Appendix E Traffic Report

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Appendix E: Traffic Report Appendix

The San Joaquin Regional Rail Commission (SJRRC) proposes to construct a grade separation of two principal railroad lines at the Stockton Diamond in Stockton, California.

The Stockton Diamond Grade Separation Project (Project) is a critical passenger and freight mobility project. The current Altamont Corridor Express (ACE) and Amtrak San Joaquins passenger rail services are constrained by the Stockton Diamond Interlock at-grade crossing, which can reduce reliability and on-time performance for both passenger and freight rail. The grade separation would help improve operational performance for SJRRC and the San Joaquin Joint Powers Authority (SJJPA) as they provide service between the Central Valley, Sacramento, and the San Francisco Bay Area.

Currently, the BNSF Railway (BNSF) Stockton Subdivision and the Union Pacific Railroad (UP) Fresno Subdivision consist of two main tracks each, and they intersect each other at a level, at-grade crossing known as the Stockton Diamond. This rail intersection, located just south of Downtown Stockton near South Aurora Street and East Scotts Avenue, is the busiest at-grade railway junction in California. The at-grade crossing experiences substantial congestion and delays service for people and freight throughout the Central Valley—and for freight on the broader national network. The current, at-grade configuration results in critical delays to passenger and freight trains in the area, including those serving the Port of Stockton. Train congestion also causes vehicle delays at roadway-rail crossings and creates potential motor vehicle, rail, bicycle, and pedestrian conflicts.

The proposed Project would construct a grade separation of the BNSF and UP rail lines to reduce rail congestion and allow passenger and freight rail traffic to flow uninterrupted through the crossing. The reduction in rail congestion would reduce delays for passenger and freight rail providers and improve freight mobility, which may lead to lower costs for freight shipping and reduce travel times for motor vehicle, bicyclist, and pedestrian traffic. The reduction in train congestion and motor vehicle wait times at these roadway-rail grade crossings would reduce locomotive and automobile idling and air emissions.

The proposed Project's public benefits would extend to motorists, pedestrians, rail passengers, freight shippers, and residents throughout the region. Additional benefits would include reduced fuel consumption, lower freight rail transportation costs, and improved travel times and reliability. Passenger and commuter rail reliability is essential for those residing and working in the region, especially those in rural communities who need improved access to essential services and economic centers. The proposed Project is aligned with San Joaquin County's goals to enhance existing rail infrastructure and to improve the rail network's efficiency and capacity—including safe, reliable transportation choices—while also improving the local economy through economic growth, job retention, and job creation.

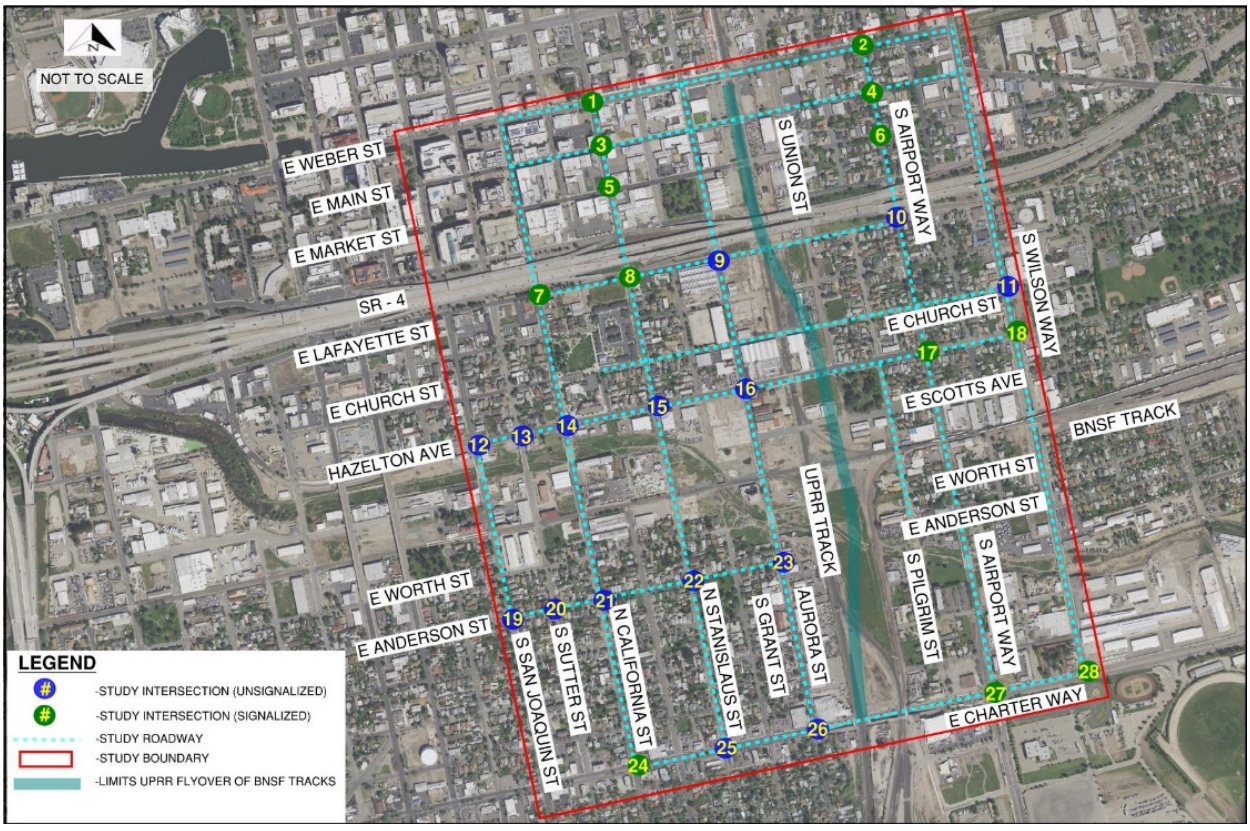
This traffic report presents the Existing, No Project Alternative (2045), and Proposed Project (2045) traffic conditions analysis for the Project. The report includes the following sections:

1. Traffic Study Area
2. Available and new data
3. Analysis approach
4. Existing traffic conditions analysis
5. No Project Alternative (2045) traffic conditions analysis
6. Proposed Project (2045) traffic conditions analysis.

1.0 Traffic Study Area

The Traffic Study Area shown in Figure 1-1 includes the intersections, roadways, and multimodal transportation systems being analyzed for existing conditions. It will also be the basis for analyzing and presenting future conditions to be evaluated later in this project. The Traffic Study Area was defined to address the full range of potential grade separation alignment concepts recently developed for the Project. The intersections and roadways identified in the Study Area provide the foundation for the comprehensive transportation impact analysis for existing (2019),No Project (2045), and future (2045) proposed Project conditions.

Figure 1-1: Traffic Analysis Study Area and Location of Intersections



The Study Area intersections shown in Table 1-1 include a total of 28 intersections, 13 of which are signalized in addition to 15 unsignalized intersections. Available and new data (refer to Section 2) was obtained to represent existing 2019 conditions, primarily due to COVID-19, which has limited the ability of agencies to collect observed 2020 data. Roadways analyzed for existing conditions are represented in the intersections shown in the Traffic Study Area for both north-south and east-west oriented roadways in the Study Area.

There are 7 at-grade roadway crossings of UP tracks in the Traffic Study Area. These at-grade railroad crossings are at East Weber Avenue, East Main Street, East Market Street, East Lafayette Street, East Church Street, East Hazelton Avenue and East Scotts Avenue.

Table 1-1: Intersections Located in the Traffic Study Area

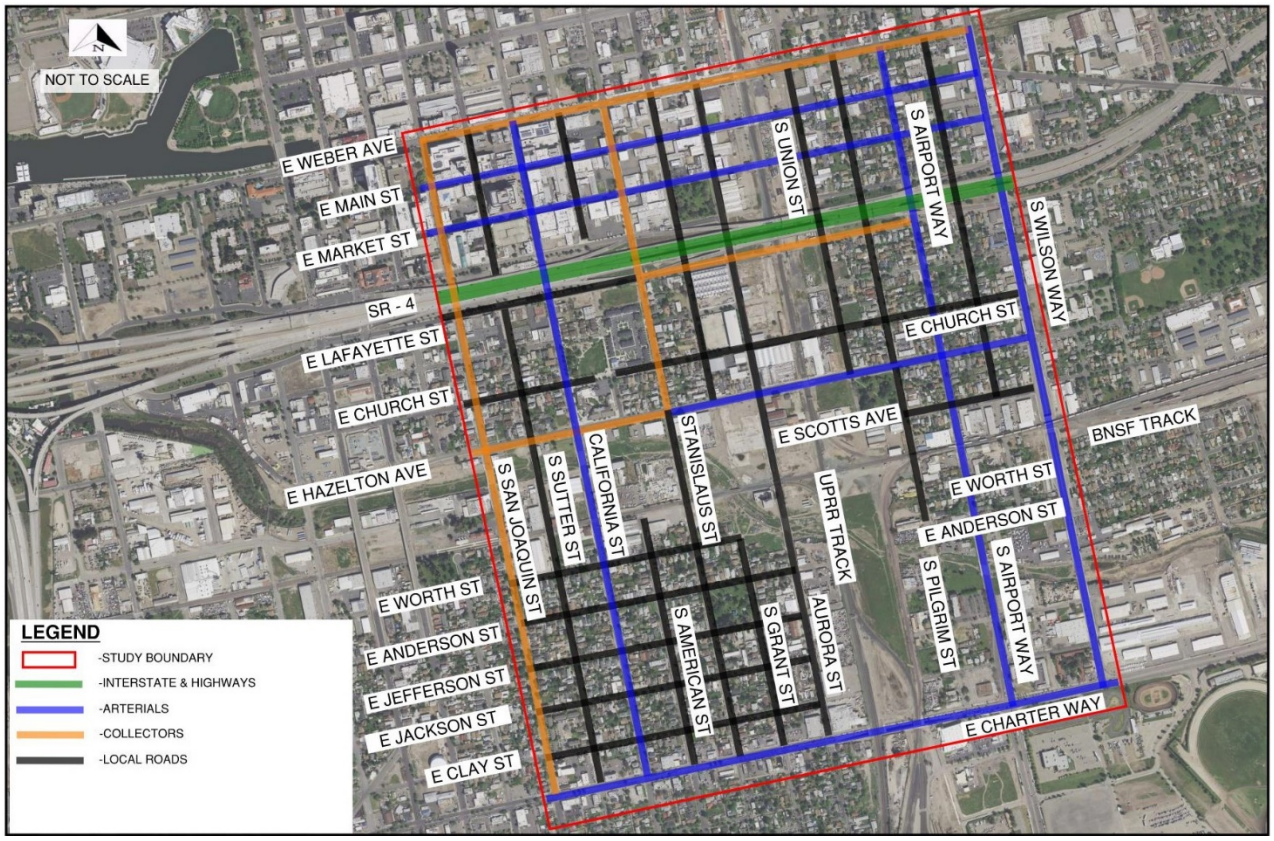
Intersection #	Intersection Name	Signalized or Unsignalized
1	S Stanislaus St /E Weber Ave	Signalized
2	S Airport Way/E Weber Ave	Signalized
3	S Stanislaus St/E Main St	Signalized
4	S Airport Way/E Main St	Signalized
5	S Stanislaus St/ E Market St	Signalized
6	S Airport Way/Market St	Signalized
7	E Lafayette Street and California Street	Signalized
8	E Lafayette Street and S Stanislaus Street	Signalized
9	E Lafayette Street and Aurora Street	Unsignalized

Intersection #	Intersection Name	Signalized or Unsignalized
10	E Lafayette Street and S Airport Way	Unsignalized
11	S Wilson Way and E Church Street	Unsignalized
12	E Hazelton Avenue and S San Joaquin Street	Unsignalized
13	E Hazelton Avenue and S Sutter Street	Unsignalized
14	E Hazelton Avenue and California Street	Unsignalized
15	E Hazelton Avenue and S Stanislaus Street	Unsignalized
16	E Hazelton Avenue and Aurora Street	Unsignalized
17	E Hazelton Avenue and S Airport Way	Signalized
18	E Hazelton Avenue and S Wilson Way	Signalized
19	E Anderson Street and S San Joaquin Street	Unsignalized
20	E Anderson Street and S Sutter Street	Unsignalized

Intersection #	Intersection Name	Signalized or Unsignalized
21	E Anderson Street and California Street	Unsignalized
22	E Anderson Street and S Stanislaus Street	Unsignalized
23	E Anderson Street and Aurora Street	Unsignalized
24	E Charter Way and California Street	Signalized
25	E Charter Way and S Stanislaus Street	Unsignalized
26	E Charter Way and Aurora Street	Unsignalized
27	E Charter Way and S Airport Way	Signalized
28	E Charter Way and S Wilson Way	Signalized

Figure 1-2 shows the roadways in the Study Area, which include freeway, arterial, collector, and local road functional classes.

Figure 1-2: Roadways by Functional Classification in the Traffic Study Area



State Route 4 (SR-4), the freeway traveling through the northern portion of the Study Area, travels east-west through the Study Area between I-5 to the west and State Route 99 (SR-99). The other roadways by functional class in the Study Area include:

- Arterials with north to south movements include California Street, S Airport Way, and South Wilson Way, and arterials with east to west movements include East Main Street, East Market Street, East Hazelton Avenue (between South Stanislaus Street and South Wilson Way) and East Charter Way
- Collectors, with north to south movements include South San Joaquin Street and South Stanislaus Street (between East Main Street and East Hazelton Avenue)with east to west collectors include East Weber Ave, East Lafayette Street (between South Stanislaus Street and South Airport Way) and East Hazelton Avenue (between South San Joaquin Street and South Stanislaus Street) identified in the Study Area
- Local Roads comprise the remainder of the Study Area roadways, with north to south movements on South Sutter Street, South American Street, South Stanislaus Street (between East Hazelton Ave and East Charter Way), South Grant Street, Aurora Street, South Union Street, and S Pilgrim Street, and with east to west movements on East Lafayette Street (between South San Joaquin Street and South Stanislaus Street), East Church Street, East Scotts Avenue, East Worth Street, East Anderson Street, East Jefferson Street, East Jackson Street, and East Clay Street.

~~Local Roads comprise the remainder of the study area roadways, with north to south movements on South Sutter Street, South Stanislaus Street, Grant Street, and S Pilgrim Street, and with east to west movements on East Lafayette Street, East Church Street, East Scotts Avenue, East Worth Street, and East Anderson Street.~~

2.0 Available and New Data

Transportation data was collected from both available and new sources to develop the existing traffic conditions for turning movements and volumes that encompass the intersections and roadways in the Traffic Study Area. These available and new sources of data were collected, combined, and formatted to represent the existing 2019 average weekday traffic conditions, which is being used as the foundation of the traffic analysis for existing conditions and the later future conditions analysis. Existing traffic conditions were defined to represent average weekday traffic conditions for 2019 based on the following factors:

- Traditionally, data collection of observed roadway volumes and intersection turning movements are scheduled for the Fall and Spring annually to avoid heavy vacation (Summer) and holiday (Winter) periods, with the Fall and Spring representative of normal commute and school travel (Note – 2020 observed data were not collected in the Study Area before COVID-19 impacts of early March 2020.)
- Available traffic data obtained and used in this analysis were collected prior to 2020, primarily due to data not being collected in 2020 due to COVID-19 (Note – 2019 volumes more accurately reflect average weekday traffic conditions. Limited, if any data has been collected in 2020 due to COVID-19.)
- New 2019 data was obtained to represent average weekday travel conditions for 2019

Available roadway volumes and intersection turning movements, multimodal (pedestrian, bicycle, bus, truck) movements, roadway and intersection geometry, intersection signal timings and controls, and multimodal infrastructure (bus routes, bicycle paths), and accident data were collected from the following sources:

- City of Stockton traffic volume maps available online from the City's website
- City of Stockton intersection turning movement, geometric, and signal timing plans
- U.S. Department of Transportation (US DOT) Road-Rail Crossing Inventory roadway volumes
- Envision Stockton, 2040 General Plan Update and Utility Master Plan Supplements Draft EIR, June 2018, Transportation Section traffic volumes, forecasts, planned infrastructure, and multimodal (roadway, pedestrian, bicycle, transit, freight) characteristics
- City of Stockton Truck Route map including STAA Truck Route map available online from the City's website
- San Joaquin Council of Governments Three-County Model (TCM) developed as part of the San Joaquin Valley Model Improvement Plan, Phase 2 (VMIP2)

- Caltrans Traffic Volume summaries (on-line) by multiple years (up to 2019) representing on- and off-ramp Average Annual Daily Traffic (AADT) and Peak Hour Volumes for state owned roadways impacting the Study Area
- San Joaquin Regional Transit District transit routes and schedules
- City of Stockton Bike Master Plan, 2017
- UC Berkeley Transportation Injury Mapping System, 2017-2019 crash data.

Upon the review and assessment of the available traffic data compiled above, while there was good coverage of average annual daily traffic (AADT) of Study Area roadways, the coverage of intersection turning movements was limited, with 4 of the 28 intersections providing representative morning and afternoon peak hour volumes.

In order to develop a more complete profile of existing turning movements for the Study Area intersections, STREETLIGHT DATA was purchased to provide turning movements for each of the 28 intersections. This supplementary (new) data included morning and afternoon peak hour turning movements for each intersection representing average weekday traffic conditions for 2019. Streetlight data was represented average weekday traffic conditions collected in the following periods:

- Collected from March 2019 to April 2019 and September 2019 to October 2019
- Tuesdays through Thursdays
- 12 AM to 12 PM.

Figure 2-1 shows the 2019 intersection turning movements developed and formatted from both the available and new data sources identified above. Figure 2-2 shows the morning (AM) and afternoon (PM) peak hour turning movement volumes for each of the 28 intersections. In addition, morning (AM) and afternoon (PM) peak hour roadway volumes, prepared from the intersection turning movement volumes, are presented in Figure 2-5 and Figure 2-6.

Figure 2-1: 2019 Turning Movement Diagrams for Study Area Intersections

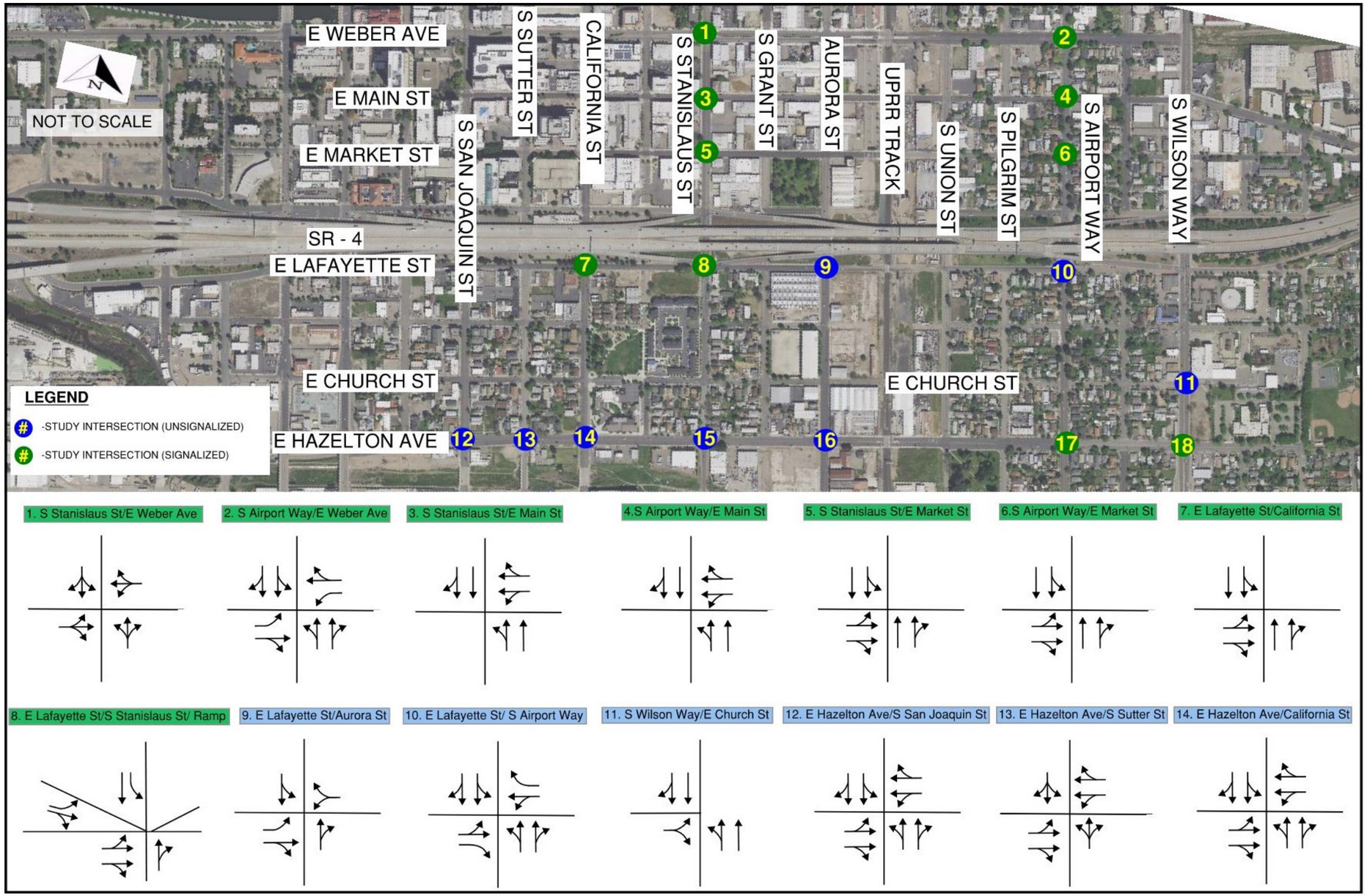


Figure 2-2: 2019 Turning Movement Diagrams for Study Area Intersections (continued)

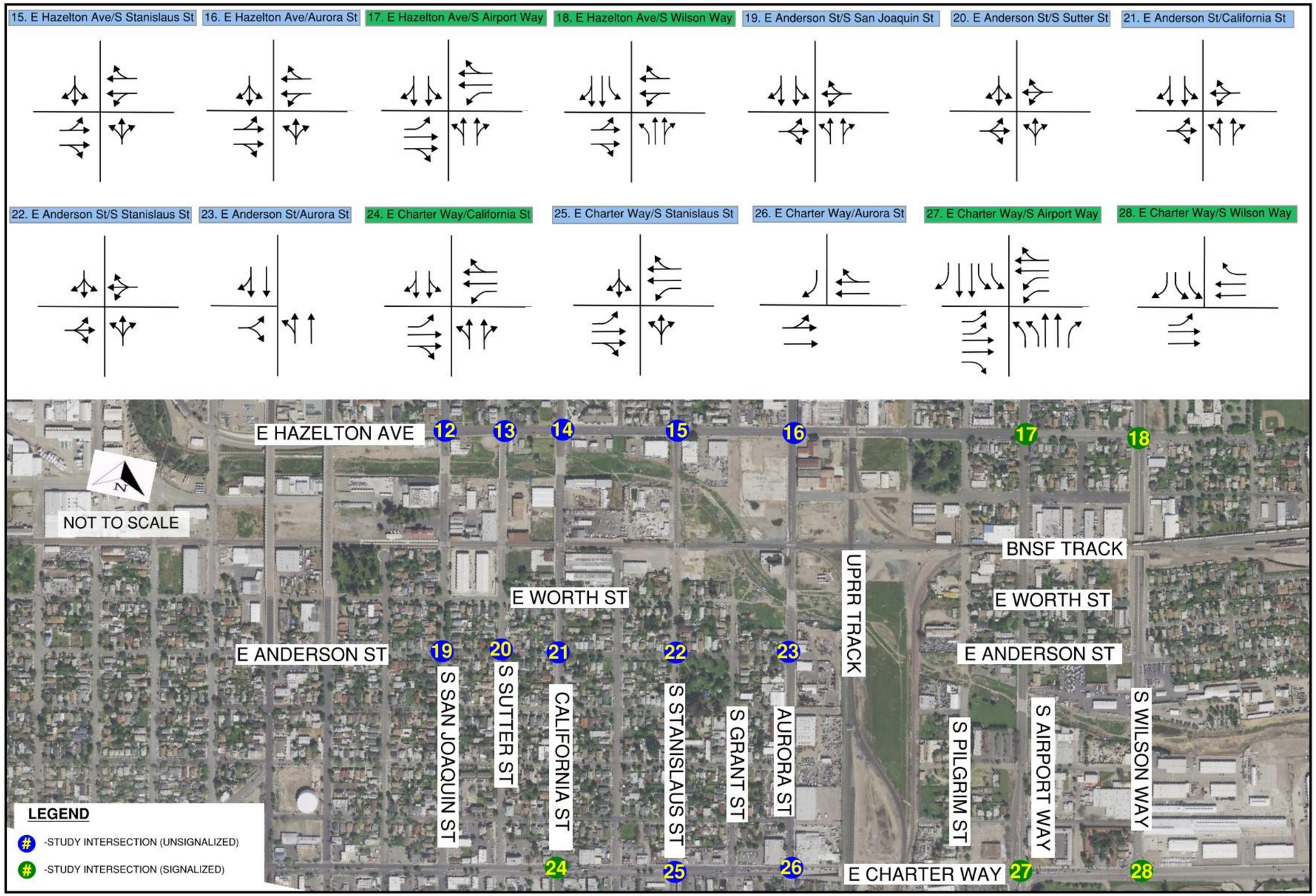


Figure 2-3: 2019 AM and PM Peak Hour Turning Movement Volumes for Study Area Intersections

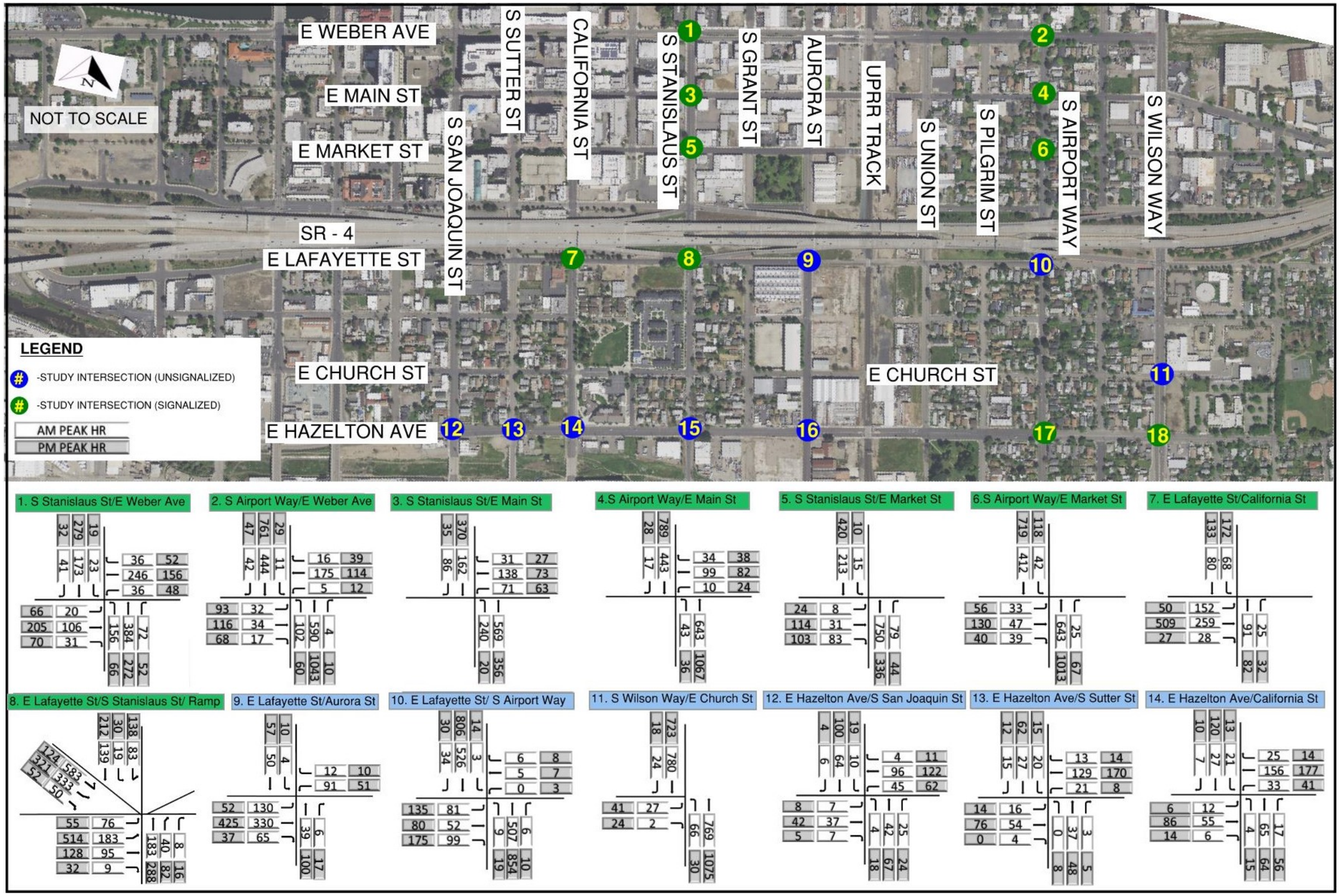


Figure 2-4: 2019 AM and PM Peak Hour Turning Movement Volumes for Study Area Intersections (continued)

