Focused Traffic Study

for:

2720 S Willow Avenue Warehouse Project

In the City of Rialto

November 2023

Kimley»Horn

FOCUSED TRAFFIC STUDY
FOR THE PROPOSED
2720 S WILLOW AVENUE WAREHOUSE PROJECT
IN THE CITY OF RIALTO

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FOCUSED TRAFFIC STUDY
FOR THE PROPOSED
2720 S WILLOW AVENUE WAREHOUSE PROJECT
IN THE CITY OF RIALTO

I. INTRODUCTION

A. Purpose of the TIA and Study Objectives

This Focused Traffic Study has been prepared to address the traffic-related effects of the proposed 2720 S Willow Avenue Warehouse project in the City of Rialto.

This Focused Traffic Study has been conducted in accordance with the traffic study requirements of the City of Rialto, based on the City's *Traffic Impact Analysis Report Guidelines and Requirements* (October 2021), and in accordance with San Bernardino Association of Governments (SANBAG) Congestion Management Program (CMP) requirements.

This report includes a description of existing traffic conditions in the surrounding area, estimated project trip generation and distribution, future traffic growth, and an assessment of project-related effect on the roadway system. Where necessary, circulation system improvements have been identified to achieve acceptable intersection operation in the vicinity of the project.

The project will be evaluated for the following conditions:

- Existing Conditions
- Opening Year 2024
- Opening Year 2024 Plus Project

B. Site Plan Location and Study Area

The project site is located approximately 1,450 feet south of the intersection of Santa Ana Avenue and S Willow Avenue in the City of Rialto. The project site is located within the Agua Mansa Specific Plan. The project site is bounded by industrial buildings to the north and south, vacant land to the west, and S Willow Avenue to the east. The project site is shown in its regional setting on **Figure 1**. The project site is currently occupied by two industrial buildings totaling approximately 42,444 square feet and vacant land. The project will involve the demolition of the two existing industrial buildings and the construction of a 118,000 square-foot (SF) industrial building. A copy of the project site plan is provided on **Figure 2**.

FIGURE 1
VICINITY MAP

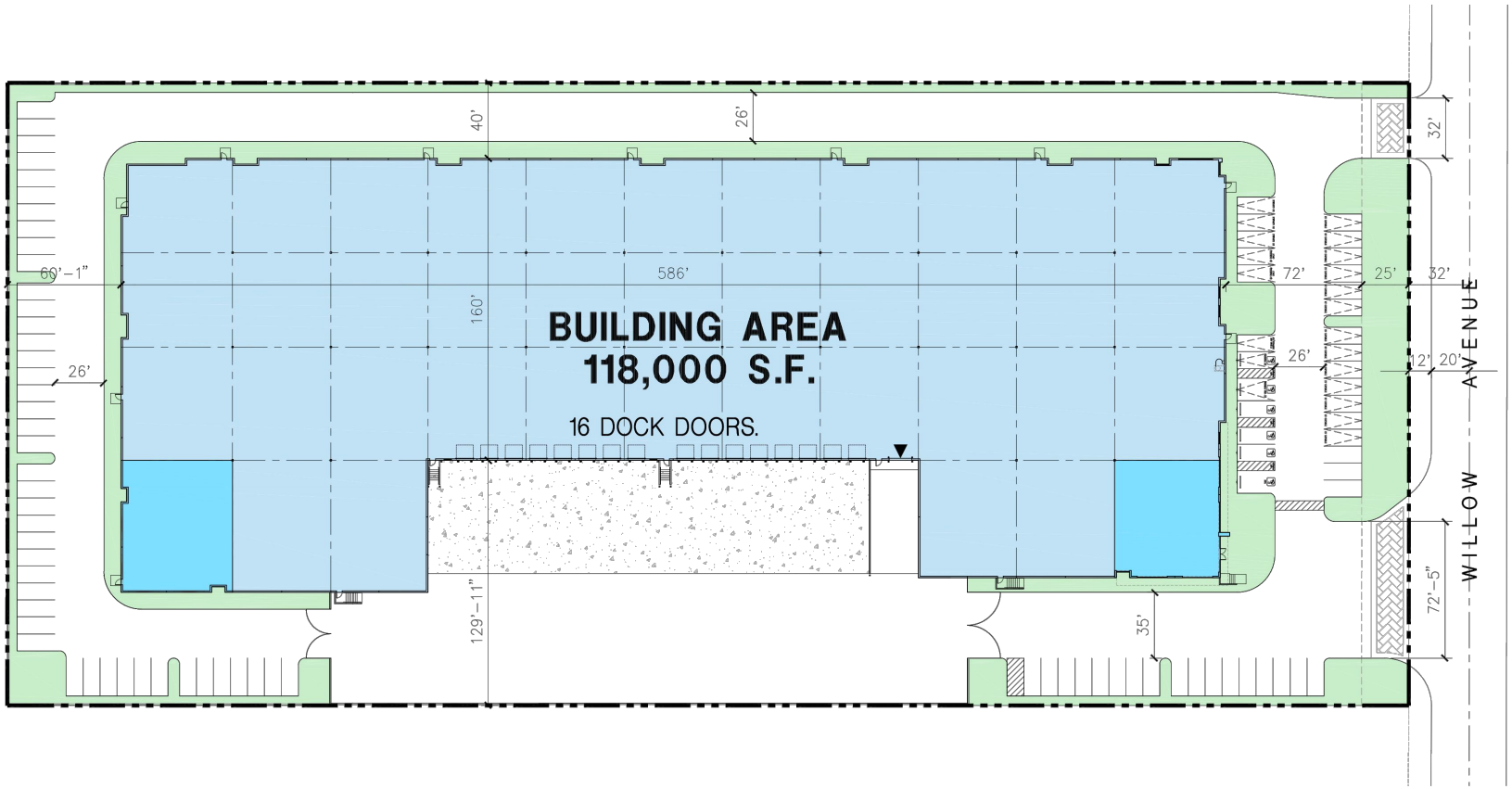

FIGURE 2
PROJECT SITE PLAN

C. Development Project Identification

Pending.

D. Development Project Description

The project will involve the construction of a 118,000 square-foot industrial building. The project site is located within the Agua Mansa Specific Plan, which is generally bounded by Interstate 10 (I-10) to the north, Market Street to the south, Rancho Avenue and the Santa Ana River to the east, and Cedar Avenue and residential uses to the west. The Agua Mansa Specific Plan covers 4,285 acres, with 12 separate Planning Areas, and is approved for a variety of land uses including residential, agricultural, and industrial uses.

The Project site is located within Sub-Area 1 of the Agua Mansa Specific Plan. The City's General Plan land use designation for the Project site is the Medium Industrial zone of the Agua Mansa Specific Plan.

Vehicular access provisions for the Project site would be provided via two full-movement driveways on S Willow Avenue. The northern driveway can be accessed by passenger cars only, while the southern driveway can be accessed by both trucks and passenger cars. Both project driveways would be unsignalized.

The proposed opening year for the project is Year 2024. The project will be developed in a single project phase.

E. Analysis Methodology

1. Intersection Analysis – HCM Methodology

Peak hour intersection operations at signalized and unsignalized intersections were evaluated using the methods prescribed in the Highway Capacity Manual HCM 7th Edition, consistent with the requirements of the City of Rialto and the San Bernardino County CMP.

The City of Rialto guidelines require analysis of traffic operations to be based on the vehicular delay methodologies of the HCM (Transportation Research Board Special Report 209). The intersection analysis for the proposed project has been accomplished using the VISTRO software program and using the specified input parameters outlined in the City's *Traffic Impact Analysis Report Guidelines and Requirements*.

Per the HCM Methodology, Level of Service (LOS) for signalized intersections is defined in terms of average vehicle delay. Specifically, LOS criteria are stated in terms of the average control delay per vehicle for the peak 15-minute period within the hour analyzed. The charts on the following page provide a description of the operating characteristics of each Level of Service and define the LOS in terms of average seconds of delay for signalized and unsignalized intersections.

2. Level of Service Standards and Measure of Significance

The City of Rialto, per the City of Rialto 2010 General Plan Update, establishes minimum Level of Service standards. According to Policy 4-1.20 of the General Plan document, the City requires that signalized intersections operate at LOS D or better during the morning and evening peak hours. The City's Traffic Study Guidelines require new development to mitigate effects that cause the Level of Service to fall below LOS D, or cause the peak hour delay to increase as follows:

- LOS A/B – by 10.0 seconds
- LOS C – by 8.0 seconds
- LOS D – by 5.0 seconds
- LOS E – by 2.0 seconds
- LOS F – by 1.0 second

The City's traffic study guidelines require unsignalized intersections to operate with no vehicular movement having an average delay exceeding 120 seconds during the morning and evening peak hours.

LEVEL OF SERVICE DEFINITIONS

Level of Service	Description
A	No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turns are made easily and nearly all drivers find freedom of operation.
B	This service level represents stable operation, where an occasional approach phase is fully utilized, and a substantial number are approaching full use. Many drivers begin to feel restricted within platoons of vehicles.
C	This level still represents stable operating conditions. Occasionally drivers may have to wait through more than one red signal indication, and backups may develop behind turning vehicles. Most drivers feel somewhat restricted but not objectionably so.
D	This level encompasses a zone of increasing restriction, approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak period; however, enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive backups.
E	Capacity occurs at the upper end of this service level. It represents the most vehicles that any particular intersection approach can accommodate. Full utilization of every signal cycle is seldom attained no matter how great the demand.
F	This level describes forced flow operations at low speeds, where volumes exceed capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially, and stoppages may occur for short or long periods of time due to the congestion. In the extreme case, both speed and volume can drop to zero.

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED AND UNSIGNALIZED INTERSECTIONS		
Level of Service	**Signalized Intersection (Average delay per vehicle, in seconds) [1]**	**Unsignalized Intersections (Average delay per vehicle, in seconds) [2]**
A	≤ 10	0 – 10
B	> 10 – 20	> 10 – 15
C	> 20 – 35	> 15 – 25
D	> 35 – 55	> 25 – 35
E	> 55 – 80	> 35 – 50
F	> 80	> 50

[1] Source: Highway Capacity Manual HCM 7th Edition, Exhibit 19-8.
[2] Source: Highway Capacity Manual HCM 7th Edition, Exhibit 20-2.

II. AREA CONDITIONS

A. Identify Study Area and Intersections

This traffic study includes identification of project-related effects at the following study intersections:

1. S Willow Avenue at Santa Ana Avenue
2. Riverside Avenue at Santa Ana Avenue
3. S Willow Avenue at Jurupa Avenue

D1. S Willow Avenue at North Driveway
D2. S Willow Avenue at South Driveway

The study locations were established in conjunction with City staff through the Scoping Agreement process (Exhibit B of the City of Rialto *Traffic Impact Analysis Report Guidelines and Requirements*). A copy of the approved Scoping Agreement is provided in ***Appendix A***.

New traffic counts were collected for all study intersections. Due to current construction on Riverside Avenue, recent historical counts collected in April 2018 were used for the intersection of Riverside Avenue at Santa Ana Avenue. An ambient annual growth rate of two (2) percent per year was applied to the historical count to develop existing year 2023 volumes. Copies of the traffic count data worksheets are provided in ***Appendix B***.

B. Description of Existing Roads, Traffic Control, and Intersection Geometrics

Regional access to the site is provided primarily by Interstate 10 (1-10) Freeway, approximately one mile to the north of the project site. In addition, the Interstate 215 (I-215) Freeway is located approximately 4.0 miles to the east of the site; the Interstate 15 (I-15) Freeway is approximately 10.0 miles to the west of the site, and access to the State Route 60 (SR 60) Highway is approximately 3.5 miles to the south.

Existing lane configurations and intersection controls at the study intersections are shown on **Figure 3**. The following provides a description of the roadways surrounding the project site.

Santa Ana Avenue – Santa Ana Avenue is a two lane east-west roadway. The posted speed limit on Santa Ana Avenue is 40 miles per hour (mph) and on-street parking is permitted. Santa Ana Avenue is designated as a Collector Street east of Riverside Avenue and a Secondary Arterial west of Riverside Avenue in the City's Circulation Element. Santa Ana Avenue is a designated truck route for its entire length within the City.

Riverside Avenue – Riverside Avenue is currently a four- to six-lane north-south roadway divided by a painted median through the study area. The posted speed limit is 55 mph and on-street parking is prohibited on both sides of the roadway. Riverside Avenue is designated as a Modified Major Arterial II between San Bernardino Avenue and Slover Avenue, and a Modified Arterial I between Slover Avenue and the southern City boundary in the City's Circulation Element. The ultimate configuration will also accommodate a bike lane on each side of the roadway. Riverside Avenue is a designated truck route for its entire length within the Agua Mansa Specific Plan. Riverside Avenue provides direct access to the I-10 Freeway interchange to the north of the project site.

S Willow Avenue – S Willow Avenue is a two lane north-south roadway. The posted speed limit on S Willow Avenue is 40 mph and on-street parking is permitted on the east side of the roadway. S Willow Avenue is designated as a Collector Street in the City's Circulation Element. The project site plan depicts two full-movement project driveways on S Willow Avenue.

Jurupa Avenue – Jurupa Avenue is currently a two- to four-lane east-west roadway through the study area. The posted speed limit is 40 mph and on-street parking is prohibited on both sides of the roadway. Jurupa Avenue is designated as a Secondary Arterial in the City's Circulation Element.

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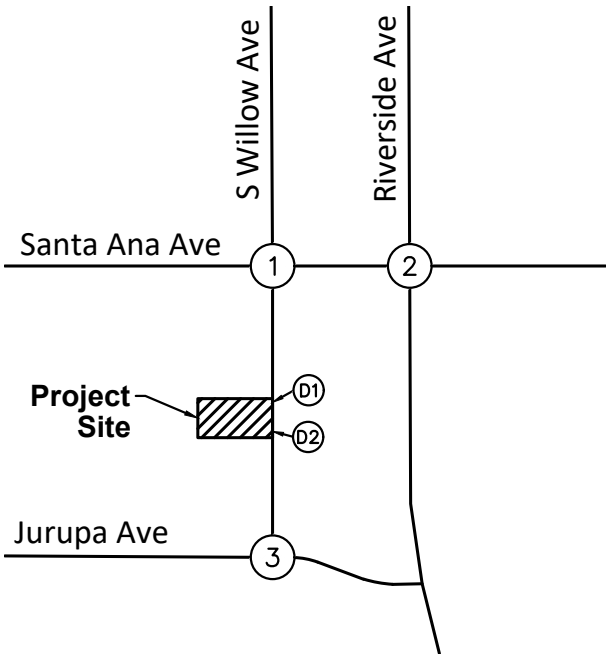

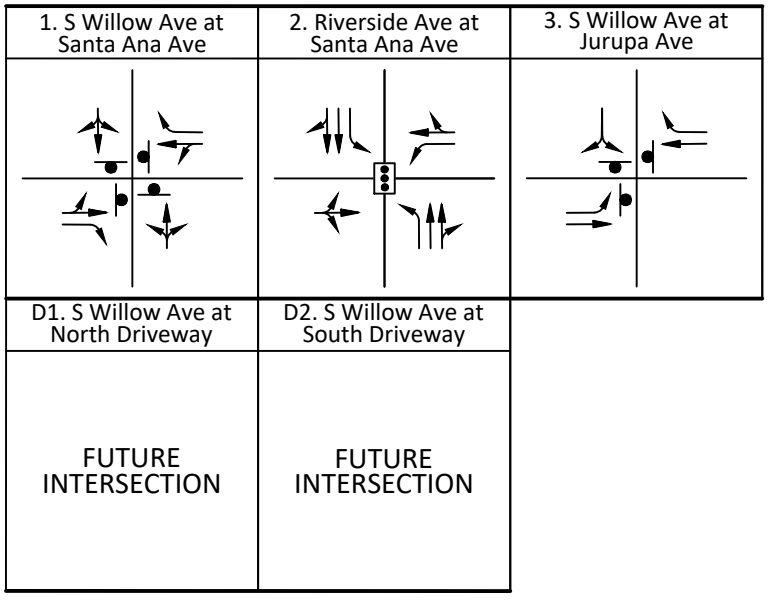

LEGEND:
- (X) = Study Intersection
- = Turn or Through Lane
- = Signal
- = Stop Sign

FIGURE 3
EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL

C. Existing Traffic Volumes

Traffic count data included vehicle classifications for passenger vehicles and trucks. Vehicle classifications are necessary to compute Passenger Car Equivalent (PCE) volumes, which are used in the traffic analysis to address the truck-related traffic effect on intersection and roadway operation.

The PCE volumes were developed by applying a PCE factor of 1.5 for 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for trucks with 4 or more axles. These factors are consistent with the City of Rialto's *Traffic Impact Analysis Guidelines and Requirements*. PCE adjusted volumes are provided in Appendix B, previously mentioned. Existing morning and evening peak hour volumes with the PCE factors applied are presented on **Figure 4**.

D. Existing Delay and Level of Service

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for the morning and evening peak hours using the analysis procedures and assumptions described previously in this report. The results of the intersection analysis for Existing Conditions are shown on **Table 1**.

Review of this table indicates that all study intersections are currently operating at an acceptable Level of Service. Copies of the intersection analysis worksheets are provided in ***Appendix C***.

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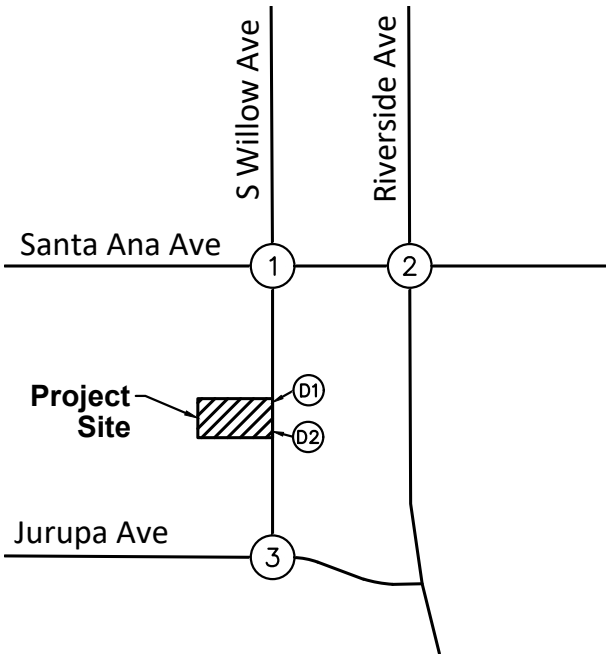

1. S Willow Ave at Santa Ana Ave	2. Riverside Ave at Santa Ana Ave	3. S Willow Ave at Jurupa Ave
19/12 ↙ 74/36 ↓ 20/5 ↘ — 20/14 ↑ 135/126 ← 60/18 ↖ — 16/17 → 97/183 → 14/19 ↘ — 14/11 ↑ 93/40 ↑ 71/58 ↗	122/80 ↙ 1220/1564 ← 76/57 ↖ — 69/66 ↑ 39/19 ← 39/38 ↖ — 89/112 → 29/15 → 63/98 ↘ — 72/87 ↑ 975/1299 ↑ 58/18 ↗	49/44 ↙ 60/34 ↓ — 36/34 ↑ 155/118 ← — 80/50 → 88/76 →
D1. S Willow Ave at North Driveway	D2. S Willow Ave at South Driveway	
FUTURE INTERSECTION	FUTURE INTERSECTION	

LEGEND:

(X) = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 4
EXISTING TRAFFIC VOLUMES

TABLE 1
SUMMARY OF INTERSECTION OPERATION
EXISTING CONDITIONS

Int. #	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	S Willow Avenue at Santa Ana Avenue	U	9.9	A	9.4	A
2	Riverside Avenue at Santa Ana Avenue	S	17.9	B	24.4	C
3	S Willow Avenue at Jurupa Avenue	U	8.8	A	8.3	A

Notes:
- **Bold** values indicate intersections operating at an unacceptable Level of Service

- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

U = Unsignalized; S = Signalized

E. General Plan Circulation Element

The General Plan Circulation Element provides street classifications near the project vicinity. A copy of the General Plan Street Classifications is provided on **Figure 5**. Designated truck routes in the City of Rialto General Plan are shown on **Figure 6**.

F. Transit Service

Transit service to the project area is provided via the OmniTrans transit lines, which serve various cities in San Bernardino. Bus stops in the project vicinity are located along Riverside Avenue and Valley Boulevard, approximately 1 mile to the north and Spruce Avenue approximately 1.5 miles to the west. A description of the bus routes serving the project area is provided below.

