount and distance of automobile travel attributable to a project". The OPR's Technical Advisory indicates that, although heavy truck traffic can be included for analysis convenience, the provided analysis requirements are specific to passenger-vehicles and light duty trucks. While it may be appropriate to consider heavy

was calculated for both the base year (2016) and cumulative year (2040) conditions. The HBW VMT is then normalized by dividing by the Project employees. The results of the base year and cumulative year conditions was calculated for baseline (2021) conditions using straight-line interpolation. As shown in Table 2, the Project's baseline VMT per employee is 15.97 and cumulative VMT per employee is 15.65.

TABLE 2: PROJECT VMT PER EMPLOYEE

	Base Year (2016)	Cumulative Year (2040)	Baseline (2021)
Employees	639	639	639
VMT	10,256	10,000	10,203
VMT / Employee	16.05	15.65	15.97

PROJECT COMPARISON TO SIGNIFICANCE THRESHOLD

Table 3 illustrates the comparison between Project's baseline and cumulative VMT per employee to the City's recommended impact threshold. SBCTA provides published VMT values for its member agencies for the baseline County of San Bernardino the VMT per employee is 17.33. The Project would not exceed the City's recommended impact thresholds for either in the Baseline or Cumulative Project conditions. Therefore, the Project's impact on VMT is less than significant.

TABLE 3: VMT PER SP COMPARISON

	Baseline	Cumulative
Regional Threshold	17.33	17.33
Project	15.97	15.65
Percent Below Threshold	-7.84%	-9.69%
Potentially Significant?	No	No

PROJECT CUMULATIVE IMPACT ON VMT

The City Guidelines consistent with the Technical Advisory states that cumulative impacts on VMT "… metrics such as VMT per capita or VMT per employee, i.e., metrics framed in terms of efficiency (as recommended below for use on residential and office projects), cannot be summed because they employ a denominator. A project that falls below an efficiency-based threshold that is aligned with long-term goals and relevant plans has no cumulative impact distinct from the project impact. Accordingly, a finding of a less-than-significant project impact would imply a less than significant cumulative impact, and vice versa. This is similar to the analysis typically conducted for greenhouse gas emissions, air quality impacts, and impact that utilize plan compliance as a threshold of significance."[6] It is our understanding that a General Plan Amendment and Gateway Specific Plan (GSP) Amendment will be applied to the Project's

vehicle traffic (HDT) if directed by the lead agency, it is generally understood that Interstate commerce and related heavy vehicle traffic are regulated by the Federal government as it relates to commerce. Irrespective of this and considering that the end-user may not be known at this time, it is reasonable to assume that the ultimate end user will select locations, at least in part, as to how it effects their transportation costs. Accordingly, it is reasonable to assume that industrial buildings are often located in a manner to reduce VMT given that it is in the interest of the business. In most cases, Consistent with other CEQA technical studies, HDT VMT will be reflected in other applicable technical studies (e.g. Air Quality Impact Analysis, Greenhouse Gas Analysis etc.

[6] OPR's Technical Advisory; Page 6

southern portion of the Project site. The current underlying land use for the Project site that lies within the GSP is Freeway Commercial (F-C). The Project intends to amend the southern portion of the Project site to Business Park (BP) use which would align the Project site use with the northern portion of the Project site. The current F-C allowed uses include but are not limited to Retail Commercial and Office Park, these uses are typically higher traffic generating uses. Amending the GSP to BP would reduce the overall traffic generation as compared to the currently allowed uses. By reducing the overall traffic generation, the Project retains its consistency with the Regional Transportation Plan and Sustainable Communities Strategies (RTP/SCS). As the Project is consistent with the RTP/SCS and the Project was found to have a less than significant impact at the project level. The Project is also considered to be less than significant cumulative impact as well.

CONCLUSION

In summary, the Project was not found to meet any of the City's screening criteria and a project level VMT analysis was performed. The Project's VMT analysis findings for project generated VMT per employee was found to not exceed the City's threshold, the Project's impact on VMT is presumed to be less than significant**.**

If you have any questions, please contact me at (949) 660-1994.

Respectfully submitted,

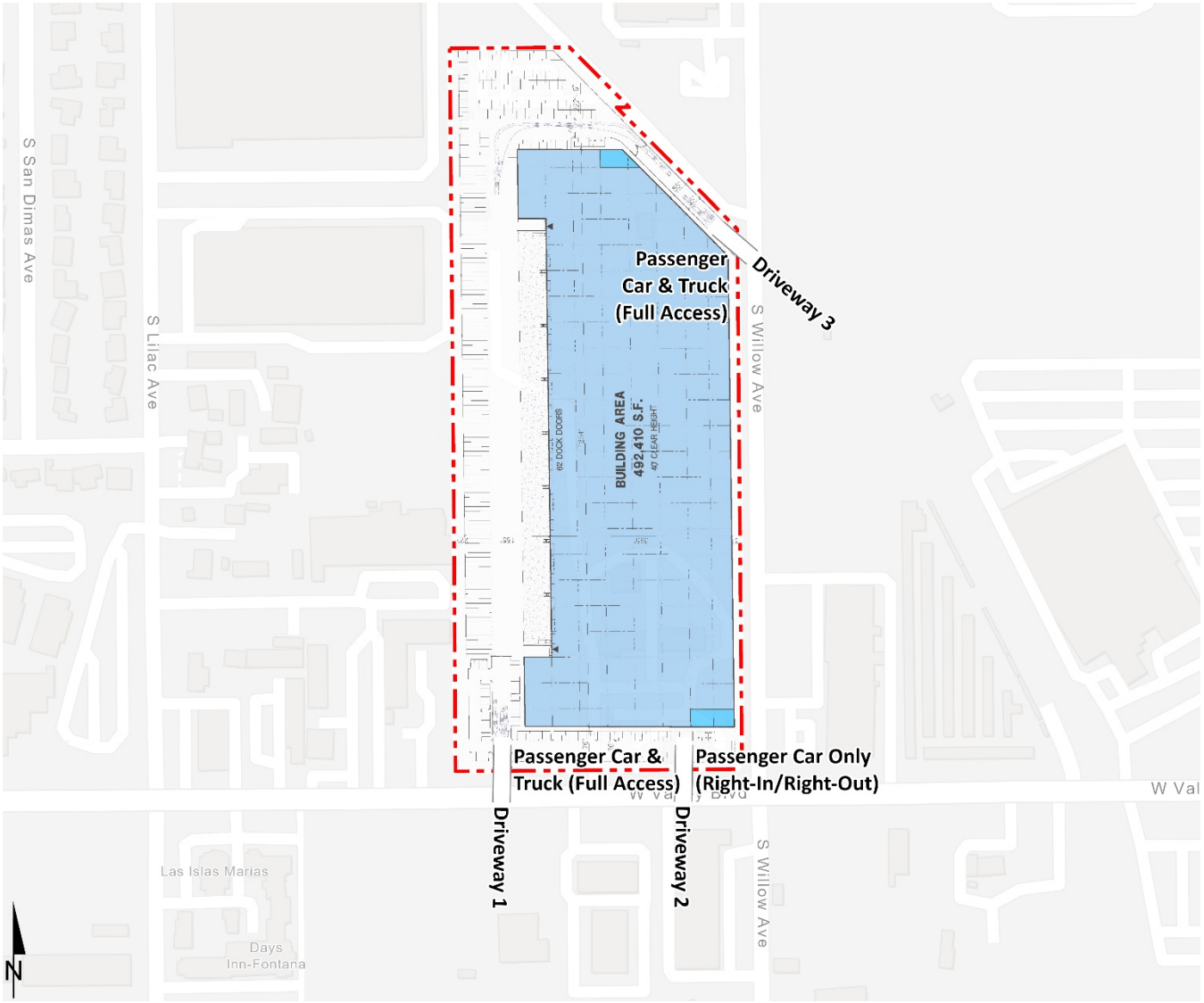
URBAN CROSSROADS, INC.

Alexander So
Senior Analyst

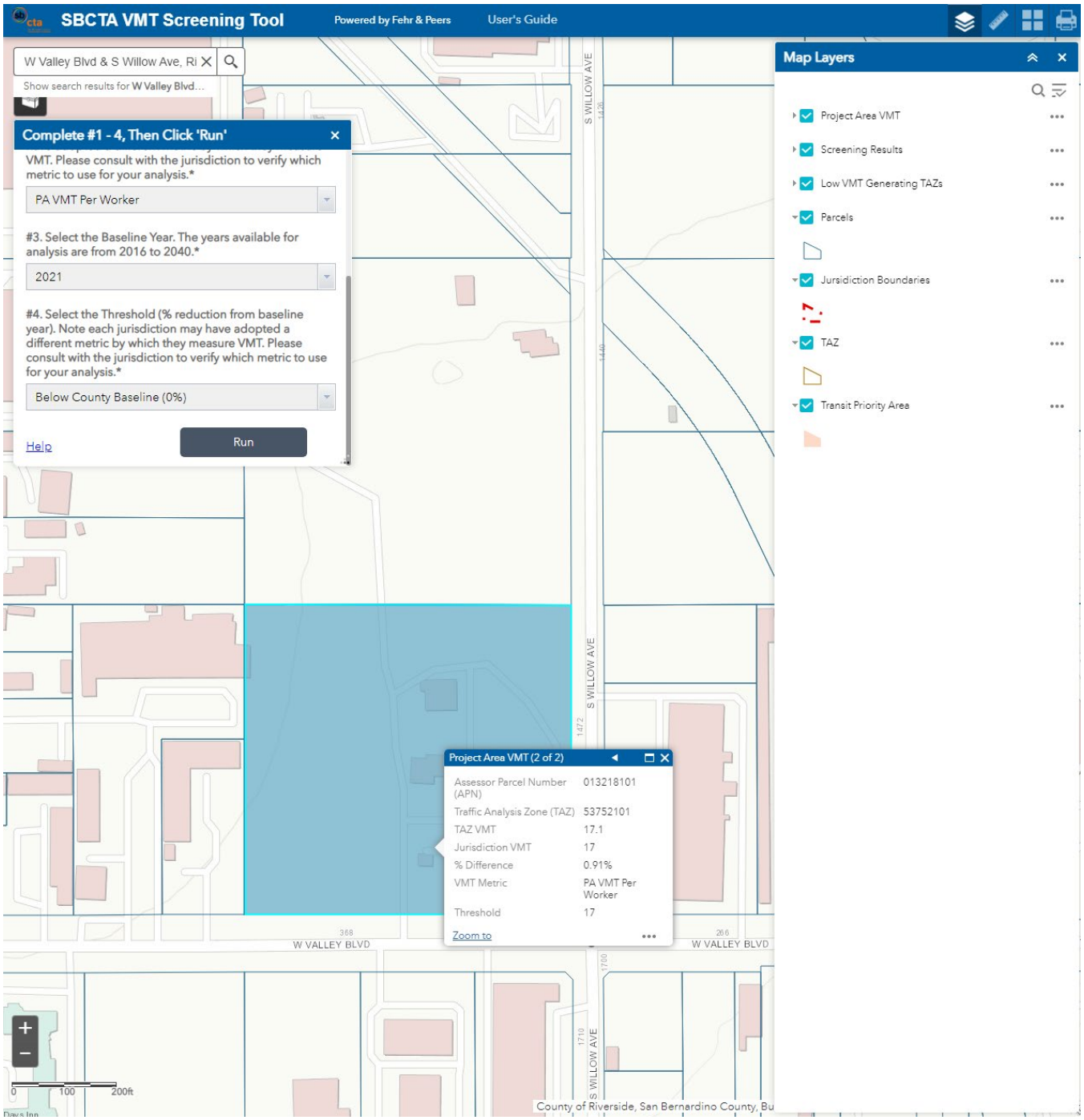
REFERENCES

1. **Office of Planning and Research.** *Technical Advisory on Evaluating Transportation Impacts in CEQA.* State of California : s.n., December 2018.
2. **City of Rialto.** *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS).* October 2021.

ATTACHMENT A:
PRELIMINARY SITE PLAN


S San Dimas Ave
S Lilac Ave
S Willow Ave
Passenger
Car & Truck
(Full Access)
Driveway 3
BUILDING AREA
492,410 S.F.
40' CLEAR HEIGHT
62' DOCK DOORS
Passenger Car &
Truck (Full Access)
Passenger Car Only
(Right-In/Right-Out)
Driveway 1
Driveway 2
W Val
Las Islas Marias
Days
Inn-Fontana
N

ATTACHMENT B:
SBCTA SCREENING TOOL


SBCTA VMT Screening Tool
Powered by Fehr & Peers
User's Guide
W Valley Blvd & S Willow Ave, Ri
Show search results for W Valley Blvd...
Complete #1 - 4, Then Click 'Run'
VMT. Please consult with the jurisdiction to verify which metric to use for your analysis.*
PA VMT Per Worker
#3. Select the Baseline Year. The years available for analysis are from 2016 to 2040.*
2021
#4. Select the Threshold (% reduction from baseline year). Note each jurisdiction may have adopted a different metric by which they measure VMT. Please consult with the jurisdiction to verify which metric to use for your analysis.*
Below County Baseline (0%)
Help
Run
Map Layers
Project Area VMT
Screening Results
Low VMT Generating TAZs
Parcels
Jurisdiction Boundaries
TAZ
Transit Priority Area
Project Area VMT (2 of 2)
Assessor Parcel Number (APN) 013218101
Traffic Analysis Zone (TAZ) 53752101
TAZ VMT 17.1
Jurisdiction VMT 17
% Difference 0.91%
VMT Metric PA VMT Per Worker
Threshold 17
Zoom to
S WILLOW AVE
W VALLEY BLVD
0 100 200ft
County of Riverside, San Bernardino County, Bu

This Page Intentionally Left Blank

APPENDIX 1.3:

SITE ADJACENT QUEUES

This Page Intentionally Left Blank

Intersection: 1: Valley Bl. & Driveway 1

Movement	EB	WB	SB
Directions Served	L	TR	LR
Maximum Queue (ft)	26	5	47
Average Queue (ft)	1	0	19
95th Queue (ft)	9	3	43
Link Distance (ft)		242	448
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Valley Bl. & Driveway 2

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	21	19
Average Queue (ft)	1	2
95th Queue (ft)	10	12
Link Distance (ft)	242	406
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Willow Av. & Driveway 3

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	28	42
Average Queue (ft)	7	8
95th Queue (ft)	26	30
Link Distance (ft)	389	1090
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Willow Av. & Valley Bl.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	LTR
Maximum Queue (ft)	57	210	261	25	29	165	171	113	6	8	184
Average Queue (ft)	20	81	126	2	3	56	72	31	0	0	93
95th Queue (ft)	50	154	220	15	16	137	154	83	5	5	156
Link Distance (ft)		195	195			1211	1211			482	1090
Upstream Blk Time (%)		0	2								
Queuing Penalty (veh)		2	9								
Storage Bay Dist (ft)	150			100	100			100	50		
Storage Blk Time (%)		1	10			2	4	0			
Queuing Penalty (veh)		0	0			0	7	0			

Zone Summary

Zone wide Queuing Penalty: 18

Intersection: 1: Valley Bl. & Driveway 1

Movement	EB	EB	EB	SB
Directions Served	L	T	T	LR
Maximum Queue (ft)	8	663	682	460
Average Queue (ft)	0	391	435	450
95th Queue (ft)	5	896	908	468
Link Distance (ft)		747	747	448
Upstream Blk Time (%)		9	26	97
Queuing Penalty (veh)		0	0	0
Storage Bay Dist (ft)	100			
Storage Blk Time (%)		7		
Queuing Penalty (veh)		0		

Intersection: 2: Valley Bl. & Driveway 2

Movement	EB	EB	SB
Directions Served	T	T	R
Maximum Queue (ft)	314	314	26
Average Queue (ft)	230	268	2
95th Queue (ft)	387	336	14
Link Distance (ft)	242	242	406
Upstream Blk Time (%)	15	52	
Queuing Penalty (veh)	94	332	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Willow Av. & Driveway 3

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	37	35
Average Queue (ft)	24	3
95th Queue (ft)	41	18
Link Distance (ft)	389	1090
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Willow Av. & Valley Bl.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	LTR
Maximum Queue (ft)	195	267	267	68	30	183	180	95	10	19	229
Average Queue (ft)	93	249	267	3	3	89	100	37	1	4	127
95th Queue (ft)	220	312	267	34	18	162	160	75	6	16	208
Link Distance (ft)		195	195			1211	1211			482	1090
Upstream Blk Time (%)	0	33	74	0							
Queuing Penalty (veh)	0	212	474	0							
Storage Bay Dist (ft)	150			100	100			100	50		
Storage Blk Time (%)		19	68			7	8	0			
Queuing Penalty (veh)		18	1			1	19	0			

Zone Summary

Zone wide Queuing Penalty: 1152

APPENDIX 3.1:

EXISTING TRAFFIC COUNTS

This Page Intentionally Left Blank

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley AM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 1

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

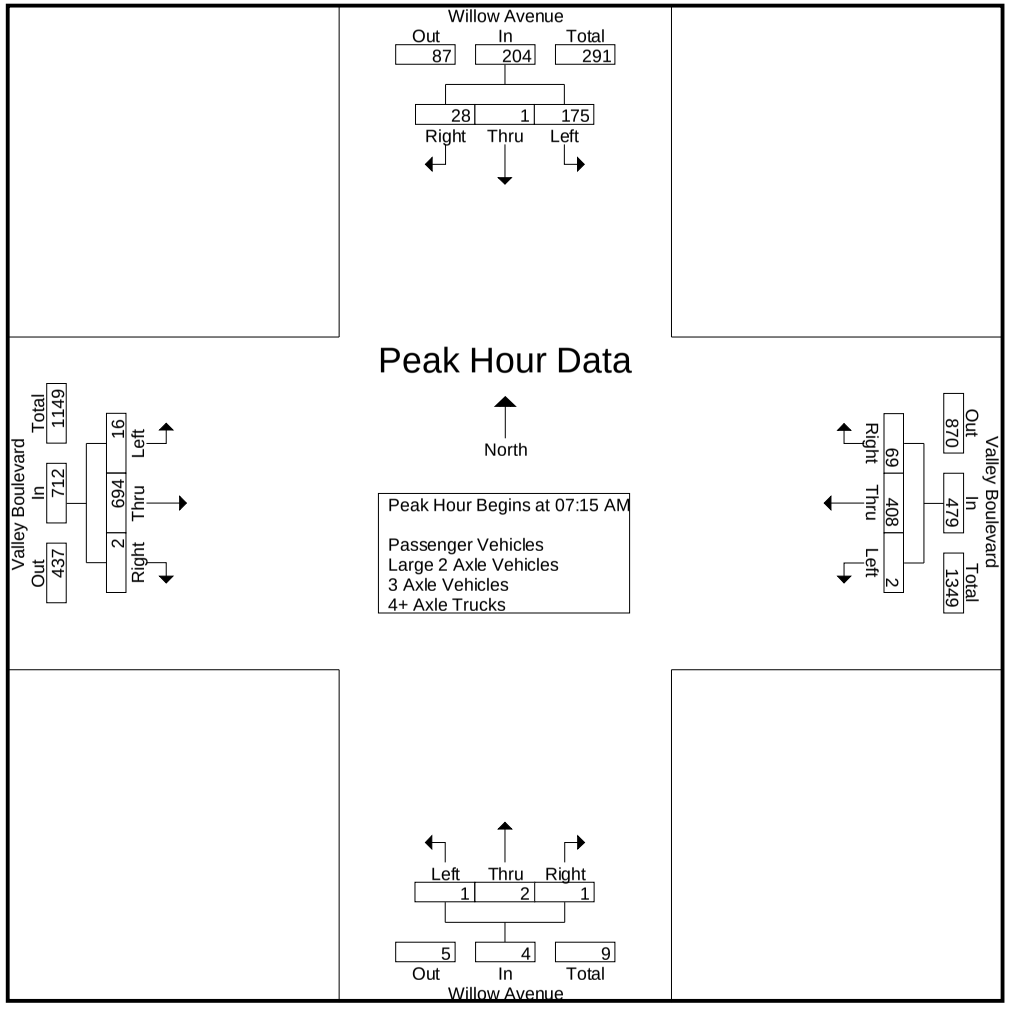
	Willow Avenue Southbound					Valley Boulevard Westbound					Willow Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	40	0	11	8	51	0	69	21	5	90	0	0	0	0	0	2	133	1	0	136	13	277	290
07:15 AM	48	0	7	4	55	0	100	14	5	114	0	0	1	0	1	0	161	0	0	161	9	331	340
07:30 AM	44	1	7	6	52	0	103	21	5	124	0	2	0	0	2	4	187	1	0	192	11	370	381
07:45 AM	42	0	6	5	48	0	118	16	6	134	0	0	0	0	0	5	189	0	0	194	11	376	387
Total	174	1	31	23	206	0	390	72	21	462	0	2	1	0	3	11	670	2	0	683	44	1354	1398
08:00 AM	41	0	8	5	49	2	87	18	4	107	1	0	0	0	1	7	157	1	0	165	9	322	331
08:15 AM	34	1	6	3	41	1	77	11	2	89	0	0	0	0	0	4	92	0	0	96	5	226	231
08:30 AM	32	0	6	4	38	0	87	20	1	107	0	0	1	0	1	10	116	0	0	126	5	272	277
08:45 AM	23	0	9	4	32	1	83	16	2	100	0	0	2	1	2	9	112	0	0	121	7	255	262
Total	130	1	29	16	160	4	334	65	9	403	1	0	3	1	4	30	477	1	0	508	26	1075	1101
Grand Total	304	2	60	39	366	4	724	137	30	865	1	2	4	1	7	41	1147	3	0	1191	70	2429	2499
Apprch %	83.1	0.5	16.4			0.5	83.7	15.8			14.3	28.6	57.1			3.4	96.3	0.3					
Total %	12.5	0.1	2.5		15.1	0.2	29.8	5.6		35.6	0	0.1	0.2		0.3	1.7	47.2	0.1		49	2.8	97.2	
Passenger Vehicles	293	2	58		391	4	686	125		842	1	2	4		8	36	1086	3		1125	0	0	2366
% Passenger Vehicles	96.4	100	96.7	97.4	96.5	100	94.8	91.2	90	94.1	100	100	100	100	100	87.8	94.7	100	0	94.5	0	0	94.7
Large 2 Axle Vehicles	6	0	1		7	0	14	6		23	0	0	0		0	2	40	0		42	0	0	72
% Large 2 Axle Vehicles	2	0	1.7	0	1.7	0	1.9	4.4	10	2.6	0	0	0	0	0	4.9	3.5	0	0	3.5	0	0	2.9
3 Axle Vehicles	1	0	0		1	0	15	2		17	0	0	0		0	2	8	0		10	0	0	28
% 3 Axle Vehicles	0.3	0	0	0	0.2	0	2.1	1.5	0	1.9	0	0	0	0	0	4.9	0.7	0	0	0.8	0	0	1.1
4+ Axle Trucks	4	0	1		6	0	9	4		13	0	0	0		0	1	13	0		14	0	0	33
% 4+ Axle Trucks	1.3	0	1.7	2.6	1.5	0	1.2	2.9	0	1.5	0	0	0	0	0	2.4	1.1	0	0	1.2	0	0	1.3

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**48**	0	7	**55**	0	100	14	114	0	0	**1**	1	0	161	0	161	331
07:30 AM	44	**1**	7	52	0	103	**21**	124	0	**2**	0	**2**	4	187	**1**	192	370
07:45 AM	42	0	6	48	0	**118**	16	**134**	0	0	0	0	5	**189**	0	**194**	**376**
08:00 AM	41	0	**8**	49	**2**	87	18	107	**1**	0	0	1	**7**	157	1	165	322
Total Volume	175	1	28	204	2	408	69	479	1	2	1	4	16	694	2	712	1399
% App. Total	85.8	0.5	13.7		0.4	85.2	14.4		25	50	25		2.2	97.5	0.3		
PHF	.911	.250	.875	.927	.250	.864	.821	.894	.250	.250	.250	.500	.571	.918	.500	.918	.930

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley AM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 2



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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley AM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 3

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:15 AM				07:15 AM				07:15 AM				
+0 mins.	40	0	**11**	51	0	100	14	114	0	0	**1**	1	0	161	0	161	
+15 mins.	**48**	0	7	**55**	0	103	**21**	124	0	**2**	0	**2**	4	187	**1**	192	
+30 mins.	44	**1**	7	52	0	**118**	16	**134**	0	0	0	0	5	**189**	0	**194**	
+45 mins.	42	0	6	48	**2**	87	18	107	**1**	0	0	1	**7**	157	1	165	
Total Volume	174	1	31	206	2	408	69	479	1	2	1	4	16	694	2	712	
% App. Total	84.5	0.5	15		0.4	85.2	14.4		25	50	25		2.2	97.5	0.3		
PHF	.906	.250	.705	.936	.250	.864	.821	.894	.250	.250	.250	.500	.571	.918	.500	.918	

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley AM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 1

Groups Printed- Passenger Vehicles

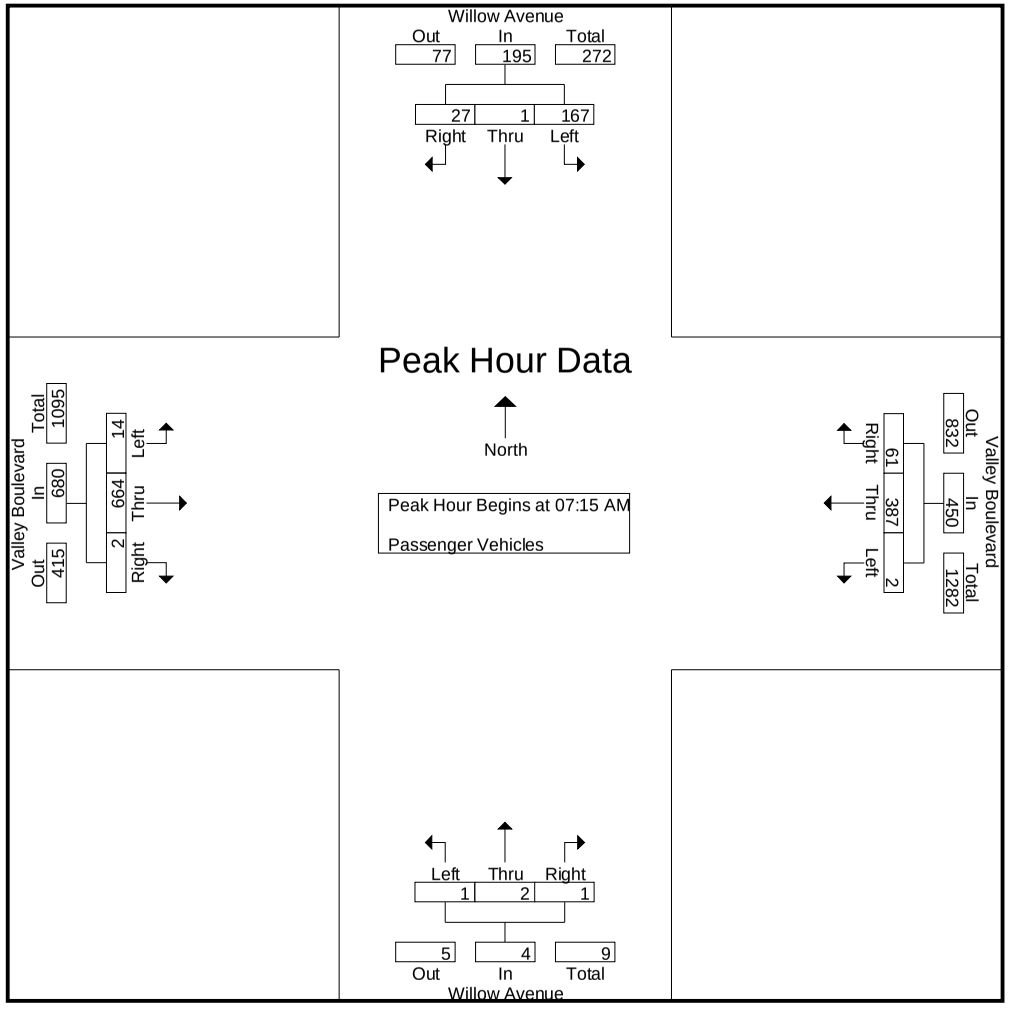
	Willow Avenue Southbound					Valley Boulevard Westbound					Willow Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	39	0	11	8	50	0	68	21	5	89	0	0	0	0	0	2	124	1	0	127	13	266	279
07:15 AM	47	0	7	4	54	0	99	12	5	111	0	0	1	0	1	0	155	0	0	155	9	321	330
07:30 AM	40	1	6	5	47	0	96	17	4	113	0	2	0	0	2	3	182	1	0	186	9	348	357
07:45 AM	41	0	6	5	47	0	113	15	5	128	0	0	0	0	0	5	182	0	0	187	10	362	372
Total	167	1	30	22	198	0	376	65	19	441	0	2	1	0	3	10	643	2	0	655	41	1297	1338
08:00 AM	39	0	8	5	47	2	79	17	3	98	1	0	0	0	1	6	145	1	0	152	8	298	306
08:15 AM	34	1	5	3	40	1	73	11	2	85	0	0	0	0	0	4	87	0	0	91	5	216	221
08:30 AM	32	0	6	4	38	0	80	18	1	98	0	0	1	0	1	9	110	0	0	119	5	256	261
08:45 AM	21	0	9	4	30	1	78	14	2	93	0	0	2	1	2	7	101	0	0	108	7	233	240
Total	126	1	28	16	155	4	310	60	8	374	1	0	3	1	4	26	443	1	0	470	25	1003	1028
Grand Total	293	2	58	38	353	4	686	125	27	815	1	2	4	1	7	36	1086	3	0	1125	66	2300	2366
Apprch %	83	0.6	16.4			0.5	84.2	15.3			14.3	28.6	57.1			3.2	96.5	0.3					
Total %	12.7	0.1	2.5		15.3	0.2	29.8	5.4		35.4	0	0.1	0.2		0.3	1.6	47.2	0.1		48.9	2.8	97.2	

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**47**	0	7	**54**	0	99	12	111	0	0	**1**	1	0	155	0	155	321
07:30 AM	40	**1**	6	47	0	96	**17**	113	0	**2**	0	**2**	3	**182**	**1**	186	348
07:45 AM	41	0	6	47	0	**113**	15	**128**	0	0	0	0	5	182	0	**187**	**362**
08:00 AM	39	0	**8**	47	**2**	79	17	98	**1**	0	0	1	**6**	145	1	152	298
Total Volume	167	1	27	195	2	387	61	450	1	2	1	4	14	664	2	680	1329
% App. Total	85.6	0.5	13.8		0.4	86	13.6		25	50	25		2.1	97.6	0.3		
PHF	.888	.250	.844	.903	.250	.856	.897	.879	.250	.250	.250	.500	.583	.912	.500	.909	.918

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley AM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 2



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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley AM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 3

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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.	**47**	0	7	**54**	0	99	12	111	0	0	**1**	1	0	155	0	155	
+15 mins.	40	**1**	6	47	0	96	**17**	113	0	**2**	0	**2**	3	**182**	**1**	186	
+30 mins.	41	0	6	47	0	**113**	15	**128**	0	0	0	0	5	182	0	**187**	
+45 mins.	39	0	**8**	47	**2**	79	17	98	**1**	0	0	1	**6**	145	1	152	
Total Volume	167	1	27	195	2	387	61	450	1	2	1	4	14	664	2	680	
% App. Total	85.6	0.5	13.8		0.4	86	13.6		25	50	25		2.1	97.6	0.3		
PHF	.888	.250	.844	.903	.250	.856	.897	.879	.250	.250	.250	.500	.583	.912	.500	.909	

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley AM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Willow Avenue Southbound					Valley Boulevard Westbound					Willow Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	7	7
07:15 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	3	0	0	3	0	5	5
07:30 AM	4	0	0	0	4	0	1	3	1	4	0	0	0	0	0	1	3	0	0	4	1	12	13
07:45 AM	0	0	0	0	0	0	3	1	1	4	0	0	0	0	0	0	7	0	0	7	1	11	12
Total	4	0	0	0	4	0	5	5	2	10	0	0	0	0	0	1	20	0	0	21	2	35	37
08:00 AM	2	0	0	0	2	0	3	1	1	4	0	0	0	0	0	1	8	0	0	9	1	15	16
08:15 AM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	5	5
08:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	5	5
08:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	7	0	0	7	0	9	9
Total	2	0	1	0	3	0	9	1	1	10	0	0	0	0	0	1	20	0	0	21	1	34	35
Grand Total	6	0	1	0	7	0	14	6	3	20	0	0	0	0	0	2	40	0	0	42	3	69	72
Apprch %	85.7	0	14.3			0	70	30			0	0	0			4.8	95.2	0					
Total %	8.7	0	1.4		10.1	0	20.3	8.7		29	0	0	0		0	2.9	58	0		60.9	4.2	95.8	

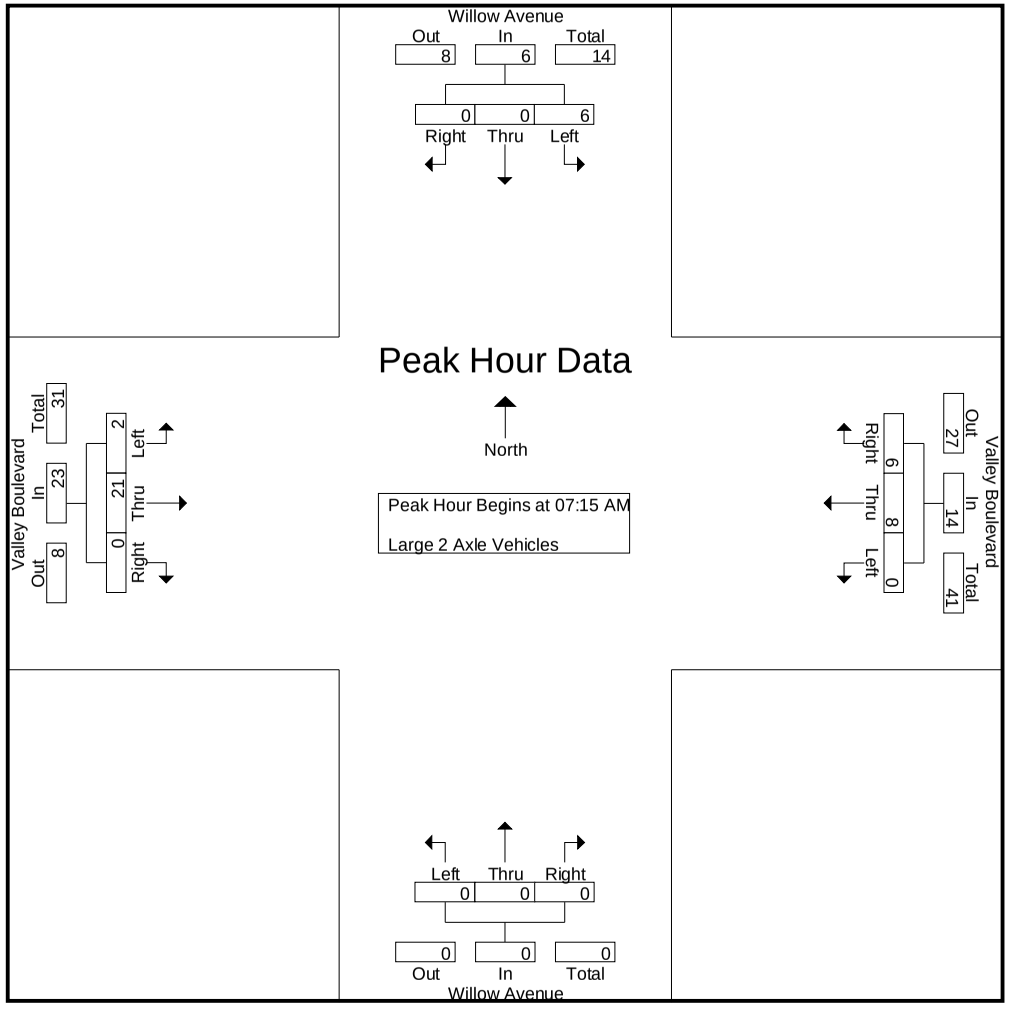
3.1-7

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	1	1	2	0	0	0	0	0	3	0	3	5
07:30 AM	**4**	0	0	**4**	0	1	**3**	**4**	0	0	0	0	**1**	3	0	4	12
07:45 AM	0	0	0	0	0	**3**	1	4	0	0	0	0	0	7	0	7	11
08:00 AM	2	0	0	2	0	3	1	4	0	0	0	0	1	**8**	0	**9**	**15**
Total Volume	6	0	0	6	0	8	6	14	0	0	0	0	2	21	0	23	43
% App. Total	100	0	0		0	57.1	42.9		0	0	0		8.7	91.3	0		
PHF	.375	.000	.000	.375	.000	.667	.500	.875	.000	.000	.000	.000	.500	.656	.000	.639	.717

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley AM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 2



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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley AM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 3

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	0	0	0	0	1	1	2	0	0	0	0	0	3	0	3	
+15 mins.	**4**	0	0	**4**	0	1	**3**	**4**	0	0	0	0	**1**	3	0	4	
+30 mins.	0	0	0	0	0	**3**	1	4	0	0	0	0	0	7	0	7	
+45 mins.	2	0	0	2	0	3	1	4	0	0	0	0	1	**8**	0	**9**	
Total Volume	6	0	0	6	0	8	6	14	0	0	0	0	2	21	0	23	
% App. Total	100	0	0		0	57.1	42.9		0	0	0		8.7	91.3	0		
PHF	.375	.000	.000	.375	.000	.667	.500	.875	.000	.000	.000	.000	.500	.656	.000	.639	

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley AM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Willow Avenue Southbound					Valley Boulevard Westbound					Willow Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
07:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
07:30 AM	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	0	1	0	0	1	0	7	7
07:45 AM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2
Total	1	0	0	0	1	0	7	2	0	9	0	0	0	0	0	0	3	0	0	3	0	13	13
08:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	4	4
08:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	4	4
08:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	3	3
08:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2	0	0	0	2	0	4	4
Total	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	2	5	0	0	7	0	15	15
Grand Total	1	0	0	0	1	0	15	2	0	17	0	0	0	0	0	2	8	0	0	10	0	28	28
Apprch %	100	0	0			0	88.2	11.8			0	0	0			20	80	0					
Total %	3.6	0	0		3.6	0	53.6	7.1		60.7	0	0	0		0	7.1	28.6	0		35.7	0	100	

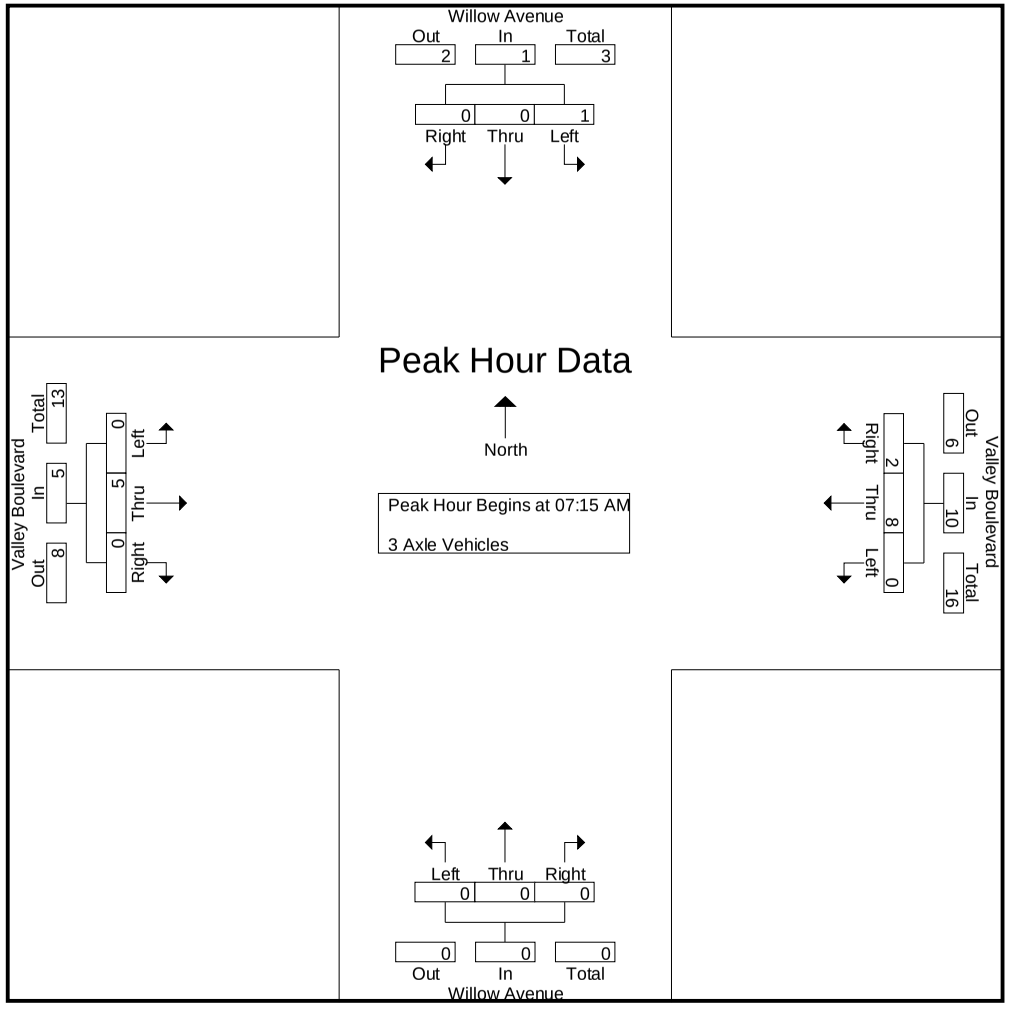
3.1-10

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	**1**	1	0	0	0	0	0	**2**	0	**2**	3
07:30 AM	0	0	0	0	0	**5**	1	**6**	0	0	0	0	0	1	0	1	**7**
07:45 AM	**1**	0	0	**1**	0	1	0	1	0	0	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
Total Volume	1	0	0	1	0	8	2	10	0	0	0	0	0	5	0	5	16
% App. Total	100	0	0		0	80	20		0	0	0		0	100	0		
PHF	.250	.000	.000	.250	.000	.400	.500	.417	.000	.000	.000	.000	.000	.625	.000	.625	.571

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley AM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 2



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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley AM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 3

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	0	0	0	0	0	**1**	1	0	0	0	0	0	**2**	0	**2**	
+15 mins.	0	0	0	0	0	**5**	1	**6**	0	0	0	0	0	1	0	1	
+30 mins.	**1**	0	0	**1**	0	1	0	1	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	
Total Volume	1	0	0	1	0	8	2	10	0	0	0	0	0	5	0	5	
% App. Total	100	0	0		0	80	20		0	0	0		0	100	0		
PHF	.250	.000	.000	.250	.000	.400	.500	.417	.000	.000	.000	.000	.000	.625	.000	.625	

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley AM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

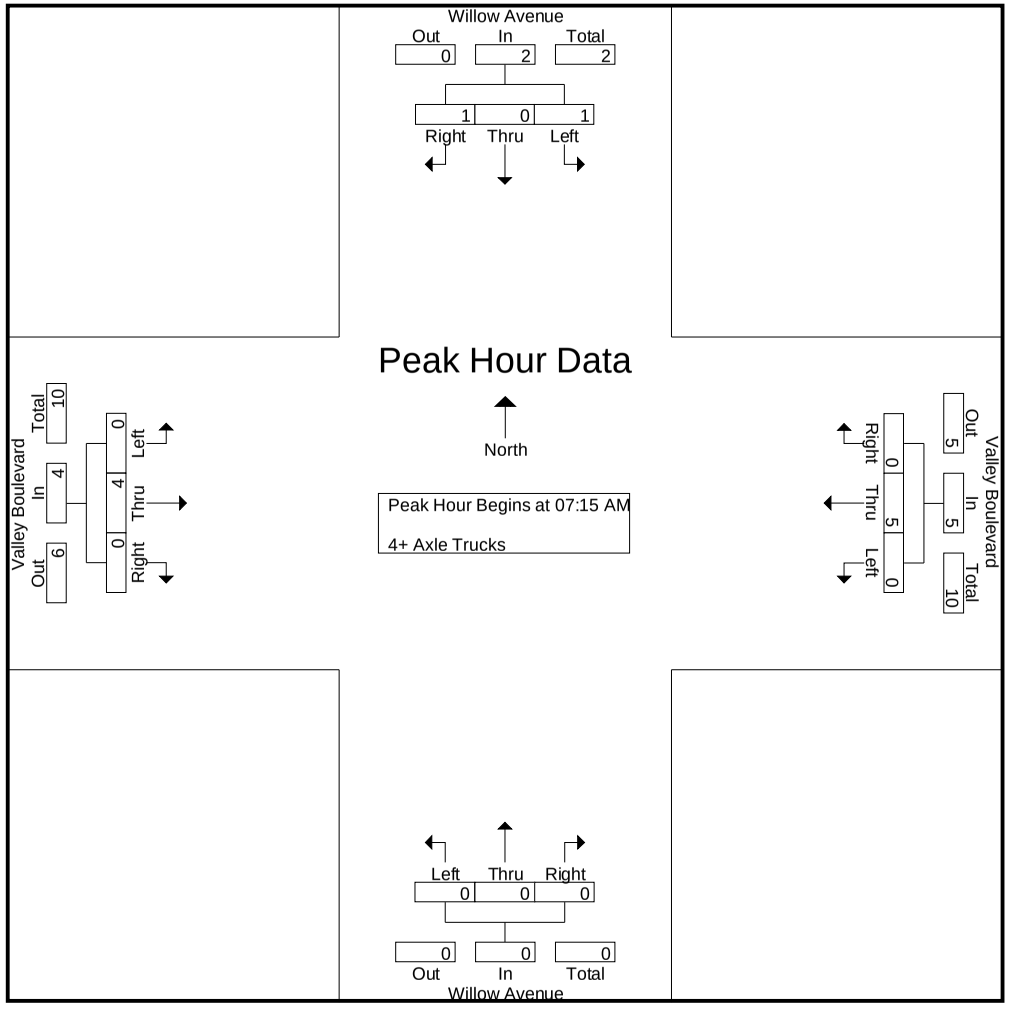
	Willow Avenue Southbound					Valley Boulevard Westbound					Willow Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	3	3
07:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	2
07:30 AM	0	0	1	1	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	1	3	4
07:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	2	0	1	1	3	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	1	9	10
08:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	0	5	5
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
08:30 AM	0	0	0	0	0	0	3	2	0	5	0	0	0	0	0	1	2	0	0	3	0	8	8
08:45 AM	2	0	0	0	2	0	1	2	0	3	0	0	0	0	0	0	4	0	0	4	0	9	9
Total	2	0	0	0	2	0	7	4	0	11	0	0	0	0	0	1	9	0	0	10	0	23	23
Grand Total	4	0	1	1	5	0	9	4	0	13	0	0	0	0	0	1	13	0	0	14	1	32	33
Apprch %	80	0	20			0	69.2	30.8			0	0	0			7.1	92.9	0					
Total %	12.5	0	3.1		15.6	0	28.1	12.5		40.6	0	0	0		0	3.1	40.6	0		43.8	3	97	

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	1	0	1	2
07:30 AM	0	0	**1**	1	0	1	0	1	0	0	0	0	0	1	0	1	3
07:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	**3**	0	**3**	0	0	0	0	0	**2**	0	**2**	**5**
Total Volume	1	0	1	2	0	5	0	5	0	0	0	0	0	4	0	4	11
% App. Total	50	0	50		0	100	0		0	0	0		0	100	0		
PHF	.250	.000	.250	.500	.000	.417	.000	.417	.000	.000	.000	.000	.000	.500	.000	.500	.550

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley AM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 2



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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley AM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 3

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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.	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	1	0	1	
+15 mins.	0	0	**1**	1	0	1	0	1	0	0	0	0	0	1	0	1	
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	**3**	0	**3**	0	0	0	0	0	**2**	0	**2**	
Total Volume	1	0	1	2	0	5	0	5	0	0	0	0	0	4	0	4	
% App. Total	50	0	50		0	100	0		0	0	0		0	100	0		
PHF	.250	.000	.250	.500	.000	.417	.000	.417	.000	.000	.000	.000	.000	.500	.000	.500	

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley PM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 1

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

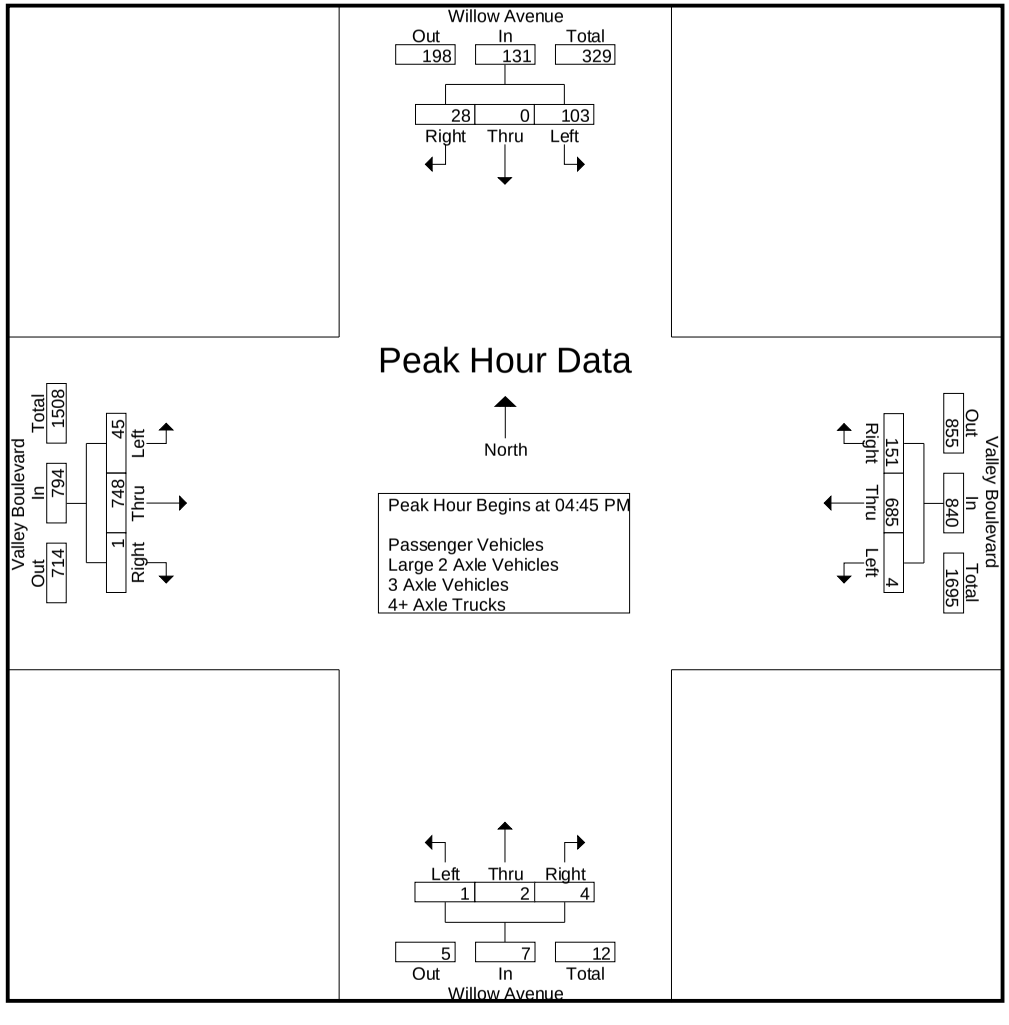
	Willow Avenue Southbound					Valley Boulevard Westbound					Willow Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	28	0	3	1	31	1	139	28	2	168	0	0	0	0	0	19	169	0	0	188	3	387	390
04:15 PM	26	0	14	5	40	2	157	38	3	197	0	0	1	1	1	10	191	0	0	201	9	439	448
04:30 PM	42	0	6	3	48	1	154	36	3	191	0	0	0	0	0	13	165	0	0	178	6	417	423
04:45 PM	25	0	9	6	34	0	159	27	6	186	0	0	1	1	1	10	180	0	0	190	13	411	424
Total	121	0	32	15	153	4	609	129	14	742	0	0	2	2	2	52	705	0	0	757	31	1654	1685
05:00 PM	25	0	10	4	35	0	184	49	4	233	0	0	2	2	2	6	208	0	0	214	10	484	494
05:15 PM	28	0	4	3	32	3	161	37	8	201	0	1	0	0	1	14	177	0	0	191	11	425	436
05:30 PM	25	0	5	2	30	1	181	38	2	220	1	1	1	1	3	15	183	1	1	199	6	452	458
05:45 PM	21	1	9	5	31	0	173	37	4	210	0	0	2	0	2	12	117	0	0	129	9	372	381
Total	99	1	28	14	128	4	699	161	18	864	1	2	5	3	8	47	685	1	1	733	36	1733	1769
Grand Total	220	1	60	29	281	8	1308	290	32	1606	1	2	7	5	10	99	1390	1	1	1490	67	3387	3454
Apprch %	78.3	0.4	21.4			0.5	81.4	18.1			10	20	70			6.6	93.3	0.1					
Total %	6.5	0	1.8		8.3	0.2	38.6	8.6		47.4	0	0.1	0.2		0.3	2.9	41	0		44	1.9	98.1	
Passenger Vehicles	215	1	58		303	7	1263	283		1584	1	2	7		15	96	1344	1		1442	0	0	3344
% Passenger Vehicles	97.7	100	96.7	100	97.7	87.5	96.6	97.6	96.9	96.7	100	100	100	100	100	97	96.7	100	100	96.7	0	0	96.8
Large 2 Axle Vehicles	0	0	1		1	1	25	4		30	0	0	0		0	2	27	0		29	0	0	60
% Large 2 Axle Vehicles	0	0	1.7	0	0.3	12.5	1.9	1.4	0	1.8	0	0	0	0	0	2	1.9	0	0	1.9	0	0	1.7
3 Axle Vehicles	2	0	0		2	0	7	2		10	0	0	0		0	1	12	0		13	0	0	25
% 3 Axle Vehicles	0.9	0	0	0	0.6	0	0.5	0.7	3.1	0.6	0	0	0	0	0	1	0.9	0	0	0.9	0	0	0.7
4+ Axle Trucks	3	0	1		4	0	13	1		14	0	0	0		0	0	7	0		7	0	0	25
% 4+ Axle Trucks	1.4	0	1.7	0	1.3	0	1	0.3	0	0.9	0	0	0	0	0	0	0.5	0	0	0.5	0	0	0.7

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	25	0	9	34	0	159	27	186	0	0	1	1	10	180	0	190	411
05:00 PM	25	0	**10**	**35**	0	**184**	**49**	**233**	0	0	**2**	2	6	**208**	0	**214**	**484**
05:15 PM	**28**	0	4	32	**3**	161	37	201	0	**1**	0	1	14	177	0	191	425
05:30 PM	25	0	5	30	1	181	38	220	**1**	1	1	**3**	**15**	183	**1**	199	452
Total Volume	103	0	28	131	4	685	151	840	1	2	4	7	45	748	1	794	1772
% App. Total	78.6	0	21.4		0.5	81.5	18		14.3	28.6	57.1		5.7	94.2	0.1		
PHF	.920	.000	.700	.936	.333	.931	.770	.901	.250	.500	.500	.583	.750	.899	.250	.928	.915

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley PM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 2



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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley PM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 3

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:15 PM				05:00 PM				05:00 PM				04:45 PM				
+0 mins.	26	0	**14**	40	0	**184**	**49**	**233**	0	0	**2**	2	10	180	0	190	
+15 mins.	**42**	0	6	**48**	**3**	161	37	201	0	**1**	0	1	6	**208**	0	**214**	
+30 mins.	25	0	9	34	1	181	38	220	**1**	1	1	**3**	14	177	0	191	
+45 mins.	25	0	10	35	0	173	37	210	0	0	2	2	**15**	183	**1**	199	
Total Volume	118	0	39	157	4	699	161	864	1	2	5	8	45	748	1	794	
% App. Total	75.2	0	24.8		0.5	80.9	18.6		12.5	25	62.5		5.7	94.2	0.1		
PHF	.702	.000	.696	.818	.333	.950	.821	.927	.250	.500	.625	.667	.750	.899	.250	.928	

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley PM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 1

Groups Printed- Passenger Vehicles

	Willow Avenue Southbound					Valley Boulevard Westbound					Willow Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	28	0	3	1	31	1	134	27	2	162	0	0	0	0	0	18	160	0	0	178	3	371	374
04:15 PM	26	0	13	5	39	2	150	37	3	189	0	0	1	1	1	9	184	0	0	193	9	422	431
04:30 PM	42	0	6	3	48	0	144	36	3	180	0	0	0	0	0	13	157	0	0	170	6	398	404
04:45 PM	23	0	9	6	32	0	154	27	6	181	0	0	1	1	1	10	174	0	0	184	13	398	411
Total	119	0	31	15	150	3	582	127	14	712	0	0	2	2	2	50	675	0	0	725	31	1589	1620
05:00 PM	25	0	9	4	34	0	176	48	4	224	0	0	2	2	2	6	200	0	0	206	10	466	476
05:15 PM	27	0	4	3	31	3	155	34	7	192	0	1	0	0	1	14	173	0	0	187	10	411	421
05:30 PM	24	0	5	2	29	1	179	38	2	218	1	1	1	1	3	15	181	1	1	197	6	447	453
05:45 PM	20	1	9	5	30	0	171	36	4	207	0	0	2	0	2	11	115	0	0	126	9	365	374
Total	96	1	27	14	124	4	681	156	17	841	1	2	5	3	8	46	669	1	1	716	35	1689	1724
Grand Total	215	1	58	29	274	7	1263	283	31	1553	1	2	7	5	10	96	1344	1	1	1441	66	3278	3344
Apprch %	78.5	0.4	21.2			0.5	81.3	18.2			10	20	70			6.7	93.3	0.1					
Total %	6.6	0	1.8		8.4	0.2	38.5	8.6		47.4	0	0.1	0.2		0.3	2.9	41	0		44	2	98	

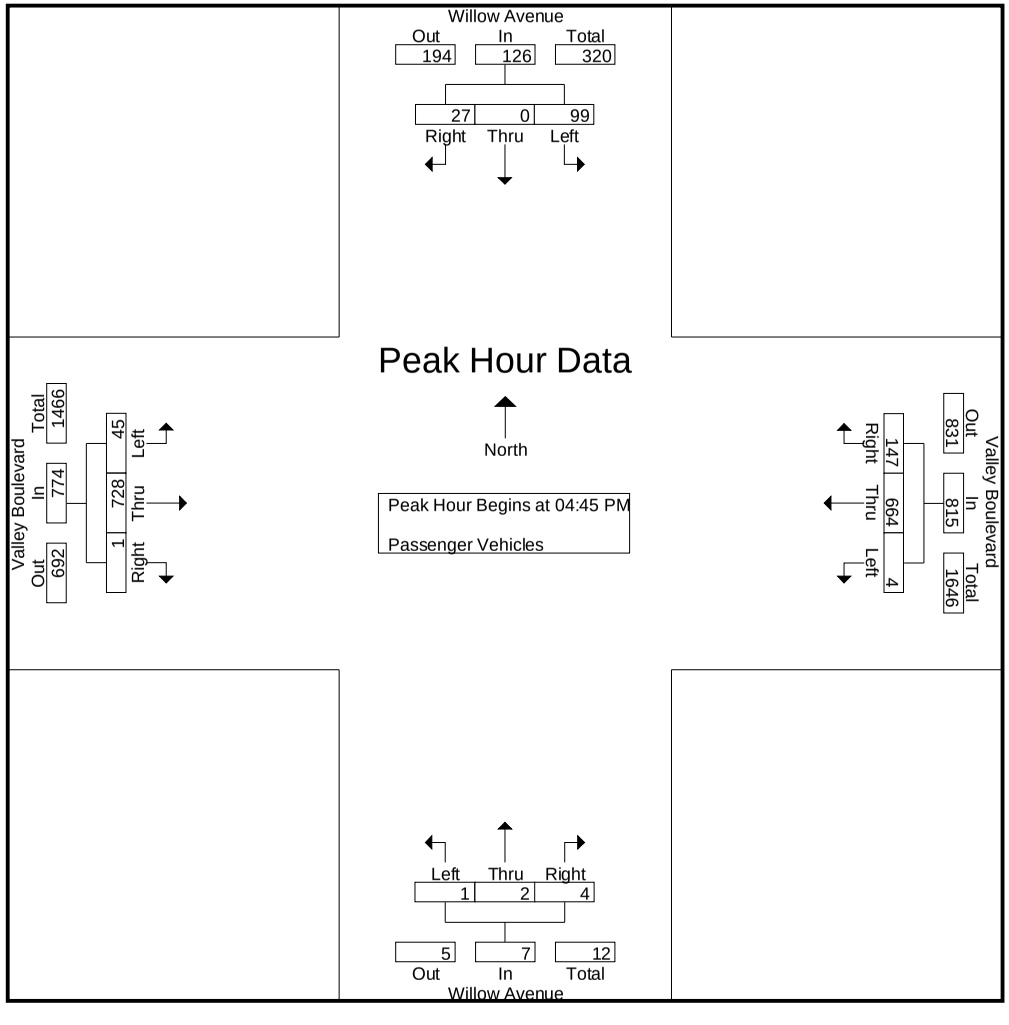
3.1-19

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	23	0	**9**	32	0	154	27	181	0	0	1	1	10	174	0	184	398
05:00 PM	25	0	9	**34**	0	176	**48**	**224**	0	0	**2**	2	6	**200**	0	**206**	**466**
05:15 PM	**27**	0	4	31	**3**	155	34	192	0	**1**	0	1	14	173	0	187	411
05:30 PM	24	0	5	29	1	**179**	38	218	**1**	1	1	**3**	**15**	181	**1**	197	447
Total Volume	99	0	27	126	4	664	147	815	1	2	4	7	45	728	1	774	1722
% App. Total	78.6	0	21.4		0.5	81.5	18		14.3	28.6	57.1		5.8	94.1	0.1		
PHF	.917	.000	.750	.926	.333	.927	.766	.910	.250	.500	.500	.583	.750	.910	.250	.939	.924

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley PM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 2



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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley PM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 3

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	23	0	**9**	32	0	154	27	181	0	0	1	1	10	174	0	184	
+15 mins.	25	0	9	**34**	0	176	**48**	**224**	0	0	**2**	2	6	**200**	0	**206**	
+30 mins.	**27**	0	4	31	**3**	155	34	192	0	**1**	0	1	14	173	0	187	
+45 mins.	24	0	5	29	1	**179**	38	218	**1**	1	1	**3**	**15**	181	**1**	197	
Total Volume	99	0	27	126	4	664	147	815	1	2	4	7	45	728	1	774	
% App. Total	78.6	0	21.4		0.5	81.5	18		14.3	28.6	57.1		5.8	94.1	0.1		
PHF	.917	.000	.750	.926	.333	.927	.766	.910	.250	.500	.500	.583	.750	.910	.250	.939	

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley PM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Willow Avenue Southbound					Valley Boulevard Westbound					Willow Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	1	6	0	0	7	0	10	10
04:15 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	5	0	0	5	0	7	7
04:30 PM	0	0	0	0	0	1	8	0	0	9	0	0	0	0	0	0	5	0	0	5	0	14	14
04:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	6	6
Total	0	0	0	0	0	1	14	1	0	16	0	0	0	0	0	1	20	0	0	21	0	37	37
05:00 PM	0	0	1	0	1	0	5	1	0	6	0	0	0	0	0	0	3	0	0	3	0	10	10
05:15 PM	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	1	0	0	1	0	6	6
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
05:45 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	1	1	0	0	2	0	4	4
Total	0	0	1	0	1	0	11	3	0	14	0	0	0	0	0	1	7	0	0	8	0	23	23
Grand Total	0	0	1	0	1	1	25	4	0	30	0	0	0	0	0	2	27	0	0	29	0	60	60
Apprch %	0	0	100			3.3	83.3	13.3			0	0	0			6.9	93.1	0					
Total %	0	0	1.7		1.7	1.7	41.7	6.7		50	0	0	0		0	3.3	45	0		48.3	0	100	

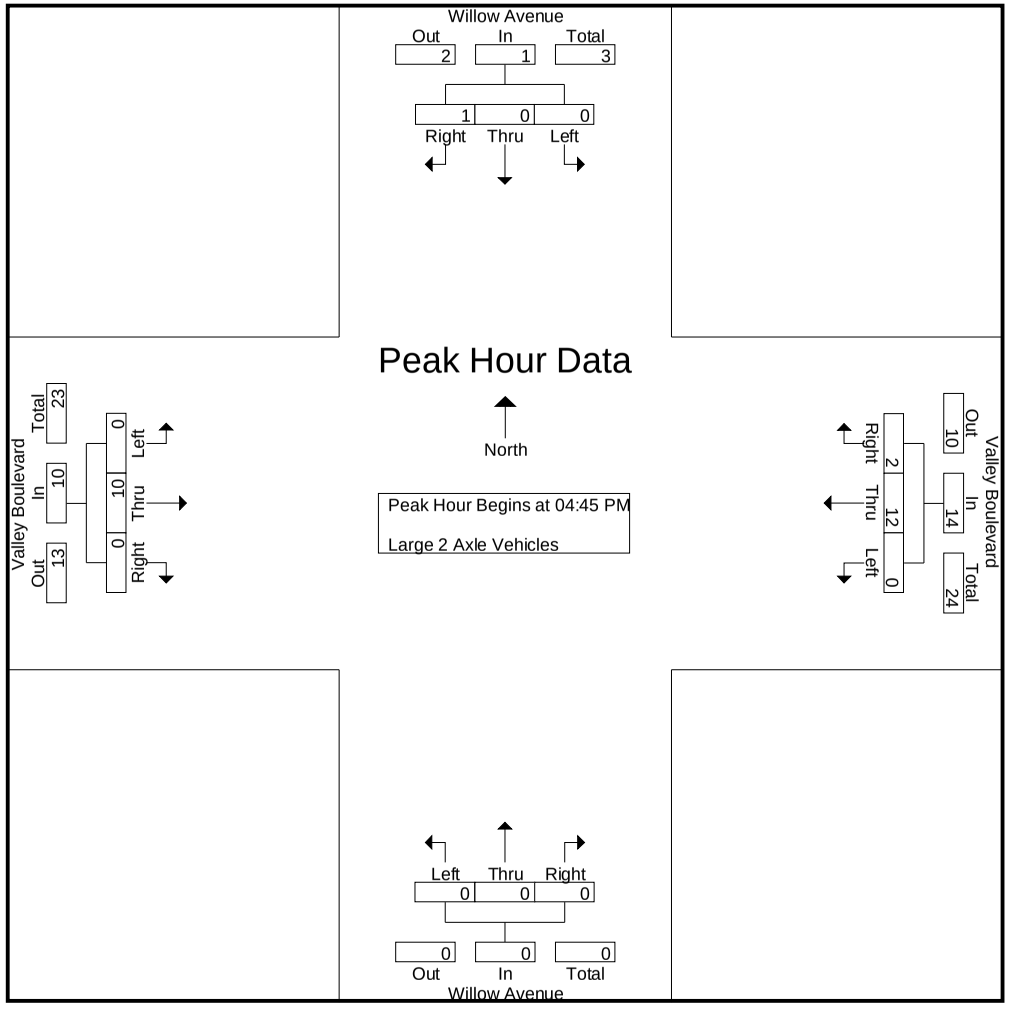
3.1-22

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	**4**	0	**4**	6
05:00 PM	0	0	**1**	**1**	0	**5**	**1**	**6**	0	0	0	0	0	3	0	3	**10**
05:15 PM	0	0	0	0	0	4	1	5	0	0	0	0	0	1	0	1	6
05:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
Total Volume	0	0	1	1	0	12	2	14	0	0	0	0	0	10	0	10	25
% App. Total	0	0	100		0	85.7	14.3		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.000	.600	.500	.583	.000	.000	.000	.000	.000	.625	.000	.625	.625

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley PM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 2



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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley PM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 3

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	**4**	0	**4**	
+15 mins.	0	0	**1**	**1**	0	**5**	**1**	**6**	0	0	0	0	0	3	0	3	
+30 mins.	0	0	0	0	0	4	1	5	0	0	0	0	0	1	0	1	
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	
Total Volume	0	0	1	1	0	12	2	14	0	0	0	0	0	10	0	10	
% App. Total	0	0	100		0	85.7	14.3		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.000	.600	.500	.583	.000	.000	.000	.000	.000	.625	.000	.625	

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley PM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

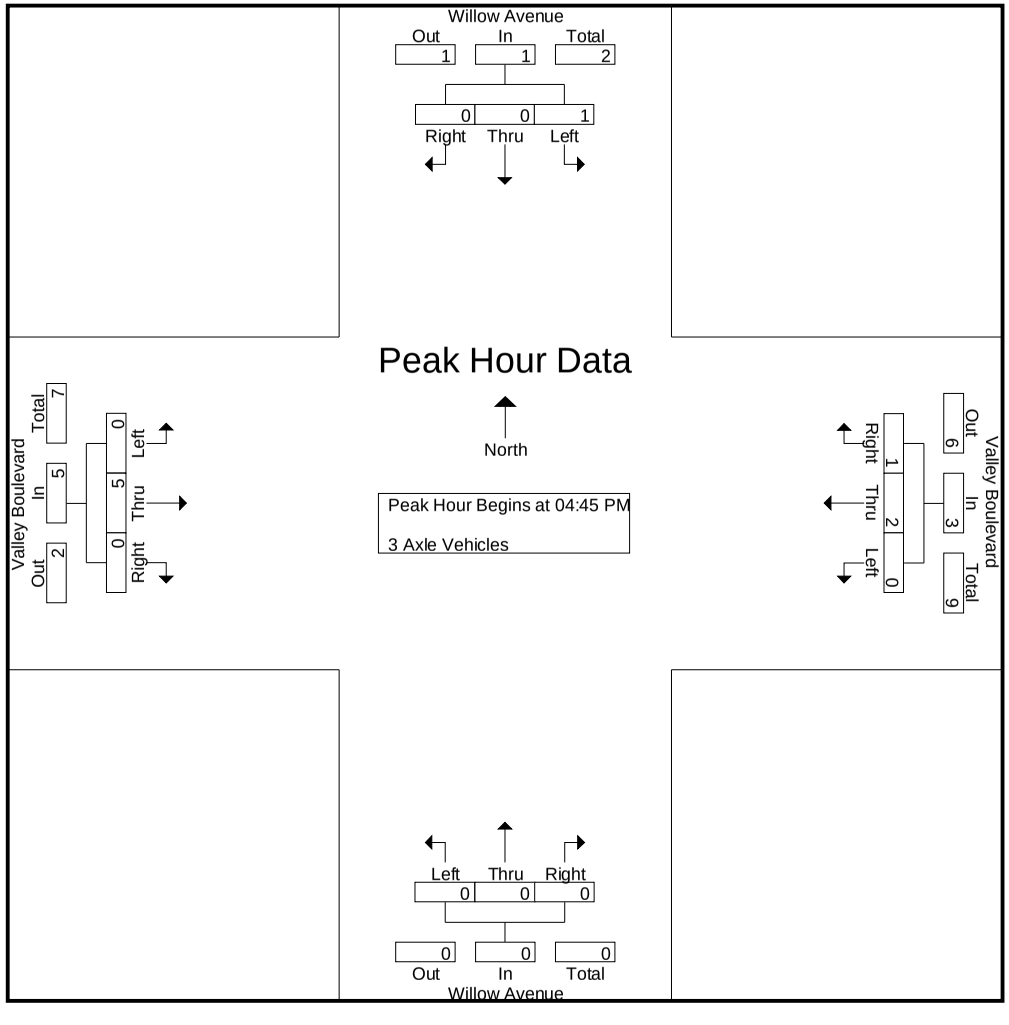
	Willow Avenue Southbound					Valley Boulevard Westbound					Willow Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	3	0	0	3	0	4	4
04:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	1	2	0	0	3	0	6	6
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
Total	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	1	7	0	0	8	0	14	14
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
05:15 PM	1	0	0	0	1	0	0	1	1	1	0	0	0	0	0	0	3	0	0	3	1	5	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	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	3	3
Total	2	0	0	0	2	0	2	1	1	3	0	0	0	0	0	0	5	0	0	5	1	10	11
Grand Total	2	0	0	0	2	0	7	2	1	9	0	0	0	0	0	1	12	0	0	13	1	24	25
Apprch %	100	0	0			0	77.8	22.2			0	0	0			7.7	92.3	0					
Total %	8.3	0	0		8.3	0	29.2	8.3		37.5	0	0	0		0	4.2	50	0		54.2	4	96	

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	1	0	1	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:15 PM	**1**	0	0	**1**	0	0	**1**	1	0	0	0	0	0	**3**	0	**3**	**5**
05:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	1	0	0	1	0	2	1	3	0	0	0	0	0	5	0	5	9
% App. Total	100	0	0		0	66.7	33.3		0	0	0		0	100	0		
PHF	.250	.000	.000	.250	.000	.500	.250	.750	.000	.000	.000	.000	.000	.417	.000	.417	.450

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley PM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 2



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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley PM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 3

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	1	0	1	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
+30 mins.	**1**	0	0	**1**	0	0	**1**	1	0	0	0	0	0	**3**	0	**3**	
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	
Total Volume	1	0	0	1	0	2	1	3	0	0	0	0	0	5	0	5	
% App. Total	100	0	0		0	66.7	33.3		0	0	0		0	100	0		
PHF	.250	.000	.000	.250	.000	.500	.250	.750	.000	.000	.000	.000	.000	.417	.000	.417	

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley PM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

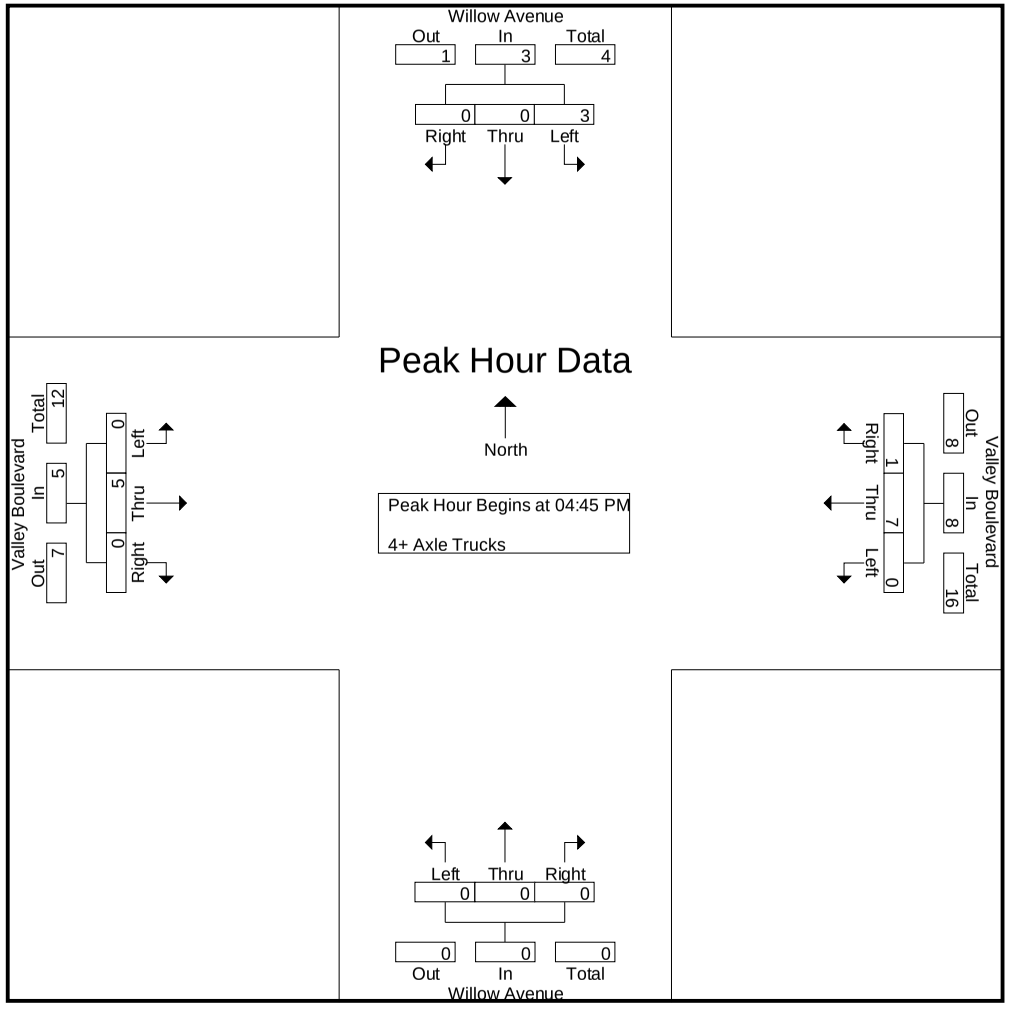
	Willow Avenue Southbound					Valley Boulevard Westbound					Willow Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
04:15 PM	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4	4
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
04:45 PM	2	0	0	0	2	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	5	5
Total	2	0	1	0	3	0	8	0	0	8	0	0	0	0	0	0	3	0	0	3	0	14	14
05:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	7	7
05:15 PM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	3	3
05:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	1	0	5	1	0	6	0	0	0	0	0	0	4	0	0	4	0	11	11
Grand Total	3	0	1	0	4	0	13	1	0	14	0	0	0	0	0	0	7	0	0	7	0	25	25
Apprch %	75	0	25			0	92.9	7.1			0	0	0			0	100	0					
Total %	12	0	4		16	0	52	4		56	0	0	0		0	0	28	0		28	0	100	

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**2**	0	0	**2**	0	2	0	2	0	0	0	0	0	1	0	1	5
05:00 PM	0	0	0	0	0	**3**	0	**3**	0	0	0	0	0	**4**	0	**4**	**7**
05:15 PM	0	0	0	0	0	2	**1**	3	0	0	0	0	0	0	0	0	3
05:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	3	0	0	3	0	7	1	8	0	0	0	0	0	5	0	5	16
% App. Total	100	0	0		0	87.5	12.5		0	0	0		0	100	0		
PHF	.375	.000	.000	.375	.000	.583	.250	.667	.000	.000	.000	.000	.000	.313	.000	.313	.571

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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley PM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 2



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

City of Rialto
N/S: Willow Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : 05_RLT_Willow_Valley PM
Site Code : 05119059
Start Date : 1/24/2019
Page No : 3

	Willow Avenue Southbound				Valley Boulevard Westbound				Willow Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	**2**	0	0	**2**	0	2	0	2	0	0	0	0	0	1	0	1	
+15 mins.	0	0	0	0	0	**3**	0	**3**	0	0	0	0	0	**4**	0	**4**	
+30 mins.	0	0	0	0	0	2	**1**	3	0	0	0	0	0	0	0	0	
+45 mins.	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	3	0	0	3	0	7	1	8	0	0	0	0	0	5	0	5	
% App. Total	100	0	0		0	87.5	12.5		0	0	0		0	100	0		
PHF	.375	.000	.000	.375	.000	.583	.250	.667	.000	.000	.000	.000	.000	.313	.000	.313	

Location: Rialto
N/S: Willow Avenue
E/W: Valley Boulevard

Date: 1/24/2019
Day: Thursday

PEDESTRIANS

	North Leg Willow Avenue Pedestrians	East Leg Valley Boulevard Pedestrians	South Leg Willow Avenue Pedestrians	West Leg Valley Boulevard Pedestrians	
7:00 AM	0	0	1	0	1
7:15 AM	1	0	0	0	1
7:30 AM	0	0	0	0	0
7:45 AM	0	0	1	0	1
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
TOTAL VOLUMES:	1	0	2	0	3

	North Leg Willow Avenue Pedestrians	East Leg Valley Boulevard Pedestrians	South Leg Willow Avenue Pedestrians	West Leg Valley Boulevard Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	1	0	1
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	2	0	2
5:15 PM	0	0	1	0	1
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	4	0	4

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Location: Rialto
N/S: Willow Avenue
E/W: Valley Boulevard

Date: 1/24/2019
Day: Thursday

BICYCLES

	Southbound Willow Avenue			Westbound Valley Boulevard			Northbound Willow Avenue			Eastbound Valley Boulevard			
	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	1	0	0	0	0	0	0	0	1
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	1	0	0	0	0	0	1	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	2	0	0	0	0	0	1	0	3

	Southbound Willow Avenue			Westbound Valley Boulevard			Northbound Willow Avenue			Eastbound Valley Boulevard			
	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	1	0	0	1	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
TOTAL VOLUMES:	0	0	1	0	1	1	0	0	0	0	3	0	6

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley AM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 1

