Appendix G-1

Valley Communication Center Traffic Study

Integrated Engineering Group

January 2023

Valley Communication Center
Traffic Study

Prepared for:
Compass Consulting Enterprises, Inc.
P.O. Box 2627
Avalon, CA 90704

Prepared by:

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

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Wildomar, CA 92595

January 2023

EXECUTIVE SUMMARY

Purpose of the Report

The purpose of this traffic study is to identify and document potential traffic deficiencies related to the proposed Valley Communication Center project in the City of San Bernardino. This technical report will also recommend transportation improvements to address potential project deficiencies to local and regional transportation facilities.

Project Overview

The project is proposing the construction of a self-support and self-sufficient 75,062 square feet emergency communication center that will be occupied by the Sheriff Coroner (SBCSD), Office of Emergency management (OES), County Fire (SBCFD), Consolidated Fire Agency (CONFIRE), Inland Counties Emergency Medical Agency (ICEMA), Radio Manage Facility (ISD), and Building Services. The project will be constructed on vacant land located within the City of San Bernardino jurisdiction at the southeast corner of S. Lena Road and E. Rialto Avenue intersection. Access to the Project site will be provided via two driveways along Lena Road and one driveway along Rialto Avenue.

The project trip generation was calculated using the ITE Trip Generation Manual (11th Edition). It is estimated that the project will generate 440 total daily trips, 97 AM peak hour trips and 97 PM peak hour trips. Project trip distribution and assignment were developed, in coordination with City staff, based on the land use characteristics of the proposed project and surrounding area, existing travel patterns within the study area, and anticipated travel patterns to and from the project site. Project scenarios and study area were then established in coordination with City staff to determine the potential project deficiencies on the transportation network.

Project Scenarios:

- Existing Conditions (Year 2022)
- Project Opening Year 2025 Base Conditions
- Project Opening Year 2025 Base Plus Project Conditions

Study Area Intersection:

- East Rialto Avenue and South Lena Road

Analysis Results and Recommended Improvements

Existing Conditions (Year 2022)

The analyzed intersection is operating at an acceptable LOS under Existing Year 2022 conditions.

Project Opening Year 2025 Base Conditions

The analyzed intersection is operating at an acceptable LOS under Project Opening Year 2025 Base conditions.

Project Opening Year 2025 Base Plus Project Conditions

The analyzed intersection is operating at an acceptable LOS under Project Opening Year 2025 Base Plus Project conditions.

Table of Contents

List of Figures

List of Tables

Appendices

1.0 PROJECT INTRODUCTION

This traffic study has been prepared for Valley Communication Center project. The project will be constructed on vacant land located within the City of San Bernardino jurisdiction at the southeast corner of S. Lena Road and E. Rialto Avenue intersection.

PROJECT DESCRIPTION

The project is proposing the construction of a self-support and self-sufficient 75,062 square feet emergency communication center that will be occupied by the Sheriff Coroner (SBCSD), Office of Emergency management (OES), County Fire (SBCFD), Consolidated Fire Agency (CONFIRE), Inland Counties Emergency Medical Agency (ICEMA), Radio Manage Facility (ISD), and Building Services. The project is anticipated to employ 220 individuals with work shifts based on 4 hours blocks so employees are coming and going throughout the day depending on individual work schedule and start time of the shift which varies between 3am, 7am, 11am, 3pm, 7pm, and 11pm hours.

Figures 1-1 shows the project site plan.

STUDY AREA

The study area for this project was developed consistent with the Guidelines threshold of a minimum of 50 peak hour trips onto an intersection. IEG prepared a project traffic study scoping agreement defining the study area, which was reviewed and approved by City staff prior to the preparation of this technical report.

Figure 1-2 presents the study area that includes the following study intersection:

- E. Rialto Avenue and S. Lena Road

PROJECT TRIP GENERATION

Trip generation is a measure or forecast of the number of trips that begin or end at the project site. The traffic generated is a function of the extent and type of development proposed for the site. These trips will result in some traffic increases on the streets where they occur. Per the Guidelines, project vehicular traffic generation characteristics should be estimated based on established rates contained in the *Trip Generation Manual (TGM), 11th Edition*, published by the Institute of Transportation Engineers (ITE).

The ITE Trip Generation Manual doesn't currently provide trip rates that are specific to the proposed land use. The ITE identified land use description comparable to the proposed project unique land use is ITE LU 575 Fire Station which will be applied to evaluate the project anticipated trip generation since fire and rescue station is a building that houses emergency services equipment, firefighting apparatus, and the individuals that provide emergency firefighting services. Additionally, fire and rescue stations also handle other services including emergency medical, hazardous materials, rescue, safety training, and fire prevention services that are compatible with services provided by the propose emergency communication centers. The project trip generation will be calculated utilizing the ITE LU 575 as a comparable trip generation rate based on the proposed land use. The Project will construct a self-support and self-sufficient 75,062 square foot emergency communication center facility. However, LU 575 only provides a trip generation rate for PM peak hour (one hour between 4 and 6 PM) with 29% inbound and 71% outbound trip pattern. Assuming the opposite inbound/outbound trip pattern will

occur during the morning peak period (one hour between 7 and 9 AM), the AM trip generation rate will be the same as the PM with reversed trip pattern of 71% inbound and 29% outbound split. Additionally, the project will assume 2 total daily trips per employee for the anticipated 220 resulting in a total of 440 average daily project trips. The shifts are based on 4 hours blocks so employees are coming and going throughout the day depending on the individual work schedule and start time of the shift which varies between 3am, 7am, 11am, 3pm, 7pm, and 11pm hours. During the peak hours, it is anticipated that approximately 20 employees will start their shift at 7:00 am. Between 4:30 pm and 6:00 pm, it is anticipated that 1 employee will arrive at 4:30pm, 16 employees at 5:30pm; and 3 employees at 6:00pm. Furthermore, the site will have 10 additional admin and support staff who will also access the site on staggered arrival time, but mostly between the 11am – 11pm. The proposed Project ITE average trip generation rates and trip calculations summary are presented in **Tables 1-1** and **1-2**, respectively.

Table 1-1
Project Trip Generation Rate

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour Trips per Unit[3]			PM Peak Hour Trips per Unit			Daily Trips/Unit
			In	Out	Total	In	Out	Total	
Fire Station/Emergency Communication Center	EMP	575	71%	29%	0.44	29%	71%	0.44	-

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).
[2] EMP = Employees
[3] AM peak hour trip rate is assumed to be equal to PM trip rate with the reversed trip split of 71% inbound and 29% outbound

Table 1-2
Project Trip Generation

Land Use[1]	Intensity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Fire Station/Emergency Communication Center	220	Emp	69	28	97	28	69	97	440
		Total	***69***	***28***	***97***	***28***	***69***	***97***	***440***

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).
[2] EMP = Employee
[3] Peak hour trips are calculated by multiplying the trip rates in Table 1-1 by the intensity value
[4] Two daily trips per employee for the anticipated 220 employees

Table 1-2 summarizes the trip generation based on the proposed land use intensities associated with the Project. As shown, the proposed project is anticipated to generate a total of 440 daily trips, 97 AM peak hour trips and 97 PM peak hour trips.

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Trip distribution and assignment is the process of identifying the probable destinations, directions, and traffic routes that project related traffic will likely affect. For this project, the trip distribution was developed based on the land use characteristics, surrounding land uses in the vicinity of the project site, anticipated travel patterns to and from the project site and existing travel patterns within the study area.