OmniTrans Route 22 operates between the City of Rialto and the City of Colton through Rialto along Riverside Avenue in the project vicinity. Route 22 operates on weekdays from 5:00 AM to 9:40 PM with approximately 1-hour headways, on Saturdays from 7:15 AM to 6:30 PM with approximately 1-hour headways, and on Sundays from 7:30 AM to 6:40 PM with approximately 1-hour headways. Route 22 has a transfer point with Route 10 at the intersection of Riverside Avenue and Baseline Road.

OmniTrans Route 329 operates between Bloomington (unincorporated area) and the City of Fontana Valley Boulevard in the project vicinity. Route 329 operates on weekdays from 6:45 AM to 6:40 PM with approximately 1-hour headways and on Saturdays from 7:45 AM to 6:40 PM with approximately 1-hour headways.

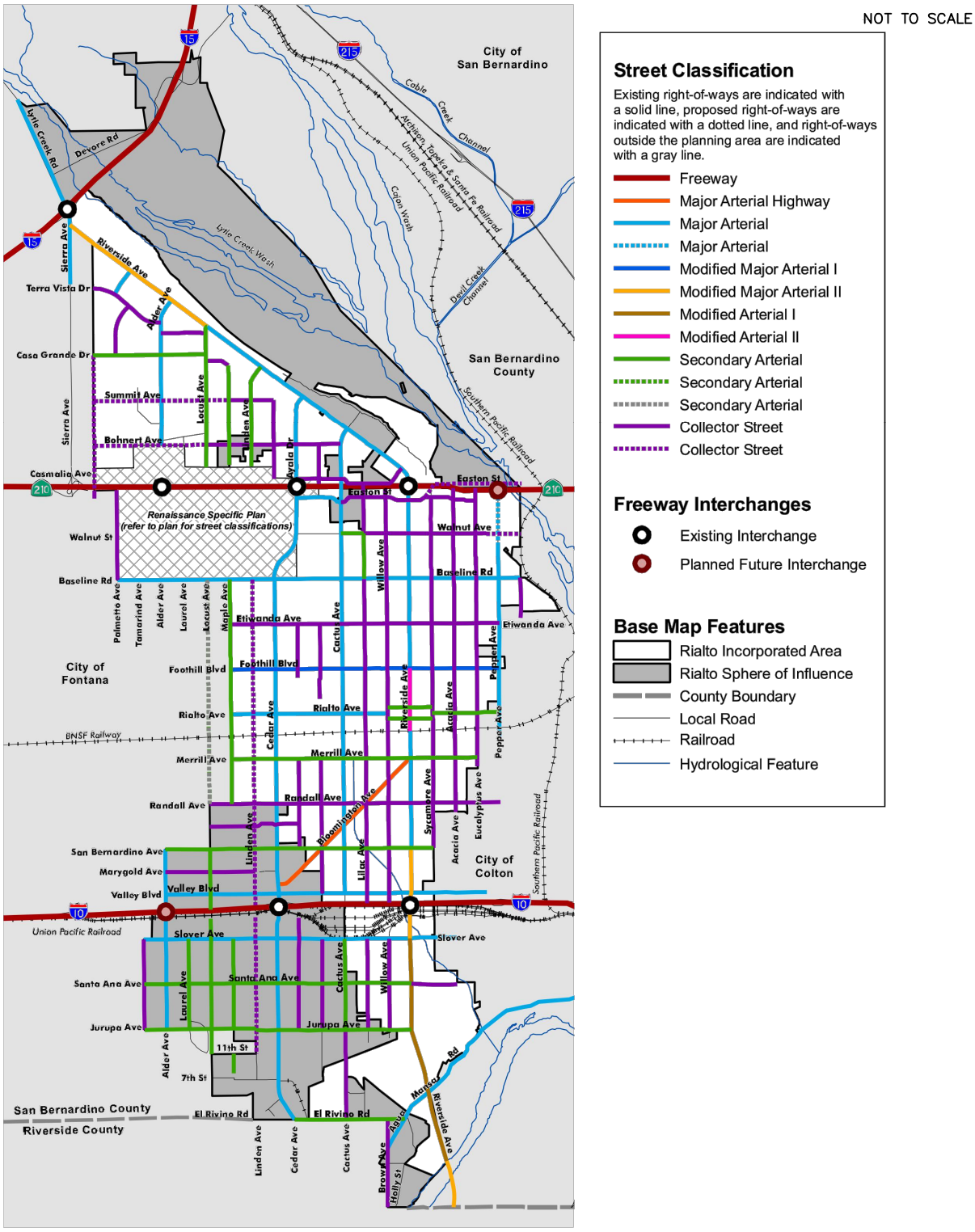

FIGURE 5
GENERAL PLAN STREET CLASSIFICATIONS

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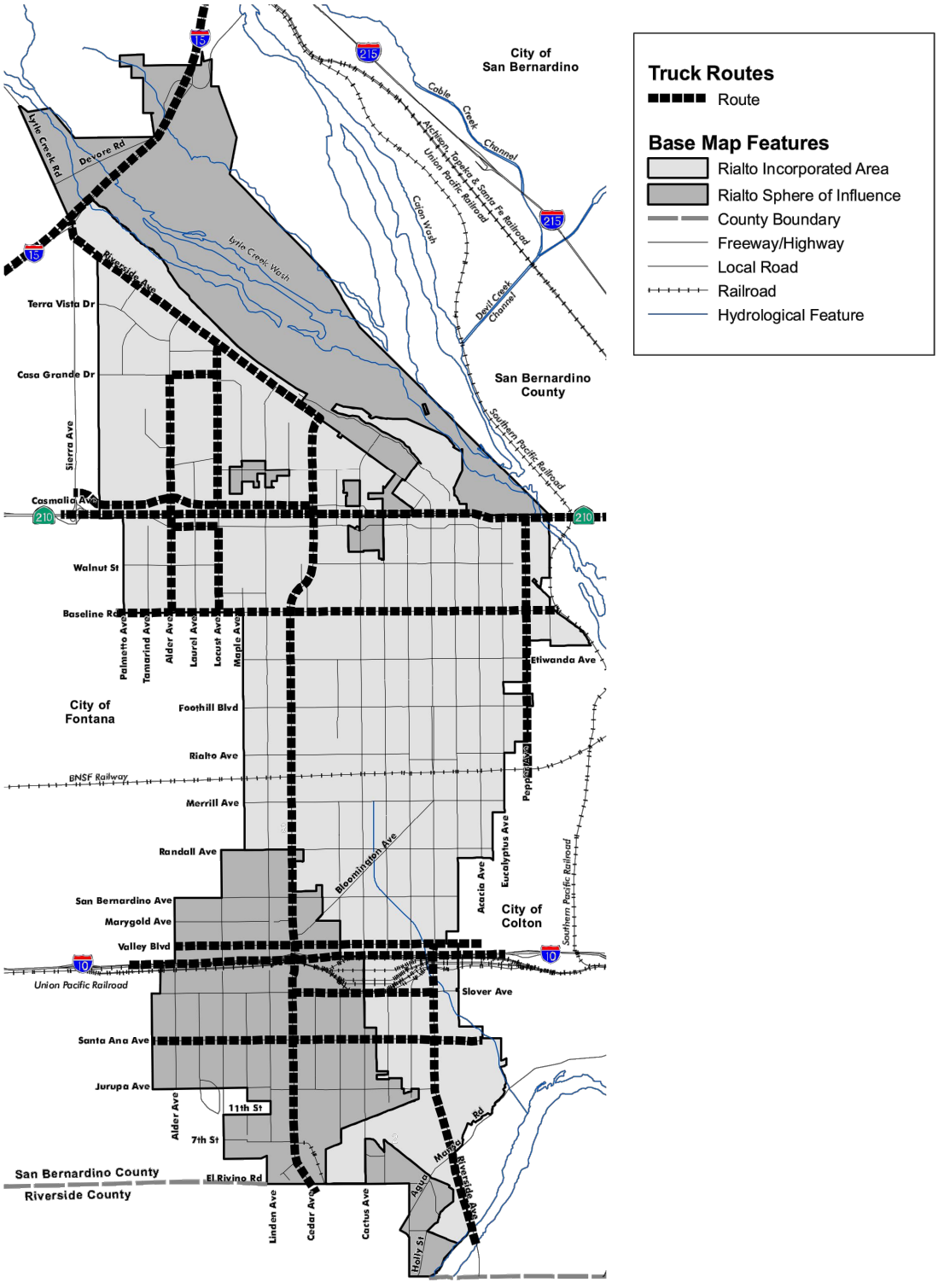

FIGURE 6
GENERAL PLAN TRUCK ROUTES

III. PROJECTED FUTURE TRAFFIC

A. Ambient Growth Rate

An ambient growth rate of 2.0% per year to Opening Year 2024 was applied to existing peak hour traffic volumes to develop Opening Year 2024 forecasts.

B. Opening Year 2024

Peak Hour Operating Conditions

Peak hour traffic volumes for Opening Year 2024 without Project Conditions are shown on **Figure 7**. Intersection Level of Service analysis was conducted for Opening Year 2024. The results are shown on **Table 2**. Intersection analysis worksheets for this scenario are provided in ***Appendix C***.

Review of this table indicates that with the addition of ambient growth, all study intersections would continue to operate at an acceptable Level of Service.

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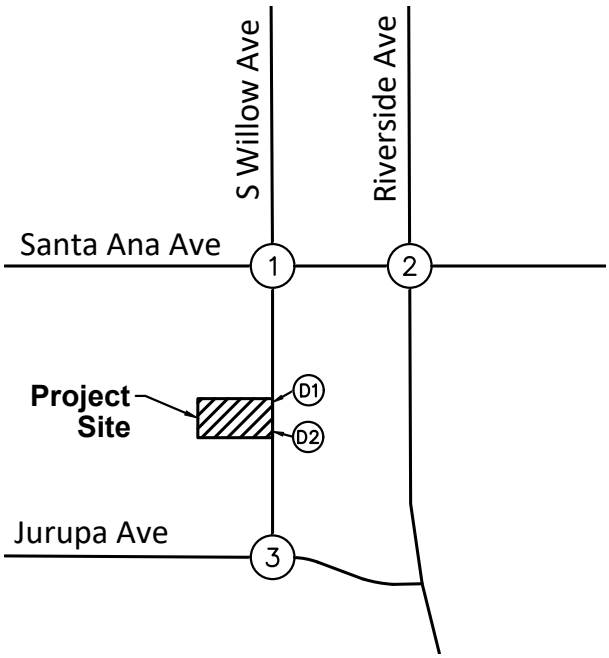


1. S Willow Ave at Santa Ana Ave	2. Riverside Ave at Santa Ana Ave	3. S Willow Ave at Jurupa Ave
20/12 ↙ 77/37 ← 21/5 ↘ 21/15 ↖ 140/131 ← 62/19 ↙ 17/18 → ↗ 101/190 → ↑ 15/20 → ↘ 15/11 ↑ 97/42 ↑ 74/60 ↗	127/83 ↙ 1269/1627 ← 79/59 ↘ 72/69 ↖ 41/20 ← 41/40 ↙ 93/116 → ↗ 30/16 → ↑ 66/102 → ↘ 75/90 ↑ 1014/1351 ↑ 60/19 ↗	51/46 ↙ 62/35 ↙ 37/35 ↖ 161/123 ← 83/52 → ↗ 92/79 →
D1. S Willow Ave at North Driveway	D2. S Willow Ave at South Driveway	
FUTURE INTERSECTION	FUTURE INTERSECTION	

LEGEND:

(X) = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 7
OPENING YEAR 2024 TRAFFIC VOLUMES

TABLE 2
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2024 CONDITIONS

Int. #	Intersection	AM Peak Hour		PM Peak Hour	
		Delay	**LOS**	**Delay**	**LOS**
1	S Willow Avenue at Santa Ana Avenue	10.1	B	9.5	A
2	Riverside Avenue at Santa Ana Avenue	18.9	B	27.3	C
3	S Willow Avenue at Jurupa Avenue	8.9	A	8.3	A

Notes:
- **Bold** values indicate intersections operating at an unacceptable Level of Service

- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

C. Project Traffic

1. Project Trip Generation

A trip generation analysis has been prepared to determine the estimated traffic to be generated by the proposed project. Trip generation estimates are based on the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition) trip generation rates for Warehousing (ITE 150). Trip generation rates and the resulting trip generation estimates for the proposed project are summarized on **Table 3**. The project is estimated to generate 123 passenger car (PC) trips on a daily basis with 12 PC trips in the morning peak hour and 14 PC trips in the evening peak hour; and 82 truck trips on a daily basis with 8 truck trips in the morning peak hour and 8 truck trips in the evening peak hour.

Passenger car equivalent (PCE) factors were then applied to the truck types, based on number of axles (1.5 for 2-axle trucks, 2.0 PCE for 3-axle trucks, and 3.0 for 4+ axle trucks) to determine the total PCE volumes generated by the project. The project is estimated to generate 343 daily PCE trips, with 33 PCE trips in the morning peak hour, and 37 PCE trips in the evening peak hour.

2. Trip Distribution and Assignment

Trip distribution assumptions for the project were developed by considering the proposed site uses, and the routes to and from the freeway system for the warehouse trucks. Separate distribution patterns were assumed for passenger car trips and truck trips. Trip distribution patterns are shown on **Figure 8**. Trip distribution percentages at each study intersection were applied to the project trip generation to determine the project trips through each intersection. The resulting project-related peak hour trips at the study intersections are shown on Figure 8, previously mentioned. Project-related trips were then added to Opening Year 2024 traffic volumes to develop forecasts for the Opening Year 2024 Plus Project scenario. The resulting peak hour traffic volumes are shown on **Figure 9**.

D. Opening Year 2024 Plus Project

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for the Opening Year 2024 Plus Project conditions. The results of the intersection analysis are shown on **Table 4**. Intersection analysis worksheets for this scenario are provided in ***Appendix C***.

Review of this table indicates that all study intersections would continue to operate at an acceptable Level of Service in both peak hours with the addition of Project traffic.

TABLE 3
SUMMARY OF PROJECT TRIP GENERATION
2720 S WILLOW AVENUE WAREHOUSE PROJECT

TRIP GENERATION RATES [1]

ITE Land Use	ITE Code	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Warehousing	150	KSF	1.740	0.131	0.039	0.170	0.051	0.139	0.190

PROJECT TRIP GENERATION

Project Land Use		Quantity	Unit	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Warehousing		118.000	KSF	205	15	5	20	6	16	22
Passenger Vehicles	60.00%			123	9	3	12	4	10	14
Trucks	40.00%			82	6	2	8	2	6	8

PROJECT TRIPS - PASSENGER CAR EQUIVALENTS (PCE)

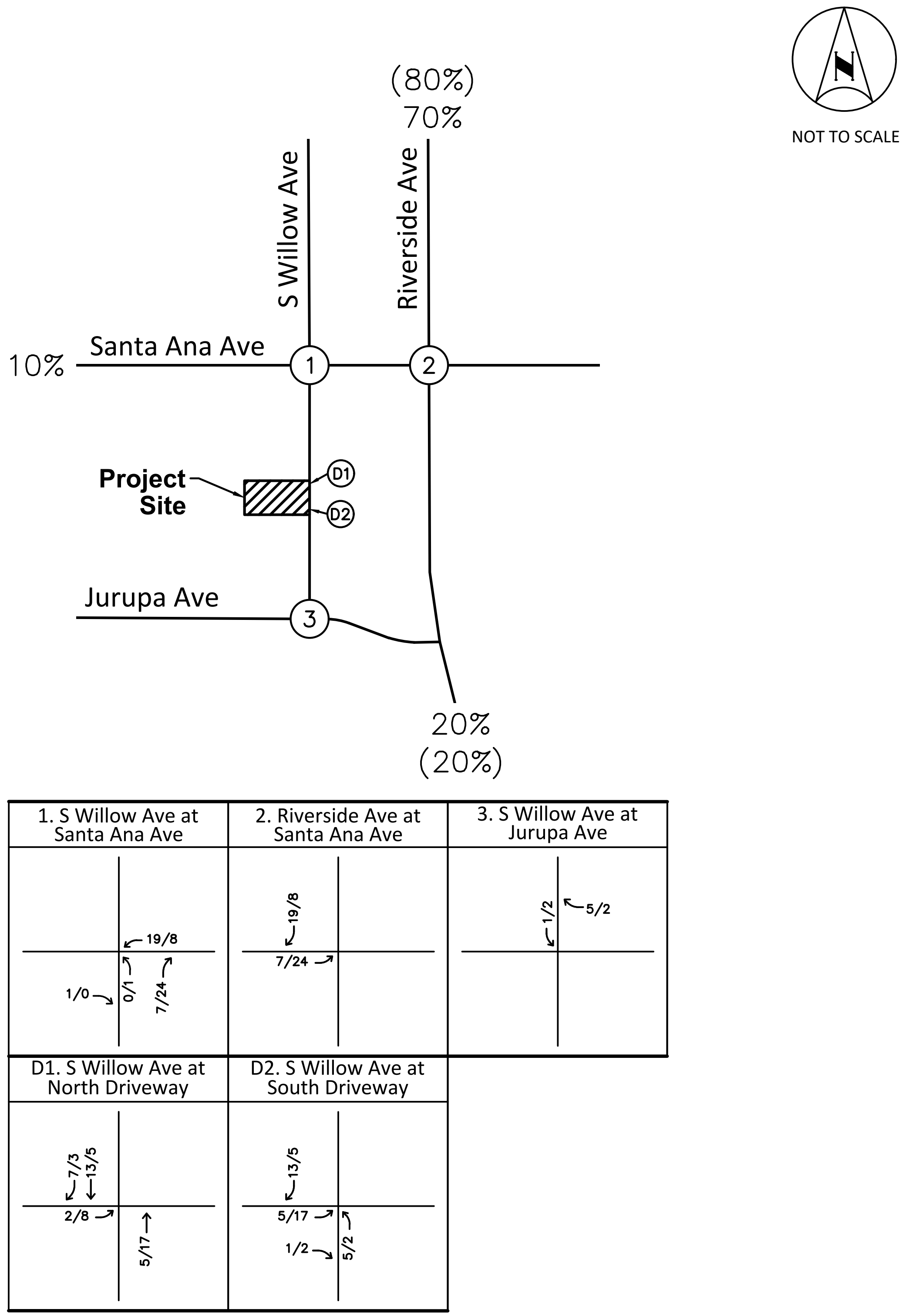
Vehicle Type	Vehicle Mix [2]	Daily Vehicles	PCE Factor	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Passenger Vehicles	60.0%	123	1.0	123	9	3	12	4	10	14
2-Axle Trucks	0.8%	2	1.5	3	0	0	0	0	0	0
3-Axle Trucks	11.2%	23	2.0	46	3	1	4	1	4	5
4+ Axle Trucks	28.0%	57	3.0	171	13	4	17	5	13	18
Total Proposed Truck PCE Trips				220	16	5	21	6	17	23
Total Proposed Project PCE Trips				**343**	**25**	**8**	**33**	**10**	**27**	**37**

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition

[2] Source: City of Rialto *Draft Traffic Impact Analysis Report Guidelines and Requirements* (October, 2021)

PCE = Passenger Car Equivalent

KSF = Thousand Square Feet



LEGEND:

(X) = Study Intersection

XX% = Passenger Car Distribution

(YY%) = Truck Distribution

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 8
PROJECT TRIP DISTRIBUTION AND PROJECT-RELATED TRAFFIC VOLUMES

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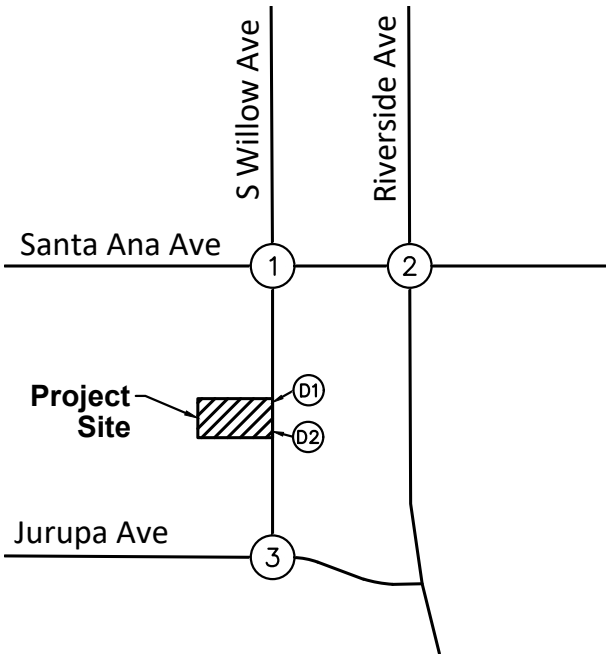
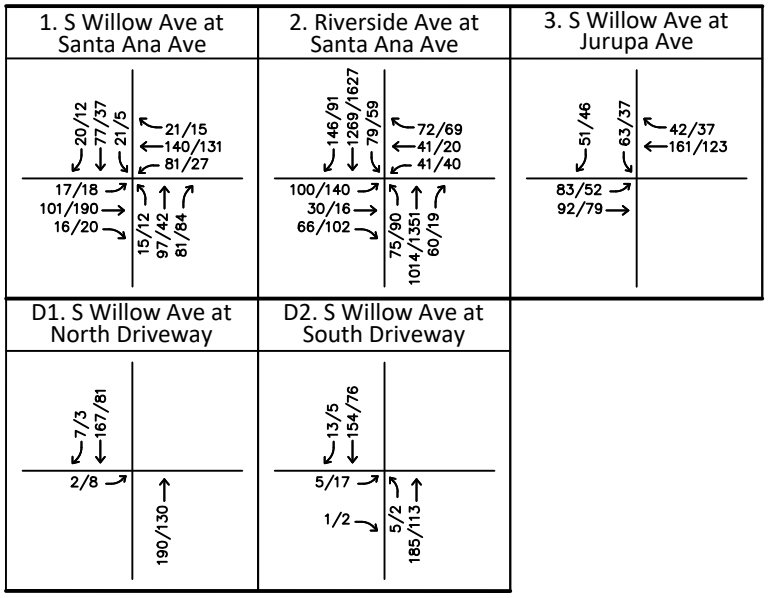




LEGEND:

(X) = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 9
OPENING YEAR 2024 PLUS PROJECT TRAFFIC VOLUMES

TABLE 4
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2024 PLUS PROJECT CONDITIONS

Int. #	Intersection	AM Peak Hour						PM Peak Hour					
		Without Project		With Project		Change Delay	Sig Effect?	Without Project		With Project		Change Delay	Sig Effect?
		Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS		
1	S Willow Avenue at Santa Ana Avenue	10.1	B	10.4	B	0.3	No	9.5	A	9.7	A	0.2	No
2	Riverside Avenue at Santa Ana Avenue	18.9	B	19.5	B	0.6	No	27.3	C	28.7	C	1.4	No
3	S Willow Avenue at Jurupa Avenue	8.9	A	8.9	A	0.0	No	8.3	A	8.3	A	0.0	No
D1	S Willow Avenue at North Driveway	-	-	10.8	B	-	-	-	-	9.7	A	-	-
D2	S Willow Avenue at South Driveway	-	-	10.8	B	-	-	-	-	9.7	A	-	-

Notes:
- **Bold** values indicate intersections operating at an unacceptable Level of Service
- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

IV. SPECIFIC ISSUES

A. Queueing Analysis

Queue lengths were assessed at the following locations:

- S Willow Avenue at Santa Ana Avenue (#1)
  - Northbound Approach (Shared Left-Through-Right)

- Riverside Avenue at Santa Ana Avenue (#2)
  - Eastbound Approach (Shared Left-Through-Right)

- S Willow Avenue at Jurupa Avenue (#3)
  - Southbound Approach (Shared Left-Through-Right)
  - Westbound Right Turn

A summary of left-turn pocket storage capacity, as well as 50th and 95th percentile queue lengths at the locations noted above are summarized on **Table 5**. The table shows that all left-turn pockets would have adequate storage capacity to accommodate the 95th percentile queues under all scenarios.

The left-turn pocket queue lengths are provided in the intersection analysis worksheets in ***Appendix C*** of this report.

B. S Willow Avenue Cross Section

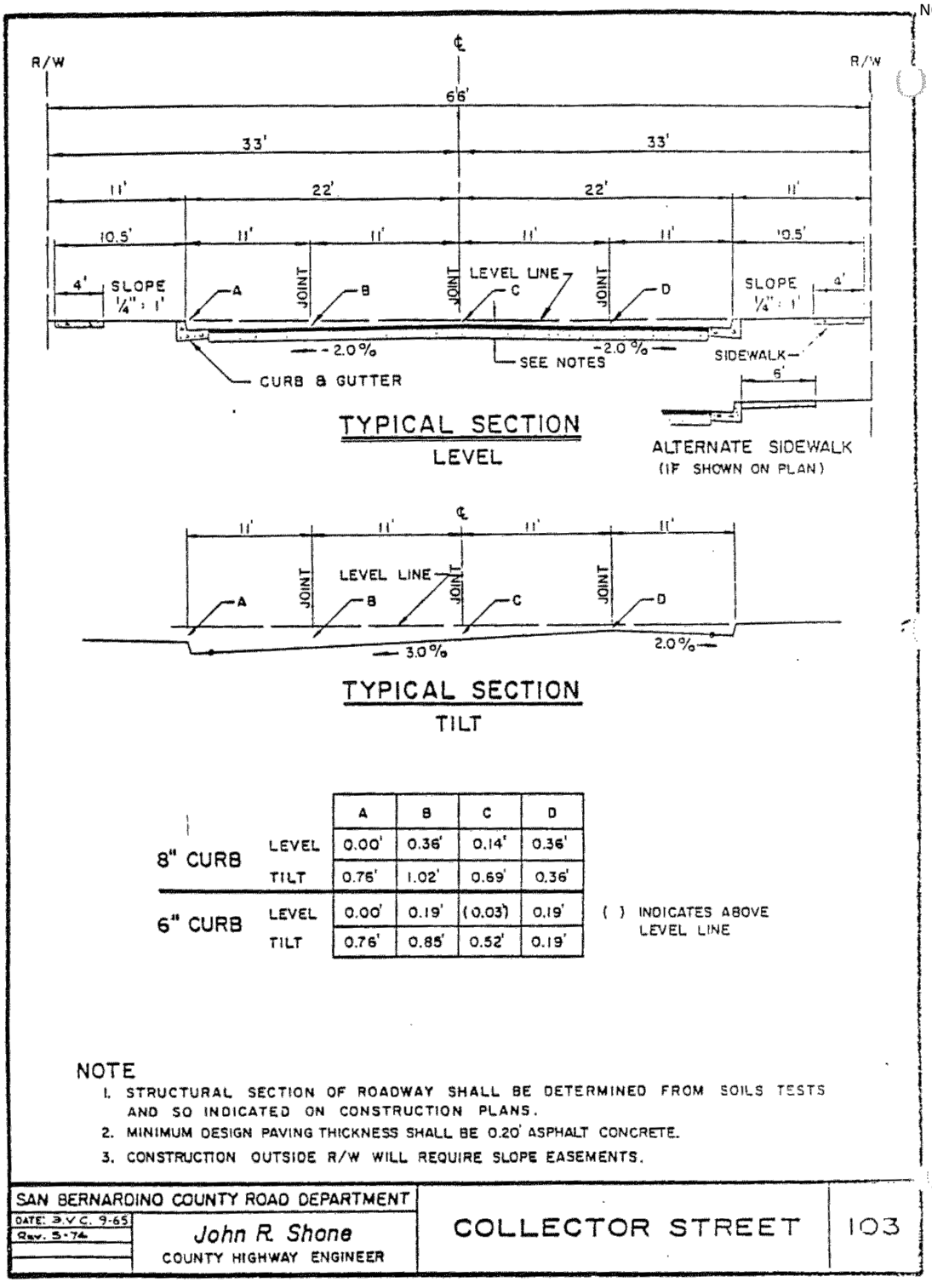
The project will complete the remaining half-width improvements of S Willow Avenue along the project frontage, consistent with the Agua Mansa Specific Plan cross-section for Collector Streets. This would include two 11-foot lanes and a 4-foot sidewalk. The Agua Mansa Specific Plan cross-section for Collector Streets is provided on **Figure 10**.

TABLE 5
SUMMARY OF INTERSECTION QUEUING STORAGE CAPACITY
2720 S WILLOW AVENUE WAREHOUSE PROJECT

Intersection	Approach	Storage Capacity (ft/ln)	Peak Hour	Queue Length (ft/ln)					
				Existing		Opening Year 2024		Opening Year 2024 Plus Project	
				50th Percentile	95th Percentile	50th Percentile	95th Percentile	50th Percentile	95th Percentile
S Willow Avenue at Santa Ana Avenue	NBLTR	105	AM	N/A[1]	26	N/A[1]	28	N/A[1]	30
			PM	N/A[1]	14	N/A[1]	15	N/A[1]	18
Riverside Avenue at Santa Ana Avenue	EBLTR	300	AM	109	195	115	203	120	210
			PM	145	243	152	254	191	304
S Willow Avenue at Jurupa Avenue	SBLTR	135	AM	N/A[1]	13	N/A[1]	14	N/A[1]	14
			PM	N/A[1]	9	N/A[1]	10	N/A[1]	10
	WBR	230	AM	N/A[1]	4	N/A[1]	4	N/A[1]	4
			PM	N/A[1]	4	N/A[1]	4	N/A[1]	4

Notes:
[1]50th percentile queue not reported for unsignalized intersections

NOT TO SCALE



		A	B	C	D
8" CURB	LEVEL	0.00'	0.36'	0.14'	0.36'
	TILT	0.76'	1.02'	0.69'	0.36'
6" CURB	LEVEL	0.00'	0.19'	(0.03')	0.19'
	TILT	0.76'	0.85'	0.52'	0.19'

( ) INDICATES ABOVE LEVEL LINE

NOTE

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. MINIMUM DESIGN PAVING THICKNESS SHALL BE 0.20' ASPHALT CONCRETE.
3. CONSTRUCTION OUTSIDE R/W WILL REQUIRE SLOPE EASEMENTS.

SAN BERNARDINO COUNTY ROAD DEPARTMENT			
DATE: 3 V C. 9-65 Rev. 5-74	John R. Shone COUNTY HIGHWAY ENGINEER	COLLECTOR STREET	103

FIGURE 10
AGUA MANSA SPECIFIC PLAN -
COLLECTOR STREET CROSS-SECTION

V. RECOMMENDED IMPROVEMENTS

A. Intersection Improvements

Based on the impact criteria in the City's *Traffic Impact Analysis Report Guidelines and Requirements* (Exhibit F), no improvements are required for the project.

VI. VEHICLE MILES TRAVELED ANALYSIS

A. Introduction

Senate Bill 743 (SB 743) was approved by California legislature in September 2013. SB 743 requires changes to California Environmental Quality Act (CEQA), specifically directing the Governor's Office of Planning and Research (OPR) to develop alternative metrics to the use of vehicular "Level of Service" (LOS) for evaluating transportation projects. OPR has prepared a technical advisory ("OPR Technical Advisory") for evaluating transportation impacts in CEQA and has recommended that Vehicle Miles Traveled (VMT) replace LOS as the primary measure of transportation impacts. The Natural Resources Agency has adopted updates to CEQA Guidelines to incorporate SB 743 that requires VMT for the purposes of determining a significant transportation impact under CEQA.

B. VMT Analysis

The City of Rialto *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service (LOS) Assessment* (October 2021) provide details on appropriate screening thresholds that can be used to identify when a proposed land use project is anticipated to result in a less-than-significant impact without conducting a more detailed level analysis. Screening thresholds are broken down into the following three criteria:

1. Transit Priority Area (TPA) Screening
2. Low VMT Area Screening
3. Project Type Screening

Land development projects that meet one or more of the above screening thresholds may be presumed to create a less-than-significant impact on transportation and circulation.

Transit Priority Area (TPA) Screening

A project would be considered to have a less-than-significant transportation impact if the project is located within a Transit Priority Area (TPA) as determined by the most recent SCAG RTP/SCS and the San Bernardino County Transportation Authority (SBCTA) VMT Screening Tool. Based on SBCTA VMT Screening Tool, the proposed project is not located within a TPA.

The Transit Priority Area Screening threshold is not met.

Low VMT Area Screening

A project would be considered to have a less-than-significant transportation impact if the project is located within a low VMT generating area as determined by the City of Rialto guidelines and the SBCTA VMT Screening Tool. Based on the City of Rialto VMT thresholds and the SBCTA VMT Screening Tool, the proposed project is not located within a low VMT area. Results of the SBCTA VMT Screening Tool are provided in the Scoping Agreement (Appendix A, previously mentioned).

The Low VMT Area Screening threshold is not met.

Project Type Screening

A project would be considered to have a less-than-significant transportation impact if the project generates less than 110 daily vehicle trips. The following uses would also be presumed to have a less-than-significant VMT impact:

- K-12 Schools
- Local-Serving retail less than 50,000 square feet
- Local parks
- Day care centers
- Local serving gas stations
- Local serving banks
- Student housing projects
- Local-serving hotels (e.g., non-destination hotels)
- Local-serving medical
- Student housing projects on or adjacent to college campuses
- Local-serving assembly uses (places of worship, community organizations)
- Community institutions (Public libraries, fire stations, local government)
- Local serving community colleges that are consistent with the assumptions noted in the RTP/SCS
- Affordable or supportive housing
- Assisted living facilities
- Senior housing (as defined by HUD)

The project will involve the construction a 118,000 square-foot industrial building that generates more than 110 daily passenger car trips; therefore, the project would not be screened out based on project type.

The Project Type Screening threshold is not met.

Redevelopment Projects

As noted previously, the project site is currently occupied by two industrial buildings totaling approximately 42,444 square feet. Per direction from City staff, the "Redevelopment Projects" criteria per the State OPR Technical Advisory was evaluated for the proposed project. The OPR Technical Advisory states that "where a project replaces existing VMT-generating land uses, if the replacement leads to a net overall decrease in VMT, the project would lead to a less-than-significant transportation impact." It should also be noted that consistent with the OPR Technical Advisory (page 4), "'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project," where automobile refers to passenger vehicles, specifically cars and light trucks.

As a result, 24-hour driveway counts with vehicle classification were conducted at the existing site driveway for two days. The data collection worksheets are provided in ***Appendix D***. Based on the data collection, the average daily number of passenger cars trips was 138 trips. As previously mentioned, the proposed project is estimated to generate 123 passenger car trips, or 15 fewer passenger car trips, compared to the existing use. Therefore, compared to the existing use for the project site, the proposed project would lead to net overall decrease in VMT and can be presumed to have a less-than-significant transportation impact.

The Redevelopment Projects criteria is met.

C. Findings and Conclusions

Based on the City of Rialto *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service (LOS) Assessment* (October 2021) and the State OPR Technical Advisory, the proposed project would meet the Redevelopment Projects criteria noted in the OPR Technical Advisory as the proposed project would lead to net overall decrease in VMT, compared to the existing use. Therefore, the project would have a less-than-significant transportation impact and no further VMT analysis is required.

VII. FINDINGS AND RECOMMENDATIONS

A. Improvements

Not Applicable.

B. Traffic Signal Warrant Analysis

The unsignalized study intersections are forecasted to operate at an acceptable LOS. Therefore, no traffic signal warrant analysis is needed.

C. Site Circulation

Vehicular access provisions for the project site would consist of two unsignalized driveways on S Willow Avenue. The northern driveway can be accessed by passenger cars only, while the southern driveway can be accessed by both trucks and passenger cars.

D. Safety and Operational Improvements

The roadways serving the project site are generally straight and flat. A sight distance analysis of existing roadway conditions is not needed. The site driveways and project improvements must be designed so that adequate sight distance for drivers entering and exiting the site is maintained. The line of sight – a straight line between the driver's eye and oncoming vehicles on the adjacent roadway defines the Limited Use Area. The Limited Use Area for each driveway must be kept clear of visual obstructions, including project signs, building structures, and landscaping, in order to maintain adequate sight distance.

E. Fair Share Calculations

Not Applicable.

F. Specific Plan Signalization

Not Applicable.

G. General Plan Conformance

The proposed 2720 S Willow Avenue Warehouse project is in conformance with the Agua Mansa Specific Plan and the City of Rialto General Plan. The proposed use is permitted under the Medium Industrial designations. Neither a Specific Plan Amendment nor a General Plan Amendment is required for the project.

H. Regional Funding Mechanisms

The project is subject to the City's city-wide traffic impact fee program. The proposed project will pay applicable DIF fees toward the Riverside Avenue Widening project. The fees paid by the Developer will be collected by the City of Rialto and used toward the Riverside Avenue Widening Project, as identified in Measure I of the 2018 Nexus Study Item "Widen Riverside Avenue from South City Limit to Slover Avenue from 4 lanes to 6 lanes.

APPENDIX **A**

APPROVED SCOPING AGREEMENT

Exhibit A

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 _____.

City of Rialto

Traffic Impact Analysis

Scoping Agreement

Case No. _____

Related Cases -

SP No. _____

EIR No. _____

GPA No. _____

ZC No. _____

Project Name: 2720 Willow Avenue Warehouse Project

Project Address: 2720 Willow Avenue

Project Description: 118,450 Square-Foot Industrial Building (See Attachment A - Site Plan)

	Consultant	Developer
Name:	Kimley-Horn and Associates, Inc.	Scannell Properties
Address:	3880 Lemon St, Suite 420, Riverside, CA 92501	24411 Ridge Route Dr, Suite 120, Laguna Hills, CA 92653
Telephone:	(714) 939-1030	(619) 931-9144
Fax:		

1. Trip Generation Source: ITE Trip Generation Manual, 11th Edition (2021) (See Attachment B)

Existing GP Land Use Warehouse Proposed Land Use Warehouse

Current Zoning: Medium Industrial Proposed Zoning: Medium Industrial

Total Daily Project Trips: 347 PCE

	Current Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips	NA	NA	NA	27 PCE	8 PCE	35 PCE
PM Trips	NA	NA	NA	10 PCE	27 PCE	37 PCE

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

Pass-By Trip Allowance Yes X 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: PC: N 70 % S 20 % E % W 10 %
(See Attachment C) Trucks: 80% 20%
(Detailed exhibits of trip distribution must be attached with Trucks as a separate exhibit)

3. Background Growth Traffic

Project Completion Year: 2024 Annual Background Growth Rate: 2 %

Other Phase Years

Other area projects to be considered: We will request a list of Cumulative Projects from the City's Planning Department

(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: Existing + Ambient Growth + Cumulative Projects + Project to Opening Year

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

1. Willow Avenue at Santa Ana Avenue
2. Riverside Avenue at Santa Ana Avenue
3. Willow Avenue at Jurupa Avenue
4.
5.
6.
7.
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. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

6. Other Jurisdictional Impacts

Is this project within any other Agency's Sphere of Influence or within one-mile of another jurisdictional boundary?

X YES
NO

If so, name of Jurisdiction: San Bernardino County

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

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.)