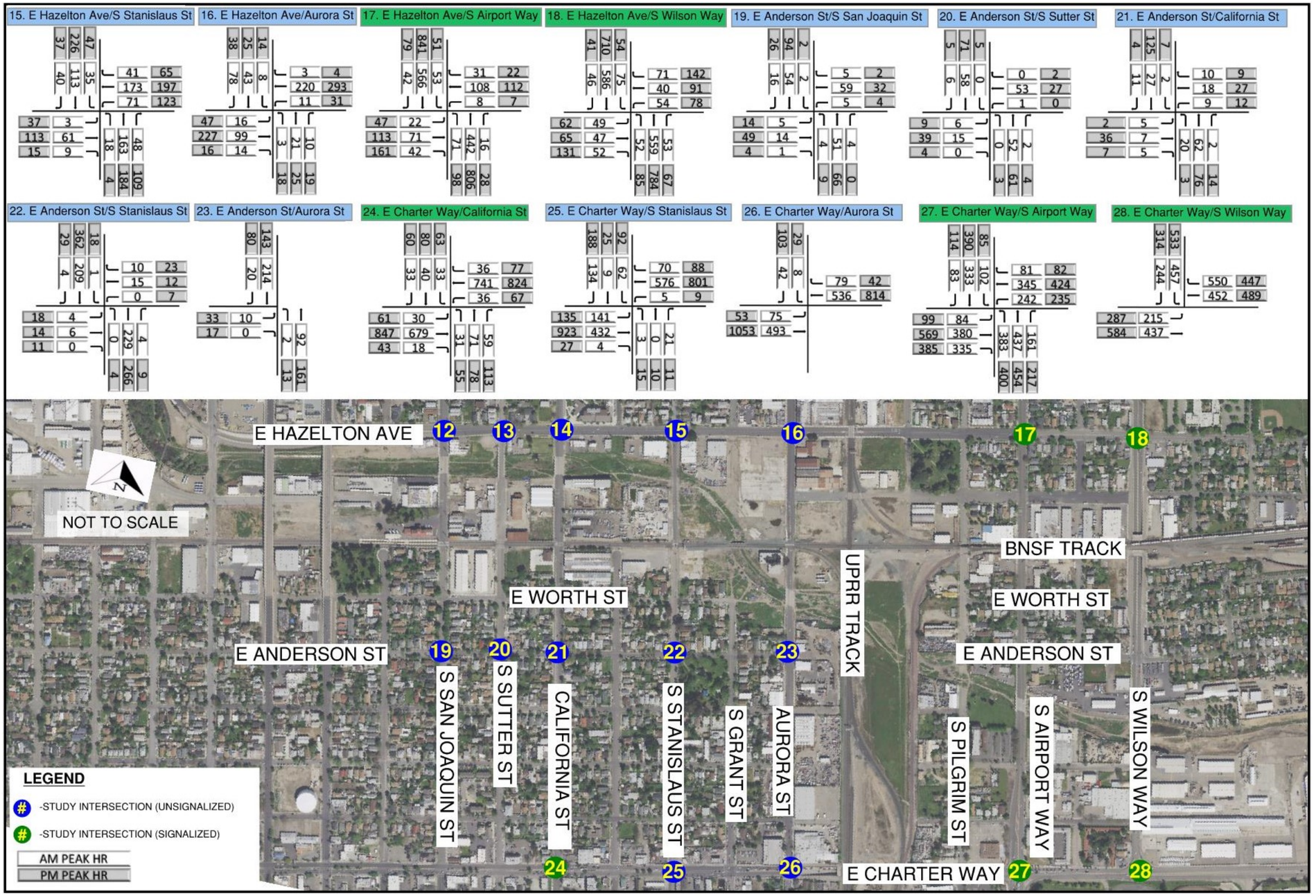


Figure 2-5: 2019 AM Peak Hour Roadway Volumes in the Study Area

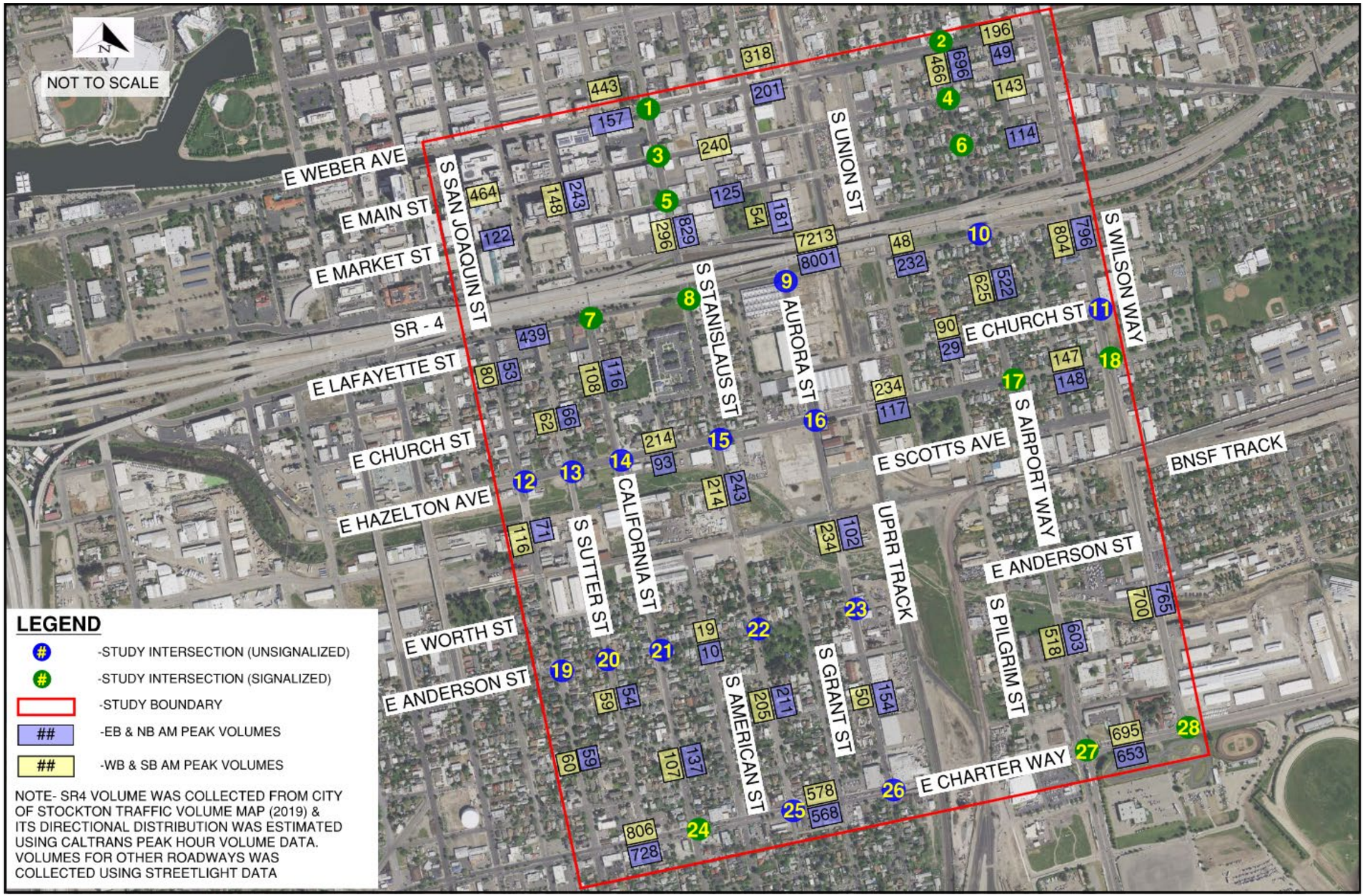
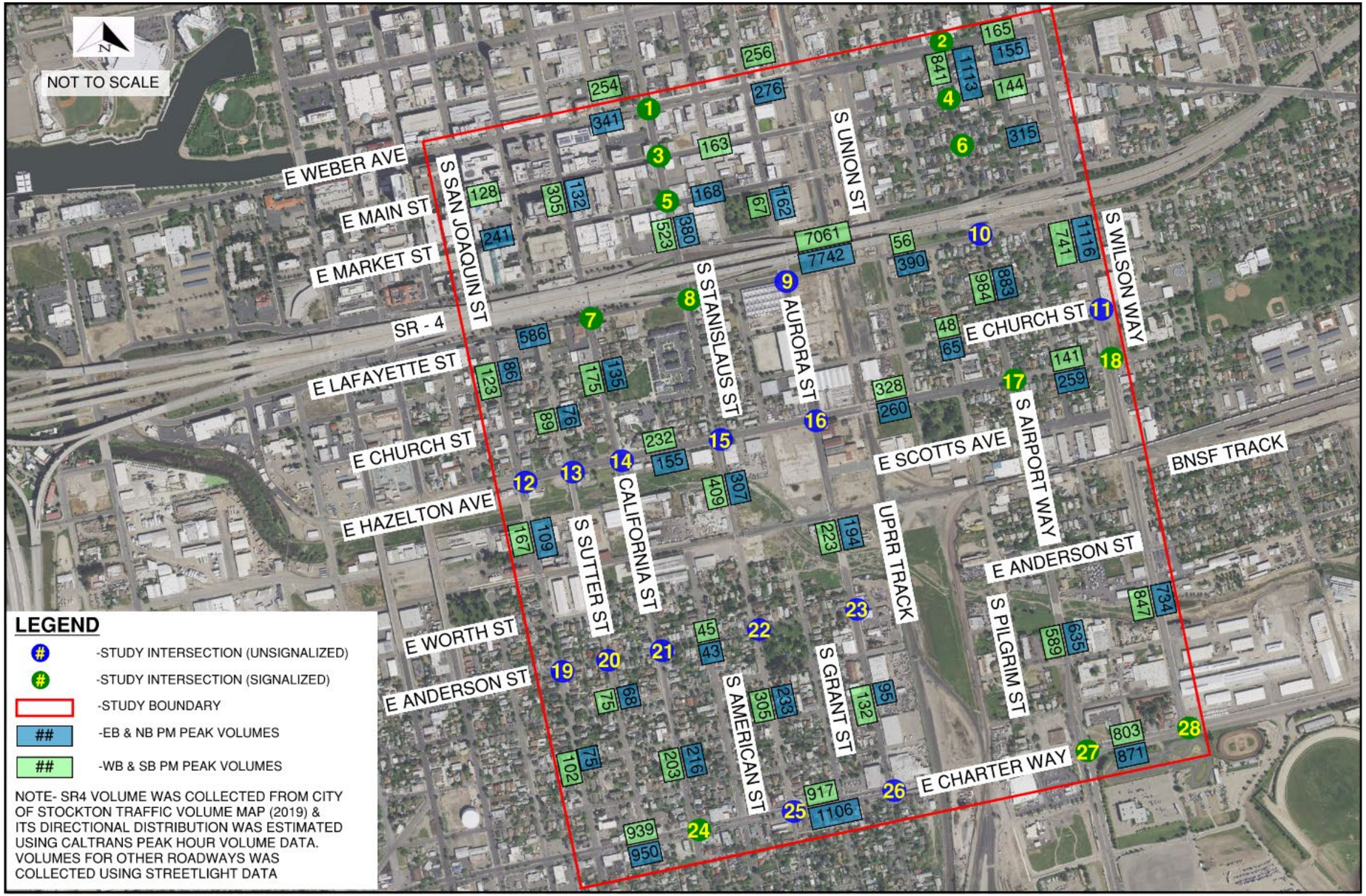


Figure 2-6: 2019 PM Peak Hour Roadway Volumes in the Study Area



3.0 Analysis Approach

This section presents the analysis methods applied to identify the 2019 existing conditions analysis for the Study Area for intersections, roadways, pedestrians, bicyclists, transit, freight, and safety.

3.1. INTERSECTION LEVEL OF SERVICE

Accepted, state-of-the practice traffic analysis methods were used to assess the morning and afternoon peak hour intersection operations and levels of service. The 2019 existing traffic profile developed and presented above in Section 2, in addition to the detailed intersection geometry and traffic signal timing and phasing, and unsignalized intersection geometry and controls, were used as primary inputs in this analysis. The intersection operational analysis procedure outlined in the 2010 *Highway Capacity Manual* was implemented using the Synchro 10 traffic analysis software.

This commonly accepted methodology and software is applied to "grade" the intersection operations with levels of service (LOS) from LOS A through LOS F, characterized by the average stopped delay per vehicle. LOS is a measure of driver and/or passenger discomfort, frustration, fuel consumption, and lost travel time. This technique uses 1,900 vehicles per hour per lane as a maximum saturation volume of an intersection, which is adjusted accordingly given varying lane widths, on-street parking availability, pedestrian movements, traffic composition, and shared lane movements at any given intersection. **Table 3-1** presents the LOS definitions and criteria used for this analysis. The City of Stockton considers an intersection LOS D or better acceptable. However, the City of Stockton current General Plan designates the standard as LOS E for intersections in the Downtown area (bounded by Harding Way, the Union Pacific railroad tracks, Dr. Martin Luther King Jr. Boulevard, I-5, and Pershing Avenue). Most of the study intersections are within the Downtown area and therefore the acceptable LOS is E. The study intersections along South Airport Way and along South Wilson Way are considered outside of the Downtown area with acceptable LOS D.

Table 3-1: Definitions for Signalized Intersection LOS

Average Stopped Delay Per Vehicle (seconds)	LOS Characteristics
<10.0	LOS A is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
10.1–20.0	LOS B is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

Average Stopped Delay Per Vehicle (seconds)	LOS Characteristics
20.1–35.0	LOS C is typically assigned when progression is favorable or the cycle length is moderate. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is substantial, although many vehicles still pass through the intersection without stopping.
35.1–55.0	LOS D is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable
55.1–80.0	LOS E is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.
>80.0	LOS F is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: *Highway Capacity Manual* (2010)

3.2. ROADWAY PERFORMANCE

Roadway segments were evaluated using a volume-to-capacity (v/c) ratio to measure performance. A v/c analysis is a traditional measure used to assess roadway operations where if the v/c is greater than 1.0, the roadway is over capacity and likely experiences delays. Since speed is difficult to predict for future conditions for freeway and highway segments, the v/c was used to analyze all roadway segments for both the AM and PM peak hours.

Within the traffic project area, State Route 4 (SR-4) and S Airport Way are considered Regional Congestion Management Program (RCMP) facilities by the San Joaquin County. The LOS standard established for RCMP facilities is LOS D, with the exception of the LOS F standard for SR-4 segments located in the Traffic Study Area. These standards are being used to support the roadway performance analysis presented later in Section 4.

3.3. PEDESTRIANS AND BICYCLE INVENTORY

Pedestrian movements were identified from limited available data to provide a general inventory of pedestrian movements in the Study Area. Availability of pedestrian crossings for the at-grade roadway crossings with both of the railroads (Union Pacific and Burlington Northern Santa Fe) were identified in the Study Area. The Study Area does not currently include any of the City of Stockton's Class 1 – Off-Road Bike Trail, Class 2 – On-Road Bike Lane, Class 3 – Bike Route – Mixed Traffic, and/or Class 4 - Separated Bikeway designations documented in the Envision Stockton, 2040 General Plan Update and Utility Master Plan Supplements Draft EIR, June 2018 and City of Stockton Bike Master Plan, 2017.

3.4. TRANSIT ROUTE COVERAGE INVENTORY

An inventory of the SJ RTD's transit routes and schedules that currently provide access to the Study Area was prepared, including designated Express Routes, Hopper Routes, and Local Routes.

3.5. FREIGHT INVENTORY

An inventory of the existing truck routes and intermodal (truck and rail) facilities were documented for City Truck Routes, in the Envision Stockton, 2040 General Plan Update and Utility Master Plan Supplemental Draft EIR, June 2018.

3.6. SAFETY/CRASH INVENTORY

Crash data from 2017 to 2019 was compiled from UC Berkeley's Transportation Injury Mapping System. This data encompassed detailed crash (all modes) history by intersection and roadway locations in the traffic study by fatality, severe injury, other vehicle injury, and complaint of pan injury.

4.0 Existing Traffic Conditions Analysis

This section presents the 2019 existing traffic conditions in the Study Area. Traffic, pedestrian, bicycle, transit and truck conditions were evaluated to provide a multimodal assessment of the transportation system consistent with the approach used by the city of Stockton.

4.1. INTERSECTION OPERATIONS

As presented in Section 3, the data (turning movements, geometry, signal timing, and unsignalized controls) compiled above from available and new sources were input into the Synchro 10 traffic analysis software to calculate both morning (AM) and afternoon peak (PM) hour level of service analysis for each of the 28 intersections being evaluated. Table 4-1 summarizes existing AM and PM peak hour LOS and average delay (in seconds) at each intersection.

The results of the AM peak hour indicate that the majority of the intersections operate at excellent to good levels of service with most intersections currently operating at LOS C or better during the 2019 AM peak hour except for intersection #8, E Lafayette St/S Stanislaus St operating at LOS F.

Similarly, in the 2019 PM peak hour, most of the intersections also operate with excellent to good levels of service C or better except for the following four intersections: intersection #8, E Lafayette St/S Stanislaus St, intersection #10, E Lafayette St/S Airport Way, intersection #15, E Hazelton Ave/S Stanislaus St, and intersection #25, E Charter Way and S Stanislaus St. All three intersections except intersection #15, East Hazelton Avenue/South Stanislaus Street, operate at poor levels of service of LOS F in PM peak hour conditions. Intersection #15, East Hazelton Avenue/South Stanislaus Street operate at the City of Stockton's acceptable LOS E.

Intersection #8, E Lafayette St/S Stanislaus St has LOS F and does not meet the City of Stockton's acceptable level of service Standard (LOS E) during AM peak hour due to follow reasons:

- Higher SR4 off ramp volume

  - 54 percent of total intersection volume come from SR4 off ramp
- SR4 off ramp v/c ratio is greater than 1
  - Vehicles turning left from SR4 off ramp has v/c ratio of 1.89
  - Vehicles going thru/right from SR4 off ramp has v/c ratio of 1.25

The following intersections have LOS F and does not meet the City of Stockton's acceptable level of Standard during PM Peak hour.

Intersection #8, E Lafayette Street and South Stanislaus Street

- Higher eastbound volumes on East Lafayette Street.
  - Eastbound thru volume on E Lafayette Street (entering SR4 on ramp) totals 26 percent of total intersection volumes
- SR4 off ramp and E Lafayette St eastbound v/c ratio is greater than 1.
  - Vehicles going thru/right from SR4 off ramp has v/c ratio of 1.31
  - Vehicles entering SR4 on ramp via E Lafayette St has v/c ratio of 1.01

Intersection #10, E Lafayette St/S Airport Way

- Inadequate gaps in traffic
  - Eastbound left volume is the cause for LOS F at this intersection. Although only 6 percent of total intersection vehicles are turning left from E Lafayette St, these stop-controlled vehicles do not have sufficient gaps in traffic to make left turns because of heavy northbound/southbound movements
  - V/c ratio for eastbound direction is 3.29

~~Intersection #15, E Hazelton Ave/S Stanislaus St~~

- ~~Inadequate gaps in traffic~~
  - ~~Southbound thru/left turning volume is the cause for LOS F at this intersection. 24% of the total intersection volume is for southbound thru/left vehicles. These stop-controlled vehicles do not have sufficient gaps in traffic to pass the intersection because of the eastbound/westbound movements~~
  - ~~V/c ratio for southbound direction is 1.33~~

Intersection #25, E Charter Way and S Stanislaus St

- Inadequate gaps in traffic
  - Northbound thru/left volume and southbound thru/left volume are the causes for LOS F at this intersection. Only 1 percent of the total intersection volumes are for northbound thru/left vehicles and only 5 percent of the total intersection volumes are for southbound

thru/left vehicles. These stop-controlled vehicles do not have sufficient gaps in traffic to pass the intersection because of the heavy eastbound/westbound movements

- V/c ratios for northbound and southbound direction are 2.71 and 3.85 respectively

Table 4-1: 2019 AM and PM Peak Hour Intersection Level of Service and Delay

Intersection		AM		PM	
		Delay (seconds)	LOS	Delay (seconds)	LOS
1	S Stanislaus St and E Weber Ave	15.8	B	16.9	B
2	S Airport Way and E Weber Ave	11.8	B	14.5	B
3	S Stanislaus St and E Main St	9.2	A	8.8	A
4	S Airport Way and E Main St	9.6	A	7.8	A
5	S Stanislaus St and E Market St	11.8	B	8.3	A
6	S Airport Way and Market St	9.2	A	11.2	B
7	E Lafayette St and California St	16.1	B	18.3	B
8	E Lafayette St and S Stanislaus St	192.2	F	87.8	F
9	E Lafayette St and Aurora St	11.8	B	15.6	B
1	E Lafayette St and S Airport Way	6.6	A	117.6	F
1	S Wilson Way and E Church St	1.6	A	2	A
1	E Hazelton Ave and S San Joaquin St	8.3	A	8.9	A
1	E Hazelton Ave and S Sutter St	4.2	A	4.5	A
1	E Hazelton Ave and California St	8.5	A	9.3	A
1	E Hazelton Ave and S Stanislaus St	9.8	A	62.6	E
1	E Hazelton Ave and Aurora St	8.7	A	9.7	A
1	E Hazelton Ave and S Airport Way	8	A	9.8	A
1	E Hazelton Ave and S Wilson Way	14.3	B	16	B
1	E Anderson St and S San Joaquin St	7.6	A	7.9	A
2	E Anderson St and S Sutter St	7.5	A	7.6	A
2	E Anderson St and California St	3.8	A	3.3	A
2	E Anderson St and S Stanislaus St	0.9	A	1.9	A
2	E Anderson St and Aurora St	0.4	A	1.5	A
2	E Charter Way and California St	12.7	B	18.4	B
2	E Charter Way and S Stanislaus St	6.5	A	95.5	F
2	E Charter Way and Aurora St	1	A	0.7	A

	Intersection	AM		PM	
		Delay (seconds)	LOS	Delay (seconds)	LOS
2	E Charter Way and S Airport Way	21.4	C	23.3	C
2	E Charter Way and S Wilson Way	21.9	C	24.2	C

4.2. ROADWAY CONDITIONS

As summarized above in Section 3, roadway segments for both AM and PM peak hours in the Study Area were evaluated using v/c ratios to measure performance. Figure 4-1 and Figure 4-2 show the v/c results by roadway segment in the Study Area, for the AM peak hour and PM peak hour respectively. The following parameters and methods were used from the Highway Capacity Manual (HCM) 2010 to analyze roadway v/c ratios for local roads, arterials, collectors, and freeways:

- 1200 Vehicles/hour/lane capacity on Local Roadways
- 1780 Vehicles/hour/lane capacity on Arterials and Collectors

2400 Vehicles/hour/lane capacity on Freeways (SR-4 Crosstown Freeway).

The resulting volume to capacity (v/c) ratios for roadways in morning peak hour for 2019 include:

- Local roads
  - East Lafayette Street between South San Joaquin St and South Stanislaus Street operates at LOS B with v/c ratio of 0.37
  - ~~S Stanislaus Street north of SR4 operates at LOS C with v/c ratio of 0.69~~
  - All other local roads operate at LOS A with v/c ratio less than 0.30
- Collectors
  - South Stanislaus Street north of East Lafayette Street operates at LOS B with v/c ratio of 0.38
  - All other collector roads within Study Area operate at LOS A with v/c ratios less than 0.30
- Arterials
  - E Main Street, W Market Street and California Street operate at LOS A with v/c ratio less than 0.30
  - E Charter Way, S Airport Way and S Wilson Way operate at LOS B with v/c ratios between 0.31 to 0.50
- Freeways
  - SR-4 operates at LOS F with v/c ratio of 1.11

The resulting volume to capacity (v/c) ratios for roadways in afternoon peak hour include:

- Local roads
  - E Lafayette Street between S San Joaquin St and South Stanislaus Street operates at LOS B with v/c ratio of 0.48
  - ~~S Stanislaus St north of E Anderson St also operates at LOS B with v/c ratio between 0.31 to 0.50~~
  - All other local roads operate at LOS A with v/c ratio less than 0.30
- Collector
  - All collector roads within Study Area operate at LOS A with v/c ratios less than 0.30
  - South Stanislaus Street north of East Anderson Street also operates at LOS B with v/c ratio of 0.34
  - All collector roads within Study Area operate at LOS A with v/c ratios less than 0.30
- Arterials
  - E Main Street, E Market Street and California Street operate at LOS A with v/c ratio less than 0.30
  - E Charter Way between S San Joaquin St and Aurora St operates at LOS C with v/c ratio of 0.62
  - E Charter Way between Aurora St and S Wilson Way operates at LOS B with v/c ratio of 0.49
  - S Airport Way between E Charter Way and E Lafayette St operates at LOS B with v/c ratio of 0.49
  - S Airport Way between E Lafayette St and E Weber Ave operates at LOS C with v/c ratio of 0.63
  - S Wilson Way between E Charter Way and E Church St operates at LOS B with v/c ratio of 0.41
  - S Wilson Way between E Church St and E Weber Ave operates at LOS C with v/c ratio of 0.62
- Freeways
  - SR-4 operates at LOS F with v/c ratio of 1.08.

Figure 4-1: 2019 AM Peak Hour Roadway Volume to Capacity Ratios in the Study Area

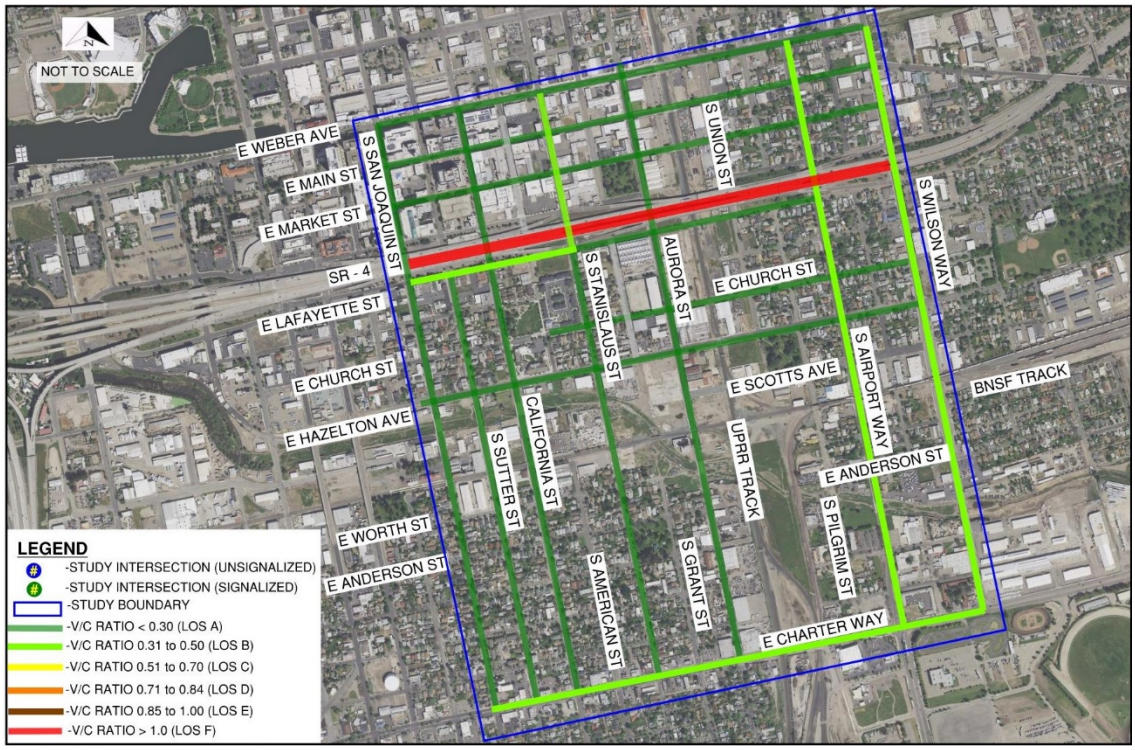
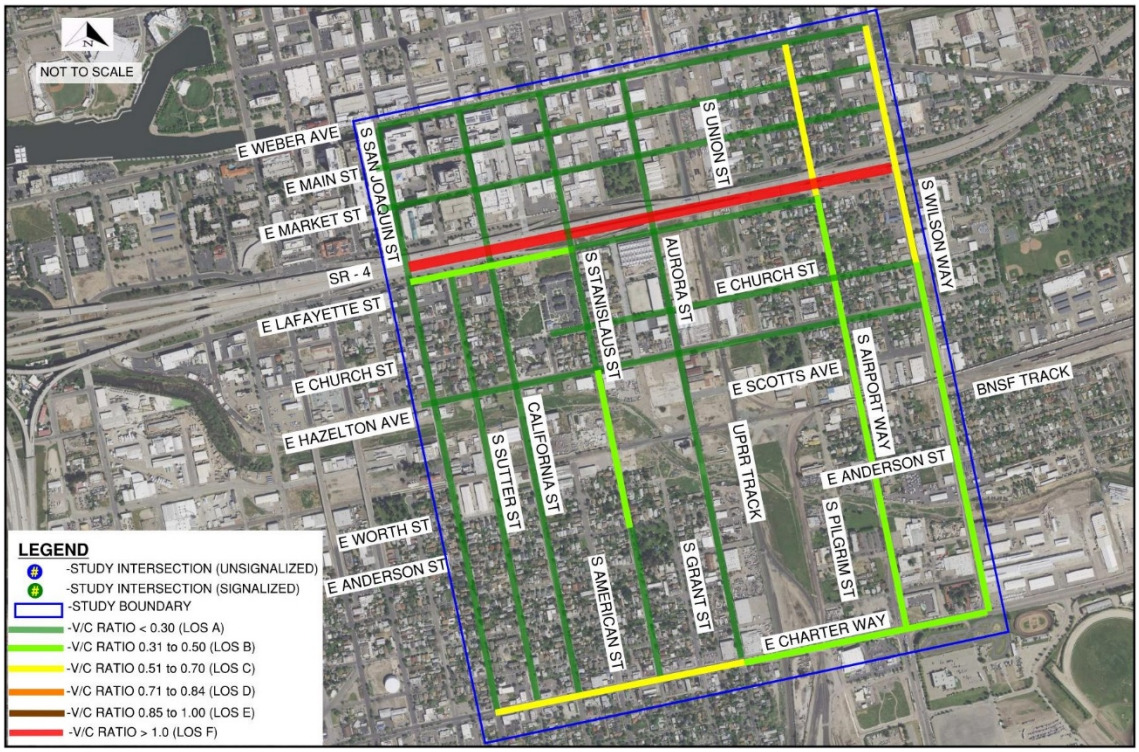


Figure 4-2: 2019 PM Peak Hour Roadway Volume to Capacity Ratios in the Study Area



4.3. EXISTING PEDESTRIAN CONDITIONS

There is limited data available to identify pedestrian activity in the Study Area. Currently, there are seven at-grade roadway crossings of UP tracks and seven at-grade roadway crossings of BNSF tracks in the Traffic Study Area. The pedestrian inventory identified only four of the 14 intersections meeting ADA compliance. Table 4-2 below provides an inventory of pedestrian accessibility at these crossings with ADA compliance indicated. The crossings of BNSF tracks are not affected by the proposed project and therefore no improvements are planned at these crossings.

Table 4-2: Pedestrian Facilities with at-Grade Roadway/Rail Crossings in the Traffic Study Area

Intersection	Sidewalk	ADA Compliant Sidewalk	Reason for ADA Non Compliance
E Weber Ave/UPRR	Yes	No	No Sidewalk east of track
E Main St/UPRR	Yes	Yes	N/A
E Market St/UPRR	Yes	No	Missing detectable warning panel on RR crossing. Missing Audible active warning devices and automated pedestrian gates. No Sidewalk east of track
E Lafayette St/UPRR	No	No	Missing Sidewalk
E Church St/UPRR	No	No	~~Railroad Light Post/Crossbuck on sidewalk Missing detectable warning panel on RR crossing. Missing Audible active warning devices and automated pedestrian gates.~~ Missing Sidewalk
E Hazelton Ave/UPRR	Yes	Yes	N/A
E Scotts Ave/UPRR	No	No	Missing Sidewalk
S San Joaquin St/BNSF	Yes	Yes	N/A

Intersection	Sidewalk	ADA Compliant Sidewalk	Reason for ADA Non Compliance
S Sutter St/BNSF	Yes	No	Railroad Light Post/Crossbuck and utility post on pedestrian travel path. Missing detectable warning panel on RR crossing. Missing Audible active warning devices and automated pedestrian gates. No southeast Sidewalk.
California St/BNSF	No	No	~~Railroad Light Post/Crossbuck and utility post on pedestrian travel path. Missing detectable warning panel on RR crossing. Missing Audible active warning devices and automated pedestrian gates~~ Missing Sidewalk.
S Stanislaus St/BNSF	No	No	Missing Sidewalk
Aurora St/BNSF	Yes	No	Sidewalk exists only on the western side of the road. Missing Audible active warning devices. Missing automated pedestrian gates south of BNSF track. Flangeway gaps on RR track.
S Pilgrim St/BNSF	No	No	Missing Sidewalk
S Airport Way/BNSF	Yes	No	Railroad Light Post/Crossbuck on pedestrian travel path. Missing detectable warning panel on RR crossing. Missing Audible active warning devices and automated pedestrian gates.

4.4. BICYCLE CONDITIONS

Bikeway facilities in the Study Area include the following classes defined in the Envision Stockton, 2040 General Plan Update and Utility Master Plan Supplemental Draft EIR (also following Caltrans bike designation criteria):

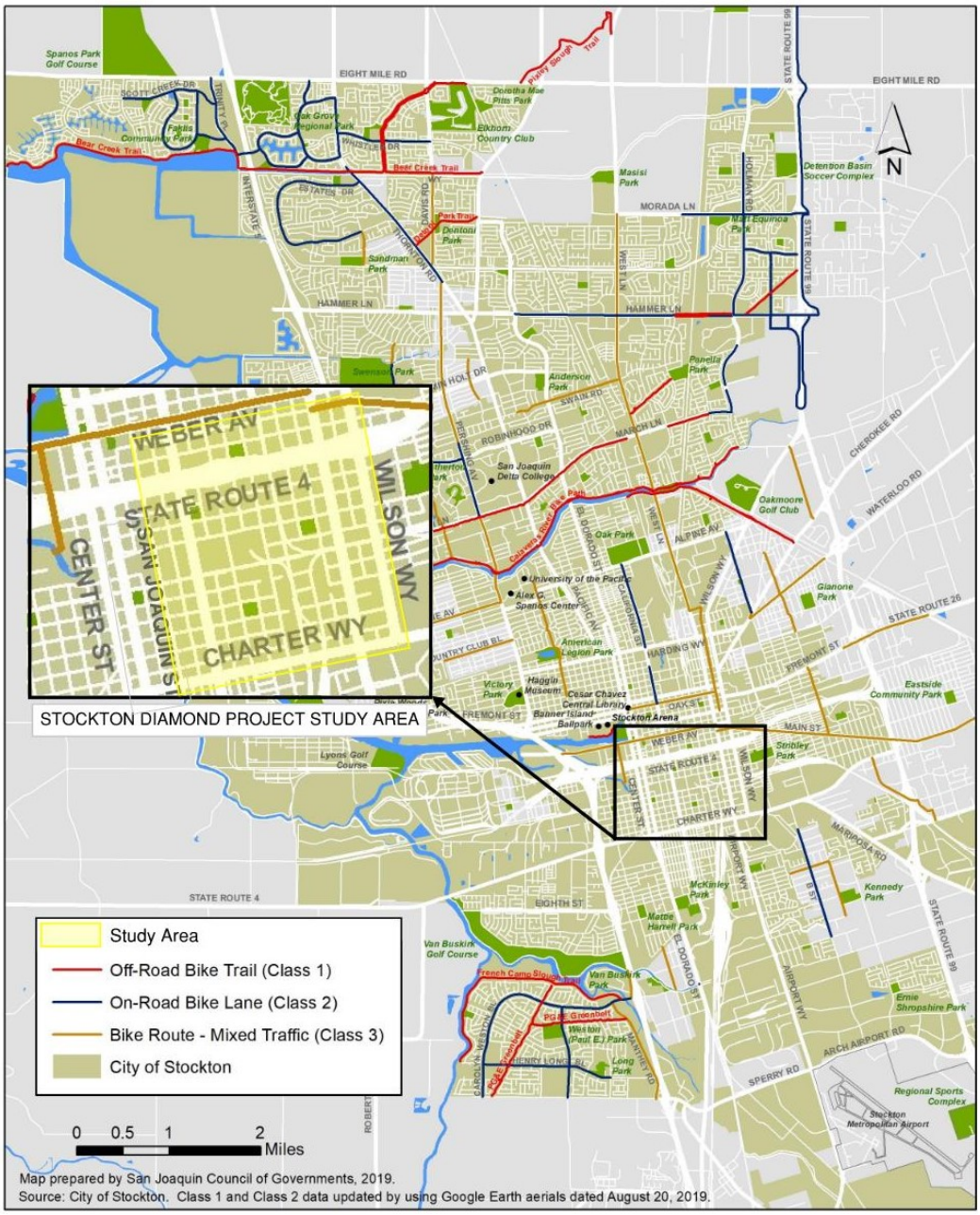
- Class 1 – Off-Road Bike Trail, facilities with exclusive right of way for bicyclists and pedestrians, away from the roadway and with cross flows by motor traffic minimized
- Class 2 – On-Road Bike Lane, facilities established along streets and defined by pavement striping and signage to delineate a portion of a roadway for bicycle travel
- Class 3 – Bike Route – Mixed Traffic, facilities designated as a preferred route for bicyclists on streets shared with motorized traffic not served by dedicated bikeways often marked by route signs
- Class 4 - Separated Bikeway, facilities established along streets and defined by not only pavement striping and signage, but also a complete separation with barriers such as on-street parking, grade separation, delineator poles to delineate a portion of roadway for bicycle travel.

