

## LETTER OF TRANSMITTAL

**To:** Caltrans  
 Program/Project Management

464 W. Fourth St. , MS-1229  
 San Bernardino, CA 92401

DATE	5/15/18	PROJECT NO.	701285
ATTENTION			
Mr. Meardey Tim, PE, Project Manager			
SUBJECT			
I-15/FRENCH VALLEY PARKWAY IMPROVEMENTS - PHASE II			
EA 43272 (PN 0800020178)			
Final Approved Traffic Impact Analysis			

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3	Final Approved Traffic Impact Analysis (approved on 3-9-18)

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Remarks:

Dear Meardey:

Enclosed are 3 copies of the Final Approved Traffic Impact Analysis for your records.

Respectfully submitted,



SIGNED Rodrigo Gonzalez, Project Manager

COPY TO KENDRA HANNAH-MEISTRELL (CITY OF TEMECULA),  
 FILE W/ATTACHMENTS



## I-15/FRENCH VALLEY PARKWAY IMPROVEMENTS – PHASE II



## FINAL TRAFFIC IMPACT ANALYSIS EA 43272 FVP Phase II

Prepared for the City of Temecula  
in cooperation with the California  
Department of Transportation  
March 9, 2018 (Approval Date)



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## 1. Introduction

### 1.1 BACKGROUND

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The City of Temecula, in cooperation with the California Department of Transportation (Caltrans), proposes improvements on a portion of Interstate 15 (I-15) between the existing Winchester Road (State Route 79, SR-79)/I-15 Interchange and Murrieta Hot Springs Road in the vicinity of the I-15/Interstate 215 (I-215) junction (including related improvements to the related portion of I-215 from the I-15/I-215 juncture to just south of the Murrieta Hot Springs Road/I-215 Interchange), within the cities of Temecula and Murrieta in Riverside County, California.

Caltrans is the Lead Agency for compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project has been or is being carried out by Caltrans under its assumption of responsibility pursuant to 23 United States Code (U.S.C.) 327. The City of Temecula is the project sponsor and the project is included in the Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

The Project Approval/Environmental Document (PA/ED) for the Project was initially approved in 2010 but due to funding constraints the project was subsequently split into three phases to allow improvements to be implemented early, provide immediate congestion relief and to facilitate the implementation of the ultimate improvements. Phase I was completed in 2014. The purpose of this study is to support the Environmental Re-evaluation for Phase II of the project. This report is a supplement of the 2008 Traffic Operations Analysis (TOA) Report.

Although not a part of the updated Environmental Documentation, an analysis of the ultimate phase (Phase III) is also provided at the request of Caltrans to assess operating conditions under future Phase III conditions to benefit decision-making.

The proposed project features construction of a new interchange, French Valley Parkway at I-15, between the existing Winchester Road (SR-79)/I-15 Interchange and the I-15/I-215 Junction, along with enhancements to facilitate improved operations on the existing mainline facility. French Valley Parkway would be constructed as a six-lane arterial highway from Jefferson Avenue to Ynez Road. Auxiliary lanes would be provided in both the

northbound and southbound directions and an up to three-lane collector distributor (C/D) system would be constructed parallel to I-15 between the I-15/I-215 confluence and Winchester Road in both the northbound and southbound directions.

To ensure the project meets the Federal Highway Administration (FHWA) criteria for logical termini and independent utility, the effect of the project on adjacent interchanges and freeway-to-freeway junction was evaluated. The goal was to ensure that the project would not result in adverse operational effects on the mainline or ramps and that the improvements were sufficient to accommodate and safely integrate the traffic volumes being introduced to the mainline facility.

## **1.2 PURPOSE AND NEED**

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The purpose of the proposed project is to relieve traffic congestion and to improve safety and operational efficiency within the project limits.

## **1.3 CONSTRUCTION PHASING**

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Due to the size of the proposed project, implementation was initially split into two phases. This allowed improvements to be implemented early to provide immediate congestion relief and to facilitate the implementation of the ultimate improvements. Construction of Phase I was completed in 2014. Since the completion of Phase I, Phase II has been sub-divided into two new phases based on available funding. Again, this would allow improvements to be implemented early to provide faster implementation of the ultimate project for congestion relief.

### Phase I

The first phase of the proposed project is complete and entailed constructing two through lanes on French Valley Parkway westbound from I-15 to Jefferson Avenue; one lane of the southbound exit ramp; the southbound auxiliary lane from French Valley Parkway interchange to the Winchester Road interchange southbound exit ramp; and widening of the Winchester Road southbound exit ramp from one to three lanes. By providing the early implementation of the southbound off-ramp at French Valley Parkway and by providing improvements to the Winchester Road southbound off-ramp, traffic congestion both on the mainline and the off-ramp were alleviated.

### Phase II

The second phase of the proposed project would construct a collector/distributor system with two 12-foot lanes along I-15 from the Winchester Road interchange northerly on-ramps to just north of the I-15/I-215 junction with connectors to I-15 and I-215.

### Phase III

The third phase of the proposed project would provide ultimate relief by constructing the remainder of the six-lane overcrossing and interchange along French Valley Parkway from Jefferson Avenue to Ynez Road including on- and off-ramps; southbound auxiliary lanes; southbound collector/distributor lanes; and modifications to the Winchester Road interchange.

## 2. Project Description

Phase II would construct a two 12-foot lane northbound collector/distributor system along I-15 from the Winchester Road interchange northerly on-ramps to just north of the I-15/I-215 junction providing connectors to I-15 and I-215 within the cities of Temecula and Murrieta in Riverside County, California. The proposed project limits along I-15 are from Post Mile (PM) 6.4 to PM 9.7 and along I-215 from R8.4 to R9.3 – generally between the I-15/I-215 confluence to just south of the Murrieta Hot Springs Road/I-215 interchange. Improvements will include pavement widening, bridge widenings, drainage extensions, retaining walls, and utility relocations.

### 2.1 TRAFFIC STUDY AREA

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The extent of the roadway network that is covered by the analysis is outlined in this section. The traffic study area captures portions of the roadway network that would experience operational impacts resulting from geometric changes introduced by the project and by changes in travel patterns they induce. A map of the project area is provided in **Figure 1**.

The study considers all northbound freeway segments on I-15 from the Winchester Road interchange to the interchange with Murrieta Hot Springs Road and all northbound freeway segments on I-215 from its starting point at the interchange with I-15 to the Murrieta Hot Springs Road interchange.

The following intersections on the local roadway system are included in the analysis:

1. Ynez Road and Date Street;
2. I-15 SB Ramps & French Valley Parkway (Phase III only);
3. Jefferson Avenue and French Valley Parkway;
4. Ynez Road and Winchester Road;
5. I-15 NB Ramps and Winchester Road;
6. I-15 SB Ramps and Winchester Road;
7. Jefferson Avenue and Winchester Road; and
8. I-15 NB Ramps & French Valley Parkway (Phase III only)



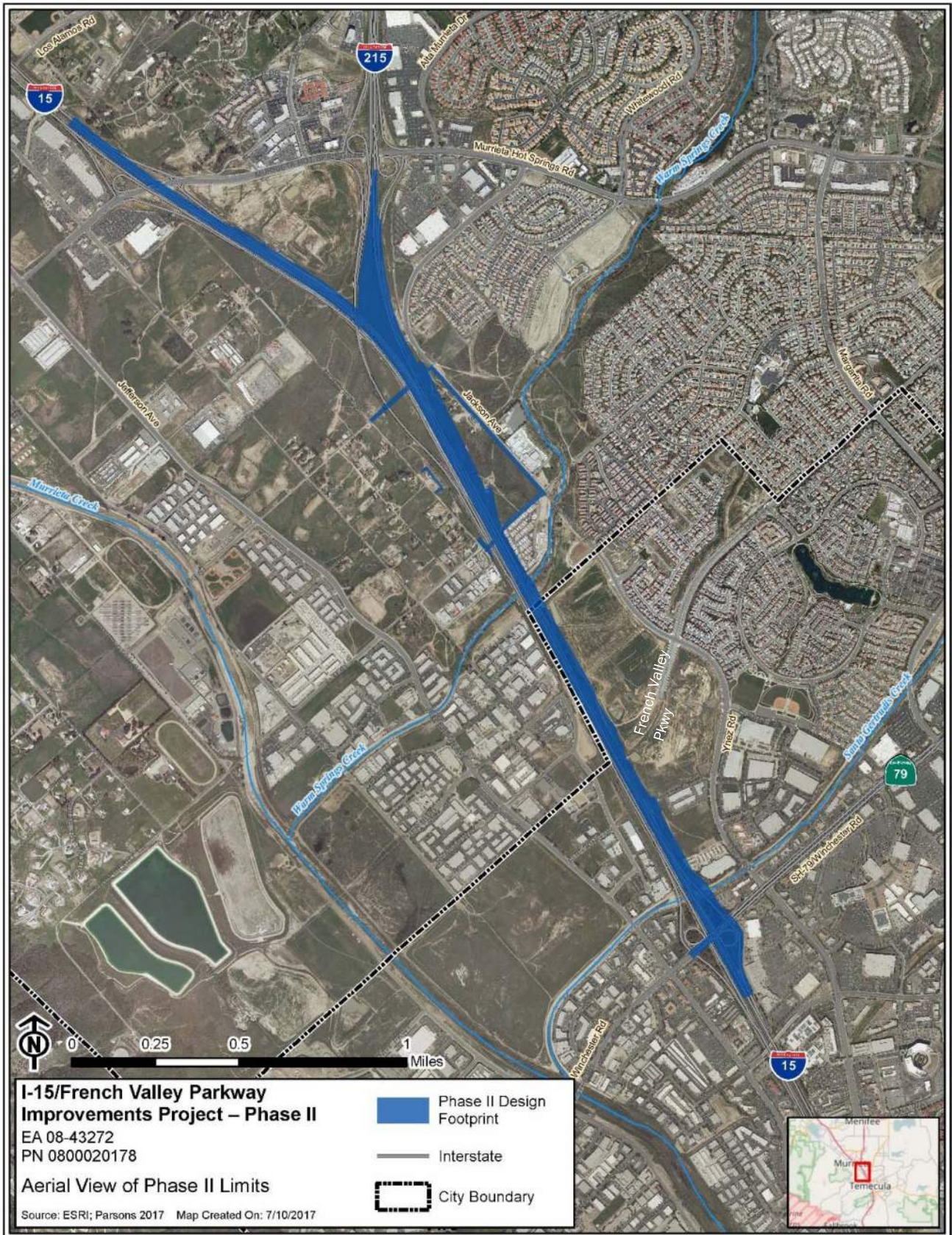


Figure 1 - Project Location Map



### 3. Development of Traffic Volumes

Traffic volumes were developed for AM and PM peak hours for each of the scenarios described below:

- Existing – Year 2017, includes the already completed Phase I improvements.
- No Build - Years 2022 and 2045, includes Phase I improvements as well as programmed improvements outside of the project that are scheduled to be completed (No Build improvements).
- Build Phase II – Years 2022 and 2045, includes Phase I, No Build and Phase II improvements
- Build Phase III– Year 2045, Supplemental Scenario, includes all Phase I, No Build, Phase II and Phase III improvements.

Traffic volumes for all scenarios were taken from the 1-15/French Valley Parkway Improvements Project – Phase II Traffic Volumes Report approved by Caltrans on 9/27/17. Existing traffic volumes were developed using traffic counts collected during June 2017 as well as historical count information available from the Caltrans Performance Monitoring System (PeMS) and other Caltrans data sources.

Future forecast volumes were generated using the SCAG 2016 RTP Model. The AM peak period (6:00 AM to 9:00 AM) and PM peak period (3:00 PM to 7:00 PM) forecast traffic volumes obtained from the model were converted to peak hour volumes by applying peak hour conversion factors. Peak Hour conversion factors were determined using PeMS data.

Traffic Volumes Report (See **Appendix B**) includes a detailed discussion of the data collection, the use of and calibration of the SCAG 2016 RTP Model and the postprocessing steps that were taken to derive the hourly volumes for all scenarios employed in this analysis.

### 4. Analysis Methodologies

This section describes the analysis methodologies used in evaluating traffic operations on freeway segments and intersections within the study area.

#### 4.1 FREEWAY OPERATIONS ANALYSIS METHODOLOGY

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The freeway analysis evaluates traffic operations on freeway segments during the AM and PM peak commuting hours. The operating performance of freeway segments is measured by level of service (LOS). LOS is based on such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. The 2010 Highway Capacity Manual (HCM) defines six LOS ratings (letters A through F), with LOS A representing free-flow conditions and LOS F signifying the roadway is over capacity. The remaining LOS letters represent gradually declining traffic conditions as traffic performance drops from LOS B through LOS E, with E signifying the roadway is operating at capacity.

Specific criteria/measures are used to define LOS for different types of roadway facilities. In the case of basic freeway segments (BFS), LOS is based on the density of vehicles in the traffic stream, defined in terms of passenger car equivalents per-mile per-lane (pc/mi/ln). LOS for ramp operations is determined based on the density of the vehicles within the influence areas (typically including the outer two lanes of the freeway). The influence area for these movements typically extends 1,500 feet downstream of an entrance ramp or 1,500 feet upstream of an exit ramp. LOS for weaving areas also is determined by density. Traffic within a weaving area is subject to turbulence, normally in the form of forced lane changes within a restricted distance. Although there are both weaving and non-weaving vehicles within a weaving area, a single LOS is used to describe operations within the weaving area. The LOS criteria for basic freeway segments, freeway ramps (ramp merge and diverge areas) and weaving areas is given in **Table 1**.

Table 1 - Freeway Level of Service Criteria

Level of Service (LOS)	Density (pc/mi/ln)		
	Basic Segments	Ramp Merge and Diverge Areas	Weaving Segments
A	≤ 11	≤ 10	≤ 10
B	> 11 - 18	> 10 - 20	> 10 - 20
C	> 18 - 26	> 20 - 28	> 20 - 28
D	> 26 - 35	> 28 - 35	> 28 - 35
E	> 35 - 45	> 35	> 35 - 43
F	> 45	Demand exceeds capacity	> 43

Note. V/C >1 indicates that the freeway segment is over capacity.

Source: Highway Capacity Manual (2010)

For all freeway components (basic freeway segments, ramps and weaving), a level of service analysis was performed using the standard Highway Capacity Manual, 6th Edition operations methodology and Caltrans Highway Design Manual (HDM) standards. The target LOS for the 2045 design year is D or better. All freeway mainline, junction, and weaving analyses were performed using Highway Capacity Software (HCS7).

The freeway component LOS parameters employed are as follows:

- Free Flow Speed (FFS) of 70 mph on mainline segments
- FFS of 60 mph on collector distributors (CD)
- FFS of 25 mph for loop ramps, 35 mph for hook ramps, and 45 mph for tangent ramps
- Peak Hour Factor (PHF)
  - Existing year from existing counts
  - Opening year and design year – 0.95 for uncongested conditions & 0.98 for congested conditions
- Default acceleration and deceleration lane length for ramp junction analysis (Based on HCM, 6th edition and HDM Figure 504.2A and 504.2B)
  - Acceleration Lane Length = 600 ft. (min) or length of acceleration lane if any
  - Deceleration Lane Length = 270 ft. (min) or length of deceleration lane if any
- Freeway segment capacity
  - General purpose lane – 2,000 vehicles/hour/lane
  - Collector/Distributor lane – 1,600 vehicles/hour/lane
- Traffic volumes are utilized as Passenger Car Equivalents (PCEs) to account for the effect of trucks and larger vehicles that are present within the traffic stream

## 4.2 INTERSECTION OPERATIONS ANALYSIS METHODOLOGY

LOS analysis is also used to evaluate peak hour congestion and delay at intersections within the study area. The relative level of congestion is evaluated on a scale of A through F. LOS A indicates free-flow conditions. LOS F indicates over saturated conditions. LOS for intersections is defined in terms of average control delay (in seconds per vehicle). The LOS criteria used are provided in **Table 2**.

Table 2 - Intersection Level of Service Criteria

Level of Service	Signalized Intersection Control Delay (seconds/vehicle)
A	0-10
B	10-20
C	20-35
D	35-55
E	55-80
F	80 or more

Note.  $V/C > 1$  indicates that the intersection is over capacity.

Source: Highway Capacity Manual (2010)

Synchro 9.0 software was the analytical tool used to determine intersection LOS, vehicle delay and 95<sup>th</sup> percentile queue lengths. Synchro is a statistical model that uses data inputs regarding traffic controls, roadway geometry and demand characteristics to assess traffic operational performance. HCM 2010 signalized intersection LOS methodology was used for locations compatible with the methodology. For all other locations, Synchro signalized intersection LOS methodology was used for reporting purposes. Key model input assumptions and parameters used in the analysis are given below:

- Base Saturation Flow Rate – 1,900 pc/hr/ln
- Existing signal timing will be utilized for existing peak hour analysis
- Optimized cycle length for future scenarios – 60 seconds to 120 seconds (max)
- Minimum phase time (including change interval) – 10 seconds
- Lost time per phase – 2 seconds
- Peak Hour Factor (PHF)
  - Existing (2017) – Derived from existing traffic counts
  - Future (opening year 2022 and design year 2045) – 0.95
- Traffic volumes are utilized as Passenger Car Equivalents (PCEs) to account for the effect of trucks and larger vehicles that are present within the traffic stream

Existing signal timing setting were based on signal timing plans obtained from Caltrans and the City of Temecula (See **Appendix C**). Traffic signal timing cycle lengths, splits and offsets were optimized for all future scenarios.

## 5. Existing Conditions

To assess the impacts of project improvements on future traffic conditions, it was first necessary to determine the existing traffic conditions on which future conditions are based. This section presents an overview of the existing roadway system as well as operational analyses under existing conditions for all freeway segments and intersections within the study area.

### 5.1 EXISTING ROADWAY SYSTEM

Figure 2 presents a map of the intersection configurations, intersection control types and arterial speed limits in areas influenced by the project.

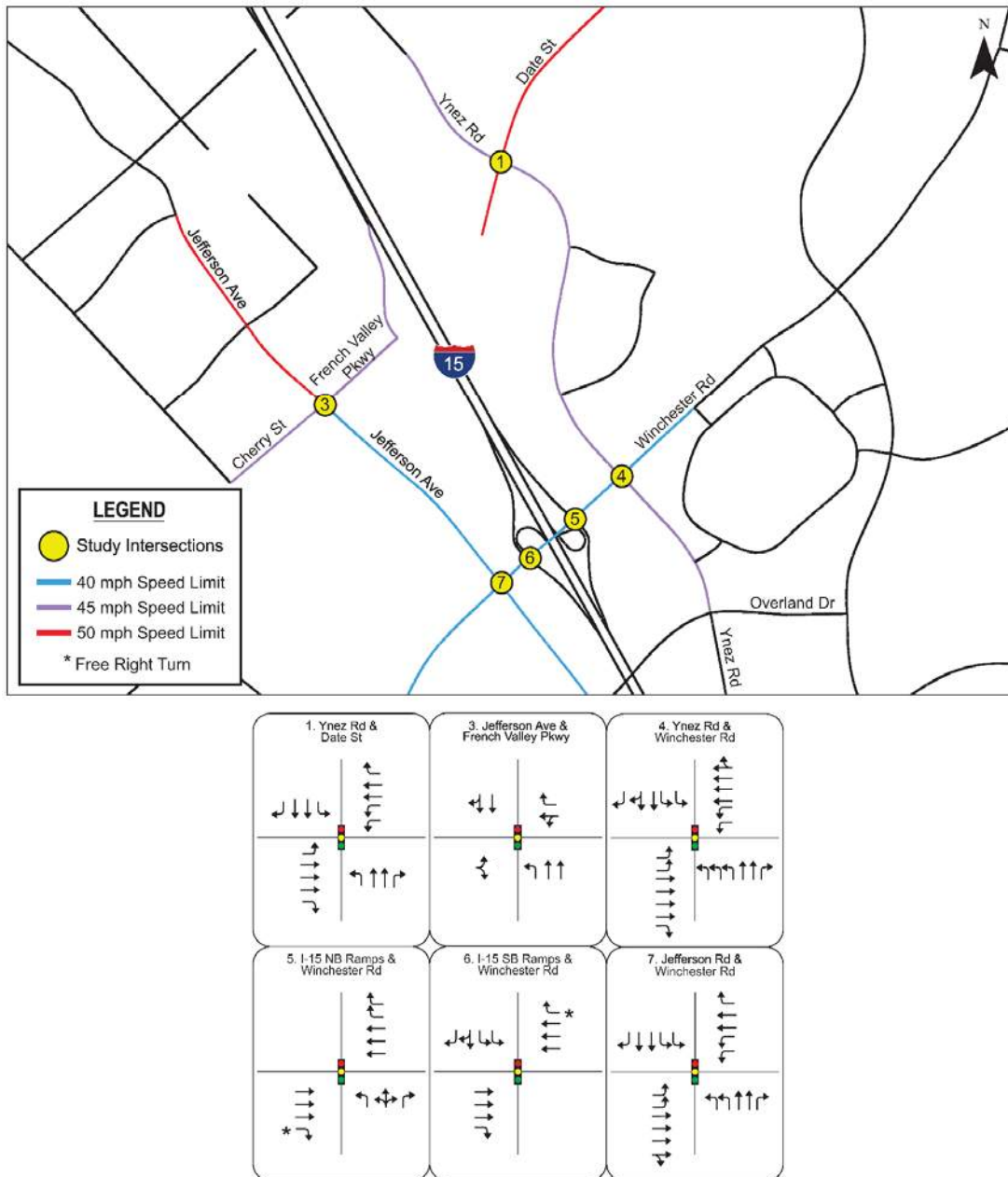


Figure 2 - Existing Conditions - Arterials and Intersections



## 5.2 EXISTING CONDITIONS FREEWAY OPERATIONAL ANALYSIS

Figure 3 depicts the 2017 existing year AM and PM peak hour volumes. Freeway segment analysis types consistent with the existing conditions geometry are shown in Figure 4. Table 3 summarizes the 2017 existing year LOS and density (vehicles/mile) on all freeway segments within the study area.

Table 3 - Existing (2017) Freeway Segment Density and Level of Service

Segment Name	Segment Type	AM		PM		
		Density (veh/mi)	LOS	Density (veh/mi)	LOS	
I-15	Rancho California Rd off-ramp to I-15 Winchester Rd off-ramp	B	19.0	C	23.0	C
	Winchester Rd off-ramp	D	18.5	B	22.3	C
	Winchester Rd off-ramp to I-15 Winchester Rd loop on-ramp	B	15.0	B	19.8	C
	Winchester Rd loop on-ramp	M	16.9	B	25.1	C
	Winchester Rd direct on-ramp	M	19.3	B	30.9	D
	Winchester Rd direct on-ramp to I-15 lane addition	B	18.8	C	30.3	D
	Segment (5 lanes)	B	15.3	B	23.3	C
	Segment (6 lanes)	B	12.7	B	19.3	C
	I-215 junction to I-15 lane drop	B	11.0	A	16.1	B
	Segment (3 lanes) to I-15 Murrieta Hot Springs Rd off-ramp	B	14.6	B	21.5	C
	Murrieta Hot Springs Rd off-ramp	D	14.9	B	21.7	C
	Murrieta Hot Springs Rd off-ramp and on-ramp	B	19.7	C	19.7	C
	Murrieta Hot Springs Rd direct on-ramp	M	19.1	B	34.1	D
I-215	North of Murrieta Hot Springs Rd on-ramp	B	17.9	B	31.2	D
	I-15 junction to I-215 Murrieta Hot Springs Rd off-ramp	B	16.2	B	25.6	C
	Murrieta Hot Springs Rd off-ramp	D	10.6	B	16.6	B
	Murrieta Hot Spring Rd off-ramp to I-215 lane addition	B	13.8	B	22.8	C
	Segment (3 lanes) to I-215 Murrieta Hot Spring Rd loop on-ramp	B	9.2	A	15.2	B
	Murrieta Hot Springs Rd loop on-ramp	M	10.4	B	18.6	B
	Murrieta Hot Springs Rd direct on-ramp	M	14.7	B	25.1	C
North of Murrieta Hot Springs Rd direct on-ramp	B	13.4	B	23.9	C	

All segments operate at acceptable levels (LOS D or better) during peak hours based on the HCM analysis. HCS reports for the existing conditions analysis are provided in Appendix D.

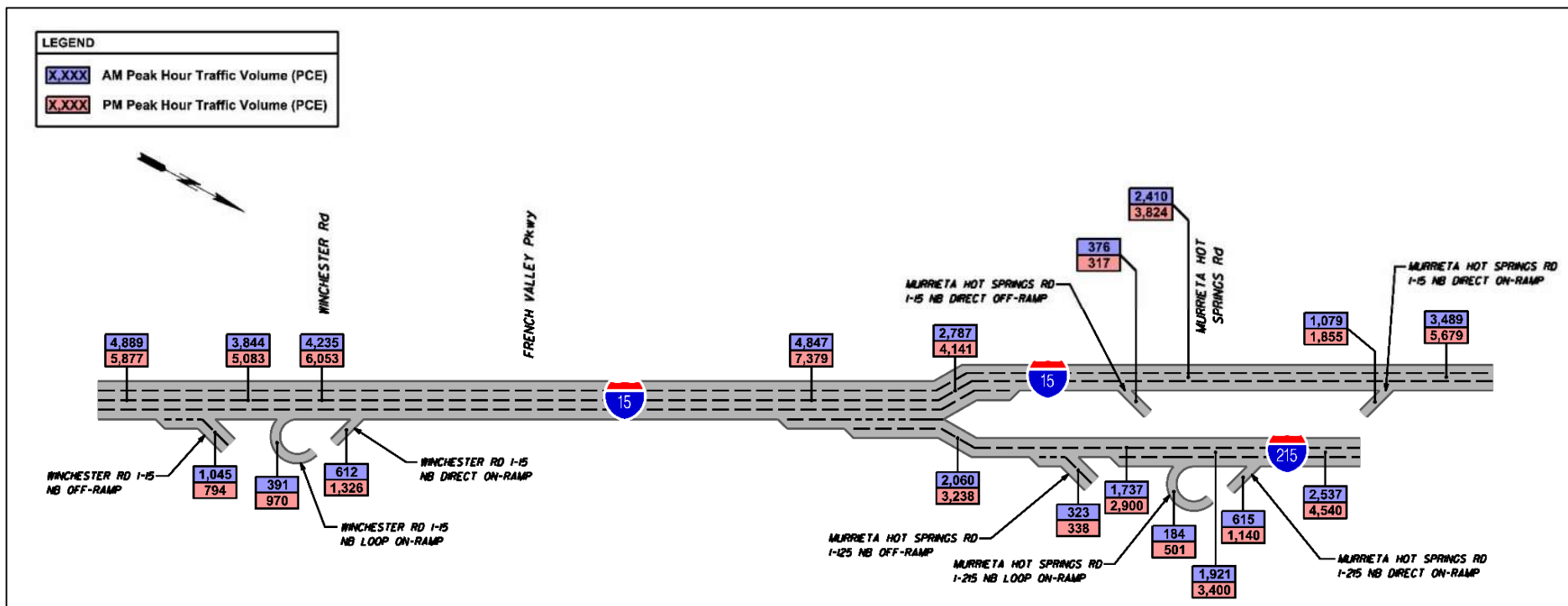


Figure 3 - Existing (2017) Freeway Peak Hour Traffic Volumes

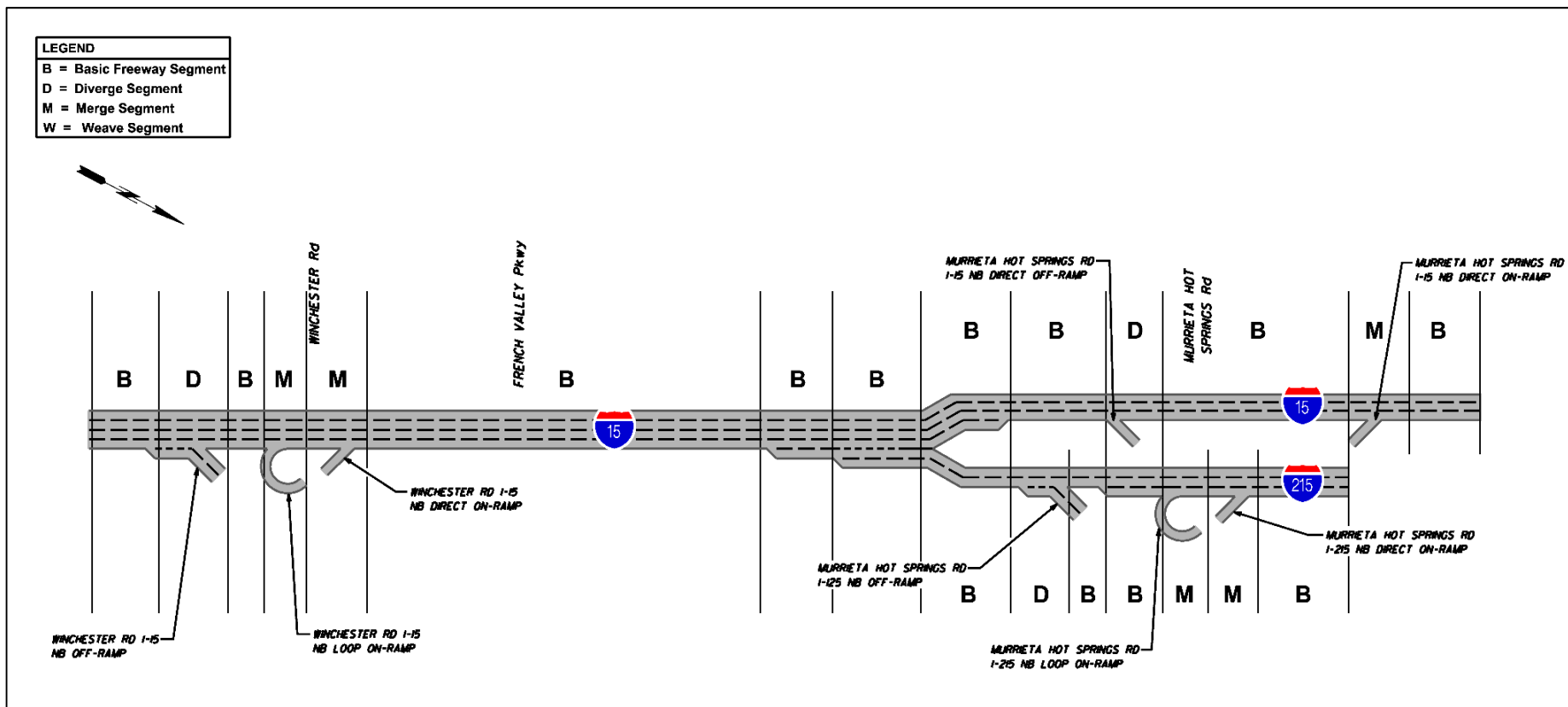


Figure 4 - Existing (2017) Freeway Segment Analysis Types

**Figure 5** illustrates radar speed observed on I-15 northbound immediately north of Winchester Road based on information contained in the Traffic Volumes Report.

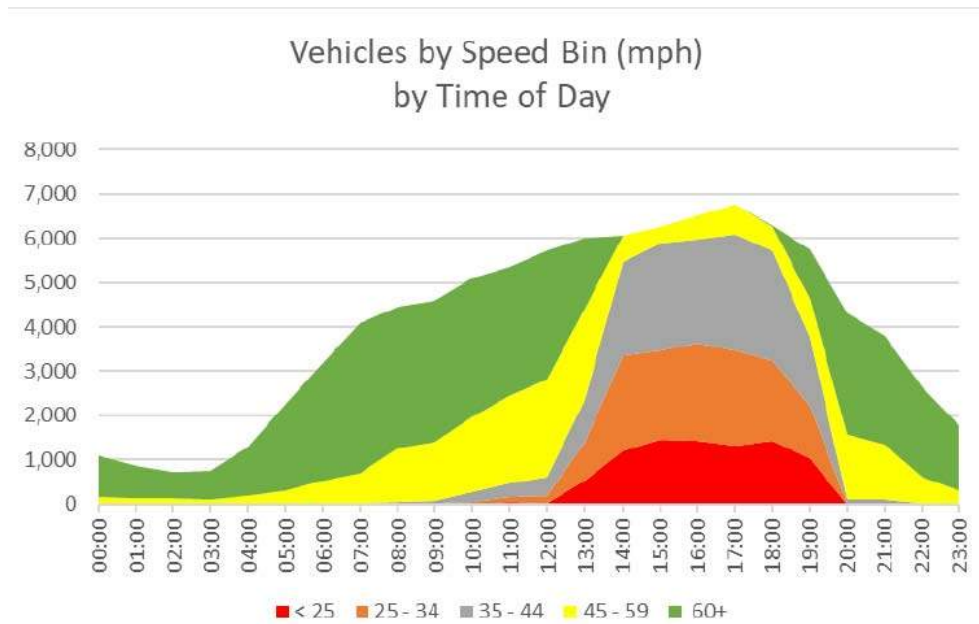


Figure 5 - I-15 Northbound Hourly Volumes by Speed Bin North of Winchester Road

The radar plots indicate reduced speeds and congested conditions on I-15 northbound north of the Winchester Road onramp during evening commuting hours. According to the Traffic Volumes Report, this occurs as drivers' favor the right-most lanes in advance of completing maneuvers onto I-215 bringing them into conflict with traffic entering I-15 from the Winchester Road onramp and causing congestion in the merge influence area.

The observed condition described above is not reflected in the HCM analysis because the equations employed assume a more even utilization of mainline lanes entering the segment and therefore cannot reflect the observed behavior and ensuing congestion observed in the merge area as described above.

### 5.3 EXISTING CONDITIONS INTERSECTION OPERATIONAL ANALYSIS

An LOS analysis was conducted to evaluate peak hour intersection operations under Existing conditions. **Figure 6** shows the Existing conditions PCE adjusted traffic volumes during the AM and PM peak hours.



1. Ynez Rd & Date St	3. Jefferson Ave & French Valley Pkwy	4. Ynez Rd & Winchester Rd
5. I-15 NB Ramps & Winchester Rd	6. I-15 SB Ramps & Winchester Rd	7. Jefferson Rd & Winchester Rd

Figure 6 - Existing (2017) PCE Adjusted Intersection Volumes

Table 4 - Existing (2017) Intersection Delay and Level of Service

Intersection	Approach	Peak Movement	AM		PM	
			Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1: Date Street & Ynez Road	Eastbound	Left	120.0	F	72.3	E
		Through	35.7	D	20.6	C
		Right	30.9	C	0.0	A
	Westbound	Left	107.4	F	137.8	F
		Through	46.1	D	43.4	D
		Right	28.1	C	179.6	F
	Northbound	Left	137.8	F	118.1	F
		Through	22.4	C	29.2	C
		Right	22.5	C	29.3	C
	Southbound	Left	101.8	F	63.9	E
		Through	11.6	B	21.4	C
		Right	4.7	A	27.2	C
	<b>All</b>	<b>All</b>	<b>63.3</b>	<b>E</b>	<b>76.5</b>	<b>E</b>
3: Cherry St/French Valley Pkwy & Jefferson*	Eastbound	Left	50.6	D	55.5	E
		Right	28.5	C	19.7	B
	Westbound	Through	211.9	F	59.4	E
		Right	16.9	B	8.8	A
	Northbound	Left	450.4	F	455.3	F
	Through	19.0	B	22.5	C	
	Southbound	Through	25.9	C	23.2	C
	<b>All</b>	<b>All</b>	<b>86.2</b>	<b>F</b>	<b>42.6</b>	<b>D</b>
4: Winchester & Ynez*	Eastbound	Left	61.0	E	66.4	E
		Through	21.2	C	31.5	C
		Right	11.7	B	12.0	B
	Westbound	Left	68.5	E	74.8	E
		Through	38.6	D	39.9	D
	Northbound	Left	48.6	D	53.0	D
		Through	29.3	C	47.6	D
		Right	7.3	A	18.4	B
	Southbound	Left	71.8	E	63.6	E
		Through	54.1	D	57.9	E
		Right	65.3	E	70.1	E
	<b>All</b>	<b>All</b>	<b>38.7</b>	<b>D</b>	<b>42.0</b>	<b>D</b>
5: Winchester & I-15 NB off/I-15 NB on*	Eastbound	Through	6.6	A	18.0	B
		Right	0.7	A	8.1	A
	Westbound	Through	5.0	A	5.6	A
		Right	0.1	A	1.0	A
	Northbound	Left	46.0	D	37.0	D
		Through	48.3	D	61.3	E
		Right	44.9	D	56.9	E
	<b>All</b>	<b>All</b>	<b>13.8</b>	<b>B</b>	<b>15.5</b>	<b>B</b>
6: Winchester & I-15 SB on/I-15 SB off*	Eastbound	Through	7.0	A	12.3	B
		Right	0.8	A	0.6	A
	Westbound	Through	17.6	B	7.0	A
	Southbound	Left	44.2	D	39.3	D
		Through	37.1	D	16.2	B
		Right	37.0	D	16.0	B
	<b>All</b>	<b>All</b>	<b>23.4</b>	<b>C</b>	<b>17.0</b>	<b>B</b>

Intersection	Approach	Peak	AM		PM	
		Movement	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
7: Winchester & Jefferson	Eastbound	Left	60.7	E	80.3	F
		Through	31.6	C	36.3	D
	Westbound	Left	59.6	E	26.0	C
		Through	44.2	D	17.0	B
		Right	12.0	B	69.8	E
	Northbound	Left	67.0	E	62.9	E
		Through	54.7	D	104.6	F
		Right	31.6	C	4.2	A
	Southbound	Left	43.3	D	85.6	F
		Through	36.7	D	28.9	C
		Right	92.7	F	26.0	C
	<b>All</b>	<b>All</b>	<b>47.2</b>	<b>D</b>	<b>51.8</b>	<b>D</b>

\*Synchro methodology used to derive delay and LOS at this intersection

As shown in **Table 4**, the following two (2) intersections operate at LOS E or F under Existing conditions:

- 1) Date Street & Ynez Road (AM/PM)
- 3) Cherry Street/French Valley Parkway & Jefferson Avenue (AM)

. Synchro 9.0 LOS reports for the existing conditions analysis are included in **Appendix E**.

### 5.4 EXISTING CONDITIONS QUEUE LENGTH ANALYSIS

A queue length analysis was completed for Existing conditions during AM and PM peak hours using Synchro 9.0 software. **Table 5** shows the 95<sup>th</sup> percentile queue length results for all intersection lane groups.

Table 5 - Existing (2017) 95th Percentile Queue Lengths

Intersection	Approach	Movement	Turn Bay Storage (ft)	95th % Queue Length (ft)	
				AM	PM
1: Date Street & Ynez Road	Eastbound	Left	250	311	244
		Through		162	108
		Right	100	0	0
	Westbound	Left	250	15	11
		Through		73	443
		Right		51	122
	Northbound	Left	250	6	11
		Through		2	1
		Right	250	0	0
	Southbound	Left	300	350	167
		Through		5	5
Right		150	40	57	
3: Cherry St/French Valley Pkwy & Jefferson	Eastbound	Left		31	56
		Right	200	81	53
	Westbound	Through		810	207
		Right		150	47
	Northbound	Left	250	281	331
		Through		240	882
Southbound	Through		304	454	

Intersection	Approach	Movement	Turn Bay Storage (ft)	95th % Queue Length (ft)	
				AM	PM
4: Winchester & Ynez	Eastbound	Left	250	197	291
		Through		143	389
		Right	200	224	177
	Westbound	Left	250	182	219
		Through		402	374
	Northbound	Left	400	115	265
		Through		91	404
		Right	350	40	252
	Southbound	Left	200	89	141
		Through		308	263
Right		500	350	296	
5: Winchester & I-15 NB off/I-15 NB on	Eastbound	Through		112	650
		Right	450	0	474
	Westbound	Through		174	138
		Right		0	9
	Northbound	Left		352	128
		Through		350	357
6: Winchester & I-15 SB on/I-15 SB off	Eastbound	Through		62	250
		Right		6	0
	Westbound	Through		560	56
		Left		437	536
	Southbound	Through		331	142
		Right		329	138
7: Winchester & Jefferson	Eastbound	Left	400	82	327
		Through		89	288
	Westbound	Left		280	258
		Through		430	213
		Right	300	69	230
	Northbound	Left	200	96	45
		Through		188	498
		Right	300	79	386
	Southbound	Left	300	175	392
		Through		241	308
Right		200	350	46	

Note. 95% Queues exceeding available storage lengths highlighted in yellow

## 5.5 ACCIDENT DATA ANALYSIS

Accident history was examined on the section of northbound I-15 and northbound I-215 for the 3-year period from September 1, 2012 through August 31, 2015 to locate crash clusters and identify safety problems. The accident history data was provided by Caltrans. **Table 6** summarizes the frequency of crashes by severity, year and type.



Table 6 - Accident Data

Total Accidents												
Location	Severity			Crash Type								
	Fatal	Injury	PDO	Sideswipe	Rear End	Broadside	Hit Object	Overturn	Other			
I-15 Winchester NB off ramp	0	8	21	8	19	1	0	0	1			
I-15 Winchester NB loop and direct on ramp	0	10	19	13	11	1	1	2	1			
I-15 Murrieta Hot Springs NB off ramp	0	0	2	0	2	0	0	0	0			
I-15 NB excluding ramps	1	81	148	39	151	2	24	8	6			
I-215 NB excluding ramps	0	4	11	7	4	0	2	1	1			
<b>Total</b>	<b>1</b>	<b>103</b>	<b>201</b>	<b>67</b>	<b>187</b>	<b>4</b>	<b>27</b>	<b>11</b>	<b>9</b>			

Accident Frequency (Number of Accidents/Million Vehicle Miles)												
Location	Project Area			Statewide Average			Crash Type					
	Fatal	F+I	Total	Fatal	F+I	Total	Sideswipe	Rear End	Broadside	Hit Object	Overturn	Other
I-15 Winchester NB off ramp	0.000	0.43	1.56	0.003	0.35	1.01	0.430	1.020	0.054	0.000	0.000	0.054
I-15 Winchester NB loop and direct on ramp	0.000	0.43	1.26	0.002	0.22	0.63	0.565	0.478	0.043	0.043	0.087	0.043
I-15 Murrieta Hot Springs NB off ramp	0.000	0.00	0.04	0.003	0.35	1.01	0.000	0.043	0.000	0.000	0.000	0.000
I-15 NB excluding ramps	0.003	0.22	0.63	0.004	0.27	0.87	0.107	0.413	0.005	0.066	0.022	0.016
I-215 NB excluding ramps	0.000	0.09	0.35	0.006	0.35	1.07	0.164	0.093	0.000	0.047	0.023	0.023

The rate of fatal accidents is lower on freeway segments within the study area than statewide averages while total accident rates and the rate of accidents resulting in injuries are somewhat higher. Recurring traffic congestion on I-15 northbound is a contributing factor to the high percentage of rear end crashes. Since the project improvements are designed to add capacity and help reduce congestion, the project is expected to help reduce the frequency of congestion related accidents.

## 6. No Build Conditions

The No Build conditions represent future conditions without project-related improvements that may serve as a future baseline to which conditions with the Project may be compared. No Build conditions were evaluated for 2022, the Estimated Time of Completion (ETC) of the project, and 2045 (ETC+20), the design year of the project.

The No Build scenario excludes Project related improvements except for completed Phase I improvements, but it assumes the completion of outside projects that are currently programmed by Caltrans in the State Highway Operations and Protection Program (SHOPP), State Transportation Improvement Program (STIP), Federal Transportation Improvement Program (FTIP) or Corridor Mobility Improvement Account (CMIA) and the financially constrained network in the SCAG 2016 RTP. This includes the construction of a new northbound loop on-ramp to I-15 at Murrieta Hot Spring Road which is in the FTIP and is programmed for construction in 2019 according to the 2016 RTP.

### 6.1 NO BUILD CONDITIONS FREEWAY OPERATIONAL ANALYSIS

**Figure 7** and **Figure 8** depict the year 2022 and 2045 No Build conditions peak hour volumes respectively. Freeway segment analysis types based on No Build geometry are shown in **Figure 9**. **Table 7** summarizes No Build condition LOS and densities (vehicles/mile) on all freeway segments within the study area.

Table 7 – No Build Freeway Segment Density and Level of Service

Segment Name	Segment Type	No Build - 2022				No Build - 2045				
		AM		PM		AM		PM		
		Density (veh/mi)	LOS	Density (veh/mi)	LOS	Density (veh/mi)	LOS	Density (veh/mi)	LOS	
I-15	Rancho California Rd off-ramp to I-15 Winchester Rd off-ramp	B	21.1	C	25.4	C	28.7	D	42.4	E
	Winchester Rd off-ramp	D	20.6	C	24.5	C	27.5	C	35.0	D
	Winchester Rd off-ramp to I-15 Winchester Rd loop on-ramp	B	16.7	B	21.6	C	22.4	C	21.6	C
	Winchester Rd loop on-ramp	M	18.8	B	26.9	C	25.0	C	40.5	E
	Winchester Rd direct on-ramp	M	21.5	C	33.5	D	28.0	C	> 45.0	F
	Winchester Rd direct on-ramp to I-15 lane addition	B	20.8	C	33.5	D	27.3	D	> 45.0	F
	Segment (5 lanes)	B	17.0	B	25.2	C	21.6	C	38.0	E
	Segment (6 lanes)	B	14.1	B	20.7	C	17.9	B	28.6	D
	I-215 junction to I-15 lane drop	B	11.7	B	17.1	B	14.4	B	24.1	C
	Segment (3 lanes) to I-15 Murrieta Hot Springs Rd off-ramp	B	15.6	B	22.9	C	19.2	C	35.8	E
	Murrieta Hot Springs Rd off-ramp	D	15.8	B	23.0	C	19.5	B	32.5	D
	Murrieta Hot Springs Rd off-ramp and on-ramp	B	13.4	B	21.0	C	16.9	B	32.5	D
	Murrieta Hot Springs Rd loop on-ramp	M	15.5	B	24.0	C	20.8	C	36.5	E
	Murrieta Hot Springs Rd direct on-ramp	M	22.0	C	38.6	E	28.0	C	> 45.0	F
North of Murrieta Hot Springs Rd on-ramp	B	20.6	C	36.7	E	26.3	D	> 45.0	F	
I-215	I-15 junction to I-215 Murrieta Hot Springs Rd off-ramp	B	18.6	C	28.5	D	24.8	C	41.1	E
	Murrieta Hot Springs Rd off-ramp	D	12.2	B	18.1	B	16.2	B	23.0	C
	Murrieta Hot Spring Rd off-ramp to I-215 lane addition	B	15.9	B	16.5	B	21.0	C	35.4	E
	Segment (3 lanes) to I-215 Murrieta Hot Spring Rd loop on-ramp	B	10.6	A	16.5	B	14.0	B	21.2	C
	Murrieta Hot Springs Rd loop on-ramp	M	11.9	B	20.2	C	15.5	B	26.9	C
	Murrieta Hot Springs Rd direct on-ramp	M	15.5	B	27.5	C	19.5	B	38.6	E
North of Murrieta Hot Springs Rd direct on-ramp	B	15.2	B	26.2	D	19.0	C	38.0	E	

Under No Build 2022 and 2045 conditions, all segments operate acceptably (LOS D or better) during the AM peak hour.

The following two (2) freeway segments operate at LOS E or F under 2022 No Build conditions in the PM peak hour:

- I-15 Northbound at Murrieta Hot Springs Rd direct on-ramp
- I-15 Northbound North of Murrieta Hot Springs Rd on-ramp

The following thirteen (13) freeway segments operate at LOS E or F under 2045 No Build conditions in the PM peak hour:

- I-15 Northbound between Rancho California Rd off-ramp and I-15 Winchester Rd off-ramp
- I-15 Northbound at Winchester Rd loop on-ramp
- I-15 Northbound at Winchester Rd direct on-ramp
- I-15 Northbound between Winchester Rd direct on-ramp and I-15 lane addition
- I-15 Northbound 5-Lane Segment
- I-15 Northbound between 3-Lane Segment and I-15 Murrieta Hot Springs Rd off-ramp
- I-15 Northbound at Murrieta Hot Springs Rd loop on-ramp
- I-15 Northbound at Murrieta Hot Springs Rd direct on-ramp
- I-15 Northbound North of Murrieta Hot Springs Rd on-ramp
- I-215 Northbound between I-15 junction and I-215 Murrieta Hot Springs Rd off-ramp
- I-215 Northbound between Murrieta Hot Spring Rd off-ramp and I-215 lane addition
- I-215 Northbound at Murrieta Hot Springs Rd direct on-ramp
- I-215 Northbound North of Murrieta Hot Springs Rd direct on-ramp

HCS reports for the No Build conditions freeway analysis are provided in **Appendix F**.

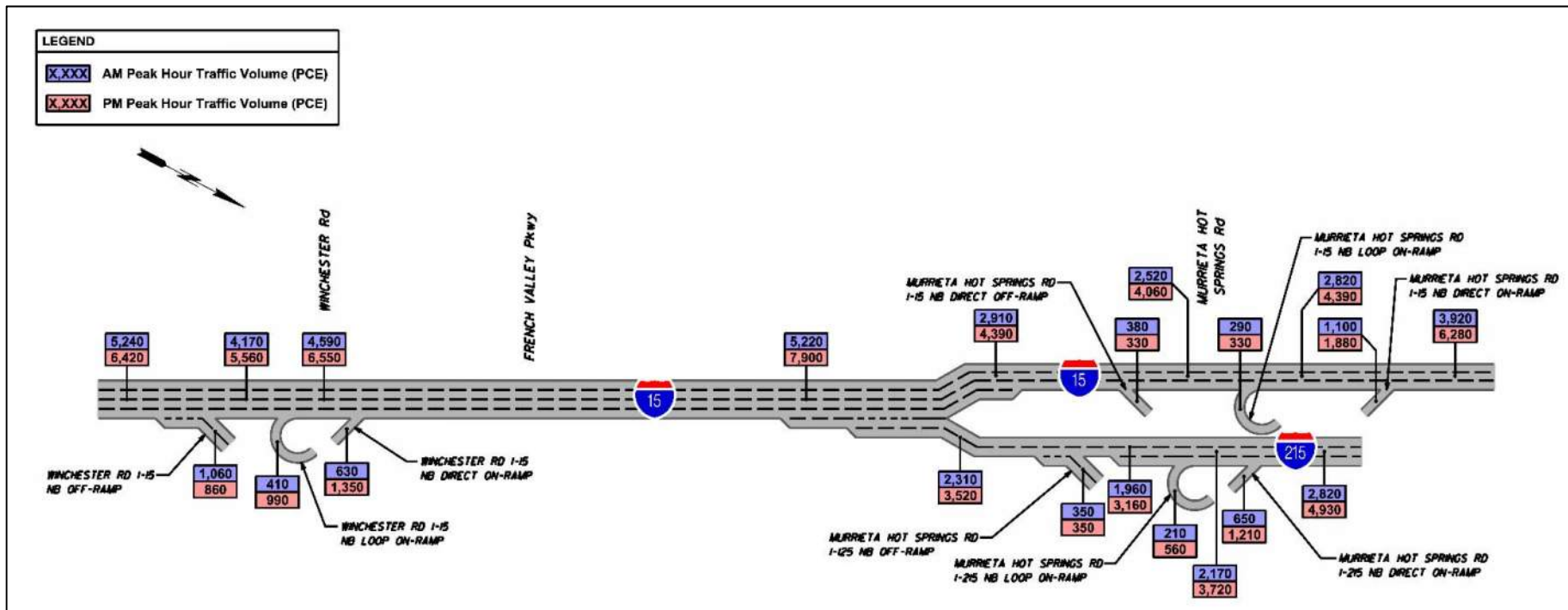


Figure 7 - No Build (2022) Freeway Peak Hour Traffic Volumes

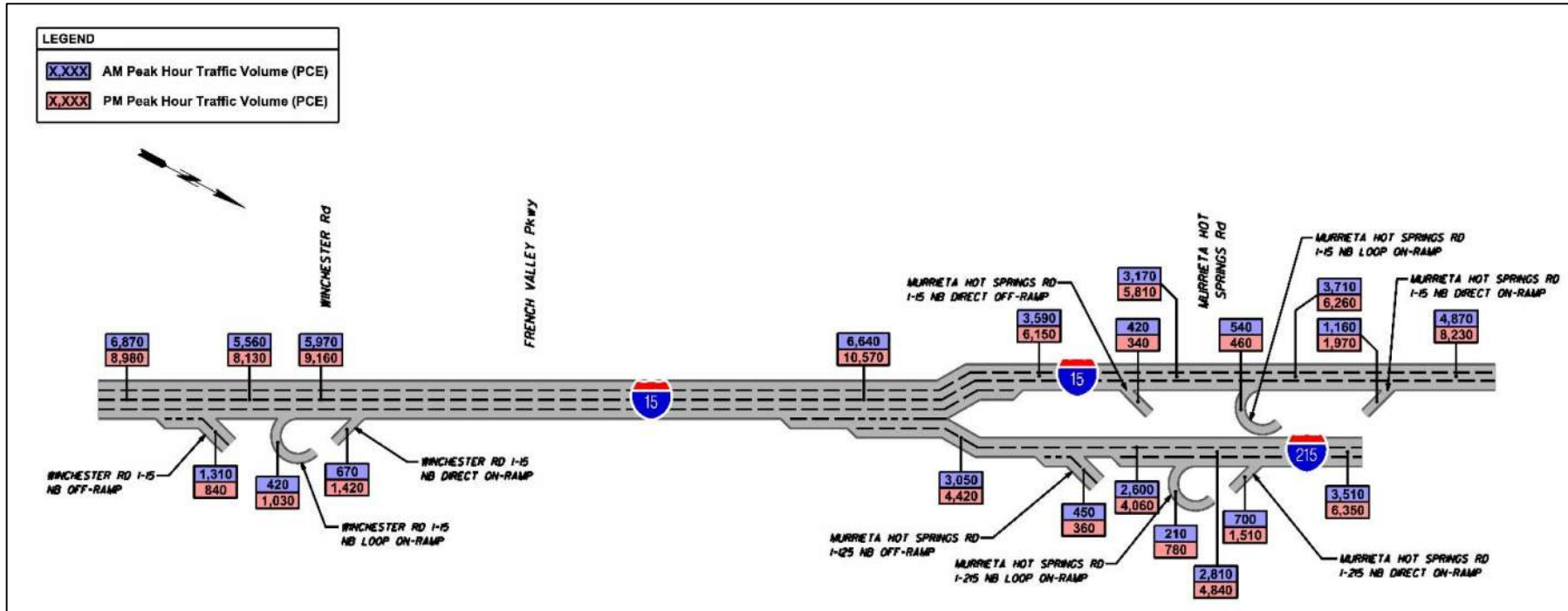


Figure 8 - No Build (2045) Freeway Peak Hour Traffic Volumes

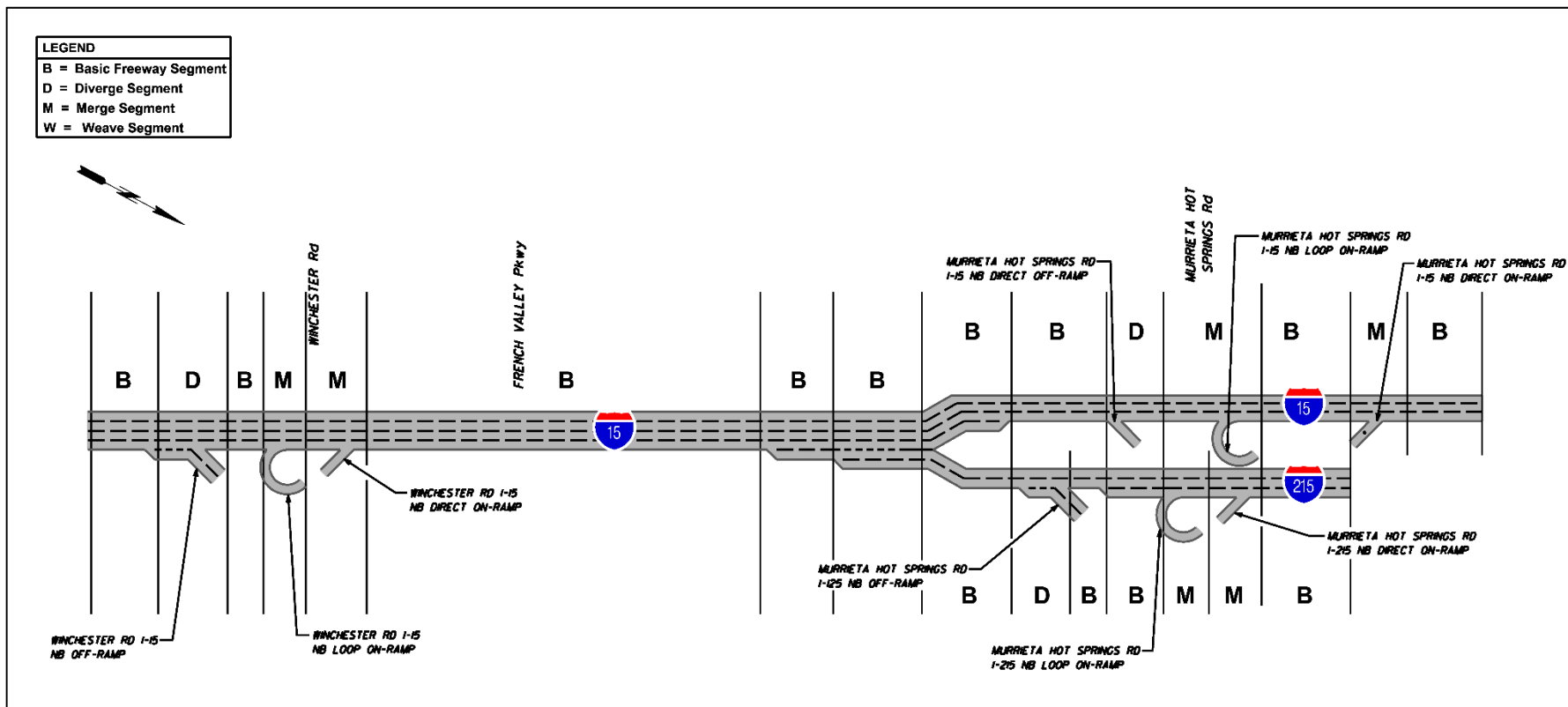


Figure 9 - No Build (2022 and 2045) Segment Analysis Types

### 6.2 NO BUILD CONDITIONS INTERSECTION OPERATIONAL ANALYSIS

An LOS analysis was conducted to evaluate peak hour intersection operations under No Build conditions. **Figure 10** and **Figure 11** show the PCE adjusted traffic volumes during the No Build 2022 and 2045 peak hours respectively. **Table 8** shows the average delay per vehicle and LOS under No Build 2022 and 2045 peak hour conditions.

Table 8 – No Build Intersection Delay and Level of Service

Intersection	Approach	Peak Movement	Year 2022				Year 2045			
			AM		PM		AM		PM	
			Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1: Date Street & Ynez Road	Eastbound	Left	103.4	F	74.0	E	130.8	F	104.2	F
		Through	36.3	D	19.7	B	41.5	D	14.6	B
		Right	12.2	B	0.0	A	12.2	B	0.0	A
	Westbound	Left	107.4	F	137.8	F	100.7	F	118.1	F
		Through	46.5	D	46.7	D	47.4	D	88.8	F
		Right	28.4	C	151.4	F	28.1	C	124.5	F
	Northbound	Left	39.7	D	137.8	F	39.3	D	137.8	F
		Through	21.6	C	30.6	C	21.4	C	14.5	B
		Right	21.7	C	30.7	C	21.4	C	14.5	B
	Southbound	Left	82.1	F	66.0	E	99.3	F	117.2	F
		Through	23.8	C	22.6	C	23.8	C	10.1	B
		Right	31.1	C	28.7	C	30.7	C	18.8	B
	<b>All</b>	<b>All</b>	<b>58.3</b>	<b>E</b>	<b>69.4</b>	<b>E</b>	<b>66.2</b>	<b>E</b>	<b>84.9</b>	<b>F</b>
3: Cherry St/French Valley Pkwy & Jefferson*	Eastbound	Left	55.7	E	58.4	E	57.5	E	117.1	F
		Right	19.4	B	18.1	B	19.6	B	53.3	D
	Westbound	Through	97.7	F	76.0	E	344.5	F	294.3	F
		Right	16.6	B	15.4	B	40.3	D	129.5	F
	Northbound	Left	70.1	E	88.0	F	392.9	F	440.0	F
		Through	28.1	C	28.7	C	28.2	C	110.2	F
	Southbound	Through	72.6	E	62.8	E	120.4	F	207.9	F
		<b>All</b>	<b>All</b>	<b>58.5</b>	<b>E</b>	<b>46.2</b>	<b>D</b>	<b>178.7</b>	<b>F</b>	<b>190.8</b>
4: Winchester & Ynez*	Eastbound	Left	61.0	E	74.2	E	78.6	E	321.8	F
		Through	22.2	C	33.5	C	26.6	C	33.8	C
		Right	24.5	C	14.9	B	167.4	F	18.0	B
	Westbound	Left	77.3	E	94.6	F	179.9	F	195.0	F
		Through	40.1	D	44.6	D	38.7	D	37.7	D
	Northbound	Left	45.7	D	56.1	E	52.1	D	76.8	E
		Through	27.9	C	49.0	D	27.9	C	134.2	F
		Right	7.3	A	21.0	C	9.2	A	34.5	C
	Southbound	Left	85.4	F	67.0	E	92.8	F	297.8	F
		Through	61.4	E	58.3	E	74.0	E	64.6	E
		Right	76.2	E	70.8	E	90.1	F	81.8	F
		<b>All</b>	<b>All</b>	<b>41.0</b>	<b>D</b>	<b>45.7</b>	<b>D</b>	<b>72.4</b>	<b>E</b>	<b>87.0</b>
5: Winchester & I-15 NB off/I-15 NB on*	Eastbound	Through	13.0	B	22.0	C	18.5	B	20.7	C
		Right	5.3	A	8.4	A	2.4	A	7.8	A
	Westbound	Through	4.1	A	2.8	A	7.5	A	3.2	A
		Right	0.1	A	0.7	A	0.1	A	0.6	A
	Northbound	Left	48.5	D	33.8	C	48.7	D	38.5	D
		Through	53.7	D	58.5	E	55.8	E	66.0	E
		Right	48.0	D	54.4	D	47.4	D	61.6	E
		<b>All</b>	<b>All</b>	<b>15.2</b>	<b>B</b>	<b>16.2</b>	<b>B</b>	<b>19.0</b>	<b>B</b>	<b>15.8</b>

Intersection	Approach	Peak Movement	Year 2022				Year 2045			
			AM		PM		AM		PM	
			Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
6: Winchester & I-15 SB on/I-15 SB off*	Eastbound	Through	16.7	B	18.3	B	17.2	B	11.4	B
		Right	4.5	A	2.1	A	2.8	A	0.7	A
	Westbound	Through	63.8	E	11.3	B	83.3	F	5.8	A
		Left	49.3	D	43.5	D	89.5	F	50.8	D
	Southbound	Through	22.4	C	19.5	B	20.2	C	33.5	C
		Right	21.7	C	19.2	B	17.1	B	33.1	C
	<b>All</b>	<b>All</b>	<b>46.2</b>	<b>D</b>	<b>21.4</b>	<b>C</b>	<b>65.3</b>	<b>E</b>	<b>18.4</b>	<b>B</b>
7: Winchester & Jefferson	Eastbound	Left	48.8	D	21.9	C	60.9	E	27.9	C
		Through	30.7	C	12.8	B	37.0	D	41.1	D
	Westbound	Left	23.5	C	76.8	E	34.2	C	41.0	D
		Through	2.4	A	29.6	C	2.7	A	48.1	D
		Right	2.4	A	168.7	F	0.8	A	234.4	F
	Northbound	Left	67.0	E	61.5	E	51.1	D	253.1	F
		Through	55.2	E	69.5	E	49.3	D	17.9	B
		Right	29.4	C	21.9	C	153.9	F	27.9	C
	Southbound	Left	55.9	E	81.2	F	96.6	F	248.4	F
		Through	44.4	D	26.5	C	36.4	D	30.5	C
		Right	129.0	F	9.0	A	64.2	E	11.8	B
	<b>All</b>	<b>All</b>	<b>37.0</b>	<b>D</b>	<b>53.3</b>	<b>D</b>	<b>53.2</b>	<b>D</b>	<b>108.0</b>	<b>F</b>

\*Synchro methodology used to derive delay and LOS at this intersection

The following two (2) intersections operate at LOS E or F under No Build 2022 conditions:

- 1) Date Street & Ynez Road (AM/PM)
- 3) Cherry Street/French Valley Parkway & Jefferson Avenue (AM)

The following four (4) intersections operate at LOS E or F under No Build 2045 conditions:

- 1) Date Street & Ynez Road (AM/PM)
- 3) Cherry Street/French Valley Parkway & Jefferson Avenue (AM/PM)
- 4) Winchester Road & Ynez Road (AM/PM)
- 7) Winchester Road & Jefferson Avenue (PM)

Synchro 9.0 LOS reports for No Build conditions analysis are included in **Appendix G**.



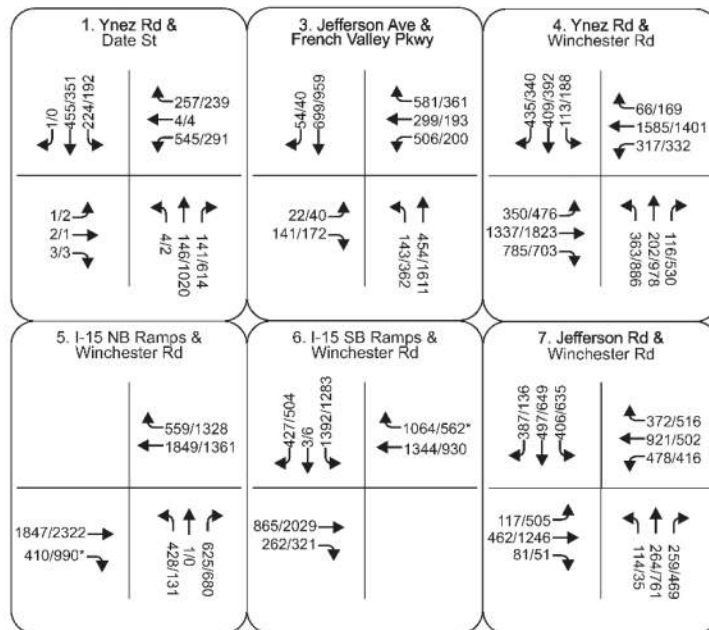


Figure 10 - No Build (2022) PCE Adjusted Intersection Volumes

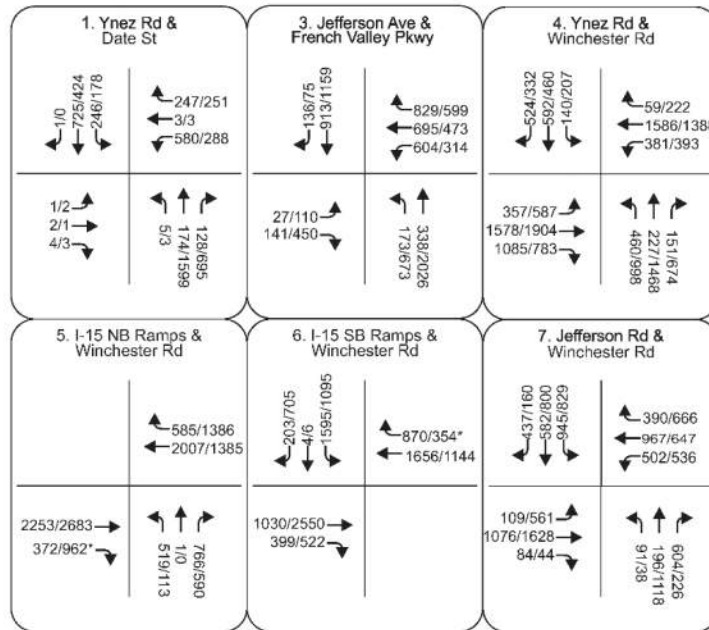


Figure 11 - No Build (2045) PCE Adjusted Intersection Volumes

### 6.3 NO BUILD CONDITIONS QUEUE LENGTH ANALYSIS

A queue length analysis was completed for No Build conditions during AM and PM peak hours using Synchro 9.0 software. **Table 9** shows the 95<sup>th</sup> percentile queue length results for all intersection lane groups.

Table 9 – No Build 95th Percentile Queue Lengths (ft)

Intersection	Approach	Movement	Turn Bay Storage (ft)	95th %-ile Queue Length (ft)			
				Year 2022		Year 2045	
				AM	PM	AM	PM
1: Date Street & Ynez Road	Eastbound	Left	250	301	261	344	292
		Through		175	124	292	138
		Right	100	0	0	0	0
	Westbound	Left	250	15	11	18	13
		Through		75	534	87	916
		Right		50	181	42	354
	Northbound	Left	250	7	11	7	11
		Through		2	1	2	1
		Right	250	0	0	0	0
	Southbound	Left	300	348	177	381	222
Through			5	5	4	5	
Right		150	55	58	54	64	
3: Cherry St/French Valley Pkwy & Jefferson	Eastbound	Left		43	66	51	208
		Right	75	63	68	63	291
	Westbound	Through		989	502	1817	1150
		Right		311	163	744	752
	Northbound	Left	250	210	494	356	1073
		Through		195	764	147	1170
Southbound	Through		512	635	710	843	
4: Winchester & Ynez	Eastbound	Left	250	230	271	214	419
		Through		226	422	312	439
		Right	200	812	320	1387	250
	Westbound	Left	250	215	253	301	312
		Through		401	401	394	380
	Northbound	Left	400	128	323	164	400
		Through		90	471	99	904
		Right	350	49	308	69	575
	Southbound	Left	200	96	139	118	202
		Through		348	283	489	339
Right		500	393	324	523	379	
5: Winchester & I-15 NB off/I-15 NB on	Eastbound	Through		558	706	608	145
		Right	450	182	516	91	150
	Westbound	Through		147	82	213	64
		Right		0	8	0	3
	Northbound	Left		363	125	469	122
		Through		373	389	487	389
6: Winchester & I-15 SB on/I-15 SB off	Eastbound	Through		182	375	192	291
		Right		62	24	35	0
	Westbound	Through		458	270	937	39
	Southbound	Left		720	590	898	567
		Through		177	185	90	335
Right		171	178	81	329		
7: Winchester & Jefferson	Eastbound	Left	400	94	315	76	411
		Through		114	312	271	411

Intersection	Approach	Movement	Turn Bay Storage (ft)	95th %-ile Queue Length (ft)			
				Year 2022		Year 2045	
				AM	PM	AM	PM
	Westbound	Left		194	277	178	410
		Through		144	190	143	300
		Right	300	7	125	6	486
	Northbound	Left	200	90	32	68	34
		Through		150	455	118	788
		Right	300	164	233	687	702
	Southbound	Left	300	216	394	573	596
		Through		234	274	253	360
		Right	200	299	43	312	53

Note. 95% Queues exceeding available storage lengths highlighted in yellow

## 7. Build Phase II Conditions

This section analyzes traffic operating conditions with Build Phase II improvements in place. Build Phase II conditions were evaluated for 2022, the ETC of the project, and 2045 (ETC+20), the design year of the project. Intersection striping is assumed to remain unchanged from the Existing condition previously shown in Figure 2.

### 7.1 BUILD PHASE II CONDITIONS FREEWAY OPERATIONAL ANALYSIS

Figure 12 and Figure 13 depict the year 2022 and 2045 Build Phase II peak hour volumes respectively. Freeway segment analysis types corresponding to Build Phase II geometry are shown in Figure 14. Table 10 summarizes Build Phase II conditions LOS and density (vehicles/mile) on all freeway segments within the study area.

Table 10 – Build Phase II Freeway Segment Density and Level of Service

Segment Name	Segment Type	Year 2022				Year 2045				
		AM		PM		AM		PM		
		Density (veh/mi)	LOS	Density (veh/mi)	LOS	Density (veh/mi)	LOS	Density (veh/mi)	LOS	
I-15	Rancho California Rd on-ramp to Winchester Rd off-ramp	B	20.4	C	28.8	D	28.2	D	> 45.0	F
	Winchester Rd off-ramp	D	20.0	B	27.3	C	27.1	C	> 45.0	F
	Winchester Rd off-ramp to I-15 lane addition	B	16.3	B	24.8	C	22.1	C	43.9	E
	I-15 segment (5 lanes)	B	13.1	B	19.7	C	17.8	B	30.0	D
	I-15 & I-215 junction to merge of I-15 C-D road	B	17.3	B	19.5	C	15.9	B	28.6	D
	I-15 & C-D road merge to Murrieta Hot Springs Road off-ramp	W	9.7	A	14.6	B	10.6	B	20.8	C
	I-15 Murrieta Hot Springs Rd off-ramp to loop on-ramp	B	9.5	A	15.5	B	12.3	B	22.8	C
	I-15 Murrieta Hot Springs Rd loop on-ramp	M	11.0	B	17.2	B	14.8	B	25.5	C
	I-15 Murrieta Hot Springs Rd direct on-ramp	M	21.7	C	38.9	E	27.7	C	> 45.0	F
I-15 North of Murrieta Hot Springs Rd direct on-ramp	B	20.7	C	37.1	E	26.3	D	> 45.0	F	
I-215	I-215 & C-D road merge to Murrieta Hot Springs Road off-ramp	W	13.4	B	11.5	B	12.7	B	23.4	C
	I-215 Murrieta Hot Springs Rd off-ramp to loop on-ramp	B	10.4	A	16.7	B	13.9	B	22.9	C
	I-215 Murrieta Hot Springs Rd loop on-ramp	M	11.8	B	20.5	C	15.4	B	28.5	D
	I-215 Murrieta Hot Springs Rd direct on-ramp	M	15.5	B	27.8	C	19.4	B	40.2	E
	I-215 North of Murrieta Hot Springs Rd direct on-ramp	B	15.2	B	26.6	D	18.9	C	40.0	E
C-D	Winchester Rd direct on-ramp to C-D lane addition	B	8.7	A	14.1	B	8.6	A	17.7	B
	C-D segment (3 lanes)	B	5.8	A	9.4	A	5.7	A	11.8	B
	C-D junction to I-15 C-D junction	B	5.6	A	4.7	A	4.4	A	11.1	B
	C-D junction to I-215 C-D lane drop	B	3.1	A	9.4	A	4.2	A	11.1	B
	I-215 C-D lane drop to I-215 C-D junction	B	6.3	A	18.8	C	8.3	A	22.2	C

Under Build Phase II 2022 and 2045 conditions, all segments operate acceptably (LOS D or better) during the AM peak hour.

The following two (2) freeway segments operate at LOS E or F under 2022 Build Phase II conditions in the PM peak hour:

- I-15 Northbound at Murrieta Hot Springs Rd direct on-ramp

- I-15 Northbound North of Murrieta Hot Springs Rd on-ramp

The following seven (7) freeway segments operate at LOS E or F under 2045 Build Phase II conditions in the PM peak hour:

- I-15 Northbound between Rancho California Rd on-ramp and Winchester Rd off-ramp
- I-15 Northbound at Winchester Rd off-ramp
- I-15 Northbound between Winchester Rd off-ramp and I-15 lane addition
- I-15 Northbound at Murrieta Hot Springs Rd direct on-ramp
- I-15 Northbound North of Murrieta Hot Springs Rd direct on-ramp
- I-215 Northbound at I-215 Murrieta Hot Springs Rd direct on-ramp
- I-215 Northbound North of Murrieta Hot Springs Rd direct on-ramp

Segments operating at LOS E and F listed above are located at the boundaries of the project limits except the basic segment from the Winchester on-ramp to the I-15 lane addition. This segment operates at LOS E with a density of 43.9 vehicles per lane mile in the 2045 PM scenario. To identify the year this segment transitions from LOS D to LOS E, the traffic volumes were interpolated using a straight-line projection between the opening year 2022 and design year 2045. Based on the HCS analysis, the segment transitions to failure in the year 2037 with a LOS of E and a density of 35.3 vehicles per lane mile.

HCS reports for Build Phase II conditions freeway analysis are provided in **Appendix H**.

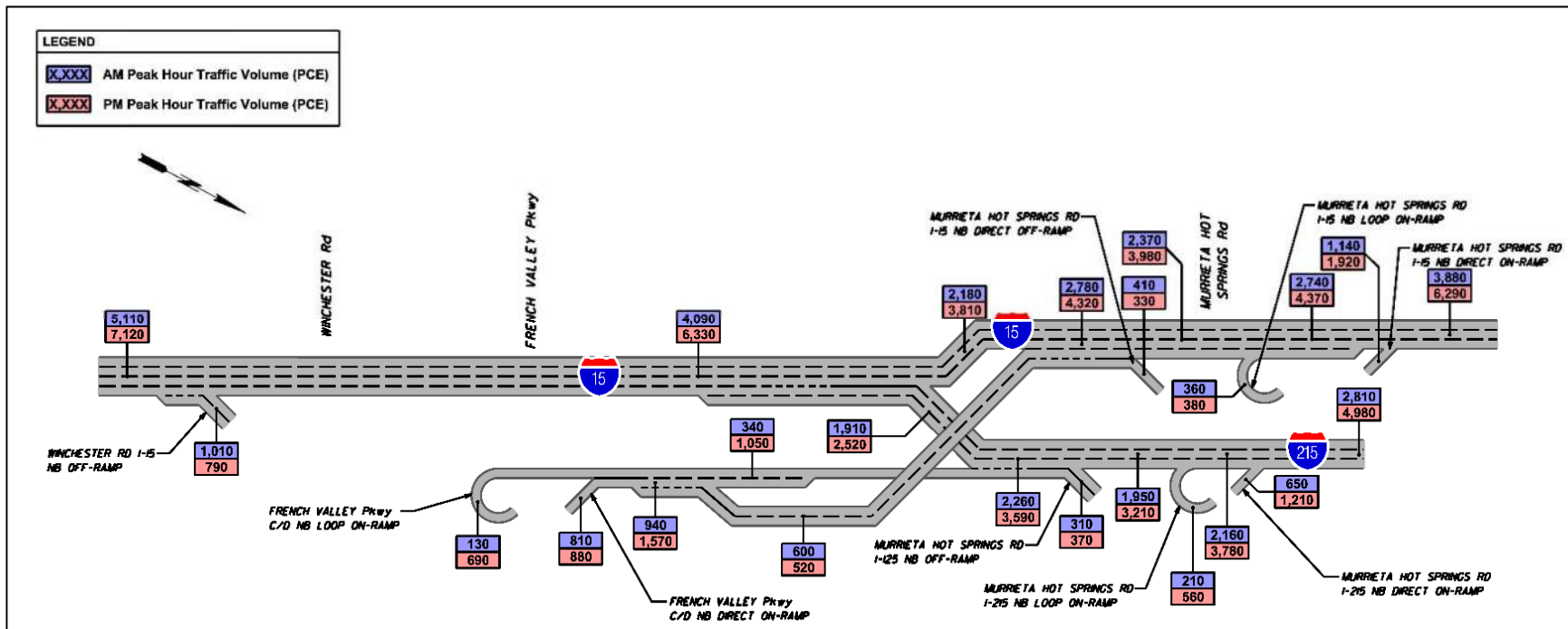


Figure 12 - Build Phase II (2022) Freeway Peak Hour Traffic Volumes

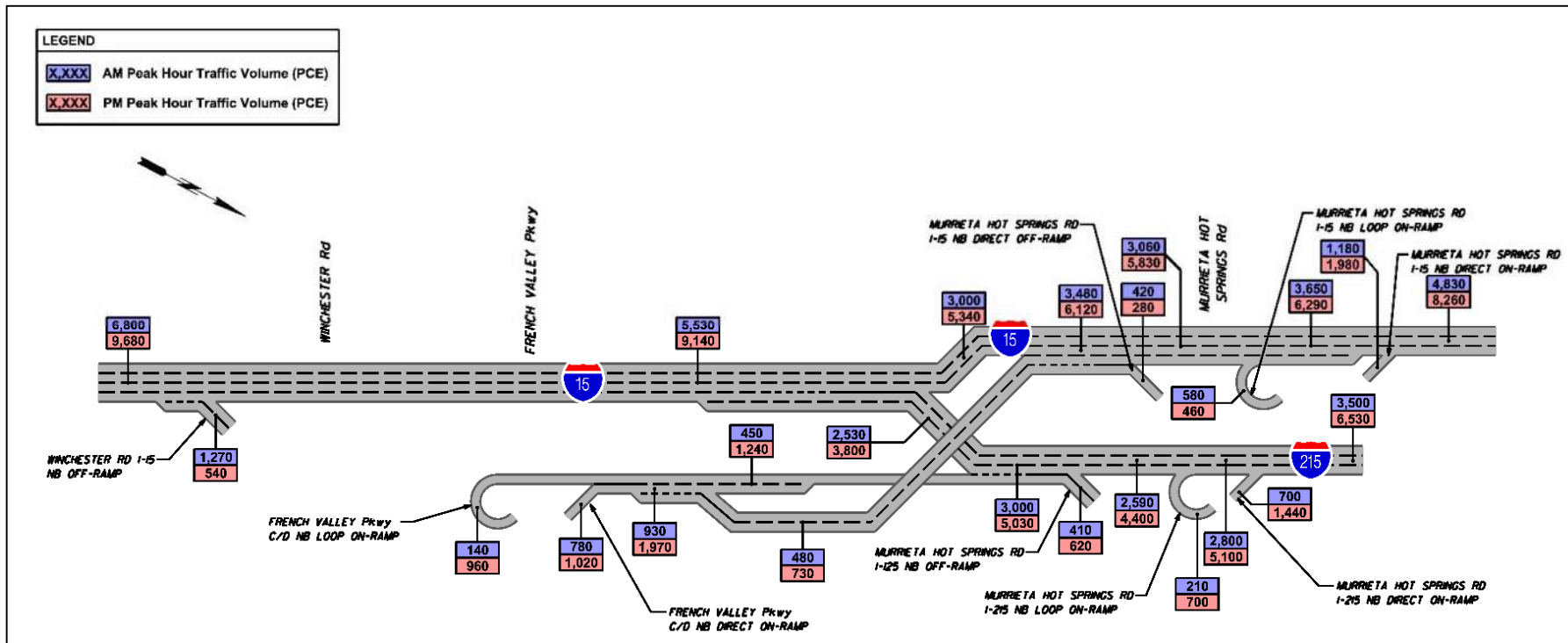


Figure 13 - Build Phase II (2045) Freeway Peak Hour Traffic Volumes

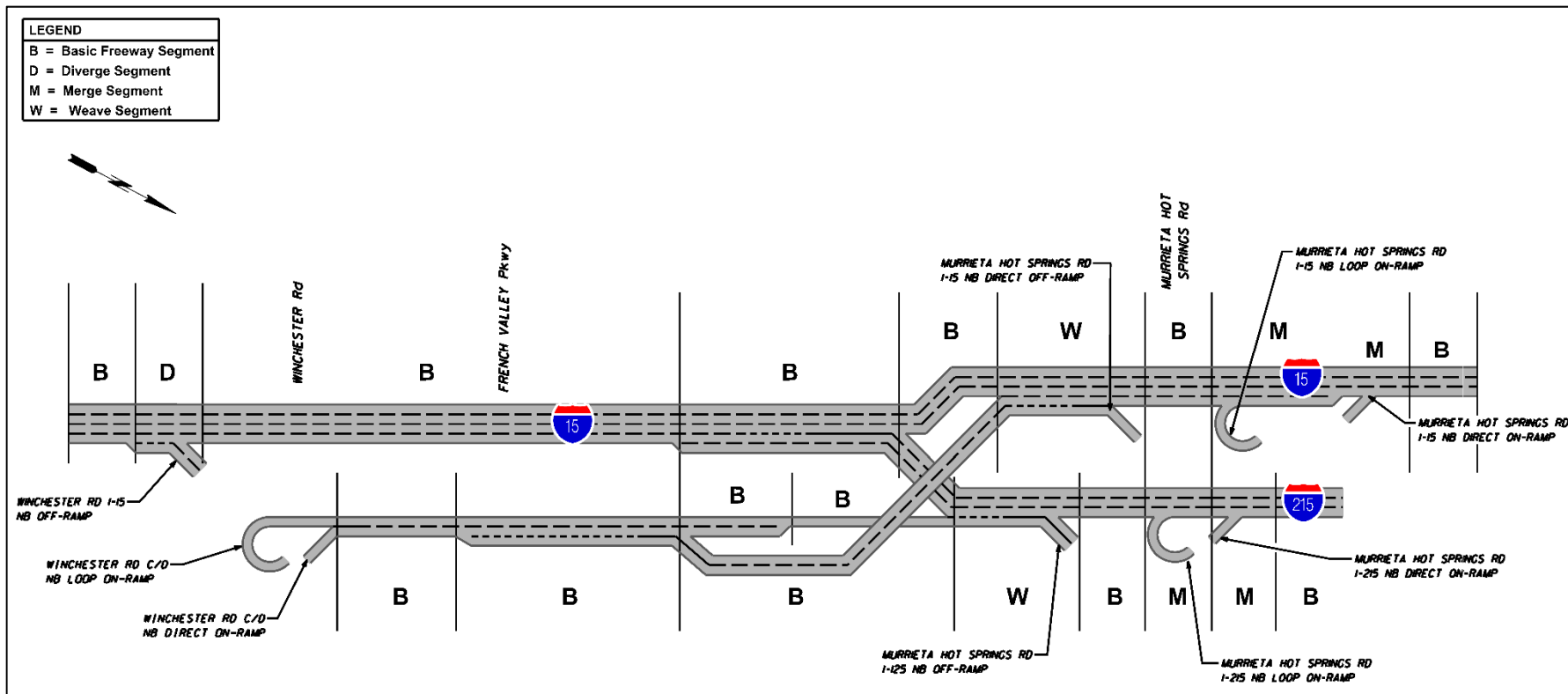


Figure 14 - Build Phase II (2022 and 2045) Segment Analysis Types



## 7.2 BUILD PHASE II CONDITIONS INTERSECTION OPERATIONAL ANALYSIS

An LOS analysis was conducted to evaluate peak hour intersection operations under Build Phase II conditions. **Figure 15** and **Figure 16** show the PCE adjusted traffic volumes during the Build Phase II 2022 and 2045 peak hours respectively.

**Table 11** shows the average vehicle delay and LOS at intersections under Build Phase II 2022 and 2045 peak hour conditions.

Table 11 – Build Phase II Intersection Delay and Level of Service

Intersection	Approach	Peak Movement	Year 2022				Year 2045			
			AM		PM		AM		PM	
			Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1: Date Street & Ynez Road	Eastbound	Left	92.6	F	77.2	E	119.0	F	75.9	E
		Through	35.7	D	15.1	B	41.0	D	15.2	B
		Right	11.9	B	0.0	A	11.9	B	0.0	A
	Westbound	Left	107.4	F	137.8	F	100.7	F	118.1	F
		Through	46.5	D	32.9	C	47.4	D	82.4	F
		Right	28.4	C	73.4	E	28.1	C	69.5	E
	Northbound	Left	39.7	D	137.8	F	39.3	D	137.8	F
		Through	22.0	C	33.9	C	21.7	C	34.5	C
		Right	22.0	C	34.0	C	21.8	C	34.6	C
	Southbound	Left	82.1	F	162.1	F	99.3	F	156.6	F
		Through	24.2	C	27.7	C	24.2	C	28.2	C
		Right	31.7	C	36.2	D	31.2	C	20.6	C
<b>All</b>	<b>All</b>	<b>56.9</b>	<b>E</b>	<b>57.1</b>	<b>E</b>	<b>64.6</b>	<b>E</b>	<b>72.5</b>	<b>E</b>	
3: Cherry St/French Valley Pkwy & Jefferson*	Eastbound	Left	56.6	E	63.3	E	57.5	E	122.4	F
		Right	19.8	B	20.6	C	19.6	B	75.2	E
	Westbound	Through	81.8	F	62.3	E	339.1	F	301.1	F
		Right	17.9	B	40.4	D	44.8	D	121.9	F
	Northbound	Left	284.5	F	71.9	E	427.8	F	462.7	F
		Through	29.5	C	31.2	C	28.4	C	87.6	F
	Southbound	Through	49.3	D	89.3	F	116.5	F	184.5	F
	<b>All</b>	<b>All</b>	<b>59.2</b>	<b>E</b>	<b>53.4</b>	<b>D</b>	<b>177.6</b>	<b>F</b>	<b>183.6</b>	<b>F</b>
4: Winchester & Ynez*	Eastbound	Left	56.3	E	54.6	D	81.7	F	85.9	F
		Through	24.5	C	35.6	D	26.5	C	35.1	D
		Right	97.9	F	14.8	B	162.9	F	25.0	C
	Westbound	Left	113.8	F	82.5	F	175.4	F	108.3	F
		Through	34.9	C	47.7	D	38.0	D	43.4	D
	Northbound	Left	43.7	D	52.0	D	51.0	D	87.6	F
		Through	27.7	C	48.8	D	27.8	C	125.5	F
		Right	5.3	A	19.3	B	8.9	A	30.1	C
	Southbound	Left	75.7	E	72.5	E	97.3	F	263.0	F
		Through	105.6	F	56.8	E	74.0	E	76.9	E
		Right	121.8	F	69.0	E	90.8	F	98.4	F
<b>All</b>	<b>All</b>	<b>62.8</b>	<b>E</b>	<b>44.6</b>	<b>D</b>	<b>71.6</b>	<b>E</b>	<b>70.3</b>	<b>E</b>	
5: Winchester & I-15 NB off/I-15 NB on*	Eastbound	Through	8.0	A	18.6	B	18.5	B	9.4	A
		Right	0.1	A	11.4	B	1.9	A	8.3	A
	Westbound	Through	4.4	A	6.6	A	6.2	A	1.8	A
		Right	0.2	A	1.3	A	0.4	A	1.6	A
	Northbound	Left	40.5	D	34.6	C	50.1	D	49.1	D
		Through	53.0	D	59.8	E	57.1	E	62.1	E
	Right	45.4	D	55.9	E	50.0	D	58.3	E	
	<b>All</b>	<b>All</b>	<b>14.3</b>	<b>B</b>	<b>16.2</b>	<b>B</b>	<b>18.7</b>	<b>B</b>	<b>8.9</b>	<b>A</b>

Intersection	Approach	Peak Movement	Year 2022				Year 2045			
			AM		PM		AM		PM	
			Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
6: Winchester & I-15 SB on/I-15 SB off*	Eastbound	Through	9.0	A	14.5	B	14.7	B	13.4	B
		Right	2.6	A	1.3	A	2.8	A	0.8	A
	Westbound	Through	25.9	C	6.8	A	68.7	E	4.7	A
		Left	33.0	C	36.1	D	86.0	F	51.9	D
	Southbound	Through	8.7	A	19.2	B	19.7	B	32.7	C
		Right	8.6	A	19.0	B	16.2	B	32.3	C
	<b>All</b>	<b>All</b>	<b>25.3</b>	<b>C</b>	<b>17.4</b>	<b>B</b>	<b>57.1</b>	<b>E</b>	<b>19.1</b>	<b>B</b>
7: Winchester & Jefferson	Eastbound	Left	60.4	E	73.6	E	46.0	D	27.8	C
		Through	29.5	C	34.8	C	31.1	C	42.9	D
	Westbound	Left	28.2	C	67.4	E	31.3	C	41.0	D
		Through	0.3	A	25.5	C	9.0	A	48.8	D
	Northbound	Right	0.6	A	122.1	F	8.9	A	245.1	F
		Left	60.6	E	61.5	E	61.1	E	61.5	E
		Through	55.2	E	119.9	F	55.3	E	207.5	F
	Southbound	Right	30.5	C	44.0	D	39.2	D	18.1	B
		Left	45.2	D	61.4	E	46.5	D	224.1	F
		Through	42.0	D	29.6	C	40.1	D	29.2	C
		Right	108.6	F	10.5	B	109.6	F	11.3	B
	<b>All</b>	<b>All</b>	<b>33.6</b>	<b>C</b>	<b>60.8</b>	<b>E</b>	<b>37.2</b>	<b>D</b>	<b>99.6</b>	<b>F</b>

\*Synchro methodology used to derive delay and LOS at this intersection

The following four (4) intersections operate at LOS E or F under Build Phase II 2022 conditions:

- 1) Date Street & Ynez Road (AM/PM)
- 3) Cherry Street/French Valley Parkway & Jefferson Avenue (AM)
- 4) Winchester Road & Ynez Road (AM)
- 7) Winchester Road & Jefferson Avenue (PM)

The following five (5) intersections operate at LOS E or F under Build Phase II 2045 conditions:

- 1) Date Street & Ynez Road (AM/PM)
- 3) Cherry Street/French Valley Parkway & Jefferson Avenue (AM/PM)
- 4) Winchester Road & Ynez Road (AM/PM)
- 6) Winchester Road & Southbound I-15 Ramps (AM)
- 7) Winchester Road & Jefferson Avenue (PM)

Intersection 6: Winchester Road and Southbound I-15 Ramps, operates acceptably during the ETC 2022 but deteriorates to an unacceptable LOS E during 2045 PM peak hour. To identify the year this intersection transitions from LOS D to LOS E, the traffic volumes were interpolated using a straight-line projection between the opening year 2022 and design year 2045. The intersection failure occurs in the year 2044 with LOS D/E at 55 seconds of delay per vehicle.

Synchro 9.0 LOS reports for Build Phase II conditions arterial analysis are included in **Appendix I**.



1. Ynez Rd & Date St	3. Jefferson Ave & French Valley Pkwy	4. Ynez Rd & Winchester Rd																																		
<table border="1"> <tr> <td>1/0</td> <td>257/239</td> </tr> <tr> <td>455/351</td> <td>4/4</td> </tr> <tr> <td>224/192</td> <td>545/291</td> </tr> <tr> <td>1/2</td> <td>141/614</td> </tr> <tr> <td>2/1</td> <td>146/1020</td> </tr> <tr> <td>3/3</td> <td>4/2</td> </tr> </table>	1/0	257/239	455/351	4/4	224/192	545/291	1/2	141/614	2/1	146/1020	3/3	4/2	<table border="1"> <tr> <td>53/40</td> <td>582/363</td> </tr> <tr> <td>700/959</td> <td>297/193</td> </tr> <tr> <td></td> <td>506/200</td> </tr> <tr> <td>23/40</td> <td>464/1630</td> </tr> <tr> <td>141/170</td> <td>145/364</td> </tr> </table>	53/40	582/363	700/959	297/193		506/200	23/40	464/1630	141/170	145/364	<table border="1"> <tr> <td>427/320</td> <td>69/185</td> </tr> <tr> <td>144/401</td> <td>1546/1364</td> </tr> <tr> <td>117/199</td> <td>318/349</td> </tr> <tr> <td>355/477</td> <td>110/519</td> </tr> <tr> <td>1340/1821</td> <td>194/961</td> </tr> <tr> <td>768/678</td> <td>329/771</td> </tr> </table>	427/320	69/185	144/401	1546/1364	117/199	318/349	355/477	110/519	1340/1821	194/961	768/678	329/771
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<table border="1"> <tr> <td>609/1364</td> </tr> <tr> <td>1720/1266</td> </tr> <tr> <td>1856/2322</td> </tr> <tr> <td>130/690*</td> </tr> <tr> <td>1/0</td> </tr> <tr> <td>607/654</td> </tr> <tr> <td>423/121</td> </tr> </table>	609/1364	1720/1266	1856/2322	130/690*	1/0	607/654	423/121	<table border="1"> <tr> <td>430/496</td> <td>753/420*</td> </tr> <tr> <td>1389/1292</td> <td>1390/967</td> </tr> <tr> <td>3/6</td> <td></td> </tr> <tr> <td>597/1720</td> <td></td> </tr> <tr> <td>260/329</td> <td></td> </tr> </table>	430/496	753/420*	1389/1292	1390/967	3/6		597/1720		260/329		<table border="1"> <tr> <td>391/134</td> <td>383/527</td> </tr> <tr> <td>494/644</td> <td>946/512</td> </tr> <tr> <td>309/553</td> <td>491/424</td> </tr> <tr> <td>114/504</td> <td>197/410</td> </tr> <tr> <td>351/1086</td> <td>263/757</td> </tr> <tr> <td>77/50</td> <td>112/34</td> </tr> </table>	391/134	383/527	494/644	946/512	309/553	491/424	114/504	197/410	351/1086	263/757	77/50	112/34					
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Figure 15 - Build Phase II (2022) PCE Adjusted Intersection Volumes

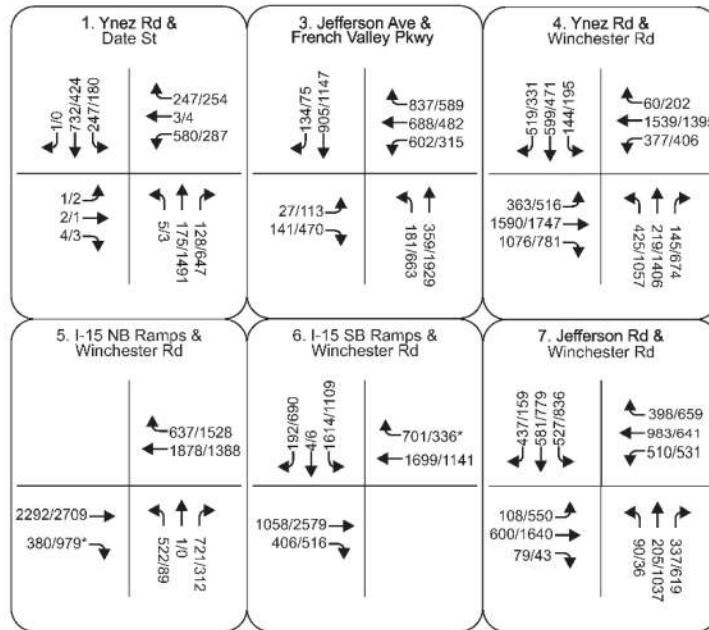


Figure 16 - Build Phase II (2045) PCE Adjusted Intersection Volumes

### 7.3 BUILD PHASE II CONDITIONS QUEUE LENGTH ANALYSIS

A queue length analysis was completed for Build Phase II conditions during AM and PM peak hours using Synchro 9.0 software. **Table 12** shows the 95<sup>th</sup> percentile queue length results for all intersection lane groups.

Table 12 – Build Phase II 95th Percentile Queue Lengths (ft)

Intersection	Approach	Movement	Turn Bay Storage (ft)	95th %-ile Queue Length (ft)			
				Year 2022		Year 2045	
				AM	PM	AM	PM
1: Date Street & Ynez Road	Eastbound	Left	250	294	273	339	255
		Through		173	113	292	137
		Right		0	0	0	0
	Westbound	Left	250	15	11	18	13
		Through		75	451	87	851
		Right	250	50	94	42	310
	Northbound	Left	250	7	11	7	11
		Through		2	1	2	1
		Right	150	0	0	0	0
	Southbound	Left	300	348	238	381	234
Through			5	5	4	5	
Right		100	55	63	55	64	
3: Cherry St/French Valley Pkwy & Jefferson	Eastbound	Left		45	69	51	212
		Right		63	71	63	348
	Westbound	Through		962	440	1801	1168
		Right	200	335	310	772	734
	Northbound	Left	250	298	521	372	1067
		Through		202	818	156	1084
Southbound	Through		434	611	701	818	
4: Winchester & Ynez	Eastbound	Left	250	185	278	220	338
		Through		224	428	318	400
		Right		951	212	1372	521
	Westbound	Left	250	226	246	297	288
		Through		226	402	380	397
	Northbound	Left	400	143	265	152	424
		Through		108	461	96	862
		Right	500	46	292	65	522
	Southbound	Left	200	89	163	124	189
		Through		485	277	491	370
Right		200	508	316	524	407	
5: Winchester & I-15 NB off/I-15 NB on	Eastbound	Through		239	647	624	576
		Right		0	246	65	827
	Westbound	Through		94	185	184	59
		Right		0	36	0	19
	Northbound	Left		301	117	456	110
		Through		386	375	481	198
Right	450	340	354	425	185		
6: Winchester & I-15 SB on/I-15 SB off	Eastbound	Through		28	271	169	316
		Right		0	0	5	0
	Westbound	Through		386	49	756	32
		Left		669	548	903	579
		Right		35	174	75	318
7: Winchester & Jefferson	Eastbound	Left	400	37	329	72	401
		Through		59	259	144	420
	Westbound	Left		152	287	208	408
		Through		72	208	130	300
Right	300	1	69	4	488		

Intersection	Approach	Movement	Turn Bay Storage (ft)	95th %-ile Queue Length (ft)			
				Year 2022		Year 2045	
				AM	PM	AM	PM
	Northbound	Left	200	31	32	64	33
		Through		476	495	122	715
		Right	200	32	361	257	712
	Southbound	Left	300	146	306	273	590
		Through		626	273	284	343
		Right		119	42	274	48

Note. 95% Queues exceeding available storage lengths highlighted in yellow

## 8. Build Phase III Conditions

This section provides a supplemental analysis of traffic operating conditions with Build Phase III improvements in place. Build Phase III conditions were evaluated for the design year 2045 (ETC+20) as this is the ultimate build-out and is expected to be constructed in a future timeframe when appropriate.

Based on input from the City of Temecula, additional local street improvements are planned at intersection #3) Cherry Street/French Valley Parkway & Jefferson Road to facilitate additional growth within the City. The analysis of the Build Phase III conditions includes the following additional improvements at intersection #3:

- Jefferson Avenue northbound and southbound approaches are each expanded to include three (3) through lanes in each direction, dual left turn bays and a single right turn pocket
- Cherry Street eastbound approach is expanded to include (2) through lanes, dual left turn bays and a single right turn pocket
- French Valley Parkway westbound approach is expanded to include dual left turn lanes, two (2) through lanes, on shared through plus right lane and one right turn only pocket

### 8.2 BUILD PHASE III CONDITIONS FREEWAY OPERATIONAL ANALYSIS

**Figure 17** depicts the 2045 Build Phase III peak hour volumes. Freeway segment analysis types corresponding to Build Phase III geometry are shown in **Figure 18**. **Table 13** summarizes Build Phase III condition LOS and density on all freeway segments within the study area.

Table 13 – Build Phase III (2045) Freeway Segment Density and Level of Service

Segment Name	Segment Type	AM		PM		
		Density (veh/mi)	LOS	Density (veh/mi)	LOS	
I-15	Rancho California Rd on-ramp to Winchester Rd off-ramp	B	30.4	D	> 45.0	F
	Winchester Rd off-ramp	D	29.0	D	> 45.0	F
	Winchester Rd off-ramp to French Valley Pkwy off-ramp	B	24.6	C	> 45.0	F
	French Valley Pkwy off-ramp	D	24.6	C	36.5	E
	French Valley Pkwy off-ramp to I-15 lane addition	B	22.5	C	43.2	E
	I-15 segment (5 lanes)	B	18.1	C	29.9	D
	I-15 & I-215 junction to merge of I-15 C-D road	B	16.2	B	30.8	D
	I-15 & C-D road merge to Murrieta Hot Springs Road off-ramp	W	13.9	B	26.3	C
	I-15 Murrieta Hot Springs Rd off-ramp to loop on-ramp	B	13.7	B	25.1	C
	I-15 Murrieta Hot Springs Rd loop on-ramp	M	15.8	B	26.6	C
	I-15 Murrieta Hot Springs Rd direct on-ramp	M	27.7	C	> 45.0	F
I-15 North of Murrieta Hot Springs Rd direct on-ramp	B	27.7	D	> 45.0	F	
I-215	I-215 & C-D road merge to Murrieta Hot Springs Road off-ramp	W	13.7	B	> 45.0	F
	I-215 Murrieta Hot Springs Rd off-ramp to loop on-ramp	B	14.1	B	24.8	C
	I-215 Murrieta Hot Springs Rd loop on-ramp	M	16.0	B	29.7	D
	I-215 Murrieta Hot Springs Rd direct on-ramp	M	19.7	B	41.2	E
	I-215 North of Murrieta Hot Springs Rd direct on-ramp	B	18.5	C	41.9	E
C-D	Winchester Rd direct on-ramp to French Valley Pkwy loop on-ramp	B	8.7	A	16.8	B
	French Valley Pkwy loop on-ramp to direct on-ramp	B	7.3	A	16.1	B
	French Valley Pkwy direct on-ramp	M	9.3	A	20.8	C
	French Valley Pkwy direct on-ramp to C-D junction	B	9.5	A	21.2	C
	C-D junction to I-15 C-D junction	B	7.9	A	13.0	B
	C-D junction to I-215 C-D lane drop	B	6.6	A	18.7	C
	I-215 C-D lane drop to I-215 C-D junction	B	13.1	B	38.3	E

Under Build Phase III 2045 conditions, all segments operate acceptably (LOS D or better) during the AM peak hour.



The following seven (7) freeway segments operate at LOS E or F under 2045 Build Phase III conditions in the PM peak hour:

- I-15 Northbound between Rancho California Rd on-ramp and Winchester Rd off-ramp
- I-15 Northbound at Winchester Rd off-ramp
- I-15 Northbound between Winchester Rd off-ramp and French Valley Pkwy off-ramp
- I-15 Northbound at French Valley Pkwy off-ramp
- I-15 Northbound between French Valley Pkwy off-ramp and I-15 lane addition
- I-15 Northbound at Murrieta Hot Springs Rd direct on-ramp
- I-15 Northbound North of Murrieta Hot Springs Rd direct on-ramp
- I-215 Northbound weave between C-D road merge and Murrieta Hot Springs Road off-ramp
- I-215 Northbound at Murrieta Hot Springs Rd direct on-ramp
- I-215 Northbound North of Murrieta Hot Springs Rd direct on-ramp
- C-D Northbound between C-D lane drop and I-215 C-D junction

Segments operating at LOS E and F listed above are located at the boundaries of the project limits except the I-215 Northbound weave between C-D road merge and Murrieta Hot Springs Road off-ramp. This segment operates at LOS F with a density of greater than 45 vehicles per lane mile in the 2045 PM scenario.

HCS reports for Build Phase III conditions analysis are provided in **Appendix J**.

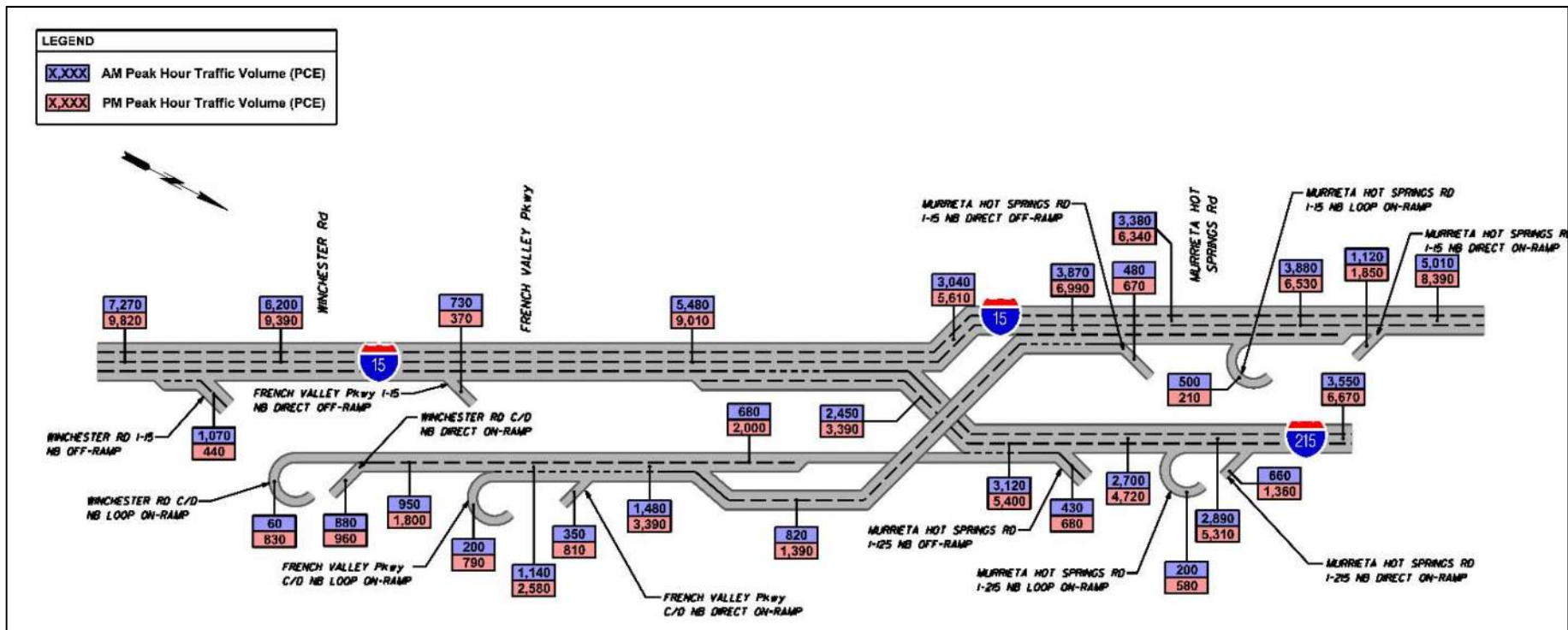


Figure 17 - Build Phase III (2045) Freeway Peak Hour Traffic Volumes

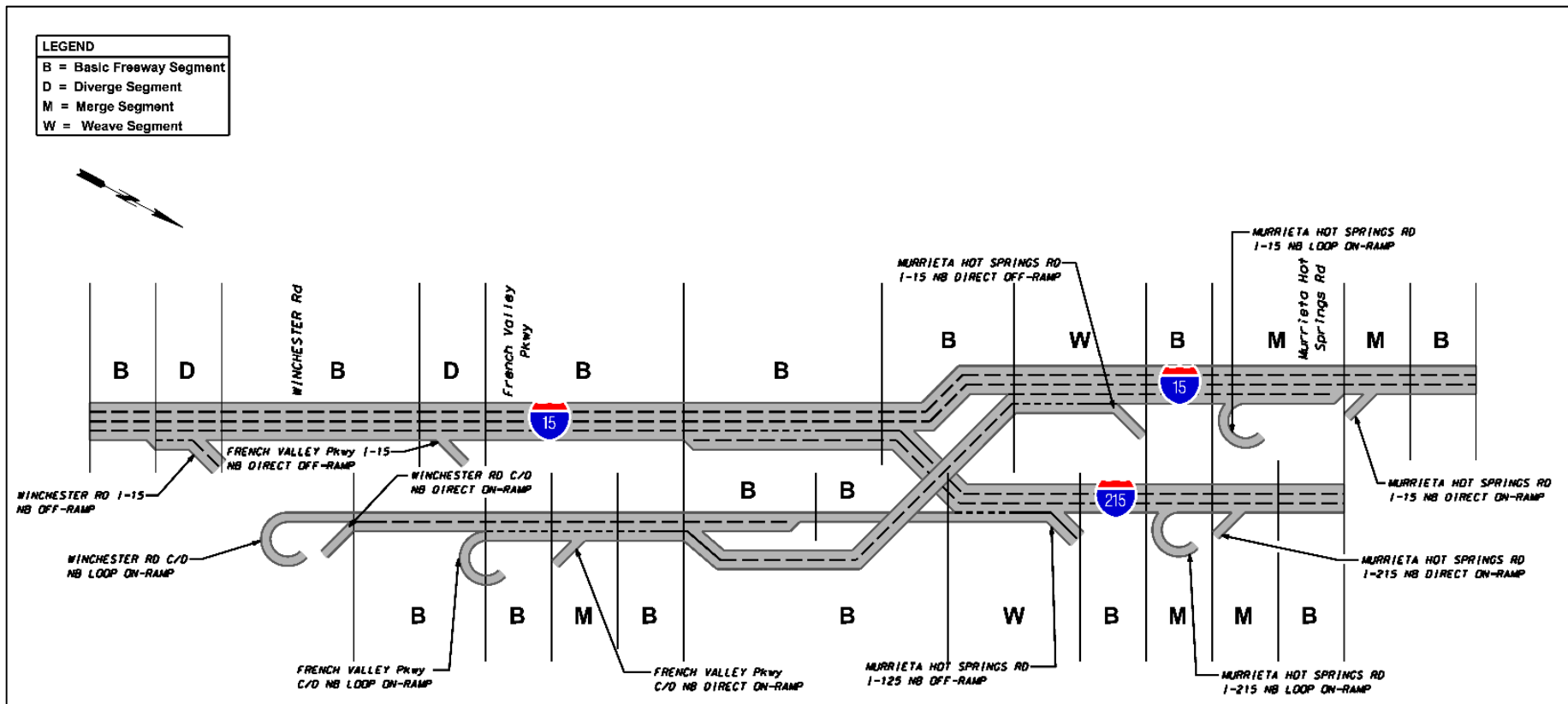


Figure 18 -Build Phase III (2045) Freeway Segment Analysis Types

## 8.2 BUILD PHASE III CONDITIONS INTERSECTION OPERATIONAL ANALYSIS

An LOS analysis was conducted to evaluate peak hour intersection operations under Build Phase III conditions. **Figure 19** shows the PCE adjusted traffic volumes during Build Phase II 2045 peak hours.

**Table 14** shows the average vehicle delay and LOS at intersections under Build Phase III 2045 peak hour conditions.

Table 14 – Build Phase III (2045) Intersection Delay and Level of Service

Intersection	Approach	Peak	AM		PM	
		Movement	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1: French Valley Pkwy & Ynez Road*	Eastbound	Left	182.5	F	325.5	F
		Through	51.0	D	24.2	C
		Right	0.1	A	0.1	A
	Westbound	Left	64.1	E	66.3	E
		Through	40.3	D	32.9	C
		Right	3.3	A	215.4	F
	Northbound	Left	57.4	E	226.1	F
		Through	34.5	C	38.7	D
		Right	4.1	A	18.9	B
	Southbound	Left	45.7	D	206.2	F
		Through	23.1	C	85.0	F
		Right	9.1	A	21.7	C
<b>All</b>	<b>All</b>	<b>47.0</b>	<b>D</b>	<b>103.9</b>	<b>F</b>	
2: French Valley Pkwy & I-15 SB on/I-15 SB off	Eastbound	Through	37.2	D	0.1	A
		Right	0.0	A	0.0	A
	Westbound	Through	41.6	D	26.9	C
		Right	3.0	A	1.7	A
	Southbound	Left	5.1	A	29.0	C
		Right	15.5	B	38.2	D
<b>All</b>	<b>All</b>	<b>16.7</b>	<b>B</b>	<b>15.7</b>	<b>B</b>	
3: Cherry St/French Valley Pkwy & Jefferson*	Eastbound	Left	58.2	E	57.4	E
		Through	36.4	D	149.8	F
		Right	33.7	C	10.1	B
	Westbound	Left	64.8	E	58.4	E
		Through	44.7	D	19.5	B
		Right	20.9	C	8.9	A
	Northbound	Left	61.6	E	597.7	F
		Through	52.2	D	284.5	F
		Right	0.6	A	24.2	C
	Southbound	Left	52.5	D	565.1	F
		Through	44.7	D	175.3	F
		Right	5.0	A	19.1	B
<b>All</b>	<b>All</b>	<b>44.1</b>	<b>D</b>	<b>225.2</b>	<b>F</b>	
4: Winchester & Ynez*	Eastbound	Left	56.4	E	118.1	F
		Through	24.8	C	22.0	C
		Right	122.9	F	91.2	F
	Westbound	Left	127.5	F	307.5	F
		Through	35.4	D	36.3	D
	Northbound	Left	44.1	D	113.3	F
		Through	27.9	C	178.5	F
		Right	5.7	A	16.8	B
	Southbound	Left	78.5	E	76.1	E
		Through	124.4	F	73.5	E
		Right	140.6	F	82.3	F
	<b>All</b>	<b>All</b>	<b>71.6</b>	<b>E</b>	<b>101.8</b>	<b>F</b>

Intersection	Approach	Peak	AM		PM	
		Movement	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
5: Winchester & I-15 NB off/I-15 NB on*	Eastbound	Through	8.9	A	10.4	B
		Right	0.1	A	20.5	C
	Westbound	Through	4.7	A	4.0	A
		Right	0.2	A	3.9	A
	Northbound	Left	39.9	D	48.8	D
		Through	53.5	D	58.5	E
	Right	45.4	D	56.5	E	
<b>All</b>	<b>All</b>	<b>14.8</b>	<b>B</b>	<b>11.4</b>	<b>B</b>	
6: Winchester & I-15 SB on/I-15 SB off*	Eastbound	Through	9.1	A	17.6	B
		Right	2.8	A	1.4	A
	Westbound	Through	29.8	C	10.8	B
		Left	36.1	D	31.5	C
	Southbound	Through	9.5	A	7.6	A
		Right	9.5	A	7.4	A
	<b>All</b>	<b>All</b>	<b>28.2</b>	<b>C</b>	<b>19.6</b>	<b>B</b>
7: Winchester & Jefferson	Eastbound	Left	61.8	E	173.6	F
		Through	30.1	C	33.6	C
	Westbound	Left	48.4	D	72.1	E
		Through	7.6	A	27.2	C
	Northbound	Right	45.0	D	45.3	D
		Left	61.5	E	54.3	D
	Southbound	Through	50.2	D	411.0	F
		Right	20.5	C	27.0	C
	Southbound	Left	69.8	E	159.1	F
		Through	46.3	D	53.8	D
	Right	27.4	C	22.8	C	
<b>All</b>	<b>All</b>	<b>38.7</b>	<b>D</b>	<b>175.4</b>	<b>F</b>	
8: French Valley Pkwy & I-15 NB off/I-15 NB on*	Eastbound	Through	5.1	A	23.9	C
		Right	6.6	A	17.0	B
	Westbound	Through	1.4	A	9.4	A
		Right	0.4	A	8.6	A
	Northbound	Left	56.5	E	10.5	B
		Through	56.3	E	10.5	B
	Right	8.0	A	10.7	B	
<b>All</b>	<b>All</b>	<b>12.1</b>	<b>B</b>	<b>16.0</b>	<b>B</b>	

\*Synchro methodology used to derive delay and LOS at this intersection

The following three (3) intersections operate at LOS E or F under Build Phase III 2045 conditions:

- 1) French Valley Parkway & Ynez Road (PM)
- 3) Cherry Street/French Valley Parkway & Jefferson Avenue (PM)
- 4) Winchester Road & Ynez Road (AM/PM)

Synchro 9.0 LOS reports for Build Phase III conditions analysis are included in **Appendix K**.



1. Ynez Rd & Date St	2. I-15 SB Off-Ramp & French Valley Pkwy	3. Jefferson Ave & French Valley Pkwy	4. Ynez Rd & Winchester Rd
110/78 490/248 378/295 347/296 911/924 656/250	1687/828 639/629 884/485* 566/413	125/234 818/1702 158/600 1161/568 591/514 501/160	430/294 636/617 119/114 45/161 996/1009 313/433
34/229 578/859 93/244 86/1031 64/137 157/174	306/1573 386/872*	208/159 457/1526 649/348 1180/2300 388/874 77/320	331/498 1263/998 1089/1008 153/455 267/1598 448/1089
5. I-15 NB Ramps & Winchester Rd	6. I-15 SB Ramps & Winchester Rd	7. Jefferson Rd & Winchester Rd	8. I-15 NB Ramps & French Valley Pkwy
700/1473 1193/1030	119/160 619 1665/1637 588/298* 976/788	283/43 1270/1311 224/462 230/341 569/331 296/275	115/392 1064/785
1969/2252 60/830* 715/251 210 371/56	364/1445 257/266	44/583 255/907 9/17 142/342 1049/2029 36/4	539/1138 307/1064 167/193 42/56 385/113

Figure 19 - Build Phase III (2045) PCE Adjusted Intersection Volumes

### 8.3 BUILD PHASE III CONDITIONS QUEUE LENGTH ANALYSIS

A queue length analysis was completed for Build Phase III conditions during AM and PM peak hours using Synchro 9.0 software. **Table 15** shows the 95<sup>th</sup> percentile queue length results for all intersection lane groups.