Signal Warrant Analysis (as needed)

Truck Turning Templates

Discussion of Roadway Cross-Sections along the Project frontage, Pedestrian and Bicycle

facilities, sight distance at driveways, queuing at intersections, and capacity of Willow Avenue

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: New counts will be collected

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 10/17/2022

Scoping Agreement Resubmittal date 05/30/2023

Kimley-Horn and Associates, Inc. 05/30/2023

Applicant/Engineer Date

Land Use Concurrence:

Development Services Department Date

Approved by:

7/27/23

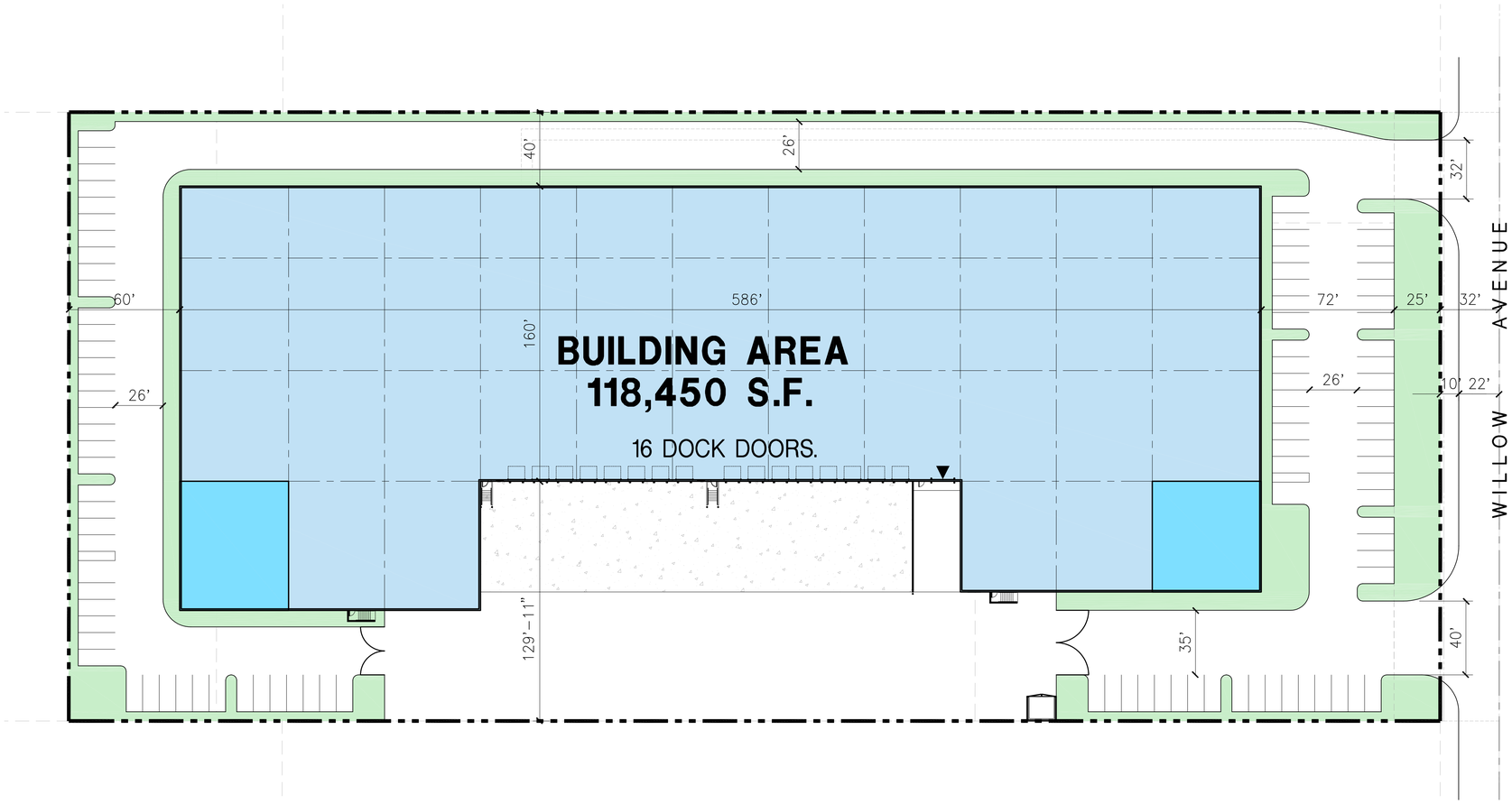
Public Works Department Date

NOTE:

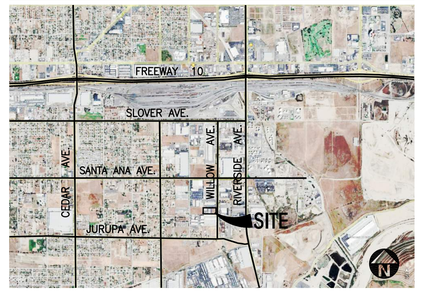
The Applicant/Engineer acknowledges that the Scoping Agreement is intended to assist in the preparation of any required TIA. It is preliminary in nature and the City does not have sufficient data to determine the ultimate conditions that may be imposed for the project. It does not provide nor limit the 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.

CAUTION: IF THIS SHEET IS NOT 30"X42", IT IS A REDUCED PRINT

ATTACHMENT A - PROJECT SITE PLAN



Aerial Map



Tabulation

SITE AREA		
In s.f.	245,179	s.f.
In acres	5.63	ac
BUILDING AREA		
Office 1st Floor	3,500	s.f.
Office 2nd Floor	3,500	s.f.
Warehouse	111,450	s.f.
TOTAL	118,450	s.f.
COVERAGE	46.9%	
AUTO PARKING REQUIRED		
Office: 1/250 s.f.	28	stalls
Whse: 1st 10K @ 1/1,000 s.f.	10	stalls
above 10K @ 1/2,000 s.f.	51	stalls
TOTAL	89	stalls
AUTO PARKING PROVIDED		
Standard (9' x 20')	98	stalls
ZONING ORDINANCE FOR CITY		
Zoning Designation - Agua Mansa SP		
Medium Industrial		
MAXIMUM BUILDING HEIGHT ALLOWED		
Height - 45'		
MAXIMUM LOT COVERAGE		
Coverage - 50%		
MAXIMUM FLOOR AREA RATIO		
FAR - *to be veriflied*		
LANDSCAPE PROVIDED		
In s.f.	28,651	s.f.
SETBACKS		
Building	Landscape	
Front - 25'	25'	
Side - 15'		
Rear - 20'		

Note: This is a conceptual plan. It is based on preliminary information which is not fully verified and may be incomplete. It is meant as a comparative aid in examining alternate development strategies and any quantities indicated are subject to revision as more reliable information becomes available.

Legend

- POTENTIAL OFFICE WITH 2ND FLOOR
- WAREHOUSE
- ▼ DRIVE THRU DOOR

north

1" = 30'

0 30 60 90

Conceptual Site Plan

2720 Willow Ave.

Rialto, CA

HPA architecture

18831 Bardeen Ave. - Ste. #100
Irvine, CA 92612
(949) 863-1770
www.hparchs.com

SCANNELL PROPERTIES

April 28, 2022 / Job #22082

Scheme 3

ATTACHMENT B
SUMMARY OF PROJECT TRIP GENERATION
2720 WILLOW AVENUE WAREHOUSE PROJECT

TRIP GENERATION RATES [1]

ITE Land Use	ITE Code	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Warehousing	150	KSF	1.740	0.131	0.039	0.170	0.051	0.139	0.190

PROJECT TRIP GENERATION

Project Land Use		Quantity	Unit	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Warehousing		118.450	KSF	206	16	5	21	6	16	22
Passenger Vehicles	60.00%			124	10	3	13	4	10	14
Trucks	40.00%			82	6	2	8	2	6	8

PROJECT TRIPS - PASSENGER CAR EQUIVALENTS (PCE)

Vehicle Type	Vehicle Mix [2]	Daily Vehicles	PCE Factor	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Passenger Vehicles	60.0%	124	1.0	124	10	3	13	4	10	14
2-Axle Trucks	0.8%	2	1.5	3	0	0	0	0	0	0
3-Axle Trucks	11.2%	23	2.0	46	4	1	5	1	4	5
4+ Axle Trucks	28.0%	58	3.0	174	13	4	17	5	13	18
Total Truck PCE Trips				223	17	5	22	6	17	23
Total Project PCE Trips				347	27	8	35	10	27	37

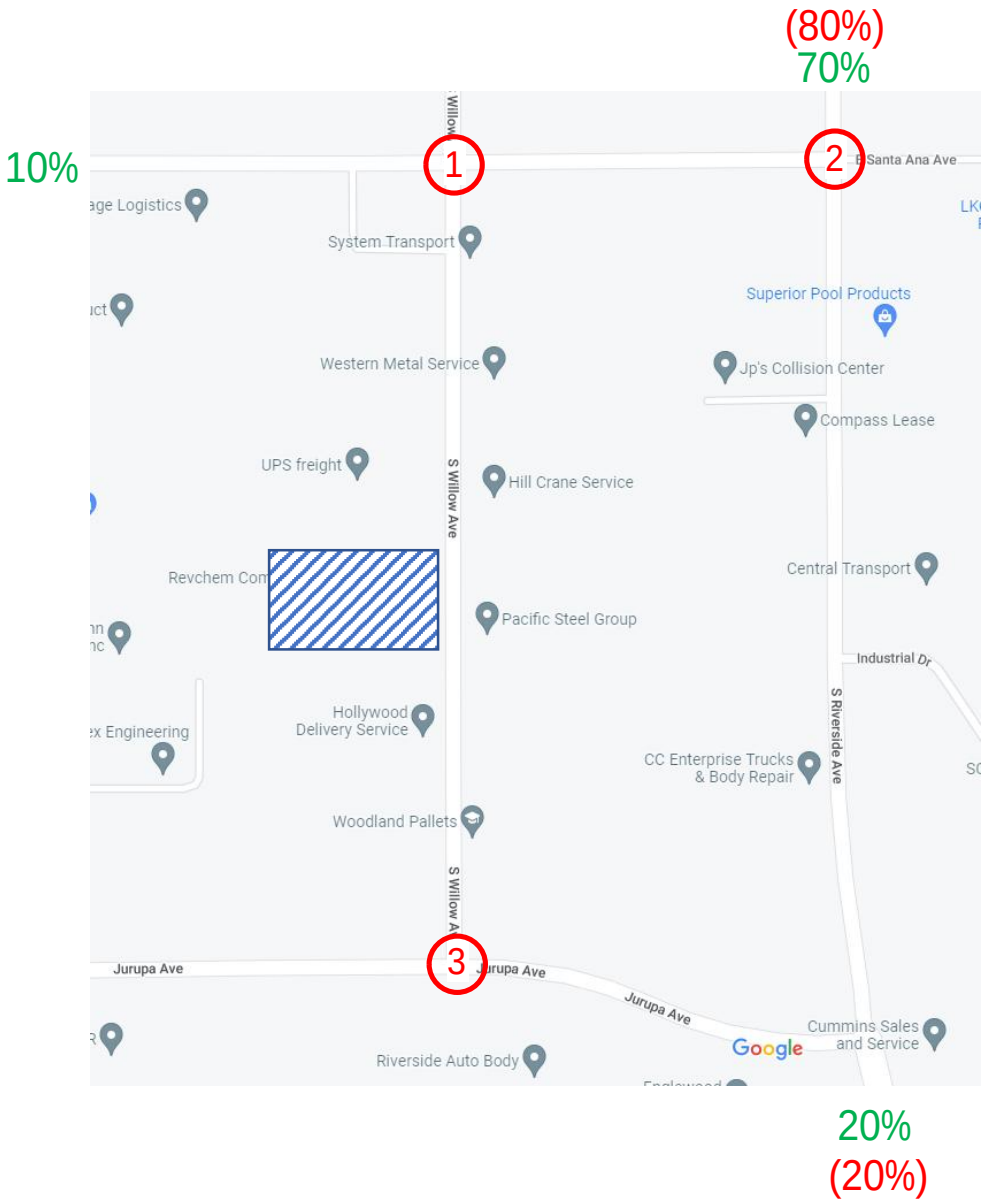
[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition

[2] Source: City of Rialto *Draft Traffic Impact Analysis Report Guidelines and Requirements* (October, 2021)

PCE = Passenger Car Equivalent

KSF = Thousand Square Feet

ATTACHMENT C - STUDY AREA



Legend:

= Project Site

= Study Intersection

XX% = Passenger Car Distribution

(YY%) = Truck Distribution

Study Intersections:

1. Willow Avenue at Santa Ana Avenue
2. Riverside Avenue at Santa Ana Avenue
3. Willow Avenue at Jurupa Avenue

APPENDIX **B**

TRAFFIC COUNT DATA SHEETS

APPENDIX B-1

TRAFFIC COUNT DATA SHEETS–
INTERSECTION COUNTS

INTERSECTION TURNING MOVEMENT COUNTS

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

DATE:	LOCATION:	Rialto	PROJECT #:	SC3741
Thu, Nov 10, 22	NORTH & SOUTH:	Willow	LOCATION #:	1
	EAST & WEST:	Santa Ana	CONTROL:	STOP ALL

NOTES:

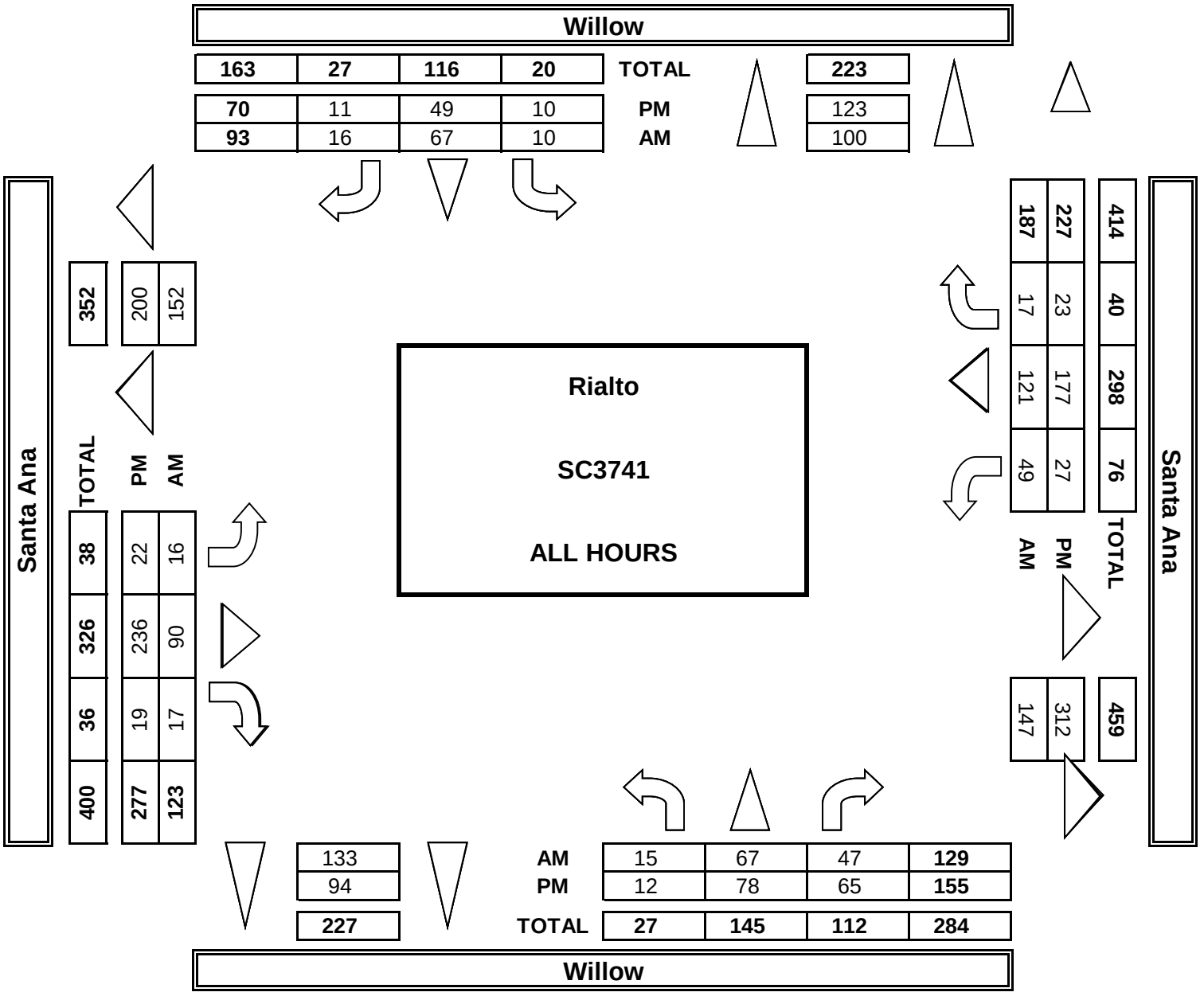
AM PM MD OTHER OTHER

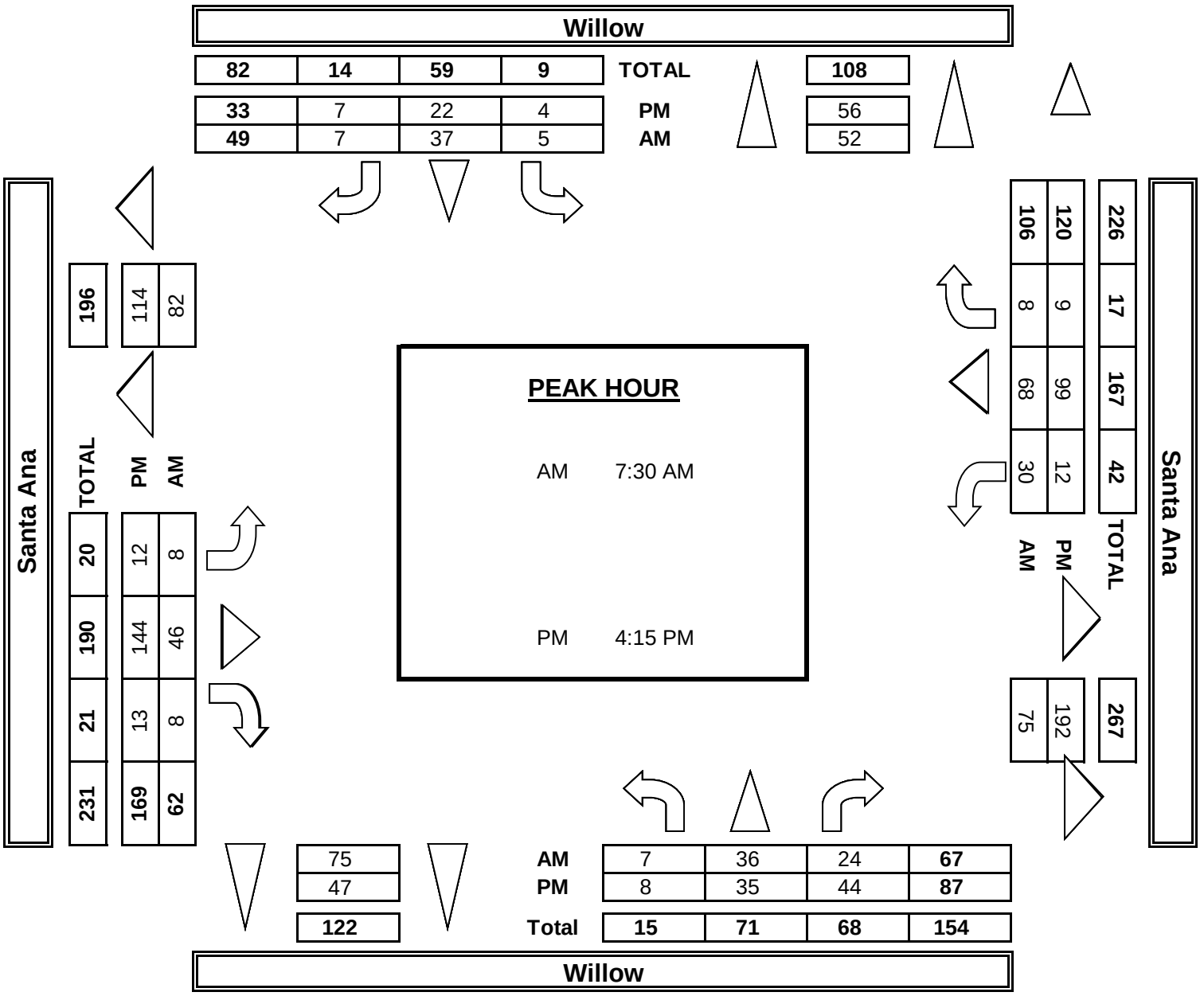
▲ N ◄ W E ► S ▼

		NORTHBOUND Willow			SOUTHBOUND Willow			EASTBOUND Santa Ana			WESTBOUND Santa Ana			
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 1	TOTAL
AM	7:00 AM	5	6	4	2	8	3	2	8	2	7	13	2	62
	7:15 AM	1	7	2	2	8	2	2	10	3	5	17	1	60
	7:30 AM	3	8	7	0	8	3	3	13	5	5	15	2	72
	7:45 AM	0	10	6	3	16	1	3	16	0	11	17	0	83
	8:00 AM	0	8	6	2	6	1	2	8	1	8	22	2	66
	8:15 AM	4	10	5	0	7	2	0	9	2	6	14	4	63
	8:30 AM	2	4	14	0	8	3	2	17	2	4	11	1	68
	8:45 AM	0	14	3	1	6	1	2	9	2	3	12	5	58
	VOLUMES	15	67	47	10	67	16	16	90	17	49	121	17	532
	APPROACH %	12%	52%	36%	11%	72%	17%	13%	73%	14%	26%	65%	9%	
	APP/DEPART	129	/	100	93	/	133	123	/	147	187	/	152	0
	BEGIN PEAK HR		7:30 AM											
	VOLUMES	7	36	24	5	37	7	8	46	8	30	68	8	284
	APPROACH %	10%	54%	36%	10%	76%	14%	13%	74%	13%	28%	64%	8%	
	PEAK HR FACTOR		0.882			0.613			0.738			0.828		0.855
	APP/DEPART	67	/	52	49	/	75	62	/	75	106	/	82	0
PM	4:00 PM	1	9	6	2	8	0	3	34	1	3	30	6	103
	4:15 PM	5	12	13	0	5	0	2	25	4	3	25	2	96
	4:30 PM	2	8	8	1	6	1	3	34	2	3	24	1	93
	4:45 PM	0	8	10	1	8	3	3	37	2	6	24	4	106
	5:00 PM	1	7	13	2	3	3	4	48	5	0	26	2	114
	5:15 PM	1	13	7	1	6	2	3	33	3	3	19	4	95
	5:30 PM	1	14	7	1	11	0	1	16	1	5	14	2	73
	5:45 PM	1	7	1	2	2	2	3	9	1	4	15	2	49
	VOLUMES	12	78	65	10	49	11	22	236	19	27	177	23	729
	APPROACH %	8%	50%	42%	14%	70%	16%	8%	85%	7%	12%	78%	10%	
	APP/DEPART	155	/	123	70	/	94	277	/	312	227	/	200	0
	BEGIN PEAK HR		4:15 PM											
	VOLUMES	8	35	44	4	22	7	12	144	13	12	99	9	409
	APPROACH %	9%	40%	51%	12%	67%	21%	7%	85%	8%	10%	83%	8%	
	PEAK HR FACTOR		0.725			0.688			0.741			0.882		0.897
	APP/DEPART	87	/	56	33	/	47	169	/	192	120	/	114	0