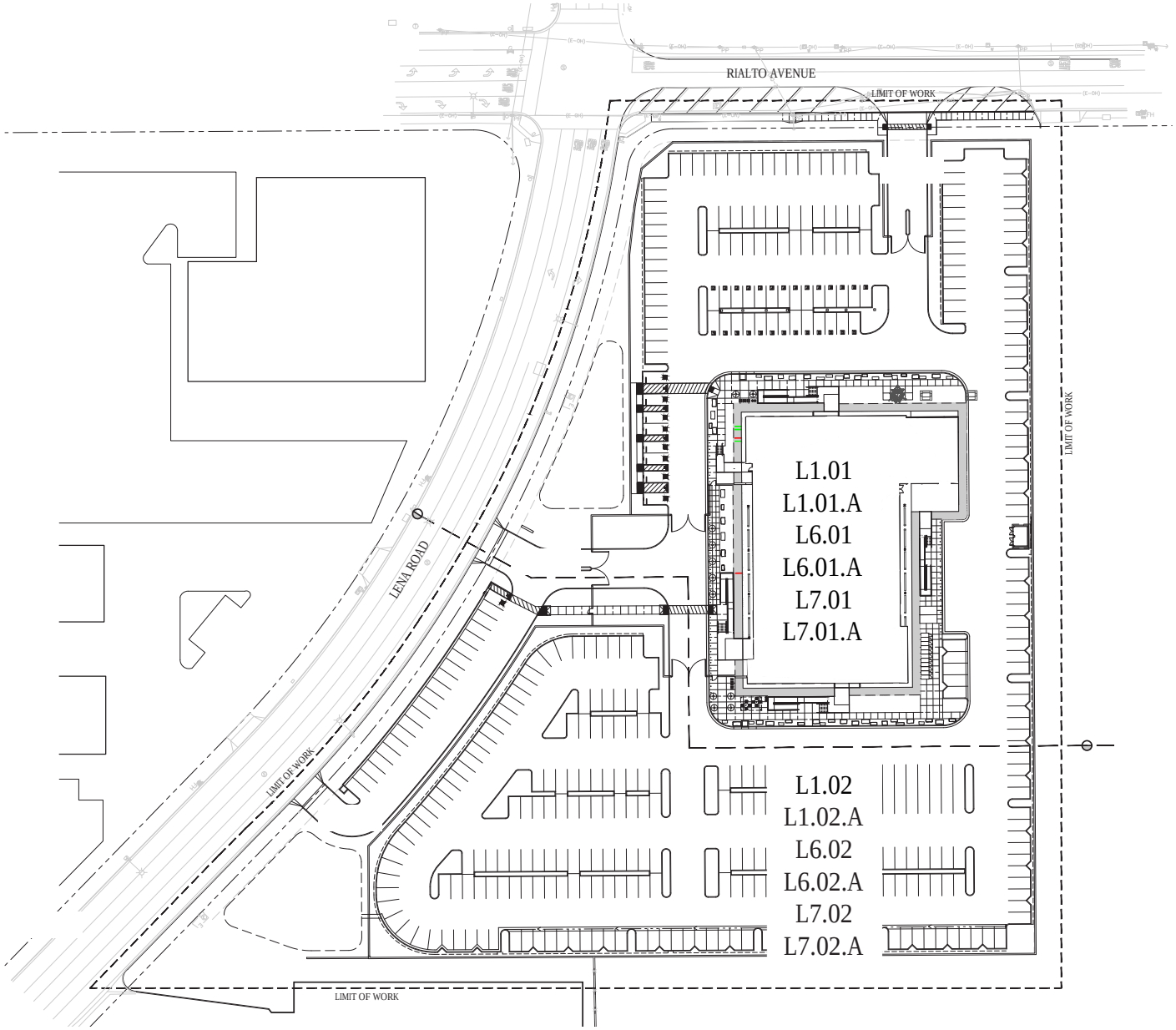
Figures 1-2 and **1-3** show the project site plan and project trip distribution and assignment at the study intersection.

PROJECT ACCESS

Access to the Project site will be provided via two driveways along Lena Road and one driveway along Rialto Avenue.

PARKING

The proposed development will be required to provide on-site parking spaces consistent with City of San Bernardino parking requirements.



LPA
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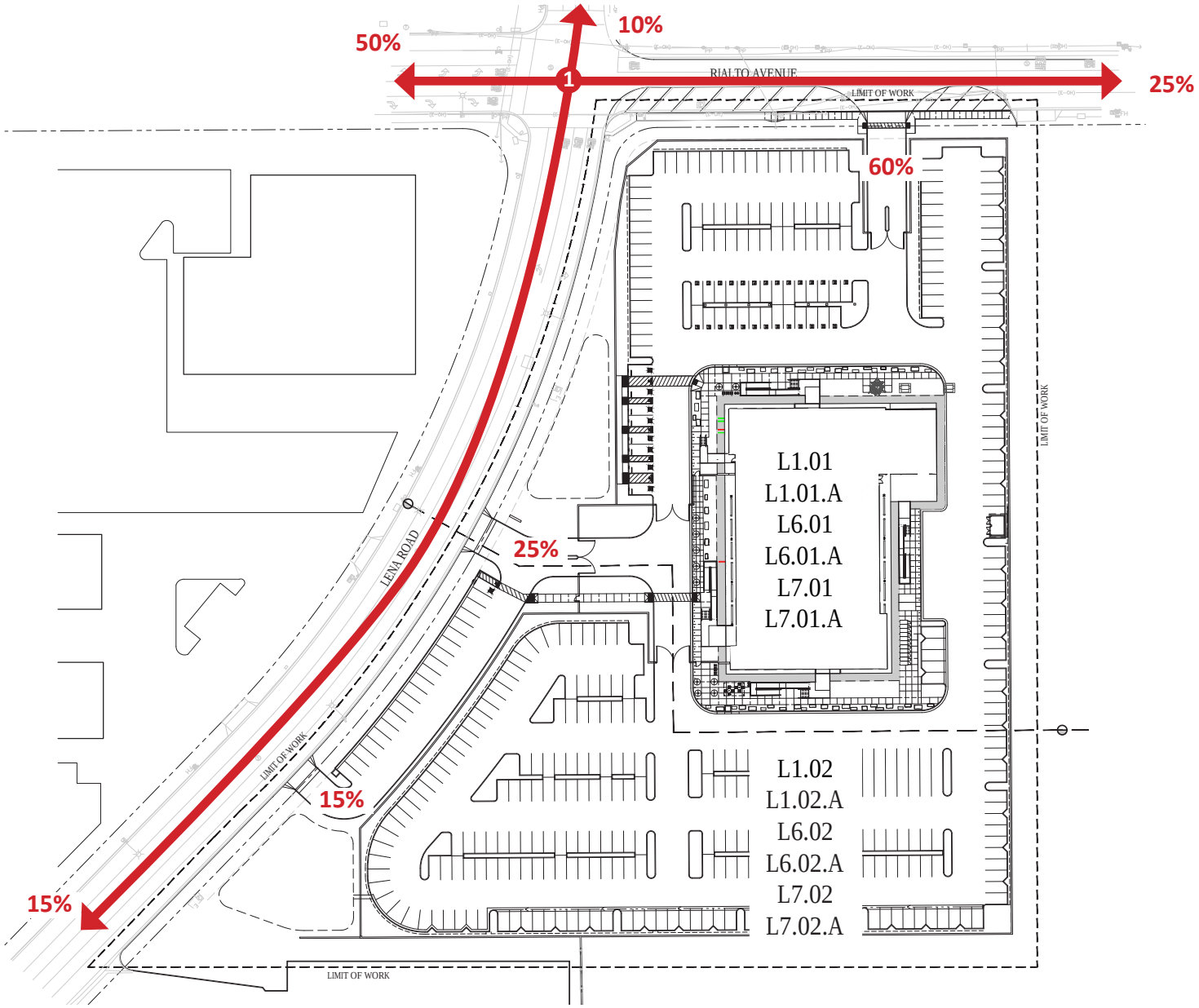
San Diego, California 92113

VALLEY COMMUNICATIONS CENTER
S. Lena R. & E. Rialto Ave.
San Bernardino, CA 92408
Developed for
GRIFFIN STRUCTURES

Submittal	Date
SCHEMATIC DESIGN	05/23/22
50% CONSTRUCTION DOCUMENTS	08/17/22

Revision	Date



LEGEND # Intersection

LPA
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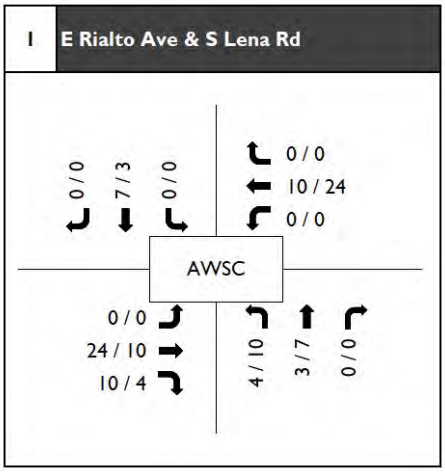
Revision Date

Submittal Date
SCHEMATIC DESIGN 05/31/22
DESIGN DEVELOPMENT 08/12/22



XX / XX AM / PM Peak Hour Volumes

2.0 METHODOLOGIES

This section documents the methodologies and assumptions used to conduct the circulation impact analysis for the proposed project. This section contains the following background information:

- Study scenarios
- Study time periods
- Analysis methodologies

STUDY SCENARIOS

This report presents an analysis of the intersections and roadway segments operating conditions which were selected for the following anticipated timeframe scenarios:

- Existing Conditions (Year 2022)
- Project Opening Year 2025 Base Traffic Conditions
- Project Opening Year 2025 Base Plus Project Traffic Conditions

TRAFFIC COUNTS

Intersection peak hour counts were collected on Wednesday December 14, 2022, during the hours of 7:00-9:00 am and 4:00-6:00 pm. Intersection count worksheets are included in **Appendix A**.