Table 15 – Build Phase III (2045) 95th Percentile Queue Lengths (ft)

Intersection	Approach	Movement	Turn Bay Storage (ft)	95th %ile Queue (ft)	
				AM	PM
1: French Valley Pkwy & Ynez Road	Eastbound	Left		584	524
		Through		234	102
		Right		0	0
	Westbound	Left		190	212
		Through		38	493
		Right		13	1319
	Northbound	Left		32	215
		Through		144	318
		Right		6	204
	Southbound	Left		463	221
		Through		412	562
		Right		156	188
2: French Valley Pkwy & I-15 SB on/I-15 SB off	Eastbound	Through		92	62
		Right		74	0
	Westbound	Through		174	152
		Right		104	229
	Southbound	Left		80	252
		Right		608	124
3: Cherry St/French Valley Pkwy & Jefferson	Eastbound	Left		123	98
		Through		212	990
		Right	200	486	128
	Westbound	Left	350	290	90
		Through		629	231
		Right		354	153
	Northbound	Left	700	215	722
		Through		410	1062
		Right	250	0	223
	Southbound	Left	700	97	521
		Through		272	746
		Right	200	35	146
4: Winchester & Ynez	Eastbound	Left	250	192	349
		Through		231	128
		Right	200	1047	1197
	Westbound	Left	250	241	363
		Through		239	270
	Northbound	Left	400	151	455
		Through		114	1022
		Right	350	50	251
	Southbound	Left	200	95	90
		Through		521	417
		Right	500	542	414
	5: Winchester & I-15 NB off/I-15 NB on	Eastbound	Through		286
Right			450	0	387
Westbound		Through		99	162
		Right		0	90
Northbound		Left		320	77
		Through		416	159
		Right		364	152



Intersection	Approach	Movement	Turn Bay Storage (ft)	95th %ile Queue (ft)	
				AM	PM
6: Winchester & I-15 SB on/I-15 SB off	Eastbound	Through		29	126
		Right		0	0
	Westbound	Through		411	52
		Left		753	685
		Through		38	44
		Right		38	42
7: Winchester & Jefferson	Eastbound	Left	400	38	419
		Through		62	208
	Westbound	Left		151	202
		Through		72	68
		Right	300	1	16
	Northbound	Left	200	33	7
		Through		511	1449
	Southbound	Right	300	33	187
		Left	300	158	342
		Through		683	708
		Right	200	132	0
	8: French Valley Pkwy & I-15 NB off/I-15 NB on	Eastbound	Through		70
Right				187	973
Westbound		Through		24	160
		Right		2	237
Northbound		Left		240	51
		Through		242	52
		Right		55	97

Note. 95% Queues exceeding available storage lengths highlighted in yellow

## 9. Conclusions

Build Phase II would provide some congestion relief and reduce accidents compared to the No Build condition. Operational improvements are due to volume reductions on sections of the I-15 mainline caused by rerouting onto the proposed collector/distributor road. However, Phase II would not resolve failing segments located at the boundaries of the project limits.

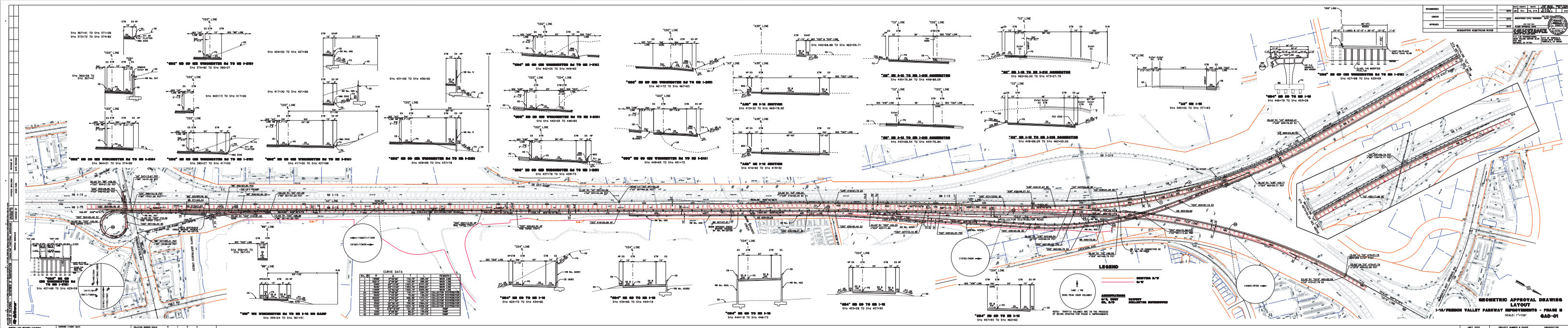
Build Phase III would reduce densities and provide congestion relief at the I-15/I-215 diverge area. Again, operational improvements are attributable the rerouting of mainline traffic onto the collector/distributor road. Similar to Phase II, Phase III would not resolve failing segments located at the boundaries of the project limits. An alternative equivalent to Build Phase III had previously been analyzed in the Revised Traffic Operations Analysis French Valley Parkway (2008) report. The conclusions of the previous study are consistent with current findings.

Comparing the performance of Build Phase II and Build Phase III reveals that congestion occurs during both 2045 PM scenarios. Under Build Phase II, seven (7) freeway segments in the 2045 PM peak operate at LOS E or F conditions compared in ten (10) freeway segments under Phase III. Additional failing segments occur under Phase III as I-15 northbound traffic continues for a longer distance on I-15 to access the NB off ramp at French Valley that is included in Phase III. The French Valley access point routes additional northbound volume on I-15 through segments between the Winchester off ramp and the French Valley off ramp and drawing the bottleneck farther north into the study area.

Based on input from the City of Temecula, additional local street improvements are planned at intersection #3) Cherry Street/French Valley Parkway & Jefferson Road to complement future development in the city and are included in the analysis under Phase III to facilitate traffic flow to and from the I-15 ramps and French Valley Parkway. These improvements would have congestion relieving benefits in scenarios other than Phase III and may be appropriate prior to 2045.

Local facilities may be impaired in future years as growth and development continues. The City of Temecula will address these issues with appropriate measures when developers propose development projects that add significantly to arterial traffic.

## **Appendix A – Project Figure**







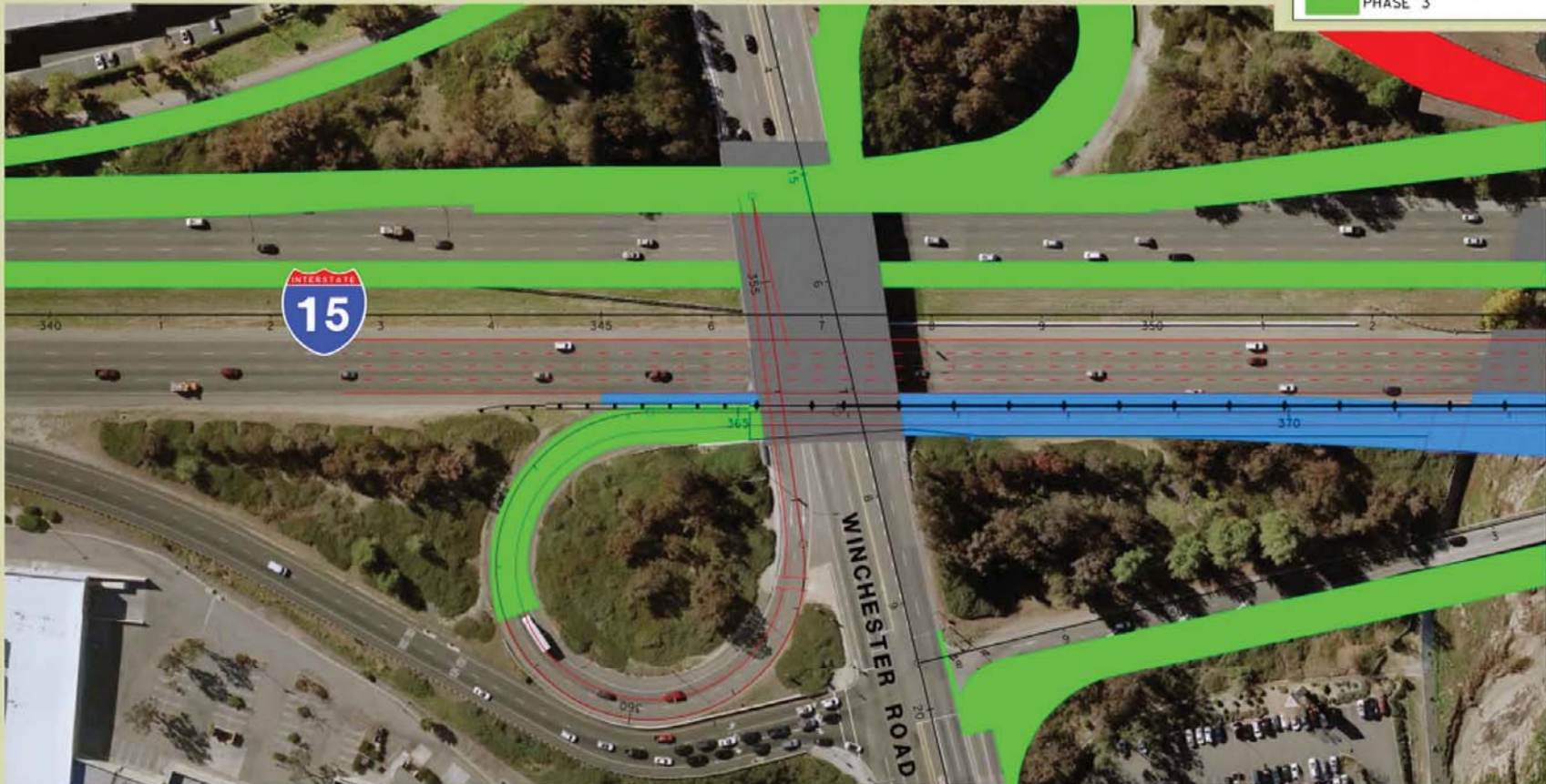
**I-15 FRENCH VALLEY PARKWAY INTERCHANGE PROJECT (PHASE II)**  
**PROJECT NO. 0800020178 (EA 43272)**



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- PHASE 2
- PHASE 3

  
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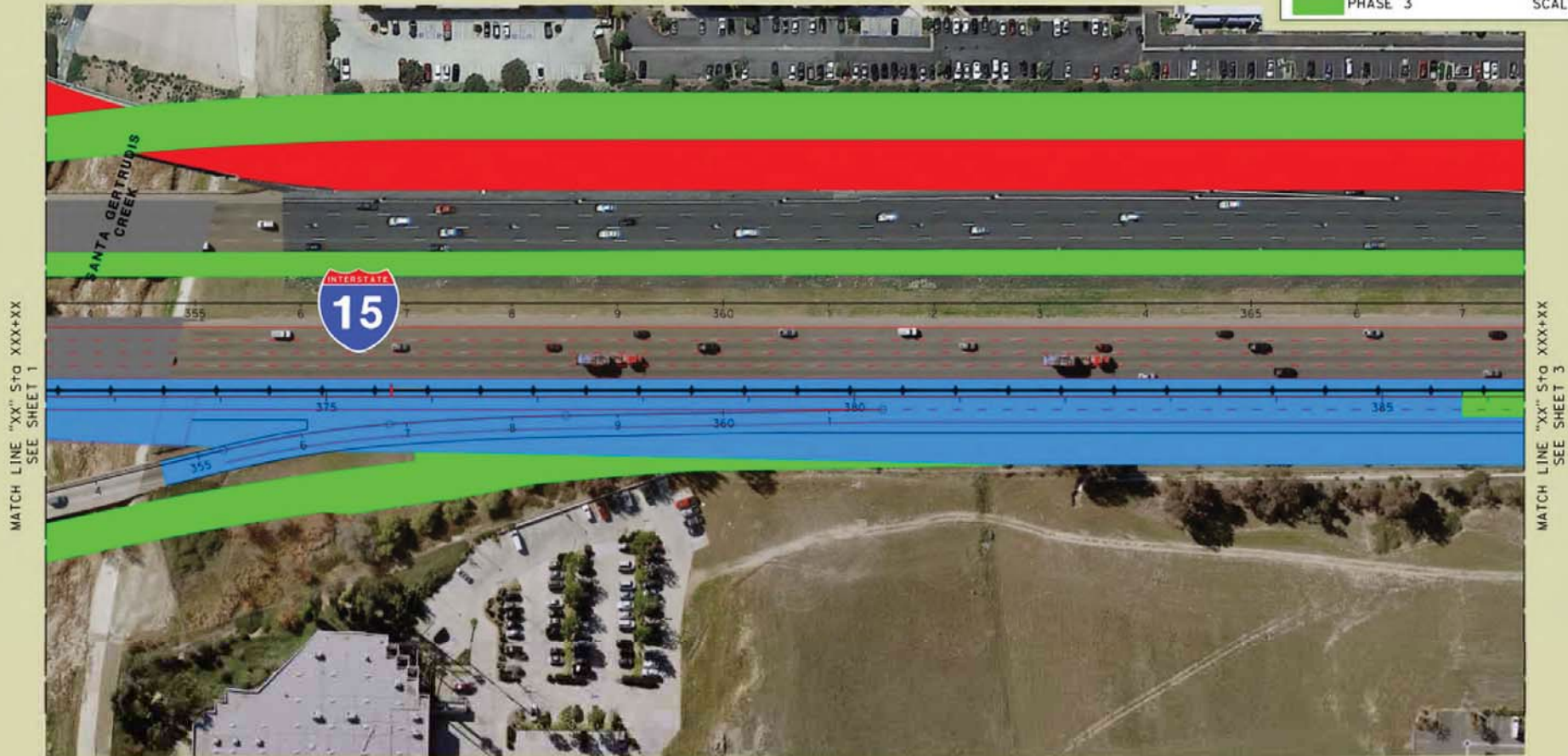
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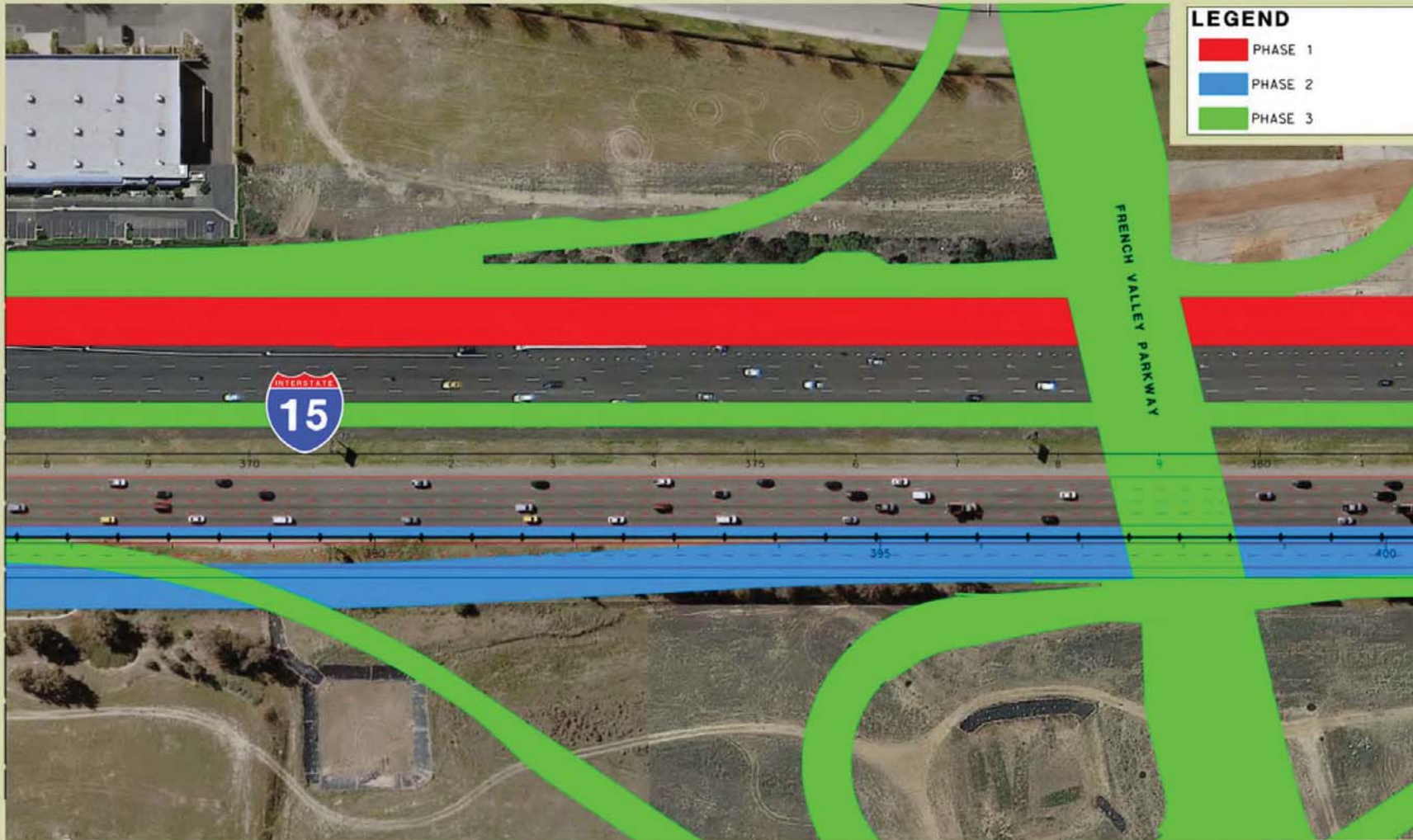
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MATCH LINE "XX" STG XXX+XX  
SEE SHEET 3





**I-15 FRENCH VALLEY PARKWAY INTERCHANGE PROJECT (PHASE II)  
PROJECT NO. 0800020178 (EA 43272)**



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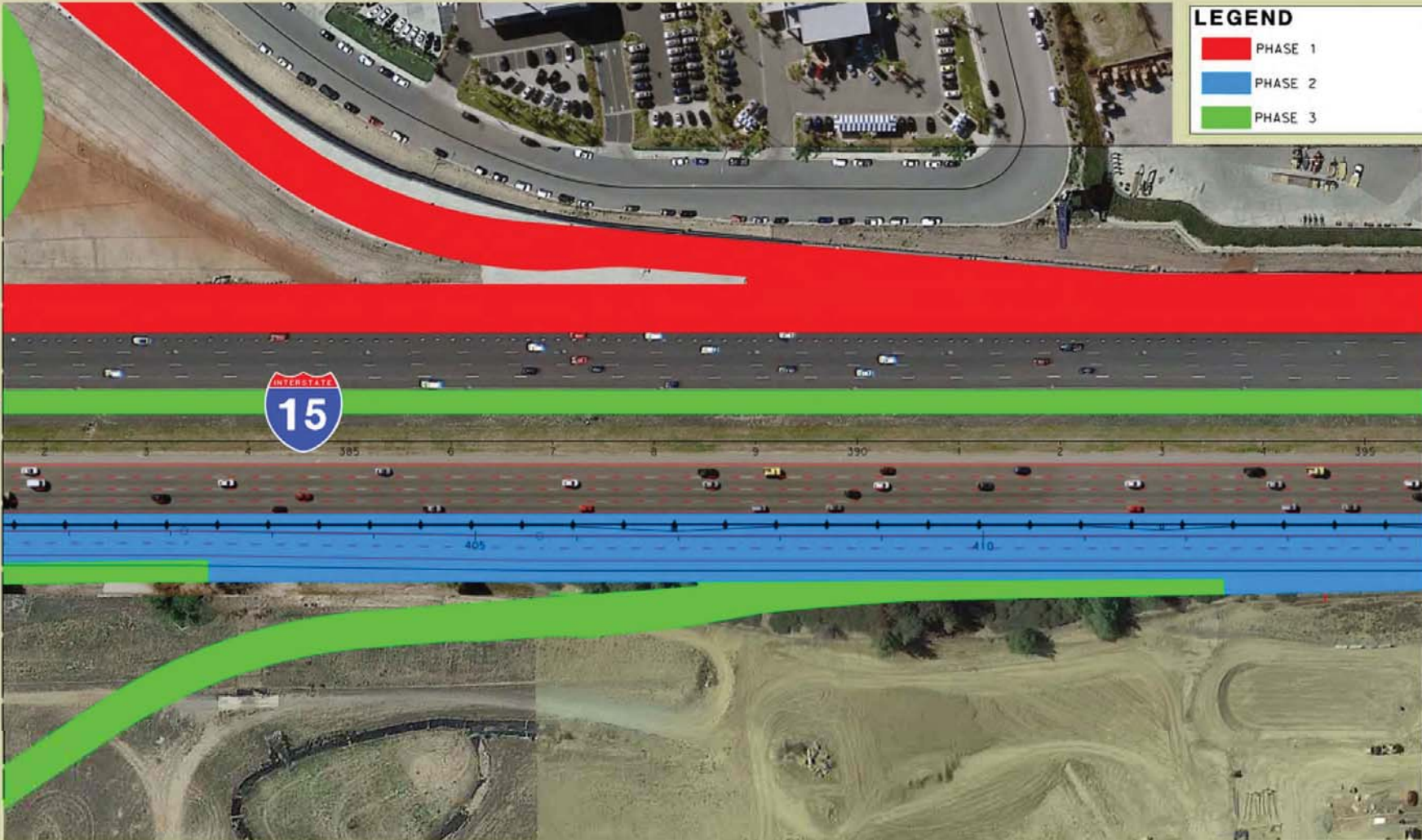
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SEE SHEET 4





# I-15 FRENCH VALLEY PARKWAY INTERCHANGE PROJECT (PHASE II) PROJECT NO. 0800020178 (EA 43272)



**LEGEND**

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- PHASE 2
- PHASE 3

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SEE SHEET 3

MATCH LINE "XX" ST0 XXX+XX  
SEE SHEET 5





# I-15 FRENCH VALLEY PARKWAY INTERCHANGE PROJECT (PHASE II)

## PROJECT NO. 0800020178 (EA 43272)



**LEGEND**

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- PHASE 2
- PHASE 3

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SEE SHEET 6





# I-15 FRENCH VALLEY PARKWAY INTERCHANGE PROJECT (PHASE II)

## PROJECT NO. 0800020178 (EA 43272)



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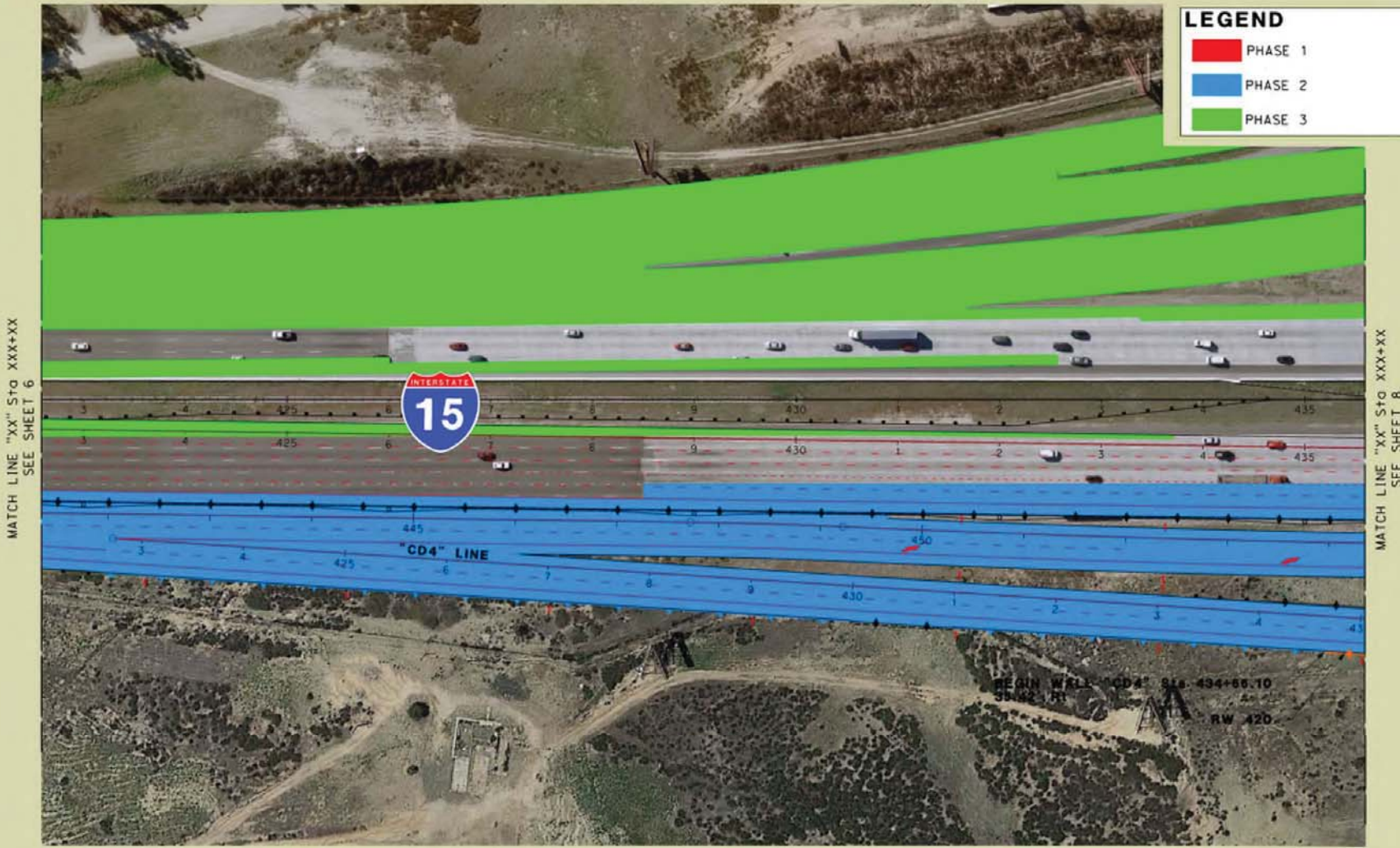
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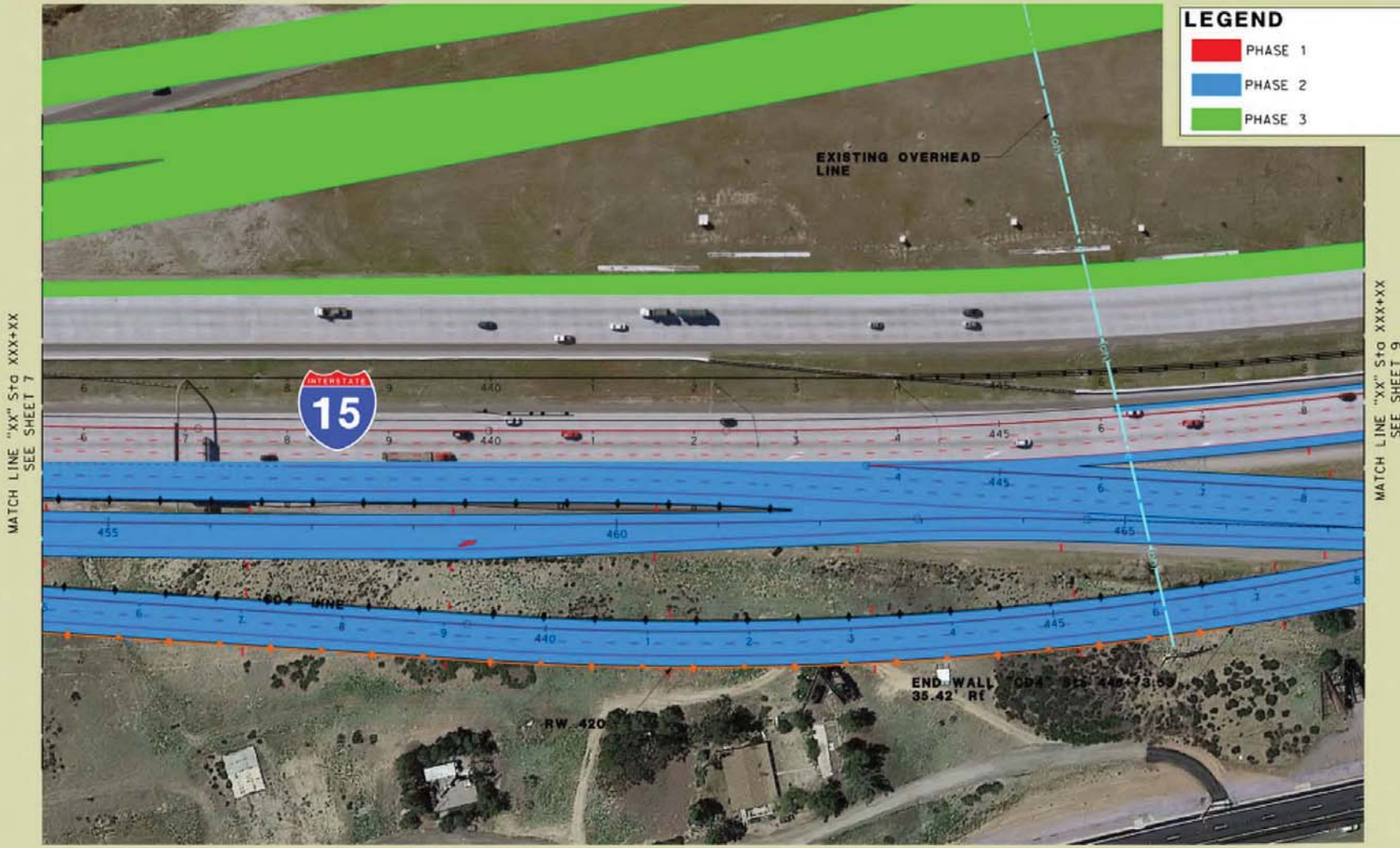
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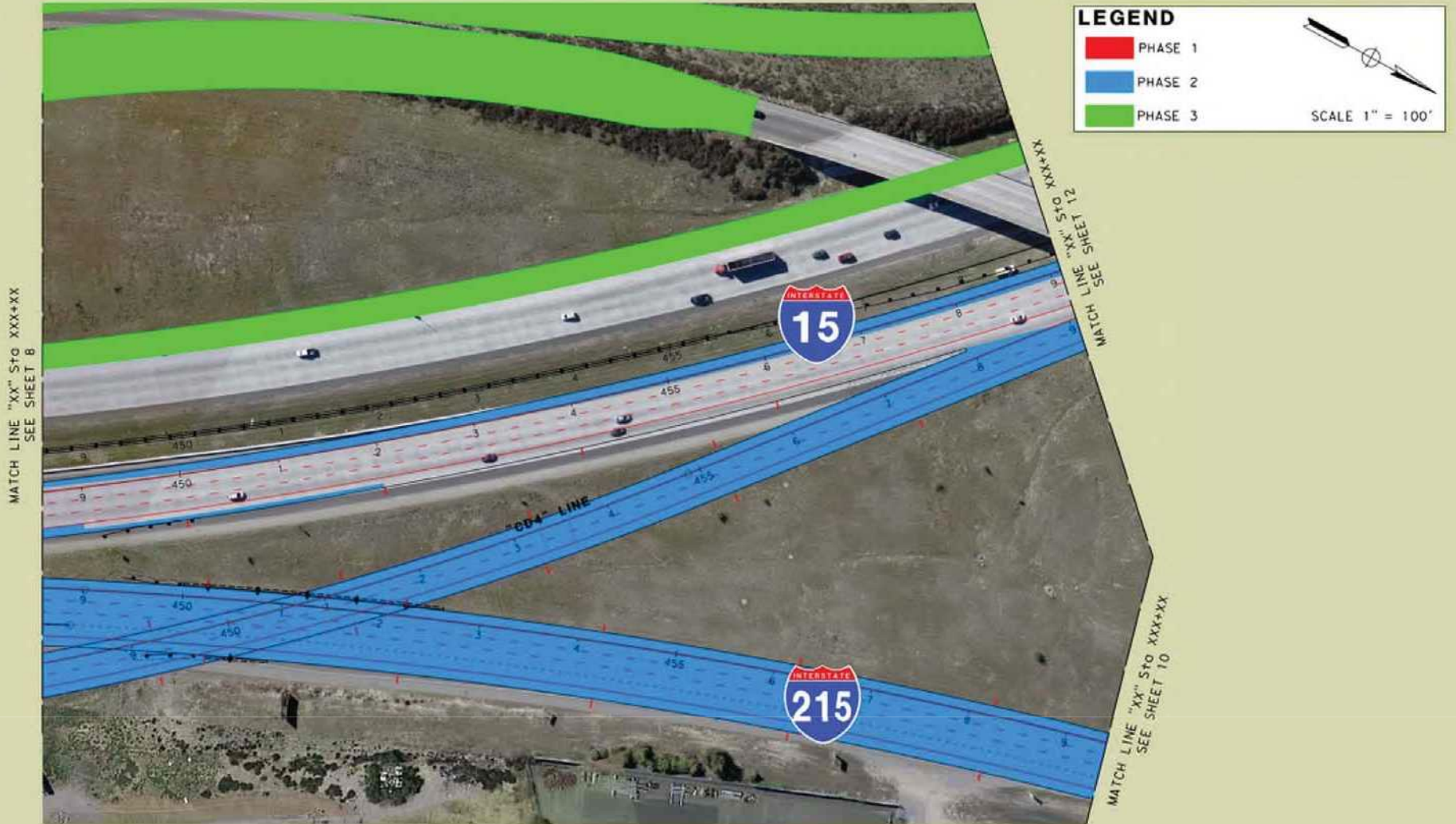
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# I-15 FRENCH VALLEY PARKWAY INTERCHANGE PROJECT (PHASE II) PROJECT NO. 0800020178 (EA 43272)



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- PHASE 3

  
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MATCH LINE "XX" STG XXX+XX  
SEE SHEET 11









**I-15 FRENCH VALLEY PARKWAY INTERCHANGE PROJECT (PHASE II)  
PROJECT NO. 0800020178 (EA 43272)**



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SEE SHEET 10

**LEGEND**

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	PHASE 3	

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# I-15 FRENCH VALLEY PARKWAY INTERCHANGE PROJECT (PHASE II) PROJECT NO. 0800020178 (EA 43272)



**LEGEND**

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- PHASE 2
- PHASE 3

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SEE SHEET 9

MATCH LINE "XX" STA XXX+XX  
SEE SHEET 13





**I-15 FRENCH VALLEY PARKWAY INTERCHANGE PROJECT (PHASE II)  
PROJECT NO. 0800020178 (EA 43272)**



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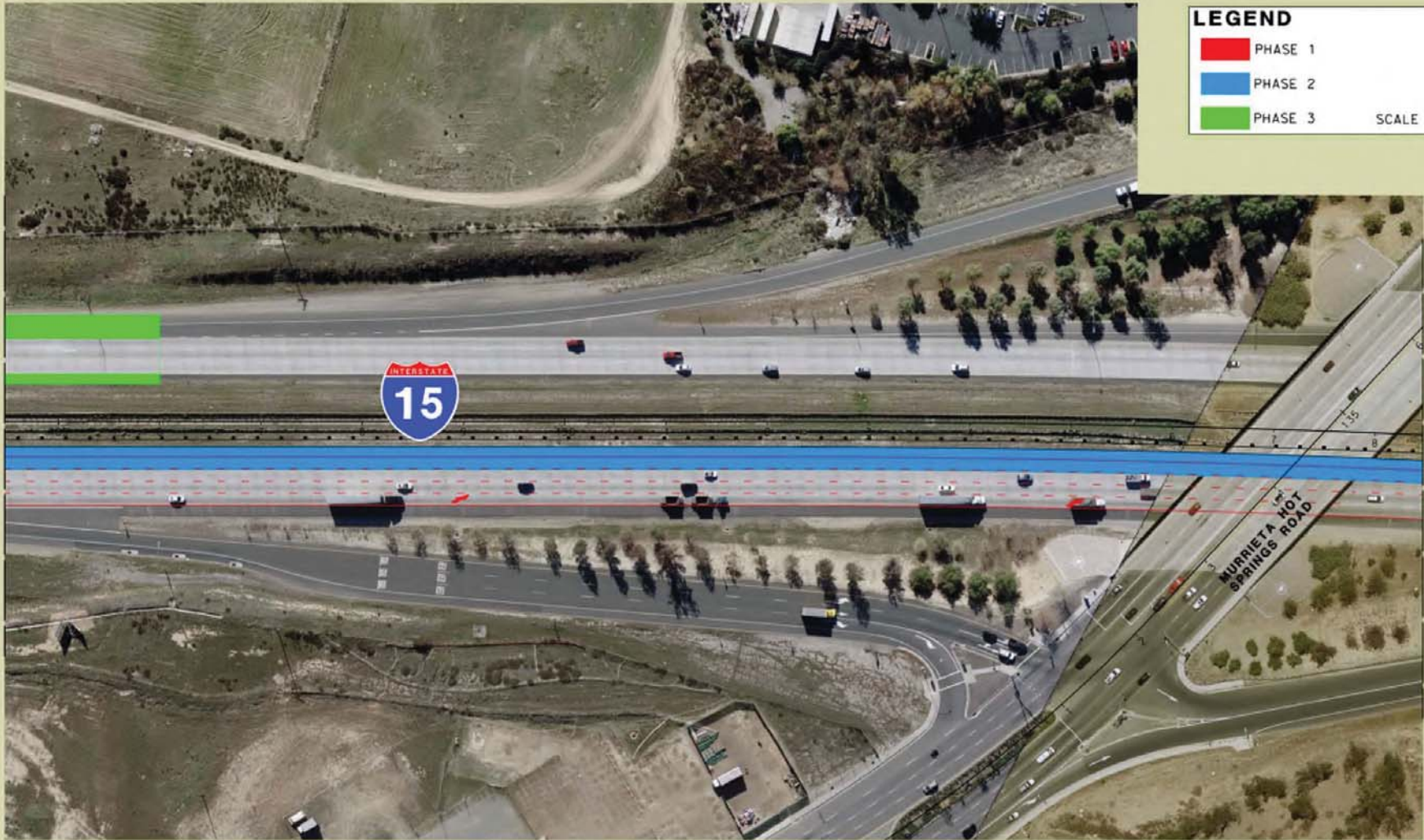
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SEE SHEET 14





**I-15 FRENCH VALLEY PARKWAY INTERCHANGE PROJECT (PHASE II)  
PROJECT NO. 0800020178 (EA 43272)**



**LEGEND**

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- PHASE 2
- PHASE 3

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SEE SHEET 15





# I-15 FRENCH VALLEY PARKWAY INTERCHANGE PROJECT (PHASE II) PROJECT NO. 0800020178 (EA 43272)



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- PHASE 3

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## **Appendix B – Traffic Volumes Report**

# I-15/French Valley Parkway Improvements Project - Phase II Traffic Volumes Report Final



September 27, 2017

Submitted to:

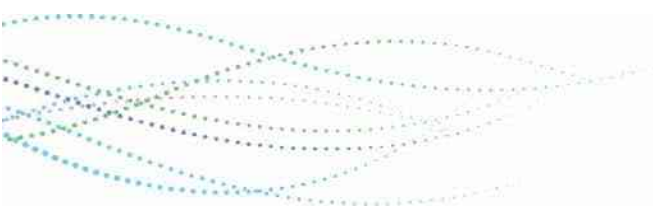
**City of Temecula**

## DOCUMENT VERSION CONTROL

DOCUMENT NAME	SUBMITTAL DATE	VERSION NO.
I-15/French Valley Parkway Improvements Phase 2 Project Traffic Volumes Report – DRAFT V1	June 30, 2017	1.0
I-15/French Valley Parkway Improvements Phase II Project Traffic Volumes Report – DRAFT V1.1	July 12, 2017	1.1
I-15/French Valley Parkway Improvements Phase II Project Traffic Volumes Report – DRAFT V1.2	August 15, 2017	1.2
I-15/French Valley Parkway Improvements Phase II Project Traffic Volumes Report – DRAFT V1.3	August 29, 2017	1.3
I-15/French Valley Parkway Improvements Phase II Project Traffic Volumes Report – FINAL [1]	September 27, 2017	

Notes

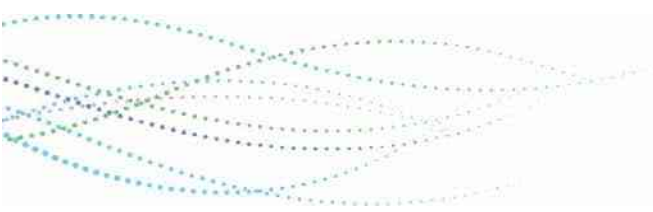
[1] Approved 9/27/17 by Ahmed Ghonim, P.E. Assistant Project Manager. Caltrans District 8





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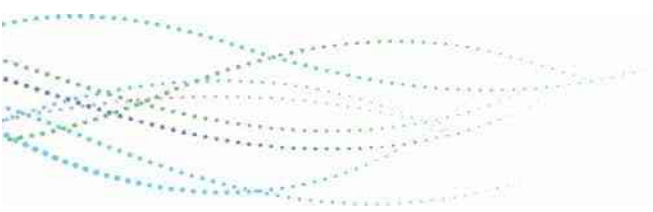
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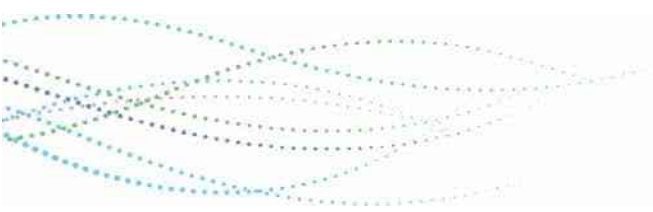
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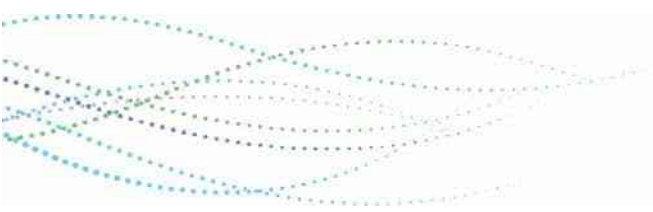
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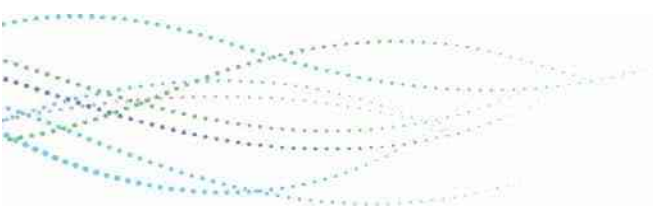
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## ABBREVIATIONS

Caltrans	California Department of Transportation
C-D	Collector-Distributor Road
CEQA	California Environmental Quality Act
CMIA	Corridor Mobility Improvement Account
FTIP	Federal Transportation Improvement Program
I-	Interstate
mph	Miles per Hour
NEPA	National Environmental Policy Act
PA/ED	Project Approval/Environmental Document
PCE	Passenger Car Equivalents
PeMS	Caltrans Performance Monitoring System
PM	Post Mile
RTA	Riverside Transit Agency
RTP/SCS	Regional Transportation Plan/Sustainable Community Strategy
SCAG	Southern California Association of Governments
SHOPP	State Highway Operations and Protection Program
SR-	State Route
STIP	Statewide Transportation Improvement Program
U.S.C.	United States Code
VMT	Vehicle Miles Traveled



## 1 INTRODUCTION

The City of Temecula, in cooperation with the California Department of Transportation (Caltrans) proposes improvements on a portion of Interstate 15 (I-15) between the existing Winchester Road (State Route 79, SR-79)/I-15 Interchange and Murrieta Hot Springs Road in the vicinity of the I-15/Interstate 215 (I-215) junction (including related improvements to the related portion of I-215 from the I-15/I-215 juncture to just south of the Murrieta Hot Springs Road/I-215 Interchange), within the cities of Temecula and Murrieta in Riverside County, California. The purpose of the proposed project (the Project) is to relieve traffic congestion and to improve safety and operational efficiency within the project limits.

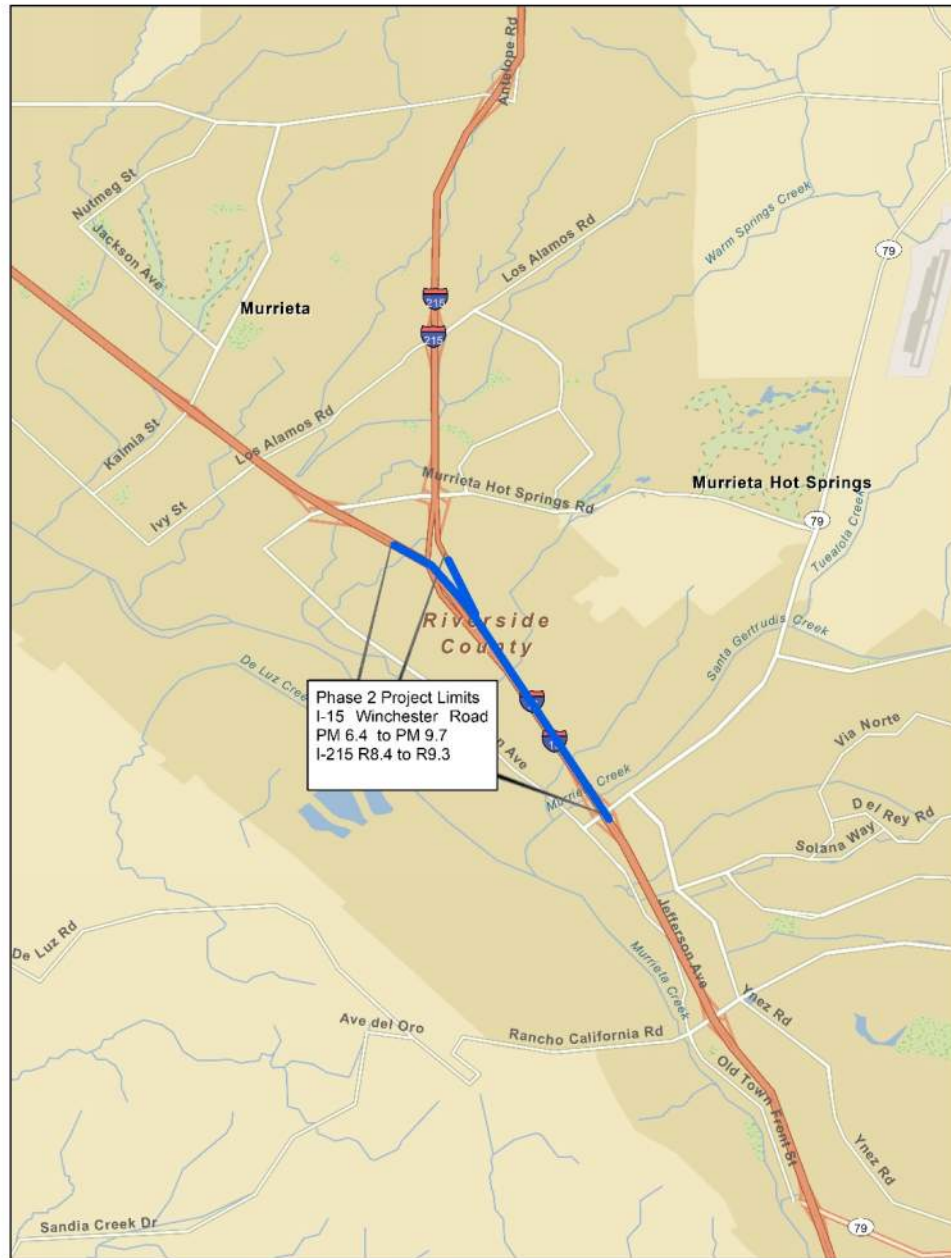
The Project Approval/Environmental Document (PA/ED) for the Project as a whole was initially approved in 2010 but due to funding constraints the project was subsequently split into three phases in order to allow improvements to be implemented early, provide immediate congestion relief and to facilitate the implementation of the ultimate improvements. The purpose of this study is to update the Environmental Re-evaluation for Phase II (Phase 2) of the project. The three Project phases are described below:

- Phase I (Phase 1) was completed in 2014 and entailed constructing two through lanes on French Valley Parkway westbound from I-15 to Jefferson Avenue; one lane of the southbound exit ramp; the southbound auxiliary lane from French Valley Parkway interchange to the Winchester Road interchange southbound exit ramp; and widening of the Winchester Road southbound exit ramp from one to three lanes.
- Phase 2, which is the focus of the current Environmental Documentation update, would construct a two-lane northbound collector/distributor system along I-15 from the Winchester Road interchange northerly on-ramps to just north of the I-15/I-215 junction with connectors to I-15 and I-215. The proposed project limits along I-15 are from Post Mile (PM) 6.4 to PM 9.7 and along I-215 from R8.4 to R9.3— generally between the I-15/I-215 confluence to just south of the Murrieta Hot Springs Road/I-215 interchange. Improvements will include pavement widening, bridge widenings, drainage extensions, retaining walls, and utility relocations.
- Phase III (Phase 3) would provide ultimate relief by constructing the remainder of the six-lane overcrossing and interchange along French Valley Parkway from Jefferson Avenue to Ynez Road, including on- and off-ramps; northbound and southbound auxiliary lanes; collector/distributor lanes (one northbound and three southbound); and modifications to the Winchester Road interchange. Phase 3 is not being tested as part of this Environmental Documentation update although Caltrans has requested an analysis addressing operational conditions under Phase 3.

**Figure 1-1** shows the project limits and its regional vicinity location.



Figure 1-1: Phase 2 Project Limits



Caltrans is the Lead Agency for compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project has been or is being carried out by Caltrans under its assumption of responsibility pursuant to 23 United States Code (U.S.C.) 327. The City of Temecula is the project sponsor and the project is included in the Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

## 1.1 Purpose of the Proposed Project

This Traffic Volumes Report documents the development of existing and future traffic volumes for the I-15/French Valley Parkway Improvements – Phase 2 project. The purpose of the proposed project is to address current and future travel demand on this corridor through congestion management and enhanced freeway operation.

The project studies one (1) No Build alternative and one (1) Build alternative for the opening year of 2022. The project also studies one (1) No Build alternative and (1) Build alternative for the design year of 2045.

**Appendix A** provides a figure representing the Project build alternative for Phase 2. Although not a part of the updated Environmental Documentation, Caltrans requested an additional scenario be developed for 2045 in order to assess operational conditions assuming that Phase 3 were also built, since it is fairly likely that Phase 3 would actually be constructed by 2045.

Forecasted traffic volumes have been determined for the following scenario years as outlined in the approved Forecasting Methodology Memorandum as of June 15, 2017:

- Existing (2017);
- Opening Year (2022) No Build;
- Opening Year (2022) Build Phases 1 & 2;
- Opening Year (2045) No Build;
- Design Year (2045) Build Phases 1 & 2; and
- Design Year (2045) Build Phases 1, 2, & 3.
- Failure Year Phases 1&2 (Operational Analysis only – If needed)

The following paragraphs describe each scenario in detail.

### No Build Scenario - Years 2022 and 2045

The No Build scenario would not result in any proposed project improvements, but it assumes the completion of projects that are currently programmed by Caltrans in the State Highway Operations and Protection Program (SHOPP), State Transportation Improvement Program (STIP), Federal Transportation Improvement Program (FTIP) or Corridor Mobility Improvement Account (CMIA) and the financially constrained network in the SCAG 2016 Regional Transportation Plan (RTP)). This includes the construction of a new northbound loop on-ramp to I-15 at Murrieta Hot Spring Road which is in the FTIP and is programmed for construction in 2019 according to the 2016 RTP.

### Build Phases 1 & 2 Scenario – Years 2022 and 2045

The Build Phase 1 includes the recently constructed southbound I-15 off-ramp at French Valley Parkway. Phase 2 will include improvements along I-15 in the northbound direction between the Winchester Road interchange and the junction of I-15/I-215. A two-lane northbound collector-distributor (C-D) road system along I-15 from north of the Winchester Road interchange entrance ramps to just north of the I-15/I-215 junction will be constructed with connectors to I-15 and I-215.

### Build Phases 1, 2, & 3 Supplemental Scenario – Year 2045 Only

The Build Phases 1 & 2 will include the improvements detailed in the previous section. Phase 3 will include





the construction of the I-15/French Valley Parkway Interchange and French Valley Parkway would be constructed as a six-lane arterial highway from Jefferson Avenue to Ynez Road. Auxiliary lanes would be provided in both the northbound and southbound directions and an up to three-lane C-D system would be constructed parallel to I-15 between the I-15/I-215 confluence and Winchester Road in both the northbound and southbound directions.

## 1.2 Overview of the Methodology

Existing traffic volumes were developed using traffic counts collected during June 2017 and where available from the Caltrans Performance Monitoring System (PeMS). Other Caltrans data sources such as Caltrans count book and truck volumes spreadsheet were also reviewed. Existing volumes on the freeway were processed to ensure continuity of flow between mainline segments and ramps.

Future forecast volumes were generated using the SCAG 2016 Regional Transportation Plan (RTP) Model. The SCAG model networks were reviewed along the project corridor and some minor network changes made to better reflect likely future network conditions. The SCAG forecasts were then post-processed using standard Caltrans Methodology using the existing counts and existing year model volumes, again maintaining continuity of flow between mainline segments and ramps.

The available SCAG model years were 2021 and 2040 while the project has an opening year of 2022 and a design year of 2045. The post-processed forecasts were therefore factored up using growth factors derived from the Caltrans Long Term Socio-economic Forecasts by County (2016). Forecast volumes were developed separately for autos and trucks, vehicles and Passenger Car Equivalents (PCEs).

Outputs for air quality and noise will be developed once the future traffic volumes has been approved.



## 2 EXISTING TRAFFIC VOLUME DEVELOPMENT

### 2.1 Data Collection Methodology

Existing traffic volumes play a critical role in the overall analysis of infrastructure investments. Existing volumes provide a baseline by which to evaluate current performance of the circulation system and are used as the basis of future forecast volumes through the post-processing routine.

An existing traffic profile has been developed to represent current traffic volume conditions along northbound I-15 from south of Winchester Road to north of Murrieta Hot Springs Road and on I-215 from I-15 to immediately north of Murrieta Hot Springs Road.

### 2.2 PeMS Traffic Volumes

Peak hour and daily traffic volumes and speeds for all mainline and ramp PeMS locations within the study area were extracted from the Caltrans Performance Monitoring System (PeMS) for Tuesday to Thursday during the months of May and October for years 2015 and 2016. These two months represented the most current available data for “typical” months when the analysis was performed. Unfortunately, several of the PeMS locations within the study area were found to have poor detector health over the past two years meaning that much of data would be unreliable and was not used. At the remaining locations with good data, the data was filtered for 100% detector health. High quality PeMS data was available for the following freeway segments and ramps:

- Northbound I-15 Mainline
  - Rancho California Road slip on-ramp to Winchester Road off-ramp
- Northbound I-215 Mainline
  - South of Murrieta Hot Springs Road
  - Murrieta Hot Springs Road loop on-ramp to Murrieta Hot Springs Road slip on-ramp
- Northbound I-215 Ramps
  - Murrieta Hot Springs Road off-ramp
  - Murrieta Hot Springs Road on-ramp
  - Murrieta Hot Springs Road slip on-ramp

**Table 2-1** shows a summary of the PeMS counts on the mainline during the standard SCAG AM and PM peak periods (AM peak period is defined as 6:00 AM to 9:00 AM and the PM peak period is defined as 3:00 PM to 7:00 PM). The volumes shown are for hours within the peak periods incremented by 15 minute intervals. The table shows that in the AM peak volumes gradually rise throughout the period peaking between 8 AM and 9 AM. In the PM peak the volumes are broadly consistent throughout the whole peak period.

PeMS collects speed data as well as volume data. A summary of PeMS speed data for the AM and PM peak periods is shown in **Table 2-2** for I-15 south of Winchester Road and on I-215 north of I-15. The data is shown for each hour advanced in fifteen minute increments for the standard SCAG peak periods.

PeMS data shows operating speeds in the AM peak period of over 65 mph.

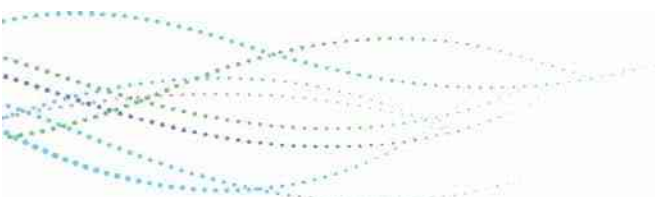


Table 2-1: Freeway Mainline PeMS Traffic Volumes

	Location Description	Station VDS	AM Peak Period										PM Peak Period											
			06:00	06:15	06:30	06:45	07:00	07:15	07:30	07:45	08:00	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00
			- 07:00	- 07:15	- 07:30	- 07:45	- 08:00	- 08:15	- 08:30	- 08:45	- 09:00	- 16:00	- 16:15	- 16:30	- 16:45	- 17:00	- 17:15	- 17:30	- 17:45	- 18:00	- 18:15	- 18:30	- 18:45	- 19:00
I-15	Rancho California Rd Slip On to Winchester Rd Off	817743	3,438	3,716	3,966	4,129	4,293	4,420	4,490	4,509	4,548	6,054	5,998	5,872	5,831	5,814	5,806	5,869	5,931	5,982	6,031	6,072	6,150	6,139
I-215	South of Murrieta Hot Springs Rd	822409	1,551	1,689	1,802	1,821	1,788	1,740	1,690	1,679	1,701	3,005	3,027	3,055	3,087	3,109	3,162	3,202	3,222	3,210	3,156	3,110	3,074	3,045
I-215	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Slip On	822400	1,636	1,787	1,918	1,949	1,934	1,894	1,849	1,848	1,876	3,395	3,444	3,481	3,523	3,563	3,636	3,695	3,687	3,655	3,566	3,478	3,416	3,357

Table 2-2: Existing PeMS Traffic Speeds

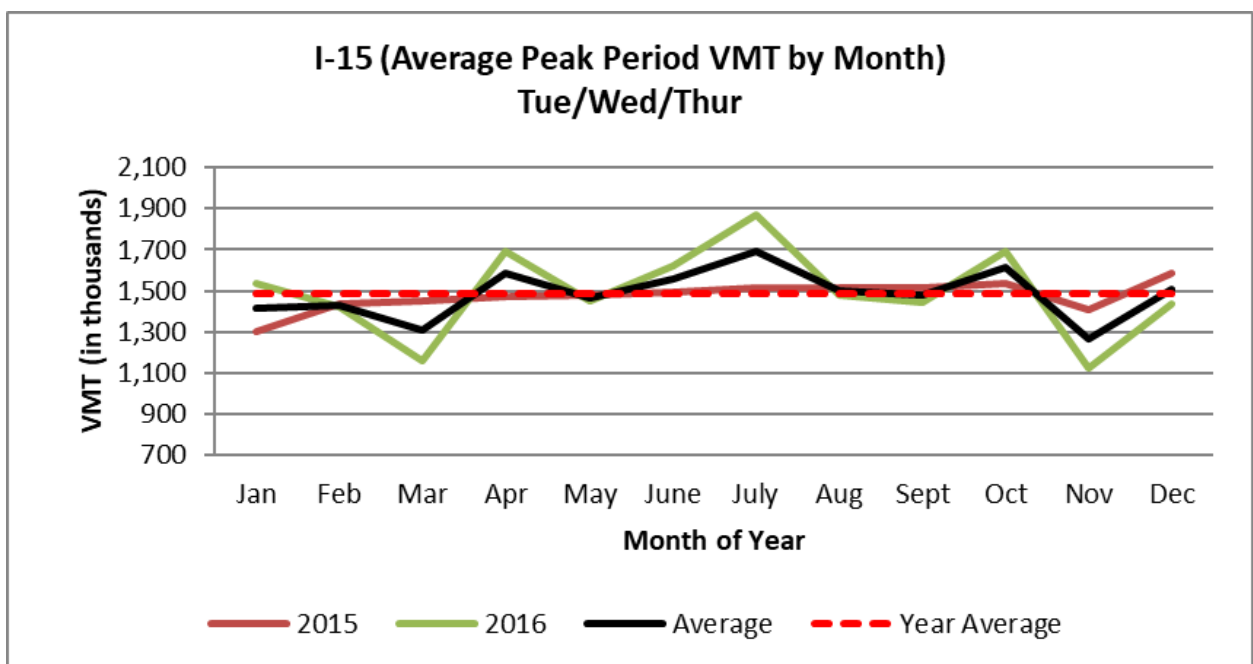
	Location Description	Station VDS	AM Peak Period										PM Peak Period											
			06:00	06:15	06:30	06:45	07:00	07:15	07:30	07:45	08:00	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00
			- 07:00	- 07:15	- 07:30	- 07:45	- 08:00	- 08:15	- 08:30	- 08:45	- 09:00	- 16:00	- 16:15	- 16:30	- 16:45	- 17:00	- 17:15	- 17:30	- 17:45	- 18:00	- 18:15	- 18:30	- 18:45	- 19:00
I-15	Rancho California Rd Slip On to Winchester Rd Off	817743	68	68	68	67	67	66	66	66	66	38	35	33	31	31	31	31	31	33	35	38	42	46
I-215	South of Murrieta Hot Springs Rd	822409	68	69	69	69	69	68	68	67	67	62	63	63	63	64	64	64	65	65	65	65	65	65
I-215	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Slip On	822400	68	69	69	69	68	67	67	66	65	62	62	63	63	63	64	64	64	64	64	64	64	65



In the PM peak period, on I-215 north of the split with I-15 PM operating speeds are typically operating over 60 mph, however, further south on I-15 at Winchester Road speeds are closer to 30 mph in the middle of the PM peak period indicating high levels of congestion.

Since the manual traffic counts collected for this project were performed in May and June an additional PeMS analysis was performed to determine whether any seasonal factors might need to be applied to the existing counts in order to make them representative for a typical month. A PeMS Vehicle Miles Travel (VMT) report was generated for the I-15 corridor between the San Diego County Line (Riverside PM 0) and PM 20 (Main Street). **Figure 2-1** shows that Year 2015 had a relatively flat seasonal profile while 2016 was more pronounced with peak in July and minimum in November. The average of 2015 and 2016 appears to provide a reasonable seasonal profile. Existing conditions counts for the project were taken in in May and early June 2017 which **Figure 2-1** suggests are typical representative months suggesting that no seasonal adjustments need be applied to the traffic counts.

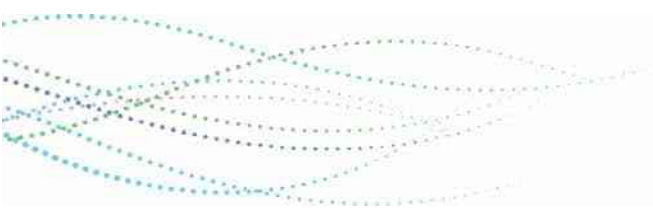
**Figure 2-1: 2015 and 2016 Monthly VMT on I-15**



### 2.3 Other Traffic Speed Data

Observed traffic speeds were used in conjunction with observed volumes to identify the time of day and location of current congestion within the study area. In addition to PeMS, two other data sources of speed were analyzed. The data sources are:

- Google maps historical data
- Side-fire radar (Wavetronics) data collection



### 2.3.1 Google Maps Historical Data

Google speed maps show expected average speeds based on historical observed data and are color coded by speed. **Figure 2-2** shows the AM peak northbound as green representing good traffic conditions with little or no congestion whereas **Figure 2-3** shows red and orange for the northbound PM peak indicating congested speeds.

**Figure 2-2: AM Peak Google Maps Historical Speed Data**

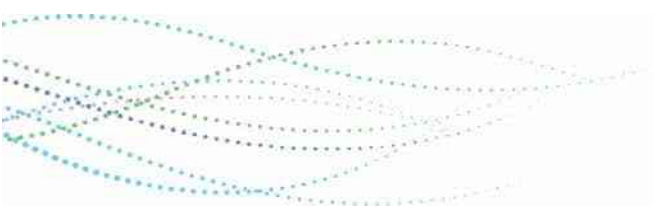
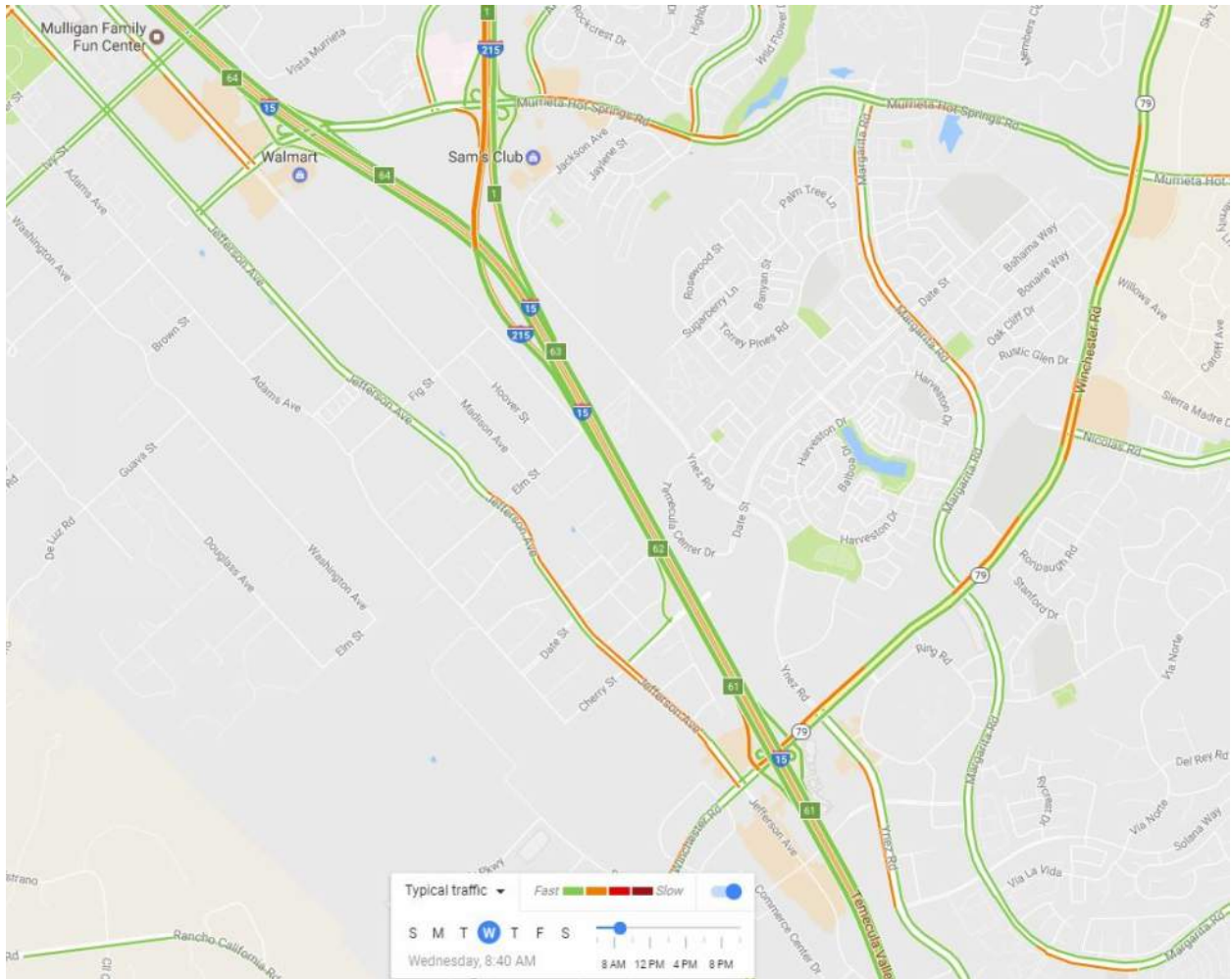
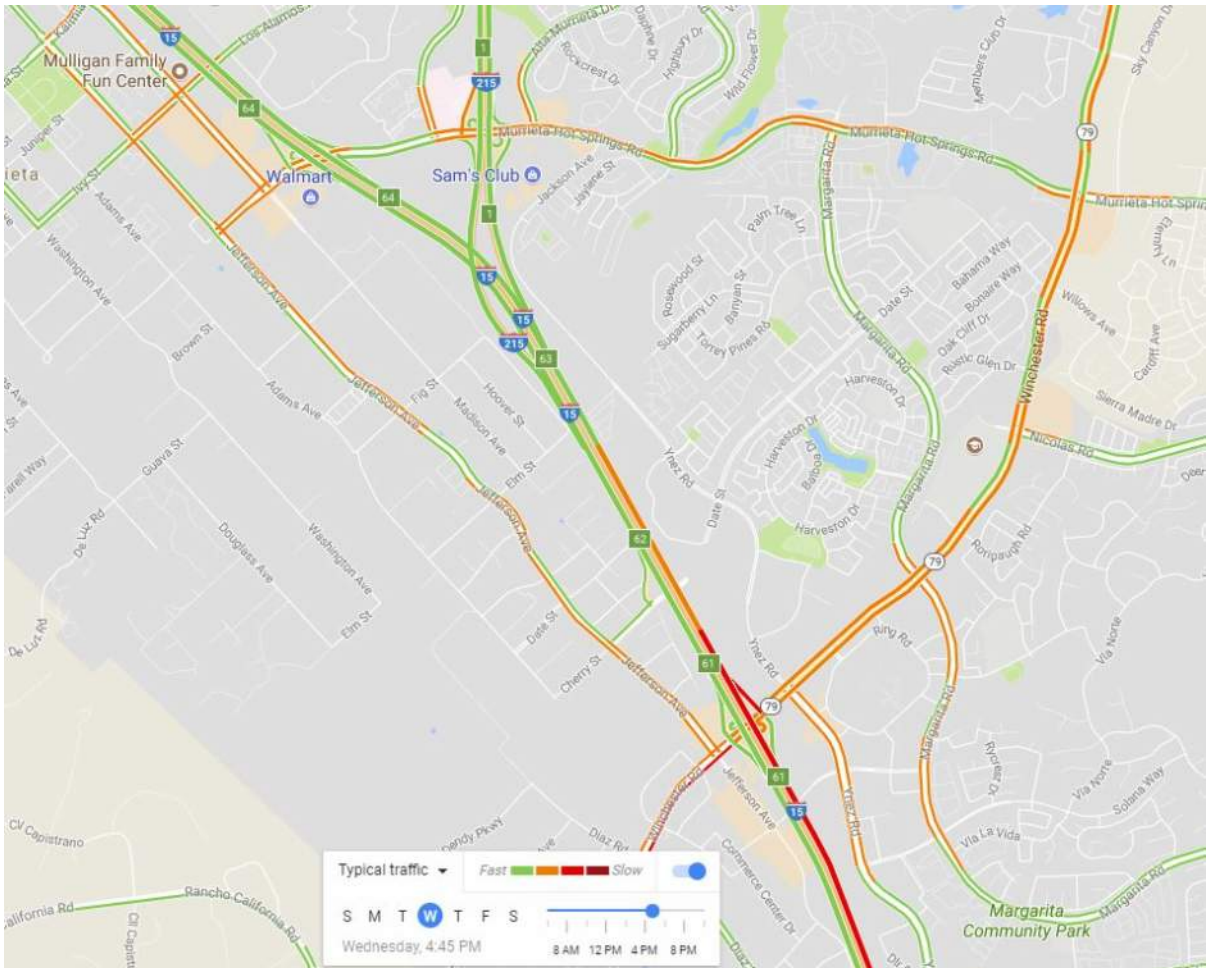




Figure 2-3: PM Peak Google Maps Historical Speed Data



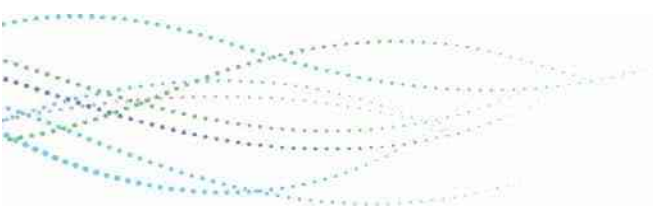
### 2.3.2 Wavetronics Side-Fire Radar

In addition to counting volumes, the Wavetronics side-fire radar device collects speeds data by time of day. As part of the data collection effort for this project Wavetronics data was collected at two locations:

- Northbound on I-15 immediately north of Winchester Road
- Northbound on I-15 immediately north of I-215

Figure 2-4 and Figure 2-5 show the volumes collected by the Wavetronics devices allocated to hourly speed bins throughout the day. The speed bins shown in the Figures are:

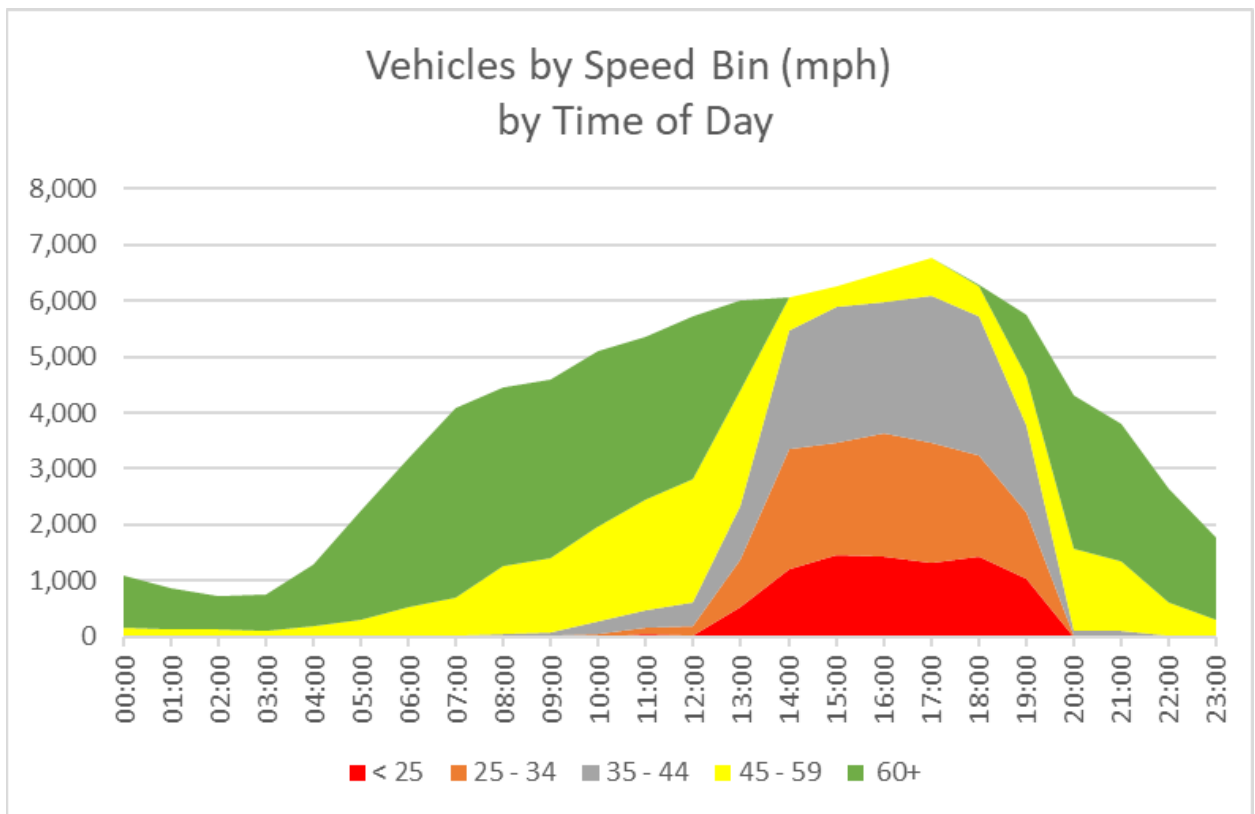
- <25 mph
- 25mph – 35 mph
- 35 mph – 45 mph
- 45 mph-60 mph
- >60 mph



For the site on I-15 immediately north of Winchester Road **Figure 2-4** shows traffic volumes increasing steadily throughout the day finally peaking at around 5:30 pm before declining fairly rapidly in the early evening.

Until 1:00 PM most of the vehicles observed fell into either the 60+ mph speed bin or the 45-60 mph speed bin. After 1:00 PM the number of vehicles falling into lower speed bins increases rapidly and this persists throughout the afternoon with average speeds then increasing after 7:00 PM as traffic volumes reduce.

**Figure 2-4: I-15 Northbound Hourly Volumes by Speed Bin North of Winchester Road**



**Figure 2-5** shows the Wavetronics data for the northbound location on I-15 north of the I-215 split. Traffic volumes show a similar pattern to the northbound site at Winchester Road, rising gradually throughout the day until the PM peak period and then falling quickly thereafter. At this location however, there is relatively little congestion and almost all vehicles were observed to operate at 60 mph or faster throughout the day.

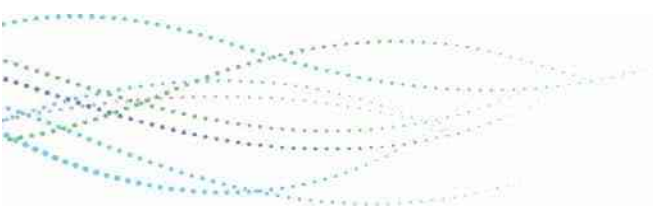
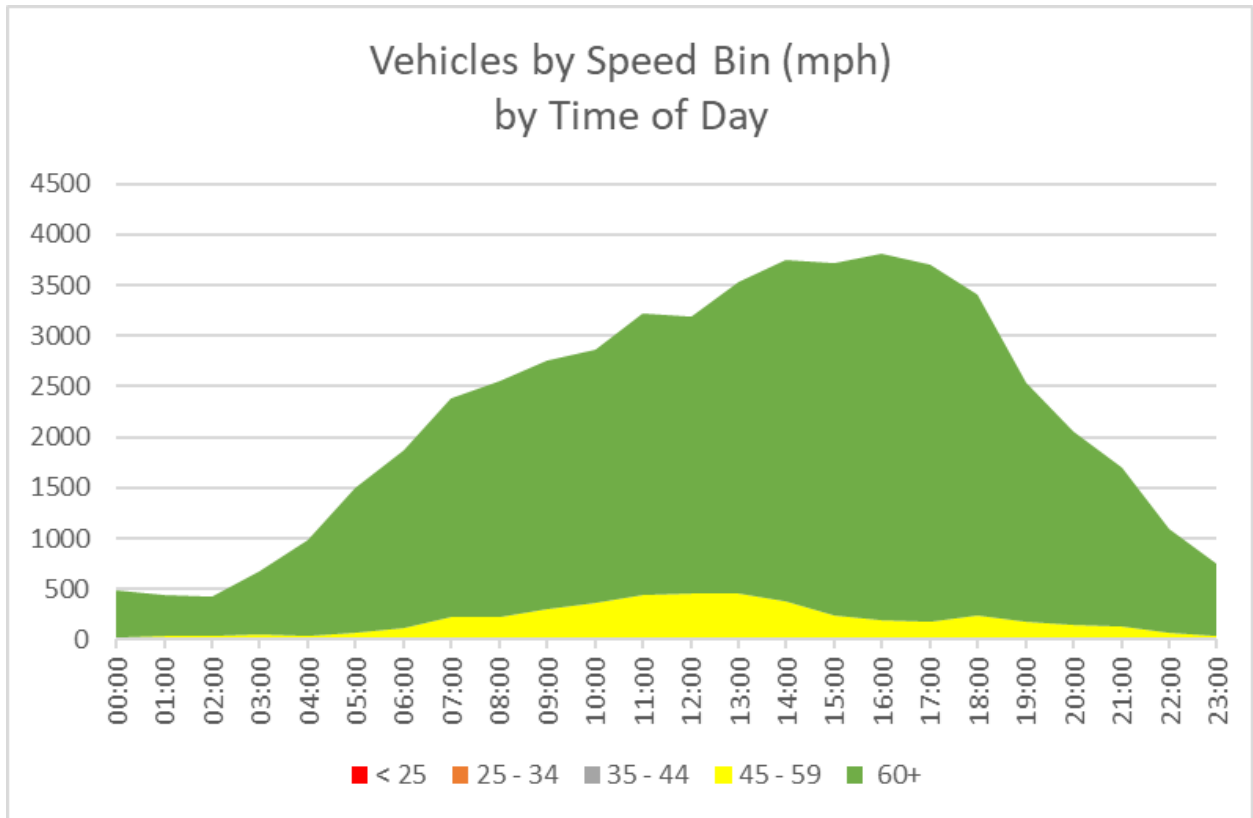


Figure 2-5: I-15 Northbound Hourly Volumes by Speed Bin North of I-215

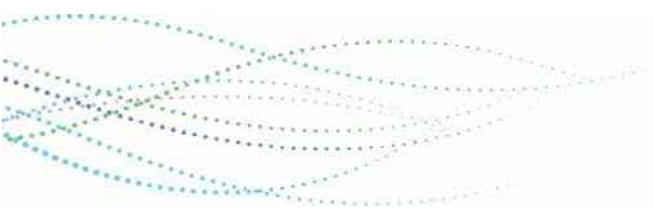


The speed analysis derived from the three separate sources indicates the extensive congestion in the PM peak period prior to the I-15/I-215 split while existing traffic conditions in the AM peak hour and north of the split appear to be satisfactory. This supports the notion that the heavy weaving movements south of the I-15/I-215 split are the cause of the congestion suffered in the PM peak along this corridor.

Additionally, at the Winchester Road site, the highest traffic volumes occur at times of peak congestion. It is therefore reasonable to conclude that observed traffic demand at this point is not being artificially constrained by congestion. This is relevant since existing mainline volumes can be assumed to fall on the upper side of the standard traffic speed/flow curve and can therefore be used directly for forecasting purposes.

## 2.4 Traffic Counts

In addition to PeMS data, traffic counts were collected for the project as outlined in the methodology memorandum (provided in **Appendix B**) and as shown in **Table 2-3**. Count summary sheets are provided in **Appendix C**.



**Table 2-3: Description of Traffic Counts Collected**

FACILITY	LOCATION	AM	MD	PM	NT	TRUCK CLASS	COMMENT
Intersections	Ynez Road and Date Street	7-9		4-6			
	Jefferson Avenue and French Valley Parkway;	7-9		4-6			
	Ynez Road and Winchester Road	7-9		4-6			
	I-15 NB Ramps and Winchester Road	7-9		4-6		Yes	Axle Classification
	I-15 SB Ramps and Winchester Road	7-9		4-6			
	Jefferson Avenue and Winchester Road	7-9		4-6			
Northbound Ramps	I-15 Winchester Road off-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
	I-15 Winchester Road loop on-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
	I-15 Winchester Road direct on-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
	I-15 Murrieta Hot Springs Road off-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
	I-15 Murrieta Hot Springs Road on-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
	I-215 Murrieta Hot Springs Road off-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
	I-215 Murrieta Hot Springs Road loop on-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
	I-215 Murrieta Hot Springs Road direct on-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
Northbound Mainline	On I-215 between I-15 and Murrieta Hot Springs Road Off ramp	6-9	9-3	3-7	7-6	Yes	Length Classification by side-fire radar
	On I-15 between I-215 and Murrieta Hot Springs Road Off ramp	6-9	9-3	3-7	7-6	Yes	Length Classification by side-fire radar

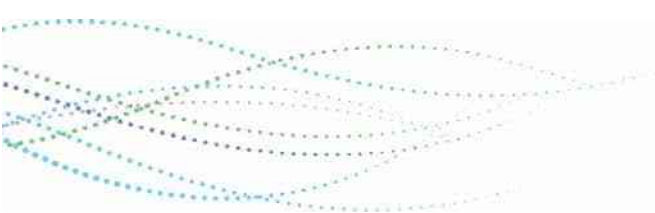
#### 2.4.1 Ramp Traffic

Truck volumes by axle were collected at northbound ramp locations for a 24-hour period to facilitate the inclusion of truck percentages and PCE's in the operational analysis. Truck classification counts were also obtained for the AM and PM peak periods for the intersection of the I-15 northbound ramps and Winchester Road. **Table 2-4** shows a summary of the ramp counts.



Table 2-4: Ramp Counts Summary

FREEWAY	RAMP LOCATION	EXISTING AM PEAK HOUR TRUCK PERCENTAGES				EXISTING PM PEAK HOUR TRUCK PERCENTAGES				EXISTING DAILY TRUCK PERCENTAGES			
		AUTOS	TRUCKS	TOTAL	TRUCK %	AUTOS	TRUCKS	TOTAL	TRUCK %	AUTOS	TRUCKS	TOTAL	TRUCK %
I-15	Winchester Road Off-Ramp	929	29	958	3.0%	714	19	733	2.6%	14,321	475	14,796	3.2%
I-15	Winchester Road Loop On-Ramp	320	38	358	10.6%	875	20	895	2.2%	8,244	511	8,755	5.8%
I-15	Winchester Road On-Ramp	529	32	561	5.7%	1,189	35	1,224	2.9%	15,830	389	16,219	2.4%
I-15	Murrieta Hot Springs Road Off-Ramp	336	9	345	2.6%	289	4	293	1.4%	4,801	128	4,929	2.6%
I-15	Murrieta Hot Springs Road On-Ramp	951	38	989	3.8%	1,690	22	1,712	1.3%	18,441	592	19,033	3.1%
I-215	Murrieta Hot Springs Road Off-Ramp	291	5	296	1.7%	307	5	312	1.6%	5,478	81	5,559	1.5%
I-215	Murrieta Hot Springs Road Loop On-Ramp	158	11	169	6.5%	450	12	462	2.6%	4,537	227	4,764	4.8%
I-215	Murrieta Hot Springs On-Ramp	550	14	564	2.5%	1,043	9	1,052	0.9%	12,440	221	12,661	1.7%
<b>Grand Total</b>		<b>4,064</b>	<b>176</b>	<b>4,240</b>	<b>4.6%</b>	<b>6,557</b>	<b>126</b>	<b>6,683</b>	<b>1.9%</b>	<b>84,092</b>	<b>2,624</b>	<b>86,716</b>	<b>3.1%</b>





#### 2.4.2 Freeway Traffic Conservation of Flow

The flow of existing raw traffic volumes on the I-15/I-215 were conserved as appropriate between interchanges by adding and subtracting ramp volumes and mainline volumes by direction and choosing an appropriate pivot point in order to generate representative flow conserved volumes by direction for the study area corridor as a whole.

**Table 2-5** presents the existing conditions conserved flow traffic volume profile on northbound I-15 that will be incorporated into the Environmental Document as the basis for existing conditions traffic analysis.

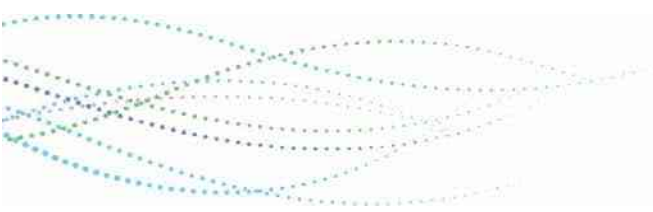


Table 2-5: I-15/I-215 Existing Traffic Volumes

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Northbound Mainline</b>														
1	Rancho California Road Slip On-ramp to Winchester Road Off-ramp	ML	4,039	442	4,481	4,889	4,662	762	5,424	5,877	74,680	10,623	85,303	93,965
2	Winchester Road Off-ramp	Off	929	29	958	1,045	714	19	733	794	14,231	475	14,706	16,199
3	Winchester Road Off-ramp to Winchester Road Loop On-ramp	ML	3,110	413	3,523	3,844	3,948	743	4,691	5,083	60,449	10,148	70,597	77,766
4	Winchester Road Loop On-ramp	On	320	38	358	391	875	20	895	970	8,244	511	8,755	9,644
5	Winchester Road Loop On-ramp to Winchester Road Slip On-ramp	ML	3,430	451	3,881	4,235	4,823	763	5,586	6,053	68,693	10,659	79,352	87,410
6	Winchester Road Slip On-ramp	On	529	32	561	612	1,189	35	1,224	1,326	15,830	389	16,219	17,866
7	Winchester Road Slip On-ramp to I-215 Northbound Off-ramp	ML	3,959	483	4,442	4,847	6,012	798	6,810	7,379	84,523	11,048	95,571	105,276
8	I-215 NB Off-ramp	Off	1,703	185	1,888	2,060	2,434	554	2,988	3,238	36,410	5,752	42,162	46,444
9	I-215 NB Off-ramp to Murrieta Hot Springs Road Off-ramp	ML	2,256	298	2,554	2,787	3,578	244	3,822	4,141	48,113	5,296	53,409	58,833
10	Murrieta Hot Springs Road Off-ramp	Off	336	9	345	376	289	4	293	317	4,801	128	4,929	5,430
11	Murrieta Hot Springs Road Off-ramp to Murrieta Springs Loop On-ramp	ML	1,920	289	2,209	2,410	3,289	240	3,529	3,824	43,312	5,168	48,480	53,403
14	Murrieta Hot Springs Road direct On-ramp	On	951	38	989	1,079	1,690	22	1,712	1,855	18,441	592	19,033	20,966
15	North of Murrieta Hot Springs Road	ML	2,871	327	3,198	3,489	4,979	262	5,241	5,679	61,753	5,760	67,513	74,369
<b>I-215 Northbound Mainline</b>														
16	From I-15 Northbound	ML	1,703	185	1,888	2,060	2,434	554	2,988	3,238	36,410	5,752	42,162	46,444
17	Murrieta Hot Springs Road Off-ramp	Off	291	5	296	323	307	5	312	338	5,478	81	5,559	6,124
18	Murrieta Hot Springs Road Off-ramp to Murrieta Hot Springs Road Loop On-ramp	ML	1,412	180	1,592	1,737	2,127	549	2,676	2,900	30,932	5,671	36,603	40,320
19	Murrieta Hot Springs Road Loop On-ramp	On	158	11	169	184	450	12	462	501	4,537	227	4,764	5,248
20	Murrieta Hot Springs Road Loop On-ramp to Murrieta Hot Springs Road Slip On-ramp	ML	1,570	191	1,761	1,921	2,577	561	3,138	3,400	35,469	5,898	41,367	45,568
21	Murrieta Hot Springs Road Slip On-ramp	On	550	14	564	615	1,043	9	1,052	1,140	12,440	221	12,661	13,947
22	North of Murrieta Hot Springs Road	ML	2,120	205	2,325	2,537	3,620	570	4,190	4,540	47,909	6,119	54,028	59,515

### 2.4.3 Intersection Turning Movements

Intersection turning movement volumes were collected on typical weekdays (Tuesday – Thursday) in late May and early June 2017. AM and PM peak count periods were 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, respectively. AM and PM peak period intersection turning movement counts were collected for the following study area ramps and arterial intersections:

- Ynez Road and Date Street;
- Jefferson Avenue and French Valley Parkway;
- Ynez Road and Winchester Road;
- I-15 NB Ramps and Winchester Road;
- I-15 SB Ramps and Winchester Road; and
- Jefferson Avenue and Winchester Road

Turning movement volumes at each study intersection have been adjusted where appropriate to ensure conservation of flow through the arterials. This balancing procedure was applied at locations where a driveway does not exist between intersections.

**Appendix D** presents the existing turning movement volume exhibits at all arterial and arterial-ramp intersections. Also included in **Appendix D** is a Figure showing the existing intersection lane configurations and posted speeds limits on arterials roadways connecting the study intersections.

## 2.5 Existing Signal Timing and Phasing Data

Existing Signal timing and Phasing data for the following intersections was provided by the City of Temecula and is included in **Appendix E**.

- Jefferson Avenue and Winchester Road
- Jefferson Avenue and Cherry Street
- Ynez Road and Date Street
- Winchester Road and Ynez Road

The corresponding data for other study locations will be included in **Appendix E** following receipt of the data from Caltrans.



### 3 TRAFFIC FORECASTING METHODOLOGY

The Traffic Forecasting Methodology Memorandum has been approved by Caltrans and is provided in **Appendix B**.

As directed by Caltrans, the most current version of the SCAG 2016 RTP/SCS travel demand model was obtained from SCAG and used to develop the traffic models for the I-15/French Valley Parkway Improvements – Phase 2 Project. The 2016 SCAG RTP/SCS model is validated to year 2012 and uses socio-economic data that forecasts to year 2040. A future interim year model was also obtained for year 2021. The roadway network in the models within the study area were reviewed to ensure consistency between the model networks and the RTP.

The I-15/French Valley Parkway Improvements Phase 2 Project requires opening year analysis (Year 2022) and design year analysis (2045) which represents 20+ years after opening year. Because model runs for these exact years are not available from SCAG, growth factors based on socioeconomic growth assumptions were applied to increase the 2021 forecasts to Year 2022 and increase the 2040 forecasts to Year 2045. The percentage increases are based on the average of the forecast employment and population growth rates derived from Caltrans’ long term socioeconomic data forecasts by County as shown in **Table 3-1**. Additional details are provided in **Appendix F**.

**Table 3-1: Forecast Socio-economic Growth - Riverside County**

SCENARIO	YEAR	POPULATION	EMPLOYMENT	AVERAGE
Model Year	2021	2,542,214	723,546	
Opening Year	2022	2,580,556	731,587	
	Growth	1.51%	1.11%	1.31%
SCENARIO	YEAR	POPULATION	EMPLOYMENT	AVERAGE
Model Year	2040	3,183,260	931,306	
Design Year	2045	3,262,338	983,791	
	Growth	2.48%	5.64%	4.06%

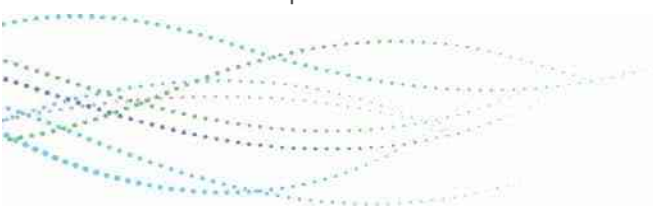
Source: Caltrans DOT Long Term Socio-economic Forecasts by County (2016)  
[http://www.dot.ca.gov/hq/tpp/offices/eab/socio\\_economic.html](http://www.dot.ca.gov/hq/tpp/offices/eab/socio_economic.html).

#### 3.1.1 Existing Year SCAG Model

For network coding purposes, a minor change to centroid connectors was made at the intersection of Winchester Road and Ynez Road where a centroid connector was loading directly to a study intersection. The centroid was moved away from the intersection to facilitate post-processing.

Caltrans mandated the use of the SCAG 2016 RTP model for this project to ensure consistency with the 2016 RTP/SCS for regional planning purposes. However, it should be noted that the SCAG model is a very large, complex regional model and is not readily capable of being refined for localized validation purposes, which in any case would be well outside the scope of this project.

In order to provide some comfort that the SCAG model is forecasting reasonable volumes in the vicinity of the study area the existing year SCAG model was run and model volumes within the study area extracted and compared to observed counts.



**Table 3-2** provides a summary comparison of raw model volumes and flow-conserved count data at various points in the study area and indicates that the SCAG model runs a little “hot” in the study area in the Peak hours on the mainline while on average ramp volumes are marginally lower than counts. Overall the 2012 model appears to overestimate volumes by around 15% in the AM peak and 15% in the PM peak hour.

**Table 3-2: Comparison of Existing SCAG model volumes to Counts**

FACILITY	AM PEAK HOUR			PM PEAK HOUR		
	COUNT	MODEL	DIFFERENCE	COUNT	MODEL	DIFFERENCE
Mainline	37,176	44,457	20%	56,148	67,172	20%
Ramps	5,287	4,195	-21%	7,042	5,476	-22%
Total	42,463	48,652	15%	63,190	72,647	15%

### 3.1.2 Interim Year (2021) No Build Scenario

After a review of the interim year 2021 model network and the existing (2017) roadway conditions, it was noted that one new roadway segment has been constructed since 2012 that was not included in the model network. East of I-15, Ynez Road has been extended north to connect to Jackson Avenue. The cross-section is the same as the existing section to the south, a 4-lane divided roadway. This network change was also included in the future year 2040 highway network. In addition, a new northbound loop on ramp to I-15 at Murrieta Hot Springs Road was added to the network since this was identified as being planned for construction in 2019 in both the SCAG 2016 RTP/SCS and FTIP, though it was not included in the model network received from SCAG.

### 3.1.3 Interim Year (2021) Build Phases 1 & 2 Scenario

The Build alternative uses the 2021 No Build network as a starting point and adds the Phase 2 project. This is a two-lane C-D road from Winchester Ave to I-15/I-215 with the existing ramps to I-15 redirected to the C-D road. Riverside Transit Agency (RTA) transit routes that currently use the Winchester Road direct on-ramp were revised to utilize the new C-D road. The model was re-run for this alternative and the relevant model data extracted.

### 3.1.4 Future Year (2040) No Build Scenario

The model edits identified for the Interim Year 2021 No Build model as described in Section 3.1.2 of this report were incorporated in the Future Year 2040 No Build model.

### 3.1.5 Future Year (2040) Build Phases 1 & 2 Scenario

This scenario is based on the Future Year 2040 No Build model, and adds Phase 2 of the project. As in the 2021 network, RTA transit routes that currently use the Winchester Road direct on-ramp were adjusted to use the C-D road.

### 3.1.6 Future Year (2040) Build Phases 1, 2, & 3 Scenario

This scenario is based on the 2040 Build Model. The network coding used is same as used in the SCAG 2016 RTP/SCS model with the exception of the additional network changes identified in section 3.1.2 and some minor edits to centroid connector loadings to better represent the improved local access due to the new interchange. Phase 3 includes the full French Valley interchange with connections to the C-D road as well as a southbound C-D road from the merge of I-215/I-15 to south of Winchester Avenue.





### 3.1.7 Traffic Analysis Years

The I-15/French Valley Parkway Improvements Phase 2 Project Environmental update requires opening year analysis and design year analysis that represents 20 years after opening year. The following scenarios are evaluated as part of the corridor study:

- Existing Year 2017
- Opening Year 2022 – No Build
- Opening Year 2022 – Phases 1 & 2
- Design Year 2045 – No Build
- Design Year 2045 – Phases 1 & 2
- Design Year 2045 – Phases 1, 2, & 3
- Design Year 2045 – Phases 1 & 2 Failure Year (if needed - Operational Analysis only)

### 3.1.8 Future Forecast Volume Post Processing

The SCAG existing model year is 2012 while the existing conditions counts were obtained in 2017. During post-processing 2012 model traffic volumes were factored up assuming a linear growth relationship between the 2012 and the RTP/SCS interim year 2021 model volumes in the study area.

The AM peak period (6:00 AM to 9:00 AM) and PM peak period (3:00 PM to 7:00 PM) forecast traffic volumes obtained from the model were converted to peak hour volumes by applying peak hour conversion factors. Peak Hour conversion factors were determined using PeMS data. The calculated factors for the freeway mainline are as follows:

- AM Peak Period to AM Peak Hour = 0.367
- PM Peak Period to PM Peak Hour = 0.263

### Freeway Post-Processing Methodology

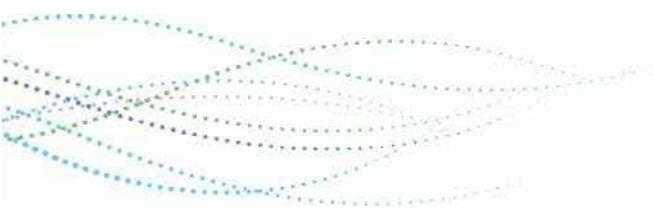
Standard Caltrans post-processing methodology as defined in *National Cooperative Highway Research Program (NCHRP) Report 255* was adopted for this traffic study. This methodology factors the flow-conserved existing counts by the difference between future and existing model volumes. Negative growth in volumes between the existing year and the future year is permitted only if there is a clear cause and explanation. Traffic flow was conserved between the mainline post-processed volumes and the ramp post-processed volumes along I-15 by time period. NCHRP methodology permits both incremental and ratio methods of post-processing. Caltrans often uses the ratio methodology calculated as follows:

$$\text{Future Post Processed Volume} = \text{Existing Count} \times \frac{\text{Future Model Volume}}{\text{Existing Model Volume}}$$

However, use of the ratio method causes issues when a new ramp or segment is introduced between existing conditions and future forecasts such as in the case of the new loop on-ramp on I-15 at Murrieta Hot Springs Road. In this case the ratio method is invalid since there are no existing values to apply the ratio to and the incremental methodology is more appropriate:

$$\text{Future Post Processed Volume} = \text{Existing Count} + [\text{Future Model Volume} - \text{Existing Model Volume}]$$

For example, for a segment with an existing observed volume of 10,000, an existing model volume of 11,000 and future model volume of 13,000, the future post-processed volumes will be: 10,000 + (13,000 - 11,000) = 12,000. The existing count is therefore the critical pivot point in the post-processing procedure.



### Intersection Post-Processing Methodology

Similar to freeway post-processing, the NCHRP Report 225 methodology was applied for intersection post-processing. Both AM and PM peak hour turning movement volumes were post-processed at each study intersection using the existing and future year model turning movement volumes in conjunction with the existing turning movement counts. The AM and PM peak hour traffic volumes were balanced between adjacent intersections using the peak hour directional approach and departure volumes. The balancing was accomplished by reconciling post processed volumes for adjacent intersections so they are consistent with each other (e.g. ins = outs). The methodology is similar to that of the mainline post processing.

In order to conserve flow between arterial intersections and ramp intersections, all intersections (including those requiring ICU analysis) were post-processed using SCAG RTP\SCS model forecasts. Post-processed volumes from the 2012 and 2021 models were used to develop annualized growth factors which were applied to the 2017 existing counts to generate the traffic forecasts for Opening Year 2022. Utilizing socioeconomic forecasts within Riverside County and the 2040 post-processed volumes as a basis, Design Year 2045 volumes were extrapolated.

In the case of intersections it was determined that different peak hour factors should be applied since the traffic counts indicated that surface streets had “peakier” peak hours compared to the freeway mainline. The following factors were derived from traffic counts:

- AM Peak Period to AM Peak Hour = 0.400
- PM Peak Period to PM Peak Hour = 0.330

### 3.1.9 Development of PCE Factors

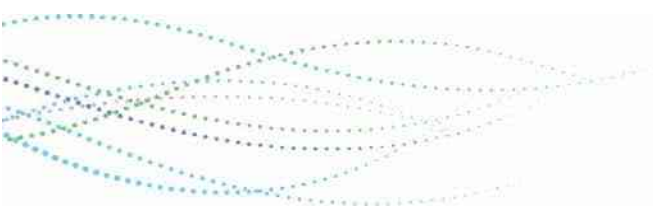
Passenger Car Equivalent (PCE) factors are applied to vehicle volumes to better represent the roadway capacity reducing effects of longer vehicles such as trucks and buses.

The Wavetronics data obtained for this project collects data by length. A benefit of this type of data collection over traditional truck counts by axle is that it permits collection of data for other longer vehicles which would not necessarily be counted in a truck count including: buses, light trucks with trailers, large RVs etc. which have different operational characteristics to autos and will also impact the effective roadway capacity.

Each Wavetronics length category was allocated a SCAG truck category in order to generate a PCE factor using SCAG standard definitions as shown in **Table 3-3**. **Table 3-4** shows a summary of the Wavetronics data showing classification by length suggesting that 88% of daily vehicles could be classified as autos or equivalent, and around 90% in the peak periods.

**Table 3-3: SCAG Truck Definitions and PCE Factors**

DESCRIPTION	TRUCK	GROSS VEHICLE WEIGHT (GVW) LBS	PCE FACTOR
Light-Heavy	LDT	8,500-14,000	1.3
Medium-Heavy	MDT	14,000-33,000	1.5
Heavy-Heavy	HDT	>33,000	2.5



**Table 3-4: Wavetronics Radar Vehicle Classification by Length – I-15 North of Winchester Road**

TIME	AUTO		LIGHT TRUCK	MEDIUM TRUCK		HEAVY TRUCK			TOTAL
	0-20FT	20-30FT	30-40FT	40-50FT	50-60FT	60-70FT	70-80FT	>80FT	
06:00	2,433	423	97	44	18	82	74	18	3,189
07:00	3,251	503	121	49	20	83	50	16	4,093
08:00	3,357	602	157	52	31	117	98	28	4,442
AM	<b>9,041</b>	<b>1,528</b>	<b>375</b>	<b>145</b>	<b>69</b>	<b>282</b>	<b>222</b>	<b>62</b>	<b>11,724</b>
	<b>77%</b>	<b>13%</b>	<b>3%</b>	<b>1%</b>	<b>1%</b>	<b>2%</b>	<b>2%</b>	<b>1%</b>	<b>100%</b>
16:00	3,805	1,897	354	177	68	56	72	76	6,505
17:00	4,092	1,917	308	167	62	69	86	77	6,778
18:00	3,988	1,598	252	147	40	63	112	75	6,275
PM	<b>11,885</b>	<b>5,412</b>	<b>914</b>	<b>491</b>	<b>170</b>	<b>188</b>	<b>270</b>	<b>228</b>	<b>19,558</b>
	<b>61%</b>	<b>28%</b>	<b>5%</b>	<b>3%</b>	<b>1%</b>	<b>1%</b>	<b>1%</b>	<b>1%</b>	<b>100%</b>
ADT	<b>67,050</b>	<b>17,473</b>	<b>3,444</b>	<b>1,895</b>	<b>839</b>	<b>1,737</b>	<b>2,123</b>	<b>1,010</b>	<b>95,571</b>
	<b>70%</b>	<b>18%</b>	<b>4%</b>	<b>2%</b>	<b>1%</b>	<b>2%</b>	<b>2%</b>	<b>1%</b>	<b>100%</b>

Using the length allocations in **Table 3-4** and assumed PCE values in **Table 3-3** average PCE factors were calculated for 2017 and are shown in **Table 3-5**. The PCE factors generated for 2017 were still assumed to be valid in 2022. For 2045 the SCAG model was reviewed an increase in truck percentage of total traffic of 1.5% was noted in the 2040 model compared to the 2021 model. As a results the PCE factors used for the 2045 analysis were increased by 1.5% compared to 2017/2022.

**Table 3-5: PCE Calculation by Time of Day**

TIME PERIOD	AUTO	LDT	MDT	HDT	TRUCK	PCE FACTOR	
						2017/2022	2045
AM Peak	90.1%	3.2%	1.8%	4.8%	9.9%	1.091	1.106
PM Peak	88.4%	4.7%	3.4%	3.5%	11.6%	1.084	1.099
Daily	88.4%	3.6%	2.9%	5.1%	11.6%	1.102	1.117
SCAG PCE Factor	1.0	1.3	1.5	2.5			

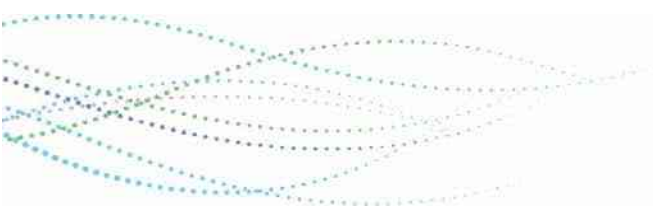
These freeway PCE factors were applied to the flow conserved vehicle volumes generated in the forecasting process to create freeway PCE volumes for use in the operational analysis for the opening year of 2022 in **Section 4** of this report, and the Design year of 2045 in **Section 5** of this report.

A different PCE factor was used for the intersections since truck volumes are typically much lower on surface streets than on freeways as noted. Trucks classified by number of axles were counted during peak hours at Winchester Road Northbound ramps and PCE factors developed for the AM and PM peak hours. At Caltrans' request, in order to account for grades at ramps and potentially at other intersection locations, the SCAG PCE factors were increased compared to the mainline as shown in **Table 3-6**.



**Table 3-6: Intersection PCE Factors Developed from Truck Counts at I-15/Winchester Road ramps**

TIME	ALL	AUTO	2AXLE	3AXLE	4AXLE	5+AXLE	TOTAL TRUCKS	TRUCK %	PCE FACTOR
AM	952	929	18	5	0	6	29	3.05%	1.034
PM	639	623	13	3	1	2	19	2.97%	1.029
<b>SCAG PCE Factor Adjusted</b>		1.0	1.5	2.0	3.0	3.0			



## 4 OPENING YEAR 2022 FORECAST TRAFFIC VOLUMES

This section summarizes the opening year 2022 forecast traffic volumes for all Project scenarios.

### 4.1 Opening Year 2022 Forecast Traffic Volumes: No Build Scenario

Utilizing the methodologies described in **Section 3** of this report, the resulting opening year 2022 No Build scenario volumes for northbound I-15 mainline and ramps are summarized in **Table 4-1** and presented graphically in **Appendix G**.

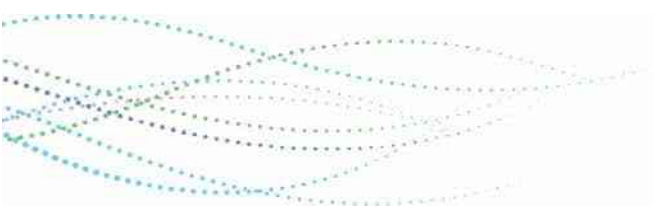
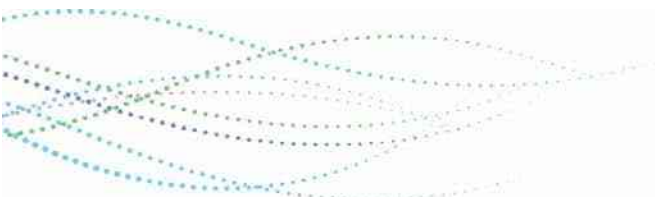




Table 4-1: I-15/I-215 Northbound Opening Year 2022 No Build Forecast Traffic Volumes

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Northbound Mainline</b>														
1	Rancho California Rd Slip On to Winchester Road Off	ML	4,310	500	4,800	5,240	5,130	800	5,930	6,420	81,450	11,480	92,930	102,370
2	Winchester Road Off	Off	940	30	970	1,060	770	20	790	860	15,160	500	15,650	17,240
3	Winchester Road Off to Winchester Road Loop On	ML	3,360	470	3,830	4,170	4,360	780	5,140	5,560	66,300	10,980	77,280	85,130
4	Winchester Road Loop On	On	330	40	370	410	890	20	910	990	8,360	530	8,880	9,790
5	Winchester Road Loop On to Winchester Road Slip On	ML	3,700	510	4,200	4,590	5,250	800	6,050	6,550	74,660	11,510	86,160	94,920
6	Winchester Road Slip On	On	540	40	580	630	1,210	40	1,250	1,350	16,040	420	16,450	18,120
7	Winchester Road Slip On to I-215 NB Off	ML	4,230	550	4,780	5,220	6,450	840	7,290	7,900	90,690	11,920	102,620	113,040
8	I-215 NB Off	Off	1,910	200	2,120	2,310	2,670	570	3,240	3,520	40,360	6,050	46,410	51,120
9	I-215 NB Off to Murrieta Hot Springs Rd Off	ML	2,320	340	2,660	2,910	3,780	270	4,050	4,390	50,330	5,880	56,210	61,910
10	Murrieta Hot Springs Rd Off	Off	340	10	350	380	290	10	300	330	4,870	130	5,000	5,510
11	Murrieta Hot Springs Rd Off to Murrieta Springs loop on	ML	1,980	330	2,310	2,520	3,490	260	3,750	4,060	45,460	5,740	51,200	56,400
12	Murrieta Springs loop on	On	250	20	270	290	280	20	300	330	3,870	450	4,320	4,750
13	Murrieta Springs loop on to Murrieta Hot Springs Rd direct On	ML	2,230	350	2,580	2,820	3,770	280	4,050	4,390	49,330	6,190	55,520	61,150
14	Murrieta Hot Springs Rd direct On	On	970	40	1,010	1,100	1,710	30	1,740	1,880	18,690	610	19,300	21,250
15	North of Murrieta Hot Springs Rd	ML	3,200	400	3,600	3,920	5,480	310	5,790	6,280	68,020	6,800	74,820	82,420
<b>I-215 Northbound Mainline</b>														
16	From I-15 NB	ML	1,910	200	2,120	2,310	2,670	570	3,240	3,520	40,360	6,050	46,410	51,120
17	Murrieta Hot Springs Rd Off	Off	310	10	320	350	310	10	320	350	5,610	90	5,700	6,280
18	Murrieta Hot Springs Rd Off to	ML	1,600	190	1,790	1,960	2,360	560	2,920	3,160	34,750	5,960	40,710	44,840

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
	Murrieta Hot Springs Rd Loop On													
19	Murrieta Hot Springs Rd Loop On	On	170	20	190	210	500	20	520	560	4,890	250	5,150	5,670
20	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Slip On	ML	1,770	210	1,990	2,170	2,860	580	3,430	3,720	39,640	6,210	45,850	50,510
21	Murrieta Hot Springs Rd Slip On	On	580	20	600	650	1,100	10	1,110	1,210	12,980	240	13,220	14,570
22	North of Murrieta Hot Springs Rd	ML	2,350	230	2,580	2,820	3,960	590	4,550	4,930	52,620	6,450	59,070	65,070



## 4.2 Opening Year 2022 Forecast Traffic Volumes: Build Phases 1 & 2 Scenario

Utilizing the methodologies described in **Section 2**, the resulting opening year 2022 Build Phases 1 & 2 scenario volumes for northbound I-15 mainline and ramps are summarized in **Table 4-2** and presented graphically in **Appendix G**.

Tables comparing the freeway segment and intersection turning movement volumes for both 2022 scenarios are provided in **Appendix H**.

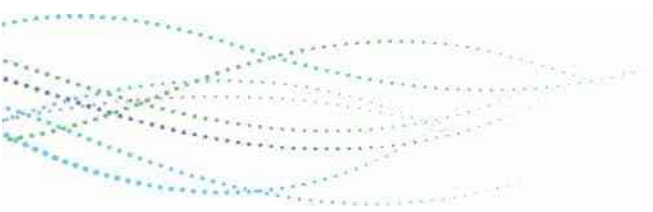


Table 4-2: I-15 Northbound Opening Year 2022 Build Ph12 Forecast Traffic Volumes

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Northbound Mainline</b>														
1	Rancho California Rd Slip On to Winchester Road Off	ML	4,150	530	4,680	5,110	5,750	820	6,580	7,120	86,390	11,410	97,790	107,720
2	Winchester Road Off	Off	900	30	930	1,010	710	20	730	790	14,570	490	15,050	16,580
3	Winchester Road Off to Winchester Road Loop On	ML	3,250	500	3,750	4,090	5,050	800	5,850	6,330	71,820	10,920	82,740	91,140
4	Winchester Road Loop On	On	-	-	-	-	-	-	-	-	-	-	-	-
5	Winchester Road Loop On to Winchester Road Slip On	ML	3,250	500	3,750	4,090	5,050	800	5,850	6,330	71,820	10,920	82,740	91,140
6	Winchester Road Slip On	On	-	-	-	-	-	-	-	-	-	-	-	-
7	Winchester Road direct on-ramp to I-215	ML	3,250	500	3,750	4,090	5,050	800	5,850	6,330	71,820	10,920	82,740	91,140
8	I-215 NB Off	Off	1,570	180	1,750	1,910	1,780	550	2,330	2,520	29,930	5,560	35,490	39,100
9	From I-215 to C-D Merge	ML	1,680	310	2,000	2,180	3,260	250	3,520	3,810	41,890	5,360	47,250	52,050
10	From C-D Merge Murrieta Hot Springs Rd Off	ML	2,200	340	2,540	2,780	3,720	260	3,980	4,320	48,640	5,840	54,470	60,010
11	Murrieta Hot Springs Rd Off	Off	360	10	370	410	290	10	300	330	4,920	130	5,060	5,570
12	Murrieta Hot Springs Rd Off to Murrieta Springs loop on	ML	1,830	330	2,170	2,370	3,420	250	3,680	3,980	43,720	5,700	49,420	54,430
13	Murrieta Hot Springs loop on	On	310	20	330	360	320	30	350	380	4,630	470	5,100	5,610
14	Murrieta Hot Springs loop on to Murrieta Hot Springs Rd direct On	ML	2,150	350	2,500	2,740	3,750	280	4,030	4,370	48,350	6,170	54,510	60,050
15	Murrieta Hot Springs Rd direct On	On	1,010	40	1,050	1,140	1,740	30	1,770	1,920	19,260	610	19,870	21,880
16	North of Murrieta Hot Springs Rd	ML	3,160	400	3,560	3,880	5,490	310	5,810	6,290	67,600	6,780	74,380	81,940
<b>I-215 Northbound Mainline</b>														
17	From I-15 to C_D Merge	ML	1,570	180	1,750	1,910	1,780	550	2,330	2,520	29,930	5,560	35,490	39,100
18	From CD Merge to Murrieta Hot Springs Rd Off	ML	1,860	200	2,070	2,260	2,750	570	3,310	3,590	39,530	5,990	45,520	50,140

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ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
19	Murrieta Hot Springs Rd Off	Off	270	10	280	310	330	10	340	370	4,900	80	4,980	5,490
20	Murrieta Hot Springs Rd Off to Murrieta Hot Springs Rd Loop On	ML	1,590	190	1,780	1,950	2,410	560	2,970	3,210	34,630	5,910	40,530	44,650
21	Murrieta Hot Springs Rd Loop On	On	170	20	190	210	500	20	520	560	4,900	250	5,160	5,680
22	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Slip On	ML	1,760	210	1,980	2,160	2,910	580	3,490	3,780	39,530	6,160	45,690	50,330
23	Murrieta Hot Springs Rd Slip On	On	580	20	600	650	1,100	10	1,110	1,210	13,060	260	13,320	14,680
24	North of Murrieta Hot Springs Rd	ML	2,340	230	2,570	2,810	4,010	590	4,600	4,980	52,590	6,420	59,010	65,010
<b>French Valley Parkway C-D Road</b>														
101	Winchester Road loop on-ramp	On	100	20	120	130	630	10	640	690	4,270	240	4,510	4,960
102	Winchester Road direct on-ramp	On	710	30	740	810	790	20	810	880	12,090	660	12,740	14,040
103	French Valley Parkway Direct on-ramp to C-D Split	CD	810	50	860	940	1,420	30	1,450	1,570	16,350	900	17,250	19,010
104	C-D split to I-215	CD	290	20	310	340	960	10	970	1,050	9,600	430	10,030	11,050
105	C-D split to I-15	CD	530	20	550	600	460	20	480	520	6,750	480	7,220	7,950



## 5 DESIGN YEAR 2045 FORECAST TRAFFIC VOLUMES

This section summarizes the design year 2045 forecast traffic volumes for all Project alternatives.

### 5.1 Design Year 2045 Forecast Traffic Volumes: No Build Scenario

Utilizing the methodologies described in **Section 2**, the resulting opening year 2045 No Build scenario volumes for northbound I-15 mainline and ramps are summarized in **Table 5-1** and presented graphically in **Appendix G**.

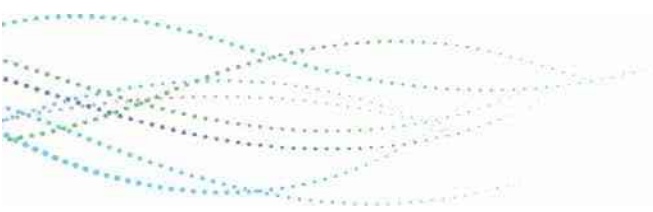


Table 5-1: I-15 Northbound Design Year 2045 No Build Forecast Traffic Volumes

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Northbound Mainline</b>														
1	Rancho California Rd Slip On to Winchester Road Off	ML	5,350	860	6,210	6,870	7,100	1,070	8,170	8,980	116,070	17,890	133,960	149,600
2	Winchester Road Off	Off	1,130	50	1,190	1,310	750	20	770	840	18,050	590	18,650	20,820
3	Winchester Road Off to Winchester Road Loop On	ML	4,210	810	5,030	5,560	6,350	1,050	7,400	8,130	98,010	17,290	115,310	128,770
4	Winchester Road Loop On	On	330	40	370	420	920	20	940	1,030	8,580	590	9,180	10,250
5	Winchester Road Loop On to Winchester Road Slip On	ML	4,550	850	5,400	5,970	7,260	1,070	8,340	9,160	106,600	17,890	124,490	139,020
6	Winchester Road Slip On	On	560	40	600	670	1,250	40	1,290	1,420	17,020	510	17,530	19,580
7	Winchester Road Slip On to I-215 NB Off	ML	5,110	890	6,000	6,640	8,510	1,110	9,630	10,570	123,620	18,400	142,020	158,610
8	I-215 NB Off	Off	2,480	280	2,760	3,050	3,270	760	4,030	4,420	54,000	8,090	62,080	69,340
9	I-215 NB Off to Murrieta Hot Springs Rd Off	ML	2,630	610	3,250	3,590	5,240	350	5,600	6,150	69,630	10,310	79,940	89,270
10	Murrieta Hot Springs Rd Off	Off	360	10	370	420	300	10	310	340	5,010	140	5,140	5,740
11	Murrieta Hot Springs Rd Off to Murrieta Springs loop on	ML	2,270	600	2,870	3,170	4,940	340	5,290	5,810	64,620	10,180	74,800	83,530
12	Murrieta Springs loop on	On	440	50	490	540	390	30	420	460	6,840	870	7,710	8,620
13	Murrieta Springs loop on to Murrieta Hot Springs Rd direct On	ML	2,710	660	3,360	3,710	5,330	370	5,700	6,260	71,460	11,050	82,510	92,150
14	Murrieta Hot Springs Rd direct On	On	1,000	40	1,040	1,160	1,760	30	1,790	1,970	19,200	620	19,820	22,130
15	North of Murrieta Hot Springs Rd	ML	3,700	700	4,400	4,870	7,090	410	7,490	8,230	90,660	11,680	102,330	114,280
<b>I-215 Northbound Mainline</b>														
16	From I-15 NB	ML	2,480	280	2,760	3,050	3,270	760	4,030	4,420	54,000	8,090	62,080	69,340
17	Murrieta Hot Springs Rd Off	Off	400	10	410	450	320	10	330	360	5,700	100	5,810	6,480
18	Murrieta Hot Springs Rd Off to Murrieta Hot Springs Rd Loop On	ML	2,080	270	2,350	2,600	2,940	750	3,690	4,060	48,290	7,980	56,280	62,840
19	Murrieta Hot Springs Rd Loop On	On	170	20	190	210	690	20	710	780	6,190	320	6,510	7,270
20	Murrieta Hot Springs Rd Loop On to	ML	2,250	290	2,540	2,810	3,630	770	4,400	4,840	54,490	8,300	62,790	70,130

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
	Murrieta Hot Springs Rd Slip On													
21	Murrieta Hot Springs Rd Slip On	On	610	20	630	700	1,340	30	1,370	1,510	14,820	360	15,180	16,950
22	North of Murrieta Hot Springs Rd	ML	2,860	310	3,170	3,510	4,970	800	5,780	6,350	69,300	8,670	77,970	87,080



## 5.2 Design Year 2045 Forecast Traffic Volumes: Build Phases 1 & 2 Scenario

Utilizing the methodologies described in **Section 2**, the resulting design year 2045 Build Phases 1 & 2 scenario volumes for northbound I-15 mainline and ramps are summarized in **Table 5-2** and presented graphically in **Appendix G**.