AimTD LLC

TURNING MOVEMENT COUNTS




Willow
82 14 59 9 TOTAL 108
33 7 22 4 PM 56
49 7 37 5 AM 52
Santa Ana
196 114 82
TOTAL PM AM
20 12 8
190 144 46
21 13 8
231 169 62
PEAK HOUR
AM 7:30 AM
PM 4:15 PM
106 120 226
8 9 17
68 99 167
30 12 42
AM PM TOTAL
75 192 267
Santa Ana
75 AM 7 36 24 67
47 PM 8 35 44 87
122 Total 15 71 68 154
Willow

INTERSECTION TURNING MOVEMENT COUNTS

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

DATE: Thu, Nov 10, 22

LOCATION: Rialto
NORTH & SOUTH: Riverside
EAST & WEST: Santa Ana

PROJECT #: SC3741
LOCATION #: 2
CONTROL: SIGNAL

NOTES:

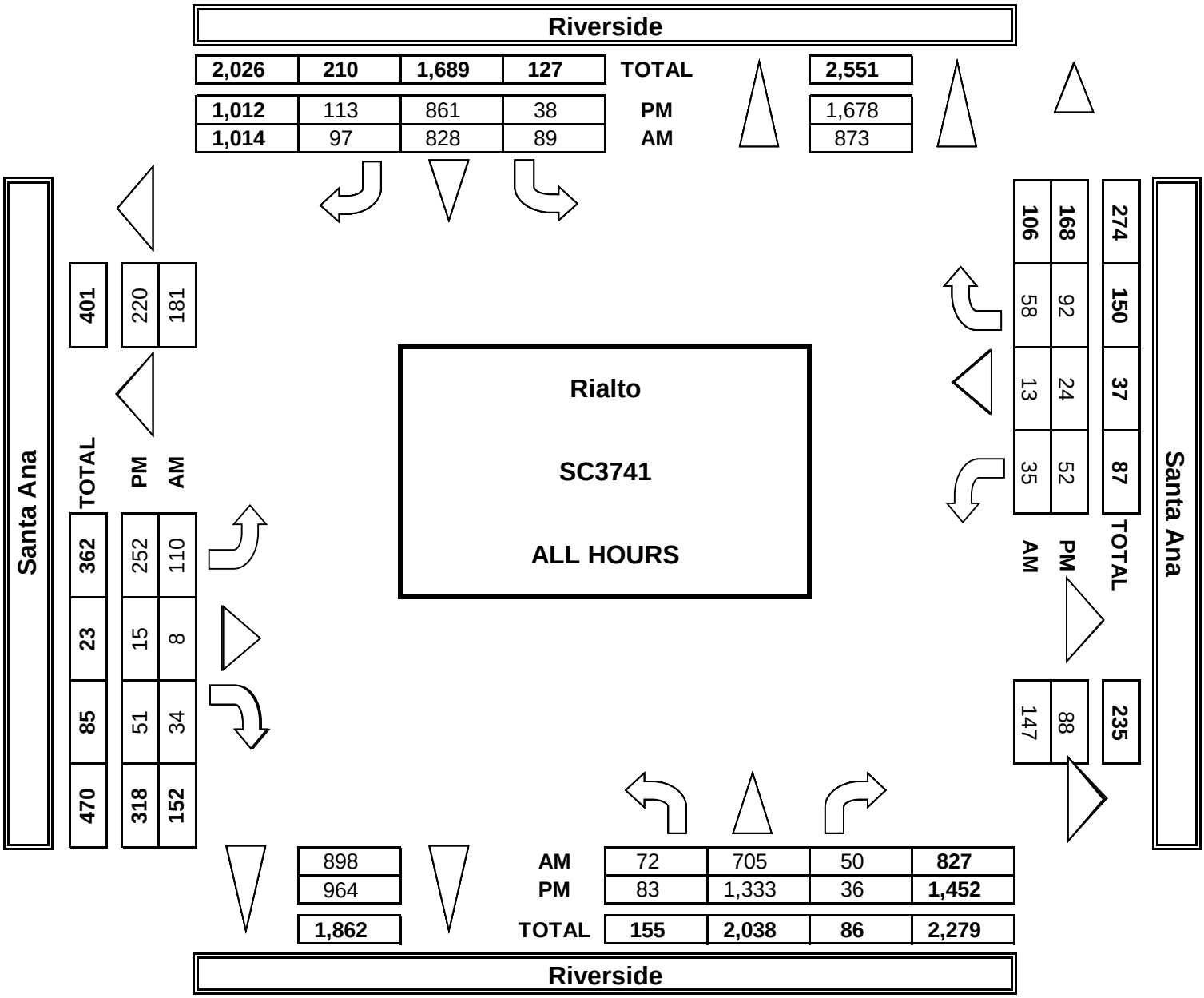
AM
PM
MD
OTHER
OTHER

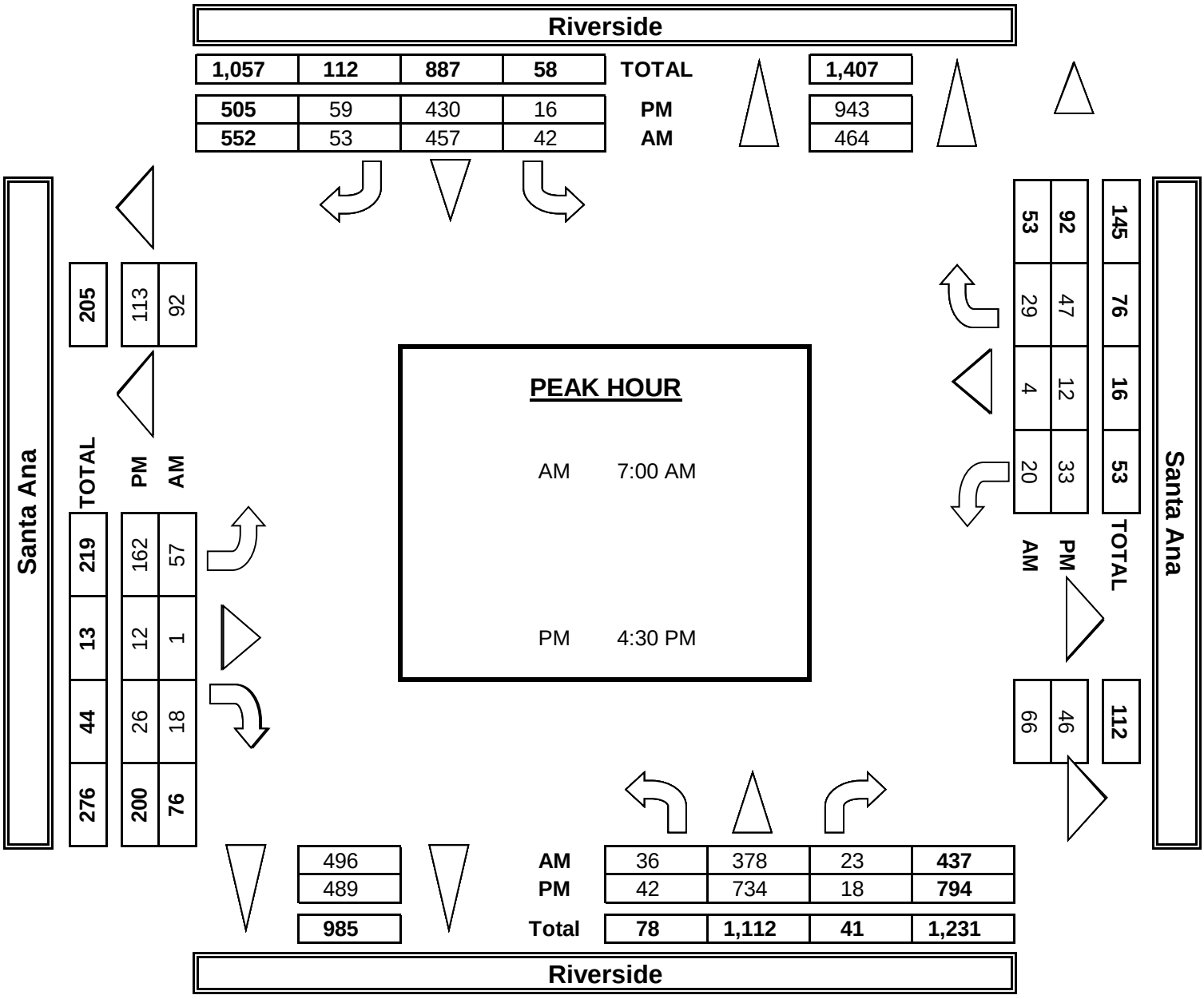
▲ N
◄ W E ►
S ▼

		NORTHBOUND Riverside			SOUTHBOUND Riverside			EASTBOUND Santa Ana			WESTBOUND Santa Ana			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	10	105	9	9	100	13	11	1	2	9	0	5	274
	7:15 AM	10	94	5	8	121	13	9	0	3	2	2	9	276
	7:30 AM	3	78	6	17	112	15	18	0	9	5	1	7	271
	7:45 AM	13	101	3	8	124	12	19	0	4	4	1	8	297
	8:00 AM	10	74	8	6	96	18	8	1	9	2	2	8	242
	8:15 AM	9	95	1	15	88	15	11	2	2	6	1	6	251
	8:30 AM	7	87	6	8	108	6	21	1	4	3	3	6	260
	8:45 AM	10	71	12	18	79	5	13	3	1	4	3	9	228
	VOLUMES	72	705	50	89	828	97	110	8	34	35	13	58	2,099
	APPROACH %	9%	85%	6%	9%	82%	10%	72%	5%	22%	33%	12%	55%	
	APP/DEPART	827	/	873	1,014	/	898	152	/	147	106	/	181	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	36	378	23	42	457	53	57	1	18	20	4	29	1,118
	APPROACH %	8%	86%	5%	8%	83%	10%	75%	1%	24%	38%	8%	55%	
	PEAK HR FACTOR		0.881			0.958			0.704			0.946		0.941
	APP/DEPART	437	/	464	552	/	496	76	/	66	53	/	92	0
PM	4:00 PM	17	146	9	5	105	19	31	1	8	5	2	17	365
	4:15 PM	13	171	3	11	83	9	35	1	6	9	8	19	368
	4:30 PM	11	152	6	5	98	8	36	0	8	12	5	17	358
	4:45 PM	9	195	2	4	126	22	40	1	5	4	2	12	422
	5:00 PM	10	196	2	6	112	15	47	10	8	11	3	14	434
	5:15 PM	12	191	8	1	94	14	39	1	5	6	2	4	377
	5:30 PM	6	168	2	4	119	15	20	1	4	3	0	6	348
	5:45 PM	5	114	4	2	124	11	4	0	7	2	2	3	278
	VOLUMES	83	1,333	36	38	861	113	252	15	51	52	24	92	2,950
	APPROACH %	6%	92%	2%	4%	85%	11%	79%	5%	16%	31%	14%	55%	
	APP/DEPART	1,452	/	1,678	1,012	/	964	318	/	88	168	/	220	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	42	734	18	16	430	59	162	12	26	33	12	47	1,591
	APPROACH %	5%	92%	2%	3%	85%	12%	81%	6%	13%	36%	13%	51%	
	PEAK HR FACTOR		0.941			0.831			0.769			0.676		0.916
	APP/DEPART	794	/	943	505	/	489	200	/	46	92	/	113	0

AimTD LLC

TURNING MOVEMENT COUNTS




Riverside
1,057 112 887 58 TOTAL 1,407
505 59 430 16 PM 943
552 53 457 42 AM 464
Santa Ana
205 113 92
TOTAL PM AM
219 162 57
13 12 1
44 26 18
276 200 76
PEAK HOUR
AM 7:00 AM
PM 4:30 PM
53 92
29 47
4 12
20 33
145 76 16 53
AM PM TOTAL
66 46
112
Santa Ana
496
489
985
AM 36 378 23 437
PM 42 734 18 794
Total 78 1,112 41 1,231
Riverside

INTERSECTION TURNING MOVEMENT COUNTS

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

DATE: Thu, Dec 1, 22

LOCATION: Rialto
NORTH & SOUTH: Willow
EAST & WEST: Jurupa

PROJECT #: SC3741
LOCATION #: 3
CONTROL: STOP ALL

NOTES:

AM / PM / MD / OTHER / OTHER

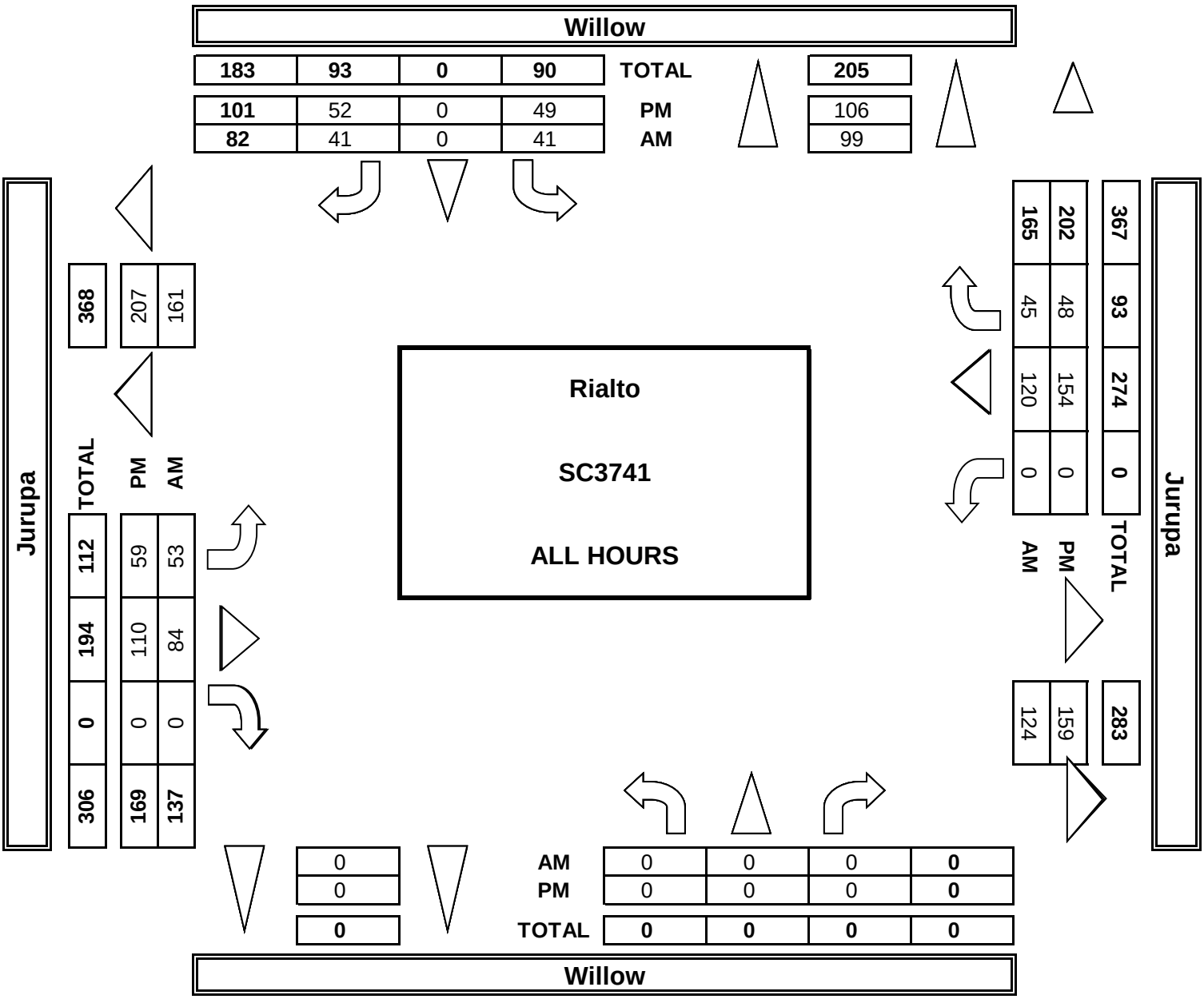
▲ N
◄ W E ►
S ▼

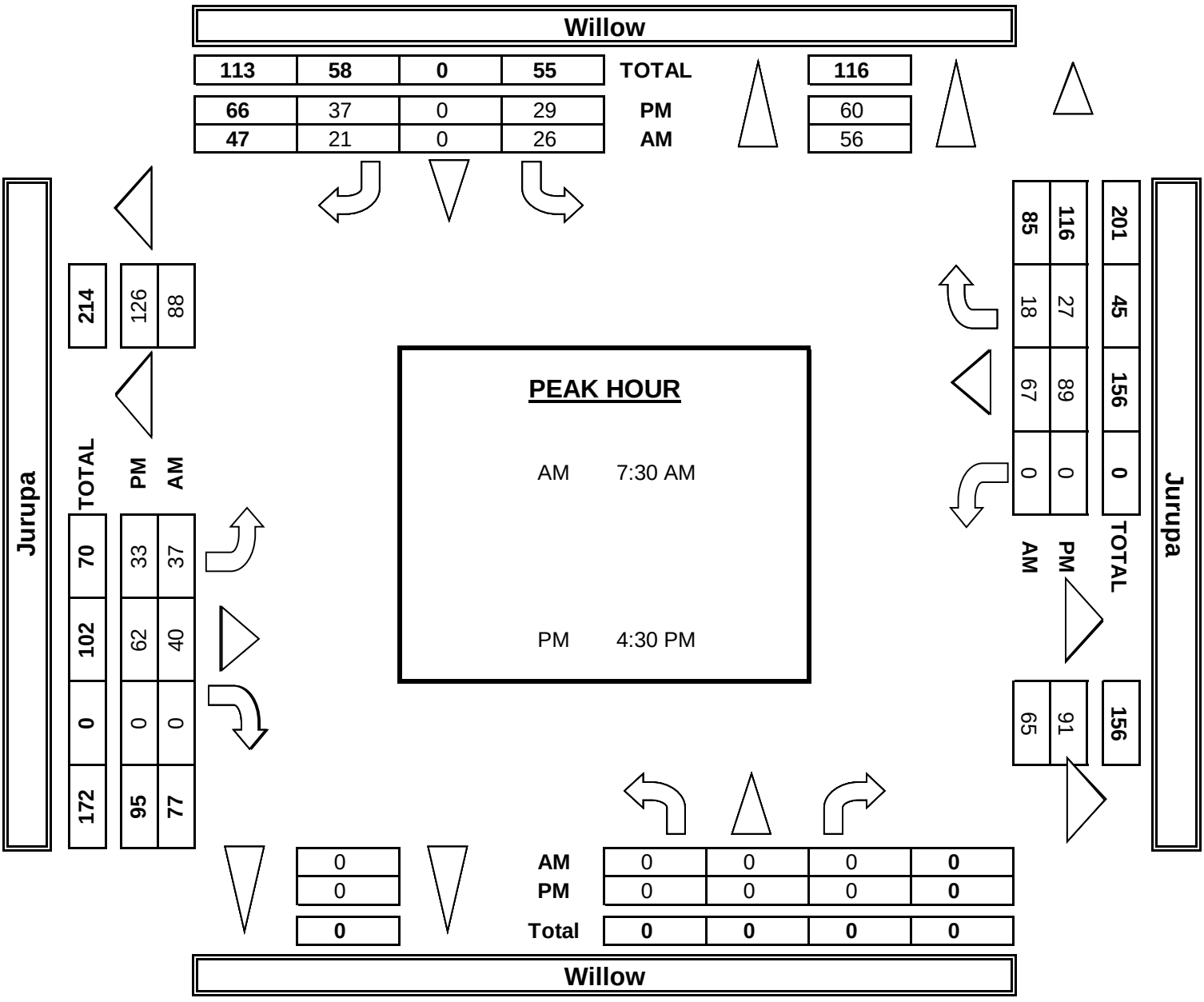
Add U-Turns to Left Turns

		NORTHBOUND Willow			SOUTHBOUND Willow			EASTBOUND Jurupa			WESTBOUND Jurupa				U-TURNS				
	LANES:	NL X	NT X	NR X	SL 0	ST X	SR 0	EL 0	ET 1	ER X	WL X	WT 1	WR 1	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	0	0	0	6	0	4	7	11	0	0	11	6	45	0	0	0	0	0
	7:15 AM	0	0	0	2	0	5	5	9	0	0	7	11	39	0	0	0	0	0
	7:30 AM	0	0	0	3	0	6	11	14	0	0	19	3	56	0	0	0	0	0
	7:45 AM	0	0	0	6	0	4	12	14	0	0	11	6	53	0	0	0	0	0
	8:00 AM	0	0	0	8	0	6	9	5	0	0	18	5	51	0	1	0	0	1
	8:15 AM	0	0	0	9	0	5	5	7	0	0	19	4	49	0	0	0	0	0
	8:30 AM	0	0	0	2	0	4	1	13	0	0	17	4	41	0	0	0	0	0
	8:45 AM	0	0	0	5	0	7	3	11	0	0	18	6	50	0	0	0	0	0
	VOLUMES	0	0	0	41	0	41	53	84	0	0	120	45	384	0	1	0	0	1
	APPROACH %	0%	0%	0%	50%	0%	50%	39%	61%	0%	0%	73%	27%						
	APP/DEPART	0	/	99	82	/	0	137	/	124	165	/	161	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	0	0	0	26	0	21	37	40	0	0	67	18	209					
	APPROACH %	0%	0%	0%	55%	0%	45%	48%	52%	0%	0%	79%	21%						
	PEAK HR FACTOR		0.000			0.839			0.740			0.924		0.933					
	APP/DEPART	0	/	56	47	/	0	77	/	65	85	/	88	0					
PM	4:00 PM	0	0	0	8	0	1	12	15	0	0	15	3	54	0	0	1	0	1
	4:15 PM	0	0	0	4	0	5	9	15	0	0	14	7	54	0	0	0	0	0
	4:30 PM	0	0	0	8	0	7	9	9	0	0	25	13	71	0	0	0	0	0
	4:45 PM	0	0	0	6	0	7	4	15	0	0	22	5	59	0	0	0	0	0
	5:00 PM	0	0	0	7	0	11	7	17	0	0	16	7	65	0	0	0	0	0
	5:15 PM	0	0	0	8	0	12	13	21	0	0	26	2	82	0	0	0	0	0
	5:30 PM	0	0	0	4	0	5	3	11	0	0	20	5	48	0	0	0	0	0
	5:45 PM	0	0	0	4	0	4	2	7	0	0	16	6	39	0	0	0	0	0
	VOLUMES	0	0	0	49	0	52	59	110	0	0	154	48	472	0	0	1	0	1
	APPROACH %	0%	0%	0%	49%	0%	51%	35%	65%	0%	0%	76%	24%						
	APP/DEPART	0	/	106	101	/	0	169	/	159	202	/	207	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	0	0	0	29	0	37	33	62	0	0	89	27	277					
	APPROACH %	0%	0%	0%	44%	0%	56%	35%	65%	0%	0%	77%	23%						
	PEAK HR FACTOR		0.000			0.825			0.699			0.763		0.845					
	APP/DEPART	0	/	60	66	/	0	95	/	91	116	/	126	0					

AimTD LLC

TURNING MOVEMENT COUNTS




Willow
113 58 0 55 TOTAL 116
66 37 0 29 PM 60
47 21 0 26 AM 56
Jurupa
214 126 88
TOTAL PM AM
70 33 37
102 62 40
0 0 0
172 95 77
PEAK HOUR
AM 7:30 AM
PM 4:30 PM
201 85 116
45 18 27
156 67 89
0 0 0
TOTAL PM AM
156 65 91
Jurupa
0 0 0 0
0 0 0 0
0 0 0 0 0
AM
PM
Total
Willow

APPENDIX B-2

TRAFFIC COUNT DATA SHEETS– PASSENGER CAR EQUIVALENT (PCE) ADJUSTED

INTERSECTION TURNING MOVEMENT COUNTS

PCE ADJUSTED

DATE:	LOCATION:	Rialto	PROJECT #:	SC3741
11/10/22	NORTH & SOUTH:	Willow	LOCATION #:	1
THURSDAY	EAST & WEST:	Santa Ana	CONTROL:	STOP ALL

	NOTES:											
PCE Adjusted	Class	1	2	3	4	5	6			AM / PM / MD / OTHER / OTHER	▲ N / ◄ W / E ► / S ▼	
	Factor	1	1.5	2	3	2	2					

	NORTHBOUND (Willow)			SOUTHBOUND (Willow)			EASTBOUND (Santa Ana)			WESTBOUND (Santa Ana)			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 1	TOTAL
AM 7:00 AM	9	12	8	5	8	4	2	9	2	8	17	5	89
7:15 AM	2	12	3	5	13	2	3	14	3	6	25	3	89
7:30 AM	4	18	17	0	9	6	3	17	6	6	20	4	107
7:45 AM	0	13	9	8	20	2	3	21	0	12	23	0	108
8:00 AM	0	14	11	5	8	1	4	13	1	13	29	3	100
8:15 AM	5	15	9	0	11	4	0	12	2	8	15	6	86
8:30 AM	3	8	27	0	14	3	2	33	6	7	18	3	122
8:45 AM	0	18	8	3	10	2	2	15	2	3	19	6	85
VOLUMES	22	108	89	26	91	23	19	132	22	62	164	29	785
APPROACH %	10%	49%	41%	18%	65%	16%	11%	77%	12%	24%	64%	11%	
APP/DEPART	219	/	156	139	/	174	173	/	247	255	/	208	0
BEGIN PEAK HR		7:30 AM											
VOLUMES	9	59	45	13	47	12	10	62	9	38	86	13	400
APPROACH %	8%	53%	40%	18%	65%	17%	12%	77%	11%	28%	63%	9%	
PEAK HR FACTOR		0.737			0.606			0.789			0.782		0.926
APP/DEPART	112	/	82	72	/	93	81	/	120	136	/	106	0
PM 4:00 PM	1	10	6	2	12	0	6	40	3	6	45	12	140
4:15 PM	5	14	20	0	10	0	2	27	6	3	39	2	127
4:30 PM	3	10	11	2	11	3	4	40	2	4	27	2	118
4:45 PM	0	8	12	1	11	5	7	50	3	11	34	8	148
5:00 PM	3	9	16	2	4	4	4	67	8	0	27	2	145
5:15 PM	1	15	7	3	10	2	4	40	7	3	23	6	121
5:30 PM	1	15	7	2	20	0	1	19	1	6	19	2	91
5:45 PM	1	7	1	4	2	4	7	11	1	4	20	4	66
VOLUMES	15	87	79	16	79	18	35	292	31	36	232	37	955
APPROACH %	8%	48%	44%	14%	70%	16%	10%	82%	9%	12%	76%	12%	
APP/DEPART	181	/	158	112	/	145	357	/	387	305	/	265	0
BEGIN PEAK HR		4:15 PM											
VOLUMES	11	40	58	5	36	12	17	183	19	18	126	14	537
APPROACH %	10%	37%	53%	9%	68%	23%	8%	84%	8%	11%	80%	9%	
PEAK HR FACTOR		0.708			0.765			0.690			0.757		0.909
APP/DEPART	109	/	71	52	/	72	218	/	245	158	/	149	0

INTERSECTION TURNING MOVEMENT COUNTS
PCE ADJUSTED

DATE:					
11/10/22	LOCATION:	Rialto	PROJECT #:	SC3741	
THURSDAY	NORTH & SOUTH:	Riverside	LOCATION #:	2	
	EAST & WEST:	Santa Ana	CONTROL:	SIGNAL	

	NOTES:											
PCE Adjusted	Class	1	2	3	4	5	6			AM / PM / MD / OTHER / OTHER	▲ N / ◄ W / E ► / S ▼	
	Factor	1	1.5	2	3	2	2					

	NORTHBOUND Riverside			SOUTHBOUND Riverside			EASTBOUND Santa Ana			WESTBOUND Santa Ana			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
7:00 AM	14	162	16	15	136	14	18	1	3	22	0	11	410
7:15 AM	15	136	12	14	159	18	13	0	4	4	5	21	399
7:30 AM	5	118	10	41	137	22	32	0	9	11	3	20	407
7:45 AM	18	150	7	15	176	16	29	0	7	10	3	19	449
8:00 AM	14	93	16	11	139	26	13	3	17	5	4	20	360
8:15 AM	9	141	2	32	139	19	17	2	2	15	1	12	389
8:30 AM	11	135	10	16	181	11	40	3	7	6	6	14	437
8:45 AM	13	110	19	33	128	5	27	4	3	9	3	22	373
AM VOLUMES	97	1,043	91	177	1,193	130	187	13	51	80	24	137	3,221
AM APPROACH %	8%	85%	7%	12%	80%	9%	75%	5%	20%	33%	10%	57%	
AM APP/DEPART	1,231	/	1,367	1,499	/	1,324	251	/	281	241	/	250	0
AM BEGIN PEAK HR		7:00 AM											
AM VOLUMES	51	564	45	85	607	69	91	1	23	47	11	71	1,663
AM APPROACH %	8%	85%	7%	11%	80%	9%	79%	1%	20%	37%	8%	55%	
AM PEAK HR FACTOR		0.864			0.921			0.698			0.941		0.927
AM APP/DEPART	660	/	726	761	/	676	115	/	131	128	/	131	0
4:00 PM	30	179	18	6	136	25	32	3	11	8	6	24	475
4:15 PM	20	201	7	18	116	10	42	1	10	10	15	26	473
4:30 PM	13	186	18	8	123	9	46	0	8	15	7	28	458
4:45 PM	13	230	4	7	180	34	47	2	6	8	3	17	549
5:00 PM	13	232	5	16	155	17	57	27	11	18	3	19	572
5:15 PM	16	220	22	1	125	16	46	3	5	11	2	6	471
5:30 PM	7	192	4	6	149	20	23	2	4	8	0	12	425
5:45 PM	7	135	10	2	151	14	6	0	9	6	4	9	353
PM VOLUMES	117	1,572	88	63	1,133	143	297	38	64	82	39	140	3,774
PM APPROACH %	7%	88%	5%	5%	85%	11%	75%	10%	16%	31%	15%	54%	
PM APP/DEPART	1,777	/	2,009	1,339	/	1,278	399	/	189	260	/	299	0
PM BEGIN PEAK HR		4:30 PM											
PM VOLUMES	54	867	49	32	582	75	195	32	30	51	15	70	2,049
PM APPROACH %	6%	89%	5%	5%	85%	11%	76%	13%	12%	38%	11%	51%	
PM PEAK HR FACTOR		0.941			0.780			0.674			0.682		0.896
PM APP/DEPART	970	/	1,131	688	/	662	256	/	113	135	/	143	0

INTERSECTION TURNING MOVEMENT COUNTS
PCE ADJUSTED

DATE:					
12/1/22	LOCATION:	Rialto	PROJECT #:	SC3741	
THURSDAY	NORTH & SOUTH:	Willow	LOCATION #:	3	
	EAST & WEST:	Jurupa	CONTROL:	STOP ALL	

	NOTES:											
PCE Adjusted	Class	1	2	3	4	5	6			AM / PM / MD / OTHER / OTHER	▲ N / ◄ W / E ► / S ▼	
	Factor	1	1.5	2	3	2	2					

	NORTHBOUND (Willow)			SOUTHBOUND (Willow)			EASTBOUND (Jurupa)			WESTBOUND (Jurupa)			
LANES:	NL X	NT X	NR X	SL 0	ST X	SR 0	EL 0	ET 1	ER X	WL X	WT 1	WR 1	TOTAL
AM 7:00 AM	0	0	0	9	0	7	10	12	0	0	12	11	60
7:15 AM	0	0	0	2	0	8	5	12	0	0	10	11	47
7:30 AM	0	0	0	6	0	8	15	17	0	0	24	5	73
7:45 AM	0	0	0	9	0	7	19	19	0	0	21	7	80
8:00 AM	0	0	0	12	0	9	9	9	0	0	25	6	69
8:15 AM	0	0	0	13	0	8	8	12	0	0	29	6	75
8:30 AM	0	0	0	3	0	8	1	16	0	0	20	6	53
8:45 AM	0	0	0	6	0	10	4	14	0	0	27	12	72
VOLUMES	0	0	0	58	0	62	70	109	0	0	166	63	527
APPROACH %	0%	0%	0%	48%	0%	52%	39%	61%	0%	0%	73%	27%	
APP/DEPART	0	/	133	120	/	0	179	/	167	229	/	228	0
BEGIN PEAK HR		7:30 AM											
VOLUMES	0	0	0	38	0	31	51	56	0	0	99	23	297
APPROACH %	0%	0%	0%	55%	0%	45%	47%	53%	0%	0%	81%	19%	
PEAK HR FACTOR		0.000			0.835			0.710			0.868		0.927
APP/DEPART	0	/	74	69	/	0	107	/	94	122	/	129	0
PM 4:00 PM	0	0	0	8	0	1	21	19	0	0	23	3	75
4:15 PM	0	0	0	5	0	6	18	17	0	0	15	12	71
4:30 PM	0	0	0	8	0	7	15	10	0	0	32	17	88
4:45 PM	0	0	0	8	0	10	8	21	0	0	30	7	83
5:00 PM	0	0	0	8	0	12	11	19	0	0	23	8	81
5:15 PM	0	0	0	10	0	16	16	27	0	0	33	3	103
5:30 PM	0	0	0	6	0	5	5	18	0	0	24	7	65
5:45 PM	0	0	0	5	0	6	5	8	0	0	19	7	49
VOLUMES	0	0	0	57	0	61	98	137	0	0	198	63	612
APPROACH %	0%	0%	0%	48%	0%	52%	42%	58%	0%	0%	76%	24%	
APP/DEPART	0	/	160	118	/	0	234	/	194	260	/	259	0
BEGIN PEAK HR		4:30 PM											
VOLUMES	0	0	0	34	0	44	50	76	0	0	118	34	354
APPROACH %	0%	0%	0%	43%	0%	57%	39%	61%	0%	0%	78%	22%	
PEAK HR FACTOR		0.000			0.760			0.738			0.778		0.859
APP/DEPART	0	/	83	78	/	0	126	/	110	151	/	162	0

APPENDIX **C**

INTERSECTION ANALYSIS
WORKSHEETS

APPENDIX C-1

INTERSECTION ANALYSIS
WORKSHEETS –
EXISTING CONDITIONS

2720 Willow Avenue Warehouse

Vistro File: K:\...\2720 Willow AM.vistro
Report File: K:\...\1 EX AM.pdf

Scenario 1 EX AM
11/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Willow Avenue at Santa Ana Avenue	All-way stop	HCM 7th Edition	WB Thru	0.331	9.9	A
2	Riverside Avenue at Santa Ana Avenue	Signalized	HCM 7th Edition	NB Left	0.614	17.9	B
3	Willow Avenue at Jurupa Avenue	All-way stop	HCM 7th Edition	WB Thru	0.233	8.8	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Willow Avenue at Santa Ana Avenue

Control Type:	All-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.331

Intersection Setup

Name	Willow Avenue			Willow Avenue			Santa Ana Avenue			Santa Ana Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Willow Avenue			Willow Avenue			Santa Ana Avenue			Santa Ana Avenue		
Base Volume Input [veh/h]	14	93	71	20	74	19	16	97	14	60	135	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	93	71	20	74	19	16	97	14	60	135	20
Peak Hour Factor	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	25	19	5	20	5	4	26	4	16	36	5
Total Analysis Volume [veh/h]	15	100	77	22	80	21	17	105	15	65	146	22
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	745	707	635	735	639	753
Degree of Utilization, x	0.26	0.17	0.19	0.02	0.33	0.03

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.03	0.63	0.71	0.06	1.44	0.09
95th-Percentile Queue Length [ft]	25.68	15.65	17.67	1.56	36.07	2.25
Approach Delay [s/veh]	9.51	9.16	9.50		10.77	
Approach LOS	A	A	A		B	
Intersection Delay [s/veh]	9.87					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 2: Riverside Avenue at Santa Ana Avenue

Control Type:	Signalized	Delay (sec / veh):	17.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.614

Intersection Setup

Name	Riverside Avenue			Riverside Avenue			Santa Ana Avenue			Santa Ana Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Riverside Avenue			Riverside Avenue			Santa Ana Avenue			Santa Ana Avenue		
Base Volume Input [veh/h]	72	975	58	76	1220	122	89	29	63	39	39	69
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	72	975	58	76	1220	122	89	29	63	39	39	69
Peak Hour Factor	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	263	16	20	329	33	24	8	17	11	11	19
Total Analysis Volume [veh/h]	78	1052	63	82	1316	132	96	31	68	42	42	74
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	40	22	0	42	24	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	54	54	5	54	54	19	19	19
g / C, Green / Cycle	0.06	0.60	0.60	0.06	0.60	0.60	0.21	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.04	0.30	0.30	0.05	0.39	0.39	0.18	0.03	0.07
s, saturation flow rate [veh/h]	1810	1900	1863	1810	1900	1840	1075	1317	1708
c, Capacity [veh/h]	107	1139	1116	112	1144	1108	281	83	351
d1, Uniform Delay [s]	41.64	10.27	10.27	41.48	11.58	11.66	36.38	30.31	30.48
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.12	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.21	1.53	1.57	8.83	2.75	2.91	3.31	4.78	0.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.49	0.49	0.73	0.64	0.65	0.69	0.51	0.33
d, Delay for Lane Group [s/veh]	50.85	11.80	11.84	50.30	14.33	14.57	39.69	35.09	31.02
Lane Group LOS	D	B	B	D	B	B	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.96	6.19	6.09	2.04	9.28	9.18	4.38	0.87	2.16
50th-Percentile Queue Length [ft/ln]	48.94	154.76	152.16	51.09	231.95	229.42	109.49	21.73	54.07
95th-Percentile Queue Length [veh/ln]	3.52	10.27	10.13	3.68	14.27	14.14	7.81	1.56	3.89
95th-Percentile Queue Length [ft/ln]	88.09	256.76	253.31	91.97	356.83	353.62	195.29	39.12	97.33

Movement, Approach, & Intersection Results

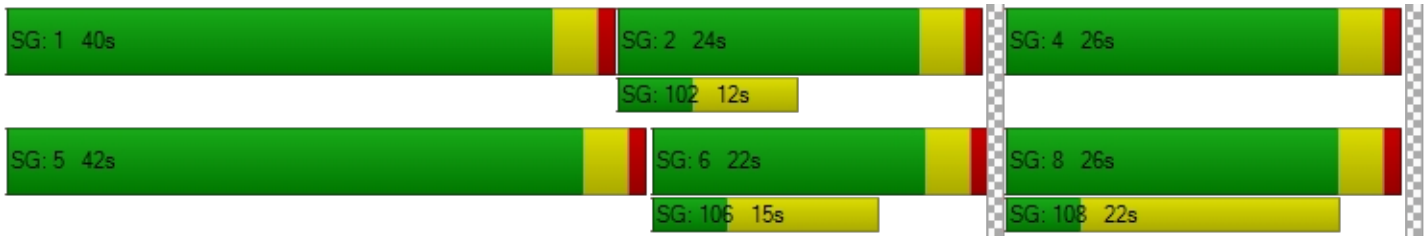
d_M, Delay for Movement [s/veh]	50.85	11.82	11.84	50.30	14.44	14.57	39.69	39.69	39.69	35.09	31.02	31.02
Movement LOS	D	B	B	D	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	14.37			16.37			39.69			32.10		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	17.88											
Intersection LOS	B											
Intersection V/C	0.614											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.940	0.000	1.934	2.050
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	444	489	489
d_b, Bicycle Delay [s]	28.80	27.22	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	2.544	2.822	1.881	1.820
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Willow Avenue at Jurupa Avenue

Control Type:	All-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.233

Intersection Setup

Name	Willow Avenue		Jurupa Avenue		Jurupa Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Willow Avenue		Jurupa Avenue		Jurupa Avenue	
Base Volume Input [veh/h]	60	49	80	88	155	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	49	80	88	155	36
Peak Hour Factor	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	13	22	24	42	10
Total Analysis Volume [veh/h]	65	53	86	95	167	39
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	778	778	728	848
Degree of Utilization, x	0.15	0.23	0.23	0.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.53	0.90	0.88	0.14
95th-Percentile Queue Length [ft]	13.34	22.46	22.06	3.61
Approach Delay [s/veh]	8.46	9.02	8.74	
Approach LOS	A	A	A	
Intersection Delay [s/veh]	8.78			
Intersection LOS	A			