Bicycle movements, based on information obtained from the City of Stockton, mirror the low level of activity shown with pedestrian movements in the Study Area. For both the AM and PM peak hours, bicycle movements are less than 1 percent of traffic volumes for a sample of Study Area intersections. There are no current designated bicycle network routes and facilities (Classes 1-4) and limited bicycle access available in the Study Area. The following takeaways from the "City of Stockton Bicycle Master Plan" mirror the bicycle facilities and movements in the Study Area:

- Lack of north/south and east/west connectors for commuters and recreational riders
- Bicycle parking is not available at most locations and bikes are often stolen
- Existing facilities are not always family friendly and many need maintenance and many traffic lights and intersections do not detect or accommodate bikes.

Figure 4-3 shows that there is no existing bicycle network (by Class 1, 2, and 3) available to users in the Study Area.

Figure 4-3: 2019 Bicycle Route Network in the Traffic Study Area

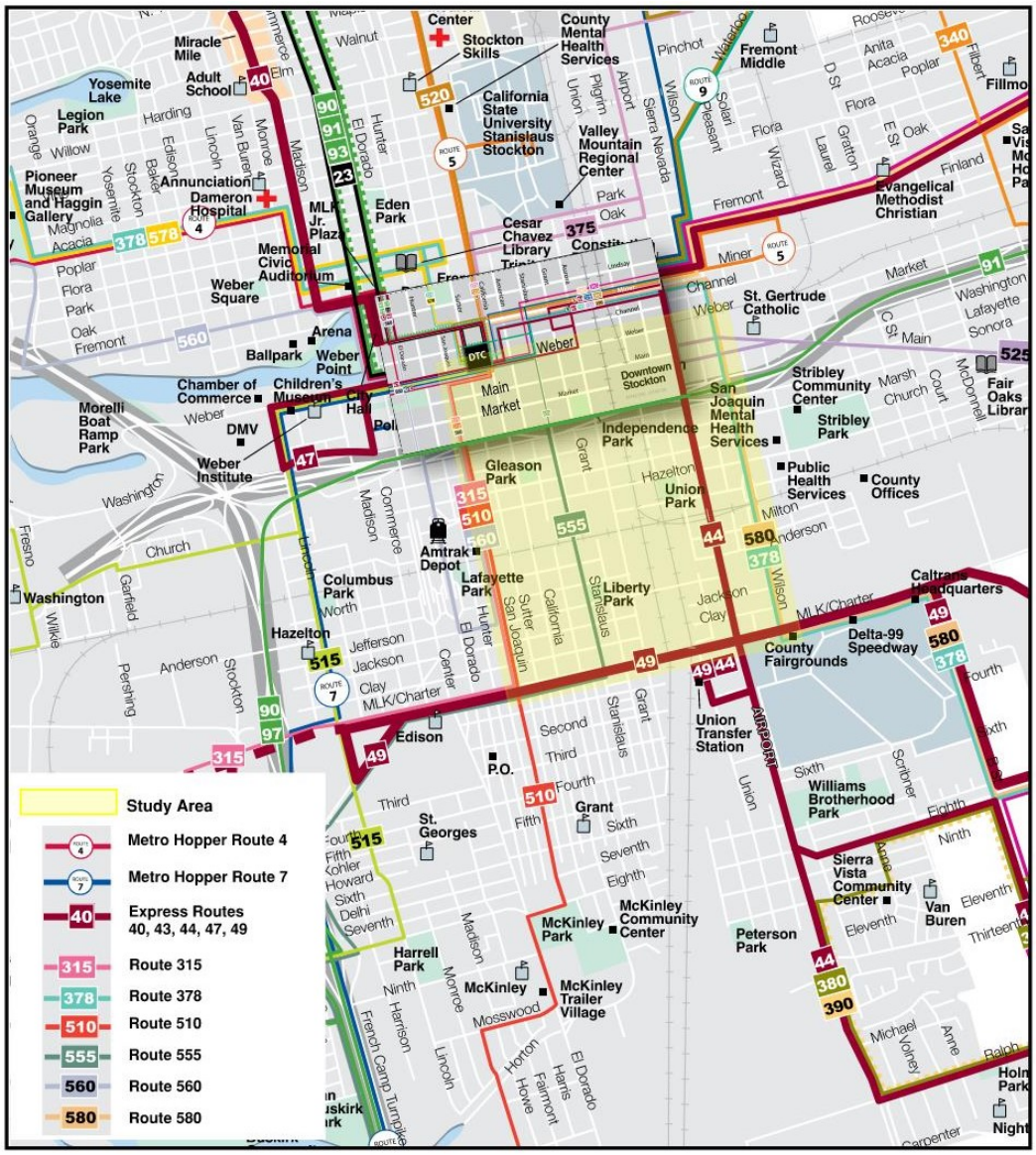


4.5. TRANSIT CONDITIONS

Public transit service in the Study Area is primarily provided by the San Joaquin Regional Transit. There are 12 transit routes within our Study Area. Metro Hopper route 4 and 7 operate on E Weber Avenue. Transit routes 315, 510 and 560 operate northbound/southbound on San Joaquin Street, transit route 555 operates northbound/southbound on S Stanislaus St, express route 44 operates northbound/southbound on S Airport Way and transit routes 378 and 580 operate northbound/southbound on S Wilson Way. Express route 49 operates eastbound/westbound on E

Charter Way, and express routes 44 and 47 operate eastbound/westbound on E Weber Ave. Figure 4-4 shows the routes in the Traffic Study Area. Note, currently due to COVID19, San Joaquin RTD has limited services while operating typical weekend schedule during weekdays.

Figure 4-4: San Joaquin Regional Transit Routes in the Traffic Study Area

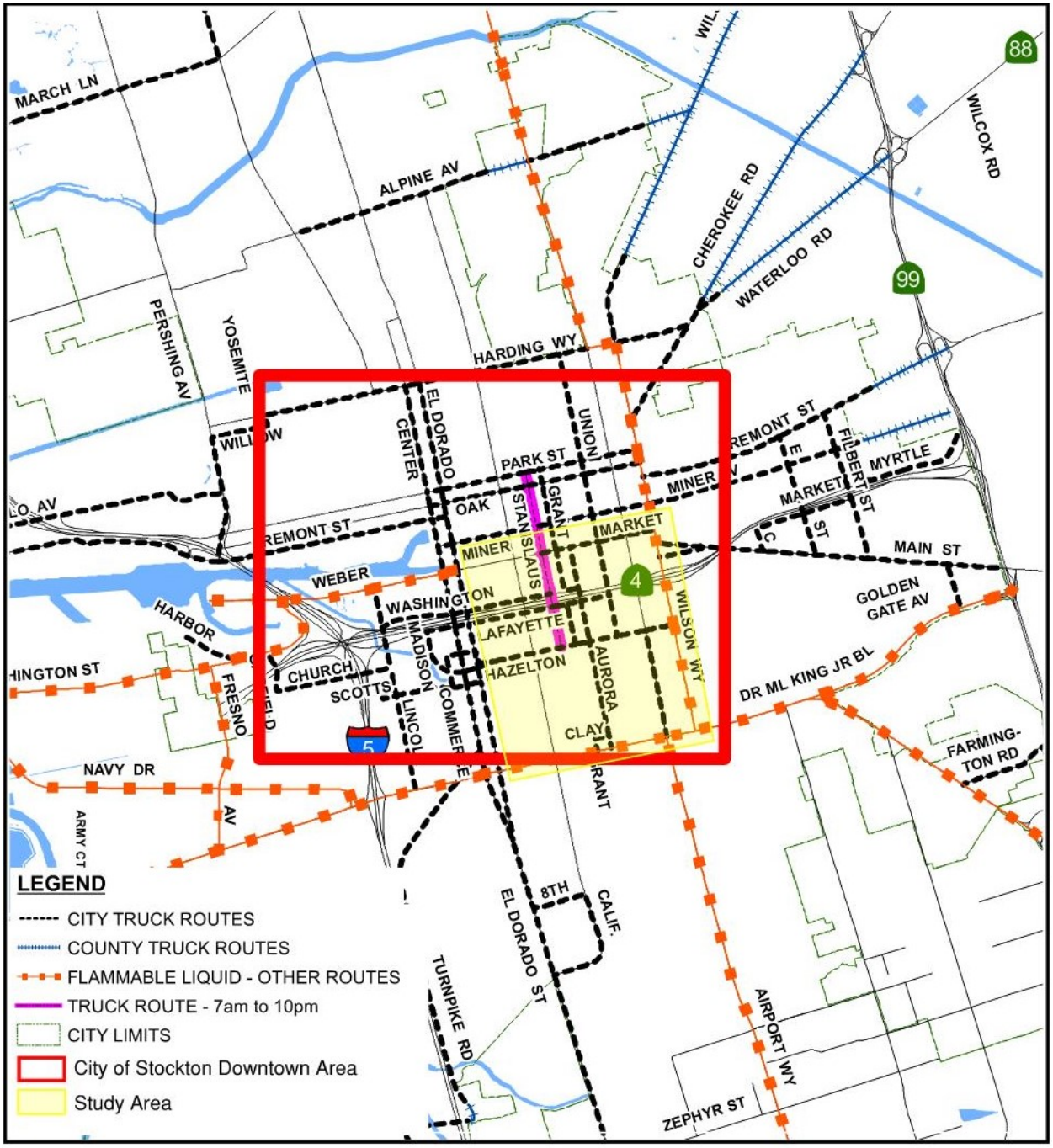


Source: San Joaquin RDT Weekday System Map

4.6. FREIGHT CONDITIONS

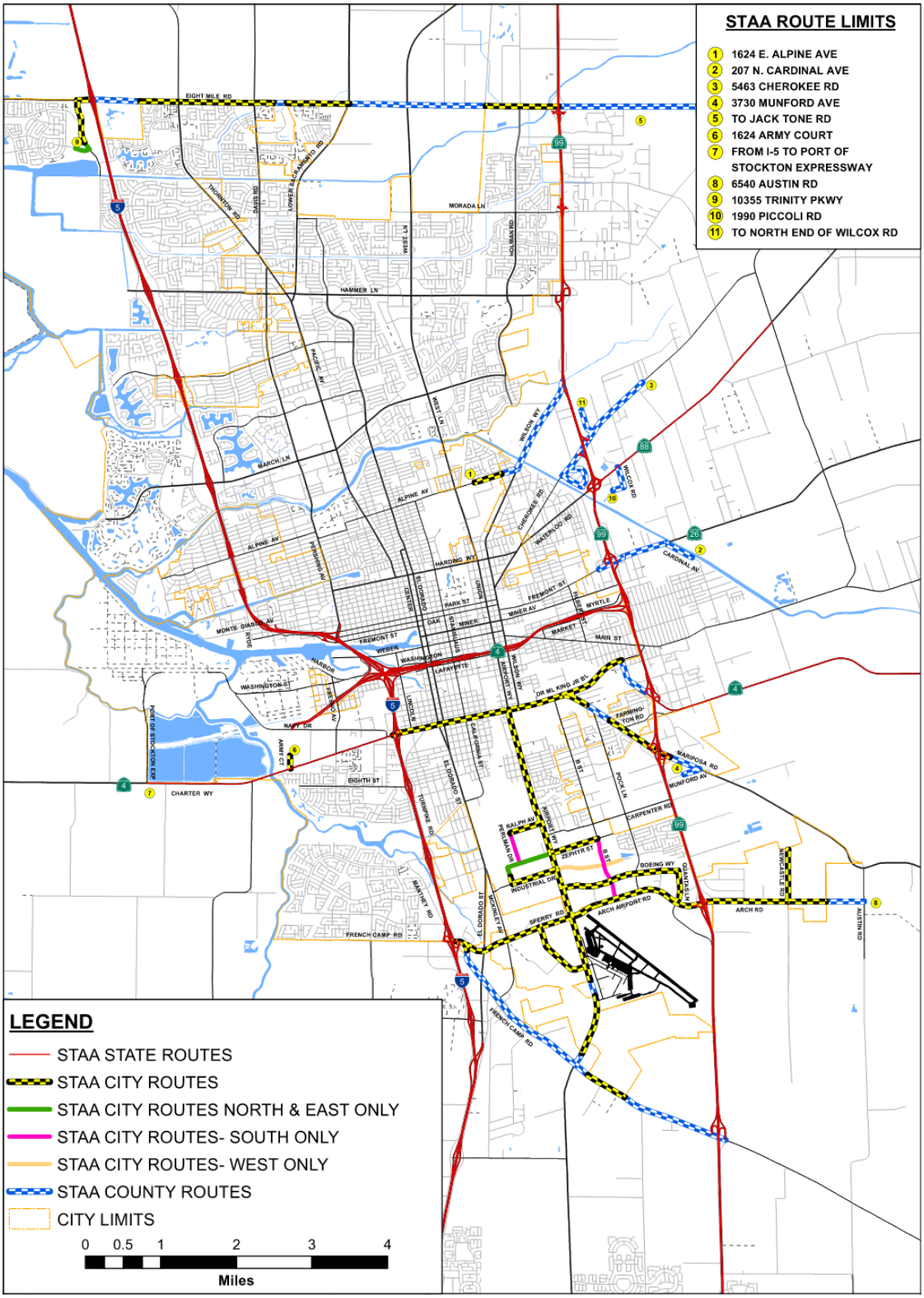
Truck routes in Stockton consist primarily of the State Highway system and major arterials within the City. Figure 4-5 shows the truck routes operating in the Traffic Study Area and city of Stockton. Figure 4-6 shows the STAA truck routes operating in the Traffic Study Area and city of Stockton.

Figure 4-5: Truck Route Designations in the Traffic Study Area



Source: *City Of Stockton. Truck Routes Map dated October 2009.*

Figure 4-6: STAA Truck Route Designations in the Traffic Study Area



Source: *City Of Stockton. STAA Truck Routes Map dated November 2017.*

SR 99 and I-5 are considered major truck routes connecting Central Valley cities to other metropolitan areas throughout the state, with the crosstown freeway, SR-4, and Arch-Airport Road supporting citywide truck circulation, as well as providing connections to the airport and BNSF intermodal facility. Truck route designations include City Truck Routes, County Truck Routes, Flammable Liquid-Other Routes, and Truck Routes operating from 7am to 10pm. Currently, with the exception of County Truck Routes, the Study Area includes roadways with each of the other three designations (in some cases roadways include multiple designations):

- City Truck Routes on South Airport Way, East Hazelton Avenue, East Lafayette Street, East Market Street, East Weber Ave, Aurora Street and South Union Street
- Flammable Liquid-Other Routes on East Charter Way, South Wilson Way, and South Airport Way
- Truck Route–7 am to 10 pm on South Stanislaus Street

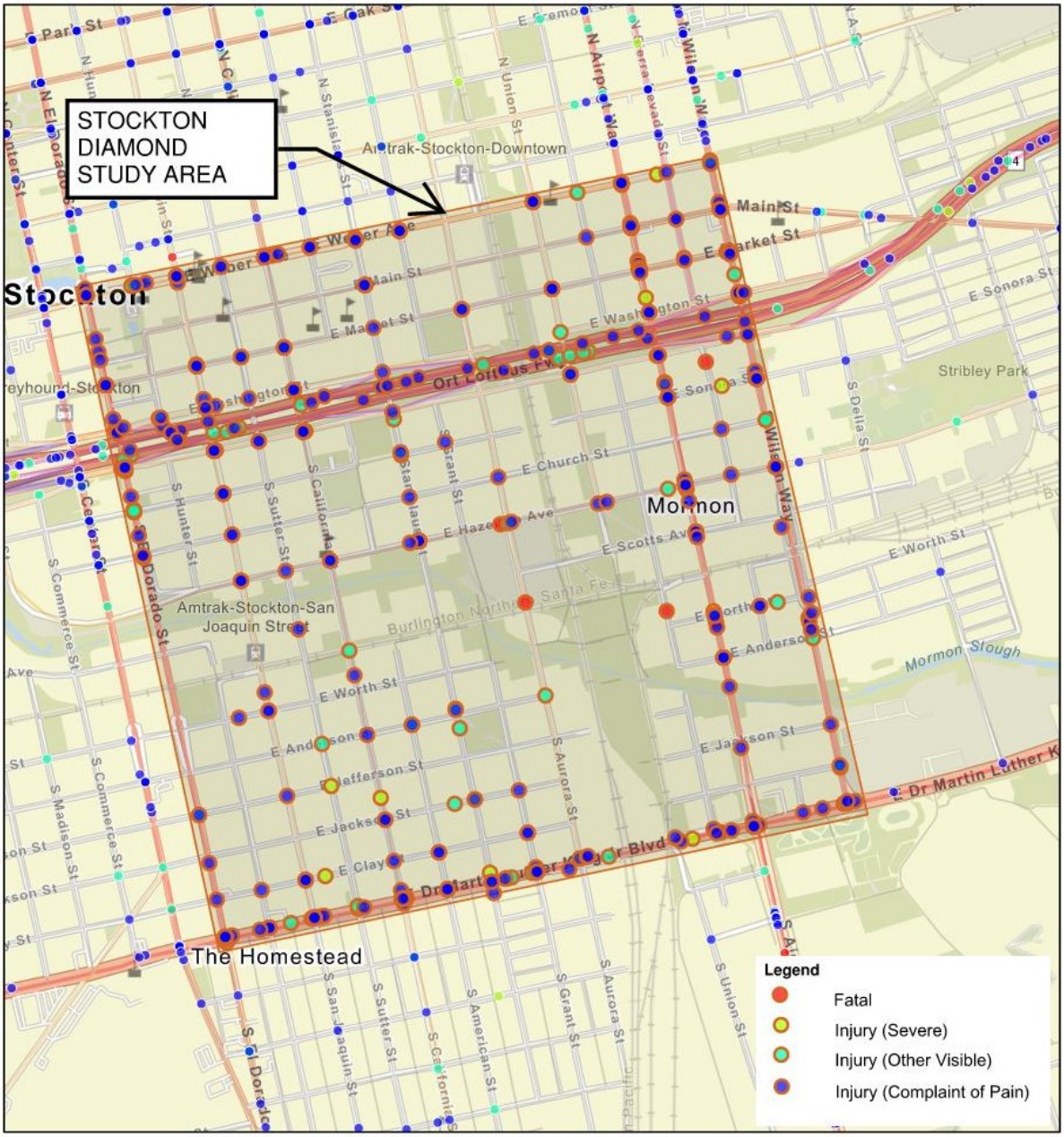
East Charter Way is the only roadway in the Study Area which is designated as an STAA truck route.

4.7. SAFETY ANALYSIS

Crash data for all transportation modes from 2017 to 2019 was compiled from the University of California Berkeley Transportation Injury Mapping System (TIMS). During this 3-year period, 562 incidents were reported within the Traffic Study Area (Figure 4-7). These included 12 fatalities and 790 injuries. Of the 12 fatalities, 4 were pedestrians, 4 were bicyclists, and remaining 4 were motorists.

In addition to the TIMS data, crashes that occurred at the railroad crossings published by Federal Railroad Administration (FRA) were also compiled to understand road-rail crash locations in the Traffic Study Area. This crash data from 2015 to 2019 were obtained, reviewed, and summarized in Table 4-3. This data also shows crashes at these locations by pedestrians, bicycles, and total vehicles. In this 4-year period, a total of 10 accidents occurred at these at-grade road/rail locations, with six involving pedestrians and bicycles (with freight trains) and four involving vehicles with trains).

Figure 4-7: 2017-2019 Multimodal Crash Locations in the Traffic Study Area



Source: *SWITRS GIS MAP-UC Berkeley Transportation Injury Mapping System (TIMS)*

Table 4-3: Accidents on at-grade Crossings between 2015 to 2019

Intersection	Injury		Fatal		Non-Injury		
	Bike/ Ped	Vehicle	Bike/ Ped	Vehicle	Bike/ Ped	Vehicle	Total By Location
E Weber Ave/UPRR						1	1
E Market St/UPRR	1						1
E Scotts Ave/UPRR						1	1
S San Joaquin St/BNSF	1		1				2
S Sutter St/BNSF	1						1
California St/BNSF	1						1
S Stanislaus St/BNSF	1						1
S Pilgrim St/BNSF						1	1
S Airport Way/BNSF						1	1
Total by Type	5	0	1	0	0	4	10

Source: *Department of Transportation Federal Railroad Administration (FRA) Incident Report*

5.0 No Project Alternative (2045) Traffic Condition Analysis

This section presents the expected future transportation condition in the Study Area assuming other anticipated transportation improvements (planned as part of other plans and studies) would move forward. The No Project Alternative traffic conditions does not include the proposed grade separation project being evaluated. The anticipated transportation infrastructure improvement projects, future growth rate and 2045 No Project Alternative Traffic conditions are presented in this section.

5.1. ANTICIPATED TRANSPORTATION INFRASTRUCTURE IMPROVEMENT PROJECTS

Table 5-1 shows the anticipated transportation infrastructure (intersections and roadway) improvement projects identified in the Traffic Study Area by the City of Stockton while Table 5-2 shows the specific intersection and roadway improvements from the listing above that were built into the No Project Alternative traffic conditions analysis.

Table 5-1: Anticipated Future Changes to Transportation Infrastructure

Location	Project
E. Hazelton Avenue and S Airport Way	Signal re-modeling and sidewalk gap closure installation at railroad crossing Existing City Project PW 1902) Install left-turn phasing on Airport Way Existing City Project PW 1902)
E Hazelton Ave and E Stanislaus St	Conversion of side street stop-controlled intersection to all way stop controlled intersection
E. Charter Way and California Street	Traffic signal remodeling (City Project PW 1713)
E. Charter Way and Aurora Street	Sidewalk, Median, and fencing improvement (City project PW 1903)
California Street	California Street Road Diet project (City Project PW1805)
South Airport Way	South Airport Way separated Bike-way (City project PW1808)

Table 5-2: Traffic Improvements Built Into The No Project Alternative traffic Conditions Analysis

Location	Project
E. Hazelton Avenue and S Airport Way	Install left-turn phasing on Airport Way
E Hazelton Ave and E Stanislaus St	Conversion of side street stop-controlled intersection to all way stop controlled intersection

Figure 5-1 shows the 2045 intersection turning movements developed from traffic improvement project identified earlier in Table 5-2 above.

5.2. FUTURE GROWTH RATE

Traffic growth rates were required to estimate future expected 2045 traffic volumes. Several sources of available information were used to support the development of annualized traffic growth rates, including traffic volume flow maps, volumes, and reports from the City of Stockton traffic flow maps, travel model forecasts, and most recent General Plan, Caltrans counts, and discussions with City of Stockton Traffic Engineering staff, to determine an annual traffic growth rate for application in this analysis.

Based on this analysis, the City's traffic flow maps from 2015 to 2019 including a combination of major and minor roads within the Traffic Study Area including close by segments of I-5, SR-99 and

SR-4 provided an annual growth rate of 0.063 percent per year. The travel demand model for the City of Stockton, which is based on population and employment estimates to determine future travel demand, considered a growth rate of between 1.0 percent to1.5 percent annually.

Based on the City's traffic consultant recommendation, annual traffic growth by major and minor roads within the Project Traffic Study Area was identified at 1.0 percent. Therefore, the average annual growth rate was computed at an average of 1.0 percent, compounded annually to 2045. This growth rate was well within the range identified by the City's consultant for this area near Downtown Stockton. The 1.5 percent annual growth rate was estimated for areas outside of/peripheral to Downtown Stockton area.

Although 1.0 percent growth rate is much higher than the computed rate of 0.063 percent (based on historical traffic counts), a conservative approach was applied using 1.0 percent annual growth rate to apply to the existing traffic volumes to estimate 2045 No Project Alternative traffic volumes. With the exception on SR4, the traffic growth rate of 0.063 percent per year was applied for this facility, which based on historical traffic volume analysis, considers zero annual growth since 2015.

5.3. FUTURE LAND USE DEVELOPMENTS IMPACTING THE STUDY AREA

HDR reached out to the City of Stockton to inquire about any future land use developments impacting the Study Area. Currently there are no planned future land use developments within or adjacent to the project's Study Area.

5.4. INTERSECTION OPERATIONS

The 2045 No Project Alternative traffic volumes were generated by applying the annualized growth rates to the 2019 existing traffic volumes. Figure 5-2 illustrates the 2045 No Project Alternative turning movements for each of the 28 intersections being analyzed. Figure 5-3 shows the morning (AM) and afternoon (PM) peak hour turning movement volumes for those intersections. In addition, the 2045 No Project Alternative morning (AM) and afternoon (PM) peak hour roadway volumes, prepared for the intersection turning movement volumes, are presented in Figure 5-4 and Figure 5-5.

Figure 5-1: 2045 No Project Alternative Turning Movement Diagrams for Study Area Intersections

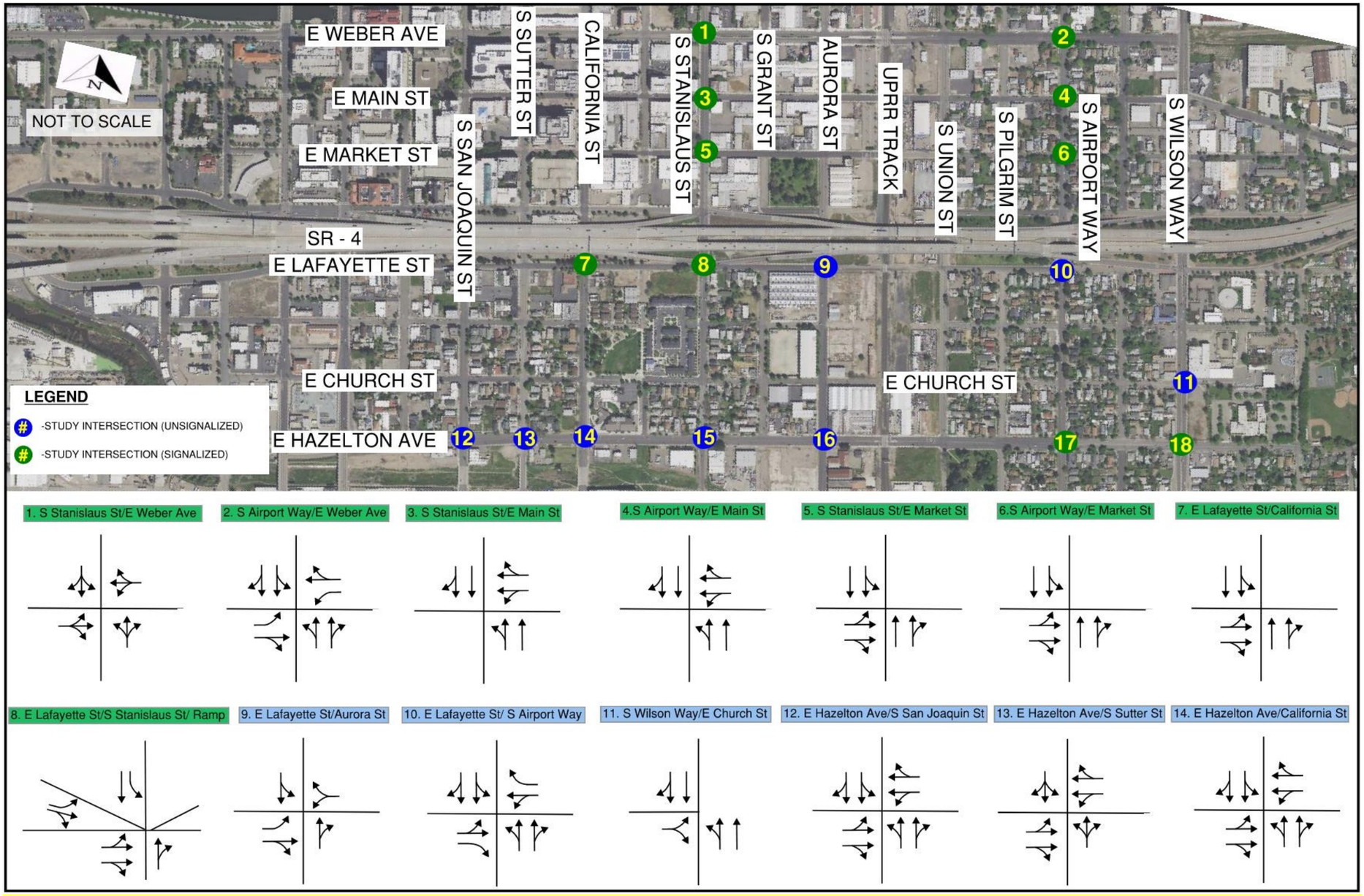


Figure 5-1: 2045 No Project Alternative Turning Movement Diagrams for Study Area Intersections (continued)

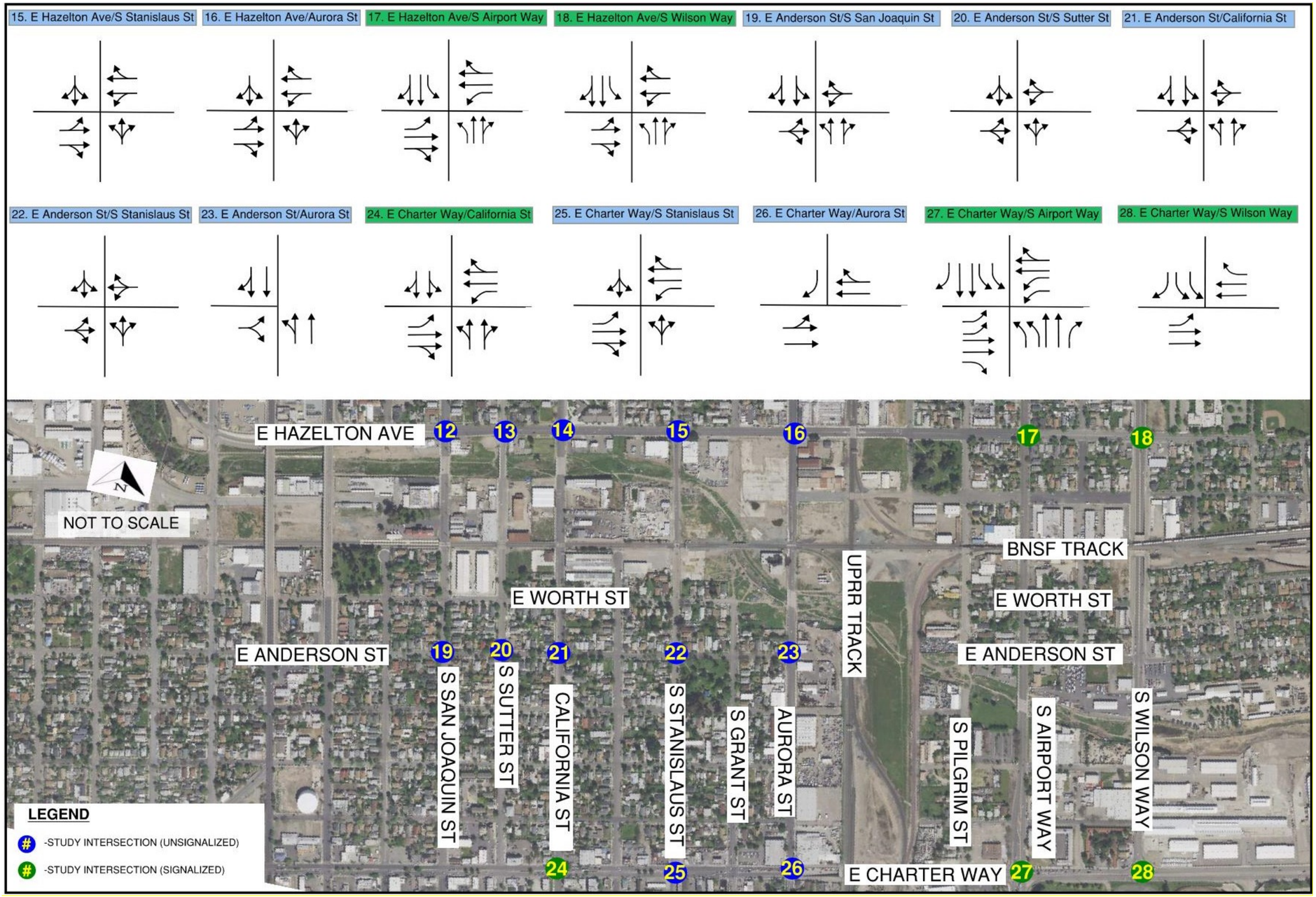


Figure 5-2: 2045 No Project Alternative AM and PM Peak Hour Turning Movement Volumes for Study Area Intersections

