Stockton 2040 General Plan Update

Existing Conditions Technical Memorandum:

Transportation

July 12, 2016

EXISTING CONDITIONS TECHNICAL MEMORANDUM: TRANSPORTATION

This document describes the existing transportation setting in the Planning Area for the City of Stockton's General Plan Update. The city is uniquely positioned as a multi-modal center of the San Joaquin Valley, served by all major travel modes including highway, transit, bicycle, pedestrian, rail, water, and air. The city is located at the confluence of many of Northern California's inter-regional transportation facilities including Interstate 5 (I-5), State Route 99 (SR 99), State Route 4 (SR 4), State Route 88 (SR 88), the Port of Stockton and associated deep water channel and navigable waterways, the Stockton Metropolitan Airport, Amtrak, the Altamont Commuter Express (ACE) passenger rail service, and the transcontinental railroad system (provided by Union Pacific Railroad [UPRR] and Burlington Northern Santa Fe [BNSF]). The safe and efficient transport of people and goods across this multi-modal system is crucial to the social and economic well-being of the city – both now and in the future.

The Transportation Element of the General Plan provides policies and actions to maintain and improve Stockton's transportation network. The Element establishes policies to expand transportation choices, improve traffic safety, and make transportation more sustainable, complementing policies contained in the other General Plan elements addressing land use, air quality, greenhouse gas reduction, and public health.

The purpose of this memorandum is to describe the existing condition of the transportation system and identify potential opportunities and challenges for consideration in the General Plan Update process.

OVERVIEW

This section provides an overview of the regulatory and policy context surrounding the existing transportation system in Stockton, and describes the general travel behavior of Stockton residents based on Census data.

REGULATORY CONTEXT

Transportation through and within Stockton is provided by a network of facilities stratified by travel mode, function and capacity. Multiple agencies oversee the planning, development, operation, and funding of these facilities. Nationally, the US Department of Transportation (USDOT) ensures the safety and efficiency of the nation's interstate freeway system, airports, rail lines, and ports. The California Department of Transportation (Caltrans) manages more than 45,000 miles of highway and freeway lanes as well as other transportation facilities across the state. At the regional level, the San Joaquin Council of Governments (SJCOG)[1] is responsible for developing and updating a variety of transportation plans and for allocating Federal and State funds to implement them. San Joaquin Regional Transit District (RTD), Altamont Commuter Express (ACE), and Amtrak are transit transportation providers within the city.

The Federal Railroad Administration regulates freight railroads for the federal government by creating and enforcing national rail safety regulations. At the State level, the California Public Utilities Commission (CPUC) has jurisdiction over safety regulations for common carriers (including trucks and rail) and at-grade railroad crossings.

At the local level, the Stockton Public Works and Community Development Departments are responsible for overseeing the planning, design, construction and maintenance of citywide transportation systems including roadways and bicycle, pedestrian and transit facilities.

The existing City of Stockton General Plan, approved in 2007, establishes a majority of transportation policy in the city and establishes a multi-modal transportation framework.

KEY PLANNING DOCUMENTS

While the City of Stockton General Plan establishes the key vision for how the city develops and adapts over time, other local and regional planning documents also influence the transportation network. The following documents contain policies which should be considered in the General Plan Update.

[1] The San Joaquin Council of Governments (SJCOG) is a Joint Powers Authority comprised of the County of San Joaquin and the Cities of Stockton, Lodi, Manteca, Tracy, Ripon, Escalon and Lathrop. SJCOG serves as the regional transportation planning agency and the Congestion Management Agency (CMA) for San Joaquin County.

CITY OF STOCKTON BICYCLE MASTER PLAN

The City of Stockton is updating the Bicycle Master Plan, which is scheduled to be adopted before the General Plan Update. The Bicycle Master Plan identifies key low stress connections that should be implemented to allow people of all ages and abilities to connect across the city via a bicycle. The document will also identify programs and educational guidelines that could encourage a greater shift in bicycle mode share within Stockton. More information can be found on the City's website[2].