ANALYSIS METHODOLOGIES

Street system operating conditions are typically described in terms of "level of service." Level of service is a report-card scale used to indicate the quality of traffic flow on roadway segments and at intersections. Level of service (LOS) ranges from LOS A (free flow, little congestion) to LOS F (forced flow, extreme congestion). **Table 2-1** describes generalized definitions of auto LOS A through F.

Table 2-1
Vehicular Level of Service Definitions

LOS	Characteristics
A	Primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Controlled delay at the boundary intersections is minimal. The travel speed exceeds 80% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
B	Reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67% and 80% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
C	Stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
D	Less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersections. The travel speed is between 40% and 50% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
E	Unstable operation and significant delay. Such operations may be due to some combination of adverse signal progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30% and 40% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
F	Flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30% or less of the base free-flow speed, or the volume-to-capacity ratio is greater than 1.0.

Source: Highway Capacity Manual 6th Edition, Transportation Research Board (2016)

Intersection Capacity Analysis

The analysis of peak hour intersection performance was conducted using the Synchro 10 software program, which uses methodologies defined in the Highway Capacity Manual 6th Edition (HCM) to calculate LOS. Level of service (LOS) for intersections is determined by control delay. Control delay is defined as the total elapsed time from when a vehicle stops at the end of a queue to the time the vehicle departs from the stop line. The total elapsed time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in the queue.

All-way Stop-controlled (AWSC) Intersections

The HCM analysis methodology for evaluating all-way Stop-controlled intersections is based on the degree of conflict for each independent approach created by the opposing approach and each conflicting approach. Level of Service for AWSC intersections is also based on the average control delay. However, AWSC intersections have different threshold values than those applied to signalized intersections. This is based on the rationale that drivers expect AWSC intersections to carry lower traffic volumes than at signalized intersections. Therefore, a higher level of delay is acceptable at a signalized intersection for the same LOS.

Table 2-2 summarizes the level of service criteria for unsignalized intersections.

Table 2-2
Level of Service Criteria for Stop Controlled Unsignalized Intersections

Average Control Delay (sec/veh)	Level of Service (LOS)
0-10	A
> 10 – 15	B
> 15 – 25	C
> 25 – 35	D
> 35 – 50	E
> 50	F

Source: Highway Capacity Manual 6th Edition, Transportation Research Board (2016)

City of San Bernardino General Plan Compliance

Per the Guidelines, the traffic study will identify LOS deficiencies for compliance with the City of San Bernardino General Plan goals. The Guidelines have established LOS "D" as the minimum allowable level of service at intersections. Therefore, if the addition of project traffic causes the study intersection to drop below LOS D, it will be considered deficient for the purposes of this analysis. Improvements must be identified for these deficient intersections to improve to LOS D.

3.0 EXISTING CONDITIONS (YEAR 2022)

This section documents the circulation system conditions within the study area of the project and operational deficiencies on the existing local and regional circulation networks under Existing Conditions scenario. No network improvements are assumed under Existing Conditions.

ROADWAY NETWORK

Locally significant roadways located within the study area of the proposed project are discussed below.

Rialto Avenue functions as a 4-lane collector west of Lena Road and a 2-lane collector east of Lena Road. The posted speed limit on Rialto Avenue is 25 miles per hour (mph). Per the City of San Bernardino General Plan, the buildout classification for Rialto Avenue is a secondary arterial.

Lena Road functions as a 4-lane collector from Tennis Court Lane to 3rd Street. The posted speed limit on Brimhall Road is 35 mph. Per the City of San Bernardino General Plan, the buildout classification for Lena Road is a major arterial.

Figure 3-1 shows the City of San Bernardino General Plan Circulation Network.

TRANSIT SYSTEM

Omnitrans is the main public transit agency servicing the City of San Bernardino. Currently, Omnitrans operates buses on the following route within the vicinity of the project:

- Route 15 operates seven days a week and connects the project site to Fontana Metrolink Transit Center to the west and Redlands Depot to the east. Daily service frequency is 60 minutes. Bus stops for Route 15 are currently located approximately ¼-mile north of the project site at the intersection of 3rd Street and N Lena Road. Pedestrian accessibility and connectivity from the project site to these bus stops is provided along the west side of N Lena Road from E Rialto Avenue to E 2nd Street and along both sides of N Lena Road, north of E 2nd Street.

Bus route information is included in **Appendix E**.

ACTIVE TRANSPORTATION SYSTEM

Pedestrian facilities within the study area of the project include sidewalk along both sides of E Rialto Avenue, west of Lena Road and along both sides of N Lena Road, north of E Rialto Avenue. Pedestrian crosswalks are provided at the unsignalized intersection of E Rialto Avenue/S Lena Road and signalized intersection of 3rd Street/N Lena Road. No bicycle facilities are provided or planned along E Rialto Avenue or Lena Road in the City of San Bernardino General Plan.

TRAFFIC VOLUMES

The intersection turning movement counts were conducted during the weekday morning peak period from 7:00 AM to 9:00 AM and during the weekday evening peak period from 4:00 PM to 6:00 PM on Wednesday, December 14, 2022. Traffic count data is provided in **Appendix A**.

INTERSECTION ANALYSIS RESULTS

Table 3-1 shows Existing Conditions intersection operation analysis.

Figure 3-2 shows intersection turning movement volumes under Existing Conditions.

Table 3-1
Existing Year 2022 Intersection Operation Analysis

Intersection	Existing Year 2022	
	Delay (a)	LOS (b)
AM Peak/PM Peak		
1. E Rialto Avenue and S Lena Road	11.7 / 11.0	B / B

Notes:
***Bold** values indicate intersections operating at LOS D, E or F.*
(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
(b) LOS calculations are based on the methodology outlined in the Highway Capacity Manual 6th Edition and performed using Synchro 10.

Per the analysis results shown in **Table 3-1**, the analyzed intersection is operating at an acceptable LOS under Existing Conditions. Existing Conditions peak hour analysis worksheets are provided in **Appendix B**.