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

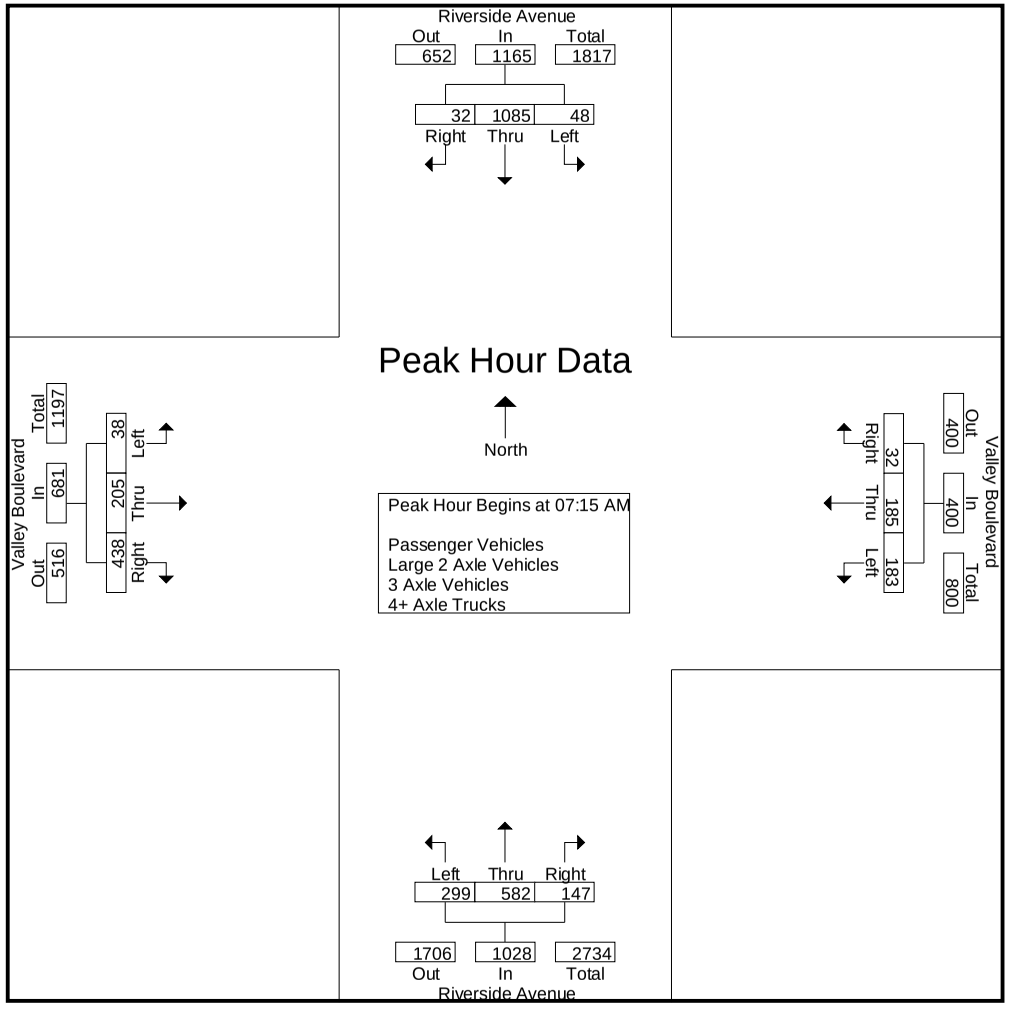
	Riverside Avenue Southbound					Valley Boulevard Westbound					Riverside Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	6	212	9	0	227	47	34	10	7	91	52	124	38	11	214	3	29	102	42	134	60	666	726
07:15 AM	6	325	6	2	337	47	45	13	9	105	85	151	32	5	268	6	37	106	55	149	71	859	930
07:30 AM	8	261	2	0	271	46	41	9	7	96	79	131	36	3	246	3	48	122	61	173	71	786	857
07:45 AM	16	282	14	2	312	53	68	6	4	127	81	160	49	12	290	17	77	116	58	210	76	939	1015
Total	36	1080	31	4	1147	193	188	38	27	419	297	566	155	31	1018	29	191	446	216	666	278	3250	3528
08:00 AM	18	217	10	2	245	37	31	4	3	72	54	140	30	7	224	12	43	94	46	149	58	690	748
08:15 AM	18	178	5	1	201	44	31	10	8	85	68	153	25	7	246	16	32	109	48	157	64	689	753
08:30 AM	10	157	12	1	179	35	41	8	5	84	62	139	28	6	229	14	23	81	43	118	55	610	665
08:45 AM	12	187	14	4	213	34	44	8	6	86	80	202	27	4	309	15	31	88	44	134	58	742	800
Total	58	739	41	8	838	150	147	30	22	327	264	634	110	24	1008	57	129	372	181	558	235	2731	2966
Grand Total	94	1819	72	12	1985	343	335	68	49	746	561	1200	265	55	2026	86	320	818	397	1224	513	5981	6494
Apprch %	4.7	91.6	3.6			46	44.9	9.1			27.7	59.2	13.1			7	26.1	66.8					
Total %	1.6	30.4	1.2		33.2	5.7	5.6	1.1		12.5	9.4	20.1	4.4		33.9	1.4	5.4	13.7		20.5	7.9	92.1	
Passenger Vehicles	90	1790	71		1963	296	316	62		719	522	1167	224		1955	80	299	776		1534	0	0	6171
% Passenger Vehicles	95.7	98.4	98.6	100	98.3	86.3	94.3	91.2	91.8	90.4	93	97.2	84.5	76.4	93.9	93	93.4	94.9	95.5	94.6	0	0	95
Large 2 Axle Vehicles	4	19	0		23	20	11	5		39	17	24	22		72	4	17	27		61	0	0	195
% Large 2 Axle Vehicles	4.3	1	0	0	1.2	5.8	3.3	7.4	6.1	4.9	3	2	8.3	16.4	3.5	4.7	5.3	3.3	3.3	3.8	0	0	3
3 Axle Vehicles	0	4	1		5	7	4	0		11	7	8	6		23	1	1	5		8	0	0	47
% 3 Axle Vehicles	0	0.2	1.4	0	0.3	2	1.2	0	0	1.4	1.2	0.7	2.3	3.6	1.1	1.2	0.3	0.6	0.3	0.5	0	0	0.7
4+ Axle Trucks	0	6	0		6	20	4	1		26	15	1	13		31	1	3	10		18	0	0	81
% 4+ Axle Trucks	0	0.3	0	0	0.3	5.8	1.2	1.5	2	3.3	2.7	0.1	4.9	3.6	1.5	1.2	0.9	1.2	1	1.1	0	0	1.2

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	6	**325**	6	**337**	47	45	**13**	105	**85**	151	32	268	6	37	106	149	859
07:30 AM	8	261	2	271	46	41	9	96	79	131	36	246	3	48	**122**	173	786
07:45 AM	16	282	**14**	312	**53**	**68**	6	**127**	81	**160**	**49**	**290**	**17**	**77**	116	**210**	**939**
08:00 AM	**18**	217	10	245	37	31	4	72	54	140	30	224	12	43	94	149	690
Total Volume	48	1085	32	1165	183	185	32	400	299	582	147	1028	38	205	438	681	3274
% App. Total	4.1	93.1	2.7		45.8	46.2	8		29.1	56.6	14.3		5.6	30.1	64.3		
PHF	.667	.835	.571	.864	.863	.680	.615	.787	.879	.909	.750	.886	.559	.666	.898	.811	.872

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley AM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley AM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 3

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:00 AM				07:15 AM				07:30 AM				
+0 mins.	6	**325**	6	**337**	47	34	10	91	**85**	151	32	268	3	48	**122**	173	
+15 mins.	8	261	2	271	47	45	**13**	105	79	131	36	246	**17**	**77**	116	**210**	
+30 mins.	16	282	**14**	312	46	41	9	96	81	**160**	**49**	**290**	12	43	94	149	
+45 mins.	**18**	217	10	245	**53**	**68**	6	**127**	54	140	30	224	16	32	109	157	
Total Volume	48	1085	32	1165	193	188	38	419	299	582	147	1028	48	200	441	689	
% App. Total	4.1	93.1	2.7		46.1	44.9	9.1		29.1	56.6	14.3		7	29	64		
PHF	.667	.835	.571	.864	.910	.691	.731	.825	.879	.909	.750	.886	.706	.649	.904	.820	

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley AM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 1

Groups Printed- Passenger Vehicles

	Riverside Avenue Southbound					Valley Boulevard Westbound					Riverside Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	5	208	8	0	221	45	33	9	6	87	48	120	32	9	200	3	27	97	38	127	53	635	688
07:15 AM	6	325	6	2	337	43	41	11	7	95	83	146	27	2	256	5	35	99	52	139	63	827	890
07:30 AM	7	258	2	0	267	40	39	9	7	88	76	126	33	3	235	3	46	117	58	166	68	756	824
07:45 AM	16	274	14	2	304	48	66	5	4	119	77	158	44	11	279	14	70	110	56	194	73	896	969
Total	34	1065	30	4	1129	176	179	34	24	389	284	550	136	25	970	25	178	423	204	626	257	3114	3371
08:00 AM	17	216	10	2	243	29	27	4	3	60	52	137	27	7	216	12	39	90	45	141	57	660	717
08:15 AM	18	172	5	1	195	38	31	9	7	78	57	148	15	3	220	16	31	104	47	151	58	644	702
08:30 AM	9	153	12	1	174	29	39	8	5	76	56	133	24	5	213	14	22	74	40	110	51	573	624
08:45 AM	12	184	14	4	210	24	40	7	6	71	73	199	22	2	294	13	29	85	43	127	55	702	757
Total	56	725	41	8	822	120	137	28	21	285	238	617	88	17	943	55	121	353	175	529	221	2579	2800
Grand Total	90	1790	71	12	1951	296	316	62	45	674	522	1167	224	42	1913	80	299	776	379	1155	478	5693	6171
Apprch %	4.6	91.7	3.6			43.9	46.9	9.2			27.3	61	11.7			6.9	25.9	67.2					
Total %	1.6	31.4	1.2		34.3	5.2	5.6	1.1		11.8	9.2	20.5	3.9		33.6	1.4	5.3	13.6		20.3	7.7	92.3	

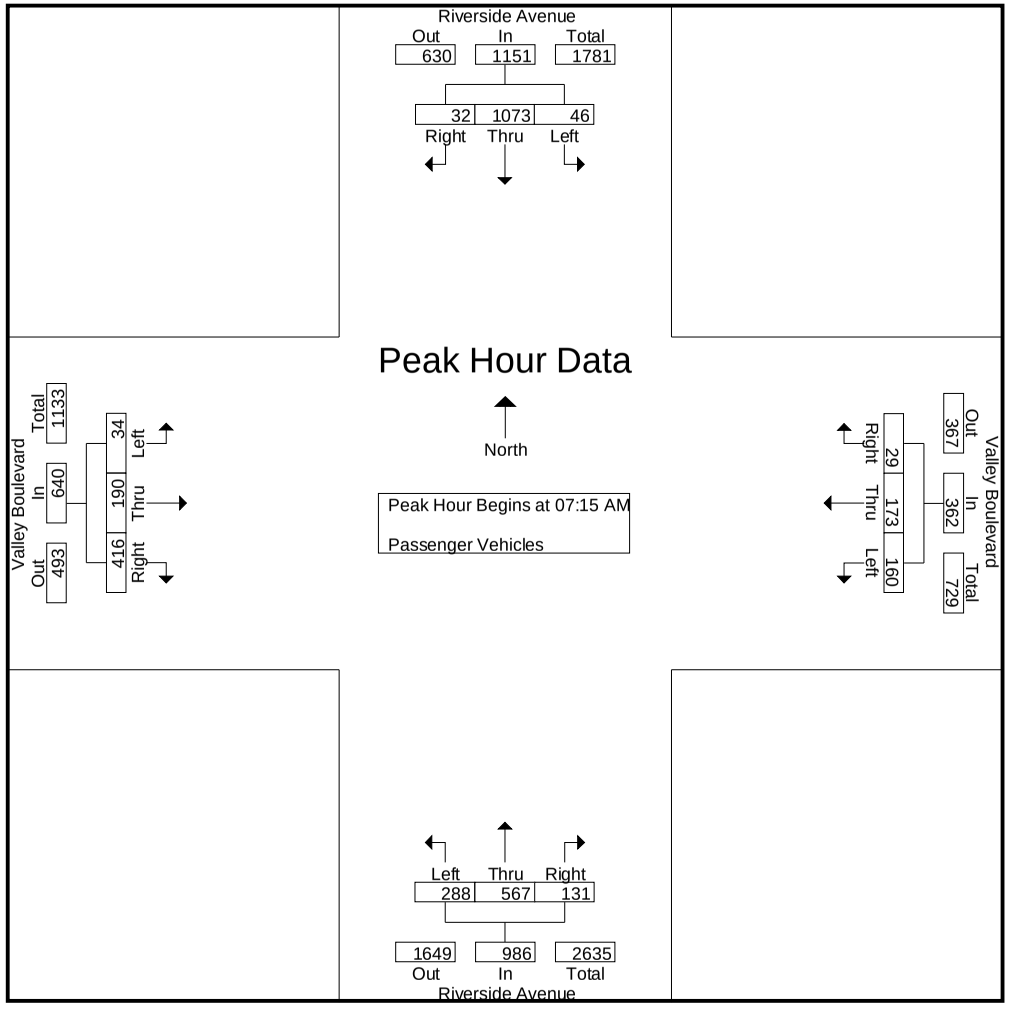
3.1-36

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	6	**325**	6	**337**	43	41	**11**	95	**83**	146	27	256	5	35	99	139	827
07:30 AM	7	258	2	267	40	39	9	88	76	126	33	235	3	46	**117**	166	756
07:45 AM	16	274	**14**	304	**48**	**66**	5	**119**	77	**158**	**44**	**279**	**14**	**70**	110	**194**	**896**
08:00 AM	**17**	216	10	243	29	27	4	60	52	137	27	216	12	39	90	141	660
Total Volume	46	1073	32	1151	160	173	29	362	288	567	131	986	34	190	416	640	3139
% App. Total	4	93.2	2.8		44.2	47.8	8		29.2	57.5	13.3		5.3	29.7	65		
PHF	.676	.825	.571	.854	.833	.655	.659	.761	.867	.897	.744	.884	.607	.679	.889	.825	.876

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley AM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley AM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 3

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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.	6	**325**	6	**337**	43	41	**11**	95	**83**	146	27	256	5	35	99	139	
+15 mins.	7	258	2	267	40	39	9	88	76	126	33	235	3	46	**117**	166	
+30 mins.	16	274	**14**	304	**48**	**66**	5	**119**	77	**158**	**44**	**279**	**14**	**70**	110	**194**	
+45 mins.	**17**	216	10	243	29	27	4	60	52	137	27	216	12	39	90	141	
Total Volume	46	1073	32	1151	160	173	29	362	288	567	131	986	34	190	416	640	
% App. Total	4	93.2	2.8		44.2	47.8	8		29.2	57.5	13.3		5.3	29.7	65		
PHF	.676	.825	.571	.854	.833	.655	.659	.761	.867	.897	.744	.884	.607	.679	.889	.825	

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley AM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

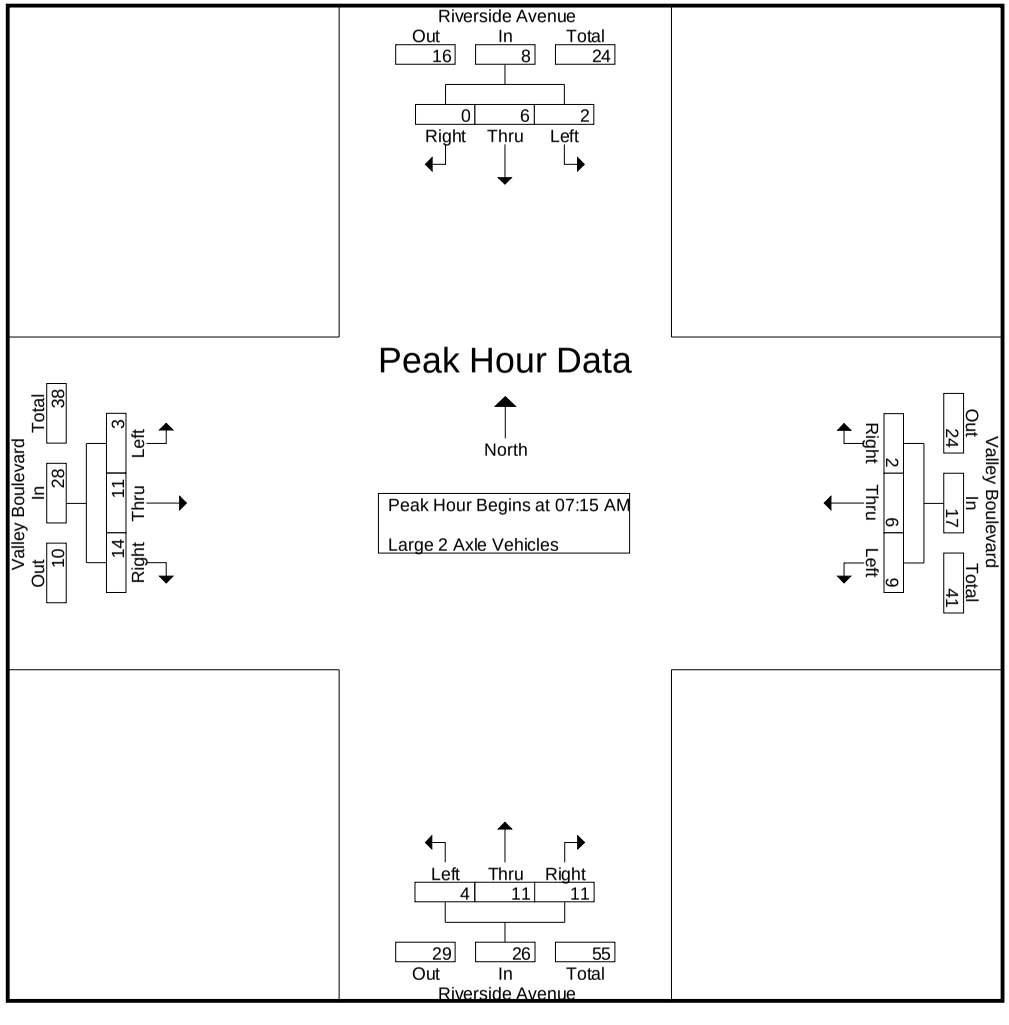
	Riverside Avenue Southbound					Valley Boulevard Westbound					Riverside Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	4	0	0	5	1	1	1	1	3	1	2	3	1	6	0	2	3	3	5	5	19	24
07:15 AM	0	0	0	0	0	2	1	1	1	4	1	4	4	3	9	1	1	4	2	6	6	19	25
07:30 AM	1	2	0	0	3	2	1	0	0	3	2	4	1	0	7	0	1	3	2	4	2	17	19
07:45 AM	0	3	0	0	3	1	1	1	0	3	1	2	4	1	7	2	5	5	2	12	3	25	28
Total	2	9	0	0	11	6	4	3	2	13	5	12	12	5	29	3	9	15	9	27	16	80	96
08:00 AM	1	1	0	0	2	4	3	0	0	7	0	1	2	0	3	0	4	2	0	6	0	18	18
08:15 AM	0	4	0	0	4	3	0	1	1	4	6	3	5	2	14	0	1	4	1	5	4	27	31
08:30 AM	1	2	0	0	3	2	0	0	0	2	4	5	2	1	11	0	1	4	2	5	3	21	24
08:45 AM	0	3	0	0	3	5	4	1	0	10	2	3	1	1	6	1	2	2	1	5	2	24	26
Total	2	10	0	0	12	14	7	2	1	23	12	12	10	4	34	1	8	12	4	21	9	90	99
Grand Total	4	19	0	0	23	20	11	5	3	36	17	24	22	9	63	4	17	27	13	48	25	170	195
Apprch %	17.4	82.6	0			55.6	30.6	13.9			27	38.1	34.9			8.3	35.4	56.2					
Total %	2.4	11.2	0		13.5	11.8	6.5	2.9		21.2	10	14.1	12.9		37.1	2.4	10	15.9		28.2	12.8	87.2	

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	2	1	**1**	4	1	**4**	**4**	**9**	1	1	4	6	19
07:30 AM	**1**	2	0	**3**	2	1	0	3	**2**	4	1	7	0	1	3	4	17
07:45 AM	0	**3**	0	3	1	1	1	3	1	2	4	7	**2**	**5**	**5**	**12**	**25**
08:00 AM	1	1	0	2	**4**	**3**	0	**7**	0	1	2	3	0	4	2	6	18
Total Volume	2	6	0	8	9	6	2	17	4	11	11	26	3	11	14	28	79
% App. Total	25	75	0		52.9	35.3	11.8		15.4	42.3	42.3		10.7	39.3	50		
PHF	.500	.500	.000	.667	.563	.500	.500	.607	.500	.688	.688	.722	.375	.550	.700	.583	.790

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley AM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley AM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 3

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	0	0	0	2	1	**1**	4	1	**4**	**4**	**9**	1	1	4	6	
+15 mins.	**1**	2	0	**3**	2	1	0	3	**2**	4	1	7	0	1	3	4	
+30 mins.	0	**3**	0	3	1	1	1	3	1	2	4	7	**2**	**5**	**5**	**12**	
+45 mins.	1	1	0	2	**4**	**3**	0	**7**	0	1	2	3	0	4	2	6	
Total Volume	2	6	0	8	9	6	2	17	4	11	11	26	3	11	14	28	
% App. Total	25	75	0		52.9	35.3	11.8		15.4	42.3	42.3		10.7	39.3	50		
PHF	.500	.500	.000	.667	.563	.500	.500	.607	.500	.688	.688	.722	.375	.550	.700	.583	

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley AM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

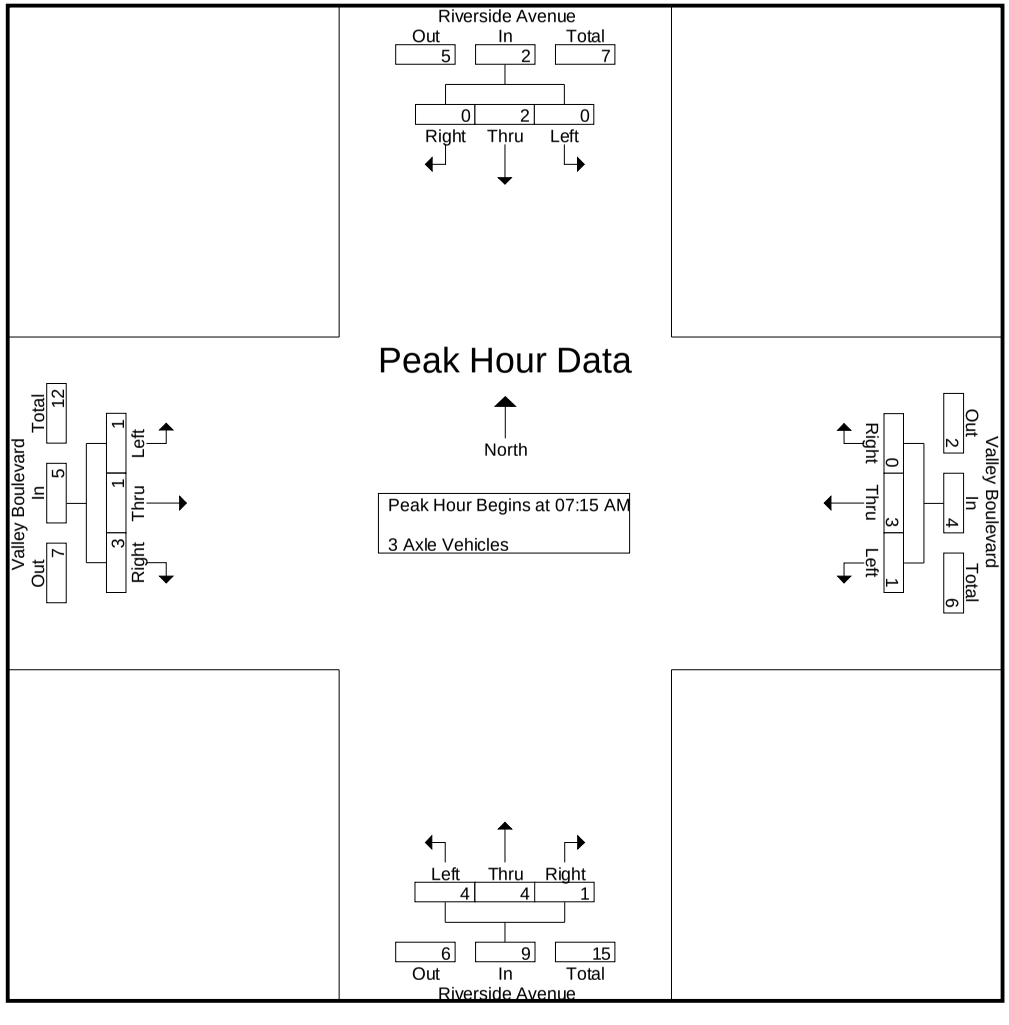
	Riverside Avenue Southbound					Valley Boulevard Westbound					Riverside Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	1	0	1	1	0	0	0	1	0	2	1	0	3	0	0	1	0	1	0	6	6
07:15 AM	0	0	0	0	0	0	1	0	0	1	1	1	1	0	3	0	0	1	0	1	0	5	5
07:30 AM	0	0	0	0	0	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0	0	3	3
07:45 AM	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	1	1	1	0	3	0	6	6
Total	0	2	1	0	3	2	2	0	0	4	2	4	2	0	8	1	1	3	0	5	0	20	20
08:00 AM	0	0	0	0	0	0	1	0	0	1	2	2	0	0	4	0	0	1	0	1	0	6	6
08:15 AM	0	1	0	0	1	3	0	0	0	3	0	2	1	1	3	0	0	0	0	0	1	7	8
08:30 AM	0	1	0	0	1	0	1	0	0	1	1	0	1	0	2	0	0	1	1	1	1	5	6
08:45 AM	0	0	0	0	0	2	0	0	0	2	2	0	2	1	4	0	0	0	0	0	1	6	7
Total	0	2	0	0	2	5	2	0	0	7	5	4	4	2	13	0	0	2	1	2	3	24	27
Grand Total	0	4	1	0	5	7	4	0	0	11	7	8	6	2	21	1	1	5	1	7	3	44	47
Apprch %	0	80	20			63.6	36.4	0			33.3	38.1	28.6			14.3	14.3	71.4					
Total %	0	9.1	2.3		11.4	15.9	9.1	0		25	15.9	18.2	13.6		47.7	2.3	2.3	11.4		15.9	6.4	93.6	

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	**1**	0	1	1	1	**1**	3	0	0	**1**	1	5
07:30 AM	0	0	0	0	**1**	1	0	**2**	0	1	0	1	0	0	0	0	3
07:45 AM	0	**2**	0	**2**	0	0	0	0	1	0	0	1	**1**	**1**	1	**3**	**6**
08:00 AM	0	0	0	0	0	1	0	1	**2**	**2**	0	**4**	0	0	1	1	6
Total Volume	0	2	0	2	1	3	0	4	4	4	1	9	1	1	3	5	20
% App. Total	0	100	0		25	75	0		44.4	44.4	11.1		20	20	60		
PHF	.000	.250	.000	.250	.250	.750	.000	.500	.500	.500	.250	.563	.250	.250	.750	.417	.833

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley AM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley AM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 3

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	0	0	0	0	**1**	0	1	1	1	**1**	3	0	0	**1**	1	
+15 mins.	0	0	0	0	**1**	1	0	**2**	0	1	0	1	0	0	0	0	
+30 mins.	0	**2**	0	**2**	0	0	0	0	1	0	0	1	**1**	**1**	1	**3**	
+45 mins.	0	0	0	0	0	1	0	1	**2**	**2**	0	**4**	0	0	1	1	
Total Volume	0	2	0	2	1	3	0	4	4	4	1	9	1	1	3	5	
% App. Total	0	100	0		25	75	0		44.4	44.4	11.1		20	20	60		
PHF	.000	.250	.000	.250	.250	.750	.000	.500	.500	.500	.250	.563	.250	.250	.750	.417	

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley AM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

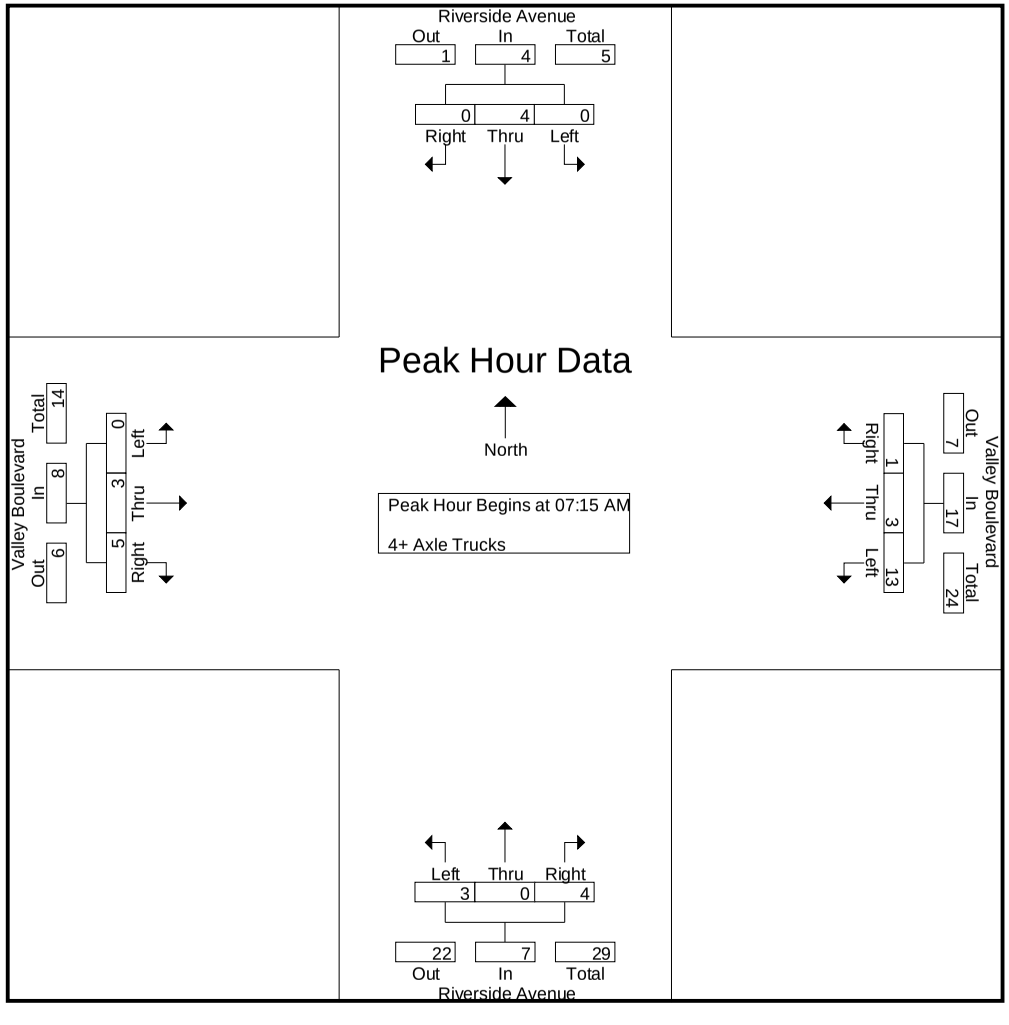
	Riverside Avenue Southbound					Valley Boulevard Westbound					Riverside Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	2	1	5	0	0	1	1	1	2	6	8
07:15 AM	0	0	0	0	0	2	2	1	1	5	0	0	0	0	0	0	1	2	1	3	2	8	10
07:30 AM	0	1	0	0	1	3	0	0	0	3	1	0	2	0	3	0	1	2	1	3	1	10	11
07:45 AM	0	3	0	0	3	4	1	0	0	5	2	0	1	0	3	0	1	0	0	1	0	12	12
Total	0	4	0	0	4	9	3	1	1	13	6	0	5	1	11	0	3	5	3	8	5	36	41
08:00 AM	0	0	0	0	0	4	0	0	0	4	0	0	1	0	1	0	0	1	1	1	1	6	7
08:15 AM	0	1	0	0	1	0	0	0	0	0	5	0	4	1	9	0	0	1	0	1	1	11	12
08:30 AM	0	1	0	0	1	4	1	0	0	5	1	1	1	0	3	0	0	2	0	2	0	11	11
08:45 AM	0	0	0	0	0	3	0	0	0	3	3	0	2	0	5	1	0	1	0	2	0	10	10
Total	0	2	0	0	2	11	1	0	0	12	9	1	8	1	18	1	0	5	1	6	2	38	40
Grand Total	0	6	0	0	6	20	4	1	1	25	15	1	13	2	29	1	3	10	4	14	7	74	81
Apprch %	0	100	0			80	16	4			51.7	3.4	44.8			7.1	21.4	71.4					
Total %	0	8.1	0		8.1	27	5.4	1.4		33.8	20.3	1.4	17.6		39.2	1.4	4.1	13.5		18.9	8.6	91.4	

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	2	**2**	**1**	**5**	0	0	0	0	0	**1**	**2**	**3**	8
07:30 AM	0	1	0	1	3	0	0	3	1	0	**2**	**3**	0	1	2	3	10
07:45 AM	0	**3**	0	**3**	**4**	1	0	5	**2**	0	1	3	0	1	0	1	**12**
08:00 AM	0	0	0	0	4	0	0	4	0	0	1	1	0	0	1	1	6
Total Volume	0	4	0	4	13	3	1	17	3	0	4	7	0	3	5	8	36
% App. Total	0	100	0		76.5	17.6	5.9		42.9	0	57.1		0	37.5	62.5		
PHF	.000	.333	.000	.333	.813	.375	.250	.850	.375	.000	.500	.583	.000	.750	.625	.667	.750

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley AM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley AM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 3

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	0	0	0	2	**2**	**1**	**5**	0	0	0	0	0	**1**	**2**	**3**	
+15 mins.	0	1	0	1	3	0	0	3	1	0	**2**	**3**	0	1	2	3	
+30 mins.	0	**3**	0	**3**	**4**	1	0	5	**2**	0	1	3	0	1	0	1	
+45 mins.	0	0	0	0	4	0	0	4	0	0	1	1	0	0	1	1	
Total Volume	0	4	0	4	13	3	1	17	3	0	4	7	0	3	5	8	
% App. Total	0	100	0		76.5	17.6	5.9		42.9	0	57.1		0	37.5	62.5		
PHF	.000	.333	.000	.333	.813	.375	.250	.850	.375	.000	.500	.583	.000	.750	.625	.667	

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley PM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 1

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

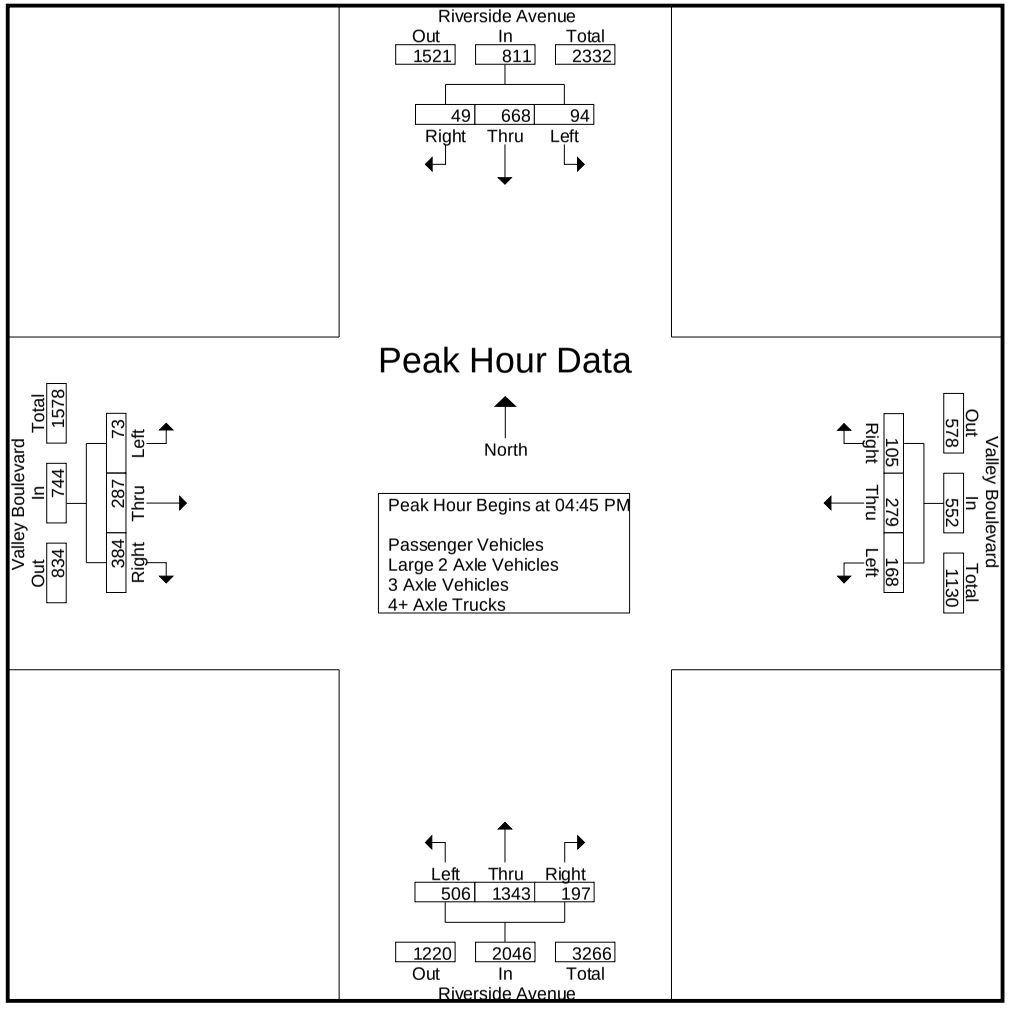
	Riverside Avenue Southbound					Valley Boulevard Westbound					Riverside Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	14	178	19	2	211	36	50	25	11	111	99	307	42	7	448	16	51	106	49	173	69	943	1012
04:15 PM	17	214	19	3	250	35	39	22	16	96	102	339	57	5	498	25	83	112	65	220	89	1064	1153
04:30 PM	14	176	11	6	201	54	66	25	11	145	98	295	39	8	432	21	54	110	58	185	83	963	1046
04:45 PM	28	166	12	1	206	37	60	30	15	127	113	331	53	7	497	15	74	92	60	181	83	1011	1094
Total	73	734	61	12	868	162	215	102	53	479	412	1272	191	27	1875	77	262	420	232	759	324	3981	4305
05:00 PM	22	179	8	3	209	36	67	29	14	132	109	335	51	5	495	18	62	82	40	162	62	998	1060
05:15 PM	21	167	15	4	203	51	86	24	14	161	162	335	48	11	545	21	93	105	49	219	78	1128	1206
05:30 PM	23	156	14	2	193	44	66	22	10	132	122	342	45	2	509	19	58	105	65	182	79	1016	1095
05:45 PM	16	203	22	1	241	34	61	25	14	120	116	305	37	3	458	23	50	94	44	167	62	986	1048
Total	82	705	59	10	846	165	280	100	52	545	509	1317	181	21	2007	81	263	386	198	730	281	4128	4409
Grand Total	155	1439	120	22	1714	327	495	202	105	1024	921	2589	372	48	3882	158	525	806	430	1489	605	8109	8714
Apprch %	9	84	7			31.9	48.3	19.7			23.7	66.7	9.6			10.6	35.3	54.1					
Total %	1.9	17.7	1.5		21.1	4	6.1	2.5		12.6	11.4	31.9	4.6		47.9	1.9	6.5	9.9		18.4	6.9	93.1	
Passenger Vehicles	150	1408	120		1700	306	482	197		1088	894	2557	342		3836	157	509	778		1858	0	0	8482
% Passenger Vehicles	96.8	97.8	100	100	97.9	93.6	97.4	97.5	98.1	96.4	97.1	98.8	91.9	89.6	97.6	99.4	97	96.5	96.3	96.8	0	0	97.3
Large 2 Axle Vehicles	5	25	0		30	6	9	5		22	15	25	8		49	1	12	11		32	0	0	133
% Large 2 Axle Vehicles	3.2	1.7	0	0	1.7	1.8	1.8	2.5	1.9	1.9	1.6	1	2.2	2.1	1.2	0.6	2.3	1.4	1.9	1.7	0	0	1.5
3 Axle Vehicles	0	4	0		4	2	2	0		4	4	4	4		12	0	1	6		10	0	0	30
% 3 Axle Vehicles	0	0.3	0	0	0.2	0.6	0.4	0	0	0.4	0.4	0.2	1.1	0	0.3	0	0.2	0.7	0.7	0.5	0	0	0.3
4+ Axle Trucks	0	2	0		2	13	2	0		15	8	3	18		33	0	3	11		19	0	0	69
% 4+ Axle Trucks	0	0.1	0	0	0.1	4	0.4	0	0	1.3	0.9	0.1	4.8	8.3	0.8	0	0.6	1.4	1.2	1	0	0	0.8

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**28**	166	12	206	37	60	**30**	127	113	331	**53**	497	15	74	92	181	1011
05:00 PM	22	**179**	8	**209**	36	67	29	132	109	335	51	495	18	62	82	162	998
05:15 PM	21	167	**15**	203	**51**	**86**	24	**161**	**162**	335	48	**545**	**21**	**93**	**105**	**219**	**1128**
05:30 PM	23	156	14	193	44	66	22	132	122	**342**	45	509	19	58	105	182	1016
Total Volume	94	668	49	811	168	279	105	552	506	1343	197	2046	73	287	384	744	4153
% App. Total	11.6	82.4	6		30.4	50.5	19		24.7	65.6	9.6		9.8	38.6	51.6		
PHF	.839	.933	.817	.970	.824	.811	.875	.857	.781	.982	.929	.939	.869	.772	.914	.849	.920

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley PM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley PM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 3

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:30 PM				04:45 PM				04:00 PM				
+0 mins.	14	178	**19**	211	**54**	66	25	145	113	331	**53**	497	16	51	106	173	
+15 mins.	17	**214**	19	**250**	37	60	**30**	127	109	335	51	495	**25**	**83**	**112**	**220**	
+30 mins.	14	176	11	201	36	67	29	132	**162**	335	48	**545**	21	54	110	185	
+45 mins.	**28**	166	12	206	51	**86**	24	**161**	122	**342**	45	509	15	74	92	181	
Total Volume	73	734	61	868	178	279	108	565	506	1343	197	2046	77	262	420	759	
% App. Total	8.4	84.6	7		31.5	49.4	19.1		24.7	65.6	9.6		10.1	34.5	55.3		
PHF	.652	.857	.803	.868	.824	.811	.900	.877	.781	.982	.929	.939	.770	.789	.938	.863	

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley PM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 1

Groups Printed- Passenger Vehicles

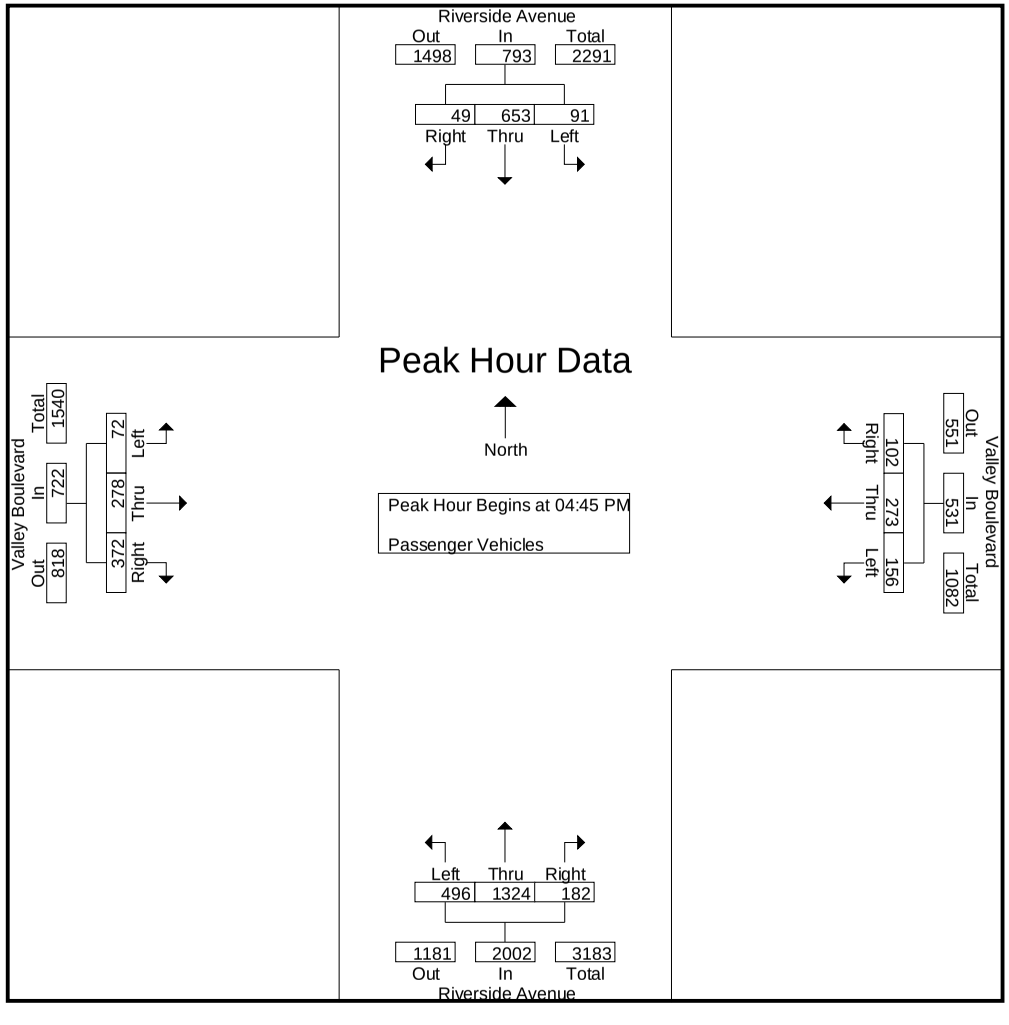
	Riverside Avenue Southbound					Valley Boulevard Westbound					Riverside Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	13	175	19	2	207	34	48	24	11	106	94	303	38	7	435	16	49	102	46	167	66	915	981
04:15 PM	17	207	19	3	243	32	37	22	16	91	98	337	51	5	486	25	80	107	61	212	85	1032	1117
04:30 PM	13	171	11	6	195	50	66	25	11	141	95	291	35	6	421	21	52	105	58	178	81	935	1016
04:45 PM	28	158	12	1	198	32	59	29	15	120	111	327	49	6	487	15	72	89	57	176	79	981	1060
Total	71	711	61	12	843	148	210	100	53	458	398	1258	173	24	1829	77	253	403	222	733	311	3863	4174
05:00 PM	22	177	8	3	207	34	66	29	14	129	108	333	48	4	489	18	60	79	38	157	59	982	1041
05:15 PM	20	164	15	4	199	48	84	22	12	154	159	328	45	10	532	20	90	103	48	213	74	1098	1172
05:30 PM	21	154	14	2	189	42	64	22	10	128	118	336	40	2	494	19	56	101	63	176	77	987	1064
05:45 PM	16	202	22	1	240	34	58	24	14	116	111	302	36	3	449	23	50	92	43	165	61	970	1031
Total	79	697	59	10	835	158	272	97	50	527	496	1299	169	19	1964	80	256	375	192	711	271	4037	4308
Grand Total	150	1408	120	22	1678	306	482	197	103	985	894	2557	342	43	3793	157	509	778	414	1444	582	7900	8482
Apprch %	8.9	83.9	7.2			31.1	48.9	20			23.6	67.4	9			10.9	35.2	53.9					
Total %	1.9	17.8	1.5		21.2	3.9	6.1	2.5		12.5	11.3	32.4	4.3		48	2	6.4	9.8		18.3	6.9	93.1	

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**28**	158	12	198	32	59	**29**	120	111	327	**49**	487	15	72	89	176	981
05:00 PM	22	**177**	8	**207**	34	66	29	129	108	333	48	489	18	60	79	157	982
05:15 PM	20	164	**15**	199	**48**	**84**	22	**154**	**159**	328	45	**532**	**20**	**90**	**103**	**213**	**1098**
05:30 PM	21	154	14	189	42	64	22	128	118	**336**	40	494	19	56	101	176	987
Total Volume	91	653	49	793	156	273	102	531	496	1324	182	2002	72	278	372	722	4048
% App. Total	11.5	82.3	6.2		29.4	51.4	19.2		24.8	66.1	9.1		10	38.5	51.5		
PHF	.813	.922	.817	.958	.813	.813	.879	.862	.780	.985	.929	.941	.900	.772	.903	.847	.922

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley PM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley PM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 3

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	**28**	158	12	198	32	59	**29**	120	111	327	**49**	487	15	72	89	176	
+15 mins.	22	**177**	8	**207**	34	66	29	129	108	333	48	489	18	60	79	157	
+30 mins.	20	164	**15**	199	**48**	**84**	22	**154**	**159**	328	45	**532**	**20**	**90**	**103**	**213**	
+45 mins.	21	154	14	189	42	64	22	128	118	**336**	40	494	19	56	101	176	
Total Volume	91	653	49	793	156	273	102	531	496	1324	182	2002	72	278	372	722	
% App. Total	11.5	82.3	6.2		29.4	51.4	19.2		24.8	66.1	9.1		10	38.5	51.5		
PHF	.813	.922	.817	.958	.813	.813	.879	.862	.780	.985	.929	.941	.900	.772	.903	.847	

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley PM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

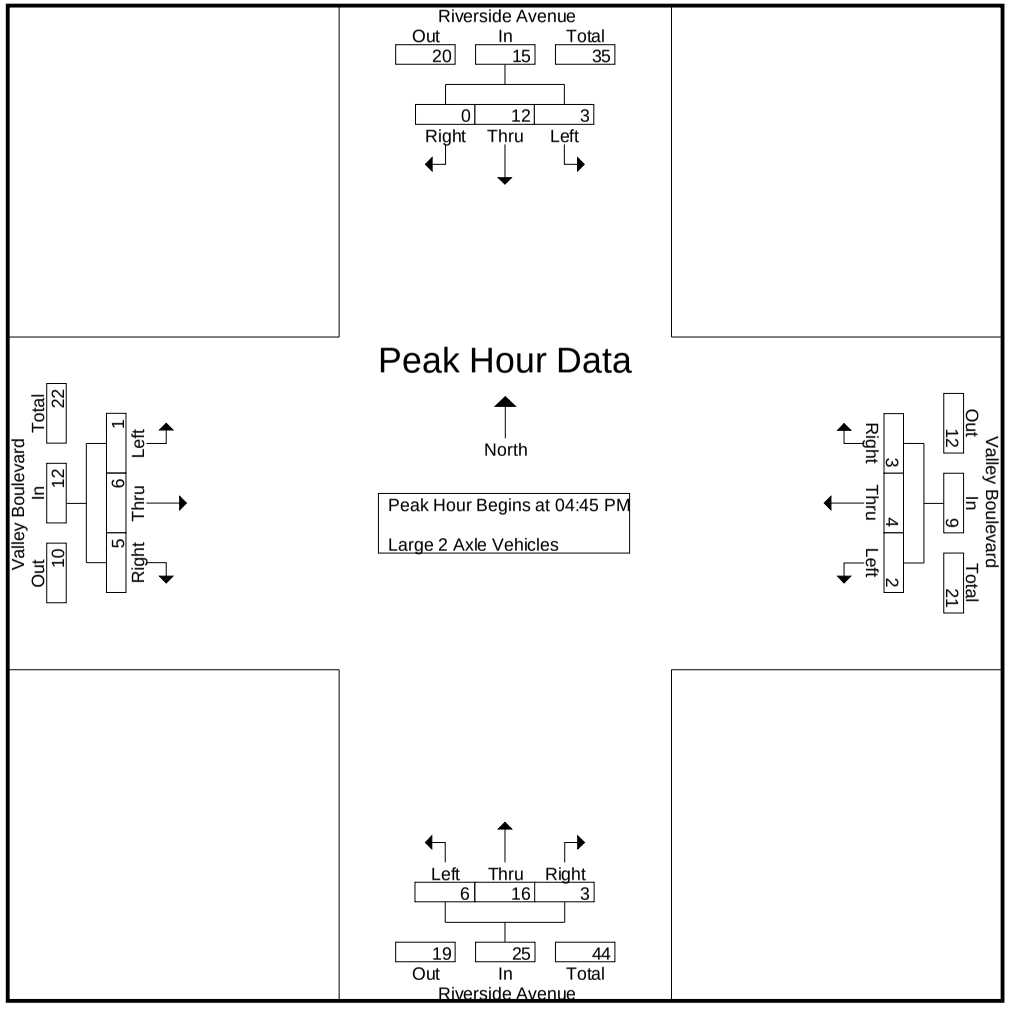
	Riverside Avenue Southbound					Valley Boulevard Westbound					Riverside Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	1	2	0	0	3	0	2	1	0	3	4	3	1	0	8	0	1	1	1	2	1	16	17
04:15 PM	0	5	0	0	5	1	2	0	0	3	3	2	3	0	8	0	3	2	2	5	2	21	23
04:30 PM	1	5	0	0	6	3	0	0	0	3	0	4	1	1	5	0	2	2	0	4	1	18	19
04:45 PM	0	7	0	0	7	1	1	1	0	3	1	3	2	0	6	0	2	1	1	3	1	19	20
Total	2	19	0	0	21	5	5	2	0	12	8	12	7	1	27	0	8	6	4	14	5	74	79
05:00 PM	0	2	0	0	2	1	1	0	0	2	1	2	0	0	3	0	0	2	2	2	2	9	11
05:15 PM	1	1	0	0	2	0	1	2	2	3	2	5	1	0	8	1	3	1	1	5	3	18	21
05:30 PM	2	2	0	0	4	0	1	0	0	1	2	6	0	0	8	0	1	1	1	2	1	15	16
05:45 PM	0	1	0	0	1	0	1	1	0	2	2	0	0	0	2	0	0	1	0	1	0	6	6
Total	3	6	0	0	9	1	4	3	2	8	7	13	1	0	21	1	4	5	4	10	6	48	54
Grand Total	5	25	0	0	30	6	9	5	2	20	15	25	8	1	48	1	12	11	8	24	11	122	133
Apprch %	16.7	83.3	0			30	45	25			31.2	52.1	16.7			4.2	50	45.8					
Total %	4.1	20.5	0		24.6	4.9	7.4	4.1		16.4	12.3	20.5	6.6		39.3	0.8	9.8	9		19.7	8.3	91.7	

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	**7**	0	**7**	**1**	**1**	1	**3**	1	3	**2**	6	0	2	1	3	**19**
05:00 PM	0	2	0	2	1	1	0	2	1	2	0	3	0	0	**2**	2	9
05:15 PM	1	1	0	2	0	1	**2**	3	**2**	5	1	**8**	**1**	**3**	1	**5**	18
05:30 PM	**2**	2	0	4	0	1	0	1	2	**6**	0	8	0	1	1	2	15
Total Volume	3	12	0	15	2	4	3	9	6	16	3	25	1	6	5	12	61
% App. Total	20	80	0		22.2	44.4	33.3		24	64	12		8.3	50	41.7		
PHF	.375	.429	.000	.536	.500	1.00	.375	.750	.750	.667	.375	.781	.250	.500	.625	.600	.803

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley PM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley PM
Site Code : 05119078
Start Date : 2/6/2019

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	**7**	0	**7**	**1**	**1**	1	**3**	1	3	**2**	6	0	2	1	3	
+15 mins.	0	2	0	2	1	1	0	2	1	2	0	3	0	0	**2**	2	
+30 mins.	1	1	0	2	0	1	**2**	3	**2**	5	1	**8**	**1**	**3**	1	**5**	
+45 mins.	**2**	2	0	4	0	1	0	1	2	**6**	0	8	0	1	1	2	
Total Volume	3	12	0	15	2	4	3	9	6	16	3	25	1	6	5	12	
% App. Total	20	80	0		22.2	44.4	33.3		24	64	12		8.3	50	41.7		
PHF	.375	.429	.000	.536	.500	1.000	.375	.750	.750	.667	.375	.781	.250	.500	.625	.600	

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley PM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

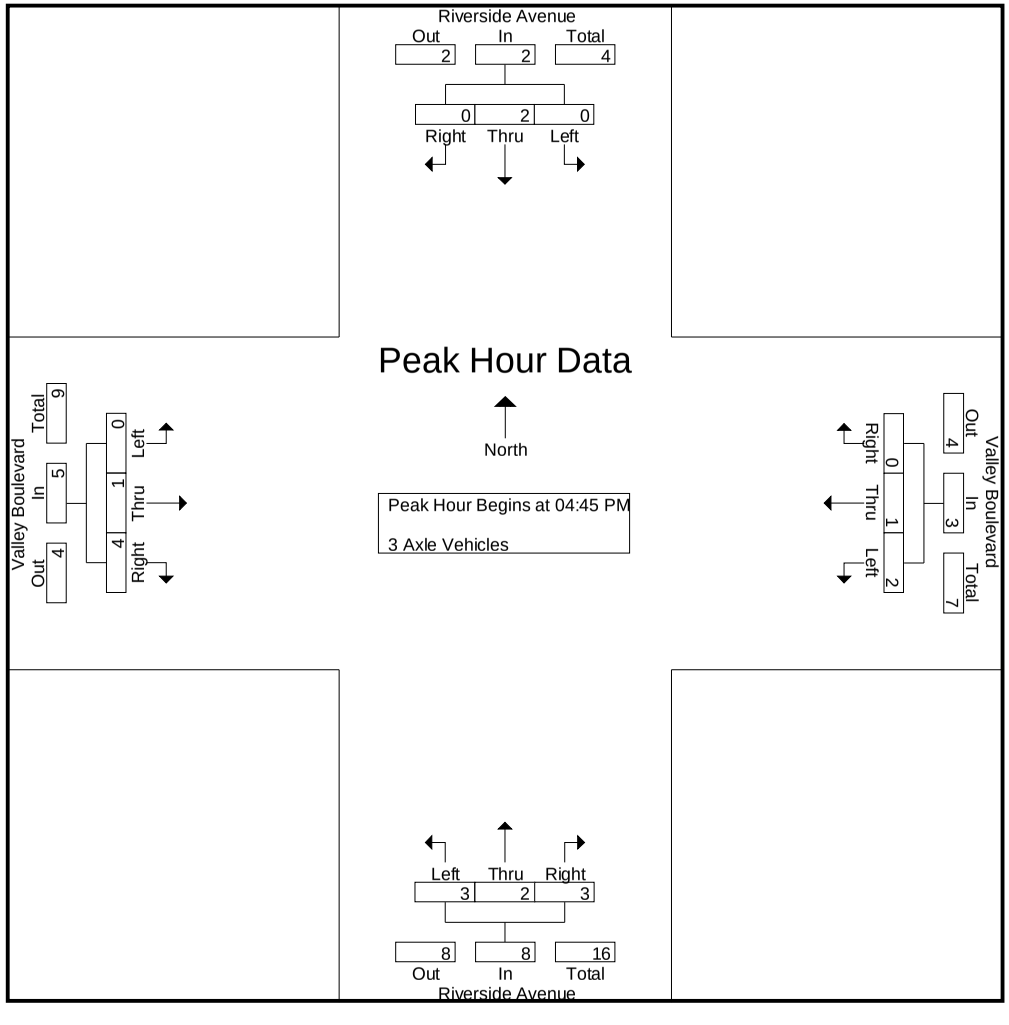
	Riverside Avenue Southbound					Valley Boulevard Westbound					Riverside Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	3	3
04:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	0	3	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
04:45 PM	0	1	0	0	1	1	0	0	0	1	1	1	0	0	2	0	0	2	2	2	2	6	8
Total	0	3	0	0	3	1	0	0	0	1	2	2	1	0	5	0	0	4	2	4	2	13	15
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	2	2
05:15 PM	0	1	0	0	1	0	1	0	0	1	0	1	1	0	2	0	0	1	0	1	0	5	5
05:30 PM	0	0	0	0	0	1	0	0	0	1	2	0	1	0	3	0	0	1	1	1	1	5	6
05:45 PM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	2
Total	0	1	0	0	1	1	2	0	0	3	2	2	3	0	7	0	1	2	1	3	1	14	15
Grand Total	0	4	0	0	4	2	2	0	0	4	4	4	4	0	12	0	1	6	3	7	3	27	30
Apprch %	0	100	0			50	50	0			33.3	33.3	33.3			0	14.3	85.7					
Total %	0	14.8	0		14.8	7.4	7.4	0		14.8	14.8	14.8	14.8		44.4	0	3.7	22.2		25.9	10	90	

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	**1**	0	**1**	**1**	0	0	**1**	1	**1**	0	2	0	0	**2**	**2**	**6**
05:00 PM	0	0	0	0	0	0	0	0	0	0	**1**	1	0	**1**	0	1	2
05:15 PM	0	1	0	1	0	**1**	0	1	0	1	1	2	0	0	1	1	5
05:30 PM	0	0	0	0	1	0	0	1	**2**	0	1	**3**	0	0	1	1	5
Total Volume	0	2	0	2	2	1	0	3	3	2	3	8	0	1	4	5	18
% App. Total	0	100	0		66.7	33.3	0		37.5	25	37.5		0	20	80		
PHF	.000	.500	.000	.500	.500	.250	.000	.750	.375	.500	.750	.667	.000	.250	.500	.625	.750

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley PM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley PM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 3

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	**1**	0	**1**	**1**	0	0	**1**	1	**1**	0	2	0	0	**2**	**2**	
+15 mins.	0	0	0	0	0	0	0	0	0	0	**1**	1	0	**1**	0	1	
+30 mins.	0	1	0	1	0	**1**	0	1	0	1	1	2	0	0	1	1	
+45 mins.	0	0	0	0	1	0	0	1	**2**	0	1	**3**	0	0	1	1	
Total Volume	0	2	0	2	2	1	0	3	3	2	3	8	0	1	4	5	
% App. Total	0	100	0		66.7	33.3	0		37.5	25	37.5		0	20	80		
PHF	.000	.500	.000	.500	.500	.250	.000	.750	.375	.500	.750	.667	.000	.250	.500	.625	

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley PM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

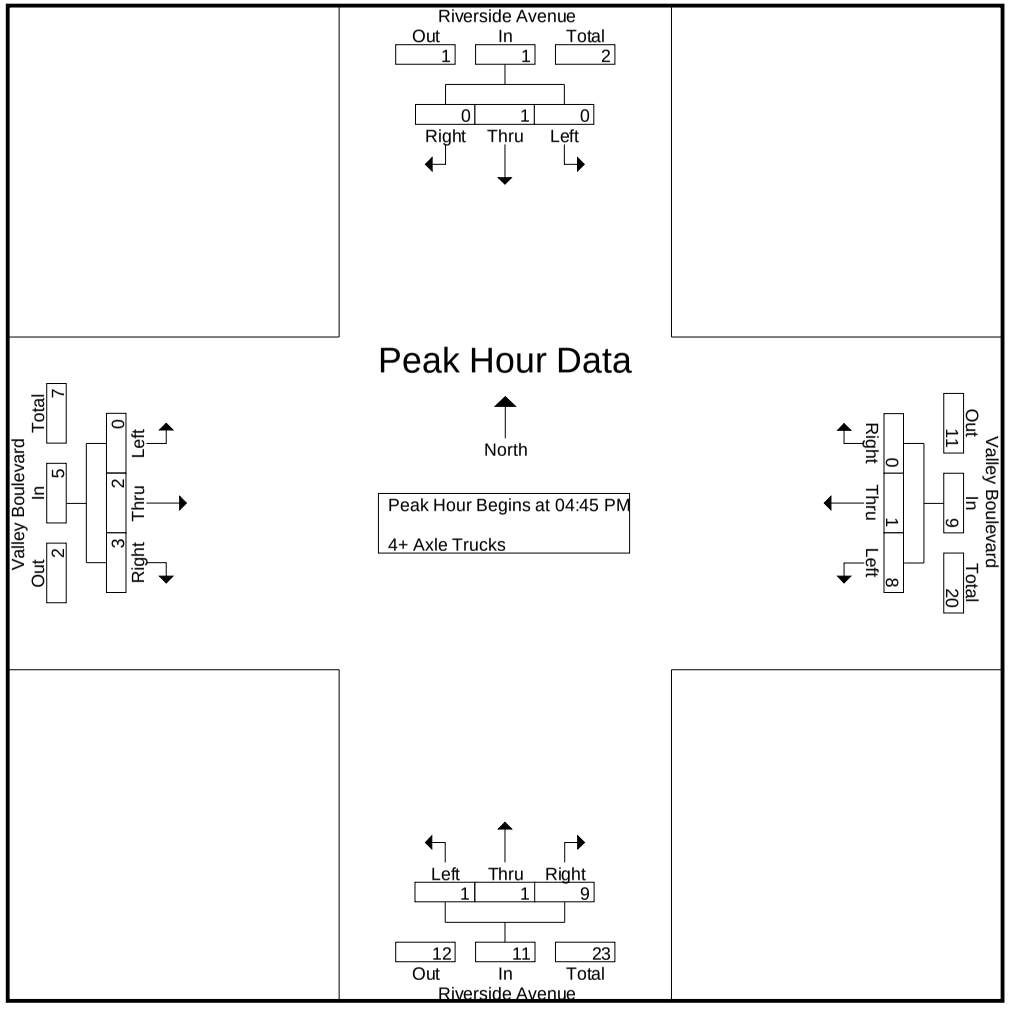
	Riverside Avenue Southbound					Valley Boulevard Westbound					Riverside Avenue Northbound					Valley Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	2	0	0	0	2	0	0	3	0	3	0	1	3	2	4	2	9	11
04:15 PM	0	1	0	0	1	2	0	0	0	2	1	0	2	0	3	0	0	2	2	2	2	8	10
04:30 PM	0	0	0	0	0	1	0	0	0	1	3	0	3	1	6	0	0	2	0	2	1	9	10
04:45 PM	0	0	0	0	0	3	0	0	0	3	0	0	2	1	2	0	0	0	0	0	1	5	6
Total	0	1	0	0	1	8	0	0	0	8	4	0	10	2	14	0	1	7	4	8	6	31	37
05:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	2	1	2	0	1	1	0	2	1	5	6
05:15 PM	0	1	0	0	1	3	0	0	0	3	1	1	1	1	3	0	0	0	0	0	1	7	8
05:30 PM	0	0	0	0	0	1	1	0	0	2	0	0	4	0	4	0	1	2	0	3	0	9	9
05:45 PM	0	0	0	0	0	0	1	0	0	1	3	2	1	0	6	0	0	1	1	1	1	8	9
Total	0	1	0	0	1	5	2	0	0	7	4	3	8	2	15	0	2	4	1	6	3	29	32
Grand Total	0	2	0	0	2	13	2	0	0	15	8	3	18	4	29	0	3	11	5	14	9	60	69
Apprch %	0	100	0			86.7	13.3	0			27.6	10.3	62.1			0	21.4	78.6					
Total %	0	3.3	0		3.3	21.7	3.3	0		25	13.3	5	30		48.3	0	5	18.3		23.3	13	87	

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	**3**	0	0	**3**	0	0	2	2	0	0	0	0	5
05:00 PM	0	0	0	0	1	0	0	1	0	0	2	2	0	**1**	1	2	5
05:15 PM	0	**1**	0	**1**	3	0	0	3	**1**	**1**	1	3	0	0	0	0	7
05:30 PM	0	0	0	0	1	**1**	0	2	0	0	**4**	**4**	0	1	**2**	**3**	**9**
Total Volume	0	1	0	1	8	1	0	9	1	1	9	11	0	2	3	5	26
% App. Total	0	100	0		88.9	11.1	0		9.1	9.1	81.8		0	40	60		
PHF	.000	.250	.000	.250	.667	.250	.000	.750	.250	.250	.563	.688	.000	.500	.375	.417	.722

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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley PM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard
Weather: Clear

File Name : RLT_Riverside_Valley PM
Site Code : 05119078
Start Date : 2/6/2019
Page No : 3

	Riverside Avenue Southbound				Valley Boulevard Westbound				Riverside Avenue Northbound				Valley Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	**3**	0	0	**3**	0	0	2	2	0	0	0	0	
+15 mins.	0	0	0	0	1	0	0	1	0	0	2	2	0	**1**	1	2	
+30 mins.	0	**1**	0	**1**	3	0	0	3	**1**	**1**	1	3	0	0	0	0	
+45 mins.	0	0	0	0	1	**1**	0	2	0	0	**4**	**4**	0	1	**2**	**3**	
Total Volume	0	1	0	1	8	1	0	9	1	1	9	11	0	2	3	5	
% App. Total	0	100	0		88.9	11.1	0		9.1	9.1	81.8		0	40	60		
PHF	.000	.250	.000	.250	.667	.250	.000	.750	.250	.250	.563	.688	.000	.500	.375	.417	

Location: Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard

Date: 2/6/2019
Day: Wednesday

PEDESTRIANS

	North Leg Riverside Avenue	East Leg Valley Boulevard	South Leg Riverside Avenue	West Leg Valley Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	1	1	1	4	7
7:15 AM	1	2	1	3	7
7:30 AM	0	0	1	2	3
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	1	1	2
8:45 AM	0	0	1	0	1
TOTAL VOLUMES:	2	3	5	10	20

	North Leg Riverside Avenue	East Leg Valley Boulevard	South Leg Riverside Avenue	West Leg Valley Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	2	2	0	4
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	2	1	3	0	6
5:00 PM	1	0	2	1	4
5:15 PM	0	2	2	1	5
5:30 PM	1	2	2	0	5
5:45 PM	0	1	1	0	2
TOTAL VOLUMES:	4	8	12	2	26

Location: Rialto
N/S: Riverside Avenue
E/W: Valley Boulevard

Date: 2/6/2019
Day: Wednesday

BICYCLES

	Southbound Riverside Avenue			Westbound Valley Boulevard			Northbound Riverside Avenue			Eastbound Valley Boulevard			
	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	1	0	1	0	0	0	0	0	0	0	0	2
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	1	0	0	0	0	1
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	1	0	1	0	0	0	1	0	0	0	0	3

	Southbound Riverside Avenue			Westbound Valley Boulevard			Northbound Riverside Avenue			Eastbound Valley Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
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	2	0	0	1	0	3

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

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

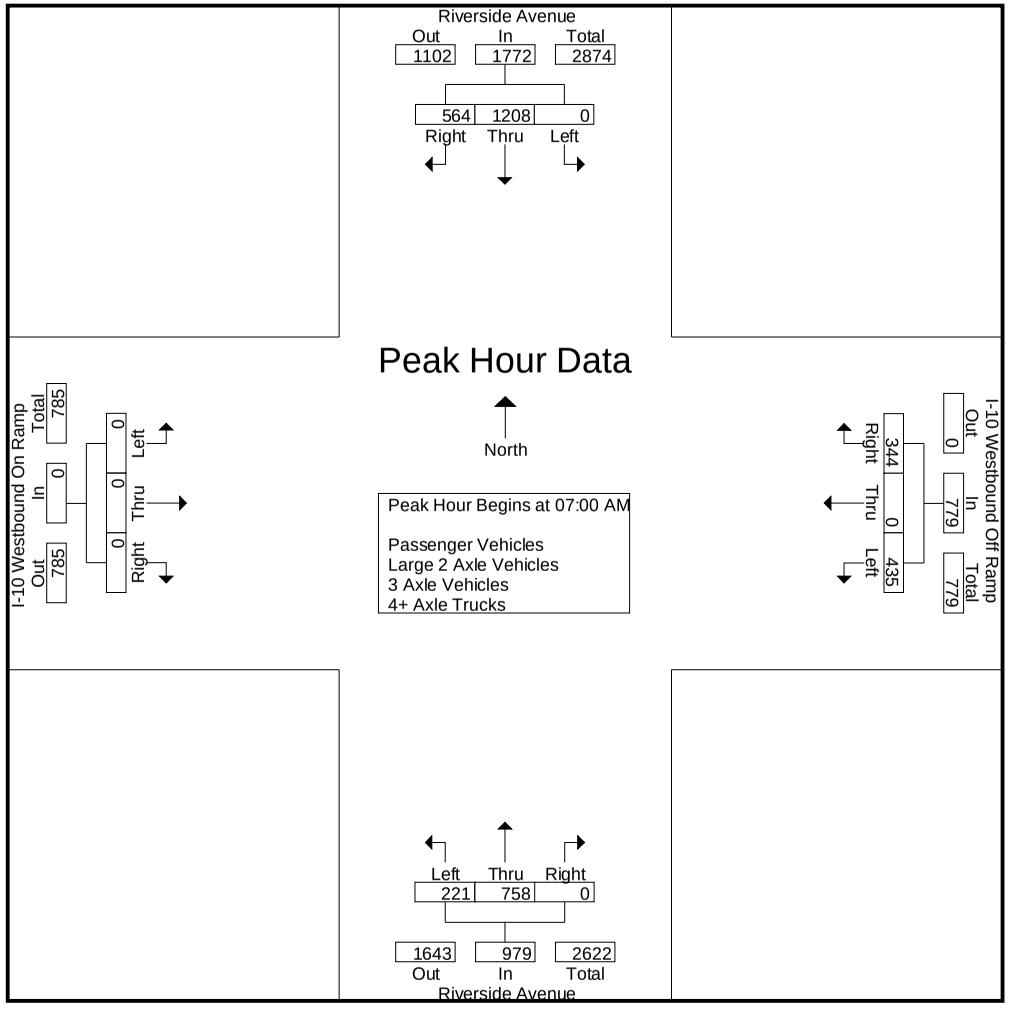
	Riverside Avenue Southbound					I-10 Westbound Off Ramp Westbound					Riverside Avenue Northbound					I-10 Westbound On Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	265	144	40	409	109	0	76	43	185	62	175	0	0	237	0	0	0	0	0	83	831	914
07:15 AM	0	316	158	38	474	98	0	88	56	186	53	174	0	0	227	0	0	0	0	0	94	887	981
07:30 AM	0	309	143	35	452	119	0	87	50	206	54	212	0	0	266	0	0	0	0	0	85	924	1009
07:45 AM	0	318	119	44	437	109	0	93	58	202	52	197	0	0	249	0	0	0	0	0	102	888	990
Total	0	1208	564	157	1772	435	0	344	207	779	221	758	0	0	979	0	0	0	0	0	364	3530	3894
08:00 AM	0	241	140	43	381	77	4	72	46	153	63	182	0	0	245	0	0	0	0	0	89	779	868
08:15 AM	0	238	113	36	351	101	0	72	44	173	58	173	0	0	231	0	0	0	0	0	80	755	835
08:30 AM	0	174	104	35	278	95	1	113	58	209	42	205	0	0	247	0	0	0	0	0	93	734	827
08:45 AM	0	184	102	26	286	86	1	112	61	199	59	172	0	0	231	0	0	0	0	0	87	716	803
Total	0	837	459	140	1296	359	6	369	209	734	222	732	0	0	954	0	0	0	0	0	349	2984	3333
Grand Total	0	2045	1023	297	3068	794	6	713	416	1513	443	1490	0	0	1933	0	0	0	0	0	713	6514	7227
Apprch %	0	66.7	33.3			52.5	0.4	47.1			22.9	77.1	0			0	0	0					
Total %	0	31.4	15.7		47.1	12.2	0.1	10.9		23.2	6.8	22.9	0		29.7	0	0	0		0	9.9	90.1	
Passenger Vehicles	0	1952	982		3224	574	3	683		1663	238	1401	0		1639	0	0	0		0	0	0	6526
% Passenger Vehicles	0	95.5	96	97.6	95.8	72.3	50	95.8	96.9	86.2	53.7	94	0	0	84.8	0	0	0	0	0	0	0	90.3
Large 2 Axle Vehicles	0	46	17		67	36	2	17		59	48	41	0		89	0	0	0		0	0	0	215
% Large 2 Axle Vehicles	0	2.2	1.7	1.3	2	4.5	33.3	2.4	1	3.1	10.8	2.8	0	0	4.6	0	0	0	0	0	0	0	3
3 Axle Vehicles	0	25	3		29	48	0	5		56	39	16	0		55	0	0	0		0	0	0	140
% 3 Axle Vehicles	0	1.2	0.3	0.3	0.9	6	0	0.7	0.7	2.9	8.8	1.1	0	0	2.8	0	0	0	0	0	0	0	1.9
4+ Axle Trucks	0	22	21		45	136	1	8		151	118	32	0		150	0	0	0		0	0	0	346
% 4+ Axle Trucks	0	1.1	2.1	0.7	1.3	17.1	16.7	1.1	1.4	7.8	26.6	2.1	0	0	7.8	0	0	0	0	0	0	0	4.8

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	265	144	409	109	0	76	185	**62**	175	0	237	0	0	0	0	831
07:15 AM	0	316	**158**	**474**	98	0	88	186	53	174	0	227	0	0	0	0	887
07:30 AM	0	309	143	452	**119**	0	87	**206**	54	**212**	0	**266**	0	0	0	0	**924**
07:45 AM	0	**318**	119	437	109	0	**93**	202	52	197	0	249	0	0	0	0	888
Total Volume	0	1208	564	1772	435	0	344	779	221	758	0	979	0	0	0	0	3530
% App. Total	0	68.2	31.8		55.8	0	44.2		22.6	77.4	0		0	0	0		
PHF	.000	.950	.892	.935	.914	.000	.925	.945	.891	.894	.000	.920	.000	.000	.000	.000	.955

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 3

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:30 AM				07:00 AM				
+0 mins.	0	265	144	409	109	0	76	185	54	**212**	0	**266**	0	0	0	0	
+15 mins.	0	316	**158**	**474**	98	0	88	186	52	197	0	249	0	0	0	0	
+30 mins.	0	309	143	452	**119**	0	87	**206**	**63**	182	0	245	0	0	0	0	
+45 mins.	0	**318**	119	437	109	0	**93**	202	58	173	0	231	0	0	0	0	
Total Volume	0	1208	564	1772	435	0	344	779	227	764	0	991	0	0	0	0	
% App. Total	0	68.2	31.8		55.8	0	44.2		22.9	77.1	0		0	0	0		
PHF	.000	.950	.892	.935	.914	.000	.925	.945	.901	.901	.000	.931	.000	.000	.000	.000	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- Passenger Vehicles

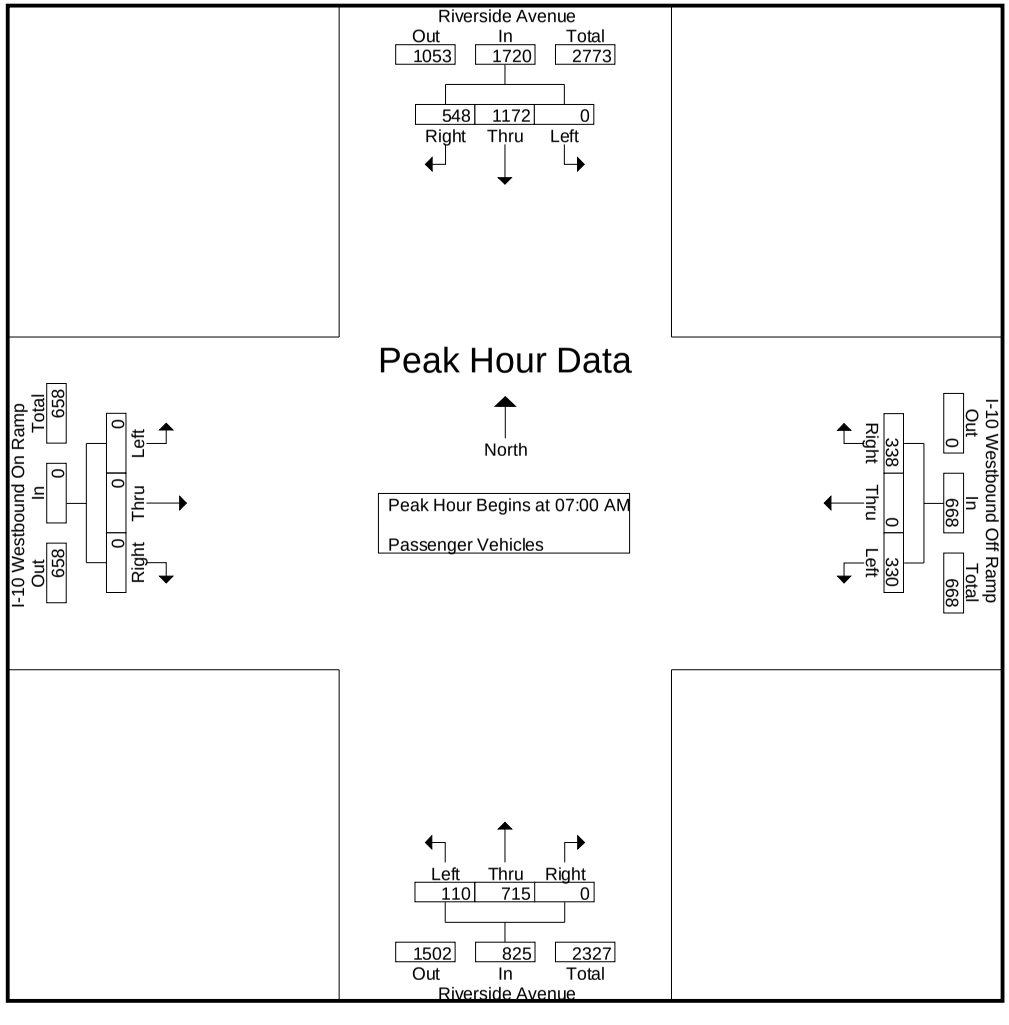
	Riverside Avenue Southbound					I-10 Westbound Off Ramp Westbound					Riverside Avenue Northbound					I-10 Westbound On Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	255	138	39	393	78	0	75	42	153	34	165	0	0	199	0	0	0	0	0	81	745	826
07:15 AM	0	305	152	37	457	78	0	87	56	165	24	165	0	0	189	0	0	0	0	0	93	811	904
07:30 AM	0	304	141	35	445	92	0	86	50	178	22	202	0	0	224	0	0	0	0	0	85	847	932
07:45 AM	0	308	117	43	425	82	0	90	56	172	30	183	0	0	213	0	0	0	0	0	99	810	909
Total	0	1172	548	154	1720	330	0	338	204	668	110	715	0	0	825	0	0	0	0	0	358	3213	3571
08:00 AM	0	231	132	43	363	48	2	67	44	117	34	171	0	0	205	0	0	0	0	0	87	685	772
08:15 AM	0	224	111	36	335	66	0	66	41	132	36	161	0	0	197	0	0	0	0	0	77	664	741
08:30 AM	0	160	100	33	260	69	1	105	53	175	21	190	0	0	211	0	0	0	0	0	86	646	732
08:45 AM	0	165	91	24	256	61	0	107	61	168	37	164	0	0	201	0	0	0	0	0	85	625	710
Total	0	780	434	136	1214	244	3	345	199	592	128	686	0	0	814	0	0	0	0	0	335	2620	2955
Grand Total	0	1952	982	290	2934	574	3	683	403	1260	238	1401	0	0	1639	0	0	0	0	0	693	5833	6526
Apprch %	0	66.5	33.5			45.6	0.2	54.2			14.5	85.5	0			0	0	0					
Total %	0	33.5	16.8		50.3	9.8	0.1	11.7		21.6	4.1	24	0		28.1	0	0	0		0	10.6	89.4	