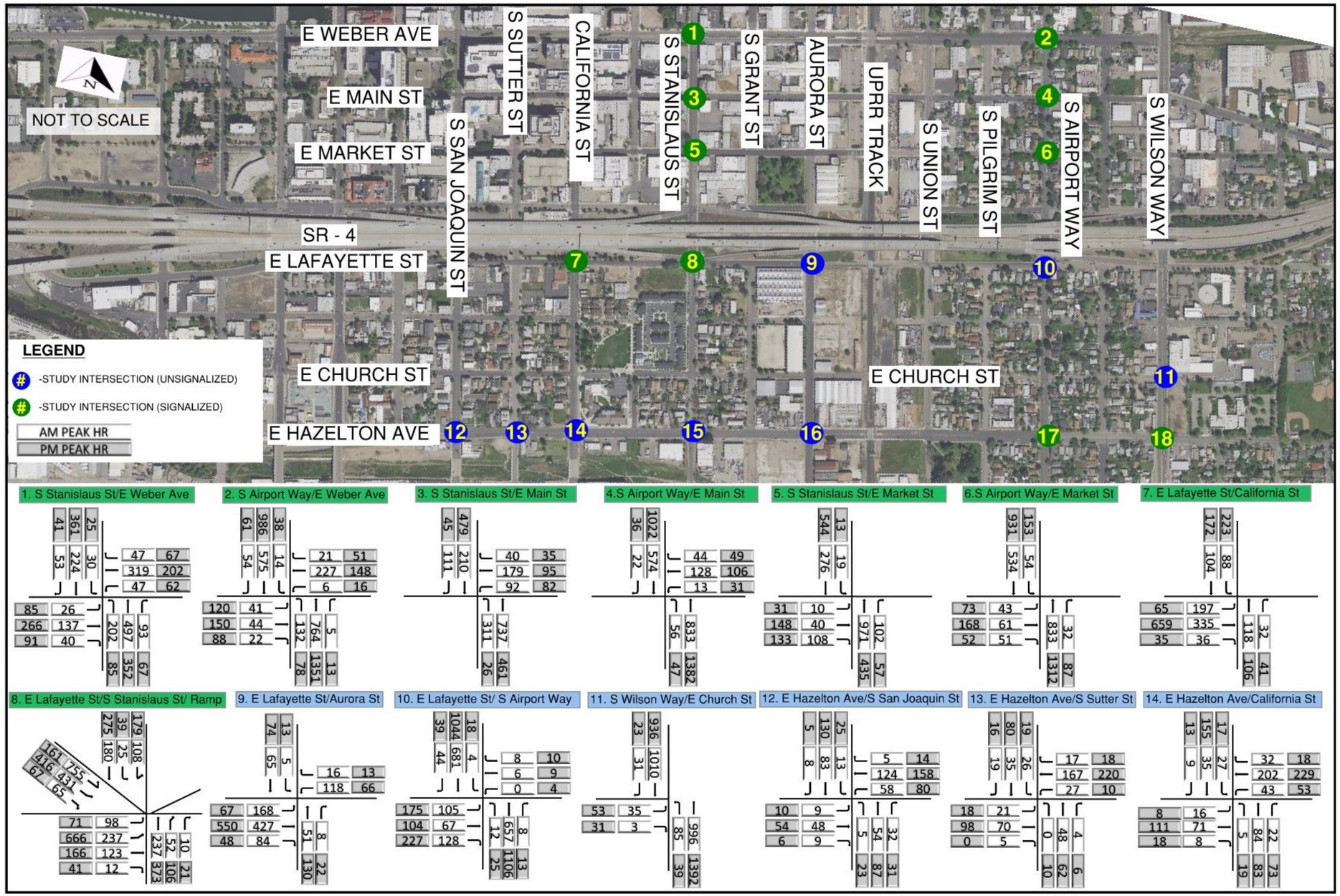


Figure 5-2: 2045 No Project Alternative AM and PM Peak Hour Turning Movement Volumes for Study Area Intersections (continued)

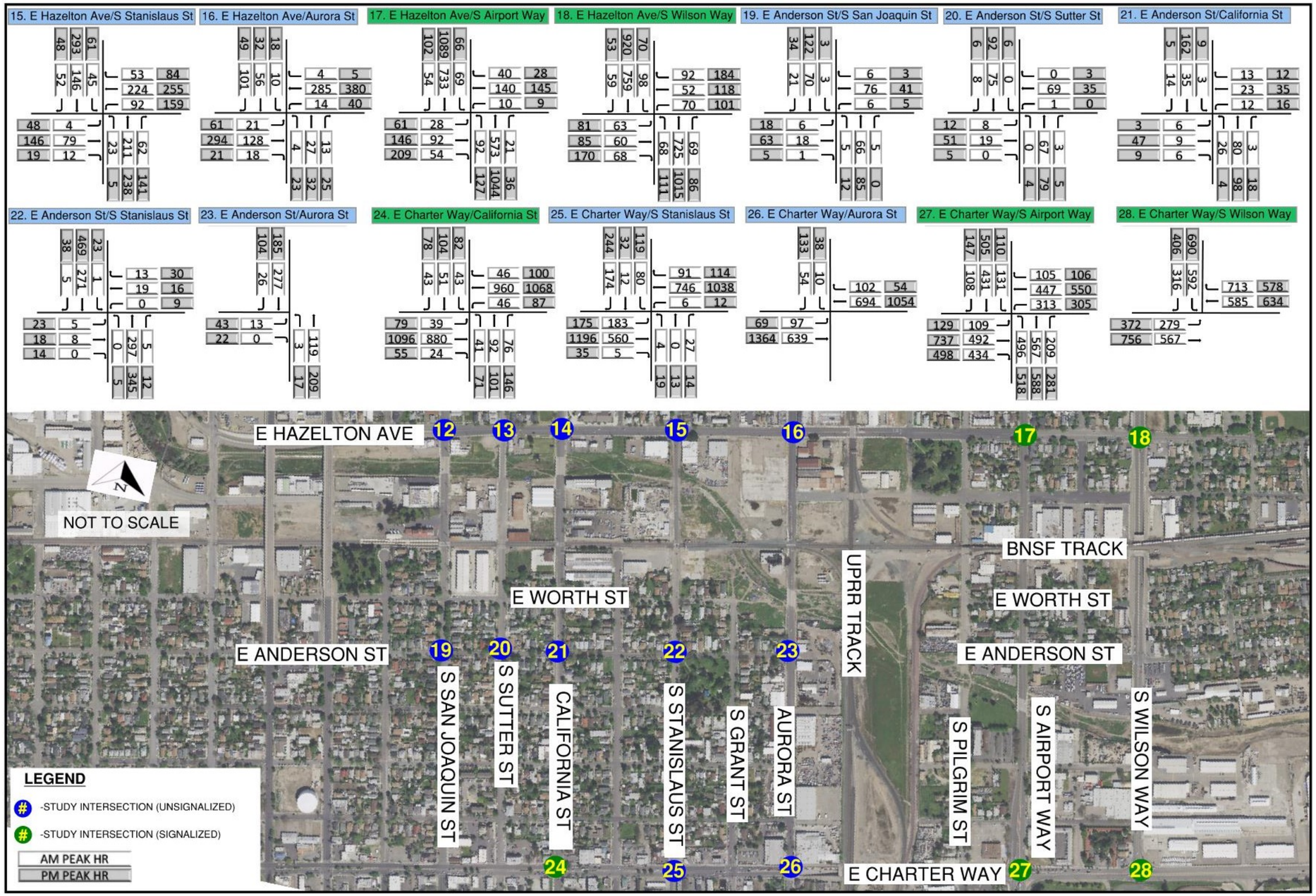


Figure 5-3: 2045 No Project Alternative AM Peak Hour Roadway Volumes in the Study Area

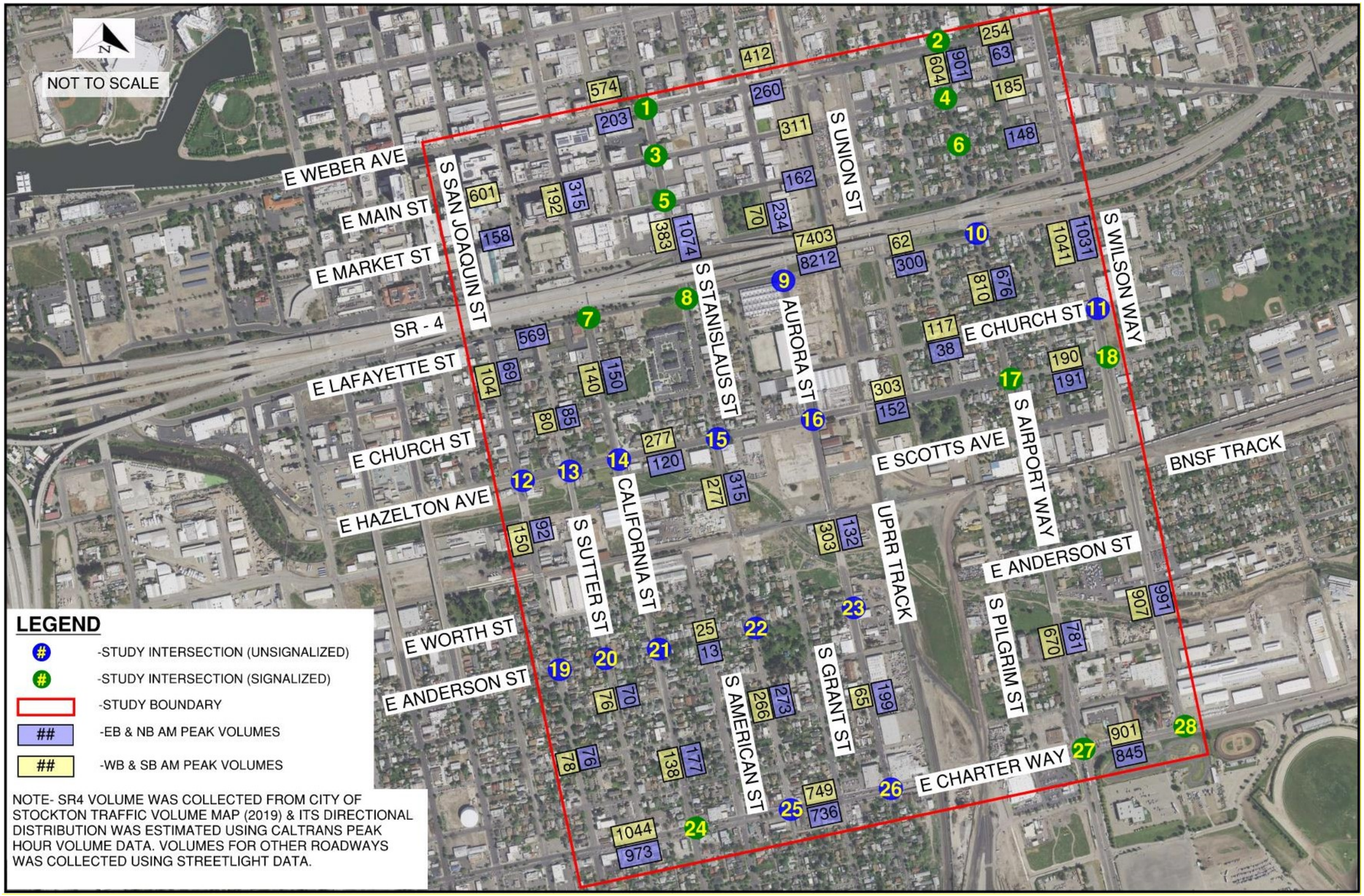
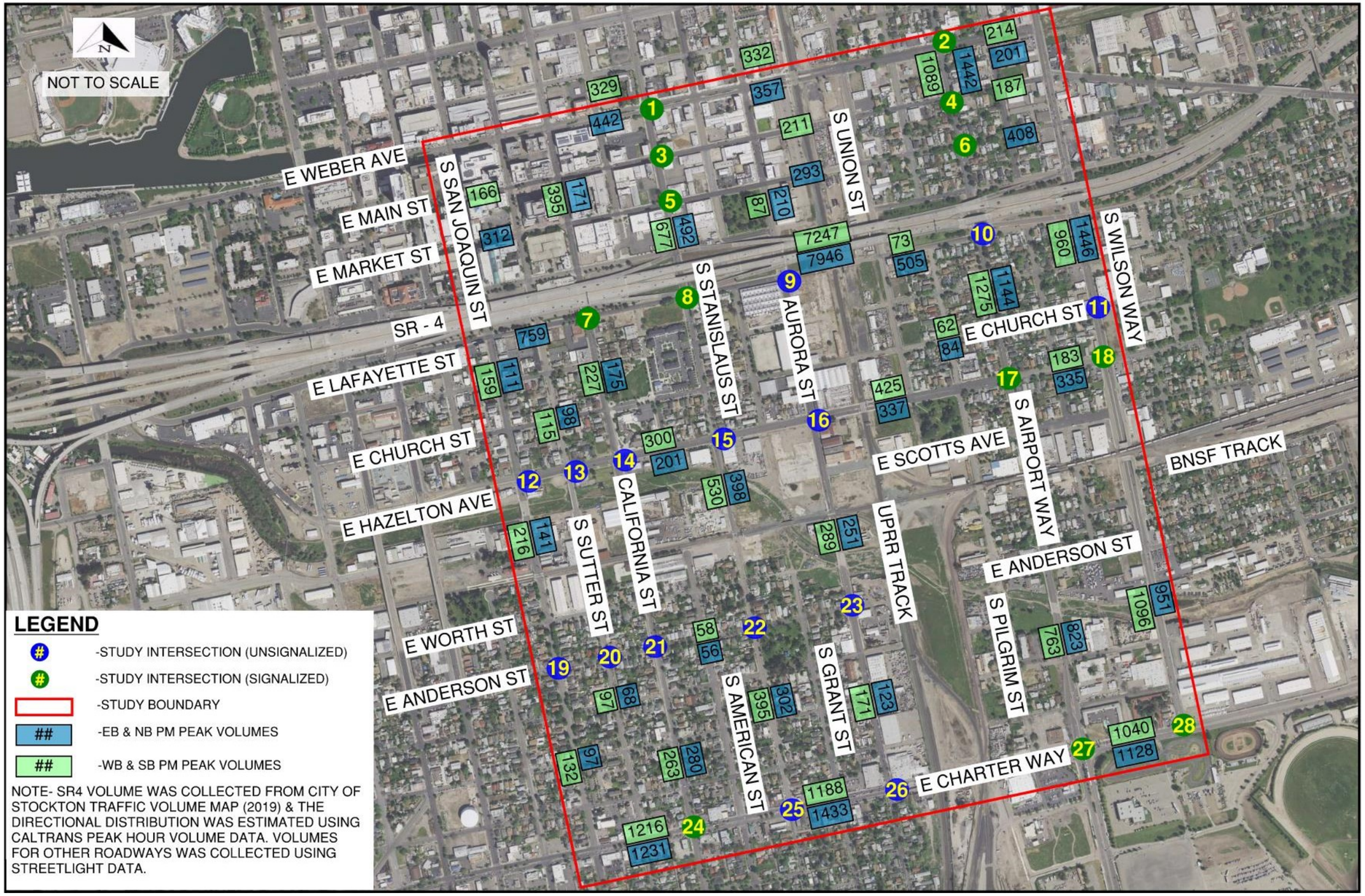


Figure 5-4: 2045 No Project Alternative PM Peak Hour Roadway Volumes in the Study Area



The 2045 No Project Alternative intersection operations were analyzed for the study intersections. Identical to the assessment of the 2019 Existing Condition, intersection operations in 2045 No Project Alternative condition were evaluated for the AM and PM peak hours. LOS analysis was conducted according to procedures outlined in the 2010 Highway Capacity Manual using Synchro 10 traffic analysis software per City and County standards. As discussed in the existing condition section, LOS E or better represents the acceptable LOS in City of Stockton.

Table 5-3 below summarizes and compares the intersection LOS results in the 2045 No Project Alternative with the Existing Conditions (2019) during the AM peak hour. All intersections operate at an acceptable LOS under the 2045 No project Alternative AM condition, except for East Lafayette Street and North Stanislaus Street (#8). This intersection is anticipated to operate at LOS F during the AM Peak hour. The increase in delay at this intersection is due to the anticipated volume increase from 2019 to 2045.

Table 5-3: Existing and 2045 No Project Alternative AM Intersection LOS Comparison

		EXISTING (AM)		2045 NO PROJECT (AM)		DIFFERENCE	
	Intersection	Delay (sec)	LOS	Delay (sec)	LOS	Delay Diff. (sec)	LOS Change
1	S Stanislaus St and E Weber Ave	15.8	B	24.2	C	8.4	B to C
2	S Airport Way and E Weber Ave	11.8	B	14.2	B	2.4	N/A
3	S Stanislaus St and E Main St	9.2	A	17.3	B	8.1	A to B
4	S Airport Way and E Main St	9.6	A	11	B	1.4	A to B
5	S Stanislaus St and E Market St	11.8	B	13.9	B	2.1	N/A
6	S Airport Way and Market St	9.2	A	10.2	B	1	A to B
7	E Lafayette St and California St	16.1	B	17.8	B	1.7	N/A
8	E Lafayette St and S Stanislaus St	192.2	F	319	F	126.8	N/A
9	E Lafayette St and Aurora St	11.8	B	16.8	B	5	N/A
10	E Lafayette St and S Airport Way	6.6	A	32.1	C	25.5	A to C
11	S Wilson Way and E Church St	1.6	A	5.7	A	4.1	N/A
12	E Hazelton Ave and S San Joaquin	8.3	A	8.7	A	0.4	N/A
13	E Hazelton Ave and S Sutter St	4.2	A	4.5	A	0.3	N/A
14	E Hazelton Ave and California St	8.5	A	9.1	A	0.6	N/A
15	E Hazelton Ave and S Stanislaus St	9.8	B	13	B	3.2	N/A
16	E Hazelton Ave and Aurora St	8.7	A	9.5	A	0.8	N/A

	Intersection	EXISTING (AM) Delay (sec)	LOS	2045 NO PROJECT (AM) Delay (sec)	LOS	Delay Diff. (sec)	DIFFERENCE LOS Change
17	E Hazelton Ave and S Airport Way	8	A	17.1	B	9.1	A to B
18	E Hazelton Ave and S Wilson Way	14.3	B	16.3	B	2	N/A
19	E Anderson St and S San Joaquin St	7.6	A	7.9	A	0.3	N/A
20	E Anderson St and S Sutter St	7.5	A	7.7	A	0.2	N/A
21	E Anderson St and California St	3.8	A	3.9	A	0.1	N/A
22	E Anderson St and S Stanislaus St	0.9	A	1	A	0.1	N/A
23	E Anderson St and Aurora St	0.4	A	0.4	A	0	N/A
24	E Charter Way and California St	12.7	B	14.6	B	1.9	N/A
25	E Charter Way and S Stanislaus St	6.5	A	29.7	C	23.2	A to C
26	E Charter Way and Aurora St	1	A	1.1	A	0.1	N/A
27	E Charter Way and S Airport Way	21.4	C	25.2	C	3.8	N/A
28	E Charter Way and S Wilson Way	21.9	C	25	C	3.1	N/A

Table 5-4 below summarizes and compares the intersection LOS results in the 2045 No Project Alternative with the Existing Conditions (2019) for the PM peak hour. All intersections operate at an acceptable LOS under the 2045 No Project Alternative PM conditions, except for the following intersections:

- East Lafayette Street and North Stanislaus Street (#8) – This intersection is anticipated to operate at LOS F during PM peak hour
- East Lafayette Street and South Airport Way (#10) – This intersection is anticipated to operate at LOS F during the PM peak hour
- East Charter Way and South Stanislaus Street (#25) – This intersection is anticipated to operate at LOS F during the PM peak hour

The increase in delay at intersections #8, #10, and #25 during PM peak hour is due to the anticipated volume increase from 2019 to 2045.

As shown in Table 5-4, the LOS and delay for East Hazelton Avenue and Aurora Street intersection (#15) improved during the 2045 No Project condition. This is due to the City's planned improvement project to convert the existing side street stop-controlled intersection to an all way stop controlled intersection (Table 5-1).

Table 5-4: Existing and 2045 No Project Alternative PM Intersection LOS Comparison

Intersection		EXISTING (PM)		2045 NO PROJECT (PM)		DIFFERENCE	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay Diff. (sec)	LOS Change
1	S	16.9	B	23.5	C	6.6	B to C
2	S	14.5	B	27.8	C	13.3	B to C
3	S	8.8	A	9.2	A	0.4	N/A
4	S	7.8	A	10.1	B	2.3	A to B
5	S	8.3	A	8.7	A	0.4	N/A
6	S	11.2	B	35.5	D	24.3	B to D
7	E	18.3	B	20.7	C	2.4	B to C
8	E	87.8	F	174.5	F	86.7	N/A
9	E	15.6	B	36.9	D	21.3	B to D
10	E	117.6	**F**	560.7	**F**	443.1	N/A
11	S	2	A	15.9	B	13.9	A to B
12	E	8.9	A	9.6	A	0.7	N/A
13	E	4.5	A	5.1	A	0.6	N/A
14	E	9.3	A	10.3	B	1	A to B
15	E	62.6	E	22.8	C	-39.8	E to C
16	E	9.7	A	11.3	B	1.6	A to B
17	E	9.8	A	20.1	C	10.3	A to C
18	E	16	B	20.6	C	4.6	B to C
19	E	7.9	A	8.2	A	0.3	N/A
20	E	7.6	A	7.9	A	0.3	N/A
21	E	3.3	A	3.6	A	0.3	N/A
22	E	1.9	A	2.5	A	0.6	N/A
23	E	1.5	A	1.6	A	0.1	N/A
24	E	18.4	B	23.1	C	4.7	B to C
25	E	95.5	**F**	205.8	**F**	110.3	N/A
26	E	0.7	A	1.4	A	0.7	N/A
27	E	23.3	C	28.8	C	5.5	N/A
28	E	24.2	C	27.4	C	3.2	N/A

5.5. ROADWAY CONDITIONS

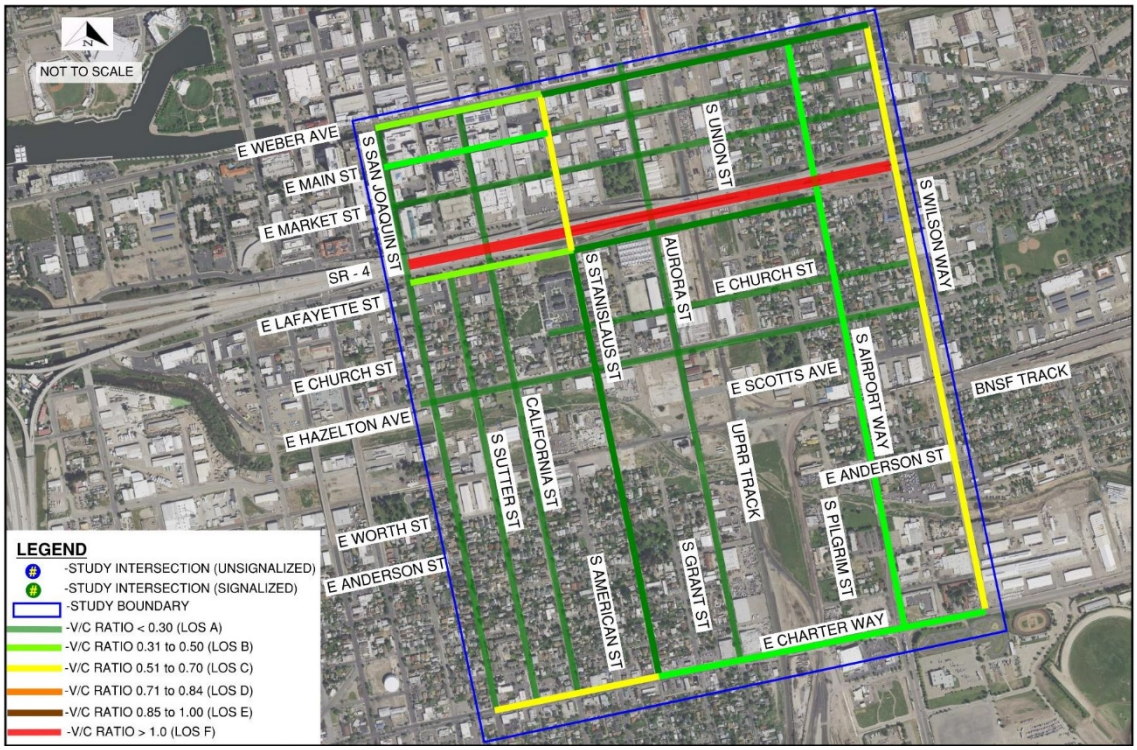
Roadway segment operations were analyzed for 2045 in the No Project Alternative Conditions. As with the assessment of the 2019 Existing Condition, roadway segments were evaluated using v/c ratios to measure the roadway performance, where a v/c ratio of 1.0 or above represents failure or LOS F.

With the exception of SR 4 (Crosstown Freeway), all of the roadway levels of service in the Traffic Study Area are expected to perform at LOS E or better in the No Project Alternative condition. The resulting volume to capacity (v/c) ratios for roadways in the AM peak hour for the 2045 No Project Alternative condition are summarized in Table 5-5 and shown in Figure 5-5.

Table 5-5: 2045 No Project Alternative Condition AM Peak Roadway v/c ratio and LOS

Road	Location	Roadway Classification	V/C Ratio	LOS
East Weber Ave	Between South San Joaquin Street and South Stanislaus Street	Collector	0.32	B
East Main Street	Between South San Joaquin Street and South Stanislaus Street	Arterial	0.34	B
SR 4	Between South San Joaquin Street and South Wilson Way	Freeway	1.14	F
East Lafayette Street	Between South San Joaquin Street and South Aurora Street	Local	0.47	B
East Charter Way	Between South San Joaquin Street and South Stanislaus Street	Arterial	0.59	C
East Charter Way	Between South Stanislaus Street and South Wilson Way	Arterial	0.50	B
South Stanislaus Street	North of East Lafayette Street	Collector	0.62	C
South Airport Way	Between East Weber Avenue and East Lafayette Street	Arterial	0.50	B
South Airport Way	Between East Lafayette Street and East Hazelton Avenue	Arterial	0.45	B
South Airport Way	Between East Hazelton Avenue and East Charter Way	Arterial	0.43	B
South Wilson Way	Between East Weber Avenue and East Church Street	Arterial	0.58	C
South Wilson Way	Between East Church Street and East Church Street	Arterial	0.56	C
All other Roadway Segments	-	-	<0.30	A

Figure 5-5: 2045 No Project Alternative v/c Ratio and LOS, AM Peak Hour



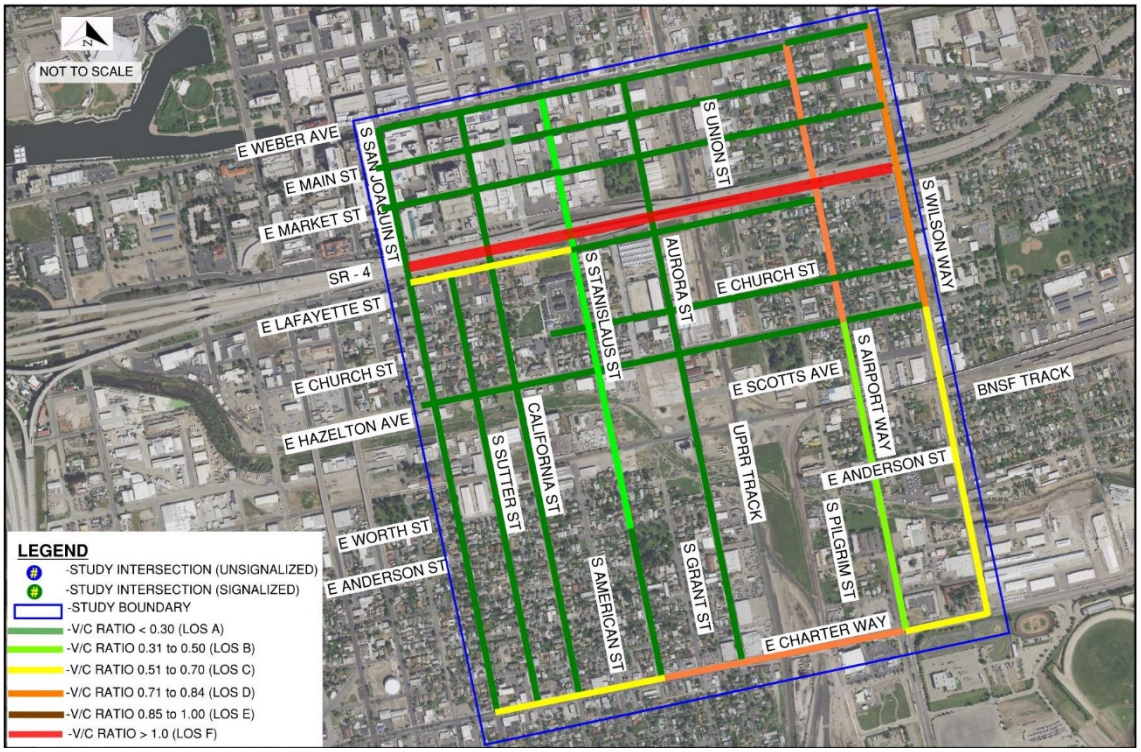
The resulting volume to capacity (v/c) ratios for roadways in the 2045 No Project Alternative condition PM peak hour are summarized in Table 5-6 and shown in Figure 5-6.

Table 5-6: 2045 No Project Alternative Condition PM Peak Roadway v/c ratio and LOS

Road	Location	Roadway Classification	V/C Ratio	LOS
SR 4	Between South San Joaquin Street and South Wilson Way	Freeway	1.10	F
East Lafayette Street	Between South San Joaquin Street and South Stanislaus Street	Local	0.63	C
East Charter Way	Between South San Joaquin Street and South Aurora Street	Arterial	0.69	C
East Charter Way	Between Aurora Street and South Airport Way	Arterial	0.80	D
East Charter Way	Between South Airport Way and South Wilson Way	Arterial	0.63	C
South Stanislaus Street	North of East Hazelton Avenue	Collector	0.39	B

Road	Location	Roadway Classification	V/C Ratio	LOS
South Stanislaus Street	Between East Hazelton Avenue and East Anderson Street	Local	0.44	B
South Airport Way	Between East Weber Avenue and East Lafayette Street	Arterial	0.81	D
South Airport Way	Between East Lafayette Street and East Hazelton Avenue	Arterial	0.72	D
South Airport Way	Between East Hazelton Avenue and East Charter Way	Arterial	0.46	B
South Wilson Way	Between East Weber Avenue and East Hazelton Avenue	Arterial	0.81	D
South Wilson Way	Between East Hazelton Avenue and East Charter Way	Arterial	0.62	C
All other Roadways	-	-	<0.30	A

Figure 5-6: 2045 No Project Alternative v/c Ratio and LOS, PM Peak Hour



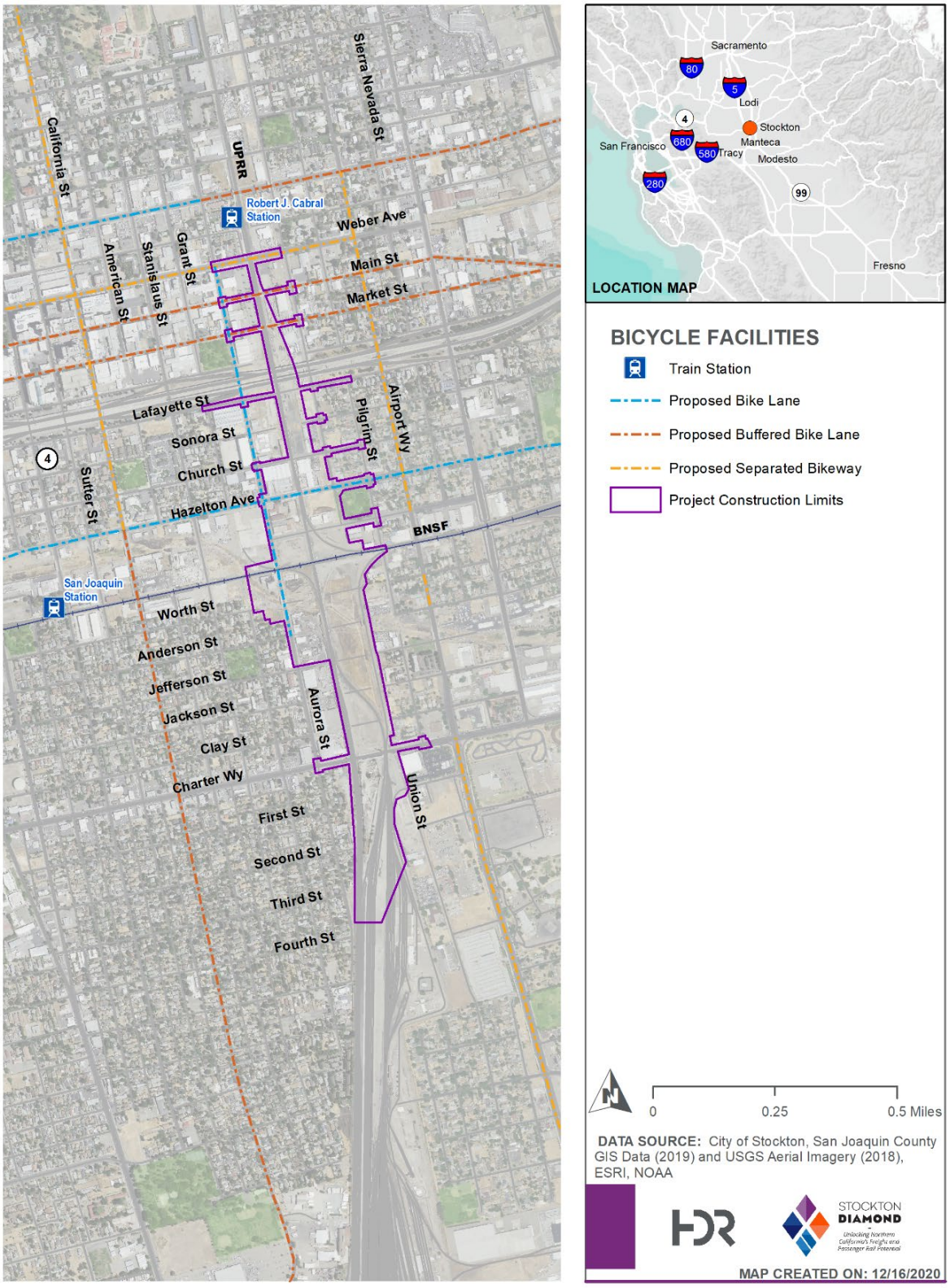
5.6. PEDESTRIAN CONDITIONS

The No Project Alternative is not anticipated to change the existing intersection geometry, land uses, and sidewalks or crosswalks in the vicinity and would have no impacts on pedestrian activity. With the exception of pedestrian improvements planned by other, independent projects, existing approaches to the at grade crossings and ADA accessibility is anticipated to remain unchanged.