CITY OF STOCKTON PRECISE ROAD PLANS

The City of Stockton has multiple Precise Road Plans which conform to the General Plan. These plans can be used to protect, preserve, and require dedications for planned roadway and/or transportation corridors as future development occurs. These plans should be updated for conformity with multi-modal complete streets principles and to ensure consistency with other recently updated plans.

CITY OF STOCKTON WATERFRONT CONNECTIONS PLAN

The primary purpose of the Waterfront Connections Plan (WCP) is to preserve the opportunity to provide public access to the waterfront. The WCP creates economic and recreational opportunities, as well as alternative modes of transportation (walking and bicycling) from surrounding residential and commercial land uses to Downtown. The efforts to create a waterfront bike and pedestrian pathway on the shores of the Deep Water Channel began more than 30 years ago and have continued up to the present day. Numerous studies have been conducted over this period, design plans have been initiated, and land entitlements have been approved with the condition of providing for a future multi-use trail.

CITY OF STOCKTON CLIMATE ACTION PLAN

The City of Stockton Climate Action Plan (CAP) was adopted in 2014 and identifies reduction targets to reduce greenhouse gas emissions. The CAP relies on voluntary measures for both existing and new development, and includes a number of mandatory measures where required by

[2] http://www.stocktongov.com/government/departments/publicworks/projBike.html

other State or local mandates and other City initiatives. Transportation strategies to reduce vehicle miles traveled (VMT) represent a considerable portion of the CAP measures.

SJCOG REGIONAL CONGESTION MANAGEMENT PROGRAM

The SJCOG Regional Congestion Management Program (RCMP) identifies a network of roadways with regional significance throughout the county and identifies a process to coordinate the land use, air quality, and transportation planning processes. CMP roadways in Stockton include all Caltrans facilities, and major arterial facilities, including Eight Mile Road, Trinity Parkway, Hammer Lane, West Lane, Lower Sacramento Road, Thornton Road, March Lane, Pacific Avenue, Navy Drive, Sperry Road, Arch Road, Mariposa Road, and French Camp Road. Regional level of service (LOS) standards are established for each facility and a monitoring program is required to identify deficient roadways. Multi-modal considerations are incorporated into the program.

SJCOG REGIONAL TRANSPORTATION PLAN & SUSTAINABLE COMMUNITIES STRATEGY

The SJCOG Regional Transportation Plan & Sustainable Communities Strategy (RTP/SCS) provides a sustainable vision for 2040 that recognizes the significant impacts the transportation network has on the region's public health, mobility, and economic vitality. The RTP/SCS includes projects from all of the member jurisdictions throughout San Joaquin County and prioritizes regional investments in those projects.

SJCOG MEASURE K RENEWAL ORDINANCE AND EXPENDITURE PLAN

Measure K is a half-cent sales tax dedicated to transportation projects in San Joaquin County. The SJCOG Measure K Expenditure Plan identifies the projects that will be funded (partially or fully) through the voter-approved tax. Revenue from the Plan can be allocated to local street repair (35 percent), congestion relief (32.5 percent), passenger rail/bus/bicycle/pedestrian/Safe Routes to Schools projects (30 percent), or railroad crossing safety investment projects (2.5 percent).

SJCOG EXPRESSWAYS PLAN

SJCOG's Expressways Plan identifies a network of expressways throughout the county, including facilities in Stockton such as Eight Mile Road, Airport Way/West Lane, Trinity Parkway, Sperry

Road, Lower Sacramento Road, and French Camp Road. Discrepancies between the City of Stockton Circulation Map and the SJCOG Expressways Plan should be identified and resolved[3].