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	255	138	393	78	0	75	153	**34**	165	0	199	0	0	0	0	745
07:15 AM	0	305	**152**	**457**	78	0	87	165	24	165	0	189	0	0	0	0	811
07:30 AM	0	304	141	445	**92**	0	86	**178**	22	**202**	0	**224**	0	0	0	0	**847**
07:45 AM	0	**308**	117	425	82	0	**90**	172	30	183	0	213	0	0	0	0	810
Total Volume	0	1172	548	1720	330	0	338	668	110	715	0	825	0	0	0	0	3213
% App. Total	0	68.1	31.9		49.4	0	50.6		13.3	86.7	0		0	0	0		
PHF	.000	.951	.901	.941	.897	.000	.939	.938	.809	.885	.000	.921	.000	.000	.000	.000	.948

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 3

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	255	138	393	78	0	75	153	**34**	165	0	199	0	0	0	0	
+15 mins.	0	305	**152**	**457**	78	0	87	165	24	165	0	189	0	0	0	0	
+30 mins.	0	304	141	445	**92**	0	86	**178**	22	**202**	0	**224**	0	0	0	0	
+45 mins.	0	**308**	117	425	82	0	**90**	172	30	183	0	213	0	0	0	0	
Total Volume	0	1172	548	1720	330	0	338	668	110	715	0	825	0	0	0	0	
% App. Total	0	68.1	31.9		49.4	0	50.6		13.3	86.7	0		0	0	0		
PHF	.000	.951	.901	.941	.897	.000	.939	.938	.809	.885	.000	.921	.000	.000	.000	.000	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

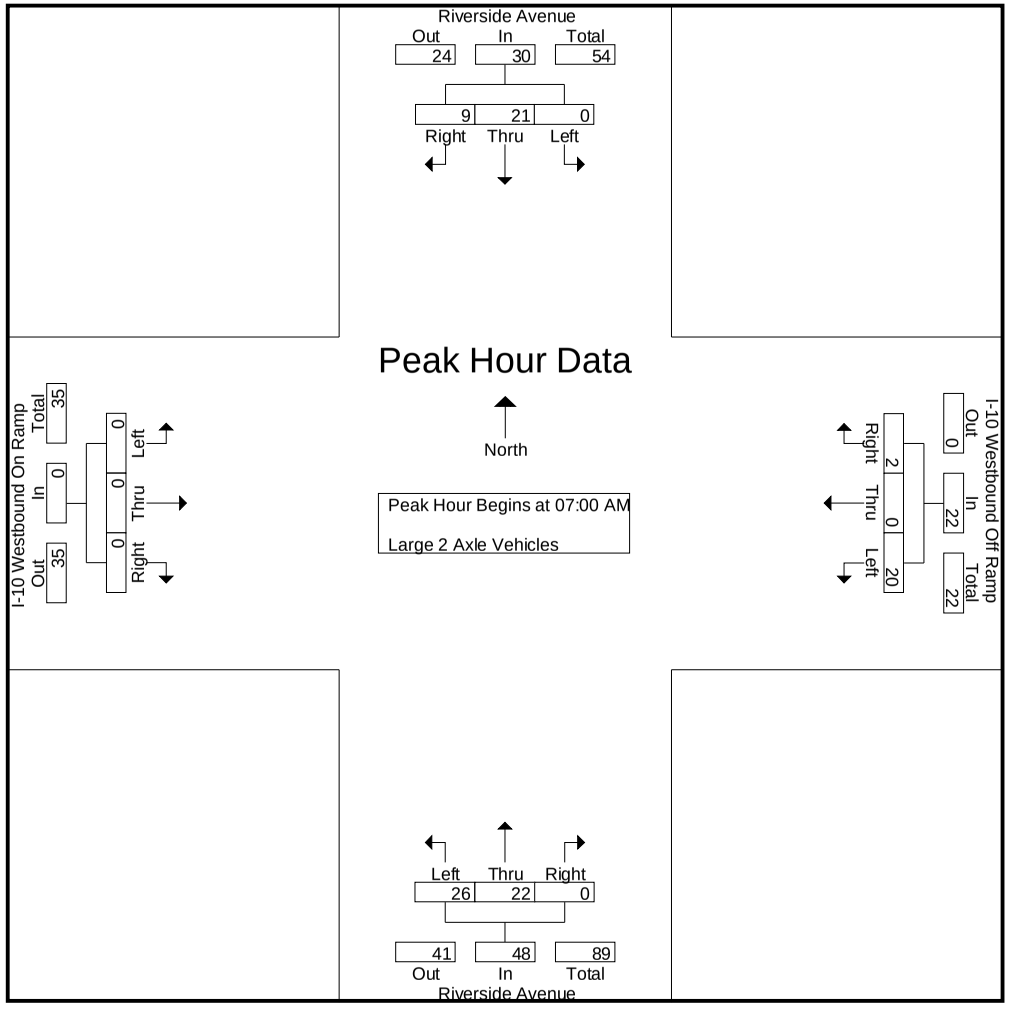
	Riverside Avenue Southbound					I-10 Westbound Off Ramp Westbound					Riverside Avenue Northbound					I-10 Westbound On Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	8	3	1	11	8	0	0	0	8	4	7	0	0	11	0	0	0	0	0	1	30	31
07:15 AM	0	7	5	1	12	2	0	0	0	2	9	4	0	0	13	0	0	0	0	0	1	27	28
07:30 AM	0	1	0	0	1	4	0	1	0	5	8	6	0	0	14	0	0	0	0	0	0	20	20
07:45 AM	0	5	1	1	6	6	0	1	0	7	5	5	0	0	10	0	0	0	0	0	1	23	24
Total	0	21	9	3	30	20	0	2	0	22	26	22	0	0	48	0	0	0	0	0	3	100	103
08:00 AM	0	5	5	0	10	5	1	4	1	10	10	6	0	0	16	0	0	0	0	0	1	36	37
08:15 AM	0	7	1	0	8	5	0	4	2	9	8	3	0	0	11	0	0	0	0	0	2	28	30
08:30 AM	0	5	1	1	6	3	0	3	1	6	2	4	0	0	6	0	0	0	0	0	2	18	20
08:45 AM	0	8	1	0	9	3	1	4	0	8	2	6	0	0	8	0	0	0	0	0	0	25	25
Total	0	25	8	1	33	16	2	15	4	33	22	19	0	0	41	0	0	0	0	0	5	107	112
Grand Total	0	46	17	4	63	36	2	17	4	55	48	41	0	0	89	0	0	0	0	0	8	207	215
Apprch %	0	73	27			65.5	3.6	30.9			53.9	46.1	0			0	0	0					
Total %	0	22.2	8.2		30.4	17.4	1	8.2		26.6	23.2	19.8	0		43	0	0	0		0	3.7	96.3	

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	**8**	3	11	**8**	0	0	**8**	4	**7**	0	11	0	0	0	0	**30**
07:15 AM	0	7	**5**	**12**	2	0	0	2	**9**	4	0	13	0	0	0	0	27
07:30 AM	0	1	0	1	4	0	**1**	5	8	6	0	**14**	0	0	0	0	20
07:45 AM	0	5	1	6	6	0	1	7	5	5	0	10	0	0	0	0	23
Total Volume	0	21	9	30	20	0	2	22	26	22	0	48	0	0	0	0	100
% App. Total	0	70	30		90.9	0	9.1		54.2	45.8	0		0	0	0		
PHF	.000	.656	.450	.625	.625	.000	.500	.688	.722	.786	.000	.857	.000	.000	.000	.000	.833

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 3

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	**8**	3	11	**8**	0	0	**8**	4	**7**	0	11	0	0	0	0	
+15 mins.	0	7	**5**	**12**	2	0	0	2	**9**	4	0	13	0	0	0	0	
+30 mins.	0	1	0	1	4	0	**1**	5	8	6	0	**14**	0	0	0	0	
+45 mins.	0	5	1	6	6	0	1	7	5	5	0	10	0	0	0	0	
Total Volume	0	21	9	30	20	0	2	22	26	22	0	48	0	0	0	0	
% App. Total	0	70	30		90.9	0	9.1		54.2	45.8	0		0	0	0		
PHF	.000	.656	.450	.625	.625	.000	.500	.688	.722	.786	.000	.857	.000	.000	.000	.000	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

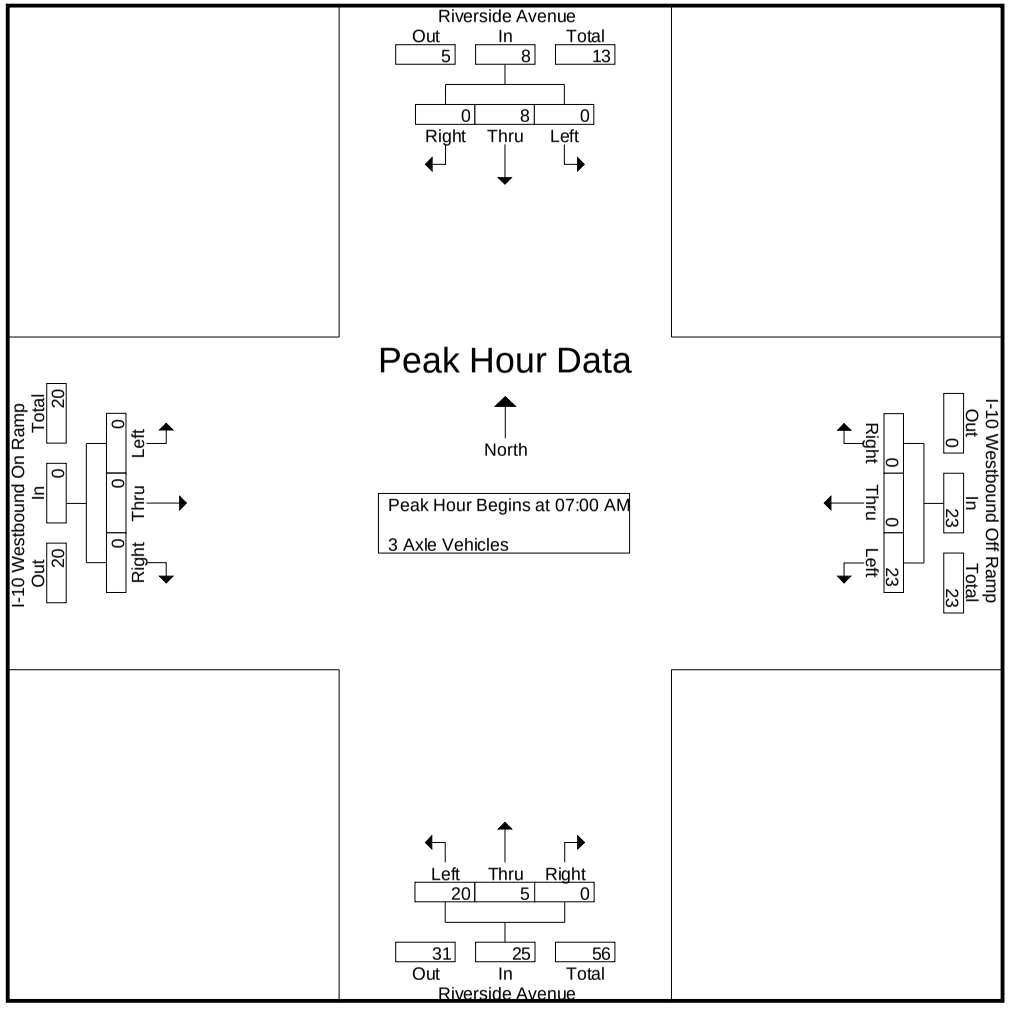
	Riverside Avenue Southbound					I-10 Westbound Off Ramp Westbound					Riverside Avenue Northbound					I-10 Westbound On Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	2	0	0	2	6	0	0	0	6	7	0	0	0	7	0	0	0	0	0	0	15	15
07:15 AM	0	0	0	0	0	5	0	0	0	5	4	0	0	0	4	0	0	0	0	0	0	9	9
07:30 AM	0	3	0	0	3	6	0	0	0	6	4	4	0	0	8	0	0	0	0	0	0	17	17
07:45 AM	0	3	0	0	3	6	0	0	0	6	5	1	0	0	6	0	0	0	0	0	0	15	15
Total	0	8	0	0	8	23	0	0	0	23	20	5	0	0	25	0	0	0	0	0	0	56	56
08:00 AM	0	4	0	0	4	3	0	1	1	4	5	2	0	0	7	0	0	0	0	0	1	15	16
08:15 AM	0	2	0	0	2	7	0	1	0	8	4	4	0	0	8	0	0	0	0	0	0	18	18
08:30 AM	0	2	0	0	2	7	0	3	2	10	4	5	0	0	9	0	0	0	0	0	2	21	23
08:45 AM	0	9	3	1	12	8	0	0	0	8	6	0	0	0	6	0	0	0	0	0	1	26	27
Total	0	17	3	1	20	25	0	5	3	30	19	11	0	0	30	0	0	0	0	0	4	80	84
Grand Total	0	25	3	1	28	48	0	5	3	53	39	16	0	0	55	0	0	0	0	0	4	136	140
Apprch %	0	89.3	10.7			90.6	0	9.4			70.9	29.1	0			0	0	0					
Total %	0	18.4	2.2		20.6	35.3	0	3.7		39	28.7	11.8	0		40.4	0	0	0		0	2.9	97.1	

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	**6**	0	0	**6**	**7**	0	0	7	0	0	0	0	15
07:15 AM	0	0	0	0	5	0	0	5	4	0	0	4	0	0	0	0	9
07:30 AM	0	**3**	0	**3**	6	0	0	6	4	**4**	0	**8**	0	0	0	0	**17**
07:45 AM	0	3	0	3	6	0	0	6	5	1	0	6	0	0	0	0	15
Total Volume	0	8	0	8	23	0	0	23	20	5	0	25	0	0	0	0	56
% App. Total	0	100	0		100	0	0		80	20	0		0	0	0		
PHF	.000	.667	.000	.667	.958	.000	.000	.958	.714	.313	.000	.781	.000	.000	.000	.000	.824

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 3

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	**6**	0	0	**6**	**7**	0	0	7	0	0	0	0	
+15 mins.	0	0	0	0	5	0	0	5	4	0	0	4	0	0	0	0	
+30 mins.	0	**3**	0	**3**	6	0	0	6	4	**4**	0	**8**	0	0	0	0	
+45 mins.	0	3	0	3	6	0	0	6	5	1	0	6	0	0	0	0	
Total Volume	0	8	0	8	23	0	0	23	20	5	0	25	0	0	0	0	
% App. Total	0	100	0		100	0	0		80	20	0		0	0	0		
PHF	.000	.667	.000	.667	.958	.000	.000	.958	.714	.313	.000	.781	.000	.000	.000	.000	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Riverside Avenue Southbound					I-10 Westbound Off Ramp Westbound					Riverside Avenue Northbound					I-10 Westbound On Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	3	0	3	17	0	1	1	18	17	3	0	0	20	0	0	0	0	0	1	41	42
07:15 AM	0	4	1	0	5	13	0	1	0	14	16	5	0	0	21	0	0	0	0	0	0	40	40
07:30 AM	0	1	2	0	3	17	0	0	0	17	20	0	0	0	20	0	0	0	0	0	0	40	40
07:45 AM	0	2	1	0	3	15	0	2	2	17	12	8	0	0	20	0	0	0	0	0	2	40	42
Total	0	7	7	0	14	62	0	4	3	66	65	16	0	0	81	0	0	0	0	0	3	161	164
08:00 AM	0	1	3	0	4	21	1	0	0	22	14	3	0	0	17	0	0	0	0	0	0	43	43
08:15 AM	0	5	1	0	6	23	0	1	1	24	10	5	0	0	15	0	0	0	0	0	1	45	46
08:30 AM	0	7	3	1	10	16	0	2	2	18	15	6	0	0	21	0	0	0	0	0	3	49	52
08:45 AM	0	2	7	1	9	14	0	1	0	15	14	2	0	0	16	0	0	0	0	0	1	40	41
Total	0	15	14	2	29	74	1	4	3	79	53	16	0	0	69	0	0	0	0	0	5	177	182
Grand Total	0	22	21	2	43	136	1	8	6	145	118	32	0	0	150	0	0	0	0	0	8	338	346
Apprch %	0	51.2	48.8			93.8	0.7	5.5			78.7	21.3	0			0	0	0					
Total %	0	6.5	6.2		12.7	40.2	0.3	2.4		42.9	34.9	9.5	0		44.4	0	0	0		0	2.3	97.7	

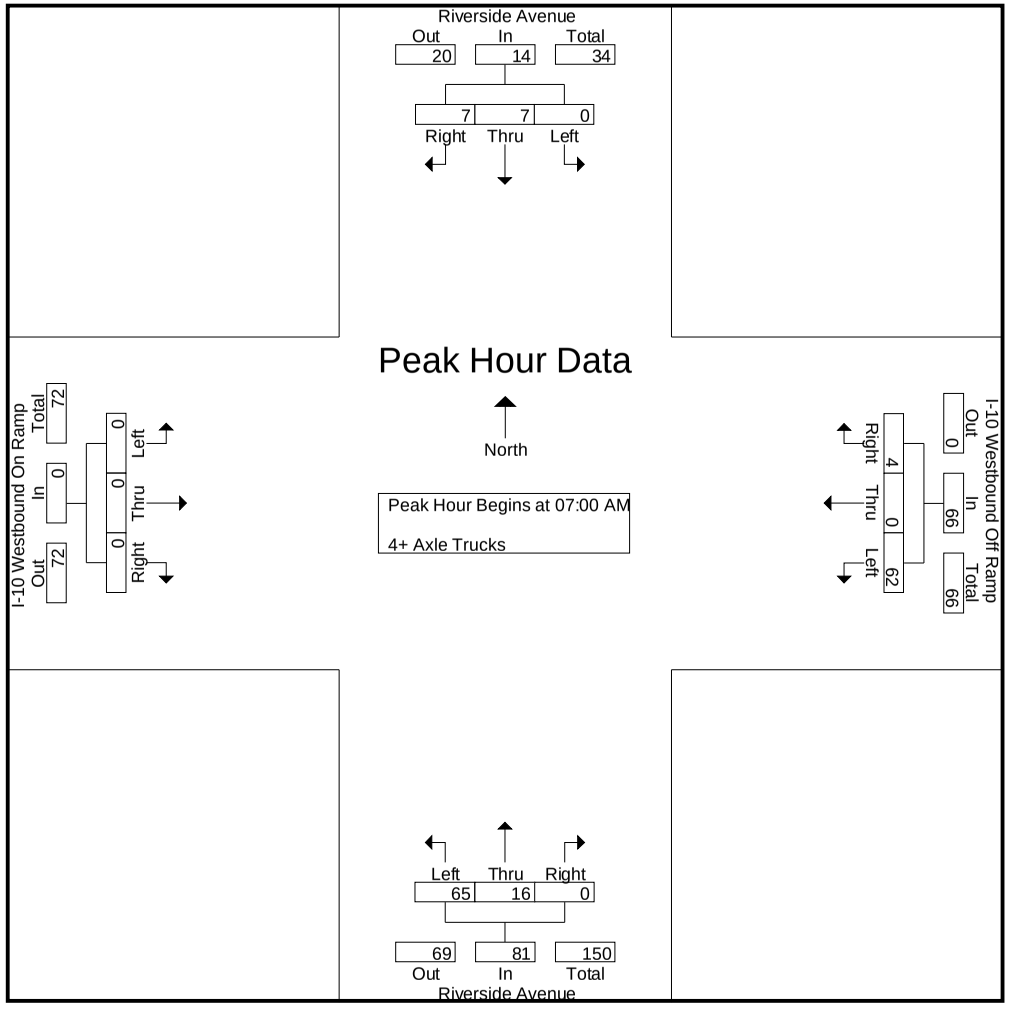
3.1-77

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	**3**	3	**17**	0	1	**18**	17	3	0	20	0	0	0	0	**41**
07:15 AM	0	**4**	1	**5**	13	0	1	14	16	5	0	**21**	0	0	0	0	40
07:30 AM	0	1	2	3	17	0	0	17	**20**	0	0	20	0	0	0	0	40
07:45 AM	0	2	1	3	15	0	**2**	17	12	**8**	0	20	0	0	0	0	40
Total Volume	0	7	7	14	62	0	4	66	65	16	0	81	0	0	0	0	161
% App. Total	0	50	50		93.9	0	6.1		80.2	19.8	0		0	0	0		
PHF	.000	.438	.583	.700	.912	.000	.500	.917	.813	.500	.000	.964	.000	.000	.000	.000	.982

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 3

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	**3**	3	**17**	0	1	**18**	17	3	0	20	0	0	0	0	
+15 mins.	0	**4**	1	**5**	13	0	1	14	16	5	0	**21**	0	0	0	0	
+30 mins.	0	1	2	3	17	0	0	17	**20**	0	0	20	0	0	0	0	
+45 mins.	0	2	1	3	15	0	**2**	17	12	**8**	0	20	0	0	0	0	
Total Volume	0	7	7	14	62	0	4	66	65	16	0	81	0	0	0	0	
% App. Total	0	50	50		93.9	0	6.1		80.2	19.8	0		0	0	0		
PHF	.000	.438	.583	.700	.912	.000	.500	.917	.813	.500	.000	.964	.000	.000	.000	.000	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

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

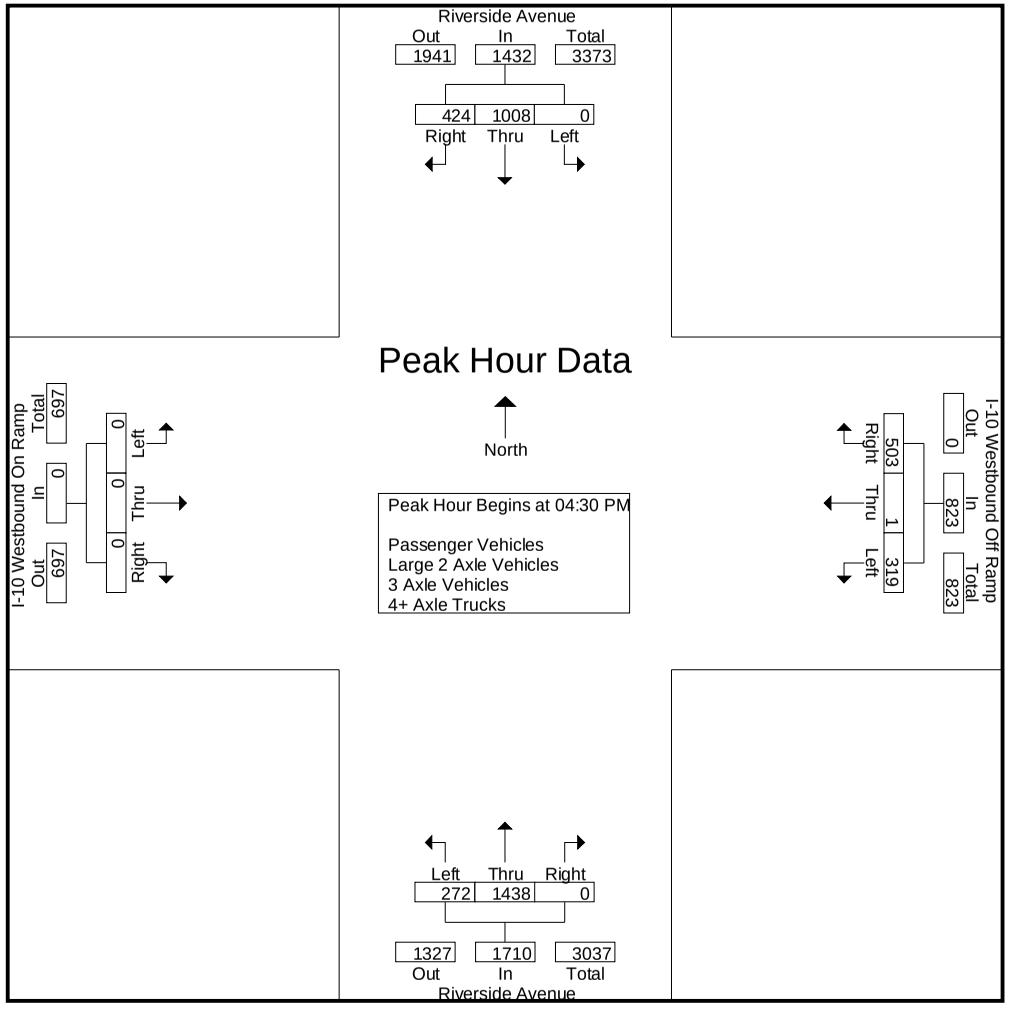
	Riverside Avenue Southbound					I-10 Westbound Off Ramp Westbound					Riverside Avenue Northbound					I-10 Westbound On Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	237	101	33	338	73	1	129	41	203	54	367	0	0	421	0	0	0	0	0	74	962	1036
04:15 PM	0	231	105	35	336	81	0	130	50	211	50	354	0	0	404	0	0	0	0	0	85	951	1036
04:30 PM	0	274	93	26	367	93	1	124	34	218	74	384	0	0	458	0	0	0	0	0	60	1043	1103
04:45 PM	0	243	116	33	359	84	0	134	45	218	70	349	0	0	419	0	0	0	0	0	78	996	1074
Total	0	985	415	127	1400	331	2	517	170	850	248	1454	0	0	1702	0	0	0	0	0	297	3952	4249
05:00 PM	0	236	110	43	346	73	0	121	55	194	67	341	0	0	408	0	0	0	0	0	98	948	1046
05:15 PM	0	255	105	26	360	69	0	124	45	193	61	364	0	0	425	0	0	0	0	0	71	978	1049
05:30 PM	0	238	96	29	334	76	1	140	65	217	90	320	0	0	410	0	0	0	0	0	94	961	1055
05:45 PM	0	215	83	23	298	86	0	92	34	178	62	343	0	0	405	0	0	0	0	0	57	881	938
Total	0	944	394	121	1338	304	1	477	199	782	280	1368	0	0	1648	0	0	0	0	0	320	3768	4088
Grand Total	0	1929	809	248	2738	635	3	994	369	1632	528	2822	0	0	3350	0	0	0	0	0	617	7720	8337
Apprch %	0	70.5	29.5			38.9	0.2	60.9			15.8	84.2	0			0	0	0					
Total %	0	25	10.5		35.5	8.2	0	12.9		21.1	6.8	36.6	0		43.4	0	0	0		0	7.4	92.6	
Passenger Vehicles	0	1843	788		2873	466	2	966		1795	425	2759	0		3184	0	0	0		0	0	0	7852
% Passenger Vehicles	0	95.5	97.4	97.6	96.2	73.4	66.7	97.2	97.8	89.7	80.5	97.8	0	0	95	0	0	0	0	0	0	0	94.2
Large 2 Axle Vehicles	0	41	8		52	44	1	11		61	15	30	0		45	0	0	0		0	0	0	158
% Large 2 Axle Vehicles	0	2.1	1	1.2	1.7	6.9	33.3	1.1	1.4	3	2.8	1.1	0	0	1.3	0	0	0	0	0	0	0	1.9
3 Axle Vehicles	0	21	6		29	19	0	6		27	21	11	0		32	0	0	0		0	0	0	88
% 3 Axle Vehicles	0	1.1	0.7	0.8	1	3	0	0.6	0.5	1.3	4	0.4	0	0	1	0	0	0	0	0	0	0	1.1
4+ Axle Trucks	0	24	7		32	106	0	11		118	67	22	0		89	0	0	0		0	0	0	239
% 4+ Axle Trucks	0	1.2	0.9	0.4	1.1	16.7	0	1.1	0.3	5.9	12.7	0.8	0	0	2.7	0	0	0	0	0	0	0	2.9

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	**274**	93	**367**	**93**	**1**	124	**218**	**74**	**384**	0	**458**	0	0	0	0	**1043**
04:45 PM	0	243	**116**	359	84	0	**134**	218	70	349	0	419	0	0	0	0	996
05:00 PM	0	236	110	346	73	0	121	194	67	341	0	408	0	0	0	0	948
05:15 PM	0	255	105	360	69	0	124	193	61	364	0	425	0	0	0	0	978
Total Volume	0	1008	424	1432	319	1	503	823	272	1438	0	1710	0	0	0	0	3965
% App. Total	0	70.4	29.6		38.8	0.1	61.1		15.9	84.1	0		0	0	0		
PHF	.000	.920	.914	.975	.858	.250	.938	.944	.919	.936	.000	.933	.000	.000	.000	.000	.950

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W PM
Site Code : 05119295
Start Date : 5/1/2019

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:00 PM				04:30 PM				04:00 PM				
+0 mins.	0	**274**	93	**367**	73	**1**	129	203	**74**	**384**	0	**458**	0	0	0	0	
+15 mins.	0	243	**116**	359	81	0	130	211	70	349	0	419	0	0	0	0	
+30 mins.	0	236	110	346	**93**	1	124	**218**	67	341	0	408	0	0	0	0	
+45 mins.	0	255	105	360	84	0	**134**	218	61	364	0	425	0	0	0	0	
Total Volume	0	1008	424	1432	331	2	517	850	272	1438	0	1710	0	0	0	0	
% App. Total	0	70.4	29.6		38.9	0.2	60.8		15.9	84.1	0		0	0	0		
PHF	.000	.920	.914	.975	.890	.500	.965	.975	.919	.936	.000	.933	.000	.000	.000	.000	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- Passenger Vehicles

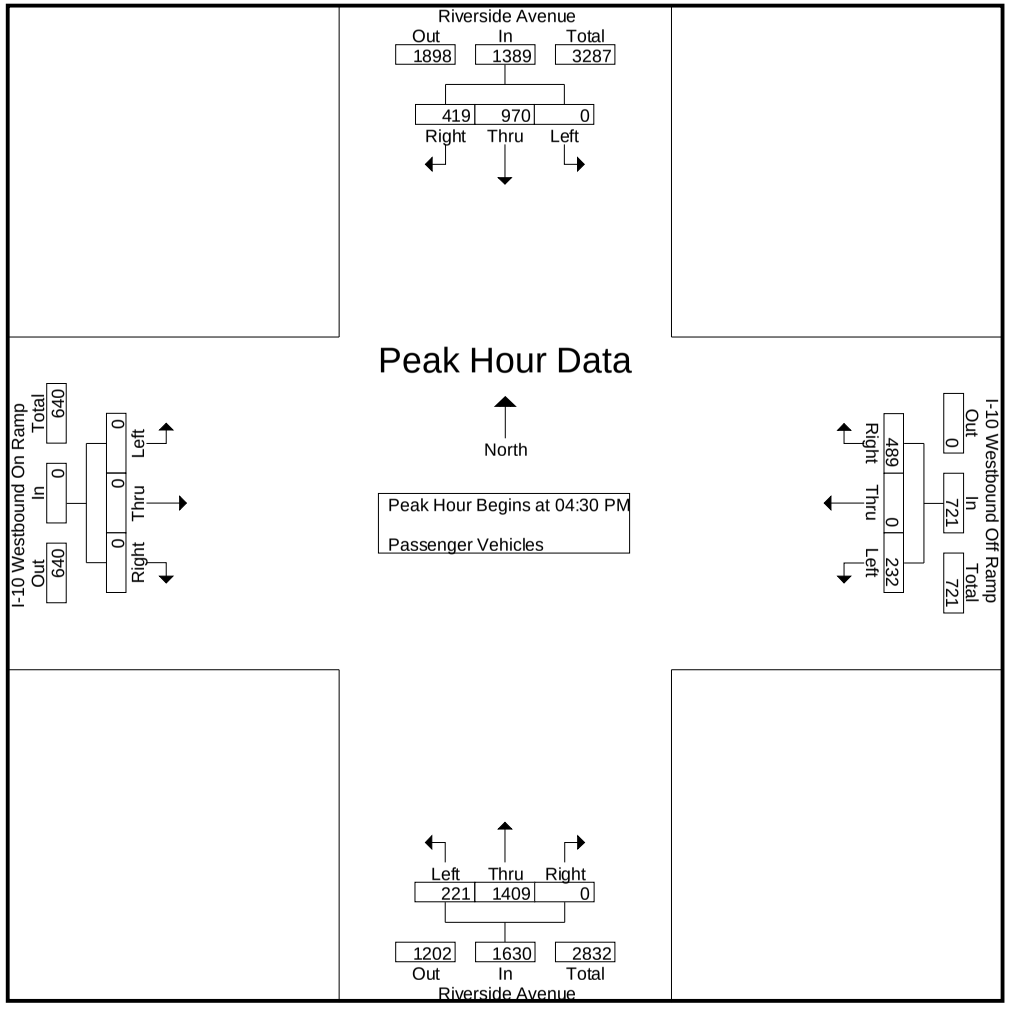
	Riverside Avenue Southbound					I-10 Westbound Off Ramp Westbound					Riverside Avenue Northbound					I-10 Westbound On Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	221	97	32	318	54	1	124	40	179	42	355	0	0	397	0	0	0	0	0	72	894	966
04:15 PM	0	220	98	31	318	61	0	125	48	186	38	348	0	0	386	0	0	0	0	0	79	890	969
04:30 PM	0	264	92	26	356	60	0	118	33	178	64	378	0	0	442	0	0	0	0	0	59	976	1035
04:45 PM	0	234	116	33	350	65	0	132	45	197	51	343	0	0	394	0	0	0	0	0	78	941	1019
Total	0	939	403	122	1342	240	1	499	166	740	195	1424	0	0	1619	0	0	0	0	0	288	3701	3989
05:00 PM	0	228	108	43	336	52	0	118	54	170	55	330	0	0	385	0	0	0	0	0	97	891	988
05:15 PM	0	244	103	25	347	55	0	121	44	176	51	358	0	0	409	0	0	0	0	0	69	932	1001
05:30 PM	0	230	94	29	324	56	1	138	64	195	73	312	0	0	385	0	0	0	0	0	93	904	997
05:45 PM	0	202	80	23	282	63	0	90	33	153	51	335	0	0	386	0	0	0	0	0	56	821	877
Total	0	904	385	120	1289	226	1	467	195	694	230	1335	0	0	1565	0	0	0	0	0	315	3548	3863
Grand Total	0	1843	788	242	2631	466	2	966	361	1434	425	2759	0	0	3184	0	0	0	0	0	603	7249	7852
Apprch %	0	70	30			32.5	0.1	67.4			13.3	86.7	0			0	0	0					
Total %	0	25.4	10.9		36.3	6.4	0	13.3		19.8	5.9	38.1	0		43.9	0	0	0		0	7.7	92.3	

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	**264**	92	**356**	60	0	118	178	**64**	**378**	0	**442**	0	0	0	0	**976**
04:45 PM	0	234	**116**	350	**65**	0	**132**	**197**	51	343	0	394	0	0	0	0	941
05:00 PM	0	228	108	336	52	0	118	170	55	330	0	385	0	0	0	0	891
05:15 PM	0	244	103	347	55	0	121	176	51	358	0	409	0	0	0	0	932
Total Volume	0	970	419	1389	232	0	489	721	221	1409	0	1630	0	0	0	0	3740
% App. Total	0	69.8	30.2		32.2	0	67.8		13.6	86.4	0		0	0	0		
PHF	.000	.919	.903	.975	.892	.000	.926	.915	.863	.932	.000	.922	.000	.000	.000	.000	.958

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W PM
Site Code : 05119295
Start Date : 5/1/2019

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	0	**264**	92	**356**	60	0	118	178	**64**	**378**	0	**442**	0	0	0	0	
+15 mins.	0	234	**116**	350	**65**	0	**132**	**197**	51	343	0	394	0	0	0	0	
+30 mins.	0	228	108	336	52	0	118	170	55	330	0	385	0	0	0	0	
+45 mins.	0	244	103	347	55	0	121	176	51	358	0	409	0	0	0	0	
Total Volume	0	970	419	1389	232	0	489	721	221	1409	0	1630	0	0	0	0	
% App. Total	0	69.8	30.2		32.2	0	67.8		13.6	86.4	0		0	0	0		
PHF	.000	.919	.903	.975	.892	.000	.926	.915	.863	.932	.000	.922	.000	.000	.000	.000	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

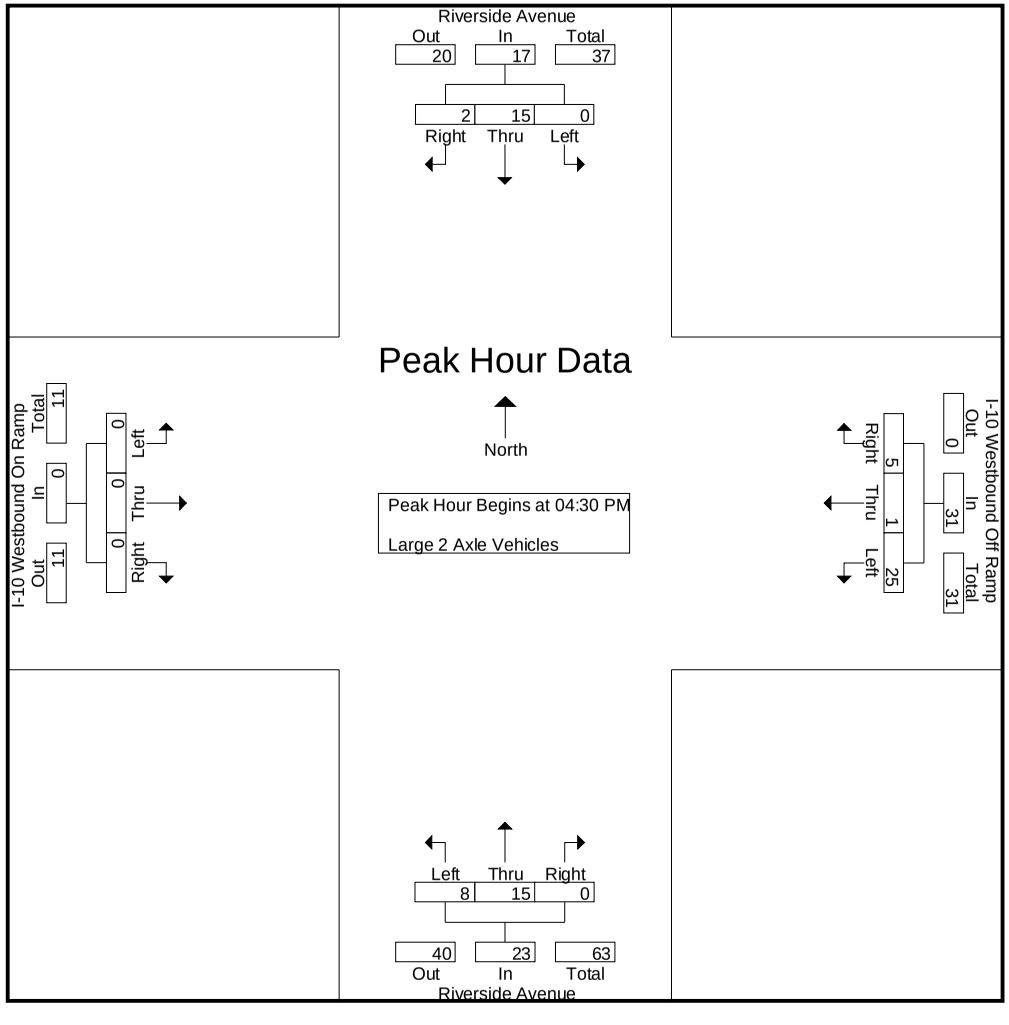
	Riverside Avenue Southbound					I-10 Westbound Off Ramp Westbound					Riverside Avenue Northbound					I-10 Westbound On Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	9	1	0	10	1	0	3	1	4	0	3	0	0	3	0	0	0	0	0	1	17	18
04:15 PM	0	4	4	2	8	5	0	3	2	8	2	3	0	0	5	0	0	0	0	0	4	21	25
04:30 PM	0	3	0	0	3	8	1	3	0	12	0	2	0	0	2	0	0	0	0	0	0	17	17
04:45 PM	0	4	0	0	4	7	0	0	0	7	4	3	0	0	7	0	0	0	0	0	0	18	18
Total	0	20	5	2	25	21	1	9	3	31	6	11	0	0	17	0	0	0	0	0	5	73	78
05:00 PM	0	4	1	0	5	6	0	1	1	7	3	6	0	0	9	0	0	0	0	0	1	21	22
05:15 PM	0	4	1	1	5	4	0	1	1	5	1	4	0	0	5	0	0	0	0	0	2	15	17
05:30 PM	0	6	0	0	6	6	0	0	0	6	3	5	0	0	8	0	0	0	0	0	0	20	20
05:45 PM	0	7	1	0	8	7	0	0	0	7	2	4	0	0	6	0	0	0	0	0	0	21	21
Total	0	21	3	1	24	23	0	2	2	25	9	19	0	0	28	0	0	0	0	0	3	77	80
Grand Total	0	41	8	3	49	44	1	11	5	56	15	30	0	0	45	0	0	0	0	0	8	150	158
Apprch %	0	83.7	16.3			78.6	1.8	19.6			33.3	66.7	0			0	0	0					
Total %	0	27.3	5.3		32.7	29.3	0.7	7.3		37.3	10	20	0		30	0	0	0		0	5.1	94.9	

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	3	0	3	**8**	**1**	**3**	**12**	0	2	0	2	0	0	0	0	17
04:45 PM	0	**4**	0	4	7	0	0	7	**4**	3	0	7	0	0	0	0	18
05:00 PM	0	4	**1**	**5**	6	0	1	7	3	**6**	0	**9**	0	0	0	0	**21**
05:15 PM	0	4	1	5	4	0	1	5	1	4	0	5	0	0	0	0	15
Total Volume	0	15	2	17	25	1	5	31	8	15	0	23	0	0	0	0	71
% App. Total	0	88.2	11.8		80.6	3.2	16.1		34.8	65.2	0		0	0	0		
PHF	.000	.938	.500	.850	.781	.250	.417	.646	.500	.625	.000	.639	.000	.000	.000	.000	.845

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 3

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	0	3	0	3	**8**	**1**	**3**	**12**	0	2	0	2	0	0	0	0	
+15 mins.	0	**4**	0	4	7	0	0	7	**4**	3	0	7	0	0	0	0	
+30 mins.	0	4	**1**	**5**	6	0	1	7	3	**6**	0	**9**	0	0	0	0	
+45 mins.	0	4	1	5	4	0	1	5	1	4	0	5	0	0	0	0	
Total Volume	0	15	2	17	25	1	5	31	8	15	0	23	0	0	0	0	
% App. Total	0	88.2	11.8		80.6	3.2	16.1		34.8	65.2	0		0	0	0		
PHF	.000	.938	.500	.850	.781	.250	.417	.646	.500	.625	.000	.639	.000	.000	.000	.000	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

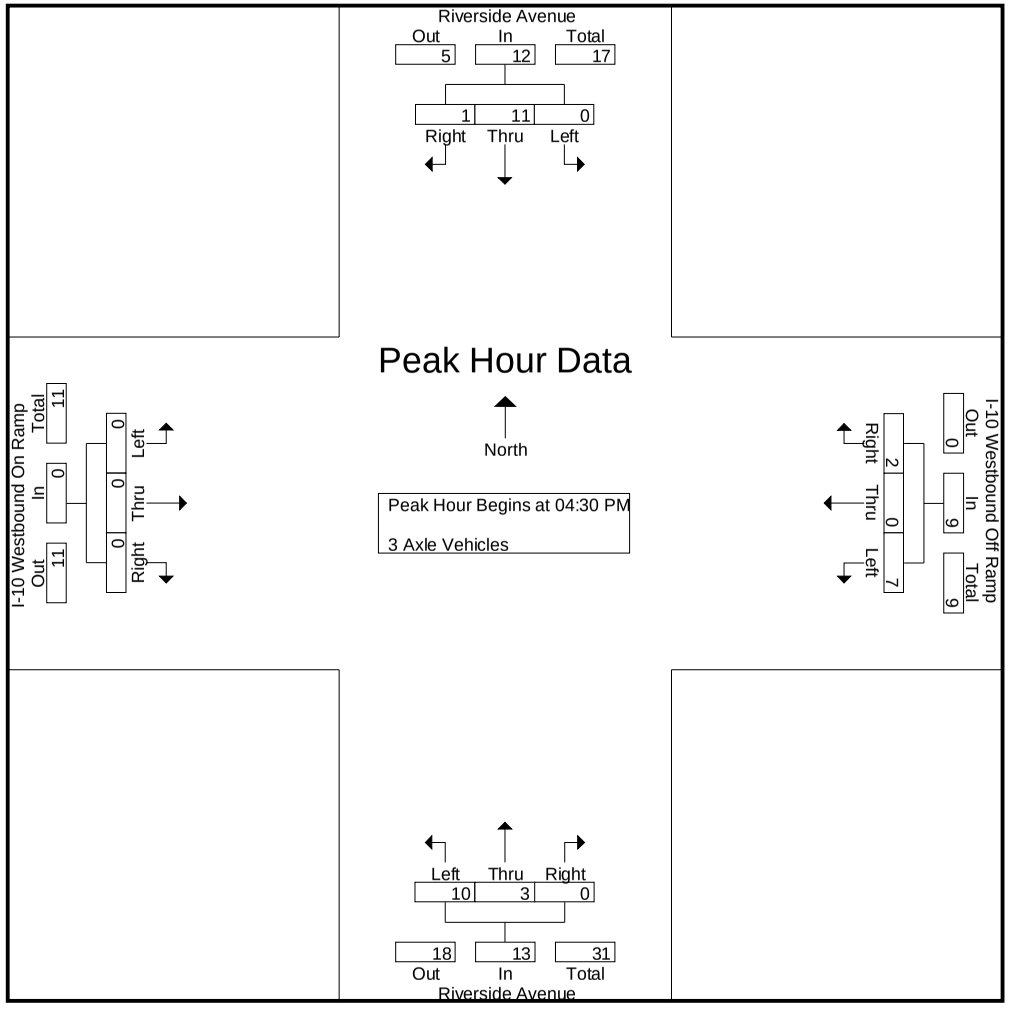
	Riverside Avenue Southbound					I-10 Westbound Off Ramp Westbound					Riverside Avenue Northbound					I-10 Westbound On Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	2	0	0	2	4	0	0	0	4	3	5	0	0	8	0	0	0	0	0	0	14	14
04:15 PM	0	5	2	2	7	1	0	1	0	2	3	1	0	0	4	0	0	0	0	0	2	13	15
04:30 PM	0	1	0	0	1	4	0	0	0	4	3	0	0	0	3	0	0	0	0	0	0	8	8
04:45 PM	0	5	0	0	5	2	0	0	0	2	3	1	0	0	4	0	0	0	0	0	0	11	11
Total	0	13	2	2	15	11	0	1	0	12	12	7	0	0	19	0	0	0	0	0	2	46	48
05:00 PM	0	1	1	0	2	1	0	1	0	2	2	2	0	0	4	0	0	0	0	0	0	8	8
05:15 PM	0	4	0	0	4	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	0	7	7
05:30 PM	0	1	1	0	2	2	0	2	1	4	3	0	0	0	3	0	0	0	0	0	1	9	10
05:45 PM	0	2	2	0	4	5	0	1	1	6	2	2	0	0	4	0	0	0	0	0	1	14	15
Total	0	8	4	0	12	8	0	5	2	13	9	4	0	0	13	0	0	0	0	0	2	38	40
Grand Total	0	21	6	2	27	19	0	6	2	25	21	11	0	0	32	0	0	0	0	0	4	84	88
Apprch %	0	77.8	22.2			76	0	24			65.6	34.4	0			0	0	0					
Total %	0	25	7.1		32.1	22.6	0	7.1		29.8	25	13.1	0		38.1	0	0	0		0	4.5	95.5	

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	1	0	1	**4**	0	0	**4**	**3**	0	0	3	0	0	0	0	8
04:45 PM	0	**5**	0	**5**	2	0	0	2	3	1	0	**4**	0	0	0	0	**11**
05:00 PM	0	1	**1**	2	1	0	**1**	2	2	**2**	0	4	0	0	0	0	8
05:15 PM	0	4	0	4	0	0	1	1	2	0	0	2	0	0	0	0	7
Total Volume	0	11	1	12	7	0	2	9	10	3	0	13	0	0	0	0	34
% App. Total	0	91.7	8.3		77.8	0	22.2		76.9	23.1	0		0	0	0		
PHF	.000	.550	.250	.600	.438	.000	.500	.563	.833	.375	.000	.813	.000	.000	.000	.000	.773

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 3

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	0	1	0	1	**4**	0	0	**4**	**3**	0	0	3	0	0	0	0	
+15 mins.	0	**5**	0	**5**	2	0	0	2	3	1	0	**4**	0	0	0	0	
+30 mins.	0	1	**1**	2	1	0	**1**	2	2	**2**	0	4	0	0	0	0	
+45 mins.	0	4	0	4	0	0	1	1	2	0	0	2	0	0	0	0	
Total Volume	0	11	1	12	7	0	2	9	10	3	0	13	0	0	0	0	
% App. Total	0	91.7	8.3		77.8	0	22.2		76.9	23.1	0		0	0	0		
PHF	.000	.550	.250	.600	.438	.000	.500	.563	.833	.375	.000	.813	.000	.000	.000	.000	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Riverside Avenue Southbound					I-10 Westbound Off Ramp Westbound					Riverside Avenue Northbound					I-10 Westbound On Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	5	3	1	8	14	0	2	0	16	9	4	0	0	13	0	0	0	0	0	1	37	38
04:15 PM	0	2	1	0	3	14	0	1	0	15	7	2	0	0	9	0	0	0	0	0	0	27	27
04:30 PM	0	6	1	0	7	21	0	3	1	24	7	4	0	0	11	0	0	0	0	0	1	42	43
04:45 PM	0	0	0	0	0	10	0	2	0	12	12	2	0	0	14	0	0	0	0	0	0	26	26
Total	0	13	5	1	18	59	0	8	1	67	35	12	0	0	47	0	0	0	0	0	2	132	134
05:00 PM	0	3	0	0	3	14	0	1	0	15	7	3	0	0	10	0	0	0	0	0	0	28	28
05:15 PM	0	3	1	0	4	10	0	1	0	11	7	2	0	0	9	0	0	0	0	0	0	24	24
05:30 PM	0	1	1	0	2	12	0	0	0	12	11	3	0	0	14	0	0	0	0	0	0	28	28
05:45 PM	0	4	0	0	4	11	0	1	0	12	7	2	0	0	9	0	0	0	0	0	0	25	25
Total	0	11	2	0	13	47	0	3	0	50	32	10	0	0	42	0	0	0	0	0	0	105	105
Grand Total	0	24	7	1	31	106	0	11	1	117	67	22	0	0	89	0	0	0	0	0	2	237	239
Apprch %	0	77.4	22.6			90.6	0	9.4			75.3	24.7	0			0	0	0					
Total %	0	10.1	3		13.1	44.7	0	4.6		49.4	28.3	9.3	0		37.6	0	0	0		0	0.8	99.2	

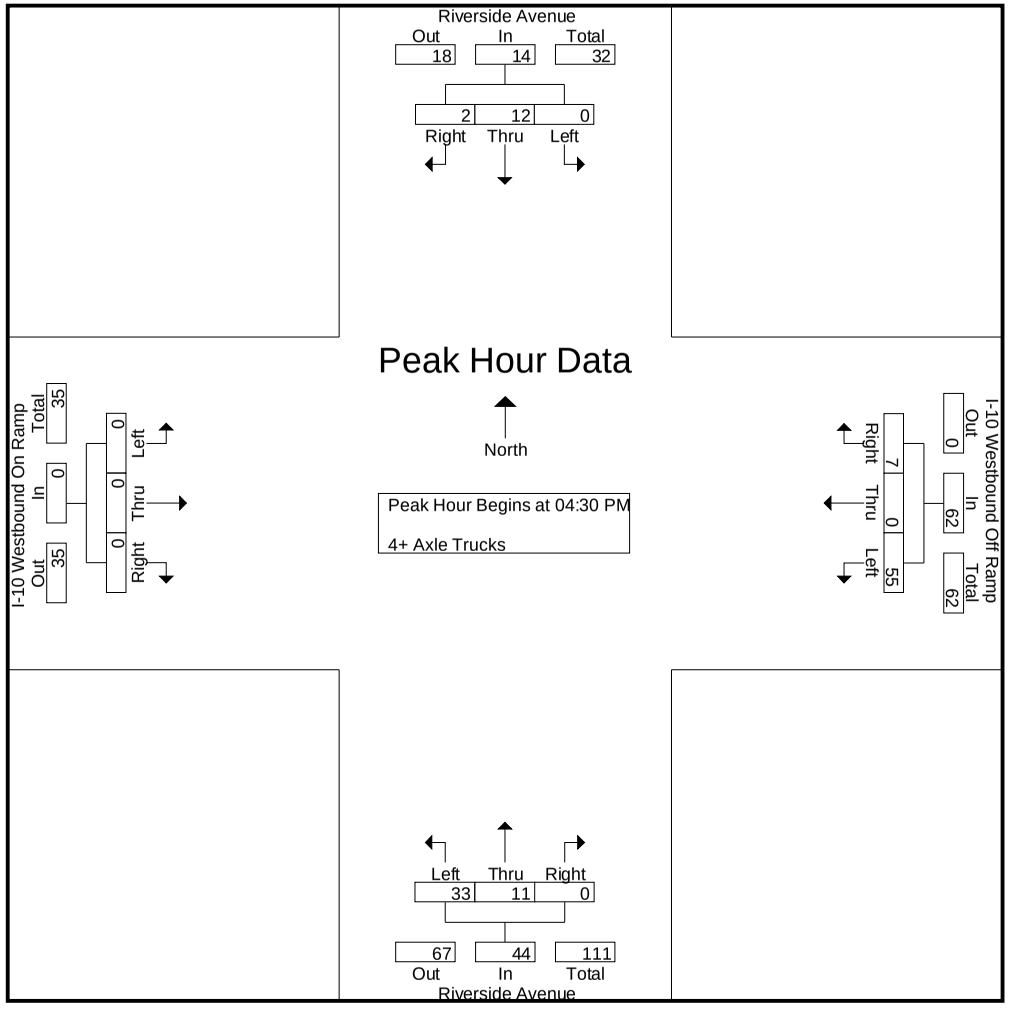
3.1-92

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	**6**	**1**	**7**	**21**	0	**3**	**24**	7	**4**	0	11	0	0	0	0	**42**
04:45 PM	0	0	0	0	10	0	2	12	**12**	2	0	**14**	0	0	0	0	26
05:00 PM	0	3	0	3	14	0	1	15	7	3	0	10	0	0	0	0	28
05:15 PM	0	3	1	4	10	0	1	11	7	2	0	9	0	0	0	0	24
Total Volume	0	12	2	14	55	0	7	62	33	11	0	44	0	0	0	0	120
% App. Total	0	85.7	14.3		88.7	0	11.3		75	25	0		0	0	0		
PHF	.000	.500	.500	.500	.655	.000	.583	.646	.688	.688	.000	.786	.000	.000	.000	.000	.714

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 01_RLT_Riverside_10W PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 3

	Riverside Avenue Southbound				I-10 Westbound Off Ramp Westbound				Riverside Avenue Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	0	**6**	**1**	**7**	**21**	0	**3**	**24**	7	**4**	0	11	0	0	0	0	
+15 mins.	0	0	0	0	10	0	2	12	**12**	2	0	**14**	0	0	0	0	
+30 mins.	0	3	0	3	14	0	1	15	7	3	0	10	0	0	0	0	
+45 mins.	0	3	1	4	10	0	1	11	7	2	0	9	0	0	0	0	
Total Volume	0	12	2	14	55	0	7	62	33	11	0	44	0	0	0	0	
% App. Total	0	85.7	14.3		88.7	0	11.3		75	25	0		0	0	0		
PHF	.000	.500	.500	.500	.655	.000	.583	.646	.688	.688	.000	.786	.000	.000	.000	.000	

Location: Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps

Date: 5/1/2019
Day: Wednesday

PEDESTRIANS

	North Leg Riverside Avenue	East Leg I-10 Westbound Ramps	South Leg Riverside Avenue	West Leg I-10 Westbound Ramps	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	1	0	0	1
7:15 AM	0	1	0	0	1
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	1	1	0	0	2
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	1	3	0	0	4

	North Leg Riverside Avenue	East Leg I-10 Westbound Ramps	South Leg Riverside Avenue	West Leg I-10 Westbound Ramps	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	1	1
4:15 PM	0	1	0	0	1
4:30 PM	0	0	0	0	0
4:45 PM	0	2	0	1	3
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	1	0	0	1
TOTAL VOLUMES:	0	4	0	2	6

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Location: Rialto
N/S: Riverside Avenue
E/W: I-10 Westbound Ramps

Date: 5/1/2019
Day: Wednesday

BICYCLES

	Southbound Riverside Avenue			Westbound I-10 Westbound Ramps			Northbound Riverside Avenue			Eastbound I-10 Westbound Ramps			
	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	1	0	0	0	0	1
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	1	0	0	0	0	1

	Southbound Riverside Avenue			Westbound I-10 Westbound Ramps			Northbound Riverside Avenue			Eastbound I-10 Westbound Ramps			
	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	3	0	0	0	0	3
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	1	0	0	0	0	0	0	0	0	0	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	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	0	0	0	4	0	0	0	0	5

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

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

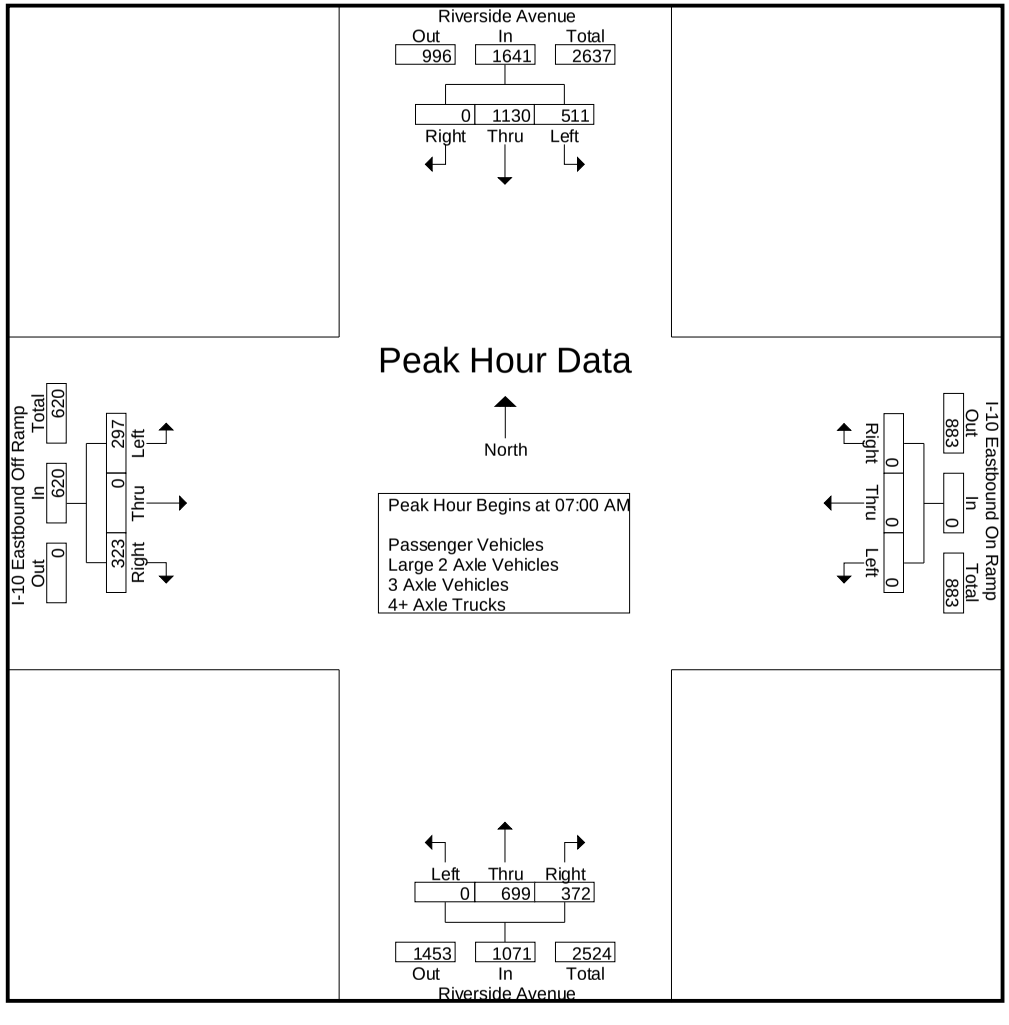
	Riverside Avenue Southbound					I-10 Eastbound On Ramp Westbound					Riverside Avenue Northbound					I-10 Eastbound Off Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	103	277	0	0	380	0	0	0	0	0	0	178	100	24	278	67	0	78	41	145	65	803	868
07:15 AM	133	281	0	0	414	0	0	0	0	0	0	152	76	13	228	64	0	74	33	138	46	780	826
07:30 AM	134	296	0	0	430	0	0	0	0	0	0	196	95	23	291	83	0	89	35	172	58	893	951
07:45 AM	141	276	0	0	417	0	0	0	0	0	0	173	101	12	274	83	0	82	27	165	39	856	895
Total	511	1130	0	0	1641	0	0	0	0	0	0	699	372	72	1071	297	0	323	136	620	208	3332	3540
08:00 AM	97	213	0	0	310	0	0	0	0	0	0	168	96	22	264	71	1	66	29	138	51	712	763
08:15 AM	115	215	0	0	330	0	0	0	0	0	0	150	103	33	253	73	2	63	34	138	67	721	788
08:30 AM	85	177	0	0	262	0	0	0	0	0	0	166	91	21	257	82	2	73	30	157	51	676	727
08:45 AM	80	188	0	0	268	0	0	0	0	0	0	169	102	34	271	61	0	66	28	127	62	666	728
Total	377	793	0	0	1170	0	0	0	0	0	0	653	392	110	1045	287	5	268	121	560	231	2775	3006
Grand Total	888	1923	0	0	2811	0	0	0	0	0	0	1352	764	182	2116	584	5	591	257	1180	439	6107	6546
Apprch %	31.6	68.4	0			0	0	0			0	63.9	36.1			49.5	0.4	50.1					
Total %	14.5	31.5	0		46	0	0	0		0	0	22.1	12.5		34.6	9.6	0.1	9.7		19.3	6.7	93.3	
Passenger Vehicles	855	1640	0		2495	0	0	0		0	0	1072	460		1651	552	3	426		1198	0	0	5344
% Passenger Vehicles	96.3	85.3	0	0	88.8	0	0	0	0	0	0	79.3	60.2	65.4	71.8	94.5	60	72.1	84.4	83.4	0	0	81.6
Large 2 Axle Vehicles	18	69	0		87	0	0	0		0	0	84	58		157	13	1	35		67	0	0	311
% Large 2 Axle Vehicles	2	3.6	0	0	3.1	0	0	0	0	0	0	6.2	7.6	8.2	6.8	2.2	20	5.9	7	4.7	0	0	4.8
3 Axle Vehicles	6	68	0		74	0	0	0		0	0	48	57		119	4	0	29		39	0	0	232
% 3 Axle Vehicles	0.7	3.5	0	0	2.6	0	0	0	0	0	0	3.6	7.5	7.7	5.2	0.7	0	4.9	2.3	2.7	0	0	3.5
4+ Axle Trucks	9	146	0		155	0	0	0		0	0	148	189		371	15	1	101		133	0	0	659
% 4+ Axle Trucks	1	7.6	0	0	5.5	0	0	0	0	0	0	10.9	24.7	18.7	16.1	2.6	20	17.1	6.2	9.3	0	0	10.1

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	103	277	0	380	0	0	0	0	0	178	100	278	67	0	78	145	803
07:15 AM	133	281	0	414	0	0	0	0	0	152	76	228	64	0	74	138	780
07:30 AM	134	**296**	0	**430**	0	0	0	0	0	**196**	95	**291**	**83**	0	**89**	**172**	**893**
07:45 AM	**141**	276	0	417	0	0	0	0	0	173	**101**	274	83	0	82	165	856
Total Volume	511	1130	0	1641	0	0	0	0	0	699	372	1071	297	0	323	620	3332
% App. Total	31.1	68.9	0		0	0	0		0	65.3	34.7		47.9	0	52.1		
PHF	.906	.954	.000	.954	.000	.000	.000	.000	.000	.892	.921	.920	.895	.000	.907	.901	.933

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E AM
Site Code : 05119295
Start Date : 5/1/2019

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:30 AM				07:00 AM				
+0 mins.	103	277	0	380	0	0	0	0	0	**196**	95	**291**	67	0	78	145	
+15 mins.	133	281	0	414	0	0	0	0	0	173	101	274	64	0	74	138	
+30 mins.	134	**296**	0	**430**	0	0	0	0	0	168	96	264	**83**	0	**89**	**172**	
+45 mins.	**141**	276	0	417	0	0	0	0	0	150	**103**	253	83	0	82	165	
Total Volume	511	1130	0	1641	0	0	0	0	0	687	395	1082	297	0	323	620	
% App. Total	31.1	68.9	0		0	0	0		0	63.5	36.5		47.9	0	52.1		
PHF	.906	.954	.000	.954	.000	.000	.000	.000	.000	.876	.959	.930	.895	.000	.907	.901	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- Passenger Vehicles

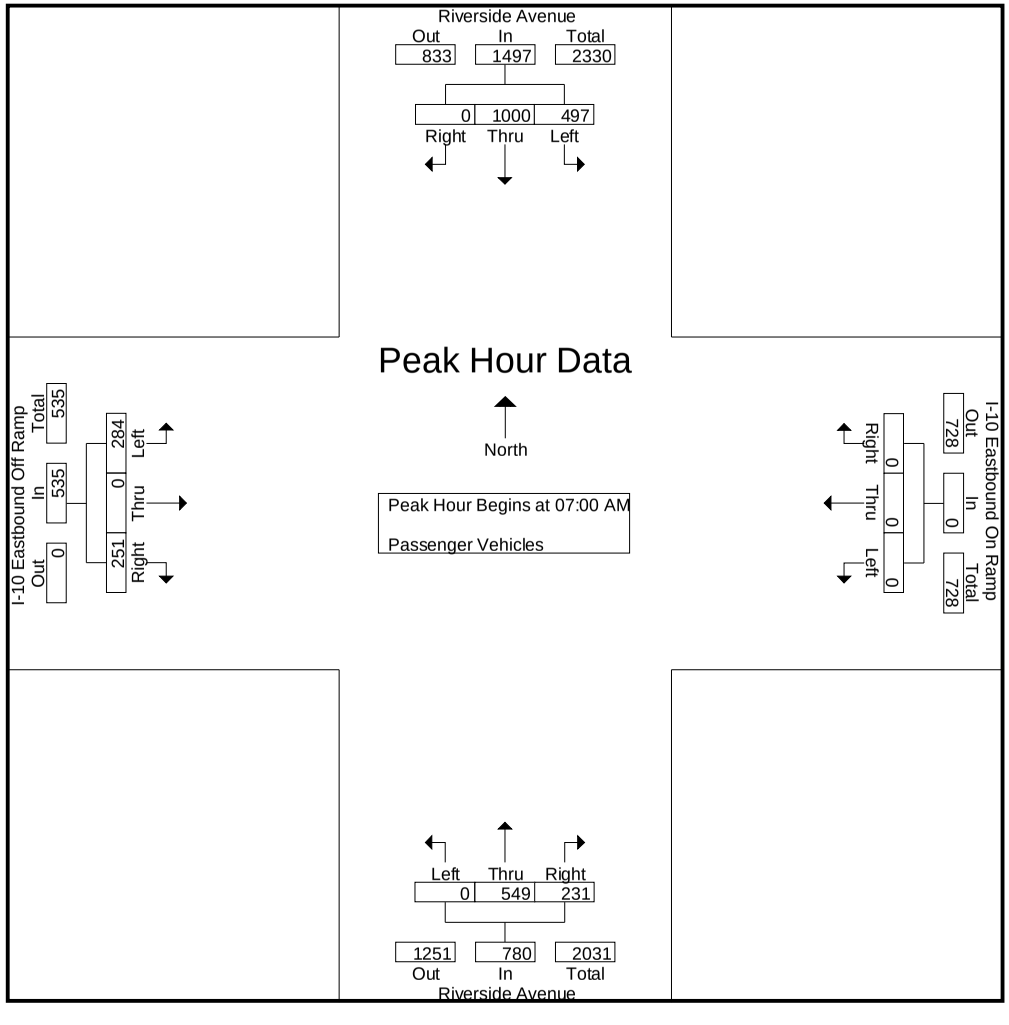
	Riverside Avenue Southbound					I-10 Eastbound On Ramp Westbound					Riverside Avenue Northbound					I-10 Eastbound Off Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	99	237	0	0	336	0	0	0	0	0	0	140	57	13	197	64	0	60	33	124	46	657	703
07:15 AM	128	255	0	0	383	0	0	0	0	0	0	117	51	8	168	60	0	57	30	117	38	668	706
07:30 AM	132	266	0	0	398	0	0	0	0	0	0	155	57	14	212	80	0	66	30	146	44	756	800
07:45 AM	138	242	0	0	380	0	0	0	0	0	0	137	66	6	203	80	0	68	25	148	31	731	762
Total	497	1000	0	0	1497	0	0	0	0	0	0	549	231	41	780	284	0	251	118	535	159	2812	2971
08:00 AM	93	180	0	0	273	0	0	0	0	0	0	132	55	16	187	66	1	42	21	109	37	569	606
08:15 AM	111	170	0	0	281	0	0	0	0	0	0	118	64	27	182	68	1	46	29	115	56	578	634
08:30 AM	78	146	0	0	224	0	0	0	0	0	0	133	43	11	176	76	1	44	24	121	35	521	556
08:45 AM	76	144	0	0	220	0	0	0	0	0	0	140	67	24	207	58	0	43	25	101	49	528	577
Total	358	640	0	0	998	0	0	0	0	0	0	523	229	78	752	268	3	175	99	446	177	2196	2373
Grand Total	855	1640	0	0	2495	0	0	0	0	0	0	1072	460	119	1532	552	3	426	217	981	336	5008	5344
Apprch %	34.3	65.7	0			0	0	0			0	70	30			56.3	0.3	43.4					
Total %	17.1	32.7	0		49.8	0	0	0		0	0	21.4	9.2		30.6	11	0.1	8.5		19.6	6.3	93.7	

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	99	237	0	336	0	0	0	0	0	140	57	197	64	0	60	124	657
07:15 AM	128	255	0	383	0	0	0	0	0	117	51	168	60	0	57	117	668
07:30 AM	132	**266**	0	**398**	0	0	0	0	0	**155**	57	**212**	**80**	0	66	146	**756**
07:45 AM	**138**	242	0	380	0	0	0	0	0	137	**66**	203	80	0	**68**	**148**	731
Total Volume	497	1000	0	1497	0	0	0	0	0	549	231	780	284	0	251	535	2812
% App. Total	33.2	66.8	0		0	0	0		0	70.4	29.6		53.1	0	46.9		
PHF	.900	.940	.000	.940	.000	.000	.000	.000	.000	.885	.875	.920	.888	.000	.923	.904	.930

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E AM
Site Code : 05119295
Start Date : 5/1/2019

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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.	99	237	0	336	0	0	0	0	0	140	57	197	64	0	60	124	
+15 mins.	128	255	0	383	0	0	0	0	0	117	51	168	60	0	57	117	
+30 mins.	132	**266**	0	**398**	0	0	0	0	0	**155**	57	**212**	**80**	0	66	146	
+45 mins.	**138**	242	0	380	0	0	0	0	0	137	**66**	203	80	0	**68**	**148**	
Total Volume	497	1000	0	1497	0	0	0	0	0	549	231	780	284	0	251	535	
% App. Total	33.2	66.8	0		0	0	0		0	70.4	29.6		53.1	0	46.9		
PHF	.900	.940	.000	.940	.000	.000	.000	.000	.000	.885	.875	.920	.888	.000	.923	.904	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

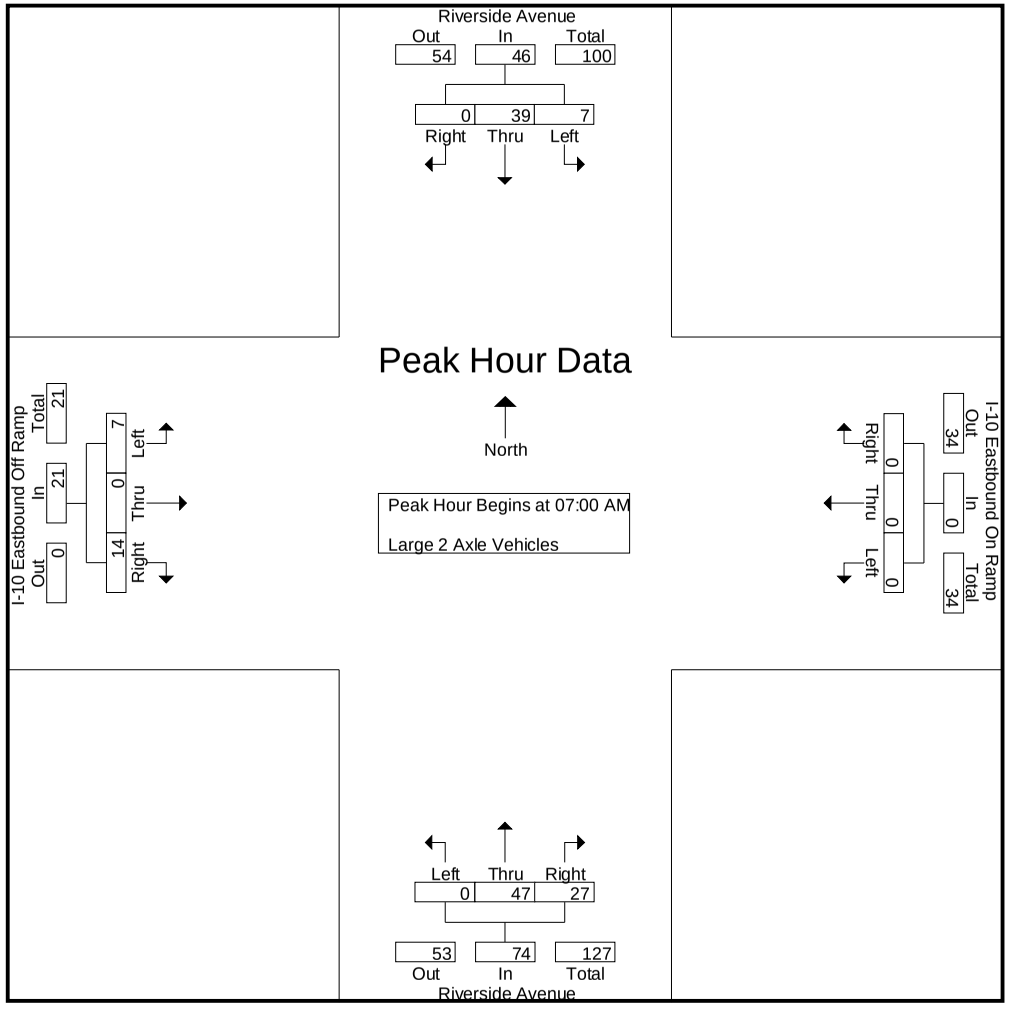
	Riverside Avenue Southbound					I-10 Eastbound On Ramp Westbound					Riverside Avenue Northbound					I-10 Eastbound Off Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	3	16	0	0	19	0	0	0	0	0	0	11	9	3	20	1	0	5	3	6	6	45	51
07:15 AM	2	8	0	0	10	0	0	0	0	0	0	11	2	1	13	1	0	1	0	2	1	25	26
07:30 AM	0	6	0	0	6	0	0	0	0	0	0	14	8	3	22	3	0	5	3	8	6	36	42
07:45 AM	2	9	0	0	11	0	0	0	0	0	0	11	8	0	19	2	0	3	0	5	0	35	35
Total	7	39	0	0	46	0	0	0	0	0	0	47	27	7	74	7	0	14	6	21	13	141	154
08:00 AM	3	7	0	0	10	0	0	0	0	0	0	14	9	1	23	3	0	5	3	8	4	41	45
08:15 AM	3	9	0	0	12	0	0	0	0	0	0	11	5	2	16	1	0	4	2	5	4	33	37
08:30 AM	2	3	0	0	5	0	0	0	0	0	0	7	10	4	17	1	1	6	4	8	8	30	38
08:45 AM	3	11	0	0	14	0	0	0	0	0	0	5	7	1	12	1	0	6	3	7	4	33	37
Total	11	30	0	0	41	0	0	0	0	0	0	37	31	8	68	6	1	21	12	28	20	137	157
Grand Total	18	69	0	0	87	0	0	0	0	0	0	84	58	15	142	13	1	35	18	49	33	278	311
Apprch %	20.7	79.3	0			0	0	0			0	59.2	40.8			26.5	2	71.4					
Total %	6.5	24.8	0		31.3	0	0	0		0	0	30.2	20.9		51.1	4.7	0.4	12.6		17.6	10.6	89.4	

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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**	**16**	0	**19**	0	0	0	0	0	11	**9**	20	1	0	**5**	6	**45**
07:15 AM	2	8	0	10	0	0	0	0	0	11	2	13	1	0	1	2	25
07:30 AM	0	6	0	6	0	0	0	0	0	**14**	8	**22**	**3**	0	5	**8**	36
07:45 AM	2	9	0	11	0	0	0	0	0	11	8	19	2	0	3	5	35
Total Volume	7	39	0	46	0	0	0	0	0	47	27	74	7	0	14	21	141
% App. Total	15.2	84.8	0		0	0	0		0	63.5	36.5		33.3	0	66.7		
PHF	.583	.609	.000	.605	.000	.000	.000	.000	.000	.839	.750	.841	.583	.000	.700	.656	.783