5.7. BICYCLE CONDITIONS

The 2045 No Project Alternative condition are expected to include implementation of the City's proposed bicycle facilities in the Study Area, as shown in **Figure 5-7**. These future facilities are planned for East Weber Avenue, East Main Street, East Market Street, East Hazelton Avenue, California Street, South Aurora Street and South Airport Way. These planned facilities are considered part of the No Project Alternative and would add to the existing bicycle infrastructure in and around the Study Area.

Figure 5-7: Proposed No Project Alternative (2045) Bicycle Facilities in Traffic Study Area



5.8. TRANSIT CONDITIONS

Public transit services expected to operate in the Study Area by 2045 in the No Project Alternative will be similar to the services provided by the San Joaquin Regional Transit in 2019 (Section 4, Existing Transit Conditions). While the expectation is that over time (2019 to 2045) the San Joaquin Regional Transit will refine transit services (add routes, refine routes) in the Study Area, they have yet to be determined. At a minimum, the expectation is that at least the 12 transit routes currently providing service in the Study Area will be maintained into the future.

5.9. FREIGHT CONDITIONS

The 2045 No Project Alternative freight conditions are expected to consider similar levels of trucking services and activity that were identified in existing conditions (Section 4.0, Existing Freight Conditions) in the Study Area. As presented in existing conditions, the primary truck routes in the City of Stockton will remain focused primarily on the state highway system and major arterials, primarily on SR 99 and I-5 outside of the Traffic Study Area, with SR 4 crossing through the Traffic Study Area.

Truck route designations in the Traffic Study Area including STAA truck route will carry forward from existing conditions to the 2045 No Project Alternative. These will continue as designated city truck routes, county truck routes, flammable liquid-other routes, truck routes from 7 am to 10 pm and STAA truck routes. It is expected that the designated truck routes will be the same into the future, including: City Truck Routes on South Airport Way, East Hazelton Avenue, East Lafayette Street, East Market Street, East Weber Ave, Aurora Street and South Union Street; Flammable Liquid-Other Routes on East Charter Way, South Wilson Way, and South Airport Way; Truck Route–7 am to 10 pm on South Stanislaus Street; and STAA Truck Routes on East Charter Way.

6.0 Proposed Project 2045 Traffic Conditions Analysis

The following section presents the expected (2045) proposed Project traffic conditions analysis. This alternative considers the implementation and associated transportation impacts associated with all of the proposed components of the Stockton Diamond Grade Separation Project. Anticipated Roadway Closures and Traffic Redistribution

As a part of the proposed Project, permanent road closures are proposed for East Lafayette Street and East Church Street at the railroad crossings. These roadway closures were integrated with the proposed Project analysis. East Lafayette Street is being proposed for closure because of the multiple rail crossings with the at-grade main tracks and wye connection tracks (i.e., four proposed crossings within two blocks).

East Church Street requires closure because the proposed flyover structure would not reach its full elevation and, therefore, would not meet the required minimum vertical clearance for a vehicle crossing. The crossing would not provide the minimum 16.5 feet of vertical clearance required by UPRR/BNSF joint guidelines for an undercrossing while still adhering to the American Association of State and Highway Transportation Officials' design criteria for change in grade for a local roadway.

East Church Street is classified as a local road with 2045 future AM peak hour volume of 38 for eastbound, and 117 for westbound. The 2045 future PM peak hour volume on East Church Street is 84 for eastbound and 62 for westbound.

Traffic on East Lafayette Street and East Church Street will use alternative routes as a result of road closures. The following assumptions were made to analyze East Lafayette traffic redistribution:

- 30 percent of traffic on East Lafayette Street (EB) will re-route to East Market Street with the remaining 70 percent re-routing to East Hazelton Avenue during both morning and afternoon peak hour
- 11 percent of the traffic on East Lafayette Street (WB) will re-route to East Main Street with the remaining 89 percent re-routing to East Hazelton Avenue during morning peak hour
- 16 percent of the traffic on East Lafayette Street (WB) will re-route to East Main Street with the remaining 84 percent re-routing to East Hazelton Avenue during afternoon peak hour

Figure 6-1 and Figure 6-2 show the morning peak hour traffic redistribution due to East Lafayette Street closure for eastbound and westbound direction respectively in the proposed Project analysis.

Figure 6-1: Proposed Project (2045) Eastbound Traffic Distribution in AM peak hour

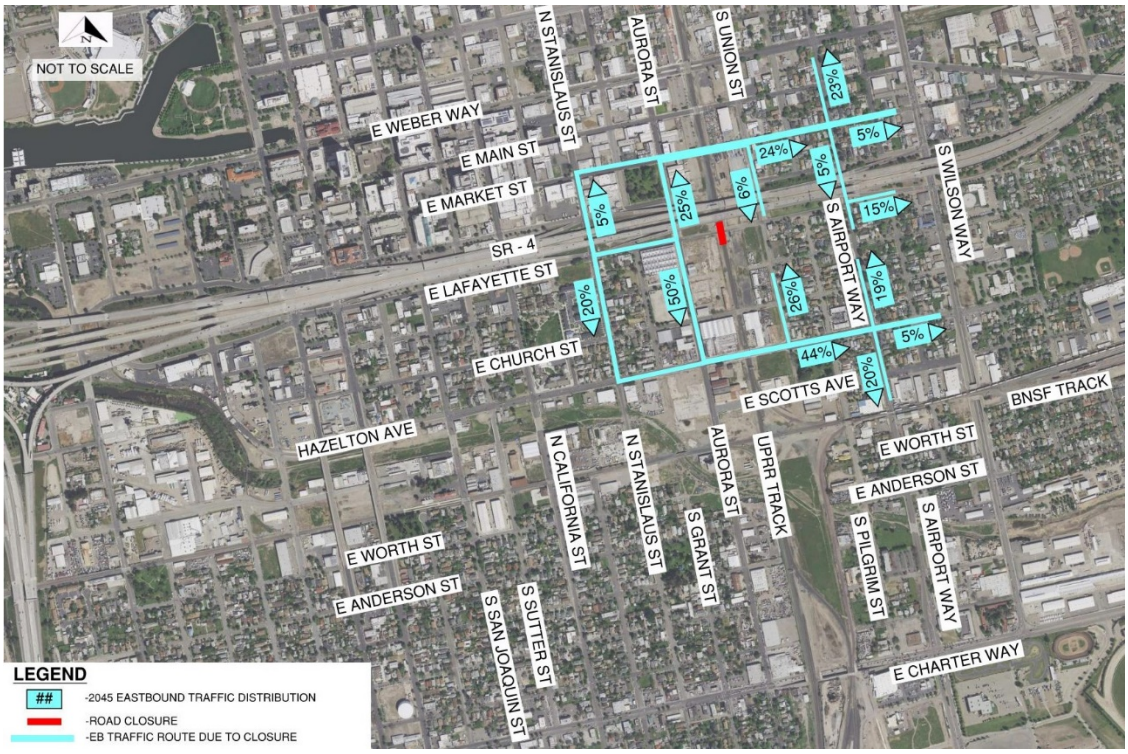


Figure 6-2: Proposed Project (2045) Westbound Traffic Distribution in AM peak hour

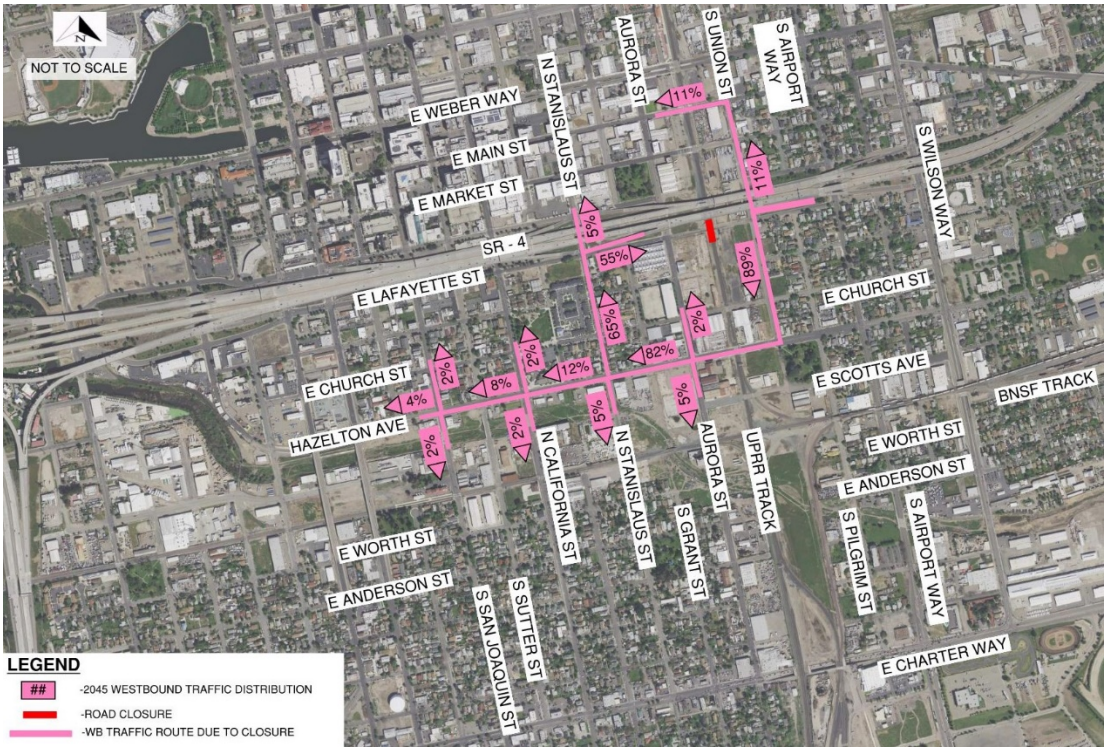


Figure 6-3 and Figure 6-4 show the afternoon peak hour traffic redistribution due to Lafayette Street closure for eastbound and westbound direction respectively in the proposed Project analysis.

Figure 6-3: Proposed Project (2045) Eastbound Traffic Distribution in PM peak hour

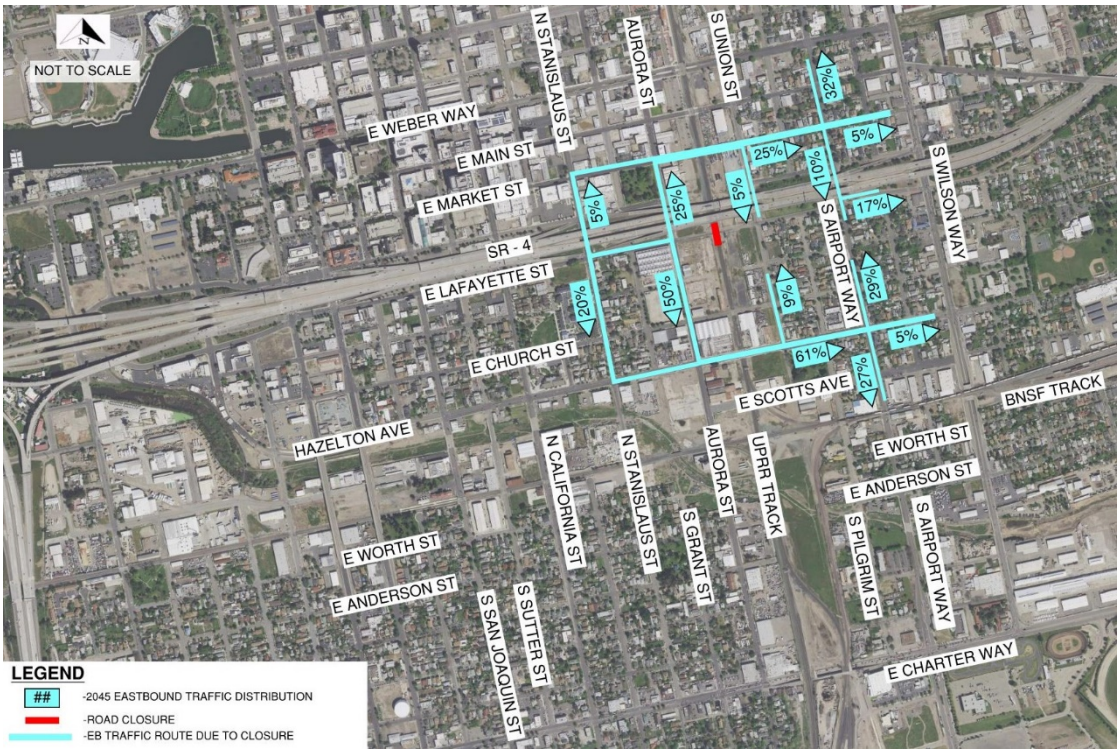
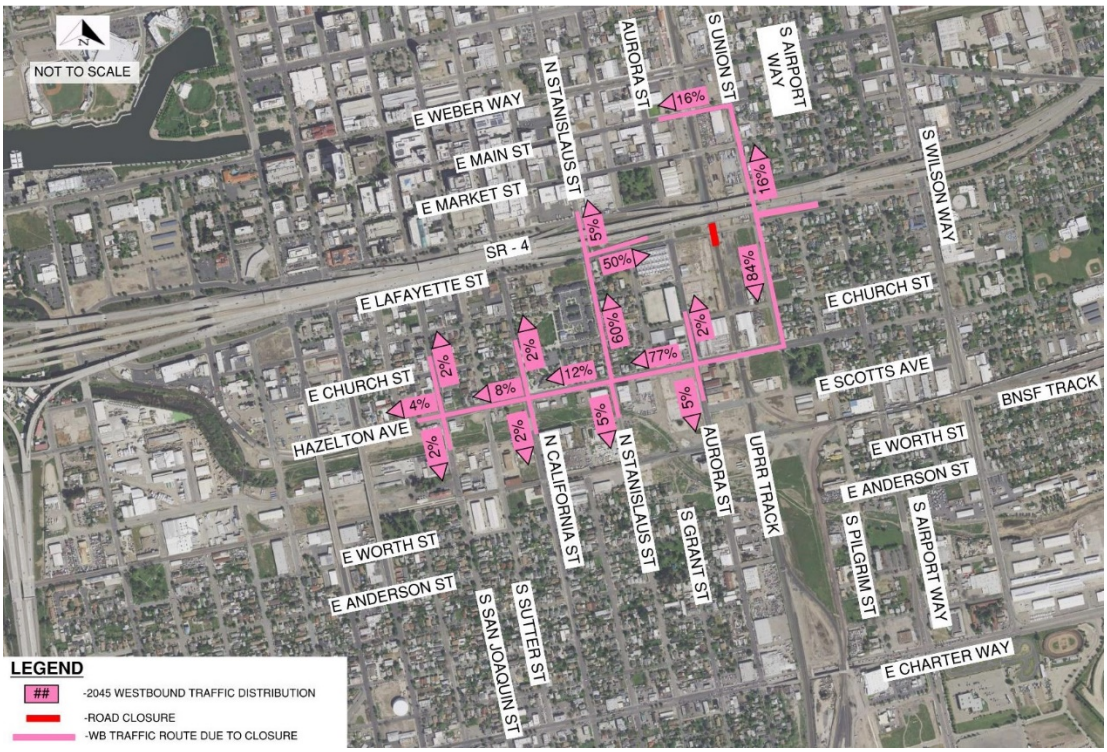


Figure 6-4: Proposed Project (2045) Westbound Traffic Distribution in PM peak hour



The following assumptions were made to analyze East Church Street traffic redistribution in the proposed Project analysis:

- 100 percent of the traffic on the East Church Street (eastbound and westbound) will re-route to East Hazelton Avenue during the proposed Project condition when East Church Street will be closed

Figure 6-5 shows the morning and afternoon peak hour traffic redistribution due to East Church Street closure for both eastbound and westbound direction in the proposed Project analysis.

Figure 6-5: Proposed Project (2045) Traffic Distribution AM and PM peak hour due to Church Street Closure

6.1. INTERSECTION OPERATIONS

The 2045 proposed Project volumes were generated by redistributing the 2045 No Project Alternative traffic for East Lafayette Street and East Church Street. Figure 6-6 illustrate the 2045 proposed Project morning (AM) and the 2045 afternoon (PM) peak hour turning movement volumes for each of the 28 intersections. In addition, the 2045 proposed Project morning (AM) and afternoon (PM) peak hour roadway volumes, prepared from the intersection turning movement volumes, are presented in Figure 6-7 and Figure 6-8.

Figure 6-6: 2045 Proposed Project AM and PM Peak Hour Turning Movement Volumes for Study Area Intersections

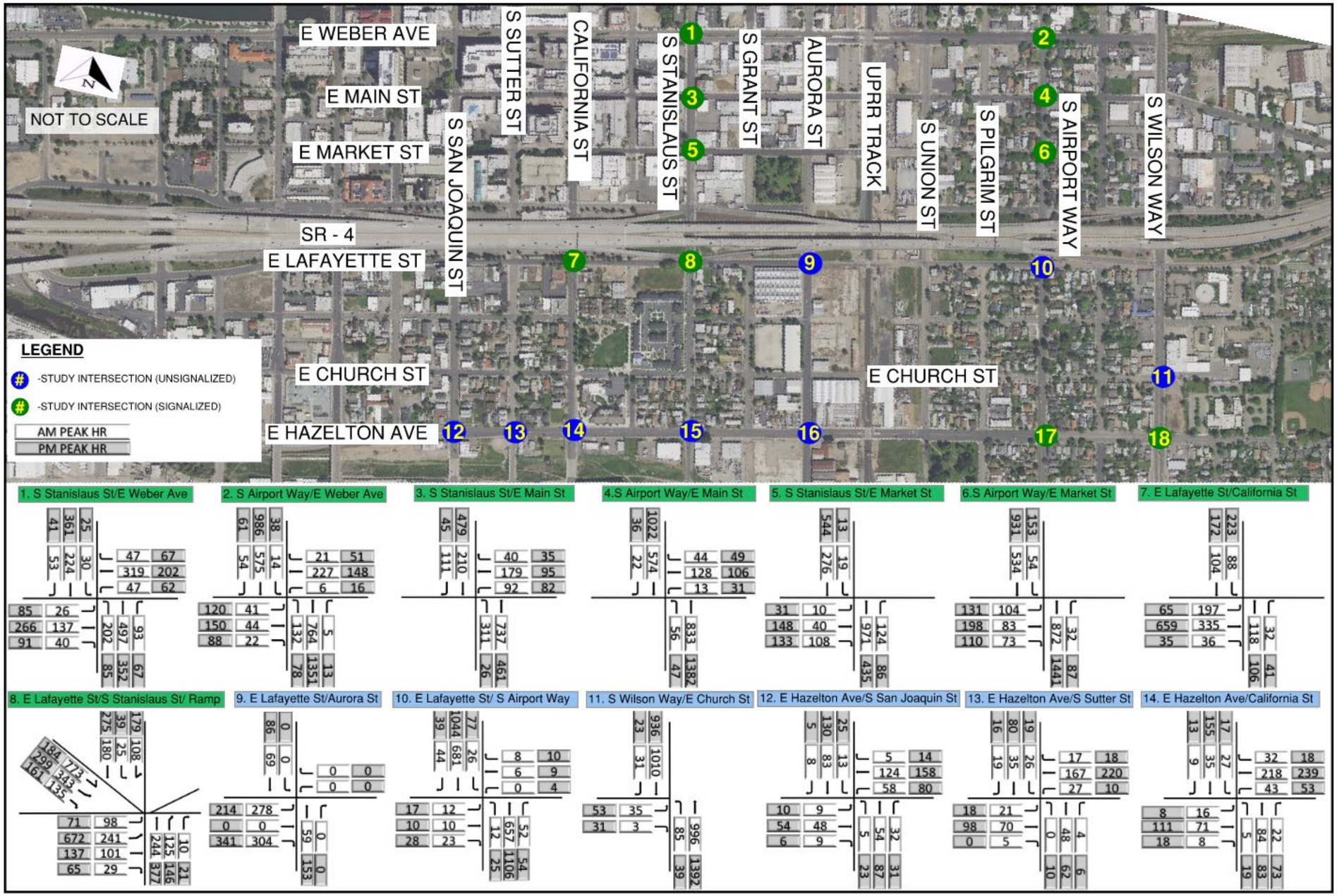


Figure 6-6. 2045 Proposed Project AM and PM Peak Hour Turning Movement Volumes for Study Area Intersections (continued)

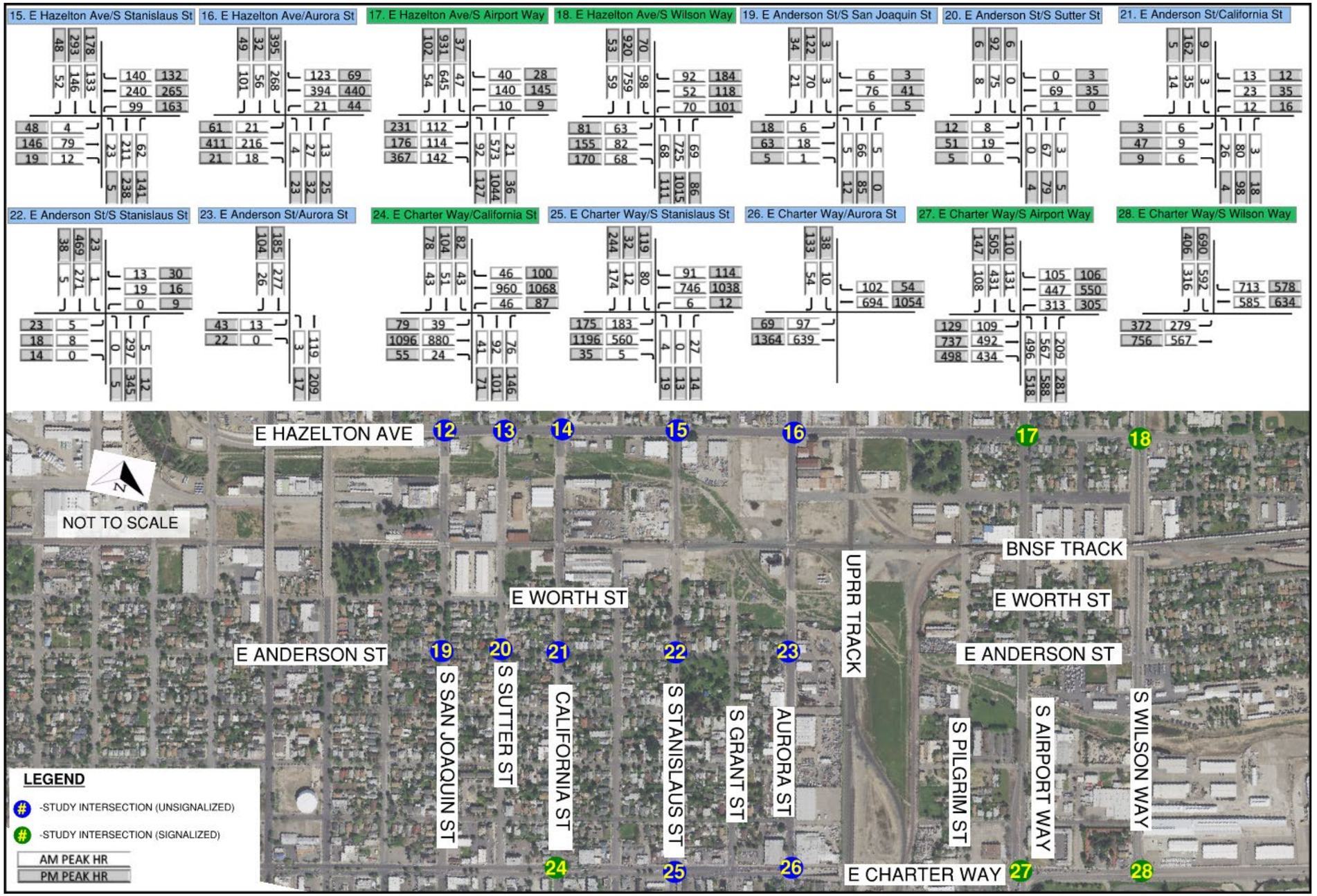


Figure 6-7: 2045 Proposed Project AM Peak Hour Roadway Volumes in the Study Area

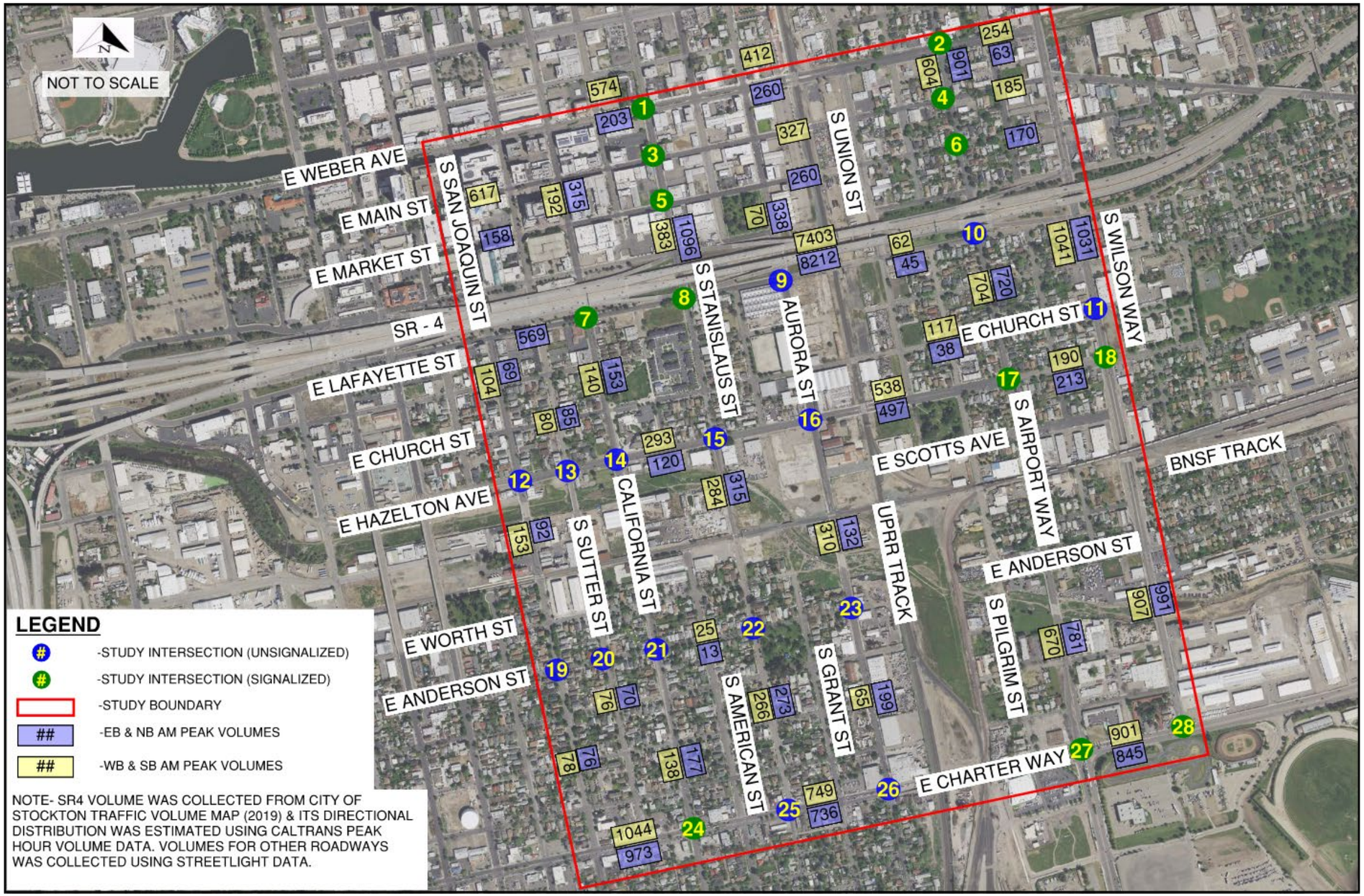
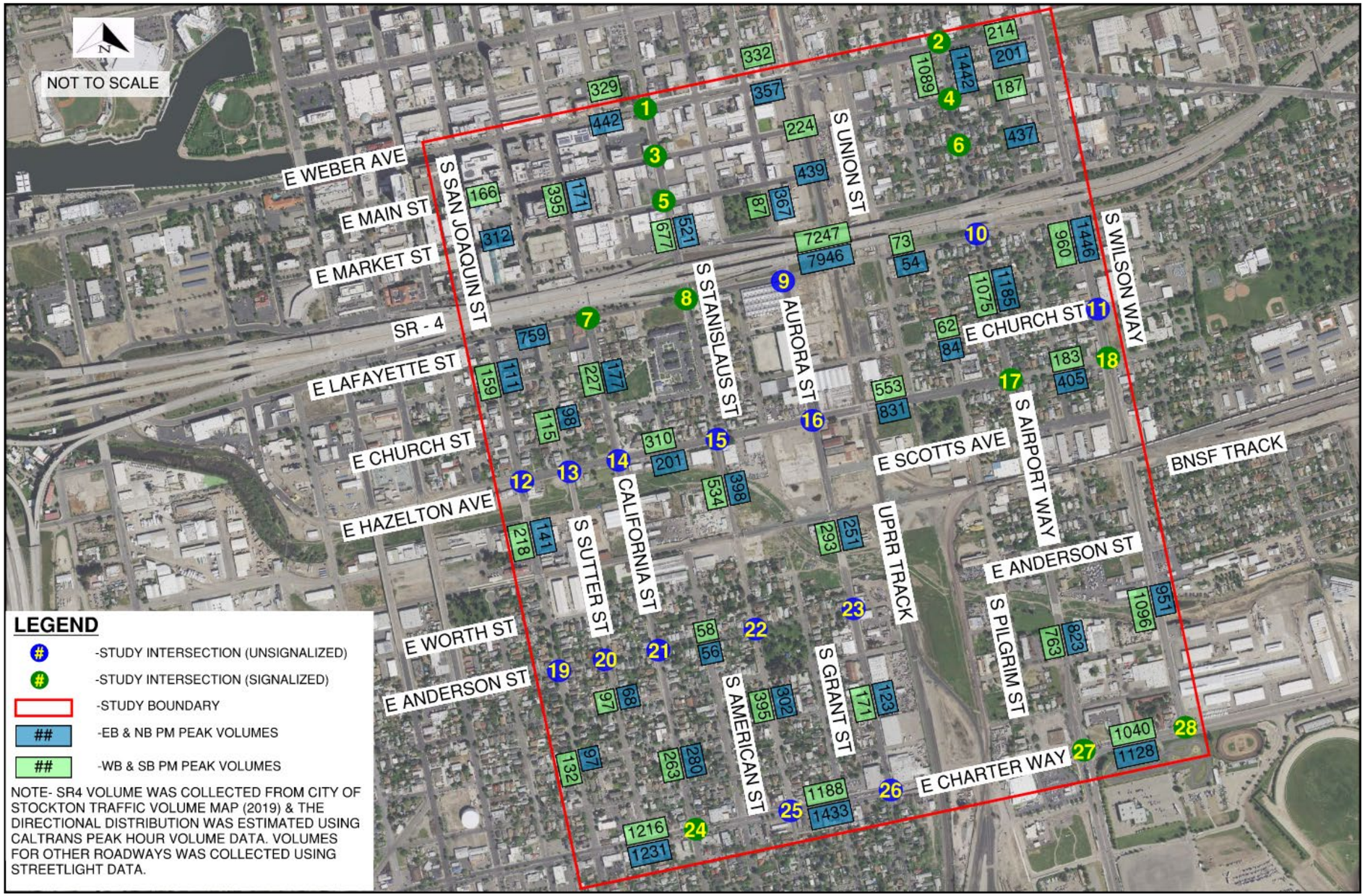


Figure 6-8: 2045 Proposed Project PM Peak Hour Roadway Volumes in the Study Area



2045 proposed Project intersection operations were analyzed for the Study Area intersections. Identical to the assessment of the 2019 Existing Conditions and 2045 No Project Alternative Conditions, intersection operations in for the proposed Project were evaluated for the AM and PM peak hours. LOS analysis was conducted according to procedures outlined in the 2010 Highway Capacity Manual using Synchro 10 traffic analysis software per City and County standards. As discussed in existing condition section (Section 4.0), LOS E or better represents the acceptable LOS in City of Stockton Downtown area and LOS D or better outside of the Downtown area (intersections along South Airport Way and South Wilson Way).

Table 6-1 and Table 6-2 summarizes and compares the intersection LOS results in the 2045 No Project Alternative with the 2045 proposed Project for the AM and PM peak hours respectively. All intersections operate at an acceptable LOS in the 2045 proposed Project Conditions in the AM peak hours except for East Lafayette Street and North Stanislaus Street (#8). This intersection operates at LOS F (note, this intersection was LOS in both the Existing 2019 and 2045 No Project Alternative analysis).

All intersections operate at an acceptable LOS in the 2045 proposed Project Conditions in the PM peak hours except for East Lafayette Street and North Stanislaus Street (#8) and East Lafayette Street and South Airport Way (#10). East Lafayette Street and North Stanislaus Street (#8) intersection operates at LOS F (note, this intersection was LOS F in both the Existing 2019 and 2045 No Project Alternative analysis). East Lafayette Street and South Airport Way (#10) operates at LOS E (note, this intersection was LOS F in both the Existing 2019 and 2045 No Project Alternative analysis).

The intersections of East Lafayette Street and South Airport Way (#10) and East Lafayette Street and South Aurora Street (#9) are expected to improve LOS as a result of the closure of the East Lafayette Street at-grade crossing of the UP tracks.