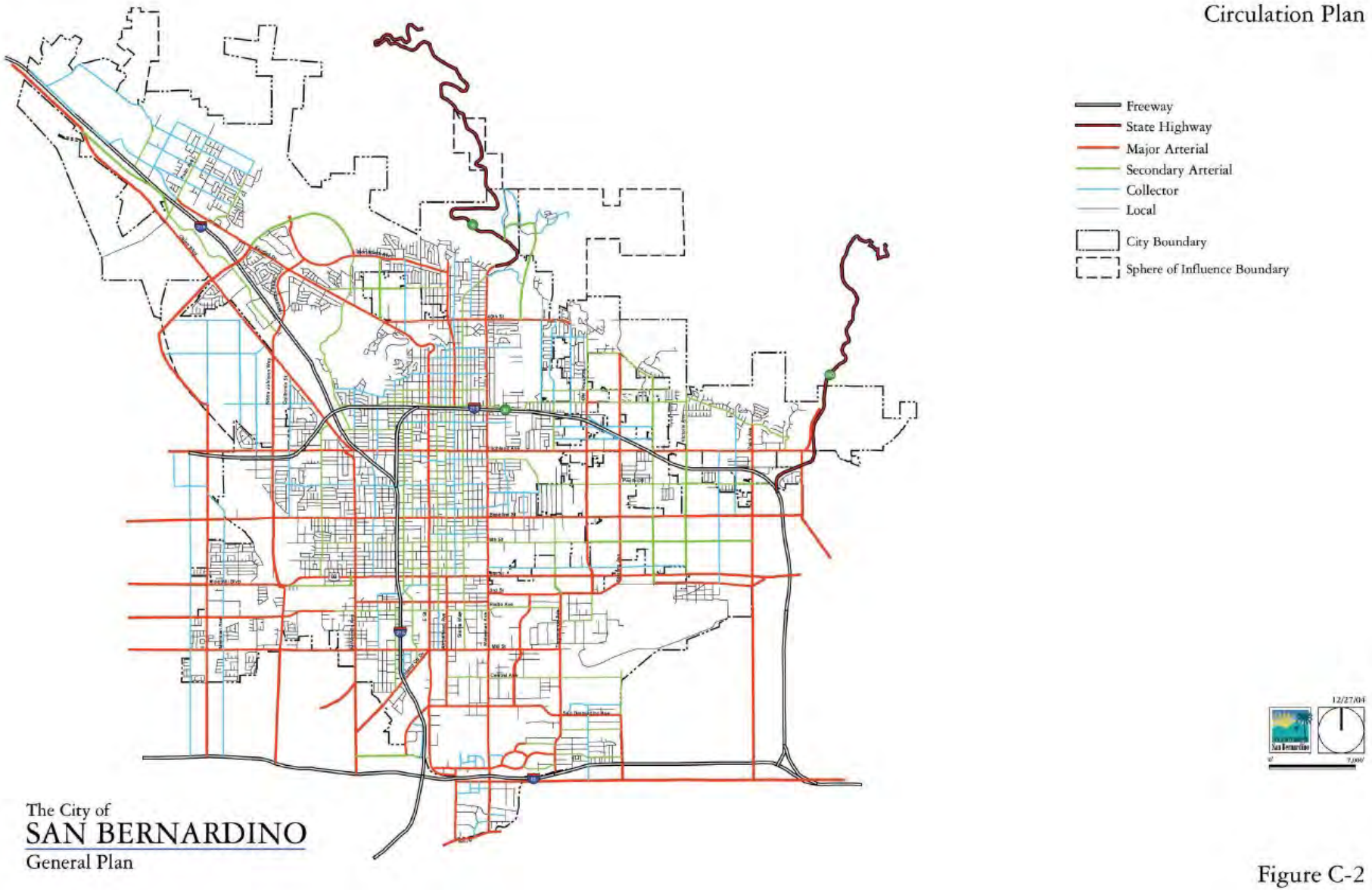
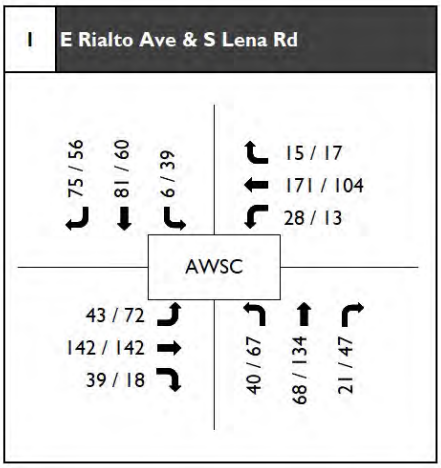

Circulation Plan
Freeway
State Highway
Major Arterial
Secondary Arterial
Collector
Local
City Boundary
Sphere of Influence Boundary
12/27/04
The City of
SAN BERNARDINO
General Plan

Figure C-2



XX / XX AM / PM Peak Hour Volumes

4.0 PROJECT OPENING YEAR 2025 CONDITIONS

This section documents the circulation system conditions within the study area of the project under Project Opening Year 2025 Base Conditions scenarios. A compounded annual growth rate of 3% was applied to 2022 peak hour intersection turning counts for 3 years to develop Project Opening Year 2025 Base intersection peak hour volumes. Project traffic volumes are then added to the Year 2025 volumes to develop Project Opening Year 2025 Plus Project Conditions traffic volumes.

This section also documents potential operational deficiencies on the existing local and regional circulation networks.

INTERSECTION ANALYSIS RESULTS

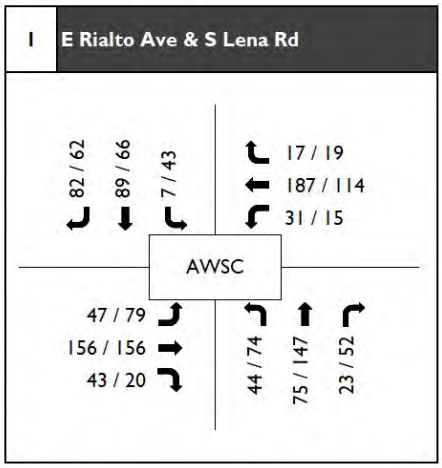
Table 4-1 shows Project Opening Year 2025 Base Conditions intersection operation analysis results.

Figures 4-1 and **4-2** show intersection turning movement volumes under Project Opening Year 2025 Base Conditions scenarios.

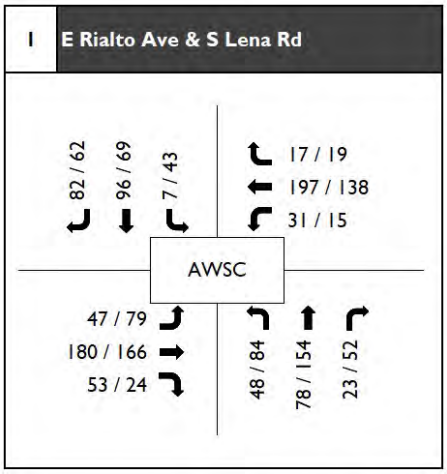
Table 4-1
Project Opening Year 2025 Base Conditions Intersection Operation Analysis

Intersection	Year 2025 Base		Year 2025 Plus Project	
	Delay (a)	LOS (b)	Delay (a)	LOS (b)
AM Peak/PM Peak				
1. E Rialto Avenue and S Lena Road	12.7 / 11.7	B / B	13.7/12.5	B / B

Per the analysis results shown in **Table 4-1**, the analyzed intersection would operate at an acceptable LOS under Project Opening Year 2025 Base Conditions with and without project scenarios. Project Opening Year 2025 Base and Project Opening Year 2025 Base Plus Project peak hour analysis worksheets are provided in **Appendices C** and **D**, respectively.



XX / XX AM / PM Peak Hour Volumes



XX / XX AM / PM Peak Hour Volumes

APPENDIX A -

TRAFFIC COUNTS

INTERSECTION TURNING MOVEMENT COUNTS

T218

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

DATE: Wed, Dec 14, 22

LOCATION: Rialto
NORTH & SOUTH: Lena
EAST & WEST: Rialto

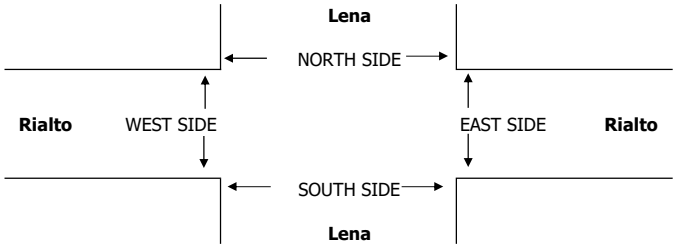
PROJECT #: SC3771
LOCATION #: 1
CONTROL: STOP ALL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