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 3

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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**	**16**	0	**19**	0	0	0	0	0	11	**9**	20	1	0	**5**	6	
+15 mins.	2	8	0	10	0	0	0	0	0	11	2	13	1	0	1	2	
+30 mins.	0	6	0	6	0	0	0	0	0	**14**	8	**22**	**3**	0	5	**8**	
+45 mins.	2	9	0	11	0	0	0	0	0	11	8	19	2	0	3	5	
Total Volume	7	39	0	46	0	0	0	0	0	47	27	74	7	0	14	21	
% App. Total	15.2	84.8	0		0	0	0		0	63.5	36.5		33.3	0	66.7		
PHF	.583	.609	.000	.605	.000	.000	.000	.000	.000	.839	.750	.841	.583	.000	.700	.656	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Riverside Avenue Southbound					I-10 Eastbound On Ramp Westbound					Riverside Avenue Northbound					I-10 Eastbound Off Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	7	0	0	8	0	0	0	0	0	0	7	11	3	18	0	0	3	1	3	4	29	33
07:15 AM	0	6	0	0	6	0	0	0	0	0	0	4	3	1	7	0	0	4	1	4	2	17	19
07:30 AM	1	8	0	0	9	0	0	0	0	0	0	6	6	1	12	0	0	9	2	9	3	30	33
07:45 AM	0	9	0	0	9	0	0	0	0	0	0	5	7	1	12	0	0	1	0	1	1	22	23
Total	2	30	0	0	32	0	0	0	0	0	0	22	27	6	49	0	0	17	4	17	10	98	108
08:00 AM	1	6	0	0	7	0	0	0	0	0	0	7	8	1	15	0	0	3	1	3	2	25	27
08:15 AM	0	9	0	0	9	0	0	0	0	0	0	7	8	2	15	1	0	1	0	2	2	26	28
08:30 AM	2	7	0	0	9	0	0	0	0	0	0	6	8	1	14	3	0	5	1	8	2	31	33
08:45 AM	1	16	0	0	17	0	0	0	0	0	0	6	6	4	12	0	0	3	0	3	4	32	36
Total	4	38	0	0	42	0	0	0	0	0	0	26	30	8	56	4	0	12	2	16	10	114	124
Grand Total	6	68	0	0	74	0	0	0	0	0	0	48	57	14	105	4	0	29	6	33	20	212	232
Apprch %	8.1	91.9	0			0	0	0			0	45.7	54.3			12.1	0	87.9					
Total %	2.8	32.1	0		34.9	0	0	0		0	0	22.6	26.9		49.5	1.9	0	13.7		15.6	8.6	91.4	

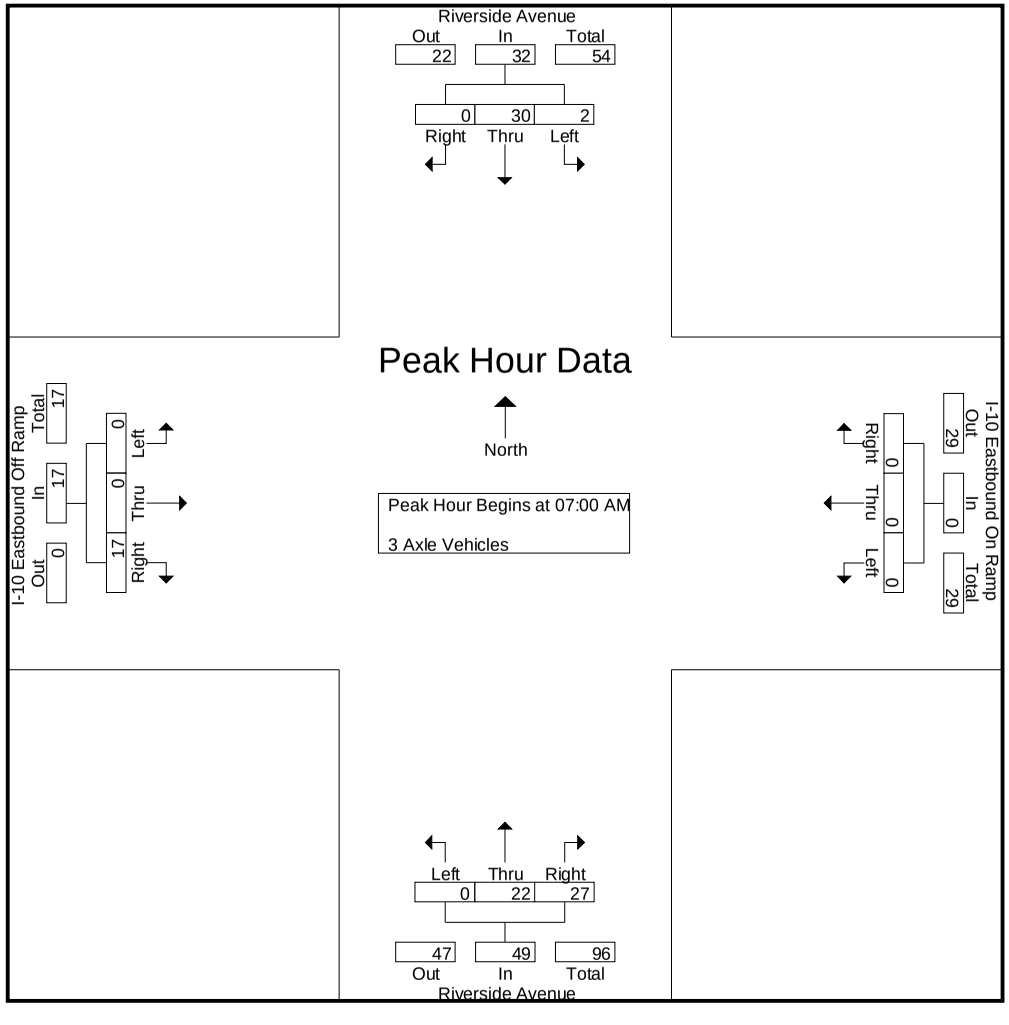
3.1-106

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**1**	7	0	8	0	0	0	0	0	**7**	**11**	**18**	0	0	3	3	29
07:15 AM	0	6	0	6	0	0	0	0	0	4	3	7	0	0	4	4	17
07:30 AM	1	8	0	**9**	0	0	0	0	0	6	6	12	0	0	**9**	**9**	**30**
07:45 AM	0	**9**	0	9	0	0	0	0	0	5	7	12	0	0	1	1	22
Total Volume	2	30	0	32	0	0	0	0	0	22	27	49	0	0	17	17	98
% App. Total	6.2	93.8	0		0	0	0		0	44.9	55.1		0	0	100		
PHF	.500	.833	.000	.889	.000	.000	.000	.000	.000	.786	.614	.681	.000	.000	.472	.472	.817

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 3

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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.	**1**	7	0	8	0	0	0	0	0	**7**	**11**	**18**	0	0	3	3	
+15 mins.	0	6	0	6	0	0	0	0	0	4	3	7	0	0	4	4	
+30 mins.	1	8	0	**9**	0	0	0	0	0	6	6	12	0	0	**9**	**9**	
+45 mins.	0	**9**	0	9	0	0	0	0	0	5	7	12	0	0	1	1	
Total Volume	2	30	0	32	0	0	0	0	0	22	27	49	0	0	17	17	
% App. Total	6.2	93.8	0		0	0	0		0	44.9	55.1		0	0	100		
PHF	.500	.833	.000	.889	.000	.000	.000	.000	.000	.786	.614	.681	.000	.000	.472	.472	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

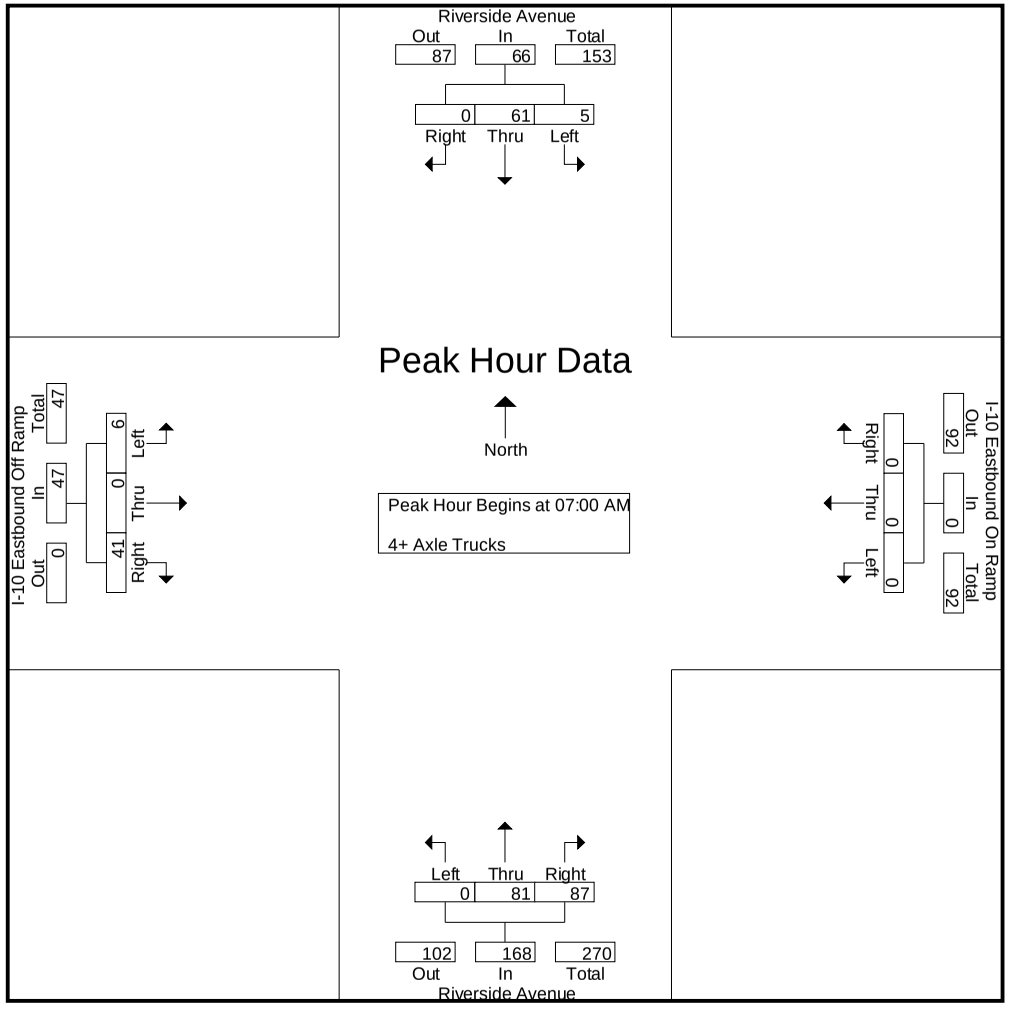
	Riverside Avenue Southbound					I-10 Eastbound On Ramp Westbound					Riverside Avenue Northbound					I-10 Eastbound Off Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	17	0	0	17	0	0	0	0	0	0	20	23	5	43	2	0	10	4	12	9	72	81
07:15 AM	3	12	0	0	15	0	0	0	0	0	0	20	20	3	40	3	0	12	2	15	5	70	75
07:30 AM	1	16	0	0	17	0	0	0	0	0	0	21	24	5	45	0	0	9	0	9	5	71	76
07:45 AM	1	16	0	0	17	0	0	0	0	0	0	20	20	5	40	1	0	10	2	11	7	68	75
Total	5	61	0	0	66	0	0	0	0	0	0	81	87	18	168	6	0	41	8	47	26	281	307
08:00 AM	0	20	0	0	20	0	0	0	0	0	0	15	24	4	39	2	0	16	4	18	8	77	85
08:15 AM	1	27	0	0	28	0	0	0	0	0	0	14	26	2	40	3	1	12	3	16	5	84	89
08:30 AM	3	21	0	0	24	0	0	0	0	0	0	20	30	5	50	2	0	18	1	20	6	94	100
08:45 AM	0	17	0	0	17	0	0	0	0	0	0	18	22	5	40	2	0	14	0	16	5	73	78
Total	4	85	0	0	89	0	0	0	0	0	0	67	102	16	169	9	1	60	8	70	24	328	352
Grand Total	9	146	0	0	155	0	0	0	0	0	0	148	189	34	337	15	1	101	16	117	50	609	659
Apprch %	5.8	94.2	0			0	0	0			0	43.9	56.1			12.8	0.9	86.3					
Total %	1.5	24	0		25.5	0	0	0		0	0	24.3	31		55.3	2.5	0.2	16.6		19.2	7.6	92.4	

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	**17**	0	**17**	0	0	0	0	0	20	23	43	2	0	10	12	**72**
07:15 AM	**3**	12	0	15	0	0	0	0	0	20	20	40	**3**	0	**12**	**15**	70
07:30 AM	1	16	0	17	0	0	0	0	0	**21**	**24**	**45**	0	0	9	9	71
07:45 AM	1	16	0	17	0	0	0	0	0	20	20	40	1	0	10	11	68
Total Volume	5	61	0	66	0	0	0	0	0	81	87	168	6	0	41	47	281
% App. Total	7.6	92.4	0		0	0	0		0	48.2	51.8		12.8	0	87.2		
PHF	.417	.897	.000	.971	.000	.000	.000	.000	.000	.964	.906	.933	.500	.000	.854	.783	.976

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E AM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 3

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 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	**17**	0	**17**	0	0	0	0	0	20	23	43	2	0	10	12	
+15 mins.	**3**	12	0	15	0	0	0	0	0	20	20	40	**3**	0	**12**	**15**	
+30 mins.	1	16	0	17	0	0	0	0	0	**21**	**24**	**45**	0	0	9	9	
+45 mins.	1	16	0	17	0	0	0	0	0	20	20	40	1	0	10	11	
Total Volume	5	61	0	66	0	0	0	0	0	81	87	168	6	0	41	47	
% App. Total	7.6	92.4	0		0	0	0		0	48.2	51.8		12.8	0	87.2		
PHF	.417	.897	.000	.971	.000	.000	.000	.000	.000	.964	.906	.933	.500	.000	.854	.783	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

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

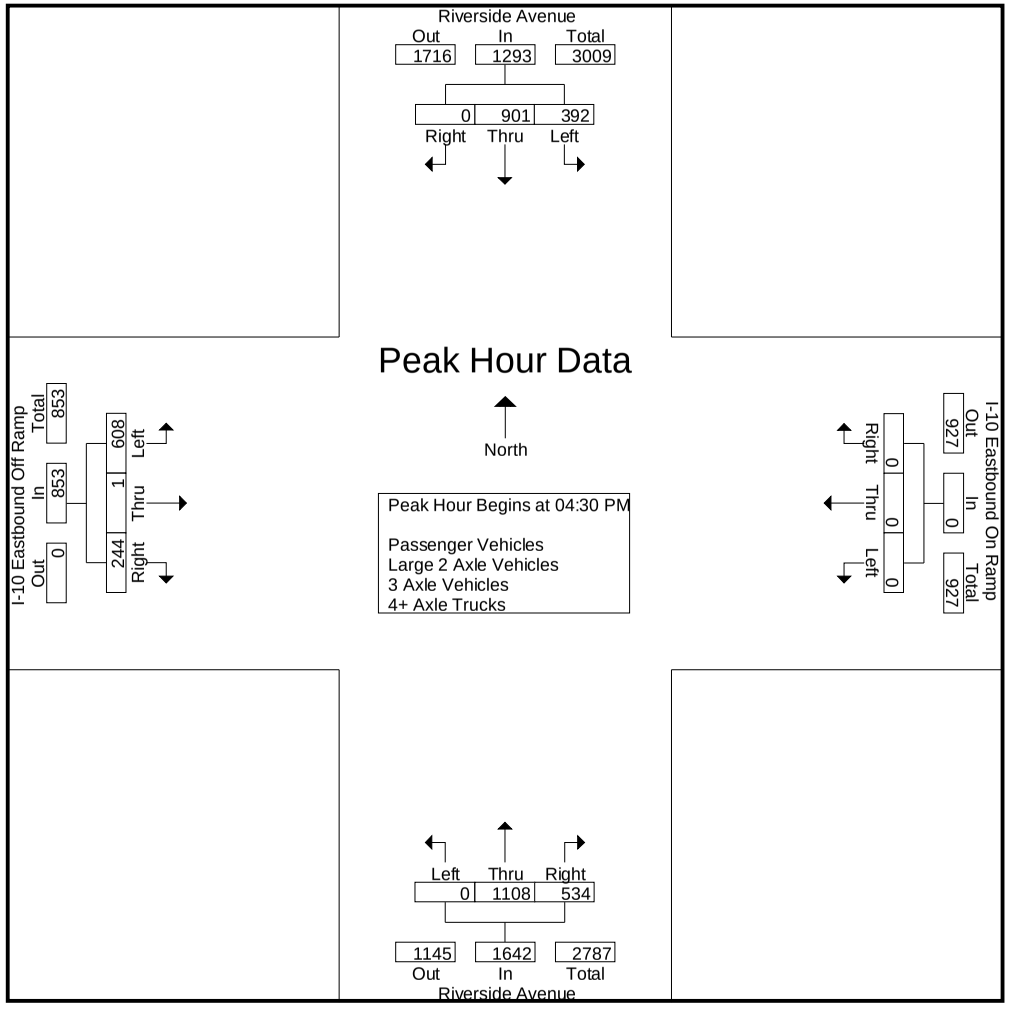
	Riverside Avenue Southbound					I-10 Eastbound On Ramp Westbound					Riverside Avenue Northbound					I-10 Eastbound Off Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	108	196	0	0	304	0	0	0	0	0	0	280	119	25	399	142	1	67	32	210	57	913	970
04:15 PM	121	193	0	0	314	0	0	0	0	0	0	268	123	31	391	137	1	56	20	194	51	899	950
04:30 PM	105	250	0	0	355	0	0	0	0	0	0	287	131	29	418	166	0	54	20	220	49	993	1042
04:45 PM	85	230	0	0	315	0	0	0	0	0	0	257	139	32	396	166	0	59	25	225	57	936	993
Total	419	869	0	0	1288	0	0	0	0	0	0	1092	512	117	1604	611	2	236	97	849	214	3741	3955
05:00 PM	102	206	0	0	308	0	0	0	0	0	0	276	136	21	412	139	0	60	25	199	46	919	965
05:15 PM	100	215	0	0	315	0	0	0	0	0	0	288	128	23	416	137	1	71	28	209	51	940	991
05:30 PM	98	208	0	0	306	0	0	0	0	0	0	294	109	11	403	122	2	54	23	178	34	887	921
05:45 PM	83	211	0	0	294	0	0	0	0	0	0	263	104	16	367	154	0	65	34	219	50	880	930
Total	383	840	0	0	1223	0	0	0	0	0	0	1121	477	71	1598	552	3	250	110	805	181	3626	3807
Grand Total	802	1709	0	0	2511	0	0	0	0	0	0	2213	989	188	3202	1163	5	486	207	1654	395	7367	7762
Apprch %	31.9	68.1	0			0	0	0			0	69.1	30.9			70.3	0.3	29.4					
Total %	10.9	23.2	0		34.1	0	0	0		0	0	30	13.4		43.5	15.8	0.1	6.6		22.5	5.1	94.9	
Passenger Vehicles	780	1479	0		2259	0	0	0		0	0	2066	825		3060	1139	3	319		1631	0	0	6950
% Passenger Vehicles	97.3	86.5	0	0	90	0	0	0	0	0	0	93.4	83.4	89.9	90.3	97.9	60	65.6	82.1	87.6	0	0	89.5
Large 2 Axle Vehicles	11	72	0		83	0	0	0		0	0	37	30		71	9	1	35		64	0	0	218
% Large 2 Axle Vehicles	1.4	4.2	0	0	3.3	0	0	0	0	0	0	1.7	3	2.1	2.1	0.8	20	7.2	9.2	3.4	0	0	2.8
3 Axle Vehicles	2	38	0		40	0	0	0		0	0	25	14		41	5	0	39		52	0	0	133
% 3 Axle Vehicles	0.2	2.2	0	0	1.6	0	0	0	0	0	0	1.1	1.4	1.1	1.2	0.4	0	8	3.9	2.8	0	0	1.7
4+ Axle Trucks	9	120	0		129	0	0	0		0	0	85	120		218	10	1	93		114	0	0	461
% 4+ Axle Trucks	1.1	7	0	0	5.1	0	0	0	0	0	0	3.8	12.1	6.9	6.4	0.9	20	19.1	4.8	6.1	0	0	5.9

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**105**	**250**	0	**355**	0	0	0	0	0	287	131	**418**	**166**	0	54	220	**993**
04:45 PM	85	230	0	315	0	0	0	0	0	257	**139**	396	166	0	59	**225**	936
05:00 PM	102	206	0	308	0	0	0	0	0	276	136	412	139	0	60	199	919
05:15 PM	100	215	0	315	0	0	0	0	0	**288**	128	416	137	**1**	**71**	209	940
Total Volume	392	901	0	1293	0	0	0	0	0	1108	534	1642	608	1	244	853	3788
% App. Total	30.3	69.7	0		0	0	0		0	67.5	32.5		71.3	0.1	28.6		
PHF	.933	.901	.000	.911	.000	.000	.000	.000	.000	.962	.960	.982	.916	.250	.859	.948	.954

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E PM
Site Code : 05119295
Start Date : 5/1/2019

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:00 PM				04:30 PM				04:30 PM				
+0 mins.	**105**	**250**	0	**355**	0	0	0	0	0	287	131	**418**	**166**	0	54	220	
+15 mins.	85	230	0	315	0	0	0	0	0	257	**139**	396	166	0	59	**225**	
+30 mins.	102	206	0	308	0	0	0	0	0	276	136	412	139	0	60	199	
+45 mins.	100	215	0	315	0	0	0	0	0	**288**	128	416	137	**1**	**71**	209	
Total Volume	392	901	0	1293	0	0	0	0	0	1108	534	1642	608	1	244	853	
% App. Total	30.3	69.7	0		0	0	0		0	67.5	32.5		71.3	0.1	28.6		
PHF	.933	.901	.000	.911	.000	.000	.000	.000	.000	.962	.960	.982	.916	.250	.859	.948	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- Passenger Vehicles

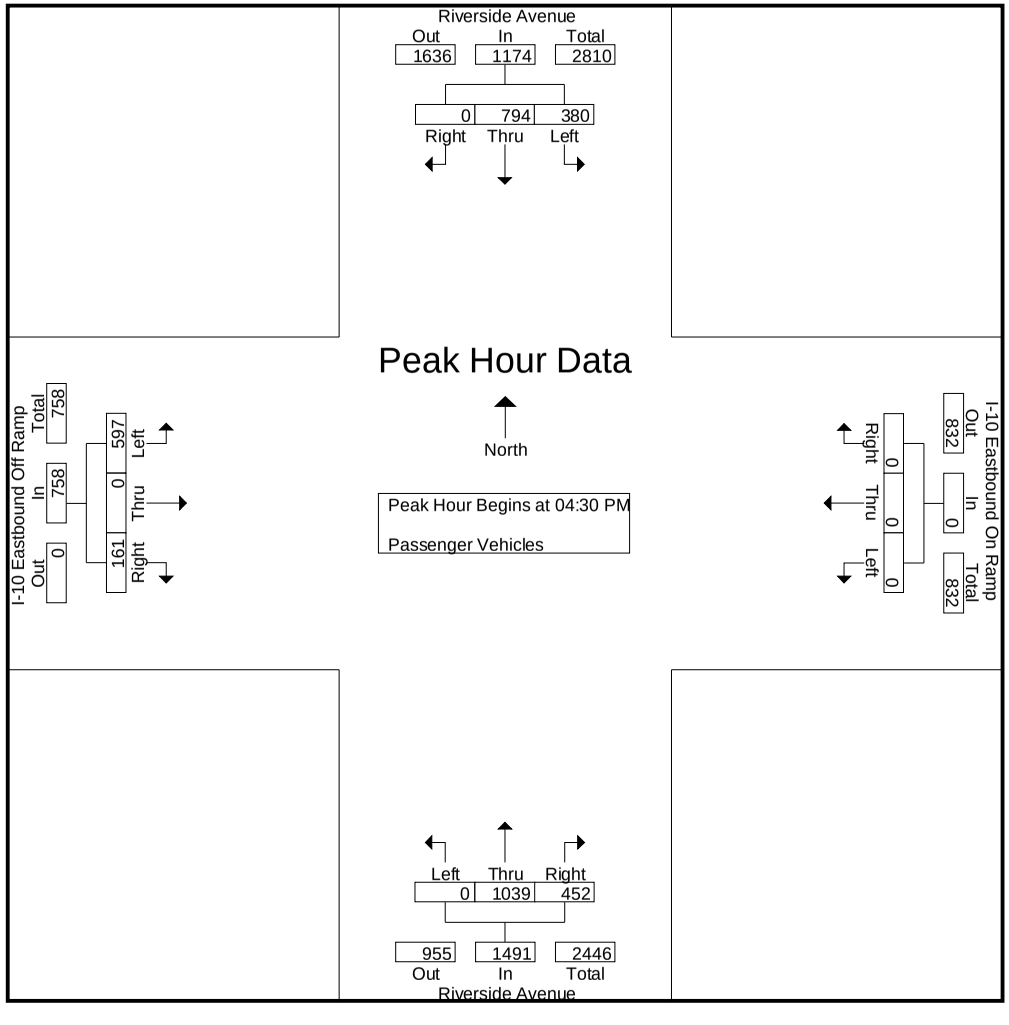
	Riverside Avenue Southbound					I-10 Eastbound On Ramp Westbound					Riverside Avenue Northbound					I-10 Eastbound Off Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	104	163	0	0	267	0	0	0	0	0	0	258	98	23	356	140	1	37	26	178	49	801	850
04:15 PM	117	165	0	0	282	0	0	0	0	0	0	251	96	27	347	135	0	33	15	168	42	797	839
04:30 PM	102	212	0	0	314	0	0	0	0	0	0	271	107	23	378	164	0	32	17	196	40	888	928
04:45 PM	84	206	0	0	290	0	0	0	0	0	0	233	118	30	351	165	0	43	22	208	52	849	901
Total	407	746	0	0	1153	0	0	0	0	0	0	1013	419	103	1432	604	1	145	80	750	183	3335	3518
05:00 PM	98	180	0	0	278	0	0	0	0	0	0	257	117	21	374	135	0	42	19	177	40	829	869
05:15 PM	96	196	0	0	292	0	0	0	0	0	0	278	110	22	388	133	0	44	24	177	46	857	903
05:30 PM	96	183	0	0	279	0	0	0	0	0	0	273	94	8	367	117	2	39	19	158	27	804	831
05:45 PM	83	174	0	0	257	0	0	0	0	0	0	245	85	15	330	150	0	49	28	199	43	786	829
Total	373	733	0	0	1106	0	0	0	0	0	0	1053	406	66	1459	535	2	174	90	711	156	3276	3432
Grand Total	780	1479	0	0	2259	0	0	0	0	0	0	2066	825	169	2891	1139	3	319	170	1461	339	6611	6950
Apprch %	34.5	65.5	0			0	0	0			0	71.5	28.5			78	0.2	21.8					
Total %	11.8	22.4	0		34.2	0	0	0		0	0	31.3	12.5		43.7	17.2	0	4.8		22.1	4.9	95.1	

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**102**	**212**	0	**314**	0	0	0	0	0	271	107	378	164	0	32	196	**888**
04:45 PM	84	206	0	290	0	0	0	0	0	233	**118**	351	**165**	0	43	**208**	849
05:00 PM	98	180	0	278	0	0	0	0	0	257	117	374	135	0	42	177	829
05:15 PM	96	196	0	292	0	0	0	0	0	**278**	110	**388**	133	0	**44**	177	857
Total Volume	380	794	0	1174	0	0	0	0	0	1039	452	1491	597	0	161	758	3423
% App. Total	32.4	67.6	0		0	0	0		0	69.7	30.3		78.8	0	21.2		
PHF	.931	.936	.000	.935	.000	.000	.000	.000	.000	.934	.958	.961	.905	.000	.915	.911	.964

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 3

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	**102**	**212**	0	**314**	0	0	0	0	0	271	107	378	164	0	32	196	
+15 mins.	84	206	0	290	0	0	0	0	0	233	**118**	351	**165**	0	43	**208**	
+30 mins.	98	180	0	278	0	0	0	0	0	257	117	374	135	0	42	177	
+45 mins.	96	196	0	292	0	0	0	0	0	**278**	110	**388**	133	0	**44**	177	
Total Volume	380	794	0	1174	0	0	0	0	0	1039	452	1491	597	0	161	758	
% App. Total	32.4	67.6	0		0	0	0		0	69.7	30.3		78.8	0	21.2		
PHF	.931	.936	.000	.935	.000	.000	.000	.000	.000	.934	.958	.961	.905	.000	.915	.911	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

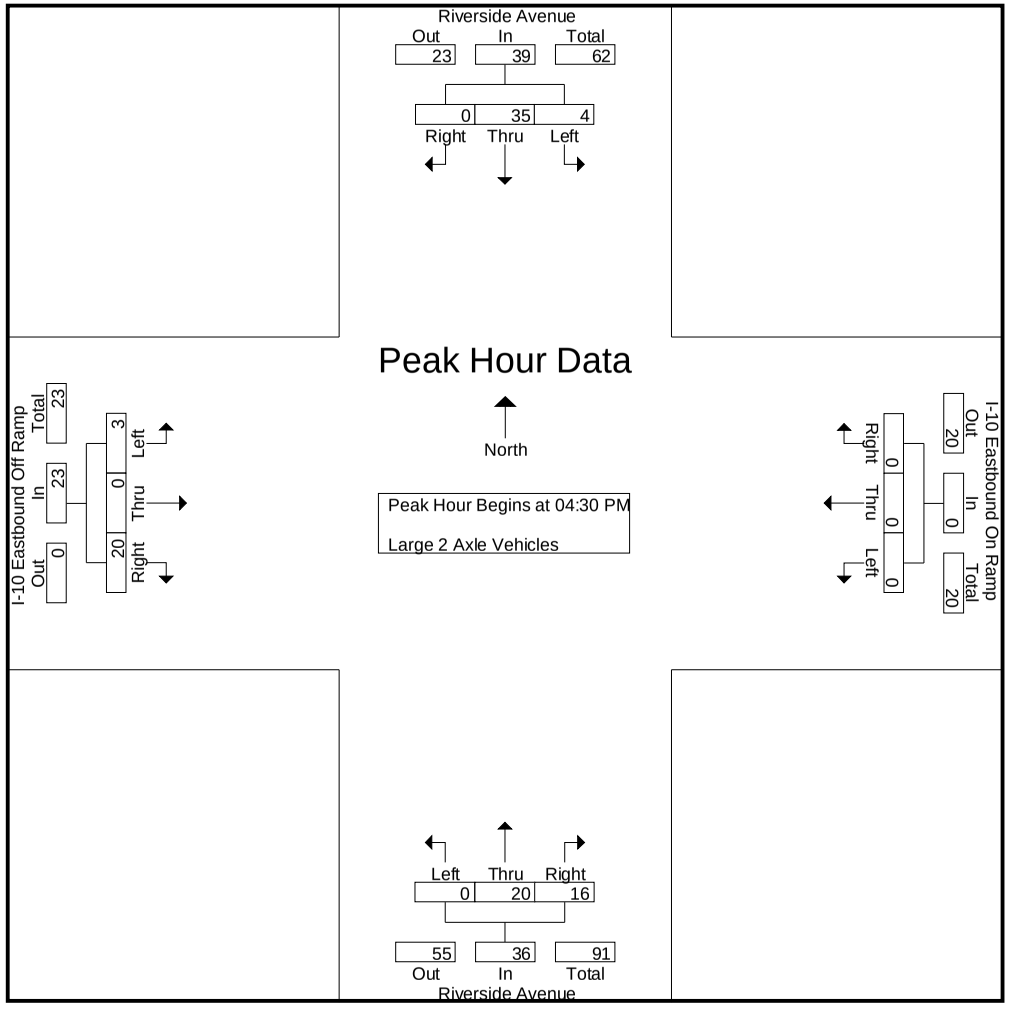
	Riverside Avenue Southbound					I-10 Eastbound On Ramp Westbound					Riverside Avenue Northbound					I-10 Eastbound Off Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	3	6	0	0	9	0	0	0	0	0	0	3	2	0	5	0	0	6	5	6	5	20	25
04:15 PM	2	8	0	0	10	0	0	0	0	0	0	4	5	1	9	1	1	4	3	6	4	25	29
04:30 PM	0	11	0	0	11	0	0	0	0	0	0	3	4	2	7	0	0	5	1	5	3	23	26
04:45 PM	1	9	0	0	10	0	0	0	0	0	0	7	5	1	12	1	0	5	2	6	3	28	31
Total	6	34	0	0	40	0	0	0	0	0	0	17	16	4	33	2	1	20	11	23	15	96	111
05:00 PM	3	7	0	0	10	0	0	0	0	0	0	8	2	0	10	0	0	6	4	6	4	26	30
05:15 PM	0	8	0	0	8	0	0	0	0	0	0	2	5	0	7	2	0	4	1	6	1	21	22
05:30 PM	2	9	0	0	11	0	0	0	0	0	0	6	3	0	9	4	0	1	0	5	0	25	25
05:45 PM	0	14	0	0	14	0	0	0	0	0	0	4	4	0	8	1	0	4	3	5	3	27	30
Total	5	38	0	0	43	0	0	0	0	0	0	20	14	0	34	7	0	15	8	22	8	99	107
Grand Total	11	72	0	0	83	0	0	0	0	0	0	37	30	4	67	9	1	35	19	45	23	195	218
Apprch %	13.3	86.7	0			0	0	0			0	55.2	44.8			20	2.2	77.8					
Total %	5.6	36.9	0		42.6	0	0	0		0	0	19	15.4		34.4	4.6	0.5	17.9		23.1	10.6	89.4	

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	**11**	0	**11**	0	0	0	0	0	3	4	7	0	0	5	5	23
04:45 PM	1	9	0	10	0	0	0	0	0	7	**5**	**12**	1	0	5	**6**	**28**
05:00 PM	**3**	7	0	10	0	0	0	0	0	**8**	2	10	0	0	**6**	6	26
05:15 PM	0	8	0	8	0	0	0	0	0	2	5	7	**2**	0	4	6	21
Total Volume	4	35	0	39	0	0	0	0	0	20	16	36	3	0	20	23	98
% App. Total	10.3	89.7	0		0	0	0		0	55.6	44.4		13	0	87		
PHF	.333	.795	.000	.886	.000	.000	.000	.000	.000	.625	.800	.750	.375	.000	.833	.958	.875

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E PM
Site Code : 05119295
Start Date : 5/1/2019

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	0	**11**	0	**11**	0	0	0	0	0	3	4	7	0	0	5	5	
+15 mins.	1	9	0	10	0	0	0	0	0	7	**5**	**12**	1	0	5	**6**	
+30 mins.	**3**	7	0	10	0	0	0	0	0	**8**	2	10	0	0	**6**	6	
+45 mins.	0	8	0	8	0	0	0	0	0	2	5	7	**2**	0	4	6	
Total Volume	4	35	0	39	0	0	0	0	0	20	16	36	3	0	20	23	
% App. Total	10.3	89.7	0		0	0	0		0	55.6	44.4		13	0	87		
PHF	.333	.795	.000	.886	.000	.000	.000	.000	.000	.625	.800	.750	.375	.000	.833	.958	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

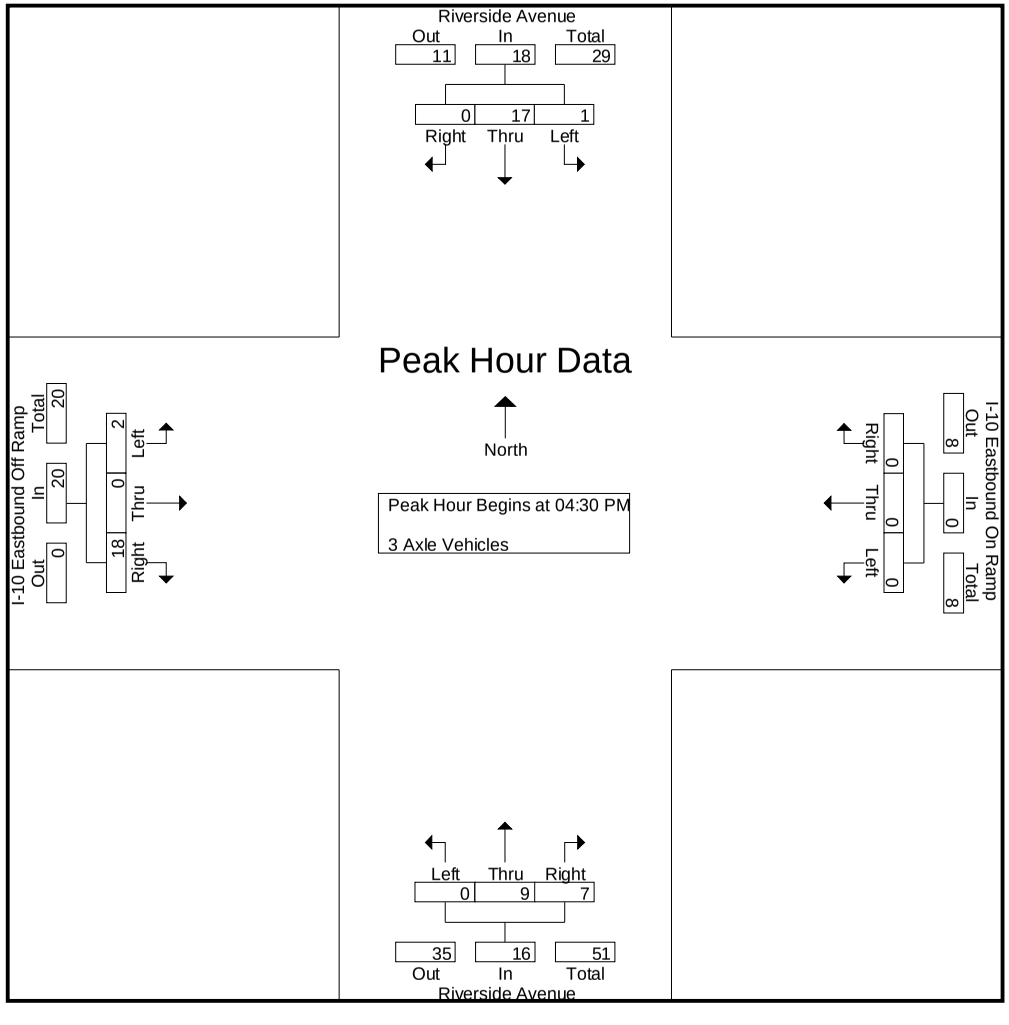
	Riverside Avenue Southbound					I-10 Eastbound On Ramp Westbound					Riverside Avenue Northbound					I-10 Eastbound Off Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	7	0	0	7	0	0	0	0	0	0	6	1	1	7	1	0	10	1	11	2	25	27
04:15 PM	1	4	0	0	5	0	0	0	0	0	0	2	2	1	4	1	0	6	2	7	3	16	19
04:30 PM	0	4	0	0	4	0	0	0	0	0	0	3	3	0	6	0	0	5	1	5	1	15	16
04:45 PM	0	7	0	0	7	0	0	0	0	0	0	3	3	0	6	0	0	2	1	2	1	15	16
Total	1	22	0	0	23	0	0	0	0	0	0	14	9	2	23	2	0	23	5	25	7	71	78
05:00 PM	0	3	0	0	3	0	0	0	0	0	0	1	1	0	2	2	0	5	1	7	1	12	13
05:15 PM	1	3	0	0	4	0	0	0	0	0	0	2	0	0	2	0	0	6	2	6	2	12	14
05:30 PM	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	3	0	3	0	10	10
05:45 PM	0	7	0	0	7	0	0	0	0	0	0	4	4	0	8	1	0	2	0	3	0	18	18
Total	1	16	0	0	17	0	0	0	0	0	0	11	5	0	16	3	0	16	3	19	3	52	55
Grand Total	2	38	0	0	40	0	0	0	0	0	0	25	14	2	39	5	0	39	8	44	10	123	133
Apprch %	5	95	0			0	0	0			0	64.1	35.9			11.4	0	88.6					
Total %	1.6	30.9	0		32.5	0	0	0		0	0	20.3	11.4		31.7	4.1	0	31.7		35.8	7.5	92.5	

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	4	0	4	0	0	0	0	0	**3**	**3**	**6**	0	0	5	5	**15**
04:45 PM	0	**7**	0	**7**	0	0	0	0	0	3	3	6	0	0	2	2	15
05:00 PM	0	3	0	3	0	0	0	0	0	1	1	2	**2**	0	5	**7**	12
05:15 PM	**1**	3	0	4	0	0	0	0	0	2	0	2	0	0	**6**	6	12
Total Volume	1	17	0	18	0	0	0	0	0	9	7	16	2	0	18	20	54
% App. Total	5.6	94.4	0		0	0	0		0	56.2	43.8		10	0	90		
PHF	.250	.607	.000	.643	.000	.000	.000	.000	.000	.750	.583	.667	.250	.000	.750	.714	.900

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 3

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	0	4	0	4	0	0	0	0	0	**3**	**3**	**6**	0	0	5	5	
+15 mins.	0	**7**	0	**7**	0	0	0	0	0	3	3	6	0	0	2	2	
+30 mins.	0	3	0	3	0	0	0	0	0	1	1	2	**2**	0	5	**7**	
+45 mins.	**1**	3	0	4	0	0	0	0	0	2	0	2	0	0	**6**	6	
Total Volume	1	17	0	18	0	0	0	0	0	9	7	16	2	0	18	20	
% App. Total	5.6	94.4	0		0	0	0		0	56.2	43.8		10	0	90		
PHF	.250	.607	.000	.643	.000	.000	.000	.000	.000	.750	.583	.667	.250	.000	.750	.714	

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

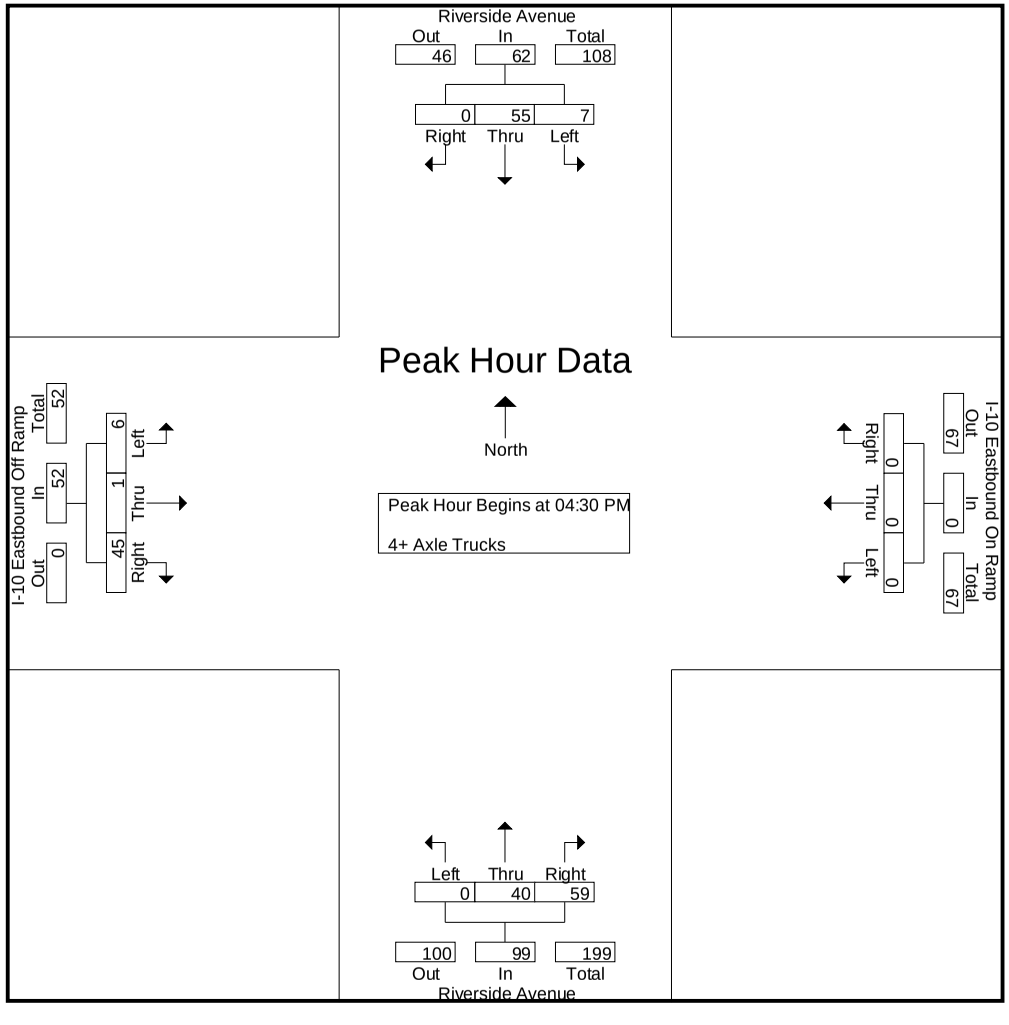
	Riverside Avenue Southbound					I-10 Eastbound On Ramp Westbound					Riverside Avenue Northbound					I-10 Eastbound Off Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	1	20	0	0	21	0	0	0	0	0	0	13	18	1	31	1	0	14	0	15	1	67	68
04:15 PM	1	16	0	0	17	0	0	0	0	0	0	11	20	2	31	0	0	13	0	13	2	61	63
04:30 PM	3	23	0	0	26	0	0	0	0	0	0	10	17	4	27	2	0	12	1	14	5	67	72
04:45 PM	0	8	0	0	8	0	0	0	0	0	0	14	13	1	27	0	0	9	0	9	1	44	45
Total	5	67	0	0	72	0	0	0	0	0	0	48	68	8	116	3	0	48	1	51	9	239	248
05:00 PM	1	16	0	0	17	0	0	0	0	0	0	10	16	0	26	2	0	7	1	9	1	52	53
05:15 PM	3	8	0	0	11	0	0	0	0	0	0	6	13	1	19	2	1	17	1	20	2	50	52
05:30 PM	0	13	0	0	13	0	0	0	0	0	0	11	12	3	23	1	0	11	4	12	7	48	55
05:45 PM	0	16	0	0	16	0	0	0	0	0	0	10	11	1	21	2	0	10	3	12	4	49	53
Total	4	53	0	0	57	0	0	0	0	0	0	37	52	5	89	7	1	45	9	53	14	199	213
Grand Total	9	120	0	0	129	0	0	0	0	0	0	85	120	13	205	10	1	93	10	104	23	438	461
Apprch %	7	93	0			0	0	0			0	41.5	58.5			9.6	1	89.4					
Total %	2.1	27.4	0		29.5	0	0	0		0	0	19.4	27.4		46.8	2.3	0.2	21.2		23.7	5	95	

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**3**	**23**	0	**26**	0	0	0	0	0	10	**17**	**27**	**2**	0	12	14	**67**
04:45 PM	0	8	0	8	0	0	0	0	0	**14**	13	27	0	0	9	9	44
05:00 PM	1	16	0	17	0	0	0	0	0	10	16	26	2	0	7	9	52
05:15 PM	3	8	0	11	0	0	0	0	0	6	13	19	2	**1**	**17**	**20**	50
Total Volume	7	55	0	62	0	0	0	0	0	40	59	99	6	1	45	52	213
% App. Total	11.3	88.7	0		0	0	0		0	40.4	59.6		11.5	1.9	86.5		
PHF	.583	.598	.000	.596	.000	.000	.000	.000	.000	.714	.868	.917	.750	.250	.662	.650	.795

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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E PM
Site Code : 05119295
Start Date : 5/1/2019
Page No : 2



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

City of Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_RLT_Riverside_10E PM
Site Code : 05119295
Start Date : 5/1/2019

	Riverside Avenue Southbound				I-10 Eastbound On Ramp Westbound				Riverside Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	**3**	**23**	0	**26**	0	0	0	0	0	10	**17**	**27**	**2**	0	12	14	
+15 mins.	0	8	0	8	0	0	0	0	0	**14**	13	27	0	0	9	9	
+30 mins.	1	16	0	17	0	0	0	0	0	10	16	26	2	0	7	9	
+45 mins.	3	8	0	11	0	0	0	0	0	6	13	19	2	**1**	**17**	**20**	
Total Volume	7	55	0	62	0	0	0	0	0	40	59	99	6	1	45	52	
% App. Total	11.3	88.7	0		0	0	0		0	40.4	59.6		11.5	1.9	86.5		
PHF	.583	.598	.000	.596	.000	.000	.000	.000	.000	.714	.868	.917	.750	.250	.662	.650	

Location: Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps

Date: 5/1/2019
Day: Wednesday

PEDESTRIANS

	North Leg Riverside Avenue	East Leg I-10 Eastbound Ramps	South Leg Riverside Avenue	West Leg I-10 Eastbound Ramps	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	1	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	1	1
7:45 AM	0	0	0	1	1
8:00 AM	0	0	0	0	0
8:15 AM	0	1	0	0	1
8:30 AM	0	0	0	1	1
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	3	5

	North Leg Riverside Avenue	East Leg I-10 Eastbound Ramps	South Leg Riverside Avenue	West Leg I-10 Eastbound Ramps	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	1	1
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	1	0	0	1
TOTAL VOLUMES:	0	1	0	1	2

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Location: Rialto
N/S: Riverside Avenue
E/W: I-10 Eastbound Ramps

Date: 5/1/2019
Day: Wednesday

BICYCLES

	Southbound Riverside Avenue			Westbound I-10 Eastbound Ramps			Northbound Riverside Avenue			Eastbound I-10 Eastbound Ramps			
	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	1	0	0	0	0	1
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	1	0	0	0	0	1

	Southbound Riverside Avenue			Westbound I-10 Eastbound Ramps			Northbound Riverside Avenue			Eastbound I-10 Eastbound Ramps			
	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	1	0	0	0	0	1
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	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES:	0	2	0	0	0	0	0	2	0	0	0	0	4

APPENDIX 3.2:

EXISTING (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

This Page Intentionally Left Blank

Volume Development
Weekday AM Peak Hour

1: Dwy. 1 & Valley Bl.

	PHF: 0.920									Count Date:			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing 2019:								712			437		1,149
2-Axle:								23			8		31
3-Axle:								5			8		13
4-Axle:								4			6		10
Adj. 2021 Actual:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**741**	**0**	**0**	**455**	**0**	**1,195**
Adj. 2021 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**766**	**0**	**0**	**480**	**0**	**1,246**

2: Dwy. 2 & Valley Bl.

	PHF: 0.920									Count Date:			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing 2019:								712			437		1,149
2-Axle:								23			8		31
3-Axle:								5			8		13
4-Axle:								4			6		10
Adj. 2021 Actual:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**741**	**0**	**0**	**455**	**0**	**1,195**
Adj. 2021 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**766**	**0**	**0**	**480**	**0**	**1,246**

3: Valley Bl. & Dwy. 3

	PHF: 0.920									Count Date:			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing 2019:		87			204								291
2-Axle:		8			6								14
3-Axle:		2			1								3
4-Axle:		0			2								2
Adj. 2021 Actual:	**0**	**91**	**0**	**0**	**212**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**303**
Adj. 2021 PCE:	**0**	**97**	**0**	**0**	**221**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**317**

4: Willow Av. & Valley Bl.

	PHF: 0.930				7:15					Count Date:	1/24/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing 2019:	1	2	1	175	1	28	16	694	2	2	408	69	1,399
2-Axle:	0	0	0	6	0	0	2	21	0	0	8	6	43
3-Axle:	0	0	0	1	0	0	0	5	0	0	8	2	16
4-Axle:	0	0	0	1	0	1	0	4	0	0	5	0	11
Adj. 2021 Actual:	**1**	**2**	**1**	**182**	**1**	**29**	**17**	**722**	**2**	**2**	**424**	**72**	**1,456**
Adj. 2021 PCE:	**1**	**2**	**1**	**188**	**1**	**31**	**18**	**746**	**2**	**2**	**447**	**77**	**1,517**

5: Riverside Av. & Valley Bl.

	PHF: 0.872				7:15					Count Date:	2/6/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing 2019:	299	582	147	48	1,085	32	38	205	438	183	185	32	3,274
2-Axle:	4	11	11	2	6	0	3	11	14	9	6	2	79
3-Axle:	4	4	1	0	2	0	1	1	3	1	3	0	20
4-Axle:	3	0	4	0	4	0	0	3	5	13	3	1	36
Adj. 2021 Actual:	**311**	**606**	**153**	**50**	**1,129**	**33**	**40**	**213**	**456**	**190**	**192**	**33**	**3,406**
Adj. 2021 PCE:	**324**	**615**	**168**	**51**	**1,142**	**33**	**42**	**226**	**477**	**223**	**205**	**36**	**3,543**

Volume Development
Weekday AM Peak Hour

6: Riverside Av. & I-10 WB Ramps

	PHF:	0.955			7:00				Count Date:	5/1/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing 2019:	225	771	0	0	1,208	564	0	0	0	435	0	344	3,547
2-Axle:	29	25	0	0	24	9	0	0	0	22	0	2	111
3-Axle:	20	5	0	0	8	0	0	0	0	24	0	0	57
4-Axle:	70	17	0	0	7	7	0	0	0	62	0	4	167
Adj. 2021 Actual:	**234**	**802**	**0**	**0**	**1,257**	**587**	**0**	**0**	**0**	**453**	**0**	**358**	**3,690**
Adj. 2021 PCE:	**416**	**856**	**0**	**0**	**1,292**	**606**	**0**	**0**	**0**	**618**	**0**	**367**	**4,155**

7: Riverside Av. & I-10 EB Ramps

	PHF:	0.933			7:00				Count Date:	5/1/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing 2019:	0	699	372	511	1,132	0	297	0	323	0	0	0	3,334
2-Axle:	0	47	27	7	39	0	7	0	14	0	0	0	141
3-Axle:	0	25	27	2	30	0	0	0	17	0	0	0	101
4-Axle:	0	81	87	5	64	0	6	0	41	0	0	0	284
Adj. 2021 Actual:	**0**	**727**	**387**	**532**	**1,178**	**0**	**309**	**0**	**336**	**0**	**0**	**0**	**3,469**
Adj. 2021 PCE:	**0**	**946**	**610**	**548**	**1,362**	**0**	**325**	**0**	**446**	**0**	**0**	**0**	**4,238**

Volume Development
Weekday PM Peak Hour

1: Dwy. 1 & Valley Bl.

PHF: 0.920 Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing 2019:								794			714		1,508
2-Axle:								10			13		23
3-Axle:								5			2		7
4-Axle:								5			7		12
Adj. 2021 Actual:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**826**	**0**	**0**	**743**	**0**	**1,569**
Adj. 2021 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**847**	**0**	**0**	**766**	**0**	**1,613**

2: Dwy. 2 & Valley Bl.

PHF: 0.920 Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing 2019:								794			714		1,508
2-Axle:								10			13		23
3-Axle:								5			2		7
4-Axle:								5			7		12
Adj. 2021 Actual:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**826**	**0**	**0**	**743**	**0**	**1,569**
Adj. 2021 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**847**	**0**	**0**	**766**	**0**	**1,613**

3: Valley Bl. & Dwy. 3

PHF: 0.920 Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing 2019:		198			131								329
2-Axle:		2			1								3
3-Axle:		1			1								2
4-Axle:		1			3								4
Adj. 2021 Actual:	**0**	**206**	**0**	**0**	**136**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**342**
Adj. 2021 PCE:	**0**	**210**	**0**	**0**	**144**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**354**

4: Willow Av. & Valley Bl.

PHF: 0.915 4:15 Count Date: 1/24/2019

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing 2019:	1	2	4	103	0	28	45	748	1	4	685	151	1,772
2-Axle:	0	0	0	0	0	1	0	10	0	0	12	2	25
3-Axle:	0	0	0	1	0	0	0	5	0	0	2	1	9
4-Axle:	0	0	0	3	0	0	0	5	0	0	7	1	16
Adj. 2021 Actual:	**1**	**2**	**4**	**107**	**0**	**29**	**47**	**778**	**1**	**4**	**713**	**157**	**1,844**
Adj. 2021 PCE:	**1**	**2**	**4**	**114**	**0**	**30**	**47**	**799**	**1**	**4**	**736**	**161**	**1,899**

5: Riverside Av. & Valley Bl.

PHF: 0.920 4:45 Count Date: 2/6/2019

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing 2019:	506	1,343	197	94	668	49	73	287	384	168	279	105	4,153
2-Axle:	6	16	3	3	12	0	1	6	5	2	4	3	61
3-Axle:	3	2	3	0	2	0	0	1	4	2	1	0	18
4-Axle:	1	1	9	0	1	0	0	2	3	8	1	0	26
Adj. 2021 Actual:	**526**	**1,397**	**205**	**98**	**695**	**51**	**76**	**299**	**400**	**175**	**290**	**109**	**4,321**
Adj. 2021 PCE:	**535**	**1,410**	**228**	**99**	**705**	**51**	**76**	**307**	**413**	**195**	**295**	**111**	**4,425**

Volume Development
Weekday PM Peak Hour

6: Riverside Av. & I-10 WB Ramps

	PHF:	0.950			4:30				Count Date:	5/1/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing 2019:	272	1,444	0	0	1,008	424	0	0	0	319	1	503	3,971
2-Axle:	8	15	0	0	15	2	0	0	0	25	1	5	71
3-Axle:	10	3	0	0	11	1	0	0	0	7	0	2	34
4-Axle:	34	12	0	0	12	2	0	0	0	55	0	7	122
Adj. 2021 Actual:	**283**	**1,502**	**0**	**0**	**1,049**	**441**	**0**	**0**	**0**	**332**	**1**	**523**	**4,131**
Adj. 2021 PCE:	**368**	**1,538**	**0**	**0**	**1,093**	**447**	**0**	**0**	**0**	**467**	**2**	**543**	**4,458**

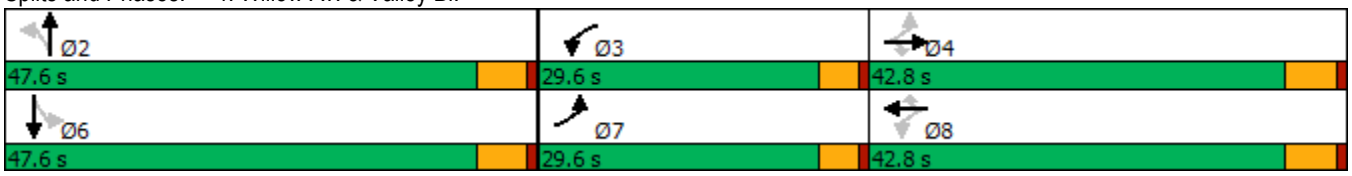
7: Riverside Av. & I-10 EB Ramps

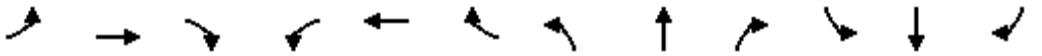
	PHF:	0.954			4:30				Count Date:	5/1/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing 2019:	0	1,108	534	405	922	0	608	1	244	0	0	0	3,822
2-Axle:	0	20	16	4	36	0	3	0	20	0	0	0	99
3-Axle:	0	11	7	1	17	0	2	0	18	0	0	0	56
4-Axle:	0	40	59	7	60	0	6	1	45	0	0	0	218
Adj. 2021 Actual:	**0**	**1,153**	**556**	**421**	**959**	**0**	**633**	**1**	**254**	**0**	**0**	**0**	**3,976**
Adj. 2021 PCE:	**0**	**1,258**	**694**	**439**	**1,121**	**0**	**649**	**3**	**377**	**0**	**0**	**0**	**4,540**

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	18	746	2	2	447	77	1	2	188	1
Future Volume (vph)	18	746	2	2	447	77	1	2	188	1
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	9.6	22.8	22.8	31.4	31.4	31.4	31.4
Total Split (s)	29.6	42.8	42.8	29.6	42.8	42.8	47.6	47.6	47.6	47.6
Total Split (%)	24.7%	35.7%	35.7%	24.7%	35.7%	35.7%	39.7%	39.7%	39.7%	39.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.4	4.4	4.4	4.4
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.4	5.4		5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None
Act Effct Green (s)	21.0	19.0	19.0	20.8	18.9	18.9	15.6	15.6		15.6
Actuated g/C Ratio	0.44	0.40	0.40	0.43	0.39	0.39	0.33	0.33		0.33
v/c Ratio	0.04	0.56	0.00	0.01	0.34	0.12	0.00	0.01		0.51
Control Delay	8.3	14.0	0.0	8.5	12.1	5.3	14.0	12.7		18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	8.3	14.0	0.0	8.5	12.1	5.3	14.0	12.7		18.5
LOS	A	B	A	A	B	A	B	B		B
Approach Delay		13.9			11.1			13.0		18.5
Approach LOS		B			B			B		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 47.9	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 13.6	Intersection LOS: B
Intersection Capacity Utilization 49.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Willow Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	746	2	2	447	77	1	2	1	188	1	31
Future Volume (veh/h)	18	746	2	2	447	77	1	2	1	188	1	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	19	802	2	2	481	83	1	2	1	202	1	33
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	436	1330	593	315	1254	559	550	278	139	451	11	48
Arrive On Green	0.02	0.37	0.37	0.00	0.35	0.35	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1396	1195	597	1218	45	205
Grp Volume(v), veh/h	19	802	2	2	481	83	1	0	3	236	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1396	0	1792	1469	0	0
Q Serve(g_s), s	0.3	7.2	0.0	0.0	4.0	1.4	0.0	0.0	0.1	5.6	0.0	0.0
Cycle Q Clear(g_c), s	0.3	7.2	0.0	0.0	4.0	1.4	0.0	0.0	0.1	5.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	0.86		0.14
Lane Grp Cap(c), veh/h	436	1330	593	315	1254	559	550	0	418	510	0	0
V/C Ratio(X)	0.04	0.60	0.00	0.01	0.38	0.15	0.00	0.00	0.01	0.46	0.00	0.00
Avail Cap(c_a), veh/h	1526	3347	1493	1443	3347	1493	1701	0	1895	1713	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.2	10.2	8.0	8.9	9.8	9.0	11.7	0.0	11.8	13.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.9	0.0	0.0	1.0	0.3	0.0	0.0	0.0	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.2	10.7	8.0	9.0	10.0	9.1	11.7	0.0	11.8	14.6	0.0	0.0
LnGrp LOS	A	B	A	A	B	A	B	A	B	B	A	A
Approach Vol, veh/h		823			566			4			236	
Approach Delay, s/veh		10.6			9.9			11.8			14.6	
Approach LOS		B			A			B			B	

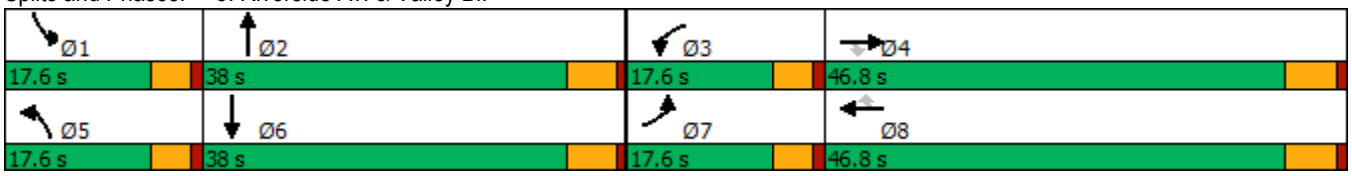
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.7	4.7	20.5		14.7	5.5	19.7				
Change Period (Y+Rc), s		5.4	4.6	5.8		5.4	4.6	5.8				
Max Green Setting (Gmax), s		42.2	25.0	37.0		42.2	25.0	37.0				
Max Q Clear Time (g_c+I1), s		2.1	2.0	9.2		7.8	2.3	6.0				
Green Ext Time (p_c), s		0.0	0.0	5.5		1.3	0.0	3.3				

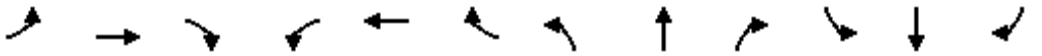
Intersection Summary												
HCM 6th Ctrl Delay			10.9									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	42	226	477	223	205	36	324	615	51	1142
Future Volume (vph)	42	226	477	223	205	36	324	615	51	1142
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8	38.8	9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	17.6	46.8	46.8	17.6	46.8	46.8	17.6	38.0	17.6	38.0
Total Split (%)	14.7%	39.0%	39.0%	14.7%	39.0%	39.0%	14.7%	31.7%	14.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
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	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	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	Min	None	Min
Act Effct Green (s)	7.4	28.3	28.3	13.1	36.3	36.3	13.1	39.6	8.0	32.2
Actuated g/C Ratio	0.07	0.26	0.26	0.12	0.34	0.34	0.12	0.37	0.07	0.30
v/c Ratio	0.38	0.27	0.90	1.16	0.19	0.07	0.87	0.48	0.44	0.87
Control Delay	59.5	31.2	38.2	154.1	26.3	0.2	69.0	27.9	60.3	44.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	59.5	31.2	38.2	154.1	26.3	0.2	69.0	28.1	60.3	44.0
LOS	E	C	D	F	C	A	E	C	E	D
Approach Delay		37.3			85.7			40.1		44.7
Approach LOS		D			F			D		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 107.3	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 47.1	Intersection LOS: D
Intersection Capacity Utilization 77.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	226	477	223	205	36	324	615	168	51	1142	33
Future Volume (veh/h)	42	226	477	223	205	36	324	615	168	51	1142	33
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	48	260	548	256	236	41	372	707	193	59	1313	38
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	62	1236	551	196	1503	671	381	1368	369	76	1400	41
Arrive On Green	0.03	0.34	0.34	0.11	0.42	0.42	0.11	0.34	0.34	0.04	0.27	0.27
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	4065	1095	1810	5181	150
Grp Volume(v), veh/h	48	260	548	256	236	41	372	600	300	59	876	475
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1703	1810	1729	1873
Q Serve(g_s), s	3.2	6.1	40.6	13.0	4.9	1.8	12.7	16.7	17.0	3.9	29.7	29.7
Cycle Q Clear(g_c), s	3.2	6.1	40.6	13.0	4.9	1.8	12.7	16.7	17.0	3.9	29.7	29.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.64	1.00		0.08
Lane Grp Cap(c), veh/h	62	1236	551	196	1503	671	381	1164	573	76	935	506
V/C Ratio(X)	0.77	0.21	0.99	1.30	0.16	0.06	0.98	0.52	0.52	0.77	0.94	0.94
Avail Cap(c_a), veh/h	196	1236	551	196	1503	671	381	1164	573	196	941	510
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	57.4	27.9	39.3	53.4	21.8	20.9	53.2	31.9	32.0	56.8	42.7	42.7
Incr Delay (d2), s/veh	7.3	0.1	36.8	168.4	0.0	0.0	39.5	0.4	0.9	6.0	16.3	25.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.6	20.8	14.9	2.0	0.7	7.6	6.9	7.0	1.9	14.4	16.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.6	28.0	76.0	221.8	21.9	21.0	92.8	32.3	32.9	62.8	59.0	67.9
LnGrp LOS	E	C	E	F	C	C	F	C	C	E	E	E
Approach Vol, veh/h		856			533			1272			1410	
Approach Delay, s/veh		60.8			117.8			50.1			62.2	
Approach LOS		E			F			D			E	

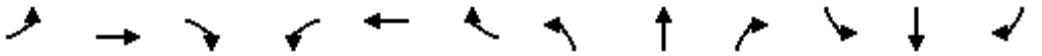
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	45.7	17.6	46.8	17.6	37.8	8.7	55.7
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	13.0	32.6	13.0	41.0	13.0	32.6	13.0	41.0
Max Q Clear Time (g_c+I1), s	5.9	19.0	15.0	42.6	14.7	31.7	5.2	6.9
Green Ext Time (p_c), s	0.0	4.7	0.0	0.0	0.0	0.7	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	65.4
HCM 6th LOS	E

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	618	0	367	416	856	1292	606
Future Volume (vph)	618	0	367	416	856	1292	606
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	31.8	31.8	31.8	25.6	58.2	32.6	32.6
Total Split (%)	35.3%	35.3%	35.3%	28.4%	64.7%	36.2%	36.2%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	21.9	21.9	21.9	14.3	45.6	26.6	26.6
Actuated g/C Ratio	0.28	0.28	0.28	0.18	0.58	0.34	0.34
v/c Ratio	0.75	0.70	0.61	0.69	0.30	0.62	0.66
Control Delay	37.6	27.6	19.2	36.8	9.1	24.3	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	37.6	27.6	19.2	36.8	9.2	24.3	5.9
LOS	D	C	B	D	A	C	A
Approach Delay		28.4			18.3	18.4	
Approach LOS		C			B	B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 78.7	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 20.7	Intersection LOS: C
Intersection Capacity Utilization 117.6%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	618	0	367	416	856	0	0	1292	606
Future Volume (veh/h)	0	0	0	618	0	367	416	856	0	0	1292	606
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				771	0	257	438	901	0	0	1360	638
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				956	0	425	548	3039	0	0	2403	592
Arrive On Green				0.26	0.00	0.26	0.16	0.59	0.00	0.00	0.37	0.37
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	6802	1610
Grp Volume(v), veh/h				771	0	257	438	901	0	0	1360	638
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1634	1610
Q Serve(g_s), s				14.7	0.0	10.3	8.9	6.4	0.0	0.0	12.3	27.2
Cycle Q Clear(g_c), s				14.7	0.0	10.3	8.9	6.4	0.0	0.0	12.3	27.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				956	0	425	548	3039	0	0	2403	592
V/C Ratio(X)				0.81	0.00	0.60	0.80	0.30	0.00	0.00	0.57	1.08
Avail Cap(c_a), veh/h				1277	0	568	997	3702	0	0	2403	592
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.5	0.0	23.8	30.1	7.7	0.0	0.0	18.7	23.4
Incr Delay (d2), s/veh				2.9	0.0	1.4	1.0	0.1	0.0	0.0	0.3	59.6
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				6.0	0.0	3.7	3.6	1.9	0.0	0.0	4.2	18.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				28.3	0.0	25.2	31.1	7.7	0.0	0.0	19.0	83.0
LnGrp LOS				C	A	C	C	A	A	A	B	F
Approach Vol, veh/h					1028			1339			1998	
Approach Delay, s/veh					27.6			15.4			39.4	
Approach LOS					C			B			D	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	48.7		16.1	32.6		25.2						
Change Period (Y+Rc), s	5.4		4.6	5.4		5.7						
Max Green Setting (Gmax), s	52.8		21.0	27.2		26.1						
Max Q Clear Time (g_c+I1), s	8.4		10.9	29.2		16.7						
Green Ext Time (p_c), s	7.1		0.6	0.0		2.8						

Intersection Summary		
HCM 6th Ctrl Delay		29.3
HCM 6th LOS		C

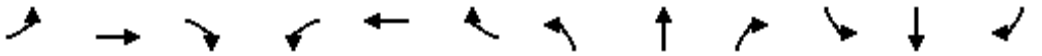
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	325	0	446	946	548	1362
Future Volume (vph)	325	0	446	946	548	1362
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.4	9.6	15.4
Total Split (s)	26.0	26.0	26.0	40.0	24.0	64.0
Total Split (%)	28.9%	28.9%	28.9%	44.4%	26.7%	71.1%
Yellow Time (s)	4.8	4.8	4.8	4.4	3.6	4.4
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)	5.8	5.8	5.8	5.4	4.6	5.4
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	Min	None	Min
Act Effct Green (s)	18.0	18.0	18.0	33.1	17.4	55.2
Actuated g/C Ratio	0.21	0.21	0.21	0.39	0.21	0.65
v/c Ratio	0.79	0.71	0.69	0.82	0.82	0.62
Control Delay	48.9	32.5	31.2	24.5	43.0	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	2.1
Total Delay	48.9	32.5	31.2	24.5	43.0	12.3
LOS	D	C	C	C	D	B
Approach Delay		37.7		24.5		21.1
Approach LOS		D		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 84.5	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 25.4	Intersection LOS: C
Intersection Capacity Utilization 117.6%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 7: Riverside Av. & I-10 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	325	0	446	0	0	0	0	946	610	548	1362	0
Future Volume (veh/h)	325	0	446	0	0	0	0	946	610	548	1362	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	519	0	298				0	1017	656	589	1465	0
Peak Hour Factor	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
Cap, veh/h	774	0	345				0	1409	656	675	2361	0
Arrive On Green	0.21	0.00	0.21				0.00	0.41	0.41	0.19	0.65	0.00
Sat Flow, veh/h	3619	0	1610				0	3629	1610	3510	3705	0
Grp Volume(v), veh/h	519	0	298				0	1017	656	589	1465	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1755	1805	0
Q Serve(g_s), s	11.2	0.0	15.2				0.0	21.0	34.6	13.8	20.1	0.0
Cycle Q Clear(g_c), s	11.2	0.0	15.2				0.0	21.0	34.6	13.8	20.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	774	0	345				0	1409	656	675	2361	0
V/C Ratio(X)	0.67	0.00	0.86				0.00	0.72	1.00	0.87	0.62	0.00
Avail Cap(c_a), veh/h	861	0	383				0	1409	656	802	2492	0
HCM Platoon Ratio	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				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.6	0.0	32.2				0.0	21.1	25.1	33.3	8.5	0.0
Incr Delay (d2), s/veh	1.8	0.0	17.0				0.0	1.8	35.1	8.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	7.1				0.0	8.0	18.2	6.3	6.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	0.0	49.2				0.0	22.9	60.2	41.4	9.0	0.0
LnGrp LOS	C	A	D				A	C	E	D	A	A
Approach Vol, veh/h		817						1673			2054	
Approach Delay, s/veh		38.5						37.6			18.3	
Approach LOS		D						D			B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	20.9	40.0		24.0		60.9
Change Period (Y+Rc), s	4.6	5.4		5.8		5.4
Max Green Setting (Gmax), s	19.4	34.6		20.2		58.6
Max Q Clear Time (g_c+I1), s	15.8	36.6		17.2		22.1
Green Ext Time (p_c), s	0.5	0.0		1.0		14.2

Intersection Summary		
HCM 6th Ctrl Delay		29.0
HCM 6th LOS		C

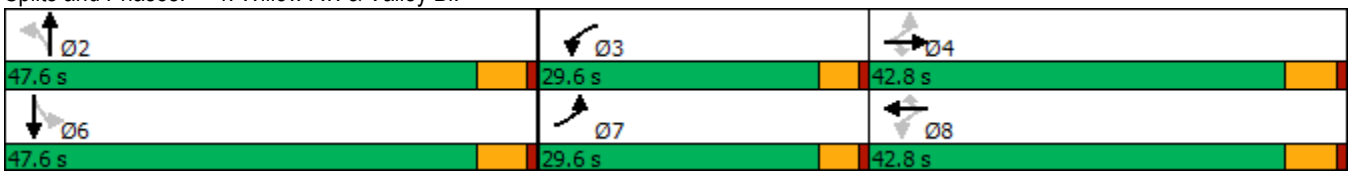
Notes

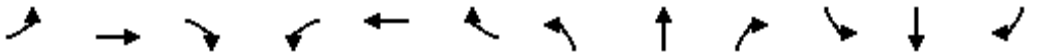
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	47	799	1	4	736	161	1	2	114	0
Future Volume (vph)	47	799	1	4	736	161	1	2	114	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	9.6	22.8	22.8	31.4	31.4	31.4	31.4
Total Split (s)	29.6	42.8	42.8	29.6	42.8	42.8	47.6	47.6	47.6	47.6
Total Split (%)	24.7%	35.7%	35.7%	24.7%	35.7%	35.7%	39.7%	39.7%	39.7%	39.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.4	4.4	4.4	4.4
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.4	5.4		5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None
Act Effct Green (s)	29.9	27.7	27.7	27.0	23.0	23.0	13.1	13.1		13.1
Actuated g/C Ratio	0.55	0.51	0.51	0.50	0.43	0.43	0.24	0.24		0.24
v/c Ratio	0.12	0.47	0.00	0.01	0.52	0.24	0.00	0.01		0.40
Control Delay	6.9	10.9	0.0	7.0	14.8	8.1	18.0	13.3		14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	6.9	10.9	0.0	7.0	14.8	8.1	18.0	13.3		14.7
LOS	A	B	A	A	B	A	B	B		B
Approach Delay		10.6			13.6			14.0		14.7
Approach LOS		B			B			B		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 54	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 12.4	Intersection LOS: B
Intersection Capacity Utilization 54.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Willow Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	799	1	4	736	161	1	2	4	114	0	30
Future Volume (veh/h)	47	799	1	4	736	161	1	2	4	114	0	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	51	868	1	4	800	175	1	2	4	124	0	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	379	1513	675	332	1340	598	490	114	228	372	18	63
Arrive On Green	0.05	0.42	0.42	0.01	0.37	0.37	0.20	0.20	0.20	0.20	0.00	0.20
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1398	565	1131	1086	90	313
Grp Volume(v), veh/h	51	868	1	4	800	175	1	0	6	157	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1398	0	1696	1489	0	0
Q Serve(g_s), s	0.7	7.8	0.0	0.1	7.6	3.2	0.0	0.0	0.1	3.4	0.0	0.0
Cycle Q Clear(g_c), s	0.7	7.8	0.0	0.1	7.6	3.2	0.0	0.0	0.1	3.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	0.79		0.21
Lane Grp Cap(c), veh/h	379	1513	675	332	1340	598	490	0	343	453	0	0
V/C Ratio(X)	0.13	0.57	0.00	0.01	0.60	0.29	0.00	0.00	0.02	0.35	0.00	0.00
Avail Cap(c_a), veh/h	1352	3157	1408	1392	3157	1408	1602	0	1692	1620	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.0	9.4	7.1	8.6	10.7	9.4	13.5	0.0	13.5	15.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	0.0	0.0	0.4	0.3	0.0	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.9	0.0	0.0	2.0	0.8	0.0	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.0	9.7	7.1	8.6	11.2	9.7	13.5	0.0	13.5	15.4	0.0	0.0
LnGrp LOS	A	A	A	A	B	A	B	A	B	B	A	A
Approach Vol, veh/h		920			979			7			157	
Approach Delay, s/veh		9.6			10.9			13.5			15.4	
Approach LOS		A			B			B			B	

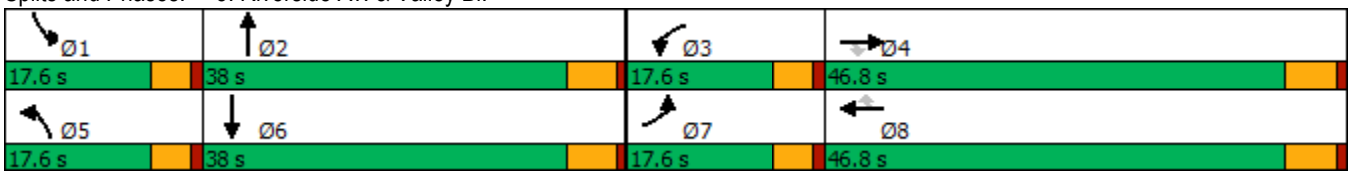
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.9	4.8	23.5		13.9	6.9	21.5				
Change Period (Y+Rc), s		5.4	4.6	5.8		5.4	4.6	5.8				
Max Green Setting (Gmax), s		42.2	25.0	37.0		42.2	25.0	37.0				
Max Q Clear Time (g_c+I1), s		2.1	2.1	9.8		5.9	2.7	9.6				
Green Ext Time (p_c), s		0.0	0.0	6.0		0.9	0.0	6.1				

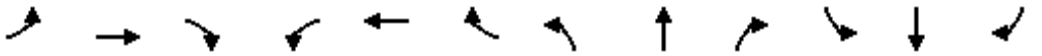
Intersection Summary												
HCM 6th Ctrl Delay			10.7									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	76	307	413	195	295	111	535	1410	99	705
Future Volume (vph)	76	307	413	195	295	111	535	1410	99	705
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8	38.8	9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	17.6	46.8	46.8	17.6	46.8	46.8	17.6	38.0	17.6	38.0
Total Split (%)	14.7%	39.0%	39.0%	14.7%	39.0%	39.0%	14.7%	31.7%	14.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
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	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	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	Min	None	Min
Act Effct Green (s)	8.8	19.8	19.8	13.2	26.5	26.5	13.2	33.0	9.7	29.6
Actuated g/C Ratio	0.09	0.21	0.21	0.14	0.27	0.27	0.14	0.34	0.10	0.31
v/c Ratio	0.51	0.45	0.82	0.86	0.32	0.23	1.22	1.01	0.59	0.52
Control Delay	55.1	34.8	26.6	74.9	30.0	6.5	153.2	58.1	57.4	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.8	0.0	0.0
Total Delay	55.1	34.8	26.6	74.9	30.0	6.5	153.2	90.9	57.4	29.5
LOS	E	C	C	E	C	A	F	F	E	C
Approach Delay		32.5			40.2			106.3		32.8
Approach LOS		C			D			F		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 96.4	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.22	
Intersection Signal Delay: 69.8	Intersection LOS: E
Intersection Capacity Utilization 74.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	307	413	195	295	111	535	1410	228	99	705	51
Future Volume (veh/h)	76	307	413	195	295	111	535	1410	228	99	705	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	83	334	449	212	321	121	582	1533	248	108	766	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	106	1121	500	219	1346	600	425	1367	221	135	1271	91
Arrive On Green	0.06	0.31	0.31	0.12	0.37	0.37	0.12	0.30	0.30	0.07	0.26	0.26
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	4501	726	1810	4941	353
Grp Volume(v), veh/h	83	334	449	212	321	121	582	1177	604	108	535	286
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1769	1810	1729	1836
Q Serve(g_s), s	4.9	7.5	28.6	12.5	6.6	5.5	13.0	32.6	32.6	6.3	14.6	14.7
Cycle Q Clear(g_c), s	4.9	7.5	28.6	12.5	6.6	5.5	13.0	32.6	32.6	6.3	14.6	14.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		0.19
Lane Grp Cap(c), veh/h	106	1121	500	219	1346	600	425	1050	537	135	890	472
V/C Ratio(X)	0.78	0.30	0.90	0.97	0.24	0.20	1.37	1.12	1.12	0.80	0.60	0.61
Avail Cap(c_a), veh/h	219	1379	615	219	1379	615	425	1050	537	219	1050	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	49.8	28.1	35.4	47.0	23.2	22.8	47.2	37.4	37.4	48.9	35.0	35.1
Incr Delay (d2), s/veh	4.6	0.1	14.0	51.1	0.1	0.2	180.4	67.1	77.7	4.1	0.7	1.4
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	2.3	3.1	12.5	8.5	2.7	2.0	16.2	22.9	25.0	2.9	6.0	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.4	28.3	49.4	98.0	23.3	23.0	227.6	104.5	115.1	52.9	35.7	36.4
LnGrp LOS	D	C	D	F	C	C	F	F	F	D	D	D
Approach Vol, veh/h		866			654			2363			929	
Approach Delay, s/veh		41.7			47.5			137.5			37.9	
Approach LOS		D			D			F			D	