Table 6-1: 2045 No Project Alternative and 2045 Proposed Project Intersection LOS Results Comparison, AM Peak Hour

	Intersection	2045 NO Project (AM)		2045 Proposed Project (AM)		DIFFERENCE	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay Diff. (sec)	LOS Change
1	S Stanislaus St and E Weber Ave	24.2	C	24.2	C	0	N/A
2	S Airport Way and E Weber Ave	14.2	B	14.2	B	0	N/A
3	S Stanislaus St and E Main St	17.3	B	17.35	B	0.2	N/A
4	S Airport Way and E Main St	11	B	11	B	0	N/A

	Intersection	2045 NO Project (AM)		2045 Proposed Project (AM)		DIFFERENCE	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay Diff. (sec)	LOS Change
5	S Stanislaus St and E Market St	13.9	B	14.3	B	0.4	N/A
6	S Airport Way and Market St	10.2	B	11.1	B	0.9	N/A
7	E Lafayette St and California St	17.8	B	17.8	B	0	N/A
8	E Lafayette St and S Stanislaus St	319	F	319.8	F	0.8	N/A
9	E Lafayette St and Aurora St	16.8	B	10.6	B	-6.2	N/A
10	E Lafayette St and S Airport Way	32.1	C	1.5	A	-30.6	C to A
11	S Wilson Way and E Church St	5.7	A	5.7	A	0	N/A
12	E Hazelton Ave and S San Joaquin St	8.7	A	8.7	A	0	N/A
13	E Hazelton Ave and S Sutter St	4.5	A	4.5	A	0	N/A
14	E Hazelton Ave and California St	9.1	A	9.1	A	0	N/A
15	E Hazelton Ave and S Stanislaus St	13	B	16.8	B	3.8	N/A
16	E Hazelton Ave and Aurora St	9.5	A	231.1	C	121.6	A to C
17	E Hazelton Ave and S Airport Way	17.1	B	18.6	B	1.5	N/A
18	E Hazelton Ave and S Wilson Way	16.3	B	16.3	B	0	N/A
19	E Anderson St and S San Joaquin St	7.9	A	7.9	A	0	N/A
20	E Anderson St and S Sutter St	7.7	A	7.7	A	0	N/A
21	E Anderson St and California St	3.9	A	3.9	A	0	N/A
22	E Anderson St and S Stanislaus St	1	A	1	A	0	N/A
23	E Anderson St and Aurora St	0.4	A	0.4	A	0	N/A
24	E Charter Way and California St	14.6	B	14.6	B	0	N/A

	Intersection	2045 NO Project (AM)		2045 Proposed Project (AM)		DIFFERENCE	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay Diff. (sec)	LOS Change
25	E Charter Way and S Stanislaus St	29.7	C	29.7	C	0	N/A
26	E Charter Way and Aurora St	1.1	A	1.1	A	0	N/A
27	E Charter Way and S Airport Way	25.2	C	25.2	C	0	N/A
28	E Charter Way and S Wilson Way	25	C	25	C	0	N/A

Table 6-2: 2045 No Project Alternative and 2045 Proposed Project Intersection LOS Results Comparison, PM Peak Hour

	Intersection	2045 NO Project (PM)		2045 Proposed Project (PM)		Difference	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay Diff. (sec)	LOS Change
1	N Stanislaus St and Weber St	23.5	C	23.5	C	0	N/A
2	Airport Way and Weber St	27.8	C	27.8	C	0	N/A
3	N Stanislaus St and E Main St	9.2	A	9.3	A	0.1	N/A
4	Airport Way and Main St	10.1	B	10.1	B	0	N/A
5	N Stanislaus St and E Market St	8.7	A	8.7	A	0	N/A
6	Airport Way and Market St	35.5	D	40.5	D	5	N/A
7	Lafayette Street and N California Street	20.7	C	20.7	C	0	N/A
8	Lafayette Street and N Stanislaus Street	174.5	F	178.3	F	3.8	N/A
9	Lafayette Street and Aurora Street	36.9	D	10.9	B	-26.0	D to B
10	Lafayette Street and S Airport Way	560.7	F	55.4	E	-505.3	F to E
11	S Wilson Way and Church Street	15.9	B	15.9	B	0	N/A

	Intersection	2045 NO Project (PM)		2045 Proposed Project (PM)		Difference	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay Diff. (sec)	LOS Change
12	Hazelton Avenue and S San Joaquin Street	9.6	A	9.6	A	0	N/A
13	Hazelton Avenue and S Sutter Street	5.1	A	5.1	A	0	N/A
14	Hazelton Avenue and N California Street	10.3	B	10.3	B	0	N/A
15	Hazelton Avenue and N Stanislaus Street	22.8	C	60	E	37.2	C to E
16	Hazelton Avenue and Aurora Street	11.3	B	41.8	D	30.5	B to D
17	Hazelton Avenue and S Airport Way	20.1	C	27.8	C	7.7	N/A
18	Hazelton Avenue and S Wilson Way	20.6	C	20.6	C	0	N/A
19	E Anderson Street and S San Joaquin Street	8.2	A	8.2	A	0	N/A
20	E Anderson Street and S Sutter Street	7.9	A	7.9	A	0	N/A
21	E Anderson Street and N California Street	3.6	A	3.6	A	0	N/A
22	E Anderson Street and N Stanislaus Street	2.5	A	2.5	A	0	N/A
23	E Anderson Street and Aurora Street	1.6	A	1.6	A	0	N/A
24	E Charter Way and N California Street	23.1	C	23.1	C	0	N/A
25	E Charter Way and N Stanislaus Street	0.9	A	0.9	A	0	N/A
26	E Charter Way and Aurora Street	1.4	A	1.4	A	0	N/A
27	E Charter Way and S Airport Way	28.8	C	28.8	C	0	N/A
28	E Charter Way and S Wilson Way	27.4	C	27.4	C	0	N/A

6.2. ROADWAY CONDITIONS

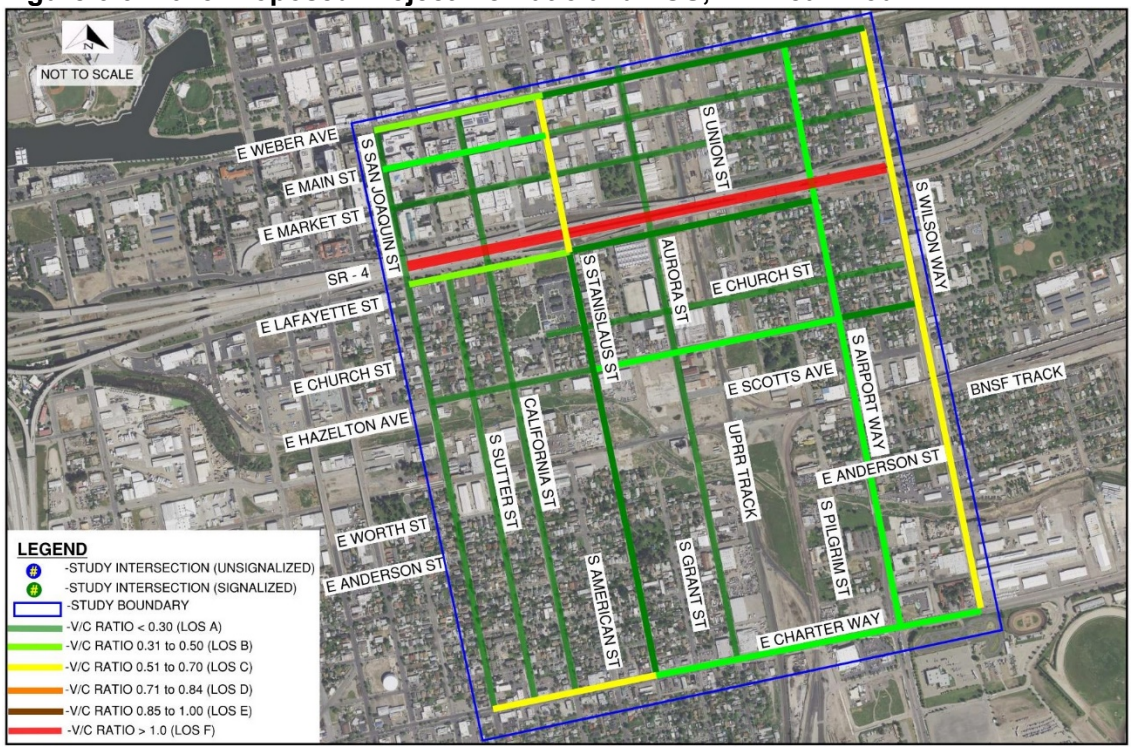
With the exception of SR 4 (Crosstown Freeway), all roadway levels of service in the Traffic Study Area is expected to perform at LOS E or better. Table 6-3 summarizes and compares the roadway v/c ratio and LOS results in the 2045 No Project Alternative with the 2045 proposed Project. The resulting v/c ratios for roadways in AM peak hour for the 2045 Proposed Project is shown in Figure 6-9.

Table 6-3: 2045 No Project Alternative and 2045 Proposed Project Roadway V/C and LOS Results Comparison, AM Peak Hour

Road	Location	Roadway Classification	2045 No Project (AM)		2045 Proposed Project (AM)		Difference	
			V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS
East Webber Ave	Between South San Joaquin Street and South Stanislaus Street	Collector	0.32	B	0.32	B	N/A	N/A
East Main Street	Between South San Joaquin Street and South Stanislaus Street	Arterial	0.34	B	0.34	B	N/A	N/A
SR 4	Between South San Joaquin Street and South Wilson Way	Freeway	1.14	F	1.14	F	N/A	N/A
East Lafayette Street	Between South San Joaquin Street and South Stanislaus Street	Local	0.47	B	0.47	B	N/A	N/A
East Hazelton Avenue	Between South Stanislaus Street and South Airport Way	Arterial	0.17	A	0.36	B	0.19	A to B
East Charter Way	Between South San Joaquin Street and South Stanislaus Street	Arterial	0.59	C	0.59	C	N/A	N/A
East Charter Way	Between South Stanislaus Street and South Wilson Way	Arterial	0.50	B	0.50	B	N/A	N/A
South Stanislaus Street	North of East Lafayette Street	Collector	0.62	C	0.63	C	0.01	N/A
South Airport Way	Between East Weber Avenue and East Lafayette Street	Arterial	0.50	B	0.40	B	-0.10	N/A
South Airport Way	Between East Lafayette Street and East Hazelton Avenue	Arterial	0.45	B	0.44	B	-0.01	N/A

Road	Location	Roadway Classification	2045 No Project (AM)		2045 Proposed Project (AM)		Difference	
			V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS
South Airport Way	Between East Hazelton Avenue and East Charter Way	Arterial	0.43	B	0.41	B	-0.02	N/A
South Wilson Way	Between East Weber Avenue and East Church Street	Arterial	0.58	C	0.58	C	N/A	N/A
South Wilson Way	Between East Church Street and East Church Street	Arterial	0.56	C	0.56	C	N/A	N/A
All other Roadways	-	-	<0.30	A	<0.30	A	N/A	N/A

Figure 6-9: 2045 Proposed Project v/c Ratio and LOS, AM Peak Hour



~~The resulting volume to capacity (v/c) ratios for roadways in proposed Project PM peak hour is summarized in Table 15 and shown in Figure 29.~~ Table 6-4 summarizes and compares the roadway v/c ratio and LOS results in the 2045 No Project Alternative with the 2045 proposed Project. The

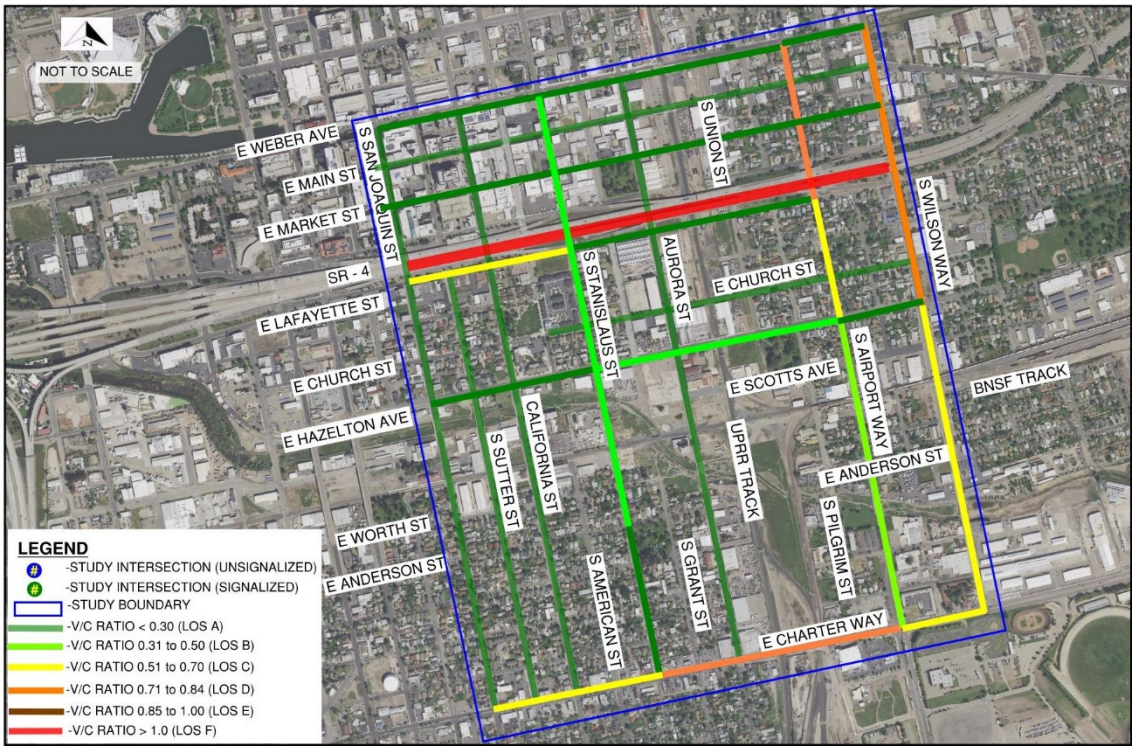
resulting v/c ratios for roadways in PM peak hour for the 2045 Proposed Project is shown in Figure 6-10.

Table 6-4: 2045 No Project Alternative and 2045 Proposed Project Roadway V/C and LOS Results Comparison, PM Peak Hour

Road	Location	Roadway Classification	2045 No Project (PM)		2045 Proposed Project (PM)		Difference	
			V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS
SR 4	Between South San Joaquin Street and South Wilson Way	Freeway	1.10	F	1.10	F	N/A	N/A
East Lafayette Street	Between South San Joaquin Street and South Stanislaus Street	Local	0.63	C	0.63	C	N/A	N/A
East Hazelton Ave	Between South Stanislaus Street and South Airport Way	Arterial	0.24	A	0.51	B	0.27	A to B
East Charter Way	Between South San Joaquin Street and South Aurora Street	Arterial	0.69	C	0.69	C	N/A	N/A
East Charter Way	Between Aurora Street and South Airport Way	Arterial	0.80	D	0.80	D	N/A	N/A
East Charter Way	Between South Airport Way and South Wilson Way	Arterial	0.63	C	0.63	C	N/A	N/A
South Stanislaus Street	North of East Hazelton Avenue	Collector	0.39	B	0.39	B	N/A	N/A
South Stanislaus Street	Between East Hazelton Avenue and East Anderson Street	Local	0.44	B	0.44	B	N/A	N/A
South Airport Way	Between East Weber Avenue and East Lafayette Street	Arterial	0.81	D	0.81	D	N/A	N/A

Road	Location	Roadway Classification	2045 No Project (PM)		2045 Proposed Project (PM)		Difference	
			V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS
South Airport Way	Between East Lafayette Street and East Hazelton Avenue	Arterial	0.72	D	0.67	C	-0.05	D to C
South Airport Way	Between East Hazelton Avenue and East Charter Way	Arterial	0.46	B	0.46	B	N/A	N/A
South Wilson Way	Between East Weber Avenue and East Hazelton Avenue	Arterial	0.81	D	0.81	D	N/A	N/A
South Wilson Way	Between East Hazelton Avenue and East Charter Way	Arterial	0.62	C	0.62	C	N/A	N/A
All other Roadways	-	-	<0.30	A	<0.30	A	N/A	N/A

Figure 6-10: 2045 Proposed Project v/c Ratio and LOS, PM Peak Hour



6.3. PEDESTRIAN CONDITIONS

The proposed projects will make crossing and sidewalk improvements at Weber Avenue, Main Street, Market Street, Hazelton Avenue, Scotts Avenue, and Charter Way. The proposed Project would also upgrade roadway-rail at-grade crossing infrastructure, to include sidewalks and ADA ramps.

6.4. BICYCLE CONDITIONS

The 2045 proposed Project conditions are expected to include implementation of the City's proposed bicycle facilities in the Study Area (also shown above in Section 5.0, Figure 5-7). These future facilities are planned for East Weber Avenue, East Main Street, East Market Street, East Hazelton Avenue, and South Aurora Street funded through Measure K. According to adopted plans, these proposed bicycle facilities are anticipated to be implemented before the proposed Project and therefore, short temporary detours may be needed during construction of the proposed Project on Main Street, Market Street, Lafayette Street, and Hazelton Avenue.

6.5. TRANSIT CONDITIONS

Public transit services expected to operate in the Study Area by 2045 in the proposed Project will be similar to the services provided by the San Joaquin Regional Transit in 2019 (Section 4.0, Existing Transit Conditions). Near the 2045 proposed Project Alternative, transit routes are on San Joaquin Street (315, 510), Airport Way (44), and Charter Way (49). The 2045 proposed Project Alternative would have no impacts on existing transit routes except on Charter Way (Route 49). In the long term, Route 49 will remain on Charter Way. During construction, however, the proposed Project will include construction of two new bridges across Charter Way, with a portion of an existing bridge expected to be demolished. Temporary closures, detours, or narrowing to two lanes on Charter Way may be necessary (temporarily) during construction. Mitigation measures include preparing a traffic management plan and coordination with SJRTD and transit riders to notify them of construction implications.

6.6. FREIGHT CONDITIONS

The 2045 proposed Project freight conditions are expected to consider similar levels of trucking services and activity that were identified in existing conditions (Section 4.0, Existing Freight Conditions) in the Study Area. As presented in existing conditions, the primary truck routes in the City of Stockton will remain focused primarily on the state highway system and major arterials, primarily on SR 99 and I-5 outside of the Traffic Study Area, with SR 4 crossing through the Traffic Study Area.

Truck route designations in the Traffic Study Area will carry forward from existing conditions in the proposed Project. These will continue as designated city truck routes, county truck routes, flammable liquid-other routes, and truck routes from 7 am to 10 pm. It is expected that the designated truck routes will be the same into the future, including: City Truck Routes on South Airport Way, East Hazelton Avenue, East Lafayette Street, East Market Street, East Weber Ave,

Aurora Street and South Union Street; Flammable Liquid-Other Routes on East Charter Way, South Wilson Way, and South Airport Way; and Truck Route–7 am to 10 pm on South Stanislaus Street.

6.7. TRAFFIC DELAY DUE TO TRAINS

Train occupancies represent the total amount of time within each peak hour when the road is unavailable to automobile traffic at highway-rail grade crossings while trains pass. This includes the minimum activation time of warning devices at the crossing (i.e., bells, flashing light signals, and gates), prior warning time, and the time it takes for the grade crossing warning devices to recover after the passing of a train. Based on the train occupancy times and assumptions regarding number of trains per peak hour, average individual vehicle delays were calculated using Synchro 10 software.

The 2019 Existing Conditions included 2 freight trains and 3 passenger trains for both AM and PM peak hours, including:

- 1 Diamond Route (rail traffic going through the diamond north south) freight train for each morning and afternoon peak hours
- 1 NE connector route freight train for each morning and afternoon peak hours
- 1 ACE passenger train (Diamond Route) for each morning and afternoon peak hours
- 2 Amtrak passenger train (NE connector Route) for each morning and afternoon peak hours

The 2045 No Project Alternative and 2045 proposed Project conditions were estimated to include 3 passenger and 3 freight trains at these locations for both peak hours, including:

- 2 diamond route freight train for each morning and afternoon peak hours
- 1 NE connector route freight train for each morning and afternoon peak hours
- 1 ACE passenger train (Diamond Route) for each morning and afternoon peak hours
- 2 Amtrak passenger train (NE connector Route) for each morning and afternoon peak hours

Table 6-5 and Table 6-6 summarize AM and PM peak hour delay per auto (in seconds) caused by trains at each of the railroad crossings for the 2019 Existing, 2045 No Project Alternative, and 2045 proposed Project conditions. The delay per auto in the 2045 No Project Alternative are expected to be higher than 2019 existing conditions due to the increase in train occupancy times (including potential number of trains and length of trains anticipated in the future) and the growth in rail traffic demand. For example, as shown below (Table 6-5), over the course of an hour, each auto traveling eastbound on East Weber Avenue will have approximately 18 seconds of delay in 2019 existing AM peak hour. Also shown is a comparison of the average auto delay for 2045 No Project Alternative to proposed Project analysis, including nominal increases in average auto delays at the East Main Street, and East Market locations, reduced delay at East Hazelton Avenue and East Scotts, and eliminated delay at the two locations with road closures.

Table 6-5: Morning Peak Hour Average Individual Vehicle Delay, all Conditions

Road Name/RR Crossing	Direction	2019 Existing AM Delay (sec)	2045 No Project AM Delay (sec)	2045 Proposed Project AM Delay (sec)
East Weber Avenue/UP	EB	18.2	33.4	33.4
	WB	26.5	37.8	37.8
East Main/UPStreet/UP	WB	18.1	29.6	29.8
East Market/UPStreet/UP	EB	16.3	28.4	29.4
East Lafayette Street/UP	EB	20.0	34.9	-
	WB	16.8	29.3	-
East Church Street/UP	EB	24.8	40.4	-
	WB	25.8	42.1	-
East Hazelton Avenue/UP	EB	25.7	41.8	34.6
	WB	27.8	43.3	34.7
East Scotts Avenue/UP	EB	24.9	40.7	30.5
	WB	26.3	43.0	32.2

Similar, 2045 No Project Alternative to proposed Project analysis are shown for the PM peak hour (Table 6-6), including nominal increases in average auto delays at the East Main Street, and East Market Street locations, reduced delay at East Hazelton Avenue and East Scotts Avenue, and eliminated delay at the two locations with road closures.

Table 6-6: Afternoon Peak Hour Average Individual Vehicle Delay, all Conditions

Road Name/RR Crossing	Direction	2019 Existing PM Delay (sec)	2045 No Project PM Delay (sec)	2045 Proposed Project PM Delay (sec)
East Weber Avenue/UP	EB	20.8	36.3	36.3
	WB	24.5	35.3	35.3

Road Name/RR Crossing	Direction	2019 Existing PM Delay (sec)	2045 No Project PM Delay (sec)	2045 Proposed Project PM Delay (sec)
East Main Street/UP	WB	16.5	28.9	29.0
East Market	EB	16.9	29.5	31.0
East Lafayette Street/UP	EB	21.9	38.3	-
	WB	16.3	28.5	-
East Church Street/UP	EB	25.4	41.4	-
	WB	25.1	40.9	-
East Hazelton Avenue/UP	EB	27.4	44.6	38.9
	WB	29.7	44.7	38.1
East Scotts Avenue/UP	EB	25.8	42.0	31.5
	WB	25.4	41.4	31.0

For both AM and PM peak hour conditions, the nominal increase in auto delays (averaging 1-2 seconds) at the East Main Street and East Market locations is because of traffic re-routing due to road closures at the East Lafayette Street and East Church Street locations. No auto delays are expected on East Lafayette Street and East Church Street crossing locations due to road closures. The reduced auto delays on East Hazelton Avenue and East Scotts Avenue are due to reduction in train volumes (with the Build, combined grade separation and at-grade configuration).

Attachment 1 – Synchro Reports

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	26	137	47	319	202	497	30	224
Future Volume (vph)	26	137	47	319	202	497	30	224
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	45.0	45.0	45.0	45.0	25.0	25.0	25.0	25.0
Total Split (%)	64.3%	64.3%	64.3%	64.3%	35.7%	35.7%	35.7%	35.7%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0		5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)		19.5		19.5	20.4	20.4		20.4
Actuated g/C Ratio		0.39		0.39	0.41	0.41		0.41
v/c Ratio		0.38		0.75	0.53	0.87		0.69
Control Delay		10.7		20.9	20.3	31.9		25.1
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		10.7		20.9	20.3	31.9		25.1
LOS		B		C	C	C		C
Approach Delay		10.7		20.9		28.9		25.1
Approach LOS		B		C		C		C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 50	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 24.2	Intersection LOS: C
Intersection Capacity Utilization 89.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: S STANISLAUS ST & E WEBER ST

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	41	44	6	227	132	764	14	575
Future Volume (vph)	41	44	6	227	132	764	14	575
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	25.0	25.0	33.0	33.0	33.0	33.0
Total Split (s)	25.0	25.0	25.0	25.0	65.0	65.0	65.0	65.0
Total Split (%)	27.8%	27.8%	27.8%	27.8%	72.2%	72.2%	72.2%	72.2%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	16.8	16.8	16.8	16.8		61.1		61.1
Actuated g/C Ratio	0.19	0.19	0.19	0.19		0.70		0.70
v/c Ratio	0.39	0.20	0.03	0.76		0.55		0.31
Control Delay	40.8	22.2	28.0	47.3		8.5		5.8
Queue Delay	0.0	0.0	0.0	0.0		0.7		0.0
Total Delay	40.8	22.2	28.0	47.3		9.2		5.8
LOS	D	C	C	D		A		A
Approach Delay		29.4		46.9		9.2		5.8
Approach LOS		C		D		A		A

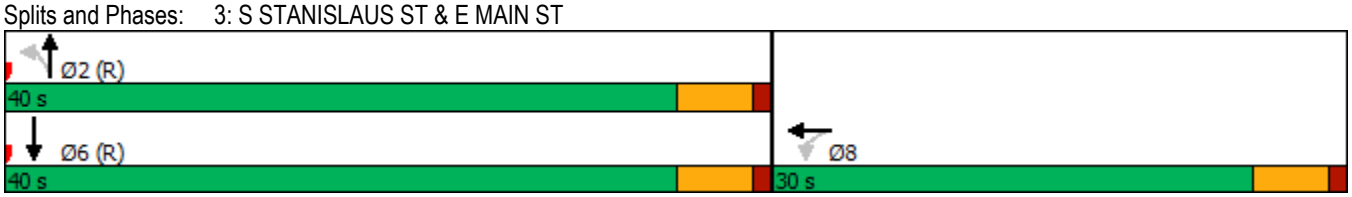
Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 87.9	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 14.2	Intersection LOS: B
Intersection Capacity Utilization 81.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: N AIRPORT WAY & E WEBER AVE

Lane Group	WBT	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	179	311	737	210
Future Volume (vph)	179	311	737	210
Turn Type	NA	Perm	NA	NA
Protected Phases	8		2	6
Permitted Phases		2		
Detector Phase	8	2	2	6
Switch Phase				
Minimum Initial (s)	25.0	35.0	35.0	35.0
Minimum Split (s)	30.0	40.0	40.0	40.0
Total Split (s)	30.0	40.0	40.0	40.0
Total Split (%)	42.9%	57.1%	57.1%	57.1%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)	25.0		35.0	35.0
Actuated g/C Ratio	0.36		0.50	0.50
v/c Ratio	0.29		0.93	0.21
Control Delay	15.7		21.1	6.6
Queue Delay	0.0		0.0	0.0
Total Delay	15.7		21.1	6.6
LOS	B		C	A
Approach Delay	15.7		21.1	6.6
Approach LOS	B		C	A

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 70	
Control Type: Pretimed	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 17.3	Intersection LOS: B
Intersection Capacity Utilization 91.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 3: S STANISLAUS ST & E MAIN ST



Lane Group	WBT	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	128	56	833	574
Future Volume (vph)	128	56	833	574
Turn Type	NA	Perm	NA	NA
Protected Phases	8		2	6
Permitted Phases		2		
Detector Phase	8	2	2	6
Switch Phase				
Minimum Initial (s)	22.0	58.0	58.0	58.0
Minimum Split (s)	27.0	63.0	63.0	63.0
Total Split (s)	27.0	63.0	63.0	63.0
Total Split (%)	30.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)	22.0		58.0	58.0
Actuated g/C Ratio	0.24		0.64	0.64
v/c Ratio	0.25		0.52	0.30
Control Delay	22.1		9.8	7.4
Queue Delay	0.0		1.2	0.0
Total Delay	22.1		11.1	7.4
LOS	C		B	A
Approach Delay	22.1		11.1	7.4
Approach LOS	C		B	A

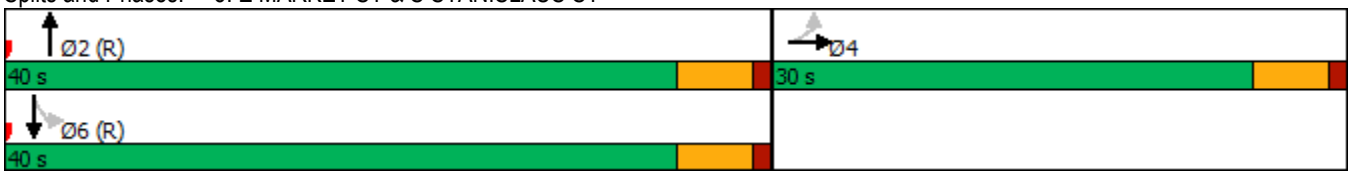
Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Pretimed	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 91.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: E MAIN ST & N AIRPORT WAY

Lane Group	EBT	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	40	971	19	276
Future Volume (vph)	40	971	19	276
Turn Type	NA	NA	Perm	NA
Protected Phases	4	2		6
Permitted Phases			6	
Detector Phase	4	2	6	6
Switch Phase				
Minimum Initial (s)	25.0	35.0	35.0	35.0
Minimum Split (s)	30.0	40.0	40.0	40.0
Total Split (s)	30.0	40.0	40.0	40.0
Total Split (%)	42.9%	57.1%	57.1%	57.1%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0		5.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)	25.0	35.0		35.0
Actuated g/C Ratio	0.36	0.50		0.50
v/c Ratio	0.15	0.72		0.23
Control Delay	6.2	16.5		9.7
Queue Delay	0.0	0.2		0.0
Total Delay	6.2	16.8		9.7
LOS	A	B		A
Approach Delay	6.2	16.8		9.7
Approach LOS	A	B		A

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Pretimed	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 14.3	Intersection LOS: B
Intersection Capacity Utilization 60.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5: E MARKET ST & S STANISLAUS ST



Lane Group	EBT	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	83	872	54	534
Future Volume (vph)	83	872	54	534
Turn Type	NA	NA	Perm	NA
Protected Phases	4	2		6
Permitted Phases			6	
Detector Phase	4	2	6	6
Switch Phase				
Minimum Initial (s)	22.0	48.0	48.0	48.0
Minimum Split (s)	27.0	53.0	53.0	53.0
Total Split (s)	27.0	53.0	53.0	53.0
Total Split (%)	33.8%	66.3%	66.3%	66.3%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0		5.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)	22.0	48.0		48.0
Actuated g/C Ratio	0.28	0.60		0.60
v/c Ratio	0.31	0.50		0.41
Control Delay	18.1	10.1		9.4
Queue Delay	0.0	0.0		0.0
Total Delay	18.1	10.1		9.4
LOS	B	B		A
Approach Delay	18.1	10.1		9.4
Approach LOS	B	B		A

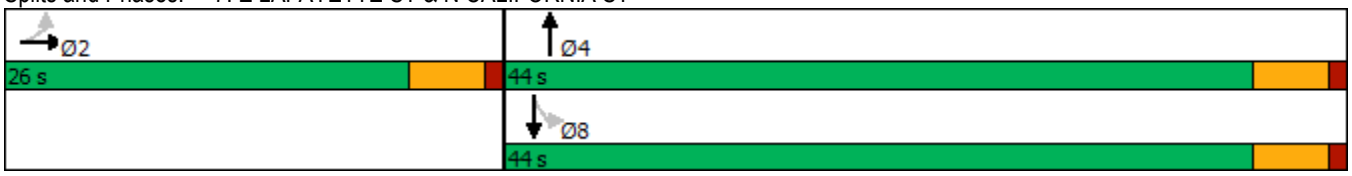
Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Pretimed	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 83.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: S AIRPORT WAY & E MARKET ST

Lane Group	EBT	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	335	118	88	104
Future Volume (vph)	335	118	88	104
Turn Type	NA	NA	Perm	NA
Protected Phases	2	4		8
Permitted Phases			8	
Detector Phase	2	4	8	8
Switch Phase				
Minimum Initial (s)	20.0	16.0	20.0	20.0
Minimum Split (s)	26.0	21.0	26.0	26.0
Total Split (s)	26.0	44.0	44.0	44.0
Total Split (%)	37.1%	62.9%	62.9%	62.9%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0		5.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)	21.0	39.0		39.0
Actuated g/C Ratio	0.30	0.56		0.56
v/c Ratio	0.63	0.09		0.15
Control Delay	24.3	5.8		7.8
Queue Delay	0.0	0.0		0.0
Total Delay	24.3	5.8		7.8
LOS	C	A		A
Approach Delay	24.3	5.8		7.8
Approach LOS	C	A		A

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 17.8	Intersection LOS: B
Intersection Capacity Utilization 59.2%	ICU Level of Service B
Analysis Period (min) 15	

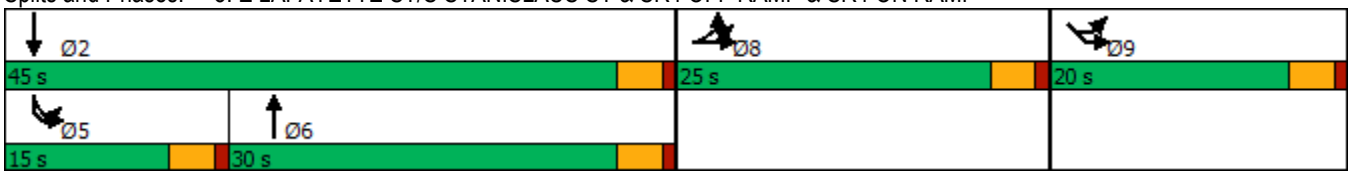
Splits and Phases: 7: E LAFAYETTE ST & N CALIFORNIA ST