SJCOG PARK-AND-RIDE LOT MASTER PLAN

SJCOG's Park-and-Ride Plan, prepared in 2007, identifies the existing Park-and-Ride lots within San Joaquin County and describes the number of spaces and use characteristics for each lot. The Plan also estimates future Park-and-Ride demand and identifies potential locations for new or expanded facilities.

Specific data regarding the existing Park-and-Ride lots in Stockton is discussed in the section on the transit network below.

SJCOG REGIONAL SMART GROWTH TRANSIT-ORIENTED DEVELOPMENT PLAN

This Plan provides key background information that serves as context for smart growth development in the county, including summarizing existing local and regional policies, existing and forecasted greenhouse gas emissions, and economic and demographic trend information. Through an extensive process involving member jurisdictions, community members, and decision makers, SJCOG developed an inventory of sites throughout the county that are appropriate for infill development, including several sites in Stockton. Additional information about these sites is provided in the separate technical memorandum discussing existing land use conditions in Stockton.

SJGOG REGIONAL TRANSPORTATION IMPACT FEE

The Regional Transportation Impact Fee (RTIF) is a county-wide, multi-jurisdictional capital improvement funding program intended to cover a portion of the costs for new transportation facilities required to serve new development within the county. New development throughout the county is subject to the fee. The funding derived from the RTIF program is used in combination with other available funding to complete transportation and transit improvements identified through the SJCOG RTP/SCS.

[3] Potential discrepancies will be highlighted during the model development process for City staff consideration.

SJCOG FEDERAL TRANSPORTATION IMPROVEMENT PROGRAM

The Federal Transportation Improvement Program (FTIP) is a four-year spending plan for San Joaquin County that lists transportation projects that will receive federal funds or that are subject to a federally required action, such as a review and approval of environmental documents. Projects in the FTIP are developed and updated by SJCOG through its member agencies, and in cooperation with state and federal agencies and the eight San Joaquin Valley counties. Transportation system improvements within the City of Stockton identified in the FTIP include freeway mainline and interchange upgrades, roadway widening, traffic signal installation, widening of arterial roadway segments, railroad grade separations, bus rapid transit signal prioritization, airport runway improvements, streetscape improvements, and bicycle facilities. Discrepancies between the City of Stockton Circulation Map and the FTIP improvement list should be identified and resolved[4].

TRAVEL TRENDS IN STOCKTON

The City of Stockton is one of California's largest, fastest growing municipalities. The County seat for San Joaquin County, Stockton is home to a multi-ethnic and multi-cultural population of about 300,000, while an additional 40,000 people reside in nearby unincorporated communities. Stockton is situated along the Calaveras and San Joaquin Rivers, approximately 80 miles east of San Francisco and 50 miles south of Sacramento, the State capital.

Stockton spans an area of approximately ten miles by six miles, generally bordered by Eight Mile Road to the north, the San Joaquin River Delta to the west, SR 99 to the east, and Arch Airport Road/French Camp Road to the south. Stockton includes dozens of neighborhoods and districts, broadly defined as North (north of the Calaveras River), Central (south of the Calaveras River to SR 4), and South (south of SR 4). Several notable unincorporated communities are encircled by or adjacent to Stockton including Country Club, French Camp, Garden Acres, Kennedy, Lincoln Village, Morada, and Taft Mosswood. Stockton has a mild, Mediterranean climate and a flat topography.

[4] Potential discrepancies will be highlighted during the model development process for City staff consideration.

Stockton is a regional employment hub home to approximately 81,000 jobs,[5] most heavily concentrated around Downtown. Several educational institutions are located within Stockton including the University of the Pacific, California State University Stanislaus-Stockton, San Joaquin Delta Community College, and a variety of vocational schools.

COMMUTE TRENDS

Commute related trends provide an overview of which travel mode most residents in Stockton rely on to get to work. The mode of transportation chosen to get to work may be associated with the locations of jobs, land use patterns, or availability of modal choices throughout Stockton. Census journey to work data provides an overview of which transportation modes are most used in Stockton, as summarized in **Table 1**. Between 2000 and 2014, vehicle trips increased while bicycling, walking and transit commute trips decreased slightly. The percent of Stockton residents working from home has increased by 50 percent since 2000. Some of the differences in travel trends could be attributed to changes in U.S. Census data reporting between 2000 and 2014.