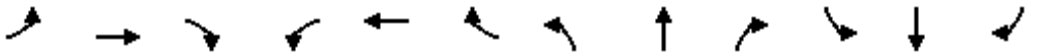
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.6	38.0	17.6	39.1	17.6	33.0	10.9	45.8
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	13.0	32.6	13.0	41.0	13.0	32.6	13.0	41.0
Max Q Clear Time (g_c+I1), s	8.3	34.6	14.5	30.6	15.0	16.7	6.9	8.6
Green Ext Time (p_c), s	0.0	0.0	0.0	2.7	0.0	4.5	0.0	2.3

Intersection Summary	
HCM 6th Ctrl Delay	88.8
HCM 6th LOS	F

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	467	2	543	368	1538	1093	447
Future Volume (vph)	467	2	543	368	1538	1093	447
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	31.8	31.8	31.8	25.6	58.2	32.6	32.6
Total Split (%)	35.3%	35.3%	35.3%	28.4%	64.7%	36.2%	36.2%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	22.1	22.1	22.1	12.9	42.1	24.4	24.4
Actuated g/C Ratio	0.29	0.29	0.29	0.17	0.56	0.32	0.32
v/c Ratio	0.74	0.76	0.68	0.65	0.56	0.55	0.56
Control Delay	35.1	35.4	25.8	35.8	11.9	22.9	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	35.1	35.4	25.8	35.8	12.1	22.9	5.2
LOS	D	D	C	D	B	C	A
Approach Delay		32.2			16.7	17.7	
Approach LOS		C			B	B	

Intersection Summary		
Cycle Length: 90		
Actuated Cycle Length: 75.6		
Natural Cycle: 50		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.76		
Intersection Signal Delay: 20.6	Intersection LOS: C	
Intersection Capacity Utilization 87.4%	ICU Level of Service E	
Analysis Period (min) 15		

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	467	2	543	368	1538	0	0	1093	447
Future Volume (veh/h)	0	0	0	467	2	543	368	1538	0	0	1093	447
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				683	0	369	387	1619	0	0	1151	471
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				1017	0	452	500	2919	0	0	2323	572
Arrive On Green				0.28	0.00	0.28	0.14	0.56	0.00	0.00	0.36	0.36
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	6802	1610
Grp Volume(v), veh/h				683	0	369	387	1619	0	0	1151	471
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1634	1610
Q Serve(g_s), s				11.9	0.0	15.2	7.5	14.1	0.0	0.0	9.8	18.9
Cycle Q Clear(g_c), s				11.9	0.0	15.2	7.5	14.1	0.0	0.0	9.8	18.9
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1017	0	452	500	2919	0	0	2323	572
V/C Ratio(X)				0.67	0.00	0.82	0.77	0.55	0.00	0.00	0.50	0.82
Avail Cap(c_a), veh/h				1330	0	592	1038	3855	0	0	2503	617
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				22.6	0.0	23.8	29.4	9.9	0.0	0.0	17.9	20.9
Incr Delay (d2), s/veh				0.9	0.0	6.7	1.0	0.2	0.0	0.0	0.2	8.3
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				4.6	0.0	5.9	3.0	4.2	0.0	0.0	3.3	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				23.5	0.0	30.5	30.3	10.0	0.0	0.0	18.1	29.2
LnGrp LOS				C	A	C	C	B	A	A	B	C
Approach Vol, veh/h					1052			2006			1622	
Approach Delay, s/veh					25.9			14.0			21.3	
Approach LOS					C			B			C	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	45.4		14.7	30.7		25.7						
Change Period (Y+Rc), s	5.4		4.6	5.4		5.7						
Max Green Setting (Gmax), s	52.8		21.0	27.2		26.1						
Max Q Clear Time (g_c+I1), s	16.1		9.5	20.9		17.2						
Green Ext Time (p_c), s	15.5		0.6	4.3		2.8						

Intersection Summary		
HCM 6th Ctrl Delay	19.2	
HCM 6th LOS	B	

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	649	3	377	1258	439	1121
Future Volume (vph)	649	3	377	1258	439	1121
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.4	9.6	15.4
Total Split (s)	28.0	28.0	28.0	44.0	18.0	62.0
Total Split (%)	31.1%	31.1%	31.1%	48.9%	20.0%	68.9%
Yellow Time (s)	4.8	4.8	4.8	4.4	3.6	4.4
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)	5.8	5.8	5.8	5.4	4.6	5.4
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	Min	None	Min
Act Effct Green (s)	21.8	21.8	21.8	38.6	13.2	56.4
Actuated g/C Ratio	0.24	0.24	0.24	0.43	0.15	0.63
v/c Ratio	0.90	0.92	0.76	0.92	0.89	0.52
Control Delay	59.6	62.8	35.7	30.1	59.0	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	2.7
Total Delay	59.6	62.8	35.7	30.1	59.0	12.8
LOS	E	E	D	C	E	B
Approach Delay		53.3		30.1		25.8
Approach LOS		D		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 89.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 33.8	Intersection LOS: C
Intersection Capacity Utilization 87.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: Riverside Av. & I-10 EB Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	649	3	377	0	0	0	0	1258	694	439	1121	0
Future Volume (veh/h)	649	3	377	0	0	0	0	1258	694	439	1121	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	808	0	266				0	1324	731	462	1180	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	882	0	392				0	1489	693	525	2279	0
Arrive On Green	0.24	0.00	0.24				0.00	0.43	0.43	0.15	0.63	0.00
Sat Flow, veh/h	3619	0	1610				0	3629	1610	3510	3705	0
Grp Volume(v), veh/h	808	0	266				0	1324	731	462	1180	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1755	1805	0
Q Serve(g_s), s	19.5	0.0	13.4				0.0	31.7	38.6	11.6	16.0	0.0
Cycle Q Clear(g_c), s	19.5	0.0	13.4				0.0	31.7	38.6	11.6	16.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	882	0	392				0	1489	693	525	2279	0
V/C Ratio(X)	0.92	0.00	0.68				0.00	0.89	1.05	0.88	0.52	0.00
Avail Cap(c_a), veh/h	896	0	399				0	1489	693	525	2279	0
HCM Platoon Ratio	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				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.0	0.0	30.7				0.0	23.6	25.5	37.3	9.1	0.0
Incr Delay (d2), s/veh	13.8	0.0	4.5				0.0	7.0	49.4	15.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	0.0	5.3				0.0	13.1	22.7	5.9	5.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	0.0	35.2				0.0	30.6	74.9	52.7	9.3	0.0
LnGrp LOS	D	A	D				A	C	F	D	A	A
Approach Vol, veh/h		1074						2055			1642	
Approach Delay, s/veh		43.9						46.4			21.5	
Approach LOS		D						D			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	18.0	44.0		27.7		62.0
Change Period (Y+Rc), s	4.6	5.4		5.8		5.4
Max Green Setting (Gmax), s	13.4	38.6		22.2		56.6
Max Q Clear Time (g_c+I1), s	13.6	40.6		21.5		18.0
Green Ext Time (p_c), s	0.0	0.0		0.4		10.4

Intersection Summary			
HCM 6th Ctrl Delay			37.2
HCM 6th LOS			D

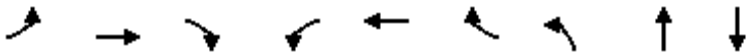
Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX 3.3:

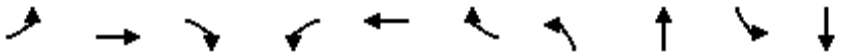
EXISTING (2021) CONDITIONS QUEUING ANALYSIS WORKSHEETS

This Page Intentionally Left Blank



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	19	802	2	2	481	83	1	3	236
v/c Ratio	0.04	0.56	0.00	0.01	0.34	0.12	0.00	0.01	0.51
Control Delay	8.3	14.0	0.0	8.5	12.1	5.3	14.0	12.7	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	14.0	0.0	8.5	12.1	5.3	14.0	12.7	18.5
Queue Length 50th (ft)	2	73	0	0	39	2	0	0	43
Queue Length 95th (ft)	13	209	0	3	122	30	3	6	149
Internal Link Dist (ft)		180			1240			462	1090
Turn Bay Length (ft)	150		100	100		100	50		
Base Capacity (vph)	1049	2967	1339	1035	2967	1340	1120	1593	1242
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.27	0.00	0.00	0.16	0.06	0.00	0.00	0.19

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	48	260	548	256	236	41	372	900	59	1351
v/c Ratio	0.38	0.27	0.90	1.16	0.19	0.07	0.87	0.48	0.44	0.87
Control Delay	59.5	31.2	38.2	154.1	26.3	0.2	69.0	27.9	60.3	44.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	59.5	31.2	38.2	154.1	26.3	0.2	69.0	28.1	60.3	44.0
Queue Length 50th (ft)	33	74	210	~216	62	0	134	169	40	326
Queue Length 95th (ft)	73	104	331	#403	92	0	#237	245	84	#448
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	221	1393	778	221	1408	694	428	1887	221	1588
Starvation Cap Reductn	0	0	0	0	0	0	0	307	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.19	0.70	1.16	0.17	0.06	0.87	0.57	0.27	0.85

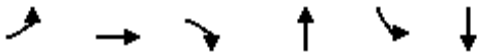
Intersection Summary

~ 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.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	358	355	324	438	901	1360	638
v/c Ratio	0.75	0.70	0.61	0.69	0.30	0.62	0.66
Control Delay	37.6	27.6	19.2	36.8	9.1	24.3	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	37.6	27.6	19.2	36.8	9.2	24.3	5.9
Queue Length 50th (ft)	170	131	77	109	82	169	0
Queue Length 95th (ft)	291	251	178	160	110	231	82
Internal Link Dist (ft)		1040			260	343	
Turn Bay Length (ft)	365		365	160			205
Base Capacity (vph)	577	601	611	948	3534	2294	980
Starvation Cap Reductn	0	0	0	0	1358	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	0.62	0.59	0.53	0.46	0.41	0.59	0.65

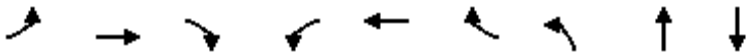
Intersection Summary



Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	286	274	269	1673	589	1465
v/c Ratio	0.79	0.71	0.69	0.82	0.82	0.62
Control Delay	48.9	32.5	31.2	24.5	43.0	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	2.1
Total Delay	48.9	32.5	31.2	24.5	43.0	12.3
Queue Length 50th (ft)	160	107	100	274	163	229
Queue Length 95th (ft)	#281	204	190	338	#224	291
Internal Link Dist (ft)		1329		1191		260
Turn Bay Length (ft)			325			
Base Capacity (vph)	415	430	436	2148	814	2537
Starvation Cap Reductn	0	0	0	0	0	878
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.64	0.62	0.78	0.72	0.88

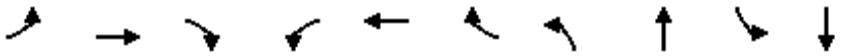
Intersection Summary

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	51	868	1	4	800	175	1	6	157
v/c Ratio	0.12	0.47	0.00	0.01	0.52	0.24	0.00	0.01	0.40
Control Delay	6.9	10.9	0.0	7.0	14.8	8.1	18.0	13.3	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.9	10.9	0.0	7.0	14.8	8.1	18.0	13.3	14.7
Queue Length 50th (ft)	5	63	0	1	96	16	0	1	23
Queue Length 95th (ft)	26	228	0	5	217	68	4	9	76
Internal Link Dist (ft)		180			1240			462	1090
Turn Bay Length (ft)	150		100	100		100	50		
Base Capacity (vph)	940	2620	1190	949	2620	1197	1082	1374	1150
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.33	0.00	0.00	0.31	0.15	0.00	0.00	0.14

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	83	334	449	212	321	121	582	1781	108	821
v/c Ratio	0.51	0.45	0.82	0.86	0.32	0.23	1.22	1.01	0.59	0.52
Control Delay	55.1	34.8	26.6	74.9	30.0	6.5	153.2	58.1	57.4	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.8	0.0	0.0
Total Delay	55.1	34.8	26.6	74.9	30.0	6.5	153.2	90.9	57.4	29.5
Queue Length 50th (ft)	49	94	103	128	84	0	~225	~404	63	147
Queue Length 95th (ft)	108	138	226	#317	133	43	#411	#678	135	227
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	246	1555	851	246	1555	764	478	1755	246	1764
Starvation Cap Reductn	0	0	0	0	0	0	0	159	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.21	0.53	0.86	0.21	0.16	1.22	1.12	0.44	0.47

Intersection Summary

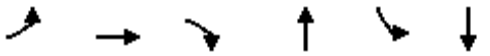
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	369	354	343	387	1619	1151	471
v/c Ratio	0.74	0.76	0.68	0.65	0.56	0.55	0.56
Control Delay	35.1	35.4	25.8	35.8	11.9	22.9	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	35.1	35.4	25.8	35.8	12.1	22.9	5.2
Queue Length 50th (ft)	172	161	116	97	183	136	0
Queue Length 95th (ft)	294	#314	228	142	226	185	66
Internal Link Dist (ft)		1040			260	343	
Turn Bay Length (ft)	365		365	160			205
Base Capacity (vph)	609	562	600	1001	3729	2420	894
Starvation Cap Reductn	0	0	0	0	1064	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	0.61	0.63	0.57	0.39	0.61	0.48	0.53

Intersection Summary

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



Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	376	370	337	2055	462	1180
v/c Ratio	0.90	0.92	0.76	0.92	0.89	0.52
Control Delay	59.6	62.8	35.7	30.1	59.0	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	2.7
Total Delay	59.6	62.8	35.7	30.1	59.0	12.8
Queue Length 50th (ft)	217	219	137	364	134	175
Queue Length 95th (ft)	#388	#404	#273	#485	#219	224
Internal Link Dist (ft)		1329		1191		260
Turn Bay Length (ft)			325			
Base Capacity (vph)	426	410	448	2231	525	2286
Starvation Cap Reductn	0	0	0	0	0	953
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.90	0.75	0.92	0.88	0.89

Intersection Summary

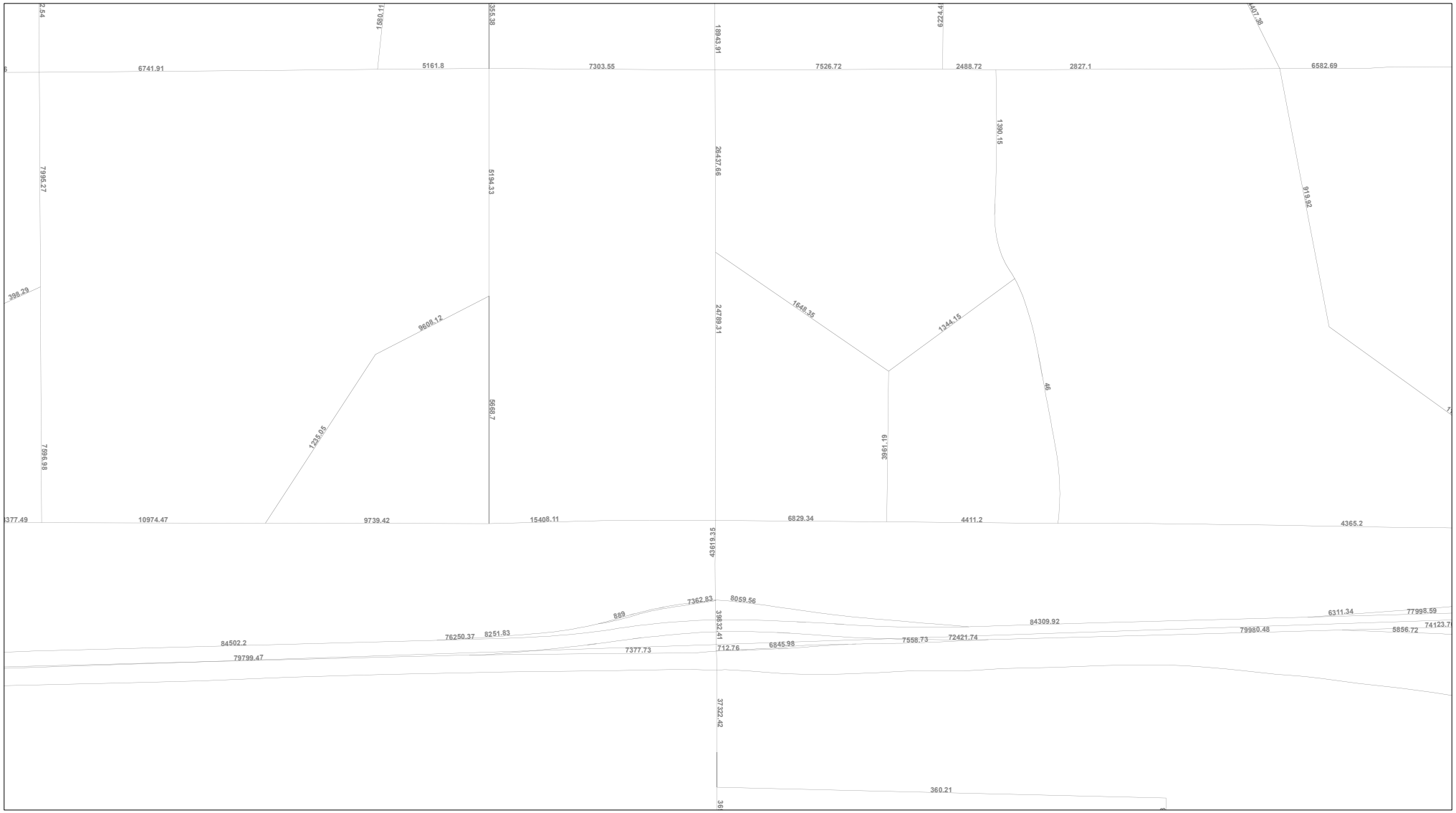
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX 4.1:

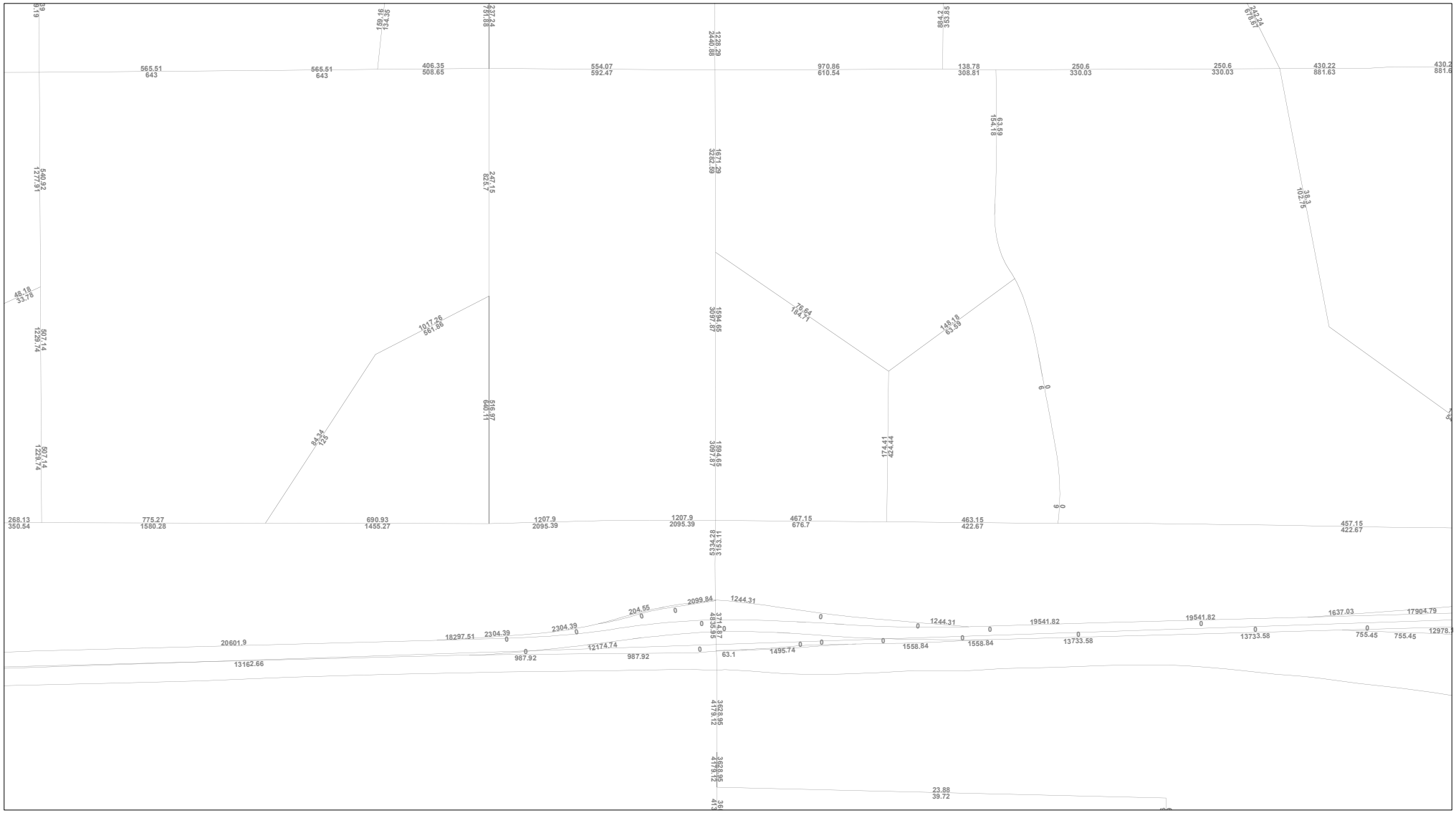
POST PROCESSING WORKSHEETS, VOLUMES & MODEL DATA

This Page Intentionally Left Blank

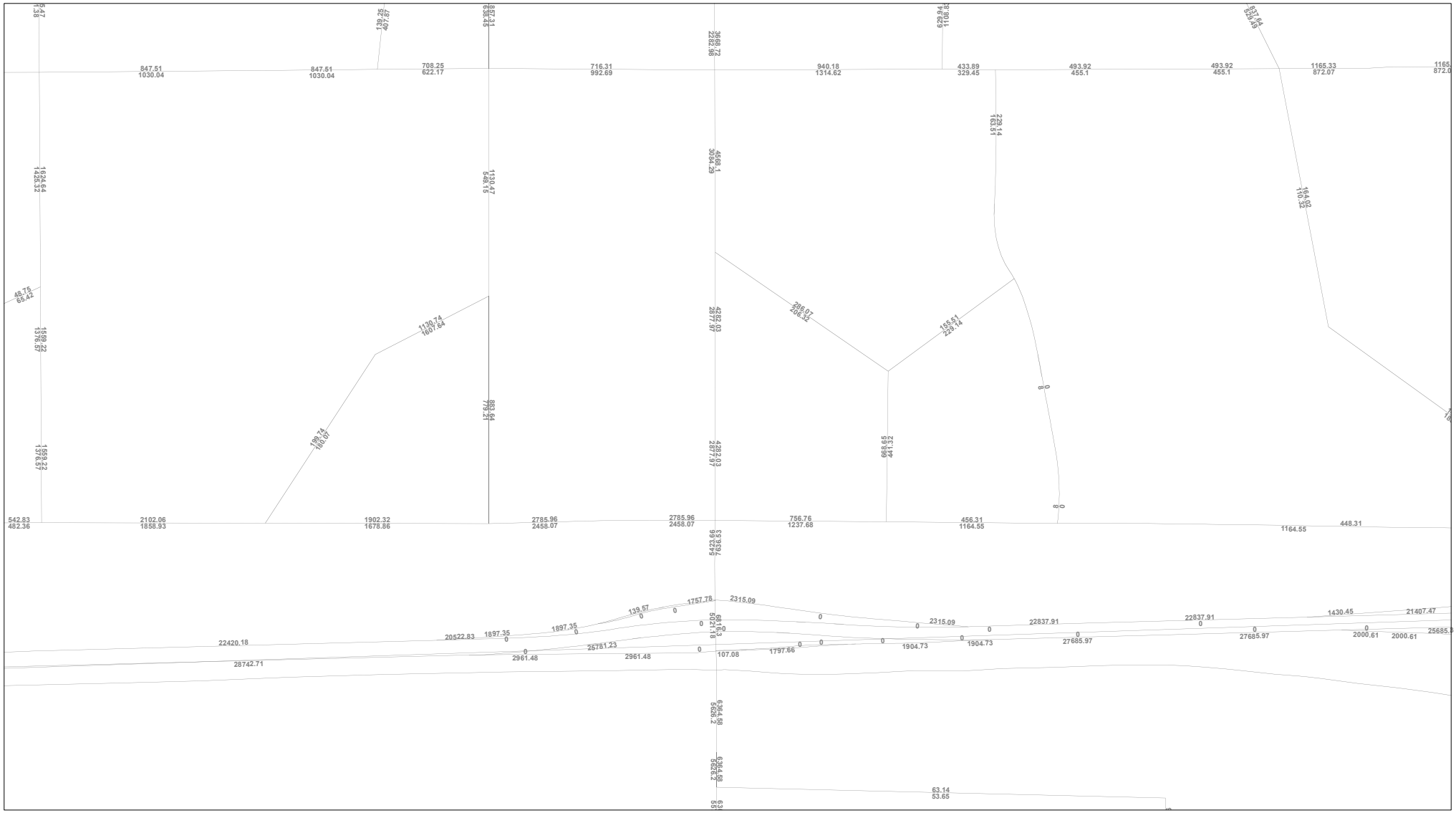
SBTAM Baseline 2016 Peak Period



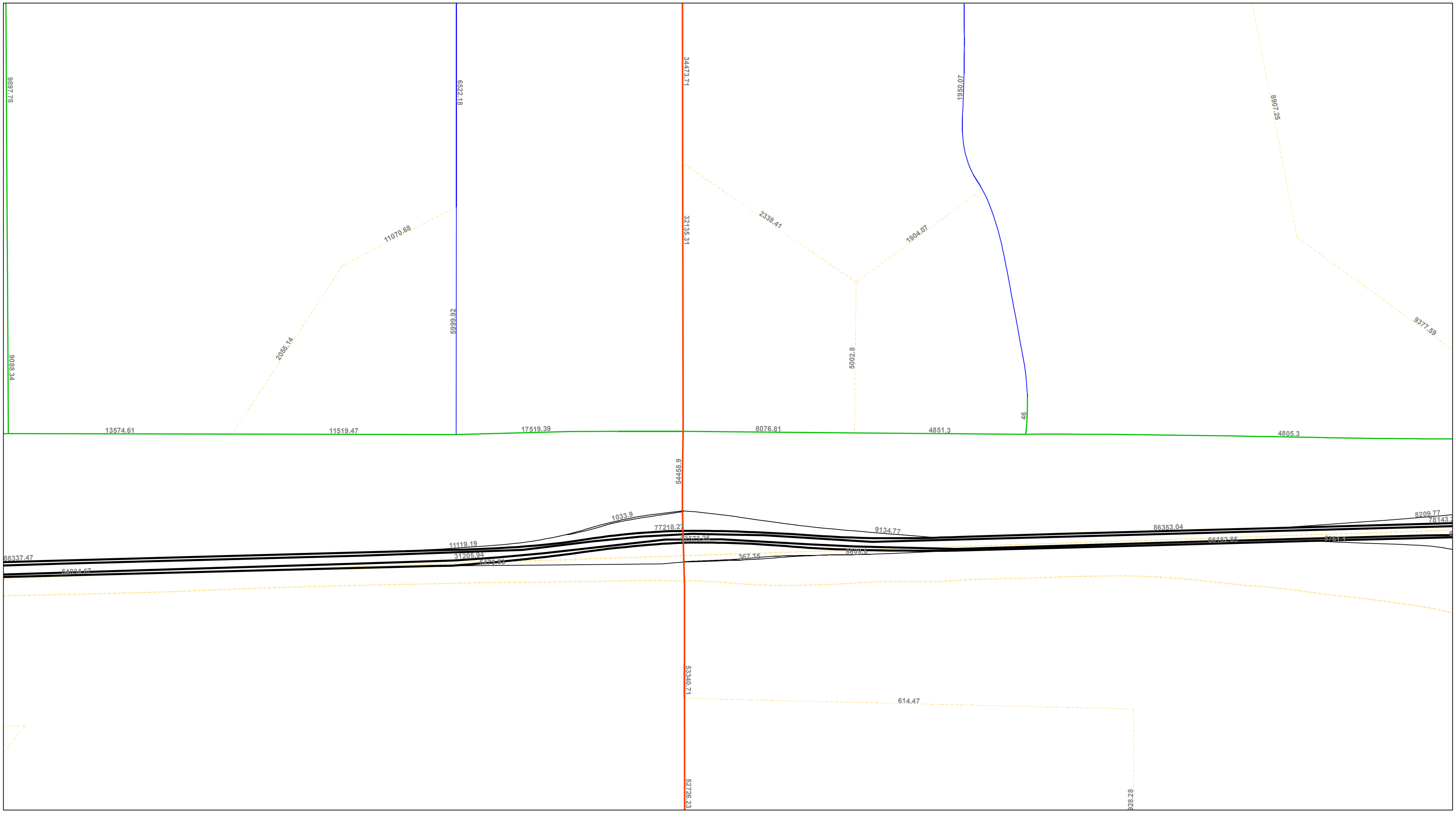
SBTAM Baseline 2016 Peak Period

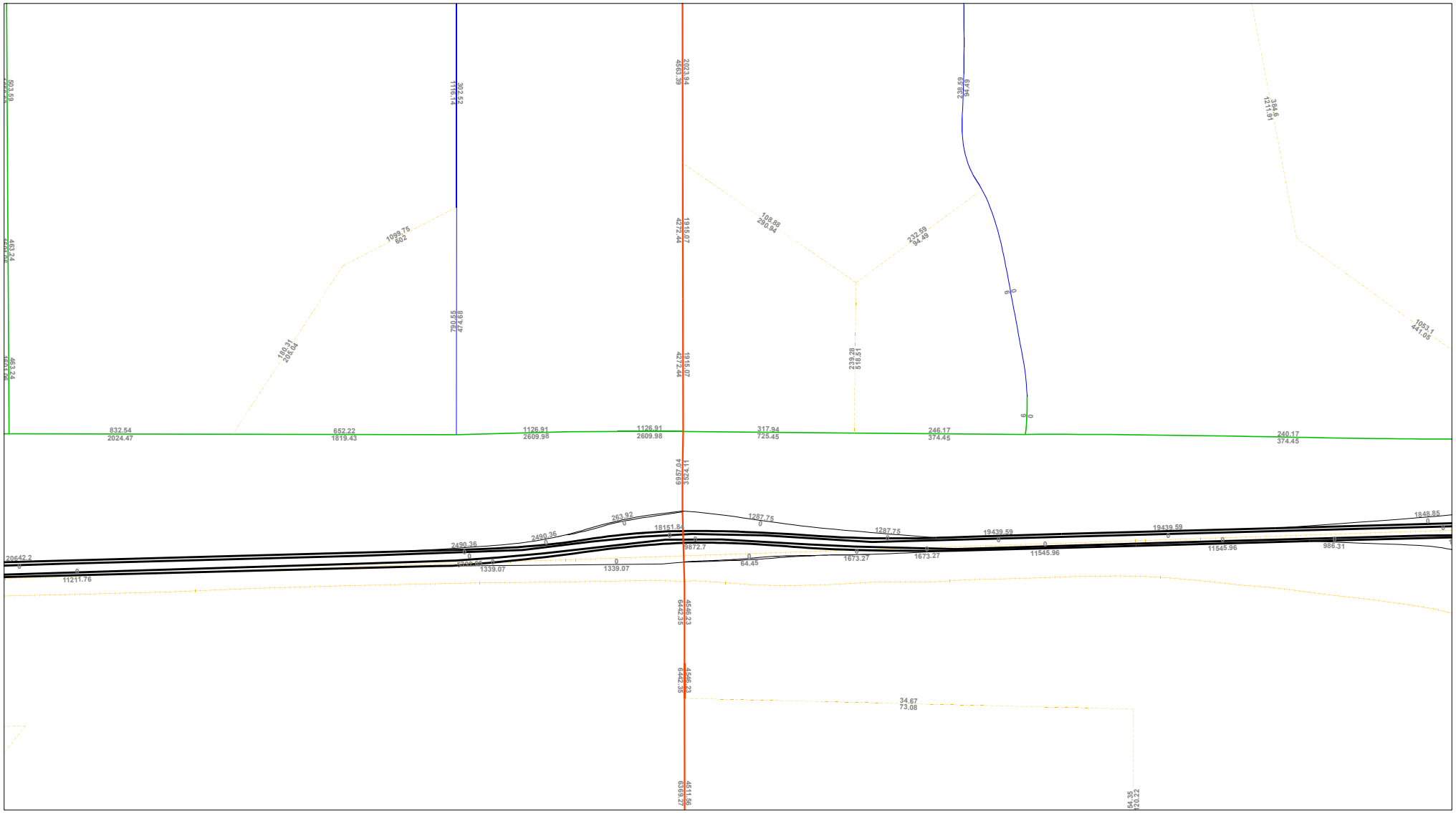


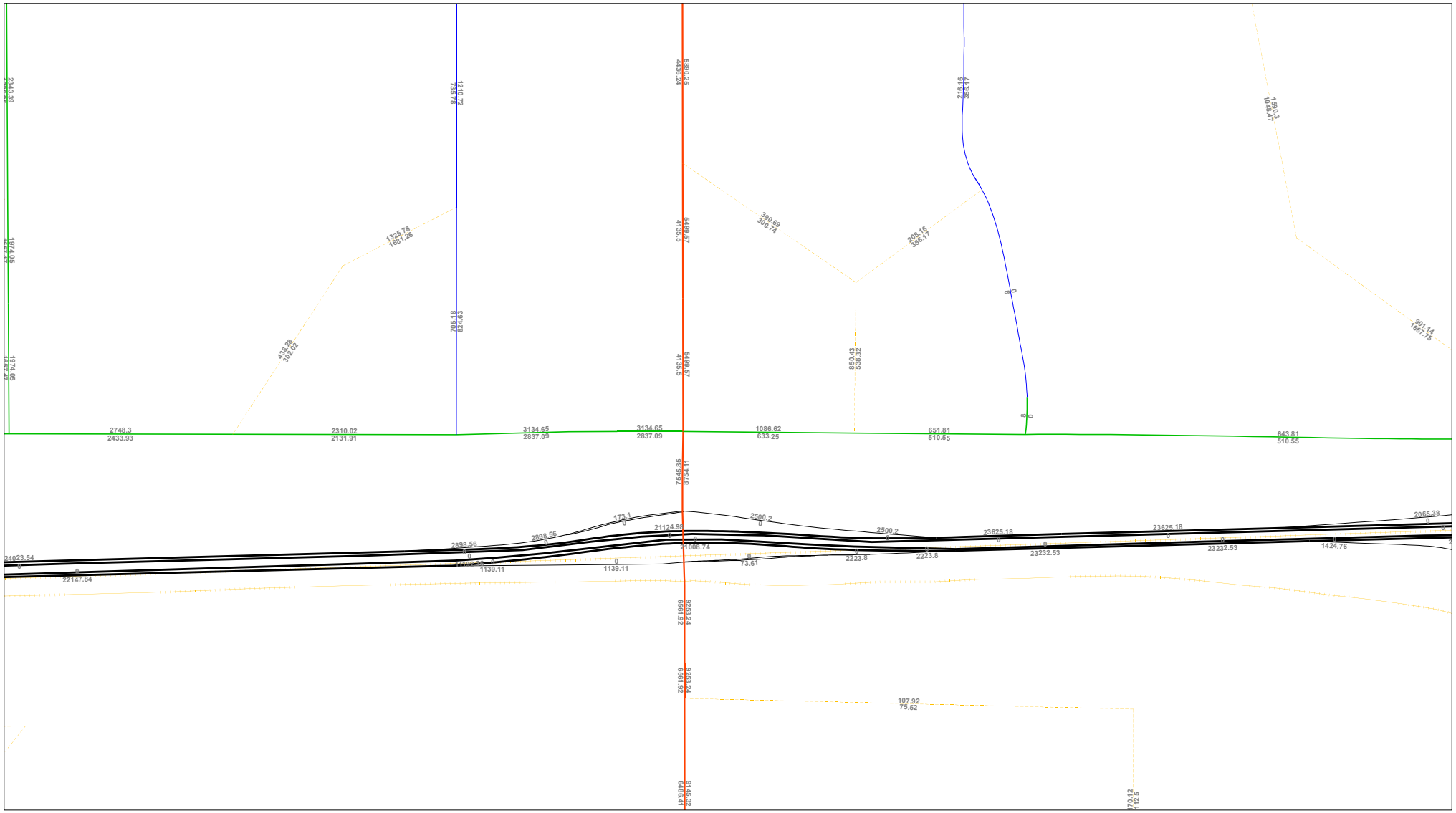
SBTAM Baseline 2016 Peak Period



SBTAM Future 2040 Peak Period







Project:	Fuel Center & Convenience Store TIA	Job #:	11702
Scenario:	Horizon Year (2040) Without Project	Analyst:	CP
		Date:	9/18/18

LOCATION: Willow Av. & Valley Bl.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	1	0	-1	-100%	1	2	1	92%
	Through	2	0	-2	-100%	2	3	1	44%
	Right	1	0	-1	-100%	4	6	2	44%
	NB Total	4	0	-4	-100%	7	11	4	51%
SOUTH BOUND	Left	182	219	37	20%	107	106	-1	-1%
	Through	1	2	1	92%	0	0	0	#DIV/0!
	Right	29	32	3	10%	29	34	5	17%
	SB Total	212	253	41	19%	136	140	4	3%
EAST BOUND	Left	17	18	1	8%	47	54	7	15%
	Through	722	831	109	15%	778	869	91	12%
	Right	2	4	2	92%	1	2	1	92%
	EB Total	741	853	112	15%	826	925	99	12%
WEST BOUND	Left	2	4	2	92%	4	8	4	92%
	Through	424	408	-16	-4%	713	795	82	12%
	Right	72	72	0	0%	157	153	-4	-3%
	WB Total	498	484	-14	-3%	874	956	82	9%
TOTAL ENTERING VOLUME		1,456	1,590	134.4804	9%	1,844	2,032	188	10%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	253	140			
North Leg	Outbound	90	210			
North Leg	**TOTAL**	**343**	**350**	**6%**	**6%**	**6,000**
South Leg	Inbound	0	11			
South Leg	Outbound	10	10			
South Leg	**TOTAL**	**10**	**21**	**#DIV/0!**	**#DIV/0!**	**-**
East Leg	Inbound	484	956			
East Leg	Outbound	1,050	981			
East Leg	**TOTAL**	**1,534**	**1,937**	**9%**	**11%**	**17,519**
West Leg	Inbound	853	925			
West Leg	Outbound	440	831			
West Leg	**TOTAL**	**1,293**	**1,756**	**11%**	**15%**	**11,519**
OVERALL TOTAL		***3,180***	***4,064***	**9%**	***12%***	***35,038***

Z:\Shared\UcJobs_13600-14000_13600\13681\02_LOS\Post Processing\[04_Willow & Valley.xls]Output (3)

Project:	Valley & Willow TA	Job #:	13681
Scenario:	Horizon Year (2040) Without Project	Analyst:	CP
		Date:	5/13/21

LOCATION: Riverside Av. & Valley Bl.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	311	321	10	3%	526	579	53	10%
	Through	606	692	86	14%	1,397	1,645	248	18%
	Right	153	158	5	3%	205	148	-57	-28%
	NB Total	1,070	1,171	101	9%	2,129	2,372	243	11%
SOUTH BOUND	Left	50	55	5	10%	98	85	-13	-13%
	Through	1,129	1,444	315	28%	695	966	271	39%
	Right	33	37	4	11%	51	68	17	33%
	SB Total	1,212	1,536	324	27%	844	1,119	275	33%
EAST BOUND	Left	40	47	7	19%	76	101	25	33%
	Through	213	228	15	7%	299	242	-57	-19%
	Right	456	568	112	25%	400	516	116	29%
	EB Total	709	843	134	19%	774	859	85	11%
WEST BOUND	Left	190	187	-3	-2%	175	198	23	13%
	Through	192	162	-30	-16%	290	315	25	9%
	Right	33	31	-2	-7%	109	127	18	16%
	WB Total	416	380	-36	-9%	574	640	66	11%
TOTAL ENTERING VOLUME		3,406	3,930	523.7304	15%	4,321	4,990	669	15%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	1,536	1,119			
North Leg	Outbound	770	1,873			
North Leg	**TOTAL**	**2,306**	**2,992**	**7%**	**9%**	**32,135**
South Leg	Inbound	1,171	2,372			
South Leg	Outbound	2,199	1,680			
South Leg	**TOTAL**	**3,370**	**4,052**	**6%**	**7%**	**54,459**
East Leg	Inbound	380	640			
East Leg	Outbound	441	475			
East Leg	**TOTAL**	**821**	**1,115**	**10%**	**14%**	**8,077**
West Leg	Inbound	843	859			
West Leg	Outbound	520	962			
West Leg	**TOTAL**	**1,363**	**1,821**	**8%**	**10%**	**17,519**
OVERALL TOTAL		***7,860***	***9,980***	***7%***	***9%***	***112,190***

Z:\Shared\UcJobs_13600-14000_13600\13681\02_LOS\Post Processing\[05_Riverside & Valley.xls]Output (3)

Project:	Valley & Willow TA	Job #:	13681
Scenario:	Horizon Year (2040) Without Project	Analyst:	CP
		Date:	5/13/21

LOCATION: Riverside Av. & I-10 WB Ramps
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	234	271	37	16%	283	450	167	59%
	Through	802	945	143	18%	1,502	1,816	314	21%
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	NB Total	1,036	1,216	180	17%	1,785	2,266	481	27%
SOUTH BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	1,257	1,709	452	36%	1,049	1,463	414	40%
	Right	587	599	12	2%	441	499	58	13%
	SB Total	1,844	2,308	464	25%	1,490	1,962	472	32%
EAST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	EB Total	0	0	0	#DIV/0!	0	0	0	#DIV/0!
WEST BOUND	Left	453	521	68	15%	332	457	125	38%
	Through	0	0	0	#DIV/0!	1	1	0	-4%
	Right	358	315	-43	-12%	523	444	-79	-15%
	WB Total	810	836	26	3%	856	902	46	5%
TOTAL ENTERING VOLUME		3,690	4,360	669.7012	18%	4,131	5,130	999	24%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	2,308	1,962			
North Leg	Outbound	1,260	2,260			
North Leg	**TOTAL**	**3,568**	**4,222**	**7%**	**8%**	**54,459**
South Leg	Inbound	1,216	2,266			
South Leg	Outbound	2,230	1,920			
South Leg	**TOTAL**	**3,446**	**4,186**	**6%**	**8%**	**54,843**
East Leg	Inbound	836	902			
East Leg	Outbound	0	0			
East Leg	**TOTAL**	**836**	**902**	**9%**	**10%**	**9,135**
West Leg	Inbound	0	0			
West Leg	Outbound	870	950			
West Leg	**TOTAL**	**870**	**950**	**8%**	**9%**	**11,119**
OVERALL TOTAL		***8,720***	***10,260***	**7%**	***8%***	***129,556***

Z:\Shared\UcJobs_13600-14000_13600\13681\02_LOS\Post Processing\[06_Riverside & I-10 WB Ramps.xls]Output (3)

Project:	Valley & Willow TA	Job #:	13681
Scenario:	Horizon Year (2040) Without Project	Analyst:	CP
		Date:	5/13/21

LOCATION: Riverside Av. & I-10 EB Ramps
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	727	904	177	24%	1,153	1,855	702	61%
	Right	387	424	37	10%	556	481	-75	-13%
	NB Total	1,114	1,328	214	19%	1,708	2,336	628	37%
SOUTH BOUND	Left	532	528	-4	-1%	421	600	179	42%
	Through	1,178	1,704	526	45%	959	1,301	342	36%
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	SB Total	1,709	2,232	523	31%	1,381	1,901	520	38%
EAST BOUND	Left	309	309	0	0%	633	483	-150	-24%
	Through	0	0	0	#DIV/0!	1	0	-1	-100%
	Right	336	431	95	28%	254	99	-155	-61%
	EB Total	645	740	95	15%	887	582	-305	-34%
WEST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	WB Total	0	0	0	#DIV/0!	0	0	0	#DIV/0!
TOTAL ENTERING VOLUME		3,469	4,300	831.3064	24%	3,976	4,819	843	21%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	2,232	1,901			
North Leg	Outbound	1,213	2,338			
North Leg	**TOTAL**	**3,445**	**4,239**	**6%**	**8%**	**54,843**
South Leg	Inbound	1,328	2,336			
South Leg	Outbound	2,135	1,400			
South Leg	**TOTAL**	**3,463**	**3,736**	**6%**	**7%**	**53,341**
East Leg	Inbound	0	0			
East Leg	Outbound	952	1,081			
East Leg	**TOTAL**	**952**	**1,081**	**11%**	**13%**	**8,610**
West Leg	Inbound	740	582			
West Leg	Outbound	0	0			
West Leg	**TOTAL**	**740**	**582**	**11%**	**9%**	**6,476**
OVERALL TOTAL		***8,600***	***9,638***	***7%***	***8%***	***123,270***

Z:\Shared\UcJobs_13600-14000_13600\13681\02_LOS\Post Processing\[07_Riverside & I-10 EB Ramps.xls]Output (3)

APPENDIX 5.1:

EAP (2023) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

This Page Intentionally Left Blank

Volume Development
Weekday AM Peak Hour

1: Dwy. 1 & Valley Bl.

	PHF: 0.920									Count Date:			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**766**	**0**	**0**	**480**	**0**	**1,246**
Project (PCE):	0	0	0	23	0	1	6	0	0	0	1	99	130
EAP (2023) (PCE):	0	0	0	23	0	1	6	797	0	0	500	99	1,426

2: Dwy. 2 & Valley Bl.

	PHF: 0.920									Count Date:			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**766**	**0**	**0**	**480**	**0**	**1,246**
Project (PCE):	0	0	0	0	0	1	0	23	0	0	99	22	145
EAP (2023) (PCE):	0	0	0	0	0	1	0	820	0	0	598	22	1,441

3: Valley Bl. & Dwy. 3

	PHF: 0.920									Count Date:			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**97**	**0**	**0**	**221**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**317**
Project (PCE):	49	1	0	0	3	6	2	0	9	0	0	0	70
EAP (2023) (PCE):	49	102	0	0	232	6	2	0	9	0	0	0	400

4: Willow Av. & Valley Bl.

	PHF: 0.930				7:15					Count Date:	1/24/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**1**	**2**	**1**	**188**	**1**	**31**	**18**	**746**	**2**	**2**	**447**	**77**	**1,517**
Project (PCE):	0	0	0	9	0	3	1	22	0	0	118	49	202
EAP (2023) (PCE):	1	2	1	205	1	35	19	799	2	2	583	129	1,781

5: Riverside Av. & Valley Bl.

	PHF: 0.872				7:15					Count Date:	2/6/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**324**	**615**	**168**	**51**	**1,142**	**33**	**42**	**226**	**477**	**223**	**205**	**36**	**3,543**
Project (PCE):	163	0	0	0	0	0	0	1	31	0	3	0	198
EAP (2023) (PCE):	500	640	175	53	1,189	35	44	236	527	232	216	38	3,884

6: Riverside Av. & I-10 WB Ramps

	PHF: 0.955				7:00					Count Date:	5/1/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**416**	**856**	**0**	**0**	**1,292**	**606**	**0**	**0**	**0**	**618**	**0**	**367**	**4,155**
Project (PCE):	0	93	0	0	13	17	0	0	0	0	0	70	193
EAP (2023) (PCE):	432	983	0	0	1,357	648	0	0	0	643	0	452	4,516

7: Riverside Av. & I-10 EB Ramps

	PHF: 0.933				7:00					Count Date:	5/1/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**946**	**610**	**548**	**1,362**	**0**	**325**	**0**	**446**	**0**	**0**	**0**	**4,238**
Project (PCE):	0	0	0	13	0	0	93	0	0	0	0	0	106
EAP (2023) (PCE):	0	984	635	583	1,417	0	431	0	464	0	0	0	4,515

Volume Development
Weekday PM Peak Hour

1: Dwy. 1 & Valley Bl.

	PHF:	0.920							Count Date:				
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**847**	**0**	**0**	**766**	**0**	**1,613**
Project (PCE):	0	0	0	125	0	3	2	0	0	0	3	25	158
EAP (2023) (PCE):	0	0	0	125	0	3	2	881	0	0	800	25	1,836

2: Dwy. 2 & Valley Bl.

	PHF:	0.920							Count Date:				
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**847**	**0**	**0**	**766**	**0**	**1,613**
Project (PCE):	0	0	0	0	0	3	0	125	0	0	25	8	161
EAP (2023) (PCE):	0	0	0	0	0	3	0	1,006	0	0	822	8	1,839

3: Valley Bl. & Dwy. 3

	PHF:	0.920							Count Date:				
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**210**	**0**	**0**	**144**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**354**
Project (PCE):	14	3	0	0	1	2	6	0	50	0	0	0	76
EAP (2023) (PCE):	14	222	0	0	151	2	6	0	50	0	0	0	445

4: Willow Av. & Valley Bl.

	PHF:	0.915			4:15				Count Date:	1/24/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**1**	**2**	**4**	**114**	**0**	**30**	**47**	**799**	**1**	**4**	**736**	**161**	**1,899**
Project (PCE):	0	0	0	50	0	1	3	122	0	0	32	14	222
EAP (2023) (PCE):	1	2	4	169	0	32	52	953	1	4	797	182	2,198

5: Riverside Av. & Valley Bl.

	PHF:	0.920			4:45				Count Date:	2/6/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**535**	**1,410**	**228**	**99**	**705**	**51**	**76**	**307**	**413**	**195**	**295**	**111**	**4,425**
Project (PCE):	44	0	0	0	0	0	0	3	169	0	1	0	217
EAP (2023) (PCE):	600	1,467	238	103	734	53	80	322	598	202	308	115	4,821

6: Riverside Av. & I-10 WB Ramps

	PHF:	0.950			4:30				Count Date:	5/1/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**368**	**1,538**	**0**	**0**	**1,093**	**447**	**0**	**0**	**0**	**467**	**2**	**543**	**4,458**
Project (PCE):	0	25	0	0	72	97	0	0	0	0	0	19	213
EAP (2023) (PCE):	383	1,625	0	0	1,209	562	0	0	0	485	2	583	4,851

7: Riverside Av. & I-10 EB Ramps

	PHF:	0.954			4:30				Count Date:	5/1/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**1,258**	**694**	**439**	**1,121**	**0**	**649**	**3**	**377**	**0**	**0**	**0**	**4,540**
Project (PCE):	0	0	0	72	0	0	25	0	0	0	0	0	97
EAP (2023) (PCE):	0	1,309	722	529	1,166	0	700	3	392	0	0	0	4,820

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	797	500	99	23	1
Future Vol, veh/h	6	797	500	99	23	1
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	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	866	543	108	25	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	651	0	-	0	1044	326
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	447	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	945	-	-	-	228	676
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	617	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	945	-	-	-	226	676
Mov Cap-2 Maneuver	-	-	-	-	423	-
Stage 1	-	-	-	-	514	-
Stage 2	-	-	-	-	617	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	945	-	-	-	430
HCM Lane V/C Ratio	0.007	-	-	-	0.061
HCM Control Delay (s)	8.8	-	-	-	13.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	820	598	22	0	1
Future Vol, veh/h	0	820	598	22	0	1
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	891	650	24	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	337
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	665
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	665
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	665
HCM Lane V/C Ratio	-	-	-	0.002
HCM Control Delay (s)	-	-	-	10.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	9	49	102	232	6
Future Vol, veh/h	2	9	49	102	232	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	10	53	111	252	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	473	256	259	0	-	0
Stage 1	256	-	-	-	-	-
Stage 2	217	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	553	788	1317	-	-	-
Stage 1	791	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	529	788	1317	-	-	-
Mov Cap-2 Maneuver	529	-	-	-	-	-
Stage 1	757	-	-	-	-	-
Stage 2	824	-	-	-	-	-

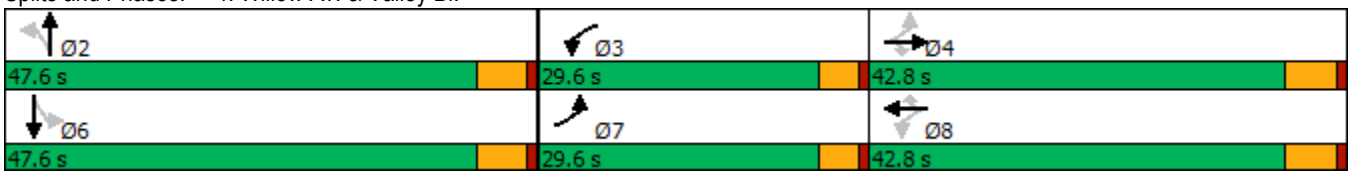
Approach	EB	NB	SB
HCM Control Delay, s	10.1	2.5	0
HCM LOS	B		

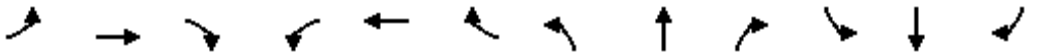
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1317	-	724	-	-
HCM Lane V/C Ratio	0.04	-	0.017	-	-
HCM Control Delay (s)	7.8	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	19	799	2	2	583	129	1	2	205	1
Future Volume (vph)	19	799	2	2	583	129	1	2	205	1
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	9.6	22.8	22.8	31.4	31.4	31.4	31.4
Total Split (s)	29.6	42.8	42.8	29.6	42.8	42.8	47.6	47.6	47.6	47.6
Total Split (%)	24.7%	35.7%	35.7%	24.7%	35.7%	35.7%	39.7%	39.7%	39.7%	39.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.4	4.4	4.4	4.4
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.4	5.4		5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None
Act Effct Green (s)	22.7	20.6	20.6	22.5	20.5	20.5	16.8	16.8		16.8
Actuated g/C Ratio	0.45	0.40	0.40	0.44	0.40	0.40	0.33	0.33		0.33
v/c Ratio	0.05	0.59	0.00	0.01	0.43	0.20	0.00	0.01		0.55
Control Delay	8.5	14.5	0.0	8.5	13.0	6.3	16.0	14.0		20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	8.5	14.5	0.0	8.5	13.0	6.3	16.0	14.0		20.5
LOS	A	B	A	A	B	A	B	B		C
Approach Delay		14.4			11.7			14.5		20.5
Approach LOS		B			B			B		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 50.9	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 14.1	Intersection LOS: B
Intersection Capacity Utilization 51.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Willow Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	799	2	2	583	129	1	2	1	205	1	35
Future Volume (veh/h)	19	799	2	2	583	129	1	2	1	205	1	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	20	859	2	2	627	139	1	2	1	220	1	38
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	379	1383	617	302	1303	581	544	282	141	449	5	51
Arrive On Green	0.02	0.38	0.38	0.00	0.36	0.36	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1390	1195	597	1230	20	215
Grp Volume(v), veh/h	20	859	2	2	627	139	1	0	3	259	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1390	0	1792	1464	0	0
Q Serve(g_s), s	0.3	8.0	0.0	0.0	5.6	2.5	0.0	0.0	0.1	6.8	0.0	0.0
Cycle Q Clear(g_c), s	0.3	8.0	0.0	0.0	5.6	2.5	0.0	0.0	0.1	6.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	0.85		0.15
Lane Grp Cap(c), veh/h	379	1383	617	302	1303	581	544	0	423	505	0	0
V/C Ratio(X)	0.05	0.62	0.00	0.01	0.48	0.24	0.00	0.00	0.01	0.51	0.00	0.00
Avail Cap(c_a), veh/h	1418	3199	1427	1380	3199	1427	1622	0	1812	1637	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.3	10.4	8.0	9.1	10.3	9.3	12.2	0.0	12.2	14.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.1	0.0	0.0	1.5	0.6	0.0	0.0	0.0	1.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.4	10.9	8.0	9.1	10.6	9.5	12.2	0.0	12.2	15.6	0.0	0.0
LnGrp LOS	A	B	A	A	B	A	B	A	B	B	A	A
Approach Vol, veh/h		881			768			4			259	
Approach Delay, s/veh		10.8			10.4			12.2			15.6	
Approach LOS		B			B			B			B	

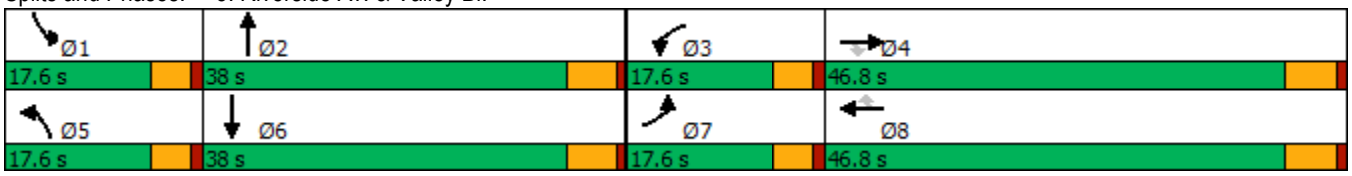
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.2	4.7	21.8		15.2	5.6	20.9				
Change Period (Y+Rc), s		5.4	4.6	5.8		5.4	4.6	5.8				
Max Green Setting (Gmax), s		42.2	25.0	37.0		42.2	25.0	37.0				
Max Q Clear Time (g_c+I1), s		2.1	2.0	10.0		8.8	2.3	7.6				
Green Ext Time (p_c), s		0.0	0.0	6.0		1.5	0.0	4.6				

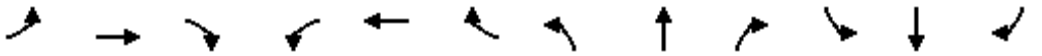
Intersection Summary												
HCM 6th Ctrl Delay			11.3									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	44	236	527	232	216	38	500	640	53	1189
Future Volume (vph)	44	236	527	232	216	38	500	640	53	1189
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8	38.8	9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	17.6	46.8	46.8	17.6	46.8	46.8	17.6	38.0	17.6	38.0
Total Split (%)	14.7%	39.0%	39.0%	14.7%	39.0%	39.0%	14.7%	31.7%	14.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
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	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	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	Min	None	Min
Act Effct Green (s)	7.7	33.8	33.8	13.1	41.3	41.3	13.1	39.7	8.3	32.8
Actuated g/C Ratio	0.07	0.30	0.30	0.12	0.36	0.36	0.12	0.35	0.07	0.29
v/c Ratio	0.41	0.25	0.92	1.28	0.19	0.07	1.42	0.52	0.47	0.94
Control Delay	62.3	30.0	42.5	200.8	25.6	0.2	242.0	30.9	63.2	53.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	62.3	30.0	42.5	200.8	25.6	0.2	242.0	31.1	63.2	53.1
LOS	E	C	D	F	C	A	F	C	E	D
Approach Delay		39.9			107.3			111.3		53.5
Approach LOS		D			F			F		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 113.2	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.42	
Intersection Signal Delay: 77.0	Intersection LOS: E
Intersection Capacity Utilization 82.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	236	527	232	216	38	500	640	175	53	1189	35
Future Volume (veh/h)	44	236	527	232	216	38	500	640	175	53	1189	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	51	271	606	267	248	44	575	736	201	61	1367	40
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	66	1233	550	196	1492	666	380	1367	369	79	1407	41
Arrive On Green	0.04	0.34	0.34	0.11	0.41	0.41	0.11	0.34	0.34	0.04	0.27	0.27
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	4063	1097	1810	5179	152
Grp Volume(v), veh/h	51	271	606	267	248	44	575	625	312	61	913	494
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1703	1810	1729	1873
Q Serve(g_s), s	3.4	6.4	41.0	13.0	5.2	2.0	13.0	17.6	17.9	4.0	31.3	31.3
Cycle Q Clear(g_c), s	3.4	6.4	41.0	13.0	5.2	2.0	13.0	17.6	17.9	4.0	31.3	31.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.64	1.00		0.08
Lane Grp Cap(c), veh/h	66	1233	550	196	1492	666	380	1163	573	79	939	509
V/C Ratio(X)	0.77	0.22	1.10	1.36	0.17	0.07	1.51	0.54	0.54	0.77	0.97	0.97
Avail Cap(c_a), veh/h	196	1233	550	196	1492	666	380	1163	573	196	939	509
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	57.3	28.1	39.5	53.5	22.2	21.2	53.5	32.3	32.4	56.8	43.2	43.2
Incr Delay (d2), s/veh	6.9	0.1	69.1	192.2	0.1	0.0	243.6	0.5	1.1	5.9	22.6	32.6
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	1.6	2.7	25.9	16.2	2.1	0.7	18.5	7.3	7.3	1.9	15.9	18.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.2	28.2	108.6	245.7	22.2	21.3	297.1	32.8	33.4	62.6	65.8	75.8
LnGrp LOS	E	C	F	F	C	C	F	C	C	E	E	E
Approach Vol, veh/h		928			559			1512			1468	
Approach Delay, s/veh		82.7			128.9			133.4			69.1	
Approach LOS		F			F			F			E	

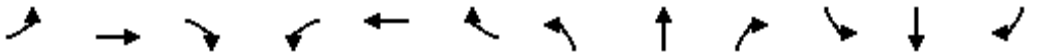
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	45.8	17.6	46.8	17.6	38.0	9.0	55.4
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	13.0	32.6	13.0	41.0	13.0	32.6	13.0	41.0
Max Q Clear Time (g_c+I1), s	6.0	19.9	15.0	43.0	15.0	33.3	5.4	7.2
Green Ext Time (p_c), s	0.0	4.8	0.0	0.0	0.0	0.0	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	101.2
HCM 6th LOS	F

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	643	0	452	432	983	1357	648
Future Volume (vph)	643	0	452	432	983	1357	648
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	31.8	31.8	31.8	25.6	58.2	32.6	32.6
Total Split (%)	35.3%	35.3%	35.3%	28.4%	64.7%	36.2%	36.2%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	23.5	23.5	23.5	14.9	46.6	27.0	27.0
Actuated g/C Ratio	0.29	0.29	0.29	0.18	0.57	0.33	0.33
v/c Ratio	0.81	0.75	0.70	0.71	0.35	0.66	0.71
Control Delay	41.5	31.1	26.6	38.1	9.9	25.8	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	41.5	31.1	26.6	38.1	10.1	25.8	7.7
LOS	D	C	C	D	B	C	A
Approach Delay		33.3			18.6	20.0	
Approach LOS		C			B	B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 81.3	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 22.8	Intersection LOS: C
Intersection Capacity Utilization 123.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	643	0	452	432	983	0	0	1357	648
Future Volume (veh/h)	0	0	0	643	0	452	432	983	0	0	1357	648
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				784	0	230	455	1035	0	0	1428	661
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				962	0	428	564	3038	0	0	2377	586
Arrive On Green				0.27	0.00	0.27	0.16	0.59	0.00	0.00	0.36	0.36
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	6802	1610
Grp Volume(v), veh/h				784	0	230	455	1035	0	0	1428	661
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1634	1610
Q Serve(g_s), s				15.2	0.0	9.1	9.3	7.7	0.0	0.0	13.3	27.2
Cycle Q Clear(g_c), s				15.2	0.0	9.1	9.3	7.7	0.0	0.0	13.3	27.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				962	0	428	564	3038	0	0	2377	586
V/C Ratio(X)				0.82	0.00	0.54	0.81	0.34	0.00	0.00	0.60	1.13
Avail Cap(c_a), veh/h				1263	0	562	986	3662	0	0	2377	586
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.7	0.0	23.5	30.3	8.0	0.0	0.0	19.4	23.8
Incr Delay (d2), s/veh				3.2	0.0	1.1	1.1	0.1	0.0	0.0	0.4	77.9
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				6.3	0.0	3.3	3.8	2.3	0.0	0.0	4.6	21.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				28.9	0.0	24.6	31.3	8.1	0.0	0.0	19.8	101.7
LnGrp LOS				C	A	C	C	A	A	A	B	F
Approach Vol, veh/h					1014			1490			2089	
Approach Delay, s/veh					28.0			15.2			45.7	
Approach LOS					C			B			D	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	49.2		16.6	32.6		25.6						
Change Period (Y+Rc), s	5.4		4.6	5.4		5.7						
Max Green Setting (Gmax), s	52.8		21.0	27.2		26.1						
Max Q Clear Time (g_c+I1), s	9.7		11.3	29.2		17.2						
Green Ext Time (p_c), s	8.5		0.7	0.0		2.7						

Intersection Summary		
HCM 6th Ctrl Delay	31.9	
HCM 6th LOS	C	

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	431	0	464	984	583	1417
Future Volume (vph)	431	0	464	984	583	1417
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.4	9.6	15.4
Total Split (s)	27.0	27.0	27.0	40.0	23.0	63.0
Total Split (%)	30.0%	30.0%	30.0%	44.4%	25.6%	70.0%
Yellow Time (s)	4.8	4.8	4.8	4.4	3.6	4.4
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)	5.8	5.8	5.8	5.4	4.6	5.4
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	Min	None	Min
Act Effct Green (s)	19.9	19.9	19.9	33.7	17.6	56.0
Actuated g/C Ratio	0.23	0.23	0.23	0.39	0.20	0.64
v/c Ratio	0.85	0.77	0.74	0.89dr	0.88	0.66
Control Delay	54.4	36.8	35.1	27.4	50.1	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	6.9
Total Delay	54.4	36.8	35.1	27.4	50.1	18.4
LOS	D	D	D	C	D	B
Approach Delay		42.3		27.4		27.6
Approach LOS		D		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 87.1	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 30.4	Intersection LOS: C
Intersection Capacity Utilization 123.8%	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: Riverside Av. & I-10 EB Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	431	0	464	0	0	0	0	984	635	583	1417	0
Future Volume (veh/h)	431	0	464	0	0	0	0	984	635	583	1417	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	593	0	279				0	1058	683	627	1524	0
Peak Hour Factor	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
Cap, veh/h	753	0	335				0	1404	654	704	2384	0
Arrive On Green	0.21	0.00	0.21				0.00	0.41	0.41	0.20	0.66	0.00
Sat Flow, veh/h	3619	0	1610				0	3629	1610	3510	3705	0
Grp Volume(v), veh/h	593	0	279				0	1058	683	627	1524	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1755	1805	0
Q Serve(g_s), s	13.2	0.0	14.1				0.0	22.3	34.6	14.8	21.1	0.0
Cycle Q Clear(g_c), s	13.2	0.0	14.1				0.0	22.3	34.6	14.8	21.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	753	0	335				0	1404	654	704	2384	0
V/C Ratio(X)	0.79	0.00	0.83				0.00	0.75	1.05	0.89	0.64	0.00
Avail Cap(c_a), veh/h	900	0	400				0	1404	654	758	2439	0
HCM Platoon Ratio	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				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.0	0.0	32.3				0.0	21.7	25.3	33.2	8.5	0.0
Incr Delay (d2), s/veh	4.0	0.0	12.1				0.0	2.4	47.5	11.5	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	6.2				0.0	8.6	20.4	7.1	6.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.9	0.0	44.4				0.0	24.0	72.9	44.6	9.1	0.0
LnGrp LOS	D	A	D				A	C	F	D	A	A
Approach Vol, veh/h		872						1741			2151	
Approach Delay, s/veh		38.6						43.2			19.4	
Approach LOS		D						D			B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	21.7	40.0		23.5		61.7
Change Period (Y+Rc), s	4.6	5.4		5.8		5.4
Max Green Setting (Gmax), s	18.4	34.6		21.2		57.6
Max Q Clear Time (g_c+I1), s	16.8	36.6		16.1		23.1
Green Ext Time (p_c), s	0.3	0.0		1.6		14.7

Intersection Summary	
HCM 6th Ctrl Delay	31.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	881	800	25	125	3
Future Vol, veh/h	2	881	800	25	125	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	958	870	27	136	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	897	0	-	0	1367	449
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	483	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	765	-	-	-	141	563
Stage 1	-	-	-	-	369	-
Stage 2	-	-	-	-	592	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	765	-	-	-	141	563
Mov Cap-2 Maneuver	-	-	-	-	318	-
Stage 1	-	-	-	-	368	-
Stage 2	-	-	-	-	592	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	24.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	765	-	-	-	321
HCM Lane V/C Ratio	0.003	-	-	-	0.433
HCM Control Delay (s)	9.7	-	-	-	24.5
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	2.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↱			↱
Traffic Vol, veh/h	0	1006	822	8	0	3
Future Vol, veh/h	0	1006	822	8	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1093	893	9	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	451
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	561
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	561
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	561
HCM Lane V/C Ratio	-	-	-	0.006
HCM Control Delay (s)	-	-	-	11.5
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	50	14	222	151	2
Future Vol, veh/h	6	50	14	222	151	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	54	15	241	164	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	436	165	166	0	-	0
Stage 1	165	-	-	-	-	-
Stage 2	271	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	581	885	1424	-	-	-
Stage 1	869	-	-	-	-	-
Stage 2	779	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	574	885	1424	-	-	-
Mov Cap-2 Maneuver	574	-	-	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	779	-	-	-	-	-

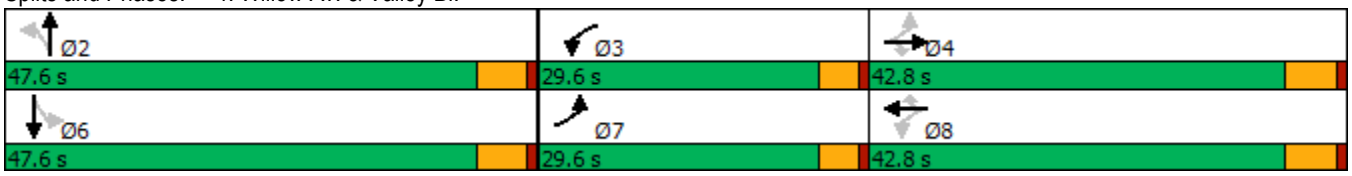
Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.4	0
HCM LOS	A		

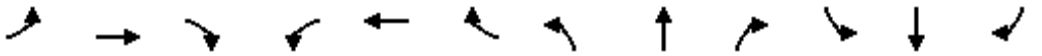
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1424	-	836	-	-
HCM Lane V/C Ratio	0.011	-	0.073	-	-
HCM Control Delay (s)	7.6	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	52	953	1	4	797	182	1	2	169	0
Future Volume (vph)	52	953	1	4	797	182	1	2	169	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	9.6	22.8	22.8	31.4	31.4	31.4	31.4
Total Split (s)	29.6	42.8	42.8	29.6	42.8	42.8	47.6	47.6	47.6	47.6
Total Split (%)	24.7%	35.7%	35.7%	24.7%	35.7%	35.7%	39.7%	39.7%	39.7%	39.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.4	4.4	4.4	4.4
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.4	5.4		5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None
Act Effct Green (s)	31.5	29.3	29.3	28.7	24.8	24.8	14.7	14.7		14.7
Actuated g/C Ratio	0.55	0.51	0.51	0.50	0.43	0.43	0.26	0.26		0.26
v/c Ratio	0.15	0.56	0.00	0.01	0.55	0.26	0.00	0.01		0.53
Control Delay	7.3	12.2	0.0	7.0	15.5	8.6	19.0	14.5		19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	7.3	12.2	0.0	7.0	15.5	8.6	19.0	14.5		19.7
LOS	A	B	A	A	B	A	B	B		B
Approach Delay		11.9			14.2			15.1		19.7
Approach LOS		B			B			B		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 57.3	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 13.7	Intersection LOS: B
Intersection Capacity Utilization 61.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Willow Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	953	1	4	797	182	1	2	4	169	0	32
Future Volume (veh/h)	52	953	1	4	797	182	1	2	4	169	0	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	57	1036	1	4	866	198	1	2	4	184	0	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	365	1580	705	286	1396	623	486	118	235	396	7	49
Arrive On Green	0.06	0.44	0.44	0.01	0.39	0.39	0.21	0.21	0.21	0.21	0.00	0.21
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1395	565	1131	1200	32	234
Grp Volume(v), veh/h	57	1036	1	4	866	198	1	0	6	219	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1395	0	1696	1466	0	0
Q Serve(g_s), s	0.8	10.2	0.0	0.1	8.8	3.9	0.0	0.0	0.1	6.1	0.0	0.0
Cycle Q Clear(g_c), s	0.8	10.2	0.0	0.1	8.8	3.9	0.0	0.0	0.1	6.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	0.84		0.16
Lane Grp Cap(c), veh/h	365	1580	705	286	1396	623	486	0	353	451	0	0
V/C Ratio(X)	0.16	0.66	0.00	0.01	0.62	0.32	0.00	0.00	0.02	0.49	0.00	0.00
Avail Cap(c_a), veh/h	1262	2949	1316	1275	2949	1316	1496	0	1581	1507	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.2	10.0	7.2	9.1	11.2	9.7	14.2	0.0	14.3	16.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.5	0.0	0.0	0.5	0.3	0.0	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.7	0.0	0.0	2.5	1.0	0.0	0.0	0.0	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.3	10.5	7.2	9.1	11.7	10.0	14.2	0.0	14.3	17.5	0.0	0.0
LnGrp LOS	A	B	A	A	B	B	B	A	B	B	A	A
Approach Vol, veh/h		1094			1068			7			219	
Approach Delay, s/veh		10.4			11.3			14.3			17.5	
Approach LOS		B			B			B			B	

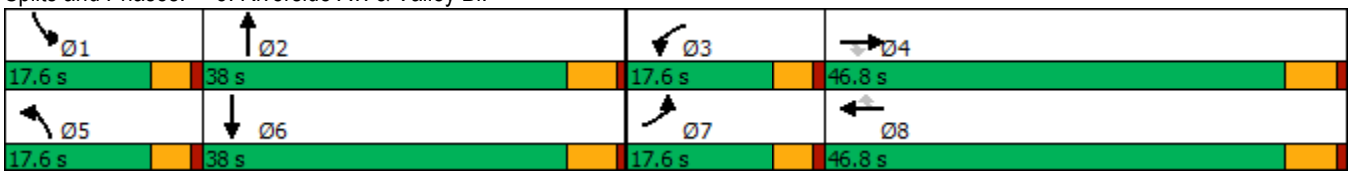
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.8	4.8	25.6		14.8	7.2	23.3				
Change Period (Y+Rc), s		5.4	4.6	5.8		5.4	4.6	5.8				
Max Green Setting (Gmax), s		42.2	25.0	37.0		42.2	25.0	37.0				
Max Q Clear Time (g_c+I1), s		2.1	2.1	12.2		8.3	2.8	10.8				
Green Ext Time (p_c), s		0.0	0.0	7.4		1.2	0.0	6.7				

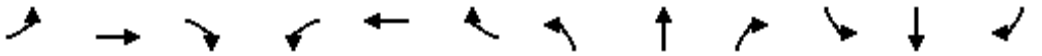
Intersection Summary												
HCM 6th Ctrl Delay			11.5									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	80	322	598	202	308	115	600	1467	103	734
Future Volume (vph)	80	322	598	202	308	115	600	1467	103	734
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8	38.8	9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	17.6	46.8	46.8	17.6	46.8	46.8	17.6	38.0	17.6	38.0
Total Split (%)	14.7%	39.0%	39.0%	14.7%	39.0%	39.0%	14.7%	31.7%	14.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
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	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	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	Min	None	Min
Act Effct Green (s)	9.6	35.7	35.7	13.1	41.7	41.7	13.1	32.9	10.6	30.3
Actuated g/C Ratio	0.09	0.32	0.32	0.12	0.37	0.37	0.12	0.29	0.09	0.27
v/c Ratio	0.57	0.31	0.94	1.05	0.25	0.19	1.61	1.24	0.67	0.62
Control Delay	65.8	29.7	43.7	126.4	26.7	5.5	316.9	148.6	70.0	38.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	65.8	29.7	43.7	126.4	26.7	5.5	316.9	148.9	70.0	38.6
LOS	E	C	D	F	C	A	F	F	E	D
Approach Delay		41.0			55.1			192.6		42.2
Approach LOS		D			E			F		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 112.8	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.61	
Intersection Signal Delay: 115.5	Intersection LOS: F
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	322	598	202	308	115	600	1467	238	103	734	53
Future Volume (veh/h)	80	322	598	202	308	115	600	1467	238	103	734	53
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	87	350	650	220	335	125	652	1595	259	112	798	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	110	1278	570	203	1462	652	394	1266	205	138	1212	88
Arrive On Green	0.06	0.35	0.35	0.11	0.41	0.41	0.11	0.28	0.28	0.08	0.25	0.25
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	4499	728	1810	4936	357
Grp Volume(v), veh/h	87	350	650	220	335	125	652	1224	630	112	558	298
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1769	1810	1729	1836
Q Serve(g_s), s	5.5	8.0	41.0	13.0	7.1	5.8	13.0	32.6	32.6	7.1	16.8	16.9
Cycle Q Clear(g_c), s	5.5	8.0	41.0	13.0	7.1	5.8	13.0	32.6	32.6	7.1	16.8	16.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		0.19
Lane Grp Cap(c), veh/h	110	1278	570	203	1462	652	394	973	498	138	849	451
V/C Ratio(X)	0.79	0.27	1.14	1.08	0.23	0.19	1.66	1.26	1.26	0.81	0.66	0.66
Avail Cap(c_a), veh/h	203	1278	570	203	1462	652	394	973	498	203	973	517
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	53.7	26.8	37.4	51.4	22.6	22.2	51.4	41.6	41.6	52.7	39.3	39.4
Incr Delay (d2), s/veh	4.6	0.1	82.9	87.2	0.1	0.1	306.0	124.7	134.4	8.8	1.3	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	2.6	3.4	28.3	10.6	2.9	2.1	22.3	30.2	32.3	3.5	7.1	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.3	26.9	120.3	138.6	22.7	22.4	357.4	166.3	176.1	61.5	40.6	41.9
LnGrp LOS	E	C	F	F	C	C	F	F	F	E	D	D
Approach Vol, veh/h		1087			680			2506			968	
Approach Delay, s/veh		85.3			60.1			218.5			43.5	
Approach LOS		F			E			F			D	

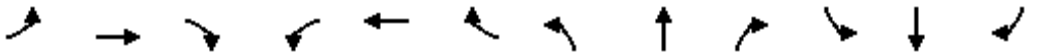
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	38.0	17.6	46.8	17.6	33.9	11.7	52.7
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	13.0	32.6	13.0	41.0	13.0	32.6	13.0	41.0
Max Q Clear Time (g_c+I1), s	9.1	34.6	15.0	43.0	15.0	18.9	7.5	9.1
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	4.4	0.0	2.4

Intersection Summary	
HCM 6th Ctrl Delay	138.0
HCM 6th LOS	F

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	485	2	583	383	1625	1209	562
Future Volume (vph)	485	2	583	383	1625	1209	562
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	31.8	31.8	31.8	25.6	58.2	32.6	32.6
Total Split (%)	35.3%	35.3%	35.3%	28.4%	64.7%	36.2%	36.2%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	23.4	23.4	23.4	13.5	44.3	26.1	26.1
Actuated g/C Ratio	0.30	0.30	0.30	0.17	0.56	0.33	0.33
v/c Ratio	0.77	0.81	0.71	0.67	0.59	0.59	0.64
Control Delay	37.7	40.3	28.0	37.4	12.5	24.0	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	37.7	40.3	28.0	37.4	12.9	24.0	5.7
LOS	D	D	C	D	B	C	A
Approach Delay		35.4			17.6	18.2	
Approach LOS		D			B	B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 79	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 21.7	Intersection LOS: C
Intersection Capacity Utilization 132.7%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	485	2	583	383	1625	0	0	1209	562
Future Volume (veh/h)	0	0	0	485	2	583	383	1625	0	0	1209	562
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				719	0	393	403	1711	0	0	1273	592
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				1045	0	465	509	2929	0	0	2346	578
Arrive On Green				0.29	0.00	0.29	0.15	0.56	0.00	0.00	0.36	0.36
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	6802	1610
Grp Volume(v), veh/h				719	0	393	403	1711	0	0	1273	592
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1634	1610
Q Serve(g_s), s				13.4	0.0	17.4	8.4	16.2	0.0	0.0	11.7	27.2
Cycle Q Clear(g_c), s				13.4	0.0	17.4	8.4	16.2	0.0	0.0	11.7	27.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1045	0	465	509	2929	0	0	2346	578
V/C Ratio(X)				0.69	0.00	0.84	0.79	0.58	0.00	0.00	0.54	1.02
Avail Cap(c_a), veh/h				1246	0	555	973	3614	0	0	2346	578
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				23.9	0.0	25.3	31.3	10.7	0.0	0.0	19.3	24.3
Incr Delay (d2), s/veh				1.3	0.0	10.0	1.1	0.2	0.0	0.0	0.3	43.7
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				5.3	0.0	7.2	3.4	5.0	0.0	0.0	4.1	16.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.2	0.0	35.4	32.4	10.9	0.0	0.0	19.6	68.0
LnGrp LOS				C	A	D	C	B	A	A	B	F
Approach Vol, veh/h					1112			2114			1865	
Approach Delay, s/veh					28.8			15.0			35.0	
Approach LOS					C			B			C	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	48.2		15.6	32.6		27.6						
Change Period (Y+Rc), s	5.4		4.6	5.4		5.7						
Max Green Setting (Gmax), s	52.8		21.0	27.2		26.1						
Max Q Clear Time (g_c+I1), s	18.2		10.4	29.2		19.4						
Green Ext Time (p_c), s	16.4		0.6	0.0		2.5						

Intersection Summary		
HCM 6th Ctrl Delay		25.3
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	700	3	392	1309	529	1166
Future Volume (vph)	700	3	392	1309	529	1166
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.4	9.6	15.4
Total Split (s)	28.0	28.0	28.0	42.4	19.6	62.0
Total Split (%)	31.1%	31.1%	31.1%	47.1%	21.8%	68.9%
Yellow Time (s)	4.8	4.8	4.8	4.4	3.6	4.4
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)	5.8	5.8	5.8	5.4	4.6	5.4
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	Min	None	Min
Act Effct Green (s)	22.2	22.2	22.2	37.0	15.0	56.6
Actuated g/C Ratio	0.25	0.25	0.25	0.41	0.17	0.63
v/c Ratio	0.94	0.98	0.81	1.00	0.96	0.54
Control Delay	66.4	74.0	40.5	45.5	66.3	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	3.8
Total Delay	66.4	74.0	40.5	45.5	66.3	14.3
LOS	E	E	D	D	E	B
Approach Delay		60.9		45.5		30.5
Approach LOS		E		D		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 43.7	Intersection LOS: D
Intersection Capacity Utilization 132.7%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 7: Riverside Av. & I-10 EB Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	700	3	392	0	0	0	0	1309	722	529	1166	0
Future Volume (veh/h)	700	3	392	0	0	0	0	1309	722	529	1166	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	867	0	276				0	1378	655	557	1227	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	893	0	397				0	1423	661	585	2270	0
Arrive On Green	0.25	0.00	0.25				0.00	0.41	0.41	0.17	0.63	0.00
Sat Flow, veh/h	3619	0	1610				0	3633	1607	3510	3705	0
Grp Volume(v), veh/h	867	0	276				0	1376	657	557	1227	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1611	1755	1805	0
Q Serve(g_s), s	21.4	0.0	14.0				0.0	35.0	36.5	14.1	17.2	0.0
Cycle Q Clear(g_c), s	21.4	0.0	14.0				0.0	35.0	36.5	14.1	17.2	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	893	0	397				0	1422	662	585	2270	0
V/C Ratio(X)	0.97	0.00	0.69				0.00	0.97	0.99	0.95	0.54	0.00
Avail Cap(c_a), veh/h	893	0	397				0	1422	662	585	2270	0
HCM Platoon Ratio	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				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.6	0.0	30.8				0.0	25.9	26.3	37.1	9.4	0.0
Incr Delay (d2), s/veh	23.2	0.0	5.2				0.0	16.8	32.7	25.5	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	0.0	5.6				0.0	16.3	18.6	7.9	5.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.8	0.0	36.0				0.0	42.8	59.1	62.7	9.6	0.0
LnGrp LOS	E	A	D				A	D	E	E	A	A
Approach Vol, veh/h		1143						2033			1784	
Approach Delay, s/veh		51.8						48.0			26.2	
Approach LOS		D						D			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	19.6	42.4		28.0		62.0
Change Period (Y+Rc), s	4.6	5.4		5.8		5.4
Max Green Setting (Gmax), s	15.0	37.0		22.2		56.6
Max Q Clear Time (g_c+I1), s	16.1	38.5		23.4		19.2
Green Ext Time (p_c), s	0.0	0.0		0.0		10.9

Intersection Summary	
HCM 6th Ctrl Delay	41.0
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX 5.2:

EAP (2023) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

This Page Intentionally Left Blank

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

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		EAP 2023
				CALC CS	DATE	05/20/21
Jurisdiction: City of Rialto				CHK CS	DATE	05/20/21
Major Street: Valley Boulevard				Critical Approach Speed (Major)		45 mph
Minor Street: Driveway 1				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **22,006** vpd Minor Street Future ADT = **413** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ..... √

or

In built up area of isolated community of < 10,000 population .....