Lane Group	EBL	EBT	NBT	SBL	SBT	SEL2	SEL
Lane Configurations							
Traffic Volume (vph)	241	101	244	25	180	773	343
Future Volume (vph)	241	101	244	25	180	773	343
Turn Type	Split	NA	NA	Prot	NA	Prot	Prot
Protected Phases	8	8	6	5	2	9	9
Permitted Phases							
Detector Phase	8	8	6	5	2	9	9
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	27.0	11.0	27.0	20.0	20.0
Total Split (s)	25.0	25.0	30.0	15.0	45.0	20.0	20.0
Total Split (%)	27.8%	27.8%	33.3%	16.7%	50.0%	22.2%	22.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
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)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lag	Lead			
Lead-Lag Optimize?							
Recall Mode	None	None	Max	None	Max	None	None
Act Effct Green (s)	17.4	17.4	26.8	10.2	41.1	16.0	16.0
Actuated g/C Ratio	0.20	0.20	0.31	0.12	0.48	0.18	0.18
v/c Ratio	0.75	0.74	0.85	0.69	0.22	2.56	1.63
Control Delay	47.1	45.1	48.3	55.4	14.9	732.3	325.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.1	45.1	48.3	55.4	14.9	732.3	325.4
LOS	D	D	D	E	B	F	F
Approach Delay		46.1	48.3		32.1		576.7
Approach LOS		D	D		C		F

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 86.5	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.56	
Intersection Signal Delay: 319.8	Intersection LOS: F
Intersection Capacity Utilization 97.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 8: E LAFAYETTE ST/S STANISLAUS ST & SR4 OFF RAMP & SR4 ON RAMP



Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	278	0	304	0	0	0	0	59	0	0	69	0
Future Vol, veh/h	278	0	304	0	0	0	0	59	0	0	69	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	302	0	330	0	0	0	0	64	0	0	75	0
Number of Lanes	1	1	0	1	0	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	11	0	8.9	9
HCM LOS	B	-	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	0%	0%	0%
Vol Thru, %	100%	0%	0%	100%	100%	100%
Vol Right, %	0%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	59	278	304	0	0	69
LT Vol	0	278	0	0	0	0
Through Vol	59	0	0	0	0	69
RT Vol	0	0	304	0	0	0
Lane Flow Rate	64	302	330	0	0	75
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.095	0.454	0.386	0	0	0.11
Departure Headway (Hd)	5.319	5.404	4.201	5.511	5.511	5.302
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	673	668	856	0	0	676
Service Time	3.354	3.131	1.927	3.262	3.262	3.337
HCM Lane V/C Ratio	0.095	0.452	0.386	0	0	0.111
HCM Control Delay	8.9	12.6	9.6	8.3	8.3	9
HCM Lane LOS	A	B	A	N	N	A
HCM 95th-tile Q	0.3	2.4	1.8	0	0	0.4

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	10	23	0	6	8	12	657	52	26	681	44
Future Vol, veh/h	12	10	23	0	6	8	12	657	52	26	681	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	100	-	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	11	25	0	7	9	13	714	57	28	740	48

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1207	1617	394	1201	1613	386	788	0	0	771	0	0
Stage 1	820	820	-	769	769	-	-	-	-	-	-	-
Stage 2	387	797	-	432	844	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	139	103	605	140	103	612	827	-	-	840	-	-
Stage 1	335	387	-	360	409	-	-	-	-	-	-	-
Stage 2	608	397	-	572	377	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	121	94	605	114	94	612	827	-	-	840	-	-
Mov Cap-2 Maneuver	121	94	-	114	94	-	-	-	-	-	-	-
Stage 1	326	364	-	350	398	-	-	-	-	-	-	-
Stage 2	573	386	-	500	354	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.2	26	0.2	0.6
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	827	-	-	107	605	94	612	840	-	-
HCM Lane V/C Ratio	0.016	-	-	0.223	0.041	0.069	0.014	0.034	-	-
HCM Control Delay (s)	9.4	0.1	-	48.1	11.2	46.1	11	9.4	0.3	-
HCM Lane LOS	A	A	-	E	B	E	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.8	0.1	0.2	0	0.1	-	-

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	3	85	996	1010	31
Future Vol, veh/h	35	3	85	996	1010	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	3	92	1083	1098	34

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1841	566	1132	0	-	0
Stage 1	1115	-	-	-	-	-
Stage 2	726	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	67	467	613	-	-	-
Stage 1	275	-	-	-	-	-
Stage 2	440	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	42	467	613	-	-	-
Mov Cap-2 Maneuver	42	-	-	-	-	-
Stage 1	171	-	-	-	-	-
Stage 2	440	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	249.2	2.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	613	-	45	-	-
HCM Lane V/C Ratio	0.151	-	0.918	-	-
HCM Control Delay (s)	11.9	1.9	249.2	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.5	-	3.7	-	-

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	48	9	58	124	5	5	54	32	13	83	8
Future Vol, veh/h	9	48	9	58	124	5	5	54	32	13	83	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	52	10	63	135	5	5	59	35	14	90	9
Number of Lanes	0	2	0	0	2	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	8.3	9	8.3	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	16%	0%	27%	0%	48%	0%	24%	0%
Vol Thru, %	84%	46%	73%	73%	52%	93%	76%	84%
Vol Right, %	0%	54%	0%	27%	0%	7%	0%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	32	59	33	33	120	67	55	50
LT Vol	5	0	9	0	58	0	13	0
Through Vol	27	27	24	24	62	62	42	42
RT Vol	0	32	0	9	0	5	0	8
Lane Flow Rate	35	64	36	36	130	73	59	54
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.053	0.089	0.054	0.051	0.195	0.103	0.09	0.078
Departure Headway (Hd)	5.441	4.98	5.424	5.095	5.388	5.093	5.461	5.227
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	657	718	659	701	665	703	655	684
Service Time	3.18	2.72	3.168	2.838	3.125	2.83	3.201	2.967
HCM Lane V/C Ratio	0.053	0.089	0.055	0.051	0.195	0.104	0.09	0.079
HCM Control Delay	8.5	8.2	8.5	8.1	9.4	8.4	8.7	8.4
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0.3	0.2	0.2	0.7	0.3	0.3	0.3

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	70	5	27	167	17	0	48	4	26	35	19
Future Vol, veh/h	21	70	5	27	167	17	0	48	4	26	35	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	76	5	29	182	18	0	52	4	28	38	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	200	0	0	81	0	0	293	383	41	359	376	100
Stage 1	-	-	-	-	-	-	125	125	-	249	249	-
Stage 2	-	-	-	-	-	-	168	258	-	110	127	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1370	-	-	1515	-	-	637	549	1021	572	554	936
Stage 1	-	-	-	-	-	-	866	792	-	733	699	-
Stage 2	-	-	-	-	-	-	817	693	-	883	790	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1370	-	-	1515	-	-	571	527	1021	511	532	936
Mov Cap-2 Maneuver	-	-	-	-	-	-	571	527	-	511	532	-
Stage 1	-	-	-	-	-	-	850	778	-	720	684	-
Stage 2	-	-	-	-	-	-	738	678	-	806	776	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	1	12.3	12.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	547	1370	-	-	1515	-	-	584
HCM Lane V/C Ratio	0.103	0.017	-	-	0.019	-	-	0.149
HCM Control Delay (s)	12.3	7.7	0	-	7.4	0.1	-	12.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.1	-	-	0.5

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	71	8	43	202	32	5	84	22	27	35	9
Future Vol, veh/h	16	71	8	43	202	32	5	84	22	27	35	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	77	9	47	220	35	5	91	24	29	38	10
Number of Lanes	0	2	0	0	2	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	8.6	9.4	8.8	9
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	11%	0%	31%	0%	30%	0%	61%	0%
Vol Thru, %	89%	66%	69%	82%	70%	76%	39%	66%
Vol Right, %	0%	34%	0%	18%	0%	24%	0%	34%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	64	52	44	144	133	45	27
LT Vol	5	0	16	0	43	0	27	0
Through Vol	42	42	36	36	101	101	18	18
RT Vol	0	22	0	8	0	32	0	9
Lane Flow Rate	51	70	56	47	157	145	48	29
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.081	0.104	0.086	0.069	0.231	0.201	0.08	0.043
Departure Headway (Hd)	5.676	5.379	5.531	5.245	5.322	5.002	5.979	5.433
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	629	664	645	680	673	716	597	656
Service Time	3.431	3.135	3.288	3.002	3.067	2.748	3.739	3.193
HCM Lane V/C Ratio	0.081	0.105	0.087	0.069	0.233	0.203	0.08	0.044
HCM Control Delay	8.9	8.8	8.8	8.4	9.7	9	9.3	8.4
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0.3	0.3	0.2	0.9	0.7	0.3	0.1

Intersection	
Intersection Delay, s/veh	16.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	79	12	99	240	140	23	211	62	133	146	52
Future Vol, veh/h	4	79	12	99	240	140	23	211	62	133	146	52
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	86	13	108	261	152	25	229	67	145	159	57
Number of Lanes	0	2	0	0	2	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	11.5	16.4	16	19.6
HCM LOS	B	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	10%	0%	9%	0%	45%	0%	48%	0%
Vol Thru, %	90%	0%	91%	77%	55%	46%	52%	0%
Vol Right, %	0%	100%	0%	23%	0%	54%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	234	62	44	52	219	260	279	52
LT Vol	23	0	4	0	99	0	133	0
Through Vol	211	0	40	40	120	120	146	0
RT Vol	0	62	0	12	0	140	0	52
Lane Flow Rate	254	67	47	56	238	283	303	57
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.514	0.122	0.104	0.12	0.479	0.52	0.62	0.101
Departure Headway (Hd)	7.268	6.501	7.922	7.707	7.239	6.623	7.363	6.404
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	496	551	452	465	498	545	491	560
Service Time	5.011	4.243	5.676	5.46	4.978	4.362	5.106	4.146
HCM Lane V/C Ratio	0.512	0.122	0.104	0.12	0.478	0.519	0.617	0.102
HCM Control Delay	17.5	10.2	11.6	11.5	16.5	16.4	21.4	9.9
HCM Lane LOS	C	B	B	B	C	C	C	A
HCM 95th-tile Q	2.9	0.4	0.3	0.4	2.6	3	4.1	0.3

Intersection	
Intersection Delay, s/veh	21.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	216	18	21	394	123	4	27	13	268	56	101
Future Vol, veh/h	21	216	18	21	394	123	4	27	13	268	56	101
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	235	20	23	428	134	4	29	14	291	61	110
Number of Lanes	0	2	0	0	2	0	0	1	0	0	1	0

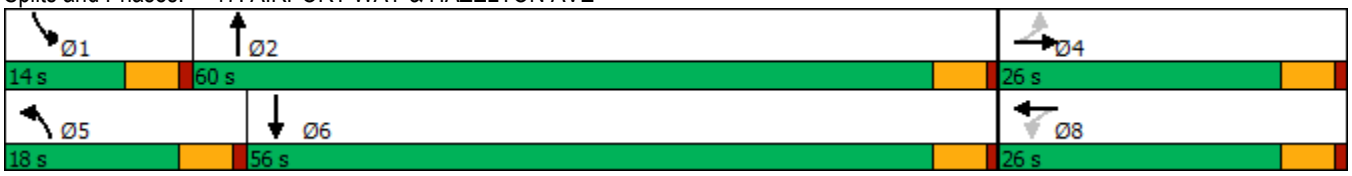
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	12.9	18.2	11.2	30.8
HCM LOS	B	C	B	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	9%	16%	0%	10%	0%	63%
Vol Thru, %	61%	84%	86%	90%	62%	13%
Vol Right, %	30%	0%	14%	0%	38%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	44	129	126	218	320	425
LT Vol	4	21	0	21	0	268
Through Vol	27	108	108	197	197	56
RT Vol	13	0	18	0	123	101
Lane Flow Rate	48	140	137	237	348	462
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.098	0.288	0.274	0.455	0.636	0.81
Departure Headway (Hd)	7.384	7.402	7.215	6.909	6.584	6.312
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	484	485	497	521	550	577
Service Time	5.442	5.151	4.964	4.651	4.326	4.312
HCM Lane V/C Ratio	0.099	0.289	0.276	0.455	0.633	0.801
HCM Control Delay	11.2	13.1	12.7	15.3	20.2	30.8
HCM Lane LOS	B	B	B	C	C	D
HCM 95th-tile Q	0.3	1.2	1.1	2.3	4.4	8

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	112	114	10	140	92	573	47	645
Future Volume (vph)	112	114	10	140	92	573	47	645
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	4.0	10.0	4.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	9.0	31.0	9.0	31.0
Total Split (s)	26.0	26.0	26.0	26.0	18.0	60.0	14.0	56.0
Total Split (%)	26.0%	26.0%	26.0%	26.0%	18.0%	60.0%	14.0%	56.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	15.1	15.1	15.1	15.1	10.1	57.6	7.6	52.9
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.11	0.64	0.08	0.58
v/c Ratio	0.63	0.44	0.07	0.35	0.51	0.31	0.34	0.40
Control Delay	50.7	17.6	33.5	29.6	48.9	9.5	48.1	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.7	17.6	33.5	29.6	48.9	9.5	48.1	12.5
LOS	D	B	C	C	D	A	D	B
Approach Delay		27.7		29.9		14.8		14.7
Approach LOS		C		C		B		B

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 90.5	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 18.6	Intersection LOS: B
Intersection Capacity Utilization 58.0%	ICU Level of Service B
Analysis Period (min) 15	

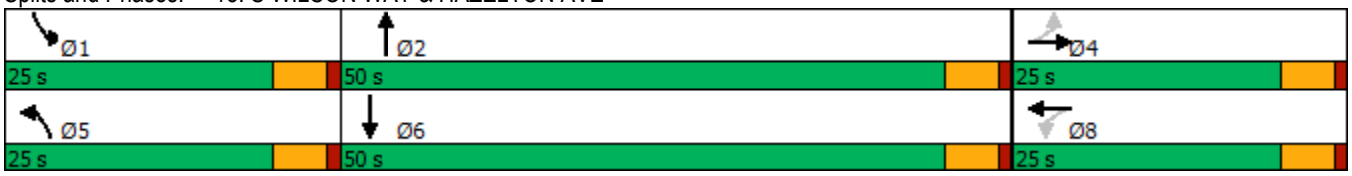
Splits and Phases: 17: AIRPORT WAY & HAZELTON AVE



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	63	60	70	52	68	725	98	759
Future Volume (vph)	63	60	70	52	68	725	98	759
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	25.0	25.0	9.0	9.0	9.0	27.0	9.0	33.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	50.0	25.0	50.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%	50.0%	25.0%	50.0%
Yellow Time (s)	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
Lost Time Adjust (s)		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
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	Min	Min	None	Min	None	None
Act Effct Green (s)		10.4		10.4	8.7	22.0	9.8	25.7
Actuated g/C Ratio		0.19		0.19	0.16	0.40	0.18	0.47
v/c Ratio		0.40		0.43	0.27	0.61	0.34	0.54
Control Delay		17.8		16.4	28.8	16.3	28.2	13.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		17.8		16.4	28.8	16.3	28.2	13.5
LOS		B		B	C	B	C	B
Approach Delay		17.8		16.4		17.3		15.1
Approach LOS		B		B		B		B

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 54.9	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 16.3	Intersection LOS: B
Intersection Capacity Utilization 56.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 18: S WILSON WAY & HAZELTON AVE



Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	18	1	6	76	6	5	66	5	3	70	21
Future Vol, veh/h	6	18	1	6	76	6	5	66	5	3	70	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	20	1	7	83	7	5	72	5	3	76	23
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	7.7	8	7.9	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	13%	0%	24%	7%	8%	0%
Vol Thru, %	87%	87%	72%	86%	92%	62%
Vol Right, %	0%	13%	4%	7%	0%	38%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	38	25	88	38	56
LT Vol	5	0	6	6	3	0
Through Vol	33	33	18	76	35	35
RT Vol	0	5	1	6	0	21
Lane Flow Rate	41	41	27	96	41	61
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.057	0.055	0.034	0.116	0.057	0.078
Departure Headway (Hd)	4.981	4.823	4.505	4.378	4.94	4.637
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	723	747	797	822	729	777
Service Time	2.683	2.525	2.518	2.388	2.641	2.338
HCM Lane V/C Ratio	0.057	0.055	0.034	0.117	0.056	0.079
HCM Control Delay	8	7.8	7.7	8	7.9	7.7
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.1	0.4	0.2	0.3

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	19	0	1	69	0	0	67	3	0	75	8
Future Vol, veh/h	8	19	0	1	69	0	0	67	3	0	75	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	21	0	1	75	0	0	73	3	0	82	9
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	7.8	7.7	7.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	30%	1%	0%
Vol Thru, %	96%	70%	99%	90%
Vol Right, %	4%	0%	0%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	70	27	70	83
LT Vol	0	8	1	0
Through Vol	67	19	69	75
RT Vol	3	0	0	8
Lane Flow Rate	76	29	76	90
Geometry Grp	1	1	1	1
Degree of Util (X)	0.088	0.036	0.09	0.103
Departure Headway (Hd)	4.161	4.445	4.247	4.119
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	849	810	831	859
Service Time	2.245	2.445	2.338	2.199
HCM Lane V/C Ratio	0.09	0.036	0.091	0.105
HCM Control Delay	7.7	7.6	7.8	7.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.1	0.3	0.3

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	9	6	12	23	13	26	80	3	3	35	14
Future Vol, veh/h	6	9	6	12	23	13	26	80	3	3	35	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	10	7	13	25	14	28	87	3	3	38	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	164	198	27	175	204	45	53	0	0	90	0	0
Stage 1	52	52	-	145	145	-	-	-	-	-	-	-
Stage 2	112	146	-	30	59	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	785	697	1042	771	691	1015	1551	-	-	1503	-	-
Stage 1	954	851	-	843	776	-	-	-	-	-	-	-
Stage 2	881	775	-	983	845	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	740	682	1042	746	676	1015	1551	-	-	1503	-	-
Mov Cap-2 Maneuver	740	682	-	746	676	-	-	-	-	-	-	-
Stage 1	936	849	-	827	761	-	-	-	-	-	-	-
Stage 2	824	760	-	964	843	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.8	10.1	1.8	0.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1551	-	-	776	763	1503	-	-
HCM Lane V/C Ratio	0.018	-	-	0.029	0.068	0.002	-	-
HCM Control Delay (s)	7.4	0	-	9.8	10.1	7.4	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.2	0	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	8	0	0	19	13	0	297	5	1	271	5
Future Vol, veh/h	5	8	0	0	19	13	0	297	5	1	271	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	9	0	0	21	14	0	323	5	1	295	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	643	628	298	630	628	326	300	0	0	328	0	0
Stage 1	300	300	-	326	326	-	-	-	-	-	-	-
Stage 2	343	328	-	304	302	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	386	400	741	394	400	715	1261	-	-	1232	-	-
Stage 1	709	666	-	687	648	-	-	-	-	-	-	-
Stage 2	672	647	-	705	664	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	363	400	741	387	400	715	1261	-	-	1232	-	-
Mov Cap-2 Maneuver	363	400	-	387	400	-	-	-	-	-	-	-
Stage 1	709	665	-	687	648	-	-	-	-	-	-	-
Stage 2	638	647	-	695	663	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.7	13	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1261	-	-	385	487	1232	-	-
HCM Lane V/C Ratio	-	-	-	0.037	0.071	0.001	-	-
HCM Control Delay (s)	0	-	-	14.7	13	7.9	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	0	3	119	277	26
Future Vol, veh/h	13	0	3	119	277	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	0	3	129	301	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	450	315	329	0	-	0
Stage 1	315	-	-	-	-	-
Stage 2	135	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	567	725	1231	-	-	-
Stage 1	740	-	-	-	-	-
Stage 2	891	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	565	725	1231	-	-	-
Mov Cap-2 Maneuver	565	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	891	-	-	-	-	-

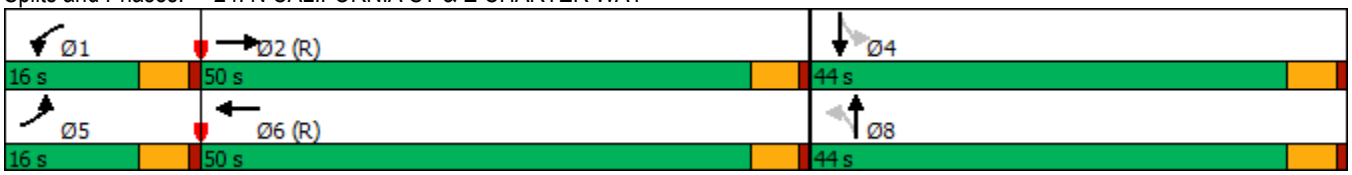
Approach	EB	NB	SB
HCM Control Delay, s	11.5	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1231	-	565	-	-
HCM Lane V/C Ratio	0.003	-	0.025	-	-
HCM Control Delay (s)	7.9	0	11.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	39	880	46	960	41	92	43	51
Future Volume (vph)	39	880	46	960	41	92	43	51
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	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)	9.0	34.0	9.0	34.0	27.0	27.0	27.0	27.0
Total Split (s)	16.0	50.0	16.0	50.0	44.0	44.0	44.0	44.0
Total Split (%)	14.5%	45.5%	14.5%	45.5%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Min	None	C-Min	None	None	None	None
Act Effct Green (s)	8.1	77.2	8.5	80.0		11.4		11.4
Actuated g/C Ratio	0.07	0.70	0.08	0.73		0.10		0.10
v/c Ratio	0.33	0.42	0.37	0.46		0.65		0.53
Control Delay	54.3	8.9	55.0	8.4		38.1		38.1
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	54.3	8.9	55.0	8.4		38.1		38.1
LOS	D	A	D	A		D		D
Approach Delay		10.7		10.4		38.1		38.1
Approach LOS		B		B		D		D

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 98 (89%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 14.6	Intersection LOS: B
Intersection Capacity Utilization 58.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 24: N CALIFORNIA ST & E CHARTER WAY



Intersection	
Int Delay, s/veh	29.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	183	560	5	6	746	91	4	0	27	80	12	174
Future Vol, veh/h	183	560	5	6	746	91	4	0	27	80	12	174
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	60	-	-	55	-	-	-	-	100	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	199	609	5	7	811	99	4	0	29	87	13	189

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	910	0	0	614	0	0	1436	1934	307	1578	1887	455
Stage 1	-	-	-	-	-	-	1010	1010	-	875	875	-
Stage 2	-	-	-	-	-	-	426	924	-	703	1012	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	744	-	-	961	-	-	94	65	689	~ 74	70	552
Stage 1	-	-	-	-	-	-	257	316	-	310	365	-
Stage 2	-	-	-	-	-	-	577	346	-	394	315	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	744	-	-	961	-	-	40	47	689	~ 56	51	552
Mov Cap-2 Maneuver	-	-	-	-	-	-	40	47	-	~ 56	51	-
Stage 1	-	-	-	-	-	-	188	232	-	227	362	-
Stage 2	-	-	-	-	-	-	363	344	-	276	231	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.8	0.1	22.8	200.1
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	40	689	744	-	-	961	-	-	55	552
HCM Lane V/C Ratio	0.109	0.043	0.267	-	-	0.007	-	-	1.818	0.343
HCM Control Delay (s)	105.7	10.5	11.6	-	-	8.8	-	-	$ 550.3	14.9
HCM Lane LOS	F	B	B	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0.3	0.1	1.1	-	-	0	-	-	9.6	1.5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↱			↱
Traffic Vol, veh/h	97	639	694	102	10	54
Future Vol, veh/h	97	639	694	102	10	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	105	695	754	111	11	59

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	865	0	-	0	1368	433
Stage 1	-	-	-	-	810	-
Stage 2	-	-	-	-	558	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	774	-	-	-	138	571
Stage 1	-	-	-	-	398	-
Stage 2	-	-	-	-	537	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	774	-	-	-	108	571
Mov Cap-2 Maneuver	-	-	-	-	108	-
Stage 1	-	-	-	-	310	-
Stage 2	-	-	-	-	537	-

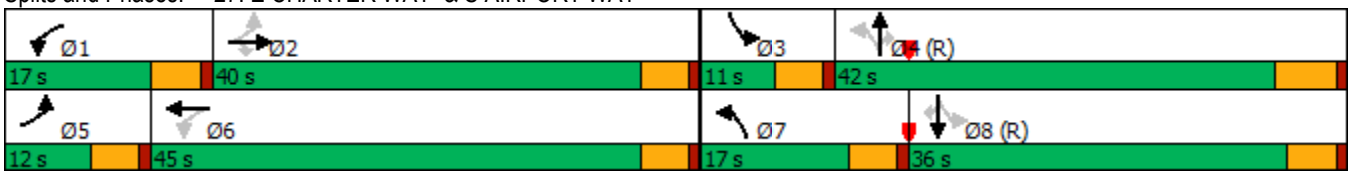
Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	774	-	-	-	571
HCM Lane V/C Ratio	0.136	-	-	-	0.103
HCM Control Delay (s)	10.4	-	-	-	12
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	109	492	434	313	447	496	567	209	131	431	108
Future Volume (vph)	109	492	434	313	447	496	567	209	131	431	108
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6	7	4		3	8	
Permitted Phases	2		2	6		4		4	8		8
Detector Phase	5	2	2	1	6	7	4	4	3	8	8
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)	9.0	40.0	40.0	9.0	45.0	9.0	40.0	40.0	9.0	36.0	36.0
Total Split (s)	12.0	40.0	40.0	17.0	45.0	17.0	42.0	42.0	11.0	36.0	36.0
Total Split (%)	10.9%	36.4%	36.4%	15.5%	40.9%	15.5%	38.2%	38.2%	10.0%	32.7%	32.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	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
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)	5.0	5.0	5.0	5.0	5.0	5.0	6.0	6.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	42.8	36.5	36.5	51.2	40.7	48.0	36.1	36.1	36.9	31.0	31.0
Actuated g/C Ratio	0.39	0.33	0.33	0.47	0.37	0.44	0.33	0.33	0.34	0.28	0.28
v/c Ratio	0.19	0.46	0.66	0.46	0.47	0.73	0.53	0.36	0.26	0.47	0.21
Control Delay	17.1	30.8	17.5	19.2	26.6	27.6	32.1	9.7	20.1	34.6	2.2
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	17.1	30.8	17.5	19.2	26.6	27.6	32.1	9.7	20.1	34.6	2.2
LOS	B	C	B	B	C	C	C	A	C	C	A
Approach Delay		23.8			23.9		26.7			26.5	
Approach LOS		C			C		C			C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:NBTL and 8:SBTL, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 25.2	Intersection LOS: C
Intersection Capacity Utilization 65.3%	ICU Level of Service C
Analysis Period (min) 15	

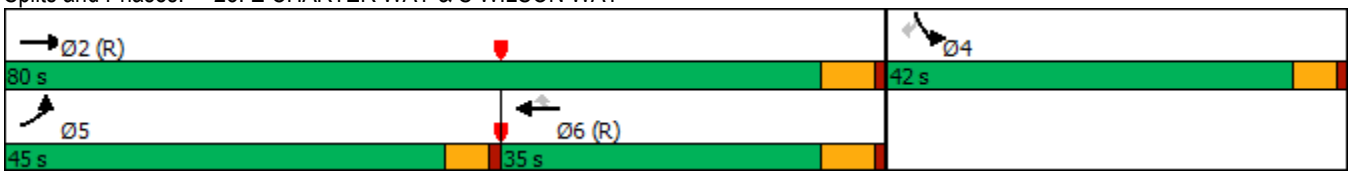
Splits and Phases: 27: E CHARTER WAY & S AIRPORT WAY



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	279	567	585	713	592	316
Future Volume (vph)	279	567	585	713	592	316
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	4.0	10.0	10.0	10.0	4.0	4.0
Minimum Split (s)	9.0	16.0	24.0	24.0	31.0	31.0
Total Split (s)	45.0	80.0	35.0	35.0	42.0	42.0
Total Split (%)	36.9%	65.6%	28.7%	28.7%	34.4%	34.4%
Yellow Time (s)	4.0	5.0	5.0	5.0	4.0	4.0
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)	5.0	6.0	6.0	6.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	28.9	77.2	43.3	43.3	33.8	33.8
Actuated g/C Ratio	0.24	0.63	0.35	0.35	0.28	0.28
v/c Ratio	0.72	0.28	0.51	0.77	0.68	0.50
Control Delay	52.6	10.8	34.7	11.0	42.8	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	10.8	34.7	11.0	42.8	6.0
LOS	D	B	C	B	D	A
Approach Delay		24.5	21.7		30.0	
Approach LOS		C	C		C	

Intersection Summary	
Cycle Length: 122	
Actuated Cycle Length: 122	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 25.0	Intersection LOS: C
Intersection Capacity Utilization 68.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 28: E CHARTER WAY & S WILSON WAY



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	85	266	62	202	85	352	25	361
Future Volume (vph)	85	266	62	202	85	352	25	361
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	29.0	29.0	29.0	29.0	28.0	28.0	28.0	28.0
Total Split (s)	70.0	70.0	70.0	70.0	30.0	30.0	30.0	30.0
Total Split (%)	70.0%	70.0%	70.0%	70.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0		5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)		25.9		25.9	25.5	25.5		25.5
Actuated g/C Ratio		0.42		0.42	0.41	0.41		0.41
v/c Ratio		0.81		0.61	0.29	0.69		0.72
Control Delay		25.6		17.1	18.5	24.5		26.4
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		25.6		17.1	18.5	24.5		26.4
LOS		C		B	B	C		C
Approach Delay		25.6		17.1		23.5		26.4
Approach LOS		C		B		C		C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 61.5	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 23.5	Intersection LOS: C
Intersection Capacity Utilization 83.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: S STANISLAUS ST & E WEBER ST

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	120	150	16	148	78	1351	38	986
Future Volume (vph)	120	150	16	148	78	1351	38	986
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	25.0	25.0	33.0	33.0	33.0	33.0
Total Split (s)	25.0	25.0	25.0	25.0	75.0	75.0	75.0	75.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	75.0%	75.0%	75.0%	75.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	18.2	18.2	18.2	18.2		70.0		70.0
Actuated g/C Ratio	0.19	0.19	0.19	0.19		0.71		0.71
v/c Ratio	0.90	0.75	0.15	0.63		0.81		0.57
Control Delay	93.9	47.9	37.1	43.0		14.5		8.4
Queue Delay	0.0	0.0	0.0	0.0		16.8		0.0
Total Delay	93.9	47.9	37.1	43.0		31.3		8.4
LOS	F	D	D	D		C		A
Approach Delay		63.3		42.6		31.3		8.4
Approach LOS		E		D		C		A

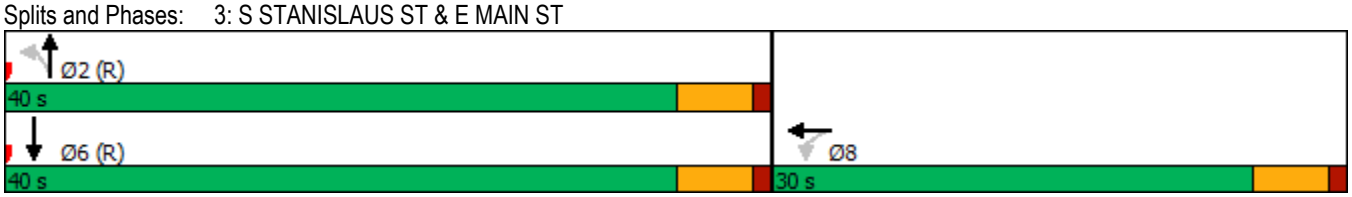
Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 98.2	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 27.8	Intersection LOS: C
Intersection Capacity Utilization 108.6%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 2: N AIRPORT WAY & E WEBER AVE

Lane Group	WBT	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	95	26	461	479
Future Volume (vph)	95	26	461	479
Turn Type	NA	Perm	NA	NA
Protected Phases	8		2	6
Permitted Phases		2		
Detector Phase	8	2	2	6
Switch Phase				
Minimum Initial (s)	25.0	35.0	35.0	35.0
Minimum Split (s)	30.0	40.0	40.0	40.0
Total Split (s)	30.0	40.0	40.0	40.0
Total Split (%)	42.9%	57.1%	57.1%	57.1%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)	25.0		35.0	35.0
Actuated g/C Ratio	0.36		0.50	0.50
v/c Ratio	0.20		0.35	0.35
Control Delay	13.5		5.7	10.9
Queue Delay	0.0		0.0	0.0
Total Delay	13.5		5.7	10.9
LOS	B		A	B
Approach Delay	13.5		5.7	10.9
Approach LOS	B		A	B

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 70	
Control Type: Pretimed	
Maximum v/c Ratio: 0.35	
Intersection Signal Delay: 9.3	Intersection LOS: A
Intersection Capacity Utilization 61.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: S STANISLAUS ST & E MAIN ST



Lane Group	WBT	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	106	47	1382	1022
Future Volume (vph)	106	47	1382	1022
Turn Type	NA	Perm	NA	NA
Protected Phases	8		2	6
Permitted Phases		2		
Detector Phase	8	2	2	6
Switch Phase				
Minimum Initial (s)	22.0	58.0	58.0	58.0
Minimum Split (s)	27.0	63.0	63.0	63.0
Total Split (s)	27.0	63.0	63.0	63.0
Total Split (%)	30.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)	22.0		58.0	58.0
Actuated g/C Ratio	0.24		0.64	0.64
v/c Ratio	0.25		0.85	0.54
Control Delay	21.6		7.7	9.8
Queue Delay	0.0		0.0	1.4
Total Delay	21.6		7.7	11.2
LOS	C		A	B
Approach Delay	21.6		7.7	11.2
Approach LOS	C		A	B