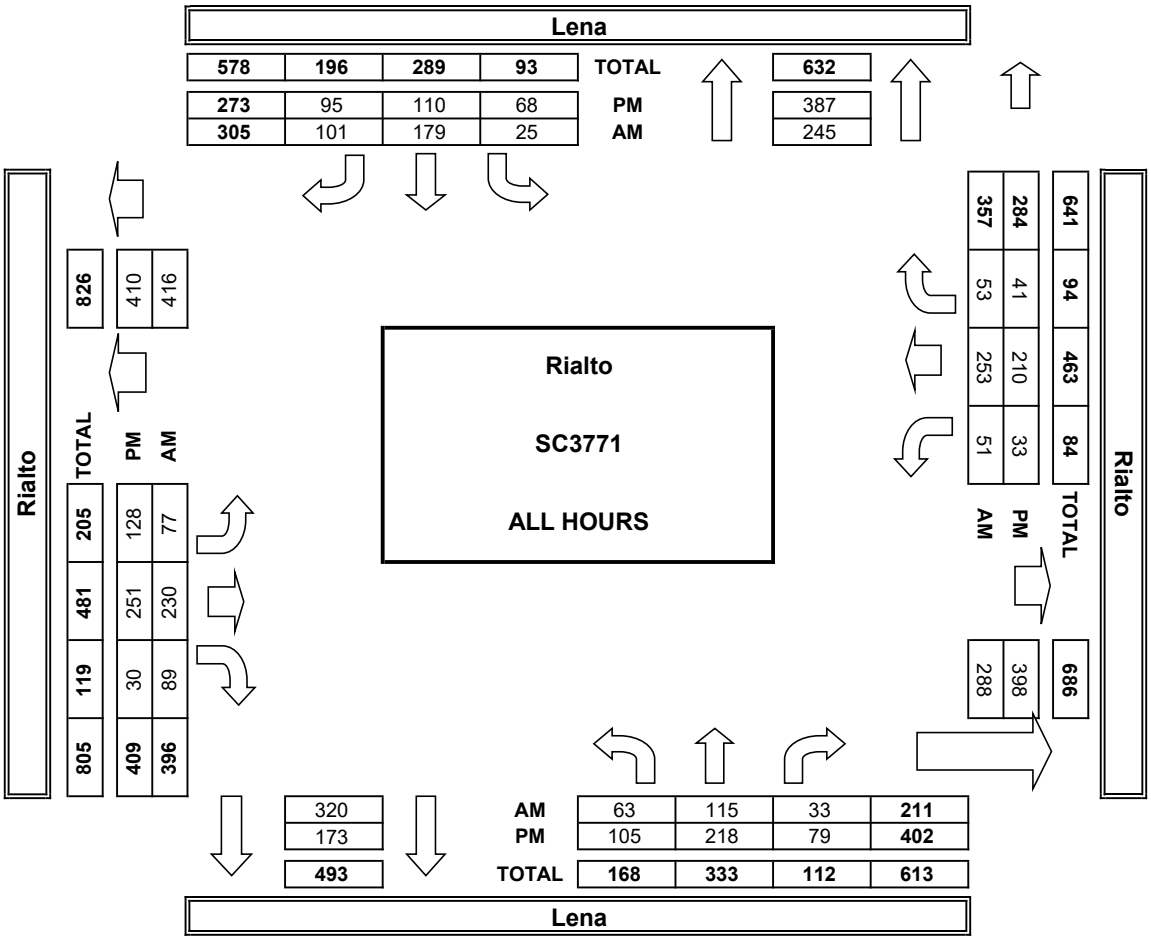
☑ Add U-Turns to Left Turns

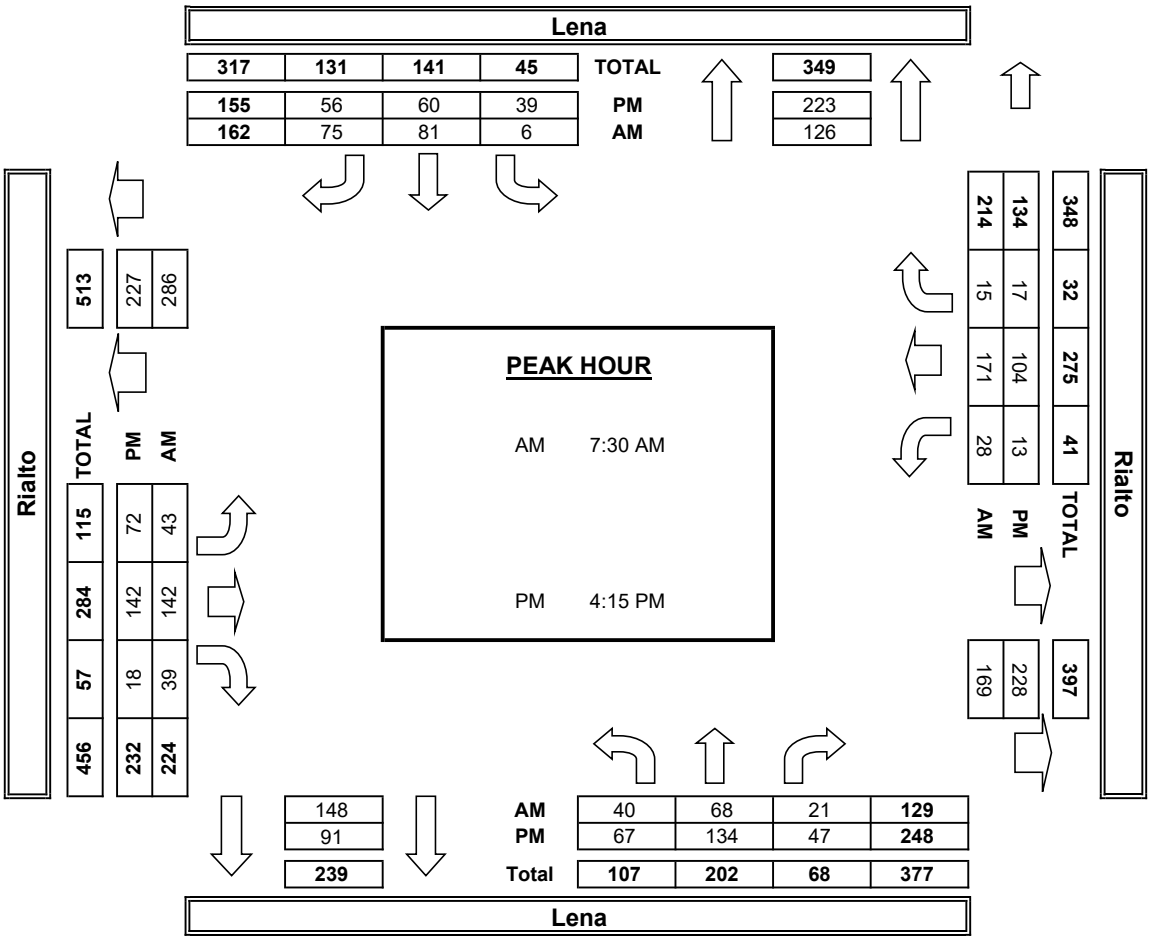
		NORTHBOUND (Lena)			SOUTHBOUND (Lena)			EASTBOUND (Rialto)			WESTBOUND (Rialto)				U-TURNS				
	LANES:	NL 1	NT 1	NR 1	SL 0	ST 2	SR 0	EL 1	ET 1	ER 1	WL 0	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	3	10	4	1	22	2	7	14	17	12	19	8	119	0	0	0	0	0
	7:15 AM	7	7	4	4	22	6	5	29	10	4	23	3	124	0	0	0	0	0
	7:30 AM	7	13	5	4	21	28	11	32	12	8	44	1	186	0	0	0	0	0
	7:45 AM	18	19	9	0	26	22	15	28	11	9	60	4	221	0	0	0	0	0
	8:00 AM	10	25	5	1	11	6	9	43	11	8	33	3	165	0	0	0	0	0
	8:15 AM	5	11	2	1	23	19	8	39	5	3	34	7	157	0	0	0	0	0
	8:30 AM	7	12	2	4	24	10	10	21	12	3	18	16	139	0	0	0	0	0
	8:45 AM	6	18	2	10	30	8	12	24	11	4	22	11	158	1	0	0	0	1
	VOLUMES	63	115	33	25	179	101	77	230	89	51	253	53	1,269	1	0	0	0	1
	APPROACH %	30%	55%	16%	8%	59%	33%	19%	58%	22%	14%	71%	15%						
	APP/DEPART	211	/	245	305	/	320	396	/	288	357	/	416	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	40	68	21	6	81	75	43	142	39	28	171	15	729					
	APPROACH %	31%	53%	16%	4%	50%	46%	19%	63%	17%	13%	80%	7%						
	PEAK HR FACTOR		0.701			0.764			0.889			0.733		0.825					
	APP/DEPART	129	/	126	162	/	148	224	/	169	214	/	286	0					
PM	4:00 PM	11	28	10	4	14	10	16	26	3	2	30	5	159	0	0	0	0	0
	4:15 PM	12	29	13	7	15	15	15	32	7	6	29	5	185	0	0	0	0	0
	4:30 PM	23	37	10	17	25	21	21	35	1	1	24	6	221	0	0	0	0	0
	4:45 PM	13	27	11	9	14	10	14	26	6	2	22	3	157	0	0	0	0	0
	5:00 PM	19	41	13	6	6	10	22	49	4	4	29	3	206	0	0	0	0	0
	5:15 PM	8	19	1	10	16	10	13	35	6	5	34	5	162	0	0	0	0	0
	5:30 PM	12	27	11	11	11	11	13	29	1	8	24	6	164	0	0	0	0	0
	5:45 PM	7	10	10	4	9	8	14	19	2	5	18	8	114	0	0	0	0	0
	VOLUMES	105	218	79	68	110	95	128	251	30	33	210	41	1,368	0	0	0	0	0
	APPROACH %	26%	54%	20%	25%	40%	35%	31%	61%	7%	12%	74%	14%						
	APP/DEPART	402	/	387	273	/	173	409	/	398	284	/	410	0					
	BEGIN PEAK HR		4:15 PM																
	VOLUMES	67	134	47	39	60	56	72	142	18	13	104	17	769					
	APPROACH %	27%	54%	19%	25%	39%	36%	31%	61%	8%	10%	78%	13%						
	PEAK HR FACTOR		0.849			0.615			0.773			0.838		0.870					
	APP/DEPART	248	/	223	155	/	91	232	/	228	134	/	227	0					