2720 Willow Avenue Warehouse

Vistro File: K:\...\2720 Willow PM.vistro
Report File: K:\...\1 EX PM.pdf

Scenario 1 EX PM
11/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Willow Avenue at Santa Ana Avenue	All-way stop	HCM 7th Edition	EB Thru	0.316	9.4	A
2	Riverside Avenue at Santa Ana Avenue	Signalized	HCM 7th Edition	SB Left	0.758	24.4	C
3	Willow Avenue at Jurupa Avenue	All-way stop	HCM 7th Edition	WB Thru	0.184	8.3	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Willow Avenue at Santa Ana Avenue

Control Type:	All-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.316

Intersection Setup

Name	Willow Avenue			Willow Avenue			Santa Ana Avenue			Santa Ana Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Willow Avenue			Willow Avenue			Santa Ana Avenue			Santa Ana Avenue		
Base Volume Input [veh/h]	11	40	58	5	36	12	17	183	19	18	126	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	40	58	5	36	12	17	183	19	18	126	14
Peak Hour Factor	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	11	16	1	10	3	5	50	5	5	35	4
Total Analysis Volume [veh/h]	12	44	64	6	40	13	19	201	21	20	139	15
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	766	724	696	814	686	803
Degree of Utilization, x	0.16	0.08	0.32	0.03	0.23	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.55	0.27	1.36	0.08	0.89	0.06
95th-Percentile Queue Length [ft]	13.83	6.63	33.88	1.98	22.35	1.43
Approach Delay [s/veh]	8.57	8.41	9.98		9.34	
Approach LOS	A	A	A		A	
Intersection Delay [s/veh]	9.35					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 2: Riverside Avenue at Santa Ana Avenue

Control Type:	Signalized	Delay (sec / veh):	24.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.758

Intersection Setup

Name	Riverside Avenue			Riverside Avenue			Santa Ana Avenue			Santa Ana Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Riverside Avenue			Riverside Avenue			Santa Ana Avenue			Santa Ana Avenue		
Base Volume Input [veh/h]	87	1299	18	57	1564	80	112	15	98	38	19	66
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	1299	18	57	1564	80	112	15	98	38	19	66
Peak Hour Factor	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	362	5	16	436	22	31	4	27	11	5	18
Total Analysis Volume [veh/h]	97	1450	20	64	1746	89	125	17	109	42	21	74
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	55	0	9	54	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	53	53	4	51	51	21	21	21
g / C, Green / Cycle	0.07	0.58	0.58	0.05	0.56	0.56	0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.05	0.39	0.39	0.04	0.48	0.49	0.21	0.03	0.06
s, saturation flow rate [veh/h]	1810	1900	1891	1810	1900	1868	1173	1285	1670
c, Capacity [veh/h]	121	1111	1105	83	1071	1053	337	83	395
d1, Uniform Delay [s]	41.42	12.67	12.69	42.48	16.57	16.82	35.15	28.06	27.83
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.19	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.68	3.12	3.15	14.01	8.87	9.83	5.59	4.73	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.66	0.66	0.77	0.86	0.87	0.74	0.51	0.24
d, Delay for Lane Group [s/veh]	53.10	15.79	15.84	56.49	25.44	26.65	40.74	32.79	28.14
Lane Group LOS	D	B	B	E	C	C	D	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.49	9.99	9.97	1.71	16.91	17.34	5.79	0.84	1.67
50th-Percentile Queue Length [ft/ln]	62.19	249.68	249.37	42.85	422.87	433.49	144.67	20.90	41.65
95th-Percentile Queue Length [veh/ln]	4.48	15.17	15.15	3.09	23.66	24.17	9.73	1.50	3.00
95th-Percentile Queue Length [ft/ln]	111.93	379.25	378.86	77.13	591.49	604.21	243.30	37.62	74.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.10	15.82	15.84	56.49	26.02	26.65	40.74	40.74	40.74	32.79	28.14	28.14
Movement LOS	D	B	B	E	C	C	D	D	D	C	C	C
d_A, Approach Delay [s/veh]	18.12			27.07			40.74			29.57		
Approach LOS	B			C			D			C		
d_I, Intersection Delay [s/veh]	24.41											
Intersection LOS	C											
Intersection V/C	0.758											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	3.077	0.000	1.940	2.019
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1133	1111	489	489
d_b, Bicycle Delay [s]	8.45	8.89	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	2.852	3.126	1.974	1.786
Bicycle LOS	C	C	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Willow Avenue at Jurupa Avenue

Control Type:	All-way stop	Delay (sec / veh):	8.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.184

Intersection Setup

Name	Willow Avenue		Jurupa Avenue		Jurupa Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Willow Avenue		Jurupa Avenue		Jurupa Avenue	
Base Volume Input [veh/h]	34	44	50	76	118	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	44	50	76	118	34
Peak Hour Factor	0.8590	0.8590	0.8590	0.8590	0.8590	0.8590
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	13	15	22	34	10
Total Analysis Volume [veh/h]	40	51	58	88	137	40
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	822	802	745	872
Degree of Utilization, x	0.11	0.18	0.18	0.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.37	0.66	0.67	0.14
95th-Percentile Queue Length [ft]	9.30	16.55	16.74	3.60
Approach Delay [s/veh]	7.92	8.48	8.25	
Approach LOS	A	A	A	
Intersection Delay [s/veh]	8.26			
Intersection LOS	A			

APPENDIX C-2

INTERSECTION ANALYSIS WORKSHEETS – OPENING YEAR 2024

2720 Willow Avenue Warehouse

Vistro File: K:\...\2720 Willow AM.vistro
Report File: K:\...\3 OY 2024 AM.pdf

Scenario 3 OY 2024 AM
11/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Willow Avenue at Santa Ana Avenue	All-way stop	HCM 7th Edition	WB Thru	0.346	10.1	B
2	Riverside Avenue at Santa Ana Avenue	Signalized	HCM 7th Edition	NB Left	0.639	18.9	B
3	Willow Avenue at Jurupa Avenue	All-way stop	HCM 7th Edition	WB Thru	0.244	8.9	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Willow Avenue at Santa Ana Avenue

Control Type:	All-way stop	Delay (sec / veh):	10.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.346

Intersection Setup

Name	Willow Avenue			Willow Avenue			Santa Ana Avenue			Santa Ana Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Willow Avenue			Willow Avenue			Santa Ana Avenue			Santa Ana Avenue		
Base Volume Input [veh/h]	14	93	71	20	74	19	16	97	14	60	135	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	97	74	21	77	20	17	101	15	62	140	21
Peak Hour Factor	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	26	20	6	21	5	5	27	4	17	38	6
Total Analysis Volume [veh/h]	16	105	80	23	83	22	18	109	16	67	151	23
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	733	695	625	723	630	742
Degree of Utilization, x	0.27	0.18	0.20	0.02	0.35	0.03

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.12	0.67	0.76	0.07	1.54	0.10
95th-Percentile Queue Length [ft]	27.89	16.76	18.90	1.70	38.54	2.40
Approach Delay [s/veh]	9.76	9.34	9.68		11.06	
Approach LOS	A	A	A		B	
Intersection Delay [s/veh]	10.11					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: Riverside Avenue at Santa Ana Avenue

Control Type:	Signalized	Delay (sec / veh):	18.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.639

Intersection Setup

Name	Riverside Avenue			Riverside Avenue			Santa Ana Avenue			Santa Ana Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Riverside Avenue			Riverside Avenue			Santa Ana Avenue			Santa Ana Avenue		
Base Volume Input [veh/h]	72	975	58	76	1220	122	89	29	63	39	39	69
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	1014	60	79	1269	127	93	30	66	41	41	72
Peak Hour Factor	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	273	16	21	342	34	25	8	18	11	11	19
Total Analysis Volume [veh/h]	81	1094	65	85	1369	137	100	32	71	44	44	78
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	40	22	0	42	24	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	53	53	6	53	53	19	19	19
g / C, Green / Cycle	0.06	0.59	0.59	0.06	0.59	0.59	0.21	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.04	0.31	0.31	0.05	0.40	0.41	0.19	0.03	0.07
s, saturation flow rate [veh/h]	1810	1900	1863	1810	1900	1840	1072	1312	1707
c, Capacity [veh/h]	110	1119	1097	116	1124	1089	289	82	365
d1, Uniform Delay [s]	41.53	10.99	11.00	41.37	12.50	12.61	36.09	29.78	29.95
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.13	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.99	1.75	1.79	8.64	3.27	3.50	3.83	5.30	0.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.52	0.52	0.73	0.68	0.68	0.70	0.53	0.33
d, Delay for Lane Group [s/veh]	50.52	12.74	12.79	50.01	15.77	16.11	39.92	35.09	30.49
Lane Group LOS	D	B	B	D	B	B	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.02	6.79	6.68	2.11	10.29	10.24	4.59	0.91	2.25
50th-Percentile Queue Length [ft/ln]	50.60	169.67	166.98	52.76	257.37	255.91	114.81	22.76	56.36
95th-Percentile Queue Length [veh/ln]	3.64	11.06	10.92	3.80	15.56	15.48	8.11	1.64	4.06
95th-Percentile Queue Length [ft/ln]	91.09	276.48	272.94	94.96	388.92	387.09	202.68	40.96	101.45

Movement, Approach, & Intersection Results

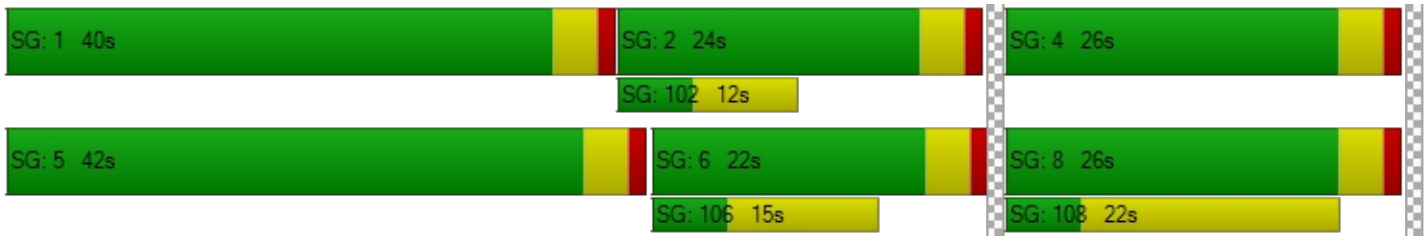
d_M, Delay for Movement [s/veh]	50.52	12.76	12.79	50.01	15.92	16.11	39.92	39.92	39.92	35.09	30.49	30.49
Movement LOS	D	B	B	D	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	15.23			17.76			39.92			31.71		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	18.91											
Intersection LOS	B											
Intersection V/C	0.639											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.960	0.000	1.943	2.055
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	444	489	489
d_b, Bicycle Delay [s]	28.80	27.22	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	2.583	2.872	1.895	1.834
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Willow Avenue at Jurupa Avenue

Control Type:	All-way stop	Delay (sec / veh):	8.9
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.244

Intersection Setup

Name	Willow Avenue		Jurupa Avenue		Jurupa Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Willow Avenue		Jurupa Avenue		Jurupa Avenue	
Base Volume Input [veh/h]	60	49	80	88	155	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	51	83	92	161	37
Peak Hour Factor	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	14	22	25	43	10
Total Analysis Volume [veh/h]	67	55	90	99	174	40
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	771	775	725	845
Degree of Utilization, x	0.16	0.24	0.24	0.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.56	0.96	0.94	0.15
95th-Percentile Queue Length [ft]	14.00	23.90	23.38	3.72
Approach Delay [s/veh]	8.54	9.14	8.85	
Approach LOS	A	A	A	
Intersection Delay [s/veh]	8.88			
Intersection LOS	A			

2720 Willow Avenue Warehouse

Vistro File: K:\...\2720 Willow PM.vistro
Report File: K:\...\3 OY 2024 PM.pdf

Scenario 3 OY 2024 PM
11/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Willow Avenue at Santa Ana Avenue	All-way stop	HCM 7th Edition	EB Thru	0.331	9.5	A
2	Riverside Avenue at Santa Ana Avenue	Signalized	HCM 7th Edition	SB Left	0.789	27.3	C
3	Willow Avenue at Jurupa Avenue	All-way stop	HCM 7th Edition	WB Thru	0.193	8.3	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Willow Avenue at Santa Ana Avenue

Control Type:	All-way stop	Delay (sec / veh):	9.5
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.331

Intersection Setup

Name	Willow Avenue			Willow Avenue			Santa Ana Avenue			Santa Ana Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Willow Avenue			Willow Avenue			Santa Ana Avenue			Santa Ana Avenue		
Base Volume Input [veh/h]	11	40	58	5	36	12	17	183	19	18	126	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	42	60	5	37	12	18	190	20	19	131	15
Peak Hour Factor	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	12	17	1	10	3	5	52	6	5	36	4
Total Analysis Volume [veh/h]	12	46	66	6	41	13	20	209	22	21	144	17
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	759	716	692	809	682	798
Degree of Utilization, x	0.16	0.08	0.33	0.03	0.24	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.58	0.27	1.45	0.08	0.94	0.07
95th-Percentile Queue Length [ft]	14.55	6.84	36.15	2.10	23.62	1.63
Approach Delay [s/veh]	8.67	8.49	10.17		9.44	
Approach LOS	A	A	B		A	
Intersection Delay [s/veh]	9.49					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 2: Riverside Avenue at Santa Ana Avenue

Control Type:	Signalized	Delay (sec / veh):	27.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.789

Intersection Setup

Name	Riverside Avenue			Riverside Avenue			Santa Ana Avenue			Santa Ana Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Riverside Avenue			Riverside Avenue			Santa Ana Avenue			Santa Ana Avenue		
Base Volume Input [veh/h]	87	1299	18	57	1564	80	112	15	98	38	19	66
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	90	1351	19	59	1627	83	116	16	102	40	20	69
Peak Hour Factor	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	377	5	16	454	23	32	4	28	11	6	19
Total Analysis Volume [veh/h]	100	1508	21	66	1816	93	129	18	114	45	22	77
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	55	0	9	54	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	52	52	4	50	50	22	22	22
g / C, Green / Cycle	0.07	0.58	0.58	0.05	0.56	0.56	0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.06	0.40	0.40	0.04	0.50	0.51	0.22	0.04	0.06
s, saturation flow rate [veh/h]	1810	1900	1891	1810	1900	1868	1171	1278	1671
c, Capacity [veh/h]	121	1095	1090	86	1059	1041	344	90	405
d1, Uniform Delay [s]	41.49	13.51	13.54	42.37	17.71	18.03	35.03	27.76	27.44
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.21	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.32	3.71	3.76	13.20	12.17	13.89	6.47	4.31	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.70	0.70	0.77	0.90	0.92	0.76	0.50	0.24
d, Delay for Lane Group [s/veh]	54.81	17.23	17.29	55.56	29.89	31.91	41.50	32.06	27.75
Lane Group LOS	D	B	B	E	C	C	D	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.61	11.03	11.02	1.75	19.32	20.03	6.09	0.88	1.72
50th-Percentile Queue Length [ft/ln]	65.27	275.67	275.58	43.74	482.91	500.73	152.36	22.07	43.04
95th-Percentile Queue Length [veh/ln]	4.70	16.47	16.47	3.15	26.52	27.37	10.14	1.59	3.10
95th-Percentile Queue Length [ft/ln]	117.49	411.81	411.70	78.72	663.11	684.22	253.58	39.72	77.47

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.81	17.26	17.29	55.56	30.85	31.91	41.50	41.50	41.50	32.06	27.75	27.75
Movement LOS	D	B	B	E	C	C	D	D	D	C	C	C
d_A, Approach Delay [s/veh]	19.56			31.72			41.50			29.10		
Approach LOS	B			C			D			C		
d_I, Intersection Delay [s/veh]	27.32											
Intersection LOS	C											
Intersection V/C	0.789											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	3.104	0.000	1.948	2.023
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1133	1111	489	489
d_b, Bicycle Delay [s]	8.45	8.89	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	2.904	3.189	1.990	1.797
Bicycle LOS	C	C	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Willow Avenue at Jurupa Avenue

Control Type:	All-way stop	Delay (sec / veh):	8.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.193

Intersection Setup

Name	Willow Avenue		Jurupa Avenue		Jurupa Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Willow Avenue		Jurupa Avenue		Jurupa Avenue	
Base Volume Input [veh/h]	34	44	50	76	118	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	46	52	79	123	35
Peak Hour Factor	0.8590	0.8590	0.8590	0.8590	0.8590	0.8590
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	13	15	23	36	10
Total Analysis Volume [veh/h]	41	54	61	92	143	41
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	817	799	743	869
Degree of Utilization, x	0.12	0.19	0.19	0.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.39	0.70	0.71	0.15
95th-Percentile Queue Length [ft]	9.82	17.61	17.71	3.71
Approach Delay [s/veh]	7.98	8.57	8.33	
Approach LOS	A	A	A	
Intersection Delay [s/veh]	8.34			
Intersection LOS	A			

APPENDIX C-3

INTERSECTION ANALYSIS WORKSHEETS – OPENING YEAR 2024 PLUS PROJECT

2720 Willow Avenue Warehouse

Vistro File: K:\...\2720 Willow AM.vistro
Report File: K:\...\4 OY 2024 WP AM.pdf

Scenario 4 OY 2024 WP AM
11/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Willow Avenue at Santa Ana Avenue	All-way stop	HCM 7th Edition	WB Thru	0.382	10.4	B
2	Riverside Avenue at Santa Ana Avenue	Signalized	HCM 7th Edition	NB Left	0.653	19.5	B
3	Willow Avenue at Jurupa Avenue	All-way stop	HCM 7th Edition	WB Thru	0.244	8.9	A
101	Willow Avenue at Northern Driveway	Two-way stop	HCM 7th Edition	EB Left	0.003	10.8	B
102	Willow Avenue at Southern Driveway	Two-way stop	HCM 7th Edition	EB Left	0.008	10.8	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Willow Avenue at Santa Ana Avenue

Control Type:	All-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.382

Intersection Setup

Name	Willow Avenue			Willow Avenue			Santa Ana Avenue			Santa Ana Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Willow Avenue			Willow Avenue			Santa Ana Avenue			Santa Ana Avenue		
Base Volume Input [veh/h]	14	93	71	20	74	19	16	97	14	60	135	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	7	0	0	0	0	0	1	19	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	97	81	21	77	20	17	101	16	81	140	21
Peak Hour Factor	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	26	22	6	21	5	5	27	4	22	38	6
Total Analysis Volume [veh/h]	16	105	87	23	83	22	18	109	17	87	151	23
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	724	684	618	714	623	737
Degree of Utilization, x	0.29	0.19	0.21	0.02	0.38	0.03

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.19	0.68	0.77	0.07	1.79	0.10
95th-Percentile Queue Length [ft]	29.70	17.10	19.16	1.83	44.71	2.41
Approach Delay [s/veh]	9.97	9.47	9.77		11.63	
Approach LOS	A	A	A		B	
Intersection Delay [s/veh]	10.43					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: Riverside Avenue at Santa Ana Avenue

Control Type:	Signalized	Delay (sec / veh):	19.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.653

Intersection Setup

Name	Riverside Avenue			Riverside Avenue			Santa Ana Avenue			Santa Ana Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Riverside Avenue			Riverside Avenue			Santa Ana Avenue			Santa Ana Avenue		
Base Volume Input [veh/h]	72	975	58	76	1220	122	89	29	63	39	39	69
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	19	7	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	1014	60	79	1269	146	100	30	66	41	41	72
Peak Hour Factor	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	273	16	21	342	39	27	8	18	11	11	19
Total Analysis Volume [veh/h]	81	1094	65	85	1369	157	108	32	71	44	44	78
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	40	22	0	42	24	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	52	52	6	53	53	20	20	20
g / C, Green / Cycle	0.06	0.58	0.58	0.06	0.58	0.58	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.04	0.31	0.31	0.05	0.41	0.41	0.20	0.03	0.07
s, saturation flow rate [veh/h]	1810	1900	1863	1810	1900	1833	1073	1312	1707
c, Capacity [veh/h]	110	1105	1083	116	1110	1071	298	82	378
d1, Uniform Delay [s]	41.53	11.39	11.39	41.37	13.08	13.22	35.89	29.17	29.39
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.15	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.99	1.82	1.86	8.64	3.59	3.90	4.25	5.35	0.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.53	0.53	0.73	0.69	0.70	0.71	0.54	0.32
d, Delay for Lane Group [s/veh]	50.52	13.20	13.25	50.01	16.67	17.12	40.14	34.52	29.89
Lane Group LOS	D	B	B	D	B	B	D	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.02	6.95	6.84	2.11	10.83	10.79	4.80	0.90	2.23
50th-Percentile Queue Length [ft/ln]	50.60	173.77	171.02	52.76	270.74	269.65	119.99	22.52	55.71
95th-Percentile Queue Length [veh/ln]	3.64	11.27	11.13	3.80	16.23	16.17	8.39	1.62	4.01
95th-Percentile Queue Length [ft/ln]	91.09	281.87	278.25	94.96	405.66	404.31	209.81	40.54	100.29