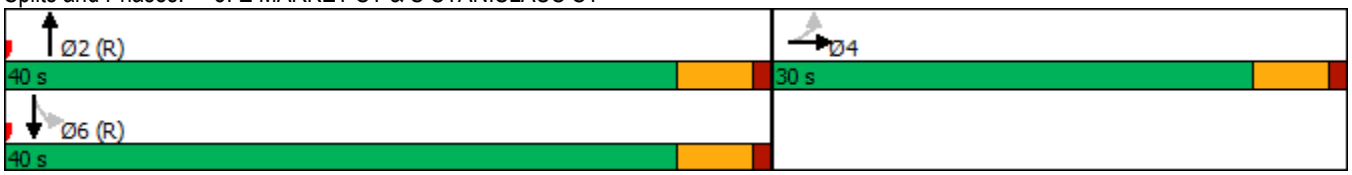
Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Pretimed	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 10.1	Intersection LOS: B
Intersection Capacity Utilization 99.0%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: E MAIN ST & N AIRPORT WAY

Lane Group	EBT	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	148	435	13	544
Future Volume (vph)	148	435	13	544
Turn Type	NA	NA	Perm	NA
Protected Phases	4	2		6
Permitted Phases			6	
Detector Phase	4	2	6	6
Switch Phase				
Minimum Initial (s)	25.0	35.0	35.0	35.0
Minimum Split (s)	30.0	40.0	40.0	40.0
Total Split (s)	30.0	40.0	40.0	40.0
Total Split (%)	42.9%	57.1%	57.1%	57.1%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0		5.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)	25.0	35.0		35.0
Actuated g/C Ratio	0.36	0.50		0.50
v/c Ratio	0.28	0.34		0.39
Control Delay	9.7	10.3		6.6
Queue Delay	0.0	0.0		0.0
Total Delay	9.7	10.3		6.6
LOS	A	B		A
Approach Delay	9.7	10.3		6.6
Approach LOS	A	B		A

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Pretimed	
Maximum v/c Ratio: 0.39	
Intersection Signal Delay: 8.7	Intersection LOS: A
Intersection Capacity Utilization 58.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5: E MARKET ST & S STANISLAUS ST



Lane Group	EBT	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	198	1441	153	931
Future Volume (vph)	198	1441	153	931
Turn Type	NA	NA	Perm	NA
Protected Phases	4	2		6
Permitted Phases			6	
Detector Phase	4	2	6	6
Switch Phase				
Minimum Initial (s)	22.0	58.0	58.0	58.0
Minimum Split (s)	27.0	63.0	63.0	63.0
Total Split (s)	27.0	63.0	63.0	63.0
Total Split (%)	30.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0		5.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)	22.0	58.0		58.0
Actuated g/C Ratio	0.24	0.64		0.64
v/c Ratio	0.59	0.78		1.91dl
Control Delay	30.4	14.7		80.9
Queue Delay	0.0	0.0		0.0
Total Delay	30.4	14.8		80.9
LOS	C	B		F
Approach Delay	30.4	14.8		80.9
Approach LOS	C	B		F

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Pretimed	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 40.5	Intersection LOS: D
Intersection Capacity Utilization 127.5%	ICU Level of Service H
Analysis Period (min) 15	

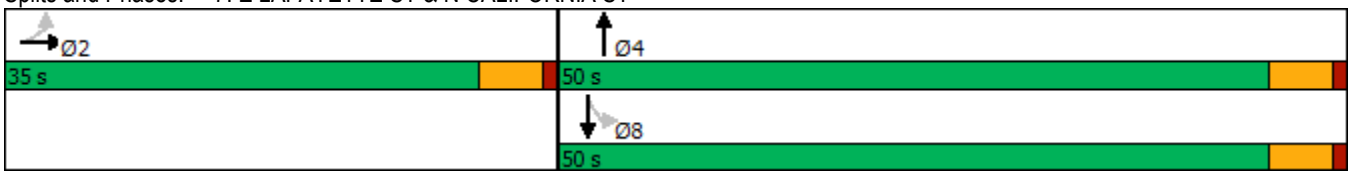
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: S AIRPORT WAY & E MARKET ST

Lane Group	EBT	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	659	106	223	172
Future Volume (vph)	659	106	223	172
Turn Type	NA	NA	Perm	NA
Protected Phases	2	4		8
Permitted Phases			8	
Detector Phase	2	4	8	8
Switch Phase				
Minimum Initial (s)	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0	25.0	25.0
Total Split (s)	35.0	50.0	50.0	50.0
Total Split (%)	41.2%	58.8%	58.8%	58.8%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0		5.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)	30.0	45.0		45.0
Actuated g/C Ratio	0.35	0.53		0.53
v/c Ratio	0.71	0.09		0.34
Control Delay	27.6	7.2		12.5
Queue Delay	0.0	0.0		0.0
Total Delay	27.6	7.2		12.5
LOS	C	A		B
Approach Delay	27.6	7.2		12.5
Approach LOS	C	A		B

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 20.7	Intersection LOS: C
Intersection Capacity Utilization 67.1%	ICU Level of Service C
Analysis Period (min) 15	

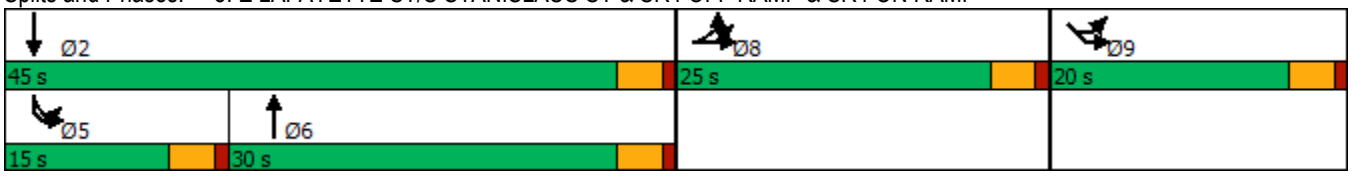
Splits and Phases: 7: E LAFAYETTE ST & N CALIFORNIA ST



Lane Group	EBL	EBT	NBT	SBL	SBT	SEL2	SEL
Lane Configurations							
Traffic Volume (vph)	672	137	377	39	275	184	299
Future Volume (vph)	672	137	377	39	275	184	299
Turn Type	Split	NA	NA	Prot	NA	Prot	Prot
Protected Phases	8	8	6	5	2	9	9
Permitted Phases							
Detector Phase	8	8	6	5	2	9	9
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	27.0	11.0	27.0	20.0	20.0
Total Split (s)	25.0	25.0	30.0	15.0	45.0	20.0	20.0
Total Split (%)	27.8%	27.8%	33.3%	16.7%	50.0%	22.2%	22.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
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)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lag	Lead			
Lead-Lag Optimize?							
Recall Mode	None	None	Max	None	Max	None	None
Act Effct Green (s)	21.0	21.0	26.0	11.0	41.0	16.0	16.0
Actuated g/C Ratio	0.23	0.23	0.29	0.12	0.46	0.18	0.18
v/c Ratio	1.31	1.28	1.31	1.10	0.35	0.64	1.65
Control Delay	189.5	176.6	184.2	129.1	17.4	44.6	334.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	189.5	176.6	184.2	129.1	17.4	44.6	334.8
LOS	F	F	F	F	B	D	F
Approach Delay		183.1	184.2		66.8		251.9
Approach LOS		F	F		E		F

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 135	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.65	
Intersection Signal Delay: 178.3	Intersection LOS: F
Intersection Capacity Utilization 108.0%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 8: E LAFAYETTE ST/S STANISLAUS ST & SR4 OFF RAMP & SR4 ON RAMP



Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	214	0	341	0	0	0	0	153	0	0	86	0
Future Vol, veh/h	214	0	341	0	0	0	0	153	0	0	86	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	233	0	371	0	0	0	0	166	0	0	93	0
Number of Lanes	1	1	0	1	0	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	11.4	0	10.1	9.4
HCM LOS	B	-	B	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	0%	0%	0%
Vol Thru, %	100%	0%	0%	100%	100%	100%
Vol Right, %	0%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	153	214	341	0	0	86
LT Vol	0	214	0	0	0	0
Through Vol	153	0	0	0	0	86
RT Vol	0	0	341	0	0	0
Lane Flow Rate	166	233	371	0	0	93
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.246	0.37	0.465	0	0	0.141
Departure Headway (Hd)	5.323	5.719	4.513	5.869	5.869	5.433
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	670	628	793	0	0	655
Service Time	3.385	3.473	2.266	3.668	3.668	3.504
HCM Lane V/C Ratio	0.248	0.371	0.468	0	0	0.142
HCM Control Delay	10.1	11.8	11.2	8.7	8.7	9.4
HCM Lane LOS	B	B	B	N	N	A
HCM 95th-tile Q	1	1.7	2.5	0	0	0.5

Intersection	
Int Delay, s/veh	55.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰↑↑↱			↰↑↑↱	
Traffic Vol, veh/h	17	10	28	4	9	10	25	1106	54	77	1044	39
Future Vol, veh/h	17	10	28	4	9	10	25	1106	54	77	1044	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	100	-	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	11	30	4	10	11	27	1202	59	84	1135	42

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1984	2639	589	2027	2631	631	1177	0	0	1261	0	0
Stage 1	1324	1324	-	1286	1286	-	-	-	-	-	-	-
Stage 2	660	1315	-	741	1345	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	36	23	452	34	23	424	589	-	-	547	-	-
Stage 1	165	224	-	174	233	-	-	-	-	-	-	-
Stage 2	418	226	-	374	218	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 5	11	452	~ 1	11	424	589	-	-	547	-	-
Mov Cap-2 Maneuver	~ 5	11	-	~ 1	11	-	-	-	-	-	-	-
Stage 1	139	123	-	147	197	-	-	-	-	-	-	-
Stage 2	327	191	-	175	120	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, $	1442.9	$ 2176.3	1.1	3.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	589	-	-	6	452	3	424	547	-	-
HCM Lane V/C Ratio	0.046	-	-	4.891	0.067	4.71	0.026	0.153	-	-
HCM Control Delay (s)	11.4	0.9	$	2925.3	13.$	3839.9	13.7	12.8	2.5	-
HCM Lane LOS	B	A	-	F	B	F	B	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	5.1	0.2	3.1	0.1	0.5	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	15.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	53	31	39	1392	936	23
Future Vol, veh/h	53	31	39	1392	936	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	34	42	1513	1017	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1871	521	1042	0	-	0
Stage 1	1030	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	64	500	663	-	-	-
Stage 1	305	-	-	-	-	-
Stage 2	383	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 39	500	663	-	-	-
Mov Cap-2 Maneuver	~ 39	-	-	-	-	-
Stage 1	184	-	-	-	-	-
Stage 2	383	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 429.4	2.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	663	-	59	-	-
HCM Lane V/C Ratio	0.064	-	1.548	-	-
HCM Control Delay (s)	10.8	2$	429.4	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.2	-	8.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	54	6	80	158	14	23	87	31	25	130	5
Future Vol, veh/h	10	54	6	80	158	14	23	87	31	25	130	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	59	7	87	172	15	25	95	34	27	141	5
Number of Lanes	0	2	0	0	2	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	8.9	10.1	9.1	9.4
HCM LOS	A	B	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	35%	0%	27%	0%	50%	0%	28%	0%
Vol Thru, %	65%	58%	73%	82%	50%	85%	72%	93%
Vol Right, %	0%	42%	0%	18%	0%	15%	0%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	75	37	33	159	93	90	70
LT Vol	23	0	10	0	80	0	25	0
Through Vol	44	44	27	27	79	79	65	65
RT Vol	0	31	0	6	0	14	0	5
Lane Flow Rate	72	81	40	36	173	101	98	76
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.117	0.121	0.065	0.056	0.275	0.151	0.157	0.118
Departure Headway (Hd)	5.84	5.371	5.858	5.593	5.729	5.369	5.775	5.584
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	609	661	605	633	622	662	616	637
Service Time	3.623	3.155	3.656	3.39	3.506	3.146	3.556	3.366
HCM Lane V/C Ratio	0.118	0.123	0.066	0.057	0.278	0.153	0.159	0.119
HCM Control Delay	9.4	8.9	9.1	8.7	10.7	9.1	9.6	9.1
HCM Lane LOS	A	A	A	A	B	A	A	A
HCM 95th-tile Q	0.4	0.4	0.2	0.2	1.1	0.5	0.6	0.4

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	98	0	10	220	18	10	62	6	19	80	16
Future Vol, veh/h	18	98	0	10	220	18	10	62	6	19	80	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	107	0	11	239	20	11	67	7	21	87	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	259	0	0	107	0	0	332	428	54	398	418	130
Stage 1	-	-	-	-	-	-	147	147	-	271	271	-
Stage 2	-	-	-	-	-	-	185	281	-	127	147	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1303	-	-	1482	-	-	598	518	1002	536	524	896
Stage 1	-	-	-	-	-	-	841	774	-	712	684	-
Stage 2	-	-	-	-	-	-	799	677	-	863	774	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1303	-	-	1482	-	-	501	505	1002	469	511	896
Mov Cap-2 Maneuver	-	-	-	-	-	-	501	505	-	469	511	-
Stage 1	-	-	-	-	-	-	828	762	-	701	678	-
Stage 2	-	-	-	-	-	-	677	671	-	769	762	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.3	13.2	13.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	524	1303	-	-	1482	-	-	535
HCM Lane V/C Ratio	0.162	0.015	-	-	0.007	-	-	0.234
HCM Control Delay (s)	13.2	7.8	0	-	7.4	0	-	13.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.9

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	111	18	53	229	18	19	83	73	17	155	13
Future Vol, veh/h	8	111	18	53	229	18	19	83	73	17	155	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	121	20	58	249	20	21	90	79	18	168	14
Number of Lanes	0	2	0	0	2	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	9.7	10.9	9.9	10.2
HCM LOS	A	B	A	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	31%	0%	13%	0%	32%	0%	18%	0%
Vol Thru, %	69%	36%	87%	76%	68%	86%	82%	86%
Vol Right, %	0%	64%	0%	24%	0%	14%	0%	14%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	61	115	64	74	168	133	95	91
LT Vol	19	0	8	0	53	0	17	0
Through Vol	42	42	56	56	115	115	78	78
RT Vol	0	73	0	18	0	18	0	13
Lane Flow Rate	66	124	69	80	182	144	103	98
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.116	0.198	0.119	0.132	0.306	0.232	0.178	0.165
Departure Headway (Hd)	6.341	5.73	6.208	5.97	6.045	5.789	6.245	6.052
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	566	626	578	600	595	621	574	592
Service Time	4.079	3.467	3.946	3.709	3.776	3.52	3.983	3.79
HCM Lane V/C Ratio	0.117	0.198	0.119	0.133	0.306	0.232	0.179	0.166
HCM Control Delay	9.9	9.9	9.8	9.6	11.4	10.3	10.3	10
HCM Lane LOS	A	A	A	A	B	B	B	A
HCM 95th-tile Q	0.4	0.7	0.4	0.5	1.3	0.9	0.6	0.6

Intersection	
Intersection Delay, s/veh	60
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	146	19	163	265	132	5	238	141	178	293	48
Future Vol, veh/h	48	146	19	163	265	132	5	238	141	178	293	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	159	21	177	288	143	5	259	153	193	318	52
Number of Lanes	0	2	0	0	2	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	16.8	31.1	22.2	136.9
HCM LOS	C	D	C	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	2%	0%	40%	0%	55%	0%	38%	0%
Vol Thru, %	98%	0%	60%	79%	45%	50%	62%	0%
Vol Right, %	0%	100%	0%	21%	0%	50%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	243	141	121	92	296	265	471	48
LT Vol	5	0	48	0	163	0	178	0
Through Vol	238	0	73	73	133	133	293	0
RT Vol	0	141	0	19	0	132	0	48
Lane Flow Rate	264	153	132	100	321	288	512	52
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.631	0.336	0.34	0.249	0.768	0.638	1.23	0.112
Departure Headway (Hd)	9.114	8.371	9.999	9.638	9.18	8.528	8.647	7.727
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	399	432	362	375	398	426	420	464
Service Time	6.814	6.071	7.699	7.338	6.88	6.228	6.389	5.468
HCM Lane V/C Ratio	0.662	0.354	0.365	0.267	0.807	0.676	1.219	0.112
HCM Control Delay	26.2	15.2	17.8	15.5	36.5	25.1	149.7	11.4
HCM Lane LOS	D	C	C	C	E	D	F	B
HCM 95th-tile Q	4.2	1.5	1.5	1	6.4	4.3	21	0.4

Intersection	
Intersection Delay, s/veh	41.8
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	61	411	21	44	440	69	23	32	25	395	32	49
Future Vol, veh/h	61	411	21	44	440	69	23	32	25	395	32	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	66	447	23	48	478	75	25	35	27	429	35	53
Number of Lanes	0	2	0	0	2	0	0	1	0	0	1	0

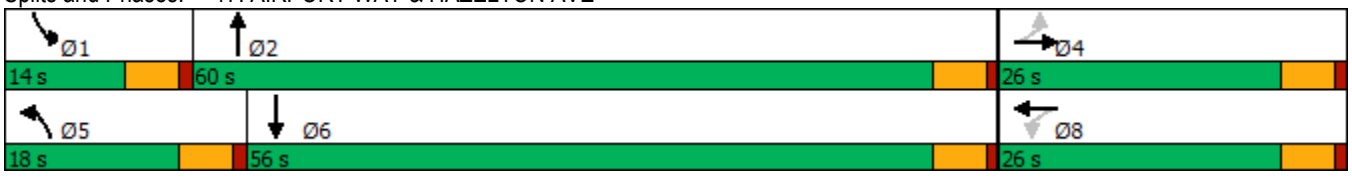
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	23.2	25.3	14.5	84.7
HCM LOS	C	D	B	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	29%	23%	0%	17%	0%	83%
Vol Thru, %	40%	77%	91%	83%	76%	7%
Vol Right, %	31%	0%	9%	0%	24%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	267	227	264	289	476
LT Vol	23	61	0	44	0	395
Through Vol	32	206	206	220	220	32
RT Vol	25	0	21	0	69	49
Lane Flow Rate	87	290	246	287	314	517
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.211	0.654	0.543	0.639	0.677	1.06
Departure Headway (Hd)	9.112	8.413	8.226	8.309	8.048	7.377
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	397	432	441	436	452	497
Service Time	7.112	6.113	5.926	6.009	5.748	5.377
HCM Lane V/C Ratio	0.219	0.671	0.558	0.658	0.695	1.04
HCM Control Delay	14.5	25.7	20.3	24.6	26	84.7
HCM Lane LOS	B	D	C	C	D	F
HCM 95th-tile Q	0.8	4.6	3.2	4.3	4.9	15.9

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	231	176	9	145	127	1044	37	931
Future Volume (vph)	231	176	9	145	127	1044	37	931
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	4.0	10.0	4.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	9.0	31.0	9.0	31.0
Total Split (s)	26.0	26.0	26.0	26.0	18.0	60.0	14.0	56.0
Total Split (%)	26.0%	26.0%	26.0%	26.0%	18.0%	60.0%	14.0%	56.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	21.0	21.0	21.0	21.0	11.5	59.6	7.4	51.0
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.12	0.60	0.08	0.52
v/c Ratio	0.99	0.87dr	0.13	0.27	0.67	0.59	0.30	0.66
Control Delay	98.2	33.2	37.3	30.3	57.8	14.5	49.1	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.2	33.2	37.3	30.3	57.8	14.5	49.1	19.7
LOS	F	C	D	C	E	B	D	B
Approach Delay		50.7		30.7		19.1		20.7
Approach LOS		D		C		B		C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 98.6	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 27.8	Intersection LOS: C
Intersection Capacity Utilization 76.6%	ICU Level of Service D
Analysis Period (min) 15	
dr Defacto Right Lane. Recode with 1 though lane as a right lane.	

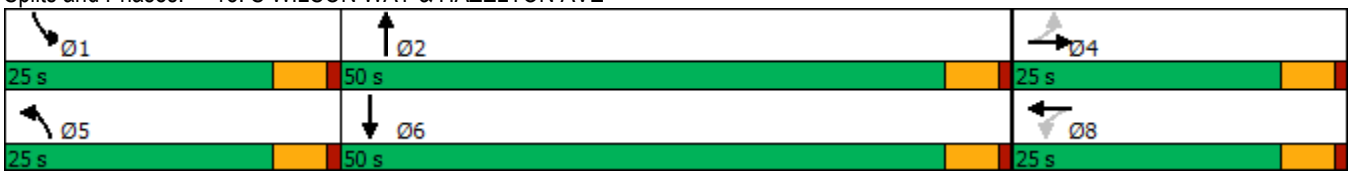
Splits and Phases: 17: AIRPORT WAY & HAZELTON AVE



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	81	85	101	118	111	1015	70	920
Future Volume (vph)	81	85	101	118	111	1015	70	920
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	25.0	25.0	9.0	9.0	9.0	27.0	9.0	33.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	50.0	25.0	50.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%	50.0%	25.0%	50.0%
Yellow Time (s)	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
Lost Time Adjust (s)		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
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	Min	Min	None	Min	None	None
Act Effct Green (s)		15.3		15.3	11.2	34.5	9.3	32.9
Actuated g/C Ratio		0.21		0.21	0.16	0.48	0.13	0.46
v/c Ratio		0.62		0.70	0.44	0.71	0.33	0.66
Control Delay		20.0		23.3	38.2	18.4	38.8	18.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		20.0		23.3	38.2	18.4	38.8	18.7
LOS		C		C	D	B	D	B
Approach Delay		20.0		23.3		20.2		20.1
Approach LOS		C		C		C		C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 71.7	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 20.6	Intersection LOS: C
Intersection Capacity Utilization 73.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 18: S WILSON WAY & HAZELTON AVE



Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	63	5	5	41	3	12	85	0	3	122	34
Future Vol, veh/h	18	63	5	5	41	3	12	85	0	3	122	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	68	5	5	45	3	13	92	0	3	133	37
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	8.3	8.1	8.2	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	30%	0%	21%	10%	5%	0%
Vol Thru, %	70%	100%	73%	84%	95%	64%
Vol Right, %	0%	0%	6%	6%	0%	36%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	57	86	49	64	95
LT Vol	12	0	18	5	3	0
Through Vol	28	57	63	41	61	61
RT Vol	0	0	5	3	0	34
Lane Flow Rate	44	62	93	53	70	103
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.063	0.086	0.121	0.069	0.097	0.136
Departure Headway (Hd)	5.192	5.042	4.666	4.693	5.009	4.734
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	691	711	769	764	717	759
Service Time	2.915	2.766	2.687	2.718	2.731	2.455
HCM Lane V/C Ratio	0.064	0.087	0.121	0.069	0.098	0.136
HCM Control Delay	8.3	8.2	8.3	8.1	8.3	8.2
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0.3	0.4	0.2	0.3	0.5

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	51	5	0	35	3	4	79	5	6	92	6
Future Vol, veh/h	12	51	5	0	35	3	4	79	5	6	92	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	55	5	0	38	3	4	86	5	7	100	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	7.7	7.9	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	18%	0%	6%
Vol Thru, %	90%	75%	92%	88%
Vol Right, %	6%	7%	8%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	88	68	38	104
LT Vol	4	12	0	6
Through Vol	79	51	35	92
RT Vol	5	5	3	6
Lane Flow Rate	96	74	41	113
Geometry Grp	1	1	1	1
Degree of Util (X)	0.114	0.091	0.051	0.135
Departure Headway (Hd)	4.302	4.438	4.437	4.287
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	838	810	810	841
Service Time	2.305	2.451	2.451	2.289
HCM Lane V/C Ratio	0.115	0.091	0.051	0.134
HCM Control Delay	7.9	7.9	7.7	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.3	0.2	0.5

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	47	9	16	35	12	4	98	18	9	162	5
Future Vol, veh/h	3	47	9	16	35	12	4	98	18	9	162	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	51	10	17	38	13	4	107	20	10	176	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	280	334	91	259	326	64	181	0	0	127	0	0
Stage 1	199	199	-	125	125	-	-	-	-	-	-	-
Stage 2	81	135	-	134	201	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	650	585	949	673	591	987	1392	-	-	1457	-	-
Stage 1	784	735	-	866	792	-	-	-	-	-	-	-
Stage 2	918	784	-	855	734	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	605	579	949	616	584	987	1392	-	-	1457	-	-
Mov Cap-2 Maneuver	605	579	-	616	584	-	-	-	-	-	-	-
Stage 1	782	729	-	863	790	-	-	-	-	-	-	-
Stage 2	860	782	-	781	728	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.5	11.3	0.3	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1392	-	-	617	642	1457	-	-
HCM Lane V/C Ratio	0.003	-	-	0.104	0.107	0.007	-	-
HCM Control Delay (s)	7.6	0	-	11.5	11.3	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.4	0	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	23	18	14	9	16	30	5	345	12	23	469	38
Future Vol, veh/h	23	18	14	9	16	30	5	345	12	23	469	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	20	15	10	17	33	5	375	13	25	510	41

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	998	979	531	990	993	382	551	0	0	388	0	0
Stage 1	581	581	-	392	392	-	-	-	-	-	-	-
Stage 2	417	398	-	598	601	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	223	250	548	225	245	665	1019	-	-	1170	-	-
Stage 1	499	500	-	633	606	-	-	-	-	-	-	-
Stage 2	613	603	-	489	489	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	194	241	548	200	236	665	1019	-	-	1170	-	-
Mov Cap-2 Maneuver	194	241	-	200	236	-	-	-	-	-	-	-
Stage 1	496	485	-	629	602	-	-	-	-	-	-	-
Stage 2	563	599	-	442	474	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.8	17.5	0.1	0.4
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1019	-	-	251	348	1170	-	-
HCM Lane V/C Ratio	0.005	-	-	0.238	0.172	0.021	-	-
HCM Control Delay (s)	8.6	0	-	23.8	17.5	8.1	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.9	0.6	0.1	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	22	17	209	185	104
Future Vol, veh/h	43	22	17	209	185	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	24	18	227	201	113

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	521	258	314	0	-	0
Stage 1	258	-	-	-	-	-
Stage 2	263	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	516	781	1246	-	-	-
Stage 1	785	-	-	-	-	-
Stage 2	781	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	507	781	1246	-	-	-
Mov Cap-2 Maneuver	507	-	-	-	-	-
Stage 1	772	-	-	-	-	-
Stage 2	781	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1246	-	575	-	-
HCM Lane V/C Ratio	0.015	-	0.123	-	-
HCM Control Delay (s)	7.9	0	12.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	79	1096	87	1068	71	101	82	104
Future Volume (vph)	79	1096	87	1068	71	101	82	104
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	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)	9.0	34.0	9.0	34.0	27.0	27.0	27.0	27.0
Total Split (s)	22.0	53.0	22.0	53.0	35.0	35.0	35.0	35.0
Total Split (%)	20.0%	48.2%	20.0%	48.2%	31.8%	31.8%	31.8%	31.8%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Min	None	C-Min	None	None	None	None
Act Effct Green (s)	10.7	66.6	11.2	69.4		17.2		17.2
Actuated g/C Ratio	0.10	0.61	0.10	0.63		0.16		0.16
v/c Ratio	0.50	0.63	0.53	0.61		0.72		0.79
Control Delay	56.5	16.9	56.7	15.9		31.6		50.3
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	56.5	16.9	56.7	15.9		31.6		50.3
LOS	E	B	E	B		C		D
Approach Delay		19.5		18.8		31.6		50.3
Approach LOS		B		B		C		D

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 98 (89%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 23.1	Intersection LOS: C
Intersection Capacity Utilization 71.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 24: N CALIFORNIA ST & E CHARTER WAY

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	175	1196	35	12	1038	114	19	13	14	119	32	244
Future Vol, veh/h	175	1196	35	12	1038	114	19	13	14	119	32	244
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	60	-	-	55	-	-	-	-	100	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	190	1300	38	13	1128	124	21	14	15	129	35	265

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1252	0	0	1338	0	0	2307	2977	669	2253	2934	626
Stage 1	-	-	-	-	-	-	1699	1699	-	1216	1216	-
Stage 2	-	-	-	-	-	-	608	1278	-	1037	1718	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	552	-	-	511	-	-	21	~ 14	400	~ 23	~ 15	427
Stage 1	-	-	-	-	-	-	96	146	-	192	252	-
Stage 2	-	-	-	-	-	-	450	235	-	247	143	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	552	-	-	511	-	-	-	~ 9	400	-	~ 10	427
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 9	-	-	~ 10	-
Stage 1	-	-	-	-	-	-	63	96	-	~ 126	246	-
Stage 2	-	-	-	-	-	-	143	229	-	133	94	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.9	0.1		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	400	552	-	-	511	-	-	-	427
HCM Lane V/C Ratio	-	0.038	0.345	-	-	0.026	-	-	-	0.621
HCM Control Delay (s)	-	14.4	14.9	-	-	12.2	-	-	-	26.3
HCM Lane LOS	-	B	B	-	-	B	-	-	-	D
HCM 95th %tile Q(veh)	-	0.1	1.5	-	-	0.1	-	-	-	4.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	69	1364	1054	54	38	133
Future Vol, veh/h	69	1364	1054	54	38	133
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	1483	1146	59	41	145

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1205	0	-	0	2068	603
Stage 1	-	-	-	-	1176	-
Stage 2	-	-	-	-	892	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	575	-	-	-	47	442
Stage 1	-	-	-	-	255	-
Stage 2	-	-	-	-	361	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	575	-	-	-	~ 12	442
Mov Cap-2 Maneuver	-	-	-	-	~ 12	-
Stage 1	-	-	-	-	66	-
Stage 2	-	-	-	-	361	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	17.1
HCM LOS			C

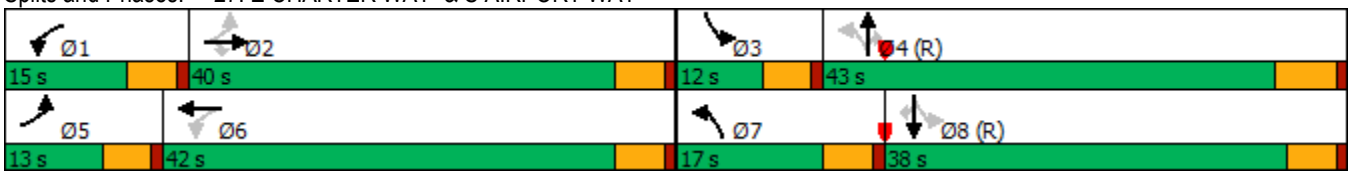
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	575	-	-	-	442
HCM Lane V/C Ratio	0.13	-	-	-	0.327
HCM Control Delay (s)	12.2	-	-	-	17.1
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	1.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	129	737	498	305	550	518	588	281	110	505	147
Future Volume (vph)	129	737	498	305	550	518	588	281	110	505	147
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6	7	4		3	8	
Permitted Phases	2		2	6		4		4	8		8
Detector Phase	5	2	2	1	6	7	4	4	3	8	8
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)	9.0	40.0	40.0	9.0	42.0	9.0	40.0	40.0	9.0	36.0	36.0
Total Split (s)	13.0	40.0	40.0	15.0	42.0	17.0	43.0	43.0	12.0	38.0	38.0
Total Split (%)	11.8%	36.4%	36.4%	13.6%	38.2%	15.5%	39.1%	39.1%	10.9%	34.5%	34.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	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
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)	5.0	5.0	5.0	5.0	5.0	5.0	6.0	6.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	42.3	35.4	35.4	47.7	38.1	50.0	37.6	37.6	39.4	33.0	33.0
Actuated g/C Ratio	0.38	0.32	0.32	0.43	0.35	0.45	0.34	0.34	0.36	0.30	0.30
v/c Ratio	0.27	0.70	0.81	0.66	0.59	0.79	0.53	0.44	0.21	0.52	0.27
Control Delay	18.8	36.8	29.6	25.2	31.1	29.6	31.1	10.1	18.4	34.0	5.8
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	18.8	36.8	29.6	25.2	31.1	29.6	31.1	10.1	18.4	34.0	5.8
LOS	B	D	C	C	C	C	C	B	B	C	A
Approach Delay		32.5			29.2		26.3			26.3	
Approach LOS		C			C		C			C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:NBTL and 8:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 28.8	Intersection LOS: C
Intersection Capacity Utilization 74.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 27: E CHARTER WAY & S AIRPORT WAY



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	372	756	634	578	690	406
Future Volume (vph)	372	756	634	578	690	406
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	4.0	10.0	10.0	10.0	4.0	4.0
Minimum Split (s)	9.0	16.0	24.0	24.0	31.0	31.0
Total Split (s)	45.0	80.0	35.0	35.0	42.0	42.0
Total Split (%)	36.9%	65.6%	28.7%	28.7%	34.4%	34.4%
Yellow Time (s)	4.0	5.0	5.0	5.0	4.0	4.0
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)	5.0	6.0	6.0	6.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	34.7	74.7	35.0	35.0	36.3	36.3
Actuated g/C Ratio	0.28	0.61	0.29	0.29	0.30	0.30
v/c Ratio	0.80	0.38	0.68	0.70	0.73	0.57
Control Delay	52.8	12.7	44.0	7.7	43.4	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	12.7	44.0	7.7	43.4	6.1
LOS	D	B	D	A	D	A
Approach Delay		25.9	26.7		29.6	
Approach LOS		C	C		C	

Intersection Summary	
Cycle Length: 122	
Actuated Cycle Length: 122	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 27.4	Intersection LOS: C
Intersection Capacity Utilization 71.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 28: E CHARTER WAY & S WILSON WAY