AimTD LLC

TURNING MOVEMENT COUNTS





APPENDIX B -

EXISTING CONDITIONS PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	142	39	28	171	15	40	68	21	6	81	75
Future Vol, veh/h	43	142	39	28	171	15	40	68	21	6	81	75
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	171	47	34	206	18	48	82	25	7	98	90
Number of Lanes	1	1	1	0	1	0	1	1	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	10.5	14.4	10.5	10.7
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	13%	13%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	80%	87%	35%
Vol Right, %	0%	0%	100%	0%	0%	100%	7%	0%	65%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	68	21	43	142	39	214	47	116
LT Vol	40	0	0	43	0	0	28	6	0
Through Vol	0	68	0	0	142	0	171	41	41
RT Vol	0	0	21	0	0	39	15	0	75
Lane Flow Rate	48	82	25	52	171	47	258	56	139
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.097	0.154	0.042	0.094	0.286	0.069	0.455	0.105	0.24
Departure Headway (Hd)	7.264	6.757	6.047	6.52	6.015	5.308	6.356	6.739	6.212
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	492	528	589	549	595	672	565	530	576
Service Time	5.033	4.525	3.815	4.27	3.765	3.058	4.111	4.504	3.976
HCM Lane V/C Ratio	0.098	0.155	0.042	0.095	0.287	0.07	0.457	0.106	0.241
HCM Control Delay	10.8	10.8	9.1	10	11.2	8.5	14.4	10.3	10.9
HCM Lane LOS	B	B	A	A	B	A	B	B	B
HCM 95th-tile Q	0.3	0.5	0.1	0.3	1.2	0.2	2.4	0.3	0.9

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	72	142	18	13	104	17	67	134	47	39	60	56
Future Vol, veh/h	72	142	18	13	104	17	67	134	47	39	60	56
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	83	163	21	15	120	20	77	154	54	45	69	64
Number of Lanes	1	1	1	0	1	0	1	1	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	10.9	12	10.9	10.6
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	10%	57%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	78%	43%	35%
Vol Right, %	0%	0%	100%	0%	0%	100%	13%	0%	65%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	134	47	72	142	18	134	69	86
LT Vol	67	0	0	72	0	0	13	39	0
Through Vol	0	134	0	0	142	0	104	30	30
RT Vol	0	0	47	0	0	18	17	0	56
Lane Flow Rate	77	154	54	83	163	21	154	79	99
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.148	0.274	0.086	0.153	0.279	0.031	0.284	0.153	0.17
Departure Headway (Hd)	6.917	6.412	5.704	6.649	6.144	5.438	6.628	6.946	6.197
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	517	559	626	539	583	656	541	515	576
Service Time	4.678	4.172	3.464	4.401	3.896	3.189	4.391	4.711	3.962
HCM Lane V/C Ratio	0.149	0.275	0.086	0.154	0.28	0.032	0.285	0.153	0.172
HCM Control Delay	10.9	11.6	9	10.6	11.3	8.4	12	11	10.2
HCM Lane LOS	B	B	A	B	B	A	B	B	B
HCM 95th-tile Q	0.5	1.1	0.3	0.5	1.1	0.1	1.2	0.5	0.6

APPENDIX C -

PROJECT OPENING YEAR 2025 BASE PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Intersection Delay, s/veh	12.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	156	43	31	187	17	44	75	23	7	89	82
Future Vol, veh/h	47	156	43	31	187	17	44	75	23	7	89	82
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	57	188	52	37	225	20	53	90	28	8	107	99
Number of Lanes	1	1	1	0	1	0	1	1	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	11.1	16.3	11	11.4
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	13%	14%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	80%	86%	35%
Vol Right, %	0%	0%	100%	0%	0%	100%	7%	0%	65%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	44	75	23	47	156	43	235	52	127
LT Vol	44	0	0	47	0	0	31	7	0
Through Vol	0	75	0	0	156	0	187	45	45
RT Vol	0	0	23	0	0	43	17	0	82
Lane Flow Rate	53	90	28	57	188	52	283	62	152
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.111	0.177	0.049	0.106	0.325	0.079	0.517	0.121	0.274
Departure Headway (Hd)	7.544	7.036	6.323	6.732	6.226	5.517	6.579	7.009	6.477
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	472	506	562	530	575	645	546	508	550
Service Time	5.337	4.828	4.115	4.505	3.999	3.29	4.357	4.796	4.265
HCM Lane V/C Ratio	0.112	0.178	0.05	0.108	0.327	0.081	0.518	0.122	0.276
HCM Control Delay	11.3	11.4	9.4	10.3	12	8.8	16.3	10.8	11.7
HCM Lane LOS	B	B	A	B	B	A	C	B	B
HCM 95th-tile Q	0.4	0.6	0.2	0.4	1.4	0.3	2.9	0.4	1.1

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	79	156	20	15	114	19	74	147	52	43	66	62
Future Vol, veh/h	79	156	20	15	114	19	74	147	52	43	66	62
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	91	179	23	17	131	22	85	169	60	49	76	71
Number of Lanes	1	1	1	0	1	0	1	1	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	11.5	13	11.6	11.1
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	10%	57%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	77%	43%	35%
Vol Right, %	0%	0%	100%	0%	0%	100%	13%	0%	65%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	74	147	52	79	156	20	148	76	95
LT Vol	74	0	0	79	0	0	15	43	0
Through Vol	0	147	0	0	156	0	114	33	33
RT Vol	0	0	52	0	0	20	19	0	62
Lane Flow Rate	85	169	60	91	179	23	170	87	109
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.169	0.312	0.099	0.173	0.317	0.036	0.326	0.175	0.196
Departure Headway (Hd)	7.16	6.653	5.943	6.864	6.358	5.651	6.89	7.216	6.464
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	498	537	599	520	563	630	519	494	551
Service Time	4.94	4.433	3.723	4.634	4.128	3.42	4.674	5.003	4.25
HCM Lane V/C Ratio	0.171	0.315	0.1	0.175	0.318	0.037	0.328	0.176	0.198
HCM Control Delay	11.4	12.5	9.4	11.1	12.1	8.6	13	11.5	10.8
HCM Lane LOS	B	B	A	B	B	A	B	B	B
HCM 95th-tile Q	0.6	1.3	0.3	0.6	1.4	0.1	1.4	0.6	0.7