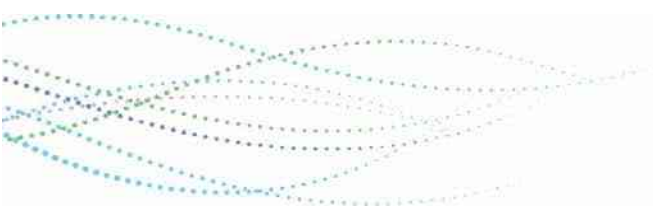


Table 5-2: I-15 Northbound Design Year 2045 Build Ph12 Forecast Traffic Volumes

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Northbound Mainline</b>														
1	Rancho California Rd Slip On to Winchester Road Off	ML	5,270	870	6,140	6,800	7,730	1,070	8,800	9,680	120,380	17,970	138,350	154,500
2	Winchester Road Off	Off	1,090	50	1,140	1,270	470	20	490	540	16,670	590	17,260	19,280
3	Winchester Road Off to Winchester Road Loop On	ML	4,170	820	4,990	5,530	7,260	1,050	8,310	9,140	103,710	17,380	121,080	135,230
4	Winchester Road Loop On	On	-	-	-	-	-	-	-	-	-	-	-	-
5	Winchester Road Loop On to Winchester Road Slip On	ML	4,170	820	4,990	5,530	7,260	1,050	8,310	9,140	103,710	17,380	121,080	135,230
6	Winchester Road Slip On	On	-	-	-	-	-	-	-	-	-	-	-	-
7	Winchester Road direct on-ramp to I-215	ML	4,170	820	4,990	5,530	7,260	1,050	8,310	9,140	103,710	17,380	121,080	135,230
8	I-215 NB Off	Off	2,040	250	2,290	2,530	2,700	760	3,450	3,800	42,770	7,580	50,340	56,220
9	From I-215 to C-D Merge	ML	2,130	570	2,710	3,000	4,570	290	4,860	5,340	60,940	9,800	70,740	79,000
10	From C-D Merge Murrieta Hot Springs Rd Off	ML	2,530	610	3,140	3,480	5,220	340	5,570	6,120	68,690	10,130	78,810	88,010
11	Murrieta Hot Springs Rd Off	Off	360	10	370	420	250	10	260	280	4,830	140	4,960	5,550
12	Murrieta Hot Springs Rd Off to Murrieta Springs loop on	ML	2,160	600	2,770	3,060	4,970	330	5,310	5,830	63,860	9,990	73,850	82,480
13	Murrieta Springs loop on	On	480	50	530	580	370	40	420	460	7,060	1,030	8,090	9,030
14	Murrieta Springs loop on to Murrieta Hot Springs Rd direct On	ML	2,640	660	3,300	3,650	5,350	370	5,720	6,290	70,920	11,020	81,940	91,500
15	Murrieta Hot Springs Rd direct On	On	1,020	40	1,060	1,180	1,770	30	1,800	1,980	19,360	620	19,980	22,310
16	North of Murrieta Hot Springs Rd	ML	3,660	700	4,360	4,830	7,120	410	7,520	8,260	90,270	11,640	101,920	113,820
<b>I-215 Northbound Mainline</b>														
17	From I-15 to C_D Merge	ML	2,040	250	2,290	2,530	2,700	760	3,450	3,800	42,770	7,580	50,340	56,220



ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
18	From CD Merge to Murrieta Hot Springs Rd Off	ML	2,420	280	2,710	3,000	3,800	780	4,580	5,030	55,360	8,110	63,470	70,880
19	Murrieta Hot Springs Rd Off	Off	350	10	360	410	560	10	570	620	6,450	90	6,550	7,310
20	Murrieta Hot Springs Rd Off to Murrieta Hot Springs Rd Loop On	ML	2,070	270	2,340	2,590	3,240	770	4,010	4,400	48,910	8,010	56,920	63,570
21	Murrieta Hot Springs Rd Loop On	On	170	20	190	210	610	20	630	700	6,000	320	6,330	7,070
22	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Slip On	ML	2,240	290	2,530	2,800	3,850	790	4,640	5,100	54,910	8,340	63,250	70,640
23	Murrieta Hot Springs Rd Slip On	On	610	20	630	700	1,290	20	1,310	1,440	14,840	370	15,210	16,990
24	North of Murrieta Hot Springs Rd	ML	2,850	310	3,160	3,500	5,140	810	5,950	6,530	69,750	8,710	78,460	87,620
<b>French Valley Parkway C-D Road</b>														
101	Winchester Road loop on-ramp	On	100	20	120	140	850	20	870	960	6,490	310	6,810	7,600
102	Winchester Road direct on-ramp	On	680	30	710	780	910	20	930	1,020	13,850	650	14,500	16,190
103	French Valley Parkway Direct on-ramp to C-D Split	CD	780	50	830	930	1,760	30	1,790	1,970	20,340	960	21,300	23,790
103	C-D split to I-215	CD	370	30	410	450	1,100	20	1,120	1,240	12,590	530	13,120	14,650
104	C-D split to I-15	CD	410	30	440	480	660	10	670	730	7,750	430	8,180	9,140

### 5.3 Design Year 2045 Forecast Traffic Volumes: Build Phases 1, 2, & 3 Scenario

Utilizing the methodologies described in **Section 2**, the resulting design year 2045 Build Phases 1, 2, & 3 scenario volumes for northbound I-15 mainline and ramps are summarized in **Table 5-3** and presented graphically in **Appendix G**.

Tables comparing the freeway segment and intersection turning movement volumes for the three 2045 alternatives are provided in **Appendix H**.

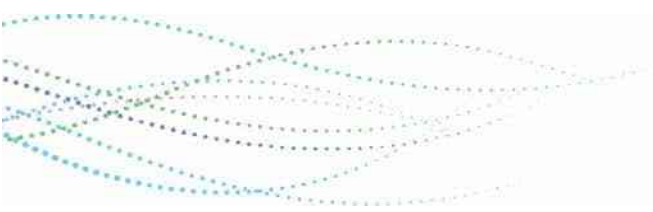


Table 5-3: I-15 Northbound Design Year 2045 Build Ph123 Forecast Traffic Volumes

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Northbound Mainline</b>														
1	I-15 Northbound Mainline to Winchester Road Off	ML	5,680	890	6,580	7,270	7,840	1,100	8,940	9,820	125,010	17,960	142,970	159,660
2	Winchester Road Off	Off	940	30	970	1,070	370	20	400	440	15,030	440	15,460	17,270
3	Winchester Road Off to Winchester Road Loop On	ML	4,750	860	5,610	6,200	7,460	1,080	8,540	9,390	109,980	17,520	127,500	142,400
4	Winchester Road Loop On	On	-	-	-	-	-	-	-	-	-	-	-	-
5	Winchester Road Loop On to Winchester Road Slip On	ML	4,750	860	5,610	6,200	7,460	1,080	8,540	9,390	109,980	17,520	127,500	142,400
6	Winchester Road Slip On	On	-	-	-	-	-	-	-	-	-	-	-	-
7	Winchester Road Slip On to French Valley Parkway Off	ML	4,750	860	5,610	6,200	7,460	1,080	8,540	9,390	109,980	17,520	127,500	142,400
8	French Valley Parkway Off	Off	630	20	660	730	340	0	340	370	8,370	300	8,670	9,680
9	French Valley Parkway off to I-15/I-215 split	ML	4,110	840	4,950	5,480	7,120	1,080	8,200	9,010	101,610	17,220	118,840	132,720
10	I-215 NB Off	Off	1,960	250	2,210	2,450	2,350	740	3,090	3,390	40,100	7,490	47,600	53,150
11	From I-215 to C-D Merge	ML	2,150	590	2,750	3,040	4,770	340	5,110	5,610	61,510	9,740	71,250	79,570
12	From C-D Merge Murrieta Hot Springs Rd Off	ML	2,870	620	3,500	3,870	6,000	360	6,370	6,990	74,800	10,550	85,350	95,320
13	Murrieta Hot Springs Rd Off	Off	430	10	440	480	590	10	600	670	6,390	150	6,530	7,290
14	Murrieta Hot Springs Rd Off to Murrieta Springs loop on	ML	2,450	610	3,060	3,380	5,410	350	5,760	6,340	68,410	10,410	78,810	88,010
15	Murrieta Springs loop on	On	400	50	450	500	170	20	190	210	5,020	710	5,720	6,390
16	Murrieta Springs loop on to Murrieta Hot Springs Rd direct On	ML	2,840	670	3,510	3,880	5,580	370	5,950	6,530	73,420	11,110	84,540	94,410
17	Murrieta Hot Springs Rd direct On	On	980	40	1,020	1,120	1,650	30	1,690	1,850	18,560	620	19,190	21,430
18	North of Murrieta Hot Springs Rd	ML	3,820	710	4,530	5,010	7,230	410	7,640	8,390	91,990	11,740	103,730	115,840
<b>I-215 Northbound Mainline</b>														
19	From I-15 to C_D Merge	ML	1,960	250	2,210	2,450	2,350	740	3,090	3,390	40,100	7,490	47,600	53,150
20	From CD Merge to Murrieta Hot Springs Rd	ML	2,530	290	2,820	3,120	4,120	790	4,910	5,400	58,780	8,340	67,120	74,950

Traffic Volumes Report  
FINAL

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
	Off													
21	Murrieta Hot Springs Rd Off	Off	370	10	390	430	600	10	610	680	6,710	110	6,830	7,630
22	Murrieta Hot Springs Rd Off to Murrieta Hot Springs Rd Loop On	ML	2,150	280	2,440	2,700	3,520	780	4,300	4,720	52,070	8,220	60,290	67,340
23	Murrieta Hot Springs Rd Loop On	On	170	10	180	200	510	20	530	580	5,490	310	5,810	6,480
24	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Slip On	ML	2,320	290	2,610	2,890	4,030	800	4,830	5,310	57,570	8,530	66,100	73,820
25	Murrieta Hot Springs Rd Slip On	On	570	20	590	660	1,230	10	1,240	1,360	13,520	250	13,770	15,370
26	North of Murrieta Hot Springs Rd	ML	2,890	310	3,210	3,550	5,260	810	6,070	6,670	71,080	8,780	79,870	89,190
<b>French Valley Parkway C-D Road</b>														
101	Winchester Road loop on-ramp	On	20	30	50	60	740	20	760	830	4,050	360	4,410	4,930
102	Winchester Road direct on-ramp	On	800	0	800	880	860	10	870	960	13,220	220	13,430	15,010
103	Winchester on-ramps to French Valley Parkway loop on-ramp	CD	820	30	850	950	1,600	30	1,630	1,800	17,260	580	17,850	19,930
104	French Valley Parkway loop on-ramp	On	160	20	180	200	710	10	720	790	6,160	470	6,630	7,400
105	French Valley Parkway loop on-ramp to French Valley Parkway direct on-ramp	CD	980	50	1,030	1,140	2,310	40	2,350	2,580	23,420	1,050	24,470	27,340
106	French Valley Parkway Direct on-ramp	On	300	20	320	350	700	40	740	810	8,540	600	9,150	10,220
107	French Valley Parkway On-ramps to C-D split	CD	1,270	60	1,330	1,480	3,010	80	3,090	3,390	31,980	1,650	33,630	37,560
108	C-D split to I-215	CD	570	40	610	680	1,770	50	1,820	2,000	18,680	840	19,520	21,800
109	C-D split to I-15	CD	710	30	740	820	1,240	30	1,270	1,390	13,290	810	14,100	15,740

## 6 COMPARISON OF VOLUMES

### 6.1 Comparison of Volumes on the French Valley Parkway C-D Road

**Table 6-1** compares PCE flows on the proposed C-D road from each of the three build scenarios while **Figure 6-1**, **Figure 6-2** and **Figure 6-3** illustrate the volumes graphically for the AM peak hour, PM peak hour and Daily respectively. Volumes on the C-D road are roughly double in the PM peak hour compared to the AM peak hour in all scenarios. The additional of Phase 3 and the French Valley Parkway interchange causes a significant increase in volumes on the C-D road in all time periods. The volumes are also shown in Figure format in **Appendix G**.

**Table 6-1: Comparison of PCE Volumes along Collector-Distributor Road**

SEGMENT	FACILITY	2022 PHASE 1&2			2045 PHASE 1&2			2045 PHASE 12&3		
		AM	PM	DAILY	AM	PM	DAILY	AM	PM	DAILY
Winchester Road Loop On-ramp	On-ramp	130	690	4,960	140	960	7,600	60	830	4,930
Winchester Road Direct On-ramp	On-ramp	750	880	14,040	780	1,020	16,190	880	960	15,010
Winchester Road Direct- On ramp to French Valley Parkway Pkwy Loop On-ramp	C-D Road	890	1,570	19,010	930	1,970	23,790	950	1,800	19,930
French Valley Parkway Parkway Loop On-ramp	On-ramp	890	1,570	19,010	930	1,970	23,790	200	790	7,400
French Valley Parkway Loop On-ramp to French Valley Parkway Pkwy Direct On-ramp	C-D Road	890	1,570	19,010	930	1,970	23,790	1,140	2,580	27,340
French Valley Parkway Parkway Direct On-ramp	On-ramp	890	1,570	19,010	930	1,970	23,790	350	810	10,220
French Valley Parkway Parkway Direct-On-ramp to C-D Split	C-D Road	890	1,570	19,010	930	1,970	23,790	1,480	3,390	37,560
C-D Split to I-215	C-D Road	430	1,050	11,050	450	1,240	14,650	680	2,000	21,800
C-D Split to I-15	C-D Road	460	520	7,950	480	730	9,140	820	1,390	15,740

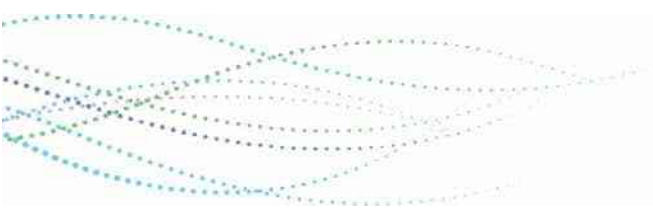




Figure 6-1: AM Peak Hour PCE Volumes on the C-D Road

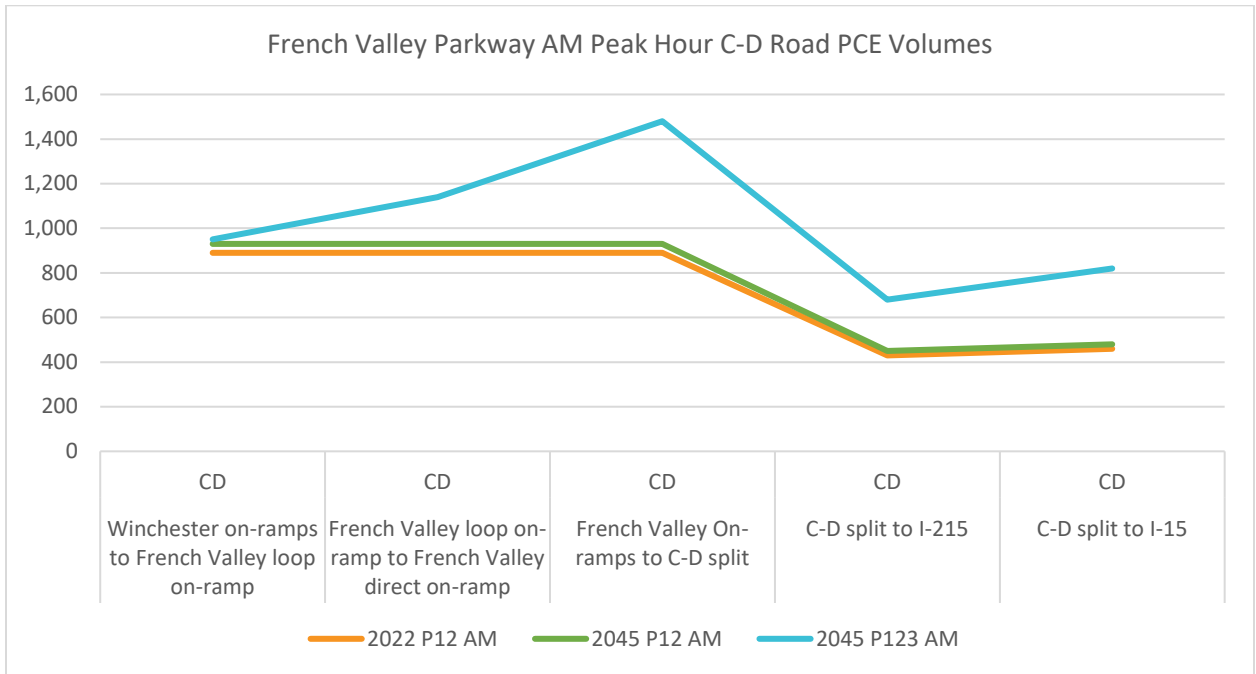


Figure 6-2: PM Peak Hour PCE Volumes on the C-D Road

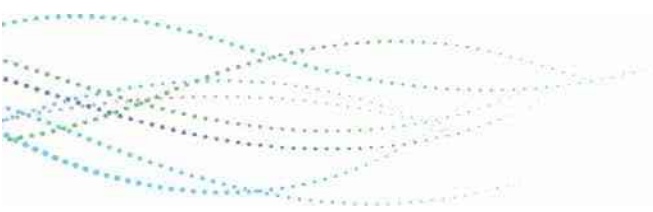
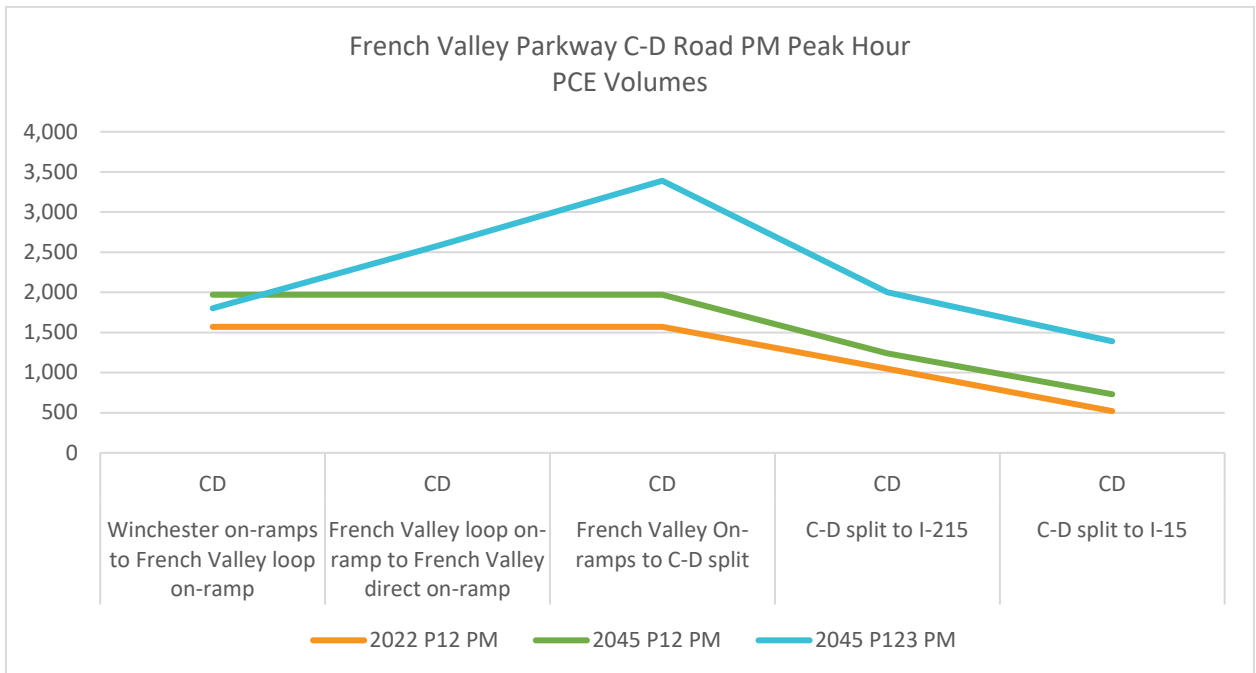
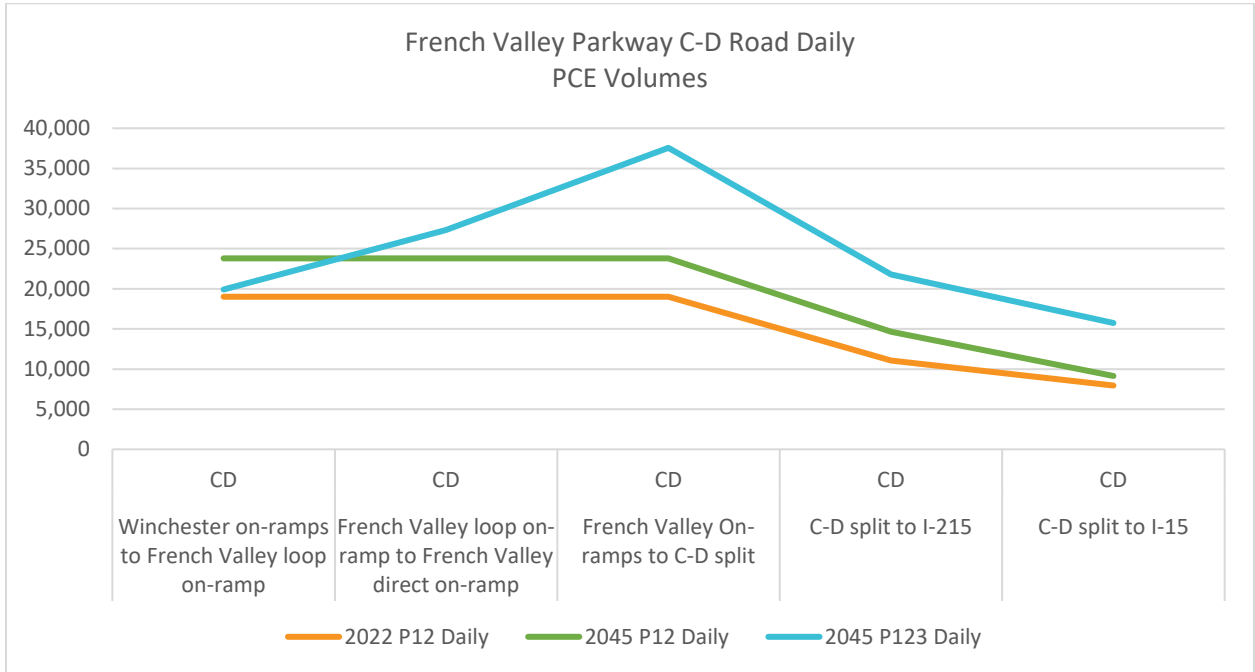


Figure 6-3: Daily PCE Volumes on the C-D Road



## 6.2 Comparison of Mainline Existing, 2022 No Build and 2045 No Build Volumes

Figure 6-4 shows AM peak hour PCE volumes on the I-15 mainline for 2017 and the Future No Build scenarios while Figure 6-5 shows the corresponding volumes for I-215. These figures indicate that 2020 volumes are a little higher than 2017 while 2045 volumes are notably higher throughout the corridor.

Similar patterns can be seen in the PM peak hour in Figure 6-6 and Figure 6-7 and for daily volumes in Figure 6-8 and Figure 6-9.

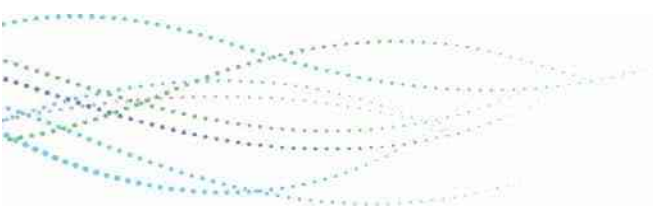


Figure 6-4: Comparison of No Build and 2017 AM Peak hour PCE Volumes on I-15

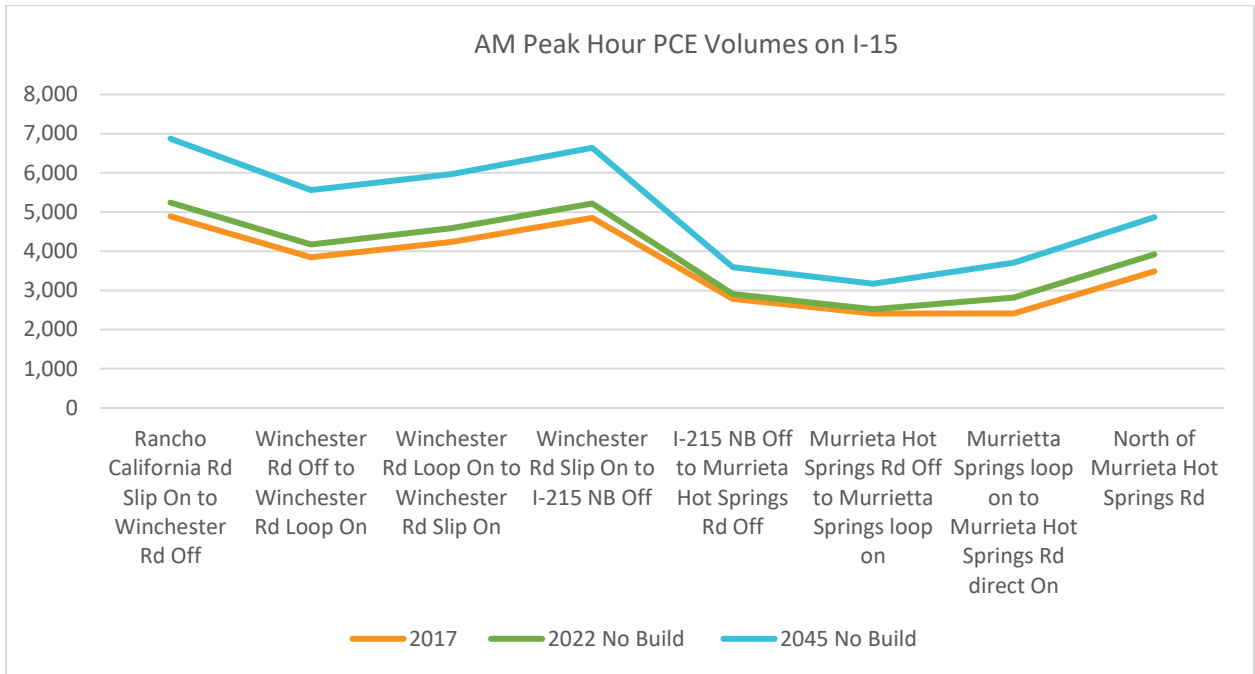


Figure 6-5: Comparison of No Build and 2017 AM Peak hour PCE Volumes on I-215

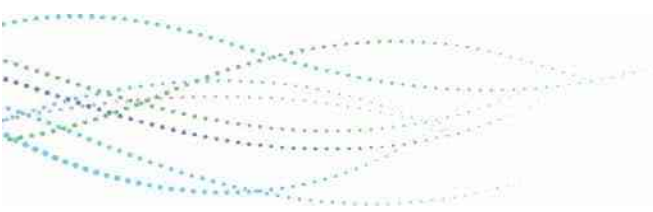
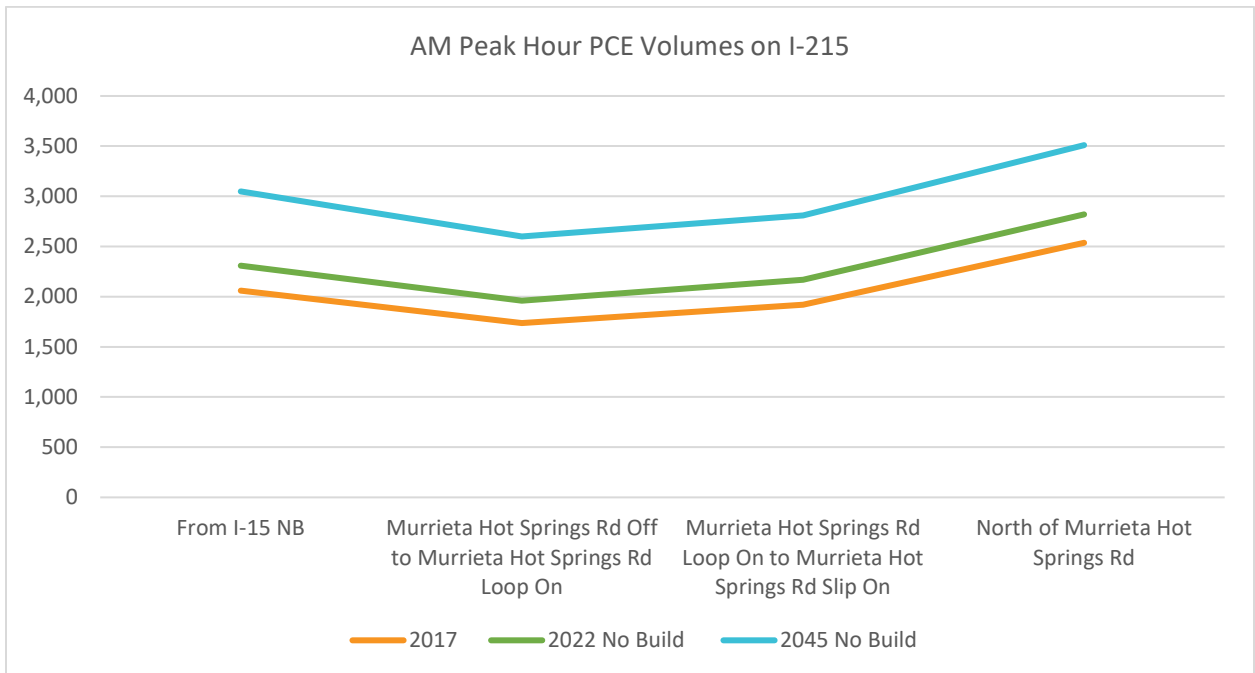


Figure 6-6: Comparison of No Build and 2017 PM Peak hour PCE Volumes on I-15

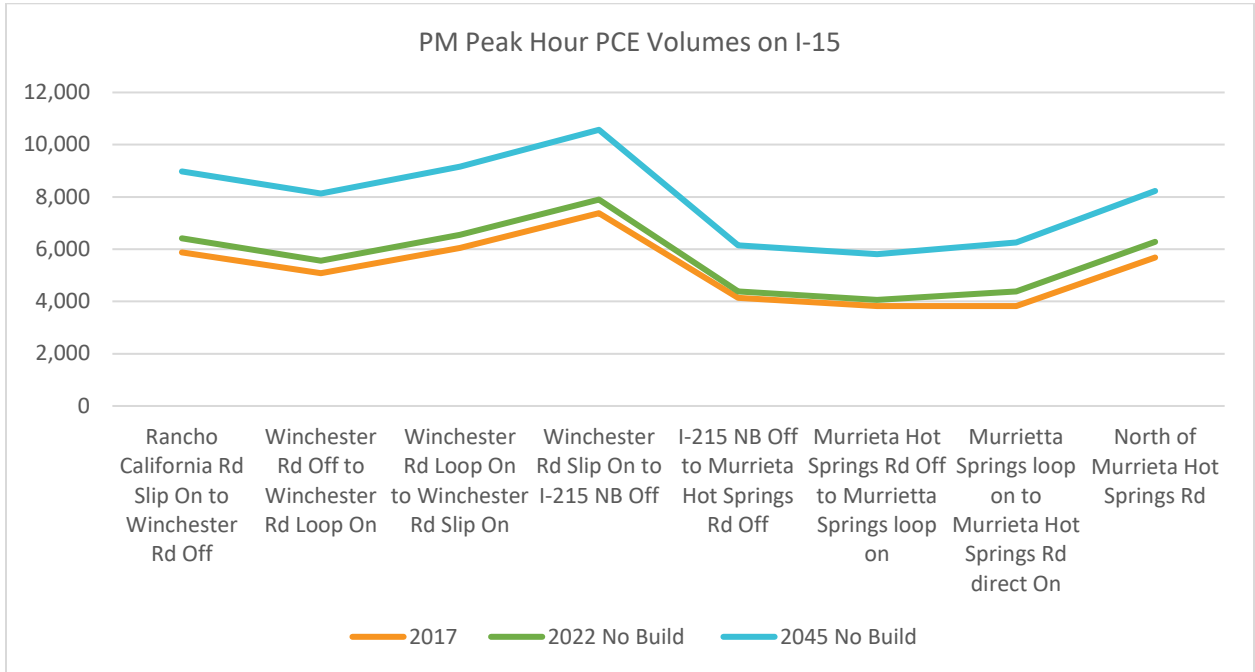


Figure 6-7: Comparison of No Build and 2017 PM Peak hour PCE Volumes on I-215

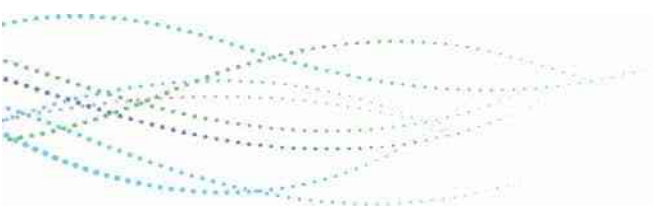
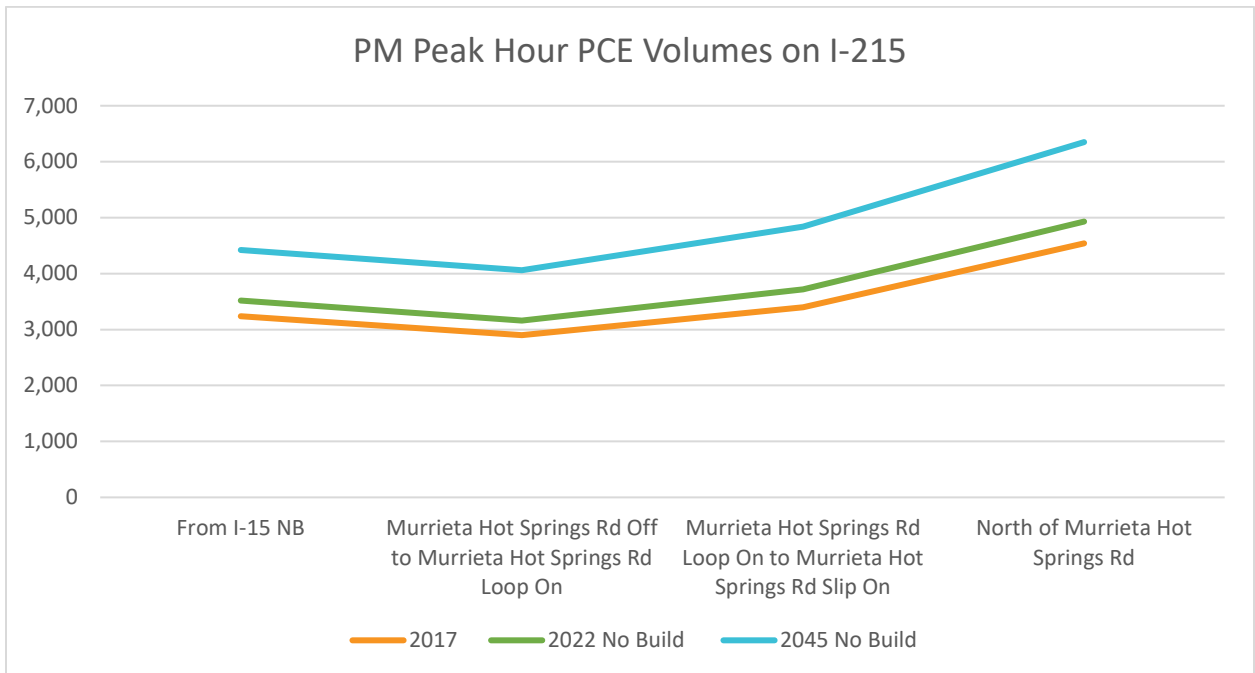


Figure 6-8: Comparison of No Build and 2017 Daily PCE Volumes on I-15

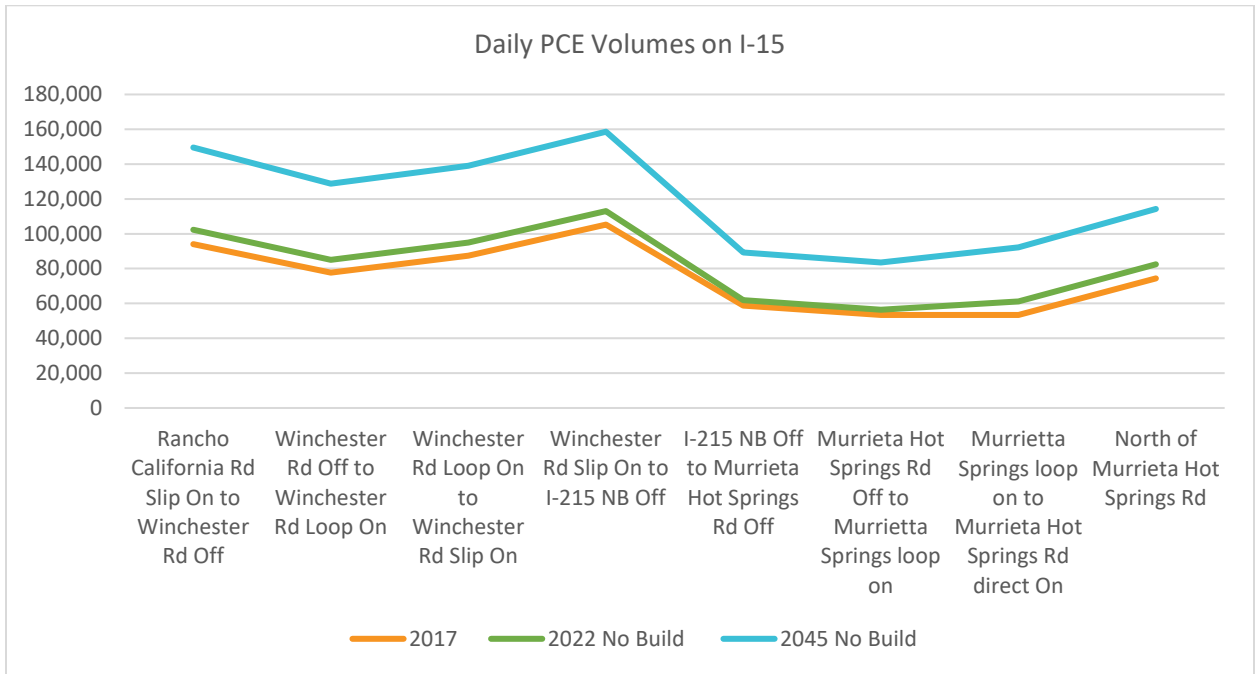
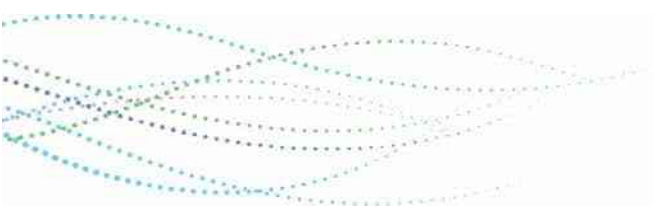
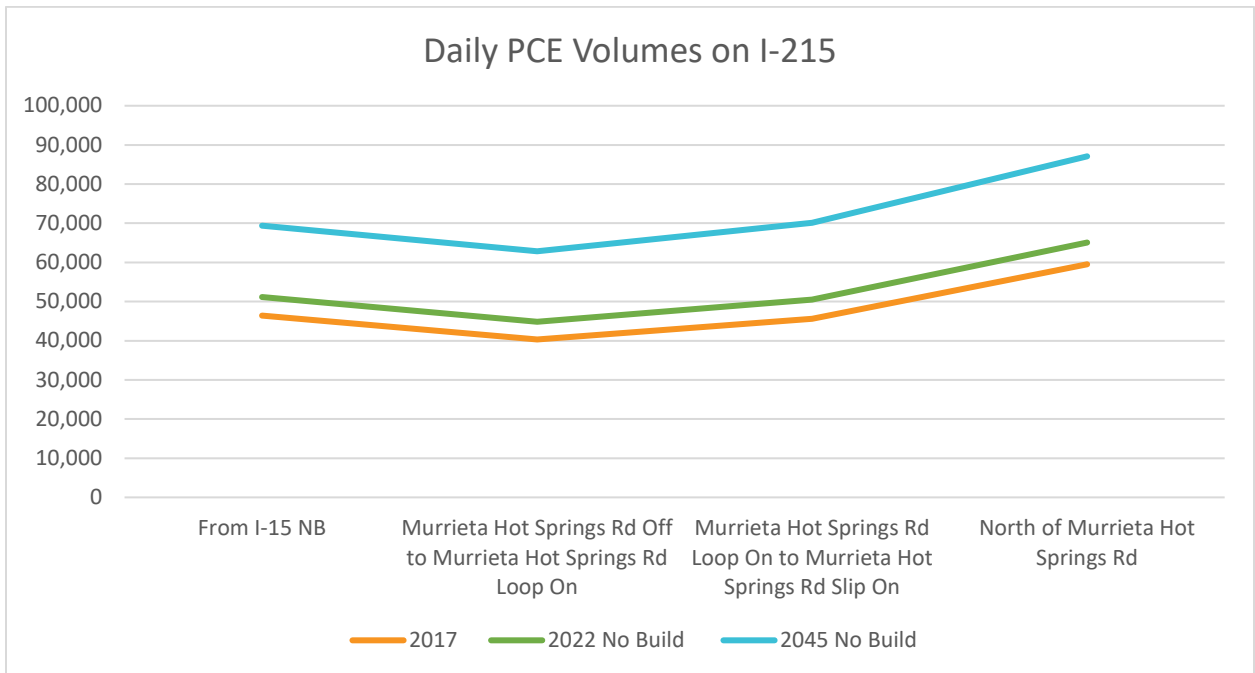


Figure 6-9: Comparison of No Build and 2017 Daily PCE Volumes on I-215





### 6.3 2022 and 2045 Build Phase 1 & 2 Build vs 2022 and 2045 No Build Freeway Volumes

**Figure 6-10** shows a comparison of I-15 mainline AM peak hour PCE volumes between Build Phase 1&2 and No Build for both Opening Year 2022 and Design Year 2045. In both 2022 and 2045 mainline volumes reduce in the build scenario compared to No Build after Winchester Road due to the previous on-ramp traffic at Winchester Road connecting to the C-D road rather than directly to the freeway. Once the traffic merges from the C-D road back onto I-15 traffic volumes return pretty much back to those in the No Build. **Figure 6-11** shows the same comparison for I-215 which again shows lower volumes in the Build compared to the No Build prior to the C-D road merge and volumes returning back to No Build volumes after the merge.

**Figure 6-12** and **Figure 6-13** repeat the comparison for the PM peak hour and the figures show a similar pattern to the AM peak except that volumes on I-15 prior to Winchester Road are slightly higher than the No Build, presumably because of the reduction in upstream congestion making the freeway more attractive to traffic from the south.

**Figure 6-14** and **Figure 6-15** repeat the comparison for the Daily volumes which show a similar pattern to AM and PM peaks.

**Figure 6-10: Comparison of I-15 Build Phase 1&2 versus No Build AM Peak Hour PCE Volumes**

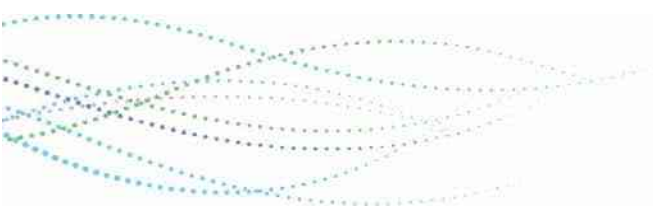
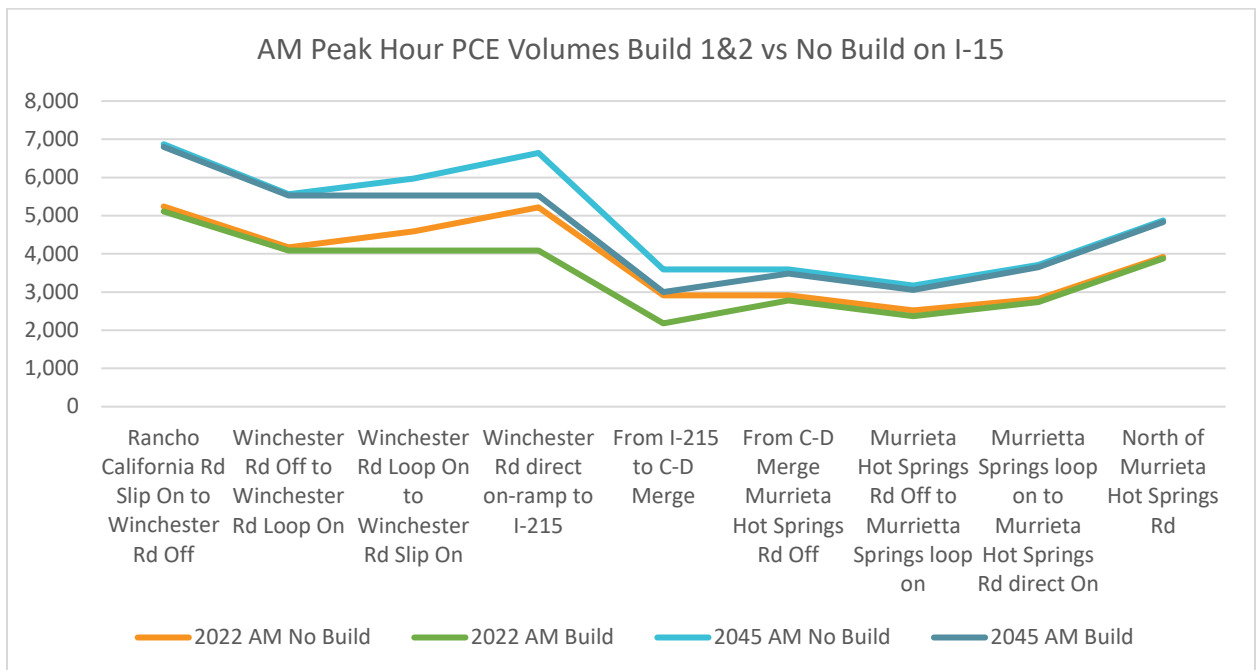


Figure 6-11: Comparison of I-215 Build Phase 1&2 versus No Build AM Peak Hour PCE Volumes

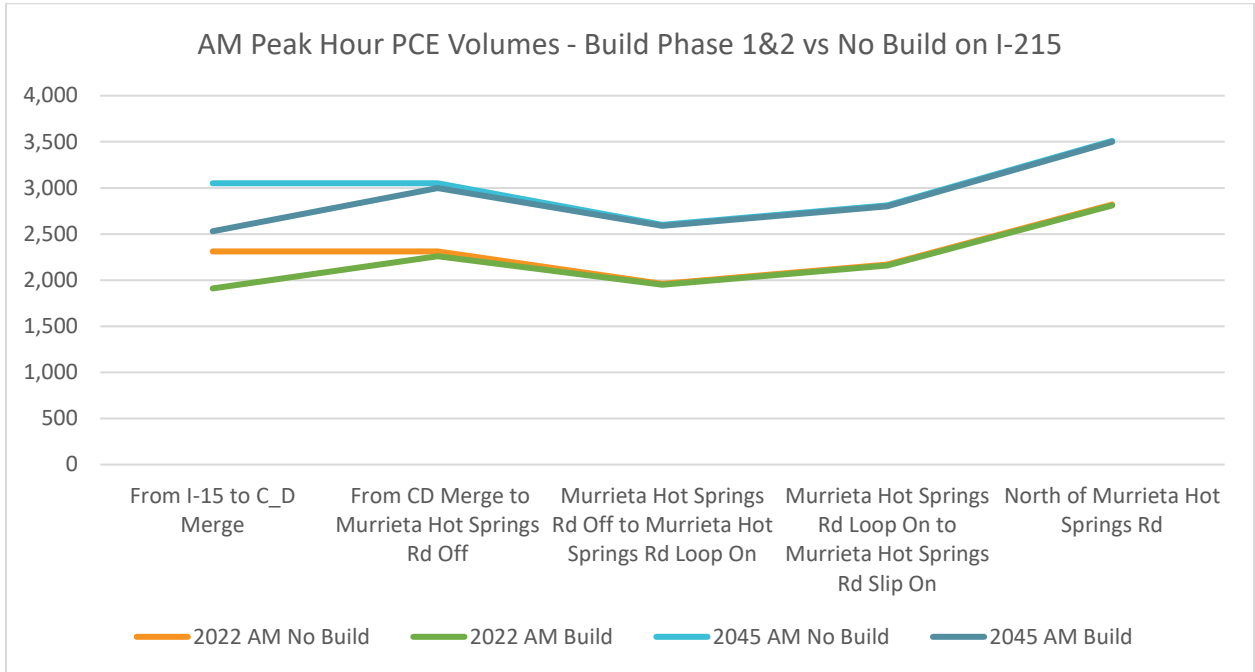


Figure 6-12: Comparison of I-15 Build Phase 1&2 versus No Build PM Peak Hour PCE Volumes

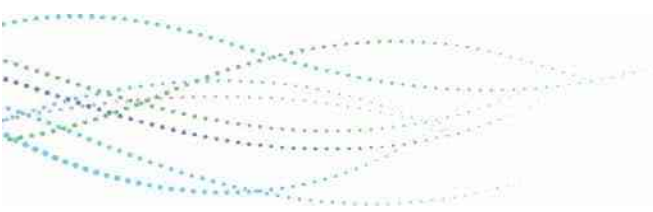
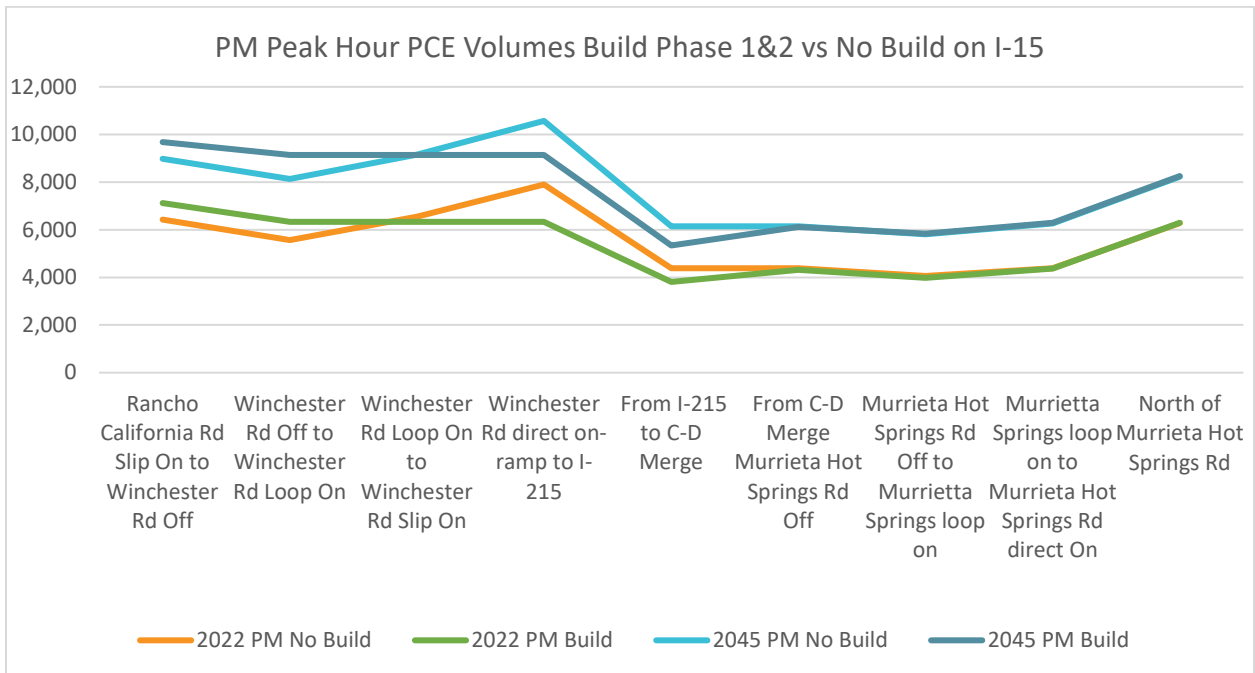


Figure 6-13: Comparison of I-215 Build Phase 1&2 versus No Build PM Peak Hour PCE Volumes

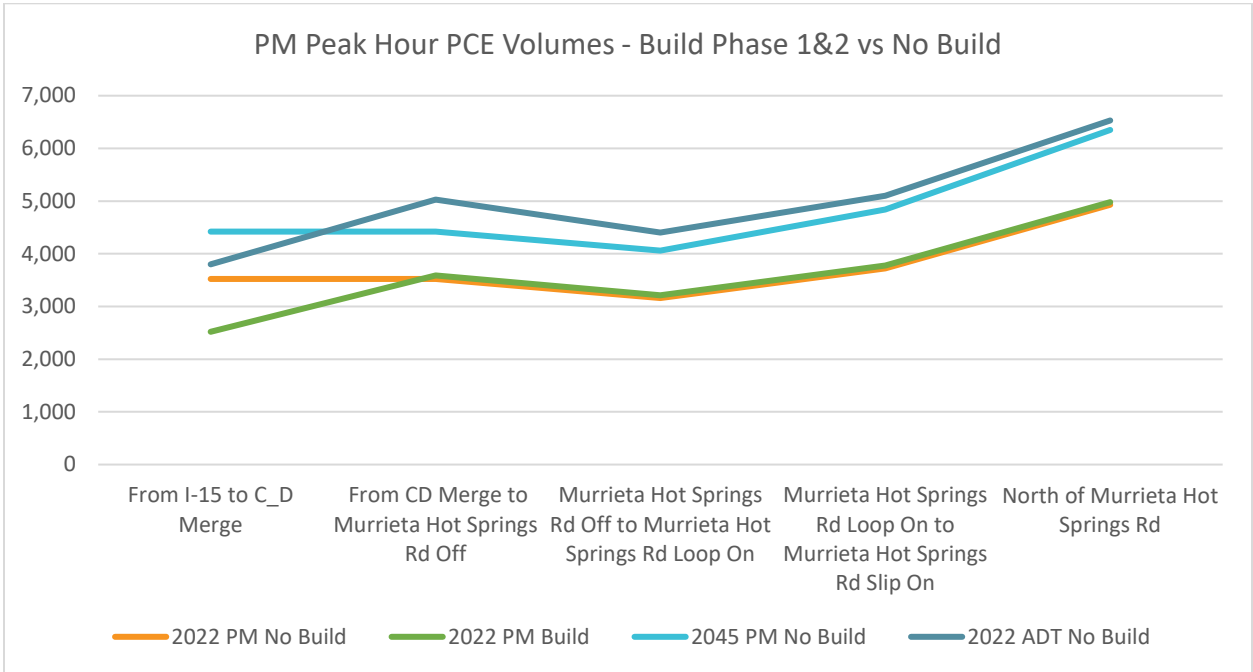


Figure 6-14: Comparison of I-15 Build Phase 1&2 versus No Build Daily PCE Volumes

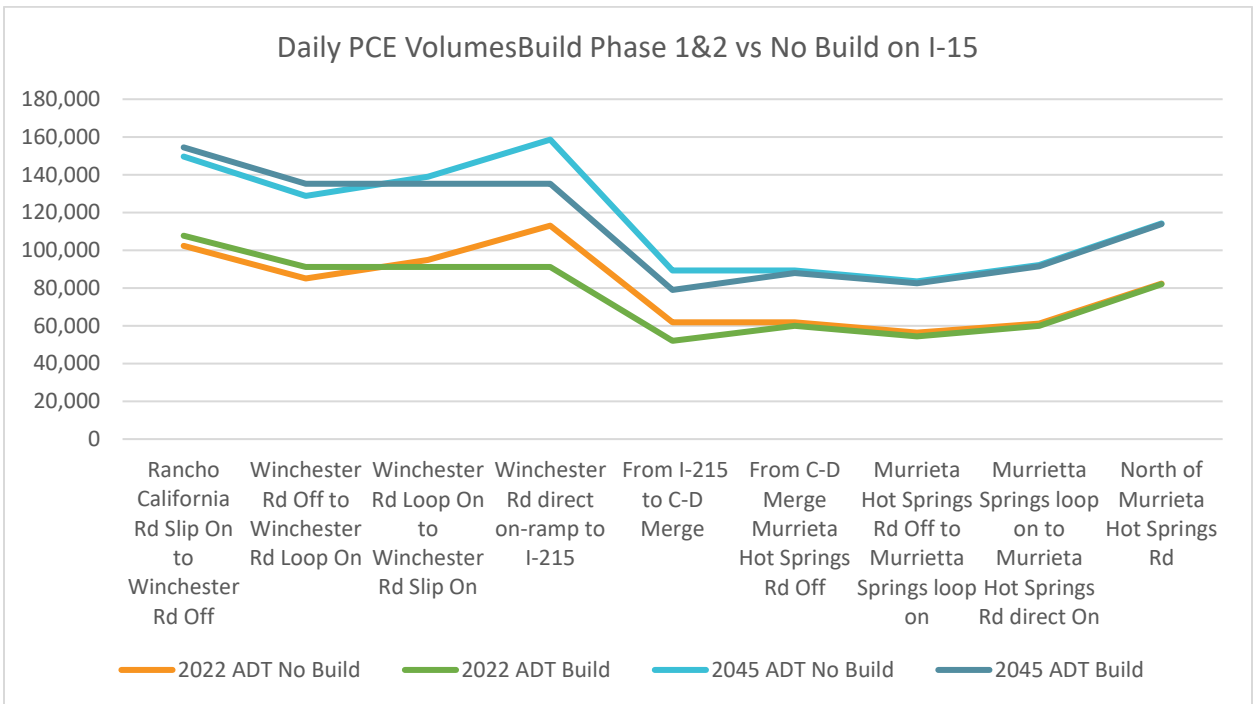
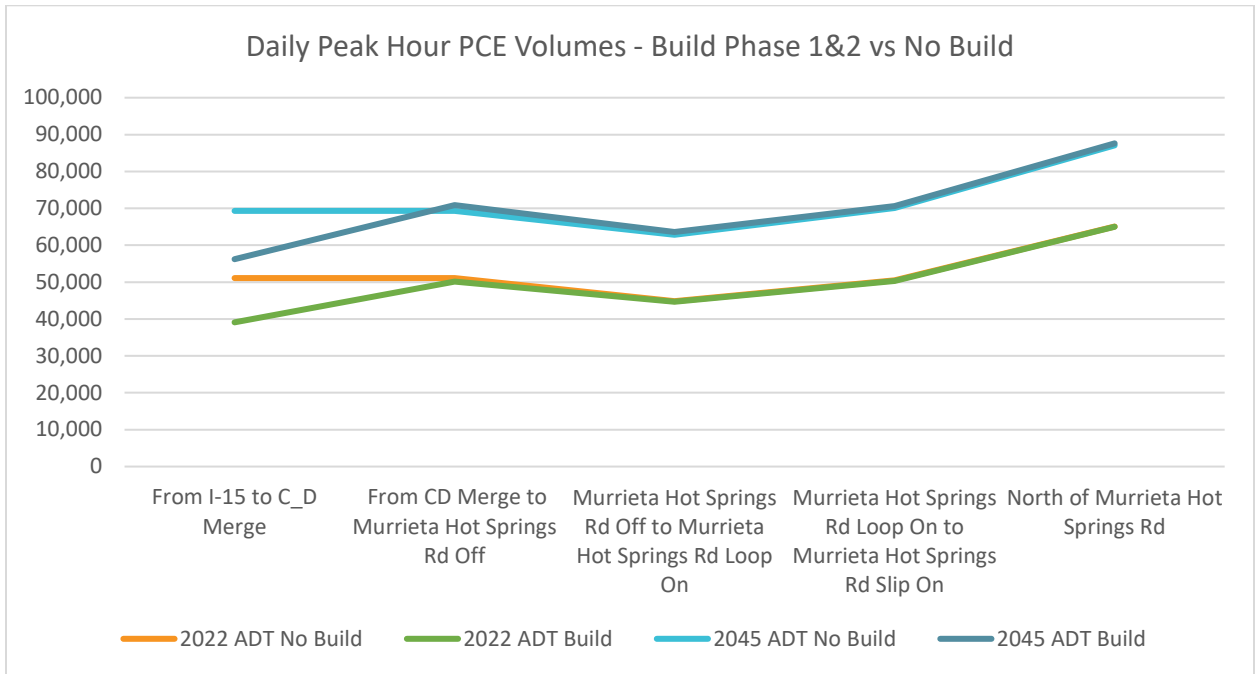


Figure 6-15: Comparison of I-215 Build Phase 1&2 versus No Build Daily PCE Volumes



### 6.4 Comparison of 2045 Phase 1, 2, & 3 and Phase 1 & 2 Freeway Volumes

The addition of Phase 3 causes traffic volumes on the mainline to increase slightly in the study area on I-15 in the AM and PM peak hours and shown in **Figure 6-16** and also for I-215 shown in **Figure 6-17**.

A similar pattern is noted in the Daily volumes as shown in **Figure 6-18** for I-15 and in **Figure 6-19** for I-215.

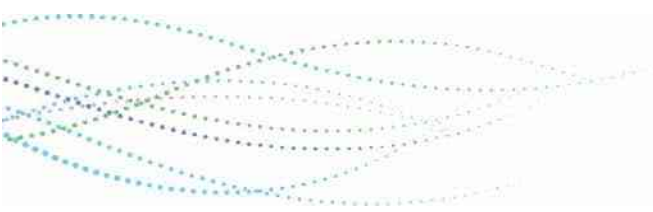


Figure 6-16: Comparison of AM/PM Peak Hour I-15 Build Phase 1,2&3 versus Build Phase 1&2 PCE Volumes

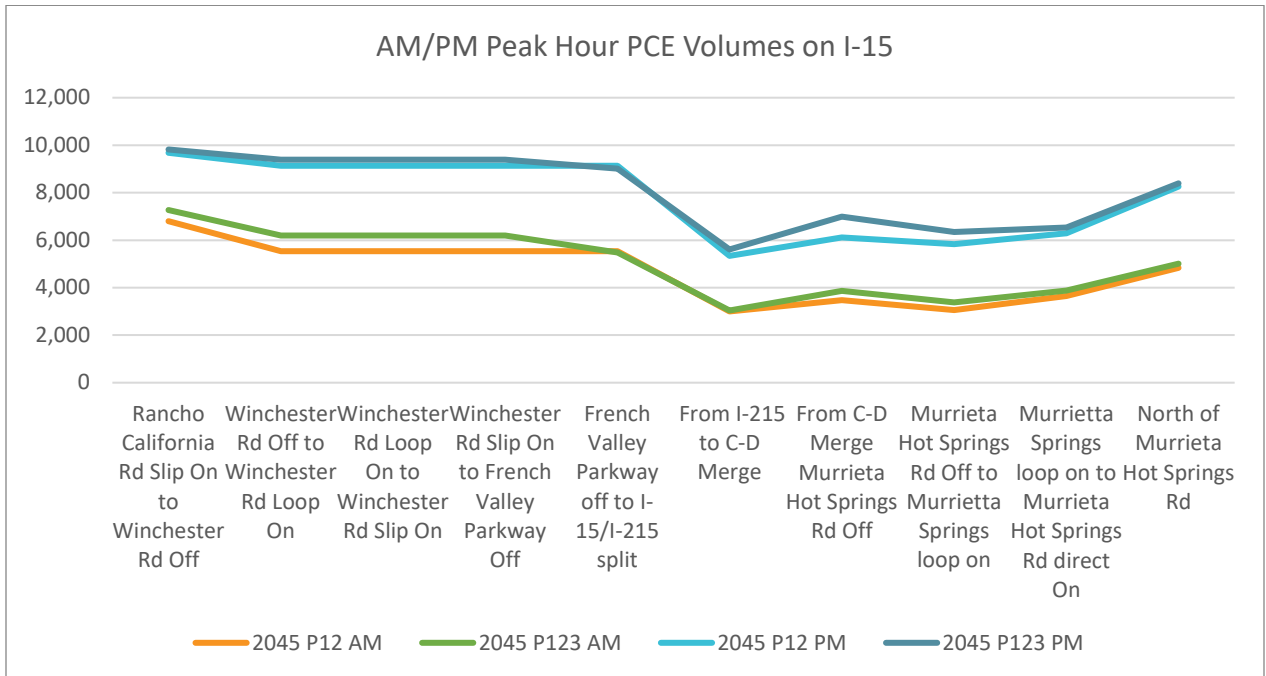


Figure 6-17: Comparison of AM/PM Peak Hour I-215 Build Phase 1,2&3 versus Build Phase 1&2 PCE Volumes

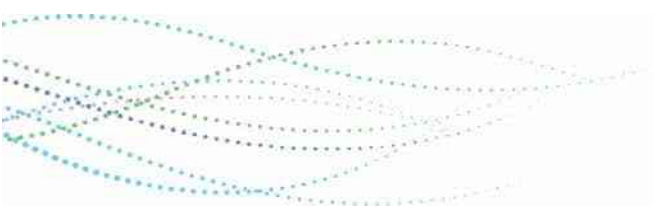
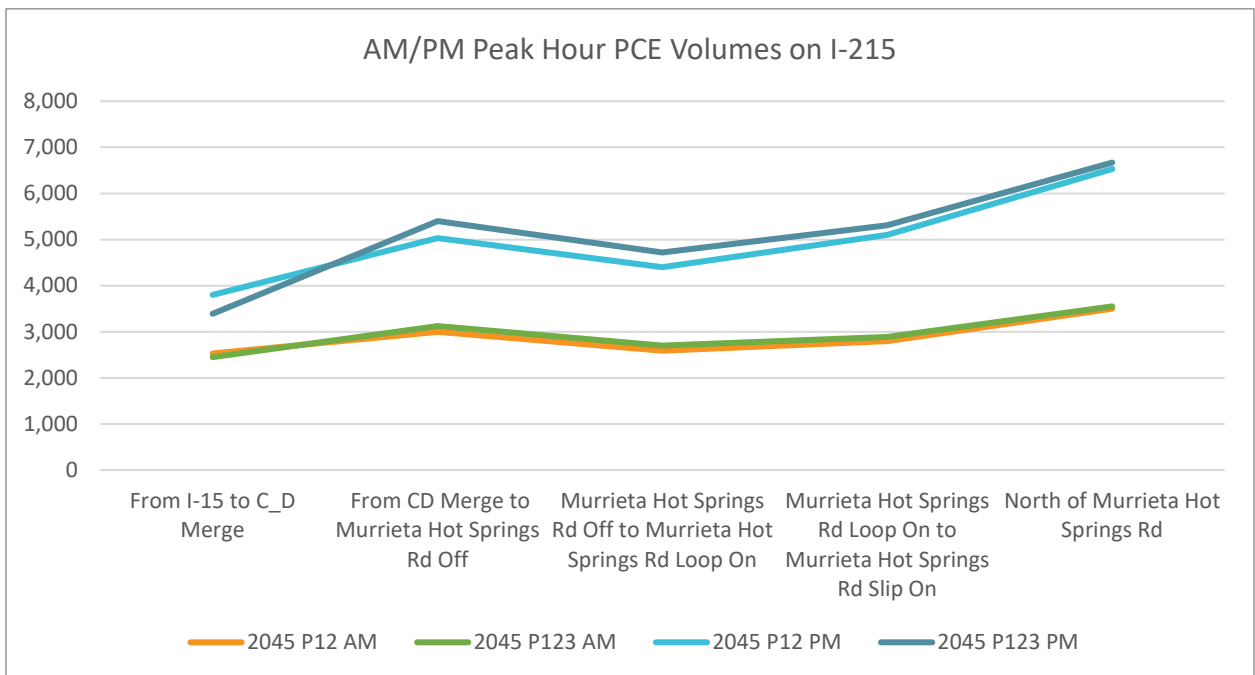




Figure 6-18: Comparison of Daily I-15 Build Phase 1,2&3 versus Build Phase 1&2 PCE Volumes

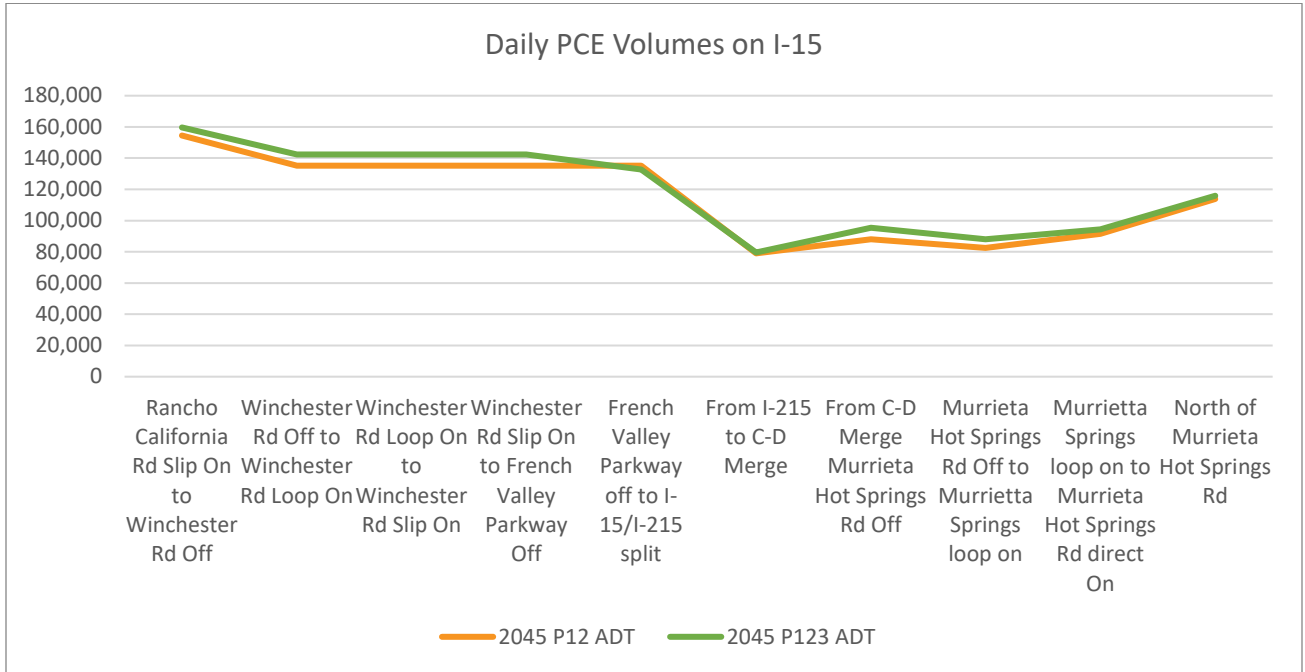
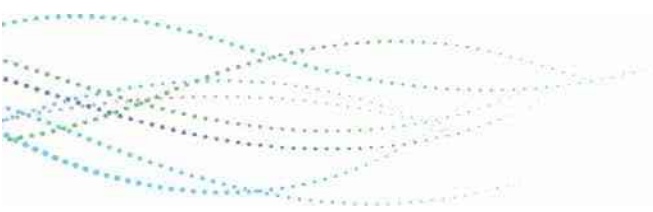
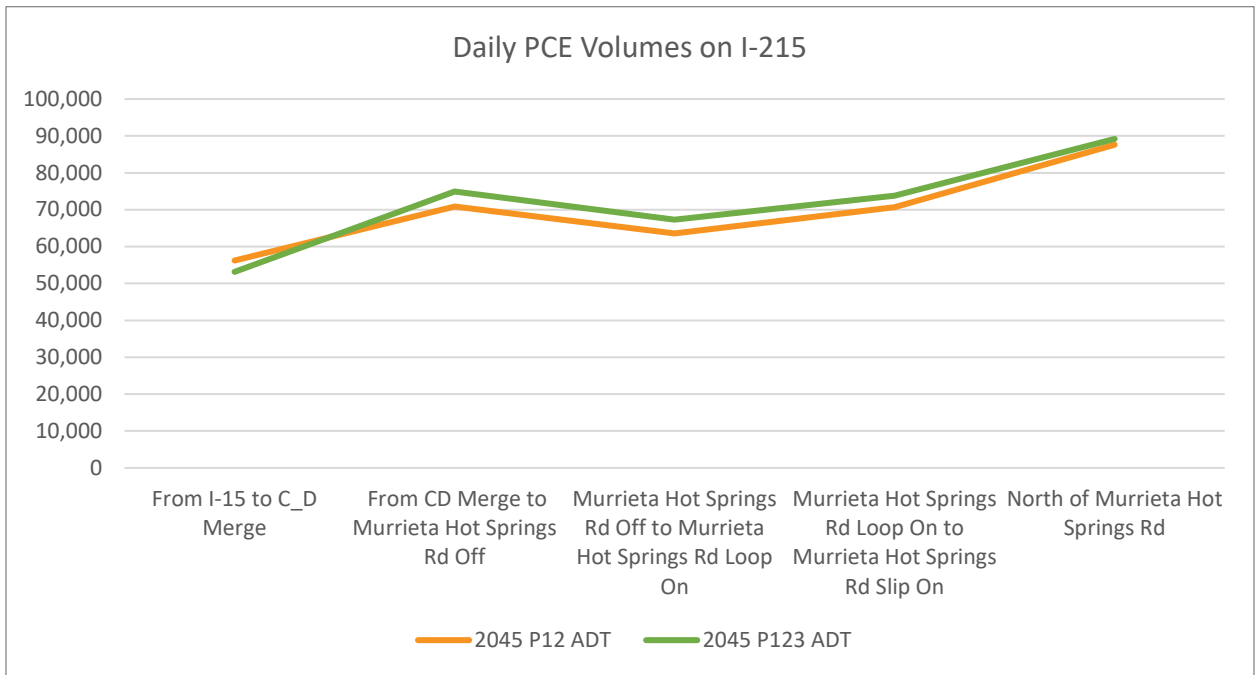


Figure 6-19: Comparison of Daily I-15 Build Phase 1,2&3 versus Build Phase 1&2 PCE Volumes



## 7 TRAFFIC DATA FOR AIR AND NOISE

Traffic data for air and noise analysis is dependent on the final forecast volumes to be used in the operational analysis. The traffic data for air and noise will be generated and included in the report and appendices following approval of the forecast traffic volumes by Caltrans.

The data that will be provided is as requested by the Environmental team and is listed below.

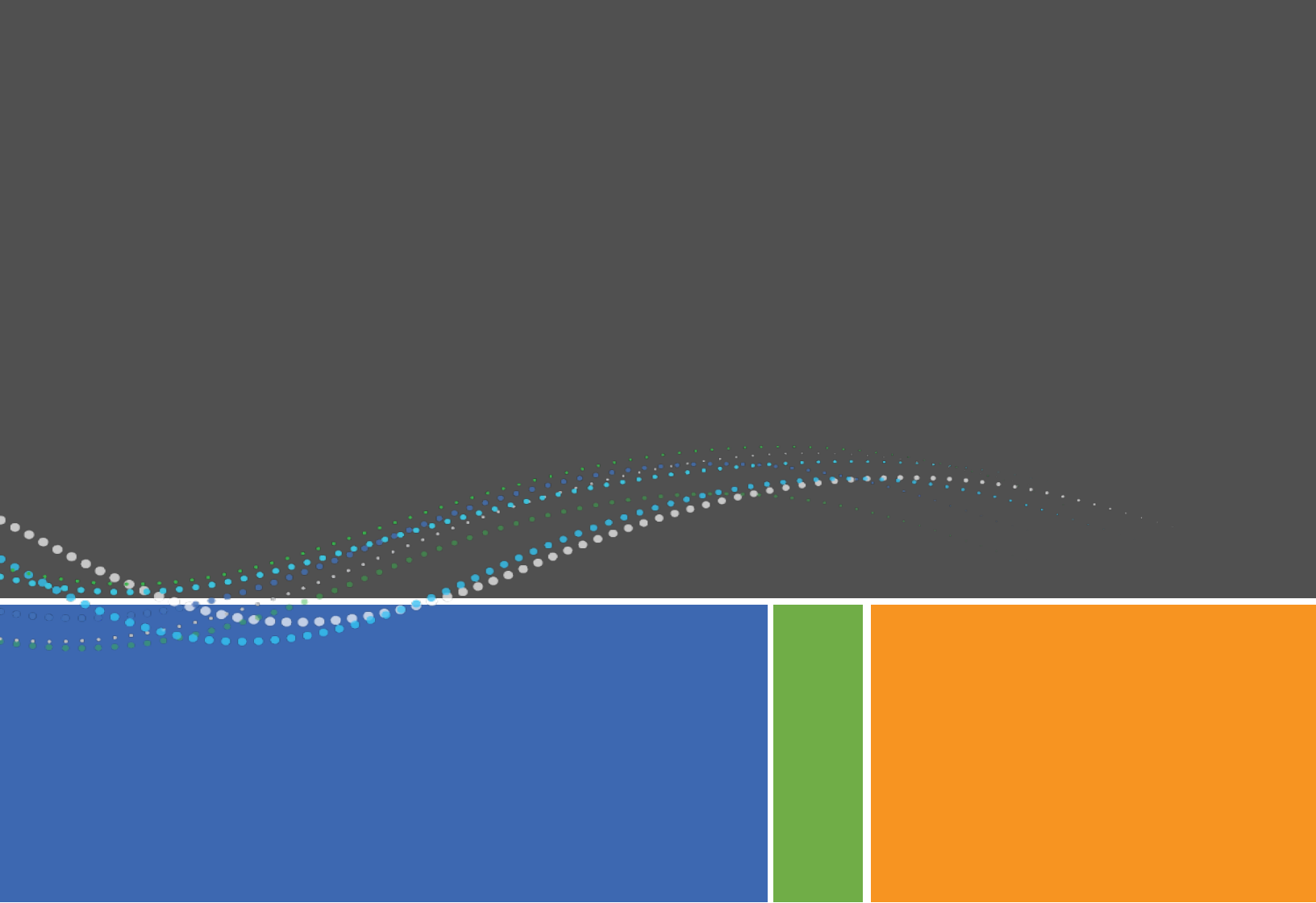
### 7.1 Air Quality

- 1) AADT for existing, no build (opening and design year), and build (opening and design year) for the project corridor.
- 2) VMT for existing, no build (opening and design year), and build (opening and design year) for the project corridor.
- 3) Speed bins for the project corridor.
- 4) AM/PM Peak hour traffic for existing, no build (opening and design year), and build (opening and design year) at impacted intersections and the mainline.
- 5) Medium truck and heavy truck traffic percent for existing, no build (opening and design year), and build (opening and design year) at impacted intersections and the mainline.

### 7.2 Noise

- 1) AM/PM Peak hour traffic for existing, no build (opening and design year), and build (opening and design year) at impacted intersections and the mainline.
- 2) LOS C traffic volumes for local roads and mainline
- 3) Medium truck and heavy truck traffic percent for existing, no build (opening and design year), and build (opening and design year) at impacted intersections and the mainline.





Innovating Through Informatics™

# **Appendix C – Existing Traffic Signal Timing Plans**

Location: WINCHESTER RD (RTE 79) @ I-15 SOUTH BOUND RAMP

Designed By:

System:

District: 08- SAN BERNARDINO

Installed By:

Master At: I-15 S/B RAMP @ WINCHESTER

I/C:

Service Info:

Timing Change:

Date Start: 5/4/2017

Date End: 6/2/2010

Designed:

Installed: 10/15/1990

### Intersection Layout

- 1) FLASH [ ]
- P 2) EAST BOUND WINCHESTER RD. (RT) [ ]
- H 3) [ ]
- A 4) I-15 SOUTH BOUND OFF RAMP [ ]
- S 5) [ ]
- E 6) WEST BOUND WINCHESTER RD (RTE) [ ]
- 7) [ ]
- 8) [ ]

- O A) [ ]
- V B) [ ]
- E C) [ ]
- R D) [ ]
- L E) [ ]
- A F) [ ]
- P [ ]

Comments and Notes:



RAM Checksum

Page 2: BB79	Page 8: 6824
Page 3: CA5C	Page 9: D2FD
Page 4: 21C8	Page 10: 8F59
Page 5: 191A	Page 11: 1D0B
Page 6: 191A	Page 12: D68F
Page 7: D4AE	Page 13: 86F7

### CONFIGURATION PHASE FLAGS

Cabinet	332
Configuration	CALTRANS

Phases (2-1-1-1)	Permitted	Restricted
	.2 .4 .6 ..	.....

Phase Recalls (2-1-1-2)	Vehicle Min	Vehicle Max	Pedestrian	Bicycle
	.2 ... 6 ..	.....	.....	.....

Phase Locks (2-1-1-3)	Red	Yellow	Force/Max
	.....	.....	.....

Phase Features (2-1-1-4)	Double Entry	Rest In Walk	Rest In Red	Walk 2	Max Green 2	Max Green 3
	.....	.....	.....	.....	.....	.....

Startup (2-1-1-5)	First Green Phases	Yellow Start Phases	Vehicle Calls	Pedestrian Calls	Yellow Start Overlaps	Startup All-Red
	... 4 .....	.2 ... 6 ..	.2 .4 .6 ..	.2 .....	.....	5.0

Call To Phase (2-1-2-1)	1	2	3	4	5	6	7	8	Omit On Green
	.....	.....	.....	.....	.....	.....	.....	.....	.....

Flashing Colors (2-1-2-2)	Yellow Flash Phases	Yellow Flash Overlap	Flash In Red Phases	Flash In Red Overlap
	.....	.....	.....	.....

Special Operation (2-1-2-3)	Single Exit Phase	Driveway Signal Phases	Driveway Signal Overlaps	Leading Ped Phases
	.....	.....	.....	.....

Protected Permissive (2-1-2-4)	Protected Permissive
	.....

Pedestrian (2-1-3)	P1	P2	P3	P4	P5	P6	P7	P8
	.....	.2.....	.....	.....	.....	.....	.....	.....

Overlap (2-1-4)	Overlap	Parent	Omit	No Start	Not
	A	.....	.....	.....	.....
	B	.....	.....	.....	.....
	C	.....	.....	.....	.....
	D	.....	.....	.....	.....
	E	.....	.....	.....	.....
	F	.....	.....	.....	.....



# P H A S E T I M I N G

Phase (2-2)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 1 ---	0	7	0	0	0	0	0	0
Flash Don't Walk	0	14	0	0	0	0	0	0
Minimum Green	0	8	0	5	0	8	0	0
Det Limit	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0
Max Green 1	0	61	0	50	0	61	0	0
Max Green 2	0	0	0	0	0	0	0	0
Max Green 3	0	0	0	0	0	0	0	0
Extension	0.0	2.0	0.0	2.0	0.0	2.0	0.0	0.0
Maximum Gap	0.0	2.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Gap	0.0	2.0	0.0	2.0	0.0	2.0	0.0	0.0
Add Per Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Gap By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	4.4	3.0	4.8	3.0	4.4	3.0	3.0
All-Red	0.0	1.0	0.0	1.0	0.0	1.0	0.0	0.0
Ped/Bike (2-3)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

### OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

### Red Revert

Red Revert (2-5)	5.0
All-Red Sec/Min (2-6)	
All-Red Sec/Min:	OFF

### Max 2 Extension

Max/Gap Out (2-7)	0
Max Cnt	0
Gap Cnt	0

**Local Plan 1..9 (7-1) TIMING DATA**

**COORDINATION**

[ Offsets ]

Green Factors or Press [F] to Select Force-Off

Plan	Green Factor	Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor	120		.....	68				58		50		58		
Plan 2	Green Factor	120		.....	116				60		48		60		
Plan 3	Green Factor	120		.....	26				53		55		53		
Plan 4	Green Factor	120		.....	116				60		48		60		
Plan 5	Green Factor			.....											
Plan 6	Green Factor			.....											
Plan 7	Green Factor			.....											
Plan 8	Green Factor			.....											
Plan 9	Green Factor			.....											

**Local Plan 1..9 (7-1) PHASE FLAGS**

Plan	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	.2.4.6.8	.2...6..	.....	.....	.....	.....	.....	.....
Plan 2	.2.4.6.8	.2...6..	.....	.....	.....	.....	.....	.....
Plan 3	.2.4.6.8	.2...6..	.....	.....	.....	.....	.....	.....
Plan 4	.2.4.6.8	.2...6..	.....	.....	.....	.....	.....	.....
Plan 5	.....	.....	.....	.....	.....	.....	.....	.....
Plan 6	.....	.....	.....	.....	.....	.....	.....	.....
Plan 7	.....	.....	.....	.....	.....	.....	.....	.....
Plan 8	.....	.....	.....	.....	.....	.....	.....	.....
Plan 9	.....	.....	.....	.....	.....	.....	.....	.....

**Master Timer Sync (7-A)**

Enable in Plans	
1-9	.....
11-19	.....
21-29	.....

**Master Sub Master**

Input	
Output	

**FREE PLAN PHASE FLAGS**

(7-E) Free	Omit
Lag	.....
.2.4.6.8	.....
Veh Min	Veh Max
.2...6..	.....
Ped	Bike
.....	.....
Cond	Cond Grn
.....	10

**MANUAL COMMANDS**

Manual Plan (4-1)	Plan: 1-9
Plan	15 or 254 = Flash
Offset	14 or 255 = Free
A	Offset A, B, or C

**Special Function Override (4-2)**

#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

**Local Plan 11...19 (7-2) TIMING DATA**

**COORDINATION**

[ Offsets ]

Green Factors or Press [F] to Select Force-Off

	Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor		.....											
Plan 12	Green Factor		.....											
Plan 13	Green Factor		.....											
Plan 14	Green Factor		.....											
Plan 15	Green Factor		.....											
Plan 16	Green Factor		.....											
Plan 17	Green Factor		.....											
Plan 18	Green Factor		.....											
Plan 19	Green Factor		.....											

**Local Plan 11...19 (7-2) PHASE FLAGS**

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....

**Local Plan 21...29 (7-3) TIMING DATA**

**COORDINATION**

[ Offsets ] Green Factors or Press [F] to Select Force-Off

	Cycle	Mult	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor		.....											
Plan 22	Green Factor		.....											
Plan 23	Green Factor		.....											
Plan 24	Green Factor		.....											
Plan 25	Green Factor		.....											
Plan 26	Green Factor		.....											
Plan 27	Green Factor		.....											
Plan 28	Green Factor		.....											
Plan 29	Green Factor		.....											

**Local Plan 21...29 (7-3) PHASE FLAGS**

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....

**DETECTORS**

Detector Attributes (5-1)				Detector Configuration (5-2)					
Det	Type	Phases	Lock	Slot	Det	Delay	Extend	Recall	Port
1	COUNT+CALL+EXTEND	1.....	NO	I1U	1			10	3.2
2	COUNT+CALL+EXTEND	2.....	NO	I1L	2			10	7.2
3	COUNT+CALL+EXTEND	.2.....	NO	I2U	3			10	1.1
4	COUNT+CALL+EXTEND	.2.....	NO	I2L	4			10	1.5
5	COUNT+CALL+EXTEND	.2.....	NO	I3U	5			10	4.5
6	CALL+EXTEND	.2.....	NO	I3L	6			10	6.2
7	CALL+EXTEND	.2.....	NO	I4U	7			10	2.1
8	COUNT+CALL+EXTEND	.2.....	NO	I4L	8			10	7.4
9	COUNT+CALL+EXTEND	.3.....	NO	I5U	9			10	3.4
10	COUNT+CALL+EXTEND	.3.....	NO	I5L	10			10	7.6
11	COUNT+CALL+EXTEND	.4.....	NO	I6U	11			10	1.3
12	COUNT+CALL+EXTEND	.4.....	NO	I6L	12			10	1.7
13	COUNT+CALL+EXTEND	.4.....	NO	I7U	13			10	4.7
14	CALL+EXTEND	.4.....	NO	I7L	14			10	6.4
15	CALL+EXTEND	.4.....	NO	I8U	15			10	2.3
16	COUNT+CALL+EXTEND	.4.....	NO	I8L	16			10	7.8
17	COUNT+CALL+EXTEND	1.....	NO	I9U	17			10	3.6
18	COUNT+CALL+EXTEND	.3.....	NO	I9L	18			10	3.8
19	COUNT+CALL+EXTEND	.2.....	NO	I10U	19			10	4.1
20	COUNT+CALL+EXTEND	.4.....	NO	I10L	20			10	4.2
21	COUNT+CALL+EXTEND	.5.....	NO	I1U	21			10	3.1
22	COUNT+CALL+EXTEND	.5.....	NO	I1L	22			10	7.1
23	COUNT+CALL+EXTEND	.6.....	NO	I2U	23			10	1.2
24	COUNT+CALL+EXTEND	.6.....	NO	I2L	24			10	1.6
25	COUNT+CALL+EXTEND	.6.....	NO	I3U	25			10	4.6
26	CALL+EXTEND	.6.....	NO	I3L	26			10	6.3
27	CALL+EXTEND	.6.....	NO	I4U	27			10	2.2
28	COUNT+CALL+EXTEND	.6.....	NO	I4L	28			10	7.3
29	COUNT+CALL+EXTEND	.7.....	NO	I5U	29			10	3.3
30	COUNT+CALL+EXTEND	.7.....	NO	I5L	30			10	7.5
31	COUNT+CALL+EXTEND	.8.....	NO	I6U	31			10	1.4
32	COUNT+CALL+EXTEND	.8.....	NO	I6L	32			10	1.8
33	COUNT+CALL+EXTEND	.8.....	NO	I7U	33			10	4.8
34	CALL+EXTEND	.8.....	NO	I7L	34			10	6.5
35	CALL+EXTEND	.8.....	NO	I8U	35			10	2.4
36	COUNT+CALL+EXTEND	.8.....	NO	I8L	36			10	7.7
37	COUNT+CALL+EXTEND	.5.....	NO	I9U	37			10	3.5
38	COUNT+CALL+EXTEND	.7.....	NO	I9L	38			10	3.7
39	COUNT+CALL+EXTEND	.6.....	NO	I10U	39			10	4.3
40	COUNT+CALL+EXTEND	.8.....	NO	I10L	40			10	4.4
41	PEDESTRIAN	.2.....	NO	I12U	41			10	5.1
42	PEDESTRIAN	.4.....	NO	I12L	42			10	5.3
43	PEDESTRIAN	.6.....	NO	I13U	43			10	5.2
44	PEDESTRIAN	.8.....	NO	I13L	44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	.....
Detectors 9-16	.....
Detectors 17-24	.....
Detectors 25-32	.....
Detectors 33-40	.....
Detectors 41-44	.....

System Detector Assignment (5-5)								
Sys Det	1	2	3	4	5	6	7	8
Det Nu								
Sys Det	9	10	11	12	13	14	15	16
Det Nu								

CIC Operation (5-6-1)	
Enable in Plans	.....

CIC Values (5-6-2)			
Smoothing	Volume	Occupancy	Demand
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)								
Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

**Input File Port-Bit Assignments**

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7	
7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8	
J-3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5	
7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6	





**HOLIDAY TABLES**

#	Mnth	Week	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

#	Mnth	Day	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

North Latitude	34
West Longitude	118
Local Time Zone	8

Hebrew	Ped Recall
Sabbath	.....
Holiday	.....

Enabled	YES
---------	-----

**TOD FUNCTIONS**

TOD Functions (8-3)

#	Start	End	DOW	Action	Phases
1			.....		
2			.....		
3			.....		
4			.....		
5			.....		
6			.....		
7			.....		
8			.....		
9			.....		
10			.....		
11			.....		
12			.....		
13			.....		
14			.....		
15			.....		
16			.....		

Action Codes:

- 0. None
- 1. Permitted
- 2. Restricted
- 4. Veh Min Recall
- 5. Veh Max Recall
- 6. Ped Recall
- 7. Bike Recall
- 8. Red Lock
- 9. Yellow Lock
- 10. Force/Max Lock
- 11. Double Entry
- 12. Y-Coord C
- 13. Y-Coord D
- 14. Free
- 15. Flashing
- 16. Walk 2
- 17. Max Green 2

- 18. Max Green 3
- 19. Rest in Walk
- 20. Rest in Red
- 21. Free Lag Phases
- 22. Special Functions
- 23. Truck Preempt
- 24. Conditional Service
- 25. Conditional Service
- 26. Leading Ped
- 27. Traffic Actuated Max 2
- 41. Protected Permissive
- 42. Protected Permissive

Action Code = Phases added to normal setting  
 100+Action Code = Phases removed  
 200+Action Code = Phases replaced

**COMMUNICATIONS**

C2 (6-1-1)	
Address	1
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Access Level	1
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

**SOFT LOGIC**

Soft Logic (6-2)					
#	Data	OP	Data	OP	Data
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

\*Refer to User's Manual for Data and OP Codes

**CALLBACK NUMBERS**

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

- Access Levels:**
- 0-Full Access
  - 1-Status Only
  - 2-Status, Set Pattern, Time
  - 3-Status, Set Pattern, Time, Manual Plan
  - 4-Reserved
  - 5-Full Access with No Set Pattern
  - 6-Full Access with No Set Time
  - 7-Full Access with No Set Pattern, Manual Plan
  - 8-Full Access with No Set Time, Pattern, Manual Plan

**NETWORK**

Network (6-4)	
Address	1
Protocol	AB3418
Port	27001
Type	STATIC
Central Access	6
Field Access	0
IP Address	192 . 168 . 0 . 101
Netmask	255 . 255 . 255 . 0
Broadcast	0 . 0 . 0 . 254
Gateway	192 . 168 . 0 . 1

**RAILROAD PREEMPTION**

RR	(3-1-1) Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
1	Delay									
	Clear 1	10	.2 .5 . . .	. . . . .	. . . . .	.2 .4 .6 .8	. . . . .	. . . . .	. . . . .	. . . . .
	Clear 2		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	Clear 3		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	Hold		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	Exit		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	Min Grn		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	Ped Cir		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
<b>Exit Parameters (3-1-5)</b>										
	Phase Green	Overlap Green	Vehicle Call	Ped Call						
	. . . . .	. . . . .	1 2 3 4 5 6 7 8	.2 .4 .6 .8						
<b>Configuration (3-1-6)</b>										
	Primary Port	Secondary Port	Latching	Power-Up						
	2.5	0.0	YES	FLASHING						

RR	(3-2-1) Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
2	Delay									
	Clear 1	10	. . .4 . .7 .	. . . . .	. . . . .	.2 .4 .6 .8	. . . . .	. . . . .	. . . . .	. . . . .
	Clear 2		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	Clear 3		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	Hold		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	Exit		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	Min Grn		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	Ped Cir		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
<b>Exit Parameters (3-2-5)</b>										
	Phase Green	Overlap Green	Vehicle Call	Ped Call						
	. . . . .	. . . . .	. . . .4 . .7 .	. . . . .						
<b>Configuration (3-2-6)</b>										
	Primary Port	Secondary Port	Latching	Power-up						
	2.6	0.0	YES	DARK						

**EMERGENCY VEHICLE PREEMPTION**

EVA (3-A)	Preempt Timers		Phase Green	Overlap Green
	Delay	Clear		
	30	45	.2 . .5 . . .	. . . . .
Port	Latching		Phase Termination	
	5.5		NO ADVANCE	

EVB (3-B)	Preempt Timers		Phase Green	Overlap Green
	Delay	Clear		
	30	45	. . .4 . .7 .	. . . . .
Port	Latching		Phase Termination	
	5.6		NO ADVANCE	

EVC (3-C)	Preempt Timers		Phase Green	Overlap Green
	Delay	Clear		
	30	45	1 . . . .6 . .	. . . . .
Port	Latching		Phase Termination	
	5.7		NO ADVANCE	

EVD (3-D)	Preempt Timers		Phase Green	Overlap Green
	Delay	Clear		
	30	45	. . .3 . . . .8	. . . . .
Port	Latching		Phase Termination	
	5.8		NO ADVANCE	

**INPUTS**

7 Wire I/C ( 2-1-5-1 )			
Input	Port	Input	Port
Enable	NO	R1	3.8
Max ON		R2	3.5
Max OFF		R3	3.7
		D3	6.1

Manual Control ( 2-1-5-2 )	
Input	Port
Manual Advance	Free
Advance Enable	D2

Battery Backup ( 2-1-5-5 )	
Port	Operation
2.7	FLASHING

Y-Coordination ( 2-1-5-6 )	
Port C	Port D
6.1	2.8

Cabinet Status ( 2-1-5-3 )	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function ( 2-1-5-4 )	
Input	Port
1	
2	
3	
4	

**OUTPUTS**

Loadswitch Codes: 51-57 Special Functions  
 0 Unused (no output) 71-72 Seven Wire I/C

- 1-8 Vehicle 1-8
  - 9-14 Overlap A-F
  - 21-28 Ped 1-8
  - 41-47 Special Functions
  - 41 Protected Permissive Flashing Phase 1
  - 43 Protected Permissive Flashing Phase 3
  - 45 Protected Permissive Flashing Phase 5
  - 47 Protected Permissive Flashing Phase 7
- + middle output of loadswitches 3 and 6 Channel 9 and 10

Loadswitch Assignments ( 2-1-6 )						+	
A	1	2	22	3	4	24	9
B	5	6	26	7	8	28	10
X	13	14	0	11	12	0	0

**TRANSIT PRIORITY**

Local Plans (3-E) 1...9 11...19	Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor										
Plan 2	Green Factor										
Plan 3	Green Factor										
Plan 4	Green Factor										
Plan 5	Green Factor										
Plan 6	Green Factor										
Plan 7	Green Factor										
Plan 8	Green Factor										
Plan 9	Green Factor										
Plan 11	Green Factor										
Plan 12	Green Factor										
Plan 13	Green Factor										
Plan 14	Green Factor										
Plan 15	Green Factor										
Plan 16	Green Factor										
Plan 17	Green Factor										
Plan 18	Green Factor										
Plan 19	Green Factor										

Transit Priority Configuration (3-E-A)				Indicator Output	
Enable In Plans	Input	Type	Stop	Go	
Plan 1-9	0.0	OPT	0	0	
Plan 11-19	0.0	OPT	0	0	

Queue Jump (3-E-B)		
Grn Hold	Hold Phase	
	.....	
	.....	

Free Plans (3-E-E)		
Max Grn Hold	Hold Phase	
	.....	

Access Utilities (9-5)	
Password	Timeout
***	30

**YELLOW YIELD COORDINATION**

Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	Force-Offs								Coord	Lag	Min Recall	Restricted	
					-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-					
Plan C																	
Plan D																	

**TRUCK PRIORITY**

Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2	Det 3	Det 4	Sign	Slave	Slave
						Port	Port	Port	Output	Input	Output
					.....	0.0	0.0	0.0	0	0.0	0

Location: WINCHESTER DR (RTE-79) @ I-15 NORTH BOUND OFF RAMP

Designed By:

System:

District:

Installed By:

Master At: WINCHESTER RD @ I-15 SB

I/C:

Service Info:

Timing Change: 5/4/2017

Date Start: 6/2/2010

Date End:

Designed:

Installed: 4/17/1996

## Intersection Layout

- |    |                                |     |
|----|--------------------------------|-----|
| 1) | FLASH                          | [ ] |
| 2) | EAST BOUND WINCHESTER RD (RTE- | [ ] |
| 3) |                                | [ ] |
| 4) |                                | [ ] |
| 5) | WEST BOUND WINCHESTER RD (RT   | [ ] |
| 6) |                                | [ ] |
| 7) |                                | [ ] |
| 8) | I-15 NORTH BOUND OFF RAMP      | [ ] |

- |      |  |     |
|------|--|-----|
| O A) |  | [ ] |
| V B) |  | [ ] |
| E C) |  | [ ] |
| R D) |  | [ ] |
| L E) |  | [ ] |
| A F) |  | [ ] |
| P    |  | [ ] |

Comments and Notes:

RAM Checksum

Page 2: 4DB0	Page 8: 6824
Page 3: 676C	Page 9: D2FD
Page 4: 74A3	Page 10: 9427
Page 5: 191A	Page 11: 1D0B
Page 6: 191A	Page 12: D68F
Page 7: D4AE	Page 13: 86F7



**CONFIGURATION PHASE FLAGS**

Cabinet	Phases ( 2-1-1-1 )
332	Permitted . 2 . . . . 6 . 8
Configuration	Restricted
CALTRANS	.....

Phase Features ( 2-1-1-4 )	
Double Entry	.....
Rest In Walk	.....
Rest In Red	.....
Walk 2	.....
Max Green 2	.....
Max Green 3	.....

**Startup ( 2-1-1-5 )**

First Green Phases	..... 8
Yellow Start Phases	. 2 . . . . 6 . .
Vehicle Calls	. 2 . . . . 6 . 8
Pedestrian Calls	. 2 . . . . . . .
Yellow Start Overlaps	.....
Startup All-Red	5.0

Phase Recalls ( 2-1-1-2 )	
Vehicle Min	. 2 . . . . 6 . .
Vehicle Max	.....
Pedestrian	.....
Bicycle	.....

Phase Locks ( 2-1-1-3 )	
Red	.....
Yellow	.....
Force/Max	.....

**Call To Phase ( 2-1-2-1 ) Omit On Green**

1	.....	1	.....
2	.....	2	.....
3	.....	3	.....
4	.....	4	.....
5	.....	5	.....
6	.....	6	.....
7	.....	7	.....
8	.....	8	.....

**Flashing Colors ( 2-1-2-2 )**

Yellow Flash Phases	.....
Yellow Flash Overlap	.....
Flash In Red Phases	.....
Flash In Red Overlap	.....

**Special Operation ( 2-1-2-3 )**

Single Exit Phase	.....
Driveway Signal Phases	.....
Driveway Signal Overlaps	.....
Leading Ped Phases	.....

**Protected Permissive ( 2-1-2-4 )**

Protected Permissive	.....
----------------------	-------

**Pedestrian ( 2-1-3 )**

P1	.....
P2	. 2 . . . . .
P3	.....
P4	.....
P5	.....
P6	.....
P7	.....
P8	.....

**Overlap ( 2-1-4 )**

Overlap	Parent	Omit	No Start	Not
A	.....	.....	.....	.....
B	.....	.....	.....	.....
C	.....	.....	.....	.....
D	.....	.....	.....	.....
E	.....	.....	.....	.....
F	.....	.....	.....	.....

# P H A S E T I M I N G

Phase (2-2)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 1 ---	0	7	0	0	0	0	0	0
Flash Don't Walk	0	20	0	0	0	0	0	0
Minimum Green	0	8	0	0	0	8	0	5
Det Limit	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0
Max Green 1	0	60	0	0	0	60	0	62
Max Green 2	0	0	0	0	0	0	0	0
Max Green 3	0	0	0	0	0	0	0	0
Extension	0.0	2.0	0.0	0.0	0.0	2.0	0.0	2.0
Maximum Gap	0.0	2.0	0.0	0.0	0.0	2.0	0.0	2.0
Minimum Gap	0.0	2.0	0.0	0.0	0.0	2.0	0.0	2.0
Add Per Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Gap By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	4.4	3.0	3.0	3.0	4.4	3.0	4.8
All-Red	0.0	1.0	0.0	0.0	0.0	1.0	0.0	1.0
Red/Bike (2-3)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

### OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

### Red Revert

Red Revert (2-5)	5.0
Time	
All-Red Sec/Min (2-6)	
All-Red Sec/Min:	OFF

### Max 2 Extension

Max/Gap Out (2-7)	
Max Cnt	0
Gap Cnt	0

**Local Plan 1...9 (7-1) TIMING DATA**

**COORDINATION**

[ Offsets ] Green Factors or Press [F] to Select Force-Off

	Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor	120		54				49				49		59
Plan 2	Green Factor	120						77				77		30
Plan 3	Green Factor	120						66				66		42
Plan 4	Green Factor	120						78				78		30
Plan 5	Green Factor													
Plan 6	Green Factor													
Plan 7	Green Factor													
Plan 8	Green Factor													
Plan 9	Green Factor													

**Local Plan 1...9 (7-1) PHASE FLAGS**

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	.2.4.6.8	.2...6..						
Plan 2	.2.4.6.8	.2...6..						
Plan 3	.2.4.6.8	.2...6..						
Plan 4	.2.4.6.8	.2...6..						
Plan 5								
Plan 6								
Plan 7								
Plan 8								
Plan 9								

**Master Timer Sync (7-A)**

Enable in Plans	
1-9	.....
11-19	.....
21-29	.....

**Master Sub Master**

Input	
Output	

**FREE PLAN PHASE FLAGS**

(7-E) Free	Omit
Lag	
.2.4.6.8	.....
Veh Min	Veh Max
.2...6..	.....
Ped	Bike
.....	.....
Cond	Cond Grn
.....	10

**MANUAL COMMANDS**

Manual Plan (4-1)	Plan: 1-9
Plan	15 or 254 = Flash
Offset	14 or 255 = Free
A	Offset A, B, or C

**Special Function Override (4-2)**

#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

**Detector Reset (4-3)**

Local Manual (4-4)	OFF
--------------------	-----

**Local Plan 11...19 (7-2) TIMING DATA**

**COORDINATION**

[ Offsets ]

Green Factors or Press [F] to Select Force-Off

	Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor		.....											
Plan 12	Green Factor		.....											
Plan 13	Green Factor		.....											
Plan 14	Green Factor		.....											
Plan 15	Green Factor		.....											
Plan 16	Green Factor		.....											
Plan 17	Green Factor		.....											
Plan 18	Green Factor		.....											
Plan 19	Green Factor		.....											

**Local Plan 11...19 (7-2) PHASE FLAGS**

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....

**Local Plan 21...29 (7-3) TIMING DATA**

**COORDINATION**

[ Offsets ]

Green Factors or Press [F] to Select Force-Off

	Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor		.....											
Plan 22	Green Factor		.....											
Plan 23	Green Factor		.....											
Plan 24	Green Factor		.....											
Plan 25	Green Factor		.....											
Plan 26	Green Factor		.....											
Plan 27	Green Factor		.....											
Plan 28	Green Factor		.....											
Plan 29	Green Factor		.....											

**Local Plan 21...29 (7-3) PHASE FLAGS**

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....

### DETECTORS

Detector Attributes (5-1)				Slot
Det	Type	Phases	Lock	
1	COUNT+CALL+EXTEND	1.....	NO	11U
2	COUNT+CALL+EXTEND	1.....	NO	11L
3	COUNT+CALL+EXTEND	2.....	NO	12U
4	COUNT+CALL+EXTEND	2.....	NO	12L
5	COUNT+CALL+EXTEND	2.....	NO	13U
6	CALL+EXTEND	2.....	NO	13L
7	CALL+EXTEND	2.....	NO	14U
8	COUNT+CALL+EXTEND	2.....	NO	14L
9	COUNT+CALL+EXTEND	3.....	NO	15U
10	COUNT+CALL+EXTEND	3.....	NO	15L
11	COUNT+CALL+EXTEND	4.....	NO	16U
12	COUNT+CALL+EXTEND	4.....	NO	16L
13	COUNT+CALL+EXTEND	4.....	NO	17U
14	CALL+EXTEND	4.....	NO	17L
15	CALL+EXTEND	4.....	NO	18U
16	COUNT+CALL+EXTEND	4.....	NO	18L
17	COUNT+CALL+EXTEND	1.....	NO	19U
18	COUNT+CALL+EXTEND	3.....	NO	19L
19	COUNT+CALL+EXTEND	2.....	NO	110U
20	COUNT+CALL+EXTEND	4.....	NO	110L
21	COUNT+CALL+EXTEND	5.....	NO	111U
22	COUNT+CALL+EXTEND	5.....	NO	111L
23	COUNT+CALL+EXTEND	6.....	NO	12U
24	COUNT+CALL+EXTEND	6.....	NO	12L
25	COUNT+CALL+EXTEND	6.....	NO	13U
26	CALL+EXTEND	6.....	NO	13L
27	CALL+EXTEND	6.....	NO	14U
28	COUNT+CALL+EXTEND	6.....	NO	14L
29	COUNT+CALL+EXTEND	7.....	NO	15U
30	COUNT+CALL+EXTEND	7.....	NO	15L
31	COUNT+CALL+EXTEND	8.....	NO	16U
32	COUNT+CALL+EXTEND	8.....	NO	16L
33	COUNT+CALL+EXTEND	8.....	NO	17U
34	CALL+EXTEND	8.....	NO	17L
35	CALL+EXTEND	8.....	NO	18U
36	COUNT+CALL+EXTEND	8.....	NO	18L
37	COUNT+CALL+EXTEND	5.....	NO	19U
38	COUNT+CALL+EXTEND	7.....	NO	19L
39	COUNT+CALL+EXTEND	6.....	NO	110U
40	COUNT+CALL+EXTEND	8.....	NO	110L
41	PEDESTRIAN	2.....	NO	112U
42	PEDESTRIAN	4.....	NO	112L
43	PEDESTRIAN	6.....	NO	113U
44	PEDESTRIAN	8.....	NO	113L

### Detector Configuration (5-2)

Det	Delay	Extend	Recall	Port
1			10	3.2
2			10	7.2
3			10	1.1
4			10	1.5
5			10	4.5
6			10	6.2
7			10	2.1
8			10	7.4
9			10	3.4
10			10	7.6
11			10	1.3
12			10	1.7
13			10	4.7
14			10	6.4
15			10	2.3
16			10	7.8
17			10	3.6
18			10	3.8
19			10	4.1
20			10	4.2
21			10	3.1
22			10	7.1
23			10	1.2
24			10	1.6
25			10	4.6
26			10	6.3
27			10	2.2
28			10	7.3
29			10	3.3
30			10	7.5
31			10	1.4
32			10	1.8
33			10	4.8
34			10	6.5
35			10	2.4
36			10	7.7
37			10	3.5
38			10	3.7
39			10	4.3
40			10	4.4
41			10	5.1
42			10	5.3
43			10	5.2
44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	.....
Detectors 9-16	.....
Detectors 17-24	.....
Detectors 25-32	.....
Detectors 33-40	.....
Detectors 41-44	.....

System Detector Assignment (5-5)								
Sys Det	1	2	3	4	5	6	7	8
Det Nu								
Sys Det	9	10	11	12	13	14	15	16
Det Nu								

CIC Operation (5-6-1)	Enable in Plans
.....	.....

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)								
Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

### Input File Port-Bit Assignments

332 Cabinet - For Reference Only

1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7
7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8
J-3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5
7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6



### TOD SCHEDULE

Table 1 (8-2-1)			Table 2 (8-2-2)			Table 3 (8-2-3)			Table 4 (8-2-4)			Table 5 (8-2-5)			Table 6 (8-2-6)		
Time	Plan	OS	Time	Plan	OS	Time	Plan	OS	Time	Plan	OS	Time	Plan	OS	Time	Plan	OS
0530	1	A	0800	4	A			A			A			A			A
1000	2	A	2000	255	A			A			A			A			A
1500	3	A			A			A			A			A			A
2000	255	A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A

### WEEKDAY ASSIGNMENT

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

**HOLIDAY TABLES**

#	Mnth	Week	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

#	Mnth	Day	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

North Latitude	34
West Longitude	118
Local Time Zone	8

Hebrew	Ped Recall
Sabbath	.....
Holiday	.....

Enabled	YES
---------	-----

**TOD FUNCTIONS**

#	Start	End	DOW	Action	Phases
1			.....		
2			.....		
3			.....		
4			.....		
5			.....		
6			.....		
7			.....		
8			.....		
9			.....		
10			.....		
11			.....		
12			.....		
13			.....		
14			.....		
15			.....		
16			.....		

**Action Codes:**

- 0. None
- 1. Permitted
- 2. Restricted
- 4. Veh Min Recall
- 5. Veh Max Recall
- 6. Ped Recall
- 7. Bike Recall
- 8. Red Lock
- 9. Yellow Lock
- 10. Force/Max Lock
- 11. Double Entry
- 12. Y-Coord C
- 13. Y-Coord D
- 14. Free
- 15. Flashing
- 16. Walk 2
- 17. Max Green 2
- 18. Max Green 3
- 19. Rest in Walk
- 20. Rest in Red
- 21. Free Lag Phases
- 22. Special Functions
- 23. Truck Preempt
- 24. Conditional Service
- 25. Conditional Service
- 26. Leading Ped
- 27. Traffic Actuated Max 2
- 41. Protected Permissive
- 42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

**COMMUNICATIONS**

C2 (6-1-1)	
Address	2
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Access Level	1
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

**SOFT LOGIC**

Soft Logic (6-2)					
#	Data	OP	Data	OP	Data
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

**CALLBACK NUMBERS**

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	10
Delay	
Area Code	
Phone Number	
Line Out	
Local Toll	
Long Distance	10
Delay	
Area Code	
Phone Number	
Line Out	
Local Toll	
Long Distance	10
Delay	
Area Code	
Phone Number	

- Access Levels:**
- 0-Full Access
  - 1-Status Only
  - 2-Status, Set Pattern, Time
  - 3-Status, Set Pattern, Time, Manual Plan
  - 4-Reserved
  - 5-Full Access with No Set Pattern
  - 6-Full Access with No Set Time
  - 7-Full Access with No Set Pattern, Manual Plan
  - 8-Full Access with No Set Time, Pattern, Manual Plan

**NETWORK**

Network (6-4)	
Address	2
Protocol	AB3418
Port	27002
Type	STATIC
Central Access	6
Field Access	0
IP Address	192 . 168 . 0 . 102
Netmask	255 . 255 . 255 . 0
Broadcast	0 . 0 . 0 . 254
Gateway	192 . 168 . 0 . 1

\*Refer to User's Manual for Data and OP Codes

**RAILROAD PREEMPTION**

RR	(3-1-1) Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)	Overlap Flags (3-1-4)				
		Grn Hold	Yel Flash	Red Flash		Walk	Flash DW	Solid DW	Grn Hold	Yel Flash
1	Delay 10	.2..5...	.....	.....	.....	.....	.2.4.6.8	.....	.....	.....
	Clear 1	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Clear 2	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Clear 3	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Hold	.....	.....	1 2 3 4 5 6 7 8	.....	.....	.....	.....	.....	.....
	Exit									.....
	Min Grn									
	Ped Clr									
<b>Exit Parameters (3-1-5)</b>										
	Phase Green	Overlap Green	Vehicle Call	Ped Call						
	.....	.....	1 2 3 4 5 6 7 8	.2.4.6.8						
<b>Configuration (3-1-6)</b>										
	Primary Port	Secondary Port	Latching	Power-Up						
	2.5	0.0	YES	FLASHING						

RR	(3-2-1) Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)	Overlap Flags (3-2-4)				
		Grn Hold	Yel Flash	Red Flash		Walk	Flash DW	Solid DW	Grn Hold	Yel Flash
2	Delay	10	...4...7.	.....	.....	.....	.2.4.6.8	.....	.....	.....
	Clear 1	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Clear 2	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Clear 3	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Hold	1 2 3 .. 6 ..	.....	.....	.....	.....	.2...6..	.....	.....	.....
	Exit									
	Min Grn									
	Ped Clr									
<b>Exit Parameters (3-2-5)</b>										
	Phase Green	Overlap Green	Vehicle Call	Ped Call						
	.....	.....	...4...7.	.....						
<b>Configuration (3-2-6)</b>										
	Primary Port	Secondary Port	Latching	Power-Up						
	2.6	0.0	YES	DARK						

**EMERGENCY VEHICLE PREEMPTION**

EVA (3-A)	Preempt Timers		Phase Green	Overlap Green
	Delay	Clear		
	30	45	.2..5...	.....
Port	Latching		Phase Termination	
	5.5		NO ADVANCE	

EVB (3-B)	Preempt Timers		Phase Green	Overlap Green
	Delay	Clear		
	30	45	...4...7.	.....
Port	Latching		Phase Termination	
	5.6		NO ADVANCE	

EVC (3-C)	Preempt Timers		Phase Green	Overlap Green
	Delay	Clear		
	30	45	1....6..	.....
Port	Latching		Phase Termination	
	5.7		NO ADVANCE	

EVD (3-D)	Preempt Timers		Phase Green	Overlap Green
	Delay	Clear		
	30	45	..3...8	.....
Port	Latching		Phase Termination	
	5.8		NO ADVANCE	

**INPUTS**

7 Wire I/C (2-1-5-1)			
Input	Port	Input	Port
Enable	R1	Free	3.6
Max ON	R2	D2	2.8
Max OFF	R3	D3	6.1

Manual Control (2-1-5-2)	
Input	Port
Manual Advance	
Advance Enable	

Battery Backup (2-1-5-5)	
Port	Operation
2.7	FLASHING

Y-Coordination (2-1-5-6)	
Port C	Port D
6.1	2.8

Cabinet Status (2-1-5-3)	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function (2-1-5-4)	
Input	Port
1	
2	
3	
4	

**OUTPUTS**

Loadswitch Codes: 51-57 Special Functions  
 0 Unused (no output) 71-72 Seven Wire I/C

- 1-8 Vehicle 1-8
  - 9-14 Overlap A-F
  - 21-28 Ped 1-8
  - 41-47 Special Functions
  - 41 Protected Permissive Flashing Phase 1
  - 43 Protected Permissive Flashing Phase 3
  - 45 Protected Permissive Flashing Phase 5
  - 47 Protected Permissive Flashing Phase 7
- + middle output of loadswitches 3 and 6  
 Channel 9 and 10

Loadswitch Assignments (2-1-6)						+	
A	1	2	22	3	4	24	9
B	5	6	26	7	8	28	10
X	13	14	0	11	12	0	0

**TRANSIT PRIORITY**

Local Plans (3-E) 1...9 11...19		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											
Plan 11	Green Factor											
Plan 12	Green Factor											
Plan 13	Green Factor											
Plan 14	Green Factor											
Plan 15	Green Factor											
Plan 16	Green Factor											
Plan 17	Green Factor											
Plan 18	Green Factor											
Plan 19	Green Factor											

Transit Priority Configuration (3-E-A)				
Enable In Plans	Input	Type	Stop	Indicator Output
Plan 1-9	0.0	OPT	0	0
Plan 11-19	0.0	OPT	0	0

Queue Jump (3-E-B)		
Grn Hold	Hold Phase	

Free Plans (3-E-E)		
Max Grn Hold	Hold Phase	

Access Utilities (9-5)	
Password	Timeout
***	30

**YELLOW YIELD COORDINATION**

Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	Force-Offs								Coord	Lag	Min Recall	Restricted	
					-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-					
Plan C																	
Plan D																	

**TRUCK PRIORITY**

Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output



Location: WINCHESTER RD (RTE 79) @ I-15 SOUTH BOUND RAMP

Designed By:

System:

District: 08- SAN BERNARDINO

Installed By:

Master At: I-15 S/B RAMP @ WINCHESTE

I/C:

Service Info:

Timing Change:

Date Start:

Date End:

Designed:

Installed:

5/4/2017

6/2/2010

10/15/1990

## Intersection Layout

**FLASH**

- 1) [ ]
- P 2) EAST BOUND WINCHESTER RD. (RT) [ ]
- H 3) [ ]
- A 4) I-15 SOUTH BOUND OFF RAMP [ ]
- S 5) [ ]
- E 6) WEST BOUND WINCHESTER RD (RTE) [ ]
- 7) [ ]
- 8) [ ]
  
- O A) [ ]
- V B) [ ]
- E C) [ ]
- R D) [ ]
- L E) [ ]
- A F) [ ]
- P [ ]

Comments and Notes:

**RAM Checksum**

Page 2: BB79	Page 8: 6824
Page 3: CA5C	Page 9: D2FD
Page 4: 21C8	Page 10: 8F59
Page 5: 191A	Page 11: 1D0B
Page 6: 191A	Page 12: D68F
Page 7: D4AE	Page 13: 86F7

**CONFIGURATION PHASE FLAGS**

Cabinet
332
Configuration
CALTRANS

Phases ( 2-1-1-1 )	
Permitted	. 2 . 4 . 6 . .
Restricted	.....

Phase Features ( 2-1-1-4 )	
Double Entry	.....
Rest In Walk	.....
Rest In Red	.....
Walk 2	.....
Max Green 2	.....
Max Green 3	.....

Startup ( 2-1-1-5 )	
First Green Phases	... 4 . . . .
Yellow Start Phases	. 2 . . . 6 . .
Vehicle Calls	. 2 . 4 . 6 . .
Pedestrian Calls	. 2 . . . . .
Yellow Start Overlaps	.....
Startup All-Red	5.0

Phase Recalls ( 2-1-1-2 )	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	.....
Pedestrian	.....
Bicycle	.....

Phase Locks ( 2-1-1-3 )	
Red	.....
Yellow	.....
Force/Max	.....

Call To Phase ( 2-1-2-1 )		Omit On Green	
1	.....	1	.....
2	.....	2	.....
3	.....	3	.....
4	.....	4	.....
5	.....	5	.....
6	.....	6	.....
7	.....	7	.....
8	.....	8	.....