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied (XX)	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 / 1	8,000	5,600	2,400	1,680
2 + **22,006** / 1 **413**	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
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied (XX)	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 / 1	12,000	8,400	1,200	850
2 + **22,006** / 1 **413**	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
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied (XX)	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ..... A **25%** B **49%**				

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)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	EAP 2023
				CALC CS	DATE 05/20/21
Jurisdiction: City of Rialto				CHK CS	DATE 05/20/21
Major Street: Valley Boulevard				Critical Approach Speed (Major)	45 mph
Minor Street: Driveway 2				Critical Approach Speed (Minor)	25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **22,419** vpd Minor Street Future ADT = **90** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ..... [√]

or

In built up area of isolated community of < 10,000 population ..... [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Number of lanes for moving traffic on each approach: Major Street	Minor Street	Minimum Requirements EADT: Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
CONDITION A - Minimum Vehicular Volume						
Satisfied / XX (Not Satisfied)						
	1	*1*	8,000	5,600	2,400	1,680
	2 + **22,419**	*1* **90**	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
CONDITION B - Interruption of Continuous Traffic						
Satisfied / XX (Not Satisfied)						
	1	*1*	12,000	8,400	1,200	850
	2 + **22,419**	*1* **90**	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
Combination of CONDITIONS A + B						
Satisfied / XX (Not Satisfied)						
No one condition satisfied, but following conditions fulfilled 80% of more	**A** 5%	**B** 11%	2 CONDITIONS 80%		2 CONDITIONS 80%	

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)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		EAP 2023
				CALC CS	DATE	05/20/21
Jurisdiction: City of Rialto				CHK CS	DATE	05/20/21
Major Street: Willow Av.				Critical Approach Speed (Major)		40 mph
Minor Street: Driveway 3				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **5,008** vpd Minor Street Future ADT = **258** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied: XX / Not Satisfied: XX	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach				
Major Street: 1 **5,008** / Minor Street: 1 **258**	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
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied: XX	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach				
Major Street: 1 **5,008** / Minor Street: 1 **258**	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
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 11% B: 22%				

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

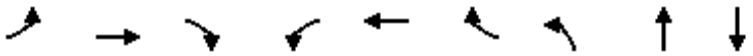
The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

This Page Intentionally Left Blank

APPENDIX 5.3:

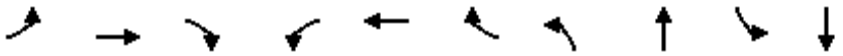
EAP (2023) CONDITIONS QUEUING ANALYSIS WORKSHEETS

This Page Intentionally Left Blank



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	20	859	2	2	627	139	1	3	259
v/c Ratio	0.05	0.59	0.00	0.01	0.43	0.20	0.00	0.01	0.55
Control Delay	8.5	14.5	0.0	8.5	13.0	6.3	16.0	14.0	20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	14.5	0.0	8.5	13.0	6.3	16.0	14.0	20.5
Queue Length 50th (ft)	3	87	0	0	58	7	0	0	51
Queue Length 95th (ft)	14	227	0	3	161	49	4	6	177
Internal Link Dist (ft)		180			1240			462	1090
Turn Bay Length (ft)	150		100	100		100	50		
Base Capacity (vph)	999	2790	1263	987	2790	1268	1066	1527	1192
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.31	0.00	0.00	0.22	0.11	0.00	0.00	0.22

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	51	271	606	267	248	44	575	937	61	1407
v/c Ratio	0.41	0.25	0.92	1.28	0.19	0.07	1.42	0.52	0.47	0.94
Control Delay	62.3	30.0	42.5	200.8	25.6	0.2	242.0	30.9	63.2	53.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	62.3	30.0	42.5	200.8	25.6	0.2	242.0	31.1	63.2	53.1
Queue Length 50th (ft)	38	78	271	~262	65	0	~307	202	45	384
Queue Length 95th (ft)	76	108	#415	#423	97	0	#413	257	86	#481
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	208	1313	747	208	1362	674	404	1798	208	1496
Starvation Cap Reductn	0	0	0	0	0	0	0	276	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.21	0.81	1.28	0.18	0.07	1.42	0.62	0.29	0.94

Intersection Summary

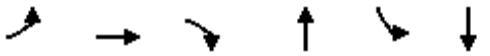
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	399	392	362	455	1035	1428	682
v/c Ratio	0.81	0.75	0.70	0.71	0.35	0.66	0.71
Control Delay	41.5	31.1	26.6	38.1	9.9	25.8	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	41.5	31.1	26.6	38.1	10.1	25.8	7.7
Queue Length 50th (ft)	197	156	122	118	102	187	15
Queue Length 95th (ft)	#368	#304	242	166	128	247	126
Internal Link Dist (ft)		1040			260	343	
Turn Bay Length (ft)	365		365	160			205
Base Capacity (vph)	556	575	568	913	3403	2209	970
Starvation Cap Reductn	0	0	0	0	1311	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	0.72	0.68	0.64	0.50	0.49	0.65	0.70

Intersection Summary

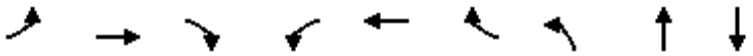
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	333	320	309	1741	627	1524
v/c Ratio	0.85	0.77	0.74	0.89dr	0.88	0.66
Control Delay	54.4	36.8	35.1	27.4	50.1	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	6.9
Total Delay	54.4	36.8	35.1	27.4	50.1	18.4
Queue Length 50th (ft)	189	137	124	294	179	254
Queue Length 95th (ft)	#338	#272	#247	361	#271	323
Internal Link Dist (ft)		1329		1191		260
Turn Bay Length (ft)			325			
Base Capacity (vph)	419	441	439	2075	743	2400
Starvation Cap Reductn	0	0	0	0	0	829
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.73	0.70	0.84	0.84	0.97

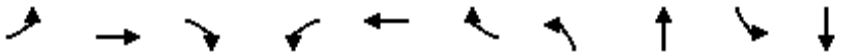
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	57	1036	1	4	866	198	1	6	219
v/c Ratio	0.15	0.56	0.00	0.01	0.55	0.26	0.00	0.01	0.53
Control Delay	7.3	12.2	0.0	7.0	15.5	8.6	19.0	14.5	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	12.2	0.0	7.0	15.5	8.6	19.0	14.5	19.7
Queue Length 50th (ft)	7	96	0	1	120	22	0	1	43
Queue Length 95th (ft)	28	283	0	5	235	77	4	9	126
Internal Link Dist (ft)		180			1240			462	1090
Turn Bay Length (ft)	150		100	100		100	50		
Base Capacity (vph)	897	2496	1136	895	2496	1146	1034	1344	1118
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.42	0.00	0.00	0.35	0.17	0.00	0.00	0.20

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	87	350	650	220	335	125	652	1854	112	856
v/c Ratio	0.57	0.31	0.94	1.05	0.25	0.19	1.61	1.24	0.67	0.62
Control Delay	65.8	29.7	43.7	126.4	26.7	5.5	316.9	148.6	70.0	38.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	65.8	29.7	43.7	126.4	26.7	5.5	316.9	148.9	70.0	38.6
Queue Length 50th (ft)	65	101	299	~193	92	0	~378	~668	84	210
Queue Length 95th (ft)	118	143	#543	#357	137	42	#502	#779	145	257
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	209	1322	761	209	1346	680	406	1496	209	1501
Starvation Cap Reductn	0	0	0	0	0	0	0	131	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.26	0.85	1.05	0.25	0.18	1.61	1.36	0.54	0.57

Intersection Summary

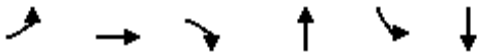
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	388	377	362	403	1711	1273	592
v/c Ratio	0.77	0.81	0.71	0.67	0.59	0.59	0.64
Control Delay	37.7	40.3	28.0	37.4	12.5	24.0	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	37.7	40.3	28.0	37.4	12.9	24.0	5.7
Queue Length 50th (ft)	185	181	129	102	202	158	0
Queue Length 95th (ft)	#349	#365	253	150	244	210	75
Internal Link Dist (ft)		1040			260	343	
Turn Bay Length (ft)	365		365	160			205
Base Capacity (vph)	576	528	572	946	3525	2303	952
Starvation Cap Reductn	0	0	0	0	1052	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	0.67	0.71	0.63	0.43	0.69	0.55	0.62

Intersection Summary

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



Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	398	396	359	2138	557	1227
v/c Ratio	0.94	0.98	0.81	1.00	0.96	0.54
Control Delay	66.4	74.0	40.5	45.5	66.3	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	3.8
Total Delay	66.4	74.0	40.5	45.5	66.3	14.3
Queue Length 50th (ft)	233	241	156	~411	163	186
Queue Length 95th (ft)	#420	#446	#310	#542	#265	237
Internal Link Dist (ft)		1329		1191		260
Turn Bay Length (ft)			325			
Base Capacity (vph)	423	406	442	2130	583	2270
Starvation Cap Reductn	0	0	0	0	0	933
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.98	0.81	1.00	0.96	0.92

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.

APPENDIX 5.4:

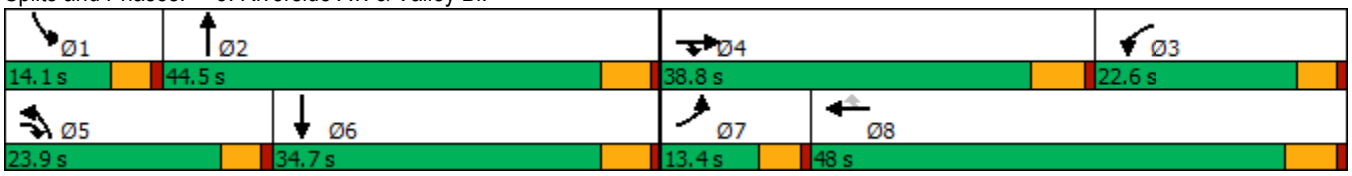
EAP (2023) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

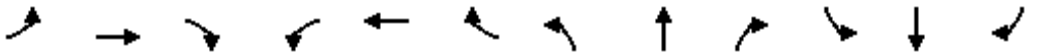
This Page Intentionally Left Blank

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	44	236	527	232	216	38	500	640	53	1189
Future Volume (vph)	44	236	527	232	216	38	500	640	53	1189
Turn Type	Prot	NA	pt+ov	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	4 5	3	8		5	2	1	6
Permitted Phases						8				
Detector Phase	7	4	4 5	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8		9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	13.4	38.8		22.6	48.0	48.0	23.9	44.5	14.1	34.7
Total Split (%)	11.2%	32.3%		18.8%	40.0%	40.0%	19.9%	37.1%	11.8%	28.9%
Yellow Time (s)	3.6	4.8		3.6	4.8	4.8	3.6	4.4	3.6	4.4
All-Red Time (s)	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
Total Lost Time (s)	4.6	5.8		4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Min	None	Min
Act Effct Green (s)	7.1	19.5	37.7	18.1	32.5	32.5	19.4	43.3	7.6	29.4
Actuated g/C Ratio	0.07	0.18	0.35	0.17	0.30	0.30	0.18	0.41	0.07	0.28
v/c Ratio	0.42	0.69	0.54	0.88	0.21	0.07	0.88	0.41	0.48	0.90
Control Delay	60.7	28.1	13.9	73.1	28.8	0.2	59.3	23.6	61.9	46.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	60.7	28.1	13.9	73.1	28.8	0.2	59.3	23.8	61.9	46.7
LOS	E	C	B	E	C	A	E	C	E	D
Approach Delay		25.3			47.7			37.3		47.3
Approach LOS		C			D			D		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 106.9	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 39.4	Intersection LOS: D
Intersection Capacity Utilization 80.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	236	527	232	216	38	500	640	175	53	1189	35
Future Volume (veh/h)	44	236	527	232	216	38	500	640	175	53	1189	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	51	362	166	267	248	21	575	736	63	61	1367	23
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	70	529	513	301	1061	449	649	2194	187	79	1610	27
Arrive On Green	0.04	0.14	0.14	0.17	0.28	0.28	0.22	0.51	0.42	0.04	0.35	0.29
Sat Flow, veh/h	1810	3800	1610	1810	3800	1610	3619	5180	441	1810	5589	94
Grp Volume(v), veh/h	51	362	166	267	248	21	575	539	260	61	929	461
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	1900	1610	1810	1900	1821	1810	1900	1883
Q Serve(g_s), s	2.6	8.6	3.8	13.7	4.8	0.9	14.6	8.0	8.3	3.2	21.5	21.6
Cycle Q Clear(g_c), s	2.6	8.6	3.8	13.7	4.8	0.9	14.6	8.0	8.3	3.2	21.5	21.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		0.05
Lane Grp Cap(c), veh/h	70	529	513	301	1061	449	649	1610	771	79	1095	542
V/C Ratio(X)	0.72	0.68	0.32	0.89	0.23	0.05	0.89	0.33	0.34	0.77	0.85	0.85
Avail Cap(c_a), veh/h	168	1319	848	343	1687	715	735	1610	771	181	1171	580
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.20	1.20	1.00	1.00	1.20	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	45.2	38.9	9.0	38.8	26.4	25.0	36.4	15.4	16.2	45.0	29.2	29.3
Incr Delay (d2), s/veh	5.2	1.6	0.4	20.1	0.1	0.0	10.7	0.1	0.3	5.8	5.8	10.9
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	1.2	3.9	1.6	7.5	2.1	0.3	6.9	3.1	3.2	1.5	9.6	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	40.5	9.4	58.8	26.5	25.1	47.1	15.5	16.4	50.8	35.0	40.2
LnGrp LOS	D	D	A	E	C	C	D	B	B	D	C	D
Approach Vol, veh/h		579			536			1374			1451	
Approach Delay, s/veh		32.4			42.6			28.9			37.3	
Approach LOS		C			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	45.7	21.6	19.0	21.6	32.8	8.3	32.3
Change Period (Y+Rc), s	4.6	5.4	5.8	* 5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	9.5	39.1	18.0	* 33	19.3	29.3	8.8	42.2
Max Q Clear Time (g_c+I1), s	5.2	10.3	15.7	10.6	16.6	23.6	4.6	6.8
Green Ext Time (p_c), s	0.0	5.3	0.1	2.6	0.4	3.8	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

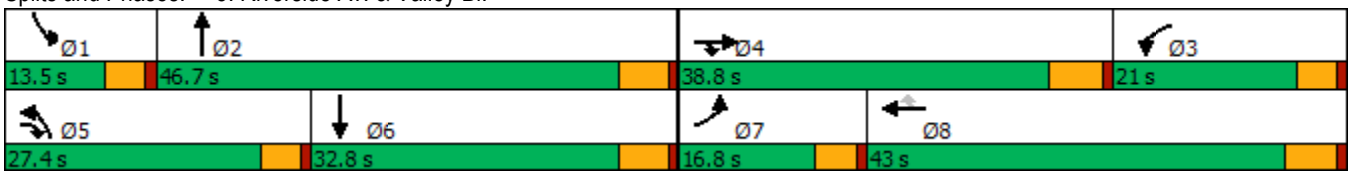
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

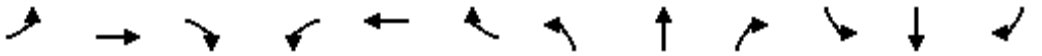
User approved changes to right turn type.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	80	322	598	202	308	115	600	1467	103	734
Future Volume (vph)	80	322	598	202	308	115	600	1467	103	734
Turn Type	Prot	NA	pt+ov	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	4 5	3	8		5	2	1	6
Permitted Phases						8				
Detector Phase	7	4	4 5	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8		9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	16.8	38.8		21.0	43.0	43.0	27.4	46.7	13.5	32.8
Total Split (%)	14.0%	32.3%		17.5%	35.8%	35.8%	22.8%	38.9%	11.3%	27.3%
Yellow Time (s)	3.6	4.8		3.6	4.8	4.8	3.6	4.4	3.6	4.4
All-Red Time (s)	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
Total Lost Time (s)	4.6	5.8		4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Min	None	Min
Act Effct Green (s)	9.3	23.5	44.4	15.7	32.2	32.2	22.2	41.2	8.7	27.8
Actuated g/C Ratio	0.08	0.21	0.41	0.14	0.29	0.29	0.20	0.38	0.08	0.25
v/c Ratio	0.57	0.75	0.51	0.85	0.30	0.22	0.89	0.88	0.78	0.60
Control Delay	64.7	33.7	12.3	76.1	31.7	4.1	59.4	37.9	85.7	38.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.8	0.0	0.0
Total Delay	64.7	33.7	12.3	76.1	31.7	4.1	59.4	84.6	85.7	38.7
LOS	E	C	B	E	C	A	E	F	F	D
Approach Delay		29.8			41.0			78.1		44.1
Approach LOS		C			D			E		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 109.6	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 57.0	Intersection LOS: E
Intersection Capacity Utilization 82.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	322	598	202	308	115	600	1467	238	103	734	53
Future Volume (veh/h)	80	322	598	202	308	115	600	1467	238	103	734	53
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	87	374	183	220	335	82	652	1595	199	112	798	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	112	550	562	255	900	381	738	2002	249	141	1485	78
Arrive On Green	0.06	0.14	0.14	0.14	0.24	0.24	0.20	0.40	0.40	0.08	0.28	0.28
Sat Flow, veh/h	1810	3800	1610	1810	3800	1610	3619	4970	619	1810	5368	282
Grp Volume(v), veh/h	87	374	183	220	335	82	652	1219	575	112	564	276
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	1900	1610	1810	1900	1789	1810	1900	1849
Q Serve(g_s), s	4.4	8.6	4.0	11.0	6.8	3.8	16.2	26.1	26.2	5.6	11.7	11.7
Cycle Q Clear(g_c), s	4.4	8.6	4.0	11.0	6.8	3.8	16.2	26.1	26.2	5.6	11.7	11.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.35	1.00		0.15
Lane Grp Cap(c), veh/h	112	550	562	255	900	381	738	1530	720	141	1052	512
V/C Ratio(X)	0.78	0.68	0.33	0.86	0.37	0.22	0.88	0.80	0.80	0.79	0.54	0.54
Avail Cap(c_a), veh/h	239	1355	903	321	1528	647	892	1696	798	174	1125	548
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	42.8	37.5	8.0	38.9	29.6	28.4	35.8	24.3	24.3	41.9	28.4	28.4
Incr Delay (d2), s/veh	4.3	1.5	0.3	15.0	0.3	0.3	8.1	2.5	5.3	14.6	0.4	0.9
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	2.0	3.9	1.6	5.7	3.0	1.4	7.6	11.3	11.2	3.0	5.1	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	39.0	8.4	53.8	29.8	28.7	43.8	26.8	29.6	56.5	28.9	29.4
LnGrp LOS	D	D	A	D	C	C	D	C	C	E	C	C
Approach Vol, veh/h		644			637			2446			952	
Approach Delay, s/veh		31.4			38.0			32.0			32.3	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	42.7	18.9	19.2	23.5	31.0	10.3	27.7
Change Period (Y+Rc), s	4.6	5.4	5.8	* 5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	8.9	41.3	16.4	* 33	22.8	27.4	12.2	37.2
Max Q Clear Time (g_c+I1), s	7.6	28.2	13.0	10.6	18.2	13.7	6.4	8.8
Green Ext Time (p_c), s	0.0	9.1	0.1	2.8	0.7	4.3	0.0	2.3

Intersection Summary	
HCM 6th Ctrl Delay	32.8
HCM 6th LOS	C

Notes

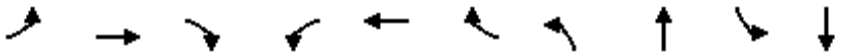
User approved volume balancing among the lanes for turning movement.

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

APPENDIX 5.5:

EAP (2023) CONDITIONS QUEUING ANALYSIS WORKSHEETS WITH IMPROVEMENTS

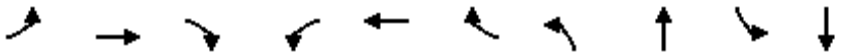
This Page Intentionally Left Blank



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	51	574	303	267	248	44	575	937	61	1407
v/c Ratio	0.42	0.69	0.54	0.88	0.21	0.07	0.88	0.41	0.48	0.90
Control Delay	60.7	28.1	13.9	73.1	28.8	0.2	59.3	23.6	61.9	46.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	60.7	28.1	13.9	73.1	28.8	0.2	59.3	23.8	61.9	46.7
Queue Length 50th (ft)	33	109	71	176	65	0	189	141	40	300
Queue Length 95th (ft)	77	153	113	#362	93	0	#320	212	88	#442
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	149	1245	745	305	1507	729	655	2272	161	1566
Starvation Cap Reductn	0	0	0	0	0	0	0	612	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.46	0.41	0.88	0.16	0.06	0.88	0.56	0.38	0.90

Intersection Summary

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	87	675	325	220	335	125	652	1854	112	856
v/c Ratio	0.57	0.75	0.51	0.85	0.30	0.22	0.89	0.88	0.78	0.60
Control Delay	64.7	33.7	12.3	76.1	31.7	4.1	59.4	37.9	85.7	38.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.8	0.0	0.0
Total Delay	64.7	33.7	12.3	76.1	31.7	4.1	59.4	84.6	85.7	38.7
Queue Length 50th (ft)	60	163	75	154	95	0	226	399	79	178
Queue Length 95th (ft)	119	224	124	#315	136	31	#363	#557	#192	243
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	202	1201	773	271	1297	648	755	2135	147	1436
Starvation Cap Reductn	0	0	0	0	0	0	0	514	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.56	0.42	0.81	0.26	0.19	0.86	1.14	0.76	0.60

Intersection Summary

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

APPENDIX 6.1:

EAPC (2023) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

This Page Intentionally Left Blank

Volume Development
Weekday AM Peak Hour

1: Dwy. 1 & Valley Bl.

	PHF: 0.920								Count Date:				
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**766**	**0**	**0**	**480**	**0**	**1,246**
Project (PCE):	0	0	0	23	0	1	6	0	0	0	1	99	130
Other (PCE):	0	0	0	0	0	0	0	112	0	0	173	0	285
EAPC (2023) PCE:	0	0	0	23	0	1	6	909	0	0	673	99	1,711

2: Dwy. 2 & Valley Bl.

	PHF: 0.920								Count Date:				
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**766**	**0**	**0**	**480**	**0**	**1,246**
Project (PCE):	0	0	0	0	0	1	0	23	0	0	99	22	145
Other (PCE):	0	0	0	0	0	0	0	112	0	0	173	0	285
EAPC (2023) PCE:	0	0	0	0	0	1	0	932	0	0	771	22	1,726

3: Valley Bl. & Dwy. 3

	PHF: 0.920								Count Date:				
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**97**	**0**	**0**	**221**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**317**
Project (PCE):	49	1	0	0	3	6	2	0	9	0	0	0	70
Other (PCE):	0	58	0	0	30	0	0	0	0	0	0	0	88
EAPC (2023) PCE:	49	160	0	0	262	6	2	0	9	0	0	0	488

4: Willow Av. & Valley Bl.

	PHF: 0.930				7:15				Count Date:		1/24/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**1**	**2**	**1**	**188**	**1**	**31**	**18**	**746**	**2**	**2**	**447**	**77**	**1,517**
Project (PCE):	0	0	0	9	0	3	1	22	0	0	118	49	202
Other (PCE):	0	0	0	16	0	14	8	104	0	0	159	50	351
EAPC (2023) PCE:	1	2	1	221	1	49	27	903	2	2	742	179	2,132

5: Riverside Av. & Valley Bl.

	PHF: 0.872				7:15				Count Date:		2/6/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**324**	**615**	**168**	**51**	**1,142**	**33**	**42**	**226**	**477**	**223**	**205**	**36**	**3,543**
Project (PCE):	163	0	0	0	0	0	0	1	31	0	3	0	198
Other (PCE):	176	146	75	0	117	14	12	16	92	35	19	0	702
EAPC (2023) PCE:	676	786	250	53	1,306	49	56	252	619	267	235	38	4,586

6: Riverside Av. & I-10 WB Ramps

	PHF: 0.955				7:00				Count Date:		5/1/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**416**	**856**	**0**	**0**	**1,292**	**606**	**0**	**0**	**0**	**618**	**0**	**367**	**4,155**
Project (PCE):	0	93	0	0	13	17	0	0	0	0	0	70	193
Other (PCE):	206	308	0	0	205	39	0	0	0	308	0	89	1,155
EAPC (2023) PCE:	638	1,291	0	0	1,562	687	0	0	0	951	0	541	5,671

7: Riverside Av. & I-10 EB Ramps

	PHF: 0.933				7:00				Count Date:		5/1/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**946**	**610**	**548**	**1,362**	**0**	**325**	**0**	**446**	**0**	**0**	**0**	**4,238**
Project (PCE):	0	0	0	13	0	0	93	0	0	0	0	0	106
Other (PCE):	0	373	237	28	486	0	140	0	307	0	0	0	1,571
EAPC (2023) PCE:	0	1,357	872	611	1,903	0	571	0	771	0	0	0	6,086

Volume Development
Weekday PM Peak Hour

1: Dwy. 1 & Valley Bl.

	PHF:	0.920							Count Date:				
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**847**	**0**	**0**	**766**	**0**	**1,613**
Project (PCE):	0	0	0	125	0	3	2	0	0	0	3	25	158
Other (PCE):	0	0	0	0	0	0	0	196	0	0	74	0	270
EAPC (2023) PCE:	0	0	0	125	0	3	2	1,077	0	0	874	25	2,106

2: Dwy. 2 & Valley Bl.

	PHF:	0.920							Count Date:				
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**847**	**0**	**0**	**766**	**0**	**1,613**
Project (PCE):	0	0	0	0	0	3	0	125	0	0	25	8	161
Other (PCE):	0	0	0	0	0	0	0	196	0	0	74	0	270
EAPC (2023) PCE:	0	0	0	0	0	3	0	1,202	0	0	896	8	2,109

3: Valley Bl. & Dwy. 3

	PHF:	0.920							Count Date:				
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**210**	**0**	**0**	**144**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**354**
Project (PCE):	14	3	0	0	1	2	6	0	50	0	0	0	76
Other (PCE):	0	71	0	0	81	0	0	0	0	0	0	0	152
EAPC (2023) PCE:	14	293	0	0	232	2	6	0	50	0	0	0	597

4: Willow Av. & Valley Bl.

	PHF:	0.915			4:15				Count Date:	1/24/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**1**	**2**	**4**	**114**	**0**	**30**	**47**	**799**	**1**	**4**	**736**	**161**	**1,899**
Project (PCE):	0	0	0	50	0	1	3	122	0	0	32	14	222
Other (PCE):	0	0	0	61	0	20	33	163	0	0	54	38	369
EAPC (2023) PCE:	1	2	4	230	0	52	85	1,116	1	4	851	220	2,567

5: Riverside Av. & Valley Bl.

	PHF:	0.920			4:45				Count Date:	2/6/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**535**	**1,410**	**228**	**99**	**705**	**51**	**76**	**307**	**413**	**195**	**295**	**111**	**4,425**
Project (PCE):	44	0	0	0	0	0	0	3	169	0	1	0	217
Other (PCE):	59	170	30	0	183	5	10	27	187	35	28	0	734
EAPC (2023) PCE:	659	1,637	268	103	917	58	90	349	785	237	336	115	5,555

6: Riverside Av. & I-10 WB Ramps

	PHF:	0.950			4:30				Count Date:	5/1/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**368**	**1,538**	**0**	**0**	**1,093**	**447**	**0**	**0**	**0**	**467**	**2**	**543**	**4,458**
Project (PCE):	0	25	0	0	72	97	0	0	0	0	0	19	213
Other (PCE):	292	227	0	0	278	127	0	0	0	229	0	32	1,185
EAPC (2023) PCE:	675	1,852	0	0	1,487	689	0	0	0	714	2	615	6,036

7: Riverside Av. & I-10 EB Ramps

	PHF:	0.954			4:30				Count Date:	5/1/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Adj. 2021 PCE:	**0**	**1,258**	**694**	**439**	**1,121**	**0**	**649**	**3**	**377**	**0**	**0**	**0**	**4,540**
Project (PCE):	0	0	0	72	0	0	25	0	0	0	0	0	97
Other (PCE):	0	469	299	105	400	0	51	0	203	0	0	0	1,527
EAPC (2023) PCE:	0	1,778	1,021	634	1,566	0	751	3	595	0	0	0	6,347

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	909	673	99	23	1
Future Vol, veh/h	6	909	673	99	23	1
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	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	988	732	108	25	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	840	0	-	0	1294	420
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	508	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	804	-	-	-	157	588
Stage 1	-	-	-	-	415	-
Stage 2	-	-	-	-	575	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	804	-	-	-	156	588
Mov Cap-2 Maneuver	-	-	-	-	345	-
Stage 1	-	-	-	-	411	-
Stage 2	-	-	-	-	575	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	804	-	-	-	351
HCM Lane V/C Ratio	0.008	-	-	-	0.074
HCM Control Delay (s)	9.5	-	-	-	16.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	932	771	22	0	1
Future Vol, veh/h	0	932	771	22	0	1
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	1013	838	24	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	431
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	578
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	578
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	578
HCM Lane V/C Ratio	-	-	-	0.002
HCM Control Delay (s)	-	-	-	11.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	9	49	160	262	6
Future Vol, veh/h	2	9	49	160	262	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	10	53	174	285	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	569	289	292	0	-	0
Stage 1	289	-	-	-	-	-
Stage 2	280	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	487	755	1281	-	-	-
Stage 1	765	-	-	-	-	-
Stage 2	772	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	465	755	1281	-	-	-
Mov Cap-2 Maneuver	465	-	-	-	-	-
Stage 1	730	-	-	-	-	-
Stage 2	772	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	1.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1281	-	678	-	-
HCM Lane V/C Ratio	0.042	-	0.018	-	-
HCM Control Delay (s)	7.9	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	9	49	160	262	6
Future Vol, veh/h	2	9	49	160	262	6
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	-	150	-	-	-
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	2	10	53	174	285	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	569	289	292	0	-	0
Stage 1	289	-	-	-	-	-
Stage 2	280	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	487	755	1281	-	-	-
Stage 1	765	-	-	-	-	-
Stage 2	772	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	467	755	1281	-	-	-
Mov Cap-2 Maneuver	467	-	-	-	-	-
Stage 1	734	-	-	-	-	-
Stage 2	772	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	1.9	0
HCM LOS	B		

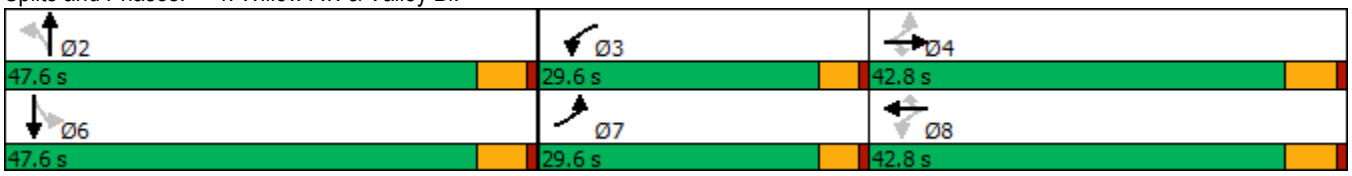
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1281	-	679	-	-
HCM Lane V/C Ratio	0.042	-	0.018	-	-
HCM Control Delay (s)	7.9	-	10.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

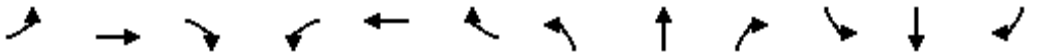
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	27	903	2	2	742	179	1	2	221	1
Future Volume (vph)	27	903	2	2	742	179	1	2	221	1
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	9.6	22.8	22.8	31.4	31.4	31.4	31.4
Total Split (s)	29.6	42.8	42.8	29.6	42.8	42.8	47.6	47.6	47.6	47.6
Total Split (%)	24.7%	35.7%	35.7%	24.7%	35.7%	35.7%	39.7%	39.7%	39.7%	39.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.4	4.4	4.4	4.4
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.4	5.4		5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 59.9
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Willow Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	903	2	2	742	179	1	2	1	221	1	49
Future Volume (veh/h)	27	903	2	2	742	179	1	2	1	221	1	49
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	29	971	2	2	798	192	1	2	1	238	1	53
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	327	1462	652	267	1351	603	543	307	154	444	4	69
Arrive On Green	0.03	0.41	0.41	0.00	0.37	0.37	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1371	1195	597	1186	16	267
Grp Volume(v), veh/h	29	971	2	2	798	192	1	0	3	292	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1371	0	1792	1469	0	0
Q Serve(g_s), s	0.5	10.3	0.0	0.0	8.4	4.0	0.0	0.0	0.1	8.6	0.0	0.0
Cycle Q Clear(g_c), s	0.5	10.3	0.0	0.0	8.4	4.0	0.0	0.0	0.1	8.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	0.82		0.18
Lane Grp Cap(c), veh/h	327	1462	652	267	1351	603	543	0	461	516	0	0
V/C Ratio(X)	0.09	0.66	0.00	0.01	0.59	0.32	0.00	0.00	0.01	0.57	0.00	0.00
Avail Cap(c_a), veh/h	1226	2833	1263	1221	2833	1263	1418	0	1604	1451	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.2	11.4	8.4	10.0	11.9	10.5	13.0	0.0	13.0	16.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.4	0.3	0.0	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.9	0.0	0.0	2.4	1.1	0.0	0.0	0.0	2.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.2	11.9	8.4	10.0	12.3	10.8	13.0	0.0	13.0	17.2	0.0	0.0
LnGrp LOS	A	B	A	B	B	B	B	A	B	B	A	A
Approach Vol, veh/h		1002			992			4			292	
Approach Delay, s/veh		11.9			12.0			13.0			17.2	
Approach LOS		B			B			B			B	

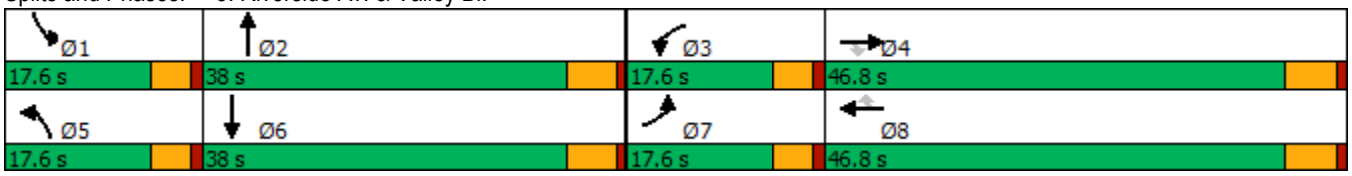
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		17.5	4.7	24.9		17.5	6.2	23.4				
Change Period (Y+Rc), s		5.4	4.6	5.8		5.4	4.6	5.8				
Max Green Setting (Gmax), s		42.2	25.0	37.0		42.2	25.0	37.0				
Max Q Clear Time (g_c+I1), s		2.1	2.0	12.3		10.7	2.5	10.4				
Green Ext Time (p_c), s		0.0	0.0	6.8		1.7	0.0	6.1				

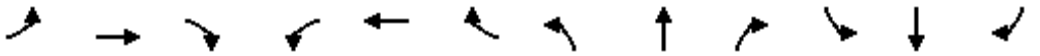
Intersection Summary												
HCM 6th Ctrl Delay			12.6									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	56	252	619	267	235	38	676	786	53	1306
Future Volume (vph)	56	252	619	267	235	38	676	786	53	1306
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8	38.8	9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	17.6	46.8	46.8	17.6	46.8	46.8	17.6	38.0	17.6	38.0
Total Split (%)	14.7%	39.0%	39.0%	14.7%	39.0%	39.0%	14.7%	31.7%	14.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
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	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	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	Min	None	Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	252	619	267	235	38	676	786	250	53	1306	49
Future Volume (veh/h)	56	252	619	267	235	38	676	786	250	53	1306	49
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	64	290	711	307	270	44	777	903	287	61	1501	56
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	83	1233	550	196	1459	651	380	1312	415	79	1394	52
Arrive On Green	0.05	0.34	0.34	0.11	0.40	0.40	0.11	0.34	0.34	0.04	0.27	0.27
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	3900	1235	1810	5132	191
Grp Volume(v), veh/h	64	290	711	307	270	44	777	800	390	61	1011	546
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1678	1810	1729	1866
Q Serve(g_s), s	4.2	6.9	41.0	13.0	5.8	2.0	13.0	24.0	24.1	4.0	32.6	32.6
Cycle Q Clear(g_c), s	4.2	6.9	41.0	13.0	5.8	2.0	13.0	24.0	24.1	4.0	32.6	32.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.74	1.00		0.10
Lane Grp Cap(c), veh/h	83	1233	550	196	1459	651	380	1163	564	79	939	507
V/C Ratio(X)	0.77	0.24	1.29	1.57	0.19	0.07	2.04	0.69	0.69	0.77	1.08	1.08
Avail Cap(c_a), veh/h	196	1233	550	196	1459	651	380	1163	564	196	939	507
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.6	28.3	39.5	53.5	23.0	21.9	53.5	34.4	34.4	56.8	43.7	43.7
Incr Delay (d2), s/veh	5.6	0.1	144.7	278.0	0.1	0.0	478.5	1.7	3.6	5.9	52.2	62.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.9	37.5	20.9	2.4	0.7	30.9	10.0	10.1	1.9	20.3	23.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.3	28.4	184.2	331.5	23.1	21.9	532.0	36.1	38.0	62.6	95.9	105.9
LnGrp LOS	E	C	F	F	C	C	F	D	D	E	F	F
Approach Vol, veh/h		1065			621			1967			1618	
Approach Delay, s/veh		134.5			175.5			232.4			98.0	
Approach LOS		F			F			F			F	

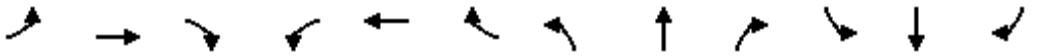
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	45.8	17.6	46.8	17.6	38.0	10.1	54.3
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	13.0	32.6	13.0	41.0	13.0	32.6	13.0	41.0
Max Q Clear Time (g_c+I1), s	6.0	26.1	15.0	43.0	15.0	34.6	6.2	7.8
Green Ext Time (p_c), s	0.0	3.8	0.0	0.0	0.0	0.0	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	164.6
HCM 6th LOS	F

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	951	0	541	638	1291	1562	687
Future Volume (vph)	951	0	541	638	1291	1562	687
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	31.8	31.8	31.8	25.6	58.2	32.6	32.6
Total Split (%)	35.3%	35.3%	35.3%	28.4%	64.7%	36.2%	36.2%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 88.6
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	951	0	541	638	1291	0	0	1562	687
Future Volume (veh/h)	0	0	0	951	0	541	638	1291	0	0	1562	687
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				1178	0	379	672	1359	0	0	1644	723
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				1076	0	479	752	2990	0	0	2024	499
Arrive On Green				0.30	0.00	0.30	0.21	0.58	0.00	0.00	0.31	0.31
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	6802	1610
Grp Volume(v), veh/h				1178	0	379	672	1359	0	0	1644	723
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1634	1610
Q Serve(g_s), s				26.1	0.0	19.0	16.3	13.2	0.0	0.0	20.4	27.2
Cycle Q Clear(g_c), s				26.1	0.0	19.0	16.3	13.2	0.0	0.0	20.4	27.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1076	0	479	752	2990	0	0	2024	499
V/C Ratio(X)				1.10	0.00	0.79	0.89	0.45	0.00	0.00	0.81	1.45
Avail Cap(c_a), veh/h				1076	0	479	839	3119	0	0	2024	499
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.9	0.0	28.4	33.5	10.7	0.0	0.0	28.0	30.3
Incr Delay (d2), s/veh				57.3	0.0	8.8	10.4	0.1	0.0	0.0	2.6	213.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				19.0	0.0	7.9	7.7	4.3	0.0	0.0	7.8	39.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				88.1	0.0	37.2	43.9	10.8	0.0	0.0	30.6	243.7
LnGrp LOS				F	A	D	D	B	A	A	C	F
Approach Vol, veh/h					1557			2031			2367	
Approach Delay, s/veh					75.7			21.8			95.7	
Approach LOS					E			C			F	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	56.0		23.4	32.6		31.8						
Change Period (Y+Rc), s	5.4		4.6	5.4		5.7						
Max Green Setting (Gmax), s	52.8		21.0	27.2		26.1						
Max Q Clear Time (g_c+I1), s	15.2		18.3	29.2		28.1						
Green Ext Time (p_c), s	12.1		0.5	0.0		0.0						

Intersection Summary		
HCM 6th Ctrl Delay	65.3	
HCM 6th LOS	E	

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	571	0	771	1357	611	1903
Future Volume (vph)	571	0	771	1357	611	1903
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.4	9.6	15.4
Total Split (s)	29.0	29.0	29.0	42.0	19.0	61.0
Total Split (%)	32.2%	32.2%	32.2%	46.7%	21.1%	67.8%
Yellow Time (s)	4.8	4.8	4.8	4.4	3.6	4.4
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)	5.8	5.8	5.8	5.4	4.6	5.4
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	Min	None	Min

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Riverside Av. & I-10 EB Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	571	0	771	0	0	0	0	1357	872	611	1903	0
Future Volume (veh/h)	571	0	771	0	0	0	0	1357	872	611	1903	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	905	0	517				0	1459	938	657	2046	0
Peak Hour Factor	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
Cap, veh/h	933	0	415				0	1406	655	562	2230	0
Arrive On Green	0.26	0.00	0.26				0.00	0.41	0.41	0.16	0.62	0.00
Sat Flow, veh/h	3619	0	1610				0	3629	1610	3510	3705	0
Grp Volume(v), veh/h	905	0	517				0	1459	938	657	2046	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1755	1805	0
Q Serve(g_s), s	22.3	0.0	23.2				0.0	36.6	36.6	14.4	45.0	0.0
Cycle Q Clear(g_c), s	22.3	0.0	23.2				0.0	36.6	36.6	14.4	45.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	933	0	415				0	1406	655	562	2230	0
V/C Ratio(X)	0.97	0.00	1.25				0.00	1.04	1.43	1.17	0.92	0.00
Avail Cap(c_a), veh/h	933	0	415				0	1406	655	562	2230	0
HCM Platoon Ratio	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				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.1	0.0	33.4				0.0	26.7	26.7	37.8	15.2	0.0
Incr Delay (d2), s/veh	22.4	0.0	129.3				0.0	34.3	203.3	94.3	6.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.9	0.0	23.3				0.0	20.3	49.6	13.3	16.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.4	0.0	162.7				0.0	61.0	230.0	132.1	21.8	0.0
LnGrp LOS	E	A	F				A	F	F	F	C	A
Approach Vol, veh/h		1422						2397			2703	
Approach Delay, s/veh		94.4						127.1			48.6	
Approach LOS		F						F			D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	19.0	42.0		29.0		61.0
Change Period (Y+Rc), s	4.6	5.4		5.8		5.4
Max Green Setting (Gmax), s	14.4	36.6		23.2		55.6
Max Q Clear Time (g_c+I1), s	16.4	38.6		25.2		47.0
Green Ext Time (p_c), s	0.0	0.0		0.0		7.4

Intersection Summary		
HCM 6th Ctrl Delay		87.5
HCM 6th LOS		F

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	1077	874	25	125	3
Future Vol, veh/h	2	1077	874	25	125	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	1171	950	27	136	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	977	0	-	0	1554	489
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	590	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	714	-	-	-	~ 106	530
Stage 1	-	-	-	-	335	-
Stage 2	-	-	-	-	522	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	714	-	-	-	~ 106	530
Mov Cap-2 Maneuver	-	-	-	-	282	-
Stage 1	-	-	-	-	334	-
Stage 2	-	-	-	-	522	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	29.1
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	714	-	-	-	285
HCM Lane V/C Ratio	0.003	-	-	-	0.488
HCM Control Delay (s)	10.1	-	-	-	29.1
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	2.5

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

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↱			↱
Traffic Vol, veh/h	0	1202	896	8	0	3
Future Vol, veh/h	0	1202	896	8	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1307	974	9	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	492
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	528
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	528
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	528
HCM Lane V/C Ratio	-	-	-	0.006
HCM Control Delay (s)	-	-	-	11.9
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	50	14	293	232	2
Future Vol, veh/h	6	50	14	293	232	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	54	15	318	252	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	601	253	254	0	-	0
Stage 1	253	-	-	-	-	-
Stage 2	348	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	467	791	1323	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	719	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	460	791	1323	-	-	-
Mov Cap-2 Maneuver	460	-	-	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	719	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1323	-	734	-	-
HCM Lane V/C Ratio	0.012	-	0.083	-	-
HCM Control Delay (s)	7.8	0	10.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	50	14	293	232	2
Future Vol, veh/h	6	50	14	293	232	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
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	7	54	15	318	252	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	601	253	254	0	-	0
Stage 1	253	-	-	-	-	-
Stage 2	348	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	467	791	1323	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	719	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	462	791	1323	-	-	-
Mov Cap-2 Maneuver	462	-	-	-	-	-
Stage 1	785	-	-	-	-	-
Stage 2	719	-	-	-	-	-

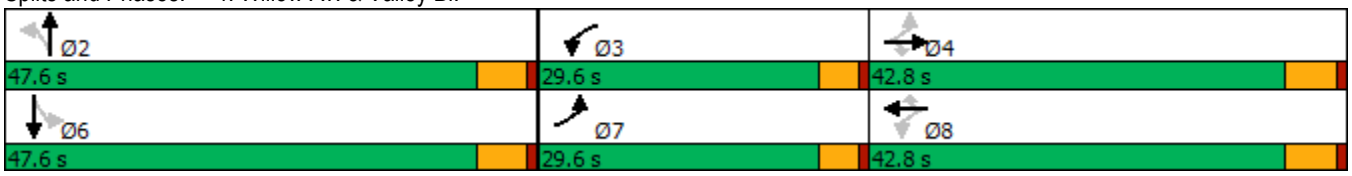
Approach	EB	NB	SB
HCM Control Delay, s	10.3	0.4	0
HCM LOS	B		

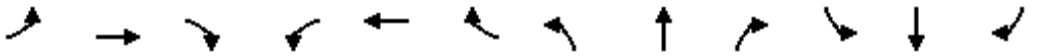
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1323	-	735	-	-
HCM Lane V/C Ratio	0.012	-	0.083	-	-
HCM Control Delay (s)	7.8	-	10.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	85	1116	1	4	851	220	1	2	230	0
Future Volume (vph)	85	1116	1	4	851	220	1	2	230	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	9.6	22.8	22.8	31.4	31.4	31.4	31.4
Total Split (s)	29.6	42.8	42.8	29.6	42.8	42.8	47.6	47.6	47.6	47.6
Total Split (%)	24.7%	35.7%	35.7%	24.7%	35.7%	35.7%	39.7%	39.7%	39.7%	39.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.4	4.4	4.4	4.4
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.4	5.4		5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 71.7
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Willow Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	1116	1	4	851	220	1	2	4	230	0	52
Future Volume (veh/h)	85	1116	1	4	851	220	1	2	4	230	0	52
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	92	1213	1	4	925	239	1	2	4	250	0	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	337	1637	730	219	1414	631	524	149	298	425	0	71
Arrive On Green	0.07	0.45	0.45	0.01	0.39	0.39	0.26	0.26	0.26	0.26	0.00	0.26
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1368	565	1131	1179	0	269
Grp Volume(v), veh/h	92	1213	1	4	925	239	1	0	6	307	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1368	0	1696	1448	0	0
Q Serve(g_s), s	1.6	15.7	0.0	0.1	11.9	6.0	0.0	0.0	0.1	11.2	0.0	0.0
Cycle Q Clear(g_c), s	1.6	15.7	0.0	0.1	11.9	6.0	0.0	0.0	0.1	11.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	0.81		0.19
Lane Grp Cap(c), veh/h	337	1637	730	219	1414	631	524	0	447	496	0	0
V/C Ratio(X)	0.27	0.74	0.00	0.02	0.65	0.38	0.00	0.00	0.01	0.62	0.00	0.00
Avail Cap(c_a), veh/h	1010	2346	1046	1004	2346	1046	1177	0	1257	1195	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.0	12.8	8.5	11.7	14.2	12.4	15.4	0.0	15.5	19.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.8	0.0	0.0	0.5	0.4	0.0	0.0	0.0	1.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	4.8	0.0	0.0	3.9	1.8	0.0	0.0	0.1	3.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.2	13.6	8.5	11.7	14.7	12.7	15.5	0.0	15.5	20.9	0.0	0.0
LnGrp LOS	B	B	A	B	B	B	B	A	B	C	A	A
Approach Vol, veh/h		1306			1168			7			307	
Approach Delay, s/veh		13.3			14.3			15.5			20.9	
Approach LOS		B			B			B			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.4	4.9	31.6		20.4	8.4	28.1				
Change Period (Y+Rc), s		5.4	4.6	5.8		5.4	4.6	5.8				
Max Green Setting (Gmax), s		42.2	25.0	37.0		42.2	25.0	37.0				
Max Q Clear Time (g_c+I1), s		2.1	2.1	17.7		13.3	3.6	13.9				
Green Ext Time (p_c), s		0.0	0.0	8.1		1.8	0.1	7.2				

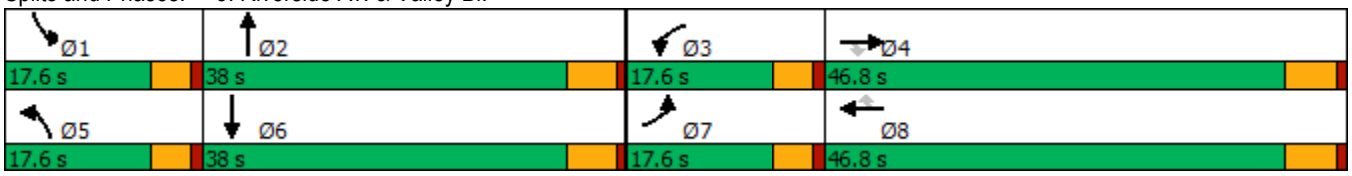
Intersection Summary	
HCM 6th Ctrl Delay	14.6
HCM 6th LOS	B

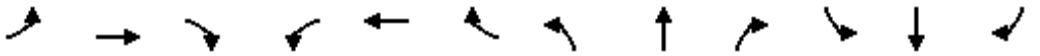
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	90	349	785	237	336	115	659	1637	103	917
Future Volume (vph)	90	349	785	237	336	115	659	1637	103	917
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8	38.8	9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	17.6	46.8	46.8	17.6	46.8	46.8	17.6	38.0	17.6	38.0
Total Split (%)	14.7%	39.0%	39.0%	14.7%	39.0%	39.0%	14.7%	31.7%	14.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
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	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	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	Min	None	Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 118.1
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	349	785	237	336	115	659	1637	268	103	917	58
Future Volume (veh/h)	90	349	785	237	336	115	659	1637	268	103	917	58
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	98	379	853	258	365	125	716	1779	291	112	997	63
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	123	1278	570	203	1437	641	394	1266	205	138	1225	77
Arrive On Green	0.07	0.35	0.35	0.11	0.40	0.40	0.11	0.28	0.28	0.08	0.25	0.25
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	4498	729	1810	4987	315
Grp Volume(v), veh/h	98	379	853	258	365	125	716	1364	706	112	691	369
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1769	1810	1729	1843
Q Serve(g_s), s	6.2	8.8	41.0	13.0	7.8	5.9	13.0	32.6	32.6	7.1	21.8	21.9
Cycle Q Clear(g_c), s	6.2	8.8	41.0	13.0	7.8	5.9	13.0	32.6	32.6	7.1	21.8	21.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		0.17
Lane Grp Cap(c), veh/h	123	1278	570	203	1437	641	394	973	498	138	849	453
V/C Ratio(X)	0.80	0.30	1.50	1.27	0.25	0.19	1.82	1.40	1.42	0.81	0.81	0.82
Avail Cap(c_a), veh/h	203	1278	570	203	1437	641	394	973	498	203	973	519
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	53.2	27.0	37.4	51.4	23.3	22.7	51.4	41.6	41.6	52.7	41.2	41.2
Incr Delay (d2), s/veh	4.4	0.1	232.8	154.6	0.1	0.1	377.8	187.0	200.0	8.8	4.8	8.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	3.7	52.0	14.4	3.2	2.2	26.3	38.7	41.4	3.5	9.6	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.6	27.1	270.2	206.0	23.4	22.9	429.3	228.6	241.6	61.5	46.0	49.9
LnGrp LOS	E	C	F	F	C	C	F	F	F	E	D	D
Approach Vol, veh/h		1330			748			2786			1172	
Approach Delay, s/veh		185.3			86.3			283.5			48.7	
Approach LOS		F			F			F			D	

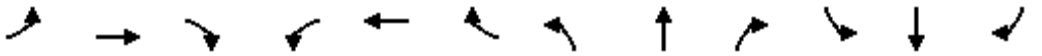
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	38.0	17.6	46.8	17.6	33.9	12.5	51.9
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	13.0	32.6	13.0	41.0	13.0	32.6	13.0	41.0
Max Q Clear Time (g_c+I1), s	9.1	34.6	15.0	43.0	15.0	23.9	8.2	9.8
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	4.2	0.0	2.6

Intersection Summary	
HCM 6th Ctrl Delay	191.8
HCM 6th LOS	F

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	714	2	615	675	1852	1487	689
Future Volume (vph)	714	2	615	675	1852	1487	689
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	31.8	31.8	31.8	25.6	58.2	32.6	32.6
Total Split (%)	35.3%	35.3%	35.3%	28.4%	64.7%	36.2%	36.2%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 89.2
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	714	2	615	675	1852	0	0	1487	689
Future Volume (veh/h)	0	0	0	714	2	615	675	1852	0	0	1487	689
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				954	0	432	711	1949	0	0	1565	725
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				1052	0	468	785	3028	0	0	2013	496
Arrive On Green				0.29	0.00	0.29	0.22	0.58	0.00	0.00	0.31	0.31
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	6802	1610
Grp Volume(v), veh/h				954	0	432	711	1949	0	0	1565	725
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1634	1610
Q Serve(g_s), s				22.4	0.0	23.0	17.4	22.1	0.0	0.0	19.2	27.2
Cycle Q Clear(g_c), s				22.4	0.0	23.0	17.4	22.1	0.0	0.0	19.2	27.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1052	0	468	785	3028	0	0	2013	496
V/C Ratio(X)				0.91	0.00	0.92	0.91	0.64	0.00	0.00	0.78	1.46
Avail Cap(c_a), veh/h				1069	0	476	835	3101	0	0	2013	496
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.2	0.0	30.4	33.4	12.3	0.0	0.0	27.8	30.6
Incr Delay (d2), s/veh				11.0	0.0	23.5	12.4	0.4	0.0	0.0	2.0	218.8
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				10.6	0.0	11.2	8.3	7.3	0.0	0.0	7.3	39.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				41.2	0.0	53.9	45.8	12.7	0.0	0.0	29.8	249.4
LnGrp LOS				D	A	D	D	B	A	A	C	F
Approach Vol, veh/h					1386			2660			2290	
Approach Delay, s/veh					45.1			21.5			99.3	
Approach LOS					D			C			F	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	57.0		24.4	32.6		31.4						
Change Period (Y+Rc), s	5.4		4.6	5.4		5.7						
Max Green Setting (Gmax), s	52.8		21.0	27.2		26.1						
Max Q Clear Time (g_c+I1), s	24.1		19.4	29.2		25.0						
Green Ext Time (p_c), s	17.6		0.3	0.0		0.7						

Intersection Summary		
HCM 6th Ctrl Delay	54.8	
HCM 6th LOS	D	

Notes

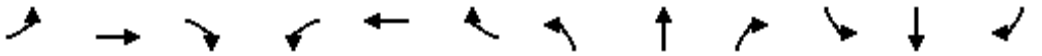
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	751	3	595	1778	634	1566
Future Volume (vph)	751	3	595	1778	634	1566
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.4	9.6	15.4
Total Split (s)	26.0	26.0	26.0	46.0	18.0	64.0
Total Split (%)	28.9%	28.9%	28.9%	51.1%	20.0%	71.1%
Yellow Time (s)	4.8	4.8	4.8	4.4	3.6	4.4
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)	5.8	5.8	5.8	5.4	4.6	5.4
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Riverside Av. & I-10 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	751	3	595	0	0	0	0	1778	1021	634	1566	0
Future Volume (veh/h)	751	3	595	0	0	0	0	1778	1021	634	1566	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	987	0	418				0	1872	1075	667	1648	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	812	0	361				0	1560	726	523	2351	0
Arrive On Green	0.22	0.00	0.22				0.00	0.45	0.45	0.15	0.65	0.00
Sat Flow, veh/h	3619	0	1610				0	3629	1610	3510	3705	0
Grp Volume(v), veh/h	987	0	418				0	1872	1075	667	1648	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1755	1805	0
Q Serve(g_s), s	20.2	0.0	20.2				0.0	40.6	40.6	13.4	26.4	0.0
Cycle Q Clear(g_c), s	20.2	0.0	20.2				0.0	40.6	40.6	13.4	26.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	812	0	361				0	1560	726	523	2351	0
V/C Ratio(X)	1.22	0.00	1.16				0.00	1.20	1.48	1.28	0.70	0.00
Avail Cap(c_a), veh/h	812	0	361				0	1560	726	523	2351	0
HCM Platoon Ratio	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				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.9	0.0	34.9				0.0	24.7	24.7	38.3	10.1	0.0
Incr Delay (d2), s/veh	108.0	0.0	97.2				0.0	96.5	223.4	138.5	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.5	0.0	17.1				0.0	35.6	58.8	15.6	8.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	142.9	0.0	132.1				0.0	121.2	248.1	176.8	11.0	0.0
LnGrp LOS	F	A	F				A	F	F	F	B	A
Approach Vol, veh/h		1405						2947			2315	
Approach Delay, s/veh		139.7						167.5			58.8	
Approach LOS		F						F			E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	18.0	46.0		26.0		64.0
Change Period (Y+Rc), s	4.6	5.4		5.8		5.4
Max Green Setting (Gmax), s	13.4	40.6		20.2		58.6
Max Q Clear Time (g_c+I1), s	15.4	42.6		22.2		28.4
Green Ext Time (p_c), s	0.0	0.0		0.0		15.5

Intersection Summary		
HCM 6th Ctrl Delay		123.9
HCM 6th LOS		F

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX 6.2:

EAPC (2023) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

This Page Intentionally Left Blank

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

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		EAPC 2023
				CALC CS	DATE	05/20/21
Jurisdiction: **City of Rialto**				CHK CS	DATE	05/20/21
Major Street: **Valley Boulevard**				Critical Approach Speed (Major)		45 mph
Minor Street: **Driveway 1**				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane

Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **23,614** vpd

Minor Street Future ADT = **413** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL: XX

CONDITION A - Minimum Vehicular Volume

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach		Minimum Requirements EADT			
Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
		Urban	Rural	Urban	Rural
1	1	8,000	5,600	2,400	1,680
2 + **23,614**	1 **413**	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

CONDITION B - Interruption of Continuous Traffic

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
		Urban	Rural	Urban	Rural
1	1	12,000	8,400	1,200	850
2 + **23,614**	1 **413**	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

Combination of CONDITIONS A + B

Satisfied / Not Satisfied: XX

No one condition satisfied, but following conditions fulfilled 80% of more ….. **A** 25% **B** 49%

2 CONDITIONS 80%

2 CONDITIONS 80%

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)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		EAPC 2023
				CALC CS	DATE	05/20/21
Jurisdiction: City of Rialto				CHK CS	DATE	05/20/21
Major Street: Valley Boulevard				Critical Approach Speed (Major)		45 mph
Minor Street: Driveway 2				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **24,027** vpd Minor Street Future ADT = **90** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	8,000	5,600	2,400	1,680
2 + **24,027**	*1* **90**	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
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	12,000	8,400	1,200	850
2 + **24,027**	*1* **90**	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
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more ….. A 5% B 11%		2 CONDITIONS 80%		2 CONDITIONS 80%	

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)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		EAPC 2023
				CALC CS	DATE	05/20/21
Jurisdiction: City of Rialto				CHK CS	DATE	05/20/21
Major Street: Willow Av.				Critical Approach Speed (Major)		40 mph
Minor Street: Driveway 3				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **6,622** vpd Minor Street Future ADT = **258** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **6,622**	*1* **258**	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
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **6,622**	*1* **258**	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
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
	XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	A: 11% B: 22%				

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

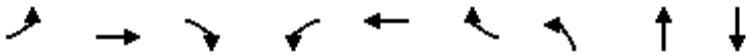
The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

This Page Intentionally Left Blank

APPENDIX 6.3:

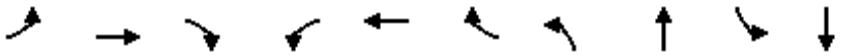
EAPC (2023) CONDITIONS QUEUING ANALYSIS WORKSHEETS

This Page Intentionally Left Blank



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	29	971	2	2	798	192	1	3	292
v/c Ratio	0.08	0.61	0.00	0.01	0.54	0.27	0.00	0.01	0.61
Control Delay	9.3	15.6	0.0	9.0	16.5	8.9	18.0	16.0	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	15.6	0.0	9.0	16.5	8.9	18.0	16.0	24.7
Queue Length 50th (ft)	5	120	0	0	92	17	0	0	71
Queue Length 95th (ft)	19	284	0	4	229	76	4	7	213
Internal Link Dist (ft)		180			1240			462	1090
Turn Bay Length (ft)	150		100	100		100	50		
Base Capacity (vph)	867	2439	1111	858	2436	1122	932	1354	1063
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.40	0.00	0.00	0.33	0.17	0.00	0.00	0.27

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	290	711	307	270	44	777	1190	61	1557
v/c Ratio	0.50	0.24	1.00	1.57	0.19	0.06	2.05	0.71	0.48	1.11
Control Delay	65.8	28.9	59.0	317.1	25.5	0.2	509.4	37.2	65.4	100.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0
Total Delay	65.8	28.9	59.0	317.1	25.5	0.2	509.4	38.3	65.4	100.5
Queue Length 50th (ft)	49	84	402	~337	73	0	~488	287	46	~505
Queue Length 95th (ft)	89	115	#625	#495	106	0	#585	342	86	#569
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	195	1233	714	195	1422	700	379	1672	195	1404
Starvation Cap Reductn	0	0	0	0	0	0	0	247	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.24	1.00	1.57	0.19	0.06	2.05	0.84	0.31	1.11

Intersection Summary

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

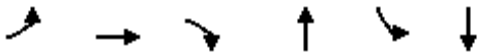
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	541	540	489	672	1359	1644	723
v/c Ratio	1.07	1.01	0.96	0.87	0.45	0.82	0.79
Control Delay	93.2	68.7	57.8	46.4	11.1	32.7	12.1
Queue Delay	0.0	0.0	0.0	0.2	0.9	0.0	0.0
Total Delay	93.2	68.7	57.8	46.7	12.0	32.7	12.1
Queue Length 50th (ft)	~367	~305	245	187	146	252	46
Queue Length 95th (ft)	#573	#539	#461	#270	178	297	201
Internal Link Dist (ft)		1040			260	343	
Turn Bay Length (ft)	365		365	160			205
Base Capacity (vph)	505	537	512	830	3092	2007	921
Starvation Cap Reductn	0	0	0	12	1325	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	1.07	1.01	0.96	0.82	0.77	0.82	0.79

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.



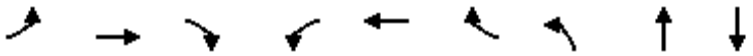
Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	503	476	464	2397	657	2046
v/c Ratio	1.14	1.05	1.01	1.18dr	1.17	0.92
Control Delay	119.3	85.9	74.6	92.0	131.1	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	45.8
Total Delay	119.3	85.9	74.6	92.0	131.1	69.3
Queue Length 50th (ft)	~354	~284	~242	~560	~231	491
Queue Length 95th (ft)	#554	#495	#453	#657	#340	#659
Internal Link Dist (ft)		1329		1191		260
Turn Bay Length (ft)			325			
Base Capacity (vph)	442	452	458	2113	560	2230
Starvation Cap Reductn	0	0	0	0	0	571
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.14	1.05	1.01	1.13	1.17	1.23

Intersection Summary

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

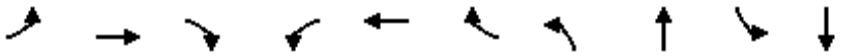
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	92	1213	1	4	925	239	1	6	307
v/c Ratio	0.25	0.60	0.00	0.01	0.57	0.30	0.00	0.01	0.74
Control Delay	9.3	14.0	0.0	8.2	18.5	10.2	20.0	15.3	30.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	14.0	0.0	8.2	18.5	10.2	20.0	15.3	30.3
Queue Length 50th (ft)	15	160	0	1	161	36	0	1	88
Queue Length 95th (ft)	44	375	0	5	284	104	4	10	206
Internal Link Dist (ft)		180			1240			462	1090
Turn Bay Length (ft)	150		100	100		100	50		
Base Capacity (vph)	736	2014	929	724	1910	904	800	1033	878
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.60	0.00	0.01	0.48	0.26	0.00	0.01	0.35

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	98	379	853	258	365	125	716	2070	112	1060
v/c Ratio	0.62	0.30	1.17	1.30	0.27	0.18	1.86	1.45	0.68	0.79
Control Delay	69.5	29.2	117.6	208.9	27.6	5.4	426.0	237.8	72.5	45.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	69.5	29.2	117.6	208.9	27.6	5.4	426.0	238.2	72.5	45.3
Queue Length 50th (ft)	74	113	~658	~258	105	0	~437	~794	85	274
Queue Length 95th (ft)	130	154	#905	#428	148	42	#557	#907	145	328
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	198	1253	728	198	1336	676	385	1431	198	1425
Starvation Cap Reductn	0	0	0	0	0	0	0	141	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.30	1.17	1.30	0.27	0.18	1.86	1.60	0.57	0.74

Intersection Summary

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

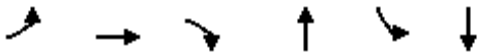
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	489	472	440	711	1949	1565	725
v/c Ratio	0.98	1.01	0.86	0.90	0.64	0.79	0.79
Control Delay	67.9	77.4	43.3	49.3	13.6	31.9	12.8
Queue Delay	0.0	0.0	0.0	0.4	9.4	0.0	0.0
Total Delay	67.9	77.4	43.3	49.7	23.0	31.9	12.8
Queue Length 50th (ft)	289	~298	205	201	247	235	50
Queue Length 95th (ft)	#501	#519	#389	#295	295	280	211
Internal Link Dist (ft)		1040			260	343	
Turn Bay Length (ft)	365		365	160			205
Base Capacity (vph)	501	467	509	825	3071	1993	914
Starvation Cap Reductn	0	0	0	11	1109	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	0.98	1.01	0.86	0.87	0.99	0.79	0.79

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.



Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	490	479	451	2947	667	1648
v/c Ratio	1.28	1.26	1.10	1.27	1.28	0.70
Control Delay	175.0	168.7	103.3	147.7	174.1	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	31.8
Total Delay	175.0	168.7	103.3	147.7	174.1	44.0
Queue Length 50th (ft)	~374	~367	~267	~760	~250	281
Queue Length 95th (ft)	#572	#578	#465	#856	#358	357
Internal Link Dist (ft)		1329		1191		260
Turn Bay Length (ft)			325			
Base Capacity (vph)	384	379	410	2326	521	2350
Starvation Cap Reductn	0	0	0	0	0	796
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.28	1.26	1.10	1.27	1.28	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.

APPENDIX 6.4:

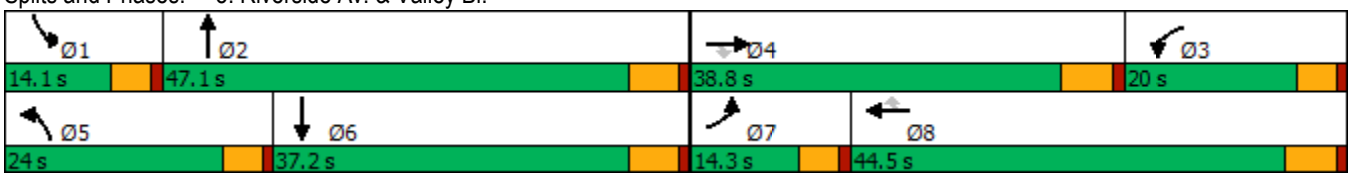
EAPC (2023) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

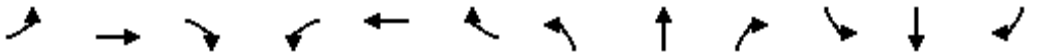
This Page Intentionally Left Blank

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	56	252	619	267	235	38	676	786	53	1306
Future Volume (vph)	56	252	619	267	235	38	676	786	53	1306
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8	38.8	9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	14.3	38.8	38.8	20.0	44.5	44.5	24.0	47.1	14.1	37.2
Total Split (%)	11.9%	32.3%	32.3%	16.7%	37.1%	37.1%	20.0%	39.3%	11.8%	31.0%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
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	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	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	Min	None	Min
Act Effct Green (s)	7.8	21.3	21.3	15.5	31.1	31.1	19.5	45.8	7.7	31.9
Actuated g/C Ratio	0.07	0.20	0.20	0.14	0.29	0.29	0.18	0.42	0.07	0.29
v/c Ratio	0.50	0.73	0.70	1.20	0.25	0.08	1.20	0.50	0.48	0.93
Control Delay	63.3	29.0	17.3	162.0	31.1	0.3	144.7	24.2	63.0	49.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Total Delay	63.3	29.0	17.3	162.0	31.1	0.3	144.7	24.7	63.0	49.1
LOS	E	C	B	F	C	A	F	C	E	D
Approach Delay		27.2			93.6			72.1		49.7
Approach LOS		C			F			E		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.7	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.20	
Intersection Signal Delay: 58.7	Intersection LOS: E
Intersection Capacity Utilization 91.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	252	619	267	235	38	676	786	250	53	1306	49
Future Volume (veh/h)	56	252	619	267	235	38	676	786	250	53	1306	49
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	64	269	345	307	270	21	777	903	149	61	1501	39
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	83	338	573	261	1093	463	657	2062	339	79	1625	42
Arrive On Green	0.05	0.18	0.18	0.14	0.29	0.29	0.22	0.52	0.43	0.04	0.35	0.29
Sat Flow, veh/h	1810	1900	3220	1810	3800	1610	3619	4775	784	1810	5530	144
Grp Volume(v), veh/h	64	269	345	307	270	21	777	718	334	61	1031	509
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	1900	1610	1810	1900	1759	1810	1900	1874
Q Serve(g_s), s	3.7	14.5	7.0	15.4	5.8	1.0	19.4	12.6	13.4	3.6	27.8	27.9
Cycle Q Clear(g_c), s	3.7	14.5	7.0	15.4	5.8	1.0	19.4	12.6	13.4	3.6	27.8	27.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		0.08
Lane Grp Cap(c), veh/h	83	338	573	261	1093	463	657	1641	760	79	1117	551
V/C Ratio(X)	0.77	0.80	0.60	1.18	0.25	0.05	1.18	0.44	0.44	0.77	0.92	0.92
Avail Cap(c_a), veh/h	164	587	995	261	1377	583	657	1641	760	161	1131	558
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.20	1.20	1.00	1.00	1.20	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	50.4	42.0	17.6	45.7	29.2	27.5	41.8	17.6	19.3	50.5	33.4	33.7
Incr Delay (d2), s/veh	5.6	4.3	1.0	112.1	0.1	0.0	96.9	0.2	0.4	5.8	12.3	21.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	6.9	3.9	14.8	2.6	0.4	16.9	4.9	5.1	1.7	13.5	14.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.0	46.3	18.7	157.8	29.3	27.5	138.7	17.8	19.7	56.4	45.8	54.7
LnGrp LOS	E	D	B	F	C	C	F	B	B	E	D	D
Approach Vol, veh/h		678			598			1829			1601	
Approach Delay, s/veh		33.1			95.2			69.5			49.0	
Approach LOS		C			F			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	51.5	21.2	24.8	24.0	36.8	9.5	36.5
Change Period (Y+Rc), s	4.6	5.4	5.8	* 5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	9.5	41.7	15.4	* 33	19.4	31.8	9.7	38.7
Max Q Clear Time (g_c+I1), s	5.6	15.4	17.4	16.5	21.4	29.9	5.7	7.8
Green Ext Time (p_c), s	0.0	7.4	0.0	2.5	0.0	1.5	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	60.6
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

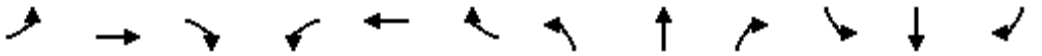
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

User approved changes to right turn type.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	951	0	541	638	1280	1552	687
Future Volume (vph)	951	0	541	638	1280	1552	687
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	45.1	45.1	45.1	29.0	74.9	45.9	45.9
Total Split (%)	37.6%	37.6%	37.6%	24.2%	62.4%	38.3%	38.3%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	39.4	39.4	39.4	24.1	69.2	40.5	40.5
Actuated g/C Ratio	0.33	0.33	0.33	0.20	0.58	0.34	0.34
v/c Ratio	0.96	0.94	0.89	0.95	0.45	0.94	0.58
Control Delay	69.1	59.9	53.6	71.5	15.0	48.0	6.4
Queue Delay	0.0	0.0	0.0	33.6	3.1	44.5	0.2
Total Delay	69.1	59.9	53.6	105.1	18.1	92.5	6.6
LOS	E	E	D	F	B	F	A
Approach Delay		61.1			47.1	77.2	
Approach LOS		E			D	E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.7	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 62.7	Intersection LOS: E
Intersection Capacity Utilization 154.9%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	951	0	541	638	1280	0	0	1552	687
Future Volume (veh/h)	0	0	0	951	0	541	638	1280	0	0	1552	687
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				1178	0	379	672	1347	0	0	2011	471
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				1194	0	531	717	2994	0	0	2541	538
Arrive On Green				0.33	0.00	0.33	0.20	0.58	0.00	0.00	0.33	0.33
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	7600	1610
Grp Volume(v), veh/h				1178	0	379	672	1347	0	0	2011	471
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1900	1610
Q Serve(g_s), s				38.6	0.0	24.6	22.5	17.7	0.0	0.0	28.6	32.9
Cycle Q Clear(g_c), s				38.6	0.0	24.6	22.5	17.7	0.0	0.0	28.6	32.9
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1194	0	531	717	2994	0	0	2541	538
V/C Ratio(X)				0.99	0.00	0.71	0.94	0.45	0.00	0.00	0.79	0.87
Avail Cap(c_a), veh/h				1194	0	531	717	3018	0	0	2577	546
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				39.8	0.0	35.1	46.8	14.4	0.0	0.0	36.0	37.4
Incr Delay (d2), s/veh				22.8	0.0	4.5	19.5	0.1	0.0	0.0	1.7	14.6
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				20.1	0.0	9.9	11.5	6.5	0.0	0.0	13.1	14.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				62.5	0.0	39.6	66.3	14.5	0.0	0.0	37.7	52.0
LnGrp LOS				E	A	D	E	B	A	A	D	D
Approach Vol, veh/h					1557			2019			2482	
Approach Delay, s/veh					56.9			31.8			40.4	
Approach LOS					E			C			D	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	74.3		29.0	45.3		45.1						
Change Period (Y+Rc), s	5.4		4.6	5.4		5.7						
Max Green Setting (Gmax), s	69.5		24.4	40.5		39.4						
Max Q Clear Time (g_c+I1), s	19.7		24.5	34.9		40.6						
Green Ext Time (p_c), s	12.8		0.0	5.1		0.0						

Intersection Summary		
HCM 6th Ctrl Delay	41.8	
HCM 6th LOS	D	

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	571	0	771	1346	872	611	1893
Future Volume (vph)	571	0	771	1346	872	611	1893
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA
Protected Phases		4		2		1	6
Permitted Phases	4		4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.4	22.4	9.6	15.4
Total Split (s)	42.0	42.0	42.0	50.0	50.0	28.0	78.0
Total Split (%)	35.0%	35.0%	35.0%	41.7%	41.7%	23.3%	65.0%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	3.6	4.4
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)	5.8	5.8	5.8	5.4	5.4	4.6	5.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effct Green (s)	35.3	35.3	35.3	43.8	43.8	22.9	71.3
Actuated g/C Ratio	0.30	0.30	0.30	0.37	0.37	0.19	0.61
v/c Ratio	0.93	0.88	0.88	0.68	0.92	0.94	0.89
Control Delay	65.7	52.7	53.0	33.3	25.3	69.2	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	23.3	47.0
Total Delay	65.7	52.7	53.0	33.3	25.3	92.5	72.9
LOS	E	D	D	C	C	F	E
Approach Delay		57.3		30.2			77.7
Approach LOS		E		C			E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 117.8	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 55.8	Intersection LOS: E
Intersection Capacity Utilization 154.9%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 7: Riverside Av. & I-10 EB Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	571	0	771	0	0	0	0	1346	872	611	1893	0
Future Volume (veh/h)	571	0	771	0	0	0	0	1346	872	611	1893	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	855	0	463				0	1447	0	657	2035	0
Peak Hour Factor	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
Cap, veh/h	1109	0	494				0	2050		713	2267	0
Arrive On Green	0.31	0.00	0.31				0.00	0.36	0.00	0.20	0.60	0.00
Sat Flow, veh/h	3619	0	1610				0	5700	1610	3619	3800	0
Grp Volume(v), veh/h	855	0	463				0	1447	0	657	2035	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1900	1610	1810	1900	0
Q Serve(g_s), s	24.8	0.0	32.3				0.0	25.1	0.0	20.6	53.7	0.0
Cycle Q Clear(g_c), s	24.8	0.0	32.3				0.0	25.1	0.0	20.6	53.7	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1109	0	494				0	2050		713	2267	0
V/C Ratio(X)	0.77	0.00	0.94				0.00	0.71		0.92	0.90	0.00
Avail Cap(c_a), veh/h	1135	0	505				0	2202		734	2390	0
HCM Platoon Ratio	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				0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.3	0.0	39.0				0.0	31.7	0.0	45.5	20.2	0.0
Incr Delay (d2), s/veh	3.2	0.0	25.2				0.0	1.0	0.0	16.4	4.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.0	0.0	15.6				0.0	11.3	0.0	10.6	22.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.6	0.0	64.2				0.0	32.7	0.0	61.9	25.1	0.0
LnGrp LOS	D	A	E				A	C		E	C	A
Approach Vol, veh/h		1318						1447	A		2692	
Approach Delay, s/veh		48.2						32.7			34.1	
Approach LOS		D						C			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	27.3	46.9		41.2		74.3
Change Period (Y+Rc), s	4.6	5.4		5.8		5.4
Max Green Setting (Gmax), s	23.4	44.6		36.2		72.6
Max Q Clear Time (g_c+I1), s	22.6	27.1		34.3		55.7
Green Ext Time (p_c), s	0.2	9.3		1.1		13.2

Intersection Summary		
HCM 6th Ctrl Delay		37.1
HCM 6th LOS		D

Notes

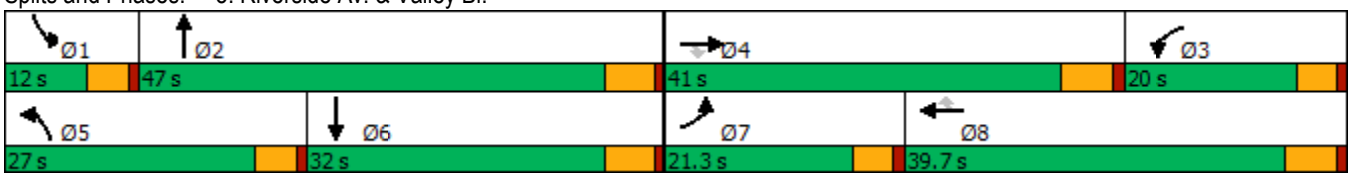
User approved volume balancing among the lanes for turning movement.