Movement, Approach, & Intersection Results

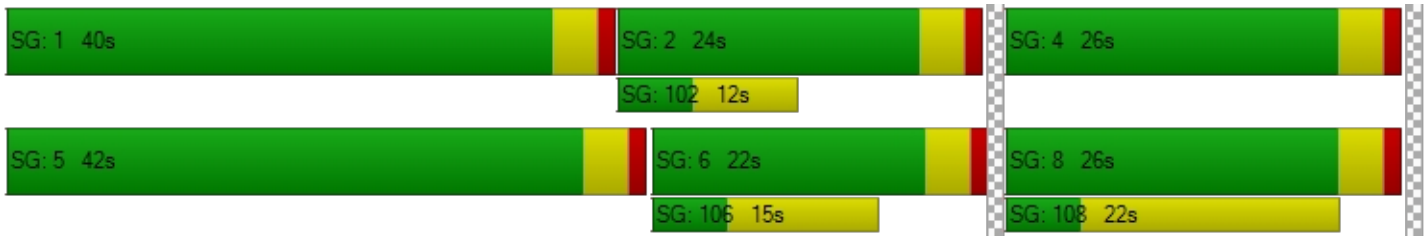
d_M, Delay for Movement [s/veh]	50.52	13.23	13.25	50.01	16.86	17.12	40.14	40.14	40.14	34.52	29.89	29.89
Movement LOS	D	B	B	D	B	B	D	D	D	C	C	C
d_A, Approach Delay [s/veh]	15.66			18.64			40.14			31.11		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	19.54											
Intersection LOS	B											
Intersection V/C	0.653											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.960	0.000	1.957	2.055
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	444	489	489
d_b, Bicycle Delay [s]	28.80	27.22	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	2.583	2.889	1.908	1.834
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Willow Avenue at Jurupa Avenue

Control Type:	All-way stop	Delay (sec / veh):	8.9
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.244

Intersection Setup

Name	Willow Avenue		Jurupa Avenue		Jurupa Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Willow Avenue		Jurupa Avenue		Jurupa Avenue	
Base Volume Input [veh/h]	60	49	80	88	155	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	0	0	0	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	63	51	83	92	161	42
Peak Hour Factor	0.9270	0.9270	0.9270	0.9270	0.9270	0.9270
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	14	22	25	43	11
Total Analysis Volume [veh/h]	68	55	90	99	174	45
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	769	773	724	844
Degree of Utilization, x	0.16	0.24	0.24	0.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.57	0.96	0.94	0.17
95th-Percentile Queue Length [ft]	14.18	23.95	23.40	4.22
Approach Delay [s/veh]	8.57	9.16	8.82	
Approach LOS	A	A	A	
Intersection Delay [s/veh]	8.88			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 101: Willow Avenue at Northern Driveway

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name	Willow Avenue		Willow Avenue		Northern Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Willow Avenue		Willow Avenue		Northern Driveway	
Base Volume Input [veh/h]	0	178	148	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	13	7	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	190	167	7	2	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	50	44	2	1	0
Total Analysis Volume [veh/h]	0	200	176	7	2	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.56	0.00	0.00	0.00	10.77	9.16
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.24	0.24
d_A, Approach Delay [s/veh]	0.00		0.00		10.77	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.06					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 102: Willow Avenue at Southern Driveway

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name	Willow Avenue		Willow Avenue		Southern Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Willow Avenue		Willow Avenue		Southern Driveway	
Base Volume Input [veh/h]	0	178	148	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	0	0	13	5	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	185	154	13	5	1
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	49	41	3	1	0
Total Analysis Volume [veh/h]	5	195	162	14	5	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	7.55	0.00	0.00	0.00	10.78	9.14
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	0.21	0.21	0.00	0.00	0.69	0.69
d_A, Approach Delay [s/veh]	0.19		0.00		10.50	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.26					
Intersection LOS	B					

2720 Willow Avenue Warehouse

Vistro File: K:\...\2720 Willow PM.vistro
Report File: K:\...\4 OY 2024 WP PM.pdf

Scenario 4 OY 2024 WP PM
11/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Willow Avenue at Santa Ana Avenue	All-way stop	HCM 7th Edition	EB Thru	0.336	9.7	A
2	Riverside Avenue at Santa Ana Avenue	Signalized	HCM 7th Edition	NB Left	0.826	28.7	C
3	Willow Avenue at Jurupa Avenue	All-way stop	HCM 7th Edition	WB Thru	0.193	8.3	A
101	Willow Avenue at Northern Driveway	Two-way stop	HCM 7th Edition	EB Left	0.010	9.7	A
102	Willow Avenue at Southern Driveway	Two-way stop	HCM 7th Edition	EB Left	0.023	9.7	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Willow Avenue at Santa Ana Avenue

Control Type:	All-way stop	Delay (sec / veh):	9.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.336

Intersection Setup

Name	Willow Avenue			Willow Avenue			Santa Ana Avenue			Santa Ana Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Willow Avenue			Willow Avenue			Santa Ana Avenue			Santa Ana Avenue		
Base Volume Input [veh/h]	11	40	58	5	36	12	17	183	19	18	126	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	0	24	0	0	0	0	0	0	8	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	42	84	5	37	12	18	190	20	27	131	15
Peak Hour Factor	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	12	23	1	10	3	5	52	6	7	36	4
Total Analysis Volume [veh/h]	13	46	92	6	41	13	20	209	22	30	144	17
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	759	704	681	793	668	783
Degree of Utilization, x	0.20	0.09	0.34	0.03	0.26	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.74	0.28	1.48	0.09	1.04	0.07
95th-Percentile Queue Length [ft]	18.42	6.96	37.04	2.14	25.98	1.66
Approach Delay [s/veh]	8.91	8.59	10.36		9.75	
Approach LOS	A	A	B		A	
Intersection Delay [s/veh]	9.68					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 2: Riverside Avenue at Santa Ana Avenue

Control Type:	Signalized	Delay (sec / veh):	28.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.826

Intersection Setup

Name	Riverside Avenue			Riverside Avenue			Santa Ana Avenue			Santa Ana Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Riverside Avenue			Riverside Avenue			Santa Ana Avenue			Santa Ana Avenue		
Base Volume Input [veh/h]	87	1299	18	57	1564	80	112	15	98	38	19	66
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	8	24	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	90	1351	19	59	1627	91	140	16	102	40	20	69
Peak Hour Factor	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	377	5	16	454	25	39	4	28	11	6	19
Total Analysis Volume [veh/h]	100	1508	21	66	1816	102	156	18	114	45	22	77
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	55	0	9	54	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	17	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	52	52	4	50	50	22	22	22
g / C, Green / Cycle	0.07	0.57	0.57	0.05	0.56	0.56	0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.06	0.40	0.40	0.04	0.50	0.51	0.26	0.04	0.06
s, saturation flow rate [veh/h]	1810	1900	1891	1810	1900	1865	1121	1278	1671
c, Capacity [veh/h]	121	1089	1084	89	1056	1036	336	110	408
d1, Uniform Delay [s]	41.49	13.73	13.75	42.23	17.95	18.30	36.59	27.45	27.31
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.28	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.32	3.80	3.85	11.52	12.90	14.94	14.85	2.41	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.70	0.70	0.74	0.91	0.93	0.86	0.41	0.24
d, Delay for Lane Group [s/veh]	54.81	17.54	17.60	53.75	30.84	33.24	51.44	29.86	27.61
Lane Group LOS	D	B	B	D	C	C	D	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.61	11.10	11.10	1.72	19.71	20.54	7.63	0.84	1.72
50th-Percentile Queue Length [ft/ln]	65.27	277.54	277.45	42.92	492.79	513.52	190.86	21.08	42.97
95th-Percentile Queue Length [veh/ln]	4.70	16.57	16.56	3.09	26.99	27.97	12.17	1.52	3.09
95th-Percentile Queue Length [ft/ln]	117.49	414.15	414.04	77.25	674.82	699.34	304.15	37.95	77.35

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.81	17.57	17.60	53.75	31.97	33.24	51.44	51.44	51.44	29.86	27.61	27.61
Movement LOS	D	B	B	D	C	C	D	D	D	C	C	C
d_A, Approach Delay [s/veh]	19.86			32.76			51.44			28.31		
Approach LOS	B			C			D			C		
d_I, Intersection Delay [s/veh]	28.74											
Intersection LOS	C											
Intersection V/C	0.826											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	3.104	0.000	1.966	2.023
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1133	1111	489	489
d_b, Bicycle Delay [s]	8.45	8.89	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	2.904	3.196	2.035	1.797
Bicycle LOS	C	C	B	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Willow Avenue at Jurupa Avenue

Control Type:	All-way stop	Delay (sec / veh):	8.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.193

Intersection Setup

Name	Willow Avenue		Jurupa Avenue		Jurupa Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Willow Avenue		Jurupa Avenue		Jurupa Avenue	
Base Volume Input [veh/h]	34	44	50	76	118	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	0	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	46	52	79	123	37
Peak Hour Factor	0.8590	0.8590	0.8590	0.8590	0.8590	0.8590
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	13	15	23	36	11
Total Analysis Volume [veh/h]	43	54	61	92	143	43
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	815	798	742	868
Degree of Utilization, x	0.12	0.19	0.19	0.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.40	0.71	0.71	0.16
95th-Percentile Queue Length [ft]	10.09	17.65	17.74	3.91
Approach Delay [s/veh]	8.02	8.58	8.33	
Approach LOS	A	A	A	
Intersection Delay [s/veh]	8.35			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 101: Willow Avenue at Northern Driveway

Control Type:	Two-way stop	Delay (sec / veh):	9.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name	Willow Avenue		Willow Avenue		Northern Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Willow Avenue		Willow Avenue		Northern Driveway	
Base Volume Input [veh/h]	0	109	73	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	17	5	3	8	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	130	81	3	8	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	34	21	1	2	0
Total Analysis Volume [veh/h]	0	137	85	3	8	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	7.37	0.00	0.00	0.00	9.73	8.73
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.79	0.79
d_A, Approach Delay [s/veh]	0.00		0.00		9.73	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.33					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 102: Willow Avenue at Southern Driveway

Control Type:	Two-way stop	Delay (sec / veh):	9.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.023

Intersection Setup

Name	Willow Avenue		Willow Avenue		Southern Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Willow Avenue		Willow Avenue		Southern Driveway	
Base Volume Input [veh/h]	0	109	73	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	5	17	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	113	76	5	17	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	30	20	1	4	1
Total Analysis Volume [veh/h]	2	119	80	5	18	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	7.36	0.00	0.00	0.00	9.69	8.78
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft/ln]	0.08	0.08	0.00	0.00	1.92	1.92
d_A, Approach Delay [s/veh]	0.12		0.00		9.60	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.91					
Intersection LOS	A					

APPENDIX **D**

ADT COUNT DATA SHEETS

City: Rialto
Location: Willow Avenue/North Driveway
Date: Tuesday, October 17, 2023
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	1	1
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	4	0	0	0	4
4:45	7	0	0	0	7
5:00	1	0	0	0	1
5:15	4	0	0	0	4
5:30	1	0	0	0	1
5:45	0	0	0	0	0
6:00	2	0	0	0	2
6:15	3	0	0	0	3
6:30	2	0	0	0	2
6:45	2	0	0	0	2
7:00	1	0	1	0	2
7:15	1	0	0	1	2
7:30	5	0	0	0	5
7:45	3	0	0	0	3
8:00	2	0	0	0	2
8:15	0	0	0	0	0
8:30	0	0	1	0	1
8:45	1	0	0	0	1
9:00	1	0	0	0	1
9:15	1	0	0	0	1
9:30	2	0	0	0	2
9:45	0	1	0	0	1
10:00	1	0	0	0	1
10:15	2	0	0	0	2
10:30	2	1	0	0	3
10:45	1	0	0	0	1
11:00	0	1	0	0	1
11:15	2	0	0	0	2
11:30	1	0	0	1	2
11:45	0	0	0	0	0
12:00	0	0	0	0	0
12:15	2	0	0	0	2
12:30	2	0	0	0	2
12:45	1	0	0	0	1
13:00	1	0	0	1	2
13:15	3	0	0	0	3
13:30	0	0	0	0	0
13:45	0	0	0	0	0
14:00	1	0	0	0	1
14:15	0	0	0	0	0
14:30	1	0	1	3	5
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	1	1
15:45	0	1	0	0	1
16:00	0	0	0	0	0
16:15	0	0	0	0	0
16:30	0	0	0	0	0
16:45	0	0	0	0	0
17:00	0	1	0	0	1
17:15	0	0	0	0	0
17:30	0	0	0	1	1
17:45	0	0	0	0	0
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	0	0	0	0	0
19:15	0	0	0	0	0
19:30	1	0	0	0	1
19:45	0	0	0	0	0
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	0	0
23:30	0	0	0	0	0
23:45	0	0	0	0	0
TOTAL	**64**	**5**	**3**	**9**	**81**

	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	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	2	0	2
6:00	1	0	0	0	1
6:15	1	0	0	1	2
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	1	0	0	1	2
7:45	0	0	0	0	0
8:00	0	0	0	0	0
8:15	0	0	0	2	2
8:30	0	0	1	0	1
8:45	0	0	0	0	0
9:00	0	0	0	0	0
9:15	1	0	0	0	1
9:30	1	0	0	0	1
9:45	1	0	0	0	1
10:00	0	0	0	0	0
10:15	2	1	0	0	3
10:30	0	1	0	0	1
10:45	0	0	0	0	0
11:00	1	1	0	0	2
11:15	1	0	0	0	1
11:30	1	0	0	0	1
11:45	0	0	0	1	1
12:00	2	0	0	0	2
12:15	1	0	0	0	1
12:30	4	0	0	0	4
12:45	0	0	0	0	0
13:00	2	0	0	0	2
13:15	1	0	0	0	1
13:30	9	0	0	1	10
13:45	1	0	0	0	1
14:00	2	0	0	0	2
14:15	0	0	0	0	0
14:30	1	0	0	0	1
14:45	2	0	0	0	2
15:00	1	0	0	1	2
15:15	6	0	0	0	6
15:30	0	0	0	0	0
15:45	2	0	0	0	2
16:00	0	1	0	0	1
16:15	2	0	0	0	2
16:30	1	0	0	0	1
16:45	3	0	0	0	3
17:00	3	1	0	0	4
17:15	1	0	0	0	1
17:30	1	0	0	0	1
17:45	0	0	0	0	0
18:00	1	0	0	0	1
18:15	1	0	0	1	2
18:30	0	0	0	0	0
18:45	0	0	0	0	0
19:00	0	0	0	0	0
19:15	0	0	0	0	0
19:30	2	0	0	0	2
19:45	0	0	0	0	0
20:00	2	0	0	0	2
20:15	1	0	0	0	1
20:30	0	0	0	0	0
20:45	0	0	0	0	0
21:00	0	0	0	0	0
21:15	1	0	0	0	1
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
	64	**5**	**3**	**8**	**80**

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

City: Rialto
Location: Willow Avenue/North Driveway
Date: Wednesday, October 18, 2023
Count Type: Driveway Classification

	Entering					Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0	0	0	0	0	0
0:15	0	0	0	0	0	0	0	0	0	0
0:30	0	0	0	0	0	0	0	0	0	0
0:45	0	0	0	0	0	0	0	0	0	0
1:00	0	0	0	0	0	0	0	0	0	0
1:15	0	0	0	0	0	0	0	0	0	0
1:30	0	0	0	0	0	0	0	0	0	0
1:45	0	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0	0
2:15	0	0	0	0	0	0	0	0	0	0
2:30	0	0	0	0	0	0	0	0	0	0
2:45	0	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0	0	0	0
3:15	0	0	0	0	0	0	0	0	0	0
3:30	0	0	0	0	0	0	0	0	0	0
3:45	0	0	0	0	0	0	0	0	0	0
4:00	0	0	0	0	0	0	0	0	0	0
4:15	0	0	0	0	0	0	0	0	0	0
4:30	5	0	0	0	5	0	0	0	0	0
4:45	6	0	0	0	6	0	0	0	0	0
5:00	1	0	0	0	1	1	0	0	0	1
5:15	4	0	0	0	4	0	0	0	0	0
5:30	1	0	0	0	1	0	0	0	1	1
5:45	1	0	0	0	1	0	0	1	0	1
6:00	0	0	0	0	0	0	0	0	0	0
6:15	0	0	0	0	0	0	0	0	0	0
6:30	4	0	0	0	4	0	0	0	0	0
6:45	3	0	0	0	3	0	0	1	0	1
7:00	1	0	0	0	1	0	0	1	0	1
7:15	1	0	0	0	1	0	0	0	0	0
7:30	3	0	0	0	3	0	1	0	0	1
7:45	4	0	0	0	4	0	0	0	0	0
8:00	3	0	0	0	3	1	0	0	0	1
8:15	1	0	0	0	1	0	0	0	0	0
8:30	2	1	0	0	3	1	0	0	0	1
8:45	1	0	0	0	1	1	0	0	0	1
9:00	0	0	0	0	0	0	0	0	1	1
9:15	1	0	0	0	1	0	0	0	0	0
9:30	0	1	0	0	1	2	1	0	0	3
9:45	0	0	0	0	0	0	0	0	0	0
10:00	3	0	1	0	4	1	0	0	0	1
10:15	1	0	0	0	1	1	0	0	0	1
10:30	1	1	0	0	2	2	1	0	0	3
10:45	3	0	0	0	3	0	1	0	0	1
11:00	1	0	0	0	1	1	0	0	0	1
11:15	3	0	0	0	3	1	0	0	0	1
11:30	2	0	0	0	2	2	0	0	0	2
11:45	1	0	0	1	2	1	0	0	0	1
12:00	1	0	0	0	1	0	0	0	0	0
12:15	1	0	0	0	1	3	0	0	1	4
12:30	2	0	0	1	3	1	0	0	0	1
12:45	0	0	0	0	0	2	0	0	1	3
13:00	2	0	0	0	2	1	0	0	0	1
13:15	2	0	1	0	3	4	0	1	0	5
13:30	2	1	0	0	3	7	0	0	0	7
13:45	1	0	0	3	4	0	1	0	0	1
14:00	0	0	0	0	0	1	0	0	0	1
14:15	0	0	0	0	0	2	0	0	1	3
14:30	0	0	0	0	0	2	0	0	0	2
14:45	0	0	0	0	0	2	0	0	0	2
15:00	1	0	1	0	2	3	0	0	0	3
15:15	1	0	0	1	2	3	0	0	0	3
15:30	0	0	0	0	0	5	0	0	1	6
15:45	2	1	0	2	5	2	1	0	0	3
16:00	1	0	0	2	3	3	0	0	0	3
16:15	0	1	0	0	1	0	0	0	1	1
16:30	0	0	0	0	0	1	1	0	1	3
16:45	1	0	0	1	2	4	0	0	1	5
17:00	0	0	0	0	0	3	0	0	0	3
17:15	0	0	0	0	0	1	0	0	0	1
17:30	0	0	0	0	0	0	0	0	1	1
17:45	0	0	0	0	0	2	0	0	0	2
18:00	0	0	0	0	0	1	0	0	0	1
18:15	0	0	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	1	0	0	0	1
18:45	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	2	0	0	0	2
19:15	0	0	0	0	0	3	0	0	0	3
19:30	0	0	0	0	0	0	0	0	0	0
19:45	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0
20:15	0	0	0	0	0	0	0	0	0	0
20:30	0	0	0	0	0	0	0	0	0	0
20:45	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0
21:15	0	0	0	0	0	0	0	0	0	0
21:30	0	0	0	0	0	0	0	0	0	0
21:45	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0
22:15	0	0	0	0	0	0	0	0	0	0
22:30	0	0	0	0	0	0	0	0	0	0
22:45	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0
23:15	0	0	0	0	0	0	0	0	0	0
23:30	0	0	0	0	0	0	0	0	0	0
23:45	0	0	0	0	0	0	0	0	0	0
TOTAL	**74**	**6**	**3**	**11**	**94**	**74**	**7**	**4**	**10**	**95**

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