Flashing Colors ( 2-1-2-2 )	
Yellow Flash Phases	.....
Yellow Flash Overlap	.....
Flash In Red Phases	.....
Flash In Red Overlap	.....

Special Operation ( 2-1-2-3 )	
Single Exit Phase	.....
Driveway Signal Phases	.....
Driveway Signal Overlaps	.....
Leading Ped Phases	.....

Protected Permissive ( 2-1-2-4 )	
Protected Permissive	.....

Pedestrian ( 2-1-3 )	
P1	.....
P2	. 2 . . . . .
P3	.....
P4	.....
P5	.....
P6	.....
P7	.....
P8	.....

Overlap ( 2-1-4 )				
Overlap	Parent	Omit	No Start	Not
A	.....	.....	.....	.....
B	.....	.....	.....	.....
C	.....	.....	.....	.....
D	.....	.....	.....	.....
E	.....	.....	.....	.....
F	.....	.....	.....	.....

PHASE TIMING

Phase ( 2-2 )	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 1 ---	0	7	0	0	0	0	0	0
Flash Don't Walk	0	14	0	0	0	0	0	0
Minimum Green	0	8	0	5	0	8	0	0
Det Limit	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0
Max Green 1	0	61	0	50	0	61	0	0
Max Green 2	0	0	0	0	0	0	0	0
Max Green 3	0	0	0	0	0	0	0	0
Extension	0.0	2.0	0.0	2.0	0.0	2.0	0.0	0.0
Maximum Gap	0.0	2.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Gap	0.0	2.0	0.0	2.0	0.0	2.0	0.0	0.0
Add Per Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Gap By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	4.4	3.0	4.8	3.0	4.4	3.0	3.0
All-Red	0.0	1.0	0.0	1.0	0.0	1.0	0.0	0.0
Ped/Bike (2-3)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**OVERLAP TIMING**

Overlap ( 2-4 )	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

**Red Revert**

<b>Red Revert ( 2-5 )</b>	
Time	5.0
<b>All-Red Sec/Min ( 2-6 )</b>	
All-Red Sec/Min:	OFF

**Max 2 Extension**

<b>Max/Gap Out ( 2-7 )</b>	
Max Cnt	0
Gap Cnt	0

**Local Plan 1..9 (7-1) TIMING DATA**

**COORDINATION**

[ Offsets ] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor	120		.....	68				58		50		58		
Plan 2	Green Factor	120		.....	116				60		48		60		
Plan 3	Green Factor	120		.....	26				53		55		53		
Plan 4	Green Factor	120		.....	116				60		48		60		
Plan 5	Green Factor			.....											
Plan 6	Green Factor			.....											
Plan 7	Green Factor			.....											
Plan 8	Green Factor			.....											
Plan 9	Green Factor			.....											

Master Timer Sync (7-A)	
Enable in Plans	
1-9	.....
11-19	.....
21-29	.....

Master Sub Master	
Input	
Output	

**FREE PLAN PHASE FLAGS**

(7-E.) Free	
Lag	Omit
. 2 . 4 . 6 . 8	.....
Veh Min	Veh Max
. 2 ... 6 ..	.....
Ped	Bike
.....	.....
Cond	Cond Grn
.....	10

**Local Plan 1..9 (7-1) PHASE FLAGS**

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	. 2 . 4 . 6 . 8	. 2 ... 6 ..	.....	.....	.....	.....	.....	.....
Plan 2	. 2 . 4 . 6 . 8	. 2 ... 6 ..	.....	.....	.....	.....	.....	.....
Plan 3	. 2 . 4 . 6 . 8	. 2 ... 6 ..	.....	.....	.....	.....	.....	.....
Plan 4	. 2 . 4 . 6 . 8	. 2 ... 6 ..	.....	.....	.....	.....	.....	.....
Plan 5	.....	.....	.....	.....	.....	.....	.....	.....
Plan 6	.....	.....	.....	.....	.....	.....	.....	.....
Plan 7	.....	.....	.....	.....	.....	.....	.....	.....
Plan 8	.....	.....	.....	.....	.....	.....	.....	.....
Plan 9	.....	.....	.....	.....	.....	.....	.....	.....

**MANUAL COMMANDS**

Manual Plan (4-1)		Plan: 1-9
Plan	OffSet	15 or 254 = Flash
	A	14 or 255 = Free
		Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

**Local Plan 11...19 (7-2) TIMING DATA**

**COORDINATION**

[ Offsets ]

Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor			.....											
Plan 12	Green Factor			.....											
Plan 13	Green Factor			.....											
Plan 14	Green Factor			.....											
Plan 15	Green Factor			.....											
Plan 16	Green Factor			.....											
Plan 17	Green Factor			.....											
Plan 18	Green Factor			.....											
Plan 19	Green Factor			.....											

**Local Plan 11...19 (7-2) PHASE FLAGS**

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....

**Local Plan 21...29 (7-3) TIMING DATA**

**COORDINATION**

[ Offsets ]

Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor			.....											
Plan 22	Green Factor			.....											
Plan 23	Green Factor			.....											
Plan 24	Green Factor			.....											
Plan 25	Green Factor			.....											
Plan 26	Green Factor			.....											
Plan 27	Green Factor			.....											
Plan 28	Green Factor			.....											
Plan 29	Green Factor			.....											

**Local Plan 21...29 (7-3) PHASE FLAGS**

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Blke
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....



**DETECTORS**

Detector Attributes (5-1)				Slot	Detector Configuration (5-2)				
Det	Type	Phases	Lock		Det	Delay	Extend	Recall	Port
1	COUNT+CALL+EXTEND	1.....	NO	I1U	1			10	3.2
2	COUNT+CALL+EXTEND	1.....	NO	I1L	2			10	7.2
3	COUNT+CALL+EXTEND	.2.....	NO	I2U	3			10	1.1
4	COUNT+CALL+EXTEND	.2.....	NO	I2L	4			10	1.5
5	COUNT+CALL+EXTEND	.2.....	NO	I3U	5			10	4.5
6	CALL+EXTEND	.2.....	NO	I3L	6			10	6.2
7	CALL+EXTEND	.2.....	NO	I4U	7			10	2.1
8	COUNT+CALL+EXTEND	.2.....	NO	I4L	8			10	7.4
9	COUNT+CALL+EXTEND	..3....	NO	I5U	9			10	3.4
10	COUNT+CALL+EXTEND	..3....	NO	I5L	10			10	7.6
11	COUNT+CALL+EXTEND	...4....	NO	I6U	11			10	1.3
12	COUNT+CALL+EXTEND	...4....	NO	I6L	12			10	1.7
13	COUNT+CALL+EXTEND	...4....	NO	I7U	13			10	4.7
14	CALL+EXTEND	...4....	NO	I7L	14			10	6.4
15	CALL+EXTEND	...4....	NO	I8U	15			10	2.3
16	COUNT+CALL+EXTEND	...4....	NO	I8L	16			10	7.8
17	COUNT+CALL+EXTEND	1.....	NO	I9U	17			10	3.6
18	COUNT+CALL+EXTEND	..3....	NO	I9L	18			10	3.8
19	COUNT+CALL+EXTEND	.2.....	NO	I10U	19			10	4.1
20	COUNT+CALL+EXTEND	...4....	NO	I10L	20			10	4.2
21	COUNT+CALL+EXTEND	....5...	NO	I11U	21			10	3.1
22	COUNT+CALL+EXTEND	....5...	NO	I11L	22			10	7.1
23	COUNT+CALL+EXTEND	....6..	NO	I12U	23			10	1.2
24	COUNT+CALL+EXTEND	....6..	NO	I12L	24			10	1.6
25	COUNT+CALL+EXTEND	....6..	NO	I13U	25			10	4.6
26	CALL+EXTEND	....6..	NO	I13L	26			10	6.3
27	CALL+EXTEND	....6..	NO	I14U	27			10	2.2
28	COUNT+CALL+EXTEND	....6..	NO	I14L	28			10	7.3
29	COUNT+CALL+EXTEND	.....7.	NO	I15U	29			10	3.3
30	COUNT+CALL+EXTEND	.....7.	NO	I15L	30			10	7.5
31	COUNT+CALL+EXTEND	.....8	NO	I16U	31			10	1.4
32	COUNT+CALL+EXTEND	.....8	NO	I16L	32			10	1.8
33	COUNT+CALL+EXTEND	.....8	NO	I17U	33			10	4.8
34	CALL+EXTEND	.....8	NO	I17L	34			10	6.5
35	CALL+EXTEND	.....8	NO	I18U	35			10	2.4
36	COUNT+CALL+EXTEND	.....8	NO	I18L	36			10	7.7
37	COUNT+CALL+EXTEND	....5...	NO	I19U	37			10	3.5
38	COUNT+CALL+EXTEND	.....7.	NO	I19L	38			10	3.7
39	COUNT+CALL+EXTEND	....6..	NO	I10U	39			10	4.3
40	COUNT+CALL+EXTEND	.....8	NO	I10L	40			10	4.4
41	PEDESTRIAN	.2.....	NO	I12U	41			10	5.1
42	PEDESTRIAN	...4....	NO	I12L	42			10	5.3
43	PEDESTRIAN	....6..	NO	I13U	43			10	5.2
44	PEDESTRIAN	.....8	NO	I13L	44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fall Reset Time	

Failure Override (5-4)	
Detectors 1-8	.....
Detectors 9-16	.....
Detectors 17-24	.....
Detectors 25-32	.....
Detectors 33-40	.....
Detectors 41-44	.....

System Detector Assignment (5-5)								
Sys Det	1	2	3	4	5	6	7	8
Det Nu								
Sys Det	9	10	11	12	13	14	15	16
Det Nu								

CIC Operation (5-6-1)	
Enable in Plans	.....

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)								
Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

**Input File Port-Bit Assignments**

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7
	7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5
	7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6

**TOD SCHEDULE**

Table 1 (8-2-1)			Table 2 (8-2-2)			Table 3 (8-2-3)			Table 4 (8-2-4)			Table 5 (8-2-5)			Table 6 (8-2-6)		
Time	Plan	OS	Time	Plan	OS	Time	Plan	OS	Time	Plan	OS	Time	Plan	OS	Time	Plan	OS
0530	1	A	0800	4	A			A			A			A			A
1000	2	A	2000	255	A			A			A			A			A
1500	3	A			A			A			A			A			A
2000	255	A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A

**WEEKDAY ASSIGNMENT**

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

**HOLIDAY TABLES**

#	Mnth	Week	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

#	Mnth	Day	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

North Latitude	34
West Longitude	118
Local Time Zone	8

Hebrew	Ped Recall
Sabbath	.....
Holiday	.....

Enabled	YES
---------	-----

**TOD FUNCTIONS**

#	Start	End	DOW	Action	Phases
1			.....		.....
2			.....		.....
3			.....		.....
4			.....		.....
5			.....		.....
6			.....		.....
7			.....		.....
8			.....		.....
9			.....		.....
10			.....		.....
11			.....		.....
12			.....		.....
13			.....		.....
14			.....		.....
15			.....		.....
16			.....		.....

- Action Codes:**
- 0. None
  - 1. Permitted
  - 2. Restricted
  - 4. Veh Min Recall
  - 5. Veh Max Recall
  - 6. Ped Recall
  - 7. Bike Recall
  - 8. Red Lock
  - 9. Yellow Lock
  - 10. Force/Max Lock
  - 11. Double Entry
  - 12. Y-Coord C
  - 13. Y-Coord D
  - 14. Free
  - 15. Flashing
  - 16. Walk 2
  - 17. Max Green 2
  - 18. Max Green 3
  - 19. Rest in Walk
  - 20. Rest in Red
  - 21. Free Lag Phases
  - 22. Special Functions
  - 23. Truck Preempt
  - 24. Conditional Service
  - 25. Conditional Service
  - 26. Leading Ped
  - 27. Traffic Actuated Max 2
  - 41. Protected Permissive
  - 42. Protected Permissive
- Action Code = Phases added to normal setting  
 100+Action Code = Phases removed  
 200+Action Code = Phases replaced

**COMMUNICATIONS**

C2 (6-1-1)	
Address	1
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Access Level	1
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

**Access Levels:**

- 0-Full Access
- 1-Status Only
- 2-Status, Set Pattern, Time
- 3-Status, Set Pattern, Time, Manual Plan
- 4-Reserved
- 5-Full Access with No Set Pattern
- 6-Full Access with No Set Time
- 7-Full Access with No Set Pattern, Manual Plan
- 8-Full Access with No Set Time, Pattern, Manual Plan

**SOFT LOGIC**

Soft Logic ( 6-2 )							
#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

**CALLBACK NUMBERS**

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

**NETWORK**

Network (6-4)	
Address	1
Protocol	AB3418
Port	27001
Type	STATIC
Central Access	6
Field Access	0

IP Address	192 . 168 . 0 . 101
Netmask	255 . 255 . 255 . 0
Broadcast	0 . 0 . 0 . 254
Gateway	192 . 168 . 0 . 1

\*Refer to User's Manual for Data and OP Codes

### RAILROAD PREEMPTION

<b>RR 1</b>	(3-1-1)	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
	Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
	Clear 1	10	. 2 . . 5 . . .	.....	.....	.....	.....	. 2 . 4 . 6 . 8	.....	.....	.....
	Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Hold		.....	.....	1 2 3 4 5 6 7 8	.....	.....	.....	.....	.....	A B C D E F
	Exit		<b>Exit Parameters (3-1-5)</b>				<b>Configuration (3-1-6)</b>				
Min Grn		Phase Green	Overlap Green	Vehicle Call	Ped Call	Primary Port	Secondary Port	Latching	Power-Up		
Ped Clr		.....	.....	1 2 3 4 5 6 7 8	. 2 . 4 . 6 . 8	2.5	0.0	YES	FLASHING		

<b>RR 2</b>	(3-2-1)	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
	Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
	Clear 1	10	. . . 4 . . 7 .	.....	.....	.....	.....	. 2 . 4 . 6 . 8	.....	.....	.....
	Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Hold		1 2 3 . . 6 . .	.....	.....	. 2 . . . 6 . .	.....	. . . 4 . . . 8	.....	.....	.....
	Exit		<b>Exit Parameters (3-2-5)</b>				<b>Configuration (3-2-6)</b>				
Min Grn		Phase Green	Overlap Green	Vehicle Call	Ped Call	Primary Port	Secondary Port	Latching	Power-up		
Ped Clr		.....	.....	. . . 4 . . 7 .	.....	2.6	0.0	YES	DARK		

### EMERGENCY VEHICLE PREEMPTION

<b>EVA (3-A)</b>	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
		30	45	. 2 . . 5 . . .	.....
	Port	Latching	Phase Termination		
	5.5	NO	ADVANCE		

<b>EVB (3-B)</b>	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
		30	45	. . . 4 . . 7 .	.....
	Port	Latching	Phase Termination		
	5.6	NO	ADVANCE		

<b>EVC (3-C)</b>	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
		30	45	1 . . . . 6 . .	.....
	Port	Latching	Phase Termination		
	5.7	NO	ADVANCE		

<b>EVD (3-D)</b>	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
		30	45	. . 3 . . . . 8	.....
	Port	Latching	Phase Termination		
	5.8	NO	ADVANCE		

### INPUTS

7 Wire I/C ( 2-1-5-1 )					
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control ( 2-1-5-2 )	
Input	Port
Manual Advance	
Advance Enable	

Cabinet Status ( 2-1-5-3 )	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function ( 2-1-5-4 )	
Input	Port
1	
2	
3	
4	

Battery Backup ( 2-1-5-5 )	
Port	Operation
2.7	FLASHING

Y-Coordination ( 2-1-5-6 )	
Port C	Port D
6.1	2.8

### OUTPUTS

Loadswitch Assignments ( 2-1-6 )								+
A	1	2	22	3	4	24	9	
B	5	6	26	7	8	28	10	
X	13	14	0	11	12	0	0	

Loadswitch Codes:  
 0 Unused (no output)  
 1-8 Vehicle 1-8  
 9-14 Overlap A-F  
 21-28 Ped 1-8  
 41-47 Special Functions  
 41 Protected Permissive Flashing Phase 1  
 43 Protected Permissive Flashing Phase 3  
 45 Protected Permissive Flashing Phase 5  
 47 Protected Permissive Flashing Phase 7

51-57 Special Functions  
 71-72 Seven Wire I/C

+ middle output of loadswitches 3 and 6  
 Channel 9 and 10



**TRANSIT PRIORITY**

Local Plans (3-E) 1...9 11...19		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											
-----												
Plan 11	Green Factor											
Plan 12	Green Factor											
Plan 13	Green Factor											
Plan 14	Green Factor											
Plan 15	Green Factor											
Plan 16	Green Factor											
Plan 17	Green Factor											
Plan 18	Green Factor											
Plan 19	Green Factor											

Transit Priority Configuration (3-E-A)			Indicator Output	
Enable in Plans	Input	Type	Stop	Go
Plan 1-9	.....	0.0	OPT	0
Plan 11-19	.....	0.0	OPT	0

Queue Jump (3-E-B)	
Grn Hold	Hold Phase
	.....
	.....

Free Plans (3-E-E)	
Max Grn Hold	Hold Phase
	.....

Access Utilities (9-5)	
Password	***
Timeout	30

**YELLOW YIELD COORDINATION**

Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	Force-Offs								Coord	Lag	Min Recall	Restricted
					-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-				
Plan C													. 2 ... 6 ..	. 2 . 4 . 6 . 8	.....	.....
Plan D													. 2 ... 6 ..	. 2 . 4 . 6 . 8	.....	.....

**TRUCK PRIORITY**

Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output
					.....	0.0	0.0	0.0	0	0.0	0

Location: WINCHESTER DR (RTE-79) @ I-15 NORTH BOUND OFF RAMP

Designed By:

System:

District:

Installed By:

Master At: WINCHESTER RD @ I-15 SB

I/C:

Service Info:

Timing Change:

Date Start:

Date End:

Designed:

Installed:

5/4/2017

6/2/2010

4/17/1996

### Intersection Layout

FLASH

1)	[ ]
P 2) EAST BOUND WINCHESTER RD (RTE-	[ ]
H 3)	[ ]
A 4)	[ ]
S 5)	[ ]
E 6) WEST BOUND WINCHESTER RD (RT	[ ]
7)	[ ]
8) I-15 NORTH BOUND OFF RAMP	[ ]
O A)	[ ]
V B)	[ ]
E C)	[ ]
R D)	[ ]
L E)	[ ]
A F)	[ ]

Comments and Notes:

RAM Checksum

Page 2: 4DB0	Page 8: 6824
Page 3: 676C	Page 9: D2FD
Page 4: 74A3	Page 10: 9427
Page 5: 191A	Page 11: 1D0B
Page 6: 191A	Page 12: D68F
Page 7: D4AE	Page 13: 86F7

**CONFIGURATION PHASE FLAGS**

Cabinet
332
Configuration
CALTRANS

Phases ( 2-1-1-1 )	
Permitted	. 2 . . . 6 . 8
Restricted	. . . . .

Phase Features ( 2-1-1-4 )	
Double Entry	. . . . .
Rest In Walk	. . . . .
Rest In Red	. . . . .
Walk 2	. . . . .
Max Green 2	. . . . .
Max Green 3	. . . . .

Startup ( 2-1-1-5 )	
First Green Phases	. . . . . 8
Yellow Start Phases	. 2 . . . 6 . .
Vehicle Calls	. 2 . . . 6 . 8
Pedestrian Calls	. 2 . . . . .
Yellow Start Overlaps	. . . . .
Startup All-Red	5.0

Phase Recalls ( 2-1-1-2 )	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	. . . . .
Pedestrian	. . . . .
Bicycle	. . . . .

Phase Locks ( 2-1-1-3 )	
Red	. . . . .
Yellow	. . . . .
Force/Max	. . . . .

Call To Phase ( 2-1-2-1 )		Omit On Green	
1	. . . . .	1	. . . . .
2	. . . . .	2	. . . . .
3	. . . . .	3	. . . . .
4	. . . . .	4	. . . . .
5	. . . . .	5	. . . . .
6	. . . . .	6	. . . . .
7	. . . . .	7	. . . . .
8	. . . . .	8	. . . . .

Flashing Colors ( 2-1-2-2 )	
Yellow Flash Phases	. . . . .
Yellow Flash Overlap	. . . . .
Flash In Red Phases	. . . . .
Flash In Red Overlap	. . . . .

Special Operation ( 2-1-2-3 )	
Single Exit Phase	. . . . .
Driveway Signal Phases	. . . . .
Driveway Signal Overlaps	. . . . .
Leading Ped Phases	. . . . .

Protected Permissive ( 2-1-2-4 )	
Protected Permissive	. . . . .

Pedestrian ( 2-1-3 )	
P1	. . . . .
P2	. 2 . . . . .
P3	. . . . .
P4	. . . . .
P5	. . . . .
P6	. . . . .
P7	. . . . .
P8	. . . . .

Overlap ( 2-1-4 )				
Overlap	Parent	Omit	No Start	Not
A	. . . . .	. . . . .	. . . . .	. . . . .
B	. . . . .	. . . . .	. . . . .	. . . . .
C	. . . . .	. . . . .	. . . . .	. . . . .
D	. . . . .	. . . . .	. . . . .	. . . . .
E	. . . . .	. . . . .	. . . . .	. . . . .
F	. . . . .	. . . . .	. . . . .	. . . . .

PHASE TIMING

Phase ( 2-2 )	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 1 ---	0	7	0	0	0	0	0	0
Flash Don't Walk	0	20	0	0	0	0	0	0
Minimum Green	0	8	0	0	0	8	0	5
Det Limit	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0
Max Green 1	0	60	0	0	0	60	0	62
Max Green 2	0	0	0	0	0	0	0	0
Max Green 3	0	0	0	0	0	0	0	0
Extension	0.0	2.0	0.0	0.0	0.0	2.0	0.0	2.0
Maximum Gap	0.0	2.0	0.0	0.0	0.0	2.0	0.0	2.0
Minimum Gap	0.0	2.0	0.0	0.0	0.0	2.0	0.0	2.0
Add Per Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Gap By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	4.4	3.0	3.0	3.0	4.4	3.0	4.8
All-Red	0.0	1.0	0.0	0.0	0.0	1.0	0.0	1.0
Ped/Bike (2-3)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**OVERLAP TIMING**

Overlap ( 2-4 )	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

**Red Revert**

<b>Red Revert ( 2-5 )</b>	
Time	5.0
<b>All-Red Sec/Min ( 2-6 )</b>	
All-Red Sec/Min:	OFF

**Max 2 Extension**

<b>Max/Gap Out ( 2-7 )</b>	
Max Cnt	0
Gap Cnt	0

**Local Plan 1...9 (7-1) TIMING DATA**

**COORDINATION**

		[ Offsets ]			Green Factors or Press [F] to Select Force-Off										
		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor	120		.....	54				49				49		59
Plan 2	Green Factor	120		.....	30				77				77		30
Plan 3	Green Factor	120		.....	68				66				66		42
Plan 4	Green Factor	120		.....	30				78				78		30
Plan 5	Green Factor			.....											
Plan 6	Green Factor			.....											
Plan 7	Green Factor			.....											
Plan 8	Green Factor			.....											
Plan 9	Green Factor			.....											

Master Timer Sync (7-A)	
Enable in Plans	
1-9	.....
11-19	.....
21-29	.....
Master Sub Master	
Input	
Output	

FREE PLAN PHASE FLAGS	
(7-E) Free	
Lag	Omit
. 2 . 4 . 6 . 8	.....
Veh Min	Veh Max
. 2 ... 6 ..	.....
Ped	Bike
.....	.....
Cond	Cond Grn
.....	10

**Local Plan 1...9 (7-1) PHASE FLAGS**

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	. 2 . 4 . 6 . 8	. 2 ... 6 ..	.....	.....	.....	.....	.....	.....
Plan 2	. 2 . 4 . 6 . 8	. 2 ... 6 ..	.....	.....	.....	.....	.....	.....
Plan 3	. 2 . 4 . 6 . 8	. 2 ... 6 ..	.....	.....	.....	.....	.....	.....
Plan 4	. 2 . 4 . 6 . 8	. 2 ... 6 ..	.....	.....	.....	.....	.....	.....
Plan 5	.....	.....	.....	.....	.....	.....	.....	.....
Plan 6	.....	.....	.....	.....	.....	.....	.....	.....
Plan 7	.....	.....	.....	.....	.....	.....	.....	.....
Plan 8	.....	.....	.....	.....	.....	.....	.....	.....
Plan 9	.....	.....	.....	.....	.....	.....	.....	.....

**MANUAL COMMANDS**

Manual Plan (4-1)		Plan: 1-9
Plan	OffSet	15 or 254 = Flash
	A	14 or 255 = Free
		Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

**Local Plan 11...19 (7-2) TIMING DATA**

**COORDINATION**

[ Offsets ]

Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor			.....											
Plan 12	Green Factor			.....											
Plan 13	Green Factor			.....											
Plan 14	Green Factor			.....											
Plan 15	Green Factor			.....											
Plan 16	Green Factor			.....											
Plan 17	Green Factor			.....											
Plan 18	Green Factor			.....											
Plan 19	Green Factor			.....											

**Local Plan 11...19 (7-2) PHASE FLAGS**

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....



**Local Plan 21...29 (7-3) TIMING DATA**

**COORDINATION**

[ Offsets ]

Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor			.....											
Plan 22	Green Factor			.....											
Plan 23	Green Factor			.....											
Plan 24	Green Factor			.....											
Plan 25	Green Factor			.....											
Plan 26	Green Factor			.....											
Plan 27	Green Factor			.....											
Plan 28	Green Factor			.....											
Plan 29	Green Factor			.....											

**Local Plan 21...29 (7-3) PHASE FLAGS**

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....

**DETECTORS**

Detector Attributes (5-1)				Slot	Detector Configuration (5-2)				
Det	Type	Phases	Lock		Det	Delay	Extend	Recall	Port
1	COUNT+CALL+EXTEND	1.....	NO	I1U	1			10	3.2
2	COUNT+CALL+EXTEND	1.....	NO	I1L	2			10	7.2
3	COUNT+CALL+EXTEND	.2.....	NO	I2U	3			10	1.1
4	COUNT+CALL+EXTEND	.2.....	NO	I2L	4			10	1.5
5	COUNT+CALL+EXTEND	.2.....	NO	I3U	5			10	4.5
6	CALL+EXTEND	.2.....	NO	I3L	6			10	6.2
7	CALL+EXTEND	.2.....	NO	I4U	7			10	2.1
8	COUNT+CALL+EXTEND	.2.....	NO	I4L	8			10	7.4
9	COUNT+CALL+EXTEND	..3....	NO	I5U	9			10	3.4
10	COUNT+CALL+EXTEND	..3....	NO	I5L	10			10	7.6
11	COUNT+CALL+EXTEND	...4....	NO	I6U	11			10	1.3
12	COUNT+CALL+EXTEND	...4....	NO	I6L	12			10	1.7
13	COUNT+CALL+EXTEND	...4....	NO	I7U	13			10	4.7
14	CALL+EXTEND	...4....	NO	I7L	14			10	6.4
15	CALL+EXTEND	...4....	NO	I8U	15			10	2.3
16	COUNT+CALL+EXTEND	...4....	NO	I8L	16			10	7.8
17	COUNT+CALL+EXTEND	1.....	NO	I9U	17			10	3.6
18	COUNT+CALL+EXTEND	..3....	NO	I9L	18			10	3.8
19	COUNT+CALL+EXTEND	.2.....	NO	I10U	19			10	4.1
20	COUNT+CALL+EXTEND	...4....	NO	I10L	20			10	4.2
21	COUNT+CALL+EXTEND	....5...	NO	I1U	21			10	3.1
22	COUNT+CALL+EXTEND	....5...	NO	I1L	22			10	7.1
23	COUNT+CALL+EXTEND	.....6..	NO	I2U	23			10	1.2
24	COUNT+CALL+EXTEND	.....6..	NO	I2L	24			10	1.6
25	COUNT+CALL+EXTEND	.....6..	NO	I3U	25			10	4.6
26	CALL+EXTEND	.....6..	NO	I3L	26			10	6.3
27	CALL+EXTEND	.....6..	NO	I4U	27			10	2.2
28	COUNT+CALL+EXTEND	.....6..	NO	I4L	28			10	7.3
29	COUNT+CALL+EXTEND	.....7.	NO	I5U	29			10	3.3
30	COUNT+CALL+EXTEND	.....7.	NO	I5L	30			10	7.5
31	COUNT+CALL+EXTEND	.....8	NO	I6U	31			10	1.4
32	COUNT+CALL+EXTEND	.....8	NO	I6L	32			10	1.8
33	COUNT+CALL+EXTEND	.....8	NO	I7U	33			10	4.8
34	CALL+EXTEND	.....8	NO	I7L	34			10	6.5
35	CALL+EXTEND	.....8	NO	I8U	35			10	2.4
36	COUNT+CALL+EXTEND	.....8	NO	I8L	36			10	7.7
37	COUNT+CALL+EXTEND	....5...	NO	I9U	37			10	3.5
38	COUNT+CALL+EXTEND	.....7.	NO	I9L	38			10	3.7
39	COUNT+CALL+EXTEND	.....6..	NO	I10U	39			10	4.3
40	COUNT+CALL+EXTEND	.....8	NO	I10L	40			10	4.4
41	PEDESTRIAN	.2.....	NO	I12U	41			10	5.1
42	PEDESTRIAN	..4....	NO	I12L	42			10	5.3
43	PEDESTRIAN	.....6..	NO	I13U	43			10	5.2
44	PEDESTRIAN	.....8	NO	I13L	44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	.....
Detectors 9-16	.....
Detectors 17-24	.....
Detectors 25-32	.....
Detectors 33-40	.....
Detectors 41-44	.....

System Detector Assignment (5-5)								
Sys Det	1	2	3	4	5	6	7	8
Det Nu								
Sys Det	9	10	11	12	13	14	15	16
Det Nu								

CIC Operation (5-6-1)	
Enable in Plans	.....

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)								
Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

**Input File Port-Bit Assignments**

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7
	7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5
	7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6

**TOD SCHEDULE**

Table 1 (8-2-1)			Table 2 (8-2-2)			Table 3 (8-2-3)			Table 4 (8-2-4)			Table 5 (8-2-5)			Table 6 (8-2-6)		
Time	Plan	OS	Time	Plan	OS	Time	Plan	OS	Time	Plan	OS	Time	Plan	OS	Time	Plan	OS
0530	1	A	0800	4	A			A			A			A			A
1000	2	A	2000	255	A			A			A			A			A
1500	3	A			A			A			A			A			A
2000	255	A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A
		A			A			A			A			A			A

**WEEKDAY ASSIGNMENT**

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

**HOLIDAY TABLES**

#	Mnth	Week	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

#	Mnth	Day	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

North Latitude	34
West Longitude	118
Local Time Zone	8

Hebrew	Ped Recall
Sabbath	.....
Holiday	.....

Enabled	YES
---------	-----

**TOD FUNCTIONS**

#	Start	End	DOW	Action	Phases
1			.....		.....
2			.....		.....
3			.....		.....
4			.....		.....
5			.....		.....
6			.....		.....
7			.....		.....
8			.....		.....
9			.....		.....
10			.....		.....
11			.....		.....
12			.....		.....
13			.....		.....
14			.....		.....
15			.....		.....
16			.....		.....

- Action Codes:
- 0. None
  - 1. Permitted
  - 2. Restricted
  - 4. Veh Min Recall
  - 5. Veh Max Recall
  - 6. Ped Recall
  - 7. Bike Recall
  - 8. Red Lock
  - 9. Yellow Lock
  - 10. Force/Max Lock
  - 11. Double Entry
  - 12. Y-Coord C
  - 13. Y-Coord D
  - 14. Free
  - 15. Flashing
  - 16. Walk 2
  - 17. Max Green 2
  - 18. Max Green 3
  - 19. Rest in Walk
  - 20. Rest in Red
  - 21. Free Lag Phases
  - 22. Special Functions
  - 23. Truck Preempt
  - 24. Conditional Service
  - 25. Conditional Service
  - 26. Leading Ped
  - 27. Traffic Actuated Max 2
  - 41. Protected Permissive
  - 42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

### COMMUNICATIONS

C2 (6-1-1)	
Address	2
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Access Level	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Access Level	1
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

**Access Levels:**

- 0-Full Access
- 1-Status Only
- 2-Status, Set Pattern, Time
- 3-Status, Set Pattern, Time, Manual Plan
- 4-Reserved
- 5-Full Access with No Set Pattern
- 6-Full Access with No Set Time
- 7-Full Access with No Set Pattern, Manual Plan
- 8-Full Access with No Set Time, Pattern, Manual Plan

### SOFT LOGIC

Soft Logic (6-2)							
#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

### CALLBACK NUMBERS

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

### NETWORK

Network (6-4)	
Address	2
Protocol	AB3418
Port	27002
Type	STATIC
Central Access	6
Field Access	0

IP Address	192 . 168 . 0 . 102
Netmask	255 . 255 . 255 . 0
Broadcast	0 . 0 . 0 . 254
Gateway	192 . 168 . 0 . 1

\*Refer to User's Manual for Data and OP Codes

### RAILROAD PREEMPTION

RR 1	(3-1-1)	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
	Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
	Clear 1	10	. 2 . . 5 . . .	.....	.....	.....	.....	. 2 . 4 . 6 . 8	.....	.....	.....
	Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Hold		.....	.....	1 2 3 4 5 6 7 8	.....	.....	.....	.....	.....	A B C D E F
	Exit		Exit Parameters (3-1-5)				Configuration (3-1-6)				
Min Grn		Phase Green	Overlap Green	Vehicle Call	Ped Call	Primary Port	Secondary Port	Latching	Power-Up		
Ped Clr		.....	.....	1 2 3 4 5 6 7 8	. 2 . 4 . 6 . 8	2.5	0.0	YES	FLASHING		

RR 2	(3-2-1)	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
	Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
	Clear 1	10	. . . 4 . . 7 .	.....	.....	.....	.....	. 2 . 4 . 6 . 8	.....	.....	.....
	Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Hold		1 2 3 . . 6 . .	.....	.....	. 2 . . . 6 . .	.....	. . . 4 . . . 8	.....	.....	.....
	Exit		Exit Parameters (3-2-5)				Configuration (3-2-6)				
Min Grn		Phase Green	Overlap Green	Vehicle Call	Ped Call	Primary Port	Secondary Port	Latching	Power-up		
Ped Clr		.....	.....	. . . 4 . . 7 .	.....	2.6	0.0	YES	DARK		

### EMERGENCY VEHICLE PREEMPTION

EVA (3-A)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
		30	45	. 2 . . 5 . . .	.....
	Port	Latching	Phase Termination		
	5.5	NO	ADVANCE		

EVB (3-B)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
		30	45	. . . 4 . . 7 .	.....
	Port	Latching	Phase Termination		
	5.6	NO	ADVANCE		

EVC (3-C)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
		30	45	1 . . . . 6 . .	.....
	Port	Latching	Phase Termination		
	5.7	NO	ADVANCE		

EVD (3-D)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
		30	45	. . 3 . . . . 8	.....
	Port	Latching	Phase Termination		
	5.8	NO	ADVANCE		



### INPUTS

7 Wire I/C ( 2-1-5-1 )					
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control ( 2-1-5-2 )	
Input	Port
Manual Advance	
Advance Enable	

Cabinet Status ( 2-1-5-3 )	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function ( 2-1-5-4 )	
Input	Port
1	
2	
3	
4	

Battery Backup ( 2-1-5-5 )	
Port	Operation
2.7	FLASHING

Y-Coordination ( 2-1-5-6 )	
Port C	Port D
6.1	2.8

### OUTPUTS

Loadswitch Assignments ( 2-1-6 )								+
A	1	2	22	3	4	24	9	
B	5	6	26	7	8	28	10	
X	13	14	0	11	12	0	0	

- Loadswitch Codes:
- 0 Unused (no output)
  - 1-8 Vehicle 1-8
  - 9-14 Overlap A-F
  - 21-28 Ped 1-8
  - 41-47 Special Functions
  - 41 Protected Permissive Flashing Phase 1
  - 43 Protected Permissive Flashing Phase 3
  - 45 Protected Permissive Flashing Phase 5
  - 47 Protected Permissive Flashing Phase 7

- 51-57 Special Functions
- 71-72 Seven Wire I/C

+ middle output of loadswitches 3 and 6 Channel 9 and 10

**TRANSIT PRIORITY**

Local Plans (3-E) 1...9 11...19		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											
.....												
Plan 11	Green Factor											
Plan 12	Green Factor											
Plan 13	Green Factor											
Plan 14	Green Factor											
Plan 15	Green Factor											
Plan 16	Green Factor											
Plan 17	Green Factor											
Plan 18	Green Factor											
Plan 19	Green Factor											

Transit Priority Configuration (3-E-A)			Indicator Output	
Enable in Plans	Input	Type	Stop	Go
Plan 1-9	.....	0.0	OPT	0
Plan 11-19	.....	0.0	OPT	0

Queue Jump (3-E-B)	
Grn Hold	Hold Phase
	.....
	.....

Free Plans (3-E-E)	
Max Grn Hold	Hold Phase
	.....

Access Utilities (9-5)	
Password	Timeout
***	30

**YELLOW YIELD COORDINATION**

Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	Force-Offs								Coord	Lag	Min Recall	Restricted
					-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-				
Plan C													.2...6..	.2.4.6.8	.....	.....
Plan D													.2...6..	.2.4.6.8	.....	.....

**TRUCK PRIORITY**

Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output
					.....	0.0	0.0	0.0	0	0.0	0

**INTERSECTION: Ynez Road & Date Street**

Group Assignment: **NONE**  
 Field Master Assignment: **NONE**  
 System Reference Number: **112**

N/S Street Name: **Not Assigned**  
 E/W Street Name: **Not Assigned**

Last Database Change: **03/28/2014 10:40**

Change Record					
Change	By	Date	Change	By	Date

Notes:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Drop Number	<b>17</b>	<C+0+0>
Zone Number		<C+0+1>
Area Number	<b>3</b>	<C+0+2>
Area Address	<b>17</b>	<C+0+3>
QuicNet Channel	<b>COM103:</b>	(QuicNet)

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Max Initial	<b>20</b>	<F+0+E>
Red Revert	<b>5.0</b>	<F+0+F>
All Red Start	<b>6.0</b>	<F+C+0>

**Communication Addresses**

**Manual Selection**

**Start / Revert Times**

		Phase							
Column Numbers ---->		1	2	3	4	5	6	7	8
Row	Phase Names ---->								
0	Ped Walk	0	5	0	5	0	5	0	5
1	Ped FDW	0	23	0	28	0	23	28	28
2	Min Green	5	10	5	7	5	10	5	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	1.5	4.0	1.5	2.5	1.5	4.0	1.5	2.5
6	Max Gap	1.5	4.0	1.5	2.5	1.5	4.0	1.5	2.5
7	Min Gap	1.5	4.0	1.5	2.5	1.5	4.0	1.5	2.5
8	Max Limit	20	40	20	30	20	40	20	30
9	Max Limit 2	20	40	20	30	20	40	20	30
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.5	1.0	0.5	1.0	0.5	1.0	0.5	1.0

**Phase Timing - Bank 1** <F Page>

E	
RR-1 Delay	0
RR-1 Clear	0
EV-A Delay	0
EV-A Clear	1
EV-B Delay	0
EV-B Clear	1
EV-C Delay	0
EV-C Clear	1
EV-D Delay	0
EV-D Clear	1
RR-2 Delay	0
RR-2 Clear	0
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

**Preempt Timing**

F	
Permit	12345678
Red Lock	_____
Yellow Lock	_____
Min Recall	_____
Ped Recall	_____
View Set Peds	-----
Rest In Walk	_____
Red Rest	_____
Dual Entry	_____
Max Recall	_____
Soft Recall	_____
Max 2	_____
Cond. Service	_____
Man Cntrl Calls	_____
Yellow Start	_____
First Phases	1_5_

**Phase Functions** <F Page>

Row
0
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F

Manual Plan  
 0 = Automatic  
 1-9 = Plan 1-9  
 14 = Free  
 15 = Flash

Manual Offset  
 0 = Automatic  
 1 = Offset A  
 2 = Offset B  
 3 = Offset C

		Plan								
Column Numbers ---->		1	2	3	4	5	6	7	8	9
Row	Plan Name ---->									
0	Cycle Length	0	0	0	0	0	0	0	0	0
1	Phase 1 - ForceOff	0	0	0	0	0	0	0	0	0
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0
3	Phase 3 - ForceOff	0	0	0	0	0	0	0	0	0
4	Phase 4 - ForceOff	0	0	0	0	0	0	0	0	0
5	Phase 5 - ForceOff	0	0	0	0	0	0	0	0	0
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0
7	Phase 7 - ForceOff	0	0	0	0	0	0	0	0	0
8	Phase 8 - ForceOff	0	0	0	0	0	0	0	0	0
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	0	0	0	0	0	0	0	0	0
B	Offset 2	0	0	0	0	0	0	0	0	0
C	Offset 3	0	0	0	0	0	0	0	0	0
D	Permissive	0	0	0	0	0	0	0	0	0
E	Hold Release	0	0	0	0	0	0	0	0	0
F	Zone Offset	0	0	0	0	0	0	0	0	0

Coordination <C Page>

(\* = Coordination Recall)

Row		E	Row
0			0
1	Plan 1 - Sync	2 6	1
2	Plan 2 - Sync	2 6	2
3	Plan 3 - Sync	2 6	3
4	Plan 4 - Sync	2 6	4
5	Plan 5 - Sync	2 6	5
6	Plan 6 - Sync	2 6	6
7	Plan 7 - Sync	2 6	7
8	Plan 8 - Sync	2 6	8
9	Plan 9 - Sync	2 6	9
A	Coord Ped *		A
B	NEMA Hold		B
C			C
D			D
E			E
F			F

Sync Phases <C Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	4 7
C	EV-C Phases	1 6
D	EV-D Phases	3 8
E	Extra 1 Config. Bits	1 3
F	IC Select (Interconnect)	2

Configuration <E Page>

Row	Column Numbers ---->	F
0	RR Overlap A - Phases	
1	RR Overlap B - Phases	
2	RR Overlap C - Phases	
3	RR Overlap D - Phases	
4	Ped 2P	2
5	Ped 6P	6
6	Ped 4P	4
7	Ped 8P	8
8	Yellow Flash Phases	
9	Overlap A - Phases	
A	Overlap B - Phases	
B	Overlap C - Phases	
C	Overlap D - Phases	
D	Restricted Phases	
E	Assign 5 Outputs	

Configuration <E Page>

- Extra 1 Flags**  
 1 = TBC Type 1  
 2 = NEMA Ext. Coord  
 3 = Auto Daylight Savings  
 4 = EV Advance  
 5 =  
 6 = Special Event  
 7 = Pretimed Operation  
 8 = Split Ring Operation

- Assign 5 Outputs**  
 (Ped Loadswitch Yellows)  
 1 = Right Turn Overlap  
 2 = TOD Outputs  
 3 = EV Beacon - Steady  
 4 = EV Beacon - Flashing  
 5 = Special Event Outputs  
 6 = Phase 3 & 7 Ped  
 7 = Advanced Warning Sign  
 8 =

Force-Off Adjust	0
<b>Coord Force-Off Adjust for Ped Service</b>	<C+D+F>

Transition Type	0
<b>TBC Transition</b>	<C+D+D>

**Transition Type**  
 0 = Shortway  
 Non-zero = Lengthen

- IC Select Flags**  
 1 =  
 2 = Modern  
 3 = 7-Wire Slave  
 4 = Flash / Free  
 5 =  
 6 = Simplex Master  
 7 = 7-Wire Master  
 8 = Offset Interrupter

Row		F	Row
0	Free Lag	2 4 6 8	0
1	Plan 1 - Lag	2 4 6 8	1
2	Plan 2 - Lag	2 4 6 8	2
3	Plan 3 - Lag	2 4 6 8	3
4	Plan 4 - Lag	2 4 6 8	4
5	Plan 5 - Lag	2 4 6 8	5
6	Plan 6 - Lag	2 4 6 8	6
7	Plan 7 - Lag	2 4 6 8	7
8	Plan 8 - Lag	2 4 6 8	8
9	Plan 9 - Lag	2 4 6 8	9
A	Coord Max *		A
B	Coord Lag *		B
C			C
D			D
E			E
F			F

Lag Phases <C Page>

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	00:00	0	0	
2	00:00	0	0	
3	00:00	0	0	
4	00:00	0	0	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

**TOD Coordination**  
<9 Key with C+D+9=0>

Time	Func	Day of Week	Column F Phases/Bits
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		

**TOD Function** <D Page>  
<7 Key>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

**Holiday # 1**  
**TOD Coordination**  
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

**Holiday # 2**  
**TOD Coordination**  
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week	Row
00:00	0	0		0
00:00	0	0		1
00:00	0	0		2
00:00	0	0		3
00:00	0	0		4
00:00	0	0		5
00:00	0	0		6
00:00	0	0		7
00:00	0	0		8
00:00	0	0		9
00:00	0	0		A
00:00	0	0		B
00:00	0	0		C
00:00	0	0		D
00:00	0	0		E
00:00	0	0		F

**Holiday # 3**  
**TOD Coordination**  
<9 Key with C+D+9=3>

Plan Select  
1 thru 9 = Coordination  
Plan 1 thru 9  
14 or E = Free  
15 or F = Flash

Offset Select  
A = Offset A  
B = Offset B  
C = Offset C

T.O.D. Functions  
0 = Permitted Phases  
1 = Red Lock  
2 = Yellow Lock  
3 = Veh Min Recall  
4 = Ped Recall  
5 =  
6 = Rest In Walk  
7 = Red Rest  
8 = Double Entry  
9 = Veh Max Recall  
A = Veh Soft Recall  
B = Maximum 2  
C = Conditional Service  
D = Free Lag Phases  
E = Bit 1 - Local Override  
Bit 2 - Phase Bank 2  
Bit 3 - Phase Bank 3  
Bit 4 - Disable Detector  
OFF Monitor  
Bit 7 - Detector Count Monitor  
Bit 8 - Real Time Split Monitor  
F = Output Bits 1 thru 4

Month Select  
1 = January  
2 = February  
3 = March  
4 = April  
5 = May  
6 = June  
7 = July  
8 = August  
9 = September  
A = October  
B = November  
C = December

Row	Day	Year	Month	Day of Week
A	0	0	0	
B	0	0	0	
C	0	0	0	

**Holiday Dates**  
<8 Key>

Row	1	3	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	---	---	---	---	---
F	---	---	---	---	---

Row	2	4	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	---	---	---	---	---
F	---	---	---	---	---

Detector Delay & Carryover <D Page>

Row	9	C	D	0
	Green Clear	Yellow Change	Red Clear	Load-Switch #
A	0.0	0.0	0.0	0
B	0.0	0.0	0.0	0
C	0.0	0.0	0.0	0
D	0.0	0.0	0.0	0

Overlap Timing <F Page>

<D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	5678
E	-- -- -- -- -- -- --	1234
F	-- 25 26 27 28 -- -- --	2345

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row	0
	Detector Number
0	
1	System Det. # 1
2	System Det. # 2
3	System Det. # 3
4	System Det. # 4
5	System Det. # 5
6	System Det. # 6
7	System Det. # 7
8	System Det. # 8

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications (If set to a non-zero value, parity will be disabled)



Column Numbers ---->		Phase							
Row	Phase Names ---->	1	2	3	4	5	6	7	8
0	Ped Walk	0	0	0	0	0	0	0	0
1	Ped FDW	0	0	0	0	0	0	0	0
2	Min Green	0	0	0	0	0	0	0	0
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Max Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Max Limit	0	0	0	0	0	0	0	0
9	Max Limit 2	0	0	0	0	0	0	0	0
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F	Red Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phase Timing - Bank 2 <F Page>

Column Numbers ---->		Phase							
Row	Phase Names ---->	1	2	3	4	5	6	7	8
0	Ped Walk	0	0	0	0	0	0	0	0
1	Ped FDW	0	0	0	0	0	0	0	0
2	Min Green	0	0	0	0	0	0	0	0
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Max Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Max Limit	0	0	0	0	0	0	0	0
9	Max Limit 2	0	0	0	0	0	0	0	0
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F	Red Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phase Timing - Bank 3 <F Page>

Row	Delay Only ---->	7	8	9	A	B	C	D	E	F
		Time	Dwell	Hold	Advance	Force Off	Vehicle Call	Permit Phases	Ped Omit	Output
0		0	---	---	---	---	---	---	---	---
1		0	0	---	---	---	---	---	---	---
2		0	0	---	---	---	---	---	---	---
3		0	0	---	---	---	---	---	---	---
4		0	0	---	---	---	---	---	---	---
5		0	0	---	---	---	---	---	---	---
6		0	0	---	---	---	---	---	---	---
7		0	0	---	---	---	---	---	---	---
8		0	0	---	---	---	---	---	---	---
9	Limited Service Int. ---->	0	0	---	---	---	---	---	---	---
A		---	0	---	---	---	---	---	---	---
B		0	0	---	---	---	---	---	---	---
C		0	0	---	---	---	---	---	---	---
D		0	0	---	---	---	---	---	---	---
E		0	0	---	---	---	---	---	---	---
F		0	0	---	---	---	---	---	---	---

Special Event Schedule <C Page with F+9+F=22>

<--- Limited Service Interval (Set Dwell = 255)>

**INTERSECTION: Jefferson & Cherry**

Group Assignment: NONE  
 Field Master Assignment: NONE  
 System Reference Number: 109

N/S Street Name: Not Assigned  
 E/W Street Name: Not Assigned

Last Database Change: 5/16/2017 15:03

Change Record					
Change	By	Date	Change	By	Date

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Drop Number	5	<C+0+0>
Zone Number		<C+0+1>
Area Number	0	<C+0+2>
Area Address	66	<C+0+3>
QuicNet Channel	P:8002:10.2.10.1	(QuicNet)

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Max Initial	20	<F+0+E>
Red Revert	2.0	<F+0+F>
All Red Start	5.0	<F+C+0>

**Communication Addresses**

**Manual Selection**

**Start / Revert Times**

Row	Phase Names ---->	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	0	0	7	0	7	0	0
1	Ped FDW	0	0	0	22	0	10	0	0
2	Min Green	6	10	6	10	3	10	3	3
3	Type 3 Limit	0	99	0	99	0	99	0	0
4	Added Initial	0.0	3.0	0.0	3.0	0.0	3.0	0.0	0.0
5	Veh Extension	2.0	4.7	3.0	5.0	0.5	4.7	0.5	0.5
6	Max Gap	2.0	6.0	3.0	6.0	0.5	6.0	0.5	0.5
7	Min Gap	2.0	2.0	3.0	3.0	0.5	2.0	0.5	0.5
8	Max Limit	25	50	25	40	17	50	17	17
9	Max Limit 2	0	0	0	0	0	0	0	0
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0
D	Reduce Every	0.0	1.0	0.0	1.0	0.0	1.0	0.0	0.0
E	Yellow Change	3.6	5.2	3.6	4.8	3.6	5.2	3.6	3.6
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 1 <F Page>

Row	E		F		Row
	RR-1 Delay	0	Permit	1234_6_	
RR-1 Clear	10	Red Lock	_____	1	
EV-A Delay	0	Yellow Lock	_____	2	
EV-A Clear	1	Min Recall	_____	3	
EV-B Delay	0	Ped Recall	_____	4	
EV-B Clear	1	View Set Peds	-----	5	
EV-C Delay	0	Rest In Walk	_____	6	
EV-C Clear	1	Red Rest	_____	7	
EV-D Delay	0	Dual Entry	_2_6_	8	
EV-D Clear	1	Max Recall	_____	9	
RR-2 Delay	0	Soft Recall	_2_6_	A	
RR-2 Clear	10	Max 2	_____	B	
View EV Delay	---	Cond. Service	_____	C	
View EV Clear	---	Man Cntrl Calls	_____	D	
View RR Delay	---	Yellow Start	_4_	E	
View RR Clear	---	First Phases	_2_6_	F	

Preempt Timing Phase Functions <F Page>

**Manual Plan**  
 0 = Automatic  
 1-9 = Plan 1-9  
 14 = Free  
 15 = Flash

**Manual Offset**  
 0 = Automatic  
 1 = Offset A  
 2 = Offset B  
 3 = Offset C

Column Numbers ---->		Plan									
Row	Plan Name ---->	1	2	3	4	5	6	7	8	9	Row
0	Cycle Length	120	120	100	100	100	100	100	100	100	0
1	Phase 1 - ForceOff	80	80	65	65	65	65	65	65	65	1
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0	2
3	Phase 3 - ForceOff	20	20	25	25	25	25	25	25	25	3
4	Phase 4 - ForceOff	54	54	40	40	40	40	40	40	40	4
5	Phase 5 - ForceOff	0	0	65	65	65	65	65	65	65	5
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0	6
7	Phase 7 - ForceOff	0	0	25	25	25	25	25	25	25	7
8	Phase 8 - ForceOff	0	0	40	40	40	40	40	40	40	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	29	100	0	0	0	0	0	0	0	A
B	Offset 2	0	0	0	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	12	12	12	12	12	12	12	12	0	D
E	Hold Release	255	255	255	255	255	255	255	255	0	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

Coordination <C Page>

(\* = Coordination Recall)

Row	E	Row
0		0
1	Plan 1 - Sync <u>2 6</u>	1
2	Plan 2 - Sync <u>2 6</u>	2
3	Plan 3 - Sync <u>2 6</u>	3
4	Plan 4 - Sync <u>2 6</u>	4
5	Plan 5 - Sync <u>2 6</u>	5
6	Plan 6 - Sync <u>2 6</u>	6
7	Plan 7 - Sync <u>2 6</u>	7
8	Plan 8 - Sync <u>2 6</u>	8
9	Plan 9 - Sync <u>2 6</u>	9
A	Coord Ped *	A
B	NEMA Hold	B
C		C
D		D
E		E
F		F

Sync Phases <C Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	<u>2</u>
B	EV-B Phases	<u>4</u>
C	EV-C Phases	<u>1 6</u>
D	EV-D Phases	<u>3</u>
E	Extra 1 Config. Bits	<u>1 3</u>
F	IC Select (Interconnect)	<u>2</u>

Configuration <E Page>

Row	F
0	
1	RR Overlap A - Phases
2	RR Overlap B - Phases
3	RR Overlap C - Phases
4	RR Overlap D - Phases
5	Ped 2P
6	Ped 6P
7	Ped 4P
8	Ped 8P
9	Yellow Flash Phases
A	Overlap A - Phases
B	Overlap B - Phases
C	Overlap C - Phases
D	Overlap D - Phases
E	Restricted Phases
F	Assign 5 Outputs

Configuration <E Page>

- Extra 1 Flags**  
 1 = TBC Type 1  
 2 = NEMA Ext. Coord  
 3 = Auto Daylight Savings  
 4 = EV Advance  
 5 =  
 6 = Special Event  
 7 = Pretimed Operation  
 8 = Split Ring Operation

- Assign 5 Outputs**  
 (Ped Loadswitch Yellows)  
 1 = Right Turn Overlap  
 2 = TOD Outputs  
 3 = EV Beacon - Steady  
 4 = EV Beacon - Flashing  
 5 = Special Event Outputs  
 6 = Phase 3 & 7 Ped  
 7 = Advanced Warning Sign  
 8 =

Force-Off Adjust 0

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type 0

TBC Transition <C+D+D>

**Transition Type**  
 0 = Shortway  
 Non-zero = Lengthen

- IC Select Flags**  
 1 =  
 2 = Modem  
 3 = 7-Wire Slave  
 4 = Flash / Free  
 5 =  
 6 = Simplex Master  
 7 = 7-Wire Master  
 8 = Offset Interrupter

Row	F	Row
0	Free Lag <u>2 4 6 8</u>	0
1	Plan 1 - Lag <u>2 4 6 8</u>	1
2	Plan 2 - Lag <u>2 4 6 8</u>	2
3	Plan 3 - Lag <u>2 4 6 8</u>	3
4	Plan 4 - Lag <u>2 4 6 8</u>	4
5	Plan 5 - Lag <u>2 4 6 8</u>	5
6	Plan 6 - Lag <u>2 4 6 8</u>	6
7	Plan 7 - Lag <u>2 4 6 8</u>	7
8	Plan 8 - Lag <u>2 4 6 8</u>	8
9	Plan 9 - Lag <u>2 4 6 8</u>	9
A	Coord Max *	A
B	Coord Lag *	B
C		C
D		D
E		E
F		F

Lag Phases <C Page>



Row	Time	Plan	Offset	Day of Week
0	07:00	1	A	23456
1	09:00	E	A	1234567
2	16:00	2	A	23456
3	18:00	E	A	1234567
4	00:00	0	0	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

**TOD Coordination**  
<9 Key with C+D+9=0>

Plan Select  
1 thru 9 = Coordination  
Plan 1 thru 9  
14 or E = Free  
15 or F = Flash

Offset Select  
A = Offset A  
B = Offset B  
C = Offset C

Time	Funct.	Day of Week
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	

**TOD Function**  
<7 Key>

T.O.D. Functions  
0 = Permitted Phases  
1 = Red Lock  
2 = Yellow Lock  
3 = Veh Min Recall  
4 = Ped Recall  
5 =  
6 = Rest In Walk  
7 = Red Rest  
8 = Double Entry  
9 = Veh Max Recall  
A = Veh Soft Recall  
B = Maximum 2  
C = Conditional Service  
D = Free Lag Phases  
E = Bit 1 - Local Override  
Bit 2 - Phase Bank 2  
Bit 3 - Phase Bank 3  
Bit 4 - Disable Detector  
OFF Monitor  
Bit 7 - Detector Count Monitor  
Bit 8 - Real Time Split Monitor  
F = Output Bits 1 thru 4

Column F
Phases/Bits

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

**Holiday # 1**  
**TOD Coordination**  
<9 Key with C+D+9=1>

Month Select  
1 = January  
2 = February  
3 = March  
4 = April  
5 = May  
6 = June  
7 = July  
8 = August  
9 = September  
A = October  
B = November  
C = December

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

**Holiday # 2**  
**TOD Coordination**  
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week	Row
00:00	0	0		0
00:00	0	0		1
00:00	0	0		2
00:00	0	0		3
00:00	0	0		4
00:00	0	0		5
00:00	0	0		6
00:00	0	0		7
00:00	0	0		8
00:00	0	0		9
00:00	0	0		A
00:00	0	0		B
00:00	0	0		C
00:00	0	0		D
00:00	0	0		E
00:00	0	0		F

**Holiday # 3**  
**TOD Coordination**  
<9 Key with C+D+9=3>

Row	Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0
B	Holiday # 2 Date	0	0	0
C	Holiday # 3 Date	0	0	0

**Holiday Dates**  
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	---	---	---	---	---
F	---	---	---	---	---

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	---	---	---	---	---
F	---	---	---	---	---

Detector Delay & Carryover <D Page>

Row	9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	0.0	0.0	0.0	0
B	0.0	0.0	0.0	0
C	0.0	0.0	0.0	0
D	0.0	0.0	0.0	0

Overlap Timing <F Page>

<D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	5678
E	-- -- -- -- -- -- -- --	1234
F	-- 25 26 27 28 -- -- --	2345

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row	0 Detector Number
0	
1	System Det. # 1
2	System Det. # 2
3	System Det. # 3
4	System Det. # 4
5	System Det. # 5
6	System Det. # 6
7	System Det. # 7
8	System Det. # 8

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications (If set to a non-zero value, parity will be disabled)



Column Numbers ---->		Phase							
Row	Phase Names ---->	1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Column Numbers ---->		Phase								Row
Phase Names ---->	1	2	3	4	5	6	7	8		
Ped Walk	0	7	0	7	0	7	0	7	0	
Ped FDW	0	10	0	10	0	10	0	10	1	
Min Green	3	7	3	7	3	7	3	7	2	
Type 3 Limit	0	0	0	0	0	0	0	0	3	
Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2	4	
Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5	5	
Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0	6	
Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0	7	
Max Limit	17	40	17	40	17	40	17	40	8	
Max Limit 2	30	70	30	70	30	70	30	70	9	
-----	0	0	0	0	0	0	0	0	A	
Call To Phase	0	0	0	0	0	0	0	0	B	
Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C	
Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	D	
Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0	E	
Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0	F	

Phase Timing - Bank 3 <F Page>

Row	Delay Only ---->	7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output	Row
0		0	---	---	---	---	---	---	---	---	0
1		0	0	---	---	---	---	---	---	---	1
2		0	0	---	---	---	---	---	---	---	2
3		0	0	---	---	---	---	---	---	---	3
4		0	0	---	---	---	---	---	---	---	4
5		0	0	---	---	---	---	---	---	---	5
6		0	0	---	---	---	---	---	---	---	6
7		0	0	---	---	---	---	---	---	---	7
8		0	0	---	---	---	---	---	---	---	8
9	Limited Service Int. ---->	0	0	---	---	---	---	---	---	---	9
A		---	0	---	---	---	---	---	---	---	A
B		0	0	---	---	---	---	---	---	---	B
C		0	0	---	---	---	---	---	---	---	C
D		0	0	---	---	---	---	---	---	---	D
E		0	0	---	---	---	---	---	---	---	E
F		0	0	---	---	---	---	---	---	---	F

Special Event Schedule <C Page with F+9+F=22>

<--- Limited Service Interval (Set Dwell = 255)



Group Assignment: Winchester East Adaptive Group

N/S Street Name: Ynez Road

Last Database Change: 03/23/2017 9:31

Field Master Assignment: NONE

E/W Street Name: Winchester Road SR79

System Reference Number: 35

Change Record					
Change	By	Date	Change	By	Date

Notes:

Manual Plan  
 0 = Automatic  
 1-9 = Plan 1-9  
 14 = Free  
 15 = Flash

Manual Offset  
 0 = Automatic  
 1 = Offset A  
 2 = Offset B  
 3 = Offset C

Drop Number	4	<C/0+0+0>
Zone Number	1	<C/0+0+1>
Area Number	3	<C/0+0+2>
Area Address	4	<C/0+0+3>
QuicNet Channel	COM103:	(QuicNet)

Manual Plan		<C/0+A+1>
Manual Offset		<C/0+B+1>

Flash Start	0	<F/1+0+E>
Red Revert	5.0	<F/1+0+F>
All Red Start	5.0	<F/1+C+0>
FYA Red Revert	0.0	<F/1+0+5>
OVLP CHG Red	6.0	<F/1+0+3>

Exclusive Walk	0	<F/1+0+0>
Exclusive FDW	0	<F/1+0+1>
All Red Clear	0.0	<F/1+0+2>

Communication Addresses

Manual Selection

Start / Revert Times

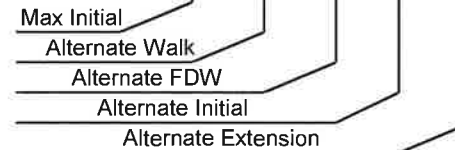
Exclusive Ped Phase

(Outputs specified in Assignable  
 Outputs at E/127+A+E & F)

Row	Phase Names ---->	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	5	0	0	0	5	0	5
1	Ped FDW	0	35	0	0	0	27	0	36
2	Min Green	5	10	5	7	5	10	5	7
3	Type 3 Disconnect	0	0	0	0	0	0	0	0
4	Added per Vehicle	0.0	2.0	0.0	1.0	0.0	2.0	0.0	1.0
5	Veh Extension	2.0	4.0	1.5	4.0	2.0	4.0	1.5	2.0
6	Max Gap	2.0	4.0	1.5	4.0	2.0	4.0	1.5	2.0
7	Min Gap	2.0	4.0	1.5	4.0	2.0	4.0	1.5	2.0
8	Max Limit	20	50	25	30	20	50	20	25
9	Max Limit 2	20	50	25	30	20	50	20	25
A	Adv. / Delay Walk	0	0	0	0	0	0	0	0
B	PE Min Ped FDW	0	0	0	0	0	0	0	0
C	Cond Serv Check	0	0	0	0	0	0	0	0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	3.0	4.3	3.0	4.3	3.0	4.3	3.0	4.3
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 1 <C+0+F=1>

	9	A	B	C	D
Phase 1	0	0	0	0	0.0
Phase 2	20	0	0	0	0.0
Phase 3	0	0	0	0	0.0
Phase 4	20	0	0	0	0.0
Phase 5	0	0	0	0	0.0
Phase 6	20	0	0	0	0.0
Phase 7	0	0	0	0	0.0
Phase 8	20	0	0	0	0.0



Alternate Timing <C+0+F=1>

	E
RR-1 Delay	0
RR-1 Clear	0
EV-A Delay	0
EV-A Clear	1
EV-B Delay	0
EV-B Clear	1
EV-C Delay	0
EV-C Clear	1
EV-D Delay	0
EV-D Clear	1
RR-2 Delay	0
RR-2 Clear	0
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

Preempt Timing

	F	Row
Permit	12345678	0
Red Lock	_____	1
Yellow Lock	_____	2
Min Recall	_____	3
Ped Recall	_____	4
View Set Peds	-----	5
Rest In Walk	_____	6
Red Rest	_____	7
Dual Entry	_____	8
Max Recall	_____	9
Soft Recall	_____	A
Max 2	_____	B
Cond. Service	_____	C
Man Cntrl Calls	_____	D
Yellow Start	4 8	E
First Phases	1 5	F

Phase Functions <C+0+F=1>

		Overlap							
Column Numbers ---->		1	2	3	4	5	6	7	8
Row	Overlap Name ---->								
0	Load Switch Number	9	10	0	0	0	0	0	0
1	Veh Set 1 - Phases	23	1 8						
2	Veh Set 2 - Phases								
3	Veh Set 3 - Phases								
4	Neg Veh Phases								
5	Neg Ped Phases	2	8						
6	Green Omit Phases	2	8						
7	Green Clear Omit Phs.								
8	Overlap Recall	N	N	N	N	N	N	N	N
9	Queue Jump Phase								
A	Queue Jump Time	0	0	0	0	0	0	0	0
B	Minimum Green	0	0	0	0	0	0	0	0
C	Maximum Green	0	0	0	0	0	0	0	0
D	Green Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F	Red Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Overlap Assignments <C+0+E=29>

- Extra 1 Flags**  
 1 = TBC Type 1  
 2 = NEMA Ext. Coord  
 3 = Auto Daylight Savings  
 4 = Solid FDW on EV  
 5 = Extended Status  
 6 = International Ped  
 7 = Flash - Clear Outputs  
 8 = Split Ring

- Extra 2 Flags**  
 1 = AWB During Initial  
 2 = Reserved  
 3 = Disable Min Walk  
 4 = QuicNet System  
 5 = Ignore P/P on EV  
 6 = Manual Hold in FDW  
 7 = Allow QuicNet PE  
 8 = Flash Grn B4 Yellow

	C	Row
EV-A	0	0
EV-B	0	1
EV-C	0	2
EV-D	0	3
RR-1 *	---	4
RR-2 *	---	5
SE-1	0	6
SE-2	0	7

**Preempt Priority**

<C+0+E=125>  
 (\* RR-1 is always Highest, and RR-2 is always Second Highest)

Row	Column Numbers ---->	E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Flash to PE Circuits	
6	Flash Entry Phases	
7	Disable Yellow Range	
8	Disable Ovp Yel Range	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	4 7
C	EV-C Phases	1 6
D	EV-D Phases	3 8
E	Extra 1 Config. Bits	1 3 5
F	IC Select (Interconnect)	2

Configuration <C+0+E=125>

Row	Column Numbers ---->	F
0	Ext. Permit 1 Phases	
1	Ext. Permit 2 Phases	
2	Exclusive Ped Assign	
3	Preempt Non-Lock	
4	Ped for 2P Output	2
5	Ped for 6P Output	6
6	Ped for 4P Output	
7	Ped for 8P Output	8
8	Yellow Flash Phases	
9	Low Priority A Phases	
A	Low Priority B Phases	
B	Low Priority C Phases	
C	Low Priority D Phases	
D	Restricted Phases	
E	Extra 2 Config. Bits	4

Configuration <C+0+E=125>

Row	Column Numbers ---->	F
0	Fast Green Flash Phase	
1	Green Flash Phases	
2	Flashing Walk Phases	
3	Guaranteed Passage	
4	Simultaneous Gap Term	12345678
5	Sequential Timing	
6	Advance Walk Phases	
7	Delay Walk Phases	
8	External Recall	
9	Start-up Overlap Green	
A	Max Extension	
B	Inhibit Ped Reservice	
C	Semi-Actuated	
D	Start-up Overlap Yellow	
E	Start-up Vehicle Calls	12345678
F	Start-up Ped Calls	12345678

Specials <C+0+F=2>

- Flash to PE & PE Non-Lock**  
 1 = EV A 5 = RR 1  
 2 = EV B 6 = RR 2  
 3 = EV C 7 = SE 1  
 4 = EV D 8 = SE 2

- IC Select Flags**  
 1 =  
 2 = Modem  
 3 = 7-Wire Slave  
 4 =  
 5 =  
 6 = Simplex Master  
 7 =  
 8 = Offset Interrupter

	2	Row
Phase 1	15	1
Phase 2	30	2
Phase 3	20	3
Phase 4	20	4
Phase 5	15	5
Phase 6	30	6
Phase 7	15	7
Phase 8	20	8

**Coordination Transition Minimums**

<C+0+C=5>

Coord Extra

1 = Programmed WALK Time for Sync Phases  
2 = Always Terminate Sync Phase Peds

Column Numbers ---->		Plan								
Plan Name ---->		1	2	3	4	5	6	7	8	9
0	Cycle Length	120	120	120	120	120	120	120	120	120
1	Phase 1 - ForceOff	75	74	75	71	76	77	69	75	75
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0
3	Phase 3 - ForceOff	50	44	46	26	54	45	49	50	46
4	Phase 4 - ForceOff	20	20	20	52	38	20	20	20	20
5	Phase 5 - ForceOff	80	69	71	78	77	84	75	80	71
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0
7	Phase 7 - ForceOff	19	20	15	13	16	19	20	19	15
8	Phase 8 - ForceOff	50	44	46	52	54	45	49	50	46
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	0	65	7	0	99	41	43	0	7
B	Offset 2	0	0	113	0	0	0	0	0	113
C	Offset 3	116	0	0	0	0	0	0	116	0
D	Perm 1 - End	15	15	21	15	12	15	15	15	21
E	Hold Release	95	255	95	255	255	95	95	95	95
F	Reserved	0	0	0	0	0	0	0	0	0

Coordination - Bank 1 <C+0+C=1>

Row	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

		E		Row
				0
Plan 1 - Sync	2	6		1
Plan 2 - Sync	2	6		2
Plan 3 - Sync	2	6		3
Plan 4 - Sync	2	6		4
Plan 5 - Sync	2	6		5
Plan 6 - Sync	2	6		6
Plan 7 - Sync	2	6		7
Plan 8 - Sync	2	6		8
Plan 9 - Sync	2	6		9
NEMA Sync				A
NEMA Hold				B
				C
				D
				E
				F

Sync Phases <C+0+C=1>

0	Ped Adjustment	8	5	8	0	0	8	8	8	8
1	Perm 2 - Start	0	0	0	0	0	0	0	0	0
2	Perm 2 - End	0	0	0	0	0	0	0	0	0
3	Perm 3 - Start	0	0	0	0	0	0	0	0	0
4	Perm 3 - End	0	0	0	0	0	0	0	0	0
5	Reservice Time	0	0	0	0	0	0	0	0	0
6	Reservice Phases									
7										
8	Pretimed Phases									
9	Max Recall									
A	Perm 1 Veh Phase	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
B	Perm 1 Ped Phase	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
C	Perm 2 Veh Phase									
D	Perm 2 Ped Phase									
E	Perm 3 Veh Phase									
F	Perm 3 Ped Phase									

Coordination - Bank 2 <C+0+C=2>

Row	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

		F			Row
					0
Free Lag	23	6	8		1
Plan 1 - Lag	23	6	8		2
Plan 2 - Lag	23	6	8		3
Plan 3 - Lag	23	6	8		4
Plan 4 - Lag	2	4	6	8	5
Plan 5 - Lag	2	4	6	8	6
Plan 6 - Lag	23	6	8		7
Plan 7 - Lag	23	6	8		8
Plan 8 - Lag	23	6	8		9
Plan 9 - Lag	23	6	8		A
External Lag					B
Lag Hold					C
					D
					E
					F

Lag Phases <C+0+C=1>

Row	Column 8	Column 9	Column A	Column B	Column C	Column D	Column E	Column F	Row								
0	One-Shot Timer	0	Latch 1 Set	0	NOT-3	0	Max 2	0	Pretimed	0	Set DOW	0	Dial 2 (7-Wire)	0	Sim Term	0	0
1	AND-5 (a)	0	Latch 1 Reset	0	NOT-4	0	Bus Checkin A	0	Plan 1	0	Ext. Perm 1	0	Dial 3 (7-Wire)	0	EV-A	71	1
2	AND-5 (b)	0	Latch 2 Set	0	OR-4 (a)	0	Bus Checkin B	0	Plan 2	0	Ext. Perm 2	0	Offset 1 (7-Wire)	0	EV-B	72	2
3	AND-6 (a)	0	Latch 2 Reset	0	OR-4 (b)	0	Bus Checkin C	0	Plan 3	0	Gate Down	0	Offset 2 (7-Wire)	0	EV-C	73	3
4	AND-6 (b)	0	NAND-3 (a)	0	OR-5 (a)	0	Bus Checkin D	0	Plan 4	0	Set Clock	0	Offset 3 (7-Wire)	0	EV-D	74	4
5	Reserved		NAND-3 (b)	0	OR-5 (b)	0	Bus Checkout A	0	Plan 5	0	Stop Time	82	Free (7-Wire)	0	RR-1	0	5
6	Reserved		NAND-4 (a)	0	OR-6 (a)	0	Bus Checkout B	0	Plan 6	0	Flash Sense	81	Flash (7-Wire)	0	RR-2	0	6
7	Reserved		NAND-4 (b)	0	OR-6 (b)	0	Bus Checkout C	0	Plan 7	0	Manual Enable	53	Excl. Ped Omit	0	Spec. Event 1	0	7
8	Spec. Funct. 1	0	OR-7 (a)	0	EXTMR	0	Bus Checkout D	0	Plan 8	0	Man. Advance	80	NOT-1	0	Spec. Event 2	0	8
9	Spec. Funct. 2	0	OR-7 (b)	0	Reserved		Max Inhibit (nema)	0	Plan 9	0	External Alarm	0	NOT-2	0	External Lag	0	9
A	Spec. Funct. 3	0	OR-7 (c)	0	AND-4 (a)	0	Force A (nema)	0	DELAY-A	0	Phase Bank 2	0	OR-1 (a)	0	AND-1 (a)	0	A
B	Spec. Funct. 4	0	OR-7 (d)	0	AND-4 (b)	0	Force B (nema)	0	DELAY-B	0	Phase Bank 3	0	OR-1 (b)	0	AND-1 (b)	0	B
C	Reserved		OR-8 (a)	0	NAND-1 (a)	0	C.N.A. (nema)	0	DELAY-C	0	Overlap Set 2	0	OR-2 (a)	0	AND-2 (a)	0	C
D	Reserved		OR-8 (b)	0	NAND-1 (b)	0	Hold (nema)	0	DELAY-D	0	Overlap Set 3	0	OR-2 (b)	0	AND-2 (b)	0	D
E	Reserved		OR-8 (c)	0	NAND-2 (a)	0	Max Recall	0	DELAY-E	0	Detector Set 2	0	OR-3 (a)	0	AND-3 (a)	0	E
F	Reserved		OR-8 (d)	0	NAND-2 (b)	0	Min Recall	0	DELAY-F	0	Detector Set 3	0	OR-3 (b)	0	AND-3 (b)	0	F

Assignable Inputs

<C+0+E=126>

Row	Column 8	Column 9	Column A	Column B	Column C	Column D	Column E	Column F	Row								
0	Reserved		Phase ON - 1	0	Preempt Fail	0	Flasher 0	0	Free	0	NOT-1	0	TOD Out 1	0	Dial 2 (7-Wire)	0	0
1	Reserved		Phase ON - 2	0	Sp Evnt Out 1	0	Flasher 1	0	Plan 1	0	OR-1	0	TOD Out 2	0	Dial 3 (7-Wire)	0	1
2	Reserved		Phase ON - 3	0	Sp Evnt Out 2	0	Fast Flasher	0	Plan 2	0	OR-2	0	TOD Out 3	0	Offset 1 (7-Wire)	0	2
3	Reserved		Phase ON - 4	0	Sp Evnt Out 3	0	EXTMR	0	Plan 3	0	OR-3	0	TOD Out 4	0	Offset 2 (7-Wire)	0	3
4	Reserved		Phase ON - 5	0	Sp Evnt Out 4	0	One-Shot Timer	0	Plan 4	0	AND-1	0	TOD Out 5	0	Offset 3 (7-Wire)	0	4
5	Reserved		Phase ON - 6	0	Sp Evnt Out 5	0	Reserved		Plan 5	0	AND-2	0	TOD Out 6	0	Free (7-Wire)	0	5
6	Reserved		Phase ON - 7	0	Sp Evnt Out 6	0	Latch 1	0	Plan 6	0	AND-3	0	TOD Out 7	0	Flash (7-Wire)	0	6
7	Reserved		Phase ON - 8	0	Sp Evnt Out 7	0	Latch 2	0	Plan 7	0	NOT-2	0	TOD Out 8	0	Preempt	0	7
8	Flh Yell Arrow 1	0	Ph. Check - 1	0	Sp Evnt Out 8	0	NOT-3	0	Plan 8	0	EV-A	0	Adv. Warn - 1	0	Low Priority A	0	8
9	Green 1	0	Ph. Check - 2	0	Coord On	0	NOT-4	0	Plan 9	0	EV-B	0	Adv. Warn - 2	0	Low Priority B	0	9
A	Flh Yell Arrow 3	0	Ph. Check - 3	0	Detector Fail	0	OR-4	0	Spec. Funct 3	0	EV-C	0	DELAY-A	0	Low Priority C	0	A
B	Green 3	0	Ph. Check - 4	0	Spec. Funct. 1	0	OR-5	0	Spec. Funct. 4	0	EV-D	0	DELAY-B	0	Low Priority D	0	B
C	Flh Yell Arrow 5	0	Ph. Check - 5	0	Spec. Funct. 2	0	OR-6	0	NAND-3	0	RR-1	0	DELAY-C	0	AND-5	0	C
D	Green 5	0	Ph. Check - 6	0	Central Control	0	AND-4	0	NAND-4	0	RR-2	0	DELAY-D	0	AND-6	0	D
E	Flh Yell Arrow 7	0	Ph. Check - 7	0	Excl. Ped DW	0	NAND-1	0	OR-7	0	Spec. Event 1	0	DELAY-E	0	Reserved		E
F	Green 7	0	Ph. Check - 8	0	Excl. Ped WK	0	NAND-2	0	OR-8	0	Spec. Event 2	0	DELAY-F	0	Reserved		F

Assignable Outputs

<C+0+E=127>

Column Numbers ---->		Phase							
Phase Names ---->		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	15	0	15	0	15	0	15
2	Min Green	4	7	4	4	4	7	4	4
3	Type 3 Disconnect	0	20	0	20	0	20	0	20
4	Added per Vehicle	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0
5	Veh Extension	2.0	4.0	2.0	2.5	2.0	4.0	2.0	2.5
6	Max Gap	3.0	6.0	3.0	3.0	3.0	6.0	3.0	3.0
7	Min Gap	0.5	2.0	0.5	1.5	0.5	2.0	0.5	1.5
8	Max Limit	20	30	20	25	20	30	20	25
9	Max Limit 2	30	50	30	40	30	50	30	40
A	Adv. / Delay Walk	0	0	0	0	0	0	0	0
B	PE Min Ped FDW	7	7	7	7	7	7	7	7
C	Cond Serv Check	10	10	10	10	10	10	10	10
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	3.0	3.0	4.0	3.0	3.0
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 2 <C+0+F=2>

Row		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	15	0	15	0	15	0	15
2	Min Green	4	7	4	4	4	7	4	4
3	Type 3 Disconnect	0	20	0	20	0	20	0	20
4	Added per Vehicle	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0
5	Veh Extension	2.0	4.0	2.0	2.5	2.0	4.0	2.0	2.5
6	Max Gap	3.0	6.0	3.0	3.0	3.0	6.0	3.0	3.0
7	Min Gap	0.5	2.0	0.5	1.5	0.5	2.0	0.5	1.5
8	Max Limit	20	30	20	25	20	30	20	25
9	Max Limit 2	30	50	30	40	30	50	30	40
A	Adv. / Delay Walk	0	0	0	0	0	0	0	0
B	PE Min Ped FDW	7	7	7	7	7	7	7	7
C	Cond Serv Check	10	10	10	10	10	10	10	10
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	3.0	3.0	4.0	3.0	3.0
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 3 <C+0+F=3>

	9	A	B	C	D
Phase 1	0	0	0	0	0.0
Phase 2	0	0	0	0	0.0
Phase 3	0	0	0	0	0.0
Phase 4	0	0	0	0	0.0
Phase 5	0	0	0	0	0.0
Phase 6	0	0	0	0	0.0
Phase 7	0	0	0	0	0.0
Phase 8	0	0	0	0	0.0

Max Initial  
Alternate Walk  
Alternate FDW  
Alternate Initial  
Alternate Extension

Alternate Timing

	9	A	B	C	D
Phase 1	0	0	0	0	0.0
Phase 2	0	0	0	0	0.0
Phase 3	0	0	0	0	0.0
Phase 4	0	0	0	0	0.0
Phase 5	0	0	0	0	0.0
Phase 6	0	0	0	0	0.0
Phase 7	0	0	0	0	0.0
Phase 8	0	0	0	0	0.0

Max Initial  
Alternate Walk  
Alternate FDW  
Alternate Initial  
Alternate Extension

Alternate Timing

Transition Type  
0.X = Shortway  
1.X = Lengthen  
X.1 thru X.4 =  
Number of  
cycles when  
lengthing

Transition Type **0.3** <C/5+1+9>  
**TBC Transition**

HAWK Select **0** <F/1+0+4>  
**HAWK** (200=Ped, 201=EV)

Address **0** <C/1+0+6>  
Parity **0** <C/1+0+5>  
**AB3418 Comm 2** 0 = No Parity, 1 = Even

Daylight Saving  
Date  
If set to all zeros,  
standard dates  
will be used.

Begin Month **0** <C/5+2+A>  
Begin Week **0** <C/5+2+B>  
End Month **0** <C/5+2+C>  
End Week **0** <C/5+2+D>

**Daylight Saving Time**

Time B4 Yellow **0.0** <F/1+C+E>  
Phase Number **0** <F/1+C+F>

**Advance Warning Beacon - Sign 1**

Time B4 Yellow **0.0** \*  
Phase Number **0** <F/1+D+F>

**Advance Warning Beacon - Sign 2**

Offset Time **0** <C/5+2+E>  
Max Cycle Time **0** <C/5+2+F>

**Yellow Yield Coordination**

**12345678**  
Omit Alarm **12345678** <C/5+F+0>  
**Local Alarm Disable**

Column Numbers ---->		0	1	2	3	1	3
Row	Detector Name	C1 Pin Number	Attributes	Phase(s)	Assign	Delay	Carry-over
0		39	45 7	2	123	0.0	0.0
1		40	45 7	6	123	0.0	0.0
2		41	45 7	4	123	0.0	0.0
3		42	45 7	8	123	0.0	0.0
4		43	45 7	2	123	0.0	0.0
5		44	45 7	6	123	0.0	0.0
6		45	45 7	4	123	0.0	0.0
7		46	45 7	8	123	0.0	0.0
8		47	67	2	123	0.0	0.0
9		48	67	6	123	0.0	0.0
A		49	67	4	123	0.0	0.0
B		50	67	8	123	0.0	0.0
C		55	45 7	5	123	0.0	0.0
D		56	45 7	1	123	0.0	0.0
E		57	45 7	7	123	0.0	0.0
F		58	45 7	3	123	0.0	0.0

Column Numbers ---->		4	5	6	7	2	4
Row	Detector Name	C1 Pin Number	Attributes	Phase(s)	Assign	Delay	Carry-over
0		59	45 7	5	123	0.0	0.0
1		60	45 7	1	123	0.0	0.0
2		61	45 7	7	123	0.0	0.0
3		62	45 7	3	123	0.0	0.0
4		63	45 7	2	123	0.0	0.0
5		64	45 7	6	123	0.0	0.0
6		65	45 7	4	123	0.0	0.0
7		66	45 7	8	123	0.0	0.0
8		67	2	2	123	0.0	0.0
9		68	2	6	123	0.0	0.0
A		69	2	4	123	0.0	0.0
B		70	2	8	123	0.0	0.0
C		76	45 7	2	123	0.0	0.0
D		77	45 7	6	123	0.0	0.0
E		78	45 7	4	123	0.0	0.0
F		79	45 7	8	123	0.0	0.0

Detector Assignments <C+0+E=126>

<C+0+D=0>

Column Numbers ---->		Ped / Phase / Overlap								Row
		1	2	3	4	5	6	7	8	
Walk		0	0	0	0	0	0	0	0	0
Don't Walk		0	0	0	0	0	0	0	0	0
Phase Green		0	0	0	0	0	0	0	0	0
Phase Yellow		0	0	0	0	0	0	0	0	0
Phase Red		0	0	0	0	0	0	0	0	0
Overlap Green		0	0	0	0	0	0	0	0	0
Overlap Yellow		0	0	0	0	0	0	0	0	0
Overlap Red		0	0	0	0	0	0	0	0	0

Redirect Phase Outputs

<C+0+E=127>

Cabinet Type 0 <E/125+D+0>

**Enable Redirection**

(Enable Redirection = 30)

Max OFF (minutes) 20 <D/0+0+1>

Max ON (minutes) 7 <D/0+0+2>

Chatter (count) 0 <D/0+0+4>

**Detector Failure Monitor**

	B	Row
One-Shot	0.0	8
Ext. Timer	0	9
DELAY-A	0	A
DELAY-B	0	B
DELAY-C	0	C
DELAY-D	0	D
DELAY-E	0	E
DELAY-F	0	F

**Delay Logic Times**

<C+0+D=0> (seconds)

**Detector Attributes**

- 1 = Full Time Delay
- 2 = Ped Call
- 3 = Overlap
- 4 = Count
- 5 = Extension
- 6 = Type 3
- 7 = Calling
- 8 = Alternate

**Det. Assignments**

- 1 = Det. Set 1
- 2 = Det. Set 2
- 3 = Det. Set 3
- 4 =
- 5 =
- 6 = Failure - Min Recall
- 7 = Failure - Max Recall
- 8 = Report on Failure



Row	Time	Plan	Offset	Day of Week
0	05 : 30	6	A	23456
1	10 : 00	1	A	23456
2	15 : 00	2	A	23456
3	20 : 00	E	A	23456
4	08 : 00	3	A	7
5	20 : 00	E	A	7
6	00 : 00	0	0	
7	00 : 00	0	0	
8	00 : 00	0	0	
9	00 : 00	0	0	
A	00 : 00	0	0	
B	00 : 00	0	0	
C	00 : 00	0	0	
D	00 : 00	0	0	
E	00 : 00	0	0	
F	00 : 00	0	0	

**TOD Coordination** <C+0+9=0.1>  
(Bank 1)

Time	Funct.	Day of Week
00 : 00	E	1234567
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	

**TOD Function** <C+0+7=0.1>

Column 4
Phases/Bits
78

<C+0+E=27>

Day	Year	Month	Holiday Type
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	

**Holiday Dates** <C+0+8=1.1>  
(Bank 1)

Time	Plan	Offset	Holiday Type
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	

**Holiday Events** <C+0+9=1.1>  
(Bank 1)

- T.O.D. Functions**  
 1 = Red Lock  
 2 = Yellow Lock  
 3 = Veh Min Recall  
 4 = Ped Recall  
 6 = Rest In Walk  
 7 = Red Rest  
 8 = Double Entry  
 9 = Veh Max Recall  
 A = Veh Soft Recall  
 B = Maximum 2  
 C = Conditional Service  
 D = Free Lag Phases  
 E = Bit 1 - Local Override  
     Bit 4 - Disable Detector  
         OFF Monitor  
     Bit 5 - Disable Low  
         Priority Preempt  
     Bit 6 - FYA Inhibit  
     Bit 7 - Detector Count  
         Monitor  
     Bit 8 - Real Time Split  
         Monitor  
 F = Output Bits 1 thru 8

- Plan Select**  
 1 thru 9 = Coordination  
     Plan 1 thru 9  
 14 or E = Free  
 15 or F = Flash

- Offset Select**  
 A = Offset A  
 B = Offset B  
 C = Offset C

Row	Time	Plan	Offset	Day of Week
0	00 : 00	0	0	
1	00 : 00	0	0	
2	00 : 00	0	0	
3	00 : 00	0	0	
4	00 : 00	0	0	
5	00 : 00	0	0	
6	00 : 00	0	0	
7	00 : 00	0	0	
8	00 : 00	0	0	
9	00 : 00	0	0	
A	00 : 00	0	0	
B	00 : 00	0	0	
C	00 : 00	0	0	
D	00 : 00	0	0	
E	00 : 00	0	0	
F	00 : 00	0	0	

**TOD Coordination** <C+0+9=0.2>  
(Bank 2)

Time	Funct.	Holiday Type
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	

**Holiday TOD Function** <C+0+7=0.2>

Column 4
Phases/Bits

<C+0+E=28>

Day	Year	Month	Holiday Type
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	

**Holiday Dates** <C+0+8=1.2>  
(Bank 2)

Time	Plan	Offset	Holiday Type
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	

**Holiday Events** <C+0+9=1.2>  
(Bank 2)

Month Select: October = A, November = B, Decmber = C

Row	6 Clear	7 Time	8 Ped Call	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output
0		0								
1		0								
2		0								
3		0								
4		0								
5		0								
6		0								
7		0								
8		0								
9		0								
A		0								
B		0								
C		0								
D		0								
E		0								
F		0								

Special Event Schedule -- Table 1

<C+0+E=27>

Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

0 <E/27+5+F>  
**Limited Service Interval**

Row	6 Clear	7 Time	8 Ped Call	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output
0		0								
1		0								
2		0								
3		0								
4		0								
5		0								
6		0								
7		0								
8		0								
9		0								
A		0								
B		0								
C		0								
D		0								
E		0								
F		0								

Special Event Schedule -- Table 2

<C+0+E=28>

Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

0 <E/28+5+F>  
**Limited Service Interval**

Min Time (seconds) | 0 | <F/1+0+8>

**Min Green Before PE Force Off**

Max Time (minutes) | 255 | <F/1+0+9>

**Max Preempt Time Before Failure**

Min Time (seconds) | 0 | <F/1+0+A>

**Min Time Between Same Preempts**

(Does Not Apply To Railroad Preempt)

Low Pri. Channel | | <E/125+C+8>

**Disable Low Priority Channel**

Low Priority

- 1 = Channel A
- 2 = Channel B
- 3 = Channel C
- 4 = Channel D

Row		
C	Bus Headway	0
D	Bus Delay	0
E	Max Early Grn	0
F	Max Grn Ext.	0

**Priority Parameters**

<F/1 +A+Row>

Row	Time	Headway	Direction	Day of Week
0	00 : 00	0	0	_____
1	00 : 00	0	0	_____
2	00 : 00	0	0	_____
3	00 : 00	0	0	_____
4	00 : 00	0	0	_____
5	00 : 00	0	0	_____
6	00 : 00	0	0	_____
7	00 : 00	0	0	_____
8	00 : 00	0	0	_____
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

**Headway Schedule** <C+0+9=2.1>

Headway Time

(minutes)

1 thru 9 = 1 thru 9

- A = 10
- B = 11
- C = 12
- D = 13
- E = 14
- F = 15

**Low Priority Preemption (Bus Priority)**

Note: Also see "Time of Day Functions", Function E, Bit 5 (Disable Low Priority)

Group Assignment: **NONE**  
 Field Master Assignment: **NONE**  
 System Reference Number: **18**

N/S Street Name: **Not Assigned**  
 E/W Street Name: **Not Assigned**

Last Database Change: **05/17/2017 10:02**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Manual Plan  
 0 = Automatic  
 1-9 = Plan 1-9  
 14 = Free  
 15 = Flash

Manual Offset  
 0 = Automatic  
 1 = Offset A  
 2 = Offset B  
 3 = Offset C

Drop Number	<b>9</b>	<C/0+0+0>
Zone Number	<b>0</b>	<C/0+0+1>
Area Number	<b>1</b>	<C/0+0+2>
Area Address	<b>9</b>	<C/0+0+3>
QuicNet Channel	<b>COM101:</b>	(QuicNet)

Manual Plan		<C/0+A+1>
Manual Offset		<C/0+B+1>

**Communication Addresses**

**Manual Selection**

Flash Start	<b>0</b>	<F/1+0+E>
Red Revert	<b>5.0</b>	<F/1+0+F>
All Red Start	<b>5.0</b>	<F/1+C+0>
FYA Red Revert	<b>0.0</b>	<F/1+0+5>
OVL P CHG Red	<b>0.0</b>	<F/1+0+3>

Exclusive Walk	<b>0</b>	<F/1+0+0>
Exclusive FDW	<b>0</b>	<F/1+0+1>
All Red Clear	<b>0.0</b>	<F/1+0+2>

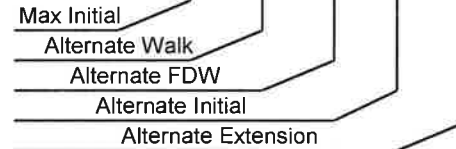
**Start / Revert Times**

**Exclusive Ped Phase**  
 (Outputs specified in Assignable  
 Outputs at E/127+A+E & F)

Column Numbers ---->		Phase							
Row	Phase Names ---->	1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	0	0	7
1	Ped FDW	0	29	0	22	0	0	0	25
2	Min Green	5	7	5	7	5	10	5	7
3	Type 3 Disconnect	0	25	0	25	0	25	0	25
4	Added per Vehicle	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0
5	Veh Extension	2.5	2.0	2.5	2.5	2.5	2.5	2.5	2.5
6	Max Gap	2.5	2.0	2.5	2.5	2.5	2.5	2.5	2.5
7	Min Gap	2.5	2.0	2.5	2.5	2.5	2.5	2.5	2.5
8	Max Limit	20	40	30	40	35	40	30	40
9	Max Limit 2	20	40	30	40	35	40	30	40
A	Adv. / Delay Walk	0	0	0	0	0	0	0	0
B	PE Min Ped FDW	0	0	0	0	0	0	0	0
C	Cond Serv Check	0	0	0	0	0	0	0	0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	3.0	3.9	3.0	3.9	3.0	3.9	3.0	3.9
F	Red Clear	0.5	1.0	0.5	1.0	0.5	1.0	0.5	1.0

**Phase Timing - Bank 1** <C+0+F=1>

	9	A	B	C	D
Phase 1	0	0	0	0	0.0
Phase 2	20	0	0	0	0.0
Phase 3	0	0	0	0	0.0
Phase 4	20	0	0	0	0.0
Phase 5	0	0	0	0	0.0
Phase 6	20	0	0	0	0.0
Phase 7	0	0	0	0	0.0
Phase 8	20	0	0	0	0.0



**Alternate Timing** <C+0+F=1>

	E
RR-1 Delay	0
RR-1 Clear	0
EV-A Delay	0
EV-A Clear	1
EV-B Delay	0
EV-B Clear	1
EV-C Delay	0
EV-C Clear	1
EV-D Delay	0
EV-D Clear	1
RR-2 Delay	0
RR-2 Clear	0
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

**Preempt Timing**

	F	Row
Permit	<b>12345678</b>	0
Red Lock	_____	1
Yellow Lock	_____	2
Min Recall	_____	3
Ped Recall	_____	4
View Set Peds	-----	5
Rest In Walk	_____	6
Red Rest	_____	7
Dual Entry	_____	8
Max Recall	_____	9
Soft Recall	_____	A
Max 2	_____	B
Cond. Service	_____	C
Man Cntrl Calls	_____	D
Yellow Start	<b>4 8</b>	E
First Phases	<b>1 5</b>	F

**Phase Functions** <C+0+F=1>

		Overlap							
Column Numbers ---->		1	2	3	4	5	6	7	8
Row	Overlap Name ---->								
0	Load Switch Number	0	0	0	0	0	0	0	0
1	Veh Set 1 - Phases								
2	Veh Set 2 - Phases								
3	Veh Set 3 - Phases								
4	Neg Veh Phases								
5	Neg Ped Phases								
6	Green Omit Phases								
7	Green Clear Omit Phs.								
8	Overlap Recall	N	N	N	N	N	N	N	N
9	Queue Jump Phase								
A	Queue Jump Time	0	0	0	0	0	0	0	0
B	Minimum Green	0	0	0	0	0	0	0	0
C	Maximum Green	0	0	0	0	0	0	0	0
D	Green Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F	Red Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Overlap Assignments <C+0+E=29>

- Extra 1 Flags**  
 1 = TBC Type 1  
 2 = NEMA Ext. Coord  
 3 = Auto Daylight Savings  
 4 = Solid FDW on EV  
 5 = Extended Status  
 6 = International Ped  
 7 = Flash - Clear Outputs  
 8 = Split Ring

- Extra 2 Flags**  
 1 = AWB During Initial  
 2 = Reserved  
 3 = Disable Min Walk  
 4 = QuicNet System  
 5 = Ignore P/P on EV  
 6 = Manual Hold in FDW  
 7 = Allow QuicNet PE  
 8 = Flash Grn B4 Yellow

	C	Row
EV-A	0	0
EV-B	0	1
EV-C	0	2
EV-D	0	3
RR-1 *	---	4
RR-2 *	---	5
SE-1	0	6
SE-2	0	7

**Preempt Priority**  
 <C+0+E=125>  
 (\* RR-1 is always Highest, and RR-2 is always Second Highest)

Row	Column Numbers ---->	E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Flash to PE Circuits	
6	Flash Entry Phases	
7	Disable Yellow Range	
8	Disable Ovp Yel Range	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	4 7
C	EV-C Phases	1 6
D	EV-D Phases	3 8
E	Extra 1 Config. Bits	1 3 5
F	IC Select (Interconnect)	2

Configuration <C+0+E=125>

	F
Ext. Permit 1 Phases	
Ext. Permit 2 Phases	
Exclusive Ped Assign	
Preempt Non-Lock	
Ped for 2P Output	2
Ped for 6P Output	
Ped for 4P Output	4
Ped for 8P Output	8
Yellow Flash Phases	
Low Priority A Phases	
Low Priority B Phases	
Low Priority C Phases	
Low Priority D Phases	
Restricted Phases	
Extra 2 Config. Bits	4

Configuration <C+0+E=125>

	F
Fast Green Flash Phase	
Green Flash Phases	
Flashing Walk Phases	
Guaranteed Passage	
Simultaneous Gap Term	
Sequential Timing	
Advance Walk Phases	
Delay Walk Phases	
External Recall	
Start-up Overlap Green	
Max Extension	
Inhibit Ped Reservice	
Semi-Actuated	
Start-up Overlap Yellow	
Start-up Vehicle Calls	12345678
Start-up Ped Calls	12345678

Specials <C+0+F=2>

- Flash to PE & PE Non-Lock**  
 1 = EV A    5 = RR 1  
 2 = EV B    6 = RR 2  
 3 = EV C    7 = SE 1  
 4 = EV D    8 = SE 2

- IC Select Flags**  
 1 =  
 2 = Modem  
 3 = 7-Wire Slave  
 4 =  
 5 =  
 6 = Simplex Master  
 7 =  
 8 = Offset Interrupter

	2	Row
Phase 1	20	1
Phase 2	25	2
Phase 3	20	3
Phase 4	30	4
Phase 5	20	5
Phase 6	25	6
Phase 7	20	7
Phase 8	30	8

**Coordination Transition Minimums**  
 <C+0+C=5>

Coord Extra

1 = Programmed WALK Time for Sync Phases  
2 = Always Terminate Sync Phase Peds

Column Numbers ---->		Plan								
Plan Name ---->		1	2	3	4	5	6	7	8	9
0	Cycle Length	120	120	120	90	90	120	120	120	120
1	Phase 1 - ForceOff	43	41	15	13	14	57	45	39	37
2	Phase 2 - ForceOff	74	87	83	42	41	88	87	70	76
3	Phase 3 - ForceOff	108	25	15	61	64	38	29	108	22
4	Phase 4 - ForceOff	18	0	0	0	0	0	0	0	0
5	Phase 5 - ForceOff	43	57	45	15	14	57	57	39	42
6	Phase 6 - ForceOff	74	87	83	40	39	88	87	70	76
7	Phase 7 - ForceOff	18	107	115	0	0	108	107	20	107
8	Phase 8 - ForceOff	0	25	15	69	76	38	29	0	22
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	74	7	10	25	53	74	7	90	78
B	Offset 2	74	7	90	0	0	0	0	0	27
C	Offset 3	74	7	90	0	0	0	0	45	0
D	Perm 1 - End	21	30	22	12	12	39	30	21	23
E	Hold Release	255	255	255	255	255	255	255	255	255
F	Reserved	0	0	0	0	0	0	0	0	0

Coordination - Bank 1 <C+0+C=1>

Row	E	Row
0		0
1	Plan 1 - Sync 4 8	1
2	Plan 2 - Sync 4 8	2
3	Plan 3 - Sync 4 8	3
4	Plan 4 - Sync 4 8	4
5	Plan 5 - Sync 4 8	5
6	Plan 6 - Sync 4 8	6
7	Plan 7 - Sync 4 8	7
8	Plan 8 - Sync 4 8	8
9	Plan 9 - Sync 4 8	9
A	NEMA Sync	A
B	NEMA Hold	B
C		C
D		D
E		E
F		F

Sync Phases <C+0+C=1>

Row										
0	Ped Adjustment	5	5	5	5	0	0	0	5	5
1	Perm 2 - Start	0	0	0	0	0	0	0	0	0
2	Perm 2 - End	0	0	0	0	0	0	0	0	0
3	Perm 3 - Start	0	0	0	0	0	0	0	0	0
4	Perm 3 - End	0	0	0	0	0	0	0	0	0
5	Reservice Time	0	0	0	0	0	0	0	0	0
6	Reservice Phases									
7										
8	Pretimed Phases									
9	Max Recall									
A	Perm 1 Veh Phase	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
B	Perm 1 Ped Phase	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
C	Perm 2 Veh Phase									
D	Perm 2 Ped Phase									
E	Perm 3 Veh Phase									
F	Perm 3 Ped Phase									

Coordination - Bank 2 <C+0+C=2>

Row	F	Row
0	Free Lag 23 6 8	0
1	Plan 1 - Lag 2 4 67	1
2	Plan 2 - Lag 23 6 8	2
3	Plan 3 - Lag 23 6 8	3
4	Plan 4 - Lag 23 6 8	4
5	Plan 5 - Lag 2 4 67	5
6	Plan 6 - Lag 23 6 8	6
7	Plan 7 - Lag 23 6 8	7
8	Plan 8 - Lag 2 4 67	8
9	Plan 9 - Lag 23 6 8	9
A	External Lag	A
B	Lag Hold	B
C		C
D		D
E		E
F		F

Lag Phases <C+0+C=1>



Row	Column 8	Column 9	Column A	Column B	Column C	Column D	Column E	Column F	Row								
0	One-Shot Timer	0	Latch 1 Set	0	NOT-3	0	Max 2	0	Pretimed	0	Set DOW	0	Dial 2 (7-Wire)	0	Sim Term	0	0
1	AND-5 (a)	0	Latch 1 Reset	0	NOT-4	0	Bus Checkin A	0	Plan 1	0	Ext. Perm 1	0	Dial 3 (7-Wire)	0	EV-A	71	1
2	AND-5 (b)	0	Latch 2 Set	0	OR-4 (a)	0	Bus Checkin B	0	Plan 2	0	Ext. Perm 2	0	Offset 1 (7-Wire)	0	EV-B	72	2
3	AND-6 (a)	0	Latch 2 Reset	0	OR-4 (b)	0	Bus Checkin C	0	Plan 3	0	Gate Down	0	Offset 2 (7-Wire)	0	EV-C	73	3
4	AND-6 (b)	0	NAND-3 (a)	0	OR-5 (a)	0	Bus Checkin D	0	Plan 4	0	Set Clock	0	Offset 3 (7-Wire)	0	EV-D	74	4
5	Reserved		NAND-3 (b)	0	OR-5 (b)	0	Bus Checkout A	0	Plan 5	0	Stop Time	82	Free (7-Wire)	0	RR-1	51	5
6	Reserved		NAND-4 (a)	0	OR-6 (a)	0	Bus Checkout B	0	Plan 6	0	Flash Sense	81	Flash (7-Wire)	0	RR-2	52	6
7	Reserved		NAND-4 (b)	0	OR-6 (b)	0	Bus Checkout C	0	Plan 7	0	Manual Enable	53	Excl. Ped Omit	0	Spec. Event 1	0	7
8	Spec. Funct. 1	0	OR-7 (a)	0	EXTMR	0	Bus Checkout D	0	Plan 8	0	Man. Advance	80	NOT-1	0	Spec. Event 2	0	8
9	Spec. Funct. 2	0	OR-7 (b)	0	Reserved		Max Inhibit (nema)	0	Plan 9	0	External Alarm	0	NOT-2	0	External Lag	0	9
A	Spec. Funct. 3	0	OR-7 (c)	0	AND-4 (a)	0	Force A (nema)	0	DELAY-A	0	Phase Bank 2	0	OR-1 (a)	0	AND-1 (a)	0	A
B	Spec. Funct. 4	0	OR-7 (d)	0	AND-4 (b)	0	Force B (nema)	0	DELAY-B	0	Phase Bank 3	0	OR-1 (b)	0	AND-1 (b)	0	B
C	Reserved		OR-8 (a)	0	NAND-1 (a)	0	C.N.A. (nema)	0	DELAY-C	0	Overlap Set 2	0	OR-2 (a)	0	AND-2 (a)	0	C
D	Reserved		OR-8 (b)	0	NAND-1 (b)	0	Hold (nema)	0	DELAY-D	0	Overlap Set 3	0	OR-2 (b)	0	AND-2 (b)	0	D
E	Reserved		OR-8 (c)	0	NAND-2 (a)	0	Max Recall	0	DELAY-E	0	Detector Set 2	0	OR-3 (a)	0	AND-3 (a)	0	E
F	Reserved		OR-8 (d)	0	NAND-2 (b)	0	Min Recall	0	DELAY-F	0	Detector Set 3	0	OR-3 (b)	0	AND-3 (b)	0	F

Assignable Inputs

<C+0+E=126>

Row	Column 8	Column 9	Column A	Column B	Column C	Column D	Column E	Column F	Row								
0	Reserved		Phase ON - 1	0	Preempt Fail	0	Flasher 0	0	Free	0	NOT-1	0	TOD Out 1	0	Dial 2 (7-Wire)	0	0
1	Reserved		Phase ON - 2	0	Sp Evnt Out 1	0	Flasher 1	0	Plan 1	0	OR-1	0	TOD Out 2	0	Dial 3 (7-Wire)	0	1
2	Reserved		Phase ON - 3	0	Sp Evnt Out 2	0	Fast Flasher	0	Plan 2	0	OR-2	0	TOD Out 3	0	Offset 1 (7-Wire)	0	2
3	Reserved		Phase ON - 4	0	Sp Evnt Out 3	0	EXTMR	0	Plan 3	0	OR-3	0	TOD Out 4	0	Offset 2 (7-Wire)	0	3
4	Reserved		Phase ON - 5	0	Sp Evnt Out 4	0	One-Shot Timer	0	Plan 4	0	AND-1	0	TOD Out 5	0	Offset 3 (7-Wire)	0	4
5	Reserved		Phase ON - 6	0	Sp Evnt Out 5	0	Reserved		Plan 5	0	AND-2	0	TOD Out 6	0	Free (7-Wire)	0	5
6	Reserved		Phase ON - 7	0	Sp Evnt Out 6	0	Latch 1	0	Plan 6	0	AND-3	0	TOD Out 7	0	Flash (7-Wire)	0	6
7	Reserved		Phase ON - 8	0	Sp Evnt Out 7	0	Latch 2	0	Plan 7	0	NOT-2	0	TOD Out 8	0	Preempt	0	7
8	Flh Yell Arrow 1	0	Ph. Check - 1	0	Sp Evnt Out 8	0	NOT-3	0	Plan 8	0	EV-A	0	Adv. Warn - 1	0	Low Priority A	0	8
9	Green 1	0	Ph. Check - 2	0	Coord On	0	NOT-4	0	Plan 9	0	EV-B	0	Adv. Warn - 2	0	Low Priority B	0	9
A	Flh Yell Arrow 3	0	Ph. Check - 3	0	Detector Fail	0	OR-4	0	Spec. Funct. 3	0	EV-C	0	DELAY-A	0	Low Priority C	0	A
B	Green 3	0	Ph. Check - 4	0	Spec. Funct. 1	0	OR-5	0	Spec. Funct. 4	0	EV-D	0	DELAY-B	0	Low Priority D	0	B
C	Flh Yell Arrow 5	0	Ph. Check - 5	0	Spec. Funct. 2	0	OR-6	0	NAND-3	0	RR-1	0	DELAY-C	0	AND-5	0	C
D	Green 5	0	Ph. Check - 6	0	Central Control	0	AND-4	0	NAND-4	0	RR-2	0	DELAY-D	0	AND-6	0	D
E	Flh Yell Arrow 7	0	Ph. Check - 7	0	Excl. Ped DW	0	NAND-1	0	OR-7	0	Spec. Event 1	0	DELAY-E	0	Reserved		E
F	Green 7	0	Ph. Check - 8	0	Excl. Ped WK	0	NAND-2	0	OR-8	0	Spec. Event 2	0	DELAY-F	0	Reserved		F

Assignable Outputs

<C+0+E=127>

Column Numbers ---->		Phase							
		1	2	3	4	5	6	7	8
Row	Phase Names ---->								
0	Ped Walk	0	0	0	0	0	0	0	0
1	Ped FDW	0	0	0	0	0	0	0	0
2	Min Green	0	0	0	0	0	0	0	0
3	Type 3 Disconnect	0	0	0	0	0	0	0	0
4	Added per Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Max Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Max Limit	0	0	0	0	0	0	0	0
9	Max Limit 2	0	0	0	0	0	0	0	0
A	Adv. / Delay Walk	0	0	0	0	0	0	0	0
B	PE Min Ped FDW	0	0	0	0	0	0	0	0
C	Cond Serv Check	0	0	0	0	0	0	0	0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F	Red Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phase Timing - Bank 2 <C+0+F=2>

Column Numbers ---->		Phase							
		1	2	3	4	5	6	7	8
Row	Phase Names ---->								
0	Ped Walk	0	0	0	0	0	0	0	0
1	Ped FDW	0	0	0	0	0	0	0	0
2	Min Green	0	0	0	0	0	0	0	0
3	Type 3 Disconnect	0	0	0	0	0	0	0	0
4	Added per Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Max Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Max Limit	0	0	0	0	0	0	0	0
9	Max Limit 2	0	0	0	0	0	0	0	0
A	Adv. / Delay Walk	0	0	0	0	0	0	0	0
B	PE Min Ped FDW	0	0	0	0	0	0	0	0
C	Cond Serv Check	0	0	0	0	0	0	0	0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F	Red Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phase Timing - Bank 3 <C+0+F=3>

Column Numbers ---->		Phase				
		9	A	B	C	D
Row	Phase Names ---->					
		---	---	---	---	---
Phase 1		0	0	0	0	0.0
Phase 2		0	0	0	0	0.0
Phase 3		0	0	0	0	0.0
Phase 4		0	0	0	0	0.0
Phase 5		0	0	0	0	0.0
Phase 6		0	0	0	0	0.0
Phase 7		0	0	0	0	0.0
Phase 8		0	0	0	0	0.0

Max Initial  
Alternate Walk  
Alternate FDW  
Alternate Initial  
Alternate Extension

Alternate Timing

Column Numbers ---->		Phase				
		9	A	B	C	D
Row	Phase Names ---->					
		---	---	---	---	---
Phase 1		0	0	0	0	0.0
Phase 2		0	0	0	0	0.0
Phase 3		0	0	0	0	0.0
Phase 4		0	0	0	0	0.0
Phase 5		0	0	0	0	0.0
Phase 6		0	0	0	0	0.0
Phase 7		0	0	0	0	0.0
Phase 8		0	0	0	0	0.0

Max Initial  
Alternate Walk  
Alternate FDW  
Alternate Initial  
Alternate Extension

Alternate Timing

Transition Type  
0,X = Shortway  
1,X = Lengthen  
X.1 thru X.4 =  
Number of  
cycles when  
lengthing

Transition Type	1.2	<C/5+1+9>
-----------------	-----	-----------

**TBC Transition**

HAWK Select	0	<F/1+0+4>
-------------	---	-----------

**HAWK** (200=Ped, 201=EV)

Address	0	<C/1+0+6>
Parity	0	<C/1+0+5>

**AB3418 Comm 2** 0 = No Parity, 1 = Even

Daylight Saving  
Date  
If set to all zeros,  
standard dates  
will be used.