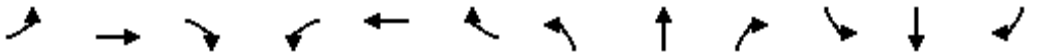
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	90	349	785	237	336	115	659	1637	103	917
Future Volume (vph)	90	349	785	237	336	115	659	1637	103	917
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8	38.8	9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	21.3	41.0	41.0	20.0	39.7	39.7	27.0	47.0	12.0	32.0
Total Split (%)	17.8%	34.2%	34.2%	16.7%	33.1%	33.1%	22.5%	39.2%	10.0%	26.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
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	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	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	Min	None	Min
Act Effct Green (s)	10.5	27.8	27.8	15.4	32.7	32.7	22.5	41.7	7.4	26.7
Actuated g/C Ratio	0.09	0.25	0.25	0.14	0.29	0.29	0.20	0.37	0.07	0.24
v/c Ratio	0.59	0.77	0.68	1.04	0.33	0.22	1.00	0.99	0.95	0.79
Control Delay	63.9	32.5	13.5	118.2	32.7	4.2	78.8	53.8	123.7	45.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.1	0.0	0.0
Total Delay	63.9	32.5	13.5	118.2	32.7	4.2	78.8	92.9	123.7	45.8
LOS	E	C	B	F	C	A	E	F	F	D
Approach Delay		28.7			57.4			89.3		53.3
Approach LOS		C			E			F		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 112.8	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 65.0	Intersection LOS: E
Intersection Capacity Utilization 91.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	349	785	237	336	115	659	1637	268	103	917	58
Future Volume (veh/h)	90	349	785	237	336	115	659	1637	268	103	917	58
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	98	331	434	258	365	82	716	1779	231	112	997	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	124	405	687	255	1128	478	743	1880	243	123	1310	62
Arrive On Green	0.07	0.21	0.21	0.14	0.30	0.30	0.21	0.38	0.38	0.07	0.24	0.24
Sat Flow, veh/h	1810	1900	3220	1810	3800	1610	3619	4947	638	1810	5400	254
Grp Volume(v), veh/h	98	331	434	258	365	82	716	1364	646	112	701	343
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	1900	1610	1810	1900	1785	1810	1900	1854
Q Serve(g_s), s	5.8	18.1	8.3	15.4	8.2	4.1	21.4	37.9	38.4	6.7	18.7	18.8
Cycle Q Clear(g_c), s	5.8	18.1	8.3	15.4	8.2	4.1	21.4	37.9	38.4	6.7	18.7	18.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		0.14
Lane Grp Cap(c), veh/h	124	405	687	255	1128	478	743	1444	678	123	922	450
V/C Ratio(X)	0.79	0.82	0.63	1.01	0.32	0.17	0.96	0.94	0.95	0.91	0.76	0.76
Avail Cap(c_a), veh/h	277	613	1038	255	1180	500	743	1448	680	123	926	452
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	50.1	40.9	14.9	46.9	29.9	28.4	43.0	32.7	32.9	50.6	38.4	38.4
Incr Delay (d2), s/veh	4.2	5.2	1.0	59.1	0.2	0.2	24.3	12.7	23.4	54.2	3.7	7.4
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	2.7	8.7	4.9	10.9	3.6	1.6	11.8	19.0	20.1	4.8	8.9	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.3	46.1	15.9	105.9	30.0	28.6	67.3	45.5	56.3	104.8	42.1	45.9
LnGrp LOS	D	D	B	F	C	C	E	D	E	F	D	D
Approach Vol, veh/h		863			705			2726			1156	
Approach Delay, s/veh		31.8			57.6			53.8			49.3	
Approach LOS		C			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	46.9	21.2	29.1	27.0	31.9	12.1	38.2
Change Period (Y+Rc), s	4.6	5.4	5.8	* 5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	7.4	41.6	15.4	* 35	22.4	26.6	16.7	33.9
Max Q Clear Time (g_c+I1), s	8.7	40.4	17.4	20.1	23.4	20.8	7.8	10.2
Green Ext Time (p_c), s	0.0	1.1	0.0	3.2	0.0	3.1	0.1	2.4

Intersection Summary	
HCM 6th Ctrl Delay	49.8
HCM 6th LOS	D

Notes

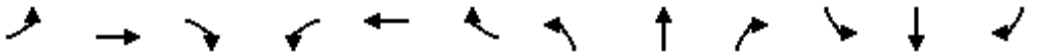
User approved volume balancing among the lanes for turning movement.

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

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	714	2	615	675	1848	1479	689
Future Volume (vph)	714	2	615	675	1848	1479	689
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	44.5	44.5	44.5	31.4	75.5	44.1	44.1
Total Split (%)	37.1%	37.1%	37.1%	26.2%	62.9%	36.8%	36.8%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	37.4	37.4	37.4	25.8	69.2	38.8	38.8
Actuated g/C Ratio	0.32	0.32	0.32	0.22	0.59	0.33	0.33
v/c Ratio	0.90	0.93	0.83	0.93	0.64	0.93	0.58
Control Delay	59.3	65.0	46.3	64.4	17.4	47.3	6.6
Queue Delay	0.0	0.0	0.0	39.5	38.1	30.3	0.1
Total Delay	59.3	65.0	46.3	103.9	55.5	77.6	6.7
LOS	E	E	D	F	E	E	A
Approach Delay		57.1			68.5	64.7	
Approach LOS		E			E	E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 117.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 64.6	Intersection LOS: E
Intersection Capacity Utilization 153.6%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	714	2	615	675	1848	0	0	1479	689
Future Volume (veh/h)	0	0	0	714	2	615	675	1848	0	0	1479	689
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				954	0	432	711	1945	0	0	1436	805
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				1111	0	494	778	3068	0	0	1869	1056
Arrive On Green				0.31	0.00	0.31	0.22	0.59	0.00	0.00	0.33	0.33
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	5700	3220
Grp Volume(v), veh/h				954	0	432	711	1945	0	0	1436	805
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1900	1610
Q Serve(g_s), s				27.1	0.0	27.8	21.6	26.8	0.0	0.0	24.7	24.5
Cycle Q Clear(g_c), s				27.1	0.0	27.8	21.6	26.8	0.0	0.0	24.7	24.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1111	0	494	778	3068	0	0	1869	1056
V/C Ratio(X)				0.86	0.00	0.87	0.91	0.63	0.00	0.00	0.77	0.76
Avail Cap(c_a), veh/h				1285	0	572	861	3327	0	0	2018	1140
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				35.6	0.0	35.9	41.5	14.6	0.0	0.0	33.0	32.9
Incr Delay (d2), s/veh				5.4	0.0	12.7	12.7	0.4	0.0	0.0	1.7	2.9
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				12.2	0.0	12.1	10.4	9.5	0.0	0.0	11.2	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				41.1	0.0	48.6	54.2	14.9	0.0	0.0	34.7	35.8
LnGrp LOS				D	A	D	D	B	A	A	C	D
Approach Vol, veh/h					1386			2656			2241	
Approach Delay, s/veh					43.4			25.4			35.1	
Approach LOS					D			C			D	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		70.0			28.8	41.2		39.2				
Change Period (Y+Rc), s		5.4			4.6	5.4		5.7				
Max Green Setting (Gmax), s		70.1			26.8	38.7		38.8				
Max Q Clear Time (g_c+I1), s		28.8			23.6	26.7		29.8				
Green Ext Time (p_c), s		21.5			0.6	9.1		3.8				

Intersection Summary												
HCM 6th Ctrl Delay			32.9									
HCM 6th LOS			C									

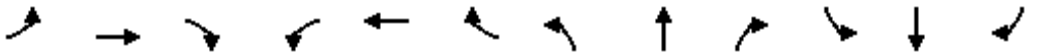
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	751	3	595	1774	1021	634	1558
Future Volume (vph)	751	3	595	1774	1021	634	1558
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA
Protected Phases		4		2		1	6
Permitted Phases	4		4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.4	22.4	9.6	15.4
Total Split (s)	39.0	39.0	39.0	55.0	55.0	26.0	81.0
Total Split (%)	32.5%	32.5%	32.5%	45.8%	45.8%	21.7%	67.5%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	3.6	4.4
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)	5.8	5.8	5.8	5.4	5.4	4.6	5.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effct Green (s)	33.2	33.2	33.2	49.6	49.6	21.4	75.6
Actuated g/C Ratio	0.28	0.28	0.28	0.41	0.41	0.18	0.63
v/c Ratio	0.98	0.96	0.91	0.79	1.02	1.04	0.69
Control Delay	79.7	72.7	60.8	33.8	48.0	93.5	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	22.9	48.4
Total Delay	79.7	72.7	60.8	33.8	48.0	116.4	64.7
LOS	E	E	E	C	D	F	E
Approach Delay		71.3		39.0			79.7
Approach LOS		E		D			E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 59.9	Intersection LOS: E
Intersection Capacity Utilization 153.6%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 7: Riverside Av. & I-10 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	751	3	595	0	0	0	0	1774	1021	634	1558	0
Future Volume (veh/h)	751	3	595	0	0	0	0	1774	1021	634	1558	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	987	0	418				0	1867	0	667	1640	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	1032	0	459				0	2253		665	2351	0
Arrive On Green	0.29	0.00	0.29				0.00	0.40	0.00	0.18	0.62	0.00
Sat Flow, veh/h	3619	0	1610				0	5700	1610	3619	3800	0
Grp Volume(v), veh/h	987	0	418				0	1867	0	667	1640	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1900	1610	1810	1900	0
Q Serve(g_s), s	31.2	0.0	29.2				0.0	34.3	0.0	21.4	33.7	0.0
Cycle Q Clear(g_c), s	31.2	0.0	29.2				0.0	34.3	0.0	21.4	33.7	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1032	0	459				0	2253		665	2351	0
V/C Ratio(X)	0.96	0.00	0.91				0.00	0.83		1.00	0.70	0.00
Avail Cap(c_a), veh/h	1032	0	459				0	2429		665	2468	0
HCM Platoon Ratio	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				0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	40.9	0.0	40.2				0.0	31.7	0.0	47.5	14.9	0.0
Incr Delay (d2), s/veh	18.4	0.0	22.1				0.0	2.4	0.0	35.5	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.9	0.0	13.9				0.0	15.5	0.0	12.7	13.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.3	0.0	62.3				0.0	34.0	0.0	83.0	15.7	0.0
LnGrp LOS	E	A	E				A	C		F	B	A
Approach Vol, veh/h		1405						1867	A		2307	
Approach Delay, s/veh		60.2						34.0			35.2	
Approach LOS		E						C			D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	26.0	51.4		39.0		77.4
Change Period (Y+Rc), s	4.6	5.4		5.8		5.4
Max Green Setting (Gmax), s	21.4	49.6		33.2		75.6
Max Q Clear Time (g_c+I1), s	23.4	36.3		33.2		35.7
Green Ext Time (p_c), s	0.0	9.7		0.0		17.5

Intersection Summary		
HCM 6th Ctrl Delay		41.1
HCM 6th LOS		D

Notes

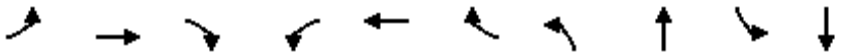
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX 6.5:

EAP (2023) CONDITIONS QUEUING ANALYSIS WORKSHEETS WITH IMPROVEMENTS

This Page Intentionally Left Blank

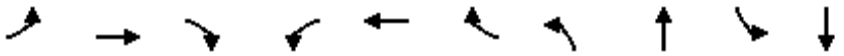


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	646	355	307	270	44	777	1190	61	1557
v/c Ratio	0.50	0.73	0.70	1.20	0.25	0.08	1.20	0.50	0.48	0.93
Control Delay	63.3	29.0	17.3	162.0	31.1	0.3	144.7	24.2	63.0	49.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Total Delay	63.3	29.0	17.3	162.0	31.1	0.3	144.7	24.7	63.0	49.1
Queue Length 50th (ft)	43	129	51	~257	74	0	~326	192	41	346
Queue Length 95th (ft)	92	175	143	#466	105	0	#485	269	88	#489
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	161	1239	639	256	1358	671	646	2358	158	1669
Starvation Cap Reductn	0	0	0	0	0	0	0	649	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.52	0.56	1.20	0.20	0.07	1.20	0.70	0.39	0.93

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.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	98	806	426	258	365	125	716	2070	112	1060
v/c Ratio	0.59	0.77	0.68	1.04	0.33	0.22	1.00	0.99	0.95	0.79
Control Delay	63.9	32.5	13.5	118.2	32.7	4.2	78.8	53.8	123.7	45.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.1	0.0	0.0
Total Delay	63.9	32.5	13.5	118.2	32.7	4.2	78.8	92.9	123.7	45.8
Queue Length 50th (ft)	70	194	48	~206	103	0	~265	~495	83	242
Queue Length 95th (ft)	127	262	168	#398	151	32	#422	#670	#210	312
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	267	1261	700	247	1165	597	718	2084	118	1342
Starvation Cap Reductn	0	0	0	0	0	0	0	483	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.64	0.61	1.04	0.31	0.21	1.00	1.29	0.95	0.79

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.

APPENDIX 7.1:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

This Page Intentionally Left Blank

Volume Development
Weekday AM Peak Hour

1: Dwy. 1 & Valley Bl.

	PHF: 0.920									Count Date:			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Post Processing:													**0**
HY (2040) NP PCE:	0	0	0	0	0	0	0	**964**	0	0	**696**	0	1,661

2: Dwy. 2 & Valley Bl.

	PHF: 0.920									Count Date:			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Post Processing:													**0**
HY (2040) NP PCE:	0	0	0	0	0	0	0	**964**	0	0	**696**	0	1,661

3: Valley Bl. & Dwy. 3

	PHF: 0.920									Count Date:			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Post Processing:													**0**
HY (2040) NP PCE:	0	**175**	0	0	**286**	0	0	0	0	0	0	0	461

4: Willow Av. & Valley Bl.

	PHF: 0.930				7:15					Count Date:	1/24/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Post Processing:	**0**	**0**	**0**	**219**	**2**	**32**	**18**	**831**	**4**	**4**	**408**	**72**	**1,590**
HY (2040) NP PCE:	1	2	1	233	2	51	29	931	4	4	644	143	2,046

5: Riverside Av. & Valley Bl.

	PHF: 0.872				7:15					Count Date:	2/6/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Post Processing:	**321**	**692**	**158**	**55**	**1,444**	**37**	**47**	**228**	**568**	**187**	**162**	**31**	**3,930**
HY (2040) NP PCE:	552	865	275	58	1,444	38	48	263	636	294	240	42	4,755

6: Riverside Av. & I-10 WB Ramps

	PHF: 0.955				7:00					Count Date:	5/1/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Post Processing:	**271**	**945**	**0**	**0**	**1,709**	**599**	**0**	**0**	**0**	**521**	**0**	**315**	**4,360**
HY (2040) NP PCE:	702	1,306	0	0	1,709	736	0	0	0	1,046	0	518	6,018

7: Riverside Av. & I-10 EB Ramps

	PHF: 0.933				7:00					Count Date:	5/1/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Post Processing:	**0**	**904**	**424**	**528**	**1,704**	**0**	**309**	**0**	**431**	**0**	**0**	**0**	**4,300**
HY (2040) NP PCE:	0	1,481	959	**658**	**2,098**	0	526	0	848	0	0	0	6,570

Volume Development
Weekday PM Peak Hour

1: Dwy. 1 & Valley Bl.

	PHF:	0.920							Count Date:				
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Post Processing:													**0**
HY (2040) NP PCE:	0	0	0	0	0	0	0	**1,155**	0	0	**944**	0	2,099

2: Dwy. 2 & Valley Bl.

	PHF:	0.920							Count Date:				
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Post Processing:													**0**
HY (2040) NP PCE:	0	0	0	0	0	0	0	**1,155**	0	0	**944**	0	2,099

3: Valley Bl. & Dwy. 3

	PHF:	0.920							Count Date:				
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Post Processing:													**0**
HY (2040) NP PCE:	0	**319**	0	0	**254**	0	0	0	0	0	0	0	573

4: Willow Av. & Valley Bl.

	PHF:	0.915			4:15				Count Date:	1/24/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Post Processing:	**2**	**3**	**6**	**106**	**0**	**34**	**54**	**869**	**2**	**8**	**795**	**153**	**2,032**
HY (2040) NP PCE:	2	3	6	198	0	56	90	1,063	2	8	886	226	2,540

5: Riverside Av. & Valley Bl.

	PHF:	0.920			4:45				Count Date:	2/6/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Post Processing:	**579**	**1,645**	**148**	**85**	**966**	**68**	**101**	**242**	**516**	**198**	**315**	**127**	**4,990**
HY (2040) NP PCE:	673	1,800	294	114	1,009	68	101	370	669	261	363	127	5,849

6: Riverside Av. & I-10 WB Ramps

	PHF:	0.950			4:30				Count Date:	5/1/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Post Processing:	**450**	**1,816**	**0**	**0**	**1,463**	**499**	**0**	**0**	**0**	**457**	**1**	**444**	**5,130**
HY (2040) NP PCE:	743	2,006	0	0	1,548	652	0	0	0	786	2	656	6,392

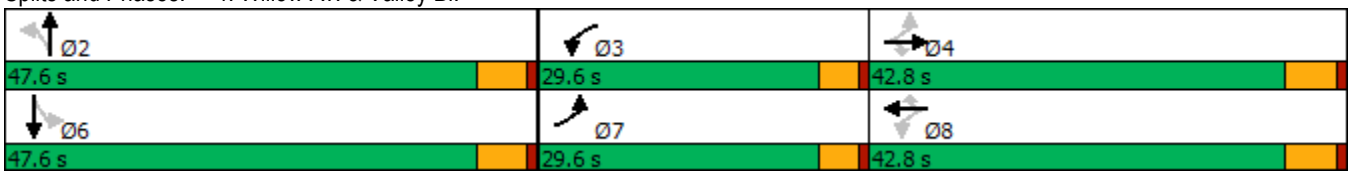
7: Riverside Av. & I-10 EB Ramps

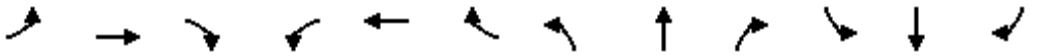
	PHF:	0.954			4:30				Count Date:	5/1/2019			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Post Processing:	**0**	**1,855**	**481**	**600**	**1,301**	**0**	**483**	**0**	**99**	**0**	**0**	**0**	**4,819**
HY (2040) NP PCE:	0	1,951	1,123	618	**1,716**	0	798	4	654	0	0	0	6,864

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	29	931	4	4	644	143	1	2	233	2
Future Volume (vph)	29	931	4	4	644	143	1	2	233	2
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	9.6	22.8	22.8	31.4	31.4	31.4	31.4
Total Split (s)	29.6	42.8	42.8	29.6	42.8	42.8	47.6	47.6	47.6	47.6
Total Split (%)	24.7%	35.7%	35.7%	24.7%	35.7%	35.7%	39.7%	39.7%	39.7%	39.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.4	4.4	4.4	4.4
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.4	5.4		5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None
Act Effct Green (s)	29.1	26.9	26.9	27.7	24.8	24.8	20.3	20.3		20.3
Actuated g/C Ratio	0.48	0.44	0.44	0.46	0.41	0.41	0.33	0.33		0.33
v/c Ratio	0.08	0.62	0.01	0.01	0.47	0.22	0.00	0.00		0.64
Control Delay	9.5	16.1	0.0	9.2	16.1	8.1	17.0	15.3		25.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	9.5	16.1	0.0	9.2	16.1	8.1	17.0	15.3		25.2
LOS	A	B	A	A	B	A	B	B		C
Approach Delay		15.9			14.6			15.8		25.2
Approach LOS		B			B			B		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 60.6	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 16.7	Intersection LOS: B
Intersection Capacity Utilization 57.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Willow Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	931	4	4	644	143	1	2	1	233	2	51
Future Volume (veh/h)	29	931	4	4	644	143	1	2	1	233	2	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	31	1001	4	4	692	154	1	2	1	251	2	55
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	361	1473	657	258	1366	609	550	320	160	451	4	70
Arrive On Green	0.04	0.41	0.41	0.01	0.38	0.38	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1368	1195	597	1190	13	262
Grp Volume(v), veh/h	31	1001	4	4	692	154	1	0	3	308	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1368	0	1792	1465	0	0
Q Serve(g_s), s	0.5	11.3	0.1	0.1	7.3	3.3	0.0	0.0	0.1	9.6	0.0	0.0
Cycle Q Clear(g_c), s	0.5	11.3	0.1	0.1	7.3	3.3	0.0	0.0	0.1	9.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	0.81		0.18
Lane Grp Cap(c), veh/h	361	1473	657	258	1366	609	550	0	480	524	0	0
V/C Ratio(X)	0.09	0.68	0.01	0.02	0.51	0.25	0.00	0.00	0.01	0.59	0.00	0.00
Avail Cap(c_a), veh/h	1210	2694	1202	1161	2694	1202	1348	0	1526	1380	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.2	12.0	8.7	10.4	11.9	10.6	13.3	0.0	13.3	16.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.3	0.2	0.0	0.0	0.0	1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.3	0.0	0.0	2.2	0.9	0.0	0.0	0.0	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.3	12.6	8.7	10.4	12.1	10.8	13.3	0.0	13.3	17.9	0.0	0.0
LnGrp LOS	A	B	A	B	B	B	B	A	B	B	A	A
Approach Vol, veh/h		1036			850			4			308	
Approach Delay, s/veh		12.5			11.9			13.3			17.9	
Approach LOS		B			B			B			B	

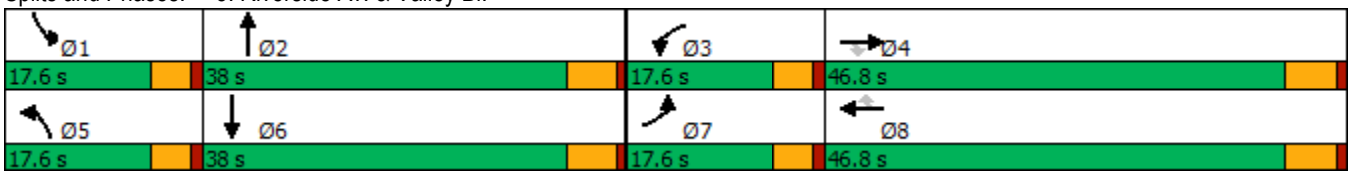
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		18.7	4.9	26.0		18.7	6.3	24.6				
Change Period (Y+Rc), s		5.4	4.6	5.8		5.4	4.6	5.8				
Max Green Setting (Gmax), s		42.2	25.0	37.0		42.2	25.0	37.0				
Max Q Clear Time (g_c+I1), s		2.1	2.1	13.3		11.7	2.5	9.3				
Green Ext Time (p_c), s		0.0	0.0	7.0		1.8	0.0	5.1				

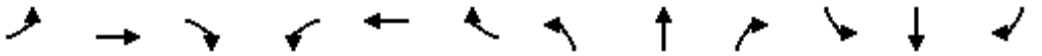
Intersection Summary												
HCM 6th Ctrl Delay			13.0									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	48	263	636	294	240	42	552	865	58	1444
Future Volume (vph)	48	263	636	294	240	42	552	865	58	1444
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8	38.8	9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	17.6	46.8	46.8	17.6	46.8	46.8	17.6	38.0	17.6	38.0
Total Split (%)	14.7%	39.0%	39.0%	14.7%	39.0%	39.0%	14.7%	31.7%	14.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
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	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	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	Min	None	Min
Act Effct Green (s)	8.1	41.0	41.0	13.0	47.8	47.8	13.0	38.7	8.8	32.6
Actuated g/C Ratio	0.07	0.34	0.34	0.11	0.40	0.40	0.11	0.32	0.07	0.27
v/c Ratio	0.45	0.24	1.03	1.73	0.19	0.07	1.67	0.79	0.51	1.21
Control Delay	64.7	29.1	66.9	383.0	25.1	0.2	347.7	40.2	65.9	140.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0
Total Delay	64.7	29.1	66.9	383.0	25.1	0.2	347.7	42.6	65.9	140.9
LOS	E	C	E	F	C	A	F	D	E	F
Approach Delay		56.3			206.0			142.1		138.0
Approach LOS		E			F			F		F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.73	
Intersection Signal Delay: 131.5	Intersection LOS: F
Intersection Capacity Utilization 97.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	263	636	294	240	42	552	865	275	58	1444	38
Future Volume (veh/h)	48	263	636	294	240	42	552	865	275	58	1444	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	55	302	731	338	276	48	634	994	316	67	1660	44
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	71	1233	550	196	1482	661	380	1295	411	86	1411	37
Arrive On Green	0.04	0.34	0.34	0.11	0.41	0.41	0.11	0.33	0.33	0.05	0.27	0.27
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	3898	1238	1810	5196	138
Grp Volume(v), veh/h	55	302	731	338	276	48	634	882	428	67	1105	599
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1677	1810	1729	1875
Q Serve(g_s), s	3.6	7.2	41.0	13.0	5.9	2.2	13.0	27.4	27.5	4.4	32.6	32.6
Cycle Q Clear(g_c), s	3.6	7.2	41.0	13.0	5.9	2.2	13.0	27.4	27.5	4.4	32.6	32.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.74	1.00		0.07
Lane Grp Cap(c), veh/h	71	1233	550	196	1482	661	380	1149	557	86	939	509
V/C Ratio(X)	0.77	0.24	1.33	1.72	0.19	0.07	1.67	0.77	0.77	0.77	1.18	1.18
Avail Cap(c_a), veh/h	196	1233	550	196	1482	661	380	1149	557	196	939	509
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	57.1	28.4	39.5	53.5	22.6	21.5	53.5	35.9	35.9	56.5	43.7	43.7
Incr Delay (d2), s/veh	6.4	0.1	160.2	346.5	0.1	0.0	311.6	3.2	6.4	5.5	90.4	98.4
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	1.7	3.0	39.8	24.6	2.4	0.8	22.1	11.7	11.9	2.1	25.3	28.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.5	28.5	199.7	400.0	22.6	21.5	365.1	39.1	42.4	62.0	134.1	142.1
LnGrp LOS	E	C	F	F	C	C	F	D	D	E	F	F
Approach Vol, veh/h		1088			662			1944			1771	
Approach Delay, s/veh		145.3			215.2			146.1			134.1	
Approach LOS		F			F			F			F	

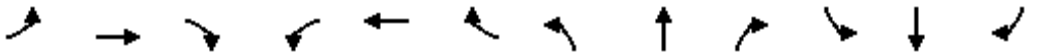
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	45.3	17.6	46.8	17.6	38.0	9.3	55.1
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	13.0	32.6	13.0	41.0	13.0	32.6	13.0	41.0
Max Q Clear Time (g_c+I1), s	6.4	29.5	15.0	43.0	15.0	34.6	5.6	7.9
Green Ext Time (p_c), s	0.0	2.2	0.0	0.0	0.0	0.0	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	150.4
HCM 6th LOS	F

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	1046	0	518	702	1306	1709	736
Future Volume (vph)	1046	0	518	702	1306	1709	736
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	31.8	31.8	31.8	25.6	58.2	32.6	32.6
Total Split (%)	35.3%	35.3%	35.3%	28.4%	64.7%	36.2%	36.2%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	26.1	26.1	26.1	20.5	52.3	27.2	27.2
Actuated g/C Ratio	0.29	0.29	0.29	0.23	0.58	0.30	0.30
v/c Ratio	1.17	1.07	0.97	0.92	0.45	0.91	0.85
Control Delay	126.8	86.7	60.2	52.4	11.1	37.9	16.8
Queue Delay	0.0	0.0	0.0	0.7	1.0	0.0	0.0
Total Delay	126.8	86.7	60.2	53.1	12.1	37.9	16.8
LOS	F	F	E	D	B	D	B
Approach Delay		93.0			26.4	31.5	
Approach LOS		F			C	C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 89.5	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.17	
Intersection Signal Delay: 45.8	Intersection LOS: D
Intersection Capacity Utilization 173.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1046	0	518	702	1306	0	0	1709	736
Future Volume (veh/h)	0	0	0	1046	0	518	702	1306	0	0	1709	736
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				1271	0	363	739	1375	0	0	1799	775
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				1055	0	469	805	3032	0	0	1985	489
Arrive On Green				0.29	0.00	0.29	0.23	0.58	0.00	0.00	0.30	0.30
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	6802	1610
Grp Volume(v), veh/h				1271	0	363	739	1375	0	0	1799	775
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1634	1610
Q Serve(g_s), s				26.1	0.0	18.5	18.4	13.4	0.0	0.0	23.7	27.2
Cycle Q Clear(g_c), s				26.1	0.0	18.5	18.4	13.4	0.0	0.0	23.7	27.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1055	0	469	805	3032	0	0	1985	489
V/C Ratio(X)				1.20	0.00	0.77	0.92	0.45	0.00	0.00	0.91	1.58
Avail Cap(c_a), veh/h				1055	0	469	823	3058	0	0	1985	489
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				31.7	0.0	29.0	33.7	10.5	0.0	0.0	29.9	31.2
Incr Delay (d2), s/veh				101.3	0.0	7.8	14.5	0.1	0.0	0.0	6.5	272.7
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				25.3	0.0	7.6	9.0	4.4	0.0	0.0	9.6	46.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				133.1	0.0	36.9	48.2	10.6	0.0	0.0	36.4	303.8
LnGrp LOS				F	A	D	D	B	A	A	D	F
Approach Vol, veh/h					1634			2114			2574	
Approach Delay, s/veh					111.7			23.7			116.9	
Approach LOS					F			C			F	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	57.7		25.1	32.6		31.8						
Change Period (Y+Rc), s	5.4		4.6	5.4		5.7						
Max Green Setting (Gmax), s	52.8		21.0	27.2		26.1						
Max Q Clear Time (g_c+I1), s	15.4		20.4	29.2		28.1						
Green Ext Time (p_c), s	12.3		0.1	0.0		0.0						

Intersection Summary		
HCM 6th Ctrl Delay	84.4	
HCM 6th LOS	F	

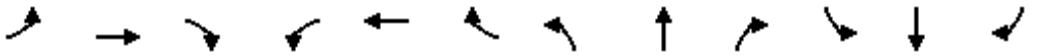
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	526	0	848	1481	658	2098
Future Volume (vph)	526	0	848	1481	658	2098
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.4	9.6	15.4
Total Split (s)	27.0	27.0	27.0	44.0	19.0	63.0
Total Split (%)	30.0%	30.0%	30.0%	48.9%	21.1%	70.0%
Yellow Time (s)	4.8	4.8	4.8	4.4	3.6	4.4
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)	5.8	5.8	5.8	5.4	4.6	5.4
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	Min	None	Min
Act Effct Green (s)	21.2	21.2	21.2	38.6	14.4	57.6
Actuated g/C Ratio	0.24	0.24	0.24	0.43	0.16	0.64
v/c Ratio	1.26	1.17	1.13	1.24dr	1.26	0.98
Control Delay	168.8	126.9	114.0	110.3	166.5	30.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	41.9
Total Delay	168.8	126.9	114.0	110.3	166.5	72.6
LOS	F	F	F	F	F	E
Approach Delay		137.1		110.3		95.0
Approach LOS		F		F		F

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.26	
Intersection Signal Delay: 109.5	Intersection LOS: F
Intersection Capacity Utilization 173.8%	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: Riverside Av. & I-10 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	526	0	848	0	0	0	0	1481	959	658	2098	0
Future Volume (veh/h)	526	0	848	0	0	0	0	1481	959	658	2098	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	377	0	1114				0	1592	1031	708	2256	0
Peak Hour Factor	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
Cap, veh/h	426	0	759				0	1483	691	562	2310	0
Arrive On Green	0.24	0.00	0.24				0.00	0.43	0.43	0.16	0.64	0.00
Sat Flow, veh/h	1810	0	3220				0	3629	1610	3510	3705	0
Grp Volume(v), veh/h	377	0	1114				0	1592	1031	708	2256	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1755	1805	0
Q Serve(g_s), s	18.1	0.0	21.2				0.0	38.6	38.6	14.4	54.0	0.0
Cycle Q Clear(g_c), s	18.1	0.0	21.2				0.0	38.6	38.6	14.4	54.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	426	0	759				0	1483	691	562	2310	0
V/C Ratio(X)	0.88	0.00	1.47				0.00	1.07	1.49	1.26	0.98	0.00
Avail Cap(c_a), veh/h	426	0	759				0	1483	691	562	2310	0
HCM Platoon Ratio	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				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.2	0.0	34.4				0.0	25.7	25.7	37.8	15.5	0.0
Incr Delay (d2), s/veh	19.3	0.0	218.0				0.0	45.8	229.5	131.1	13.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.7	0.0	30.7				0.0	23.6	57.2	16.1	21.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.5	0.0	252.4				0.0	71.5	255.2	168.9	29.2	0.0
LnGrp LOS	D	A	F				A	F	F	F	C	A
Approach Vol, veh/h		1491						2623			2964	
Approach Delay, s/veh		201.9						143.7			62.5	
Approach LOS		F						F			E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	19.0	44.0		27.0		63.0
Change Period (Y+Rc), s	4.6	5.4		5.8		5.4
Max Green Setting (Gmax), s	14.4	38.6		21.2		57.6
Max Q Clear Time (g_c+I1), s	16.4	40.6		23.2		56.0
Green Ext Time (p_c), s	0.0	0.0		0.0		1.5

Intersection Summary		
HCM 6th Ctrl Delay		122.0
HCM 6th LOS		F

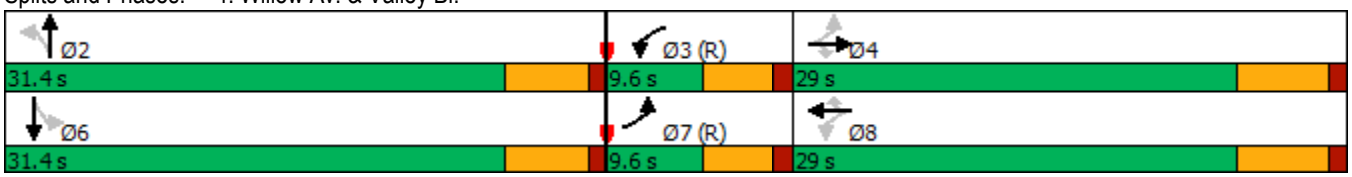
Notes

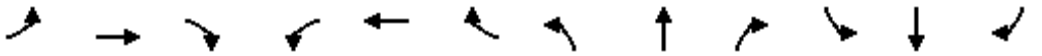
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	90	1063	2	8	886	226	2	3	198	0
Future Volume (vph)	90	1063	2	8	886	226	2	3	198	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	9.6	22.8	22.8	31.4	31.4	31.4	31.4
Total Split (s)	9.6	29.0	29.0	9.6	29.0	29.0	31.4	31.4	31.4	31.4
Total Split (%)	13.7%	41.4%	41.4%	13.7%	41.4%	41.4%	44.9%	44.9%	44.9%	44.9%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.4	4.4	4.4	4.4
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.4	5.4		5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	C-Max	Min	Min	C-Max	Min	Min	None	None	None	None
Act Effct Green (s)	39.8	23.2	23.2	39.8	23.2	23.2	15.6	15.6		15.6
Actuated g/C Ratio	0.57	0.33	0.33	0.57	0.33	0.33	0.22	0.22		0.22
v/c Ratio	0.19	0.97	0.00	0.02	0.81	0.37	0.01	0.03		0.68
Control Delay	8.0	43.9	0.0	7.8	27.9	7.0	16.5	11.7		22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	8.0	43.9	0.0	7.8	27.9	7.0	16.5	11.7		22.2
LOS	A	D	A	A	C	A	B	B		C
Approach Delay		41.0			23.5			12.5		22.2
Approach LOS		D			C			B		C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 3:WBL and 7:EBL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 31.3	Intersection LOS: C
Intersection Capacity Utilization 67.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Willow Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1063	2	8	886	226	2	3	6	198	0	56
Future Volume (veh/h)	90	1063	2	8	886	226	2	3	6	198	0	56
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	98	1155	2	9	963	246	2	3	7	215	0	61
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	556	1301	580	468	1123	501	437	116	270	346	0	72
Arrive On Green	0.23	0.36	0.36	0.19	0.31	0.31	0.23	0.23	0.23	0.23	0.00	0.23
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1363	506	1181	1117	0	317
Grp Volume(v), veh/h	98	1155	2	9	963	246	2	0	10	276	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1363	0	1687	1434	0	0
Q Serve(g_s), s	1.8	21.1	0.1	0.2	17.5	8.7	0.0	0.0	0.3	12.6	0.0	0.0
Cycle Q Clear(g_c), s	1.8	21.1	0.1	0.2	17.5	8.7	0.1	0.0	0.3	12.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.70	0.78		0.22
Lane Grp Cap(c), veh/h	556	1301	580	468	1123	501	437	0	385	419	0	0
V/C Ratio(X)	0.18	0.89	0.00	0.02	0.86	0.49	0.00	0.00	0.03	0.66	0.00	0.00
Avail Cap(c_a), veh/h	556	1301	580	468	1196	534	632	0	627	628	0	0
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	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.3	21.0	14.3	11.2	22.6	19.6	20.9	0.0	21.0	26.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	7.8	0.0	0.0	0.6	0.1	0.0	0.0	0.0	1.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	8.9	0.0	0.1	6.6	2.9	0.0	0.0	0.1	4.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.3	28.8	14.3	11.2	23.2	19.7	20.9	0.0	21.0	27.8	0.0	0.0
LnGrp LOS	B	C	B	B	C	B	C	A	C	C	A	A
Approach Vol, veh/h		1255			1218			12			276	
Approach Delay, s/veh		27.4			22.4			21.0			27.8	
Approach LOS		C			C			C			C	

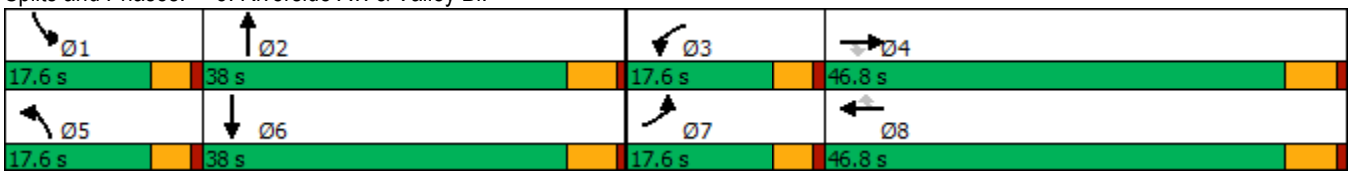
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		21.4	17.6	31.0		21.4	21.0	27.6				
Change Period (Y+Rc), s		5.4	4.6	5.8		5.4	4.6	5.8				
Max Green Setting (Gmax), s		26.0	5.0	23.2		26.0	5.0	23.2				
Max Q Clear Time (g_c+I1), s		2.3	2.2	23.1		14.9	3.8	19.5				
Green Ext Time (p_c), s		0.0	0.0	0.1		1.1	0.0	2.2				

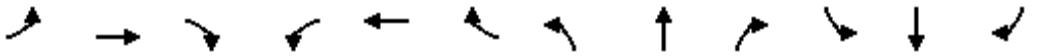
Intersection Summary	
HCM 6th Ctrl Delay	25.2
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	101	370	669	261	363	127	673	1800	114	1009
Future Volume (vph)	101	370	669	261	363	127	673	1800	114	1009
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8	38.8	9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	17.6	46.8	46.8	17.6	46.8	46.8	17.6	38.0	17.6	38.0
Total Split (%)	14.7%	39.0%	39.0%	14.7%	39.0%	39.0%	14.7%	31.7%	14.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
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	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	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	Min	None	Min
Act Effct Green (s)	10.8	41.0	41.0	13.0	43.2	43.2	13.0	33.4	11.3	31.7
Actuated g/C Ratio	0.09	0.34	0.34	0.11	0.36	0.36	0.11	0.28	0.09	0.27
v/c Ratio	0.67	0.32	1.01	1.45	0.30	0.20	1.92	1.58	0.73	0.85
Control Delay	72.8	29.9	62.1	265.2	28.6	5.3	451.8	295.3	75.7	48.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	72.8	29.9	62.1	265.2	28.6	5.3	451.8	295.6	75.7	48.2
LOS	E	C	E	F	C	A	F	F	E	D
Approach Delay		52.6			106.9			333.6		50.8
Approach LOS		D			F			F		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.1	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.92	
Intersection Signal Delay: 192.2	Intersection LOS: F
Intersection Capacity Utilization 90.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	370	669	261	363	127	673	1800	294	114	1009	68
Future Volume (veh/h)	101	370	669	261	363	127	673	1800	294	114	1009	68
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	110	402	727	284	395	138	732	1957	320	124	1097	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	136	1259	561	200	1387	619	388	1279	206	151	1274	86
Arrive On Green	0.08	0.35	0.35	0.11	0.38	0.38	0.11	0.28	0.28	0.08	0.26	0.26
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	4503	724	1810	4963	335
Grp Volume(v), veh/h	110	402	727	284	395	138	732	1495	782	124	764	407
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1770	1810	1729	1840
Q Serve(g_s), s	7.0	9.6	41.0	13.0	8.9	6.8	13.0	33.4	33.4	7.9	24.8	24.8
Cycle Q Clear(g_c), s	7.0	9.6	41.0	13.0	8.9	6.8	13.0	33.4	33.4	7.9	24.8	24.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		0.18
Lane Grp Cap(c), veh/h	136	1259	561	200	1387	619	388	982	503	151	888	472
V/C Ratio(X)	0.81	0.32	1.29	1.42	0.28	0.22	1.89	1.52	1.56	0.82	0.86	0.86
Avail Cap(c_a), veh/h	200	1259	561	200	1387	619	388	982	503	200	959	510
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	53.6	28.1	38.3	52.3	25.0	24.4	52.3	42.1	42.1	53.0	41.7	41.7
Incr Delay (d2), s/veh	8.8	0.1	145.5	215.5	0.1	0.2	408.4	240.4	259.9	14.1	7.6	13.4
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	3.5	4.0	38.0	17.7	3.7	2.5	27.6	46.5	50.3	4.1	11.2	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.3	28.2	183.8	267.8	25.1	24.6	460.7	282.5	302.0	67.2	49.3	55.1
LnGrp LOS	E	C	F	F	C	C	F	F	F	E	D	E
Approach Vol, veh/h		1239			817			3009			1295	
Approach Delay, s/veh		122.5			109.4			330.9			52.8	
Approach LOS		F			F			F			D	

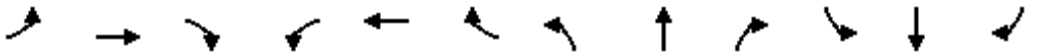
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	38.8	17.6	46.8	17.6	35.6	13.4	51.0
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	13.0	32.6	13.0	41.0	13.0	32.6	13.0	41.0
Max Q Clear Time (g_c+I1), s	9.9	35.4	15.0	43.0	15.0	26.8	9.0	10.9
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	3.4	0.0	2.9

Intersection Summary	
HCM 6th Ctrl Delay	205.2
HCM 6th LOS	F

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	786	2	656	743	2006	1548	652
Future Volume (vph)	786	2	656	743	2006	1548	652
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	31.8	31.8	31.8	25.6	58.2	32.6	32.6
Total Split (%)	35.3%	35.3%	35.3%	28.4%	64.7%	36.2%	36.2%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	26.1	26.1	26.1	21.0	52.8	27.2	27.2
Actuated g/C Ratio	0.29	0.29	0.29	0.23	0.59	0.30	0.30
v/c Ratio	1.06	1.11	0.94	0.96	0.69	0.82	0.75
Control Delay	91.5	108.1	55.9	57.9	14.5	33.5	10.3
Queue Delay	0.0	0.0	0.0	1.9	30.4	0.0	0.0
Total Delay	91.5	108.1	55.9	59.8	44.9	33.5	10.3
LOS	F	F	E	E	D	C	B
Approach Delay		85.9			49.0	26.6	
Approach LOS		F			D	C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 49.6	Intersection LOS: D
Intersection Capacity Utilization 169.5%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	786	2	656	743	2006	0	0	1548	652
Future Volume (veh/h)	0	0	0	786	2	656	743	2006	0	0	1548	652
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				1043	0	461	782	2112	0	0	1629	686
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				1050	0	467	819	3043	0	0	1975	487
Arrive On Green				0.29	0.00	0.29	0.23	0.59	0.00	0.00	0.30	0.30
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	6802	1610
Grp Volume(v), veh/h				1043	0	461	782	2112	0	0	1629	686
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1634	1610
Q Serve(g_s), s				25.9	0.0	25.6	19.8	25.6	0.0	0.0	20.8	27.2
Cycle Q Clear(g_c), s				25.9	0.0	25.6	19.8	25.6	0.0	0.0	20.8	27.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1050	0	467	819	3043	0	0	1975	487
V/C Ratio(X)				0.99	0.00	0.99	0.95	0.69	0.00	0.00	0.82	1.41
Avail Cap(c_a), veh/h				1050	0	467	819	3043	0	0	1975	487
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				31.9	0.0	31.8	34.0	13.0	0.0	0.0	29.2	31.4
Incr Delay (d2), s/veh				26.2	0.0	38.2	20.9	0.7	0.0	0.0	3.0	196.3
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				14.2	0.0	14.1	10.3	8.5	0.0	0.0	8.0	36.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				58.1	0.0	70.0	55.0	13.7	0.0	0.0	32.2	227.7
LnGrp LOS				E	A	E	D	B	A	A	C	F
Approach Vol, veh/h					1504			2894			2315	
Approach Delay, s/veh					61.7			24.8			90.1	
Approach LOS					E			C			F	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	58.2		25.6	32.6		31.8						
Change Period (Y+Rc), s	5.4		4.6	5.4		5.7						
Max Green Setting (Gmax), s	52.8		21.0	27.2		26.1						
Max Q Clear Time (g_c+I1), s	27.6		21.8	29.2		27.9						
Green Ext Time (p_c), s	17.6		0.0	0.0		0.0						

Intersection Summary		
HCM 6th Ctrl Delay		55.6
HCM 6th LOS		E

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	798	4	654	1951	618	1716
Future Volume (vph)	798	4	654	1951	618	1716
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.4	9.6	15.4
Total Split (s)	26.0	26.0	26.0	47.0	17.0	64.0
Total Split (%)	28.9%	28.9%	28.9%	52.2%	18.9%	71.1%
Yellow Time (s)	4.8	4.8	4.8	4.4	3.6	4.4
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)	5.8	5.8	5.8	5.4	4.6	5.4
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	Min	None	Min
Act Effct Green (s)	20.2	20.2	20.2	41.6	12.4	58.6
Actuated g/C Ratio	0.22	0.22	0.22	0.46	0.14	0.65
v/c Ratio	1.38	1.39	1.18	1.36	1.35	0.77
Control Delay	216.1	221.6	130.2	188.2	204.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	47.6
Total Delay	216.1	221.6	130.2	188.2	204.0	61.5
LOS	F	F	F	F	F	E
Approach Delay		190.9		188.2		99.2
Approach LOS		F		F		F

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.39	
Intersection Signal Delay: 158.5	Intersection LOS: F
Intersection Capacity Utilization 169.5%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 7: Riverside Av. & I-10 EB Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	798	4	654	0	0	0	0	1951	1123	618	1716	0
Future Volume (veh/h)	798	4	654	0	0	0	0	1951	1123	618	1716	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	1056	0	460				0	2054	1182	651	1806	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	812	0	361				0	1598	744	484	2351	0
Arrive On Green	0.22	0.00	0.22				0.00	0.46	0.46	0.14	0.65	0.00
Sat Flow, veh/h	3619	0	1610				0	3629	1610	3510	3705	0
Grp Volume(v), veh/h	1056	0	460				0	2054	1182	651	1806	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1755	1805	0
Q Serve(g_s), s	20.2	0.0	20.2				0.0	41.6	41.6	12.4	31.4	0.0
Cycle Q Clear(g_c), s	20.2	0.0	20.2				0.0	41.6	41.6	12.4	31.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	812	0	361				0	1598	744	484	2351	0
V/C Ratio(X)	1.30	0.00	1.27				0.00	1.29	1.59	1.35	0.77	0.00
Avail Cap(c_a), veh/h	812	0	361				0	1598	744	484	2351	0
HCM Platoon Ratio	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				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.9	0.0	34.9				0.0	24.2	24.2	38.8	11.0	0.0
Incr Delay (d2), s/veh	144.0	0.0	142.8				0.0	133.2	271.1	169.0	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.5	0.0	21.7				0.0	44.6	70.0	16.5	10.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	178.9	0.0	177.7				0.0	157.4	295.3	207.8	12.6	0.0
LnGrp LOS	F	A	F				A	F	F	F	B	A
Approach Vol, veh/h		1516						3236			2457	
Approach Delay, s/veh		178.5						207.7			64.3	
Approach LOS		F						F			E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	17.0	47.0		26.0		64.0
Change Period (Y+Rc), s	4.6	5.4		5.8		5.4
Max Green Setting (Gmax), s	12.4	41.6		20.2		58.6
Max Q Clear Time (g_c+I1), s	14.4	43.6		22.2		33.4
Green Ext Time (p_c), s	0.0	0.0		0.0		15.7

Intersection Summary	
HCM 6th Ctrl Delay	152.7
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX 7.2:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

This Page Intentionally Left Blank

Volume Development
Weekday AM Peak Hour

1: Dwy. 1 & Valley Bl.

PHF: 0.920 Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Project (PCE):	0	0	0	23	0	1	6	0	0	0	1	99	130
HY (2040) NP PCE:	0	0	0	0	0	0	0	**964**	0	0	**696**	0	1,661
HY (2040) WP PCE:	0	0	0	23	0	1	6	964	0	0	697	99	1,791

2: Dwy. 2 & Valley Bl.

PHF: 0.920 Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Project (PCE):	0	0	0	0	0	1	0	23	0	0	99	22	145
HY (2040) NP PCE:	0	0	0	0	0	0	0	**964**	0	0	**696**	0	1,661
HY (2040) WP PCE:	0	0	0	0	0	1	0	987	0	0	795	22	1,806

3: Valley Bl. & Dwy. 3

PHF: 0.920 Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Project (PCE):	49	1	0	0	3	6	2	0	9	0	0	0	70
HY (2040) NP PCE:	0	**175**	0	0	**286**	0	0	0	0	0	0	0	461
HY (2040) WP PCE:	49	176	0	0	289	6	2	0	9	0	0	0	531

4: Willow Av. & Valley Bl.

PHF: 0.930 7:15 Count Date: 1/24/2019

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Project (PCE):	0	0	0	9	0	3	1	22	0	0	118	49	202
HY (2040) NP PCE:	1	2	1	233	2	51	29	931	4	4	644	143	2,046
HY (2040) WP PCE:	1	2	1	242	2	54	30	953	4	4	762	192	2,248

5: Riverside Av. & Valley Bl.

PHF: 0.872 7:15 Count Date: 2/6/2019

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Project (PCE):	163	0	0	0	0	0	0	1	31	0	3	0	198
HY (2040) NP PCE:	552	865	275	58	1,444	38	48	263	636	294	240	42	4,755
HY (2040) WP PCE:	715	865	275	58	1,444	38	48	264	667	294	243	42	4,953

6: Riverside Av. & I-10 WB Ramps

PHF: 0.955 7:00 Count Date: 5/1/2019

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Project (PCE):	0	93	0	0	13	17	0	0	0	0	0	70	193
HY (2040) NP PCE:	702	1,306	0	0	1,709	736	0	0	0	1,046	0	518	6,018
HY (2040) WP PCE:	702	1,399	0	0	1,722	753	0	0	0	1,046	0	588	6,211

7: Riverside Av. & I-10 EB Ramps

PHF: 0.933 7:00 Count Date: 5/1/2019

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Project (PCE):	0	0	0	13	0	0	93	0	0	0	0	0	106
HY (2040) NP PCE:	0	1,481	959	**658**	**2,098**	0	526	0	848	0	0	0	6,570
HY (2040) WP PCE:	0	1,481	959	671	2,098	0	619	0	848	0	0	0	6,676

Volume Development
Weekday PM Peak Hour

1: Dwy. 1 & Valley Bl.

	PHF: 0.920									Count Date:			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Project (PCE):	0	0	0	125	0	3	2	0	0	0	3	25	158
HY (2040) NP PCE:	0	0	0	0	0	0	0	**1,155**	0	0	**944**	0	2,099
HY (2040) WP PCE:	0	0	0	125	0	3	2	1,155	0	0	947	25	2,257

2: Dwy. 2 & Valley Bl.

	PHF: 0.920									Count Date:			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Project (PCE):	0	0	0	0	0	3	0	125	0	0	25	8	161
HY (2040) NP PCE:	0	0	0	0	0	0	0	**1,155**	0	0	**944**	0	2,099
HY (2040) WP PCE:	0	0	0	0	0	3	0	1,280	0	0	969	8	2,260

3: Valley Bl. & Dwy. 3

	PHF: 0.920									Count Date:			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Project (PCE):	14	3	0	0	1	2	6	0	50	0	0	0	76
HY (2040) NP PCE:	0	**319**	0	0	**254**	0	0	0	0	0	0	0	573
HY (2040) WP PCE:	14	322	0	0	255	2	6	0	50	0	0	0	649

4: Willow Av. & Valley Bl.

	PHF: 0.915				4:15					Count Date:	1/24/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Project (PCE):	0	0	0	50	0	1	3	122	0	0	32	14	222
HY (2040) NP PCE:	2	3	6	198	0	56	90	1,063	2	8	886	226	2,540
HY (2040) WP PCE:	2	3	6	248	0	57	93	1,185	2	8	918	240	2,762

5: Riverside Av. & Valley Bl.

	PHF: 0.920				4:45					Count Date:	2/6/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Project (PCE):	44	0	0	0	0	0	0	3	169	0	1	0	217
HY (2040) NP PCE:	673	1,800	294	114	1,009	68	101	370	669	261	363	127	5,849
HY (2040) WP PCE:	717	1,800	294	114	1,009	68	101	373	838	261	364	127	6,066

6: Riverside Av. & I-10 WB Ramps

	PHF: 0.950				4:30					Count Date:	5/1/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Project (PCE):	0	25	0	0	72	97	0	0	0	0	0	19	213
HY (2040) NP PCE:	743	2,006	0	0	1,548	652	0	0	0	786	2	656	6,392
HY (2040) WP PCE:	743	2,031	0	0	1,620	749	0	0	0	786	2	675	6,605

7: Riverside Av. & I-10 EB Ramps

	PHF: 0.954				4:30					Count Date:	5/1/2019		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Project (PCE):	0	0	0	72	0	0	25	0	0	0	0	0	97
HY (2040) NP PCE:	0	1,951	1,123	618	**1,716**	0	798	4	654	0	0	0	6,864
HY (2040) WP PCE:	0	1,951	1,123	690	1,716	0	823	4	654	0	0	0	6,961

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	964	697	99	23	1
Future Vol, veh/h	6	964	697	99	23	1
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	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	1048	758	108	25	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	866	0	-	0	1350	433
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	538	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	786	-	-	-	144	576
Stage 1	-	-	-	-	402	-
Stage 2	-	-	-	-	555	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	786	-	-	-	143	576
Mov Cap-2 Maneuver	-	-	-	-	331	-
Stage 1	-	-	-	-	398	-
Stage 2	-	-	-	-	555	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	16.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	786	-	-	-	337
HCM Lane V/C Ratio	0.008	-	-	-	0.077
HCM Control Delay (s)	9.6	-	-	-	16.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	987	795	22	0	1
Future Vol, veh/h	0	987	795	22	0	1
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	1073	864	24	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	444
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	567
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	567
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	567
HCM Lane V/C Ratio	-	-	-	0.002
HCM Control Delay (s)	-	-	-	11.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	9	49	176	289	6
Future Vol, veh/h	2	9	49	176	289	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	10	53	191	314	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	615	318	321	0	-	0
Stage 1	318	-	-	-	-	-
Stage 2	297	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	458	727	1250	-	-	-
Stage 1	742	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	436	727	1250	-	-	-
Mov Cap-2 Maneuver	436	-	-	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	758	-	-	-	-	-

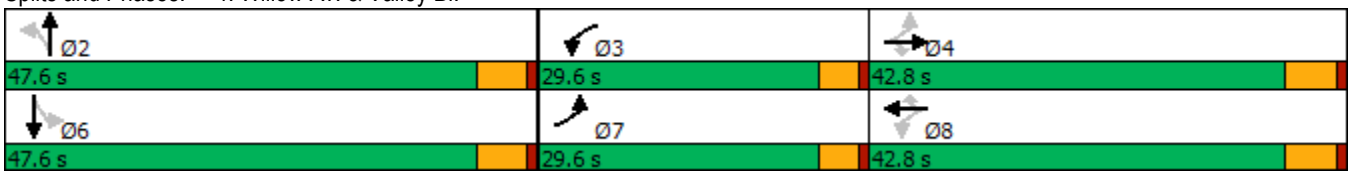
Approach	EB	NB	SB
HCM Control Delay, s	10.7	1.7	0
HCM LOS	B		

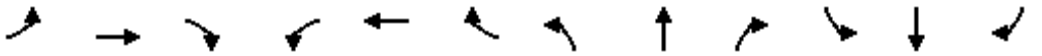
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1250	-	648	-	-
HCM Lane V/C Ratio	0.043	-	0.018	-	-
HCM Control Delay (s)	8	0	10.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	953	4	4	762	192	1	2	242	2
Future Volume (vph)	30	953	4	4	762	192	1	2	242	2
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	9.6	22.8	22.8	31.4	31.4	31.4	31.4
Total Split (s)	29.6	42.8	42.8	29.6	42.8	42.8	47.6	47.6	47.6	47.6
Total Split (%)	24.7%	35.7%	35.7%	24.7%	35.7%	35.7%	39.7%	39.7%	39.7%	39.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.4	4.4	4.4	4.4
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.4	5.4		5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None
Act Effct Green (s)	32.9	30.6	30.6	30.4	26.6	26.6	21.8	21.8		21.8
Actuated g/C Ratio	0.50	0.46	0.46	0.46	0.40	0.40	0.33	0.33		0.33
v/c Ratio	0.09	0.61	0.01	0.01	0.56	0.29	0.00	0.01		0.67
Control Delay	9.9	16.2	0.0	9.8	18.8	10.0	18.0	16.3		28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	9.9	16.2	0.0	9.8	18.8	10.0	18.0	16.3		28.2
LOS	A	B	A	A	B	A	B	B		C
Approach Delay		16.0			17.0			16.8		28.2
Approach LOS		B			B			B		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 65.9	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 18.0	Intersection LOS: B
Intersection Capacity Utilization 59.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Willow Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	953	4	4	762	192	1	2	1	242	2	54
Future Volume (veh/h)	30	953	4	4	762	192	1	2	1	242	2	54
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	32	1025	4	4	819	206	1	2	1	260	2	58
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	316	1483	661	249	1373	613	556	330	165	455	3	73
Arrive On Green	0.04	0.41	0.41	0.01	0.38	0.38	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1364	1195	597	1187	9	265
Grp Volume(v), veh/h	32	1025	4	4	819	206	1	0	3	320	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1364	0	1792	1461	0	0
Q Serve(g_s), s	0.5	12.0	0.1	0.1	9.3	4.7	0.0	0.0	0.1	10.4	0.0	0.0
Cycle Q Clear(g_c), s	0.5	12.0	0.1	0.1	9.3	4.7	0.0	0.0	0.1	10.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	0.81		0.18
Lane Grp Cap(c), veh/h	316	1483	661	249	1373	613	556	0	495	530	0	0
V/C Ratio(X)	0.10	0.69	0.01	0.02	0.60	0.34	0.00	0.00	0.01	0.60	0.00	0.00
Avail Cap(c_a), veh/h	1132	2601	1160	1120	2601	1160	1300	0	1473	1331	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.8	12.4	8.9	10.8	12.7	11.3	13.5	0.0	13.5	17.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.6	0.0	0.0	0.4	0.3	0.0	0.0	0.0	1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.6	0.0	0.0	2.9	1.3	0.0	0.0	0.0	3.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.9	13.0	8.9	10.8	13.2	11.6	13.5	0.0	13.5	18.4	0.0	0.0
LnGrp LOS	A	B	A	B	B	B	B	A	B	B	A	A
Approach Vol, veh/h		1061			1029			4			320	
Approach Delay, s/veh		12.9			12.8			13.5			18.4	
Approach LOS		B			B			B			B	

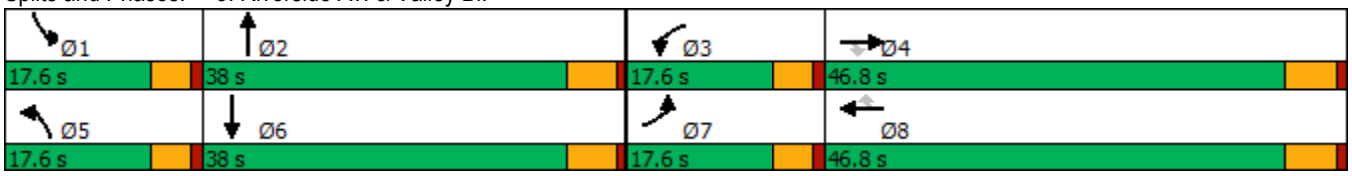
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		19.6	4.9	26.9		19.6	6.4	25.3				
Change Period (Y+Rc), s		5.4	4.6	5.8		5.4	4.6	5.8				
Max Green Setting (Gmax), s		42.2	25.0	37.0		42.2	25.0	37.0				
Max Q Clear Time (g_c+I1), s		2.1	2.1	14.0		12.4	2.5	11.3				
Green Ext Time (p_c), s		0.0	0.0	7.1		1.9	0.0	6.3				

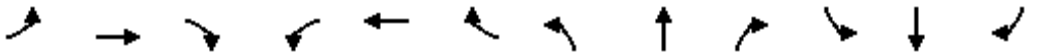
Intersection Summary												
HCM 6th Ctrl Delay			13.6									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	48	264	667	294	243	42	715	865	58	1444
Future Volume (vph)	48	264	667	294	243	42	715	865	58	1444
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8	38.8	9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	17.6	46.8	46.8	17.6	46.8	46.8	17.6	38.0	17.6	38.0
Total Split (%)	14.7%	39.0%	39.0%	14.7%	39.0%	39.0%	14.7%	31.7%	14.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
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	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	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	Min	None	Min
Act Effct Green (s)	8.1	41.0	41.0	13.0	47.8	47.8	13.0	38.7	8.8	32.6
Actuated g/C Ratio	0.07	0.34	0.34	0.11	0.40	0.40	0.11	0.32	0.07	0.27
v/c Ratio	0.45	0.25	1.08	1.73	0.19	0.07	2.17	0.79	0.51	1.21
Control Delay	64.7	29.1	82.5	383.0	25.1	0.2	560.9	40.2	65.9	140.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0
Total Delay	64.7	29.1	82.5	383.0	25.1	0.2	560.9	42.6	65.9	140.9
LOS	E	C	F	F	C	A	F	D	E	F
Approach Delay		67.3			205.2			242.5		138.0
Approach LOS		E			F			F		F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.17	
Intersection Signal Delay: 171.0	Intersection LOS: F
Intersection Capacity Utilization 99.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	264	667	294	243	42	715	865	275	58	1444	38
Future Volume (veh/h)	48	264	667	294	243	42	715	865	275	58	1444	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	55	303	767	338	279	48	822	994	316	67	1660	44
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	71	1233	550	196	1482	661	380	1295	411	86	1411	37
Arrive On Green	0.04	0.34	0.34	0.11	0.41	0.41	0.11	0.33	0.33	0.05	0.27	0.27
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	3898	1238	1810	5196	138
Grp Volume(v), veh/h	55	303	767	338	279	48	822	882	428	67	1105	599
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1677	1810	1729	1875
Q Serve(g_s), s	3.6	7.2	41.0	13.0	5.9	2.2	13.0	27.4	27.5	4.4	32.6	32.6
Cycle Q Clear(g_c), s	3.6	7.2	41.0	13.0	5.9	2.2	13.0	27.4	27.5	4.4	32.6	32.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.74	1.00		0.07
Lane Grp Cap(c), veh/h	71	1233	550	196	1482	661	380	1149	557	86	939	509
V/C Ratio(X)	0.77	0.25	1.39	1.72	0.19	0.07	2.16	0.77	0.77	0.77	1.18	1.18
Avail Cap(c_a), veh/h	196	1233	550	196	1482	661	380	1149	557	196	939	509
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	57.1	28.4	39.5	53.5	22.6	21.5	53.5	35.9	35.9	56.5	43.7	43.7
Incr Delay (d2), s/veh	6.4	0.1	188.3	346.5	0.1	0.0	531.3	3.2	6.4	5.5	90.4	98.4
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	1.7	3.1	44.1	24.6	2.4	0.8	33.7	11.7	11.9	2.1	25.3	28.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.5	28.5	227.8	400.0	22.7	21.5	584.8	39.1	42.4	62.0	134.1	142.1
LnGrp LOS	E	C	F	F	C	C	F	D	D	E	F	F
Approach Vol, veh/h		1125			665			2132			1771	
Approach Delay, s/veh		166.1			214.3			250.2			134.1	
Approach LOS		F			F			F			F	

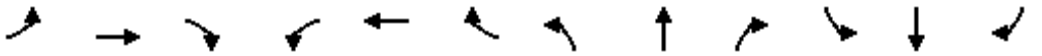
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	45.3	17.6	46.8	17.6	38.0	9.3	55.1
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	13.0	32.6	13.0	41.0	13.0	32.6	13.0	41.0
Max Q Clear Time (g_c+I1), s	6.4	29.5	15.0	43.0	15.0	34.6	5.6	7.9
Green Ext Time (p_c), s	0.0	2.2	0.0	0.0	0.0	0.0	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	193.2
HCM 6th LOS	F

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	1046	0	588	702	1399	1722	753
Future Volume (vph)	1046	0	588	702	1399	1722	753
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	31.8	31.8	31.8	25.6	58.2	32.6	32.6
Total Split (%)	35.3%	35.3%	35.3%	28.4%	64.7%	36.2%	36.2%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	26.1	26.1	26.1	20.5	52.3	27.2	27.2
Actuated g/C Ratio	0.29	0.29	0.29	0.23	0.58	0.30	0.30
v/c Ratio	1.19	1.11	1.05	0.92	0.49	0.91	0.87
Control Delay	135.1	101.9	81.6	52.4	11.5	38.5	18.7
Queue Delay	0.0	0.0	0.0	0.7	1.3	0.0	0.0
Total Delay	135.1	101.9	81.6	53.1	12.7	38.5	18.7
LOS	F	F	F	D	B	D	B
Approach Delay		107.1			26.2	32.4	
Approach LOS		F			C	C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 89.5	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.19	
Intersection Signal Delay: 50.0	Intersection LOS: D
Intersection Capacity Utilization 175.9%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1046	0	588	702	1399	0	0	1722	753
Future Volume (veh/h)	0	0	0	1046	0	588	702	1399	0	0	1722	753
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				1294	0	413	739	1473	0	0	1813	793
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				1055	0	469	805	3032	0	0	1985	489
Arrive On Green				0.29	0.00	0.29	0.23	0.58	0.00	0.00	0.30	0.30
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	6802	1610
Grp Volume(v), veh/h				1294	0	413	739	1473	0	0	1813	793
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1634	1610
Q Serve(g_s), s				26.1	0.0	21.9	18.4	14.8	0.0	0.0	23.9	27.2
Cycle Q Clear(g_c), s				26.1	0.0	21.9	18.4	14.8	0.0	0.0	23.9	27.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1055	0	469	805	3032	0	0	1985	489
V/C Ratio(X)				1.23	0.00	0.88	0.92	0.49	0.00	0.00	0.91	1.62
Avail Cap(c_a), veh/h				1055	0	469	823	3058	0	0	1985	489
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				31.7	0.0	30.2	33.7	10.8	0.0	0.0	30.0	31.2
Incr Delay (d2), s/veh				110.5	0.0	17.3	14.5	0.1	0.0	0.0	7.0	288.9
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				26.7	0.0	10.1	9.0	4.8	0.0	0.0	9.7	49.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				142.3	0.0	47.5	48.2	10.9	0.0	0.0	37.0	320.1
LnGrp LOS				F	A	D	D	B	A	A	D	F
Approach Vol, veh/h					1707			2212			2606	
Approach Delay, s/veh					119.3			23.4			123.2	
Approach LOS					F			C			F	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	57.7		25.1	32.6		31.8						
Change Period (Y+Rc), s	5.4		4.6	5.4		5.7						
Max Green Setting (Gmax), s	52.8		21.0	27.2		26.1						
Max Q Clear Time (g_c+I1), s	16.8		20.4	29.2		28.1						
Green Ext Time (p_c), s	13.5		0.1	0.0		0.0						

Intersection Summary		
HCM 6th Ctrl Delay		88.3
HCM 6th LOS		F

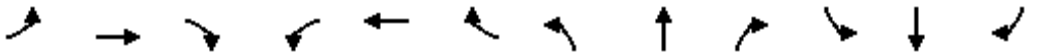
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	619	0	848	1481	671	2098
Future Volume (vph)	619	0	848	1481	671	2098
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.8	9.6	15.8
Total Split (s)	28.0	28.0	28.0	43.0	19.0	62.0
Total Split (%)	31.1%	31.1%	31.1%	47.8%	21.1%	68.9%
Yellow Time (s)	4.8	4.8	4.8	4.8	3.6	4.8
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)	5.8	5.8	5.8	5.8	4.6	5.8
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	Min	None	Min
Act Effct Green (s)	22.2	22.2	22.2	37.2	14.4	56.2
Actuated g/C Ratio	0.25	0.25	0.25	0.41	0.16	0.62
v/c Ratio	1.29	1.18	1.15	1.27dr	1.29	1.00
Control Delay	178.7	130.5	117.1	129.0	176.6	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	37.6
Total Delay	178.7	130.5	117.1	129.0	176.6	74.8
LOS	F	F	F	F	F	E
Approach Delay		142.8		129.0		99.4
Approach LOS		F		F		F

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.29	
Intersection Signal Delay: 119.8	Intersection LOS: F
Intersection Capacity Utilization 175.9%	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: Riverside Av. & I-10 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	619	0	848	0	0	0	0	1481	959	671	2098	0
Future Volume (veh/h)	619	0	848	0	0	0	0	1481	959	671	2098	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	988	0	567				0	1592	1031	722	2256	0
Peak Hour Factor	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
Cap, veh/h	893	0	397				0	1429	666	562	2254	0
Arrive On Green	0.25	0.00	0.25				0.00	0.41	0.41	0.16	0.62	0.00
Sat Flow, veh/h	3619	0	1610				0	3629	1610	3510	3705	0
Grp Volume(v), veh/h	988	0	567				0	1592	1031	722	2256	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1755	1805	0
Q Serve(g_s), s	22.2	0.0	22.2				0.0	37.2	37.2	14.4	56.2	0.0
Cycle Q Clear(g_c), s	22.2	0.0	22.2				0.0	37.2	37.2	14.4	56.2	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	893	0	397				0	1429	666	562	2254	0
V/C Ratio(X)	1.11	0.00	1.43				0.00	1.11	1.55	1.29	1.00	0.00
Avail Cap(c_a), veh/h	893	0	397				0	1429	666	562	2254	0
HCM Platoon Ratio	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				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.9	0.0	33.9				0.0	26.4	26.4	37.8	16.9	0.0
Incr Delay (d2), s/veh	63.8	0.0	206.5				0.0	61.5	254.5	141.5	19.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.0	0.0	30.8				0.0	26.0	59.9	16.9	24.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	97.7	0.0	240.4				0.0	87.9	280.9	179.3	36.0	0.0
LnGrp LOS	F	A	F				A	F	F	F	F	A
Approach Vol, veh/h		1555						2623			2978	
Approach Delay, s/veh		149.7						163.8			70.8	
Approach LOS		F						F			E	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	19.0	43.0		28.0		62.0						
Change Period (Y+Rc), s	4.6	5.8		5.8		5.8						
Max Green Setting (Gmax), s	14.4	37.2		22.2		56.2						
Max Q Clear Time (g_c+I1), s	16.4	39.2		24.2		58.2						
Green Ext Time (p_c), s	0.0	0.0		0.0		0.0						

Intersection Summary			
HCM 6th Ctrl Delay		122.0	
HCM 6th LOS		F	

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	1155	947	25	125	3
Future Vol, veh/h	2	1155	947	25	125	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	1255	1029	27	136	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1056	0	-	0	1675	528
Stage 1	-	-	-	-	1043	-
Stage 2	-	-	-	-	632	-
Critical Hdwy	4.1	-	-	-	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1048	-	-	-	180	*711
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	497	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	1048	-	-	-	179	*711
Mov Cap-2 Maneuver	-	-	-	-	410	-
Stage 1	-	-	-	-	667	-
Stage 2	-	-	-	-	497	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1048	-	-	-	414
HCM Lane V/C Ratio	0.002	-	-	-	0.336
HCM Control Delay (s)	8.4	-	-	-	18
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	1.5

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

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	1280	969	8	0	3
Future Vol, veh/h	0	1280	969	8	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1391	1053	9	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	531
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	498
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	498
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	498
HCM Lane V/C Ratio	-	-	-	0.007
HCM Control Delay (s)	-	-	-	12.3
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	50	14	322	255	2
Future Vol, veh/h	6	50	14	322	255	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	54	15	350	277	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	658	278	279	0	-	0
Stage 1	278	-	-	-	-	-
Stage 2	380	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	432	766	1295	-	-	-
Stage 1	774	-	-	-	-	-
Stage 2	696	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	426	766	1295	-	-	-
Mov Cap-2 Maneuver	426	-	-	-	-	-
Stage 1	763	-	-	-	-	-
Stage 2	696	-	-	-	-	-

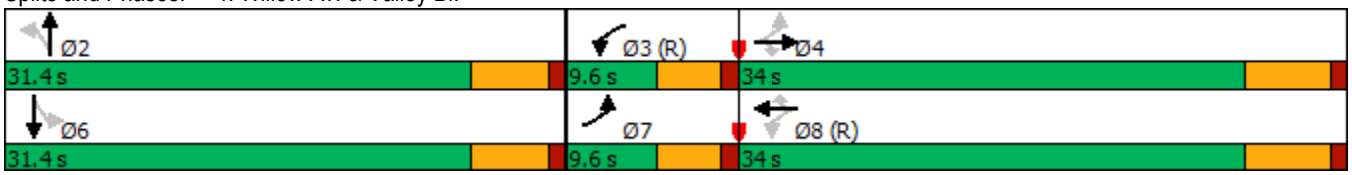
Approach	EB	NB	SB
HCM Control Delay, s	10.6	0.3	0
HCM LOS	B		

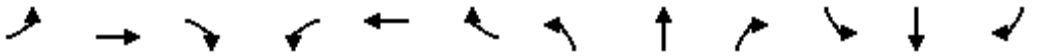
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1295	-	706	-	-
HCM Lane V/C Ratio	0.012	-	0.086	-	-
HCM Control Delay (s)	7.8	0	10.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	93	1185	2	8	918	240	2	3	248	0
Future Volume (vph)	93	1185	2	8	918	240	2	3	248	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	9.6	22.8	22.8	31.4	31.4	31.4	31.4
Total Split (s)	9.6	34.0	34.0	9.6	34.0	34.0	31.4	31.4	31.4	31.4
Total Split (%)	12.8%	45.3%	45.3%	12.8%	45.3%	45.3%	41.9%	41.9%	41.9%	41.9%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.4	4.4	4.4	4.4
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.4	5.4		5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	Min	C-Max	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	35.1	28.2	28.2	45.5	37.3	37.3	18.1	18.1		18.1
Actuated g/C Ratio	0.47	0.38	0.38	0.61	0.50	0.50	0.24	0.24		0.24
v/c Ratio	0.31	0.95	0.00	0.02	0.56	0.29	0.01	0.02		0.79
Control Delay	10.5	39.1	0.0	7.9	16.8	5.7	17.5	12.3		30.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	10.5	39.1	0.0	7.9	16.8	5.7	17.5	12.3		30.7
LOS	B	D	A	A	B	A	B	B		C
Approach Delay		37.0			14.5			13.2		30.7
Approach LOS		D			B			B		C