APPENDIX D -

PROJECT OPENING YEAR 2025 PLUS PROJECT PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Intersection Delay, s/veh	13.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	180	53	31	197	17	48	78	23	7	96	82
Future Vol, veh/h	47	180	53	31	197	17	48	78	23	7	96	82
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	57	217	64	37	237	20	58	94	28	8	116	99
Number of Lanes	1	1	1	0	1	0	1	1	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	12	18.2	11.5	12
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	13%	13%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	80%	87%	37%
Vol Right, %	0%	0%	100%	0%	0%	100%	7%	0%	63%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	48	78	23	47	180	53	245	55	130
LT Vol	48	0	0	47	0	0	31	7	0
Through Vol	0	78	0	0	180	0	197	48	48
RT Vol	0	0	23	0	0	53	17	0	82
Lane Flow Rate	58	94	28	57	217	64	295	66	157
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.127	0.193	0.051	0.11	0.39	0.102	0.565	0.135	0.297
Departure Headway (Hd)	7.893	7.382	6.668	6.973	6.466	5.756	6.887	7.34	6.824
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	454	486	536	516	560	625	525	488	526
Service Time	5.641	5.131	4.416	4.684	4.177	3.467	4.602	5.086	4.57
HCM Lane V/C Ratio	0.128	0.193	0.052	0.11	0.388	0.102	0.562	0.135	0.298
HCM Control Delay	11.8	11.9	9.8	10.5	13.3	9.1	18.2	11.2	12.4
HCM Lane LOS	B	B	A	B	B	A	C	B	B
HCM 95th-tile Q	0.4	0.7	0.2	0.4	1.8	0.3	3.5	0.5	1.2

Intersection	
Intersection Delay, s/veh	12.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	79	166	24	15	138	19	84	154	52	43	69	62
Future Vol, veh/h	79	166	24	15	138	19	84	154	52	43	69	62
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	91	191	28	17	159	22	97	177	60	49	79	71
Number of Lanes	1	1	1	0	1	0	1	1	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	12.1	14.5	12.3	11.7
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	9%	55%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	80%	45%	36%
Vol Right, %	0%	0%	100%	0%	0%	100%	11%	0%	64%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	84	154	52	79	166	24	172	78	97
LT Vol	84	0	0	79	0	0	15	43	0
Through Vol	0	154	0	0	166	0	138	35	35
RT Vol	0	0	52	0	0	24	19	0	62
Lane Flow Rate	97	177	60	91	191	28	198	89	111
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.201	0.343	0.104	0.18	0.352	0.045	0.393	0.187	0.21
Departure Headway (Hd)	7.482	6.974	6.262	7.139	6.632	5.922	7.16	7.572	6.83
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	482	519	574	505	544	607	502	474	526
Service Time	5.197	4.688	3.977	4.855	4.348	3.638	4.898	5.312	4.57
HCM Lane V/C Ratio	0.201	0.341	0.105	0.18	0.351	0.046	0.394	0.188	0.211
HCM Control Delay	12.1	13.3	9.7	11.4	12.9	8.9	14.5	12.1	11.4
HCM Lane LOS	B	B	A	B	B	A	B	B	B
HCM 95th-tile Q	0.7	1.5	0.3	0.7	1.6	0.1	1.9	0.7	0.8

APPENDIX E -

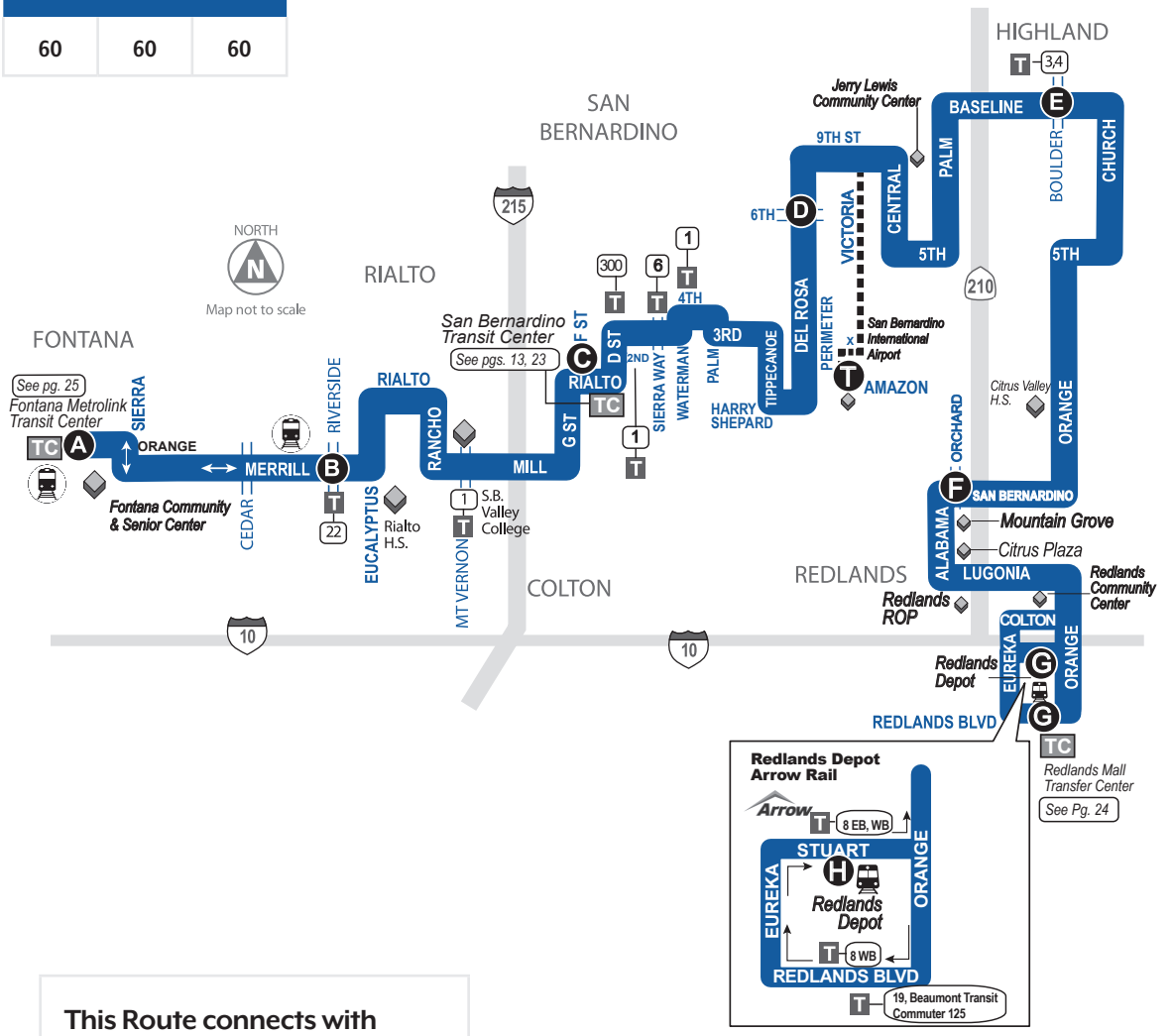
TRANSIT INFORMATION

15 FONTANA - SAN BDNO/HIGHLAND - REDLANDS

Bus Route
Tripper Service
A Timepoint - Look for the matching symbol in the timetable section.
Metrolink Station
P Park-and-Ride
Point of interest
H Medical Center
T Transfer Point
1,2 Connection Route(s)
TC Transit/Transfer Center

FREQUENCY

M-F	SAT	SUN
60	60	60



This Route connects with Arrow Rail, Metrolink and sbX! Arrow Rail coming Fall 2022

This routing to the Redlands Depot will be effective Fall 2022.