Begin Month	3	<C/5+2+A>
Begin Week	2	<C/5+2+B>
End Month	11	<C/5+2+C>
End Week	1	<C/5+2+D>

**Daylight Saving Time**

Time B4 Yellow	0.0	<F/1+C+E>
Phase Number	0	<F/1+C+F>

**Advance Warning Beacon - Sign 1**

Time B4 Yellow	0.0	*
Phase Number	0	<F/1+D+F>

**Advance Warning Beacon - Sign 2**

Offset Time	0	<C/5+2+E>
Max Cycle Time	0	<C/5+2+F>

**Yellow Yield Coordination**

	12345678	
Omit Alarm	12345678	<C/5+F+0>

**Local Alarm Disable**

Column Numbers ---->		0	1	2	3	1	3
Row	Detector Name	C1 Pin Number	Attributes	Phase(s)	Assign	Delay	Carry-over
0		39	45 7	2	123 8	0.0	0.0
1		40	45 7	6	123 8	0.0	0.0
2		41	45 7	4	123 8	0.0	0.0
3		42	45 7	8	123 8	0.0	0.0
4		43	45 7	2	123 8	0.0	0.0
5		44	45 7	6	123 8	0.0	0.0
6		45	45 7	4	123 8	0.0	0.0
7		46	45 7	8	123 8	0.0	0.0
8		47	67	2	123 8	0.0	0.0
9		48	67	6	123 8	0.0	0.0
A		49	67	4	123 8	0.0	0.0
B		50	67	8	123 8	0.0	0.0
C		55	45 7	5	123 8	0.0	0.0
D		56	45 7	1	123 8	0.0	0.0
E		57	45 7	7	123 8	0.0	0.0
F		58	45 7	3	123 8	0.0	0.0

Column Numbers ---->		4	5	6	7	2	4
Row	Detector Name	C1 Pin Number	Attributes	Phase(s)	Assign	Delay	Carry-over
0		59	45 7	5	123 8	0.0	0.0
1		60	45 7	1	123 8	0.0	0.0
2		61	45 7	7	123 8	0.0	0.0
3		62	45 7	3	123 8	0.0	0.0
4		63	67	2	123 8	0.0	0.0
5		64	67	6	123 8	0.0	0.0
6		65	67	4	123 8	0.0	0.0
7		66	67	8	123 8	0.0	0.0
8		67	2	2	123 8	0.0	0.0
9		68	2	6	123 8	0.0	0.0
A		69	2	4	123 8	0.0	0.0
B		70	2	8	123 8	0.0	0.0
C		76	67	2	123 8	0.0	0.0
D		77	67	6	123 8	0.0	0.0
E		78	67	4	123 8	0.0	0.0
F		79	67	8	123 8	0.0	0.0

Detector Assignments <C+0+E=126>

<C+0+D=0>

Column Numbers ---->		Ped / Phase / Overlap								Row
		1	2	3	4	5	6	7	8	
Walk		0	0	0	0	0	0	0	0	0
Don't Walk		0	0	0	0	0	0	0	0	1
Phase Green		0	0	0	0	0	0	0	0	2
Phase Yellow		0	0	0	0	0	0	0	0	3
Phase Red		0	0	0	0	0	0	0	0	4
Overlap Green		0	0	0	0	0	0	0	0	5
Overlap Yellow		0	0	0	0	0	0	0	0	6
Overlap Red		0	0	0	0	0	0	0	0	7

Redirect Phase Outputs

<C+0+E=127>

Cabinet Type 0 <E/125+D+0>

**Enable Redirection**

(Enable Redirection = 30)

Max OFF (minutes) 255 <D/0+0+1>

Max ON (minutes) 9 <D/0+0+2>

Chatter (count) 0 <D/0+0+4>

**Detector Failure Monitor**

	B	Row
One-Shot	0.0	8
Ext. Timer	0	9
DELAY-A	0	A
DELAY-B	0	B
DELAY-C	0	C
DELAY-D	0	D
DELAY-E	0	E
DELAY-F	0	F

**Delay Logic Times**

<C+0+D=0> (seconds)

**Detector Attributes**

- 1 = Full Time Delay
- 2 = Ped Call
- 3 = Overlap
- 4 = Count
- 5 = Extension
- 6 = Type 3
- 7 = Calling
- 8 = Alternate

**Det. Assignments**

- 1 = Det. Set 1
- 2 = Det. Set 2
- 3 = Det. Set 3
- 4 =
- 5 =
- 6 = Failure - Min Recall
- 7 = Failure - Max Recall
- 8 = Report on Failure

Row	Time	Plan	Offset	Day of Week
0	05:30	1	A	23456
1	10:00	2	A	23456
2	15:00	3	A	23456
3	20:00	E	A	23456
4	08:00	9	A	7
5	20:00	E	A	7
6	10:00	9	A	1
7	20:00	E	A	1
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

**TOD Coordination** <C+0+9=0.1>  
(Bank 1)

Time	Funct	Day of Week
06:30	D	23456
09:30	D	23456
14:30	D	23456
19:30	D	1234567
00:00	E	1234567
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	

**TOD Function** <C+0+7=0.1>

Column 4
Phases/Bits
2 4 6 7
2 4 6 8
23 6 8
2 4 6 8
78

<C+0+E=27>

Day	Year	Month	Holiday Type
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	

**Holiday Dates** <C+0+8=1.1>  
(Bank 1)

Time	Plan	Offset	Holiday Type
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

**Holiday Events** <C+0+9=1.1>  
(Bank 1)

- T.O.D. Functions  
 1 = Red Lock  
 2 = Yellow Lock  
 3 = Veh Min Recall  
 4 = Ped Recall  
 6 = Rest In Walk  
 7 = Red Rest  
 8 = Double Entry  
 9 = Veh Max Recall  
 A = Veh Soft Recall  
 B = Maximum 2  
 C = Conditional Service  
 D = Free Lag Phases  
 E = Bit 1 - Local Override  
     Bit 4 - Disable Detector  
         OFF Monitor  
     Bit 5 - Disable Low  
         Priority Preempt  
     Bit 6 - FYA Inhibit  
     Bit 7 - Detector Count  
         Monitor  
     Bit 8 - Real Time Split  
         Monitor  
 F = Output Bits 1 thru 8

- Plan Select  
 1 thru 9 = Coordination  
     Plan 1 thru 9  
 14 or E = Free  
 15 or F = Flash

- Offset Select  
 A = Offset A  
 B = Offset B  
 C = Offset C

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	00:00	0	0	
2	00:00	0	0	
3	00:00	0	0	
4	00:00	0	0	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

**TOD Coordination** <C+0+9=0.2>  
(Bank 2)

Time	Funct	Holiday Type
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	

**Holiday TOD Function** <C+0+7=0.2>

Column 4
Phases/Bits

<C+0+E=28>

Day	Year	Month	Holiday Type
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	

**Holiday Dates** <C+0+8=1.2>  
(Bank 2)

Time	Plan	Offset	Holiday Type
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

**Holiday Events** <C+0+9=1.2>  
(Bank 2)

Month Select: October = A, November = B, December = C

Row	6 Clear	7 Time	8 Ped Call	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output
0		0								
1		0								
2		0								
3		0								
4		0								
5		0								
6		0								
7		0								
8		0								
9		0								
A		0								
B		0								
C		0								
D		0								
E		0								
F		0								

Special Event Schedule -- Table 1

<C+0+E=27>

Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

0 <E/27+5+F>  
**Limited Service Interval**

Row	6 Clear	7 Time	8 Ped Call	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output
0		0								
1		0								
2		0								
3		0								
4		0								
5		0								
6		0								
7		0								
8		0								
9		0								
A		0								
B		0								
C		0								
D		0								
E		0								
F		0								

Special Event Schedule -- Table 2

<C+0+E=28>

Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

0 <E/28+5+F>  
**Limited Service Interval**

Min Time (seconds)  <F/1+0+8>  
**Min Green Before PE Force Off**

Max Time (minutes)  <F/1+0+9>  
**Max Preempt Time Before Failure**

Min Time (seconds)  <F/1+0+A>  
**Min Time Between Same Preempts**  
 (Does Not Apply To Railroad Preempt)

Low Pri. Channel  <E/125+C+8>  
**Disable Low Priority Channel**

- Low Priority  
 1 = Channel A  
 2 = Channel B  
 3 = Channel C  
 4 = Channel D

Row		
C	Bus Headway	0
D	Bus Delay	0
E	Max Early Grn	0
F	Max Grn Ext.	0

**Priority Parameters**  
 <F/1 +A+Row>

Row	Time	Headway	Direction	Day of Week
0	00 : 00	0	0	_____
1	00 : 00	0	0	_____
2	00 : 00	0	0	_____
3	00 : 00	0	0	_____
4	00 : 00	0	0	_____
5	00 : 00	0	0	_____
6	00 : 00	0	0	_____
7	00 : 00	0	0	_____
8	00 : 00	0	0	_____
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

**Headway Schedule** <C+0+9=2.1>

**Headway Time**  
 (minutes)  
 1 thru 9 = 1 thru 9  
 A = 10  
 B = 11  
 C = 12  
 D = 13  
 E = 14  
 F = 15

**Low Priority Preemption (Bus Priority)**

Note: Also see "Time of Day Functions", Function E, Bit 5 (Disable Low Priority)



# **Appendix D – Existing Conditions HCS Reports**

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 & I-215 junction and I-15 lane drop		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2787	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v <sub>p</sub> ), pc/h/ln	718
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.30
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	11.0
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp and on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3824	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1301
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	19.7
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 North of Murrieta Hot Springs Rd		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3489	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v <sub>p</sub> ), pc/h/ln	1199
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	17.9
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	66.8		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Rancho California Rd on-ramp and I-15 Winchester Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4889	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1247
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	19.0
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 segment (3 lanes) and I-15 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2787	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v <sub>p</sub> ), pc/h/ln	958
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	14.6
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 segment (5 lanes)		

## Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	64.7
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4847	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	989
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2346
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2346
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.42
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	64.6
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	15.3
Total Ramp Density Adjustment	5.4	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	64.6		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 segment (6 lanes)		

## Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4847	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	824
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.35
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	12.7
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Winchester Rd on-ramp and I-15 lane addition		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4847	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1236
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	18.8
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Rancho California Rd on-ramp and I-15 Winchester Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3844	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	980
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.42
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	15.0
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 & I-15 junction and I-215 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2060	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v <sub>p</sub> ), pc/h/ln	1062
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	16.2
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp and I-215 lane addition		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1737	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v <sub>p</sub> ), pc/h/ln	896
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.38
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	13.8
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2537	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v <sub>p</sub> ), pc/h/ln	872
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	13.4
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 segment (3 lanes) and I-215 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1737	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v <sub>p</sub> ), pc/h/ln	597
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	9.2
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	215
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2787	376
Peak Hour Factor (PHF)	0.97	0.90
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2873	418
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.40	0.20

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	20.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.336
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	813
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	2550	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.6
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.669	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	76.8
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2060	Ramp Junction Speed (S), mi/h	64.4
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	14.9
Level of Service (LOS)	B		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2060	323
Peak Hour Factor (PHF)	0.97	0.90
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2124	359
Capacity (c), pc/h	7200	4200
Volume-to-Capacity Ratio (v/c)	0.30	0.09

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	0.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.330
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	910
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1900	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.450	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	76.8
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1214	Ramp Junction Speed (S), mi/h	66.8
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	10.6
Level of Service (LOS)	A		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Winchester Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	4889	1045
Peak Hour Factor (PHF)	0.98	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	4989	1100
Capacity (c), pc/h	9600	4200
Volume-to-Capacity Ratio (v/c)	0.52	0.26

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	0.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.397
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1439
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.260	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	75.1
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2111	Ramp Junction Speed (S), mi/h	67.3
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	18.5
Level of Service (LOS)	A		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	750
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2410	1079
Peak Hour Factor (PHF)	0.97	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2485	1136
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.50	0.54

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	1059.3	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	20.8
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	2550	Speed Index (M <sub>s</sub> )	0.307
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	999
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.4
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.598	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	68.2
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1486	Ramp Junction Speed (S), mi/h	63.1
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2622	Average Density (D), pc/mi/ln	19.1
Level of Service (LOS)	C		



# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	1921	615
Peak Hour Factor (PHF)	0.97	0.74
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	1980	831
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.39	0.40

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	17.1
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1275	Speed Index (M <sub>s</sub> )	0.296
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	804
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.7
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.594	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	68.9
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1176	Ramp Junction Speed (S), mi/h	63.6
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2007	Average Density (D), pc/mi/ln	14.7
Level of Service (LOS)	B		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1300	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	1737	184
Peak Hour Factor (PHF)	0.97	0.89
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	1791	207
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.28	0.11

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	0.0	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	11.6
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1900	Speed Index (M <sub>s</sub> )	0.305
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	727
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1275	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.5
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.594	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	69.2
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1064	Ramp Junction Speed (S), mi/h	64.1
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	1271	Average Density (D), pc/mi/ln	10.4
Level of Service (LOS)	B		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	4235	612
Peak Hour Factor (PHF)	0.98	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	4321	644
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.52	0.31

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	20.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (M <sub>s</sub> )	0.309
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1297
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.3
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.137	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.1
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1728	Ramp Junction Speed (S), mi/h	64.2
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2372	Average Density (D), pc/mi/ln	19.3
Level of Service (LOS)	B		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1300	575
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3844	391
Peak Hour Factor (PHF)	0.98	0.93
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3922	420
Capacity (c), pc/h	9600	1900
Volume-to-Capacity Ratio (v/c)	0.45	0.22

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	17.3
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (M <sub>s</sub> )	0.321
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1177
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.0
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.165	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.6
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1569	Ramp Junction Speed (S), mi/h	64.4
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	1989	Average Density (D), pc/mi/ln	16.9
Level of Service (LOS)	B		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 & I-215 junction and I-15 lane drop		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4141	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1056
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	16.1
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp and on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3824	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1301
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	19.7
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 North of Murrieta Hot Springs Rd		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5679	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1932
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	62.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	31.2
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	66.8		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Rancho California Rd on-ramp and I-15 Winchester Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5877	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1499
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.3
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	23.0
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 segment (3 lanes) and I-15 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4141	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1409
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	21.5
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 segment (5 lanes)		

## Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	64.7
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	7379	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1506
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2346
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2346
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	64.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	23.3
Total Ramp Density Adjustment	5.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	64.6		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 segment (6 lanes)		

## Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	7379	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1255
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	19.3
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Winchester Rd on-ramp and I-15 lane addition		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	7379	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1882
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	62.2
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	30.3
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Rancho California Rd on-ramp and I-15 Winchester Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5083	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1297
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	19.8
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 & I-15 junction and I-215 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3238	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1652
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	64.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	25.6
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp and I-215 lane addition		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2900	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1480
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	64.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	22.8
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4540	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1544
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	64.7
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	23.9
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 segment (3 lanes) and I-215 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2900	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	986
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.42
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	15.2
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	215
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	4141	317
Peak Hour Factor (PHF)	0.98	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	4226	334
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.59	0.16

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	26.6
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.328
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1405
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	2550	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.639	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	75.2
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2821	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	21.7
Level of Service (LOS)	C		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3238	338
Peak Hour Factor (PHF)	0.98	0.90
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3304	376
Capacity (c), pc/h	7200	4200
Volume-to-Capacity Ratio (v/c)	0.46	0.09

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	0.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.332
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1416
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1900	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.450	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	75.2
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1888	Ramp Junction Speed (S), mi/h	66.2
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	16.6
Level of Service (LOS)	A		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Winchester Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	5877	794
Peak Hour Factor (PHF)	0.98	0.93
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	5997	854
Capacity (c), pc/h	9600	4200
Volume-to-Capacity Ratio (v/c)	0.62	0.20

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	0.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.375
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1799
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	59.5
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.260	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	73.7
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2399	Ramp Junction Speed (S), mi/h	67.3
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	22.3
Level of Service (LOS)	A		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	750
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3824	1855
Peak Hour Factor (PHF)	0.98	0.94
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3902	1973
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.82	0.94

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	1541.7	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	33.5
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	2550	Speed Index (M <sub>s</sub> )	0.543
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1569
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.598	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	66.2
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2333	Ramp Junction Speed (S), mi/h	57.4
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	4306	Average Density (D), pc/mi/ln	34.1
Level of Service (LOS)	D		



# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3400	1140
Peak Hour Factor (PHF)	0.98	0.97
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3469	1175
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.64	0.56

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	26.5
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1275	Speed Index (M <sub>s</sub> )	0.366
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1408
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	59.8
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.594	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	66.7
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2061	Ramp Junction Speed (S), mi/h	61.7
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	3236	Average Density (D), pc/mi/ln	25.1
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1300	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2900	501
Peak Hour Factor (PHF)	0.98	0.91
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2959	551
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.49	0.29

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	0.0	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	19.5
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1900	Speed Index (M <sub>s</sub> )	0.330
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1201
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1275	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.594	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.5
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1758	Ramp Junction Speed (S), mi/h	62.9
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2309	Average Density (D), pc/mi/ln	18.6
Level of Service (LOS)	B		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	Winchester Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	6053	1326
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	6177	1353
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.78	0.64

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	31.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (M <sub>s</sub> )	0.446
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1853
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.049	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	65.1
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2471	Ramp Junction Speed (S), mi/h	61.0
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	3824	Average Density (D), pc/mi/ln	30.9
Level of Service (LOS)	D		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	Winchester Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1300	575
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	5083	970
Peak Hour Factor (PHF)	0.98	0.89
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	5187	1090
Capacity (c), pc/h	9600	1900
Volume-to-Capacity Ratio (v/c)	0.65	0.57

























## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	26.1
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (M <sub>s</sub> )	0.385
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1556
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	59.2
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.082	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	66.2
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2075	Ramp Junction Speed (S), mi/h	62.5
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	3165	Average Density (D), pc/mi/ln	25.1
Level of Service (LOS)	C		

# **Appendix E – Existing Conditions Synchro Reports**

























HCM 2010 Signalized Intersection Summary  
1: Date Street & Ynez Road

Existing, 2017, AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	219	402	1	4	133	140	1	2	3	536	4	256
Future Volume (veh/h)	219	402	1	4	133	140	1	2	3	536	4	256
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	252	462	1	4	148	156	2	4	6	646	5	308
Adj No. of Lanes	1	2	1	1	2	1	1	3	1	2	2	1
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.50	0.50	0.50	0.83	0.83	0.83
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	243	1019	451	8	520	228	4	2019	624	611	2026	902
Arrive On Green	0.13	0.28	0.28	0.00	0.14	0.14	0.00	0.39	0.39	0.17	0.56	0.56
Sat Flow, veh/h	1810	3610	1598	1810	3610	1581	1810	5187	1603	3510	3610	1606
Grp Volume(v), veh/h	252	462	1	4	148	156	2	4	6	646	5	308
Grp Sat Flow(s),veh/h/ln	1810	1805	1598	1810	1805	1581	1810	1729	1603	1755	1805	1606
Q Serve(g_s), s	16.1	12.6	0.1	0.3	4.4	8.0	0.1	0.1	0.3	20.9	0.1	6.3
Cycle Q Clear(g_c), s	16.1	12.6	0.1	0.3	4.4	8.0	0.1	0.1	0.3	20.9	0.1	6.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	243	1019	451	8	520	228	4	2019	624	611	2026	902
V/C Ratio(X)	1.04	0.45	0.00	0.53	0.28	0.68	0.51	0.00	0.01	1.06	0.00	0.34
Avail Cap(c_a), veh/h	243	1462	647	68	1113	488	68	2019	624	611	2026	902
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.9	35.4	30.9	59.6	45.8	24.5	59.8	22.4	22.5	49.6	11.6	3.6
Incr Delay (d2), s/veh	68.0	0.3	0.0	47.7	0.3	3.6	78.0	0.0	0.0	52.2	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.6	6.3	0.0	0.2	2.2	3.7	0.2	0.0	0.1	14.5	0.0	3.0
LnGrp Delay(d),s/veh	120.0	35.7	30.9	107.4	46.1	28.1	137.8	22.4	22.5	101.8	11.6	4.7
LnGrp LOS	F	D	C	F	D	C	F	C	C	F	B	A
Approach Vol, veh/h		715			308			12			959	
Approach Delay, s/veh		65.4			37.8			41.7			70.1	
Approach LOS		E			D			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.9	51.7	4.5	38.9	4.3	72.4	21.1	22.3				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	5.0	* 5				
Max Green Setting (Gmax), s	20.9	28.0	4.5	48.6	4.5	44.4	16.1	* 37				
Max Q Clear Time (g_c+I1), s	22.9	2.3	2.3	14.6	2.1	8.3	18.1	10.0				
Green Ext Time (p_c), s	0.0	1.1	0.0	2.3	0.0	1.1	0.0	1.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			63.3									
HCM 2010 LOS			E									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary  
7: Winchester & Jefferson

























Existing, 2017, AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	298	485	416	140	346	189	118	336	70	537	1040	410
Future Volume (veh/h)	298	485	416	140	346	189	118	336	70	537	1040	410
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	335	545	467	173	427	233	140	400	83	565	1095	432
Adj No. of Lanes	2	2	1	2	2	1	2	4	0	2	2	1
Peak Hour Factor	0.89	0.89	0.89	0.81	0.81	0.81	0.84	0.84	0.84	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	692	1026	454	229	522	540	197	1682	330	666	1611	716
Arrive On Green	0.20	0.28	0.28	0.07	0.14	0.14	0.06	0.31	0.31	0.06	0.15	0.15
Sat Flow, veh/h	3510	3610	1598	3510	3610	1615	3510	5515	1083	3510	3610	1604
Grp Volume(v), veh/h	335	545	467	173	427	233	140	353	130	565	1095	432
Grp Sat Flow(s),veh/h/ln	1755	1805	1598	1755	1805	1615	1755	1634	1696	1755	1805	1604
Q Serve(g_s), s	10.2	15.3	34.1	5.8	13.8	0.0	4.7	6.5	6.9	19.1	34.5	15.0
Cycle Q Clear(g_c), s	10.2	15.3	34.1	5.8	13.8	0.0	4.7	6.5	6.9	19.1	34.5	15.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.64	1.00		1.00
Lane Grp Cap(c), veh/h	692	1026	454	229	522	540	197	1495	517	666	1611	716
V/C Ratio(X)	0.48	0.53	1.03	0.76	0.82	0.43	0.71	0.24	0.25	0.85	0.68	0.60
Avail Cap(c_a), veh/h	692	1026	454	246	740	638	275	1495	517	676	1611	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.49	0.49	0.49
Uniform Delay (d), s/veh	42.8	36.2	43.0	55.2	49.8	31.1	55.7	31.2	31.4	54.5	43.0	10.2
Incr Delay (d2), s/veh	0.5	0.5	49.7	11.8	4.9	0.5	5.0	0.4	1.2	5.1	1.2	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	7.6	21.3	3.2	7.2	6.0	2.4	3.0	3.4	9.8	17.5	7.0
LnGrp Delay(d),s/veh	43.3	36.7	92.7	67.0	54.7	31.6	60.7	31.6	32.6	59.6	44.2	12.0
LnGrp LOS	D	D	F	E	D	C	E	C	C	E	D	B
Approach Vol, veh/h		1347			833			623			2092	
Approach Delay, s/veh		57.8			50.8			38.3			41.7	
Approach LOS		E			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.7	41.5	11.8	39.0	10.7	58.4	28.6	22.3				
Change Period (Y+Rc), s	4.9	* 4.9	4.0	4.9	4.0	4.9	4.9	* 4.9				
Max Green Setting (Gmax), s	23.1	* 37	8.4	34.1	9.4	50.3	17.9	* 25				
Max Q Clear Time (g_c+I1), s	21.1	8.9	7.8	36.1	6.7	36.5	12.2	15.8				
Green Ext Time (p_c), s	0.4	1.6	0.0	0.0	0.1	7.1	2.6	1.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			47.2									
HCM 2010 LOS			D									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												



























HCM 2010 Signalized Intersection Summary  
1: Date Street & Ynez Road

Existing, 2017, PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	297	0	2	895	607	2	1	3	284	4	238
Future Volume (veh/h)	188	297	0	2	895	607	2	1	3	284	4	238
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	200	316	0	2	952	646	3	1	4	305	4	256
Adj No. of Lanes	1	2	1	1	2	1	1	3	1	2	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.75	0.75	0.75	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	229	1592	712	4	1143	507	6	1569	484	366	1457	647
Arrive On Green	0.13	0.44	0.00	0.00	0.32	0.32	0.00	0.30	0.30	0.10	0.40	0.40
Sat Flow, veh/h	1810	3610	1615	1810	3610	1600	1810	5187	1599	3510	3610	1603
Grp Volume(v), veh/h	200	316	0	2	952	646	3	1	4	305	4	256
Grp Sat Flow(s),veh/h/ln	1810	1805	1615	1810	1805	1600	1810	1729	1599	1755	1805	1603
Q Serve(g_s), s	13.0	6.4	0.0	0.1	29.4	38.0	0.2	0.0	0.2	10.2	0.1	13.6
Cycle Q Clear(g_c), s	13.0	6.4	0.0	0.1	29.4	38.0	0.2	0.0	0.2	10.2	0.1	13.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	229	1592	712	4	1143	507	6	1569	484	366	1457	647
V/C Ratio(X)	0.87	0.20	0.00	0.51	0.83	1.28	0.52	0.00	0.01	0.83	0.00	0.40
Avail Cap(c_a), veh/h	287	1592	712	68	1143	507	68	1569	484	439	1457	647
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	20.5	0.0	59.8	38.1	41.0	59.7	29.2	29.3	52.7	21.4	25.4
Incr Delay (d2), s/veh	20.9	0.1	0.0	78.0	5.4	138.6	58.3	0.0	0.0	11.2	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	3.2	0.0	0.2	15.5	36.2	0.2	0.0	0.1	5.5	0.0	6.3
LnGrp Delay(d),s/veh	72.3	20.6	0.0	137.8	43.4	179.6	118.1	29.2	29.3	63.9	21.4	27.2
LnGrp LOS	E	C		F	D	F	F	C	C	E	C	C
Approach Vol, veh/h		516			1600			8			565	
Approach Delay, s/veh		40.6			98.5			62.6			47.0	
Approach LOS		D			F			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.5	41.3	4.3	57.9	4.4	53.4	19.2	43.0				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	15.0	30.0	4.5	52.5	4.5	40.5	19.0	38.0				
Max Q Clear Time (g_c+I1), s	12.2	2.2	2.1	8.4	2.2	15.6	15.0	40.0				
Green Ext Time (p_c), s	0.3	0.8	0.0	9.2	0.0	0.8	0.2	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				76.5								
HCM 2010 LOS				E								

HCM 2010 Signalized Intersection Summary  
7: Winchester & Jefferson

Existing, 2017, PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	604	683	185	52	750	435	506	1169	60	373	440	459
Future Volume (veh/h)	604	683	185	52	750	435	506	1169	60	373	440	459
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	686	776	210	59	852	494	538	1244	64	405	478	499
Adj No. of Lanes	2	2	1	2	2	1	2	4	0	2	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.94	0.94	0.94	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	679	1407	624	101	785	1266	556	2046	105	1988	2652	1182
Arrive On Green	0.19	0.39	0.39	0.03	0.22	0.22	0.16	0.32	0.32	0.19	0.24	0.24
Sat Flow, veh/h	3510	3610	1603	3510	3610	1615	3510	6411	329	3510	3610	1608
Grp Volume(v), veh/h	686	776	210	59	852	494	538	950	358	405	478	499
Grp Sat Flow(s),veh/h/ln	1755	1805	1603	1755	1805	1615	1755	1634	1838	1755	1805	1608
Q Serve(g_s), s	23.2	20.1	11.0	2.0	26.1	0.0	18.3	19.6	19.7	11.7	12.6	53.3
Cycle Q Clear(g_c), s	23.2	20.1	11.0	2.0	26.1	0.0	18.3	19.6	19.7	11.7	12.6	53.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	679	1407	624	101	785	1266	556	1565	587	1988	2652	1182
V/C Ratio(X)	1.01	0.55	0.34	0.59	1.09	0.39	0.97	0.61	0.61	0.20	0.18	0.42
Avail Cap(c_a), veh/h	679	1407	624	155	785	1266	556	1565	587	1988	2652	1182
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.81	0.81
Uniform Delay (d), s/veh	48.4	28.5	25.7	57.6	47.0	4.0	50.2	34.5	34.5	25.9	16.8	68.9
Incr Delay (d2), s/veh	37.2	0.5	0.3	5.3	57.7	0.2	30.1	1.8	4.7	0.0	0.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.7	10.1	4.9	1.0	19.3	5.0	11.2	9.1	10.8	5.7	6.4	24.1
LnGrp Delay(d),s/veh	85.6	28.9	26.0	62.9	104.6	4.2	80.3	36.3	39.2	26.0	17.0	69.8
LnGrp LOS	F	C	C	E	F	A	F	D	D	C	B	E
Approach Vol, veh/h		1672			1405			1846			1382	
Approach Delay, s/veh		51.8			67.6			49.7			38.7	
Approach LOS		D			E			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	73.9	43.2	7.4	51.7	23.0	94.1	28.1	31.0				
Change Period (Y+Rc), s	4.9	* 4.9	4.0	4.9	4.0	4.9	4.9	* 4.9				
Max Green Setting (Gmax), s	14.6	* 38	5.3	44.0	19.0	33.9	23.2	* 26				
Max Q Clear Time (g_c+I1), s	13.7	21.7	4.0	22.1	20.3	55.3	25.2	28.1				
Green Ext Time (p_c), s	0.2	4.5	0.0	6.5	0.0	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			51.8									
HCM 2010 LOS			D									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

Existing, 2017, AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	219	402	1	4	133	140	1	2	3	536	4	256
Future Volume (vph)	219	402	1	4	133	140	1	2	3	536	4	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		250	300		150
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	3610	1615	1805	3610	1615	1805	5187	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	3610	1578	1805	3610	1578	1805	5187	1575	3502	3610	1575
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127			156			173			308
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		665			432			734			623	
Travel Time (s)		10.1			6.5			11.1			9.4	
Confl. Peds. (#/hr)			10			10			10			10
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.50	0.50	0.50	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	252	462	1	4	148	156	2	4	6	646	5	308
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	20	20	20	20	20	20	20	20	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	20	20	20	20	20	20	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	38.0	38.0	8.5	42.0	42.0	8.5	33.0	33.0	8.5	33.0	33.0
Total Split (s)	20.1	53.6	53.6	8.5	42.0	42.0	8.5	33.0	33.0	24.9	49.4	49.4
Total Split (%)	16.8%	44.7%	44.7%	7.1%	35.0%	35.0%	7.1%	27.5%	27.5%	20.8%	41.2%	41.2%
Maximum Green (s)	16.1	48.6	48.6	4.5	37.0	37.0	4.5	28.0	28.0	20.9	44.4	44.4
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

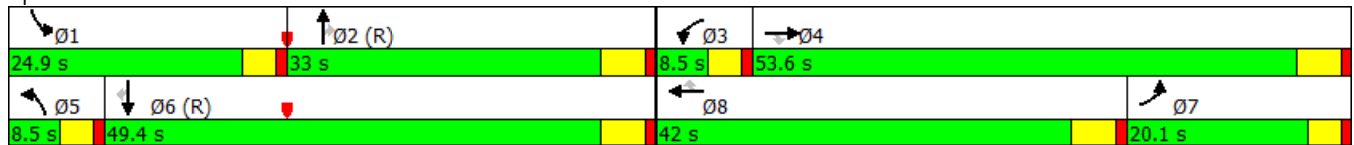
Existing, 2017, AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		28.0	28.0		28.0	28.0		23.0	23.0		23.0	23.0
Pedestrian Calls (#/hr)		10	10		10	10		10	10		10	10
Act Effct Green (s)	23.0	43.9	43.9	4.5	18.6	18.6	5.1	33.5	33.5	26.9	62.7	62.7
Actuated g/C Ratio	0.19	0.37	0.37	0.04	0.16	0.16	0.04	0.28	0.28	0.22	0.52	0.52
v/c Ratio	0.73	0.35	0.00	0.06	0.27	0.41	0.03	0.00	0.01	0.82	0.00	0.32
Control Delay	59.4	27.8	0.0	57.8	43.1	8.6	56.0	34.5	0.0	55.0	20.5	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	27.8	0.0	57.8	43.1	8.6	56.0	34.5	0.0	55.0	20.5	3.6
LOS	E	C	A	E	D	A	E	C	A	E	C	A
Approach Delay		38.9			25.8			20.8			38.3	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	180	143	0	3	58	0	2	0	0	237	1	0
Queue Length 95th (ft)	#311	162	0	15	73	51	6	2	0	#350	5	40
Internal Link Dist (ft)		585			352			654			543	
Turn Bay Length (ft)	250		100	250			250		250	300		150
Base Capacity (vph)	346	1513	735	67	1113	594	76	1448	564	784	1885	969
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.31	0.00	0.06	0.13	0.26	0.03	0.00	0.01	0.82	0.00	0.32

Intersection Summary













Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 125  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 36.5 Intersection LOS: D  
 Intersection Capacity Utilization 66.0% ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Date Street & Ynez Road



Lanes, Volumes, Timings  
3: Cherry St/French Valley Pkwy & Jefferson

Existing, 2017, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↓		↖	↑↑		↗		↖		↗	↖
Traffic Volume (vph)	0	713	19	118	640	0	14	0	147	457	96	321
Future Volume (vph)	0	713	19	118	640	0	14	0	147	457	96	321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	250		200	0		75	350		0
Storage Lanes	0		0	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3592	0	1805	3610	0	1805	0	1615	0	1824	1615
Flt Permitted				0.950			0.950				0.960	
Satd. Flow (perm)	0	3592	0	1805	3610	0	1805	0	1615	0	1824	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2							138			262
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		509			1560			615			394	
Travel Time (s)		6.9			21.3			9.3			6.0	
Confl. Peds. (#/hr)			10			10			10			
Peak Hour Factor	0.95	0.95	0.95	0.89	0.89	0.89	0.84	0.84	0.84	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	771	0	133	719	0	17	0	175	0	667	387
Number of Detectors		1		1	1		2		1	2	1	1
Detector Template		Thru		Left	Thru				Right	Left	Thru	Right
Leading Detector (ft)		20		20	20		20		20	60	20	20
Trailing Detector (ft)		0		0	0		0		0	0	0	0
Detector 1 Position(ft)		0		0	0		0		0	0	0	0
Detector 1 Size(ft)		20		20	20		20		20	20	20	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)							0			54		
Detector 2 Size(ft)							0			6		
Detector 2 Type							Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)							0.0			0.0		
Turn Type		NA		Prot	NA		Prot		Prot	Perm	NA	Perm
Protected Phases		2		1	6		8		8		4	
Permitted Phases										4		4
Detector Phase		2		1	6		8		8	4	4	4
Switch Phase												
Minimum Initial (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		36.7		8.1	37.2		34.8		34.8	34.8	34.8	34.8
Total Split (s)		38.2		9.0	47.2		34.8		34.8	38.0	38.0	38.0
Total Split (%)		31.8%		7.5%	39.3%		29.0%		29.0%	31.7%	31.7%	31.7%
Maximum Green (s)		32.0		4.9	41.0		30.2		30.2	32.2	32.2	32.2
Yellow Time (s)		5.2		3.6	5.2		3.6		3.6	4.8	4.8	4.8
All-Red Time (s)		1.0		0.5	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0		0.0	0.0

Lanes, Volumes, Timings  
 3: Cherry St/French Valley Pkwy & Jefferson

Existing, 2017, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Total Lost Time (s)		6.2		4.1	6.2		4.6		4.6		5.8	5.8
Lead/Lag		Lead		Lag			Lag		Lag	Lead	Lead	Lead
Lead-Lag Optimize?		Yes		Yes			Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max		None		None	None	None	None
Walk Time (s)					7.0					7.0	7.0	7.0
Flash Dont Walk (s)					10.0					22.0	22.0	22.0
Pedestrian Calls (#/hr)					10					10	10	10
Act Effct Green (s)		52.8		4.9	61.8		9.4		9.4		32.2	32.2
Actuated g/C Ratio		0.44		0.04	0.52		0.08		0.08		0.27	0.27
v/c Ratio		0.49		1.82	0.39		0.12		0.69		1.36	0.62
Control Delay		25.9		450.4	19.0		50.6		28.5		211.9	16.9
Queue Delay		0.0		0.0	0.0		0.0		0.0		0.0	0.0
Total Delay		25.9		450.4	19.0		50.6		28.5		211.9	16.9
LOS		C		F	B		D		C		F	B
Approach Delay		25.9			86.3			30.4			140.3	
Approach LOS		C			F			C			F	
Queue Length 50th (ft)		215		~155	167		13		28		~681	79
Queue Length 95th (ft)		304		#281	240		31		81		#810	150
Internal Link Dist (ft)		429			1480			535			314	
Turn Bay Length (ft)				250					75			
Base Capacity (vph)		1581		73	1859		454		509		489	625
Starvation Cap Reductn		0		0	0		0		0		0	0
Spillback Cap Reductn		0		0	0		0		0		0	0
Storage Cap Reductn		0		0	0		0		0		0	0
Reduced v/c Ratio		0.49		1.82	0.39		0.04		0.34		1.36	0.62

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.82  
 Intersection Signal Delay: 86.2  
 Intersection Capacity Utilization 77.3%  
 Analysis Period (min) 15  
 Intersection LOS: F  
 ICU Level of Service D

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

























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

Splits and Phases: 3: Cherry St/French Valley Pkwy & Jefferson

Ø2 (R)	Ø1	Ø4	Ø8
38.2 s	9 s	38 s	34.8 s
Ø6 (R)			
47.2 s			

Lanes, Volumes, Timings  
4: Winchester & Ynez

Existing, 2017, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	111	365	422	305	201	98	324	1024	563	285	1550	77
Future Volume (vph)	111	365	422	305	201	98	324	1024	563	285	1550	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		500	400		350	250		200	250		0
Storage Lanes	2		1	3		1	2		1	2		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3289	1470	5090	3610	1615	3502	6536	1615	3502	6483	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3289	1470	5090	3610	1582	3502	6536	1581	3502	6483	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						57			94			9
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		800			1093			797			1309	
Travel Time (s)		12.1			16.6			13.6			22.3	
Confl. Peds. (#/hr)						10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.78	0.78	0.78	0.96	0.96	0.96	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)			42%									
Lane Group Flow (vph)	123	603	272	391	258	126	338	1067	586	303	1731	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.2	20.0	20.0	8.2	46.3	8.2	8.2	45.3	8.2	8.2	37.9	
Total Split (s)	10.4	34.9	34.9	21.9	46.4	17.3	18.8	45.9	21.9	17.3	44.4	
Total Split (%)	8.7%	29.1%	29.1%	18.3%	38.7%	14.4%	15.7%	38.3%	18.3%	14.4%	37.0%	
Maximum Green (s)	6.4	29.6	29.6	17.9	41.1	13.3	14.8	40.6	17.9	13.3	39.1	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	3.0	3.0	4.3	3.0	3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.3	5.3	4.0	5.3	4.0	4.0	5.3	4.0	4.0	5.3	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Walk Time (s)					5.0			5.0			5.0	
Flash Dont Walk (s)					36.0			35.0			27.0	
Pedestrian Calls (#/hr)					10			10			10	
Act Effct Green (s)	6.5	26.8	26.8	18.9	39.2	53.5	14.5	42.6	62.9	13.0	41.1	
Actuated g/C Ratio	0.05	0.22	0.22	0.16	0.33	0.45	0.12	0.36	0.52	0.11	0.34	
v/c Ratio	0.65	0.82	0.83	0.49	0.22	0.17	0.80	0.46	0.67	0.80	0.78	
Control Delay	71.8	54.1	65.3	48.6	29.3	7.3	61.0	21.2	11.7	68.5	38.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	71.8	54.1	65.3	48.6	29.3	7.3	61.0	21.2	11.7	68.5	38.6	
LOS	E	D	E	D	C	A	E	C	B	E	D	
Approach Delay		59.3			35.4			25.2			43.0	



Lanes, Volumes, Timings  
4: Winchester & Ynez

Existing, 2017, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS	E			D			C			D		
Queue Length 50th (ft)	48	241	217	99	74	22	138	145	155	119	355	
Queue Length 95th (ft)	#89	308	#350	115	91	40	#197	143	224	#182	402	
Internal Link Dist (ft)	720			1013			717			1229		
Turn Bay Length (ft)	200	500		400	350		250	200		250		
Base Capacity (vph)	190	811	362	804	1236	744	431	2322	879	388	2228	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.74	0.75	0.49	0.21	0.17	0.78	0.46	0.67	0.78	0.78	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 93 (78%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 38.7

Intersection LOS: D

Intersection Capacity Utilization 77.4%

ICU Level of Service D

Analysis Period (min) 15

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




















Queue shown is maximum after two cycles.

Splits and Phases: 4: Winchester & Ynez

Ø2 (R)	Ø1	Ø4	Ø3
45.9 s	17.3 s	34.9 s	21.9 s
Ø6 (R)	Ø5	Ø7	Ø8
44.4 s	18.8 s	10.4 s	46.4 s

Lanes, Volumes, Timings  
5: Winchester & I-15 NB off/I-15 NB on

Existing, 2017, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	429	1	607	0	1341	354	0	1752	552
Future Volume (vph)	0	0	0	429	1	607	0	1341	354	0	1752	552
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		450	0		0
Storage Lanes	0		0	1		1	0		1	0		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	1715	1508	1534	0	4879	1389	0	5187	2842
Flt Permitted				0.950	0.990							
Satd. Flow (perm)	0	0	0	1715	1508	1534	0	4879	1368	0	5187	2772
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					19	22		4	346			284
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		579			216			765			797	
Travel Time (s)		13.2			4.9			13.0			13.6	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.40	0.40	0.40	0.85	0.85	0.85	0.92	0.92	0.92	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)				16%		45%			10%			
Lane Group Flow (vph)	0	0	0	424	403	393	0	1497	346	0	1864	587
Turn Type				Perm	NA	Perm		NA	Free		NA	Free
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			Free
Detector Phase				8	8	8		2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0		4.0			4.0	
Minimum Split (s)				20.0	20.0	20.0		32.4			20.0	
Total Split (s)				55.0	55.0	55.0		65.0			65.0	
Total Split (%)				45.8%	45.8%	45.8%		54.2%			54.2%	
Maximum Green (s)				49.2	49.2	49.2		59.6			59.6	
Yellow Time (s)				4.8	4.8	4.8		4.4			4.4	
All-Red Time (s)				1.0	1.0	1.0		1.0			1.0	
Lost Time Adjust (s)				0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)				5.8	5.8	5.8		5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Recall Mode				None	None	None		C-Max			C-Max	
Walk Time (s)								7.0				
Flash Dont Walk (s)								20.0				
Pedestrian Calls (#/hr)								10				
Act Effct Green (s)				38.4	38.4	38.4		70.4	120.0		70.4	120.0
Actuated g/C Ratio				0.32	0.32	0.32		0.59	1.00		0.59	1.00
v/c Ratio				0.77	0.81	0.78		0.52	0.25		0.61	0.21
Control Delay				46.0	48.3	44.9		6.6	0.7		5.0	0.1
Queue Delay				0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay				46.0	48.3	44.9		6.6	0.7		5.0	0.1
LOS				D	D	D		A	A		A	A
Approach Delay					46.4			5.5			3.9	

Lanes, Volumes, Timings  
 5: Winchester & I-15 NB off/I-15 NB on

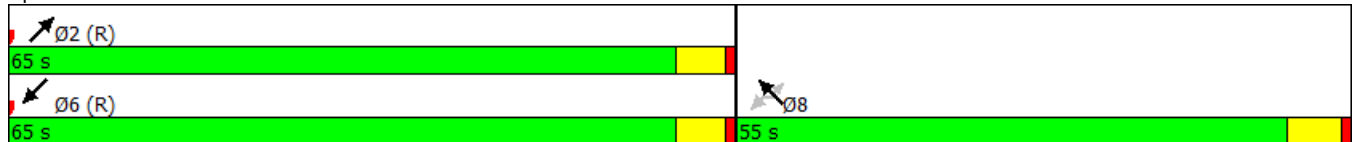
Existing, 2017, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS								D				A
Queue Length 50th (ft)				308	297	271		101	0		114	0
Queue Length 95th (ft)				352	350	320		112	m0		174	0
Internal Link Dist (ft)		499				136		685			717	
Turn Bay Length (ft)									450			
Base Capacity (vph)				703	629	641		2863	1368		3042	2772
Starvation Cap Reductn				0	0	0		0	0		0	0
Spillback Cap Reductn				0	0	0		0	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.60	0.64	0.61		0.52	0.25		0.61	0.21

Intersection Summary




















Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 83 (69%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 13.8  
 Intersection Capacity Utilization 63.0%  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Winchester & I-15 NB off/I-15 NB on



Lanes, Volumes, Timings  
6: Winchester & I-15 SB on/I-15 SB off

Existing, 2017, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	989	2	707	0	0	0	0	676	215	0	1309	873
Future Volume (vph)	989	2	707	0	0	0	0	676	215	0	1309	873
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	3502	1536	1534	0	0	0	0	5187	1615	0	4819	0
Flt Permitted	0.950											
Satd. Flow (perm)	3502	1536	1534	0	0	0	0	5187	1537	0	4819	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32	32						231		221	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		189			419			450			765	
Travel Time (s)		4.3			9.5			7.7			13.0	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.99	0.99	0.99	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	999	359	357	0	0	0	0	727	231	0	2347	0
Turn Type	Perm	NA	Perm					NA	Perm		NA	
Protected Phases		4						2			6	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0		4.0	
Minimum Split (s)	20.0	20.0	20.0					26.4	26.4		20.0	
Total Split (s)	49.0	49.0	49.0					71.0	71.0		71.0	
Total Split (%)	40.8%	40.8%	40.8%					59.2%	59.2%		59.2%	
Maximum Green (s)	43.2	43.2	43.2					65.6	65.6		65.6	
Yellow Time (s)	4.8	4.8	4.8					4.4	4.4		4.4	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)	5.8	5.8	5.8					5.4	5.4		5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Max	C-Max		C-Max	
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								14.0	14.0			
Pedestrian Calls (#/hr)								10	10			
Act Effect Green (s)	40.5	40.5	40.5					68.3	68.3		68.3	
Actuated g/C Ratio	0.34	0.34	0.34					0.57	0.57		0.57	
v/c Ratio	0.85	0.66	0.66					0.25	0.24		0.92dr	
Control Delay	44.2	37.1	36.9					7.0	0.8		17.4	
Queue Delay	0.0	0.1	0.1					0.0	0.0		0.2	
Total Delay	44.2	37.1	37.0					7.0	0.8		17.6	
LOS	D	D	D					A	A		B	
Approach Delay		41.2						5.5			17.6	
Approach LOS		D						A			B	
Queue Length 50th (ft)	357	221	220					49	0		344	
Queue Length 95th (ft)	437	331	329					62	6		560	

Lanes, Volumes, Timings  
 6: Winchester & I-15 SB on/I-15 SB off




Existing, 2017, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Internal Link Dist (ft)		109			339			370			685	
Turn Bay Length (ft)												
Base Capacity (vph)	1260	573	572					2950	973		2836	
Starvation Cap Reductn	0	0	0					0	0		88	
Spillback Cap Reductn	0	7	7					0	0		95	
Storage Cap Reductn	0	0	0					0	0		0	
Reduced v/c Ratio	0.79	0.63	0.63					0.25	0.24		0.86	

Intersection Summary
























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 2 (2%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 23.4 Intersection LOS: C  
 Intersection Capacity Utilization 83.8% ICU Level of Service E  
 Analysis Period (min) 15  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 6: Winchester & I-15 SB on/I-15 SB off

 Ø2 (R) 71 s	 Ø4 49 s
 Ø6 (R) 71 s	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

Existing, 2017, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	298	485	416	140	346	189	118	336	70	537	1040	410
Future Volume (vph)	298	485	416	140	346	189	118	336	70	537	1040	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	200		300	400		0	0		300
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3610	1615	3502	3610	1615	3502	6342	0	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3610	1576	3502	3610	1615	3502	6342	0	3502	3610	1578
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			189			136			45			432
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1063			948			629			450	
Travel Time (s)		16.1			14.4			10.7			7.7	
Confl. Peds. (#/hr)			10						10			10
Peak Hour Factor	0.89	0.89	0.89	0.81	0.81	0.81	0.84	0.84	0.84	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	335	545	467	173	427	233	140	483	0	565	1095	432
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.2	38.9	38.9	8.2	20.0	8.2	8.2	41.3		8.2	36.9	36.9
Total Split (s)	21.9	39.0	39.0	12.4	29.5	27.1	13.4	41.5		27.1	55.2	55.2
Total Split (%)	18.3%	32.5%	32.5%	10.3%	24.6%	22.6%	11.2%	34.6%		22.6%	46.0%	46.0%
Maximum Green (s)	17.9	34.1	34.1	8.4	24.6	23.1	9.4	36.6		23.1	50.3	50.3
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.0	3.0	3.9		3.0	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.0	4.0	4.9		4.0	4.9	4.9
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)		22.0	22.0					29.0			25.0	25.0
Pedestrian Calls (#/hr)		10	10					10			10	10
Act Effct Green (s)	17.7	28.7	28.7	8.4	19.4	47.4	9.1	42.1		23.1	56.1	56.1
Actuated g/C Ratio	0.15	0.24	0.24	0.07	0.16	0.40	0.08	0.35		0.19	0.47	0.47
v/c Ratio	0.65	0.63	0.90	0.71	0.73	0.32	0.53	0.21		0.84	0.65	0.45
Control Delay	54.3	43.8	46.6	70.9	55.4	10.9	61.0	26.0		51.4	23.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	1.8	0.4
Total Delay	54.3	43.8	46.6	70.9	55.4	10.9	61.0	26.0		51.4	25.5	4.9
LOS	D	D	D	E	E	B	E	C		D	C	A
Approach Delay		47.4			46.2			33.9			28.2	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

Existing, 2017, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	125	195	217	68	167	48	54	70		218	332	42
Queue Length 95th (ft)	174	241	#350	96	189	80	82	89		m#292	430	m72
Internal Link Dist (ft)		983			868			549			370	
Turn Bay Length (ft)	300		200	200		300	400					300
Base Capacity (vph)	555	1025	583	245	740	719	278	2252		674	1687	967
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	407	175
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.60	0.53	0.80	0.71	0.58	0.32	0.50	0.21		0.84	0.86	0.55

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 56 (47%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 37.3

Intersection LOS: D

Intersection Capacity Utilization 80.6%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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































Splits and Phases: 7: Winchester & Jefferson





Lanes, Volumes, Timings  
1: Date Street & Ynez Road

Existing, 2017, PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  		 	 	
Traffic Volume (vph)	188	297	0	2	895	607	2	1	3	284	4	238
Future Volume (vph)	188	297	0	2	895	607	2	1	3	284	4	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		250	300		150
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	3610	1900	1805	3610	1615	1805	5187	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	3610	1900	1805	3610	1578	1805	5187	1575	3502	3610	1575
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						623			390			256
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		897			432			734			623	
Travel Time (s)		13.6			6.5			11.1			9.4	
Confl. Peds. (#/hr)			10			10			10			10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.75	0.75	0.75	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	200	316	0	2	952	646	3	1	4	305	4	256
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	38.0	38.0	8.5	42.0	42.0	8.5	33.0	33.0	8.5	33.0	33.0
Total Split (s)	23.0	57.5	57.5	8.5	43.0	43.0	8.5	35.0	35.0	19.0	45.5	45.5
Total Split (%)	19.2%	47.9%	47.9%	7.1%	35.8%	35.8%	7.1%	29.2%	29.2%	15.8%	37.9%	37.9%
Maximum Green (s)	19.0	52.5	52.5	4.5	38.0	38.0	4.5	30.0	30.0	15.0	40.5	40.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		28.0	28.0		28.0	28.0		23.0	23.0		23.0	23.0
Pedestrian Calls (#/hr)		10	10		10	10		10	10		10	10
Act Effct Green (s)	17.0	55.7		4.5	36.4	36.4	4.9	34.5	34.5	14.1	50.9	50.9
Actuated g/C Ratio	0.14	0.46		0.04	0.30	0.30	0.04	0.29	0.29	0.12	0.42	0.42
v/c Ratio	0.78	0.19		0.03	0.87	0.71	0.04	0.00	0.01	0.74	0.00	0.31
Control Delay	70.7	19.0		56.5	49.1	8.0	57.0	34.0	0.0	62.8	24.0	4.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.7	19.0		56.5	49.1	8.0	57.0	34.0	0.0	62.8	24.0	4.3
LOS	E	B		E	D	A	E	C	A	E	C	A
Approach Delay		39.1			32.5			25.6			36.0	

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

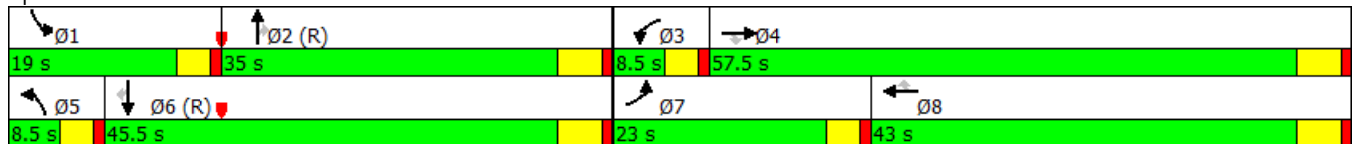
Existing, 2017, PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			C			C			D		
Queue Length 50th (ft)	149	66		2	357	12	2	0	0	118	1	0
Queue Length 95th (ft)	#244	108		11	443	122	11	1	0	167	5	57
Internal Link Dist (ft)	817			352			654			543		
Turn Bay Length (ft)	250			250			250			300		
Base Capacity (vph)	285	1703		67	1145	925	73	1491	731	437	1532	815
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.19		0.03	0.83	0.70	0.04	0.00	0.01	0.70	0.00	0.31

Intersection Summary













Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 34.5  
 Intersection LOS: C  
 Intersection Capacity Utilization 84.0%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Date Street & Ynez Road



Lanes, Volumes, Timings  
3: Cherry St/French Valley Pkwy & Jefferson

Existing, 2017, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↓		↖	↑↑		↘		↗		↖	↗
Traffic Volume (vph)	0	972	11	152	1628	0	33	0	210	144	39	176
Future Volume (vph)	0	972	11	152	1628	0	33	0	210	144	39	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	250		200	0		75	350		0
Storage Lanes	0		0	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3601	0	1805	3610	0	1805	0	1615	0	1828	1615
Flt Permitted				0.950			0.950				0.962	
Satd. Flow (perm)	0	3601	0	1805	3610	0	1805	0	1615	0	1828	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1							253			210
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		793			1560			615			394	
Travel Time (s)		10.8			21.3			9.3			6.0	
Confl. Peds. (#/hr)			10			10			10			
Peak Hour Factor	0.83	0.83	0.83	0.93	0.93	0.93	0.80	0.80	0.80	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1184	0	163	1751	0	41	0	263	0	217	210
Turn Type		NA		Prot	NA		Prot		Prot	Perm	NA	Perm
Protected Phases		2		1	6		8		8		4	
Permitted Phases										4		4
Detector Phase		2		1	6		8		8	4	4	4
Switch Phase												
Minimum Initial (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		36.7		8.1	37.2		34.8		34.8	34.8	34.8	34.8
Total Split (s)		40.4		10.0	50.4		34.8		34.8	34.8	34.8	34.8
Total Split (%)		33.7%		8.3%	42.0%		29.0%		29.0%	29.0%	29.0%	29.0%
Maximum Green (s)		34.2		5.9	44.2		30.2		30.2	29.0	29.0	29.0
Yellow Time (s)		5.2		3.6	5.2		3.6		3.6	4.8	4.8	4.8
All-Red Time (s)		1.0		0.5	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0		0.0	0.0
Total Lost Time (s)		6.2		4.1	6.2		4.6		4.6		5.8	5.8
Lead/Lag		Lead		Lag			Lag		Lag	Lead	Lead	Lead
Lead-Lag Optimize?		Yes		Yes			Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max		None		None	None	None	None
Walk Time (s)					7.0					7.0	7.0	7.0
Flash Dont Walk (s)					10.0					22.0	22.0	22.0
Pedestrian Calls (#/hr)					10					10	10	10
Act Effct Green (s)		63.9		5.9	73.9		9.4		9.4		20.1	20.1
Actuated g/C Ratio		0.53		0.05	0.62		0.08		0.08		0.17	0.17
v/c Ratio		0.62		1.85	0.79		0.29		0.73		0.71	0.47
Control Delay		23.2		455.3	22.5		55.5		19.7		59.4	8.8
Queue Delay		0.0		0.0	0.0		0.0		0.0		0.0	0.0
Total Delay		23.2		455.3	22.5		55.5		19.7		59.4	8.8
LOS		C		F	C		E		B		E	A
Approach Delay		23.2			59.3			24.5			34.6	

Lanes, Volumes, Timings  
 3: Cherry St/French Valley Pkwy & Jefferson

Existing, 2017, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		C			E			C			C	
Queue Length 50th (ft)		310		~191	475		31		7		162	0
Queue Length 95th (ft)		454		#331	#882		56		53		207	47
Internal Link Dist (ft)		713			1480			535			314	
Turn Bay Length (ft)				250					75			
Base Capacity (vph)		1919		88	2223		454		595		441	549
Starvation Cap Reductn		0		0	0		0		0		0	0
Spillback Cap Reductn		0		0	0		0		0		0	0
Storage Cap Reductn		0		0	0		0		0		0	0
Reduced v/c Ratio		0.62		1.85	0.79		0.09		0.44		0.49	0.38

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.85  
 Intersection Signal Delay: 42.6  
 Intersection Capacity Utilization 75.4%  
 Analysis Period (min) 15  
 Intersection LOS: D  
 ICU Level of Service D

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

























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

Splits and Phases: 3: Cherry St/French Valley Pkwy & Jefferson

Ø2 (R)	Ø1	Ø4	Ø8
40.4 s	10 s	34.8 s	34.8 s
Ø6 (R)			
50.4 s			

Lanes, Volumes, Timings  
4: Winchester & Ynez

Existing, 2017, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	177	366	317	795	886	479	443	1688	647	316	1344	163
Future Volume (vph)	177	366	317	795	886	479	443	1688	647	316	1344	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		500	400		350	250		200	250		0
Storage Lanes	2		1	3		1	2		1	2		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3340	1470	5090	3610	1615	3502	6536	1615	3502	6415	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3340	1470	5090	3610	1582	3502	6536	1581	3502	6415	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						105			63		25	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		800			1093			797			1309	
Travel Time (s)		12.1			16.6			13.6			22.3	
Confl. Peds. (#/hr)						10			10			10
Peak Hour Factor	0.96	0.96	0.96	0.97	0.97	0.97	0.93	0.93	0.93	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)			34%									
Lane Group Flow (vph)	184	493	218	820	913	494	476	1815	696	333	1587	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.2	20.0	20.0	8.2	46.3	8.2	8.2	45.3	8.2	8.2	37.9	
Total Split (s)	11.2	29.5	29.5	28.0	46.3	16.5	21.4	46.0	28.0	16.5	41.1	
Total Split (%)	9.3%	24.6%	24.6%	23.3%	38.6%	13.8%	17.8%	38.3%	23.3%	13.8%	34.3%	
Maximum Green (s)	7.2	24.2	24.2	24.0	41.0	12.5	17.4	40.7	24.0	12.5	35.8	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	3.0	3.0	4.3	3.0	3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.3	5.3	4.0	5.3	4.0	4.0	5.3	4.0	4.0	5.3	
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Walk Time (s)					5.0			5.0			5.0	
Flash Dont Walk (s)					36.0			35.0			27.0	
Pedestrian Calls (#/hr)					10			10			10	
Act Effect Green (s)	10.1	21.9	21.9	23.9	35.8	50.3	17.4	42.3	67.5	13.2	38.2	
Actuated g/C Ratio	0.08	0.18	0.18	0.20	0.30	0.42	0.14	0.35	0.56	0.11	0.32	
v/c Ratio	0.63	0.81	0.81	0.81	0.85	0.68	0.94	0.79	0.75	0.86	0.77	
Control Delay	63.6	57.9	70.1	53.0	47.6	18.4	66.4	31.5	12.0	74.8	39.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	63.6	57.9	70.1	53.0	47.6	18.4	66.4	31.5	12.0	74.8	39.9	
LOS	E	E	E	D	D	B	E	C	B	E	D	
Approach Delay		62.0			43.1			32.5			46.0	

Lanes, Volumes, Timings  
4: Winchester & Ynez

Existing, 2017, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS	E			D			C			D		
Queue Length 50th (ft)	71	200	176	214	346	165	193	335	103	133	327	
Queue Length 95th (ft)	#141	263	#296	265	404	252	m#290	389	177	#219	374	
Internal Link Dist (ft)	720			1013			717			1229		
Turn Bay Length (ft)	200	500		400	350		250	200		250		
Base Capacity (vph)	293	673	296	1035	1233	728	507	2304	930	386	2057	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	1	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.63	0.73	0.74	0.79	0.74	0.68	0.94	0.79	0.75	0.86	0.77	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 19 (16%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 42.0

Intersection LOS: D

Intersection Capacity Utilization 90.1%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.




















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

Splits and Phases: 4: Winchester & Ynez

16.5 s	46 s	29.5 s	28 s
41.1 s	21.4 s	46.3 s	11.2 s

Lanes, Volumes, Timings  
5: Winchester & I-15 NB off/I-15 NB on

Existing, 2017, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	128	0	605	0	2157	922	0	1210	1322
Future Volume (vph)	0	0	0	128	0	605	0	2157	922	0	1210	1322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		450	0		0
Storage Lanes	0		0	1		1	0		1	0		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	1715	1477	1534	0	4822	1389	0	5187	2842
Flt Permitted				0.950	0.998							
Satd. Flow (perm)	0	0	0	1715	1477	1534	0	4822	1368	0	5187	2772
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					22	22		26	568			985
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		579			216			765			797	
Travel Time (s)		13.2			4.9			13.0			13.6	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.95	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)				10%		49%			25%			
Lane Group Flow (vph)	0	0	0	121	326	325	0	2514	728	0	1235	1349
Turn Type				Perm	NA	Perm		NA	Free		NA	Free
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			Free
Detector Phase				8	8	8		2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0		4.0			4.0	
Minimum Split (s)				20.0	20.0	20.0		32.4			20.0	
Total Split (s)				41.0	41.0	41.0		79.0			79.0	
Total Split (%)				34.2%	34.2%	34.2%		65.8%			65.8%	
Maximum Green (s)				35.2	35.2	35.2		73.6			73.6	
Yellow Time (s)				4.8	4.8	4.8		4.4			4.4	
All-Red Time (s)				1.0	1.0	1.0		1.0			1.0	
Lost Time Adjust (s)				0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)				5.8	5.8	5.8		5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Recall Mode				None	None	None		C-Max			C-Max	
Walk Time (s)								7.0				
Flash Dont Walk (s)								20.0				
Pedestrian Calls (#/hr)								10				
Act Effct Green (s)				29.5	29.5	29.5		79.3	120.0		79.3	120.0
Actuated g/C Ratio				0.25	0.25	0.25		0.66	1.00		0.66	1.00
v/c Ratio				0.29	0.86	0.82		0.79	0.53		0.36	0.49
Control Delay				37.0	61.3	56.9		17.5	8.1		5.6	1.0
Queue Delay				0.0	0.0	0.0		0.4	0.0		0.0	0.0
Total Delay				37.0	61.3	56.9		18.0	8.1		5.6	1.0
LOS				D	E	E		B	A		A	A
Approach Delay					55.6			15.7			3.2	



Lanes, Volumes, Timings  
 5: Winchester & I-15 NB off/I-15 NB on

Existing, 2017, PM

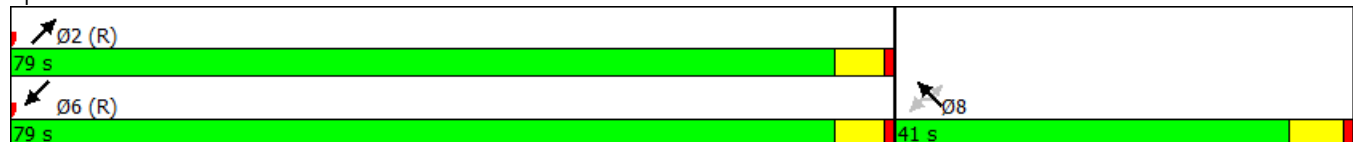
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS					E			B			A	
Queue Length 50th (ft)				78	245	231		495	437		102	21
Queue Length 95th (ft)				128	357	333		650	474		138	9
Internal Link Dist (ft)		499			136			685			717	
Turn Bay Length (ft)									450			
Base Capacity (vph)				503	448	465		3194	1368		3427	2772
Starvation Cap Reductn				0	0	0		252	0		0	0
Spillback Cap Reductn				0	0	0		0	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.24	0.73	0.70		0.85	0.53		0.36	0.49

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 118 (98%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 15.5  
 Intersection Capacity Utilization 83.0%  
 Analysis Period (min) 15




















Intersection LOS: B  
 ICU Level of Service E

Splits and Phases: 5: Winchester & I-15 NB off/I-15 NB on



Lanes, Volumes, Timings  
6: Winchester & I-15 SB on/I-15 SB off

Existing, 2017, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	1207	4	434	0	0	0	0	1880	240	0	816	499
Future Volume (vph)	1207	4	434	0	0	0	0	1880	240	0	816	499
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	3502	1540	1534	0	0	0	0	5187	1615	0	4835	0
Flt Permitted	0.950											
Satd. Flow (perm)	3502	1540	1534	0	0	0	0	5187	1537	0	4835	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		78	78						215		171	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		189			419			450			765	
Travel Time (s)		4.3			9.5			7.7			13.0	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.95	0.95	0.95	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	1284	235	231	0	0	0	0	1979	253	0	1445	0
Turn Type	Perm	NA	Perm					NA	Perm		NA	
Protected Phases		4						2			6	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0		4.0	
Minimum Split (s)	20.0	20.0	20.0					26.4	26.4		20.0	
Total Split (s)	59.0	59.0	59.0					61.0	61.0		61.0	
Total Split (%)	49.2%	49.2%	49.2%					50.8%	50.8%		50.8%	
Maximum Green (s)	53.2	53.2	53.2					55.6	55.6		55.6	
Yellow Time (s)	4.8	4.8	4.8					4.4	4.4		4.4	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)	5.8	5.8	5.8					5.4	5.4		5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Max	C-Max		C-Max	
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								14.0	14.0			
Pedestrian Calls (#/hr)								10	10			
Act Effect Green (s)	50.4	50.4	50.4					58.4	58.4		58.4	
Actuated g/C Ratio	0.42	0.42	0.42					0.49	0.49		0.49	
v/c Ratio	0.87	0.34	0.34					0.78	0.29		0.59	
Control Delay	39.3	16.2	16.0					12.1	0.6		7.0	
Queue Delay	0.0	0.0	0.0					0.1	0.0		0.0	
Total Delay	39.3	16.2	16.0					12.3	0.6		7.0	
LOS	D	B	B					B	A		A	
Approach Delay		33.2						10.9			7.0	
Approach LOS		C						B			A	
Queue Length 50th (ft)	446	78	76					201	0		53	
Queue Length 95th (ft)	536	142	138					m250	m0		56	

Lanes, Volumes, Timings  
6: Winchester & I-15 SB on/I-15 SB off

Existing, 2017, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Internal Link Dist (ft)		109			339			370			685	
Turn Bay Length (ft)												
Base Capacity (vph)	1552	726	723					2525	858		2441	
Starvation Cap Reductn	0	0	0					28	0		0	
Spillback Cap Reductn	0	0	0					74	0		0	
Storage Cap Reductn	0	0	0					0	0		0	
Reduced v/c Ratio	0.83	0.32	0.32					0.81	0.29		0.59	

Intersection Summary



























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 9 (8%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 17.0 Intersection LOS: B  
 Intersection Capacity Utilization 80.1% ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Winchester & I-15 SB on/I-15 SB off

Ø2 (R) 61 s	Ø4 59 s
Ø6 (R) 61 s	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

Existing, 2017, PM

													
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations													
Traffic Volume (vph)	604	683	185	52	750	435	506	1169	60	373	440	459	
Future Volume (vph)	604	683	185	52	750	435	506	1169	60	373	440	459	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	300		200	200		300	400		0	0		300	
Storage Lanes	2		1	1		1	2		0	2		1	
Taper Length (ft)	25			25			25			25			
Satd. Flow (prot)	3502	3610	1615	3502	3610	1615	3502	6483	0	3502	3610	1615	
Flt Permitted	0.950			0.950			0.950			0.950			
Satd. Flow (perm)	3502	3610	1576	3502	3610	1615	3502	6483	0	3502	3610	1578	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			210			98			9			388	
Link Speed (mph)		45			45			40			40		
Link Distance (ft)		1063			948			629			450		
Travel Time (s)		16.1			14.4			10.7			7.7		
Confl. Peds. (#/hr)			10						10			10	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.94	0.94	0.94	0.92	0.92	0.92	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	686	776	210	59	852	494	538	1308	0	405	478	499	
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	
Protected Phases	7	4		3	8	1	5	2		1	6		
Permitted Phases			4			8						6	
Detector Phase	7	4	4	3	8	1	5	2		1	6	6	
Switch Phase													
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	
Minimum Split (s)	8.2	38.9	38.9	8.2	20.0	8.2	8.2	41.3		8.2	36.9	36.9	
Total Split (s)	27.2	48.9	48.9	9.3	31.0	18.6	23.0	43.2		18.6	38.8	38.8	
Total Split (%)	22.7%	40.8%	40.8%	7.8%	25.8%	15.5%	19.2%	36.0%		15.5%	32.3%	32.3%	
Maximum Green (s)	23.2	44.0	44.0	5.3	26.1	14.6	19.0	38.3		14.6	33.9	33.9	
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.0	3.0	3.9		3.0	3.9	3.9	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.0	4.0	4.9		4.0	4.9	4.9	
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead		Lag	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max	
Walk Time (s)		7.0	7.0					7.0			7.0	7.0	
Flash Dont Walk (s)		22.0	22.0					29.0			25.0	25.0	
Pedestrian Calls (#/hr)		10	10					10			10	10	
Act Effect Green (s)	23.2	45.9	45.9	5.3	26.1	14.6	19.0	38.3		14.6	33.9	33.9	
Actuated g/C Ratio	0.19	0.38	0.38	0.04	0.22	0.38	0.16	0.32		0.12	0.28	0.28	
v/c Ratio	1.01	0.56	0.29	0.38	1.09	0.73	0.97	0.63		0.95	0.47	0.69	
Control Delay	86.0	31.6	4.5	63.2	102.0	32.8	82.2	36.2		75.7	29.9	14.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.3	
Total Delay	86.0	31.6	4.5	63.2	102.0	32.8	82.2	36.2		75.7	29.9	14.9	
LOS	F	C	A	E	F	C	F	D		E	C	B	
Approach Delay		50.5			76.1			49.6			37.9		

Lanes, Volumes, Timings  
7: Winchester & Jefferson

Existing, 2017, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		D			E			D			D	
Queue Length 50th (ft)	~281	253	0	23	~390	265	215	248		148	155	151
Queue Length 95th (ft)	#392	308	46	45	#498	386	#327	288		#258	213	230
Internal Link Dist (ft)		983			868			549			370	
Turn Bay Length (ft)	300		200		200		300		400		300	
Base Capacity (vph)	677	1379	731	154	785	674	554	2075		426	1019	724
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	28
Spillback Cap Reductn	0	0	0	0	0	0	0	1		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.01	0.56	0.29	0.38	1.09	0.73	0.97	0.63		0.95	0.47	0.72

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 52 (43%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.09  
 Intersection Signal Delay: 53.2  
 Intersection Capacity Utilization 93.9%  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 7: Winchester & Jefferson

Ø2 (L)	Ø1	Ø3	Ø4
43.2 s	18.6 s	9.3 s	48.9 s
Ø5	Ø6 (R)	Ø8	Ø7
23 s	38.8 s	31 s	27.2 s

# **Appendix F – No Build Conditions HCS Reports**

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 & I-215 junction and I-15 lane drop		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2910	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	766
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.33
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	11.7
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp and on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2520	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	884
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	13.4
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 North of Murrieta Hot Springs Rd		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3920	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1375
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	20.6
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	66.8		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Rancho California Rd on-ramp and I-15 Winchester Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5240	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1379
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	21.1
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 segment (3 lanes) and I-15 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2910	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>P</sub> ), pc/h/ln	1021
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	15.6
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 segment (5 lanes)		

## Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	64.7
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5220	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1099
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2346
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2346
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.47
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	64.6
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	17.0
Total Ramp Density Adjustment	5.4	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	64.6		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 segment (6 lanes)		

## Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5220	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	916
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	14.1
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Winchester Rd on-ramp and I-15 lane addition		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5220	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1374
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	20.8
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Winchester Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4170	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1097
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.47
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	16.7
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 & I-15 junction and I-215 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2310	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1216
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	18.6
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp and I-215 lane addition		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1960	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>P</sub> ), pc/h/ln	1032
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	15.9
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2820	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	989
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.42
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	15.2
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 segment (3 lanes) and I-215 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1960	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	688
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.29
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	10.6
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	215
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2910	380
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3063	400
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.43	0.19

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	21.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.334
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	892
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1050	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.6
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.665	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	76.8
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2171	Ramp Junction Speed (S), mi/h	64.6
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	15.8
Level of Service (LOS)	C		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2310	350
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2432	368
Capacity (c), pc/h	7200	4200
Volume-to-Capacity Ratio (v/c)	0.34	0.09

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	0.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>s</sub> )	0.331
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1042
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1900	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.450	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	76.6
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1390	Ramp Junction Speed (S), mi/h	66.6
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	12.2
Level of Service (LOS)	A		



# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Winchester Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	5240	1060
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	5516	1116
Capacity (c), pc/h	9600	4200
Volume-to-Capacity Ratio (v/c)	0.57	0.27

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	0.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.398
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1628
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.260	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	74.3
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2260	Ramp Junction Speed (S), mi/h	67.1
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	20.6
Level of Service (LOS)	A		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	750
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2820	1100
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2968	1158
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.57	0.55

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	23.2
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1500	Speed Index (M <sub>s</sub> )	0.327
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1193
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.598	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.5
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1775	Ramp Junction Speed (S), mi/h	62.6
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2933	Average Density (D), pc/mi/ln	22.0
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2520	290
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2653	305
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.41	0.16

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	0.0	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	15.2
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1050	Speed Index (M <sub>s</sub> )	0.307
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1061
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1500	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.4
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.600	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	68.0
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1592	Ramp Junction Speed (S), mi/h	63.6
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	1897	Average Density (D), pc/mi/ln	15.5
Level of Service (LOS)	B		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2170	650
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2284	684
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.41	0.33

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	17.4
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1275	Speed Index (M <sub>s</sub> )	0.297
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	927
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.7
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.594	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	68.5
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1357	Ramp Junction Speed (S), mi/h	63.7
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2041	Average Density (D), pc/mi/ln	15.5
Level of Service (LOS)	B		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1300	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	1960	210
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2063	221
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.32	0.12

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	0.0	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	13.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1900	Speed Index (M <sub>s</sub> )	0.308
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	838
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1275	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.4
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.594	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	68.8
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1225	Ramp Junction Speed (S), mi/h	63.9
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	1446	Average Density (D), pc/mi/ln	11.9
Level of Service (LOS)	B		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	4590	630
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	4832	663
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.57	0.32

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	21.7
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (M <sub>s</sub> )	0.319
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1450
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.1
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.135	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	66.6
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1933	Ramp Junction Speed (S), mi/h	63.9
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2596	Average Density (D), pc/mi/ln	21.5
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1300	575
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	4170	410
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	4389	432
Capacity (c), pc/h	9600	1900
Volume-to-Capacity Ratio (v/c)	0.50	0.23

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	18.8
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (M <sub>s</sub> )	0.327
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1317
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.164	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.1
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1756	Ramp Junction Speed (S), mi/h	64.1
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2188	Average Density (D), pc/mi/ln	18.8
Level of Service (LOS)	B		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 & I-215 junction and I-15 lane drop		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4390	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1120
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.48
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	17.1
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp and on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4060	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>P</sub> ), pc/h/ln	1381
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	21.0
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 North of Murrieta Hot Springs Rd		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6280	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	2136
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	58.2
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	36.7
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	66.8		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Rancho California Rd on-ramp and I-15 Winchester Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6420	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>P</sub> ), pc/h/ln	1638
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	64.6
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	25.4
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 segment (3 lanes) and I-15 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4390	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>P</sub> ), pc/h/ln	1493
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.3
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	22.9
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 segment (5 lanes)		

## Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	64.7
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	7900	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1612
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2346
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2346
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	64.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	25.2
Total Ramp Density Adjustment	5.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	64.6		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 segment (6 lanes)		

## Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	7900	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>P</sub> ), pc/h/ln	1344
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	20.7
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Winchester Rd on-ramp and I-15 lane addition		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	7900	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	2015
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	60.1
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	33.5
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Winchester Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5560	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1418
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	21.6
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 & I-15 junction and I-215 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3520	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1796
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	63.1
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	28.5
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp and I-215 lane addition		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3160	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1612
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	64.4
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	25.0
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4930	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1677
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	63.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	26.2
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 segment (3 lanes) and I-215 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3160	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1075
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	16.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	215
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	4390	330
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	4480	337
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.62	0.16

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	27.7
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.328
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1525
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1050	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.632	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	74.7
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2955	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	23.0
Level of Service (LOS)	C		



# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3520	350
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3592	357
Capacity (c), pc/h	7200	4200
Volume-to-Capacity Ratio (v/c)	0.50	0.08

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	0.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.330
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1539
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1900	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.450	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	74.7
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2053	Ramp Junction Speed (S), mi/h	66.1
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	18.1
Level of Service (LOS)	A		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	Existing (2017)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Winchester Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	6420	860
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	6551	878
Capacity (c), pc/h	9600	4200
Volume-to-Capacity Ratio (v/c)	0.68	0.21

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	0.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.377
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1966
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	59.4
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.260	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	73.0
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2620	Ramp Junction Speed (S), mi/h	66.9
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	24.5
Level of Service (LOS)	A		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	750
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	4390	1880
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	4480	1918
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.89	0.91

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	35.8
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1500	Speed Index (M <sub>s</sub> )	0.640
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1801
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	52.1
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.598	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	65.3
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2679	Ramp Junction Speed (S), mi/h	55.2
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	4597	Average Density (D), pc/mi/ln	38.6
Level of Service (LOS)	E		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	4060	330
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	4143	337
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.62	0.18

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	218.9	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	22.4
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1050	Speed Index (M <sub>s</sub> )	0.347
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1657
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1500	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.3
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.600	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	65.8
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2486	Ramp Junction Speed (S), mi/h	62.2
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2823	Average Density (D), pc/mi/ln	24.0
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3720	1210
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3796	1235
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.70	0.59

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	28.4
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1275	Speed Index (M <sub>s</sub> )	0.395
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1541
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.594	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	66.3
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2255	Ramp Junction Speed (S), mi/h	61.0
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	3490	Average Density (D), pc/mi/ln	27.5
Level of Service (LOS)	D		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1300	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3160	560
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3224	571
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.53	0.30

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	0.0	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	20.9
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1900	Speed Index (M <sub>s</sub> )	0.338
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1309
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1275	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.5
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.594	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.1
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1915	Ramp Junction Speed (S), mi/h	62.6
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2486	Average Density (D), pc/mi/ln	20.2
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	Winchester Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	6550	1350
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	6684	1378
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.84	0.66

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	32.8
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (M <sub>s</sub> )	0.491
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2005
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	56.3
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.046	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	64.6
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2674	Ramp Junction Speed (S), mi/h	60.1
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	4052	Average Density (D), pc/mi/ln	33.5
Level of Service (LOS)	D		



# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	Winchester Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1300	575
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	5560	990
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	5673	1010
Capacity (c), pc/h	9600	1900
Volume-to-Capacity Ratio (v/c)	0.70	0.53

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	27.1
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (M <sub>s</sub> )	0.396
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1702
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.092	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	65.7
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2269	Ramp Junction Speed (S), mi/h	62.2
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	3279	Average Density (D), pc/mi/ln	26.9
Level of Service (LOS)	C		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 & I-215 junction and I-15 lane drop		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3590	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	945
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.40
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	14.4
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp and on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3170	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>P</sub> ), pc/h/ln	1112
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.47
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	16.9
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 North of Murrieta Hot Springs Rd		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4870	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1709
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	64.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	26.3
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	66.8		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Rancho California Rd on-ramp and I-15 Winchester Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6870	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1808
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	63.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	28.7
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 segment (3 lanes) and I-15 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3590	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>P</sub> ), pc/h/ln	1260
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	19.2
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 segment (5 lanes)		

## Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	64.7
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6640	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1398
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2346
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2346
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	64.6
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	21.6
Total Ramp Density Adjustment	5.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	64.6		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 segment (6 lanes)		

## Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6640	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1165
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	17.9
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Winchester Rd on-ramp and I-15 lane addition		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6640	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1747
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	63.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	27.3
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Winchester Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5560	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1463
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.4
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	22.4
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 & I-15 junction and I-215 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3050	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>P</sub> ), pc/h/ln	1070
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	16.3
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp and I-215 lane addition		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2600	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1368
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	21.0
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3510	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1232
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	19.0
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 segment (3 lanes) and I-215 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2600	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	912
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	14.0
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	215
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3590	420
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3779	442
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.52	0.21

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	24.6
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>s</sub> )	0.338
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1185
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1050	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.5
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.645	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	76.1
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2594	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	19.5
Level of Service (LOS)	C		



# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3050	450
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3211	474
Capacity (c), pc/h	7200	4200
Volume-to-Capacity Ratio (v/c)	0.45	0.11

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	0.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.341
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1376
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1900	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.5
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.450	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	75.3
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1835	Ramp Junction Speed (S), mi/h	66.1
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	16.2
Level of Service (LOS)	A		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Winchester Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	6870	1310
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	7232	1379
Capacity (c), pc/h	9600	4200
Volume-to-Capacity Ratio (v/c)	0.75	0.33

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	0.8
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.422
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2166
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	58.2
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.260	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	72.2
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2901	Ramp Junction Speed (S), mi/h	65.8
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	27.5
Level of Service (LOS)	A		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	750
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3710	1160
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3905	1221
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.71	0.58

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	28.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1500	Speed Index (M <sub>s</sub> )	0.390
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1570
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	59.1
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.598	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	66.1
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2335	Ramp Junction Speed (S), mi/h	61.1
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	3556	Average Density (D), pc/mi/ln	28.0
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3170	540
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3337	568
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.54	0.30

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	95.9	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	20.3
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1050	Speed Index (M <sub>s</sub> )	0.332
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1335
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1500	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.600	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.0
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2002	Ramp Junction Speed (S), mi/h	62.7
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2570	Average Density (D), pc/mi/ln	20.8
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2810	700
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2958	737
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.51	0.35

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	20.9
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1275	Speed Index (M <sub>s</sub> )	0.314
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1201
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.2
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.594	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.5
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1757	Ramp Junction Speed (S), mi/h	63.1
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2494	Average Density (D), pc/mi/ln	19.5
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1300	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2600	210
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2737	221
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.41	0.12

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	0.0	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	16.1
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1900	Speed Index (M <sub>s</sub> )	0.316
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1111
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1275	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.2
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.594	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.8
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1626	Ramp Junction Speed (S), mi/h	63.5
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	1847	Average Density (D), pc/mi/ln	15.5
Level of Service (LOS)	B		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	5970	670
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	6284	705
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.73	0.34

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	26.6
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (M <sub>s</sub> )	0.365
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1885
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	59.8
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.130	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	65.0
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2514	Ramp Junction Speed (S), mi/h	62.5
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	3219	Average Density (D), pc/mi/ln	28.0
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1300	575
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	5560	420
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	5853	442
Capacity (c), pc/h	9600	1900
Volume-to-Capacity Ratio (v/c)	0.66	0.23

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	23.4
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (M <sub>s</sub> )	0.355
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1756
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.1
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.163	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	65.5
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2341	Ramp Junction Speed (S), mi/h	63.0
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2783	Average Density (D), pc/mi/ln	25.0
Level of Service (LOS)	C		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 & I-215 junction and I-15 lane drop		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6150	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1569
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	24.1
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp and on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5810	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1976
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	60.8
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	32.5
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 North of Murrieta Hot Springs Rd		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	8230	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	2799
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.18
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	66.8		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Rancho California Rd on-ramp and I-15 Winchester Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	8980	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	2291
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.97
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	54.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	42.4
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 segment (3 lanes) and I-15 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6150	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>P</sub> ), pc/h/ln	2092
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	58.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	35.8
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 segment (5 lanes)		

## Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	64.7
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	10570	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	2157
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2346
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2346
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.7
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	38.0
Total Ramp Density Adjustment	5.4	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	64.6		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 segment (6 lanes)		

## Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	10570	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1798
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	62.8
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	28.6
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Winchester Rd on-ramp and I-15 lane addition		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	10570	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	2696
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.14
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Winchester Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	8130	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	2074
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	35.3
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 & I-15 junction and I-215 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4420	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>P</sub> ), pc/h/ln	2255
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	54.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	41.1
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp and I-215 lane addition		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4060	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	2072
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	58.6
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	35.4
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6350	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	2160
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	38.0
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 segment (3 lanes) and I-215 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4060	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1381
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	21.2
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	215
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	6150	340
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	6276	347
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.87	0.17

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	35.2
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.329
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2449
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1050	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.587	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	71.1
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	3827	Ramp Junction Speed (S), mi/h	64.4
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	32.5
Level of Service (LOS)	E		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	4420	360
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	4510	367
Capacity (c), pc/h	7200	4200
Volume-to-Capacity Ratio (v/c)	0.63	0.09

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	0.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.331
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1933
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1900	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.450	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	73.2
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2577	Ramp Junction Speed (S), mi/h	65.5
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	23.0
Level of Service (LOS)	A		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Winchester Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	8980	840
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	9163	857
Capacity (c), pc/h	9600	4200
Volume-to-Capacity Ratio (v/c)	0.95	0.20

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	8.2
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.375
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2700
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	59.5
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.260	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	70.2
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	3763	Ramp Junction Speed (S), mi/h	65.4
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	35.0
Level of Service (LOS)	A		



# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	750
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	6260	1970
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	6388	2010
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	1.17	0.96

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	-
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1500	Speed Index (M <sub>s</sub> )	-
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2568
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	-
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.598	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	61.9
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	3820	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	5830	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	5810	460
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	5929	469
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.89	0.25

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	629.4	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	31.7
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1100	Speed Index (M <sub>s</sub> )	0.500
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2372
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1500	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	56.0
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.600	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	63.0
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	3557	Ramp Junction Speed (S), mi/h	58.4
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	4026	Average Density (D), pc/mi/ln	36.5
Level of Service (LOS)	D		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	4840	1510
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	4939	1541
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.90	0.73

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	36.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1275	Speed Index (M <sub>s</sub> )	0.609
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2005
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	52.9
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.594	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	64.6
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2934	Ramp Junction Speed (S), mi/h	56.0
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	4475	Average Density (D), pc/mi/ln	38.6
Level of Service (LOS)	E		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1300	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	4060	780
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	4143	796
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.69	0.42

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	228.4	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	26.8
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1900	Speed Index (M <sub>s</sub> )	0.392
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1682
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1275	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	59.0
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.594	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	65.7
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2461	Ramp Junction Speed (S), mi/h	61.1
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	3257	Average Density (D), pc/mi/ln	26.9
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	Winchester Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	9160	1420
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	9347	1449
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	1.12	0.69

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	-
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (M <sub>s</sub> )	-
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2700
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	-
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.037	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	61.1
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	3947	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	5396	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/10/2017
Agency	Parsons	Analysis Year	No Build (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	Winchester Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1300	575
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	8130	1030
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	8296	1051
Capacity (c), pc/h	9600	1900
Volume-to-Capacity Ratio (v/c)	0.97	0.55

























## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	35.5
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (M <sub>s</sub> )	0.600
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2489
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	53.2
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.086	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	62.3
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	3318	Ramp Junction Speed (S), mi/h	57.7
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	4369	Average Density (D), pc/mi/ln	40.5
Level of Service (LOS)	E		

# **Appendix G – No Build Conditions Synchro Reports**

HCM 2010 Signalized Intersection Summary  
1: Date Street & Ynez Road
























No Build, 2022, AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	455	1	4	146	141	1	2	3	545	4	257
Future Volume (veh/h)	224	455	1	4	146	141	1	2	3	545	4	257
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	236	479	1	4	154	148	1	2	3	574	4	271
Adj No. of Lanes	1	2	1	1	2	1	1	3	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	241	1009	447	8	513	225	339	2073	641	585	1339	594
Arrive On Green	0.13	0.28	0.28	0.00	0.14	0.14	0.19	0.40	0.40	0.17	0.37	0.37
Sat Flow, veh/h	1810	3610	1598	1810	3610	1581	1810	5187	1603	3510	3610	1602
Grp Volume(v), veh/h	236	479	1	4	154	148	1	2	3	574	4	271
Grp Sat Flow(s),veh/h/ln	1810	1805	1598	1810	1805	1581	1810	1729	1603	1755	1805	1602
Q Serve(g_s), s	15.6	13.2	0.0	0.3	4.6	7.6	0.1	0.0	0.1	19.5	0.1	15.4
Cycle Q Clear(g_c), s	15.6	13.2	0.0	0.3	4.6	7.6	0.1	0.0	0.1	19.5	0.1	15.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	241	1009	447	8	513	225	339	2073	641	585	1339	594
V/C Ratio(X)	0.98	0.47	0.00	0.53	0.30	0.66	0.00	0.00	0.00	0.98	0.00	0.46
Avail Cap(c_a), veh/h	241	1459	646	68	1113	487	339	2073	641	585	1339	594
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	35.9	12.2	59.6	46.1	25.1	39.7	21.6	21.7	49.8	23.8	28.6
Incr Delay (d2), s/veh	51.6	0.3	0.0	47.7	0.3	3.3	0.0	0.0	0.0	32.3	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	6.6	0.0	0.2	2.3	3.5	0.0	0.0	0.1	12.1	0.0	7.2
LnGrp Delay(d),s/veh	103.4	36.3	12.2	107.4	46.5	28.4	39.7	21.6	21.7	82.1	23.8	31.1
LnGrp LOS	F	D	B	F	D	C	D	C	C	F	C	C
Approach Vol, veh/h		716			306			6				849
Approach Delay, s/veh		58.4			38.5			24.7				65.5
Approach LOS		E			D			C				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.0	53.0	4.5	38.5	27.5	49.5	21.0	22.0				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	5.0	* 5	5.0	* 5				
Max Green Setting (Gmax), s	20.0	29.0	4.5	48.5	4.5	* 45	16.0	* 37				
Max Q Clear Time (g_c+I1), s	21.5	2.1	2.3	15.2	2.1	17.4	17.6	9.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	2.3	0.0	0.9	0.0	0.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay					58.3							
HCM 2010 LOS					E							
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												



























HCM 2010 Signalized Intersection Summary  
7: Winchester & Jefferson

No Build, 2022, AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	406	497	387	114	264	259	117	462	81	478	921	372
Future Volume (veh/h)	406	497	387	114	264	259	117	462	81	478	921	372
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	427	523	407	120	278	273	123	486	85	503	969	392
Adj No. of Lanes	2	2	1	2	2	1	2	4	0	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	546	784	346	173	374	594	413	1820	305	928	1688	750
Arrive On Green	0.16	0.22	0.22	0.05	0.10	0.10	0.12	0.32	0.32	0.53	0.94	0.94
Sat Flow, veh/h	3510	3610	1593	3510	3610	1615	3510	5672	952	3510	3610	1605
Grp Volume(v), veh/h	427	523	407	120	278	273	123	417	154	503	969	392
Grp Sat Flow(s),veh/h/ln	1755	1805	1593	1755	1805	1615	1755	1634	1721	1755	1805	1605
Q Serve(g_s), s	14.0	15.9	19.7	4.0	9.0	0.0	3.8	7.6	8.0	11.4	4.5	3.7
Cycle Q Clear(g_c), s	14.0	15.9	19.7	4.0	9.0	0.0	3.8	7.6	8.0	11.4	4.5	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.55	1.00		1.00
Lane Grp Cap(c), veh/h	546	784	346	173	374	594	413	1573	552	928	1688	750
V/C Ratio(X)	0.78	0.67	1.18	0.69	0.74	0.46	0.30	0.27	0.28	0.54	0.57	0.52
Avail Cap(c_a), veh/h	546	1026	453	176	662	723	413	1573	552	928	1688	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	48.7	43.0	26.8	56.1	52.2	28.9	48.4	30.3	30.4	23.5	2.2	2.2
Incr Delay (d2), s/veh	7.2	1.1	102.2	10.9	3.0	0.6	0.4	0.4	1.3	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	8.0	18.5	2.2	4.6	6.9	1.9	3.5	4.0	5.5	1.9	1.3
LnGrp Delay(d),s/veh	55.9	44.1	129.0	67.0	55.2	29.4	48.8	30.7	31.6	23.5	2.4	2.4
LnGrp LOS	E	D	F	E	E	C	D	C	C	C	A	A
Approach Vol, veh/h		1357			671			694			1864	
Approach Delay, s/veh		73.3			46.8			34.1			8.1	
Approach LOS		E			D			C			A	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.7	43.4	9.9	31.0	18.1	61.0	23.6	17.3				
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.9	* 4.9				
Max Green Setting (Gmax), s	23.6	38.5	6.0	34.1	6.0	56.1	18.1	* 22				
Max Q Clear Time (g_c+I1), s	13.4	10.0	6.0	21.7	5.8	6.5	16.0	11.0				
Green Ext Time (p_c), s	1.7	1.9	0.0	3.9	0.0	5.8	1.2	1.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			37.0									
HCM 2010 LOS			D									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

























HCM 2010 Signalized Intersection Summary  
1: Date Street & Ynez Road

No Build, 2022, PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	192	351	0	2	1020	614	2	1	3	291	4	239
Future Volume (veh/h)	192	351	0	2	1020	614	2	1	3	291	4	239
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	202	369	0	2	1074	646	2	1	3	306	4	252
Adj No. of Lanes	1	2	1	1	2	1	1	3	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	230	1655	741	4	1203	533	4	1481	456	364	1398	620
Arrive On Green	0.13	0.46	0.00	0.00	0.33	0.33	0.00	0.29	0.29	0.10	0.39	0.39
Sat Flow, veh/h	1810	3610	1615	1810	3610	1600	1810	5187	1598	3510	3610	1602
Grp Volume(v), veh/h	202	369	0	2	1074	646	2	1	3	306	4	252
Grp Sat Flow(s),veh/h/ln	1810	1805	1615	1810	1805	1600	1810	1729	1598	1755	1805	1602
Q Serve(g_s), s	13.2	7.4	0.0	0.1	33.9	40.0	0.1	0.0	0.2	10.3	0.1	13.7
Cycle Q Clear(g_c), s	13.2	7.4	0.0	0.1	33.9	40.0	0.1	0.0	0.2	10.3	0.1	13.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	230	1655	741	4	1203	533	4	1481	456	364	1398	620
V/C Ratio(X)	0.88	0.22	0.00	0.51	0.89	1.21	0.51	0.00	0.01	0.84	0.00	0.41
Avail Cap(c_a), veh/h	271	1655	741	68	1203	533	68	1481	456	410	1398	620
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	19.6	0.0	59.8	38.0	40.0	59.8	30.6	30.7	52.8	22.6	26.7
Incr Delay (d2), s/veh	23.4	0.1	0.0	78.0	8.7	111.4	78.0	0.0	0.0	13.2	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	3.7	0.0	0.2	18.3	34.1	0.2	0.0	0.1	5.6	0.0	6.4
LnGrp Delay(d),s/veh	74.8	19.7	0.0	137.8	46.7	151.4	137.8	30.6	30.7	66.0	22.6	28.7
LnGrp LOS	E	B		F	D	F	F	C	C	E	C	C
Approach Vol, veh/h		571			1722			6			562	
Approach Delay, s/veh		39.2			86.1			66.4			49.0	
Approach LOS		D			F			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.5	39.3	4.3	60.0	4.3	51.5	19.3	45.0				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	14.0	30.0	4.5	53.5	4.5	39.5	18.0	40.0				
Max Q Clear Time (g_c+I1), s	12.3	2.2	2.1	9.4	2.1	15.7	15.2	42.0				
Green Ext Time (p_c), s	0.2	0.8	0.0	10.6	0.0	0.8	0.1	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			69.4									
HCM 2010 LOS			E									

























HCM 2010 Signalized Intersection Summary  
7: Winchester & Jefferson

No Build, 2022, PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	635	649	136	35	761	469	505	1246	51	416	502	516
Future Volume (veh/h)	635	649	136	35	761	469	505	1246	51	416	502	516
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	668	683	143	37	801	494	532	1312	54	438	528	543
Adj No. of Lanes	2	2	1	2	2	1	2	4	0	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	673	1461	649	83	827	577	1563	3840	158	451	966	427
Arrive On Green	0.19	0.40	0.40	0.02	0.23	0.23	0.45	0.59	0.59	0.21	0.45	0.45
Sat Flow, veh/h	3510	3610	1603	3510	3610	1615	3510	6487	267	3510	3610	1597
Grp Volume(v), veh/h	668	683	143	37	801	494	532	991	375	438	528	543
Grp Sat Flow(s),veh/h/ln	1755	1805	1603	1755	1805	1615	1755	1634	1851	1755	1805	1597
Q Serve(g_s), s	22.8	16.7	4.3	1.2	26.4	27.5	11.9	12.4	12.4	14.9	12.8	32.1
Cycle Q Clear(g_c), s	22.8	16.7	4.3	1.2	26.4	27.5	11.9	12.4	12.4	14.9	12.8	32.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	673	1461	649	83	827	577	1563	2902	1096	451	966	427
V/C Ratio(X)	0.99	0.47	0.22	0.45	0.97	0.86	0.34	0.34	0.34	0.97	0.55	1.27
Avail Cap(c_a), veh/h	673	1461	649	193	827	577	1563	2902	1096	451	966	427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.76	0.76	0.76
Uniform Delay (d), s/veh	48.4	26.2	8.8	57.8	45.8	50.1	21.8	12.5	12.5	46.9	27.9	33.2
Incr Delay (d2), s/veh	32.8	0.2	0.2	3.7	23.7	12.1	0.1	0.3	0.9	29.9	1.7	135.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.1	8.3	1.9	0.6	15.9	1.9	5.8	5.7	6.6	9.1	6.6	30.1
LnGrp Delay(d),s/veh	81.2	26.5	9.0	61.5	69.5	62.2	21.9	12.8	13.4	76.8	29.6	168.7
LnGrp LOS	F	C	A	E	E	E	C	B	B	E	C	F
Approach Vol, veh/h		1494			1332			1898			1509	
Approach Delay, s/veh		49.3			66.6			15.5			93.3	
Approach LOS		D			E			B			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.4	76.8	6.8	53.5	59.2	37.0	27.9	32.4				
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.9	* 4.9	4.9	* 4.9				
Max Green Setting (Gmax), s	15.4	36.3	6.6	43.9	19.6	* 32	23.0	* 28				
Max Q Clear Time (g_c+I1), s	16.9	14.4	3.2	18.7	13.9	34.1	24.8	29.5				
Green Ext Time (p_c), s	0.0	7.6	0.0	5.8	3.5	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			53.3									
HCM 2010 LOS			D									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												
























HCM 2010 Signalized Intersection Summary  
 1: Date Street & Ynez Road

No Build, 2045, AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	246	725	1	5	174	128	1	2	4	580	3	247
Future Volume (veh/h)	246	725	1	5	174	128	1	2	4	580	3	247
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	259	763	1	5	183	135	1	2	4	611	3	260
Adj No. of Lanes	1	2	1	1	2	1	1	3	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	241	992	439	9	499	218	345	2092	647	585	1339	594
Arrive On Green	0.13	0.27	0.27	0.01	0.14	0.14	0.19	0.40	0.40	0.17	0.37	0.37
Sat Flow, veh/h	1810	3610	1597	1810	3610	1580	1810	5187	1603	3510	3610	1602
Grp Volume(v), veh/h	259	763	1	5	183	135	1	2	4	611	3	260
Grp Sat Flow(s),veh/h/ln	1810	1805	1597	1810	1805	1580	1810	1729	1603	1755	1805	1602
Q Serve(g_s), s	16.0	23.3	0.0	0.3	5.5	7.0	0.1	0.0	0.2	20.0	0.1	14.6
Cycle Q Clear(g_c), s	16.0	23.3	0.0	0.3	5.5	7.0	0.1	0.0	0.2	20.0	0.1	14.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	241	992	439	9	499	218	345	2092	647	585	1339	594
V/C Ratio(X)	1.07	0.77	0.00	0.54	0.37	0.62	0.00	0.00	0.01	1.04	0.00	0.44
Avail Cap(c_a), veh/h	241	1459	646	68	1113	487	345	2092	647	585	1339	594
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.0	40.0	12.2	59.6	46.9	25.2	39.3	21.4	21.4	50.0	23.8	28.4
Incr Delay (d2), s/veh	78.8	1.5	0.0	41.1	0.5	2.8	0.0	0.0	0.0	49.3	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.3	11.9	0.0	0.3	2.8	3.2	0.0	0.0	0.1	13.7	0.0	6.8
LnGrp Delay(d),s/veh	130.8	41.5	12.2	100.7	47.4	28.1	39.3	21.4	21.4	99.3	23.8	30.7
LnGrp LOS	F	D	B	F	D	C	D	C	C	F	C	C
Approach Vol, veh/h		1023			323			7				874
Approach Delay, s/veh		64.1			40.1			24.0				78.6
Approach LOS		E			D			C				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.0	53.4	4.6	38.0	27.9	49.5	21.0	21.6				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	5.0	* 5	5.0	* 5				
Max Green Setting (Gmax), s	20.0	29.0	4.5	48.5	4.5	* 45	16.0	* 37				
Max Q Clear Time (g_c+I1), s	22.0	2.2	2.3	25.3	2.1	16.6	18.0	9.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	3.5	0.0	0.8	0.0	1.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				66.2								
HCM 2010 LOS				E								
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

























HCM 2010 Signalized Intersection Summary  
7: Winchester & Jefferson

No Build, 2045, AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	945	582	437	91	196	604	109	1076	84	502	967	390
Future Volume (veh/h)	945	582	437	91	196	604	109	1076	84	502	967	390
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	995	613	460	96	206	636	115	1133	88	528	1018	411
Adj No. of Lanes	2	2	1	2	2	1	2	4	0	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	924	1064	471	331	454	523	170	1911	148	696	1676	745
Arrive On Green	0.26	0.29	0.29	0.09	0.13	0.13	0.05	0.31	0.31	0.40	0.93	0.93
Sat Flow, veh/h	3510	3610	1599	3510	3610	1615	3510	6230	481	3510	3610	1605
Grp Volume(v), veh/h	995	613	460	96	206	636	115	890	331	528	1018	411
Grp Sat Flow(s),veh/h/ln	1755	1805	1599	1755	1805	1615	1755	1634	1809	1755	1805	1605
Q Serve(g_s), s	31.6	17.3	30.7	3.1	6.3	15.1	3.9	18.5	18.6	15.6	5.6	2.1
Cycle Q Clear(g_c), s	31.6	17.3	30.7	3.1	6.3	15.1	3.9	18.5	18.6	15.6	5.6	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	924	1064	471	331	454	523	170	1503	555	696	1676	745
V/C Ratio(X)	1.08	0.58	0.98	0.29	0.45	1.21	0.68	0.59	0.60	0.76	0.61	0.55
Avail Cap(c_a), veh/h	924	1236	548	331	454	523	234	1503	555	696	1676	745
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	44.2	35.9	33.7	50.6	48.6	40.6	56.2	35.2	35.3	33.7	2.5	0.5
Incr Delay (d2), s/veh	52.4	0.5	30.5	0.5	0.7	113.3	4.7	1.7	4.7	0.5	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.0	8.7	17.5	1.5	3.2	23.1	2.0	8.6	10.0	7.5	2.3	0.7
LnGrp Delay(d),s/veh	96.6	36.4	64.2	51.1	49.3	153.9	60.9	37.0	40.0	34.2	2.7	0.8
LnGrp LOS	F	D	E	D	D	F	E	D	D	C	A	A
Approach Vol, veh/h		2068			938			1336			1957	
Approach Delay, s/veh		71.5			120.4			39.8			10.8	
Approach LOS		E			F			D			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.7	41.7	15.3	40.3	9.8	60.6	35.6	20.0				
Change Period (Y+Rc), s	4.9	* 4.9	4.0	4.9	4.0	4.9	4.0	4.9				
Max Green Setting (Gmax), s	18.7	* 37	5.6	41.1	8.0	47.5	31.6	15.1				
Max Q Clear Time (g_c+I1), s	17.6	20.6	5.1	32.7	5.9	7.6	33.6	17.1				
Green Ext Time (p_c), s	0.2	4.1	0.3	2.7	0.1	9.4	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			53.2									
HCM 2010 LOS			D									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

























HCM 2010 Signalized Intersection Summary  
1: Date Street & Ynez Road

No Build, 2045, PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	424	0	3	1599	695	2	1	3	288	3	251
Future Volume (veh/h)	178	424	0	3	1599	695	2	1	3	288	3	251
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	187	446	0	3	1683	732	2	1	3	303	3	264
Adj No. of Lanes	1	2	1	1	2	1	1	3	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	196	1944	870	6	1534	682	4	2637	816	293	2128	947
Arrive On Green	0.11	0.54	0.00	0.00	0.43	0.43	0.00	0.51	0.51	0.08	0.59	0.59
Sat Flow, veh/h	1810	3610	1615	1810	3610	1604	1810	5187	1605	3510	3610	1607
Grp Volume(v), veh/h	187	446	0	3	1683	732	2	1	3	303	3	264
Grp Sat Flow(s),veh/h/ln	1810	1805	1615	1810	1805	1604	1810	1729	1605	1755	1805	1607
Q Serve(g_s), s	12.3	7.8	0.0	0.2	51.0	51.0	0.1	0.0	0.1	10.0	0.0	11.8
Cycle Q Clear(g_c), s	12.3	7.8	0.0	0.2	51.0	51.0	0.1	0.0	0.1	10.0	0.0	11.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	196	1944	870	6	1534	682	4	2637	816	293	2128	947
V/C Ratio(X)	0.95	0.23	0.00	0.52	1.10	1.07	0.51	0.00	0.00	1.04	0.00	0.28
Avail Cap(c_a), veh/h	196	1944	870	90	1534	682	90	2637	816	293	2128	947
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.2	14.6	0.0	59.7	34.5	68.4	59.8	14.5	14.5	55.0	10.1	18.1
Incr Delay (d2), s/veh	51.0	0.1	0.0	58.3	54.3	56.1	78.0	0.0	0.0	62.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	3.9	0.0	0.2	36.9	10.6	0.2	0.0	0.1	7.4	0.0	5.4
LnGrp Delay(d),s/veh	104.2	14.6	0.0	118.1	88.8	124.5	137.8	14.5	14.5	117.2	10.1	18.8
LnGrp LOS	F	B		F	F	F	F	B	B	F	B	B
Approach Vol, veh/h		633			2418			6			570	
Approach Delay, s/veh		41.1			99.6			55.6			71.1	
Approach LOS		D			F			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	67.0	4.4	69.6	4.3	76.7	18.0	56.0				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	5.0	* 5				
Max Green Setting (Gmax), s	10.0	28.0	6.0	58.0	6.0	32.0	13.0	* 51				
Max Q Clear Time (g_c+I1), s	12.0	2.1	2.2	9.8	2.1	13.8	14.3	53.0				
Green Ext Time (p_c), s	0.0	0.9	0.0	2.1	0.0	0.8	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				84.9								
HCM 2010 LOS				F								
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary  
7: Winchester & Jefferson































No Build, 2045, PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	829	800	160	38	1118	615	561	1628	44	536	647	666
Future Volume (veh/h)	829	800	160	38	1118	615	561	1628	44	536	647	666
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	873	842	168	40	1177	647	591	1714	46	564	681	701
Adj No. of Lanes	2	2	1	2	2	1	2	4	0	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	614	1385	615	86	815	966	1337	2148	58	1308	1146	508
Arrive On Green	0.18	0.38	0.38	0.02	0.23	0.23	0.38	0.33	0.33	0.12	0.10	0.10
Sat Flow, veh/h	3510	3610	1602	3510	3610	1615	3510	6592	177	3510	3610	1600
Grp Volume(v), veh/h	873	842	168	40	1177	647	591	1275	485	564	681	701
Grp Sat Flow(s),veh/h/ln	1755	1805	1602	1755	1805	1615	1755	1634	1867	1755	1805	1600
Q Serve(g_s), s	21.0	22.5	5.8	1.3	27.1	0.0	15.0	28.4	28.4	17.9	21.6	38.1
Cycle Q Clear(g_c), s	21.0	22.5	5.8	1.3	27.1	0.0	15.0	28.4	28.4	17.9	21.6	38.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	614	1385	615	86	815	966	1337	1597	608	1308	1146	508
V/C Ratio(X)	1.42	0.61	0.27	0.46	1.44	0.67	0.44	0.80	0.80	0.43	0.59	1.38
Avail Cap(c_a), veh/h	614	1385	615	176	815	966	1337	1597	608	1308	1146	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.79	0.79	0.79
Uniform Delay (d), s/veh	49.5	29.7	11.6	57.7	46.5	16.2	27.7	36.9	36.9	40.9	46.3	53.7
Incr Delay (d2), s/veh	198.9	0.8	0.2	3.8	206.6	1.8	0.2	4.3	10.5	0.2	1.8	180.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.1	11.4	2.6	0.7	36.9	14.5	7.3	13.4	16.3	8.7	11.1	42.4
LnGrp Delay(d),s/veh	248.4	30.5	11.8	61.6	253.1	17.9	27.9	41.1	47.3	41.0	48.1	234.4
LnGrp LOS	F	C	B	E	F	B	C	D	D	D	D	F
Approach Vol, veh/h		1883			1864			2351				1946
Approach Delay, s/veh		129.8			167.3			39.1				113.2
Approach LOS		F			F			D				F
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	49.6	44.0	6.9	51.0	50.6	43.0	25.9	32.0				
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.9	* 4.9				
Max Green Setting (Gmax), s	15.0	39.1	6.0	42.1	16.0	38.1	21.0	* 27				
Max Q Clear Time (g_c+I1), s	19.9	30.4	3.3	24.5	17.0	40.1	23.0	29.1				
Green Ext Time (p_c), s	0.0	4.5	0.0	7.1	0.0	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			108.0									
HCM 2010 LOS			F									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												



Lanes, Volumes, Timings  
1: Date Street & Ynez Road

No Build, 2022, AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  		 	 	
Traffic Volume (vph)	224	455	1	4	146	141	1	2	3	545	4	257
Future Volume (vph)	224	455	1	4	146	141	1	2	3	545	4	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		250	300		150
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	3610	1615	1805	3610	1615	1805	5187	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	3610	1578	1805	3610	1578	1805	5187	1575	3502	3610	1575
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			148			136			271
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		661			432			734			623	
Travel Time (s)		10.0			6.5			11.1			9.4	
Confl. Peds. (#/hr)			10			10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	236	479	1	4	154	148	1	2	3	574	4	271
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	38.0	38.0	8.5	42.0	42.0	8.5	33.0	33.0	8.5	33.0	33.0
Total Split (s)	20.0	53.5	53.5	8.5	42.0	42.0	8.5	34.0	34.0	24.0	49.5	49.5
Total Split (%)	16.7%	44.6%	44.6%	7.1%	35.0%	35.0%	7.1%	28.3%	28.3%	20.0%	41.3%	41.3%
Maximum Green (s)	16.0	48.5	48.5	4.5	37.0	37.0	4.5	29.0	29.0	20.0	44.5	44.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		28.0	28.0		28.0	28.0		23.0	23.0		23.0	23.0
Pedestrian Calls (#/hr)		10	10		10	10		10	10		10	10
Act Effct Green (s)	21.2	42.2	42.2	4.5	18.7	18.7	4.5	38.9	38.9	23.2	64.4	64.4
Actuated g/C Ratio	0.18	0.35	0.35	0.04	0.16	0.16	0.04	0.32	0.32	0.19	0.54	0.54
v/c Ratio	0.74	0.38	0.00	0.06	0.27	0.40	0.01	0.00	0.00	0.85	0.00	0.28
Control Delay	62.0	29.2	0.0	57.8	43.2	8.6	56.0	33.5	0.0	59.8	20.5	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.0	29.2	0.0	57.8	43.2	8.6	56.0	33.5	0.0	59.8	20.5	3.6
LOS	E	C	A	E	D	A	E	C	A	E	C	A
Approach Delay		39.9			26.6			20.5			41.7	



Lanes, Volumes, Timings  
1: Date Street & Ynez Road

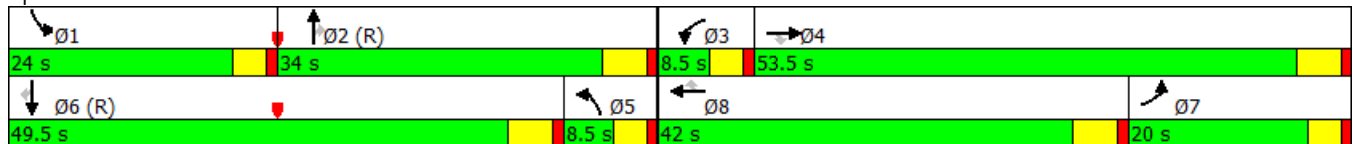
No Build, 2022, AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			C			C			D		
Queue Length 50th (ft)	170	152	0	3	61	0	1	0	0	213	0	0
Queue Length 95th (ft)	#301	175	0	15	75	50	7	2	0	#348	5	55
Internal Link Dist (ft)	581			352			654			543		
Turn Bay Length (ft)	250		100	250			250		250	300		150
Base Capacity (vph)	318	1510	738	67	1113	588	67	1679	601	678	1937	970
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.32	0.00	0.06	0.14	0.25	0.01	0.00	0.00	0.85	0.00	0.28

Intersection Summary













Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 38.5  
 Intersection Capacity Utilization 67.4%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Date Street & Ynez Road



Lanes, Volumes, Timings  
3: Cherry St/French Valley Pkwy & Jefferson

No Build, 2022, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↓		↖	↑↑		↗		↖		↗	↖
Traffic Volume (vph)	0	699	54	143	454	0	22	0	141	506	299	581
Future Volume (vph)	0	699	54	143	454	0	22	0	141	506	299	581
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	250		200	0		75	350		0
Storage Lanes	0		0	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3558	0	1805	3610	0	1805	0	1615	0	1843	1615
Flt Permitted				0.950			0.950				0.970	
Satd. Flow (perm)	0	3558	0	1805	3610	0	1805	0	1615	0	1843	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6							148			345
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		742			1560			615			394	
Travel Time (s)		10.1			21.3			9.3			6.0	
Confl. Peds. (#/hr)			10			10			10			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	793	0	151	478	0	23	0	148	0	848	612
Turn Type		NA		Prot	NA		Prot		Prot	Perm	NA	Perm
Protected Phases		2		1	6		8		8		4	
Permitted Phases										4		4
Detector Phase		2		1	6		8		8	4	4	4
Switch Phase												
Minimum Initial (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		10.2		8.1	37.2		8.6		8.6	34.8	34.8	34.8
Total Split (s)		28.0		18.2	46.2		17.8		17.8	56.0	56.0	56.0
Total Split (%)		23.3%		15.2%	38.5%		14.8%		14.8%	46.7%	46.7%	46.7%
Maximum Green (s)		21.8		14.1	40.0		13.2		13.2	50.2	50.2	50.2
Yellow Time (s)		5.2		3.6	5.2		3.6		3.6	4.8	4.8	4.8
All-Red Time (s)		1.0		0.5	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0		0.0	0.0
Total Lost Time (s)		6.2		4.1	6.2		4.6		4.6		5.8	5.8
Lead/Lag		Lead		Lag			Lag		Lag	Lead	Lead	Lead
Lead-Lag Optimize?		Yes		Yes			Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max		None		None	None	None	None
Walk Time (s)					7.0					7.0	7.0	7.0
Flash Dont Walk (s)					10.0					22.0	22.0	22.0
Pedestrian Calls (#/hr)					10					10	10	10
Act Effct Green (s)		27.2		14.1	45.4		7.8		7.8		50.2	50.2
Actuated g/C Ratio		0.23		0.12	0.38		0.06		0.06		0.42	0.42
v/c Ratio		0.98		0.71	0.35		0.20		0.61		1.10	0.70
Control Delay		72.6		70.1	28.1		55.7		19.4		97.7	16.6
Queue Delay		0.0		0.0	0.0		0.0		0.0		0.0	0.0
Total Delay		72.6		70.1	28.1		55.7		19.4		97.7	16.6
LOS		E		E	C		E		B		F	B
Approach Delay		72.6			38.2			24.2			63.7	

Lanes, Volumes, Timings  
 3: Cherry St/French Valley Pkwy & Jefferson

No Build, 2022, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		E			D			C			E	
Queue Length 50th (ft)		317		114	136		17		0		~745	167
Queue Length 95th (ft)		#512		#210	195		43		63		#989	311
Internal Link Dist (ft)		662			1480			535			314	
Turn Bay Length (ft)				250					75			
Base Capacity (vph)		812		212	1366		198		309		770	876
Starvation Cap Reductn		0		0	0		0		0		0	0
Spillback Cap Reductn		0		0	0		0		0		0	0
Storage Cap Reductn		0		0	0		0		0		0	0
Reduced v/c Ratio		0.98		0.71	0.35		0.12		0.48		1.10	0.70

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.10  
 Intersection Signal Delay: 58.5  
 Intersection Capacity Utilization 92.9%  
 Analysis Period (min) 15  
 Intersection LOS: E  
 ICU Level of Service F

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

























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

Splits and Phases: 3: Cherry St/French Valley Pkwy & Jefferson

Ø2 (R)	Ø1	Ø4	Ø8
28 s	18.2 s	56 s	17.8 s
Ø6 (R)			
46.2 s			

Lanes, Volumes, Timings  
4: Winchester & Ynez

No Build, 2022, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	113	409	435	363	202	116	350	1337	785	317	1585	66
Future Volume (vph)	113	409	435	363	202	116	350	1337	785	317	1585	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		500	400		350	250		200	250		0
Storage Lanes	2		1	3		1	2		1	2		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3302	1470	5090	3610	1615	3502	6536	1615	3502	6491	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3302	1470	5090	3610	1582	3502	6536	1581	3502	6491	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						57			94			7
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		800			1093			797			1309	
Travel Time (s)		12.1			16.6			13.6			22.3	
Confl. Peds. (#/hr)						10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)			40%									
Lane Group Flow (vph)	119	614	275	382	213	122	368	1407	826	334	1737	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.2	20.0	20.0	8.2	46.3	8.2	8.2	45.3	8.2	8.2	37.9	
Total Split (s)	9.4	31.4	31.4	24.6	46.6	17.0	19.0	47.0	24.6	17.0	45.0	
Total Split (%)	7.8%	26.2%	26.2%	20.5%	38.8%	14.2%	15.8%	39.2%	20.5%	14.2%	37.5%	
Maximum Green (s)	5.4	26.1	26.1	20.6	41.3	13.0	15.0	41.7	20.6	13.0	39.7	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	3.0	3.0	4.3	3.0	3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.3	5.3	4.0	5.3	4.0	4.0	5.3	4.0	4.0	5.3	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Walk Time (s)					5.0			5.0			5.0	
Flash Dont Walk (s)					36.0			35.0			27.0	
Pedestrian Calls (#/hr)					10			10			10	
Act Effect Green (s)	5.4	25.2	25.2	21.5	41.3	55.6	15.0	41.7	64.5	13.0	39.7	
Actuated g/C Ratio	0.04	0.21	0.21	0.18	0.34	0.46	0.12	0.35	0.54	0.11	0.33	
v/c Ratio	0.76	0.88	0.89	0.42	0.17	0.16	0.84	0.62	0.92	0.88	0.81	
Control Delay	85.4	61.4	76.2	45.7	27.9	7.3	61.0	22.2	24.2	77.3	40.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	
Total Delay	85.4	61.4	76.2	45.7	27.9	7.3	61.0	22.2	24.5	77.3	40.1	
LOS	F	E	E	D	C	A	E	C	C	E	D	
Approach Delay		68.3			33.9			28.4			46.1	

Lanes, Volumes, Timings  
4: Winchester & Ynez

No Build, 2022, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS	E			C			C			D		
Queue Length 50th (ft)	47	252	227	95	60	21	157	200	171	133	354	
Queue Length 95th (ft)	#96	#348	#393	128	90	49	#230	226	#812	#215	401	
Internal Link Dist (ft)	720			1013			717			1229		
Turn Bay Length (ft)	200	500		400	350		250	200		250		
Base Capacity (vph)	157	718	319	910	1242	767	437	2271	898	379	2152	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	4	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.76	0.86	0.86	0.42	0.17	0.16	0.84	0.62	0.92	0.88	0.81	

Intersection Summary




















Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 116 (97%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 41.0 Intersection LOS: D  
 Intersection Capacity Utilization 85.7% ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: Winchester & Ynez

Ø2 (R)	Ø1	Ø4	Ø3
47 s	17 s	31.4 s	24.6 s
Ø6 (R)	Ø5	Ø7	Ø8
45 s	19 s	9.4 s	46.6 s

Lanes, Volumes, Timings  
5: Winchester & I-15 NB off/I-15 NB on

No Build, 2022, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	428	1	625	0	1847	410	0	1849	559
Future Volume (vph)	0	0	0	428	1	625	0	1847	410	0	1849	559
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		450	0		0
Storage Lanes	0		0	1		1	0		1	0		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	1715	1504	1534	0	4885	1389	0	5187	2842
Flt Permitted				0.950	0.991							
Satd. Flow (perm)	0	0	0	1715	1504	1534	0	4885	1368	0	5187	2772
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					7	22		4	305			272
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		579			216			765			797	
Travel Time (s)		13.2			4.9			13.0			13.6	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)				15%		45%			10%			
Lane Group Flow (vph)	0	0	0	383	365	362	0	1987	389	0	1946	588
Turn Type				Perm	NA	Perm		NA	Free		NA	Free
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			Free
Detector Phase				8	8	8		2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0		4.0			4.0	
Minimum Split (s)				20.0	20.0	20.0		32.4			20.0	
Total Split (s)				50.0	50.0	50.0		70.0			70.0	
Total Split (%)				41.7%	41.7%	41.7%		58.3%			58.3%	
Maximum Green (s)				44.2	44.2	44.2		64.6			64.6	
Yellow Time (s)				4.8	4.8	4.8		4.4			4.4	
All-Red Time (s)				1.0	1.0	1.0		1.0			1.0	
Lost Time Adjust (s)				0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)				5.8	5.8	5.8		5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Recall Mode				None	None	None		C-Max			C-Max	
Walk Time (s)								7.0				
Flash Dont Walk (s)								20.0				
Pedestrian Calls (#/hr)								10				
Act Effct Green (s)				35.0	35.0	35.0		73.8	120.0		73.8	120.0
Actuated g/C Ratio				0.29	0.29	0.29		0.62	1.00		0.62	1.00
v/c Ratio				0.77	0.82	0.78		0.66	0.28		0.61	0.21
Control Delay				48.5	53.7	48.0		13.0	5.3		4.1	0.1
Queue Delay				0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay				48.5	53.7	48.0		13.0	5.3		4.1	0.1
LOS				D	D	D		B	A		A	A
Approach Delay					50.0			11.7			3.2	

Lanes, Volumes, Timings  
 5: Winchester & I-15 NB off/I-15 NB on

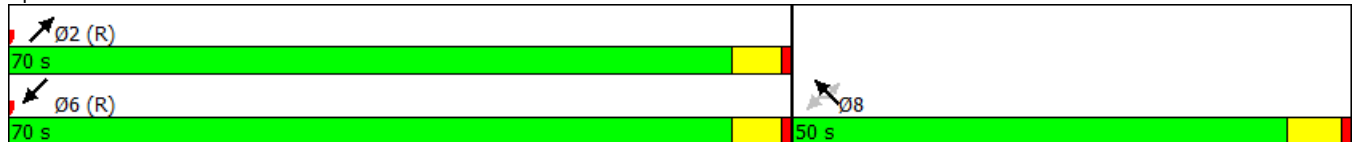
No Build, 2022, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS					D			B			A	
Queue Length 50th (ft)				282	281	252		487	116		116	0
Queue Length 95th (ft)				363	373	338		m558	m182		147	m0
Internal Link Dist (ft)		499			136			685			717	
Turn Bay Length (ft)									450			
Base Capacity (vph)				631	558	578		3005	1368		3189	2772
Starvation Cap Reductn				0	0	0		0	0		0	0
Spillback Cap Reductn				0	0	0		18	0		27	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.61	0.65	0.63		0.67	0.28		0.62	0.21

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 102 (85%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 15.2 Intersection LOS: B  
 Intersection Capacity Utilization 73.9% ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Winchester & I-15 NB off/I-15 NB on



Lanes, Volumes, Timings  
6: Winchester & I-15 SB on/I-15 SB off

No Build, 2022, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	1392	3	427	0	0	0	0	865	262	0	1344	1064
Future Volume (vph)	1392	3	427	0	0	0	0	865	262	0	1344	1064
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	3502	1538	1534	0	0	0	0	5187	1615	0	4780	0
Flt Permitted	0.950											
Satd. Flow (perm)	3502	1538	1534	0	0	0	0	5187	1537	0	4780	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17	22						276		225	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		189			419			450			765	
Travel Time (s)		4.3			9.5			7.7			13.0	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	1465	228	224	0	0	0	0	911	276	0	2535	0
Turn Type	Perm	NA	Perm					NA	Perm		NA	
Protected Phases		4						2			6	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0		4.0	
Minimum Split (s)	20.0	20.0	20.0					26.4	26.4		20.0	
Total Split (s)	58.0	58.0	58.0					62.0	62.0		62.0	
Total Split (%)	48.3%	48.3%	48.3%					51.7%	51.7%		51.7%	
Maximum Green (s)	52.2	52.2	52.2					56.6	56.6		56.6	
Yellow Time (s)	4.8	4.8	4.8					4.4	4.4		4.4	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)	5.8	5.8	5.8					5.4	5.4		5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Max	C-Max		C-Max	
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								14.0	14.0			
Pedestrian Calls (#/hr)								10	10			
Act Effect Green (s)	52.1	52.1	52.1					56.7	56.7		56.7	
Actuated g/C Ratio	0.43	0.43	0.43					0.47	0.47		0.47	
v/c Ratio	0.96	0.34	0.33					0.37	0.32		1.27dr	
Control Delay	49.3	22.4	21.7					16.7	4.2		62.1	
Queue Delay	0.0	0.0	0.0					0.0	0.3		1.7	
Total Delay	49.3	22.4	21.7					16.7	4.5		63.8	
LOS	D	C	C					B	A		E	
Approach Delay		42.9						13.9			63.8	
Approach LOS		D						B			E	
Queue Length 50th (ft)	557	111	106					170	50		~415	
Queue Length 95th (ft)	#720	177	171					182	m62		#458	



Lanes, Volumes, Timings  
 6: Winchester & I-15 SB on/I-15 SB off

No Build, 2022, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Internal Link Dist (ft)		109			339			370			685	
Turn Bay Length (ft)												
Base Capacity (vph)	1523	678	679					2449	871		2376	
Starvation Cap Reductn	0	0	0					0	212		9	
Spillback Cap Reductn	0	0	0					0	0		0	
Storage Cap Reductn	0	0	0					0	0		0	
Reduced v/c Ratio	0.96	0.34	0.33					0.37	0.42		1.07	

Intersection Summary
























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 119 (99%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.07  
 Intersection Signal Delay: 46.2 Intersection LOS: D  
 Intersection Capacity Utilization 99.3% ICU Level of Service F  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 6: Winchester & I-15 SB on/I-15 SB off

Ø2 (R) 62 s	Ø4 58 s
Ø6 (R) 62 s	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

No Build, 2022, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	406	497	387	114	264	259	117	462	81	478	921	372
Future Volume (vph)	406	497	387	114	264	259	117	462	81	478	921	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	200		300	400		0	0		300
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3610	1615	3502	3610	1615	3502	6371	0	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3610	1576	3502	3610	1615	3502	6371	0	3502	3610	1578
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			160			102		39				392
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1063			948			629			450	
Travel Time (s)		16.1			14.4			10.7			7.7	
Confl. Peds. (#/hr)			10						10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	427	523	407	120	278	273	123	571	0	503	969	392
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.2	38.9	38.9	8.2	20.0	8.2	8.2	41.3		8.2	36.9	36.9
Total Split (s)	22.1	39.0	39.0	10.0	26.9	27.6	10.0	43.4		27.6	61.0	61.0
Total Split (%)	18.4%	32.5%	32.5%	8.3%	22.4%	23.0%	8.3%	36.2%		23.0%	50.8%	50.8%
Maximum Green (s)	18.1	34.1	34.1	6.0	22.0	23.6	6.0	38.5		23.6	56.1	56.1
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.0	3.0	3.9		3.0	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.0	4.0	4.9		4.0	4.9	4.9
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lead		Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)		22.0	22.0					29.0			25.0	25.0
Pedestrian Calls (#/hr)		10	10					10			10	10
Act Effect Green (s)	19.5	28.0	28.0	6.0	14.5	43.0	6.0	44.6		23.6	62.2	62.2
Actuated g/C Ratio	0.16	0.23	0.23	0.05	0.12	0.36	0.05	0.37		0.20	0.52	0.52
v/c Ratio	0.75	0.62	0.83	0.69	0.64	0.42	0.70	0.24		0.73	0.52	0.39
Control Delay	56.6	44.0	40.7	76.1	56.8	19.4	77.5	25.3		40.7	14.1	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.9	0.4
Total Delay	56.6	44.0	40.7	76.1	56.8	19.4	77.5	25.3		40.7	15.0	1.9
LOS	E	D	D	E	E	B	E	C		D	B	A
Approach Delay		47.0			45.1			34.5			19.2	