Intersection Summary	
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 0 (0%), Referenced to phase 3:WBL and 8:WBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 26.7	Intersection LOS: C
Intersection Capacity Utilization 74.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Willow Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	1185	2	8	918	240	2	3	6	248	0	57
Future Volume (veh/h)	93	1185	2	8	918	240	2	3	6	248	0	57
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	101	1288	2	9	998	261	2	3	7	270	0	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	320	1355	604	381	1687	753	496	133	311	394	0	71
Arrive On Green	0.06	0.38	0.38	0.15	0.47	0.47	0.26	0.26	0.26	0.26	0.00	0.26
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1362	506	1181	1166	0	268
Grp Volume(v), veh/h	101	1288	2	9	998	261	2	0	10	332	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1362	0	1687	1434	0	0
Q Serve(g_s), s	2.5	26.0	0.1	0.2	15.3	7.7	0.0	0.0	0.3	16.4	0.0	0.0
Cycle Q Clear(g_c), s	2.5	26.0	0.1	0.2	15.3	7.7	0.1	0.0	0.3	16.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.70	0.81		0.19
Lane Grp Cap(c), veh/h	320	1355	604	381	1687	753	496	0	444	465	0	0
V/C Ratio(X)	0.32	0.95	0.00	0.02	0.59	0.35	0.00	0.00	0.02	0.71	0.00	0.00
Avail Cap(c_a), veh/h	335	1357	605	381	1687	753	609	0	585	586	0	0
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	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.3	22.7	14.7	12.9	14.7	12.7	20.4	0.0	20.5	26.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	14.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	3.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	12.2	0.0	0.1	5.2	2.4	0.0	0.0	0.1	5.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.5	37.1	14.7	12.9	14.8	12.8	20.4	0.0	20.5	29.7	0.0	0.0
LnGrp LOS	B	D	B	B	B	B	C	A	C	C	A	A
Approach Vol, veh/h		1391			1268			12			332	
Approach Delay, s/veh		35.3			14.4			20.5			29.7	
Approach LOS		D			B			C			C	

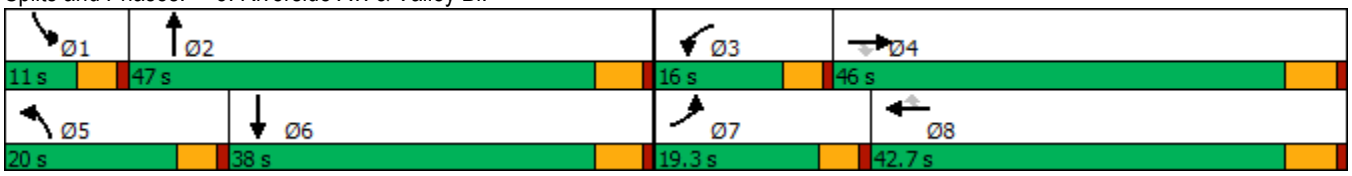
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.2	15.9	34.0		25.2	9.0	40.9				
Change Period (Y+Rc), s		5.4	4.6	5.8		5.4	4.6	5.8				
Max Green Setting (Gmax), s		26.0	5.0	28.2		26.0	5.0	28.2				
Max Q Clear Time (g_c+I1), s		2.3	2.2	28.0		18.7	4.5	17.3				
Green Ext Time (p_c), s		0.0	0.0	0.2		1.1	0.0	5.4				

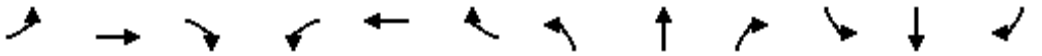
Intersection Summary												
HCM 6th Ctrl Delay			25.8									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	101	373	838	261	364	127	717	1800	114	1009
Future Volume (vph)	101	373	838	261	364	127	717	1800	114	1009
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8	38.8	9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	19.3	46.0	46.0	16.0	42.7	42.7	20.0	47.0	11.0	38.0
Total Split (%)	16.1%	38.3%	38.3%	13.3%	35.6%	35.6%	16.7%	39.2%	9.2%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
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	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	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	Min	None	Min
Act Effct Green (s)	11.3	40.2	40.2	11.4	40.3	40.3	15.4	41.6	6.4	32.6
Actuated g/C Ratio	0.09	0.34	0.34	0.10	0.34	0.34	0.13	0.35	0.05	0.27
v/c Ratio	0.65	0.33	1.33	1.66	0.33	0.22	1.73	1.28	1.29	0.84
Control Delay	69.6	30.9	183.2	355.9	31.3	5.0	372.0	164.2	233.6	47.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	69.6	30.9	183.2	355.9	31.3	5.0	372.0	164.8	233.6	47.1
LOS	E	C	F	F	C	A	F	F	F	D
Approach Delay		131.2			139.5			217.6		65.0
Approach LOS		F			F			F		E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.73	
Intersection Signal Delay: 159.3	Intersection LOS: F
Intersection Capacity Utilization 100.5%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	373	838	261	364	127	717	1800	294	114	1009	68
Future Volume (veh/h)	101	373	838	261	364	127	717	1800	294	114	1009	68
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	110	405	911	284	396	138	779	1957	320	124	1097	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	136	1209	539	172	1282	572	451	1561	251	97	1348	91
Arrive On Green	0.07	0.34	0.34	0.09	0.36	0.36	0.13	0.35	0.35	0.05	0.27	0.27
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	4503	724	1810	4963	335
Grp Volume(v), veh/h	110	405	911	284	396	138	779	1495	782	124	764	407
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1770	1810	1729	1840
Q Serve(g_s), s	7.2	10.1	40.2	11.4	9.5	7.3	15.4	41.6	41.6	6.4	24.8	24.8
Cycle Q Clear(g_c), s	7.2	10.1	40.2	11.4	9.5	7.3	15.4	41.6	41.6	6.4	24.8	24.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		0.18
Lane Grp Cap(c), veh/h	136	1209	539	172	1282	572	451	1199	613	97	939	500
V/C Ratio(X)	0.81	0.33	1.69	1.65	0.31	0.24	1.73	1.25	1.27	1.28	0.81	0.81
Avail Cap(c_a), veh/h	222	1209	539	172	1282	572	451	1199	613	97	939	500
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	54.7	29.9	39.9	54.3	28.0	27.3	52.3	39.2	39.2	56.8	40.9	40.9
Incr Delay (d2), s/veh	4.3	0.2	318.0	317.9	0.1	0.2	337.3	118.3	135.9	186.1	5.5	10.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	4.3	62.7	20.2	4.0	2.7	27.7	36.6	40.5	7.9	11.0	12.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	30.0	357.9	372.2	28.2	27.5	389.6	157.5	175.1	242.9	46.4	50.9
LnGrp LOS	E	C	F	F	C	C	F	F	F	F	D	D
Approach Vol, veh/h		1426			818			3056			1295	
Approach Delay, s/veh		241.7			147.5			221.2			66.6	
Approach LOS		F			F			F			E	

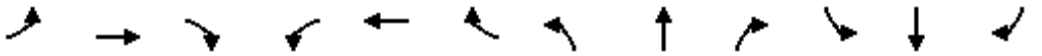
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	47.0	16.0	46.0	20.0	38.0	13.6	48.4
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	6.4	41.6	11.4	40.2	15.4	32.6	14.7	36.9
Max Q Clear Time (g_c+I1), s	8.4	43.6	13.4	42.2	17.4	26.8	9.2	11.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	3.4	0.1	2.8

Intersection Summary	
HCM 6th Ctrl Delay	186.1
HCM 6th LOS	F

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	786	2	675	743	2031	1620	749
Future Volume (vph)	786	2	675	743	2031	1620	749
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	31.8	31.8	31.8	25.6	58.2	32.6	32.6
Total Split (%)	35.3%	35.3%	35.3%	28.4%	64.7%	36.2%	36.2%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	26.1	26.1	26.1	21.0	52.8	27.2	27.2
Actuated g/C Ratio	0.29	0.29	0.29	0.23	0.59	0.30	0.30
v/c Ratio	1.08	1.13	0.96	0.96	0.70	0.86	0.87
Control Delay	97.1	113.6	58.3	57.9	14.7	35.3	18.9
Queue Delay	0.0	0.0	0.0	1.9	33.5	0.0	0.0
Total Delay	97.1	113.6	58.3	59.8	48.2	35.3	18.9
LOS	F	F	E	E	D	D	B
Approach Delay		90.5			51.3	30.1	
Approach LOS		F			D	C	

Intersection Summary		
Cycle Length: 90		
Actuated Cycle Length: 90		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.13		
Intersection Signal Delay: 52.4	Intersection LOS: D	
Intersection Capacity Utilization 176.4%	ICU Level of Service H	
Analysis Period (min) 15		

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	786	2	675	743	2031	0	0	1620	749
Future Volume (veh/h)	0	0	0	786	2	675	743	2031	0	0	1620	749
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				1049	0	475	782	2138	0	0	1705	788
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				1050	0	467	819	3043	0	0	1975	487
Arrive On Green				0.29	0.00	0.29	0.23	0.59	0.00	0.00	0.30	0.30
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	6802	1610
Grp Volume(v), veh/h				1049	0	475	782	2138	0	0	1705	788
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1634	1610
Q Serve(g_s), s				26.1	0.0	26.1	19.8	26.1	0.0	0.0	22.2	27.2
Cycle Q Clear(g_c), s				26.1	0.0	26.1	19.8	26.1	0.0	0.0	22.2	27.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1050	0	467	819	3043	0	0	1975	487
V/C Ratio(X)				1.00	0.00	1.02	0.95	0.70	0.00	0.00	0.86	1.62
Avail Cap(c_a), veh/h				1050	0	467	819	3043	0	0	1975	487
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				31.9	0.0	32.0	34.0	13.1	0.0	0.0	29.6	31.4
Incr Delay (d2), s/veh				27.7	0.0	46.1	20.9	0.7	0.0	0.0	4.2	288.0
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				14.5	0.0	15.3	10.3	8.7	0.0	0.0	8.7	48.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				59.6	0.0	78.0	55.0	13.8	0.0	0.0	33.9	319.4
LnGrp LOS				E	A	F	D	B	A	A	C	F
Approach Vol, veh/h					1524			2920			2493	
Approach Delay, s/veh					65.3			24.8			124.1	
Approach LOS					E			C			F	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	58.2		25.6	32.6		31.8						
Change Period (Y+Rc), s	5.4		4.6	5.4		5.7						
Max Green Setting (Gmax), s	52.8		21.0	27.2		26.1						
Max Q Clear Time (g_c+I1), s	28.1		21.8	29.2		28.1						
Green Ext Time (p_c), s	17.6		0.0	0.0		0.0						

Intersection Summary		
HCM 6th Ctrl Delay	69.4	
HCM 6th LOS	E	

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	823	4	654	1951	690	1716
Future Volume (vph)	823	4	654	1951	690	1716
Turn Type	Perm	NA	Perm	NA	Prot	NA
Protected Phases		4		2	1	6
Permitted Phases	4		4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.4	9.6	15.4
Total Split (s)	26.0	26.0	26.0	46.0	18.0	64.0
Total Split (%)	28.9%	28.9%	28.9%	51.1%	20.0%	71.1%
Yellow Time (s)	4.8	4.8	4.8	4.4	3.6	4.4
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)	5.8	5.8	5.8	5.4	4.6	5.4
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	Min	None	Min
Act Effct Green (s)	20.2	20.2	20.2	40.6	13.4	58.6
Actuated g/C Ratio	0.22	0.22	0.22	0.45	0.15	0.65
v/c Ratio	1.40	1.40	1.21	1.39	1.39	0.77
Control Delay	224.7	225.6	142.3	202.5	220.5	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	47.6
Total Delay	224.7	225.6	142.3	202.5	220.5	61.5
LOS	F	F	F	F	F	E
Approach Delay		198.8		202.5		107.1
Approach LOS		F		F		F

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.40	
Intersection Signal Delay: 168.7	Intersection LOS: F
Intersection Capacity Utilization 176.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 7: Riverside Av. & I-10 EB Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	823	4	654	0	0	0	0	1951	1123	690	1716	0
Future Volume (veh/h)	823	4	654	0	0	0	0	1951	1123	690	1716	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	1082	0	460				0	2054	1182	726	1806	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	812	0	361				0	1560	726	523	2351	0
Arrive On Green	0.22	0.00	0.22				0.00	0.45	0.45	0.15	0.65	0.00
Sat Flow, veh/h	3619	0	1610				0	3629	1610	3510	3705	0
Grp Volume(v), veh/h	1082	0	460				0	2054	1182	726	1806	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1755	1805	0
Q Serve(g_s), s	20.2	0.0	20.2				0.0	40.6	40.6	13.4	31.4	0.0
Cycle Q Clear(g_c), s	20.2	0.0	20.2				0.0	40.6	40.6	13.4	31.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	812	0	361				0	1560	726	523	2351	0
V/C Ratio(X)	1.33	0.00	1.27				0.00	1.32	1.63	1.39	0.77	0.00
Avail Cap(c_a), veh/h	812	0	361				0	1560	726	523	2351	0
HCM Platoon Ratio	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				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.9	0.0	34.9				0.0	24.7	24.7	38.3	11.0	0.0
Incr Delay (d2), s/veh	157.8	0.0	142.8				0.0	147.2	288.6	186.6	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.1	0.0	21.7				0.0	46.6	71.9	19.1	10.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	192.7	0.0	177.7				0.0	171.9	313.3	224.9	12.6	0.0
LnGrp LOS	F	A	F				A	F	F	F	B	A
Approach Vol, veh/h		1542						3236			2532	
Approach Delay, s/veh		188.2						223.5			73.4	
Approach LOS		F						F			E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	18.0	46.0		26.0		64.0
Change Period (Y+Rc), s	4.6	5.4		5.8		5.4
Max Green Setting (Gmax), s	13.4	40.6		20.2		58.6
Max Q Clear Time (g_c+I1), s	15.4	42.6		22.2		33.4
Green Ext Time (p_c), s	0.0	0.0		0.0		15.7

Intersection Summary		
HCM 6th Ctrl Delay		164.1
HCM 6th LOS		F

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX 7.3:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

This Page Intentionally Left Blank

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

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	HY WP
				CALC CS	DATE 05/20/21
Jurisdiction: **City of Rialto**				CHK CS	DATE 05/20/21
Major Street: **Valley Boulevard**				Critical Approach Speed (Major)	45 mph
Minor Street: **Driveway 1**				Critical Approach Speed (Minor)	25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **25,932** vpd Minor Street Future ADT = **413** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT: Vehicles Per Day on Major Street (Total of Both Approaches)		Minimum Requirements EADT: Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	Urban	Rural	Urban	Rural
CONDITION A - Minimum Vehicular Volume				
Satisfied / Not Satisfied: XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 / *1*	8,000	5,600	2,400	1,680
2 + **25,932** / *1* **413**	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
CONDITION B - Interruption of Continuous Traffic				
Satisfied / Not Satisfied: XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 / *1*	12,000	8,400	1,200	850
2 + **25,932** / *1* **413**	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
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied: XX				
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 25% B: 49%	2 CONDITIONS 80%		2 CONDITIONS 80%	

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)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	HY WP
				CALC CS	DATE 05/20/21
Jurisdiction: **City of Rialto**				CHK CS	DATE 05/20/21
Major Street: **Valley Boulevard**				Critical Approach Speed (Major)	45 mph
Minor Street: **Driveway 2**				Critical Approach Speed (Minor)	25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **26,345** vpd Minor Street Future ADT = **90** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	8,000	5,600	2,400	1,680
2 + **26,345**	*1* **90**	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
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	12,000	8,400	1,200	850
2 + **26,345**	*1* **90**	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
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more ….. A 5% B 11%		2 CONDITIONS 80%		2 CONDITIONS 80%	

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)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		HY WP	
				CALC	CS	DATE	05/20/21
Jurisdiction:	City of Rialto			CHK	CS	DATE	05/20/21
Major Street:	Willow Av.			Critical Approach Speed (Major)		40	mph
Minor Street:	Driveway 3			Critical Approach Speed (Minor)		25	mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **6,622** vpd Minor Street Future ADT = **7,254** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied	Urban	Rural	Urban	Rural
XX / XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **6,622** / *1* **7,254**	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
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied	Urban	Rural	Urban	Rural
XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **6,622** / *1* **7,254**	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
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied				
XX				
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 83% B: 55%	2 CONDITIONS 80%		2 CONDITIONS 80%	

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

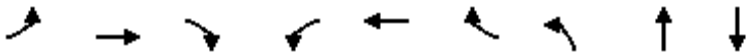
The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

This Page Intentionally Left Blank

APPENDIX 7.4:

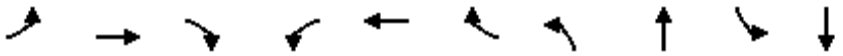
HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS

This Page Intentionally Left Blank



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	31	1001	4	4	692	154	1	3	308
v/c Ratio	0.08	0.62	0.01	0.01	0.47	0.22	0.00	0.00	0.64
Control Delay	9.5	16.1	0.0	9.2	16.1	8.1	17.0	15.3	25.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.5	16.1	0.0	9.2	16.1	8.1	17.0	15.3	25.2
Queue Length 50th (ft)	5	123	0	1	76	11	0	1	80
Queue Length 95th (ft)	21	305	0	6	201	61	4	7	225
Internal Link Dist (ft)		180			1240			462	1090
Turn Bay Length (ft)	150		100	100		100	50		
Base Capacity (vph)	855	2378	1085	835	2378	1095	919	1339	1054
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.42	0.00	0.00	0.29	0.14	0.00	0.00	0.29

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	302	731	338	276	48	634	1310	67	1704
v/c Ratio	0.45	0.24	1.03	1.73	0.19	0.07	1.67	0.79	0.51	1.21
Control Delay	64.7	29.1	66.9	383.0	25.1	0.2	347.7	40.2	65.9	140.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0
Total Delay	64.7	29.1	66.9	383.0	25.1	0.2	347.7	42.6	65.9	140.9
Queue Length 50th (ft)	42	87	~470	~387	74	0	~369	329	51	~593
Queue Length 95th (ft)	80	120	#661	#548	107	0	#464	#389	93	#654
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	195	1233	713	195	1437	706	379	1657	195	1405
Starvation Cap Reductn	0	0	0	0	0	0	0	225	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.24	1.03	1.73	0.19	0.07	1.67	0.91	0.34	1.21

Intersection Summary

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

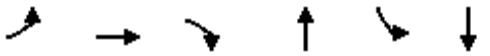
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	584	572	490	739	1375	1799	775
v/c Ratio	1.17	1.07	0.97	0.92	0.45	0.91	0.85
Control Delay	126.8	86.7	60.2	52.4	11.1	37.9	16.8
Queue Delay	0.0	0.0	0.0	0.7	1.0	0.0	0.0
Total Delay	126.8	86.7	60.2	53.1	12.1	37.9	16.8
Queue Length 50th (ft)	~422	~360	246	211	148	284	76
Queue Length 95th (ft)	#633	#584	#462	#314	181	#344	#335
Internal Link Dist (ft)		1040			260	343	
Turn Bay Length (ft)	365		365	160			205
Base Capacity (vph)	500	536	507	822	3061	1987	916
Starvation Cap Reductn	0	0	0	11	1320	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	1.17	1.07	0.97	0.91	0.79	0.91	0.85

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.



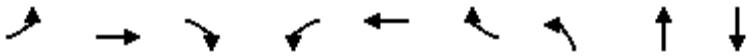
Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	509	486	483	2623	708	2256
v/c Ratio	1.26	1.17	1.13	1.24dr	1.26	0.98
Control Delay	168.8	126.9	114.0	110.3	166.5	30.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	41.9
Total Delay	168.8	126.9	114.0	110.3	166.5	72.6
Queue Length 50th (ft)	~386	~321	~297	~635	~263	581
Queue Length 95th (ft)	#588	#534	#502	#733	#373	#830
Internal Link Dist (ft)		1329		1191		260
Turn Bay Length (ft)			325			
Base Capacity (vph)	403	416	426	2223	560	2310
Starvation Cap Reductn	0	0	0	0	0	513
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.26	1.17	1.13	1.18	1.26	1.26

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.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

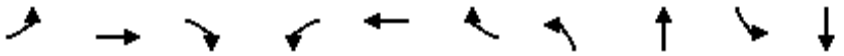


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	98	1155	2	9	963	246	2	10	276
v/c Ratio	0.14	1.04	0.00	0.01	0.87	0.43	0.01	0.03	0.82
Control Delay	7.2	78.0	0.0	7.4	48.6	21.1	33.0	21.2	52.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	78.0	0.0	7.4	48.6	21.1	33.0	21.2	52.4
Queue Length 50th (ft)	20	~507	0	2	369	84	1	2	159
Queue Length 95th (ft)	50	#643	0	9	#460	160	8	15	235
Internal Link Dist (ft)		180			1240			462	1090
Turn Bay Length (ft)	150		100	100		100	50		
Base Capacity (vph)	712	1113	542	712	1113	570	476	602	540
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	1.04	0.00	0.01	0.87	0.43	0.00	0.02	0.51

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.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	110	402	727	284	395	138	732	2277	124	1171
v/c Ratio	0.67	0.32	1.01	1.45	0.30	0.20	1.92	1.58	0.73	0.85
Control Delay	72.8	29.9	62.1	265.2	28.6	5.3	451.8	295.3	75.7	48.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	72.8	29.9	62.1	265.2	28.6	5.3	451.8	295.6	75.7	48.2
Queue Length 50th (ft)	83	120	~435	~300	116	0	~450	~930	94	311
Queue Length 95th (ft)	144	164	#696	#474	161	44	#571	#1030	#168	369
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	196	1242	720	196	1310	674	382	1441	196	1413
Starvation Cap Reductn	0	0	0	0	0	0	0	117	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.32	1.01	1.45	0.30	0.20	1.92	1.72	0.63	0.83

Intersection Summary

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

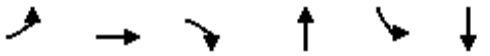
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	529	514	477	782	2112	1629	686
v/c Ratio	1.06	1.11	0.94	0.96	0.69	0.82	0.75
Control Delay	91.5	108.1	55.9	57.9	14.5	33.5	10.3
Queue Delay	0.0	0.0	0.0	1.9	30.4	0.0	0.0
Total Delay	91.5	108.1	55.9	59.8	44.9	33.5	10.3
Queue Length 50th (ft)	~352	~369	235	227	282	248	34
Queue Length 95th (ft)	#556	#585	#444	#343	335	294	165
Internal Link Dist (ft)		1040			260	343	
Turn Bay Length (ft)	365		365	160			205
Base Capacity (vph)	497	462	505	817	3043	1975	909
Starvation Cap Reductn	0	0	0	11	1049	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	1.06	1.11	0.94	0.97	1.06	0.82	0.75

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.



Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	529	521	482	3236	651	1806
v/c Ratio	1.38	1.39	1.18	1.36	1.35	0.77
Control Delay	216.1	221.6	130.2	188.2	204.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	47.6
Total Delay	216.1	221.6	130.2	188.2	204.0	61.5
Queue Length 50th (ft)	~423	~429	~307	~877	~252	336
Queue Length 95th (ft)	#627	#646	#509	#971	#358	427
Internal Link Dist (ft)		1329		1191		260
Turn Bay Length (ft)			325			
Base Capacity (vph)	384	374	410	2380	482	2350
Starvation Cap Reductn	0	0	0	0	0	726
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.38	1.39	1.18	1.36	1.35	1.11

Intersection Summary

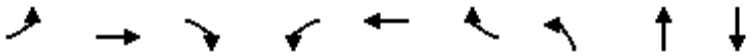
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

APPENDIX 7.5:

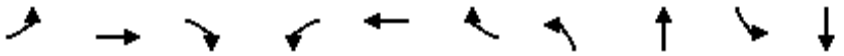
HORIZON YEAR (2040) WITH PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS

This Page Intentionally Left Blank



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	32	1025	4	4	819	206	1	3	320
v/c Ratio	0.09	0.61	0.01	0.01	0.56	0.29	0.00	0.01	0.67
Control Delay	9.9	16.2	0.0	9.8	18.8	10.0	18.0	16.3	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	16.2	0.0	9.8	18.8	10.0	18.0	16.3	28.2
Queue Length 50th (ft)	6	140	0	1	142	28	0	1	108
Queue Length 95th (ft)	22	322	0	6	251	87	4	7	241
Internal Link Dist (ft)		180			1240			462	1090
Turn Bay Length (ft)	150		100	100		100	50		
Base Capacity (vph)	794	2222	1019	785	2190	1020	859	1248	983
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.46	0.00	0.01	0.37	0.20	0.00	0.00	0.33

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	303	767	338	279	48	822	1310	67	1704
v/c Ratio	0.45	0.25	1.08	1.73	0.19	0.07	2.17	0.79	0.51	1.21
Control Delay	64.7	29.1	82.5	383.0	25.1	0.2	560.9	40.2	65.9	140.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0
Total Delay	64.7	29.1	82.5	383.0	25.1	0.2	560.9	42.6	65.9	140.9
Queue Length 50th (ft)	42	88	~529	~387	75	0	~525	329	51	~593
Queue Length 95th (ft)	80	120	#722	#548	108	0	#623	#389	93	#654
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	195	1233	713	195	1437	706	379	1657	195	1405
Starvation Cap Reductn	0	0	0	0	0	0	0	225	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.25	1.08	1.73	0.19	0.07	2.17	0.91	0.34	1.21

Intersection Summary

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

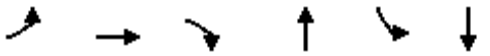
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	595	593	532	739	1473	1813	793
v/c Ratio	1.19	1.11	1.05	0.92	0.49	0.91	0.87
Control Delay	135.1	101.9	81.6	52.4	11.5	38.5	18.7
Queue Delay	0.0	0.0	0.0	0.7	1.3	0.0	0.0
Total Delay	135.1	101.9	81.6	53.1	12.7	38.5	18.7
Queue Length 50th (ft)	~435	~391	~312	211	163	287	92
Queue Length 95th (ft)	#648	#616	#522	#314	198	#362	#357
Internal Link Dist (ft)		1040			260	343	
Turn Bay Length (ft)	365		365	160			205
Base Capacity (vph)	500	533	507	822	3061	1987	916
Starvation Cap Reductn	0	0	0	11	1284	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	1.19	1.11	1.05	0.91	0.83	0.91	0.87

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.



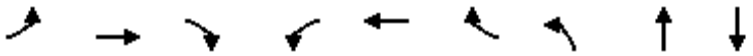
Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	546	521	511	2623	722	2256
v/c Ratio	1.29	1.18	1.15	1.27dr	1.29	1.00
Control Delay	178.7	130.5	117.1	129.0	176.6	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	37.6
Total Delay	178.7	130.5	117.1	129.0	176.6	74.8
Queue Length 50th (ft)	~421	~350	~320	~653	~272	~613
Queue Length 95th (ft)	#627	#567	#525	#750	#382	#847
Internal Link Dist (ft)		1329		1191		260
Turn Bay Length (ft)			325			
Base Capacity (vph)	423	441	446	2147	560	2254
Starvation Cap Reductn	0	0	0	0	0	495
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.29	1.18	1.15	1.22	1.29	1.28

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.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

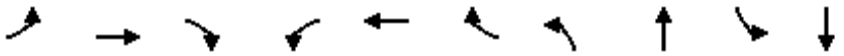


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	101	1288	2	9	998	261	2	10	332
v/c Ratio	0.35	1.16	0.00	0.01	0.49	0.27	0.01	0.02	0.85
Control Delay	17.0	119.2	0.0	9.2	18.8	10.4	29.0	18.6	52.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	119.2	0.0	9.2	18.8	10.4	29.0	18.6	52.8
Queue Length 50th (ft)	25	~620	0	2	231	54	1	2	200
Queue Length 95th (ft)	59	#757	0	10	382	137	7	14	281
Internal Link Dist (ft)		180			1240			462	1090
Turn Bay Length (ft)	150		100	100		100	50		
Base Capacity (vph)	549	1113	542	636	2028	954	475	602	537
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	1.16	0.00	0.01	0.49	0.27	0.00	0.02	0.62

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.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	110	405	911	284	396	138	779	2277	124	1171
v/c Ratio	0.67	0.33	1.27	1.45	0.30	0.20	2.04	1.58	0.73	0.85
Control Delay	72.8	29.9	155.8	265.2	28.6	5.3	504.9	295.3	75.7	48.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	72.8	29.9	155.8	265.2	28.6	5.3	504.9	295.6	75.7	48.2
Queue Length 50th (ft)	83	121	~758	~300	116	0	~489	~930	94	311
Queue Length 95th (ft)	144	164	#1011	#474	161	44	#612	#1030	#168	369
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	196	1242	720	196	1310	674	382	1441	196	1413
Starvation Cap Reductn	0	0	0	0	0	0	0	117	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.33	1.27	1.45	0.30	0.20	2.04	1.72	0.63	0.83

Intersection Summary

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

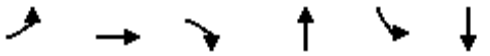
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	538	519	483	782	2138	1705	788
v/c Ratio	1.08	1.13	0.96	0.96	0.70	0.86	0.87
Control Delay	97.1	113.6	58.3	57.9	14.7	35.3	18.9
Queue Delay	0.0	0.0	0.0	1.9	33.5	0.0	0.0
Total Delay	97.1	113.6	58.3	59.8	48.2	35.3	18.9
Queue Length 50th (ft)	~364	~378	240	227	288	264	93
Queue Length 95th (ft)	#569	#593	#452	#343	343	312	#357
Internal Link Dist (ft)		1040			260	343	
Turn Bay Length (ft)	365		365	160			205
Base Capacity (vph)	497	460	505	817	3043	1975	909
Starvation Cap Reductn	0	0	0	11	1039	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	1.08	1.13	0.96	0.97	1.07	0.86	0.87

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.



Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	537	526	495	3236	726	1806
v/c Ratio	1.40	1.40	1.21	1.39	1.39	0.77
Control Delay	224.7	225.6	142.3	202.5	220.5	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	47.6
Total Delay	224.7	225.6	142.3	202.5	220.5	61.5
Queue Length 50th (ft)	~433	~436	~324	~890	~286	336
Queue Length 95th (ft)	#638	#654	#527	#983	#396	427
Internal Link Dist (ft)		1329		1191		260
Turn Bay Length (ft)			325			
Base Capacity (vph)	384	375	410	2326	521	2350
Starvation Cap Reductn	0	0	0	0	0	726
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.40	1.40	1.21	1.39	1.39	1.11

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.

APPENDIX 7.6:

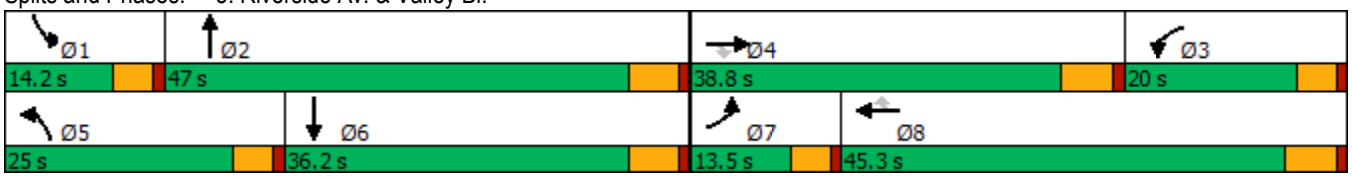
HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

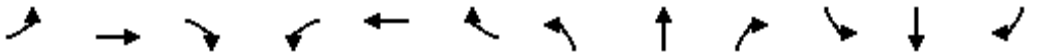
This Page Intentionally Left Blank

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	48	263	636	294	240	42	552	865	58	1444
Future Volume (vph)	48	263	636	294	240	42	552	865	58	1444
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8	38.8	9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	13.5	38.8	38.8	20.0	45.3	45.3	25.0	47.0	14.2	36.2
Total Split (%)	11.3%	32.3%	32.3%	16.7%	37.8%	37.8%	20.8%	39.2%	11.8%	30.2%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
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	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	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	Min	None	Min
Act Effct Green (s)	7.2	21.0	21.0	15.5	31.3	31.3	20.4	45.7	7.7	30.9
Actuated g/C Ratio	0.07	0.19	0.19	0.14	0.29	0.29	0.19	0.42	0.07	0.29
v/c Ratio	0.43	0.72	0.66	1.25	0.24	0.08	0.88	0.52	0.49	0.99
Control Delay	61.6	28.7	14.1	178.1	30.6	0.3	59.5	24.5	63.0	60.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	61.6	28.7	14.1	178.1	30.6	0.3	59.5	25.1	63.0	60.0
LOS	E	C	B	F	C	A	E	C	E	E
Approach Delay		25.5			103.7			36.3		60.1
Approach LOS		C			F			D		E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.3	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.25	
Intersection Signal Delay: 50.0	Intersection LOS: D
Intersection Capacity Utilization 91.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	263	636	294	240	42	552	865	275	58	1444	38
Future Volume (veh/h)	48	263	636	294	240	42	552	865	275	58	1444	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	52	269	344	320	261	24	600	940	169	63	1570	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	67	339	574	263	1131	479	661	2013	361	82	1624	26
Arrive On Green	0.04	0.18	0.18	0.15	0.30	0.30	0.22	0.51	0.43	0.05	0.35	0.29
Sat Flow, veh/h	1810	1900	3220	1810	3800	1610	3619	4705	843	1810	5595	89
Grp Volume(v), veh/h	52	269	344	320	261	24	600	758	351	63	1066	529
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	1900	1610	1810	1900	1748	1810	1900	1884
Q Serve(g_s), s	3.0	14.4	6.9	15.4	5.5	1.1	17.1	13.5	14.4	3.7	29.2	29.3
Cycle Q Clear(g_c), s	3.0	14.4	6.9	15.4	5.5	1.1	17.1	13.5	14.4	3.7	29.2	29.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.48	1.00		0.05
Lane Grp Cap(c), veh/h	67	339	574	263	1131	479	661	1626	748	82	1103	547
V/C Ratio(X)	0.77	0.79	0.60	1.22	0.23	0.05	0.91	0.47	0.47	0.77	0.97	0.97
Avail Cap(c_a), veh/h	152	591	1002	263	1415	600	696	1626	748	164	1103	547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.20	1.20	1.00	1.00	1.20	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	50.6	41.7	17.4	45.3	28.1	26.6	40.6	18.1	19.8	50.1	34.1	34.2
Incr Delay (d2), s/veh	6.8	4.2	1.0	127.6	0.1	0.0	14.8	0.2	0.5	5.7	19.5	30.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	6.9	3.9	16.0	2.4	0.4	8.5	5.3	5.5	1.7	15.2	16.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.5	46.0	18.4	173.0	28.2	26.6	55.3	18.3	20.3	55.8	53.5	64.3
LnGrp LOS	E	D	B	F	C	C	E	B	C	E	D	E
Approach Vol, veh/h		665			605			1709			1658	
Approach Delay, s/veh		32.6			104.7			31.7			57.0	
Approach LOS		C			F			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	50.8	21.2	24.7	24.0	36.2	8.5	37.4
Change Period (Y+Rc), s	4.6	5.4	5.8	* 5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	9.6	41.6	15.4	* 33	20.4	30.8	8.9	39.5
Max Q Clear Time (g_c+I1), s	5.7	16.4	17.4	16.4	19.1	31.3	5.0	7.5
Green Ext Time (p_c), s	0.0	7.8	0.0	2.5	0.2	0.0	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	50.4
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

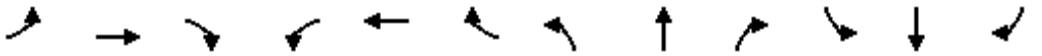
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

User approved changes to right turn type.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	1046	0	518	702	1306	1709	736
Future Volume (vph)	1046	0	518	702	1306	1709	736
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	45.1	45.1	45.1	29.0	74.9	45.9	45.9
Total Split (%)	37.6%	37.6%	37.6%	24.2%	62.4%	38.3%	38.3%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	39.4	39.4	39.4	24.4	69.5	40.5	40.5
Actuated g/C Ratio	0.33	0.33	0.33	0.20	0.58	0.34	0.34
v/c Ratio	1.04	0.99	0.90	1.04	0.46	1.03	0.61
Control Delay	87.8	71.2	54.2	90.6	15.1	66.4	6.6
Queue Delay	0.0	0.0	0.0	23.8	3.7	28.6	0.2
Total Delay	87.8	71.2	54.2	114.4	18.8	95.0	6.8
LOS	F	E	D	F	B	F	A
Approach Delay		72.0			52.2	79.3	
Approach LOS		E			D	E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 68.4	Intersection LOS: E
Intersection Capacity Utilization 167.9%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1046	0	518	702	1306	0	0	1709	736
Future Volume (veh/h)	0	0	0	1046	0	518	702	1306	0	0	1709	736
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				1271	0	363	739	1375	0	0	2189	515
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				1189	0	529	714	3003	0	0	2563	543
Arrive On Green				0.33	0.00	0.33	0.20	0.58	0.00	0.00	0.34	0.34
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	7600	1610
Grp Volume(v), veh/h				1271	0	363	739	1375	0	0	2189	515
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1900	1610
Q Serve(g_s), s				39.4	0.0	23.4	24.4	18.2	0.0	0.0	32.2	37.4
Cycle Q Clear(g_c), s				39.4	0.0	23.4	24.4	18.2	0.0	0.0	32.2	37.4
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1189	0	529	714	3003	0	0	2563	543
V/C Ratio(X)				1.07	0.00	0.69	1.03	0.46	0.00	0.00	0.85	0.95
Avail Cap(c_a), veh/h				1189	0	529	714	3005	0	0	2566	544
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				40.3	0.0	34.9	47.8	14.5	0.0	0.0	37.0	38.7
Incr Delay (d2), s/veh				46.7	0.0	3.7	43.0	0.1	0.0	0.0	3.0	26.2
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				24.4	0.0	9.4	14.7	6.7	0.0	0.0	14.9	18.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				87.0	0.0	38.6	90.8	14.6	0.0	0.0	40.0	65.0
LnGrp LOS				F	A	D	F	B	A	A	D	E
Approach Vol, veh/h					1634			2114			2704	
Approach Delay, s/veh					76.3			41.2			44.8	
Approach LOS					E			D			D	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	74.9		29.0	45.9		45.1						
Change Period (Y+Rc), s	5.4		4.6	5.4		5.7						
Max Green Setting (Gmax), s	69.5		24.4	40.5		39.4						
Max Q Clear Time (g_c+I1), s	20.2		26.4	39.4		41.4						
Green Ext Time (p_c), s	13.2		0.0	1.1		0.0						

Intersection Summary		
HCM 6th Ctrl Delay		51.6
HCM 6th LOS		D

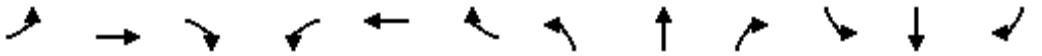
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	526	0	848	1481	959	658	2098
Future Volume (vph)	526	0	848	1481	959	658	2098
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA
Protected Phases		4		2		1	6
Permitted Phases	4		4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.4	22.4	9.6	15.4
Total Split (s)	42.0	42.0	42.0	50.0	50.0	28.0	78.0
Total Split (%)	35.0%	35.0%	35.0%	41.7%	41.7%	23.3%	65.0%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	3.6	4.4
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)	5.8	5.8	5.8	5.4	5.4	4.6	5.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effct Green (s)	35.8	35.8	35.8	44.6	44.6	23.4	72.6
Actuated g/C Ratio	0.30	0.30	0.30	0.37	0.37	0.20	0.61
v/c Ratio	0.94	0.91	0.92	0.75	1.01	1.00	0.98
Control Delay	68.4	57.4	58.8	35.4	45.3	83.0	37.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	33.5	42.0
Total Delay	68.4	57.4	58.8	35.4	45.3	116.5	79.5
LOS	E	E	E	D	D	F	E
Approach Delay		61.6		39.3			88.4
Approach LOS		E		D			F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.6	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 64.5	Intersection LOS: E
Intersection Capacity Utilization 167.9%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 7: Riverside Av. & I-10 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	526	0	848	0	0	0	0	1481	959	658	2098	0
Future Volume (veh/h)	526	0	848	0	0	0	0	1481	959	658	2098	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	853	0	497				0	1592	0	708	2256	0
Peak Hour Factor	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
Cap, veh/h	1092	0	486				0	2117		706	2298	0
Arrive On Green	0.30	0.00	0.30				0.00	0.37	0.00	0.20	0.60	0.00
Sat Flow, veh/h	3619	0	1610				0	5700	1610	3619	3800	0
Grp Volume(v), veh/h	853	0	497				0	1592	0	708	2256	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1900	1610	1810	1900	0
Q Serve(g_s), s	25.8	0.0	36.2				0.0	29.2	0.0	23.4	69.3	0.0
Cycle Q Clear(g_c), s	25.8	0.0	36.2				0.0	29.2	0.0	23.4	69.3	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1092	0	486				0	2117		706	2298	0
V/C Ratio(X)	0.78	0.00	1.02				0.00	0.75		1.00	0.98	0.00
Avail Cap(c_a), veh/h	1092	0	486				0	2120		706	2300	0
HCM Platoon Ratio	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				0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.2	0.0	41.9				0.0	32.9	0.0	48.3	23.1	0.0
Incr Delay (d2), s/veh	3.7	0.0	46.7				0.0	1.6	0.0	34.5	14.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.5	0.0	20.0				0.0	13.2	0.0	13.7	31.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.0	0.0	88.6				0.0	34.4	0.0	82.8	37.7	0.0
LnGrp LOS	D	A	F				A	C		F	D	A
Approach Vol, veh/h		1350						1592	A		2964	
Approach Delay, s/veh		59.1						34.4			48.5	
Approach LOS		E						C			D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	28.0	49.9		42.0		77.9
Change Period (Y+Rc), s	4.6	5.4		5.8		5.4
Max Green Setting (Gmax), s	23.4	44.6		36.2		72.6
Max Q Clear Time (g_c+I1), s	25.4	31.2		38.2		71.3
Green Ext Time (p_c), s	0.0	8.5		0.0		1.3

Intersection Summary		
HCM 6th Ctrl Delay		47.1
HCM 6th LOS		D

Notes

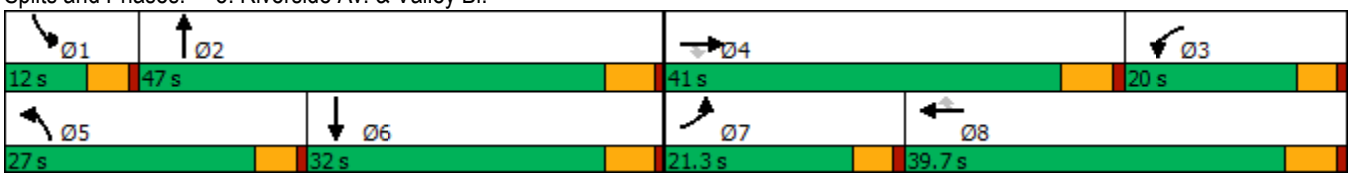
User approved volume balancing among the lanes for turning movement.

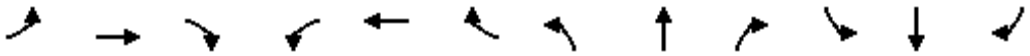
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	101	370	669	261	363	127	673	1800	114	1009
Future Volume (vph)	101	370	669	261	363	127	673	1800	114	1009
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8	38.8	9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	21.3	41.0	41.0	20.0	39.7	39.7	27.0	47.0	12.0	32.0
Total Split (%)	17.8%	34.2%	34.2%	16.7%	33.1%	33.1%	22.5%	39.2%	10.0%	26.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
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	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	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	Min	None	Min
Act Effct Green (s)	11.2	27.1	27.1	15.4	31.3	31.3	22.5	41.7	7.4	26.7
Actuated g/C Ratio	0.10	0.24	0.24	0.14	0.28	0.28	0.20	0.37	0.07	0.24
v/c Ratio	0.61	0.77	0.59	1.15	0.37	0.25	1.01	1.09	1.04	0.87
Control Delay	63.4	34.5	8.7	146.2	34.0	5.6	82.0	81.6	146.4	49.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	0.0	0.0
Total Delay	63.4	34.5	8.7	146.2	34.0	5.6	82.0	88.1	146.4	49.3
LOS	E	C	A	F	C	A	F	F	F	D
Approach Delay		29.5			68.2			86.6		58.6
Approach LOS		C			E			F		E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 112.1	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 67.4	Intersection LOS: E
Intersection Capacity Utilization 96.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	370	669	261	363	127	673	1800	294	114	1009	68
Future Volume (veh/h)	101	370	669	261	363	127	673	1800	294	114	1009	68
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	110	477	226	284	395	95	732	1957	260	124	1097	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	138	654	277	268	971	412	780	1977	259	129	1374	73
Arrive On Green	0.08	0.17	0.17	0.15	0.26	0.26	0.22	0.40	0.40	0.07	0.26	0.26
Sat Flow, veh/h	1810	3800	1610	1810	3800	1610	3619	4936	647	1810	5366	283
Grp Volume(v), veh/h	110	477	226	284	395	95	732	1501	716	124	777	378
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	1900	1610	1810	1900	1783	1810	1900	1849
Q Serve(g_s), s	6.2	12.3	8.7	15.4	9.0	4.8	20.7	40.7	41.6	7.1	19.9	19.9
Cycle Q Clear(g_c), s	6.2	12.3	8.7	15.4	9.0	4.8	20.7	40.7	41.6	7.1	19.9	19.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		0.15
Lane Grp Cap(c), veh/h	138	654	277	268	971	412	780	1522	714	129	973	473
V/C Ratio(X)	0.80	0.73	0.82	1.06	0.41	0.23	0.94	0.99	1.00	0.96	0.80	0.80
Avail Cap(c_a), veh/h	291	1288	546	268	1240	525	780	1522	714	129	973	473
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	47.2	40.7	15.8	44.2	32.1	30.6	40.1	30.9	31.1	48.1	36.1	36.1
Incr Delay (d2), s/veh	3.9	1.6	5.8	71.3	0.3	0.3	18.6	19.8	34.4	66.9	4.8	9.4
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	2.9	5.7	3.4	11.9	4.0	1.8	10.9	21.5	23.4	5.5	9.5	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	42.3	21.6	115.5	32.4	30.9	58.6	50.7	65.5	115.0	40.9	45.5
LnGrp LOS	D	D	C	F	C	C	E	D	F	F	D	D
Approach Vol, veh/h		813			774			2949			1279	
Approach Delay, s/veh		37.7			62.7			56.3			49.5	
Approach LOS		D			E			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	47.0	21.2	23.7	27.0	32.0	12.5	32.4
Change Period (Y+Rc), s	4.6	5.4	5.8	* 5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	7.4	41.6	15.4	* 35	22.4	26.6	16.7	33.9
Max Q Clear Time (g_c+I1), s	9.1	43.6	17.4	14.3	22.7	21.9	8.2	11.0
Green Ext Time (p_c), s	0.0	0.0	0.0	3.5	0.0	2.8	0.1	2.6

Intersection Summary	
HCM 6th Ctrl Delay	53.0
HCM 6th LOS	D

Notes

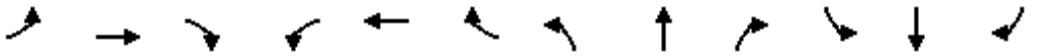
User approved volume balancing among the lanes for turning movement.

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

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	786	2	656	743	2006	1548	652
Future Volume (vph)	786	2	656	743	2006	1548	652
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	44.5	44.5	44.5	31.4	75.5	44.1	44.1
Total Split (%)	37.1%	37.1%	37.1%	26.2%	62.9%	36.8%	36.8%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	38.8	38.8	38.8	26.8	70.1	38.7	38.7
Actuated g/C Ratio	0.32	0.32	0.32	0.22	0.58	0.32	0.32
v/c Ratio	0.95	1.00	0.88	1.00	0.70	0.97	0.59
Control Delay	69.0	80.3	52.8	79.0	19.1	53.5	6.7
Queue Delay	0.0	0.0	0.0	35.2	47.7	42.3	0.1
Total Delay	69.0	80.3	52.8	114.2	66.7	95.8	6.8
LOS	E	F	D	F	E	F	A
Approach Delay		67.7			79.6	80.0	
Approach LOS		E			E	E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 77.0	Intersection LOS: E
Intersection Capacity Utilization 162.7%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	786	2	656	743	2006	0	0	1548	652
Future Volume (veh/h)	0	0	0	786	2	656	743	2006	0	0	1548	652
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				1043	0	461	782	2112	0	0	1964	463
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				1138	0	506	799	3067	0	0	2468	523
Arrive On Green				0.31	0.00	0.31	0.23	0.59	0.00	0.00	0.32	0.32
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	7600	1610
Grp Volume(v), veh/h				1043	0	461	782	2112	0	0	1964	463
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1900	1610
Q Serve(g_s), s				32.7	0.0	32.4	26.1	33.1	0.0	0.0	27.7	32.1
Cycle Q Clear(g_c), s				32.7	0.0	32.4	26.1	33.1	0.0	0.0	27.7	32.1
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1138	0	506	799	3067	0	0	2468	523
V/C Ratio(X)				0.92	0.00	0.91	0.98	0.69	0.00	0.00	0.80	0.89
Avail Cap(c_a), veh/h				1192	0	530	799	3087	0	0	2497	529
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				38.9	0.0	38.8	45.2	16.6	0.0	0.0	36.2	37.7
Incr Delay (d2), s/veh				10.8	0.0	19.4	26.5	0.7	0.0	0.0	1.9	16.3
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				15.5	0.0	14.9	14.0	12.1	0.0	0.0	12.7	14.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				49.7	0.0	58.2	71.7	17.2	0.0	0.0	38.1	54.0
LnGrp LOS				D	A	E	E	B	A	A	D	D
Approach Vol, veh/h					1504			2894			2427	
Approach Delay, s/veh					52.3			32.0			41.1	
Approach LOS					D			C			D	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	75.0		31.4	43.6		42.7						
Change Period (Y+Rc), s	5.4		4.6	5.4		5.7						
Max Green Setting (Gmax), s	70.1		26.8	38.7		38.8						
Max Q Clear Time (g_c+I1), s	35.1		28.1	34.1		34.7						
Green Ext Time (p_c), s	22.0		0.0	4.1		2.3						

Intersection Summary		
HCM 6th Ctrl Delay		39.7
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	798	4	654	1951	1123	618	1716
Future Volume (vph)	798	4	654	1951	1123	618	1716
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA
Protected Phases		4		2		1	6
Permitted Phases	4		4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.4	22.4	9.6	15.4
Total Split (s)	39.0	39.0	39.0	55.0	55.0	26.0	81.0
Total Split (%)	32.5%	32.5%	32.5%	45.8%	45.8%	21.7%	67.5%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	3.6	4.4
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)	5.8	5.8	5.8	5.4	5.4	4.6	5.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effct Green (s)	33.2	33.2	33.2	49.6	49.6	21.4	75.6
Actuated g/C Ratio	0.28	0.28	0.28	0.41	0.41	0.18	0.63
v/c Ratio	1.06	1.05	0.98	0.87	1.12	1.01	0.75
Control Delay	99.2	94.9	73.3	37.4	85.3	87.6	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	20.1	48.0
Total Delay	99.2	94.9	73.3	37.4	85.3	107.7	66.2
LOS	F	F	E	D	F	F	E
Approach Delay		89.6		54.9			77.2
Approach LOS		F		D			E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 69.8	Intersection LOS: E
Intersection Capacity Utilization 162.7%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 7: Riverside Av. & I-10 EB Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	798	4	654	0	0	0	0	1951	1123	618	1716	0
Future Volume (veh/h)	798	4	654	0	0	0	0	1951	1123	618	1716	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	1056	0	460				0	2054	0	651	1806	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	1012	0	450				0	2320		652	2379	0
Arrive On Green	0.28	0.00	0.28				0.00	0.41	0.00	0.18	0.63	0.00
Sat Flow, veh/h	3619	0	1610				0	5700	1610	3619	3800	0
Grp Volume(v), veh/h	1056	0	460				0	2054	0	651	1806	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1900	1610	1810	1900	0
Q Serve(g_s), s	33.2	0.0	33.2				0.0	39.7	0.0	21.3	40.2	0.0
Cycle Q Clear(g_c), s	33.2	0.0	33.2				0.0	39.7	0.0	21.3	40.2	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1012	0	450				0	2320		652	2379	0
V/C Ratio(X)	1.04	0.00	1.02				0.00	0.89		1.00	0.76	0.00
Avail Cap(c_a), veh/h	1012	0	450				0	2381		652	2420	0
HCM Platoon Ratio	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				0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.8	0.0	42.8				0.0	32.6	0.0	48.6	15.8	0.0
Incr Delay (d2), s/veh	40.3	0.0	48.0				0.0	4.3	0.0	34.7	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.8	0.0	18.6				0.0	18.3	0.0	12.5	15.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	83.1	0.0	90.8				0.0	37.0	0.0	83.3	17.2	0.0
LnGrp LOS	F	A	F				A	D		F	B	A
Approach Vol, veh/h		1516						2054	A		2457	
Approach Delay, s/veh		85.4						37.0			34.8	
Approach LOS		F						D			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	26.0	53.7		39.0		79.7
Change Period (Y+Rc), s	4.6	5.4		5.8		5.4
Max Green Setting (Gmax), s	21.4	49.6		33.2		75.6
Max Q Clear Time (g_c+I1), s	23.3	41.7		35.2		42.2
Green Ext Time (p_c), s	0.0	6.7		0.0		18.6

Intersection Summary		
HCM 6th Ctrl Delay		48.2
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX 7.7:

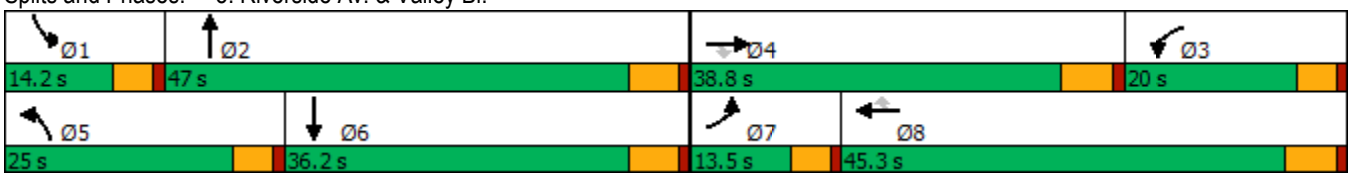
HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

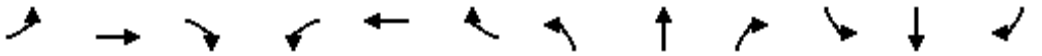
This Page Intentionally Left Blank

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	48	264	667	294	243	42	715	865	58	1444
Future Volume (vph)	48	264	667	294	243	42	715	865	58	1444
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8	38.8	9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	13.5	38.8	38.8	20.0	45.3	45.3	25.0	47.0	14.2	36.2
Total Split (%)	11.3%	32.3%	32.3%	16.7%	37.8%	37.8%	20.8%	39.2%	11.8%	30.2%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
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	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	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	Min	None	Min
Act Effct Green (s)	7.2	21.2	21.2	15.5	31.5	31.5	20.5	45.8	7.7	30.9
Actuated g/C Ratio	0.07	0.20	0.20	0.14	0.29	0.29	0.19	0.42	0.07	0.28
v/c Ratio	0.43	0.73	0.69	1.25	0.24	0.08	1.14	0.53	0.49	1.00
Control Delay	61.8	28.5	16.1	178.9	30.6	0.3	121.2	24.6	63.3	60.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	61.8	28.5	16.1	178.9	30.6	0.3	121.2	25.2	63.3	60.7
LOS	E	C	B	F	C	A	F	C	E	E
Approach Delay		25.9			103.7			62.2		60.8
Approach LOS		C			F			E		E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.5	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.25	
Intersection Signal Delay: 59.5	Intersection LOS: E
Intersection Capacity Utilization 96.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	264	667	294	243	42	715	865	275	58	1444	38
Future Volume (veh/h)	48	264	667	294	243	42	715	865	275	58	1444	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	52	287	366	320	264	24	777	940	169	63	1570	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	67	356	604	257	1152	488	680	2007	360	82	1588	25
Arrive On Green	0.04	0.19	0.19	0.14	0.30	0.30	0.23	0.51	0.43	0.05	0.34	0.28
Sat Flow, veh/h	1810	1900	3220	1810	3800	1610	3619	4705	843	1810	5595	89
Grp Volume(v), veh/h	52	287	366	320	264	24	777	758	351	63	1066	529
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	1900	1610	1810	1900	1748	1810	1900	1884
Q Serve(g_s), s	3.1	15.7	7.4	15.4	5.6	1.1	20.4	13.9	14.8	3.7	30.3	30.3
Cycle Q Clear(g_c), s	3.1	15.7	7.4	15.4	5.6	1.1	20.4	13.9	14.8	3.7	30.3	30.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.48	1.00		0.05
Lane Grp Cap(c), veh/h	67	356	604	257	1152	488	680	1621	746	82	1078	535
V/C Ratio(X)	0.77	0.81	0.61	1.25	0.23	0.05	1.14	0.47	0.47	0.77	0.99	0.99
Avail Cap(c_a), veh/h	148	578	979	257	1383	586	680	1621	746	160	1078	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.20	1.20	1.00	1.00	1.20	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	51.8	42.2	17.1	46.6	28.3	26.8	42.0	18.6	20.4	51.3	35.6	35.8
Incr Delay (d2), s/veh	6.8	4.3	1.0	139.2	0.1	0.0	80.9	0.2	0.5	5.7	24.6	36.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	7.5	4.2	16.6	2.5	0.4	16.1	5.5	5.6	1.8	16.5	18.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	46.5	18.1	185.7	28.4	26.8	122.9	18.8	20.8	57.0	60.3	71.8
LnGrp LOS	E	D	B	F	C	C	F	B	C	E	E	E
Approach Vol, veh/h		705			608			1886			1658	
Approach Delay, s/veh		32.7			111.2			62.1			63.8	
Approach LOS		C			F			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	51.7	21.2	26.1	25.0	36.2	8.6	38.7
Change Period (Y+Rc), s	4.6	5.4	5.8	* 5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	9.6	41.6	15.4	* 33	20.4	30.8	8.9	39.5
Max Q Clear Time (g_c+I1), s	5.7	16.8	17.4	17.7	22.4	32.3	5.1	7.6
Green Ext Time (p_c), s	0.0	7.8	0.0	2.7	0.0	0.0	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	64.5
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

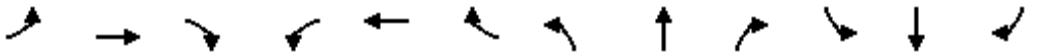
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

User approved changes to right turn type.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	1046	0	588	702	1399	1722	753
Future Volume (vph)	1046	0	588	702	1399	1722	753
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	45.1	45.1	45.1	29.0	74.9	45.9	45.9
Total Split (%)	37.6%	37.6%	37.6%	24.2%	62.4%	38.3%	38.3%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	39.4	39.4	39.4	24.4	69.5	40.5	40.5
Actuated g/C Ratio	0.33	0.33	0.33	0.20	0.58	0.34	0.34
v/c Ratio	1.06	1.03	0.97	1.04	0.49	1.04	0.62
Control Delay	93.2	81.7	68.3	90.6	15.5	69.4	6.7
Queue Delay	0.0	0.0	0.0	23.8	6.2	24.9	0.2
Total Delay	93.2	81.7	68.3	114.4	21.7	94.3	6.9
LOS	F	F	E	F	C	F	A
Approach Delay		81.5			52.7	78.6	
Approach LOS		F			D	E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 70.6	Intersection LOS: E
Intersection Capacity Utilization 169.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1046	0	588	702	1399	0	0	1722	753
Future Volume (veh/h)	0	0	0	1046	0	588	702	1399	0	0	1722	753
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				1294	0	413	739	1473	0	0	2221	521
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				1188	0	529	714	3004	0	0	2564	543
Arrive On Green				0.33	0.00	0.33	0.20	0.58	0.00	0.00	0.34	0.34
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	7600	1610
Grp Volume(v), veh/h				1294	0	413	739	1473	0	0	2221	521
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1900	1610
Q Serve(g_s), s				39.4	0.0	27.8	24.4	20.0	0.0	0.0	32.8	38.0
Cycle Q Clear(g_c), s				39.4	0.0	27.8	24.4	20.0	0.0	0.0	32.8	38.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1188	0	529	714	3004	0	0	2564	543
V/C Ratio(X)				1.09	0.00	0.78	1.04	0.49	0.00	0.00	0.87	0.96
Avail Cap(c_a), veh/h				1188	0	529	714	3005	0	0	2565	544
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				40.3	0.0	36.4	47.8	14.8	0.0	0.0	37.2	38.9
Incr Delay (d2), s/veh				53.8	0.0	7.4	43.1	0.1	0.0	0.0	3.4	28.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				25.5	0.0	11.5	14.7	7.4	0.0	0.0	15.3	18.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				94.1	0.0	43.8	90.9	15.0	0.0	0.0	40.6	67.4
LnGrp LOS				F	A	D	F	B	A	A	D	E
Approach Vol, veh/h					1707			2212			2742	
Approach Delay, s/veh					81.9			40.3			45.7	
Approach LOS					F			D			D	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	74.9		29.0	45.9		45.1						
Change Period (Y+Rc), s	5.4		4.6	5.4		5.7						
Max Green Setting (Gmax), s	69.5		24.4	40.5		39.4						
Max Q Clear Time (g_c+I1), s	22.0		26.4	40.0		41.4						
Green Ext Time (p_c), s	14.6		0.0	0.5		0.0						

Intersection Summary		
HCM 6th Ctrl Delay		53.2
HCM 6th LOS		D

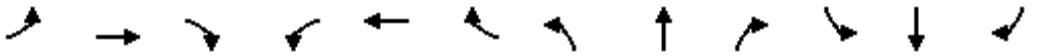
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	619	0	848	1481	959	671	2098
Future Volume (vph)	619	0	848	1481	959	671	2098
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA
Protected Phases		4		2		1	6
Permitted Phases	4		4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.4	22.4	9.6	15.4
Total Split (s)	42.0	42.0	42.0	50.0	50.0	28.0	78.0
Total Split (%)	35.0%	35.0%	35.0%	41.7%	41.7%	23.3%	65.0%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	3.6	4.4
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)	5.8	5.8	5.8	5.4	5.4	4.6	5.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effct Green (s)	36.2	36.2	36.2	44.6	44.6	23.4	72.6
Actuated g/C Ratio	0.30	0.30	0.30	0.37	0.37	0.20	0.60
v/c Ratio	1.00	0.95	0.96	0.75	1.01	1.03	0.98
Control Delay	81.7	65.3	67.4	35.6	45.6	88.5	38.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	27.2	41.5
Total Delay	81.7	65.3	67.4	35.6	45.6	115.7	79.9
LOS	F	E	E	D	D	F	E
Approach Delay		71.7		39.6			88.6
Approach LOS		E		D			F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 67.0	Intersection LOS: E
Intersection Capacity Utilization 169.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 7: Riverside Av. & I-10 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	619	0	848	0	0	0	0	1481	959	671	2098	0
Future Volume (veh/h)	619	0	848	0	0	0	0	1481	959	671	2098	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	988	0	567				0	1592	0	722	2256	0
Peak Hour Factor	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
Cap, veh/h	1092	0	486				0	2117		706	2298	0
Arrive On Green	0.30	0.00	0.30				0.00	0.37	0.00	0.20	0.60	0.00
Sat Flow, veh/h	3619	0	1610				0	5700	1610	3619	3800	0
Grp Volume(v), veh/h	988	0	567				0	1592	0	722	2256	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1900	1610	1810	1900	0
Q Serve(g_s), s	31.4	0.0	36.2				0.0	29.2	0.0	23.4	69.3	0.0
Cycle Q Clear(g_c), s	31.4	0.0	36.2				0.0	29.2	0.0	23.4	69.3	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1092	0	486				0	2117		706	2298	0
V/C Ratio(X)	0.90	0.00	1.17				0.00	0.75		1.02	0.98	0.00
Avail Cap(c_a), veh/h	1092	0	486				0	2120		706	2300	0
HCM Platoon Ratio	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				0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	40.2	0.0	41.9				0.0	32.9	0.0	48.3	23.1	0.0
Incr Delay (d2), s/veh	10.6	0.0	95.4				0.0	1.6	0.0	39.7	14.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.0	0.0	26.6				0.0	13.2	0.0	14.2	31.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.8	0.0	137.3				0.0	34.4	0.0	88.0	37.7	0.0
LnGrp LOS	D	A	F				A	C		F	D	A
Approach Vol, veh/h		1555						1592	A		2978	
Approach Delay, s/veh		82.4						34.4			49.9	
Approach LOS		F						C			D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	28.0	49.9		42.0		77.9
Change Period (Y+Rc), s	4.6	5.4		5.8		5.4
Max Green Setting (Gmax), s	23.4	44.6		36.2		72.6
Max Q Clear Time (g_c+I1), s	25.4	31.2		38.2		71.3
Green Ext Time (p_c), s	0.0	8.5		0.0		1.3

Intersection Summary		
HCM 6th Ctrl Delay		54.1
HCM 6th LOS		D

Notes

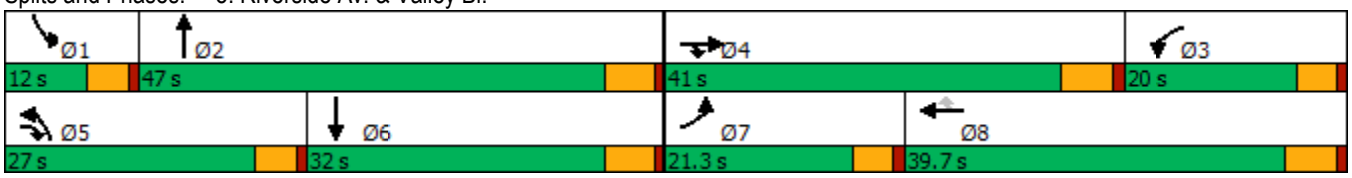
User approved volume balancing among the lanes for turning movement.

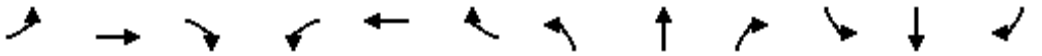
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	101	373	838	261	364	127	717	1800	114	1009
Future Volume (vph)	101	373	838	261	364	127	717	1800	114	1009
Turn Type	Prot	NA	pt+ov	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	4 5	3	8		5	2	1	6
Permitted Phases						8				
Detector Phase	7	4	4 5	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.8		9.6	33.8	33.8	9.6	33.4	9.6	31.4
Total Split (s)	21.3	41.0		20.0	39.7	39.7	27.0	47.0	12.0	32.0
Total Split (%)	17.8%	34.2%		16.7%	33.1%	33.1%	22.5%	39.2%	10.0%	26.7%
Yellow Time (s)	3.6	4.8		3.6	4.8	4.8	3.6	4.4	3.6	4.4
All-Red Time (s)	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
Total Lost Time (s)	4.6	5.8		4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Min	None	Min
Act Effct Green (s)	11.4	29.9	51.1	15.4	34.0	34.0	22.5	41.7	7.4	26.7
Actuated g/C Ratio	0.10	0.26	0.44	0.13	0.30	0.30	0.20	0.36	0.06	0.23
v/c Ratio	0.62	0.79	0.65	1.17	0.35	0.24	1.10	1.11	1.07	0.89
Control Delay	65.1	33.9	15.4	157.1	33.3	5.5	109.7	93.1	154.6	52.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0
Total Delay	65.1	33.9	15.4	157.1	33.3	5.5	109.7	93.8	154.6	52.3
LOS	E	C	B	F	C	A	F	F	F	D
Approach Delay		30.4			71.6			97.8		62.1
Approach LOS		C			E			F		E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 114.9	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.17	
Intersection Signal Delay: 73.0	Intersection LOS: E
Intersection Capacity Utilization 98.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: Riverside Av. & Valley Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	373	838	261	364	127	717	1800	294	114	1009	68
Future Volume (veh/h)	101	373	838	261	364	127	717	1800	294	114	1009	68
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	110	374	481	284	396	95	779	1957	260	124	1097	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	137	446	1397	248	1165	494	722	1828	240	119	1270	67
Arrive On Green	0.08	0.23	0.23	0.14	0.31	0.31	0.20	0.37	0.37	0.07	0.24	0.24
Sat Flow, veh/h	1810	1900	3220	1810	3800	1610	3619	4936	647	1810	5366	283
Grp Volume(v), veh/h	110	374	481	284	396	95	779	1501	716	124	777	378
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	1900	1610	1810	1900	1783	1810	1900	1849
Q Serve(g_s), s	6.7	21.1	5.6	15.4	9.1	4.9	22.4	41.6	41.6	7.4	22.0	22.1
Cycle Q Clear(g_c), s	6.7	21.1	5.6	15.4	9.1	4.9	22.4	41.6	41.6	7.4	22.0	22.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		0.15
Lane Grp Cap(c), veh/h	137	446	1397	248	1165	494	722	1407	660	119	900	438
V/C Ratio(X)	0.80	0.84	0.34	1.14	0.34	0.19	1.08	1.07	1.08	1.04	0.86	0.86
Avail Cap(c_a), veh/h	269	595	1651	248	1165	494	722	1407	660	119	900	438
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	51.1	41.0	7.7	48.5	30.2	28.7	45.0	35.4	35.4	52.5	41.1	41.1
Incr Delay (d2), s/veh	4.1	7.9	0.1	101.9	0.2	0.2	57.1	43.9	60.2	93.7	8.7	16.3
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	3.1	10.4	2.2	13.7	4.0	1.8	15.5	26.8	28.1	6.4	11.1	11.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.2	48.9	7.9	150.4	30.3	28.9	102.0	79.3	95.5	146.1	49.8	57.4
LnGrp LOS	E	D	A	F	C	C	F	F	F	F	D	E
Approach Vol, veh/h		965			775			2996			1279	
Approach Delay, s/veh		29.2			74.1			89.1			61.4	
Approach LOS		C			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	47.0	21.2	32.1	27.0	32.0	13.1	40.2
Change Period (Y+Rc), s	4.6	5.4	5.8	* 5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	7.4	41.6	15.4	* 35	22.4	26.6	16.7	33.9
Max Q Clear Time (g_c+I1), s	9.4	43.6	17.4	23.1	24.4	24.1	8.7	11.1
Green Ext Time (p_c), s	0.0	0.0	0.0	3.3	0.0	1.6	0.1	2.6

Intersection Summary	
HCM 6th Ctrl Delay	71.7
HCM 6th LOS	E

Notes

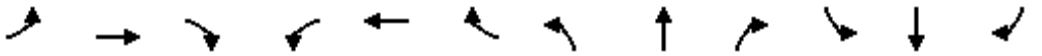
User approved volume balancing among the lanes for turning movement.

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

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	786	2	675	743	2031	1620	749
Future Volume (vph)	786	2	675	743	2031	1620	749
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8		5	2	6	
Permitted Phases	8		8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.7	15.7	15.7	9.6	22.4	15.4	15.4
Total Split (s)	44.5	44.5	44.5	31.4	75.5	44.1	44.1
Total Split (%)	37.1%	37.1%	37.1%	26.2%	62.9%	36.8%	36.8%
Yellow Time (s)	4.7	4.7	4.7	3.6	4.4	4.4	4.4
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)	5.7	5.7	5.7	4.6	5.4	5.4	5.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	38.8	38.8	38.8	26.8	70.1	38.7	38.7
Actuated g/C Ratio	0.32	0.32	0.32	0.22	0.58	0.32	0.32
v/c Ratio	0.97	1.01	0.90	1.00	0.71	1.04	0.62
Control Delay	72.4	83.5	54.4	79.0	19.3	70.7	6.9
Queue Delay	0.0	0.0	0.0	35.2	47.6	24.7	0.1
Total Delay	72.4	83.5	54.4	114.2	66.9	95.3	7.1
LOS	E	F	D	F	E	F	A
Approach Delay		70.5			79.6	79.4	
Approach LOS		E			E	E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 77.5	Intersection LOS: E
Intersection Capacity Utilization 167.6%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Riverside Av. & I-10 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	786	2	675	743	2031	0	0	1620	749
Future Volume (veh/h)	0	0	0	786	2	675	743	2031	0	0	1620	749
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	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				1049	0	475	782	2138	0	0	1568	879
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				1152	0	513	798	3047	0	0	1830	1034
Arrive On Green				0.32	0.00	0.32	0.23	0.59	0.00	0.00	0.32	0.32
Sat Flow, veh/h				3619	0	1610	3510	5358	0	0	5700	3220
Grp Volume(v), veh/h				1049	0	475	782	2138	0	0	1568	879
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1729	0	0	1900	1610
Q Serve(g_s), s				32.8	0.0	33.6	26.1	34.1	0.0	0.0	30.4	30.0
Cycle Q Clear(g_c), s				32.8	0.0	33.6	26.1	34.1	0.0	0.0	30.4	30.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1152	0	513	798	3047	0	0	1830	1034
V/C Ratio(X)				0.91	0.00	0.93	0.98	0.70	0.00	0.00	0.86	0.85
Avail Cap(c_a), veh/h				1191	0	530	798	3084	0	0	1871	1057
HCM Platoon Ratio				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	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				38.6	0.0	38.8	45.3	17.1	0.0	0.0	37.5	37.4
Incr Delay (d2), s/veh				10.3	0.0	22.2	26.7	0.7	0.0	0.0	4.1	6.6
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				15.5	0.0	15.8	14.0	12.6	0.0	0.0	14.3	12.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				48.8	0.0	61.0	72.0	17.8	0.0	0.0	41.6	44.0
LnGrp LOS				D	A	E	E	B	A	A	D	D
Approach Vol, veh/h					1524			2920			2447	
Approach Delay, s/veh					52.6			32.3			42.5	
Approach LOS					D			C			D	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	74.7		31.4	43.3		43.2						
Change Period (Y+Rc), s	5.4		4.6	5.4		5.7						
Max Green Setting (Gmax), s	70.1		26.8	38.7		38.8						
Max Q Clear Time (g_c+I1), s	36.1		28.1	32.4		35.6						
Green Ext Time (p_c), s	21.9		0.0	5.5		1.9						

Intersection Summary		
HCM 6th Ctrl Delay		40.4
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	823	4	654	1951	1123	690	1716
Future Volume (vph)	823	4	654	1951	1123	690	1716
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA
Protected Phases		4		2		1	6
Permitted Phases	4		4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.8	15.8	15.8	22.4	22.4	9.6	15.4
Total Split (s)	39.0	39.0	39.0	55.0	55.0	26.0	81.0
Total Split (%)	32.5%	32.5%	32.5%	45.8%	45.8%	21.7%	67.5%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	3.6	4.4
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)	5.8	5.8	5.8	5.4	5.4	4.6	5.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effct Green (s)	33.2	33.2	33.2	49.6	49.6	21.4	75.6
Actuated g/C Ratio	0.28	0.28	0.28	0.41	0.41	0.18	0.63
v/c Ratio	1.08	1.06	1.00	0.87	1.13	1.13	0.75
Control Delay	103.9	97.1	79.7	37.4	85.7	121.4	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4	48.0
Total Delay	103.9	97.1	79.7	37.4	85.7	121.8	66.2
LOS	F	F	E	D	F	F	E
Approach Delay		93.9		55.0			82.2
Approach LOS		F		E			F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 72.7	Intersection LOS: E
Intersection Capacity Utilization 167.6%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 7: Riverside Av. & I-10 EB Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	823	4	654	0	0	0	0	1951	1123	690	1716	0
Future Volume (veh/h)	823	4	654	0	0	0	0	1951	1123	690	1716	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	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	1082	0	460				0	2054	0	726	1806	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	1012	0	450				0	2320		652	2379	0
Arrive On Green	0.28	0.00	0.28				0.00	0.41	0.00	0.18	0.63	0.00
Sat Flow, veh/h	3619	0	1610				0	5700	1610	3619	3800	0
Grp Volume(v), veh/h	1082	0	460				0	2054	0	726	1806	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1900	1610	1810	1900	0
Q Serve(g_s), s	33.2	0.0	33.2				0.0	39.7	0.0	21.4	40.2	0.0
Cycle Q Clear(g_c), s	33.2	0.0	33.2				0.0	39.7	0.0	21.4	40.2	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1012	0	450				0	2320		652	2379	0
V/C Ratio(X)	1.07	0.00	1.02				0.00	0.89		1.11	0.76	0.00
Avail Cap(c_a), veh/h	1012	0	450				0	2381		652	2420	0
HCM Platoon Ratio	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				0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.8	0.0	42.8				0.0	32.6	0.0	48.7	15.8	0.0
Incr Delay (d2), s/veh	48.7	0.0	48.0				0.0	4.3	0.0	70.5	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.0	0.0	18.6				0.0	18.3	0.0	15.8	15.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.5	0.0	90.8				0.0	37.0	0.0	119.1	17.2	0.0
LnGrp LOS	F	A	F				A	D		F	B	A
Approach Vol, veh/h		1542						2054	A		2532	
Approach Delay, s/veh		91.3						37.0			46.5	
Approach LOS		F						D			D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	26.0	53.7		39.0		79.7
Change Period (Y+Rc), s	4.6	5.4		5.8		5.4
Max Green Setting (Gmax), s	21.4	49.6		33.2		75.6
Max Q Clear Time (g_c+I1), s	23.4	41.7		35.2		42.2
Green Ext Time (p_c), s	0.0	6.7		0.0		18.6

Intersection Summary		
HCM 6th Ctrl Delay		54.5
HCM 6th LOS		D

Notes

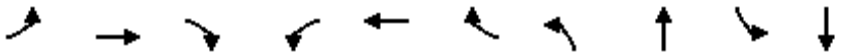
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX 7.8:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS WITH IMPROVEMENTS

This Page Intentionally Left Blank

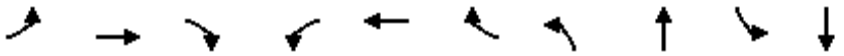


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	52	632	345	320	261	46	600	1239	63	1611
v/c Ratio	0.43	0.72	0.66	1.25	0.24	0.08	0.88	0.52	0.49	0.99
Control Delay	61.6	28.7	14.1	178.1	30.6	0.3	59.5	24.5	63.0	60.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	61.6	28.7	14.1	178.1	30.6	0.3	59.5	25.1	63.0	60.0
Queue Length 50th (ft)	35	124	34	~274	71	0	202	202	42	366
Queue Length 95th (ft)	81	182	132	#511	105	0	#348	297	95	#564
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	148	1241	652	257	1391	684	682	2361	160	1623
Starvation Cap Reductn	0	0	0	0	0	0	0	641	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.51	0.53	1.25	0.19	0.07	0.88	0.72	0.39	0.99

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.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	110	766	363	284	395	138	732	2277	124	1171
v/c Ratio	0.61	0.77	0.59	1.15	0.37	0.25	1.01	1.09	1.04	0.87
Control Delay	63.4	34.5	8.7	146.2	34.0	5.6	82.0	81.6	146.4	49.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	0.0	0.0
Total Delay	63.4	34.5	8.7	146.2	34.0	5.6	82.0	88.1	146.4	49.3
Queue Length 50th (ft)	77	195	10	~241	114	0	~273	~615	~97	270
Queue Length 95th (ft)	139	260	98	#445	166	42	#436	#781	#236	#375
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	269	1243	699	248	1153	592	723	2096	119	1350
Starvation Cap Reductn	0	0	0	0	0	0	0	456	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.62	0.52	1.15	0.34	0.23	1.01	1.39	1.04	0.87

Intersection Summary

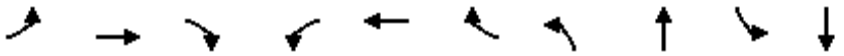
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

APPENDIX 7.9:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS WITH IMPROVEMENTS

This Page Intentionally Left Blank

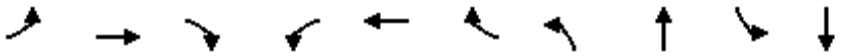


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	52	650	362	320	264	46	777	1239	63	1611
v/c Ratio	0.43	0.73	0.69	1.25	0.24	0.08	1.14	0.53	0.49	1.00
Control Delay	61.8	28.5	16.1	178.9	30.6	0.3	121.2	24.6	63.3	60.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	61.8	28.5	16.1	178.9	30.6	0.3	121.2	25.2	63.3	60.7
Queue Length 50th (ft)	35	126	45	~275	72	0	~313	203	42	368
Queue Length 95th (ft)	81	185	152	#511	106	0	#498	297	95	#564
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	148	1245	651	257	1388	683	681	2359	160	1619
Starvation Cap Reductn	0	0	0	0	0	0	0	639	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.52	0.56	1.25	0.19	0.07	1.14	0.72	0.39	1.00

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.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	110	861	455	284	396	138	779	2277	124	1171
v/c Ratio	0.62	0.79	0.65	1.17	0.35	0.24	1.10	1.11	1.07	0.89
Control Delay	65.1	33.9	15.4	157.1	33.3	5.5	109.7	93.1	154.6	52.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0
Total Delay	65.1	33.9	15.4	157.1	33.3	5.5	109.7	93.8	154.6	52.3
Queue Length 50th (ft)	81	219	128	~259	115	0	~339	~661	~105	285
Queue Length 95th (ft)	139	291	197	#445	166	42	#475	#781	#236	#375
Internal Link Dist (ft)		1240			1408			343		1428
Turn Bay Length (ft)	120			160		140	205		210	
Base Capacity (vph)	263	1240	761	242	1157	594	705	2046	116	1318
Starvation Cap Reductn	0	0	0	0	0	0	0	444	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.69	0.60	1.17	0.34	0.23	1.10	1.42	1.07	0.89

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.