ROUTE 15: MONDAY - FRIDAY

Fontana Metrolink (A)	Merril & Riverside (B)	SBTC* (C)	Del Rosa & 6th (D)	Amazon (T)	Baseline & Boulder (E)	SB & Orchard Way (F)	Redlands Mall (G)	Redlands Depot (H)	SB & Orchard Way (F)	Baseline & Boulder (E)	Amazon (T)	Del Rosa & 6th (D)	SBTC* (C)	Merril & Riverside (B)	Fontana Metrolink (A)
EASTBOUND								**WESTBOUND**							
										4:24	4:38	**4:47**	5:09	5:29	5:41
								5:05	5:15	5:29		**5:42**	6:02	6:22	6:34
		4:02	4:19	4:30	**4:44**	4:59	5:13	5:33	5:45	6:01	6:15	**6:24**	6:47	7:09	7:23
							6:15	6:26	6:36	6:50		7:03	7:25	7:47	8:02
		5:38	5:55	6:06	**6:20**	6:35	6:49	7:08	7:20	7:36		**7:52**	8:15	8:37	8:51
6:07	6:21	6:43	6:59		7:14	7:29	7:40	7:58	8:10	8:26		**8:42**	9:05	9:27	9:41
6:47	7:01	7:23	7:39		**7:54**	8:09	8:22	9:08	**9:20**	9:36		9:52	**10:15**	**10:37**	**10:51**
7:37	7:52	8:16	8:33		**8:49**	9:04	9:18	10:08	10:21	10:37		10:52	11:15	11:37	11:51
8:57	9:12	9:36	9:53		10:09	10:24	10:38	11:08	11:21	11:37		11:52	**12:15**	**12:39**	**12:53**
10:07	10:22	10:47	11:04		11:20	11:35	11:50	**12:08**	**12:22**	**12:38**		**12:54**	**1:18**	**1:42**	**1:56**
11:07	11:22	11:47	**12:04**		**12:20**	**12:35**	**12:51**	**1:08**	**1:22**	**1:38**		**1:54**	**2:18**	**2:42**	**2:56**
12:07	**12:22**	**12:47**	**1:05**		**1:22**	**1:37**	**1:54**	**2:08**	**2:23**	**2:40**		**2:56**	**3:20**	**3:44**	**3:59**
1:07	**1:23**	**1:48**	**2:06**		**2:23**	**2:38**	**2:55**	**3:08**	**3:23**	**3:40**		**3:56**	**4:20**	**4:44**	**4:59**
2:07	**2:23**	**2:48**	**3:06**		**3:23**	**3:38**	**3:55**	**3:58**	**4:13**	**4:30**	**4:44**	**4:52**	**5:15**	**5:37**	**5:51**
3:15	**3:32**	**3:56**	**4:14**	**4:23**	**4:40**	**4:55**	**5:09**	**5:18**	**5:33**	**5:50**	**6:04**	**6:12**	**6:35**	**6:57**	**7:11**
4:05	**4:22**	**4:47**	**5:05**		**5:22**	**5:37**	**5:54**	**6:13**	**6:27**	**6:42**		**6:56**	**7:16**	**7:37**	**7:49**
5:05	**5:22**	**5:46**	**6:04**	**6:13**	**6:30**	**6:45**	**6:59**	**7:17**	**7:31**	**7:46**		**8:00**			
6:22	**6:38**	**7:01**	**7:17**		**7:32**	**7:46**	**7:59**	**8:10**	**8:21**	**8:35**		**8:49**			
7:12	**7:26**	**7:49**	**8:05**		**8:20**	**8:34**	**8:47**	**9:10**	**9:21**	**9:35**		**9:49**			
8:12	**8:25**	**8:45**	**8:59**		**9:14**	**9:28**	**9:40**								

ROUTE 15: SATURDAY

(A)	(B)	(C)	(D)	(T)	(E)	(F)	(G)	(H)	(F)	(E)	(T)	(D)	(C)	(B)	(A)
EASTBOUND								**WESTBOUND**							
								5:42	5:50	6:03	6:15	6:28	6:50	7:11	7:24
								6:40	6:48	7:01		7:14	7:36	7:57	8:10
		5:50	6:05	6:15	6:31	6:45	6:56	7:40	7:51	8:05		8:18	8:40	9:01	9:14
		7:20	7:34		7:49	8:03	8:14	8:40	8:52	9:07		9:20	9:42	10:03	10:16
7:42	7:56	8:21	8:36		8:52	9:06	9:17	9:40	9:52	10:08		10:22	10:44	11:05	11:19
8:40	8:54	9:19	9:34		9:50	10:04	10:17	10:40	10:55	11:11		11:25	11:47	12:08	12:22
9:45	9:59	10:24	10:39		10:55	11:09	11:23	11:40	11:55	12:11		**12:26**	**12:49**	**1:10**	**1:24**
10:45	10:59	11:24	11:39		11:55	12:09	12:23	**12:40**	**12:55**	**1:11**		**1:26**	**1:49**	**2:10**	**2:24**
11:45	11:59	12:24	12:39		**12:55**	**1:10**	**1:26**	**1:40**	**1:55**	**2:11**		**2:26**	**2:49**	**3:10**	**3:24**
12:45	**1:00**	**1:25**	**1:41**		**1:58**	**2:13**	**2:29**	**2:40**	**2:55**	**3:11**		**3:26**	**3:49**	**4:10**	**4:24**
1:45	**2:00**	**2:25**	**2:41**		**2:58**	**3:13**	**3:29**	**3:40**	**3:53**	**4:09**	**4:21**	**4:36**	**4:58**	**5:19**	**5:32**
2:45	**3:00**	**3:25**	**3:40**		**3:56**	**4:10**	**4:26**	**4:40**	**4:53**	**5:09**		**5:24**	**5:46**	**6:07**	**6:20**
3:40	**3:54**	**4:19**	**4:34**	**4:44**	**4:59**	**5:13**	**5:27**	**5:40**	**5:53**	**6:08**	**6:20**	**6:34**	**6:50**		
4:55	**5:09**	**5:34**	**5:49**	**5:59**	**6:14**	**6:28**	**6:42**								
5:45	**5:59**	**6:24**	**6:39**		**6:54**	**7:08**	**7:22**								
6:45	**6:59**	**7:20**													

ROUTE 15: SUNDAY

(A)	(B)	(C)	(D)	(T)	(E)	(F)	(G)	(H)	(F)	(E)	(T)	(D)	(C)	(B)	(A)
EASTBOUND								**WESTBOUND**							
								5:35	5:49	6:04	6:15	6:30	6:51	7:11	7:25
								6:40	6:48	7:02		**7:15**	7:36	7:55	8:08
		5:50	6:05	6:15	6:30	6:44	6:55	7:40	7:51	8:06		**8:20**	8:41	9:00	9:14
		7:28	7:41		7:54	8:08	8:19	8:40	8:52	9:07		9:21	9:42	10:02	10:16
7:43	7:56	8:19	8:34		8:49	9:03	9:14	9:40	9:52	10:09		**10:24**	10:45	11:05	11:19
8:41	8:54	9:17	9:32		9:47	10:01	10:14	10:40	10:52	11:09		**11:24**	11:45	12:05	12:19
9:45	10:00	10:26	10:41		10:56	11:10	11:24	11:40	11:53	12:09		12:25	**12:47**	**1:09**	**1:23**
10:45	11:00	11:26	11:41		11:56	12:10	12:24	12:40	**12:53**	**1:09**		**1:25**	**1:47**	**2:09**	**2:23**
11:45	12:00	12:26	12:41		**12:57**	**1:12**	**1:28**	**1:40**	**1:53**	**2:08**		**2:24**	**2:46**	**3:08**	**3:22**
12:45	**1:01**	**1:27**	**1:43**		**2:00**	**2:15**	**2:31**	**2:40**	**2:54**	**3:10**		**3:26**	**3:48**	**4:10**	**4:24**
1:45	**2:01**	**2:27**	**2:43**		**3:00**	**3:15**	**3:31**	**3:40**	**3:54**	**4:09**	**4:20**	**4:35**	**4:56**	**5:16**	**5:30**
2:45	**2:59**	**3:25**	**3:39**		**3:55**	**4:09**	**4:25**	**4:36**	**4:49**	**5:04**		**5:18**	**5:34**		
3:40	**3:54**	**4:19**	**4:33**	**4:43**	**4:58**	**5:12**	**5:28**	**5:40**	**5:53**	**6:08**	**6:19**	**6:33**	**6:49**		
4:55	**5:09**	**5:34**	**5:48**	**5:58**	**6:13**	**6:26**	**6:40**								
5:45	**5:58**	**6:21**	**6:35**		**6:50**	**7:03**	**7:17**								