Lanes, Volumes, Timings  
7: Winchester & Jefferson









No Build, 2022, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	163	191	189	47	109	96	49	81		190	141	12
Queue Length 95th (ft)	216	234	299	#90	150	164	#94	114		m194	m144	m7
Internal Link Dist (ft)		983			868			549			370	
Turn Bay Length (ft)	300		200	200		300	400					300
Base Capacity (vph)	585	1025	562	175	661	644	175	2392		688	1871	1006
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	578	245
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.73	0.51	0.72	0.69	0.42	0.42	0.70	0.24		0.73	0.75	0.52

Intersection Summary































Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 2 (2%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 33.5  
 Intersection Capacity Utilization 78.5%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Winchester & Jefferson

 02 (R)	 01	 03	 04
43.4 s	27.6 s	10 s	39 s
 06 (R)	 05	 08	 07
61 s	10 s	26.9 s	22.1 s

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

No Build, 2022, PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  		 	 	
Traffic Volume (vph)	192	351	0	2	1020	614	2	1	3	291	4	239
Future Volume (vph)	192	351	0	2	1020	614	2	1	3	291	4	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		250	300		150
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	3610	1900	1805	3610	1615	1805	5187	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	3610	1900	1805	3610	1578	1805	5187	1575	3502	3610	1575
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						566			355			252
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		914			432			734			623	
Travel Time (s)		13.8			6.5			11.1			9.4	
Confl. Peds. (#/hr)			10			10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	202	369	0	2	1074	646	2	1	3	306	4	252
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	38.0	38.0	8.5	42.0	42.0	8.5	33.0	33.0	8.5	33.0	33.0
Total Split (s)	22.0	58.5	58.5	8.5	45.0	45.0	8.5	35.0	35.0	18.0	44.5	44.5
Total Split (%)	18.3%	48.8%	48.8%	7.1%	37.5%	37.5%	7.1%	29.2%	29.2%	15.0%	37.1%	37.1%
Maximum Green (s)	18.0	53.5	53.5	4.5	40.0	40.0	4.5	30.0	30.0	14.0	39.5	39.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		28.0	28.0		28.0	28.0		23.0	23.0		23.0	23.0
Pedestrian Calls (#/hr)		10	10		10	10		10	10		10	10
Act Effct Green (s)	16.6	58.3		4.5	39.4	39.4	4.8	32.4	32.4	13.6	48.3	48.3
Actuated g/C Ratio	0.14	0.49		0.04	0.33	0.33	0.04	0.27	0.27	0.11	0.40	0.40
v/c Ratio	0.81	0.21		0.03	0.91	0.72	0.03	0.00	0.00	0.77	0.00	0.32
Control Delay	74.5	18.1		56.5	50.2	10.1	56.5	34.0	0.0	65.5	24.8	4.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.5	18.1		56.5	50.2	10.1	56.5	34.0	0.0	65.5	24.8	4.5
LOS	E	B		E	D	B	E	C	A	E	C	A
Approach Delay		38.0			35.1			24.5			37.8	

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

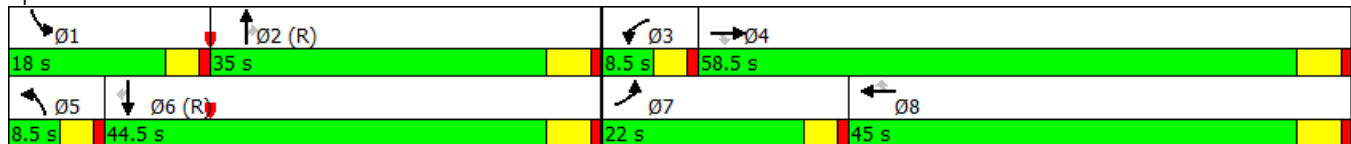
No Build, 2022, PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	152	78		2	413	43	2	0	0	120	1	0
Queue Length 95th (ft)	#261	124		11	#534	181	11	1	0	#177	5	58
Internal Link Dist (ft)		834			352			654			543	
Turn Bay Length (ft)	250			250			250		250		300	
Base Capacity (vph)	270	1758		67	1208	904	72	1398	684	409	1452	784
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.21		0.03	0.89	0.71	0.03	0.00	0.00	0.75	0.00	0.32

Intersection Summary













Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 36.2 Intersection LOS: D  
 Intersection Capacity Utilization 84.7% ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Date Street & Ynez Road



Lanes, Volumes, Timings  
3: Cherry St/French Valley Pkwy & Jefferson

No Build, 2022, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↓		↖	↑↑		↗		↖		↗	↖
Traffic Volume (vph)	0	959	40	362	1611	0	40	0	172	200	193	361
Future Volume (vph)	0	959	40	362	1611	0	40	0	172	200	193	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	250		200	0		75	350		0
Storage Lanes	0		0	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3581	0	1805	3610	0	1805	0	1615	0	1852	1615
Flt Permitted				0.950			0.950				0.975	
Satd. Flow (perm)	0	3581	0	1805	3610	0	1805	0	1615	0	1852	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3							181			288
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		683			1560			615			394	
Travel Time (s)		9.3			21.3			9.3			6.0	
Confl. Peds. (#/hr)			10			10			10			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1051	0	381	1696	0	42	0	181	0	414	380
Turn Type		NA		Prot	NA		Prot		Prot	Perm	NA	Perm
Protected Phases		2		1	6		8		8		4	
Permitted Phases										4		4
Detector Phase		2		1	6		8		8	4	4	4
Switch Phase												
Minimum Initial (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		10.2		8.1	37.2		8.6		8.6	34.8	34.8	34.8
Total Split (s)		27.0		30.0	57.0		28.0		28.0	35.0	35.0	35.0
Total Split (%)		22.5%		25.0%	47.5%		23.3%		23.3%	29.2%	29.2%	29.2%
Maximum Green (s)		20.8		25.9	50.8		23.4		23.4	29.2	29.2	29.2
Yellow Time (s)		5.2		3.6	5.2		3.6		3.6	4.8	4.8	4.8
All-Red Time (s)		1.0		0.5	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0		0.0	0.0
Total Lost Time (s)		6.2		4.1	6.2		4.6		4.6		5.8	5.8
Lead/Lag		Lead		Lag			Lag		Lag	Lead	Lead	Lead
Lead-Lag Optimize?		Yes		Yes			Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max		None		None	None	None	None
Walk Time (s)					7.0					7.0	7.0	7.0
Flash Dont Walk (s)					10.0					22.0	22.0	22.0
Pedestrian Calls (#/hr)					10					10	10	10
Act Effct Green (s)		36.3		25.9	66.3		8.6		8.6		28.5	28.5
Actuated g/C Ratio		0.30		0.22	0.55		0.07		0.07		0.24	0.24
v/c Ratio		0.97		0.98	0.85		0.33		0.64		0.94	0.63
Control Delay		62.8		88.0	28.7		58.4		18.1		76.0	15.4
Queue Delay		0.0		0.0	0.0		0.0		0.0		0.0	0.0
Total Delay		62.8		88.0	28.7		58.4		18.1		76.0	15.4
LOS		E		F	C		E		B		E	B
Approach Delay		62.8			39.6			25.6			47.0	

Lanes, Volumes, Timings  
 3: Cherry St/French Valley Pkwy & Jefferson

No Build, 2022, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		E			D			C			D	
Queue Length 50th (ft)		422		295	561		32		0		314	57
Queue Length 95th (ft)		#635		#494	#764		66		68		#502	163
Internal Link Dist (ft)		603			1480			535			314	
Turn Bay Length (ft)				250					75			
Base Capacity (vph)		1084		389	1993		351		460		450	610
Starvation Cap Reductn		0		0	0		0		0		0	0
Spillback Cap Reductn		0		0	0		0		0		0	0
Storage Cap Reductn		0		0	0		0		0		0	0
Reduced v/c Ratio		0.97		0.98	0.85		0.12		0.39		0.92	0.62

Intersection Summary

























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.98  
 Intersection Signal Delay: 46.2 Intersection LOS: D  
 Intersection Capacity Utilization 92.0% ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Cherry St/French Valley Pkwy & Jefferson

Ø2 (R) 27 s	Ø1 30 s	Ø4 35 s	Ø8 28 s
Ø6 (R) 57 s			

Lanes, Volumes, Timings  
4: Winchester & Ynez

No Build, 2022, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	188	392	340	886	978	530	476	1823	703	332	1401	169
Future Volume (vph)	188	392	340	886	978	530	476	1823	703	332	1401	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		500	400		350	250		200	250		0
Storage Lanes	2		1	3		1	2		1	2		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3340	1470	5090	3610	1615	3502	6536	1615	3502	6415	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3340	1470	5090	3610	1582	3502	6536	1581	3502	6415	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						105			57		25	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		800			1093			797			1309	
Travel Time (s)		12.1			16.6			13.6			22.3	
Confl. Peds. (#/hr)						10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)			34%									
Lane Group Flow (vph)	198	535	236	933	1029	558	501	1919	740	349	1653	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.2	20.0	20.0	8.2	46.3	8.2	8.2	45.3	8.2	8.2	37.9	
Total Split (s)	12.6	30.4	30.4	28.6	46.4	15.0	21.2	46.0	28.6	15.0	39.8	
Total Split (%)	10.5%	25.3%	25.3%	23.8%	38.7%	12.5%	17.7%	38.3%	23.8%	12.5%	33.2%	
Maximum Green (s)	8.6	25.1	25.1	24.6	41.1	11.0	17.2	40.7	24.6	11.0	34.5	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	3.0	3.0	4.3	3.0	3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.3	5.3	4.0	5.3	4.0	4.0	5.3	4.0	4.0	5.3	
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Walk Time (s)					5.0			5.0			5.0	
Flash Dont Walk (s)					36.0			35.0			27.0	
Pedestrian Calls (#/hr)					10			10			10	
Act Effct Green (s)	9.9	23.2	23.2	25.2	38.5	52.1	17.2	40.7	67.2	12.3	35.8	
Actuated g/C Ratio	0.08	0.19	0.19	0.21	0.32	0.43	0.14	0.34	0.56	0.10	0.30	
v/c Ratio	0.69	0.83	0.83	0.87	0.89	0.74	1.00	0.87	0.81	0.97	0.86	
Control Delay	67.0	58.3	70.8	56.1	49.0	21.0	74.2	33.5	14.9	94.6	44.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	67.0	58.3	70.8	56.1	49.0	21.0	74.2	33.5	14.9	94.6	44.6	
LOS	E	E	E	E	D	C	E	C	B	F	D	
Approach Delay		63.1			45.4			35.6			53.3	



Lanes, Volumes, Timings  
4: Winchester & Ynez

No Build, 2022, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		E			D			D			D	
Queue Length 50th (ft)	78	216	191	251	390	205	204	414	237	~156	351	
Queue Length 95th (ft)	#139	283	#324	#323	471	308	m#271	422	m320	#253	401	
Internal Link Dist (ft)		720			1013			717			1229	
Turn Bay Length (ft)	200		500	400		350	250		200	250		
Base Capacity (vph)	287	698	307	1070	1236	750	501	2216	917	360	1933	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.77	0.77	0.87	0.83	0.74	1.00	0.87	0.81	0.97	0.86	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 51 (43%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.00  
 Intersection Signal Delay: 45.7  
 Intersection Capacity Utilization 92.7%  
 Analysis Period (min) 15  
 Intersection LOS: D  
 ICU Level of Service F

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

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




















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

Splits and Phases: 4: Winchester & Ynez

Ø1	Ø2 (R)	Ø4	Ø3
15 s	46 s	30.4 s	28.6 s
Ø6 (R)	Ø5	Ø8	Ø7
39.8 s	21.2 s	46.4 s	12.6 s

Lanes, Volumes, Timings  
5: Winchester & I-15 NB off/I-15 NB on

No Build, 2022, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	131	0	680	0	2322	990	0	1361	1328
Future Volume (vph)	0	0	0	131	0	680	0	2322	990	0	1361	1328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		450	0		0
Storage Lanes	0		0	1		1	0		1	0		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	1715	1477	1534	0	4822	1389	0	5187	2842
Flt Permitted				0.950	0.998							
Satd. Flow (perm)	0	0	0	1715	1477	1534	0	4822	1368	0	5187	2772
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					22	22		24	566			879
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		579			216			765			797	
Travel Time (s)		13.2			4.9			13.0			13.6	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)				10%		49%			25%			
Lane Group Flow (vph)	0	0	0	124	365	365	0	2705	781	0	1433	1398
Turn Type				Perm	NA	Perm		NA	Free		NA	Free
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			Free
Detector Phase				8	8	8		2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0		4.0			4.0	
Minimum Split (s)				20.0	20.0	20.0		32.4			20.0	
Total Split (s)				45.0	45.0	45.0		75.0			75.0	
Total Split (%)				37.5%	37.5%	37.5%		62.5%			62.5%	
Maximum Green (s)				39.2	39.2	39.2		69.6			69.6	
Yellow Time (s)				4.8	4.8	4.8		4.4			4.4	
All-Red Time (s)				1.0	1.0	1.0		1.0			1.0	
Lost Time Adjust (s)				0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)				5.8	5.8	5.8		5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Recall Mode				None	None	None		C-Max			C-Max	
Walk Time (s)								7.0				
Flash Dont Walk (s)								20.0				
Pedestrian Calls (#/hr)								10				
Act Effct Green (s)				33.1	33.1	33.1		75.7	120.0		75.7	120.0
Actuated g/C Ratio				0.28	0.28	0.28		0.63	1.00		0.63	1.00
v/c Ratio				0.26	0.86	0.83		0.89	0.57		0.44	0.50
Control Delay				33.8	58.5	54.4		20.4	8.4		2.8	0.7
Queue Delay				0.0	0.0	0.0		1.6	0.0		0.0	0.0
Total Delay				33.8	58.5	54.4		22.0	8.4		2.8	0.7
LOS				C	E	D		C	A		A	A
Approach Delay					53.2			19.0			1.8	

Lanes, Volumes, Timings  
 5: Winchester & I-15 NB off/I-15 NB on

No Build, 2022, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS					D			B			A	
Queue Length 50th (ft)				77	275	261		586	468		49	8
Queue Length 95th (ft)				125	389	366		#706	m516		82	8
Internal Link Dist (ft)		499			136			685			717	
Turn Bay Length (ft)									450			
Base Capacity (vph)				560	497	515		3051	1368		3273	2772
Starvation Cap Reductn				0	0	0		191	0		0	0
Spillback Cap Reductn				0	0	0		0	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.22	0.73	0.71		0.95	0.57		0.44	0.50

Intersection Summary




















Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 11 (9%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 16.2 Intersection LOS: B  
 Intersection Capacity Utilization 89.7% ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Winchester & I-15 NB off/I-15 NB on



Lanes, Volumes, Timings  
6: Winchester & I-15 SB on/I-15 SB off

No Build, 2022, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	1283	6	504	0	0	0	0	2029	321	0	930	562
Future Volume (vph)	1283	6	504	0	0	0	0	2029	321	0	930	562
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	3502	1540	1534	0	0	0	0	5187	1615	0	4835	0
Flt Permitted	0.950											
Satd. Flow (perm)	3502	1540	1534	0	0	0	0	5187	1537	0	4835	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		64	64						270		172	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		189			419			450			765	
Travel Time (s)		4.3			9.5			7.7			13.0	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	1351	272	265	0	0	0	0	2136	338	0	1571	0
Turn Type	Perm	NA	Perm					NA	Perm		NA	
Protected Phases		4						2			6	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0		4.0	
Minimum Split (s)	20.0	20.0	20.0					26.4	26.4		20.0	
Total Split (s)	58.0	58.0	58.0					62.0	62.0		62.0	
Total Split (%)	48.3%	48.3%	48.3%					51.7%	51.7%		51.7%	
Maximum Green (s)	52.2	52.2	52.2					56.6	56.6		56.6	
Yellow Time (s)	4.8	4.8	4.8					4.4	4.4		4.4	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)	5.8	5.8	5.8					5.4	5.4		5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Max	C-Max		C-Max	
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								14.0	14.0			
Pedestrian Calls (#/hr)								10	10			
Act Effect Green (s)	50.9	50.9	50.9					57.9	57.9		57.9	
Actuated g/C Ratio	0.42	0.42	0.42					0.48	0.48		0.48	
v/c Ratio	0.91	0.39	0.39					0.85	0.38		0.65	
Control Delay	42.5	19.5	19.2					17.4	1.8		11.3	
Queue Delay	0.9	0.0	0.0					0.9	0.3		0.0	
Total Delay	43.5	19.5	19.2					18.3	2.1		11.3	
LOS	D	B	B					B	A		B	
Approach Delay		36.6						16.1			11.3	
Approach LOS		D						B			B	
Queue Length 50th (ft)	486	110	106					308	14		201	
Queue Length 95th (ft)	590	185	178					m375	m24		270	

Lanes, Volumes, Timings  
 6: Winchester & I-15 SB on/I-15 SB off




No Build, 2022, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Internal Link Dist (ft)		109			339			370			685	
Turn Bay Length (ft)												
Base Capacity (vph)	1523	706	703					2504	881		2423	
Starvation Cap Reductn	0	0	0					152	153		0	
Spillback Cap Reductn	46	0	0					0	0		0	
Storage Cap Reductn	0	0	0					0	0		0	
Reduced v/c Ratio	0.91	0.39	0.38					0.91	0.46		0.65	

Intersection Summary

























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 48 (40%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 21.4 Intersection LOS: C  
 Intersection Capacity Utilization 85.1% ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Winchester & I-15 SB on/I-15 SB off

 Ø2 (R) 62 s	 Ø4 58 s
 Ø6 (R) 62 s	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

No Build, 2022, PM

													
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations													
Traffic Volume (vph)	635	649	136	35	761	469	505	1246	51	416	502	516	
Future Volume (vph)	635	649	136	35	761	469	505	1246	51	416	502	516	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	300		200	200		300	400		0	0		300	
Storage Lanes	2		1	1		1	2		0	2		1	
Taper Length (ft)	25			25			25			25			
Satd. Flow (prot)	3502	3610	1615	3502	3610	1615	3502	6491	0	3502	3610	1615	
Flt Permitted	0.950			0.950			0.950			0.950			
Satd. Flow (perm)	3502	3610	1576	3502	3610	1615	3502	6491	0	3502	3610	1578	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			143			106			7			382	
Link Speed (mph)		45			45			40			40		
Link Distance (ft)		1063			948			629			450		
Travel Time (s)		16.1			14.4			10.7			7.7		
Confl. Peds. (#/hr)			10						10			10	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	668	683	143	37	801	494	532	1366	0	438	528	543	
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	
Protected Phases	7	4		3	8	1	5	2		1	6		
Permitted Phases			4			8						6	
Detector Phase	7	4	4	3	8	1	5	2		1	6	6	
Switch Phase													
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	
Minimum Split (s)	8.0	33.9	33.9	8.0	8.9	8.0	8.0	40.9		8.0	36.9	36.9	
Total Split (s)	27.0	48.8	48.8	10.6	32.4	19.4	23.6	41.2		19.4	37.0	37.0	
Total Split (%)	22.5%	40.7%	40.7%	8.8%	27.0%	16.2%	19.7%	34.3%		16.2%	30.8%	30.8%	
Maximum Green (s)	23.0	43.9	43.9	6.6	27.5	15.4	19.6	36.3		15.4	32.1	32.1	
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.0	3.0	3.9		3.0	3.9	3.9	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.0	4.0	4.9		4.0	4.9	4.9	
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max	
Walk Time (s)		7.0	7.0					7.0			7.0	7.0	
Flash Dont Walk (s)		22.0	22.0					29.0			25.0	25.0	
Pedestrian Calls (#/hr)		10	10					10			10	10	
Act Effct Green (s)	23.0	48.1	48.1	6.3	27.5	43.8	19.6	36.3		15.4	32.1	32.1	
Actuated g/C Ratio	0.19	0.40	0.40	0.05	0.23	0.36	0.16	0.30		0.13	0.27	0.27	
v/c Ratio	1.00	0.47	0.20	0.20	0.97	0.75	0.93	0.69		0.98	0.55	0.77	
Control Delay	82.3	28.7	4.8	57.0	70.6	22.0	73.9	39.0		88.3	34.0	15.0	
Queue Delay	0.7	0.0	0.0	0.0	0.0	1.4	0.0	0.0		0.0	0.0	0.5	
Total Delay	83.0	28.7	4.8	57.0	70.6	23.4	73.9	39.0		88.3	34.0	15.5	
LOS	F	C	A	E	E	C	E	D		F	C	B	
Approach Delay		50.7			52.7			48.8			43.1		

Lanes, Volumes, Timings  
7: Winchester & Jefferson

No Build, 2022, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		D				D				D		
Queue Length 50th (ft)	269	215	0	14	325	146	211	269		160	139	71
Queue Length 95th (ft)	#394	274	43	32	#455	233	#315	312		#277	190	125
Internal Link Dist (ft)		983				868				549		
Turn Bay Length (ft)	300		200		200		300		400		300	
Base Capacity (vph)	671	1448	717	192	827	656	571	1968		449	965	701
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	24
Spillback Cap Reductn	2	0	0	0	0	52	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.00	0.47	0.20	0.19	0.97	0.82	0.93	0.69		0.98	0.55	0.80

Intersection Summary































Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 73 (61%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.00  
 Intersection Signal Delay: 48.7  
 Intersection Capacity Utilization 95.9%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 7: Winchester & Jefferson

Ø1 19.4 s	Ø2 (R) 41.2 s	Ø3 10.6 s	Ø4 48.8 s
Ø6 (R) 37 s	Ø5 23.6 s	Ø8 32.4 s	Ø7 27 s

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

No Build, 2045, AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  		 	 	
Traffic Volume (vph)	246	725	1	5	174	128	1	2	4	580	3	247
Future Volume (vph)	246	725	1	5	174	128	1	2	4	580	3	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		250	300		150
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	3610	1615	1805	3610	1615	1805	5187	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	3610	1578	1805	3610	1578	1805	5187	1575	3502	3610	1575
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			145			136			260
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		844			432			734			623	
Travel Time (s)		12.8			6.5			11.1			9.4	
Confl. Peds. (#/hr)			10			10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	259	763	1	5	183	135	1	2	4	611	3	260
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	38.0	38.0	8.5	42.0	42.0	8.5	33.0	33.0	8.5	33.0	33.0
Total Split (s)	20.0	53.5	53.5	8.5	42.0	42.0	8.5	34.0	34.0	24.0	49.5	49.5
Total Split (%)	16.7%	44.6%	44.6%	7.1%	35.0%	35.0%	7.1%	28.3%	28.3%	20.0%	41.3%	41.3%
Maximum Green (s)	16.0	48.5	48.5	4.5	37.0	37.0	4.5	29.0	29.0	20.0	44.5	44.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		28.0	28.0		28.0	28.0		23.0	23.0		23.0	23.0
Pedestrian Calls (#/hr)		10	10		10	10		10	10		10	10
Act Effct Green (s)	24.0	45.5	45.5	4.5	19.2	19.2	4.5	33.3	33.3	25.5	61.1	61.1
Actuated g/C Ratio	0.20	0.38	0.38	0.04	0.16	0.16	0.04	0.28	0.28	0.21	0.51	0.51
v/c Ratio	0.72	0.56	0.00	0.07	0.32	0.36	0.01	0.00	0.01	0.82	0.00	0.28
Control Delay	58.1	30.7	0.0	58.2	43.6	7.3	56.0	34.0	0.0	56.1	21.0	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	30.7	0.0	58.2	43.6	7.3	56.0	34.0	0.0	56.1	21.0	3.7
LOS	E	C	A	E	D	A	E	C	A	E	C	A
Approach Delay		37.6			28.7			17.7			40.4	



Lanes, Volumes, Timings  
1: Date Street & Ynez Road

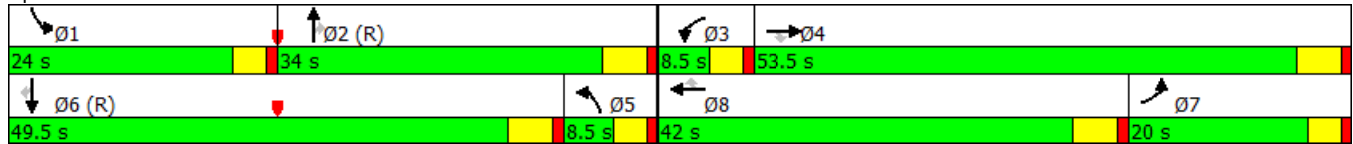
No Build, 2045, AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			C			B			D		
Queue Length 50th (ft)	184	255	0	4	72	0	1	0	0	225	0	0
Queue Length 95th (ft)	#344	292	0	18	87	42	7	2	0	#381	4	54
Internal Link Dist (ft)	764			352			654			543		
Turn Bay Length (ft)	250		100	250			250		250	300		150
Base Capacity (vph)	360	1510	738	67	1113	586	67	1440	535	743	1837	929
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.51	0.00	0.07	0.16	0.23	0.01	0.00	0.01	0.82	0.00	0.28

Intersection Summary













Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 37.4  
 Intersection Capacity Utilization 73.7%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Date Street & Ynez Road



Lanes, Volumes, Timings  
3: Cherry St/French Valley Pkwy & Jefferson

No Build, 2045, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↓		↖	↑↑		↗		↖		↗	↖
Traffic Volume (vph)	0	913	136	173	338	0	27	0	141	604	695	829
Future Volume (vph)	0	913	136	173	338	0	27	0	141	604	695	829
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	250		200	0		75	350		0
Storage Lanes	0		0	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3523	0	1805	3610	0	1805	0	1615	0	1856	1615
Flt Permitted				0.950			0.950				0.977	
Satd. Flow (perm)	0	3523	0	1805	3610	0	1805	0	1615	0	1856	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13							148			373
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		685			1560			615			394	
Travel Time (s)		9.3			21.3			9.3			6.0	
Confl. Peds. (#/hr)			10			10			10			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1104	0	182	356	0	28	0	148	0	1368	873
Turn Type		NA		Prot	NA		Prot		Prot	Perm	NA	Perm
Protected Phases		2		1	6		8		8		4	
Permitted Phases										4		4
Detector Phase		2		1	6		8		8	4	4	4
Switch Phase												
Minimum Initial (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		10.2		8.1	37.2		8.6		8.6	34.8	34.8	34.8
Total Split (s)		35.0		11.2	46.2		15.8		15.8	58.0	58.0	58.0
Total Split (%)		29.2%		9.3%	38.5%		13.2%		13.2%	48.3%	48.3%	48.3%
Maximum Green (s)		28.8		7.1	40.0		11.2		11.2	52.2	52.2	52.2
Yellow Time (s)		5.2		3.6	5.2		3.6		3.6	4.8	4.8	4.8
All-Red Time (s)		1.0		0.5	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0		0.0	0.0
Total Lost Time (s)		6.2		4.1	6.2		4.6		4.6		5.8	5.8
Lead/Lag		Lead		Lag			Lag		Lag	Lead	Lead	Lead
Lead-Lag Optimize?		Yes		Yes			Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max		None		None	None	None	None
Walk Time (s)					7.0					7.0	7.0	7.0
Flash Dont Walk (s)					10.0					22.0	22.0	22.0
Pedestrian Calls (#/hr)					10					10	10	10
Act Effct Green (s)		32.3		7.1	43.5		7.7		7.7		52.2	52.2
Actuated g/C Ratio		0.27		0.06	0.36		0.06		0.06		0.44	0.44
v/c Ratio		1.15		1.72	0.27		0.24		0.61		1.70	0.96
Control Delay		120.4		392.9	28.2		57.5		19.6		344.5	40.3
Queue Delay		0.0		0.0	0.0		0.0		0.0		0.0	0.0
Total Delay		120.4		392.9	28.2		57.5		19.6		344.5	40.3
LOS		F		F	C		E		B		F	D
Approach Delay		120.4			151.6			25.6			226.0	

Lanes, Volumes, Timings  
 3: Cherry St/French Valley Pkwy & Jefferson

No Build, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		F			F			C			F	
Queue Length 50th (ft)		-523		-207	101		21		0		-1554	433
Queue Length 95th (ft)		#710		#356	147		51		63		#1817	#744
Internal Link Dist (ft)		605			1480			535			314	
Turn Bay Length (ft)				250					75			
Base Capacity (vph)		957		106	1308		168		284		807	913
Starvation Cap Reductn		0		0	0		0		0		0	0
Spillback Cap Reductn		0		0	0		0		0		0	0
Storage Cap Reductn		0		0	0		0		0		0	0
Reduced v/c Ratio		1.15		1.72	0.27		0.17		0.52		1.70	0.96

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.72  
 Intersection Signal Delay: 178.7  
 Intersection Capacity Utilization 129.4%  
 Analysis Period (min) 15  
 Intersection LOS: F  
 ICU Level of Service H

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

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

Splits and Phases: 3: Cherry St/French Valley Pkwy & Jefferson

Ø2 (R)	Ø1	Ø4	Ø8
35 s	11.2 s	58 s	15.8 s
Ø6 (R)			
46.2 s			

Lanes, Volumes, Timings  
4: Winchester & Ynez

No Build, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	140	592	524	460	227	151	357	1578	1085	381	1586	59
Future Volume (vph)	140	592	524	460	227	151	357	1578	1085	381	1586	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		500	400		350	250		200	250		0
Storage Lanes	2		1	3		1	2		1	2		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3337	1470	5090	3610	1615	3502	6536	1615	3502	6498	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3337	1470	5090	3610	1582	3502	6536	1581	3502	6498	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						57			94		6	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		800			1093			797			1309	
Travel Time (s)		12.1			16.6			13.6			22.3	
Confl. Peds. (#/hr)						10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)			35%									
Lane Group Flow (vph)	147	816	359	484	239	159	376	1661	1142	401	1731	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.2	20.0	20.0	8.2	46.3	8.2	8.2	45.3	8.2	8.2	37.9	
Total Split (s)	10.0	35.0	35.0	22.0	47.0	15.0	17.0	48.0	22.0	15.0	46.0	
Total Split (%)	8.3%	29.2%	29.2%	18.3%	39.2%	12.5%	14.2%	40.0%	18.3%	12.5%	38.3%	
Maximum Green (s)	6.0	29.7	29.7	18.0	41.7	11.0	13.0	42.7	18.0	11.0	40.7	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	3.0	3.0	4.3	3.0	3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.3	5.3	4.0	5.3	4.0	4.0	5.3	4.0	4.0	5.3	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Walk Time (s)					5.0			5.0			5.0	
Flash Dont Walk (s)					36.0			35.0			27.0	
Pedestrian Calls (#/hr)					10			10			10	
Act Effect Green (s)	6.0	29.7	29.7	18.0	41.7	54.0	13.0	42.7	62.0	11.0	40.7	
Actuated g/C Ratio	0.05	0.25	0.25	0.15	0.35	0.45	0.11	0.36	0.52	0.09	0.34	
v/c Ratio	0.84	0.99	0.99	0.63	0.19	0.21	0.99	0.71	1.32	1.25	0.78	
Control Delay	92.8	74.0	90.1	52.1	27.9	9.2	78.6	26.6	167.4	179.9	38.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	92.8	74.0	90.1	52.1	27.9	9.2	78.6	26.6	167.4	179.9	38.7	
LOS	F	E	F	D	C	A	E	C	F	F	D	
Approach Delay		80.5			37.8			83.3			65.2	

Lanes, Volumes, Timings  
4: Winchester & Ynez

No Build, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		F			D			F			E	
Queue Length 50th (ft)	59	347	305	126	67	35	157	251	-894	-200	347	
Queue Length 95th (ft)	#118	#489	#523	164	99	69	m#214	312	#1387	#301	394	
Internal Link Dist (ft)		720			1013			717			1229	
Turn Bay Length (ft)	200		500	400		350	250		200	250		
Base Capacity (vph)	175	825	363	763	1254	746	379	2325	867	321	2207	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.99	0.99	0.63	0.19	0.21	0.99	0.71	1.32	1.25	0.78	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 3 (3%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.32  
 Intersection Signal Delay: 72.4  
 Intersection Capacity Utilization 112.1%  
 Analysis Period (min) 15  
 Intersection LOS: E  
 ICU Level of Service H




















~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Winchester & Ynez

Ø2 (R)	Ø1	Ø4	Ø3
48 s	15 s	35 s	22 s
Ø6 (R)	Ø5	Ø7	Ø8
46 s	17 s	10 s	47 s

Lanes, Volumes, Timings  
5: Winchester & I-15 NB off/I-15 NB on

No Build, 2045, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	519	1	766	0	2253	372	0	2007	585
Future Volume (vph)	0	0	0	519	1	766	0	2253	372	0	2007	585
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		450	0		0
Storage Lanes	0		0	1		1	0		1	0		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	1715	1499	1534	0	4890	1389	0	5187	2842
Flt Permitted				0.950	0.992							
Satd. Flow (perm)	0	0	0	1715	1499	1534	0	4890	1368	0	5187	2772
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	22		3	225			263
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		579			216			765			797	
Travel Time (s)		13.2			4.9			13.0			13.6	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)				13%		46%			10%			
Lane Group Flow (vph)	0	0	0	475	443	435	0	2411	353	0	2113	616
Turn Type				Perm	NA	Perm		NA	Free		NA	Free
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			Free
Detector Phase				8	8	8		2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0		4.0			4.0	
Minimum Split (s)				20.0	20.0	20.0		32.4			20.0	
Total Split (s)				51.0	51.0	51.0		69.0			69.0	
Total Split (%)				42.5%	42.5%	42.5%		57.5%			57.5%	
Maximum Green (s)				45.2	45.2	45.2		63.6			63.6	
Yellow Time (s)				4.8	4.8	4.8		4.4			4.4	
All-Red Time (s)				1.0	1.0	1.0		1.0			1.0	
Lost Time Adjust (s)				0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)				5.8	5.8	5.8		5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Recall Mode				None	None	None		C-Max			C-Max	
Walk Time (s)								7.0				
Flash Dont Walk (s)								20.0				
Pedestrian Calls (#/hr)								10				
Act Effct Green (s)				40.4	40.4	40.4		68.4	120.0		68.4	120.0
Actuated g/C Ratio				0.34	0.34	0.34		0.57	1.00		0.57	1.00
v/c Ratio				0.82	0.88	0.82		0.87	0.26		0.71	0.22
Control Delay				48.7	55.8	47.4		17.3	2.4		7.5	0.1
Queue Delay				0.0	0.0	0.0		1.3	0.0		0.1	0.0
Total Delay				48.7	55.8	47.4		18.5	2.4		7.5	0.1
LOS				D	E	D		B	A		A	A
Approach Delay					50.6			16.5			5.9	

Lanes, Volumes, Timings  
 5: Winchester & I-15 NB off/I-15 NB on

No Build, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS						D		B			A	
Queue Length 50th (ft)				341	339	297		634	29		162	0
Queue Length 95th (ft)				469	#487	426		m608	m91		m213	m0
Internal Link Dist (ft)		499			136			685			717	
Turn Bay Length (ft)									450			
Base Capacity (vph)				645	565	591		2787	1368		2956	2772
Starvation Cap Reductn				0	0	0		87	0		19	0
Spillback Cap Reductn				0	0	0		188	0		89	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.74	0.78	0.74		0.93	0.26		0.74	0.22

Intersection Summary




















Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 104 (87%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 19.0  
 Intersection Capacity Utilization 87.3%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Winchester & I-15 NB off/I-15 NB on

Ø2 (R) 69 s	Ø6 (R) 69 s	Ø8 51 s
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Lanes, Volumes, Timings  
6: Winchester & I-15 SB on/I-15 SB off

No Build, 2045, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	1595	4	203	0	0	0	0	1030	399	0	1656	870
Future Volume (vph)	1595	4	203	0	0	0	0	1030	399	0	1656	870
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	3502	1545	1534	0	0	0	0	5187	1615	0	4866	0
Flt Permitted	0.950											
Satd. Flow (perm)	3502	1545	1534	0	0	0	0	5187	1537	0	4866	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6	22						420		149	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		189			419			450			765	
Travel Time (s)		4.3			9.5			7.7			13.0	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)			49%									
Lane Group Flow (vph)	1679	109	109	0	0	0	0	1084	420	0	2659	0
Turn Type	Perm	NA	Perm					NA	Perm		NA	
Protected Phases		4						2			6	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0		4.0	
Minimum Split (s)	20.0	20.0	20.0					26.4	26.4		20.0	
Total Split (s)	58.0	58.0	58.0					62.0	62.0		62.0	
Total Split (%)	48.3%	48.3%	48.3%					51.7%	51.7%		51.7%	
Maximum Green (s)	52.2	52.2	52.2					56.6	56.6		56.6	
Yellow Time (s)	4.8	4.8	4.8					4.4	4.4		4.4	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)	5.8	5.8	5.8					5.4	5.4		5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Max	C-Max		C-Max	
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								14.0	14.0			
Pedestrian Calls (#/hr)								10	10			
Act Effect Green (s)	52.2	52.2	52.2					56.6	56.6		56.6	
Actuated g/C Ratio	0.44	0.44	0.44					0.47	0.47		0.47	
v/c Ratio	1.10	0.16	0.16					0.44	0.44		1.12	
Control Delay	89.5	20.2	17.1					16.8	2.2		83.3	
Queue Delay	0.0	0.0	0.0					0.4	0.6		0.0	
Total Delay	89.5	20.2	17.1					17.2	2.8		83.3	
LOS	F	C	B					B	A		F	
Approach Delay		81.3						13.2			83.3	
Approach LOS		F						B			F	
Queue Length 50th (ft)	~762	49	42					183	22		~565	
Queue Length 95th (ft)	#898	90	81					m192	m35		#937	



Lanes, Volumes, Timings  
 6: Winchester & I-15 SB on/I-15 SB off

No Build, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Internal Link Dist (ft)		109			339			370			685	
Turn Bay Length (ft)												
Base Capacity (vph)	1523	675	679					2446	946		2373	
Starvation Cap Reductn	0	0	0					780	230		10	
Spillback Cap Reductn	0	0	0					185	0		10	
Storage Cap Reductn	0	0	0					0	0		0	
Reduced v/c Ratio	1.10	0.16	0.16					0.65	0.59		1.13	

Intersection Summary
























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 4 (3%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.12  
 Intersection Signal Delay: 65.3 Intersection LOS: E  
 Intersection Capacity Utilization 106.7% ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Winchester & I-15 SB on/I-15 SB off

Ø2 (R) 62 s	Ø4 58 s
Ø6 (R) 62 s	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

No Build, 2045, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	945	582	437	91	196	604	109	1076	84	502	967	390
Future Volume (vph)	945	582	437	91	196	604	109	1076	84	502	967	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	200		300	400		0	0		300
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3610	1615	3502	3610	1615	3502	6454	0	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3610	1576	3502	3610	1615	3502	6454	0	3502	3610	1578
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			186			135		14				411
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1063			948			629			450	
Travel Time (s)		16.1			14.4			10.7			7.7	
Confl. Peds. (#/hr)			10						10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	995	613	460	96	206	636	115	1221	0	528	1018	411
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.2	38.9	38.9	8.2	20.0	8.2	8.2	41.3		8.2	36.9	36.9
Total Split (s)	35.6	46.0	46.0	9.6	20.0	22.7	12.0	41.7		22.7	52.4	52.4
Total Split (%)	29.7%	38.3%	38.3%	8.0%	16.7%	18.9%	10.0%	34.8%		18.9%	43.7%	43.7%
Maximum Green (s)	31.6	41.1	41.1	5.6	15.1	18.7	8.0	36.8		18.7	47.5	47.5
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.0	3.0	3.9		3.0	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.0	4.0	4.9		4.0	4.9	4.9
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)		22.0	22.0					29.0			25.0	25.0
Pedestrian Calls (#/hr)		10	10					10			10	10
Act Effect Green (s)	34.6	30.5	30.5	16.2	12.1	35.7	7.8	36.8		18.7	47.7	47.7
Actuated g/C Ratio	0.29	0.25	0.25	0.14	0.10	0.30	0.06	0.31		0.16	0.40	0.40
v/c Ratio	0.99	0.67	0.85	0.20	0.57	1.11	0.51	0.61		0.97	0.71	0.47
Control Delay	67.9	43.1	39.8	51.1	57.4	101.9	62.4	36.7		36.2	10.8	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	3.3	1.0
Total Delay	67.9	43.1	39.8	51.1	57.4	101.9	62.4	36.7		36.2	14.1	1.6
LOS	E	D	D	D	E	F	E	D		D	B	A
Approach Delay		54.3			86.9			38.9			17.4	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

No Build, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		D			F			D			B	
Queue Length 50th (ft)	394	224	213	34	81	~484	45	231		195	167	7
Queue Length 95th (ft)	#573	253	312	#68	118	#687	76	271		m178	m143	m6
Internal Link Dist (ft)		983			868			549			370	
Turn Bay Length (ft)	300		200	200		300	400					300
Base Capacity (vph)	1010	1236	662	472	454	575	233	1988		545	1435	874
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	311	235
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.99	0.50	0.69	0.20	0.45	1.11	0.49	0.61		0.97	0.91	0.64

Intersection Summary































Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 20 (17%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.11  
 Intersection Signal Delay: 44.4  
 Intersection Capacity Utilization 105.1%  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Winchester & Jefferson

Ø2 (R)	Ø1	Ø4	Ø3
41.7 s	22.7 s	46 s	9.6 s
Ø5	Ø6 (R)	Ø8	Ø7
12 s	52.4 s	20 s	35.6 s

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

No Build, 2045, PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  		 	 	
Traffic Volume (vph)	178	424	0	3	1599	695	2	1	3	288	3	251
Future Volume (vph)	178	424	0	3	1599	695	2	1	3	288	3	251
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		250	300		150
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	3610	1900	1805	3610	1615	1805	5187	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	3610	1900	1805	3610	1578	1805	5187	1575	3502	3610	1575
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						474			356			264
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		820			432			734			623	
Travel Time (s)		12.4			6.5			11.1			9.4	
Confl. Peds. (#/hr)			10			10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	187	446	0	3	1683	732	2	1	3	303	3	264
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	38.0	38.0	8.0	38.0	38.0	8.0	33.0	33.0	8.0	33.0	33.0
Total Split (s)	17.0	63.0	63.0	10.0	56.0	56.0	10.0	33.0	33.0	14.0	37.0	37.0
Total Split (%)	14.2%	52.5%	52.5%	8.3%	46.7%	46.7%	8.3%	27.5%	27.5%	11.7%	30.8%	30.8%
Maximum Green (s)	13.0	58.0	58.0	6.0	51.0	51.0	6.0	28.0	28.0	10.0	32.0	32.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		28.0	28.0		28.0	28.0		23.0	23.0		23.0	23.0
Pedestrian Calls (#/hr)		10	10		10	10		10	10		10	10
Act Effct Green (s)	13.0	66.0		5.7	51.0	51.0	5.7	28.0	28.0	10.0	40.0	40.0
Actuated g/C Ratio	0.11	0.55		0.05	0.42	0.42	0.05	0.23	0.23	0.08	0.33	0.33
v/c Ratio	0.96	0.22		0.03	1.10	0.78	0.02	0.00	0.00	1.04	0.00	0.38
Control Delay	108.2	14.7		55.3	87.9	16.3	55.0	35.0	0.0	117.0	29.3	5.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	108.2	14.7		55.3	87.9	16.3	55.0	35.0	0.0	117.0	29.3	5.5
LOS	F	B		E	F	B	D	C	A	F	C	A
Approach Delay		42.4			66.2			24.2			64.9	

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

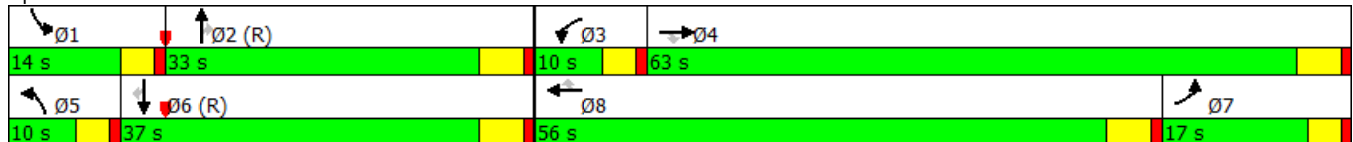
No Build, 2045, PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			C			E		
Queue Length 50th (ft)	146	85		2	-776	174	2	0	0	-130	1	0
Queue Length 95th (ft)	#292	138		13	#916	354	11	1	0	#222	5	64
Internal Link Dist (ft)	740			352			654			543		
Turn Bay Length (ft)	250			250			250			300		150
Base Capacity (vph)	195	1985		90	1534	943	90	1210	640	291	1203	700
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.22		0.03	1.10	0.78	0.02	0.00	0.00	1.04	0.00	0.38

Intersection Summary













Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.10  
 Intersection Signal Delay: 61.8  
 Intersection Capacity Utilization 89.1%  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Date Street & Ynez Road



Lanes, Volumes, Timings  
3: Cherry St/French Valley Pkwy & Jefferson

No Build, 2045, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↓		↖	↑↑		↗		↖		↗	↖
Traffic Volume (vph)	0	1159	75	673	2026	0	110	0	450	314	473	599
Future Volume (vph)	0	1159	75	673	2026	0	110	0	450	314	473	599
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	250		200	0		75	350		0
Storage Lanes	0		0	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3569	0	1805	3610	0	1805	0	1615	0	1862	1615
Flt Permitted				0.950			0.950				0.980	
Satd. Flow (perm)	0	3569	0	1805	3610	0	1805	0	1615	0	1862	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5							389			108
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		975			1560			615			394	
Travel Time (s)		13.3			21.3			9.3			6.0	
Confl. Peds. (#/hr)			10			10			10			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1299	0	708	2133	0	116	0	474	0	829	631
Turn Type		NA		Prot	NA		Prot		Prot	Perm	NA	Perm
Protected Phases		2		1	6		8		8		4	
Permitted Phases										4		4
Detector Phase		2		1	6		8		8	4	4	4
Switch Phase												
Minimum Initial (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		10.2		8.1	23.2		8.6		8.6	34.8	34.8	34.8
Total Split (s)		38.0		29.0	67.0		13.0		13.0	40.0	40.0	40.0
Total Split (%)		31.7%		24.2%	55.8%		10.8%		10.8%	33.3%	33.3%	33.3%
Maximum Green (s)		31.8		24.9	60.8		8.4		8.4	34.2	34.2	34.2
Yellow Time (s)		5.2		3.6	5.2		3.6		3.6	4.8	4.8	4.8
All-Red Time (s)		1.0		0.5	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0		0.0	0.0
Total Lost Time (s)		6.2		4.1	6.2		4.6		4.6		5.8	5.8
Lead/Lag		Lag		Lead			Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?		Yes		Yes			Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max		None		None	None	None	None
Walk Time (s)					7.0					7.0	7.0	7.0
Flash Dont Walk (s)					10.0					22.0	22.0	22.0
Pedestrian Calls (#/hr)					10					10	10	10
Act Effct Green (s)		31.8		24.9	60.8		8.4		8.4		34.2	34.2
Actuated g/C Ratio		0.26		0.21	0.51		0.07		0.07		0.28	0.28
v/c Ratio		1.37		1.89	1.17		0.92		1.00		1.56	1.18
Control Delay		207.9		440.0	110.2		117.1		53.3		294.3	129.5
Queue Delay		0.0		0.0	0.0		0.0		0.0		0.0	0.0
Total Delay		207.9		440.0	110.2		117.1		53.3		294.3	129.5
LOS		F		F	F		F		D		F	F
Approach Delay		207.9			192.4			65.8			223.1	

Lanes, Volumes, Timings  
 3: Cherry St/French Valley Pkwy & Jefferson

No Build, 2045, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		F			F			E			F	
Queue Length 50th (ft)		~702		~839	~1033		91		66		~909	~522
Queue Length 95th (ft)		#843		#1073	#1170		#208		#291		#1150	#752
Internal Link Dist (ft)		895			1480			535			314	
Turn Bay Length (ft)				250					75			
Base Capacity (vph)		949		374	1829		126		474		530	537
Starvation Cap Reductn		0		0	0		0		0		0	0
Spillback Cap Reductn		0		0	0		0		0		0	0
Storage Cap Reductn		0		0	0		0		0		0	0
Reduced v/c Ratio		1.37		1.89	1.17		0.92		1.00		1.56	1.18

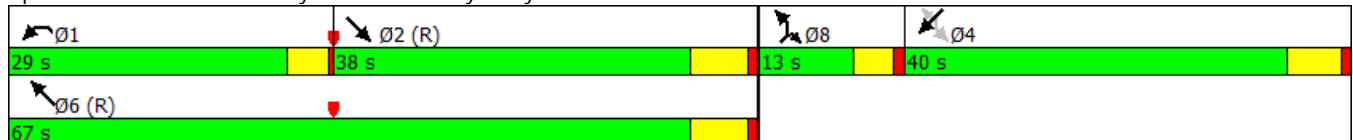
Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.89  
 Intersection Signal Delay: 190.8  
 Intersection Capacity Utilization 138.9%  
 Analysis Period (min) 15  
 Intersection LOS: F  
 ICU Level of Service H

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

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

Splits and Phases: 3: Cherry St/French Valley Pkwy & Jefferson



Lanes, Volumes, Timings  
4: Winchester & Ynez

No Build, 2045, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	207	460	332	998	1468	674	587	1904	783	393	1388	222
Future Volume (vph)	207	460	332	998	1468	674	587	1904	783	393	1388	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		500	400		350	250		200	250		0
Storage Lanes	2		1	3		1	2		1	2		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3375	1470	5090	3610	1615	3502	6536	1615	3502	6378	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3375	1470	5090	3610	1582	3502	6536	1581	3502	6378	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						105			57		36	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		800			1093			797			1309	
Travel Time (s)		12.1			16.6			13.6			22.3	
Confl. Peds. (#/hr)						10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)			27%									
Lane Group Flow (vph)	218	578	255	1051	1545	709	618	2004	824	414	1695	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	9.3	9.3	8.0	46.3	8.0	8.0	45.3	8.0	8.0	37.3	
Total Split (s)	9.0	29.0	29.0	28.0	48.0	15.0	17.0	48.0	28.0	15.0	46.0	
Total Split (%)	7.5%	24.2%	24.2%	23.3%	40.0%	12.5%	14.2%	40.0%	23.3%	12.5%	38.3%	
Maximum Green (s)	5.0	23.7	23.7	24.0	42.7	11.0	13.0	42.7	24.0	11.0	40.7	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	3.0	3.0	4.3	3.0	3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.3	5.3	4.0	5.3	4.0	4.0	5.3	4.0	4.0	5.3	
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Walk Time (s)					5.0			5.0			5.0	
Flash Dont Walk (s)					36.0			35.0			27.0	
Pedestrian Calls (#/hr)					10			10			10	
Act Effct Green (s)	5.0	23.0	23.0	24.7	42.7	55.0	13.0	42.7	68.7	11.0	40.7	
Actuated g/C Ratio	0.04	0.19	0.19	0.21	0.36	0.46	0.11	0.36	0.57	0.09	0.34	
v/c Ratio	1.50	0.89	0.90	1.00	1.20	0.90	1.63	0.86	0.88	1.29	0.78	
Control Delay	297.8	64.6	81.8	76.8	134.2	34.5	321.8	33.8	18.0	195.0	37.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	
Total Delay	297.8	64.6	81.8	76.8	134.2	34.5	321.8	33.8	18.0	195.0	37.7	
LOS	F	E	F	E	F	C	F	C	B	F	D	
Approach Delay		117.1			94.6			81.7			68.6	
Approach LOS		F			F			F			E	



Lanes, Volumes, Timings  
4: Winchester & Ynez

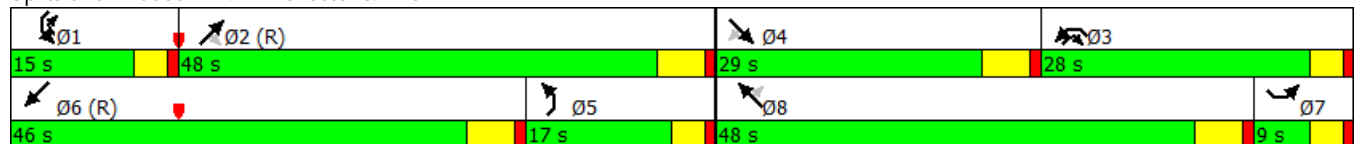
No Build, 2045, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	~120	240	213	~309	~765	337	~356	375	205	~210	333	
Queue Length 95th (ft)	#202	#339	#379	#400	#904	#575	m#419	439	m250	#312	380	
Internal Link Dist (ft)		720			1013			717			1229	
Turn Bay Length (ft)	200		500	400		350	250		200	250		
Base Capacity (vph)	145	666	290	1046	1284	784	379	2325	936	321	2186	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	2	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	1.50	0.87	0.88	1.00	1.20	0.90	1.63	0.86	0.88	1.29	0.78	

Intersection Summary




















Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 9 (8%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 140  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.63  
 Intersection Signal Delay: 87.0 Intersection LOS: F  
 Intersection Capacity Utilization 106.5% ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Winchester & Ynez















Lanes, Volumes, Timings  
5: Winchester & I-15 NB off/I-15 NB on

No Build, 2045, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	113	0	590	0	2683	962	0	1385	1386
Future Volume (vph)	0	0	0	113	0	590	0	2683	962	0	1385	1386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		450	0		0
Storage Lanes	0		0	1		1	0		1	0		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	1715	1477	1534	0	4856	1389	0	5187	2842
Flt Permitted				0.950	0.998							
Satd. Flow (perm)	0	0	0	1715	1477	1534	0	4856	1368	0	5187	2772
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					22	22		14	488			902
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		579			216			765			797	
Travel Time (s)		13.2			4.9			13.0			13.6	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)				10%		49%			16%			
Lane Group Flow (vph)	0	0	0	107	316	317	0	2986	851	0	1458	1459
Turn Type				Perm	NA	Perm		NA	Free		NA	Free
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			Free
Detector Phase				8	8	8		2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0		4.0			4.0	
Minimum Split (s)				9.8	9.8	9.8		32.4			9.4	
Total Split (s)				37.0	37.0	37.0		83.0			83.0	
Total Split (%)				30.8%	30.8%	30.8%		69.2%			69.2%	
Maximum Green (s)				31.2	31.2	31.2		77.6			77.6	
Yellow Time (s)				4.8	4.8	4.8		4.4			4.4	
All-Red Time (s)				1.0	1.0	1.0		1.0			1.0	
Lost Time Adjust (s)				0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)				5.8	5.8	5.8		5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Recall Mode				None	None	None		C-Max			C-Max	
Walk Time (s)								7.0				
Flash Dont Walk (s)								20.0				
Pedestrian Calls (#/hr)								10				
Act Effct Green (s)				27.9	27.9	27.9		80.9	120.0		80.9	120.0
Actuated g/C Ratio				0.23	0.23	0.23		0.67	1.00		0.67	1.00
v/c Ratio				0.27	0.88	0.85		0.91	0.62		0.42	0.53
Control Delay				38.5	66.0	61.6		17.6	7.8		3.2	0.6
Queue Delay				0.0	0.0	0.0		3.1	0.0		0.0	0.0
Total Delay				38.5	66.0	61.6		20.7	7.8		3.2	0.6
LOS				D	E	E		C	A		A	A
Approach Delay					60.1			17.9			1.9	
Approach LOS					E			B			A	

Lanes, Volumes, Timings  
 5: Winchester & I-15 NB off/I-15 NB on

No Build, 2045, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)				69	236	225		642	150		57	1
Queue Length 95th (ft)				122	#389	#362		145	m150		m64	m3
Internal Link Dist (ft)		499			136			685			717	
Turn Bay Length (ft)									450			
Base Capacity (vph)				445	400	415		3279	1368		3497	2772
Starvation Cap Reductn				0	0	0		214	0		0	0
Spillback Cap Reductn				0	0	0		0	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.24	0.79	0.76		0.97	0.62		0.42	0.53

Intersection Summary




















Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 101 (84%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 15.8 Intersection LOS: B  
 Intersection Capacity Utilization 92.8% ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Winchester & I-15 NB off/I-15 NB on















Lanes, Volumes, Timings  
6: Winchester & I-15 SB on/I-15 SB off

No Build, 2045, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	1095	6	705	0	0	0	0	2550	522	0	1144	354
Future Volume (vph)	1095	6	705	0	0	0	0	2550	522	0	1144	354
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	3502	1538	1534	0	0	0	0	5187	1615	0	4971	0
Flt Permitted	0.950											
Satd. Flow (perm)	3502	1538	1534	0	0	0	0	5187	1537	0	4971	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		54	54						407		103	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		189			419			450			765	
Travel Time (s)		4.3			9.5			7.7			13.0	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	1153	377	371	0	0	0	0	2684	549	0	1577	0
Turn Type	Perm	NA	Perm					NA	Perm		NA	
Protected Phases		4						2			6	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0		4.0	
Minimum Split (s)	9.8	9.8	9.8					26.4	26.4		9.4	
Total Split (s)	49.0	49.0	49.0					71.0	71.0		71.0	
Total Split (%)	40.8%	40.8%	40.8%					59.2%	59.2%		59.2%	
Maximum Green (s)	43.2	43.2	43.2					65.6	65.6		65.6	
Yellow Time (s)	4.8	4.8	4.8					4.4	4.4		4.4	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)	5.8	5.8	5.8					5.4	5.4		5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Max	C-Max		C-Max	
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								14.0	14.0			
Pedestrian Calls (#/hr)								10	10			
Act Effect Green (s)	42.6	42.6	42.6					66.2	66.2		66.2	
Actuated g/C Ratio	0.36	0.36	0.36					0.55	0.55		0.55	
v/c Ratio	0.93	0.65	0.64					0.94	0.53		0.57	
Control Delay	50.8	33.5	33.1					10.8	0.2		5.8	
Queue Delay	0.0	0.0	0.0					0.6	0.6		0.0	
Total Delay	50.8	33.5	33.1					11.4	0.7		5.8	
LOS	D	C	C					B	A		A	
Approach Delay		43.9						9.6			5.8	
Approach LOS		D						A			A	
Queue Length 50th (ft)	435	218	213					357	0		35	
Queue Length 95th (ft)	#567	335	329					m291	m0		39	
Internal Link Dist (ft)		109			339			370			685	

Lanes, Volumes, Timings  
 6: Winchester & I-15 SB on/I-15 SB off




No Build, 2045, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Turn Bay Length (ft)												
Base Capacity (vph)	1260	588	586					2862	1030		2789	
Starvation Cap Reductn	0	0	0					2	183		0	
Spillback Cap Reductn	0	0	0					40	0		13	
Storage Cap Reductn	0	0	0					0	0		0	
Reduced v/c Ratio	0.92	0.64	0.63					0.95	0.65		0.57	

Intersection Summary
























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 116 (97%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 18.4  
 Intersection Capacity Utilization 89.8%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Winchester & I-15 SB on/I-15 SB off

 Ø2 (R)	 Ø4
71 s	49 s
 Ø6 (R)	
71 s	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

No Build, 2045, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	829	800	160	38	1118	615	561	1628	44	536	647	666
Future Volume (vph)	829	800	160	38	1118	615	561	1628	44	536	647	666
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	200		300	400		0	0		300
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3610	1615	3502	3610	1615	3502	6506	0	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3610	1576	3502	3610	1615	3502	6506	0	3502	3610	1578
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			158			62		4				378
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1063			948			629			450	
Travel Time (s)		16.1			14.4			10.7			7.7	
Confl. Peds. (#/hr)			10						10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	873	842	168	40	1177	647	591	1760	0	564	681	701
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	33.9	33.9	8.0	8.9	8.0	8.0	40.9		8.0	36.9	36.9
Total Split (s)	25.0	47.0	47.0	10.0	32.0	19.0	20.0	44.0		19.0	43.0	43.0
Total Split (%)	20.8%	39.2%	39.2%	8.3%	26.7%	15.8%	16.7%	36.7%		15.8%	35.8%	35.8%
Maximum Green (s)	21.0	42.1	42.1	6.0	27.1	15.0	16.0	39.1		15.0	38.1	38.1
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.0	3.0	3.9		3.0	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.0	4.0	4.9		4.0	4.9	4.9
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lead		Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)		22.0	22.0					29.0			25.0	25.0
Pedestrian Calls (#/hr)		10	10					10			10	10
Act Effct Green (s)	21.0	44.1	44.1	5.9	27.1	47.0	16.0	39.1		15.0	38.1	38.1
Actuated g/C Ratio	0.18	0.37	0.37	0.05	0.23	0.39	0.13	0.33		0.12	0.32	0.32
v/c Ratio	1.43	0.63	0.25	0.23	1.44	0.97	1.27	0.83		1.29	0.59	0.92
Control Delay	238.2	34.5	5.9	58.3	241.8	60.3	179.1	41.4		190.3	31.4	32.0
Queue Delay	0.4	0.0	0.0	0.0	0.0	0.5	0.0	0.3		0.0	0.7	5.3
Total Delay	238.6	34.5	5.9	58.3	241.8	60.8	179.1	41.7		190.3	32.0	37.4
LOS	F	C	A	E	F	E	F	D		F	C	D
Approach Delay		126.6			175.1			76.2			79.8	
Approach LOS		F			F			E			E	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

No Build, 2045, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	~470	288	5	15	~652	450	~296	363		~295	226	292
Queue Length 95th (ft)	#596	360	53	34	#788	#702	#411	411		#410	300	#486
Internal Link Dist (ft)		983			868			549			370	
Turn Bay Length (ft)	300		200	200		300	400					300
Base Capacity (vph)	612	1326	679	175	815	670	466	2122		437	1146	759
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	187	36
Spillback Cap Reductn	31	0	0	0	0	2	0	57		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.50	0.63	0.25	0.23	1.44	0.97	1.27	0.85		1.29	0.71	0.97

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 16 (13%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.44  
 Intersection Signal Delay: 111.8 Intersection LOS: F  
 Intersection Capacity Utilization 114.7% ICU Level of Service H  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 7: Winchester & Jefferson

44 s	19 s	10 s	47 s
43 s	20 s	32 s	25 s

# **Appendix H – Build Phase II Conditions HCS Reports**



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	C-D junction and I-15 C-D junction		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	600	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	316
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.14
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	5.6
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	C-D segment (3 lanes)		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	940	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	330
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.15
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	5.8
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15/I-215 junction and merge of I-15 C-D road		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.3
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2180	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	765
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2363
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2363
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.32
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	66.3
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	11.5
Total Ramp Density Adjustment	3.7	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	66.3		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2370	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	624
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	9.5
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3880	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1361
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	20.7
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 segment (5 lanes)		

## Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4090	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	861
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	13.1
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	C-D lane drop and I-215 C-D junction		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	680	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	358
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.16
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	6.3
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1950	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	684
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.29
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	10.4
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2810	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	986
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.42
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	15.2
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Rancho California Road on-ramp and Winchester Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5110	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1345
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	20.4
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd direct on-ramp to C-D road lane addition		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	940	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	494
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.22
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	8.7
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd off-ramp and I-15 lane addition		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4090	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1076
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	16.3
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	5110	1010
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	5379	1063
Capacity (c), pc/h	9600	4200
Volume-to-Capacity Ratio (v/c)	0.56	0.25

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	0.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>s</sub> )	0.394
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1597
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	59.0
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.260	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	74.5
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2185	Ramp Junction Speed (S), mi/h	67.3
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	20.0
Level of Service (LOS)	A		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2740	1140
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2884	1200
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.57	0.57

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	22.8
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1500	Speed Index (M <sub>s</sub> )	0.322
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1154
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.0
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.600	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.6
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1730	Ramp Junction Speed (S), mi/h	62.7
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2930	Average Density (D), pc/mi/ln	21.7
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1200	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2370	360
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2495	379
Capacity (c), pc/h	9600	1900
Volume-to-Capacity Ratio (v/c)	0.30	0.20

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	11.1
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1100	Speed Index (M <sub>s</sub> )	0.296
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	749
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1200	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.7
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.170	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	69.1
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	998	Ramp Junction Speed (S), mi/h	65.3
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	1377	Average Density (D), pc/mi/ln	11.0
Level of Service (LOS)	B		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	660
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2160	650
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2274	684
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.41	0.33

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	17.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1275	Speed Index (M <sub>s</sub> )	0.292
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	919
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.8
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.596	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	68.5
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1355	Ramp Junction Speed (S), mi/h	63.7
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2039	Average Density (D), pc/mi/ln	15.5
Level of Service (LOS)	B		



# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1275	750
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	1950	210
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2053	221
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.32	0.12

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	0.0	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	12.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1900	Speed Index (M <sub>s</sub> )	0.300
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	825
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1275	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.6
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.598	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	68.8
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1228	Ramp Junction Speed (S), mi/h	64.0
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	1449	Average Density (D), pc/mi/ln	11.8
Level of Service (LOS)	B		

# HCS7 Freeway Weaving Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15/C-D road merge and Murrieta Hot Springs Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	5	Segment Type	Freeway
Short Length (L <sub>s</sub> ), ft	1695	Number of Maneuver Lanes (N <sub>NWL</sub> ), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC <sub>RF</sub> ), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC <sub>FR</sub> ), lc	2
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC <sub>RR</sub> ), lc	0
Interchange Density (ID), int/mi	1.50	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Volume (V <sub>i</sub> ), veh/h	1770	600	0	410
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	0.00	0.00	0.00	0.00
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	1863	632	0	432
Weaving Flow Rate (v <sub>w</sub> ), pc/h	1064	Freeway Max Capacity (c <sub>IFL</sub> ), pc/h/ln		2400
Non-Weaving Flow Rate (v <sub>NW</sub> ), pc/h	1863	Density-Based Capacity (c <sub>NWL</sub> ), pc/h/ln		2169
Total Flow Rate (v), pc/h	2927	Demand Flow-Based Capacity (c <sub>w</sub> ), pc/h		9615
Volume Ratio (VR)	0.364	Weaving Segment Capacity (c <sub>w</sub> ), veh/h		9615
Minimum Lane Change Rate (LC <sub>MIN</sub> ), lc/h	864	Adjusted Weaving Area Capacity (c <sub>wa</sub> ), veh/h		9615
Maximum Weaving Length (L <sub>MAX</sub> ), ft	4715	Volume-to-Capacity Ratio (v/c)		0.30

## Speed and Density

Non-Weaving Vehicle Index (I <sub>NW</sub> )	474	Average Weaving Speed (S <sub>w</sub> ), mi/h	58.9
Non-Weaving Lane Change Rate (LC <sub>NW</sub> ), lc/h	339	Average Non-Weaving Speed (S <sub>NW</sub> ), mi/h	61.0
Weaving Lane Change Rate (LC <sub>w</sub> ), lc/h	1622	Average Speed (S), mi/h	60.2
Total Lane Change Rate (LC <sub>ALL</sub> ), lc/h	1961	Density (D), pc/mi/ln	9.7
Weaving Intensity Factor (W)	0.254	Level of Service (LOS)	A

# HCS7 Freeway Weaving Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215/C-D road merge and Murrieta Hot Springs Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Short Length (L <sub>s</sub> ), ft	1250	Number of Maneuver Lanes (N <sub>NWL</sub> ), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC <sub>RF</sub> ), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC <sub>FR</sub> ), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC <sub>RR</sub> ), lc	0
Interchange Density (ID), int/mi	1.33	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Volume (V <sub>i</sub> ), veh/h	1600	1050	0	310
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	0.00	0.00	0.00	0.00
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	1684	1105	0	326
Weaving Flow Rate (v <sub>w</sub> ), pc/h	1431	Freeway Max Capacity (c <sub>IFL</sub> ), pc/h/ln		2400
Non-Weaving Flow Rate (v <sub>NW</sub> ), pc/h	1684	Density-Based Capacity (c <sub>NWL</sub> ), pc/h/ln		1933
Total Flow Rate (v), pc/h	3115	Demand Flow-Based Capacity (c <sub>w</sub> ), pc/h		5229
Volume Ratio (VR)	0.459	Weaving Segment Capacity (c <sub>w</sub> ), veh/h		5229
Minimum Lane Change Rate (LC <sub>MIN</sub> ), lc/h	1105	Adjusted Weaving Area Capacity (c <sub>wa</sub> ), veh/h		5229
Maximum Weaving Length (L <sub>MAX</sub> ), ft	7351	Volume-to-Capacity Ratio (v/c)		0.60

## Speed and Density

Non-Weaving Vehicle Index (I <sub>NW</sub> )	280	Average Weaving Speed (S <sub>w</sub> ), mi/h	57.5
Non-Weaving Lane Change Rate (LC <sub>NW</sub> ), lc/h	254	Average Non-Weaving Speed (S <sub>NW</sub> ), mi/h	58.3
Weaving Lane Change Rate (LC <sub>w</sub> ), lc/h	1483	Average Speed (S), mi/h	57.9
Total Lane Change Rate (LC <sub>AI</sub> ), lc/h	1737	Density (D), pc/mi/ln	13.4
Weaving Intensity Factor (W)	0.293	Level of Service (LOS)	B

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	C-D junction and I-215 C-D lane drop		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1050	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	536
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.24
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	9.4
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	C-D junction and I-15 C-D junction		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	520	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	266
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.12
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	4.7
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	C-D segment (3 lanes)		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1570	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	534
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.24
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	9.4
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15/I-215 junction and merge of I-15 C-D road		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.3
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3810	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1296
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2363
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2363
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	66.3
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	19.5
Total Ramp Density Adjustment	3.7	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	66.3		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3980	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1015
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	15.5
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I- 15 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6290	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	2139
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.91
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	37.1
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 segment (5 lanes)		

## Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6330	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>P</sub> ), pc/h/ln	1292
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	19.7
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	C-D lane drop and I-215 C-D junction		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2100	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>P</sub> ), pc/h/ln	1072
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.47
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	18.8
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3210	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1092
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	16.7
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4980	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1694
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	63.8
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	26.6
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	Rancho California Road on-ramp and Winchester Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	7120	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1816
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	63.1
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	28.8
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	Winchester Rd direct on-ramp to C-D road lane addition		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1570	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	801
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.35
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	14.1
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	Winchester Rd off-ramp and I-15 lane addition		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6330	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1615
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	24.8
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		



# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd Off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	7120	790
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	7265	806
Capacity (c), pc/h	9600	4200
Volume-to-Capacity Ratio (v/c)	0.76	0.19

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	0.8
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.371
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2180
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	59.6
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.260	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	72.2
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2906	Ramp Junction Speed (S), mi/h	66.6
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	27.3
Level of Service (LOS)	A		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	4370	1920
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	4459	1959
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.89	0.93

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	35.8
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1500	Speed Index (M <sub>s</sub> )	0.650
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1784
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	51.8
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.600	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	65.4
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2675	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	4634	Average Density (D), pc/mi/ln	38.9
Level of Service (LOS)	E		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1200	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3980	380
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	4061	388
Capacity (c), pc/h	9600	1900
Volume-to-Capacity Ratio (v/c)	0.46	0.20

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	16.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1100	Speed Index (M <sub>s</sub> )	0.310
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1219
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1200	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.3
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.169	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.4
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1624	Ramp Junction Speed (S), mi/h	64.5
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2012	Average Density (D), pc/mi/ln	17.2
Level of Service (LOS)	B		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	660
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3780	1210
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3857	1235
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.71	0.59

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	28.4
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1275	Speed Index (M <sub>s</sub> )	0.395
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1558
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.596	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	66.2
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2299	Ramp Junction Speed (S), mi/h	61.0
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	3534	Average Density (D), pc/mi/ln	27.8
Level of Service (LOS)	D		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1275	750
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3210	560
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3276	571
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.53	0.30

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	61.3	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	20.3
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1900	Speed Index (M <sub>s</sub> )	0.332
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1317
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1275	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.598	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.1
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1959	Ramp Junction Speed (S), mi/h	62.7
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2530	Average Density (D), pc/mi/ln	20.5
Level of Service (LOS)	C		

# HCS7 Freeway Weaving Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15/C-D road merge and Murrieta Hot Springs Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	5	Segment Type	Freeway
Short Length (L <sub>s</sub> ), ft	1695	Number of Maneuver Lanes (N <sub>NWL</sub> ), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC <sub>RF</sub> ), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC <sub>FR</sub> ), lc	2
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC <sub>RR</sub> ), lc	0
Interchange Density (ID), int/mi	1.17	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Volume (V <sub>i</sub> ), veh/h	3480	520	0	330
Peak Hour Factor (PHF)	0.98	0.98	0.98	0.98
Total Trucks, %	0.00	0.00	0.00	0.00
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3551	531	0	337
Weaving Flow Rate (v <sub>w</sub> ), pc/h	868	Freeway Max Capacity (c <sub>IFL</sub> ), pc/h/ln		2400
Non-Weaving Flow Rate (v <sub>NW</sub> ), pc/h	3551	Density-Based Capacity (c <sub>NWL</sub> ), pc/h/ln		2306
Total Flow Rate (v), pc/h	4419	Demand Flow-Based Capacity (c <sub>w</sub> ), pc/h		17857
Volume Ratio (VR)	0.196	Weaving Segment Capacity (c <sub>w</sub> ), veh/h		11530
Minimum Lane Change Rate (LC <sub>MIN</sub> ), lc/h	674	Adjusted Weaving Area Capacity (c <sub>wa</sub> ), veh/h		11530
Maximum Weaving Length (L <sub>MAX</sub> ), ft	2929	Volume-to-Capacity Ratio (v/c)		0.38

## Speed and Density

Non-Weaving Vehicle Index (I <sub>NW</sub> )	704	Average Weaving Speed (S <sub>w</sub> ), mi/h	58.6
Non-Weaving Lane Change Rate (LC <sub>NW</sub> ), lc/h	687	Average Non-Weaving Speed (S <sub>NW</sub> ), mi/h	60.9
Weaving Lane Change Rate (LC <sub>w</sub> ), lc/h	1351	Average Speed (S), mi/h	60.4
Total Lane Change Rate (LC <sub>AI</sub> ), lc/h	2038	Density (D), pc/mi/ln	14.6
Weaving Intensity Factor (W)	0.261	Level of Service (LOS)	B

# HCS7 Freeway Weaving Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215/C-D road merge and Murrieta Hot Springs Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Short Length (L <sub>s</sub> ), ft	1250	Number of Maneuver Lanes (N <sub>NWL</sub> ), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC <sub>RF</sub> ), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC <sub>FR</sub> ), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC <sub>RR</sub> ), lc	0
Interchange Density (ID), int/mi	1.33	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Volume (V <sub>i</sub> ), veh/h	2150	340	0	370
Peak Hour Factor (PHF)	0.98	0.98	0.98	0.98
Total Trucks, %	0.00	0.00	0.00	0.00
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2194	347	0	378
Weaving Flow Rate (v <sub>w</sub> ), pc/h	725	Freeway Max Capacity (c <sub>FL</sub> ), pc/h/ln		2400
Non-Weaving Flow Rate (v <sub>NW</sub> ), pc/h	2194	Density-Based Capacity (c <sub>NWL</sub> ), pc/h/ln		2111
Total Flow Rate (v), pc/h	2919	Demand Flow-Based Capacity (c <sub>w</sub> ), pc/h		9677
Volume Ratio (VR)	0.248	Weaving Segment Capacity (c <sub>w</sub> ), veh/h		8444
Minimum Lane Change Rate (LC <sub>MIN</sub> ), lc/h	347	Adjusted Weaving Area Capacity (c <sub>wa</sub> ), veh/h		8444
Maximum Weaving Length (L <sub>MAX</sub> ), ft	5033	Volume-to-Capacity Ratio (v/c)		0.35

## Speed and Density

Non-Weaving Vehicle Index (I <sub>NW</sub> )	365	Average Weaving Speed (S <sub>w</sub> ), mi/h	60.8
Non-Weaving Lane Change Rate (LC <sub>NW</sub> ), lc/h	359	Average Non-Weaving Speed (S <sub>NW</sub> ), mi/h	64.0
Weaving Lane Change Rate (LC <sub>w</sub> ), lc/h	725	Average Speed (S), mi/h	63.2
Total Lane Change Rate (LC <sub>ALL</sub> ), lc/h	1084	Density (D), pc/mi/ln	11.5
Weaving Intensity Factor (W)	0.202	Level of Service (LOS)	B

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2022)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	C-D junction and I-215 C-D lane drop		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	340	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	179
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.08
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	3.1
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	C-D junction and I-215 C-D lane drop		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	450	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	237
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.10
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	4.2
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	C-D junction and I-15 C-D junction		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	480	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	252
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.11
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	4.4
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	C-D segment (3 lanes)		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	930	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	326
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.14
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	5.7
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15/I-215 junction and merge of I-15 C-D road		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.3
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3000	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1053
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2363
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2363
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	66.3
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	15.9
Total Ramp Density Adjustment	3.7	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	66.3		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3060	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	805
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	12.3
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4830	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1695
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	64.4
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	26.3
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 segment (5 lanes)		

## Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5530	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1164
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	17.8
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	C-D lane drop and I-215 C-D junction		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	900	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	474
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	8.3
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2590	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	909
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	13.9
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3500	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1228
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	18.9
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Rancho California Road on-ramp and Winchester Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6800	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1790
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	63.4
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	28.2
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd direct on-ramp to C-D road lane addition		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	930	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	490
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.22
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	8.6
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd off-ramp and I-15 lane addition		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5530	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1455
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.8
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	22.1
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	6800	1270
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	7158	1337
Capacity (c), pc/h	9600	4200
Volume-to-Capacity Ratio (v/c)	0.75	0.32

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	0.4
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>s</sub> )	0.418
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2148
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	58.3
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.260	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	72.3
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2863	Ramp Junction Speed (S), mi/h	66.0
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	27.1
Level of Service (LOS)	A		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3650	1180
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3842	1242
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.71	0.59

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	27.6
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1500	Speed Index (M <sub>s</sub> )	0.384
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1537
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	59.2
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.600	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	66.3
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2305	Ramp Junction Speed (S), mi/h	61.2
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	3547	Average Density (D), pc/mi/ln	27.7
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1200	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3060	580
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3221	611
Capacity (c), pc/h	9600	1900
Volume-to-Capacity Ratio (v/c)	0.40	0.32

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	15.1
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1100	Speed Index (M <sub>s</sub> )	0.307
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	967
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1200	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.4
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.141	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	68.3
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1288	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	1899	Average Density (D), pc/mi/ln	14.8
Level of Service (LOS)	B		



# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	660
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2800	700
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2947	737
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.51	0.35

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	20.5
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1275	Speed Index (M <sub>s</sub> )	0.309
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1191
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.3
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.596	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.5
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1756	Ramp Junction Speed (S), mi/h	63.2
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2493	Average Density (D), pc/mi/ln	19.4
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1275	750
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2590	210
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2726	221
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.41	0.12

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	0.0	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	15.2
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1900	Speed Index (M <sub>s</sub> )	0.308
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1096
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1275	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.4
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.598	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.9
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1630	Ramp Junction Speed (S), mi/h	63.7
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	1851	Average Density (D), pc/mi/ln	15.4
Level of Service (LOS)	B		

# HCS7 Freeway Weaving Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15/C-D road merge and Murrieta Hot Springs Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	5	Segment Type	Freeway
Short Length (L <sub>s</sub> ), ft	1695	Number of Maneuver Lanes (N <sub>NWL</sub> ), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC <sub>RF</sub> ), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC <sub>FR</sub> ), lc	2
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC <sub>RR</sub> ), lc	0
Interchange Density (ID), int/mi	1.50	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Volume (V <sub>i</sub> ), veh/h	2120	480	0	420
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	0.00	0.00	0.00	0.00
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2232	505	0	442
Weaving Flow Rate (v <sub>w</sub> ), pc/h	947	Freeway Max Capacity (c <sub>IFL</sub> ), pc/h/ln		2400
Non-Weaving Flow Rate (v <sub>NW</sub> ), pc/h	2232	Density-Based Capacity (c <sub>NWL</sub> ), pc/h/ln		2224
Total Flow Rate (v), pc/h	3179	Demand Flow-Based Capacity (c <sub>w</sub> ), pc/h		11745
Volume Ratio (VR)	0.298	Weaving Segment Capacity (c <sub>w</sub> ), veh/h		11120
Minimum Lane Change Rate (LC <sub>MIN</sub> ), lc/h	884	Adjusted Weaving Area Capacity (c <sub>wa</sub> ), veh/h		11120
Maximum Weaving Length (L <sub>MAX</sub> ), ft	3996	Volume-to-Capacity Ratio (v/c)		0.29

## Speed and Density

Non-Weaving Vehicle Index (I <sub>NW</sub> )	567	Average Weaving Speed (S <sub>w</sub> ), mi/h	58.5
Non-Weaving Lane Change Rate (LC <sub>NW</sub> ), lc/h	415	Average Non-Weaving Speed (S <sub>NW</sub> ), mi/h	60.6
Weaving Lane Change Rate (LC <sub>w</sub> ), lc/h	1642	Average Speed (S), mi/h	60.0
Total Lane Change Rate (LC <sub>AI</sub> ), lc/h	2057	Density (D), pc/mi/ln	10.6
Weaving Intensity Factor (W)	0.263	Level of Service (LOS)	B

# HCS7 Freeway Weaving Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15/C-D road merge and Murrieta Hot Springs Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Short Length (L <sub>s</sub> ), ft	1250	Number of Maneuver Lanes (N <sub>NWL</sub> ), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC <sub>RF</sub> ), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC <sub>FR</sub> ), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC <sub>RR</sub> ), lc	0
Interchange Density (ID), int/mi	1.33	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Volume (V <sub>i</sub> ), veh/h	2120	450	0	410
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	0.00	0.00	0.00	0.00
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2232	474	0	432
Weaving Flow Rate (v <sub>w</sub> ), pc/h	906	Freeway Max Capacity (c <sub>IFL</sub> ), pc/h/ln		2400
Non-Weaving Flow Rate (v <sub>NW</sub> ), pc/h	2232	Density-Based Capacity (c <sub>NWL</sub> ), pc/h/ln		2077
Total Flow Rate (v), pc/h	3138	Demand Flow-Based Capacity (c <sub>w</sub> ), pc/h		8304
Volume Ratio (VR)	0.289	Weaving Segment Capacity (c <sub>w</sub> ), veh/h		8304
Minimum Lane Change Rate (LC <sub>MIN</sub> ), lc/h	474	Adjusted Weaving Area Capacity (c <sub>wa</sub> ), veh/h		8304
Maximum Weaving Length (L <sub>MAX</sub> ), ft	5466	Volume-to-Capacity Ratio (v/c)		0.38

## Speed and Density

Non-Weaving Vehicle Index (I <sub>NW</sub> )	371	Average Weaving Speed (S <sub>w</sub> ), mi/h	60.0
Non-Weaving Lane Change Rate (LC <sub>NW</sub> ), lc/h	367	Average Non-Weaving Speed (S <sub>NW</sub> ), mi/h	62.8
Weaving Lane Change Rate (LC <sub>w</sub> ), lc/h	852	Average Speed (S), mi/h	62.0
Total Lane Change Rate (LC <sub>AI</sub> ), lc/h	1219	Density (D), pc/mi/ln	12.7
Weaving Intensity Factor (W)	0.222	Level of Service (LOS)	B

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	C-D junction and I-215 C-D lane drop		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1240	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	632
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.28
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	11.1
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	C-D junction and I-15 C-D junction		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1240	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	632
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.28
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	11.1
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	C-D segment (3 lanes)		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1970	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>P</sub> ), pc/h/ln	670
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.30
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	11.8
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15/I-215 junction and merge of I-15 C-D road		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.3
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5340	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1816
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2363
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2363
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	63.4
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	28.6
Total Ramp Density Adjustment	3.7	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	66.3		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5830	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1487
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.3
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	22.8
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I- 15 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	8260	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	2810
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.19
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 segment (5 lanes)		

## Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	9140	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1865
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	62.2
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	30.0
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	C-D lane drop and I-215 C-D junction		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2480	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1266
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	22.2
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4400	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	1497
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	65.3
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	22.9
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6530	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	2221
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.95
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	40.0
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	Rancho California Road on-ramp and Winchester Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	9680	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	2470
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.05
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	Winchester Rd direct on-ramp to C-D road lane addition		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.95
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1970	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>P</sub> ), pc/h/ln	1005
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	17.7
Total Ramp Density Adjustment	3.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	56.9		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	Winchester Rd off-ramp and I-15 lane addition		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	9140	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v <sub>p</sub> ), pc/h/ln	2332
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.99
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	53.1
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	43.9
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.9		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd Off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	9680	540
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	9878	551
Capacity (c), pc/h	9600	4200
Volume-to-Capacity Ratio (v/c)	1.03	0.13

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	-
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	-
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2700
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	-
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.260	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	70.2
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	4478	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	6290	1980
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	6418	2020
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	1.17	0.96

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	-
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1500	Speed Index (M <sub>s</sub> )	-
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2567
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	-
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.600	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	61.9
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	3851	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	5871	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1200	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	5830	460
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	5949	469
Capacity (c), pc/h	9600	1900
Volume-to-Capacity Ratio (v/c)	0.67	0.25

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	22.5
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1100	Speed Index (M <sub>s</sub> )	0.348
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1785
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1200	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.3
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.159	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	65.4
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2380	Ramp Junction Speed (S), mi/h	63.0
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2849	Average Density (D), pc/mi/ln	25.5
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	660
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	5100	1440
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	5204	1469
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.93	0.70

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	36.4
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1275	Speed Index (M <sub>s</sub> )	0.638
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2102
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	52.1
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.596	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	64.2
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	3102	Ramp Junction Speed (S), mi/h	55.4
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	4571	Average Density (D), pc/mi/ln	40.2
Level of Service (LOS)	E		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1275	750
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	4400	700
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	4490	714
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.72	0.38

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	351.7	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	27.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1900	Speed Index (M <sub>s</sub> )	0.400
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1805
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1275	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	58.8
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.598	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	65.3
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2685	Ramp Junction Speed (S), mi/h	60.9
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	3399	Average Density (D), pc/mi/ln	28.5
Level of Service (LOS)	C		

# HCS7 Freeway Weaving Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15/C-D road merge and Murrieta Hot Springs Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	5	Segment Type	Freeway
Short Length (L <sub>s</sub> ), ft	1695	Number of Maneuver Lanes (N <sub>NWL</sub> ), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC <sub>RF</sub> ), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC <sub>FR</sub> ), lc	2
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC <sub>RR</sub> ), lc	0
Interchange Density (ID), int/mi	1.17	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Volume (V <sub>i</sub> ), veh/h	5060	730	0	280
Peak Hour Factor (PHF)	0.98	0.98	0.98	0.98
Total Trucks, %	0.00	0.00	0.00	0.00
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	5163	745	0	286
Weaving Flow Rate (v <sub>w</sub> ), pc/h	1031	Freeway Max Capacity (c <sub>IFL</sub> ), pc/h/ln		2400
Non-Weaving Flow Rate (v <sub>NW</sub> ), pc/h	5163	Density-Based Capacity (c <sub>NWL</sub> ), pc/h/ln		2329
Total Flow Rate (v), pc/h	6194	Demand Flow-Based Capacity (c <sub>w</sub> ), pc/h		21084
Volume Ratio (VR)	0.166	Weaving Segment Capacity (c <sub>w</sub> ), veh/h		11645
Minimum Lane Change Rate (LC <sub>MIN</sub> ), lc/h	572	Adjusted Weaving Area Capacity (c <sub>wa</sub> ), veh/h		11645
Maximum Weaving Length (L <sub>MAX</sub> ), ft	2626	Volume-to-Capacity Ratio (v/c)		0.53

## Speed and Density

Non-Weaving Vehicle Index (I <sub>NW</sub> )	1024	Average Weaving Speed (S <sub>w</sub> ), mi/h	57.8
Non-Weaving Lane Change Rate (LC <sub>NW</sub> ), lc/h	1019	Average Non-Weaving Speed (S <sub>NW</sub> ), mi/h	59.9
Weaving Lane Change Rate (LC <sub>w</sub> ), lc/h	1249	Average Speed (S), mi/h	59.5
Total Lane Change Rate (LC <sub>AI</sub> ), lc/h	2268	Density (D), pc/mi/ln	20.8
Weaving Intensity Factor (W)	0.284	Level of Service (LOS)	C

# HCS7 Freeway Weaving Report

## Project Information

Analyst	Kevin Ciucki	Date	8/3/2017
Agency	Parsons	Analysis Year	Build Phase 1 & 2 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215/C-D road merge and Murrieta Hot Springs Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Short Length (L <sub>s</sub> ), ft	1250	Number of Maneuver Lanes (N <sub>NWL</sub> ), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC <sub>RF</sub> ), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC <sub>FR</sub> ), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC <sub>RR</sub> ), lc	0
Interchange Density (ID), int/mi	1.33	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Volume (V <sub>i</sub> ), veh/h	3180	1240	0	620
Peak Hour Factor (PHF)	0.98	0.98	0.98	0.98
Total Trucks, %	0.00	0.00	0.00	0.00
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3245	1265	0	633
Weaving Flow Rate (v <sub>w</sub> ), pc/h	1898	Freeway Max Capacity (c <sub>FFL</sub> ), pc/h/ln		2400
Non-Weaving Flow Rate (v <sub>NW</sub> ), pc/h	3245	Density-Based Capacity (c <sub>NWL</sub> ), pc/h/ln		2011
Total Flow Rate (v), pc/h	5143	Demand Flow-Based Capacity (c <sub>w</sub> ), pc/h		6504
Volume Ratio (VR)	0.369	Weaving Segment Capacity (c <sub>w</sub> ), veh/h		6504
Minimum Lane Change Rate (LC <sub>MIN</sub> ), lc/h	1265	Adjusted Weaving Area Capacity (c <sub>wa</sub> ), veh/h		6504
Maximum Weaving Length (L <sub>MAX</sub> ), ft	6336	Volume-to-Capacity Ratio (v/c)		0.79

## Speed and Density

Non-Weaving Vehicle Index (I <sub>NW</sub> )	539	Average Weaving Speed (S <sub>w</sub> ), mi/h	55.6
Non-Weaving Lane Change Rate (LC <sub>NW</sub> ), lc/h	576	Average Non-Weaving Speed (S <sub>NW</sub> ), mi/h	54.7
Weaving Lane Change Rate (LC <sub>w</sub> ), lc/h	1643	Average Speed (S), mi/h	55.0
Total Lane Change Rate (LC <sub>AI</sub> ), lc/h	2219	Density (D), pc/mi/ln	23.4
Weaving Intensity Factor (W)	0.355	Level of Service (LOS)	C



# **Appendix I – Build Phase II Conditions Synchro Reports**



























HCM 2010 Signalized Intersection Summary  
 1: Date Street & Ynez Road

PH12, 2022, AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	455	1	4	146	141	1	2	3	545	4	257
Future Volume (veh/h)	224	455	1	4	146	141	1	2	3	545	4	257
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	236	479	1	4	154	148	1	2	3	574	4	271
Adj No. of Lanes	1	2	1	1	2	1	1	3	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	250	1027	455	8	513	225	339	2047	632	585	1321	586
Arrive On Green	0.14	0.28	0.28	0.00	0.14	0.14	0.19	0.39	0.39	0.17	0.37	0.37
Sat Flow, veh/h	1810	3610	1598	1810	3610	1581	1810	5187	1603	3510	3610	1602
Grp Volume(v), veh/h	236	479	1	4	154	148	1	2	3	574	4	271
Grp Sat Flow(s),veh/h/ln	1810	1805	1598	1810	1805	1581	1810	1729	1603	1755	1805	1602
Q Serve(g_s), s	15.5	13.1	0.0	0.3	4.6	7.6	0.1	0.0	0.1	19.5	0.1	15.5
Cycle Q Clear(g_c), s	15.5	13.1	0.0	0.3	4.6	7.6	0.1	0.0	0.1	19.5	0.1	15.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	250	1027	455	8	513	225	339	2047	632	585	1321	586
V/C Ratio(X)	0.94	0.47	0.00	0.53	0.30	0.66	0.00	0.00	0.00	0.98	0.00	0.46
Avail Cap(c_a), veh/h	250	1477	654	68	1113	487	339	2047	632	585	1321	586
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	35.4	11.9	59.6	46.1	25.1	39.7	22.0	22.0	49.8	24.2	29.0
Incr Delay (d2), s/veh	41.4	0.3	0.0	47.7	0.3	3.3	0.0	0.0	0.0	32.3	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	6.6	0.0	0.2	2.3	3.5	0.0	0.0	0.1	12.1	0.0	7.3
LnGrp Delay(d),s/veh	92.6	35.7	11.9	107.4	46.5	28.4	39.7	22.0	22.0	82.1	24.2	31.7
LnGrp LOS	F	D	B	F	D	C	D	C	C	F	C	C
Approach Vol, veh/h		716			306			6			849	
Approach Delay, s/veh		54.5			38.5			25.0			65.7	
Approach LOS		D			D			C			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.0	52.4	4.5	39.1	27.5	48.9	21.6	22.0				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	5.0	* 5	5.0	* 5				
Max Green Setting (Gmax), s	20.0	28.4	4.5	49.1	4.5	* 44	16.6	* 37				
Max Q Clear Time (g_c+I1), s	21.5	2.1	2.3	15.1	2.1	17.5	17.5	9.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	2.3	0.0	0.9	0.0	0.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			56.9									
HCM 2010 LOS			E									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												































HCM 2010 Signalized Intersection Summary  
7: Winchester & Jefferson

PH12, 2022, AM

													
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations													
Traffic Volume (veh/h)	309	494	391	112	263	197	114	351	77	491	946	383	
Future Volume (veh/h)	309	494	391	112	263	197	114	351	77	491	946	383	
Number	7	4	14	3	8	18	5	2	12	1	6	16	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h	325	520	412	118	277	207	120	369	81	517	996	403	
Adj No. of Lanes	2	2	1	2	2	1	2	4	0	2	2	1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0	
Cap, veh/h	630	841	371	175	373	547	178	1780	368	827	1871	832	
Arrive On Green	0.18	0.23	0.23	0.05	0.10	0.10	0.05	0.33	0.33	0.47	1.00	1.00	
Sat Flow, veh/h	3510	3610	1594	3510	3610	1615	3510	5462	1128	3510	3610	1606	
Grp Volume(v), veh/h	325	520	412	118	277	207	120	329	121	517	996	403	
Grp Sat Flow(s),veh/h/ln	1755	1805	1594	1755	1805	1615	1755	1634	1689	1755	1805	1606	
Q Serve(g_s), s	10.0	15.5	23.4	4.0	8.9	0.0	4.0	5.8	6.3	13.2	0.0	0.0	
Cycle Q Clear(g_c), s	10.0	15.5	23.4	4.0	8.9	0.0	4.0	5.8	6.3	13.2	0.0	0.0	
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		1.00	
Lane Grp Cap(c), veh/h	630	841	371	175	373	547	178	1597	550	827	1871	832	
V/C Ratio(X)	0.52	0.62	1.11	0.68	0.74	0.38	0.67	0.21	0.22	0.63	0.53	0.48	
Avail Cap(c_a), veh/h	630	1026	453	263	845	759	380	1597	550	827	1871	832	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.31	0.31	0.31	
Uniform Delay (d), s/veh	44.5	41.2	32.3	56.1	52.3	30.1	56.0	29.2	29.4	27.8	0.0	0.0	
Incr Delay (d2), s/veh	0.7	0.8	76.4	4.5	3.0	0.4	4.4	0.3	0.9	0.5	0.3	0.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	4.9	7.8	18.2	2.0	4.6	5.2	2.1	2.7	3.1	6.4	0.1	0.1	
LnGrp Delay(d),s/veh	45.2	42.0	108.6	60.6	55.2	30.5	60.4	29.5	30.3	28.2	0.3	0.6	
LnGrp LOS	D	D	F	E	E	C	E	C	C	C	A	A	
Approach Vol, veh/h		1257			602			570			1916		
Approach Delay, s/veh		64.7			47.8			36.2			7.9		
Approach LOS		E			D			D			A		
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>					
Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	33.2	44.0	10.0	32.9	10.1	67.1	25.5	17.3					
Change Period (Y+Rc), s	4.9	* 4.9	4.0	4.9	4.0	4.9	4.0	4.9					
Max Green Setting (Gmax), s	20.0	* 39	9.0	34.1	13.0	46.1	15.0	28.1					
Max Q Clear Time (g_c+I1), s	15.2	8.3	6.0	25.4	6.0	2.0	12.0	10.9					
Green Ext Time (p_c), s	0.8	1.5	0.1	2.4	0.2	9.2	0.5	1.4					
<b>Intersection Summary</b>													
HCM 2010 Ctrl Delay			33.6										
HCM 2010 LOS			C										
<b>Notes</b>													
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.													

























HCM 2010 Signalized Intersection Summary  
 1: Date Street & Ynez Road

PH12, 2022, PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  		 	 	
Traffic Volume (veh/h)	192	351	0	2	1020	614	2	1	3	291	4	239
Future Volume (veh/h)	192	351	0	2	1020	614	2	1	3	291	4	239
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	202	369	0	2	1074	646	2	1	3	306	4	252
Adj No. of Lanes	1	2	1	1	2	1	1	3	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	230	1895	848	4	1444	641	4	1286	396	263	1158	513
Arrive On Green	0.13	0.52	0.00	0.00	0.40	0.40	0.00	0.25	0.25	0.08	0.32	0.32
Sat Flow, veh/h	1810	3610	1615	1810	3610	1603	1810	5187	1595	3510	3610	1600
Grp Volume(v), veh/h	202	369	0	2	1074	646	2	1	3	306	4	252
Grp Sat Flow(s),veh/h/ln	1810	1805	1615	1810	1805	1603	1810	1729	1595	1755	1805	1600
Q Serve(g_s), s	13.2	6.5	0.0	0.1	30.5	48.0	0.1	0.0	0.2	9.0	0.1	15.2
Cycle Q Clear(g_c), s	13.2	6.5	0.0	0.1	30.5	48.0	0.1	0.0	0.2	9.0	0.1	15.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	230	1895	848	4	1444	641	4	1286	396	263	1158	513
V/C Ratio(X)	0.88	0.19	0.00	0.51	0.74	1.01	0.51	0.00	0.01	1.16	0.00	0.49
Avail Cap(c_a), veh/h	256	1895	848	95	1444	641	68	1286	396	263	1158	513
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	15.1	0.0	59.8	30.7	36.0	59.8	33.9	34.0	55.5	27.7	32.9
Incr Delay (d2), s/veh	25.8	0.0	0.0	78.0	2.1	37.4	78.0	0.0	0.0	106.6	0.0	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	3.2	0.0	0.2	15.6	27.9	0.2	0.0	0.1	8.2	0.0	7.2
LnGrp Delay(d),s/veh	77.2	15.1	0.0	137.8	32.9	73.4	137.8	33.9	34.0	162.1	27.7	36.2
LnGrp LOS	E	B		F	C	F	F	C	C	F	C	D
Approach Vol, veh/h		571			1722			6				562
Approach Delay, s/veh		37.1			48.2			68.6				104.7
Approach LOS		D			D			E				F
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	34.8	4.3	68.0	4.3	43.5	19.2	53.0				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	9.0	28.0	6.3	58.7	4.5	32.5	17.0	48.0				
Max Q Clear Time (g_c+I1), s	11.0	2.2	2.1	8.5	2.1	17.2	15.2	50.0				
Green Ext Time (p_c), s	0.0	0.8	0.0	10.7	0.0	0.7	0.1	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				57.1								
HCM 2010 LOS				E								

HCM 2010 Signalized Intersection Summary  
7: Winchester & Jefferson

PH12, 2022, PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	553	644	134	34	757	410	504	1086	50	424	512	527
Future Volume (veh/h)	553	644	134	34	757	410	504	1086	50	424	512	527
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	582	678	141	36	797	432	531	1143	53	446	539	555
Adj No. of Lanes	2	2	1	2	2	1	2	4	0	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	649	1335	593	82	725	544	565	2080	96	477	1074	476
Arrive On Green	0.18	0.37	0.37	0.02	0.20	0.20	0.16	0.32	0.32	0.23	0.50	0.50
Sat Flow, veh/h	3510	3610	1602	3510	3610	1615	3510	6448	298	3510	3610	1599
Grp Volume(v), veh/h	582	678	141	36	797	432	531	868	328	446	539	555
Grp Sat Flow(s),veh/h/ln	1755	1805	1602	1755	1805	1615	1755	1634	1844	1755	1805	1599
Q Serve(g_s), s	19.4	17.5	4.6	1.2	24.1	12.7	17.9	17.5	17.6	15.0	12.0	35.7
Cycle Q Clear(g_c), s	19.4	17.5	4.6	1.2	24.1	12.7	17.9	17.5	17.6	15.0	12.0	35.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	649	1335	593	82	725	544	565	1581	595	477	1074	476
V/C Ratio(X)	0.90	0.51	0.24	0.44	1.10	0.79	0.94	0.55	0.55	0.93	0.50	1.17
Avail Cap(c_a), veh/h	702	1335	593	123	725	544	565	1581	595	477	1074	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78
Uniform Delay (d), s/veh	47.8	29.3	10.3	57.8	48.0	36.0	49.8	33.5	33.5	45.8	24.2	30.2
Incr Delay (d2), s/veh	13.6	0.3	0.2	3.7	63.9	8.0	23.9	1.4	3.7	21.6	1.3	91.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	8.7	2.0	0.6	18.4	6.8	10.6	8.1	9.5	8.7	6.1	27.6
LnGrp Delay(d),s/veh	61.4	29.6	10.5	61.5	111.9	44.0	73.6	34.8	37.2	67.4	25.5	122.1
LnGrp LOS	E	C	B	E	F	D	E	C	D	E	C	F
Approach Vol, veh/h		1401			1265			1727			1540	
Approach Delay, s/veh		40.9			87.2			47.2			72.5	
Approach LOS		D			F			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.3	43.6	6.8	49.3	23.3	40.6	27.1	29.0				
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.9	* 4.9				
Max Green Setting (Gmax), s	15.4	38.7	4.2	43.9	18.4	35.7	24.0	* 24				
Max Q Clear Time (g_c+I1), s	17.0	19.6	3.2	19.5	19.9	37.7	21.4	26.1				
Green Ext Time (p_c), s	0.0	4.2	0.0	5.3	0.0	0.0	0.7	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			60.8									
HCM 2010 LOS			E									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												
























HCM 2010 Signalized Intersection Summary  
1: Date Street & Ynez Road

PH12, 2045, AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	247	732	1	5	175	128	1	2	4	580	3	247
Future Volume (veh/h)	247	732	1	5	175	128	1	2	4	580	3	247
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	260	771	1	5	184	135	1	2	4	611	3	260
Adj No. of Lanes	1	2	1	1	2	1	1	3	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	250	1010	447	9	499	219	345	2066	639	585	1321	586
Arrive On Green	0.14	0.28	0.28	0.01	0.14	0.14	0.19	0.40	0.40	0.17	0.37	0.37
Sat Flow, veh/h	1810	3610	1598	1810	3610	1580	1810	5187	1603	3510	3610	1602
Grp Volume(v), veh/h	260	771	1	5	184	135	1	2	4	611	3	260
Grp Sat Flow(s),veh/h/ln	1810	1805	1598	1810	1805	1580	1810	1729	1603	1755	1805	1602
Q Serve(g_s), s	16.6	23.5	0.0	0.3	5.6	7.0	0.1	0.0	0.2	20.0	0.1	14.7
Cycle Q Clear(g_c), s	16.6	23.5	0.0	0.3	5.6	7.0	0.1	0.0	0.2	20.0	0.1	14.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	250	1010	447	9	499	219	345	2066	639	585	1321	586
V/C Ratio(X)	1.04	0.76	0.00	0.54	0.37	0.62	0.00	0.00	0.01	1.04	0.00	0.44
Avail Cap(c_a), veh/h	250	1477	654	68	1113	487	345	2066	639	585	1321	586
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	39.6	11.9	59.6	46.9	25.2	39.3	21.7	21.8	50.0	24.2	28.8
Incr Delay (d2), s/veh	67.3	1.4	0.0	41.1	0.5	2.8	0.0	0.0	0.0	49.3	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.0	11.9	0.0	0.3	2.8	3.2	0.0	0.0	0.1	13.7	0.0	6.9
LnGrp Delay(d),s/veh	119.0	41.0	11.9	100.7	47.4	28.1	39.3	21.7	21.8	99.3	24.2	31.2
LnGrp LOS	F	D	B	F	D	C	D	C	C	F	C	C
Approach Vol, veh/h		1032			324			7			874	
Approach Delay, s/veh		60.6			40.2			24.3			78.8	
Approach LOS		E			D			C			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.0	52.8	4.6	38.6	27.9	48.9	21.6	21.6				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	5.0	* 5	5.0	* 5				
Max Green Setting (Gmax), s	20.0	28.4	4.5	49.1	4.5	* 44	16.6	* 37				
Max Q Clear Time (g_c+I1), s	22.0	2.2	2.3	25.5	2.1	16.7	18.6	9.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	3.6	0.0	0.8	0.0	1.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			64.6									
HCM 2010 LOS			E									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

























HCM 2010 Signalized Intersection Summary  
7: Winchester & Jefferson

PH12, 2045, AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	527	581	437	90	205	337	108	600	79	510	983	398
Future Volume (veh/h)	527	581	437	90	205	337	108	600	79	510	983	398
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	555	612	460	95	216	355	114	632	83	537	1035	419
Adj No. of Lanes	2	2	1	2	2	1	2	4	0	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	774	966	427	148	323	493	495	1924	246	758	1447	643
Arrive On Green	0.22	0.27	0.27	0.04	0.09	0.09	0.14	0.33	0.33	0.43	0.80	0.80
Sat Flow, veh/h	3510	3610	1597	3510	3610	1615	3510	5904	756	3510	3610	1603
Grp Volume(v), veh/h	555	612	460	95	216	355	114	522	193	537	1035	419
Grp Sat Flow(s),veh/h/ln	1755	1805	1597	1755	1805	1615	1755	1634	1758	1755	1805	1603
Q Serve(g_s), s	17.6	17.9	32.1	3.2	7.0	0.0	3.5	9.6	10.0	15.0	16.0	13.0
Cycle Q Clear(g_c), s	17.6	17.9	32.1	3.2	7.0	0.0	3.5	9.6	10.0	15.0	16.0	13.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	774	966	427	148	323	493	495	1597	573	758	1447	643
V/C Ratio(X)	0.72	0.63	1.08	0.64	0.67	0.72	0.23	0.33	0.34	0.71	0.72	0.65
Avail Cap(c_a), veh/h	774	966	427	263	785	700	495	1597	573	758	1447	643
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	43.3	38.8	43.9	56.6	52.9	37.1	45.8	30.5	30.6	31.0	8.7	8.4
Incr Delay (d2), s/veh	3.2	1.4	65.7	4.5	2.4	2.1	0.2	0.5	1.6	0.3	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	9.1	21.9	1.7	3.6	10.7	1.7	4.4	5.1	7.2	7.5	5.4
LnGrp Delay(d),s/veh	46.5	40.1	109.6	61.1	55.3	39.2	46.0	31.1	32.2	31.3	9.0	8.9
LnGrp LOS	D	D	F	E	E	D	D	C	C	C	A	A
Approach Vol, veh/h		1627			666			829			1991	
Approach Delay, s/veh		62.0			47.6			33.4			15.0	
Approach LOS		E			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.9	44.0	9.1	37.0	20.9	53.0	30.4	15.6				
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9				
Max Green Setting (Gmax), s	22.0	39.1	9.0	32.1	13.0	48.1	15.0	26.1				
Max Q Clear Time (g_c+I1), s	17.0	12.0	5.2	34.1	5.5	18.0	19.6	9.0				
Green Ext Time (p_c), s	1.2	2.5	0.1	0.0	1.5	6.1	0.0	1.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			37.2									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary  
 1: Date Street & Ynez Road
























PH12, 2045, PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	424	0	3	1491	647	2	1	3	287	4	254
Future Volume (veh/h)	180	424	0	3	1491	647	2	1	3	287	4	254
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	189	446	0	3	1569	681	2	1	3	302	4	267
Adj No. of Lanes	1	2	1	1	2	1	1	3	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	218	1912	855	6	1459	648	4	1256	386	263	1137	504
Arrive On Green	0.12	0.53	0.00	0.00	0.40	0.40	0.00	0.24	0.24	0.08	0.31	0.31
Sat Flow, veh/h	1810	3610	1615	1810	3610	1603	1810	5187	1595	3510	3610	1600
Grp Volume(v), veh/h	189	446	0	3	1569	681	2	1	3	302	4	267
Grp Sat Flow(s),veh/h/ln	1810	1805	1615	1810	1805	1603	1810	1729	1595	1755	1805	1600
Q Serve(g_s), s	12.3	8.0	0.0	0.2	48.5	36.3	0.1	0.0	0.2	9.0	0.1	11.6
Cycle Q Clear(g_c), s	12.3	8.0	0.0	0.2	48.5	36.3	0.1	0.0	0.2	9.0	0.1	11.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	218	1912	855	6	1459	648	4	1256	386	263	1137	504
V/C Ratio(X)	0.87	0.23	0.00	0.52	1.08	1.05	0.51	0.00	0.01	1.15	0.00	0.53
Avail Cap(c_a), veh/h	249	1912	855	95	1459	648	68	1256	386	263	1137	504
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	15.1	0.0	59.7	35.8	20.0	59.8	34.5	34.5	55.5	28.2	16.7
Incr Delay (d2), s/veh	24.0	0.1	0.0	58.3	46.7	49.5	78.0	0.0	0.0	101.1	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	4.0	0.0	0.2	33.6	24.8	0.2	0.0	0.1	8.0	0.0	5.7
LnGrp Delay(d),s/veh	75.9	15.2	0.0	118.1	82.4	69.5	137.8	34.5	34.6	156.6	28.2	20.6
LnGrp LOS	E	B		F	F	F	F	C	C	F	C	C
Approach Vol, veh/h		635			2253			6			573	
Approach Delay, s/veh		33.3			78.6			69.0			92.3	
Approach LOS		C			E			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	34.1	4.4	68.6	4.3	42.8	19.4	53.5				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	5.0	* 5				
Max Green Setting (Gmax), s	9.0	28.0	6.3	58.7	4.5	32.5	16.5	* 49				
Max Q Clear Time (g_c+I1), s	11.0	2.2	2.2	10.0	2.1	13.6	14.3	50.5				
Green Ext Time (p_c), s	0.0	0.9	0.0	2.1	0.0	0.8	0.2	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				72.5								
HCM 2010 LOS				E								
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

































HCM 2010 Signalized Intersection Summary  
7: Winchester & Jefferson

PH12, 2045, PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	836	779	159	36	1037	619	550	1640	43	531	641	659
Future Volume (veh/h)	836	779	159	36	1037	619	550	1640	43	531	641	659
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	880	820	167	38	1092	652	579	1726	45	559	675	694
Adj No. of Lanes	2	2	1	2	2	1	2	4	0	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	644	1418	629	84	815	966	1337	2095	55	1308	1116	494
Arrive On Green	0.18	0.39	0.39	0.02	0.23	0.23	0.38	0.32	0.32	0.12	0.10	0.10
Sat Flow, veh/h	3510	3610	1603	3510	3610	1615	3510	6598	172	3510	3610	1599
Grp Volume(v), veh/h	880	820	167	38	1092	652	579	1282	489	559	675	694
Grp Sat Flow(s),veh/h/ln	1755	1805	1603	1755	1805	1615	1755	1634	1868	1755	1805	1599
Q Serve(g_s), s	22.0	21.4	5.7	1.3	27.1	0.0	14.7	29.0	29.0	17.7	21.5	37.1
Cycle Q Clear(g_c), s	22.0	21.4	5.7	1.3	27.1	0.0	14.7	29.0	29.0	17.7	21.5	37.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	644	1418	629	84	815	966	1337	1556	593	1308	1116	494
V/C Ratio(X)	1.37	0.58	0.27	0.45	1.34	0.67	0.43	0.82	0.82	0.43	0.60	1.40
Avail Cap(c_a), veh/h	644	1418	629	176	815	966	1337	1556	593	1308	1116	494
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.80	0.80
Uniform Delay (d), s/veh	49.0	28.6	11.1	57.8	46.5	16.2	27.5	37.8	37.9	40.8	46.9	53.9
Incr Delay (d2), s/veh	175.1	0.6	0.2	3.8	161.0	1.9	0.2	5.1	12.3	0.2	1.9	191.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.3	10.8	2.5	0.7	31.7	14.8	7.1	13.8	17.0	8.6	11.1	42.7
LnGrp Delay(d),s/veh	224.1	29.2	11.3	61.5	207.5	18.1	27.8	42.9	50.2	41.0	48.8	245.1
LnGrp LOS	F	C	B	E	F	B	C	D	D	D	D	F
Approach Vol, veh/h		1867			1782			2350				1928
Approach Delay, s/veh		119.5			135.1			40.7				117.2
Approach LOS		F			F			D				F
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	49.6	43.0	6.9	52.0	50.6	42.0	26.9	32.0				
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.9	* 4.9				
Max Green Setting (Gmax), s	15.0	38.1	6.0	43.1	16.0	37.1	22.0	* 27				
Max Q Clear Time (g_c+I1), s	19.7	31.0	3.3	23.4	16.7	39.1	24.0	29.1				
Green Ext Time (p_c), s	0.0	3.9	0.0	7.3	0.0	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			99.1									
HCM 2010 LOS			F									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

PH12, 2022, AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  		 	 	
Traffic Volume (vph)	224	455	1	4	146	141	1	2	3	545	4	257
Future Volume (vph)	224	455	1	4	146	141	1	2	3	545	4	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		250	300		150
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	3610	1615	1805	3610	1615	1805	5187	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	3610	1578	1805	3610	1578	1805	5187	1575	3502	3610	1575
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			148			136			271
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		324			432			734			623	
Travel Time (s)		4.9			6.5			11.1			9.4	
Confl. Peds. (#/hr)			10			10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	236	479	1	4	154	148	1	2	3	574	4	271
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	38.0	38.0	8.5	42.0	42.0	8.5	33.0	33.0	8.5	33.0	33.0
Total Split (s)	20.6	54.1	54.1	8.5	42.0	42.0	8.5	33.4	33.4	24.0	48.9	48.9
Total Split (%)	17.2%	45.1%	45.1%	7.1%	35.0%	35.0%	7.1%	27.8%	27.8%	20.0%	40.8%	40.8%
Maximum Green (s)	16.6	49.1	49.1	4.5	37.0	37.0	4.5	28.4	28.4	20.0	43.9	43.9
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		28.0	28.0		28.0	28.0		23.0	23.0		23.0	23.0
Pedestrian Calls (#/hr)		10	10		10	10		10	10		10	10
Act Effct Green (s)	20.7	41.7	41.7	4.5	18.7	18.7	4.5	39.3	39.3	23.2	64.9	64.9
Actuated g/C Ratio	0.17	0.35	0.35	0.04	0.16	0.16	0.04	0.33	0.33	0.19	0.54	0.54
v/c Ratio	0.76	0.38	0.00	0.06	0.27	0.40	0.01	0.00	0.00	0.85	0.00	0.28
Control Delay	63.6	29.4	0.0	57.8	43.2	8.6	56.0	34.0	0.0	59.8	20.8	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.6	29.4	0.0	57.8	43.2	8.6	56.0	34.0	0.0	59.8	20.8	3.7
LOS	E	C	A	E	D	A	E	C	A	E	C	A
Approach Delay		40.6			26.6			20.7			41.7	
Approach LOS		D			C			C			D	

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

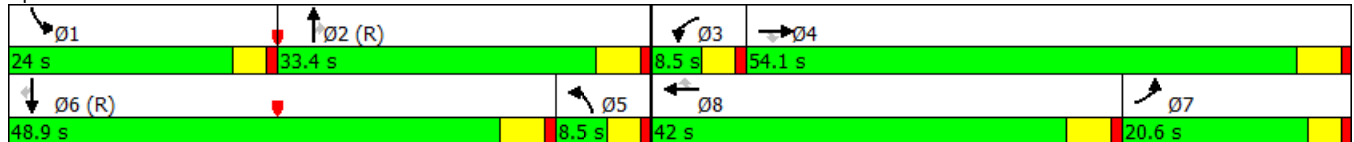
PH12, 2022, AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	171	153	0	3	61	0	1	0	0	213	0	0
Queue Length 95th (ft)	#294	173	0	15	75	50	7	2	0	#348	5	55
Internal Link Dist (ft)		244			352			654			543	
Turn Bay Length (ft)	250		100	250			250		250	300		150
Base Capacity (vph)	311	1528	746	67	1113	588	67	1700	607	678	1951	976
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.31	0.00	0.06	0.14	0.25	0.01	0.00	0.00	0.85	0.00	0.28

Intersection Summary













Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 38.8 Intersection LOS: D  
 Intersection Capacity Utilization 67.4% ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Date Street & Ynez Road



Lanes, Volumes, Timings  
3: Cherry St/French Valley Pkwy & Jefferson

PH12, 2022, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↓		↖	↑↑		↗		↗		↖	↗
Traffic Volume (vph)	0	700	53	145	464	0	23	0	141	506	297	582
Future Volume (vph)	0	700	53	145	464	0	23	0	141	506	297	582
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	250		0	0		75	350		0
Storage Lanes	0		0	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3560	0	1805	3610	0	1805	0	1615	0	1841	1615
Flt Permitted				0.950			0.950				0.969	
Satd. Flow (perm)	0	3560	0	1805	3610	0	1805	0	1615	0	1841	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6							148			306
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		853			1560			615			394	
Travel Time (s)		11.6			21.3			9.3			6.0	
Confl. Peds. (#/hr)			10			10			10			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	793	0	153	488	0	24	0	148	0	846	613
Turn Type		NA		Prot	NA		Prot		Prot	Perm	NA	Perm
Protected Phases		2		1	6		8		8		4	
Permitted Phases										4		4
Detector Phase		2		1	6		8		8	4	4	4
Switch Phase												
Minimum Initial (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		10.2		8.1	23.2		8.6		8.6	34.8	34.8	34.8
Total Split (s)		35.0		11.2	46.2		15.8		15.8	58.0	58.0	58.0
Total Split (%)		29.2%		9.3%	38.5%		13.2%		13.2%	48.3%	48.3%	48.3%
Maximum Green (s)		28.8		7.1	40.0		11.2		11.2	52.2	52.2	52.2
Yellow Time (s)		5.2		3.6	5.2		3.6		3.6	4.8	4.8	4.8
All-Red Time (s)		1.0		0.5	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.2		4.1	6.2		4.6		4.6	5.8	5.8	5.8
Lead/Lag		Lead		Lag			Lag		Lag	Lead	Lead	Lead
Lead-Lag Optimize?		Yes		Yes			Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max		None		None	None	None	None
Walk Time (s)					7.0					7.0	7.0	7.0
Flash Dont Walk (s)					10.0					22.0	22.0	22.0
Pedestrian Calls (#/hr)					10					10	10	10
Act Effct Green (s)		32.4		7.1	43.6		7.6		7.6	52.2	52.2	52.2
Actuated g/C Ratio		0.27		0.06	0.36		0.06		0.06	0.44	0.44	0.44
v/c Ratio		0.82		1.44	0.37		0.21		0.62	1.06	0.70	0.70
Control Delay		49.3		284.5	29.5		56.6		19.8	81.8	17.9	17.9
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay		49.3		284.5	29.5		56.6		19.8	81.8	17.9	17.9
LOS		D		F	C		E		B	F	B	B
Approach Delay		49.3			90.4			24.9			55.0	
Approach LOS		D			F			C			D	

Lanes, Volumes, Timings  
 3: Cherry St/French Valley Pkwy & Jefferson

PH12, 2022, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)		299		~161	144		18		0		~718	192
Queue Length 95th (ft)		#434		#298	202		45		63		#962	335
Internal Link Dist (ft)		773			1480			535			314	
Turn Bay Length (ft)				250					75			
Base Capacity (vph)		965		106	1311		168		284		800	875
Starvation Cap Reductn		0		0	0		0		0		0	0
Spillback Cap Reductn		0		0	0		0		0		0	0
Storage Cap Reductn		0		0	0		0		0		0	0
Reduced v/c Ratio		0.82		1.44	0.37		0.14		0.52		1.06	0.70

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.44  
 Intersection Signal Delay: 59.2 Intersection LOS: E  
 Intersection Capacity Utilization 92.9% ICU Level of Service F  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Cherry St/French Valley Pkwy & Jefferson

Ø2 (R)	Ø1	Ø4	Ø8
35 s	11.2 s	58 s	15.8 s
Ø6 (R)			
46.2 s			

Lanes, Volumes, Timings  
4: Winchester & Ynez

PH12, 2022, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	117	414	427	328	194	110	355	1340	768	318	1546	69
Future Volume (vph)	117	414	427	328	194	110	355	1340	768	318	1546	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		500	400		350	250		200	250		0
Storage Lanes	2		1	3		1	2		1	2		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3309	1470	5090	3610	1615	3502	6536	1615	3502	6490	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3309	1470	5090	3610	1582	3502	6536	1581	3502	6490	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						57			94		8	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		800			1093			797			1309	
Travel Time (s)		12.1			16.6			13.6			22.3	
Confl. Peds. (#/hr)						10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)			39%									
Lane Group Flow (vph)	123	611	274	345	204	116	374	1411	808	335	1700	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.2	20.0	20.0	8.2	46.3	8.2	8.2	45.3	8.2	8.2	37.9	
Total Split (s)	9.0	34.0	34.0	22.0	47.0	18.0	18.0	46.0	22.0	18.0	46.0	
Total Split (%)	7.5%	28.3%	28.3%	18.3%	39.2%	15.0%	15.0%	38.3%	18.3%	15.0%	38.3%	
Maximum Green (s)	5.0	28.7	28.7	18.0	41.7	14.0	14.0	40.7	18.0	14.0	40.7	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	3.0	3.0	4.3	3.0	3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.3	5.3	4.0	5.3	4.0	4.0	5.3	4.0	4.0	5.3	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Walk Time (s)					5.0			5.0			5.0	
Flash Dont Walk (s)					36.0			35.0			27.0	
Pedestrian Calls (#/hr)					10			10			10	
Act Effct Green (s)	5.0	26.5	26.5	20.2	41.7	57.0	14.0	40.7	62.2	14.0	40.7	
Actuated g/C Ratio	0.04	0.22	0.22	0.17	0.35	0.48	0.12	0.34	0.52	0.12	0.34	
v/c Ratio	0.85	0.84	0.84	0.40	0.16	0.15	0.92	0.64	0.93	0.82	0.77	
Control Delay	100.1	55.4	67.6	46.9	27.5	6.8	75.9	21.8	26.0	68.9	38.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	100.1	55.4	67.6	46.9	27.5	6.8	75.9	21.8	26.0	68.9	38.2	
LOS	F	E	E	D	C	A	E	C	C	E	D	
Approach Delay		64.2			33.9			30.9			43.2	
Approach LOS		E			C			C			D	

Lanes, Volumes, Timings  
4: Winchester & Ynez

PH12, 2022, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	50	243	219	87	57	19	159	227	140	132	339	
Queue Length 95th (ft)	#106	316	#363	119	86	45	#248	230	#816	#204	385	
Internal Link Dist (ft)		720			1013			717			1229	
Turn Bay Length (ft)	200		500	400		350	250		200	250		
Base Capacity (vph)	145	791	351	855	1254	785	408	2216	869	408	2206	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.77	0.78	0.40	0.16	0.15	0.92	0.64	0.93	0.82	0.77	

Intersection Summary




















Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 7 (6%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 40.5 Intersection LOS: D  
 Intersection Capacity Utilization 84.7% ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: Winchester & Ynez

Ø2 (R)	Ø1	Ø4	Ø3
46 s	18 s	34 s	22 s
Ø6 (R)	Ø5	Ø7	Ø8
46 s	18 s	9 s	47 s

Lanes, Volumes, Timings  
5: Winchester & I-15 NB off/I-15 NB on

PH12, 2022, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	423	1	607	0	1856	130	0	1720	609
Future Volume (vph)	0	0	0	423	1	607	0	1856	130	0	1720	609
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		450	0		0
Storage Lanes	0		0	1		1	0		1	0		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	1715	1506	1534	0	4896	1389	0	5187	2842
Flt Permitted				0.950	0.991							
Satd. Flow (perm)	0	0	0	1715	1506	1534	0	4896	1368	0	5187	2760
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					7	22		1	94			641
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		579			216			765			797	
Travel Time (s)		13.2			4.9			13.0			13.6	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)				15%		45%			10%			
Lane Group Flow (vph)	0	0	0	378	356	351	0	1968	123	0	1811	641
Turn Type				Perm	NA	Perm		NA	Free		NA	Perm
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			6
Detector Phase				8	8	8		2			6	6
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0		4.0			4.0	4.0
Minimum Split (s)				20.0	20.0	20.0		32.4			20.0	20.0
Total Split (s)				49.0	49.0	49.0		71.0			71.0	71.0
Total Split (%)				40.8%	40.8%	40.8%		59.2%			59.2%	59.2%
Maximum Green (s)				43.2	43.2	43.2		65.6			65.6	65.6
Yellow Time (s)				4.8	4.8	4.8		4.4			4.4	4.4
All-Red Time (s)				1.0	1.0	1.0		1.0			1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)				5.8	5.8	5.8		5.4			5.4	5.4
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Recall Mode				None	None	None		C-Max			C-Max	C-Max
Walk Time (s)								7.0				
Flash Dont Walk (s)								20.0				
Pedestrian Calls (#/hr)								10				
Act Effct Green (s)				34.2	34.2	34.2		74.6	120.0		74.6	74.6
Actuated g/C Ratio				0.28	0.28	0.28		0.62	1.00		0.62	0.62
v/c Ratio				0.77	0.82	0.77		0.65	0.09		0.56	0.33
Control Delay				49.7	54.2	48.1		10.3	0.1		5.0	0.4
Queue Delay				0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay				49.7	54.2	48.1		10.3	0.1		5.0	0.4
LOS				D	D	D		B	A		A	A
Approach Delay					50.6			9.7			3.8	
Approach LOS					D			A			A	



Lanes, Volumes, Timings  
 5: Winchester & I-15 NB off/I-15 NB on

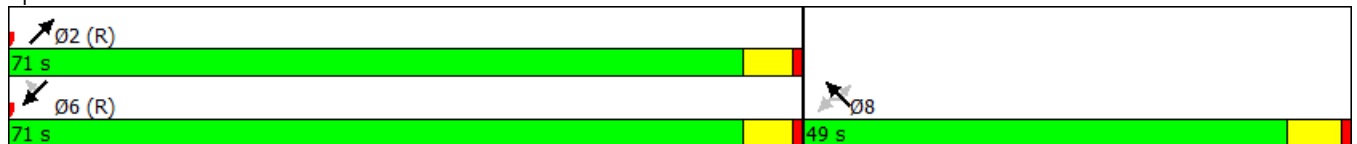
PH12, 2022, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)				280	274	245		398	0		104	0
Queue Length 95th (ft)				363	367	330		m529	m0		165	0
Internal Link Dist (ft)		499				136		685			717	
Turn Bay Length (ft)									450			
Base Capacity (vph)				617	546	566		3043	1368		3223	1958
Starvation Cap Reductn				0	0	0		0	0		0	0
Spillback Cap Reductn				0	0	0		25	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.61	0.65	0.62		0.65	0.09		0.56	0.33

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 107 (89%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 15.0 Intersection LOS: B  
 Intersection Capacity Utilization 71.2% ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Winchester & I-15 NB off/I-15 NB on



Lanes, Volumes, Timings  
6: Winchester & I-15 SB on/I-15 SB off

PH12, 2022, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	1389	3	430	0	0	0	0	597	260	0	1390	753
Future Volume (vph)	1389	3	430	0	0	0	0	597	260	0	1390	753
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	3502	1538	1534	0	0	0	0	5187	1615	0	4859	0
Flt Permitted	0.950											
Satd. Flow (perm)	3502	1538	1534	0	0	0	0	5187	1537	0	4859	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14	22						274		152	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		189			419			450			765	
Travel Time (s)		4.3			9.5			7.7			13.0	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	1462	230	226	0	0	0	0	628	274	0	2256	0
Turn Type	Perm	NA	Perm					NA	Perm		NA	
Protected Phases		4						2			6	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0		4.0	
Minimum Split (s)	20.0	20.0	20.0					26.4	26.4		20.0	
Total Split (s)	59.0	59.0	59.0					61.0	61.0		61.0	
Total Split (%)	49.2%	49.2%	49.2%					50.8%	50.8%		50.8%	
Maximum Green (s)	53.2	53.2	53.2					55.6	55.6		55.6	
Yellow Time (s)	4.8	4.8	4.8					4.4	4.4		4.4	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)	5.8	5.8	5.8					5.4	5.4		5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Max	C-Max		C-Max	
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								14.0	14.0			
Pedestrian Calls (#/hr)								10	10			
Act Effect Green (s)	52.8	52.8	52.8					56.0	56.0		56.0	
Actuated g/C Ratio	0.44	0.44	0.44					0.47	0.47		0.47	
v/c Ratio	0.95	0.34	0.33					0.26	0.32		0.96	
Control Delay	46.4	22.2	21.2					16.4	8.1		33.7	
Queue Delay	0.0	0.0	0.0					0.0	0.3		1.1	
Total Delay	46.4	22.2	21.2					16.4	8.4		34.7	
LOS	D	C	C					B	A		C	
Approach Delay		40.5						14.0			34.7	
Approach LOS		D						B			C	
Queue Length 50th (ft)	546	112	105					145	100		308	
Queue Length 95th (ft)	#706	177	169					116	87		#449	
Internal Link Dist (ft)		109			339			370			685	

Lanes, Volumes, Timings  
 6: Winchester & I-15 SB on/I-15 SB off

PH12, 2022, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Turn Bay Length (ft)												
Base Capacity (vph)	1552	689	692					2421	863		2349	
Starvation Cap Reductn	0	0	0					0	225		0	
Spillback Cap Reductn	0	0	0					0	0		27	
Storage Cap Reductn	0	0	0					0	0		0	
Reduced v/c Ratio	0.94	0.33	0.33					0.26	0.43		0.97	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 9 (8%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.96  
 Intersection Signal Delay: 33.2  
 Intersection Capacity Utilization 93.0%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Winchester & I-15 SB on/I-15 SB off

Ø2 (R) 61 s	Ø4 59 s
Ø6 (R) 61 s	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

PH12, 2022, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	309	494	391	112	263	197	114	351	77	491	946	383
Future Volume (vph)	309	494	391	112	263	197	114	351	77	491	946	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	200		300	400		0	0		300
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3610	1615	3502	3610	1615	3502	6335	0	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3610	1576	3502	3610	1615	3502	6335	0	3502	3610	1578
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			264			185		49				403
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1063			948			629			450	
Travel Time (s)		16.1			14.4			10.7			7.7	
Confl. Peds. (#/hr)			10						10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	325	520	412	118	277	207	120	450	0	517	996	403
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.2	38.9	38.9	8.2	20.0	8.2	8.2	41.3		8.2	36.9	36.9
Total Split (s)	19.0	39.0	39.0	13.0	33.0	24.0	17.0	44.0		24.0	51.0	51.0
Total Split (%)	15.8%	32.5%	32.5%	10.8%	27.5%	20.0%	14.2%	36.7%		20.0%	42.5%	42.5%
Maximum Green (s)	15.0	34.1	34.1	9.0	28.1	20.0	13.0	39.1		20.0	46.1	46.1
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.0	3.0	3.9		3.0	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.0	4.0	4.9		4.0	4.9	4.9
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)		22.0	22.0					29.0			25.0	25.0
Pedestrian Calls (#/hr)		10	10					10			10	10
Act Effct Green (s)	18.8	24.3	24.3	9.0	14.5	39.4	9.5	48.9		20.0	59.4	59.4
Actuated g/C Ratio	0.16	0.20	0.20	0.08	0.12	0.33	0.08	0.41		0.17	0.50	0.50
v/c Ratio	0.59	0.71	0.78	0.45	0.64	0.32	0.43	0.17		0.89	0.56	0.41
Control Delay	51.1	49.7	26.0	58.4	56.7	6.7	57.3	21.4		47.5	14.1	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.8	0.3
Total Delay	51.1	49.7	26.0	58.4	56.7	6.7	57.3	21.4		47.5	14.9	1.8
LOS	D	D	C	E	E	A	E	C		D	B	A
Approach Delay		42.3			39.8			29.0			20.9	
Approach LOS		D			D			C			C	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

PH12, 2022, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	122	201	111	45	108	12	46	56		192	114	10
Queue Length 95th (ft)	159	235	215	76	150	62	76	87		m213	m258	m9
Internal Link Dist (ft)		983			868			549			370	
Turn Bay Length (ft)	300		200	200		300	400					300
Base Capacity (vph)	557	1025	636	278	845	654	379	2608		583	1786	984
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	446	197
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.58	0.51	0.65	0.42	0.33	0.32	0.32	0.17		0.89	0.74	0.51

Intersection Summary































Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 24 (20%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 30.8 Intersection LOS: C  
 Intersection Capacity Utilization 78.8% ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Winchester & Jefferson

Ø2 (R)	Ø1	Ø4	Ø3
44 s	24 s	39 s	13 s
Ø5	Ø6 (R)	Ø8	Ø7
17 s	51 s	33 s	19 s

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

PH12, 2022, PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  		 	 	
Traffic Volume (vph)	192	351	0	2	1020	614	2	1	3	291	4	239
Future Volume (vph)	192	351	0	2	1020	614	2	1	3	291	4	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		250	300		150
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	3610	1900	1805	3610	1615	1805	5187	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	3610	1900	1805	3610	1578	1805	5187	1575	3502	3610	1575
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						629			428			252
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		744			432			734			623	
Travel Time (s)		11.3			6.5			11.1			9.4	
Confl. Peds. (#/hr)			10			10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	202	369	0	2	1074	646	2	1	3	306	4	252
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	38.0	38.0	8.5	42.0	42.0	8.5	33.0	33.0	8.5	33.0	33.0
Total Split (s)	21.0	63.7	63.7	10.3	53.0	53.0	8.5	33.0	33.0	13.0	37.5	37.5
Total Split (%)	17.5%	53.1%	53.1%	8.6%	44.2%	44.2%	7.1%	27.5%	27.5%	10.8%	31.3%	31.3%
Maximum Green (s)	17.0	58.7	58.7	6.3	48.0	48.0	4.5	28.0	28.0	9.0	32.5	32.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		28.0	28.0		28.0	28.0		23.0	23.0		23.0	23.0
Pedestrian Calls (#/hr)		10	10		10	10		10	10		10	10
Act Effct Green (s)	16.1	61.6		5.7	43.5	43.5	5.2	28.6	28.6	13.8	44.7	44.7
Actuated g/C Ratio	0.13	0.51		0.05	0.36	0.36	0.04	0.24	0.24	0.12	0.37	0.37
v/c Ratio	0.83	0.20		0.02	0.82	0.66	0.03	0.00	0.00	0.76	0.00	0.34
Control Delay	78.4	16.0		55.0	40.3	6.0	56.0	35.0	0.0	65.7	29.0	5.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.4	16.0		55.0	40.3	6.0	56.0	35.0	0.0	65.7	29.0	5.3
LOS	E	B		D	D	A	E	C	A	E	C	A
Approach Delay		38.0			27.5			24.5			38.3	
Approach LOS		D			C			C			D	

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

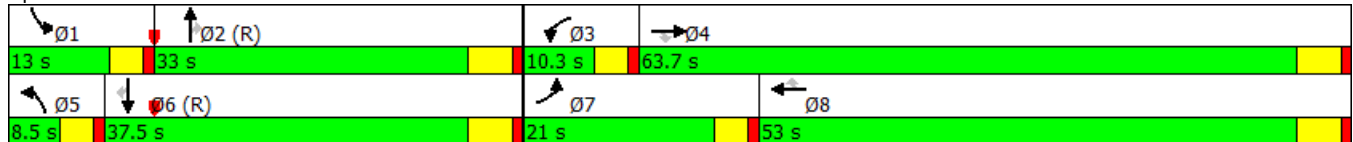
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	153	73		2	388	8	2	0	0	121	1	0
Queue Length 95th (ft)	#273	113		11	451	94	11	1	0	#238	5	63
Internal Link Dist (ft)		664			352			654			543	
Turn Bay Length (ft)	250			250			250		250	300		150
Base Capacity (vph)	255	1885		94	1444	1008	78	1236	701	402	1344	744
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.20		0.02	0.74	0.64	0.03	0.00	0.00	0.76	0.00	0.34

Intersection Summary













Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 31.7 Intersection LOS: C  
 Intersection Capacity Utilization 84.7% ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Date Street & Ynez Road



Lanes, Volumes, Timings  
3: Cherry St/French Valley Pkwy & Jefferson

PH12, 2022, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑		↖	↑↑		↖		↖		↖	↖
Traffic Volume (vph)	0	959	40	364	1630	0	40	0	170	200	193	363
Future Volume (vph)	0	959	40	364	1630	0	40	0	170	200	193	363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	250		200	0		75	350		0
Storage Lanes	0		0	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3583	0	1805	3610	0	1805	0	1615	0	1852	1615
Flt Permitted				0.950			0.950				0.975	
Satd. Flow (perm)	0	3583	0	1805	3610	0	1805	0	1615	0	1852	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3							179			108
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		963			1560			615			394	
Travel Time (s)		13.1			21.3			9.3			6.0	
Confl. Peds. (#/hr)			10			10			10			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1051	0	383	1716	0	42	0	179	0	414	382
Turn Type		NA		Prot	NA		Prot		Prot	Perm	NA	Perm
Protected Phases		2		1	6		8		8		4	
Permitted Phases										4		4
Detector Phase		2		1	6		8		8	4	4	4
Switch Phase												
Minimum Initial (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		36.7		8.1	37.2		8.6		8.6	34.8	34.8	34.8
Total Split (s)		39.0		28.0	67.0		13.0		13.0	40.0	40.0	40.0
Total Split (%)		32.5%		23.3%	55.8%		10.8%		10.8%	33.3%	33.3%	33.3%
Maximum Green (s)		32.8		23.9	60.8		8.4		8.4	34.2	34.2	34.2
Yellow Time (s)		5.2		3.6	5.2		3.6		3.6	4.8	4.8	4.8
All-Red Time (s)		1.0		0.5	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.2		4.1	6.2		4.6		4.6	5.8	5.8	5.8
Lead/Lag		Lag		Lead			Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?		Yes		Yes			Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max		None		None	None	None	None
Walk Time (s)					7.0					7.0	7.0	7.0
Flash Dont Walk (s)					10.0					22.0	22.0	22.0
Pedestrian Calls (#/hr)					10					10	10	10
Act Effect Green (s)		33.0		28.1	65.2		7.5		7.5	30.7	30.7	30.7
Actuated g/C Ratio		0.28		0.23	0.54		0.06		0.06	0.26	0.26	0.26
v/c Ratio		1.06		0.91	0.87		0.38		0.67	0.88	0.77	0.77
Control Delay		89.3		71.9	31.2		63.3		20.6	62.3	40.4	40.4
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay		89.3		71.9	31.2		63.3		20.6	62.3	40.4	40.4
LOS		F		E	C		E		C	E	D	D
Approach Delay		89.3			38.6			28.7			51.8	
Approach LOS		F			D			C			D	



Lanes, Volumes, Timings  
 3: Cherry St/French Valley Pkwy & Jefferson



PH12, 2022, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)		-475		-302	619		32		0		300	196
Queue Length 95th (ft)		#611		#521	#818		69		71		#440	310
Internal Link Dist (ft)		883			1480			535			314	
Turn Bay Length (ft)				250					75			
Base Capacity (vph)		987		422	1962		126		279		527	537
Starvation Cap Reductn		0		0	0		0		0		0	0
Spillback Cap Reductn		0		0	0		0		0		0	0
Storage Cap Reductn		0		0	0		0		0		0	0
Reduced v/c Ratio		1.06		0.91	0.87		0.33		0.64		0.79	0.71

Intersection Summary

























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.06  
 Intersection Signal Delay: 53.4 Intersection LOS: D  
 Intersection Capacity Utilization 92.1% ICU Level of Service F  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Cherry St/French Valley Pkwy & Jefferson

 Ø1	 Ø2 (R)	 Ø8	 Ø4
28 s	39 s	13 s	40 s
 Ø6 (R)			
67 s			

Lanes, Volumes, Timings  
4: Winchester & Ynez

PH12, 2022, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	199	401	320	771	961	519	477	1821	678	349	1364	185
Future Volume (vph)	199	401	320	771	961	519	477	1821	678	349	1364	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		500	400		350	250		200	250		0
Storage Lanes	2		1	3		1	2		1	2		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3354	1470	5090	3610	1615	3502	6536	1615	3502	6401	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3354	1470	5090	3610	1582	3502	6536	1581	3502	6401	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						105			57			28
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		800			1093			797			1309	
Travel Time (s)		12.1			16.6			13.6			22.3	
Confl. Peds. (#/hr)						10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)			31%									
Lane Group Flow (vph)	209	526	233	812	1012	546	502	1917	714	367	1631	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.2	20.0	20.0	8.2	46.3	8.2	8.2	45.3	8.2	8.2	37.9	
Total Split (s)	11.4	30.7	30.7	27.0	46.3	17.0	23.8	45.3	27.0	17.0	38.5	
Total Split (%)	9.5%	25.6%	25.6%	22.5%	38.6%	14.2%	19.8%	37.8%	22.5%	14.2%	32.1%	
Maximum Green (s)	7.4	25.4	25.4	23.0	41.0	13.0	19.8	40.0	23.0	13.0	33.2	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	3.0	3.0	4.3	3.0	3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.3	5.3	4.0	5.3	4.0	4.0	5.3	4.0	4.0	5.3	
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Walk Time (s)					5.0			5.0			5.0	
Flash Dont Walk (s)					36.0			35.0			27.0	
Pedestrian Calls (#/hr)					10			10			10	
Act Effct Green (s)	9.5	23.2	23.2	24.3	38.1	53.0	19.8	40.2	65.8	13.6	34.0	
Actuated g/C Ratio	0.08	0.19	0.19	0.20	0.32	0.44	0.16	0.34	0.55	0.11	0.28	
v/c Ratio	0.76	0.81	0.82	0.79	0.88	0.72	0.87	0.88	0.79	0.92	0.89	
Control Delay	72.5	56.8	69.0	52.0	48.8	19.3	54.6	35.6	14.7	82.5	47.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	72.5	56.8	69.0	52.0	48.8	19.3	54.6	35.6	14.8	82.5	47.7	
LOS	E	E	E	D	D	B	D	D	B	F	D	
Approach Delay		63.1			43.1			33.9			54.1	
Approach LOS		E			D			C			D	

Lanes, Volumes, Timings  
4: Winchester & Ynez

PH12, 2022, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	83	210	186	216	384	194	194	363	140	148	350	
Queue Length 95th (ft)	#163	277	#316	265	461	292	m#278	428	212	#246	#402	
Internal Link Dist (ft)		720			1013			717			1229	
Turn Bay Length (ft)	200		500	400		350	250		200	250		
Base Capacity (vph)	276	709	311	1032	1233	761	577	2189	900	398	1836	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	2	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.76	0.74	0.75	0.79	0.82	0.72	0.87	0.88	0.80	0.92	0.89	

Intersection Summary




















Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 12 (10%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 44.6 Intersection LOS: D  
 Intersection Capacity Utilization 93.2% ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Winchester & Ynez

Ø1	Ø2 (R)	Ø4	Ø3	Ø6 (R)	Ø5	Ø8	Ø7
17 s	45.3 s	30.7 s	27 s	38.5 s	23.8 s	46.3 s	11.4 s

Lanes, Volumes, Timings  
5: Winchester & I-15 NB off/I-15 NB on

PH12, 2022, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	121	0	654	0	2322	690	0	1266	1364
Future Volume (vph)	0	0	0	121	0	654	0	2322	690	0	1266	1364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		450	0		0
Storage Lanes	0		0	1		1	0		1	0		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	1715	1477	1534	0	4879	1389	0	5187	2842
Flt Permitted				0.950	0.998							
Satd. Flow (perm)	0	0	0	1715	1477	1534	0	4879	1354	0	5187	2772
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					22	22		6	653			971
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		579			216			765			797	
Travel Time (s)		13.2			4.9			13.0			13.6	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)				10%		49%			10%			
Lane Group Flow (vph)	0	0	0	114	350	351	0	2517	653	0	1333	1436
Turn Type				Perm	NA	Perm		NA	Perm		NA	Free
Protected Phases					8			2			6	
Permitted Phases				8		8			2			Free
Detector Phase				8	8	8		2	2		6	
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0		4.0	4.0		4.0	
Minimum Split (s)				20.0	20.0	20.0		32.4	32.4		20.0	
Total Split (s)				44.0	44.0	44.0		76.0	76.0		76.0	
Total Split (%)				36.7%	36.7%	36.7%		63.3%	63.3%		63.3%	
Maximum Green (s)				38.2	38.2	38.2		70.6	70.6		70.6	
Yellow Time (s)				4.8	4.8	4.8		4.4	4.4		4.4	
All-Red Time (s)				1.0	1.0	1.0		1.0	1.0		1.0	
Lost Time Adjust (s)				0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)				5.8	5.8	5.8		5.4	5.4		5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0	3.0		3.0	
Recall Mode				None	None	None		C-Max	C-Max		C-Max	
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								20.0	20.0			
Pedestrian Calls (#/hr)								10	10			
Act Effct Green (s)				31.6	31.6	31.6		77.2	77.2		77.2	120.0
Actuated g/C Ratio				0.26	0.26	0.26		0.64	0.64		0.64	1.00
v/c Ratio				0.25	0.86	0.84		0.80	0.59		0.40	0.52
Control Delay				34.6	59.8	55.9		18.2	10.4		6.6	1.3
Queue Delay				0.0	0.0	0.0		0.4	1.0		0.0	0.0
Total Delay				34.6	59.8	55.9		18.6	11.4		6.6	1.3
LOS				C	E	E		B	B		A	A
Approach Delay					54.6			17.1			3.8	
Approach LOS					D			B			A	

Lanes, Volumes, Timings  
 5: Winchester & I-15 NB off/I-15 NB on

PH12, 2022, PM

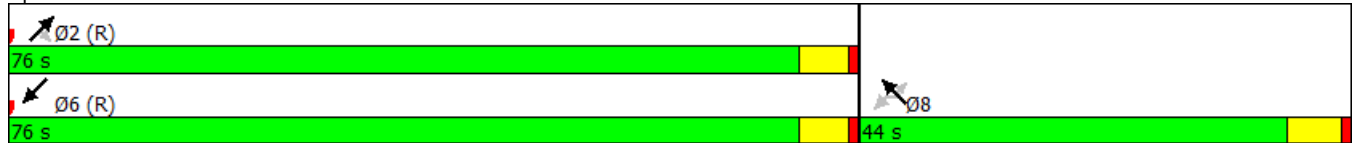
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)				72	263	250		484	387		121	25
Queue Length 95th (ft)				117	375	354		647	246		185	36
Internal Link Dist (ft)		499				136		685			717	
Turn Bay Length (ft)									450			
Base Capacity (vph)				545	485	503		3139	1103		3335	2772
Starvation Cap Reductn				0	0	0		198	221		0	0
Spillback Cap Reductn				0	0	0		0	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.21	0.72	0.70		0.86	0.74		0.40	0.52

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 113 (94%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 16.2  
 Intersection Capacity Utilization 86.4%  
 Analysis Period (min) 15




















Intersection LOS: B  
 ICU Level of Service E

Splits and Phases: 5: Winchester & I-15 NB off/I-15 NB on















Lanes, Volumes, Timings  
6: Winchester & I-15 SB on/I-15 SB off

PH12, 2022, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	1292	6	496	0	0	0	0	1720	329	0	967	420
Future Volume (vph)	1292	6	496	0	0	0	0	1720	329	0	967	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	3502	1540	1534	0	0	0	0	5187	1615	0	4907	0
Flt Permitted	0.950											
Satd. Flow (perm)	3502	1540	1534	0	0	0	0	5187	1537	0	4907	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42	42						302		115	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		189			419			450			765	
Travel Time (s)		4.3			9.5			7.7			13.0	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	1360	267	261	0	0	0	0	1811	346	0	1460	0
Turn Type	Perm	NA	Perm					NA	Perm		NA	
Protected Phases		4						2			6	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0		4.0	
Minimum Split (s)	20.0	20.0	20.0					26.4	26.4		20.0	
Total Split (s)	63.0	63.0	63.0					57.0	57.0		57.0	
Total Split (%)	52.5%	52.5%	52.5%					47.5%	47.5%		47.5%	
Maximum Green (s)	57.2	57.2	57.2					51.6	51.6		51.6	
Yellow Time (s)	4.8	4.8	4.8					4.4	4.4		4.4	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)	5.8	5.8	5.8					5.4	5.4		5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Max	C-Max		C-Max	
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								14.0	14.0			
Pedestrian Calls (#/hr)								10	10			
Act Effect Green (s)	54.0	54.0	54.0					54.8	54.8		54.8	
Actuated g/C Ratio	0.45	0.45	0.45					0.46	0.46		0.46	
v/c Ratio	0.86	0.37	0.37					0.76	0.40		0.63	
Control Delay	36.1	19.2	19.0					14.3	1.1		6.8	
Queue Delay	0.0	0.0	0.0					0.2	0.2		0.0	
Total Delay	36.1	19.2	19.0					14.5	1.3		6.8	
LOS	D	B	B					B	A		A	
Approach Delay		31.4						12.3			6.8	
Approach LOS		C						B			A	
Queue Length 50th (ft)	461	113	109					245	0		45	
Queue Length 95th (ft)	548	178	174					271	m0		49	
Internal Link Dist (ft)		109			339			370			685	

Lanes, Volumes, Timings  
 6: Winchester & I-15 SB on/I-15 SB off




PH12, 2022, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Turn Bay Length (ft)												
Base Capacity (vph)	1669	756	753					2368	866		2303	
Starvation Cap Reductn	0	0	0					6	115		0	
Spillback Cap Reductn	0	0	0					83	0		0	
Storage Cap Reductn	0	0	0					0	0		0	
Reduced v/c Ratio	0.81	0.35	0.35					0.79	0.46		0.63	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 4 (3%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 17.4  
 Intersection Capacity Utilization 79.4%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service D  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Winchester & I-15 SB on/I-15 SB off

 Ø2 (R)	 Ø4
57 s	63 s
 Ø6 (R)	
57 s	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

PH12, 2022, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	553	644	134	34	757	410	504	1086	50	424	512	527
Future Volume (vph)	553	644	134	34	757	410	504	1086	50	424	512	527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	200		300	400		0	0		300
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3610	1615	3502	3610	1615	3502	6484	0	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3610	1576	3502	3610	1615	3502	6484	0	3502	3610	1578
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			141			62			8			434
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1063			948			629			450	
Travel Time (s)		16.1			14.4			10.7			7.7	
Confl. Peds. (#/hr)			10						10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	582	678	141	36	797	432	531	1196	0	446	539	555
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.2	38.9	38.9	8.2	20.0	8.2	8.2	41.3		8.2	36.9	36.9
Total Split (s)	28.0	48.8	48.8	8.2	29.0	19.4	22.4	43.6		19.4	40.6	40.6
Total Split (%)	23.3%	40.7%	40.7%	6.8%	24.2%	16.2%	18.7%	36.3%		16.2%	33.8%	33.8%
Maximum Green (s)	24.0	43.9	43.9	4.2	24.1	15.4	18.4	38.7		15.4	35.7	35.7
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.0	3.0	3.9		3.0	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.0	4.0	4.9		4.0	4.9	4.9
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lead		Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)		22.0	22.0					29.0			25.0	25.0
Pedestrian Calls (#/hr)		10	10					10			10	10
Act Effct Green (s)	23.0	46.2	46.2	4.2	24.1	15.4	18.4	39.7		15.4	36.7	36.7
Actuated g/C Ratio	0.19	0.38	0.38	0.04	0.20	0.37	0.15	0.33		0.13	0.31	0.31
v/c Ratio	0.87	0.49	0.20	0.30	1.10	0.68	0.99	0.56		0.99	0.49	0.71
Control Delay	61.4	29.9	4.9	62.8	108.6	33.3	87.6	34.1		80.9	28.2	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.5
Total Delay	61.4	29.9	4.9	62.8	108.6	33.3	87.6	34.1		80.9	28.2	10.4
LOS	E	C	A	E	F	C	F	C		F	C	B
Approach Delay		40.5			81.6			50.5			37.1	
Approach LOS		D			F			D			D	



Lanes, Volumes, Timings  
7: Winchester & Jefferson

PH12, 2022, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	224	213	0	14	-368	241	213	221		165	164	55
Queue Length 95th (ft)	#306	273	42	32	#495	361	#329	259		#287	208	69
Internal Link Dist (ft)		983			868			549			370	
Turn Bay Length (ft)	300		200	200		300	400					300
Base Capacity (vph)	700	1388	692	122	725	636	536	2151		449	1104	784
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	44
Spillback Cap Reductn	0	0	0	0	0	0	0	6		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.83	0.49	0.20	0.30	1.10	0.68	0.99	0.56		0.99	0.49	0.75

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 21 (18%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 51.3

Intersection LOS: D

Intersection Capacity Utilization 93.6%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 7: Winchester & Jefferson

Ø2 (R)	Ø1	Ø3	Ø4
43.6 s	19.4 s	8.2 s	48.8 s
Ø6 (R)	Ø5	Ø8	Ø7
40.6 s	22.4 s	29 s	28 s

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

PH12, 2045, AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	732	1	5	175	128	1	2	4	580	3	247
Future Volume (vph)	247	732	1	5	175	128	1	2	4	580	3	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		250	300		150
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	3610	1615	1805	3610	1615	1805	5187	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	3610	1578	1805	3610	1578	1805	5187	1575	3502	3610	1575
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			145			136			260
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		973			432			734			623	
Travel Time (s)		14.7			6.5			11.1			9.4	
Confl. Peds. (#/hr)			10			10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	260	771	1	5	184	135	1	2	4	611	3	260
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	38.0	38.0	8.5	42.0	42.0	8.5	33.0	33.0	8.5	33.0	33.0
Total Split (s)	20.6	54.1	54.1	8.5	42.0	42.0	8.5	33.4	33.4	24.0	48.9	48.9
Total Split (%)	17.2%	45.1%	45.1%	7.1%	35.0%	35.0%	7.1%	27.8%	27.8%	20.0%	40.8%	40.8%
Maximum Green (s)	16.6	49.1	49.1	4.5	37.0	37.0	4.5	28.4	28.4	20.0	43.9	43.9
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		28.0	28.0		28.0	28.0		23.0	23.0		23.0	23.0
Pedestrian Calls (#/hr)		10	10		10	10		10	10		10	10
Act Effct Green (s)	23.6	45.1	45.1	4.5	19.2	19.2	4.5	33.7	33.7	25.5	61.5	61.5
Actuated g/C Ratio	0.20	0.38	0.38	0.04	0.16	0.16	0.04	0.28	0.28	0.21	0.51	0.51
v/c Ratio	0.73	0.57	0.00	0.07	0.32	0.36	0.01	0.00	0.01	0.82	0.00	0.28
Control Delay	59.1	31.1	0.0	58.2	43.7	7.3	56.0	34.5	0.0	56.1	21.0	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.1	31.1	0.0	58.2	43.7	7.3	56.0	34.5	0.0	56.1	21.0	3.7
LOS	E	C	A	E	D	A	E	C	A	E	C	A
Approach Delay		38.1			28.8			17.9			40.4	
Approach LOS		D			C			B			D	

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

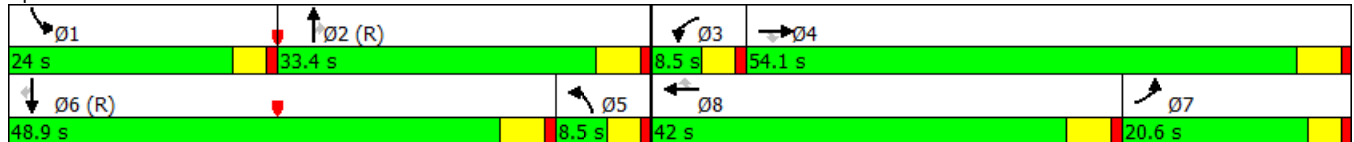
PH12, 2045, AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	186	260	0	4	72	0	1	0	0	225	0	0
Queue Length 95th (ft)	#339	292	0	18	87	42	7	2	0	#381	4	55
Internal Link Dist (ft)		893			352			654			543	
Turn Bay Length (ft)	250		100	250			250		250	300		150
Base Capacity (vph)	355	1528	746	67	1113	586	67	1455	539	743	1848	933
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.50	0.00	0.07	0.17	0.23	0.01	0.00	0.01	0.82	0.00	0.28

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 37.6 Intersection LOS: D  
 Intersection Capacity Utilization 73.8% ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Date Street & Ynez Road



Lanes, Volumes, Timings  
3: Cherry St/French Valley Pkwy & Jefferson

PH12, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑		↑	↑↑		↑		↑		↑	↑
Traffic Volume (vph)	0	905	134	181	359	0	27	0	141	602	688	837
Future Volume (vph)	0	905	134	181	359	0	27	0	141	602	688	837
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	250		200	0		75	350		0
Storage Lanes	0		0	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3523	0	1805	3610	0	1805	0	1615	0	1856	1615
Flt Permitted				0.950			0.950				0.977	
Satd. Flow (perm)	0	3523	0	1805	3610	0	1805	0	1615	0	1856	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13							148			357
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		681			1560			615			394	
Travel Time (s)		9.3			21.3			9.3			6.0	
Confl. Peds. (#/hr)			10			10			10			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1094	0	191	378	0	28	0	148	0	1358	881
Turn Type		NA		Prot	NA		Prot		Prot	Perm	NA	Perm
Protected Phases		2		1	6		8		8		4	
Permitted Phases										4		4
Detector Phase		2		1	6		8		8	4	4	4
Switch Phase												
Minimum Initial (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		10.2		8.1	37.2		8.6		8.6	34.8	34.8	34.8
Total Split (s)		35.0		11.2	46.2		15.8		15.8	58.0	58.0	58.0
Total Split (%)		29.2%		9.3%	38.5%		13.2%		13.2%	48.3%	48.3%	48.3%
Maximum Green (s)		28.8		7.1	40.0		11.2		11.2	52.2	52.2	52.2
Yellow Time (s)		5.2		3.6	5.2		3.6		3.6	4.8	4.8	4.8
All-Red Time (s)		1.0		0.5	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.2		4.1	6.2		4.6		4.6	5.8	5.8	5.8
Lead/Lag		Lead		Lag			Lag		Lag	Lead	Lead	Lead
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max		None		None	None	None	None
Walk Time (s)					7.0					7.0	7.0	7.0
Flash Dont Walk (s)					10.0					22.0	22.0	22.0
Pedestrian Calls (#/hr)					10					10	10	10
Act Effct Green (s)		32.3		7.1	43.5		7.7		7.7	52.2	52.2	52.2
Actuated g/C Ratio		0.27		0.06	0.36		0.06		0.06	0.44	0.44	0.44
v/c Ratio		1.14		1.80	0.29		0.24		0.61	1.68	0.97	0.97
Control Delay		116.5		427.8	28.4		57.5		19.6	339.1	44.8	44.8
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay		116.5		427.8	28.4		57.5		19.6	339.1	44.8	44.8
LOS		F		F	C		E		B	F	F	D
Approach Delay		116.5			162.5			25.6			223.3	
Approach LOS		F			F			C			F	

Lanes, Volumes, Timings  
 3: Cherry St/French Valley Pkwy & Jefferson

PH12, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)		-514		-222	108		21		0		-1538	463
Queue Length 95th (ft)		#701		#372	156		51		63		#1801	#772
Internal Link Dist (ft)		601			1480			535			314	
Turn Bay Length (ft)				250					75			
Base Capacity (vph)		957		106	1308		168		284		807	904
Starvation Cap Reductn		0		0	0		0		0		0	0
Spillback Cap Reductn		0		0	0		0		0		0	0
Storage Cap Reductn		0		0	0		0		0		0	0
Reduced v/c Ratio		1.14		1.80	0.29		0.17		0.52		1.68	0.97

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.80  
 Intersection Signal Delay: 177.6  
 Intersection Capacity Utilization 129.0%  
 Analysis Period (min) 15  
 Intersection LOS: F  
 ICU Level of Service H

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

Splits and Phases: 3: Cherry St/French Valley Pkwy & Jefferson

Ø2 (R)	Ø1	Ø4	Ø8
35 s	11.2 s	58 s	15.8 s
Ø6 (R)			
46.2 s			

Lanes, Volumes, Timings  
4: Winchester & Ynez

PH12, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	144	599	519	425	219	145	363	1590	1076	377	1539	60
Future Volume (vph)	144	599	519	425	219	145	363	1590	1076	377	1539	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		500	400		350	250		200	250		0
Storage Lanes	2		1	3		1	2		1	2		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3340	1470	5090	3610	1615	3502	6536	1615	3502	6491	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3340	1470	5090	3610	1582	3502	6536	1581	3502	6491	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						57			94		7	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		800			1093			797			1309	
Travel Time (s)		12.1			16.6			13.6			22.3	
Confl. Peds. (#/hr)						10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)			34%									
Lane Group Flow (vph)	152	817	360	447	231	153	382	1674	1133	397	1683	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.2	20.0	20.0	8.2	46.3	8.2	8.2	45.3	8.2	8.2	37.9	
Total Split (s)	10.0	35.0	35.0	22.0	47.0	15.0	17.0	48.0	22.0	15.0	46.0	
Total Split (%)	8.3%	29.2%	29.2%	18.3%	39.2%	12.5%	14.2%	40.0%	18.3%	12.5%	38.3%	
Maximum Green (s)	6.0	29.7	29.7	18.0	41.7	11.0	13.0	42.7	18.0	11.0	40.7	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	3.0	3.0	4.3	3.0	3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.3	5.3	4.0	5.3	4.0	4.0	5.3	4.0	4.0	5.3	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Walk Time (s)					5.0			5.0			5.0	
Flash Dont Walk (s)					36.0			35.0			27.0	
Pedestrian Calls (#/hr)					10			10			10	
Act Effct Green (s)	6.0	29.7	29.7	18.0	41.7	54.0	13.0	42.7	62.0	11.0	40.7	
Actuated g/C Ratio	0.05	0.25	0.25	0.15	0.35	0.45	0.11	0.36	0.52	0.09	0.34	
v/c Ratio	0.87	0.99	0.99	0.59	0.18	0.21	1.01	0.72	1.31	1.24	0.76	
Control Delay	97.3	74.0	90.8	51.0	27.8	8.9	81.7	26.5	162.9	175.4	38.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	97.3	74.0	90.8	51.0	27.8	8.9	81.7	26.5	162.9	175.4	38.0	
LOS	F	E	F	D	C	A	F	C	F	F	D	
Approach Delay		81.2			36.8			81.5			64.2	
Approach LOS		F			D			F			E	

Lanes, Volumes, Timings  
4: Winchester & Ynez

PH12, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	61	347	306	115	65	33	~157	254	~1084	~196	334	
Queue Length 95th (ft)	#124	#491	#524	152	96	65	m#220	318	#1372	#297	380	
Internal Link Dist (ft)		720			1013			717			1229	
Turn Bay Length (ft)	200		500	400		350	250		200	250		
Base Capacity (vph)	175	826	363	763	1254	746	379	2325	867	321	2206	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.99	0.99	0.59	0.18	0.21	1.01	0.72	1.31	1.24	0.76	

Intersection Summary




















Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 7 (6%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.31  
 Intersection Signal Delay: 71.6 Intersection LOS: E  
 Intersection Capacity Utilization 111.6% ICU Level of Service H  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Winchester & Ynez

Ø2 (R)	Ø1	Ø4	Ø3
48 s	15 s	35 s	22 s
Ø6 (R)	Ø5	Ø7	Ø8
46 s	17 s	10 s	47 s

Lanes, Volumes, Timings  
5: Winchester & I-15 NB off/I-15 NB on

PH12, 2045, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	522	1	721	0	2292	380	0	1878	637
Future Volume (vph)	0	0	0	522	1	721	0	2292	380	0	1878	637
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		450	0		0
Storage Lanes	0		0	1		1	0		1	0		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	1715	1510	1534	0	4890	1389	0	5187	2842
Flt Permitted				0.950	0.989							
Satd. Flow (perm)	0	0	0	1715	1510	1534	0	4890	1368	0	5187	2760
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	22		3	225			671
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		579			216			765			797	
Travel Time (s)		13.2			4.9			13.0			13.6	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)				17%		44%			10%			
Lane Group Flow (vph)	0	0	0	456	428	425	0	2453	360	0	1977	671
Turn Type				Perm	NA	Perm		NA	Free		NA	Perm
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			6
Detector Phase				8	8	8		2			6	6
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0		4.0			4.0	4.0
Minimum Split (s)				20.0	20.0	20.0		32.4			20.0	20.0
Total Split (s)				49.0	49.0	49.0		71.0			71.0	71.0
Total Split (%)				40.8%	40.8%	40.8%		59.2%			59.2%	59.2%
Maximum Green (s)				43.2	43.2	43.2		65.6			65.6	65.6
Yellow Time (s)				4.8	4.8	4.8		4.4			4.4	4.4
All-Red Time (s)				1.0	1.0	1.0		1.0			1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)				5.8	5.8	5.8		5.4			5.4	5.4
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Recall Mode				None	None	None		C-Max			C-Max	C-Max
Walk Time (s)								7.0				
Flash Dont Walk (s)								20.0				
Pedestrian Calls (#/hr)								10				
Act Effct Green (s)				38.8	38.8	38.8		70.0	120.0		70.0	70.0
Actuated g/C Ratio				0.32	0.32	0.32		0.58	1.00		0.58	0.58
v/c Ratio				0.82	0.88	0.83		0.86	0.26		0.65	0.36
Control Delay				50.1	57.1	50.0		17.4	1.9		6.2	0.4
Queue Delay				0.0	0.0	0.0		1.0	0.0		0.0	0.0
Total Delay				50.1	57.1	50.0		18.5	1.9		6.2	0.4
LOS				D	E	D		B	A		A	A
Approach Delay					52.3			16.3			4.7	
Approach LOS					D			B			A	



Lanes, Volumes, Timings  
 5: Winchester & I-15 NB off/I-15 NB on

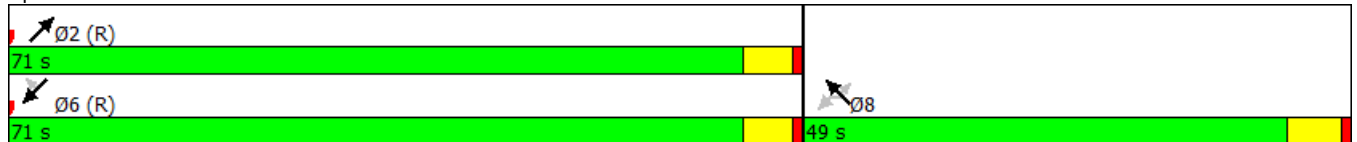
PH12, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)				329	328	293		653	26		144	0
Queue Length 95th (ft)				456	#481	425		m624	m65		m184	m0
Internal Link Dist (ft)		499			136			685			717	
Turn Bay Length (ft)									450			
Base Capacity (vph)				617	544	566		2852	1368		3025	1889
Starvation Cap Reductn				0	0	0		105	0		0	0
Spillback Cap Reductn				0	0	0		185	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.74	0.79	0.75		0.92	0.26		0.65	0.36

Intersection Summary




















Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 107 (89%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 18.7  
 Intersection Capacity Utilization 86.3%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Winchester & I-15 NB off/I-15 NB on



Lanes, Volumes, Timings  
6: Winchester & I-15 SB on/I-15 SB off

PH12, 2045, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	1614	4	192	0	0	0	0	1058	406	0	1699	701
Future Volume (vph)	1614	4	192	0	0	0	0	1058	406	0	1699	701
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	3502	1545	1534	0	0	0	0	5187	1615	0	4914	0
Flt Permitted	0.950											
Satd. Flow (perm)	3502	1545	1534	0	0	0	0	5187	1537	0	4914	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5	22						427		116	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		189			419			450			765	
Travel Time (s)		4.3			9.5			7.7			13.0	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)			49%									
Lane Group Flow (vph)	1699	103	103	0	0	0	0	1114	427	0	2526	0
Turn Type	Perm	NA	Perm					NA	Perm		NA	
Protected Phases		4						2			6	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0		4.0	
Minimum Split (s)	20.0	20.0	20.0					26.4	26.4		20.0	
Total Split (s)	59.0	59.0	59.0					61.0	61.0		61.0	
Total Split (%)	49.2%	49.2%	49.2%					50.8%	50.8%		50.8%	
Maximum Green (s)	53.2	53.2	53.2					55.6	55.6		55.6	
Yellow Time (s)	4.8	4.8	4.8					4.4	4.4		4.4	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)	5.8	5.8	5.8					5.4	5.4		5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Max	C-Max		C-Max	
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								14.0	14.0			
Pedestrian Calls (#/hr)								10	10			
Act Effect Green (s)	53.2	53.2	53.2					55.6	55.6		55.6	
Actuated g/C Ratio	0.44	0.44	0.44					0.46	0.46		0.46	
v/c Ratio	1.09	0.15	0.15					0.46	0.45		1.08	
Control Delay	86.0	19.7	16.2					14.5	2.6		67.5	
Queue Delay	0.0	0.0	0.0					0.2	0.2		1.2	
Total Delay	86.0	19.7	16.2					14.7	2.8		68.7	
LOS	F	B	B					B	A		E	
Approach Delay		78.6						11.4			68.7	
Approach LOS		E						B			E	
Queue Length 50th (ft)	~766	46	37					192	26		~509	
Queue Length 95th (ft)	#903	85	75					169	5		#756	
Internal Link Dist (ft)		109			339			370			685	

Lanes, Volumes, Timings  
 6: Winchester & I-15 SB on/I-15 SB off

PH12, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Turn Bay Length (ft)												
Base Capacity (vph)	1552	687	692					2403	941		2339	
Starvation Cap Reductn	0	0	0					525	110		0	
Spillback Cap Reductn	0	0	0					191	0		6	
Storage Cap Reductn	0	0	0					0	0		0	
Reduced v/c Ratio	1.09	0.15	0.15					0.59	0.51		1.08	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 9 (8%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.09  
 Intersection Signal Delay: 57.1      Intersection LOS: E  
 Intersection Capacity Utilization 104.2%      ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Winchester & I-15 SB on/I-15 SB off

Ø2 (R) 61 s	Ø4 59 s
Ø6 (R) 61 s	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

PH12, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	527	581	437	90	205	337	108	600	79	510	983	398
Future Volume (vph)	527	581	437	90	205	337	108	600	79	510	983	398
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	200		300	400		0	0		300
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3610	1615	3502	3610	1615	3502	6409	0	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3610	1576	3502	3610	1615	3502	6409	0	3502	3610	1578
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			267			98			29			419
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1063			948			629			450	
Travel Time (s)		16.1			14.4			10.7			7.7	
Confl. Peds. (#/hr)			10						10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	555	612	460	95	216	355	114	715	0	537	1035	419
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.2	33.9	33.9	8.2	20.0	8.2	8.2	41.3		8.2	36.9	36.9
Total Split (s)	19.0	37.0	37.0	13.0	31.0	26.0	17.0	44.0		26.0	53.0	53.0
Total Split (%)	15.8%	30.8%	30.8%	10.8%	25.8%	21.7%	14.2%	36.7%		21.7%	44.2%	44.2%
Maximum Green (s)	15.0	32.1	32.1	9.0	26.1	22.0	13.0	39.1		22.0	48.1	48.1
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.0	3.0	3.9		3.0	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.0	4.0	4.9		4.0	4.9	4.9
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead		Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)		22.0	22.0					29.0			25.0	25.0
Pedestrian Calls (#/hr)		10	10					10			10	10
Act Effct Green (s)	29.3	26.7	26.7	15.1	12.5	38.7	12.3	39.1		21.3	48.1	48.1
Actuated g/C Ratio	0.24	0.22	0.22	0.13	0.10	0.32	0.10	0.33		0.18	0.40	0.40
v/c Ratio	0.65	0.76	0.83	0.22	0.57	0.60	0.32	0.34		0.86	0.72	0.47
Control Delay	45.7	50.1	31.0	51.0	57.1	28.5	52.2	29.9		38.6	9.6	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	2.9	1.1
Total Delay	45.7	50.1	31.0	51.0	57.1	28.5	52.2	29.9		38.6	12.5	1.9
LOS	D	D	C	D	E	C	D	C		D	B	A
Approach Delay		43.2			41.0			32.9			17.3	
Approach LOS		D			D			C			B	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

PH12, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	201	233	149	35	85	165	42	116		222	144	5
Queue Length 95th (ft)	273	284	274	64	122	257	72	144		m208	m130	m4
Internal Link Dist (ft)		983			868			549			370	
Turn Bay Length (ft)	300		200	200		300	400					300
Base Capacity (vph)	855	965	617	441	785	586	379	2107		642	1447	883
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	295	245
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.65	0.63	0.75	0.22	0.28	0.61	0.30	0.34		0.84	0.90	0.66

Intersection Summary































Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 24 (20%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 95  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 31.2 Intersection LOS: C  
 Intersection Capacity Utilization 81.1% ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Winchester & Jefferson

Ø2 (R)	Ø1	Ø4	Ø3
44 s	26 s	37 s	13 s
Ø6 (R)	Ø5	Ø8	Ø7
53 s	17 s	31 s	19 s

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

PH12, 2045, PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  		 	 	
Traffic Volume (vph)	180	424	0	3	1491	647	2	1	3	287	4	254
Future Volume (vph)	180	424	0	3	1491	647	2	1	3	287	4	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		250	300		150
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	3610	1900	1805	3610	1615	1805	5187	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	3610	1900	1805	3610	1578	1805	5187	1575	3502	3610	1575
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						457			368			267
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		928			432			734			623	
Travel Time (s)		14.1			6.5			11.1			9.4	
Confl. Peds. (#/hr)			10			10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	189	446	0	3	1569	681	2	1	3	302	4	267
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	38.0	38.0	8.5	42.0	42.0	8.5	33.0	33.0	8.5	33.0	33.0
Total Split (s)	20.5	63.7	63.7	10.3	53.5	53.5	8.5	33.0	33.0	13.0	37.5	37.5
Total Split (%)	17.1%	53.1%	53.1%	8.6%	44.6%	44.6%	7.1%	27.5%	27.5%	10.8%	31.3%	31.3%
Maximum Green (s)	16.5	58.7	58.7	6.3	48.5	48.5	4.5	28.0	28.0	9.0	32.5	32.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		28.0	28.0		28.0	28.0		23.0	23.0		23.0	23.0
Pedestrian Calls (#/hr)		10	10		10	10		10	10		10	10
Act Effct Green (s)	15.5	65.9		5.8	48.5	48.5	4.9	28.0	28.0	10.0	40.3	40.3
Actuated g/C Ratio	0.13	0.55		0.05	0.40	0.40	0.04	0.23	0.23	0.08	0.34	0.34
v/c Ratio	0.81	0.23		0.03	1.08	0.75	0.03	0.00	0.00	1.03	0.00	0.38
Control Delay	76.9	14.6		55.0	81.6	15.2	56.5	35.0	0.0	115.1	29.5	5.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.9	14.6		55.0	81.6	15.2	56.5	35.0	0.0	115.1	29.5	5.5
LOS	E	B		D	F	B	E	C	A	F	C	A
Approach Delay		33.1			61.5			24.7			63.4	
Approach LOS		C			E			C			E	

Lanes, Volumes, Timings  
1: Date Street & Ynez Road

PH12, 2045, PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	143	83		2	~712	146	2	0	0	~141	1	0
Queue Length 95th (ft)	#255	137		13	#851	310	11	1	0	#234	5	64
Internal Link Dist (ft)		848			352			654			543	
Turn Bay Length (ft)	250			250			250		250	300		150
Base Capacity (vph)	248	1982		94	1459	910	72	1210	649	292	1213	706
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.23		0.03	1.08	0.75	0.03	0.00	0.00	1.03	0.00	0.38

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 125  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.08  
 Intersection Signal Delay: 56.6 Intersection LOS: E  
 Intersection Capacity Utilization 86.2% ICU Level of Service E  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Date Street & Ynez Road

Ø1	Ø2 (R)	Ø3	Ø4
13 s	33 s	10.3 s	63.7 s
Ø5	Ø6 (R)	Ø8	Ø7
8.5 s	37.5 s	53.5 s	20.5 s

Lanes, Volumes, Timings  
3: Cherry St/French Valley Pkwy & Jefferson

PH12, 2045, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑		↑	↑↑		↑		↑		↑	↑
Traffic Volume (vph)	0	1147	75	663	1929	0	113	0	470	315	482	589
Future Volume (vph)	0	1147	75	663	1929	0	113	0	470	315	482	589
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	250		200	0		75	350		0
Storage Lanes	0		0	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3569	0	1805	3610	0	1805	0	1615	0	1864	1615
Flt Permitted				0.950			0.950				0.981	
Satd. Flow (perm)	0	3569	0	1805	3610	0	1805	0	1615	0	1864	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5							377			108
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		727			1560			615			394	
Travel Time (s)		9.9			21.3			9.3			6.0	
Confl. Peds. (#/hr)			10			10			10			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1286	0	698	2031	0	119	0	495	0	839	620
Turn Type		NA		Prot	NA		Prot		Prot	Perm	NA	Perm
Protected Phases		2		1	6		8		8		4	
Permitted Phases										4		4
Detector Phase		2		1	6		8		8	4	4	4
Switch Phase												
Minimum Initial (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		36.7		8.1	37.2		8.6		8.6	34.8	34.8	34.8
Total Split (s)		39.0		28.0	67.0		13.0		13.0	40.0	40.0	40.0
Total Split (%)		32.5%		23.3%	55.8%		10.8%		10.8%	33.3%	33.3%	33.3%
Maximum Green (s)		32.8		23.9	60.8		8.4		8.4	34.2	34.2	34.2
Yellow Time (s)		5.2		3.6	5.2		3.6		3.6	4.8	4.8	4.8
All-Red Time (s)		1.0		0.5	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.2		4.1	6.2		4.6		4.6	5.8	5.8	5.8
Lead/Lag		Lag		Lead			Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?		Yes		Yes			Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max		None		None	None	None	None
Walk Time (s)					7.0					7.0	7.0	7.0
Flash Dont Walk (s)					10.0					22.0	22.0	22.0
Pedestrian Calls (#/hr)					10					10	10	10
Act Effect Green (s)		32.8		23.9	60.8		8.4		8.4	34.2	34.2	34.2
Actuated g/C Ratio		0.27		0.20	0.51		0.07		0.07	0.28	0.28	0.28
v/c Ratio		1.31		1.94	1.11		0.94		1.07	1.58	1.15	1.15
Control Delay		184.5		462.7	87.6		122.4		75.2	301.1	121.9	121.9
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay		184.5		462.7	87.6		122.4		75.2	301.1	121.9	121.9
LOS		F		F	F		F		E	F	F	F
Approach Delay		184.5			183.5			84.4			224.9	
Approach LOS		F			F			F			F	



Lanes, Volumes, Timings  
 3: Cherry St/French Valley Pkwy & Jefferson

PH12, 2045, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)		-678		-835	-947		93		-133		-924	-504
Queue Length 95th (ft)		#818		#1067	#1084		#212		#348		#1168	#734
Internal Link Dist (ft)		647			1480			535			314	
Turn Bay Length (ft)				250					75			
Base Capacity (vph)		979		359	1829		126		463		531	537
Starvation Cap Reductn		0		0	0		0		0		0	0
Spillback Cap Reductn		0		0	0		0		0		0	0
Storage Cap Reductn		0		0	0		0		0		0	0
Reduced v/c Ratio		1.31		1.94	1.11		0.94		1.07		1.58	1.15



Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.94  
 Intersection Signal Delay: 183.6  
 Intersection Capacity Utilization 138.7%  
 Analysis Period (min) 15  
 Intersection LOS: F  
 ICU Level of Service H

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

























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

Splits and Phases: 3: Cherry St/French Valley Pkwy & Jefferson

 Ø1	 Ø2 (R)	 Ø8	 Ø4
28 s	39 s	13 s	40 s
 Ø6 (R)			
67 s			

Lanes, Volumes, Timings  
4: Winchester & Ynez

PH12, 2045, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	195	471	331	1057	1406	674	516	1747	781	406	1395	202
Future Volume (vph)	195	471	331	1057	1406	674	516	1747	781	406	1395	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		500	400		350	250		200	250		0
Storage Lanes	2		1	3		1	2		1	2		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3378	1470	5090	3610	1615	3502	6536	1615	3502	6393	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3378	1470	5090	3610	1582	3502	6536	1581	3502	6393	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						105			57		31	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		800			1093			797			1309	
Travel Time (s)		12.1			16.6			13.6			22.3	
Confl. Peds. (#/hr)						10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)			26%									
Lane Group Flow (vph)	205	586	258	1113	1480	709	543	1839	822	427	1681	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	9.3	9.3	8.0	46.3	8.2	8.0	45.3	8.0	8.2	37.3	
Total Split (s)	9.0	27.0	27.0	29.0	47.0	18.0	22.0	46.0	29.0	18.0	42.0	
Total Split (%)	7.5%	22.5%	22.5%	24.2%	39.2%	15.0%	18.3%	38.3%	24.2%	15.0%	35.0%	
Maximum Green (s)	5.0	21.7	21.7	25.0	41.7	14.0	18.0	40.7	25.0	14.0	36.7	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	3.0	3.0	4.3	3.0	3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.3	5.3	4.0	5.3	4.0	4.0	5.3	4.0	4.0	5.3	
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Walk Time (s)					5.0			5.0			5.0	
Flash Dont Walk (s)					36.0			35.0			27.0	
Pedestrian Calls (#/hr)					10			10			10	
Act Effct Green (s)	5.0	21.7	21.7	25.0	41.7	57.0	18.0	40.7	67.0	14.0	36.7	
Actuated g/C Ratio	0.04	0.18	0.18	0.21	0.35	0.48	0.15	0.34	0.56	0.12	0.31	
v/c Ratio	1.41	0.96	0.97	1.05	1.18	0.88	1.03	0.83	0.90	1.05	0.85	
Control Delay	263.0	76.9	98.4	87.6	125.5	30.1	85.9	35.1	24.9	108.3	43.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	
Total Delay	263.0	76.9	98.4	87.6	125.5	30.1	85.9	35.1	25.0	108.3	43.4	
LOS	F	E	F	F	F	C	F	D	C	F	D	
Approach Delay		118.6			92.2			41.1			56.5	
Approach LOS		F			F			D			E	

Lanes, Volumes, Timings  
4: Winchester & Ynez

PH12, 2045, PM

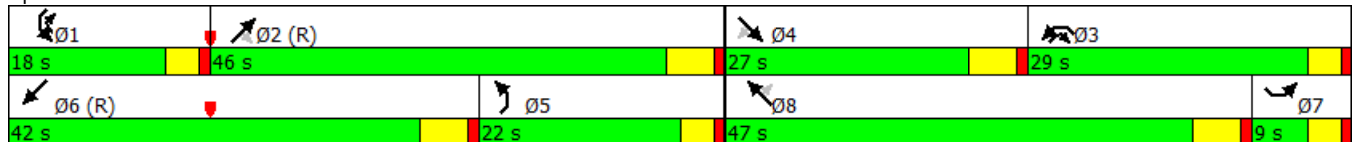
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	~109	250	220	~332	~723	322	~233	376	330	~185	348	
Queue Length 95th (ft)	#189	#370	#407	#424	#862	#522	m#338	400	#521	#288	397	
Internal Link Dist (ft)		720			1013			717			1229	
Turn Bay Length (ft)	200		500	400		350	250		200	250		
Base Capacity (vph)	145	610	265	1060	1254	810	525	2216	914	408	1976	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	2	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	1.41	0.96	0.97	1.05	1.18	0.88	1.03	0.83	0.90	1.05	0.85	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 119 (99%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.41  
 Intersection Signal Delay: 70.3  
 Intersection Capacity Utilization 104.8%  
 Analysis Period (min) 15  
 Intersection LOS: E  
 ICU Level of Service G




















~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Winchester & Ynez



Lanes, Volumes, Timings  
5: Winchester & I-15 NB off/I-15 NB on

PH12, 2045, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	89	0	312	0	2709	979	0	1388	1528
Future Volume (vph)	0	0	0	89	0	312	0	2709	979	0	1388	1528
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		450	0		0
Storage Lanes	0		0	1		1	0		1	0		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	1715	1479	1534	0	4856	1389	0	5187	2842
Flt Permitted				0.950	0.997							
Satd. Flow (perm)	0	0	0	1715	1479	1534	0	4856	1368	0	5187	2772
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					22	22		18	492			992
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		579			216			765			797	
Travel Time (s)		13.2			4.9			13.0			13.6	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)				10%		49%			16%			
Lane Group Flow (vph)	0	0	0	85	170	167	0	3017	866	0	1461	1608
Turn Type				Perm	NA	Perm		NA	Free		NA	Free
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			Free
Detector Phase				8	8	8		2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0		4.0			4.0	
Minimum Split (s)				9.8	9.8	9.8		32.4			9.4	
Total Split (s)				28.4	28.4	28.4		91.6			91.6	
Total Split (%)				23.7%	23.7%	23.7%		76.3%			76.3%	
Maximum Green (s)				22.6	22.6	22.6		86.2			86.2	
Yellow Time (s)				4.8	4.8	4.8		4.4			4.4	
All-Red Time (s)				1.0	1.0	1.0		1.0			1.0	
Lost Time Adjust (s)				0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)				5.8	5.8	5.8		5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Recall Mode				None	None	None		C-Max			C-Max	
Walk Time (s)								7.0				
Flash Dont Walk (s)								20.0				
Pedestrian Calls (#/hr)								10				
Act Effct Green (s)				17.0	17.0	17.0		91.8	120.0		91.8	120.0
Actuated g/C Ratio				0.14	0.14	0.14		0.76	1.00		0.76	1.00
v/c Ratio				0.35	0.75	0.71		0.81	0.63		0.37	0.58
Control Delay				49.1	62.1	58.3		8.7	8.3		1.8	1.6
Queue Delay				0.0	0.0	0.0		0.7	0.0		0.0	0.0
Total Delay				49.1	62.1	58.3		9.4	8.3		1.8	1.6
LOS				D	E	E		A	A		A	A
Approach Delay					58.0			9.2			1.7	
Approach LOS					E			A			A	

Lanes, Volumes, Timings  
 5: Winchester & I-15 NB off/I-15 NB on

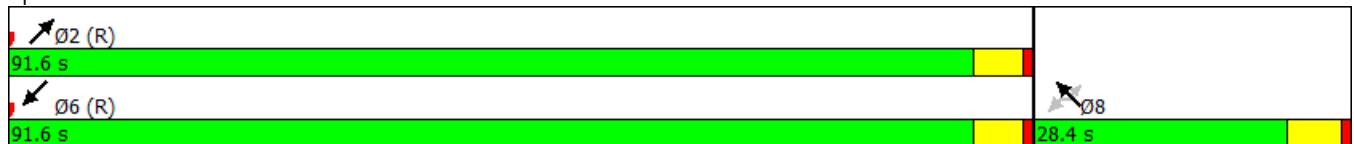
PH12, 2045, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)				63	121	113		446	786		48	9
Queue Length 95th (ft)				110	198	185		576	m827		m59	m19
Internal Link Dist (ft)		499				136		685			717	
Turn Bay Length (ft)									450			
Base Capacity (vph)				322	296	306		3720	1368		3969	2772
Starvation Cap Reductn				0	0	0		357	0		0	0
Spillback Cap Reductn				0	0	0		20	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.26	0.57	0.55		0.90	0.63		0.37	0.58

Intersection Summary




















Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 84 (70%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 8.9 Intersection LOS: A  
 Intersection Capacity Utilization 81.9% ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Winchester & I-15 NB off/I-15 NB on



Lanes, Volumes, Timings  
6: Winchester & I-15 SB on/I-15 SB off

PH12, 2045, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	1109	6	690	0	0	0	0	2579	516	0	1141	336
Future Volume (vph)	1109	6	690	0	0	0	0	2579	516	0	1141	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	3502	1538	1534	0	0	0	0	5187	1615	0	4978	0
Flt Permitted	0.950											
Satd. Flow (perm)	3502	1538	1534	0	0	0	0	5187	1537	0	4978	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55	55						397		98	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		189			419			450			765	
Travel Time (s)		4.3			9.5			7.7			13.0	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	1167	369	363	0	0	0	0	2715	543	0	1555	0
Turn Type	Perm	NA	Perm					NA	Perm		NA	
Protected Phases		4						2			6	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0		4.0	
Minimum Split (s)	9.8	9.8	9.8					26.4	26.4		9.4	
Total Split (s)	49.0	49.0	49.0					71.0	71.0		71.0	
Total Split (%)	40.8%	40.8%	40.8%					59.2%	59.2%		59.2%	
Maximum Green (s)	43.2	43.2	43.2					65.6	65.6		65.6	
Yellow Time (s)	4.8	4.8	4.8					4.4	4.4		4.4	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)	5.8	5.8	5.8					5.4	5.4		5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Max	C-Max		C-Max	
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								14.0	14.0			
Pedestrian Calls (#/hr)								10	10			
Act Effect Green (s)	42.7	42.7	42.7					66.1	66.1		66.1	
Actuated g/C Ratio	0.36	0.36	0.36					0.55	0.55		0.55	
v/c Ratio	0.94	0.63	0.62					0.95	0.53		0.56	
Control Delay	51.9	32.7	32.3					11.2	0.2		4.7	
Queue Delay	0.0	0.0	0.0					2.2	0.6		0.0	
Total Delay	51.9	32.7	32.3					13.4	0.8		4.7	
LOS	D	C	C					B	A		A	
Approach Delay		44.4						11.3			4.7	
Approach LOS		D						B			A	
Queue Length 50th (ft)	443	210	205					370	0		83	
Queue Length 95th (ft)	#579	324	318					m316	m0		32	
Internal Link Dist (ft)		109			339			370			685	

Lanes, Volumes, Timings  
 6: Winchester & I-15 SB on/I-15 SB off

PH12, 2045, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Turn Bay Length (ft)												
Base Capacity (vph)	1260	588	587					2857	1025		2785	
Starvation Cap Reductn	0	0	0					0	190		0	
Spillback Cap Reductn	0	0	0					76	0		9	
Storage Cap Reductn	0	0	0					0	0		0	
Reduced v/c Ratio	0.93	0.63	0.62					0.98	0.65		0.56	

Intersection Summary
























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 100 (83%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.95  
 Intersection Signal Delay: 19.1  
 Intersection Capacity Utilization 90.8%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Winchester & I-15 SB on/I-15 SB off

Ø2 (R) 71 s	Ø4 49 s
Ø6 (R) 71 s	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

PH12, 2045, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	836	779	159	36	1037	619	550	1640	43	531	641	659
Future Volume (vph)	836	779	159	36	1037	619	550	1640	43	531	641	659
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	200		300	400		0	0		300
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3610	1615	3502	3610	1615	3502	6506	0	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3610	1576	3502	3610	1615	3502	6506	0	3502	3610	1578
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			163			62			4			390
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1063			948			629			450	
Travel Time (s)		16.1			14.4			10.7			7.7	
Confl. Peds. (#/hr)			10						10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	880	820	167	38	1092	652	579	1771	0	559	675	694
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	33.9	33.9	8.0	8.9	8.0	8.0	40.9		8.0	36.9	36.9
Total Split (s)	26.0	48.0	48.0	10.0	32.0	19.0	20.0	43.0		19.0	42.0	42.0
Total Split (%)	21.7%	40.0%	40.0%	8.3%	26.7%	15.8%	16.7%	35.8%		15.8%	35.0%	35.0%
Maximum Green (s)	22.0	43.1	43.1	6.0	27.1	15.0	16.0	38.1		15.0	37.1	37.1
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.0	3.0	3.9		3.0	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.0	4.0	4.9		4.0	4.9	4.9
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lead		Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)		22.0	22.0					29.0			25.0	25.0
Pedestrian Calls (#/hr)		10	10					10			10	10
Act Effct Green (s)	22.0	47.1	47.1	5.9	27.1	47.0	16.0	38.1		15.0	37.1	37.1
Actuated g/C Ratio	0.18	0.39	0.39	0.05	0.23	0.39	0.13	0.32		0.12	0.31	0.31
v/c Ratio	1.37	0.58	0.23	0.22	1.34	0.97	1.24	0.86		1.28	0.60	0.92
Control Delay	214.5	31.5	5.1	58.0	198.4	61.9	169.3	43.4		185.1	33.9	30.9
Queue Delay	0.4	0.0	0.0	0.0	0.0	0.5	0.0	0.4		0.0	0.6	4.6
Total Delay	214.9	31.5	5.1	58.0	198.4	62.4	169.3	43.8		185.1	34.6	35.5
LOS	F	C	A	E	F	E	F	D		F	C	D
Approach Delay		115.6			145.7			74.7			78.6	
Approach LOS		F			F			E			E	



Lanes, Volumes, Timings  
7: Winchester & Jefferson

PH12, 2045, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	~464	275	2	14	~580	456	~287	372		~292	234	241
Queue Length 95th (ft)	#590	343	48	33	#715	#712	#401	420		#408	300	#488
Internal Link Dist (ft)		983			868			549			370	
Turn Bay Length (ft)	300		200	200		300	400					300
Base Capacity (vph)	642	1416	717	175	815	670	466	2068		437	1116	757
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	167	35
Spillback Cap Reductn	36	0	0	0	0	2	0	57		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.45	0.58	0.23	0.22	1.34	0.98	1.24	0.88		1.28	0.71	0.96

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 135  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.37  
 Intersection Signal Delay: 101.2 Intersection LOS: F  
 Intersection Capacity Utilization 112.5% ICU Level of Service H  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 7: Winchester & Jefferson

Ø2 (R)	Ø1	Ø3	Ø4
43 s	19 s	10 s	48 s
Ø6 (R)	Ø5	Ø8	Ø7
42 s	20 s	32 s	26 s

# **Appendix J – Build Phase III Conditions HCS Reports**

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	C-D lane drop and I-215 C-D junction		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.90
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	680	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate ( $v_p$ ), pc/h/ln	358
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2245
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2245
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.16
Passenger Car Equivalent ( $E_T$ )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	54.5
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	6.6
Total Ramp Density Adjustment	5.5	Level of Service (LOS)	A
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	54.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	C-D junction and I-15 C-D junction		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.90
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	820	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate ( $v_p$ ), pc/h/ln	432
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2245
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2245
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.19
Passenger Car Equivalent ( $E_T$ )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	54.5
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	7.9
Total Ramp Density Adjustment	5.5	Level of Service (LOS)	A
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	54.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	French Valley Pkwy loop on-ramp and direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.90
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1480	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate ( $v_p$ ), pc/h/ln	519
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2245
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2245
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent ( $E_T$ )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	54.5
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	9.5
Total Ramp Density Adjustment	5.5	Level of Service (LOS)	A
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	54.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	French Valley Pkwy loop on-ramp and direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.90
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1140	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate ( $v_p$ ), pc/h/ln	400
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2245
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2245
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.18
Passenger Car Equivalent ( $E_T$ )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	54.5
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	7.3
Total Ramp Density Adjustment	5.5	Level of Service (LOS)	A
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	54.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	French Valley Pkwy off-ramp and I-15 lane addition		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	64.2
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5480	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate ( $v_p$ ), pc/h/ln	1442
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2342
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2342
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	64.2
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	22.5
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	64.2		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15/I-215 junction and merge of I-15 C-D road		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3040	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate ( $v_p$ ), pc/h/ln	1067
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent ( $E_T$ )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	16.2
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	65.9		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3380	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate ( $v_p$ ), pc/h/ln	890
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.38
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	13.7
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5010	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate ( $v_p$ ), pc/h/ln	1758
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	63.5
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	27.7
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 segment (5 lanes)		

## Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	63.8
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5480	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate ( $v_p$ ), pc/h/ln	1154
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2338
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2338
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	63.8
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	18.1
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	63.8		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	C-D lane drop and I-215 C-D junction		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.90
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1360	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate ( $v_p$ ), pc/h/ln	716
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2245
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2245
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.32
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	54.5
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	13.1
Total Ramp Density Adjustment	5.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	54.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.86
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.2
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2700	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate ( $v_p$ ), pc/h/ln	947
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2372
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2372
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.40
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	14.1
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	67.2		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.86
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.2
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3550	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate ( $v_p$ ), pc/h/ln	1246
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2372
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2372
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	18.5
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	67.2		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Rancho California Road on-ramp and Winchester Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.59
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	7270	Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v <sub>p</sub> ), pc/h/ln	1913
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2379
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2379
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment (f <sub>LW</sub> )	0.0	Average Speed (S), mi/h	62.9
Right-Side Lateral Clearance Adj. (f <sub>RLC</sub> )	0.0	Density (D), pc/mi/ln	30.4
Total Ramp Density Adjustment	2.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	67.9		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd direct on-ramp and French Valley Pkwy loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.86
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.2
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	950	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate ( $v_p$ ), pc/h/ln	500
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2272
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2272
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.22
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	57.2
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	8.7
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	57.2		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	Winchester Rd off-ramp and French Valley Pkwy off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.59
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6200	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate ( $v_p$ ), pc/h/ln	1632
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2379
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2379
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent ( $E_T$ )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	66.4
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	24.6
Total Ramp Density Adjustment	2.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	67.9		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 French Valley Pkwy off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	6200	730
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	6526	768
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.68	0.37

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	30.4
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.367
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1624
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	59.7
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.436	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	74.4
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	3278	Ramp Junction Speed (S), mi/h	66.2
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	24.6
Level of Service (LOS)	D		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Winchester Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3170
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	7270	1070
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	7653	1126
Capacity (c), pc/h	9600	4200
Volume-to-Capacity Ratio (v/c)	0.80	0.27

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	2.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.399
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2296
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	58.8
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.260	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	71.7
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	3061	Ramp Junction Speed (S), mi/h	65.9
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	29.0
Level of Service (LOS)	A		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	French Valley Pkwy direct on-ramp to C-D junction		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	1140	350
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	1200	368
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.23	0.18

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	10.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1000	Speed Index (M <sub>s</sub> )	0.278
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	487
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.594	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	60.0
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	713	Ramp Junction Speed (S), mi/h	56.5
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	1081	Average Density (D), pc/mi/ln	9.3
Level of Service (LOS)	A		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3880	1120
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3959	1143
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.71	0.54

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	27.4
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1500	Speed Index (M <sub>s</sub> )	0.380
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1584
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	59.4
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.600	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	66.1
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2375	Ramp Junction Speed (S), mi/h	61.3
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	3518	Average Density (D), pc/mi/ln	27.7
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1200	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	3380	500
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3558	526
Capacity (c), pc/h	9600	1900
Volume-to-Capacity Ratio (v/c)	0.43	0.28

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	15.5
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1100	Speed Index (M <sub>s</sub> )	0.308
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1068
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1200	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.4
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.152	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	68.0
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1423	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	1949	Average Density (D), pc/mi/ln	15.8
Level of Service (LOS)	B		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	660
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2890	660
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	3042	695
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.52	0.33

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	20.7
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1275	Speed Index (M <sub>s</sub> )	0.309
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1229
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.3
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.596	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.4
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1813	Ramp Junction Speed (S), mi/h	63.2
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2508	Average Density (D), pc/mi/ln	19.7
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1275	750
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2700	200
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2842	211
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.42	0.11

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	0.0	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	15.7
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1900	Speed Index (M <sub>s</sub> )	0.310
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1142
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1275	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	61.3
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.598	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	67.7
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1700	Ramp Junction Speed (S), mi/h	63.5
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	1911	Average Density (D), pc/mi/ln	16.0
Level of Service (LOS)	B		



# HCS7 Freeway Weaving Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15/C-D road merge and Murrieta Hot Springs Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	5	Segment Type	Freeway
Short Length (L <sub>s</sub> ), ft	1695	Number of Maneuver Lanes (N <sub>NWL</sub> ), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC <sub>RF</sub> ), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC <sub>FR</sub> ), lc	2
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC <sub>RR</sub> ), lc	0
Interchange Density (ID), int/mi	0.86	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Volume (V <sub>i</sub> ), veh/h	2560	820	0	480
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	0.00	0.00	0.00	0.00
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2695	863	0	505
Weaving Flow Rate (v <sub>w</sub> ), pc/h	1368	Freeway Max Capacity (c <sub>FFL</sub> ), pc/h/ln		2400
Non-Weaving Flow Rate (v <sub>NW</sub> ), pc/h	2695	Density-Based Capacity (c <sub>NWL</sub> ), pc/h/ln		2192
Total Flow Rate (v), pc/h	4063	Demand Flow-Based Capacity (c <sub>w</sub> ), pc/h		10386
Volume Ratio (VR)	0.337	Weaving Segment Capacity (c <sub>w</sub> ), veh/h		10386
Minimum Lane Change Rate (LC <sub>MIN</sub> ), lc/h	1010	Adjusted Weaving Area Capacity (c <sub>wa</sub> ), veh/h		10386
Maximum Weaving Length (L <sub>MAX</sub> ), ft	4418	Volume-to-Capacity Ratio (v/c)		0.39

## Speed and Density

Non-Weaving Vehicle Index (I <sub>NW</sub> )	393	Average Weaving Speed (S <sub>w</sub> ), mi/h	58.3
Non-Weaving Lane Change Rate (LC <sub>NW</sub> ), lc/h	511	Average Non-Weaving Speed (S <sub>NW</sub> ), mi/h	58.8
Weaving Lane Change Rate (LC <sub>w</sub> ), lc/h	1608	Average Speed (S), mi/h	58.6
Total Lane Change Rate (LC <sub>ALL</sub> ), lc/h	2119	Density (D), pc/mi/ln	13.9
Weaving Intensity Factor (W)	0.270	Level of Service (LOS)	B

# HCS7 Freeway Weaving Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	AM
Project Description	I-15/C-D road merge and Murrieta Hot Springs Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Short Length (L <sub>s</sub> ), ft	1250	Number of Maneuver Lanes (N <sub>NWL</sub> ), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC <sub>RF</sub> ), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC <sub>FR</sub> ), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC <sub>RR</sub> ), lc	0
Interchange Density (ID), int/mi	0.86	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Volume (V <sub>i</sub> ), veh/h	2020	680	0	430
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	0.00	0.00	0.00	0.00
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2126	716	0	453
Weaving Flow Rate (v <sub>w</sub> ), pc/h	1169	Freeway Max Capacity (c <sub>FFL</sub> ), pc/h/ln		2400
Non-Weaving Flow Rate (v <sub>NW</sub> ), pc/h	2126	Density-Based Capacity (c <sub>NWL</sub> ), pc/h/ln		2023
Total Flow Rate (v), pc/h	3295	Demand Flow-Based Capacity (c <sub>w</sub> ), pc/h		6761
Volume Ratio (VR)	0.355	Weaving Segment Capacity (c <sub>w</sub> ), veh/h		6761
Minimum Lane Change Rate (LC <sub>MIN</sub> ), lc/h	716	Adjusted Weaving Area Capacity (c <sub>wa</sub> ), veh/h		6761
Maximum Weaving Length (L <sub>MAX</sub> ), ft	6181	Volume-to-Capacity Ratio (v/c)		0.49

## Speed and Density

Non-Weaving Vehicle Index (I <sub>NW</sub> )	229	Average Weaving Speed (S <sub>w</sub> ), mi/h	59.2
Non-Weaving Lane Change Rate (LC <sub>NW</sub> ), lc/h	345	Average Non-Weaving Speed (S <sub>NW</sub> ), mi/h	60.9
Weaving Lane Change Rate (LC <sub>w</sub> ), lc/h	1032	Average Speed (S), mi/h	60.3
Total Lane Change Rate (LC <sub>ALL</sub> ), lc/h	1377	Density (D), pc/mi/ln	13.7
Weaving Intensity Factor (W)	0.244	Level of Service (LOS)	B

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	C-D junction and I-215 C-D lane drop		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.90
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2000	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate ( $v_p$ ), pc/h/ln	1020
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2245
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2245
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent ( $E_T$ )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	54.5
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	18.7
Total Ramp Density Adjustment	5.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	54.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	C-D junction and I-15 C-D junction		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.90
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1390	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate ( $v_p$ ), pc/h/ln	709
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2245
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2245
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.32
Passenger Car Equivalent ( $E_T$ )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	54.5
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	13.0
Total Ramp Density Adjustment	5.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	54.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	French Valley Pkwy loop on-ramp and direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.90
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	3390	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate ( $v_p$ ), pc/h/ln	1153
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2245
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2245
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	54.5
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	21.2
Total Ramp Density Adjustment	5.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	54.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	French Valley Pkwy loop on-ramp and direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.90
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	2580	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate ( $v_p$ ), pc/h/ln	878
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2245
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2245
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent ( $E_T$ )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	54.5
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	16.1
Total Ramp Density Adjustment	5.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	54.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	French Valley Pkwy off-ramp and I-15 lane addition		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	64.2
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	9010	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate ( $v_p$ ), pc/h/ln	2298
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2342
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2342
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.98
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	53.2
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	43.2
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	64.2		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15/I-215 junction and merge of I-15 C-D road		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	5610	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate ( $v_p$ ), pc/h/ln	1908
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent ( $E_T$ )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	61.9
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	30.8
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	65.9		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6340	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate ( $v_p$ ), pc/h/ln	1617
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	64.3
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	25.1
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	8390	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate ( $v_p$ ), pc/h/ln	2854
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.21
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 segment (5 lanes)		

## Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	63.8
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	9010	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate ( $v_p$ ), pc/h/ln	1839
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2338
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2338
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	61.5
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	29.9
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	63.8		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 C-D lane drop and I-215 C-D junction		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.90
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4000	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate ( $v_p$ ), pc/h/ln	2041
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2245
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2245
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.91
Passenger Car Equivalent ( $E_T$ )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	53.3
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	38.3
Total Ramp Density Adjustment	5.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	54.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd off-ramp and loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	4720	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate ( $v_p$ ), pc/h/ln	1605
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	64.8
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	24.8
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 North of Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	64.7
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	6670	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate ( $v_p$ ), pc/h/ln	2269
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2346
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2346
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.97
Passenger Car Equivalent ( $E_T$ )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	54.1
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	41.9
Total Ramp Density Adjustment	5.4	Level of Service (LOS)	E
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	64.6		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	Rancho California Road on-ramp and Winchester Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	9820	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate ( $v_p$ ), pc/h/ln	2505
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2355
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2355
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.06
Passenger Car Equivalent ( $E_T$ )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	65.5		

# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	Winchester Rd direct on-ramp and French Valley Pkwy loop on-ramp		

## Geometric Data

Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.90
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.5
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	1800	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate ( $v_p$ ), pc/h/ln	918
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2245
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2245
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E <sub>T</sub> )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	54.5
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	16.8
Total Ramp Density Adjustment	5.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	54.5		



# HCS7 Basic Freeway Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	Winchester Rd off-ramp and French Valley Pkwy off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Volume (V), veh/h	9390	Heavy Vehicle Adjustment Factor ( $f_{HV}$ )	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate ( $v_p$ ), pc/h/ln	2396
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity ( $c_{adj}$ ), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.02
Passenger Car Equivalent ( $E_T$ )	2.000		

## Speed and Density

Lane Width Adjustment ( $f_{LW}$ )	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. ( $f_{RLC}$ )	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed ( $FFS_{adj}$ ), mi/h	65.0		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 French Valley Pkwy off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	225
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	9390	370
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	9582	378
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	1.00	0.18

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	40.0
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	0.332
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2596
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.436	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	70.6
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	4391	Ramp Junction Speed (S), mi/h	65.7
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	36.5
Level of Service (LOS)	E		

# HCS7 Freeway Diverge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Winchester Rd off-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	2
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L <sub>D</sub> ), ft	1500	3170
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	9820	440
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	10020	449
Capacity (c), pc/h	9600	4200
Volume-to-Capacity Ratio (v/c)	1.04	0.11

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	-
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	-	Speed Index (D <sub>S</sub> )	-
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2700
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	Off-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	-
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FD</sub> )	0.260	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	70.2
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	4620	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	-	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	French Valley Pkwy direct on-ramp and C-D junction		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	2580	810
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2633	827
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.50	0.39

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	20.1
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1000	Speed Index (M <sub>s</sub> )	0.310
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1069
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.594	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	58.0
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	1564	Ramp Junction Speed (S), mi/h	55.5
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2391	Average Density (D), pc/mi/ln	20.8
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	6530	1850
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	6663	1888
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	1.19	0.90

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	-
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1500	Speed Index (M <sub>s</sub> )	-
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2665
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	-
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.600	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	61.3
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	3998	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	5886	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15 Murrieta Hot Springs Rd loop on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1200	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	6340	210
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	6469	214
Capacity (c), pc/h	9600	1900
Volume-to-Capacity Ratio (v/c)	0.70	0.11

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	22.3
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1100	Speed Index (M <sub>s</sub> )	0.345
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1941
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1200	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	60.3
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.191	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	64.8
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2588	Ramp Junction Speed (S), mi/h	62.8
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	2802	Average Density (D), pc/mi/ln	26.6
Level of Service (LOS)	C		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1500	660
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	5310	1360
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	5418	1388
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.95	0.66

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	36.8
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1275	Speed Index (M <sub>s</sub> )	0.656
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	2189
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	-	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	51.6
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.596	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	63.9
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	3229	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	4617	Average Density (D), pc/mi/ln	41.2
Level of Service (LOS)	E		

# HCS7 Freeway Merge Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-215 Murrieta Hot Springs Rd direct on-ramp		

## Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	25.0
Segment Length (L) / Acceleration Length (L <sub>A</sub> ), ft	1275	750
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Volume (V <sub>i</sub> ), veh/h	4720	580
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	4816	592
Capacity (c), pc/h	7200	1900
Volume-to-Capacity Ratio (v/c)	0.75	0.31

## Speed and Density

Upstream Equilibrium Distance (L <sub>EQ</sub> ), ft	395.3	Density in Ramp Influence Area (D <sub>R</sub> ), pc/mi/ln	27.7
Distance to Upstream Ramp (L <sub>UP</sub> ), ft	1890	Speed Index (M <sub>s</sub> )	0.409
Downstream Equilibrium Distance (L <sub>EQ</sub> ), ft	-	Flow Outer Lanes (v <sub>OA</sub> ), pc/h/ln	1936
Distance to Downstream Ramp (L <sub>DOWN</sub> ), ft	1275	On-Ramp Influence Area Speed (S <sub>R</sub> ), mi/h	58.5
Prop. Freeway Vehicles in Lane 1 and 2 (P <sub>FM</sub> )	0.598	Outer Lanes Freeway Speed (S <sub>O</sub> ), mi/h	64.8
Flow in Lanes 1 and 2 (v <sub>12</sub> ), pc/h	2880	Ramp Junction Speed (S), mi/h	60.6
Flow Entering Ramp-Infl. Area (v <sub>R12</sub> ), pc/h	3472	Average Density (D), pc/mi/ln	29.7
Level of Service (LOS)	C		



# HCS7 Freeway Weaving Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15/C-D road merge and Murrieta Hot Springs Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	5	Segment Type	Freeway
Short Length (L <sub>s</sub> ), ft	1695	Number of Maneuver Lanes (N <sub>NWL</sub> ), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC <sub>RF</sub> ), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC <sub>FR</sub> ), lc	2
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC <sub>RR</sub> ), lc	0
Interchange Density (ID), int/mi	1.67	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Volume (V <sub>i</sub> ), veh/h	4940	1360	0	670
Peak Hour Factor (PHF)	0.98	0.98	0.98	0.98
Total Trucks, %	0.00	0.00	0.00	0.00
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	5041	1388	0	684
Weaving Flow Rate (v <sub>w</sub> ), pc/h	2072	Freeway Max Capacity (c <sub>FL</sub> ), pc/h/ln		2400
Non-Weaving Flow Rate (v <sub>NW</sub> ), pc/h	5041	Density-Based Capacity (c <sub>NWL</sub> ), pc/h/ln		2230
Total Flow Rate (v), pc/h	7113	Demand Flow-Based Capacity (c <sub>w</sub> ), pc/h		12027
Volume Ratio (VR)	0.291	Weaving Segment Capacity (c <sub>w</sub> ), veh/h		11150
Minimum Lane Change Rate (LC <sub>MIN</sub> ), lc/h	1368	Adjusted Weaving Area Capacity (c <sub>wa</sub> ), veh/h		11150
Maximum Weaving Length (L <sub>MAX</sub> ), ft	3922	Volume-to-Capacity Ratio (v/c)		0.64

## Speed and Density

Non-Weaving Vehicle Index (I <sub>NW</sub> )	1427	Average Weaving Speed (S <sub>w</sub> ), mi/h	56.2
Non-Weaving Lane Change Rate (LC <sub>NW</sub> ), lc/h	639	Average Non-Weaving Speed (S <sub>NW</sub> ), mi/h	53.3
Weaving Lane Change Rate (LC <sub>w</sub> ), lc/h	2167	Average Speed (S), mi/h	54.1
Total Lane Change Rate (LC <sub>AI</sub> ), lc/h	2806	Density (D), pc/mi/ln	26.3
Weaving Intensity Factor (W)	0.336	Level of Service (LOS)	C

# HCS7 Freeway Weaving Report

## Project Information

Analyst	Kevin Ciucki	Date	8/7/2017
Agency	Parsons	Analysis Year	Build Phase 1, 2, & 3 (2045)
Jurisdiction	Caltrans	Time Period Analyzed	PM
Project Description	I-15/C-D road merge and Murrieta Hot Springs Road off-ramp		

## Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Short Length (L <sub>s</sub> ), ft	1250	Number of Maneuver Lanes (N <sub>NWL</sub> ), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC <sub>RF</sub> ), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC <sub>FR</sub> ), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC <sub>RR</sub> ), lc	0
Interchange Density (ID), int/mi	1.50	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.860
Weather Type	Light-Medium Snow	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Volume (V <sub>i</sub> ), veh/h	2710	2000	0	680
Peak Hour Factor (PHF)	0.98	0.98	0.98	0.98
Total Trucks, %	0.00	0.00	0.00	0.00
Heavy Vehicle Adjustment Factor (f <sub>HV</sub> )	1.000	1.000	1.000	1.000
Flow Rate (v <sub>i</sub> ), pc/h	2765	2041	0	694
Weaving Flow Rate (v <sub>w</sub> ), pc/h	2735	Freeway Max Capacity (c <sub>FFL</sub> ), pc/h/ln		2302
Non-Weaving Flow Rate (v <sub>NW</sub> ), pc/h	2765	Density-Based Capacity (c <sub>NWL</sub> ), pc/h/ln		1802
Total Flow Rate (v), pc/h	5500	Demand Flow-Based Capacity (c <sub>w</sub> ), pc/h		4829
Volume Ratio (VR)	0.497	Weaving Segment Capacity (c <sub>w</sub> ), veh/h		4829
Minimum Lane Change Rate (LC <sub>MIN</sub> ), lc/h	0	Adjusted Weaving Area Capacity (c <sub>wa</sub> ), veh/h		4346
Maximum Weaving Length (L <sub>MAX</sub> ), ft	7791	Volume-to-Capacity Ratio (v/c)		1.27



















## Speed and Density

Non-Weaving Vehicle Index (I <sub>NW</sub> )	-	Average Weaving Speed (S <sub>w</sub> ), mi/h	-
Non-Weaving Lane Change Rate (LC <sub>NW</sub> ), lc/h	-	Average Non-Weaving Speed (S <sub>NW</sub> ), mi/h	-
Weaving Lane Change Rate (LC <sub>w</sub> ), lc/h	-	Average Speed (S), mi/h	-
Total Lane Change Rate (LC <sub>AI</sub> ), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

# **Appendix K – Build Phase III Conditions Synchro Reports**

























HCM 2010 Signalized Intersection Summary  
 2: French Valley Pkwy & I-15 SB on/I-15 SB off

PH123, 2045, AM

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	539	0	1687	0	306	386	0	566	884
Future Volume (veh/h)	0	0	0	539	0	1687	0	306	386	0	566	884
Number				7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	0	1900	0	1900	1900	0	1900	1900
Adj Flow Rate, veh/h				567	0	1776	0	322	0	0	596	931
Adj No. of Lanes				2	0	2	0	3	1	0	3	1
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				2589	0	2096	0	938	292	0	938	1483
Arrive On Green				0.74	0.00	0.74	0.00	0.30	0.00	0.00	0.30	0.30
Sat Flow, veh/h				3510	0	2842	0	5358	1615	0	5358	1615
Grp Volume(v), veh/h				567	0	1776	0	322	0	0	596	931
Grp Sat Flow(s),veh/h/ln				1755	0	1421	0	1729	1615	0	1729	1615
Q Serve(g_s), s				6.1	0.0	52.5	0.0	5.8	0.0	0.0	11.9	21.7
Cycle Q Clear(g_c), s				6.1	0.0	52.5	0.0	5.8	0.0	0.0	11.9	21.7
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				2589	0	2096	0	938	292	0	938	1483
V/C Ratio(X)				0.22	0.00	0.85	0.00	0.34	0.00	0.00	0.64	0.63
Avail Cap(c_a), veh/h				2589	0	2096	0	938	292	0	938	1483
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.67	1.67	1.00	1.67	1.67
Upstream Filter(l)				1.00	0.00	1.00	0.00	0.92	0.00	0.00	0.94	0.94
Uniform Delay (d), s/veh				4.9	0.0	11.0	0.0	36.3	0.0	0.0	38.5	1.1
Incr Delay (d2), s/veh				0.2	0.0	4.5	0.0	0.9	0.0	0.0	3.1	1.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.0	0.0	21.5	0.0	2.8	0.0	0.0	5.9	31.4
LnGrp Delay(d),s/veh				5.1	0.0	15.5	0.0	37.2	0.0	0.0	41.6	3.0
LnGrp LOS				A		B		D			D	A
Approach Vol, veh/h					2343			322			1527	
Approach Delay, s/veh					13.0			37.2			18.0	
Approach LOS					B			D			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		27.0		93.0		27.0						
Change Period (Y+Rc), s		5.3		4.5		5.3						
Max Green Setting (Gmax), s		21.7		88.5		21.7						
Max Q Clear Time (g_c+I1), s		7.8		54.5		23.7						
Green Ext Time (p_c), s		6.7		16.2		0.0						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				16.7								
HCM 2010 LOS				B								



















HCM 2010 Signalized Intersection Summary  
7: Winchester & Jefferson

PH123, 2045, AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	224	1270	283	36	1049	142	44	255	9	296	569	230
Future Volume (veh/h)	224	1270	283	36	1049	142	44	255	9	296	569	230
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	236	1337	298	38	1104	149	46	268	9	312	599	242
Adj No. of Lanes	2	2	1	2	2	1	2	4	0	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	291	1431	635	84	1191	720	92	2018	67	406	1463	650
Arrive On Green	0.08	0.40	0.40	0.02	0.33	0.33	0.03	0.31	0.31	0.23	0.81	0.81
Sat Flow, veh/h	3510	3610	1603	3510	3610	1615	3510	6544	217	3510	3610	1603
Grp Volume(v), veh/h	236	1337	298	38	1104	149	46	200	77	312	599	242
Grp Sat Flow(s),veh/h/ln	1755	1805	1603	1755	1805	1615	1755	1634	1859	1755	1805	1603
Q Serve(g_s), s	7.9	42.6	16.5	1.3	35.4	0.0	1.6	3.5	3.6	10.0	5.6	3.6
Cycle Q Clear(g_c), s	7.9	42.6	16.5	1.3	35.4	0.0	1.6	3.5	3.6	10.0	5.6	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	291	1431	635	84	1191	720	92	1511	573	406	1463	650
V/C Ratio(X)	0.81	0.93	0.47	0.45	0.93	0.21	0.50	0.13	0.13	0.77	0.41	0.37
Avail Cap(c_a), veh/h	293	1431	635	176	1267	753	176	1511	573	406	1463	650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.42	0.42	0.42
Uniform Delay (d), s/veh	54.1	34.7	26.9	57.8	38.8	20.3	57.7	29.9	29.9	44.6	7.3	3.8
Incr Delay (d2), s/veh	15.7	11.6	0.5	3.8	11.4	0.1	4.2	0.2	0.5	3.8	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	23.5	7.4	0.7	19.5	3.0	0.8	1.6	1.9	5.0	2.7	1.6
LnGrp Delay(d),s/veh	69.8	46.3	27.4	61.5	50.2	20.5	61.8	30.1	30.4	48.4	7.6	4.5
LnGrp LOS	E	D	C	E	D	C	E	C	C	D	A	A
Approach Vol, veh/h		1871			1291			323			1153	
Approach Delay, s/veh		46.3			47.1			34.7			18.0	
Approach LOS		D			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.8	41.9	6.9	52.5	7.1	53.5	14.8	44.5				
Change Period (Y+Rc), s	4.9	* 4.9	4.0	4.9	4.0	4.9	4.9	* 4.9				
Max Green Setting (Gmax), s	13.1	* 37	6.0	46.1	6.0	44.1	10.0	* 42				
Max Q Clear Time (g_c+I1), s	12.0	5.6	3.3	44.6	3.6	7.6	9.9	37.4				
Green Ext Time (p_c), s	0.2	0.9	0.0	1.1	0.0	4.4	0.0	2.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			38.7									
HCM 2010 LOS			D									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												




































HCM 2010 Signalized Intersection Summary  
 2: French Valley Pkwy & I-15 SB on/I-15 SB off

PH123, 2045, PM

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	629	0	826	0	1573	872	0	413	485
Future Volume (veh/h)	0	0	0	629	0	826	0	1573	872	0	413	485
Number				7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	0	1900	0	1900	1900	0	1900	1900
Adj Flow Rate, veh/h				662	0	869	0	1656	0	0	435	511
Adj No. of Lanes				2	0	2	0	3	1	0	3	1
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				1360	0	1101	0	2753	857	0	2753	1483
Arrive On Green				0.39	0.00	0.39	0.00	1.00	0.00	0.00	0.18	0.18
Sat Flow, veh/h				3510	0	2842	0	5358	1615	0	5358	1615
Grp Volume(v), veh/h				662	0	869	0	1656	0	0	435	511
Grp Sat Flow(s),veh/h/ln				1755	0	1421	0	1729	1615	0	1729	1615
Q Serve(g_s), s				17.1	0.0	32.4	0.0	0.0	0.0	0.0	8.5	6.1
Cycle Q Clear(g_c), s				17.1	0.0	32.4	0.0	0.0	0.0	0.0	8.5	6.1
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1360	0	1101	0	2753	857	0	2753	1483
V/C Ratio(X)				0.49	0.00	0.79	0.00	0.60	0.00	0.00	0.16	0.34
Avail Cap(c_a), veh/h				1360	0	1101	0	2753	857	0	2753	1483
HCM Platoon Ratio				1.00	1.00	1.00	1.00	2.00	2.00	1.00	0.33	0.33
Upstream Filter(l)				1.00	0.00	1.00	0.00	0.09	0.00	0.00	0.90	0.90
Uniform Delay (d), s/veh				27.7	0.0	32.4	0.0	0.0	0.0	0.0	26.7	1.1
Incr Delay (d2), s/veh				1.2	0.0	5.8	0.0	0.1	0.0	0.0	0.1	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				8.5	0.0	13.6	0.0	0.0	0.0	0.0	4.1	15.9
LnGrp Delay(d),s/veh				29.0	0.0	38.2	0.0	0.1	0.0	0.0	26.9	1.7
LnGrp LOS				C		D		A			C	A
Approach Vol, veh/h					1531			1656			946	
Approach Delay, s/veh					34.2			0.1			13.3	
Approach LOS					C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		69.0		51.0		69.0						
Change Period (Y+Rc), s		5.3		4.5		5.3						
Max Green Setting (Gmax), s		63.7		46.5		63.7						
Max Q Clear Time (g_c+I1), s		2.0		34.4		10.5						
Green Ext Time (p_c), s		16.5		5.4		16.2						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				15.7								
HCM 2010 LOS				B								
































HCM 2010 Signalized Intersection Summary  
7: Winchester & Jefferson

PH123, 2045, PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	 	 	 	 	 	 	 	 	 	 	 	
Traffic Volume (veh/h)	462	1311	43	4	2029	342	583	907	17	275	331	341
Future Volume (veh/h)	462	1311	43	4	2029	342	583	907	17	275	331	341
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	486	1380	45	4	2136	360	614	955	18	289	348	359
Adj No. of Lanes	2	2	1	2	2	1	2	4	0	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	410	1417	629	176	1176	674	497	2112	40	322	966	427
Arrive On Green	0.12	0.39	0.39	0.05	0.33	0.33	0.14	0.32	0.32	0.15	0.45	0.45
Sat Flow, veh/h	3510	3610	1603	3510	3610	1615	3510	6653	125	3510	3610	1597
Grp Volume(v), veh/h	486	1380	45	4	2136	360	614	703	270	289	348	359
Grp Sat Flow(s),veh/h/ln	1755	1805	1603	1755	1805	1615	1755	1634	1877	1755	1805	1597
Q Serve(g_s), s	14.0	45.1	2.1	0.1	39.1	9.1	17.0	13.7	13.8	9.7	7.6	23.9
Cycle Q Clear(g_c), s	14.0	45.1	2.1	0.1	39.1	9.1	17.0	13.7	13.8	9.7	7.6	23.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	410	1417	629	176	1176	674	497	1556	596	322	966	427
V/C Ratio(X)	1.19	0.97	0.07	0.02	1.82	0.53	1.23	0.45	0.45	0.90	0.36	0.84
Avail Cap(c_a), veh/h	410	1417	629	176	1176	674	497	1556	596	322	966	427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78
Uniform Delay (d), s/veh	53.0	35.8	22.8	54.2	40.4	26.2	51.5	32.6	32.6	50.3	26.4	30.9
Incr Delay (d2), s/veh	106.1	18.0	0.0	0.1	370.5	0.8	122.1	0.9	2.5	21.8	0.8	14.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.8	26.0	0.9	0.1	80.0	4.1	16.7	6.3	7.5	5.7	3.9	12.2
LnGrp Delay(d),s/veh	159.1	53.8	22.8	54.3	411.0	27.0	173.6	33.6	35.1	72.1	27.2	45.3
LnGrp LOS	F	D	C	D	F	C	F	C	D	E	C	D
Approach Vol, veh/h		1911			2500			1587				996
Approach Delay, s/veh		79.9			355.1			88.0				46.8
Approach LOS		E			F			F				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	43.0	10.0	52.0	21.0	37.0	18.0	44.0				
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9				
Max Green Setting (Gmax), s	11.0	38.1	6.0	47.1	17.0	32.1	14.0	39.1				
Max Q Clear Time (g_c+I1), s	11.7	15.8	2.1	47.1	19.0	25.9	16.0	41.1				
Green Ext Time (p_c), s	0.0	3.4	0.7	0.0	0.0	1.4	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			175.4									
HCM 2010 LOS			F									

Lanes, Volumes, Timings  
1: French Valley Pkwy & Ynez Road

PH123, 2045, AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 	  		 	 	
Traffic Volume (vph)	378	490	110	157	64	86	34	578	93	656	911	347
Future Volume (vph)	378	490	110	157	64	86	34	578	93	656	911	347
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		250	300		150
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	3610	1615	1805	3610	1615	3502	5187	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	3610	1591	1805	3610	1578	3502	5187	1575	3502	3610	1575
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			227			136			91			240
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		324			432			961			623	
Travel Time (s)		4.9			6.5			14.6			9.4	
Confl. Peds. (#/hr)			10			10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	398	516	116	165	67	91	36	608	98	691	959	365
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			Free			8			2			6
Detector Phase	7	4		3	8	8	5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	38.0		8.0	38.0	38.0	8.0	33.0	8.0	8.5	33.0	33.0
Total Split (s)	25.0	41.0		22.0	38.0	38.0	8.0	34.0	22.0	23.0	49.0	49.0
Total Split (%)	20.8%	34.2%		18.3%	31.7%	31.7%	6.7%	28.3%	18.3%	19.2%	40.8%	40.8%
Maximum Green (s)	21.0	36.0		18.0	33.0	33.0	4.0	29.0	18.0	19.0	44.0	44.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0	4.0	4.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	5.0
Flash Dont Walk (s)		28.0			28.0	28.0		23.0			23.0	23.0
Pedestrian Calls (#/hr)		10			10	10		10			10	10
Act Effct Green (s)	21.0	23.6	120.0	15.9	18.5	18.5	4.0	29.4	46.4	33.0	61.7	61.7
Actuated g/C Ratio	0.18	0.20	1.00	0.13	0.15	0.15	0.03	0.24	0.39	0.28	0.51	0.51
v/c Ratio	1.26	0.73	0.07	0.69	0.12	0.25	0.31	0.48	0.15	0.72	0.52	0.39
Control Delay	182.5	51.0	0.1	64.1	40.3	3.3	57.4	34.5	4.1	45.7	23.1	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	182.5	51.0	0.1	64.1	40.3	3.3	57.4	34.5	4.1	45.7	23.1	9.1
LOS	F	D	A	E	D	A	E	C	A	D	C	A
Approach Delay		96.1			42.0			31.6			28.3	
Approach LOS		F			D			C			C	



Lanes, Volumes, Timings  
 1: French Valley Pkwy & Ynez Road

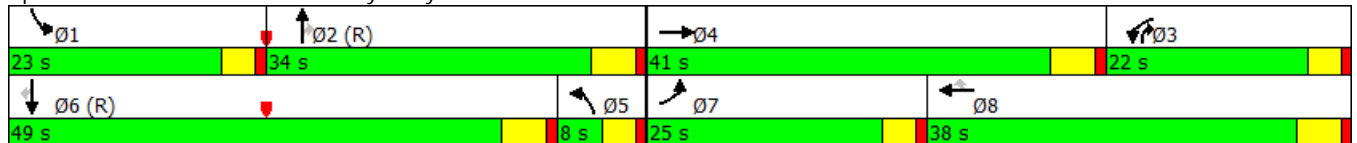
PH123, 2045, AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~387	201	0	123	24	0	14	113	11	246	261	52
Queue Length 95th (ft)	#584	234	0	190	38	13	32	144	6	#463	412	156
Internal Link Dist (ft)		244			352			881			543	
Turn Bay Length (ft)	250		100	250			250		250	300		150
Base Capacity (vph)	315	1083	1591	281	992	532	116	1272	704	964	1855	926
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.26	0.48	0.07	0.59	0.07	0.17	0.31	0.48	0.14	0.72	0.52	0.39

Intersection Summary

























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 9 (8%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.26  
 Intersection Signal Delay: 47.0 Intersection LOS: D  
 Intersection Capacity Utilization 88.2% ICU Level of Service E  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: French Valley Pkwy & Ynez Road



Lanes, Volumes, Timings  
2: French Valley Pkwy & I-15 SB on/I-15 SB off

PH123, 2045, AM

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				 		 		  			  	
Traffic Volume (vph)	0	0	0	539	0	1687	0	306	386	0	566	884
Future Volume (vph)	0	0	0	539	0	1687	0	306	386	0	566	884
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		280	0		250
Storage Lanes	0		0	2		2	0		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	3502	0	2842	0	5187	1615	0	5187	1615
Flt Permitted				0.950								
Satd. Flow (perm)	0	0	0	3502	0	2842	0	5187	1615	0	5187	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						21			406			
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		688			198			1223			945	
Travel Time (s)		15.6			4.5			18.5			14.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	567	0	1776	0	322	406	0	596	931
Turn Type				Prot		Prot		NA	Free		NA	pm+ov
Protected Phases				4		4		2			6	4
Permitted Phases				4		4			Free			6
Detector Phase				4		4		2			6	4
Switch Phase												
Minimum Initial (s)				4.0		4.0		4.0			4.0	4.0
Minimum Split (s)				20.5		20.5		21.3			21.3	20.5
Total Split (s)				93.0		93.0		27.0			27.0	93.0
Total Split (%)				77.5%		77.5%		22.5%			22.5%	77.5%
Maximum Green (s)				88.5		88.5		21.7			21.7	88.5
Yellow Time (s)				3.5		3.5		4.3			4.3	3.5
All-Red Time (s)				1.0		1.0		1.0			1.0	1.0
Lost Time Adjust (s)				0.0		0.0		0.0			0.0	0.0
Total Lost Time (s)				4.5		4.5		5.3			5.3	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Recall Mode				Max		Max		C-Max			C-Max	Max
Walk Time (s)				5.0		5.0		5.0			5.0	5.0
Flash Dont Walk (s)				11.0		11.0		11.0			11.0	11.0
Pedestrian Calls (#/hr)				0		0		0			0	0
Act Effct Green (s)				88.5		88.5		21.7	120.0		21.7	120.0
Actuated g/C Ratio				0.74		0.74		0.18	1.00		0.18	1.00
v/c Ratio				0.22		0.85		0.34	0.25		0.64	0.58
Control Delay				5.2		15.9		20.5	2.2		40.0	3.7
Queue Delay				0.0		0.0		0.0	0.0		0.0	0.0
Total Delay				5.2		15.9		20.5	2.2		40.0	3.7
LOS				A		B		C	A		D	A
Approach Delay					13.3			10.3			17.9	
Approach LOS					B			B			B	
Queue Length 50th (ft)				61		471		71	46		158	21

Lanes, Volumes, Timings  
 2: French Valley Pkwy & I-15 SB on/I-15 SB off

PH123, 2045, AM

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 95th (ft)				80		608		92	74		174	104
Internal Link Dist (ft)		608			118			1143			865	
Turn Bay Length (ft)									280			250
Base Capacity (vph)				2582		2101		937	1615		937	1615
Starvation Cap Reductn				0		0		0	0		0	0
Spillback Cap Reductn				0		0		0	0		0	0
Storage Cap Reductn				0		0		0	0		0	0
Reduced v/c Ratio				0.22		0.85		0.34	0.25		0.64	0.58

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 24 (20%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 14.3  
 Intersection Capacity Utilization 78.1%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service D

Splits and Phases: 2: French Valley Pkwy & I-15 SB on/I-15 SB off

Ø2 (R) 27 s	Ø4 93 s
Ø6 (R) 27 s	

Lanes, Volumes, Timings  
3: Cherry St/French Valley Pkwy & Jefferson

PH123, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	158	818	125	368	1180	77	208	457	649	501	591	1161
Future Volume (vph)	158	818	125	368	1180	77	208	457	649	501	591	1161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	250		200	200		200	200		200
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	5187	1615	3502	5187	1615	3502	3610	1615	3502	3202	1470
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	5187	1576	3502	5187	1576	3502	3610	1578	3502	3202	1470
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			155			109		219	109
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		747			1560			615			1223	
Travel Time (s)		10.2			21.3			9.3			18.5	
Confl. Peds. (#/hr)			10			10			10			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												50%
Lane Group Flow (vph)	166	861	132	387	1242	81	219	481	683	527	1233	611
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	34.0	34.0	9.0	34.0	34.0	20.0	37.0	9.0	20.0	37.0	9.0
Total Split (s)	19.0	34.0	34.0	22.0	37.0	37.0	20.0	40.0	22.0	24.0	44.0	19.0
Total Split (%)	15.8%	28.3%	28.3%	18.3%	30.8%	30.8%	16.7%	33.3%	18.3%	20.0%	36.7%	15.8%
Maximum Green (s)	14.0	29.0	29.0	17.0	32.0	32.0	15.0	35.0	17.0	19.0	39.0	14.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	None	None	C-Max	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		24.0	24.0		24.0	24.0		27.0			27.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effct Green (s)	14.0	29.0	29.0	17.0	32.0	32.0	12.5	35.0	52.0	19.0	41.5	55.5
Actuated g/C Ratio	0.12	0.24	0.24	0.14	0.27	0.27	0.10	0.29	0.43	0.16	0.35	0.46
v/c Ratio	0.41	0.69	0.27	0.78	0.90	0.15	0.60	0.46	0.91	0.95	0.99	0.83
Control Delay	52.5	44.7	5.0	61.6	52.2	0.6	58.2	36.4	33.7	64.8	44.7	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.5	44.7	5.0	61.6	52.2	0.6	58.2	36.4	33.7	64.8	44.7	20.9
LOS	D	D	A	E	D	A	E	D	C	E	D	C
Approach Delay		41.3			51.9			38.5			43.0	
Approach LOS		D			D			D			D	

Lanes, Volumes, Timings  
 3: Cherry St/French Valley Pkwy & Jefferson

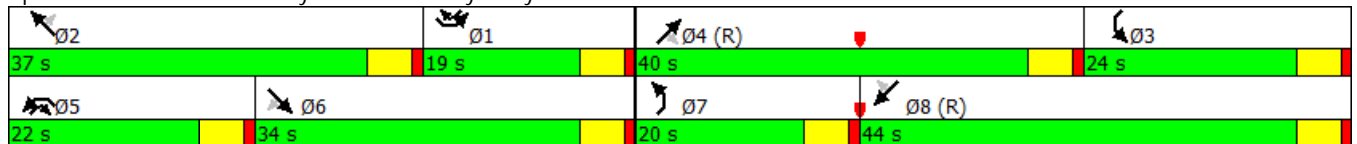
PH123, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	62	223	0	151	340	0	84	160	230	183	369	196
Queue Length 95th (ft)	97	272	35	#215	#410	0	123	212	#486	m#290	#629	m#354
Internal Link Dist (ft)		667			1480			535			1143	
Turn Bay Length (ft)	300		200	250		200	200		200	200		200
Base Capacity (vph)	408	1253	498	496	1383	533	437	1052	750	554	1250	738
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.69	0.27	0.78	0.90	0.15	0.50	0.46	0.91	0.95	0.99	0.83

Intersection Summary
























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 16 (13%), Referenced to phase 4:NET and 8:SWT, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.99  
 Intersection Signal Delay: 44.1 Intersection LOS: D  
 Intersection Capacity Utilization 92.3% ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Cherry St/French Valley Pkwy & Jefferson



Lanes, Volumes, Timings  
8: French Valley Pkwy & I-15 NB off/I-15 NB on

PH123, 2045, AM

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations								  			  	
Traffic Volume (vph)	385	42	167	0	0	0	0	539	307	0	1064	115
Future Volume (vph)	385	42	167	0	0	0	0	539	307	0	1064	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		250	0		300
Storage Lanes	1		1	0		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1715	1735	1615	0	0	0	0	5187	1615	0	5187	1615
Flt Permitted	0.950	0.961										
Satd. Flow (perm)	1715	1735	1615	0	0	0	0	5187	1530	0	5187	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			176									121
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		249			561			945			775	
Travel Time (s)		5.7			12.8			14.3			11.7	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)	45%											
Lane Group Flow (vph)	223	226	176	0	0	0	0	567	323	0	1120	121
Turn Type	Split	NA	Perm					NA	pm+ov		NA	Perm
Protected Phases	8	8						2	8		6	
Permitted Phases			8						2			6
Detector Phase	8	8	8					2	8		6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0		4.0	4.0
Minimum Split (s)	8.5	8.5	8.5					23.3	8.5		23.3	23.3
Total Split (s)	52.0	52.0	52.0					68.0	52.0		68.0	68.0
Total Split (%)	43.3%	43.3%	43.3%					56.7%	43.3%		56.7%	56.7%
Maximum Green (s)	47.5	47.5	47.5					62.7	47.5		62.7	62.7
Yellow Time (s)	3.5	3.5	3.5					4.3	3.5		4.3	4.3
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5					5.3	4.5		5.3	5.3
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	3.0
Recall Mode	None	None	None					C-Max	None		C-Max	C-Max
Walk Time (s)								7.0			7.0	7.0
Flash Dont Walk (s)								11.0			11.0	11.0
Pedestrian Calls (#/hr)								10			10	10
Act Effct Green (s)	22.4	22.4	22.4					87.8	111.0		87.8	87.8
Actuated g/C Ratio	0.19	0.19	0.19					0.73	0.92		0.73	0.73
v/c Ratio	0.70	0.70	0.40					0.15	0.23		0.30	0.11
Control Delay	56.5	56.3	8.0					5.1	6.6		1.4	0.4
Queue Delay	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Total Delay	56.5	56.3	8.0					5.1	6.6		1.4	0.4
LOS	E	E	A					A	A		A	A
Approach Delay		42.8						5.6			1.3	
Approach LOS		D						A			A	

Lanes, Volumes, Timings  
 8: French Valley Pkwy & I-15 NB off/I-15 NB on

PH123, 2045, AM

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	172	174	0					39	146		34	2
Queue Length 95th (ft)	240	242	55					70	187		24	2
Internal Link Dist (ft)		169			481			865			695	
Turn Bay Length (ft)									250			300
Base Capacity (vph)	678	686	745					3794	1506		3794	1151
Starvation Cap Reductn	0	0	0					0	0		0	0
Spillback Cap Reductn	0	0	0					0	0		0	0
Storage Cap Reductn	0	0	0					0	0		0	0
Reduced v/c Ratio	0.33	0.33	0.24					0.15	0.21		0.30	0.11

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 12 (10%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 40  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.70  
 Intersection Signal Delay: 12.1  
 Intersection Capacity Utilization 40.5%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 8: French Valley Pkwy & I-15 NB off/I-15 NB on

Ø2 (R) 68 s	Ø8 52 s
Ø6 (R) 68 s	

Lanes, Volumes, Timings  
4: Winchester & Ynez

PH123, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	119	636	430	448	267	153	331	1263	1089	313	996	45
Future Volume (vph)	119	636	430	448	267	153	331	1263	1089	313	996	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		500	400		350	250		200	250		0
Storage Lanes	2		1	3		1	2		1	2		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3382	1470	5090	3610	1615	3502	6536	1615	3502	6490	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3382	1470	5090	3610	1582	3502	6536	1581	3502	6490	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						105			94		8	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		800			1093			797			1309	
Travel Time (s)		12.1			16.6			13.6			22.3	
Confl. Peds. (#/hr)						10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)			25%									
Lane Group Flow (vph)	125	782	340	472	281	161	348	1329	1146	329	1095	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	9.3	9.3	8.0	46.3	8.2	8.0	45.3	8.0	8.2	37.3	
Total Split (s)	10.0	29.6	29.6	28.0	47.6	14.4	20.0	48.0	28.0	14.4	42.4	
Total Split (%)	8.3%	24.7%	24.7%	23.3%	39.7%	12.0%	16.7%	40.0%	23.3%	12.0%	35.3%	
Maximum Green (s)	6.0	24.3	24.3	24.0	42.3	10.4	16.0	42.7	24.0	10.4	37.1	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	3.0	3.0	4.3	3.0	3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.3	5.3	4.0	5.3	4.0	4.0	5.3	4.0	4.0	5.3	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Walk Time (s)					5.0			5.0			5.0	
Flash Dont Walk (s)					36.0			35.0			27.0	
Pedestrian Calls (#/hr)					10			10			10	
Act Effct Green (s)	6.0	24.3	24.3	24.0	42.3	54.0	16.0	42.7	68.0	10.4	37.1	
Actuated g/C Ratio	0.05	0.20	0.20	0.20	0.35	0.45	0.13	0.36	0.57	0.09	0.31	
v/c Ratio	0.71	1.14	1.14	0.46	0.22	0.21	0.75	0.57	1.22	1.09	0.54	
Control Delay	78.5	124.4	140.6	44.1	27.9	5.7	56.4	24.8	122.9	127.5	35.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	78.5	124.4	140.6	44.1	27.9	5.7	56.4	24.8	122.9	127.5	35.4	
LOS	E	F	F	D	C	A	E	C	F	F	D	
Approach Delay		124.2			32.3			68.5			56.6	
Approach LOS		F			C			E			E	



Lanes, Volumes, Timings  
4: Winchester & Ynez

PH123, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	50	~389	~338	115	80	19	143	220	~1074	~147	202	
Queue Length 95th (ft)	#95	#521	#542	151	114	50	192	231	#1047	#241	239	
Internal Link Dist (ft)		720			1013			717			1229	
Turn Bay Length (ft)	200		500	400		350	250		200	250		
Base Capacity (vph)	175	684	297	1018	1272	772	466	2325	943	303	2012	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	1.14	1.14	0.46	0.22	0.21	0.75	0.57	1.22	1.09	0.54	

Intersection Summary




















Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 91 (76%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.22  
 Intersection Signal Delay: 71.6 Intersection LOS: E  
 Intersection Capacity Utilization 110.6% ICU Level of Service H  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: Winchester & Ynez

Ø2 (R)	Ø1	Ø4	Ø3
48 s	14.4 s	29.6 s	28 s
Ø6 (R)	Ø5	Ø7	Ø8
42.4 s	20 s	10 s	47.6 s

Lanes, Volumes, Timings  
5: Winchester & I-15 NB off/I-15 NB on

PH123, 2045, AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	371	2	715	0	1968	60	0	1193	700
Future Volume (vph)	0	0	0	371	2	715	0	1968	60	0	1193	700
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		450	0		0
Storage Lanes	0		0	1		1	0		1	0		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	1715	1488	1534	0	4902	1389	0	5187	2842
Flt Permitted				0.950	0.995							
Satd. Flow (perm)	0	0	0	1715	1488	1534	0	4902	1368	0	5187	2772
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4	22			75			529
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		579			216			765			797	
Travel Time (s)		13.2			4.9			13.0			13.6	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)				10%		48%			10%			
Lane Group Flow (vph)	0	0	0	352	402	392	0	2078	57	0	1256	737
Turn Type				Perm	NA	Perm		NA	Free		NA	Free
Protected Phases					8			2			6	
Permitted Phases				8		8			Free			Free
Detector Phase				8	8	8		2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0		4.0			4.0	
Minimum Split (s)				9.8	9.8	9.8		32.4			9.4	
Total Split (s)				52.0	52.0	52.0		68.0			68.0	
Total Split (%)				43.3%	43.3%	43.3%		56.7%			56.7%	
Maximum Green (s)				46.2	46.2	46.2		62.6			62.6	
Yellow Time (s)				4.8	4.8	4.8		4.4			4.4	
All-Red Time (s)				1.0	1.0	1.0		1.0			1.0	
Lost Time Adjust (s)				0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)				5.8	5.8	5.8		5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Recall Mode				None	None	None		C-Max			C-Max	
Walk Time (s)								7.0				
Flash Dont Walk (s)								20.0				
Pedestrian Calls (#/hr)								10				
Act Effct Green (s)				38.2	38.2	38.2		70.6	120.0		70.6	120.0
Actuated g/C Ratio				0.32	0.32	0.32		0.59	1.00		0.59	1.00
v/c Ratio				0.64	0.84	0.78		0.72	0.04		0.41	0.27
Control Delay				39.9	53.5	45.4		8.7	0.1		4.7	0.2
Queue Delay				0.0	0.0	0.0		0.2	0.0		0.0	0.0
Total Delay				39.9	53.5	45.4		8.9	0.1		4.7	0.2
LOS				D	D	D		A	A		A	A
Approach Delay					46.6			8.6			3.0	
Approach LOS					D			A			A	

Lanes, Volumes, Timings  
 5: Winchester & I-15 NB off/I-15 NB on

PH123, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)				242	309	269		113	0		56	0
Queue Length 95th (ft)				320	416	364		286	m0		m99	m0
Internal Link Dist (ft)		499				136		685			717	
Turn Bay Length (ft)									450			
Base Capacity (vph)				660	575	604		2882	1368		3049	2772
Starvation Cap Reductn				0	0	0		89	0		0	0
Spillback Cap Reductn				0	0	0		180	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.53	0.70	0.65		0.77	0.04		0.41	0.27

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 63 (53%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.84  
 Intersection Signal Delay: 14.8  
 Intersection Capacity Utilization 77.3%  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Winchester & I-15 NB off/I-15 NB on



Lanes, Volumes, Timings  
6: Winchester & I-15 SB on/I-15 SB off

PH123, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	1665	6	119	0	0	0	0	364	257	0	976	588
Future Volume (vph)	1665	6	119	0	0	0	0	364	257	0	976	588
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	3502	1560	1534	0	0	0	0	5187	1615	0	4835	0
Flt Permitted	0.950											
Satd. Flow (perm)	3502	1560	1534	0	0	0	0	5187	1537	0	4835	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22	22						271		142	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		189			419			450			765	
Travel Time (s)		4.3			9.5			7.7			13.0	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)			48%									
Lane Group Flow (vph)	1753	66	65	0	0	0	0	383	271	0	1646	0
Turn Type	Perm	NA	Perm					NA	Perm		NA	
Protected Phases		4						2			6	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0		4.0	
Minimum Split (s)	9.8	9.8	9.8					26.4	26.4		9.4	
Total Split (s)	71.0	71.0	71.0					49.0	49.0		49.0	
Total Split (%)	59.2%	59.2%	59.2%					40.8%	40.8%		40.8%	
Maximum Green (s)	65.2	65.2	65.2					43.6	43.6		43.6	
Yellow Time (s)	4.8	4.8	4.8					4.4	4.4		4.4	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)	5.8	5.8	5.8					5.4	5.4		5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Max	C-Max		C-Max	
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								14.0	14.0			
Pedestrian Calls (#/hr)								10	10			
Act Effect Green (s)	64.4	64.4	64.4					44.4	44.4		44.4	
Actuated g/C Ratio	0.54	0.54	0.54					0.37	0.37		0.37	
v/c Ratio	0.93	0.08	0.08					0.20	0.37		0.90dr	
Control Delay	36.1	9.5	9.5					9.1	2.8		29.8	
Queue Delay	0.0	0.0	0.0					0.0	0.0		0.0	
Total Delay	36.1	9.5	9.5					9.1	2.8		29.8	
LOS	D	A	A					A	A		C	
Approach Delay		34.3						6.4			29.8	
Approach LOS		C						A			C	
Queue Length 50th (ft)	613	15	15					18	0		316	
Queue Length 95th (ft)	#753	38	38					m29	m0		411	
Internal Link Dist (ft)		109			339			370			685	

Lanes, Volumes, Timings  
6: Winchester & I-15 SB on/I-15 SB off




PH123, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Turn Bay Length (ft)												
Base Capacity (vph)	1902	857	843					1917	738		1876	
Starvation Cap Reductn	0	0	0					0	0		0	
Spillback Cap Reductn	0	0	0					0	0		0	
Storage Cap Reductn	0	0	0					0	0		0	
Reduced v/c Ratio	0.92	0.08	0.08					0.20	0.37		0.88	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 28.2 Intersection LOS: C  
 Intersection Capacity Utilization 89.2% ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 6: Winchester & I-15 SB on/I-15 SB off

 Ø2 (R) 49 s	 Ø4 71 s
 Ø6 (R) 49 s	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

PH123, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	224	1270	283	36	1049	142	44	255	9	296	569	230
Future Volume (vph)	224	1270	283	36	1049	142	44	255	9	296	569	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	200		300	400		0	0		300
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3610	1615	3502	3610	1615	3502	6499	0	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3610	1576	3502	3610	1615	3502	6499	0	3502	3610	1578
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			186			149			5			234
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1063			948			629			450	
Travel Time (s)		16.1			14.4			10.7			7.7	
Confl. Peds. (#/hr)			10						10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	236	1337	298	38	1104	149	46	277	0	312	599	242
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	33.9	33.9	8.0	8.9	8.2	8.0	40.9		8.2	36.9	36.9
Total Split (s)	14.0	51.0	51.0	10.0	47.0	17.1	10.0	41.9		17.1	49.0	49.0
Total Split (%)	11.7%	42.5%	42.5%	8.3%	39.2%	14.3%	8.3%	34.9%		14.3%	40.8%	40.8%
Maximum Green (s)	10.0	46.1	46.1	6.0	42.1	13.1	6.0	37.0		13.1	44.1	44.1
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.0	3.0	3.9		3.0	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.0	4.0	4.9		4.0	4.9	4.9
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)		22.0	22.0					29.0			25.0	25.0
Pedestrian Calls (#/hr)		10	10					10			10	10
Act Effct Green (s)	10.5	48.9	48.9	5.9	40.4	58.4	5.9	38.2		13.1	47.3	47.3
Actuated g/C Ratio	0.09	0.41	0.41	0.05	0.34	0.49	0.05	0.32		0.11	0.39	0.39
v/c Ratio	0.77	0.91	0.40	0.22	0.91	0.17	0.27	0.13		0.82	0.42	0.32
Control Delay	71.1	44.3	11.2	58.0	49.7	3.0	59.0	29.2		40.8	7.0	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	71.1	44.3	11.2	58.0	49.7	3.0	59.0	29.2		40.8	7.0	1.0
LOS	E	D	B	E	D	A	E	C		D	A	A
Approach Delay		42.4			44.6			33.4			14.9	
Approach LOS		D			D			C			B	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

PH123, 2045, AM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	94	526	57	14	418	0	18	44		125	55	1
Queue Length 95th (ft)	#158	#683	132	33	511	33	38	62		m151	m72	m1
Internal Link Dist (ft)		983			868			549			370	
Turn Bay Length (ft)	300		200	200		300	400					300
Base Capacity (vph)	306	1470	751	175	1266	862	175	2073		382	1423	763
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.77	0.91	0.40	0.22	0.87	0.17	0.26	0.13		0.82	0.42	0.32

Intersection Summary
































Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 14 (12%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 35.5 Intersection LOS: D  
 Intersection Capacity Utilization 91.7% ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Winchester & Jefferson

02 (R)	01	03	04
41.9 s	17.1 s	10 s	51 s
05	06 (R)	08	07
10 s	49 s	47 s	14 s

Lanes, Volumes, Timings  
1: French Valley Pkwy & Ynez Road

PH123, 2045, PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 	  		 	 	
Traffic Volume (vph)	295	248	78	174	1137	1031	229	859	244	250	924	296
Future Volume (vph)	295	248	78	174	1137	1031	229	859	244	250	924	296
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		100	250		0	250		250	300		150
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	3610	1615	1805	3610	1615	3502	5187	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	3610	1591	1805	3610	1578	3502	5187	1575	3502	3610	1575
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			227			159			257			173
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		324			432			961			623	
Travel Time (s)		4.9			6.5			14.6			9.4	
Confl. Peds. (#/hr)			10			10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	311	261	82	183	1197	1085	241	904	257	263	973	312
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			Free			8			2			6
Detector Phase	7	4		3	8	8	5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	38.0		8.0	38.0	38.0	8.0	33.0	8.0	8.5	33.0	33.0
Total Split (s)	17.0	50.0		24.0	57.0	57.0	10.0	35.0	24.0	11.0	36.0	36.0
Total Split (%)	14.2%	41.7%		20.0%	47.5%	47.5%	8.3%	29.2%	20.0%	9.2%	30.0%	30.0%
Maximum Green (s)	13.0	45.0		20.0	52.0	52.0	6.0	30.0	20.0	7.0	31.0	31.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0	4.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	5.0
Flash Dont Walk (s)		28.0			28.0	28.0		23.0			23.0	23.0
Pedestrian Calls (#/hr)		10			10	10		10			10	10
Act Effct Green (s)	13.0	48.3	120.0	16.7	52.0	52.0	6.0	30.0	47.7	7.0	31.0	31.0
Actuated g/C Ratio	0.11	0.40	1.00	0.14	0.43	0.43	0.05	0.25	0.40	0.06	0.26	0.26
v/c Ratio	1.59	0.18	0.05	0.73	0.77	1.40	1.38	0.70	0.33	1.29	1.04	0.58
Control Delay	325.5	24.2	0.1	66.3	32.9	215.4	226.1	38.7	18.9	206.2	85.0	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	325.5	24.2	0.1	66.3	32.9	215.4	226.1	38.7	18.9	206.2	85.0	21.7
LOS	F	C	A	E	C	F	F	D	B	F	F	C
Approach Delay		164.5			115.7			67.3			92.8	
Approach LOS		F			F			E			F	



Lanes, Volumes, Timings  
 1: French Valley Pkwy & Ynez Road

PH123, 2045, PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~344	68	0	137	406	~1059	~128	271	126	~133	~430	91
Queue Length 95th (ft)	#524	102	0	212	493	#1319	#215	318	204	#221	#562	188
Internal Link Dist (ft)		244			352			881			543	
Turn Bay Length (ft)	250		100	250			250		250	300		150
Base Capacity (vph)	195	1454	1591	300	1564	773	175	1296	823	204	932	535
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.59	0.18	0.05	0.61	0.77	1.40	1.38	0.70	0.31	1.29	1.04	0.58

Intersection Summary

























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 86 (72%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.59  
 Intersection Signal Delay: 103.9 Intersection LOS: F  
 Intersection Capacity Utilization 116.2% ICU Level of Service H  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: French Valley Pkwy & Ynez Road



Lanes, Volumes, Timings  
 2: French Valley Pkwy & I-15 SB on/I-15 SB off

PH123, 2045, PM

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				 		 		  			  	
Traffic Volume (vph)	0	0	0	629	0	826	0	1573	872	0	413	485
Future Volume (vph)	0	0	0	629	0	826	0	1573	872	0	413	485
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		280	0		250
Storage Lanes	0		0	2		2	0		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	3502	0	2842	0	5187	1615	0	5187	1615
Flt Permitted				0.950								
Satd. Flow (perm)	0	0	0	3502	0	2842	0	5187	1615	0	5187	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						665			554			
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		688			198			1223			945	
Travel Time (s)		15.6			4.5			18.5			14.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	662	0	869	0	1656	918	0	435	511
Turn Type				Prot		Prot		NA	Free		NA	pm+ov
Protected Phases				4		4		2			6	4
Permitted Phases				4		4			Free			6
Detector Phase				4		4		2			6	4
Switch Phase												
Minimum Initial (s)				4.0		4.0		4.0			4.0	4.0
Minimum Split (s)				20.5		20.5		21.3			21.3	20.5
Total Split (s)				51.0		51.0		69.0			69.0	51.0
Total Split (%)				42.5%		42.5%		57.5%			57.5%	42.5%
Maximum Green (s)				46.5		46.5		63.7			63.7	46.5
Yellow Time (s)				3.5		3.5		4.3			4.3	3.5
All-Red Time (s)				1.0		1.0		1.0			1.0	1.0
Lost Time Adjust (s)				0.0		0.0		0.0			0.0	0.0
Total Lost Time (s)				4.5		4.5		5.3			5.3	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Recall Mode				Max		Max		C-Max			C-Max	Max
Walk Time (s)				5.0		5.0		5.0			5.0	5.0
Flash Dont Walk (s)				11.0		11.0		11.0			11.0	11.0
Pedestrian Calls (#/hr)				0		0		0			0	0
Act Effct Green (s)				46.5		46.5		63.7	120.0		63.7	120.0
Actuated g/C Ratio				0.39		0.39		0.53	1.00		0.53	1.00
v/c Ratio				0.49		0.58		0.60	0.57		0.16	0.32
Control Delay				29.3		7.8		6.0	5.6		29.2	5.6
Queue Delay				0.0		0.0		0.0	0.0		0.0	0.0
Total Delay				29.3		7.8		6.0	5.6		29.2	5.6
LOS				C		A		A	A		C	A
Approach Delay					17.1			5.9			16.5	
Approach LOS					B			A			B	
Queue Length 50th (ft)				197		58		73	269		117	154

Lanes, Volumes, Timings  
 2: French Valley Pkwy & I-15 SB on/I-15 SB off

PH123, 2045, PM

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 95th (ft)				252		124		m62	m0		152	229
Internal Link Dist (ft)		608			118			1143			865	
Turn Bay Length (ft)									280			250
Base Capacity (vph)				1357		1508		2753	1615		2753	1615
Starvation Cap Reductn				0		0		0	0		0	0
Spillback Cap Reductn				0		0		42	0		0	0
Storage Cap Reductn				0		0		0	0		0	0
Reduced v/c Ratio				0.49		0.58		0.61	0.57		0.16	0.32

Intersection Summary

























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 61 (51%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.60  
 Intersection Signal Delay: 11.3  
 Intersection Capacity Utilization 56.1%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service B  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: French Valley Pkwy & I-15 SB on/I-15 SB off

Ø2 (R) 69 s	Ø4 51 s
Ø6 (R) 69 s	

Lanes, Volumes, Timings  
3: Cherry St/French Valley Pkwy & Jefferson

PH123, 2045, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	600	1702	234	874	2300	320	159	1523	348	160	514	568
Future Volume (vph)	600	1702	234	874	2300	320	159	1523	348	160	514	568
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	250		200	200		200	200		200
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	5187	1615	3502	5187	1615	3502	3610	1615	3502	3295	1470
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	5187	1576	3502	5187	1576	3502	3610	1578	3502	3295	1470
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			138			147			109		59	109
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		747			1560			615			1223	
Travel Time (s)		10.2			21.3			9.3			18.5	
Confl. Peds. (#/hr)			10			10			10			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												41%
Lane Group Flow (vph)	632	1792	246	920	2421	337	167	1603	366	168	786	353
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	34.0	34.0	9.0	34.0	34.0	20.0	37.0	9.0	20.0	36.5	9.0
Total Split (s)	15.0	37.0	37.0	19.0	41.0	41.0	20.0	44.0	19.0	20.0	44.0	15.0
Total Split (%)	12.5%	30.8%	30.8%	15.8%	34.2%	34.2%	16.7%	36.7%	15.8%	16.7%	36.7%	12.5%
Maximum Green (s)	10.0	32.0	32.0	14.0	36.0	36.0	15.0	39.0	14.0	15.0	39.5	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.5	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	None	None	C-Max	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		24.0	24.0		24.0	24.0		27.0			27.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effct Green (s)	10.0	32.0	32.0	14.0	36.0	36.0	11.0	42.9	56.9	11.1	43.5	58.0
Actuated g/C Ratio	0.08	0.27	0.27	0.12	0.30	0.30	0.09	0.36	0.47	0.09	0.36	0.48
v/c Ratio	2.17	1.30	0.47	2.25	1.56	0.59	0.52	1.24	0.45	0.52	0.64	0.46
Control Delay	565.1	175.3	19.1	597.7	284.5	24.2	57.4	149.8	10.1	58.4	19.5	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	565.1	175.3	19.1	597.7	284.5	24.2	57.4	149.8	10.1	58.4	19.5	8.9
LOS	F	F	B	F	F	C	E	F	B	E	B	A
Approach Delay		253.2			339.0			118.6			21.7	
Approach LOS		F			F			F			C	

Lanes, Volumes, Timings  
 3: Cherry St/French Valley Pkwy & Jefferson

PH123, 2045, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	~403	~649	66	~594	~969	123	64	~812	77	62	164	79
Queue Length 95th (ft)	#521	#746	146	#722	#1062	223	98	#990	128	90	231	153
Internal Link Dist (ft)		667			1480			535			1143	
Turn Bay Length (ft)	300		200	250		200	200		200	200		200
Base Capacity (vph)	291	1383	521	408	1556	575	437	1291	810	437	1230	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.17	1.30	0.47	2.25	1.56	0.59	0.38	1.24	0.45	0.38	0.64	0.46

Intersection Summary
























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 52 (43%), Referenced to phase 4:NET and 8:SWT, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 2.25  
 Intersection Signal Delay: 225.2 Intersection LOS: F  
 Intersection Capacity Utilization 124.9% ICU Level of Service H  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Cherry St/French Valley Pkwy & Jefferson

Ø1	Ø2	Ø3	Ø4 (R)
15 s	41 s	20 s	44 s
Ø6	Ø5	Ø7	Ø8 (R)
37 s	19 s	20 s	44 s

Lanes, Volumes, Timings  
8: French Valley Pkwy & I-15 NB off/I-15 NB on

PH123, 2045, PM

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations								  			  	
Traffic Volume (vph)	113	56	193	0	0	0	0	1138	1064	0	785	392
Future Volume (vph)	113	56	193	0	0	0	0	1138	1064	0	785	392
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		250	0		300
Storage Lanes	1		1	0		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1715	1774	1615	0	0	0	0	5187	1615	0	5187	1615
Flt Permitted	0.950	0.983										
Satd. Flow (perm)	1715	1774	1615	0	0	0	0	5187	1530	0	5187	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			21									413
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		249			561			945			775	
Travel Time (s)		5.7			12.8			14.3			11.7	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)	26%											
Lane Group Flow (vph)	88	90	203	0	0	0	0	1198	1120	0	826	413
Turn Type	Split	NA	Perm					NA	pm+ov		NA	Perm
Protected Phases	8	8						2	8		6	
Permitted Phases			8						2			6
Detector Phase	8	8	8					2	8		6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0		4.0	4.0
Minimum Split (s)	8.5	8.5	8.5					23.3	8.5		23.3	23.3
Total Split (s)	77.0	77.0	77.0					43.0	77.0		43.0	43.0
Total Split (%)	64.2%	64.2%	64.2%					35.8%	64.2%		35.8%	35.8%
Maximum Green (s)	72.5	72.5	72.5					37.7	72.5		37.7	37.7
Yellow Time (s)	3.5	3.5	3.5					4.3	3.5		4.3	4.3
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5					5.3	4.5		5.3	5.3
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	3.0
Recall Mode	None	None	None					C-Max	None		C-Max	C-Max
Walk Time (s)								7.0			7.0	7.0
Flash Dont Walk (s)								11.0			11.0	11.0
Pedestrian Calls (#/hr)								10			10	10
Act Effct Green (s)	69.9	69.9	69.9					40.3	111.0		40.3	40.3
Actuated g/C Ratio	0.58	0.58	0.58					0.34	0.92		0.34	0.34
v/c Ratio	0.09	0.09	0.21					0.69	0.77		0.47	0.52
Control Delay	10.5	10.5	10.7					23.9	17.0		9.4	8.6
Queue Delay	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Total Delay	10.5	10.5	10.7					23.9	17.0		9.4	8.6
LOS	B	B	B					C	B		A	A
Approach Delay		10.6						20.6			9.1	
Approach LOS		B						C			A	

Lanes, Volumes, Timings  
 8: French Valley Pkwy & I-15 NB off/I-15 NB on

PH123, 2045, PM

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	28	28	59					207	862		157	229
Queue Length 95th (ft)	51	52	97					241	973		m160	m237
Internal Link Dist (ft)		169			481			865			695	
Turn Bay Length (ft)									250			300
Base Capacity (vph)	1036	1071	984					1741	1477		1741	787
Starvation Cap Reductn	0	0	0					0	0		0	0
Spillback Cap Reductn	0	0	0					0	0		0	0
Storage Cap Reductn	0	0	0					0	0		0	0
Reduced v/c Ratio	0.08	0.08	0.21					0.69	0.76		0.47	0.52

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 9 (8%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 40  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 16.0 Intersection LOS: B  
 Intersection Capacity Utilization 70.7% ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: French Valley Pkwy & I-15 NB off/I-15 NB on

Ø2 (R) 43 s	Ø8 77 s
Ø6 (R) 43 s	

Lanes, Volumes, Timings  
4: Winchester & Ynez

PH123, 2045, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	114	617	294	1089	1598	455	498	998	1008	433	1009	161
Future Volume (vph)	114	617	294	1089	1598	455	498	998	1008	433	1009	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		500	400		350	250		200	250		0
Storage Lanes	2		1	3		1	2		1	2		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3434	1470	5090	3610	1615	3502	6536	1615	3502	6379	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3434	1470	5090	3610	1582	3502	6536	1581	3502	6379	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						105			57		34	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		800			1093			797			1309	
Travel Time (s)		12.1			16.6			13.6			22.3	
Confl. Peds. (#/hr)						10			10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)			10%									
Lane Group Flow (vph)	120	680	278	1146	1682	479	524	1051	1061	456	1231	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	9.3	9.3	8.0	46.3	8.2	8.0	45.3	8.0	8.2	37.3	
Total Split (s)	10.0	30.0	30.0	28.0	48.0	14.0	20.0	48.0	28.0	14.0	42.0	
Total Split (%)	8.3%	25.0%	25.0%	23.3%	40.0%	11.7%	16.7%	40.0%	23.3%	11.7%	35.0%	
Maximum Green (s)	6.0	24.7	24.7	24.0	42.7	10.0	16.0	42.7	24.0	10.0	36.7	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3	3.0	3.0	4.3	3.0	3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.3	5.3	4.0	5.3	4.0	4.0	5.3	4.0	4.0	5.3	
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Walk Time (s)					5.0			5.0			5.0	
Flash Dont Walk (s)					36.0			35.0			27.0	
Pedestrian Calls (#/hr)					10			10			10	
Act Effct Green (s)	6.0	24.7	24.7	24.0	42.7	54.0	16.0	42.7	68.0	10.0	36.7	
Actuated g/C Ratio	0.05	0.21	0.21	0.20	0.36	0.45	0.13	0.36	0.57	0.08	0.31	
v/c Ratio	0.69	0.96	0.92	1.13	1.31	0.62	1.12	0.45	1.14	1.57	0.62	
Control Delay	76.1	73.5	82.3	113.3	178.5	16.8	118.1	22.0	91.2	307.5	36.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	76.1	73.5	82.3	113.3	178.5	16.8	118.1	22.0	91.2	307.5	36.3	
LOS	E	E	F	F	F	B	F	C	F	F	D	
Approach Delay		76.0			132.5			69.0			109.6	
Approach LOS		E			F			E			F	



Lanes, Volumes, Timings  
4: Winchester & Ynez

PH123, 2045, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	47	289	234	-364	-882	164	-242	144	-685	-257	231	
Queue Length 95th (ft)	#90	#417	#414	#455	#1022	251	#349	128	#1197	#363	270	
Internal Link Dist (ft)		720			1013			717			1229	
Turn Bay Length (ft)	200		500	400		350	250		200	250		
Base Capacity (vph)	175	706	302	1018	1284	772	466	2325	927	291	1974	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.96	0.92	1.13	1.31	0.62	1.12	0.45	1.14	1.57	0.62	

Intersection Summary


























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 4 (3%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.57  
 Intersection Signal Delay: 101.8 Intersection LOS: F  
 Intersection Capacity Utilization 108.7% ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: Winchester & Ynez

14 s	48 s	30 s	28 s
42 s	20 s	48 s	10 s

Lanes, Volumes, Timings  
5: Winchester & I-15 NB off/I-15 NB on

PH123, 2045, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations								  			  	  
Traffic Volume (vph)	0	0	0	56	0	251	0	2252	830	0	1030	1473
Future Volume (vph)	0	0	0	56	0	251	0	2252	830	0	1030	1473
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		450	0		0
Storage Lanes	0		0	1		1	0		1	0		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	1715	1479	1534	0	5187	1615	0	5187	2842
Flt Permitted				0.950	0.998							
Satd. Flow (perm)	0	0	0	1715	1479	1534	0	5187	1548	0	5187	2772
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					22	22			874			1289
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		579			216			765			797	
Travel Time (s)		13.2			4.9			13.0			13.6	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)				10%		49%						
Lane Group Flow (vph)	0	0	0	53	135	135	0	2371	874	0	1084	1551
Turn Type				Perm	NA	Perm		NA	Perm		NA	Free
Protected Phases					8			2			6	
Permitted Phases				8		8			2			Free
Detector Phase				8	8	8		2	2		6	
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0		4.0	4.0		4.0	
Minimum Split (s)				9.8	9.8	9.8		32.4	32.4		9.4	
Total Split (s)				27.0	27.0	27.0		93.0	93.0		93.0	
Total Split (%)				22.5%	22.5%	22.5%		77.5%	77.5%		77.5%	
Maximum Green (s)				21.2	21.2	21.2		87.6	87.6		87.6	
Yellow Time (s)				4.8	4.8	4.8		4.4	4.4		4.4	
All-Red Time (s)				1.0	1.0	1.0		1.0	1.0		1.0	
Lost Time Adjust (s)				0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)				5.8	5.8	5.8		5.4	5.4		5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0		3.0	3.0		3.0	
Recall Mode				None	None	None		C-Max	C-Max		C-Max	
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								20.0	20.0			
Pedestrian Calls (#/hr)								10	10			
Act Effect Green (s)				14.5	14.5	14.5		94.3	94.3		94.3	120.0
Actuated g/C Ratio				0.12	0.12	0.12		0.79	0.79		0.79	1.00
v/c Ratio				0.26	0.68	0.66		0.58	0.62		0.27	0.56
Control Delay				48.8	58.5	56.5		10.1	15.4		4.0	3.9
Queue Delay				0.0	0.0	0.0		0.3	5.1		0.0	0.0
Total Delay				48.8	58.5	56.5		10.4	20.5		4.0	3.9
LOS				D	E	E		B	C		A	A
Approach Delay					56.1			13.1			3.9	
Approach LOS					E			B			A	

Lanes, Volumes, Timings  
 5: Winchester & I-15 NB off/I-15 NB on

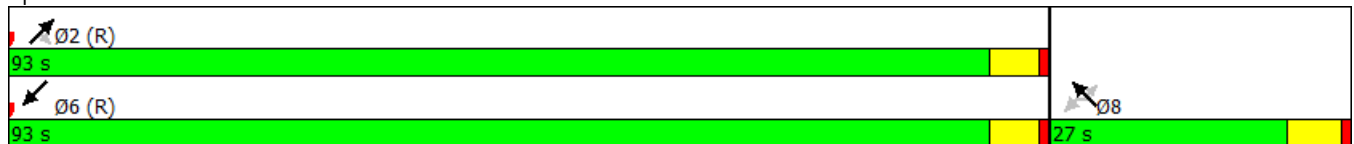
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Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)				40	93	89		363	508		76	87
Queue Length 95th (ft)				77	159	152		435	m387		m162	m90
Internal Link Dist (ft)		499				136		685			717	
Turn Bay Length (ft)									450			
Base Capacity (vph)				302	279	289		4074	1403		4074	2772
Starvation Cap Reductn				0	0	0		821	455		0	0
Spillback Cap Reductn				0	0	0		29	0		0	0
Storage Cap Reductn				0	0	0		0	0		0	0
Reduced v/c Ratio				0.18	0.48	0.47		0.73	0.92		0.27	0.56

Intersection Summary




















Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 112 (93%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.68  
 Intersection Signal Delay: 11.4  
 Intersection Capacity Utilization 63.2%  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Winchester & I-15 NB off/I-15 NB on















Lanes, Volumes, Timings  
6: Winchester & I-15 SB on/I-15 SB off

PH123, 2045, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	1637	9	160	0	0	0	0	1445	266	0	788	298
Future Volume (vph)	1637	9	160	0	0	0	0	1445	266	0	788	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	3502	1561	1534	0	0	0	0	5187	1615	0	4928	0
Flt Permitted	0.950											
Satd. Flow (perm)	3502	1561	1534	0	0	0	0	5187	1537	0	4928	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40	40						254		87	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		189			419			450			765	
Travel Time (s)		4.3			9.5			7.7			13.0	
Confl. Peds. (#/hr)									10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)			48%									
Lane Group Flow (vph)	1723	90	87	0	0	0	0	1521	280	0	1143	0
Turn Type	Perm	NA	Perm					NA	Perm		NA	
Protected Phases		4						2			6	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2		6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0		4.0	
Minimum Split (s)	9.8	9.8	9.8					26.4	26.4		9.4	
Total Split (s)	73.0	73.0	73.0					47.0	47.0		47.0	
Total Split (%)	60.8%	60.8%	60.8%					39.2%	39.2%		39.2%	
Maximum Green (s)	67.2	67.2	67.2					41.6	41.6		41.6	
Yellow Time (s)	4.8	4.8	4.8					4.4	4.4		4.4	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)	5.8	5.8	5.8					5.4	5.4		5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Recall Mode	None	None	None					C-Max	C-Max		C-Max	
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								14.0	14.0			
Pedestrian Calls (#/hr)								10	10			
Act Effect Green (s)	65.8	65.8	65.8					43.0	43.0		43.0	
Actuated g/C Ratio	0.55	0.55	0.55					0.36	0.36		0.36	
v/c Ratio	0.90	0.10	0.10					0.82	0.39		0.63	
Control Delay	31.5	7.6	7.4					17.5	1.2		10.8	
Queue Delay	0.0	0.0	0.0					0.0	0.1		0.0	
Total Delay	31.5	7.6	7.4					17.6	1.4		10.8	
LOS	C	A	A					B	A		B	
Approach Delay		29.2						15.0			10.8	
Approach LOS		C						B			B	
Queue Length 50th (ft)	568	17	16					118	0		207	
Queue Length 95th (ft)	685	44	42					m126	m0		52	
Internal Link Dist (ft)		109			339			370			685	

Lanes, Volumes, Timings  
 6: Winchester & I-15 SB on/I-15 SB off




PH123, 2045, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Turn Bay Length (ft)												
Base Capacity (vph)	1961	891	876					1858	713		1821	
Starvation Cap Reductn	0	0	0					8	63		0	
Spillback Cap Reductn	0	0	0					0	0		0	
Storage Cap Reductn	0	0	0					0	0		0	
Reduced v/c Ratio	0.88	0.10	0.10					0.82	0.43		0.63	

Intersection Summary
























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 4 (3%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.90  
 Intersection Signal Delay: 19.6  
 Intersection Capacity Utilization 84.0%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service E  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Winchester & I-15 SB on/I-15 SB off

 Ø2 (R)	 Ø4
47 s	73 s
 Ø6 (R)	
47 s	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

PH123, 2045, PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	462	1311	43	4	2029	342	583	907	17	275	331	341
Future Volume (vph)	462	1311	43	4	2029	342	583	907	17	275	331	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	200		300	400		0	0		300
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3502	3610	1615	3502	3610	1615	3502	6514	0	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3610	1576	3502	3610	1615	3502	6514	0	3502	3610	1578
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			135			143			3			179
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1063			948			629			450	
Travel Time (s)		16.1			14.4			10.7			7.7	
Confl. Peds. (#/hr)			10						10			10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	486	1380	45	4	2136	360	614	973	0	289	348	359
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	33.9	33.9	8.0	8.9	8.2	8.0	40.9		8.2	36.9	36.9
Total Split (s)	18.0	52.0	52.0	10.0	44.0	15.0	21.0	43.0		15.0	37.0	37.0
Total Split (%)	15.0%	43.3%	43.3%	8.3%	36.7%	12.5%	17.5%	35.8%		12.5%	30.8%	30.8%
Maximum Green (s)	14.0	47.1	47.1	6.0	39.1	11.0	17.0	38.1		11.0	32.1	32.1
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.0	3.0	3.9		3.0	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.0	4.0	4.9		4.0	4.9	4.9
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead		Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)		22.0	22.0					29.0			25.0	25.0
Pedestrian Calls (#/hr)		10	10					10			10	10
Act Effct Green (s)	14.0	55.1	55.1	5.7	39.1	55.0	17.0	38.1		11.0	32.1	32.1
Actuated g/C Ratio	0.12	0.46	0.46	0.05	0.33	0.46	0.14	0.32		0.09	0.27	0.27
v/c Ratio	1.19	0.83	0.06	0.02	1.82	0.44	1.24	0.47		0.90	0.36	0.65
Control Delay	153.4	34.4	0.1	54.8	397.8	14.6	166.3	33.6		70.6	13.8	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.2
Total Delay	153.4	34.4	0.1	54.8	397.8	14.6	166.3	33.7		70.6	13.8	8.7
LOS	F	C	A	D	F	B	F	C		E	B	A
Approach Delay		63.9			342.1			85.0			28.4	
Approach LOS		E			F			F			C	

Lanes, Volumes, Timings  
7: Winchester & Jefferson

PH123, 2045, PM

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	~234	464	0	1	~1313	107	~304	174		122	48	10
Queue Length 95th (ft)	#342	#708	0	7	#1449	187	#419	208		#202	68	16
Internal Link Dist (ft)		983			868			549			370	
Turn Bay Length (ft)	300		200	200		300	400					300
Base Capacity (vph)	408	1657	796	175	1176	817	496	2070		321	965	553
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	14
Spillback Cap Reductn	0	0	0	0	0	0	0	12		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.19	0.83	0.06	0.02	1.82	0.44	1.24	0.47		0.90	0.36	0.67

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 18 (15%), Referenced to phase 2:NET and 6:SWT, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.82  
 Intersection Signal Delay: 163.1 Intersection LOS: F  
 Intersection Capacity Utilization 127.4% ICU Level of Service H  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 7: Winchester & Jefferson

Ø2 (R)	Ø1	Ø4	Ø3
43 s	15 s	52 s	10 s
Ø6 (R)	Ø5	Ø8	Ø7
37 s	21 s	44 s	18 s

## **Appendix L – Noise and Air Quality Volumes**



Table 1 – Northbound I-15/I-215 Existing Traffic Volumes

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Northbound Mainline</b>														
1	Rancho California Road Slip On-ramp to Winchester Road Off-ramp	ML	4,039	442	4,481	4,889	4,662	762	5,424	5,877	74,680	10,623	85,303	93,965
2	Winchester Road Off-ramp	Off	929	29	958	1,045	714	19	733	794	14,231	475	14,706	16,199
3	Winchester Road Off-ramp to Winchester Road Loop On-ramp	ML	3,110	413	3,523	3,844	3,948	743	4,691	5,083	60,449	10,148	70,597	77,766
4	Winchester Road Loop On-ramp	On	320	38	358	391	875	20	895	970	8,244	511	8,755	9,644
5	Winchester Road Loop On-ramp to Winchester Road Slip On-ramp	ML	3,430	451	3,881	4,235	4,823	763	5,586	6,053	68,693	10,659	79,352	87,410
6	Winchester Road Slip On-ramp	On	529	32	561	612	1,189	35	1,224	1,326	15,830	389	16,219	17,866
7	Winchester Road Slip On-ramp to I-215 Northbound Off-ramp	ML	3,959	483	4,442	4,847	6,012	798	6,810	7,379	84,523	11,048	95,571	105,276
8	I-215 NB Off-ramp	Off	1,703	185	1,888	2,060	2,434	554	2,988	3,238	36,410	5,752	42,162	46,444
9	I-215 NB Off-ramp to Murrieta Hot Springs Road Off-ramp	ML	2,256	298	2,554	2,787	3,578	244	3,822	4,141	48,113	5,296	53,409	58,833
10	Murrieta Hot Springs Road Off-ramp	Off	336	9	345	376	289	4	293	317	4,801	128	4,929	5,430
11	Murrieta Hot Springs Road Off-ramp to Murrieta Springs Loop On-ramp	ML	1,920	289	2,209	2,410	3,289	240	3,529	3,824	43,312	5,168	48,480	53,403
14	Murrieta Hot Springs Road direct On-ramp	On	951	38	989	1,079	1,690	22	1,712	1,855	18,441	592	19,033	20,966
15	North of Murrieta Hot Springs Road	ML	2,871	327	3,198	3,489	4,979	262	5,241	5,679	61,753	5,760	67,513	74,369
<b>I-215 Northbound Mainline</b>														
16	From I-15 Northbound	ML	1,703	185	1,888	2,060	2,434	554	2,988	3,238	36,410	5,752	42,162	46,444
17	Murrieta Hot Springs Road Off-ramp	Off	291	5	296	323	307	5	312	338	5,478	81	5,559	6,124
18	Murrieta Hot Springs Road Off-ramp to Murrieta Hot Springs Road Loop On-ramp	ML	1,412	180	1,592	1,737	2,127	549	2,676	2,900	30,932	5,671	36,603	40,320
19	Murrieta Hot Springs Road Loop On-ramp	On	158	11	169	184	450	12	462	501	4,537	227	4,764	5,248
20	Murrieta Hot Springs Road Loop On-ramp to Murrieta Hot Springs Road Slip On-ramp	ML	1,570	191	1,761	1,921	2,577	561	3,138	3,400	35,469	5,898	41,367	45,568
21	Murrieta Hot Springs Road Slip On-ramp	On	550	14	564	615	1,043	9	1,052	1,140	12,440	221	12,661	13,947
22	North of Murrieta Hot Springs Road	ML	2,120	205	2,325	2,537	3,620	570	4,190	4,540	47,909	6,119	54,028	59,515

Table 2 - Northbound I-15/I-215 No Build 2022 Traffic Volumes

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Northbound Mainline</b>														
1	Rancho California Rd Slip On to Winchester Road Off	ML	4,310	500	4,800	5,240	5,130	800	5,930	6,420	81,450	11,480	92,930	102,370
2	Winchester Road Off	Off	940	30	970	1,060	770	20	790	860	15,160	500	15,650	17,240
3	Winchester Road Off to Winchester Road Loop On	ML	3,360	470	3,830	4,170	4,360	780	5,140	5,560	66,300	10,980	77,280	85,130
4	Winchester Road Loop On	On	330	40	370	410	890	20	910	990	8,360	530	8,880	9,790
5	Winchester Road Loop On to Winchester Road Slip On	ML	3,700	510	4,200	4,590	5,250	800	6,050	6,550	74,660	11,510	86,160	94,920
6	Winchester Road Slip On	On	540	40	580	630	1,210	40	1,250	1,350	16,040	420	16,450	18,120
7	Winchester Road Slip On to I-215 NB Off	ML	4,230	550	4,780	5,220	6,450	840	7,290	7,900	90,690	11,920	102,620	113,040
8	I-215 NB Off	Off	1,910	200	2,120	2,310	2,670	570	3,240	3,520	40,360	6,050	46,410	51,120
9	I-215 NB Off to Murrieta Hot Springs Rd Off	ML	2,320	340	2,660	2,910	3,780	270	4,050	4,390	50,330	5,880	56,210	61,910
10	Murrieta Hot Springs Rd Off	Off	340	10	350	380	290	10	300	330	4,870	130	5,000	5,510
11	Murrieta Hot Springs Rd Off to Murrieta Springs loop on	ML	1,980	330	2,310	2,520	3,490	260	3,750	4,060	45,460	5,740	51,200	56,400
12	Murrieta Springs loop on	On	250	20	270	290	280	20	300	330	3,870	450	4,320	4,750
13	Murrieta Springs loop on to Murrieta Hot Springs Rd direct On	ML	2,230	350	2,580	2,820	3,770	280	4,050	4,390	49,330	6,190	55,520	61,150
14	Murrieta Hot Springs Rd direct On	On	970	40	1,010	1,100	1,710	30	1,740	1,880	18,690	610	19,300	21,250
15	North of Murrieta Hot Springs Rd	ML	3,200	400	3,600	3,920	5,480	310	5,790	6,280	68,020	6,800	74,820	82,420
<b>I-215 Northbound Mainline</b>														
16	From I-15 NB	ML	1,910	200	2,120	2,310	2,670	570	3,240	3,520	40,360	6,050	46,410	51,120
17	Murrieta Hot Springs Rd Off	Off	310	10	320	350	310	10	320	350	5,610	90	5,700	6,280
18	Murrieta Hot Springs Rd Off to Murrieta Hot Springs Rd Loop On	ML	1,600	190	1,790	1,960	2,360	560	2,920	3,160	34,750	5,960	40,710	44,840
19	Murrieta Hot Springs Rd Loop On	On	170	20	190	210	500	20	520	560	4,890	250	5,150	5,670
20	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Slip On	ML	1,770	210	1,990	2,170	2,860	580	3,430	3,720	39,640	6,210	45,850	50,510
21	Murrieta Hot Springs Rd Slip On	On	580	20	600	650	1,100	10	1,110	1,210	12,980	240	13,220	14,570
22	North of Murrieta Hot Springs Rd	ML	2,350	230	2,580	2,820	3,960	590	4,550	4,930	52,620	6,450	59,070	65,070

Table 3 - Northbound I-15/I-215 Build 2022 Traffic Volumes

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Northbound Mainline</b>														
1	Rancho California Rd Slip On to Winchester Road Off	ML	4,150	530	4,680	5,110	5,750	820	6,580	7,120	86,390	11,410	97,790	107,720
2	Winchester Road Off	Off	900	30	930	1,010	710	20	730	790	14,570	490	15,050	16,580
3	Winchester Road Off to Winchester Road Loop On	ML	3,250	500	3,750	4,090	5,050	800	5,850	6,330	71,820	10,920	82,740	91,140
4	Winchester Road Loop On	On	-	-	-	-	-	-	-	-	-	-	-	-
5	Winchester Road Loop On to Winchester Road Slip On	ML	3,250	500	3,750	4,090	5,050	800	5,850	6,330	71,820	10,920	82,740	91,140
6	Winchester Road Slip On	On	-	-	-	-	-	-	-	-	-	-	-	-
7	Winchester Road direct on-ramp to I-215	ML	3,250	500	3,750	4,090	5,050	800	5,850	6,330	71,820	10,920	82,740	91,140
8	I-215 NB Off	Off	1,570	180	1,750	1,910	1,780	550	2,330	2,520	29,930	5,560	35,490	39,100
9	From I-215 to C-D Merge	ML	1,680	310	2,000	2,180	3,260	250	3,520	3,810	41,890	5,360	47,250	52,050
10	From C-D Merge Murrieta Hot Springs Rd Off	ML	2,200	340	2,540	2,780	3,720	260	3,980	4,320	48,640	5,840	54,470	60,010
11	Murrieta Hot Springs Rd Off	Off	360	10	370	410	290	10	300	330	4,920	130	5,060	5,570
12	Murrieta Hot Springs Rd Off to Murrieta Springs loop on	ML	1,830	330	2,170	2,370	3,420	250	3,680	3,980	43,720	5,700	49,420	54,430
13	Murrieta Hot Springs loop on	On	310	20	330	360	320	30	350	380	4,630	470	5,100	5,610
14	Murrieta Hot Springs loop on to Murrieta Hot Springs Rd direct On	ML	2,150	350	2,500	2,740	3,750	280	4,030	4,370	48,350	6,170	54,510	60,050
15	Murrieta Hot Springs Rd direct On	On	1,010	40	1,050	1,140	1,740	30	1,770	1,920	19,260	610	19,870	21,880
16	North of Murrieta Hot Springs Rd	ML	3,160	400	3,560	3,880	5,490	310	5,810	6,290	67,600	6,780	74,380	81,940
<b>I-215 Northbound Mainline</b>														
17	From I-15 to C_D Merge	ML	1,570	180	1,750	1,910	1,780	550	2,330	2,520	29,930	5,560	35,490	39,100
18	From CD Merge to Murrieta Hot Springs Rd Off	ML	1,860	200	2,070	2,260	2,750	570	3,310	3,590	39,530	5,990	45,520	50,140
19	Murrieta Hot Springs Rd Off	Off	270	10	280	310	330	10	340	370	4,900	80	4,980	5,490
20	Murrieta Hot Springs Rd Off to Murrieta Hot Springs Rd Loop On	ML	1,590	190	1,780	1,950	2,410	560	2,970	3,210	34,630	5,910	40,530	44,650
21	Murrieta Hot Springs Rd Loop On	On	170	20	190	210	500	20	520	560	4,900	250	5,160	5,680
22	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Slip On	ML	1,760	210	1,980	2,160	2,910	580	3,490	3,780	39,530	6,160	45,690	50,330
23	Murrieta Hot Springs Rd Slip On	On	580	20	600	650	1,100	10	1,110	1,210	13,060	260	13,320	14,680
24	North of Murrieta Hot Springs Rd	ML	2,340	230	2,570	2,810	4,010	590	4,600	4,980	52,590	6,420	59,010	65,010
<b>French Valley Parkway C-D Road</b>														
101	Winchester Road loop on-ramp	On	100	20	120	130	630	10	640	690	4,270	240	4,510	4,960
102	Winchester Road direct on-ramp	On	710	30	740	810	790	20	810	880	12,090	660	12,740	14,040
103	French Valley Parkway Direct on-ramp to C-D Split	CD	810	50	860	940	1,420	30	1,450	1,570	16,350	900	17,250	19,010
104	C-D split to I-215	CD	290	20	310	340	960	10	970	1,050	9,600	430	10,030	11,050
105	C-D split to I-15	CD	530	20	550	600	460	20	480	520	6,750	480	7,220	7,950

Table 4 - Northbound I-15/I-215 No Build 2045 Traffic Volumes

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Northbound Mainline</b>														
1	Rancho California Rd Slip On to Winchester Road Off	ML	5,350	860	6,210	6,870	7,100	1,070	8,170	8,980	116,070	17,890	133,960	149,600
2	Winchester Road Off	Off	1,130	50	1,190	1,310	750	20	770	840	18,050	590	18,650	20,820
3	Winchester Road Off to Winchester Road Loop On	ML	4,210	810	5,030	5,560	6,350	1,050	7,400	8,130	98,010	17,290	115,310	128,770
4	Winchester Road Loop On	On	330	40	370	420	920	20	940	1,030	8,580	590	9,180	10,250
5	Winchester Road Loop On to Winchester Road Slip On	ML	4,550	850	5,400	5,970	7,260	1,070	8,340	9,160	106,600	17,890	124,490	139,020
6	Winchester Road Slip On	On	560	40	600	670	1,250	40	1,290	1,420	17,020	510	17,530	19,580
7	Winchester Road Slip On to I-215 NB Off	ML	5,110	890	6,000	6,640	8,510	1,110	9,630	10,570	123,620	18,400	142,020	158,610
8	I-215 NB Off	Off	2,480	280	2,760	3,050	3,270	760	4,030	4,420	54,000	8,090	62,080	69,340
9	I-215 NB Off to Murrieta Hot Springs Rd Off	ML	2,630	610	3,250	3,590	5,240	350	5,600	6,150	69,630	10,310	79,940	89,270
10	Murrieta Hot Springs Rd Off	Off	360	10	370	420	300	10	310	340	5,010	140	5,140	5,740
11	Murrieta Hot Springs Rd Off to Murrieta Springs loop on	ML	2,270	600	2,870	3,170	4,940	340	5,290	5,810	64,620	10,180	74,800	83,530
12	Murrieta Springs loop on	On	440	50	490	540	390	30	420	460	6,840	870	7,710	8,620
13	Murrieta Springs loop on to Murrieta Hot Springs Rd direct On	ML	2,710	660	3,360	3,710	5,330	370	5,700	6,260	71,460	11,050	82,510	92,150
14	Murrieta Hot Springs Rd direct On	On	1,000	40	1,040	1,160	1,760	30	1,790	1,970	19,200	620	19,820	22,130
15	North of Murrieta Hot Springs Rd	ML	3,700	700	4,400	4,870	7,090	410	7,490	8,230	90,660	11,680	102,330	114,280
<b>I-215 Northbound Mainline</b>														
16	From I-15 NB	ML	2,480	280	2,760	3,050	3,270	760	4,030	4,420	54,000	8,090	62,080	69,340
17	Murrieta Hot Springs Rd Off	Off	400	10	410	450	320	10	330	360	5,700	100	5,810	6,480
18	Murrieta Hot Springs Rd Off to Murrieta Hot Springs Rd Loop On	ML	2,080	270	2,350	2,600	2,940	750	3,690	4,060	48,290	7,980	56,280	62,840
19	Murrieta Hot Springs Rd Loop On	On	170	20	190	210	690	20	710	780	6,190	320	6,510	7,270
20	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Slip On	ML	2,250	290	2,540	2,810	3,630	770	4,400	4,840	54,490	8,300	62,790	70,130
21	Murrieta Hot Springs Rd Slip On	On	610	20	630	700	1,340	30	1,370	1,510	14,820	360	15,180	16,950
22	North of Murrieta Hot Springs Rd	ML	2,860	310	3,170	3,510	4,970	800	5,780	6,350	69,300	8,670	77,970	87,080

Table 5 - Northbound I-15/I-215 Build Phase II 2045 Traffic Volumes

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Northbound Mainline</b>														
1	Rancho California Rd Slip On to Winchester Road Off	ML	5,270	870	6,140	6,800	7,730	1,070	8,800	9,680	120,380	17,970	138,350	154,500
2	Winchester Road Off	Off	1,090	50	1,140	1,270	470	20	490	540	16,670	590	17,260	19,280
3	Winchester Road Off to Winchester Road Loop On	ML	4,170	820	4,990	5,530	7,260	1,050	8,310	9,140	103,710	17,380	121,080	135,230
4	Winchester Road Loop On	On	-	-	-	-	-	-	-	-	-	-	-	-
5	Winchester Road Loop On to Winchester Road Slip On	ML	4,170	820	4,990	5,530	7,260	1,050	8,310	9,140	103,710	17,380	121,080	135,230
6	Winchester Road Slip On	On	-	-	-	-	-	-	-	-	-	-	-	-
7	Winchester Road direct on-ramp to I-215	ML	4,170	820	4,990	5,530	7,260	1,050	8,310	9,140	103,710	17,380	121,080	135,230
8	I-215 NB Off	Off	2,040	250	2,290	2,530	2,700	760	3,450	3,800	42,770	7,580	50,340	56,220
9	From I-215 to C-D Merge	ML	2,130	570	2,710	3,000	4,570	290	4,860	5,340	60,940	9,800	70,740	79,000
10	From C-D Merge Murrieta Hot Springs Rd Off	ML	2,530	610	3,140	3,480	5,220	340	5,570	6,120	68,690	10,130	78,810	88,010
11	Murrieta Hot Springs Rd Off	Off	360	10	370	420	250	10	260	280	4,830	140	4,960	5,550
12	Murrieta Hot Springs Rd Off to Murrieta Springs loop on	ML	2,160	600	2,770	3,060	4,970	330	5,310	5,830	63,860	9,990	73,850	82,480
13	Murrieta Springs loop on	On	480	50	530	580	370	40	420	460	7,060	1,030	8,090	9,030
14	Murrieta Springs loop on to Murrieta Hot Springs Rd direct On	ML	2,640	660	3,300	3,650	5,350	370	5,720	6,290	70,920	11,020	81,940	91,500
15	Murrieta Hot Springs Rd direct On	On	1,020	40	1,060	1,180	1,770	30	1,800	1,980	19,360	620	19,980	22,310
16	North of Murrieta Hot Springs Rd	ML	3,660	700	4,360	4,830	7,120	410	7,520	8,260	90,270	11,640	101,920	113,820
<b>I-215 Northbound Mainline</b>														
17	From I-15 to C_D Merge	ML	2,040	250	2,290	2,530	2,700	760	3,450	3,800	42,770	7,580	50,340	56,220
18	From CD Merge to Murrieta Hot Springs Rd Off	ML	2,420	280	2,710	3,000	3,800	780	4,580	5,030	55,360	8,110	63,470	70,880
19	Murrieta Hot Springs Rd Off	Off	350	10	360	410	560	10	570	620	6,450	90	6,550	7,310
20	Murrieta Hot Springs Rd Off to Murrieta Hot Springs Rd Loop On	ML	2,070	270	2,340	2,590	3,240	770	4,010	4,400	48,910	8,010	56,920	63,570
21	Murrieta Hot Springs Rd Loop On	On	170	20	190	210	610	20	630	700	6,000	320	6,330	7,070
22	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Slip On	ML	2,240	290	2,530	2,800	3,850	790	4,640	5,100	54,910	8,340	63,250	70,640
23	Murrieta Hot Springs Rd Slip On	On	610	20	630	700	1,290	20	1,310	1,440	14,840	370	15,210	16,990
24	North of Murrieta Hot Springs Rd	ML	2,850	310	3,160	3,500	5,140	810	5,950	6,530	69,750	8,710	78,460	87,620
<b>French Valley Parkway C-D Road</b>														
101	Winchester Road loop on-ramp	On	100	20	120	140	850	20	870	960	6,490	310	6,810	7,600
102	Winchester Road direct on-ramp	On	680	30	710	780	910	20	930	1,020	13,850	650	14,500	16,190
103	French Valley Parkway Direct on-ramp to C-D Split	CD	780	50	830	930	1,760	30	1,790	1,970	20,340	960	21,300	23,790
103	C-D split to I-215	CD	370	30	410	450	1,100	20	1,120	1,240	12,590	530	13,120	14,650
104	C-D split to I-15	CD	410	30	440	480	660	10	670	730	7,750	430	8,180	9,140

Table 6 - Northbound I-15/I-215 Build Phase III 2045 Traffic Volumes

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Northbound Mainline</b>														
1	I-15 Northbound Mainline to Winchester Road Off	ML	5,680	890	6,580	7,270	7,840	1,100	8,940	9,820	125,010	17,960	142,970	159,660
2	Winchester Road Off	Off	940	30	970	1,070	370	20	400	440	15,030	440	15,460	17,270
3	Winchester Road Off to Winchester Road Loop On	ML	4,750	860	5,610	6,200	7,460	1,080	8,540	9,390	109,980	17,520	127,500	142,400
4	Winchester Road Loop On	On	-	-	-	-	-	-	-	-	-	-	-	-
5	Winchester Road Loop On to Winchester Road Slip On	ML	4,750	860	5,610	6,200	7,460	1,080	8,540	9,390	109,980	17,520	127,500	142,400
6	Winchester Road Slip On	On	-	-	-	-	-	-	-	-	-	-	-	-
7	Winchester Road Slip On to French Valley Parkway Off	ML	4,750	860	5,610	6,200	7,460	1,080	8,540	9,390	109,980	17,520	127,500	142,400
8	French Valley Parkway Off	Off	630	20	660	730	340	0	340	370	8,370	300	8,670	9,680
9	French Valley Parkway off to I-15/I-215 split	ML	4,110	840	4,950	5,480	7,120	1,080	8,200	9,010	101,610	17,220	118,840	132,720
10	I-215 NB Off	Off	1,960	250	2,210	2,450	2,350	740	3,090	3,390	40,100	7,490	47,600	53,150
11	From I-215 to C-D Merge	ML	2,150	590	2,750	3,040	4,770	340	5,110	5,610	61,510	9,740	71,250	79,570
12	From C-D Merge Murrieta Hot Springs Rd Off	ML	2,870	620	3,500	3,870	6,000	360	6,370	6,990	74,800	10,550	85,350	95,320
13	Murrieta Hot Springs Rd Off	Off	430	10	440	480	590	10	600	670	6,390	150	6,530	7,290
14	Murrieta Hot Springs Rd Off to Murrieta Springs loop on	ML	2,450	610	3,060	3,380	5,410	350	5,760	6,340	68,410	10,410	78,810	88,010
15	Murrieta Springs loop on	On	400	50	450	500	170	20	190	210	5,020	710	5,720	6,390
16	Murrieta Springs loop on to Murrieta Hot Springs Rd direct On	ML	2,840	670	3,510	3,880	5,580	370	5,950	6,530	73,420	11,110	84,540	94,410
17	Murrieta Hot Springs Rd direct On	On	980	40	1,020	1,120	1,650	30	1,690	1,850	18,560	620	19,190	21,430
18	North of Murrieta Hot Springs Rd	ML	3,820	710	4,530	5,010	7,230	410	7,640	8,390	91,990	11,740	103,730	115,840
<b>I-215 Northbound Mainline</b>														
19	From I-15 to C_D Merge	ML	1,960	250	2,210	2,450	2,350	740	3,090	3,390	40,100	7,490	47,600	53,150
20	From CD Merge to Murrieta Hot Springs Rd Off	ML	2,530	290	2,820	3,120	4,120	790	4,910	5,400	58,780	8,340	67,120	74,950
21	Murrieta Hot Springs Rd Off	Off	370	10	390	430	600	10	610	680	6,710	110	6,830	7,630
22	Murrieta Hot Springs Rd Off to Murrieta Hot Springs Rd Loop On	ML	2,150	280	2,440	2,700	3,520	780	4,300	4,720	52,070	8,220	60,290	67,340
23	Murrieta Hot Springs Rd Loop On	On	170	10	180	200	510	20	530	580	5,490	310	5,810	6,480
24	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Slip On	ML	2,320	290	2,610	2,890	4,030	800	4,830	5,310	57,570	8,530	66,100	73,820
25	Murrieta Hot Springs Rd Slip On	On	570	20	590	660	1,230	10	1,240	1,360	13,520	250	13,770	15,370
26	North of Murrieta Hot Springs Rd	ML	2,890	310	3,210	3,550	5,260	810	6,070	6,670	71,080	8,780	79,870	89,190

Table 7 - French Valley Parkway C-D Road Build Phase III 2045 Traffic Volumes

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>French Valley Parkway C-D Road</b>														
101	Winchester Road loop on-ramp	On	20	30	50	60	740	20	760	830	4,050	360	4,410	4,930
102	Winchester Road direct on-ramp	On	800	0	800	880	860	10	870	960	13,220	220	13,430	15,010
103	Winchester on-ramps to French Valley Parkway loop on-ramp	CD	820	30	850	950	1,600	30	1,630	1,800	17,260	580	17,850	19,930
104	French Valley Parkway loop on-ramp	On	160	20	180	200	710	10	720	790	6,160	470	6,630	7,400
105	French Valley Parkway loop on-ramp to French Valley Parkway direct on-ramp	CD	980	50	1,030	1,140	2,310	40	2,350	2,580	23,420	1,050	24,470	27,340
106	French Valley Parkway Direct on-ramp	On	300	20	320	350	700	40	740	810	8,540	600	9,150	10,220
107	French Valley Parkway On-ramps to C-D split	CD	1,270	60	1,330	1,480	3,010	80	3,090	3,390	31,980	1,650	33,630	37,560
108	C-D split to I-215	CD	570	40	610	680	1,770	50	1,820	2,000	18,680	840	19,520	21,800
109	C-D split to I-15	CD	710	30	740	820	1,240	30	1,270	1,390	13,290	810	14,100	15,740

Table 8 – Southbound I-15/I-215 Existing Traffic Volumes

ID	LOCATIOn DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Southbound Mainline</b>														
1	North of Murrieta Hot Springs Rd	ML	3,992	334	4,326	4,720	4,111	266	4,377	4,744	58,448	5,876	64,324	70,885
2	Murrieta Hot Springs Rd Off ramp	Off	755	46	800	873	769	37	806	873	9,887	828	10,715	11,808
3	Murrieta Springs Off to Murrieta Hot Springs Rd loop On ramp	ML	3,238	288	3,526	3,847	3,342	229	3,571	3,871	48,561	5,048	53,609	59,077
4	Murrieta Springs loop On ramp	On	37	3	40	43	54	2	56	61	530	56	586	645
5	Murrieta Hot Springs Rd loop On to Murrieta Springs direct On ramp	ML	3,275	291	3,566	3,890	3,397	231	3,627	3,932	49,091	5,103	54,194	59,722
6	Murrieta Hot Springs Rd Direct On ramp	On	99	0	99	108	217	0	217	235	2,680	0	2,680	2,953
7	Murrieta Hot Springs Rd Direct On to I-215 merge	ML	3,373	291	3,664	3,998	3,613	231	3,844	4,167	51,771	5,103	56,874	62,675
8	I-215 merge to Winchester Road Off ramp	ML	7,049	380	7,428	8,104	6,022	308	6,330	6,862	92,939	6,832	99,771	109,947
11	Winchester Road Off ramp	Off	1,216	33	1,250	1,363	1,063	31	1,094	1,186	16,620	777	17,397	19,171
12	Winchester Road Off to Winchester Road Loop On ramp	ML	5,832	346	6,179	6,741	4,959	277	5,236	5,676	76,319	6,055	82,374	90,776
13	Winchester Road Loop On ramp	On	255	3	259	282	168	3	171	185	3,383	77	3,461	3,814
14	Winchester Road Loop On to Winchester Road Direct On ramp	ML	6,088	350	6,437	7,023	5,127	280	5,407	5,861	79,702	6,133	85,834	94,590
15	Winchester Road Direct On ramp	On	252	1	253	277	177	1	178	193	5,409	47	5,456	6,012
16	Winchester Road On ramp to Ranch California Road	ML	6,340	351	6,691	7,300	5,304	281	5,585	6,054	85,111	6,179	91,290	100,602
<b>I-215 Southbound Mainline</b>														
17	North of Murrieta Hot Springs Rd	ML	4,084	97	4,181	4,562	2,627	83	2,710	2,938	43,391	1,839	45,230	49,844
18	Murrieta Hot Springs Rd Off ramps	Off	874	11	886	967	644	8	652	707	9,188	166	9,354	10,308
19	Murrieta Hot Springs Rd Off to Murrieta Hot Springs Rd Loop On ramp	ML	3,210	86	3,295	3,595	1,983	75	2,058	2,231	34,203	1,674	35,877	39,536
20	Murrieta Hot Springs Rd Loop On ramp	On	267	2	268	293	204	1	206	223	3,663	34	3,697	4,074
21	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Direct Or	ML	3,476	87	3,564	3,888	2,188	76	2,263	2,454	37,866	1,707	39,573	43,610
22	Murrieta Hot Springs Rd Direct On ramp	On	199	1	200	219	222	1	223	241	3,302	21	3,323	3,662
23	Murrieta Hot Springs Rd Direct On ramp to I-15 merge	ML	3,675	89	3,764	4,106	2,409	77	2,486	2,695	41,168	1,729	42,896	47,272



Table 9 - Southbound I-15/I-215 No Build 2022 Traffic Volumes

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Southbound Mainline</b>														
1	North of Murrieta Hot Springs Rd	ML	4,822	420	5,242	5,719	6,467	466	6,933	7,515	68,806	7,341	76,146	83,913
2	Murrieta Hot Springs Rd Off ramp	Off	756	55	811	884	973	26	999	1,083	8,944	473	9,417	10,378
3	Murrieta Springs Off to Murrieta Hot Springs Rd loop On ramp	ML	4,066	365	4,431	4,835	5,493	441	5,934	6,433	59,861	6,868	66,729	73,535
4	Murrieta Springs loop On ramp	On	46	4	50	54	92	4	96	104	714	55	769	847
5	Murrieta Hot Springs Rd loop On to Murrieta Springs direct On ramp	ML	4,112	369	4,481	4,889	5,586	444	6,030	6,537	60,575	6,923	67,498	74,382
6	Murrieta Hot Springs Rd Direct On ramp	On	127	0	127	139	374	0	374	405	3,336	0	3,336	3,677
7	Murrieta Hot Springs Rd Direct On to I-215 merge	ML	4,239	369	4,608	5,027	5,959	444	6,404	6,942	63,911	6,923	70,834	78,059
8	I-215 merge to French Valley Parkway Off ramp	ML	8,708	488	9,196	10,033	10,071	585	10,657	11,552	114,290	9,266	123,556	136,159
9	French Valley Parkway Off ramp	Off	995	18	1,013	1,105	880	62	941	1,020	10,947	923	11,870	13,081
10	French Valley Parkway Direct On to Winchester Road Off ramp	ML	7,713	470	8,183	8,928	9,192	524	9,715	10,531	103,344	8,342	111,686	123,078
11	Winchester Road Off ramp	Off	1,392	45	1,438	1,568	1,810	31	1,841	1,995	18,501	745	19,247	21,210
12	Winchester Road Off to Winchester Road Loop On ramp	ML	6,321	424	6,745	7,359	7,381	493	7,874	8,536	84,842	7,597	92,440	101,869
13	Winchester Road Loop On ramp	On	322	5	327	357	427	5	432	468	4,838	93	4,930	5,433
14	Winchester Road Loop On to Winchester Road Direct On ramp	ML	6,643	429	7,072	7,716	7,808	498	8,306	9,004	89,680	7,690	97,370	107,302
15	Winchester Road Direct On ramp	On	344	2	346	377	427	13	440	477	6,955	85	7,040	7,758
16	Winchester Road On ramp to Ranch California Road	ML	6,987	431	7,418	8,093	8,235	511	8,746	9,481	96,635	7,775	104,410	115,060
<b>I-215 Southbound Mainline</b>														
17	North of Murrieta Hot Springs Rd	ML	4,843	130	4,973	5,425	4,356	154	4,510	4,889	52,312	2,481	54,793	60,381
18	Murrieta Hot Springs Rd Off ramps	Off	967	15	982	1,071	953	17	971	1,052	10,227	219	10,446	11,512
19	Murrieta Hot Springs Rd Off to Murrieta Hot Springs Rd Loop On ramp	ML	3,876	115	3,991	4,354	3,403	137	3,539	3,837	42,085	2,262	44,346	48,870
20	Murrieta Hot Springs Rd Loop On ramp	On	377	2	379	414	344	2	347	376	4,432	45	4,476	4,933
21	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Direct On	ML	4,253	117	4,370	4,768	3,747	139	3,886	4,213	46,517	2,306	48,823	53,803
22	Murrieta Hot Springs Rd Direct On ramp	On	215	2	217	237	365	2	367	397	3,863	37	3,900	4,297
23	Murrieta Hot Springs Rd Direct On ramp to I-15 merge	ML	4,469	119	4,588	5,005	4,112	141	4,253	4,610	50,379	2,343	52,722	58,100

Table 10 - Southbound I-15/I-215 Build 2022 Traffic Volumes

ID	LOCATION DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW			DAILY FLOW				
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Southbound Mainline</b>														
1	North of Murrieta Hot Springs Rd	ML	4,826	420	5,246	5,723	6,462	466	6,928	7,510	68,902	7,341	76,243	84,019
2	Murrieta Hot Springs Rd Off ramp	Off	759	55	814	888	970	26	995	1,079	9,030	473	9,503	10,472
3	Murrieta Springs Off to Murrieta Hot Springs Rd loop On ramp	ML	4,067	365	4,432	4,836	5,492	441	5,933	6,432	59,872	6,868	66,740	73,548
4	Murrieta Springs loop On ramp	On	46	4	50	54	94	4	98	106	703	55	758	835
5	Murrieta Hot Springs Rd loop On to Murrieta Springs direct On ramp	ML	4,113	369	4,482	4,890	5,586	444	6,031	6,537	60,575	6,923	67,498	74,383
6	Murrieta Hot Springs Rd Direct On ramp	On	127	0	127	139	372	0	372	403	3,348	0	3,348	3,689
7	Murrieta Hot Springs Rd Direct On to I-215 merge	ML	4,240	369	4,609	5,028	5,958	444	6,403	6,941	63,922	6,923	70,845	78,071
8	I-215 merge to French Valley Parkway Off ramp	ML	8,704	488	9,192	10,028	10,041	586	10,626	11,519	114,023	9,265	123,288	135,863
9	French Valley Parkway Off ramp	Off	993	18	1,012	1,104	882	62	943	1,023	10,923	923	11,846	13,055
10	French Valley Parkway Direct On to Winchester Road Off ramp	ML	7,710	470	8,180	8,925	9,159	524	9,683	10,496	103,100	8,342	111,442	122,809
11	Winchester Road Off ramp	Off	1,391	45	1,436	1,567	1,814	31	1,845	2,000	18,510	744	19,254	21,218
12	Winchester Road Off to Winchester Road Loop On ramp	ML	6,319	425	6,744	7,358	7,345	493	7,838	8,496	84,590	7,598	92,188	101,591
13	Winchester Road Loop On ramp	On	326	5	331	361	445	5	450	487	5,052	93	5,144	5,669
14	Winchester Road Loop On to Winchester Road Direct On ramp	ML	6,645	429	7,075	7,718	7,789	498	8,287	8,984	89,642	7,690	97,332	107,260
15	Winchester Road Direct On ramp	On	339	2	341	372	448	13	461	500	7,082	102	7,184	7,916
16	Winchester Road On ramp to Ranch California Road	ML	6,984	432	7,416	8,091	8,237	511	8,748	9,483	96,723	7,792	104,516	115,176
<b>I-215 Southbound Mainline</b>														
17	North of Murrieta Hot Springs Rd	ML	4,843	130	4,973	5,425	4,328	154	4,483	4,859	52,038	2,482	54,520	60,081
18	Murrieta Hot Springs Rd Off ramps	Off	967	15	982	1,071	957	17	974	1,056	10,241	221	10,462	11,529
19	Murrieta Hot Springs Rd Off to Murrieta Hot Springs Rd Loop On ramp	ML	3,876	115	3,991	4,354	3,371	137	3,508	3,803	41,798	2,261	44,058	48,552
20	Murrieta Hot Springs Rd Loop On ramp	On	377	2	379	414	344	2	346	375	4,432	45	4,477	4,934
21	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Direct On	ML	4,253	117	4,370	4,768	3,715	139	3,854	4,178	46,230	2,305	48,535	53,486
22	Murrieta Hot Springs Rd Direct On ramp	On	215	2	217	237	367	2	369	400	3,871	37	3,908	4,306
23	Murrieta Hot Springs Rd Direct On ramp to I-15 merge	ML	4,469	119	4,588	5,005	4,082	141	4,224	4,578	50,101	2,342	52,443	57,792

Table 11 - Southbound I-15/I-215 No Build 2045 Traffic Volumes

ID	LOCATIOn DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Southbound Mainline</b>														
1	North of Murrieta Hot Springs Rd	ML	6,095	703	6,798	7,519	7,416	797	8,213	9,026	86,363	12,559	98,922	110,496
2	Murrieta Hot Springs Rd Off ramp	Off	742	48	790	874	778	27	805	885	8,790	517	9,307	10,396
3	Murrieta Springs Off to Murrieta Hot Springs Rd loop On ramp	ML	5,353	655	6,008	6,645	6,638	770	7,408	8,141	77,573	12,043	89,616	100,101
4	Murrieta Springs loop On ramp	On	0	0	1	1	0	0	0	0	17	53	70	78
5	Murrieta Hot Springs Rd loop On to Murrieta Springs direct On ramp	ML	5,353	655	6,009	6,646	6,638	770	7,408	8,142	77,590	12,096	89,685	100,179
6	Murrieta Hot Springs Rd Direct On ramp	On	124	3	127	140	333	3	336	370	3,275	17	3,291	3,676
7	Murrieta Hot Springs Rd Direct On to I-215 merge	ML	5,477	658	6,135	6,786	6,971	774	7,745	8,511	80,864	12,112	92,977	103,855
8	I-215 merge to French Valley Parkway Off ramp	ML	10,567	848	11,416	12,626	12,048	1,006	13,054	14,346	144,781	15,866	160,648	179,444
9	French Valley Parkway Off ramp	Off	1,282	20	1,302	1,440	1,222	67	1,289	1,417	14,809	1,003	15,812	17,662
10	French Valley Parkway Direct On to Winchester Road Off ramp	ML	9,285	829	10,114	11,186	10,826	939	11,765	12,930	129,972	14,864	144,836	161,782
11	Winchester Road Off ramp	Off	1,175	51	1,226	1,356	1,589	51	1,641	1,803	16,642	988	17,630	19,693
12	Winchester Road Off to Winchester Road Loop On ramp	ML	8,111	777	8,888	9,830	9,236	888	10,124	11,127	113,330	13,875	127,206	142,089
13	Winchester Road Loop On ramp	On	268	4	272	301	457	7	464	510	5,973	128	6,101	6,815
14	Winchester Road Loop On to Winchester Road Direct On ramp	ML	8,378	782	9,160	10,131	9,694	895	10,588	11,636	119,304	14,003	133,307	148,904
15	Winchester Road Direct On ramp	On	437	5	442	489	571	25	596	655	9,428	137	9,565	10,685
16	Winchester Road On ramp to Ranch California Road	ML	8,815	787	9,602	10,620	10,265	920	11,185	12,292	128,732	14,141	142,872	159,588
<b>I-215 Southbound Mainline</b>														
17	North of Murrieta Hot Springs Rd	ML	5,832	207	6,040	6,680	5,301	246	5,547	6,096	66,516	3,956	70,472	78,717
18	Murrieta Hot Springs Rd Off ramps	Off	1,110	18	1,128	1,247	1,041	20	1,061	1,166	11,699	307	12,006	13,411
19	Murrieta Hot Springs Rd Off to Murrieta Hot Springs Rd Loop On ramp	ML	4,722	190	4,912	5,432	4,260	226	4,485	4,930	54,817	3,649	58,465	65,306
20	Murrieta Hot Springs Rd Loop On ramp	On	164	1	165	182	389	3	392	431	4,635	43	4,678	5,225
21	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Direct On	ML	4,886	190	5,077	5,615	4,649	228	4,877	5,360	59,452	3,691	63,143	70,531
22	Murrieta Hot Springs Rd Direct On ramp	On	204	0	204	225	428	4	432	475	4,465	62	4,528	5,057
23	Murrieta Hot Springs Rd Direct On ramp to I-15 merge	ML	5,090	190	5,280	5,840	5,077	232	5,309	5,835	63,917	3,754	67,671	75,589

Table 12 - Southbound I-15/I-215 Build Phase II 2045 Traffic Volumes

ID 0	LOCATIOn DESCRIPTION	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Southbound Mainline</b>														
1	North of Murrieta Hot Springs Rd	ML	6,091	711	6,802	7,523	7,447	798	8,245	9,062	86,470	12,582	99,051	110,640
2	Murrieta Hot Springs Rd Off ramp	Off	736	54	790	874	800	28	828	910	8,779	535	9,314	10,404
3	Murrieta Springs Off to Murrieta Hot Springs Rd loop On ramp	ML	5,355	656	6,012	6,649	6,647	771	7,418	8,152	77,691	12,046	89,737	100,236
4	Murrieta Springs loop On ramp	On	0	0	0	1	0	2	2	2	17	58	75	83
5	Murrieta Hot Springs Rd loop On to Murrieta Springs direct On ramp	ML	5,356	657	6,012	6,649	6,647	773	7,420	8,155	77,708	12,104	89,812	100,320
6	Murrieta Hot Springs Rd Direct On ramp	On	119	3	121	134	348	2	350	385	3,297	11	3,309	3,696
7	Murrieta Hot Springs Rd Direct On to I-215 merge	ML	5,474	659	6,134	6,784	6,995	775	7,770	8,539	81,005	12,116	93,120	104,016
8	I-215 merge to French Valley Parkway Off ramp	ML	10,565	849	11,415	12,625	12,077	1,007	13,084	14,379	144,889	15,871	160,760	179,569
9	French Valley Parkway Off ramp	Off	1,278	21	1,299	1,437	1,221	67	1,288	1,416	14,818	1,005	15,823	17,674
10	French Valley Parkway Direct On to Winchester Road Off ramp	ML	9,287	829	10,116	11,188	10,856	940	11,796	12,964	130,071	14,867	144,938	161,895
11	Winchester Road Off ramp	Off	1,177	51	1,228	1,358	1,590	51	1,641	1,803	16,703	989	17,692	19,762
12	Winchester Road Off to Winchester Road Loop On ramp	ML	8,110	777	8,888	9,830	9,266	889	10,155	11,160	113,368	13,878	127,246	142,134
13	Winchester Road Loop On ramp	On	278	4	283	312	424	7	430	473	6,062	129	6,192	6,916
14	Winchester Road Loop On to Winchester Road Direct On ramp	ML	8,388	782	9,170	10,142	9,689	896	10,585	11,633	119,431	14,007	133,438	149,050
15	Winchester Road Direct On ramp	On	445	5	450	498	565	24	589	647	9,501	135	9,637	10,764
16	Winchester Road On ramp to Ranch California Road	ML	8,834	787	9,621	10,640	10,254	920	11,174	12,280	128,932	14,142	143,074	159,814
<b>I-215 Southbound Mainline</b>														
17	North of Murrieta Hot Springs Rd	ML	5,831	208	6,039	6,679	5,309	245	5,555	6,105	66,479	3,957	70,437	78,678
18	Murrieta Hot Springs Rd Off ramps	Off	1,109	19	1,127	1,247	1,042	19	1,062	1,167	11,684	307	11,991	13,394
19	Murrieta Hot Springs Rd Off to Murrieta Hot Springs Rd Loop On ramp	ML	4,722	190	4,912	5,432	4,267	226	4,493	4,938	54,795	3,650	58,445	65,283
20	Murrieta Hot Springs Rd Loop On ramp	On	157	1	157	174	391	3	394	433	4,612	43	4,655	5,199
21	Murrieta Hot Springs Rd Loop On to Murrieta Hot Springs Rd Direct On	ML	4,878	190	5,069	5,606	4,658	229	4,887	5,370	59,407	3,693	63,100	70,483
22	Murrieta Hot Springs Rd Direct On ramp	On	212	0	212	235	423	4	427	470	4,477	62	4,540	5,071
23	Murrieta Hot Springs Rd Direct On ramp to I-15 merge	ML	5,091	190	5,281	5,841	5,081	233	5,314	5,840	63,884	3,756	67,640	75,554

Table 13 - Southbound I-15/I-215 Build Phase III 2045 Traffic Volumes

ID	Location Description	FACILITY	AM PEAK HOUR FLOW				PM PEAK HOUR FLOW				DAILY FLOW			
			AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE	AUTO	TRUCK	TOTAL	TOTAL PCE
<b>I-15 Southbound Mainline</b>														
1	North of Murrieta Hot Springs Rd	ML	6,105	710	6,815	7,537	6,105	710	6,815	7,490	86,333	12,628	98,961	110,539
2	Murrieta Hot Springs Rd Off ramp	Off	668	54	722	799	668	54	722	794	9,249	929	10,178	11,368
3	Murrieta Springs Off to Murrieta Hot Springs Rd I	ML	5,437	656	6,093	6,739	5,437	656	6,093	6,696	77,084	11,699	88,783	99,171
4	Murrieta Springs loop On ramp	On	0	0	0	0	0	0	0	0	168	77	245	274
5	Murrieta Hot Springs Rd loop On to Murrieta Spr	ML	5,437	656	6,093	6,739	5,437	656	6,093	6,696	77,253	11,776	89,029	99,445
6	Murrieta Hot Springs Rd Direct On ramp	On	134	4	137	152	134	4	137	151	4,274	10	4,284	4,785
7	Murrieta Hot Springs Rd Direct On to CD Diverge	ML	5,570	660	6,230	6,891	5,570	660	6,230	6,847	81,527	11,786	93,312	104,230
8	CD diverge to I-215 Merge	ML	4,603	618	5,221	5,774	4,603	618	5,221	5,738	68,430	10,974	79,405	88,695
10	I-215 Merge to CD2 Merge	ML	8,219	786	9,005	9,960	8,219	786	9,005	9,897	114,924	14,106	129,030	144,127
11	CD merge to Rancho California Road	ML	9,292	797	10,090	11,159	9,292	797	10,090	11,088	137,947	14,452	152,399	170,230
<b>I-215 Southbound Mainline</b>														
12	North of Murrieta Hot Springs Rd	ML	5,906	210	6,116	6,764	5,906	210	6,116	6,721	66,013	3,976	69,990	78,179
13	Murrieta Hot Springs Rd Off ramps	Off	1,115	17	1,132	1,253	1,115	17	1,132	1,245	10,724	257	10,982	12,267
14	Murrieta Hot Springs Rd Off to Murrieta Hot Sprin	ML	4,790	193	4,983	5,512	4,790	193	4,983	5,477	55,289	3,719	59,008	65,912
15	Murrieta Hot Springs Rd Loop On ramp	On	178	1	179	198	178	1	179	197	3,645	31	3,676	4,106
16	Murrieta Hot Springs Rd Loop On to Murrieta Hot	ML	4,969	194	5,163	5,710	4,969	194	5,163	5,674	58,934	3,750	62,684	70,018
17	Murrieta Hot Springs Rd Direct On ramp	On	318	2	321	354	318	2	321	352	5,133	78	5,211	5,821
18	Murrieta Hot Springs Rd Direct On ramp to CD div	ML	5,287	196	5,483	6,064	5,287	196	5,483	6,026	64,067	3,828	67,895	75,839
20	I-215 South to I-15 merge	CD	3,616	168	3,784	4,185	3,616	168	3,784	4,159	46,494	3,132	49,625	55,432

Table 14 – Existing (2017) Peak Hour Intersection Vehicle Volumes

ID	North-South Street	East-West Street	Existing (2017) Peak Hour Intersection Vehicle Volumes												Total Approach Volumes
			NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			
			L	T	R	L	T	R	L	T	R	L	T	R	
<b>AM Peak Hour</b>															
1	Ynez Road	Date Street	4	130	137	1	2	3	214	393	1	523	4	250	1662
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Jefferson Avenue	French Valley Parkway	115	625	0	14	0	144	0	696	19	446	94	313	2466
4	Ynez Road	Winchester Road	298	196	96	316	1000	550	108	356	412	278	1514	75	5199
5	I-15 Northbound Ramps	Winchester Road	419	1	593	0	1310	346	0	0	0	0	1711	539	4919
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	660	210	966	2	690	0	1278	853	4659
7	Jefferson Avenue	Winchester Road	137	338	185	115	328	68	291	474	406	524	1016	400	4282
<b>Total Intersection Volumes</b>															<b>23,187</b>
<b>PM Peak Hour</b>															
1	Ynez Road	Date Street	2	871	591	2	1	3	183	291	0	277	4	232	2457
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Jefferson Avenue	French Valley Parkway	148	1585	0	32	0	204	0	946	11	140	38	171	3275
4	Ynez Road	Winchester Road	774	863	466	431	1644	630	172	356	309	308	1309	159	7421
5	I-15 Northbound Ramps	Winchester Road	125	0	589	0	2117	898	0	0	0	0	1178	1287	6194
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	1831	234	1175	4	423	0	795	486	4948
7	Jefferson Avenue	Winchester Road	51	730	424	493	1138	58	588	665	180	363	428	447	5565
<b>Total Intersection Volumes</b>															<b>29,860</b>

Table 15 – Opening Year (2022) No Build Peak Hour Intersection Volume and PCE Volume

ID	North-South Street	East-West Street	Opening Year (2022) No Build Peak Hour Intersection Vehicle Volume												Total Approach Volumes
			NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			2022 NB
			L	T	R	L	T	R	L	T	R	L	T	R	
<b>AM Peak Hour</b>															
1	Ynez Road	Date Street	4	141	136	1	2	3	216	440	1	527	4	249	1725
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	
3	Jefferson Avenue	French Valley Parkway	139	439	0	22	0	137	0	676	52	489	289	562	2804
4	Ynez Road	Winchester Road	351	195	112	338	1293	759	109	396	421	306	1533	64	5879
5	I-15 Northbound Ramps	Winchester Road	414	1	604	0	1786	397	0	0	0	0	1788	540	5531
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	837	253	1346	3	413	0	1300	1029	5181
7	Jefferson Avenue	Winchester Road	110	256	250	113	447	78	393	481	375	462	891	360	4215
			<b>Total Intersection Volumes</b>												<b>25,333</b>
<b>PM Peak Hour</b>															
1	Ynez Road	Date Street	2	991	596	2	1	3	186	341	0	283	4	232	2641
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	
3	Jefferson Avenue	French Valley Parkway	352	1566	0	39	0	167	0	932	39	194	188	351	3828
4	Ynez Road	Winchester Road	861	950	515	462	1771	683	183	381	331	322	1370	165	7996
5	I-15 Northbound Ramps	Winchester Road	127	0	661	0	2257	962	0	0	0	0	1323	1291	6620
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	1972	312	1247	5	490	0	904	546	5476
7	Jefferson Avenue	Winchester Road	34	739	456	491	1211	50	617	631	132	404	488	501	5755
			<b>Total Intersection Volumes</b>												<b>32,316</b>

ID	North-South Street	East-West Street	Opening Year (2022) No Build Peak Hour Intersection PCE Volume												Total Approach Volumes
			NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			2022 NB
			L	T	R	L	T	R	L	T	R	L	T	R	
<b>AM Peak Hour</b>															
1	Ynez Road	Date Street	4	146	141	1	2	3	224	455	1	545	4	257	1783
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	
3	Jefferson Avenue	French Valley Parkway	143	454	0	22	0	141	0	699	54	506	299	581	2899
4	Ynez Road	Winchester Road	363	202	116	350	1337	785	113	409	435	317	1585	66	6079
5	I-15 Northbound Ramps	Winchester Road	428	1	625	0	1847	410	0	0	0	0	1849	559	5719
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	865	262	1392	3	427	0	1344	1064	5357
7	Jefferson Avenue	Winchester Road	114	264	259	117	462	81	406	497	387	478	921	372	4358
			<b>Total Intersection Volumes</b>												<b>26,195</b>
<b>PM Peak Hour</b>															
1	Ynez Road	Date Street	2	1020	614	2	1	3	192	351	0	291	4	239	2718
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	
3	Jefferson Avenue	French Valley Parkway	362	1611	0	40	0	172	0	959	40	200	193	361	3939
4	Ynez Road	Winchester Road	886	978	530	476	1823	703	188	392	340	332	1410	169	8228
5	I-15 Northbound Ramps	Winchester Road	131	0	680	0	2322	990	0	0	0	0	1361	1328	6812
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	2029	321	1283	6	504	0	930	562	5635
7	Jefferson Avenue	Winchester Road	35	761	469	505	1246	51	635	649	136	416	502	516	5922
			<b>Total Intersection Volumes</b>												<b>33,253</b>

Table 16 - Opening Year (2022) Build Phase II Peak Hour Intersection Volume and PCE Volume

ID	North-South Street	East-West Street	Opening Year (2022) Phases 1 & 2 Peak Hour Intersection Vehicle Volumes												Total Approach Volumes
			NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			
			L	T	R	L	T	R	L	T	R	L	T	R	2022 PH12
<b>AM Peak Hour</b>															
1	Ynez Road	Date Street	4	141	136	1	2	3	216	440	1	527	4	249	1725
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Jefferson Avenue	French Valley Parkway	140	449	0	22	0	137	0	677	51	489	287	563	2815
4	Ynez Road	Winchester Road	317	188	107	343	1296	743	113	400	413	308	1495	67	5790
5	I-15 Northbound Ramps	Winchester Road	409	1	587	0	1795	126	0	0	0	0	1663	589	5171
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	577	251	1343	3	416	0	1344	728	4663
7	Jefferson Avenue	Winchester Road	108	254	191	110	339	75	299	478	378	475	915	370	3991
<b>Total Intersection Volumes</b>														<b>24,155</b>	
<b>PM Peak Hour</b>															
1	Ynez Road	Date Street	2	991	596	2	1	3	186	341	0	283	4	232	2642
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Jefferson Avenue	French Valley Parkway	354	1584	0	39	0	165	0	932	39	194	187	353	3846
4	Ynez Road	Winchester Road	749	934	504	464	1770	659	194	390	311	339	1326	180	7819
5	I-15 Northbound Ramps	Winchester Road	118	0	636	0	2257	671	0	0	0	0	1230	1326	6236
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	1672	320	1256	6	482	0	940	408	5083
7	Jefferson Avenue	Winchester Road	33	736	398	490	1055	49	537	626	130	412	498	512	5477
<b>Total Intersection Volumes</b>														<b>31,103</b>	

ID	North-South Street	East-West Street	Opening Year (2022) Phases 1 & 2 Peak Hour Intersection PCE Volumes												Total Approach Volumes
			NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			
			L	T	R	L	T	R	L	T	R	L	T	R	2022 PH12
<b>AM Peak Hour</b>															
1	Ynez Road	Date Street	4	146	141	1	2	3	224	455	1	545	4	257	1783
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Jefferson Avenue	French Valley Parkway	145	464	0	23	0	141	0	700	53	506	297	582	2910
4	Ynez Road	Winchester Road	328	194	110	355	1340	768	117	414	427	318	1546	69	5987
5	I-15 Northbound Ramps	Winchester Road	423	1	607	0	1856	130	0	0	0	0	1720	609	5347
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	597	260	1389	3	430	0	1390	753	4822
7	Jefferson Avenue	Winchester Road	112	263	197	114	351	77	309	494	391	491	946	383	4127
<b>Total Intersection Volumes</b>														<b>24,976</b>	
<b>PM Peak Hour</b>															
1	Ynez Road	Date Street	2	1020	614	2	1	3	192	351	0	291	4	239	2718
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Jefferson Avenue	French Valley Parkway	364	1630	0	40	0	170	0	959	40	200	193	363	3958
4	Ynez Road	Winchester Road	771	961	519	477	1821	678	199	401	320	349	1364	185	8046
5	I-15 Northbound Ramps	Winchester Road	121	0	654	0	2322	690	0	0	0	0	1266	1364	6417
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	1720	329	1292	6	496	0	967	420	5230
7	Jefferson Avenue	Winchester Road	34	757	410	504	1086	50	553	644	134	424	512	527	5636
<b>Total Intersection Volumes</b>														<b>32,005</b>	

Table 17- Design Year (2045) No Build Peak Hour Intersection Volume and PCE Volume

ID	North-South Street	East-West Street	Design Year (2045) No Build Peak Hour Intersection Vehicle Volumes												Total Approach Volumes
			NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			
			L	T	R	L	T	R	L	T	R	L	T	R	
<b>AM Peak Hour</b>															
1	Ynez Road	Date Street	5	169	124	1	2	4	238	701	1	561	3	239	2048
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Jefferson Avenue	French Valley Parkway	168	327	0	26	0	137	0	883	131	584	672	802	3729
4	Ynez Road	Winchester Road	445	219	146	345	1526	1049	136	573	506	369	1534	57	6905
5	I-15 Northbound Ramps	Winchester Road	502	1	741	0	2179	360	0	0	0	1941	566	6289	
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	996	386	1543	4	196	0	1602	841	5567
7	Jefferson Avenue	Winchester Road	88	190	584	105	687	81	914	563	422	485	935	377	5431
			<b>Total Intersection Volumes</b>												<b>29,970</b>
<b>PM Peak Hour</b>															
1	Ynez Road	Date Street	3	1554	676	2	1	3	173	412	0	279	3	244	3350
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Jefferson Avenue	French Valley Parkway	654	1969	0	107	0	438	0	1126	73	305	460	582	5714
4	Ynez Road	Winchester Road	970	1426	655	571	1849	761	201	447	322	382	1349	216	9149
5	I-15 Northbound Ramps	Winchester Road	110	0	573	0	2607	935	0	0	0	1346	1347	6918	
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	2478	507	1064	6	685	0	1112	344	6196
7	Jefferson Avenue	Winchester Road	37	1087	220	545	1238	43	806	778	155	521	629	647	6705
			<b>Total Intersection Volumes</b>												<b>38,033</b>

ID	North-South Street	East-West Street	Design Year (2045) No Build Peak Hour Intersection PCE Volumes												Total Approach Volumes
			NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			
			L	T	R	L	T	R	L	T	R	L	T	R	
<b>AM Peak Hour</b>															
1	Ynez Road	Date Street	5	174	128	1	2	4	246	725	1	580	3	247	2118
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Jefferson Avenue	French Valley Parkway	173	338	0	27	0	141	0	913	136	604	695	829	3856
4	Ynez Road	Winchester Road	460	227	151	357	1578	1085	140	592	524	381	1586	59	7140
5	I-15 Northbound Ramps	Winchester Road	519	1	766	0	2253	372	0	0	0	2007	585	6503	
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	1030	399	1595	4	203	0	1656	870	5757
7	Jefferson Avenue	Winchester Road	91	196	604	109	710	84	945	582	437	502	967	390	5616
			<b>Total Intersection Volumes</b>												<b>30,989</b>
<b>PM Peak Hour</b>															
1	Ynez Road	Date Street	3	1599	695	2	1	3	178	424	0	288	3	251	3448
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Jefferson Avenue	French Valley Parkway	673	2026	0	110	0	450	0	1159	75	314	473	599	5880
4	Ynez Road	Winchester Road	998	1468	674	587	1903	783	207	460	332	393	1388	222	9414
5	I-15 Northbound Ramps	Winchester Road	113	0	590	0	2683	962	0	0	0	1385	1386	7119	
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	2550	522	1095	6	705	0	1144	354	6376
7	Jefferson Avenue	Winchester Road	38	1118	226	561	1274	44	829	800	160	536	647	666	6900
			<b>Total Intersection Volumes</b>												<b>39,136</b>



Table 18 - Design Year (2045) Build Phase II Peak Hour Intersection Volume and PCE Volume

ID	North-South Street	East-West Street	Design Year (2045) Phases 1 & 2 Peak Hour Intersection Vehicle Volumes												Total Approach Volumes
			NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			
			L	T	R	L	T	R	L	T	R	L	T	R	
<b>AM Peak Hour</b>															
1	Ynez Road	Date Street	5	169	124	1	1	4	238	708	1	561	3	239	2055
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Jefferson Avenue	French Valley Parkway	175	348	0	26	0	136	0	876	129	583	665	809	3747
4	Ynez Road	Winchester Road	411	212	140	351	1522	1040	139	580	502	365	1489	58	6810
5	I-15 Northbound Ramps	Winchester Road	505	1	697	0	2217	368	0	0	0	0	1816	616	6219
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	1023	393	1561	4	186	0	1643	678	5488
7	Jefferson Avenue	Winchester Road	87	199	326	104	734	76	510	562	423	493	951	385	4850
			<b>Total Intersection Volumes</b>												<b>29,169</b>
<b>PM Peak Hour</b>															
1	Ynez Road	Date Street	3	1449	629	2	1	3	175	412	0	279	3	247	3203
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Jefferson Avenue	French Valley Parkway	645	1875	0	110	0	456	0	1115	73	306	468	572	5620
4	Ynez Road	Winchester Road	1027	1366	655	501	1675	759	190	458	322	394	1356	196	8900
5	I-15 Northbound Ramps	Winchester Road	86	0	303	0	2633	951	0	0	0	0	1349	1485	6808
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	2506	502	1078	6	671	0	1109	327	6197
7	Jefferson Avenue	Winchester Road	35	1008	602	534	1247	42	812	757	154	516	623	640	6970
			<b>Total Intersection Volumes</b>												<b>37,699</b>
ID	North-South Street	East-West Street	Design Year (2045) Phases 1 & 2 Peak Hour Intersection PCE Volumes												Total Approach Volumes
			NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			
			L	T	R	L	T	R	L	T	R	L	T	R	
<b>AM Peak Hour</b>															
1	Ynez Road	Date Street	5	175	128	1	2	4	247	732	1	580	3	247	2125
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Jefferson Avenue	French Valley Parkway	181	359	0	27	0	141	0	905	134	602	688	837	3875
4	Ynez Road	Winchester Road	425	219	145	363	1574	1076	144	599	519	377	1539	60	7042
5	I-15 Northbound Ramps	Winchester Road	522	1	721	0	2292	380	0	0	0	0	1878	637	6431
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	1058	406	1614	4	192	0	1699	701	5674
7	Jefferson Avenue	Winchester Road	90	205	337	108	759	79	527	581	437	510	983	398	5015
			<b>Total Intersection Volumes</b>												<b>30,161</b>
<b>PM Peak Hour</b>															
1	Ynez Road	Date Street	3	1491	647	2	1	3	180	424	0	287	4	254	3296
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Jefferson Avenue	French Valley Parkway	663	1929	0	113	0	470	0	1147	75	315	482	589	5783
4	Ynez Road	Winchester Road	1057	1406	674	516	1724	781	195	471	331	406	1395	202	9158
5	I-15 Northbound Ramps	Winchester Road	89	0	312	0	2709	979	0	0	0	0	1388	1528	7005
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	2579	516	1109	6	690	0	1141	336	6377
7	Jefferson Avenue	Winchester Road	36	1037	619	550	1283	43	836	779	159	531	641	659	7173
			<b>Total Intersection Volumes</b>												<b>38,792</b>

Table 19 - Design Year (2045) Build Phase III Peak Hour Intersection Volume and PCE Volume

ID	North-South Street	East-West Street	Design Year (2045) Phases 123 Peak Hour Intersection Vehicle Volumes												Total Approach Volumes
			NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			2045 PH123
			L	T	R	L	T	R	L	T	R	L	T	R	
<b>AM Peak Hour</b>															
1	Ynez Road	Date Street	152	62	83	33	559	90	365	473	107	634	881	336	3777
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	296	374	521	0	1632	0	547	855	4225
3	Jefferson Avenue	French Valley Parkway	356	1141	75	201	442	627	153	791	121	485	571	1123	6086
4	Ynez Road	Winchester Road	433	258	148	320	1222	1054	115	615	416	303	963	43	5891
5	I-15 Northbound Ramps	Winchester Road	359	2	691	0	1904	58	0	0	0	0	1154	677	4845
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	294	249	1610	6	115	0	944	569	3786
7	Jefferson Avenue	Winchester Road	35	1014	137	42	247	8	217	1229	274	286	550	222	4262
8	I-15 Northbound Ramps	French Valley Parkway	373	40	162	0	521	297	0	0	0	0	1029	111	2532
			<b>Total Intersection Volumes</b>												<b>35,405</b>
<b>PM Peak Hour</b>															
1	Ynez Road	Date Street	169	1105	1002	223	834	237	286	241	76	243	898	288	5604
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	1529	848	611	0	805	0	402	471	4665
3	Jefferson Avenue	French Valley Parkway	850	2235	311	154	1483	338	583	1655	228	155	499	552	9043
4	Ynez Road	Winchester Road	1058	1553	442	484	970	979	110	600	286	421	981	157	8040
5	I-15 Northbound Ramps	Winchester Road	54	0	244	0	2189	807	0	0	0	0	1001	1431	5726
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	599	259	1591	9	155	0	766	290	3668
7	Jefferson Avenue	Winchester Road	4	1972	332	566	881	17	449	1274	42	267	322	331	6458
8	I-15 Northbound Ramps	French Valley Parkway	110	55	188	0	1106	1034	0	0	0	0	763	381	3636
			<b>Total Intersection Volumes</b>												<b>46,839</b>
ID	North-South Street	East-West Street	Design Year (2045) Phases 123 Peak Hour Intersection PCE Volumes												Total Approach Volumes
			NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			2045 PH123
			L	T	R	L	T	R	L	T	R	L	T	R	
<b>AM Peak Hour</b>															
1	Ynez Road	Date Street	157	64	86	34	578	93	378	490	110	656	911	347	3905
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	306	386	539	0	1687	0	566	884	4368
3	Jefferson Avenue	French Valley Parkway	368	1180	77	208	457	649	158	818	125	501	591	1161	6293
4	Ynez Road	Winchester Road	448	267	153	331	1264	1089	119	636	430	313	996	45	6091
5	I-15 Northbound Ramps	Winchester Road	371	2	715	0	1969	60	0	0	0	0	1193	700	5010
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	304	257	1665	6	119	0	976	588	3915
7	Jefferson Avenue	Winchester Road	36	1049	142	44	255	9	224	1270	283	296	569	230	4407
8	I-15 Northbound Ramps	French Valley Parkway	385	42	167	0	539	307	0	0	0	0	1064	115	2618
			<b>Total Intersection Volumes</b>												<b>36,609</b>
<b>PM Peak Hour</b>															
1	Ynez Road	Date Street	174	1137	1031	229	859	244	295	248	78	250	924	296	5766
2	I-15 Southbound Off-Ramp	French Valley Parkway	0	0	0	0	1573	872	629	0	828	0	413	485	4801
3	Jefferson Avenue	French Valley Parkway	874	2300	320	159	1526	348	600	1702	234	160	514	568	9305
4	Ynez Road	Winchester Road	1089	1598	455	498	998	1008	114	617	294	433	1009	161	8274
5	I-15 Northbound Ramps	Winchester Road	56	0	251	0	2252	830	0	0	0	0	1030	1473	5892
6	I-15 Southbound Ramps	Winchester Road	0	0	0	0	616	266	1637	9	160	0	788	298	3774
7	Jefferson Avenue	Winchester Road	4	2029	342	583	907	17	462	1311	43	275	331	341	6645
8	I-15 Northbound Ramps	French Valley Parkway	113	56	193	0	1138	1064	0	0	0	0	785	392	3741
			<b>Total Intersection Volumes</b>												<b>48,197</b>

Table 20 - Ramp Truck Percentages

ID	Roadway	Ramp Location	Existing AM Peak Truck Percentages				Existing PM Peak Truck Percentages				Existing Daily Truck Percentages			
			Autos	Trucks	Total	Truck %	Autos	Trucks	Total	Truck %	Autos	Trucks	Total	Truck %
7	I-15 NB	Winchester Rd Off-Ramp	929	29	958	3.0%	714	19	733	2.6%	14,321	475	14,796	3.2%
8	I-15 NB	Winchester Rd Loop On-Ramp	320	38	358	10.6%	875	20	895	2.2%	8,244	511	8,755	5.8%
9	I-15 NB	Winchester Rd On-Ramp	529	32	561	5.7%	1,189	35	1,224	2.9%	15,830	389	16,219	2.4%
10	I-15 NB	Murrieta Hot Springs Rd Off-Ramp	336	9	345	2.6%	289	4	293	1.4%	4,801	128	4,929	2.6%
11	I-15 NB	Murrieta Hot Springs Rd On-Ramp	951	38	989	3.8%	1,690	22	1,712	1.3%	18,441	592	19,033	3.1%
12	I-215 NB	Murrieta Hot Springs Rd Off-Ramp	291	5	296	1.7%	307	5	312	1.6%	5,478	81	5,559	1.5%
13	I-215 NB	Murrieta Hot Springs Rd Loop On-Ramp	158	11	169	6.5%	450	12	462	2.6%	4,537	227	4,764	4.8%
14	I-215 NB	Murrieta Hot Springs On-Ramp	550	14	564	2.5%	1,043	9	1,052	0.9%	12,440	221	12,661	1.7%
<b>Total</b>			<b>4,064</b>	<b>176</b>	<b>4,240</b>	<b>4.6%</b>	<b>6,557</b>	<b>126</b>	<b>6,683</b>	<b>1.9%</b>	<b>84,092</b>	<b>2,624</b>	<b>86,716</b>	<b>3.1%</b>

# **Appendix M – Traffic Forecasting Methodology Memorandum**

## Traffic Forecasting Methodology Memorandum

### I-15/French Valley Parkway Improvements – Phase II

EA 08-432721; PN 0800020178

#### Introduction

This memorandum documents the proposed approach to developing existing condition volumes and future traffic forecasts for the I-15/French Valley Parkway Improvements – Phase II project. This Final Forecasting Memorandum incorporates responses to comments provided by Caltrans on February 13, 2017. The Project proposes to construct a two-lane northbound (NB) collector-distributor (C-D) road system along I-15 from north of the Winchester Road interchange entrance ramps to just north of the I-15/I-215 junction with connectors to I-15 and I-215.

Northbound freeway mainline and ramp traffic volumes will be developed along the I-15 freeway between Rancho California Road and Murrieta Hot Springs Road and the portion of the I-215 freeway between the I-15/I-215 junction and Murrieta Hot Springs Road. The following segments and ramps will be analyzed:

#### Freeway Segments

##### I-15 Northbound

- Between Rancho California Road on-ramp and Winchester Road off ramp
- Between Winchester Road off ramp and loop on-ramp
- Between Winchester Road loop on-ramp and direct on-ramp
- Between Winchester Road direct on-ramp and I-215 junction
- Between I-215 junction and merge of C-D road
- Between merge of C-D road and Murrieta Hot Springs Road off-ramp
- Between Murrieta Hot Springs Road northbound off-ramp and on-ramp
- Immediately north of Murrieta Hot Springs Road direct on-ramp

##### I-215 Northbound

- Between junction of I-15 and merge of C-D road
- Between merge of C-D road and Murrieta Hot Springs Road off-ramp
- Between Murrieta Hot Springs Road northbound off-ramp and loop on-ramp
- Between Murrieta Hot Springs Road loop on-ramp and direct on-ramp
- Immediately north of Murrieta Hot Springs Road direct on-ramp

#### Freeway Ramps

- I-15 Winchester Road – Northbound off-ramp
- I-15 Winchester Road – Northbound loop on-ramp
- I-15 Winchester Road – Northbound direct on-ramp
- I-15 Murrieta Hot Springs Road – Northbound off-ramp
- I-15 Murrieta Hot Springs Road – Northbound on-ramp
- I-215 Murrieta Hot Springs Road – Northbound off-ramp
- I-215 Murrieta Hot Springs Road – Northbound loop on-ramp
- I-215 Murrieta Hot Springs Road – Northbound direct on-ramp

C-D Road

- From Winchester Road to C-D diverge to I-15/I215
- From C-D diverge to I-15 merge
- From C-D diverge to I-215 merge

Intersection peak hour turning movement volumes will also be developed for the following intersection locations:

1. Ynez Road and Date Street;
2. Jefferson Avenue and French Valley Parkway;
3. Ynez Road and Winchester Road;
4. I-15 NB Ramps and Winchester Road;
5. I-15 SB Ramps and Winchester Road; and
6. Jefferson Avenue and Winchester Road.

The memo covers the following topics:

1. Existing Traffic Data;
2. Proposed Project;
3. Forecasting Scenarios
4. Development of Forecast Traffic Volumes
5. Traffic Forecasting Output for Air Quality and Noise Analysis
6. Draft and Final Volumes Report

### 1. Existing Traffic Data

Existing traffic volumes play a critical role in the overall analysis of infrastructure investments. Existing volumes provide a baseline by which to evaluate current performance of the circulation system and are used as the basis of future forecast volumes through the post-processing routine. The year 2017 will be used for the existing analysis year and the following data will be collected:

- Existing freeway mainline, freeway to freeway connectors and freeway on and off ramp volumes will be extracted from the Caltrans Performance Monitoring System (PeMS) where available. Counts will be extracted in 5-minute intervals and aggregated to AM and PM peak hours and well as Daily. Prior to extracting the counts, a series of reports will be run within PeMS to make certain that the time period selected is representative of typical existing conditions and that artificially low volumes due to very slow or stationary traffic are excluded from the dataset.
- If recent existing intersection traffic counts are available from the City of Temecula, then these will be obtained. For locations without current intersection counts, turning movement counts will be collected.
- Caltrans requires that existing year analysis uses traffic counts less than 24 months old so if sufficient counts are not already available additional counts will be collected. Freeway counts will require encroachment permits from Caltrans. As shown in **Table 1** peak period intersection turning movement counts will be collected at the six study intersections. Truck volumes by axle will be collected at northbound ramp locations for a 24 hour period to facilitate the inclusion of truck percentages and PCE's in the operational analysis. Truck classification counts will also be undertaken during the AM and PM peak periods for the intersection of the I-15 northbound ramps and Winchester Road.

**Table 1 – Location and Time Period of Traffic Counts**

	ID	Description	AM	MD	PM	NT	Truck Classification	Comment
<b>Intersections</b>	1	Ynez Road and Date Street;	7-9		4-6			
	2	Jefferson Avenue and French Valley Parkway	7-9		4-6			
	3	Ynez Road and Winchester Road	7-9		4-6			
	4	I-15 NB Ramps and Winchester Road	7-9		4-6		Yes	Axle Classification
	5	I-15 SB Ramps and Winchester Road	7-9		4-6			
	6	Jefferson Avenue and Winchester Road	7-9		4-6			
<b>Northbound Ramps</b>	7	I-15 Winchester Road – off-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
	8	I-15 Winchester Road – loop on-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
	9	I-15 Winchester Road – direct on-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
	10	I-15 Murrieta Hot Springs Road – off-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
	11	I-15 Murrieta Hot Springs Road – on-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
	12	I-215 Murrieta Hot Springs Road – off-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
	13	I-215 Murrieta Hot Springs Road – loop on-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
	14	I-215 Murrieta Hot Springs Road – direct on-ramp	6-9	9-3	3-7	7-6	Yes	Axle Classification
<b>Northbound Mainline</b>	15	On I-215 between I-5 and Murrieta Hot Springs Road Off ramp	6-9	9-3	3-7	7-6	Yes	Length Classification by side-fire radar
	16	On I-5 between I-215 and Murrieta Hot Springs Road Off ramp	6-9	9-3	3-7	7-6	Yes	Length Classification by side-fire radar

- Existing truck volumes will be provided as total, percentage of total and PCEs by hour.
- Since axle classification is not collected at all intersections, the TIA report will not use PCE’s for intersection analysis. In lieu of this, a fixed percentage of heavy vehicles will be used along Winchester consistent with the NB I-15 ramp intersection. And actual heavy vehicle percentages will be used at I-15 NB ramps and Winchester.

Existing traffic volumes will be processed to ensure there is a continuity of flow both on the freeway segments as well as between intersections adjacent to the freeway ramps. This step is necessary to smooth out variations between observed traffic volumes at adjacent sites and ensure consistent and reasonable traffic volumes throughout the corridor.

To apply conservation of flow during the peak hour, a peak hour volume that is relatively “unconstrained” will be selected as the starting point and preceding and successive on-ramp and off-ramp volumes will be added and subtracted to generate directional mainline traffic volumes throughout the entire corridor.

Such a peak hour volume would ideally be at a location along I-15 where severe peak hour congestion does not exist and traffic flows operate at relatively free flow conditions, hence demand is unconstrained by reductions in travel time or capacity constraints of the facility. Application of such “unconstrained” volumes ensure that future forecast volumes in congested portions of the corridor are not understated during the post-processing procedure applied to generate future forecast demand volumes. If such a location cannot be identified, then the team will review the peak shoulders to determine the likely maximum volume of throughput prior to levels of congestion occurring which cause both speeds and volumes to fall at the same time. Other data to be collected will include:

- Existing truck percentages based on the most recent Caltrans Annual Average Daily Truck Traffic data as well as additional collected count data;

- Existing intersection lane configurations;
- Existing speed limits.
- Signal timing and phasing for study area intersections will be obtained from Caltrans and the City of Temecula.

Prior to initiation of existing year operational analysis, existing daily and peak hour ramp and mainline traffic volumes will be summarized in a Traffic Volumes Forecast Report and presented to Caltrans planning and traffic operations staff for concurrence for the I-15/French Valley Parkway Improvements – Phase II project.

## **2. Proposed Project**

One (1) no build alternative and one (1) build alternative will be studied for an opening year of 2022 and a design year of 2045. The build alternative includes improvements along I-15 in the northbound direction between the Winchester Road interchange and I-15/I-215 junction.

## **3. Forecasting Scenarios**

- Existing (2017);
- Opening Year (2022) No Build;
- Opening Year (2022) Build Alternative (Phase 2 only)
- Design Year (2045) No Build; and
- Design Year (2045) Build Alternative, Phase 1 and Phase 2 only
- Design Year (2045) Build Alternative, with Phase 1, 2 and 3
- Design Year (2045) Build Alternative (Phase 1 and 2) failure year, if required

## **4. Development of Forecasted Traffic Volumes**

The traffic forecasts for the project will be developed using the most current Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan (RTP) Model. This model has a validation Year of 2012 and a Forecast Year of 2040. An intermediate planning model Year of 2021 is also

available. As of March 27<sup>th</sup>, 2017 the project team has gained approval from SCAG to use the RTP model for this project and SCAG has provided all the model files necessary for the consultant team to perform the modeling tasks needed to support the volumes forecasting.

### *Existing Year Model Runs*

A review of the existing year model volumes along the I-15 corridor will be performed to assess the reasonableness of modeled volumes compared to the existing counts collected from the Caltrans PeMS data base and additional collected counts. Any required localized network enhancements will be coded into the model. Potential issues requiring additional localized highway network enhancements or changes that might require additional post-processing will be identified. Potential network enhancements may include:

- Coding of existing auxiliary lanes;
- Updated ramp coding; and
- Turn prohibitions.

### *Future No Build Model Runs*

Future year traffic forecasts are required for both opening year (2022) and a design year (2045). The 2016 SCAG RTP model uses socio-economic data forecasts which extend to 2040. For the design year the



model will be run for Year 2040 and the resulting volumes extrapolated to 2045. For the opening year the intermediate year forecast of 2021 will be used as the initial forecast and then extrapolated to Year 2022.

The annualized growth factors used to extrapolate from 2040 to 2045 and from 2021 to 2022 will be derived from publicly available socioeconomic forecasts within Riverside County and the calculation will be documented in the Traffic Volumes Forecast Report.

The Future No Build model network will be reviewed in order to identify if there are any future local projects that may not be included in the RTP but need to be added or removed from the current highway network. This task may require input from the City of Temecula and Caltrans.

#### *Future with Project Model Runs*

The Project alternative will be coded into the 2021 and 2040 model networks and any additional link segments that need to be extracted for post-processing will be identified. The model will be run and raw model volumes extracted for all pertinent locations including mainline, ramps, freeway to freeway connectors and arterials. The year 2021 and 2040 with project model data will then be adjusted to provide year 2022 and year 2045 future forecasts. Future forecast volumes will be converted to PCE for use in the operational analysis.

All model data, files and parameters will be provided to Caltrans as part of the review process pending approval to do so from SCAG. Caltrans may need to request approval directly from SCAG.

#### *Freeway Post-Processing Methodology*

The team will apply standard Caltrans post-processing methodology, as defined in NCHRP Report 255. This methodology factors the smoothed existing counts by the difference between future and existing model volumes. The post-processing will be performed separately for years 2022 and for 2045.

Negative growth in volumes between the existing year and the future year will not be allowed unless there is a clear cause and explanation. The team will also develop spreadsheets to “conserve” traffic flow between the I-15 mainline post-processed volumes and the ramp post-processed volumes along I-15 by direction and time period.

#### *Intersection Post-Processing Methodology*

Both AM and PM peak hour turning movement volumes will be post-processed at each study intersection using the Opening year (2022) and Design year (2045) peak hour approach and departure volumes in conjunction with the existing turning movement volumes. The AM and PM peak hour traffic volumes will be balanced between adjacent intersections using the peak hour directional approach and departure volumes. The balancing will be accomplished by reconciling post processed volumes for adjacent intersections so they are consistent with each other (e.g. ins = outs). The methodology is similar to that of the mainline post processing.

### **5. Traffic Forecasting Output for Air Quality and Noise Analysis**

The model outputs required will be determined by the Environmental team. The geographic extent of air quality / greenhouse gas emission analysis can be much broader than the defined study area for traffic operational analysis. If this is the case, then post-processed data will only be available for a sub-set of the

area and therefore unadjusted model volumes will be provided instead. Required model outputs will be provided for existing, opening year and design horizon year with and without Phase 3 are likely to include the following:

- Plots to support the identification of study area for air quality analysis.
- Vehicle Miles Traveled (VMT): VMT arranged by roadway type (e.g., freeway general purpose lanes, ramps, HOV lanes, arterial roads, local streets, etc.) broken down in 5 mph speed bins for both peak and off-peak periods. In order to accommodate SB743 requirements this is likely needed for multiple geographic areas (to be provided by the Air Quality/Noise teams).
- Vehicle Hours Traveled (VHT): VHT arranged by roadway type (e.g., freeway general purpose lanes, HOV lanes, ramps, arterial roads, local streets, etc.).
- Truck data by vehicle class.

## **6. Draft and Final Traffic Volumes Forecast Report**

A Draft Traffic Volumes Forecast Report will be prepared in accordance with Caltrans' guidelines and will include all of the existing conditions and forecast traffic volumes to be used in the operational analysis of the Traffic Study. The Draft Traffic Volumes Forecast Report will be submitted to Caltrans for review and comment. Caltrans approval of a Final Volumes Forecast Report will be required prior to initiation of the operations analysis. The Draft Forecasting Methodology Report will include:

- Introduction
- Purpose of the Proposed Project
- Overview of the Methodology
- Data Collection Methodology
- PeMS Traffic Volumes
- Traffic Counts
- Mainline Traffic
- Ramp Traffic
- Existing Signal Timing and Phasing
  
- Intersection Turning Movement Counts
- Traffic Forecast Methodology
- Description of Forecasting Model Used
- SCAG Socio-economic Data (SED) Forecasts
- Network Assumptions
- Post-Processed Model Results
- Traffic Data for Environmental Analysis - Air and Noise (requires further input from Environmental Planning)