The place of work that Stockton residents commute to provides insight into the increase in drive alone trips and reduction in active transportation trips (i.e., biking, walking, or using transit). As summarized in **Table 2**, the percentage of employed persons who live in Stockton but commute outside the city and San Joaquin County has increased between 2000 and 2014. Increasing the proportion of jobs to employed residents in Stockton and San Joaquin County could help reduce the commuting long distances outside of the city or county.

Vehicle ownership trends in Stockton show that the number of households that have at least one automobile has increased from 2000 to 2014, indicating an increased reliance on the automobile for mobility within Stockton. **Table 3** summarizes vehicle ownership trends from 2000 to 2014.

[5] As of 2014, as reported in the 2016 Market Analysis prepared for the Stockton 2040 General Plan Update.

TABLE 1
MEANS OF TRANSPORTATION TO WORK

Mode	2000 Percent of Workers	2010 Percent of Workers	2014 Percent of Workers
Car, truck, or van	91.6%	91.5%	92.1%
Drove alone	*73.6%*	*74.2%*	*75.7%*
Carpooled	*18.0%*	*17.3%*	*16.5%*
Public transportation	1.9%	1.3%	1.3%
Bus	*1.7%*	*0.9%*	*1.1%*
Rail	*0.2%*	*0.4%*	*0.2%*
Walked	3.1%	1.8%	1.4%
Bicycle	0.8%	0.7%	0.6%
Taxicab, motorcycle, or other means	1.0%	1.1%	1.1%
Worked at home	2.4%	3.6%	3.4%

Source: US Census, Commuting Characteristics by Sex, Table S0801, ACS 5-year estimates for 2010 & 2014, 2000 Census, Table P030, SF-3 Sample Data.
Fehr & Peers, 2016.

TABLE 2
PLACE OF WORK

Place of Work	2000 Percent of Employed Stockton Residents	2010 Percent of Employed Stockton Residents	2014 Percent of Employed Stockton Residents
Worked in City of Stockton	60%	59%	58%
Worked in San Joaquin County	26%	25%	25%
Worked Outside San Joaquin County	14%	16%	17%

Source: US Census, Commuting Characteristics by Sex, Table S0801 and Table B08008, ACS 5-year estimates for 2010 & 2014, 2000 Census, SF-3. Fehr & Peers, 2016.

TABLE 3
VEHICLE OWNERSHIP

Number of Vehicles Available	2000 Percent of Households	2010 Percent of Households	2014 Percent of Households
No Vehicle Available	13%	9%	10%
1 Vehicle Available	36%	31%	37%
2 Vehicles Available	36%	38%	33%
3 or More Vehicles Available	15%	22%	20%

Source: US Census, Commuting Characteristics by Sex, Table S0801, ACS 5-year estimates for 2010 & 2014, 2000 Census, Table DP-4, SF-3 Sample Data. Fehr & Peers, 2016.

EXISTING TRANSPORTATION NETWORK

This section summarizes the existing transportation system in Stockton. In addition to motorized vehicle facilities, this section discusses pedestrian facilities, the bicycle network, and public transportation services.

ROADWAY NETWORK

The roadway network in Stockton is made up of freeways, highways, arterials, collectors, and local streets. Each is described in detail below with the existing classification shown on **Figure 1** (all figures are provided at the end of this memorandum).

FUNCTIONAL CLASSIFICATIONS

A hierarchy of roadways provides for vehicle travel within the City of Stockton. Freeways are high-speed facilities that move inter-city or regional traffic, with access generally limited to grade-separated interchanges. Highways are also high-speed, regional facilities, but access is provided at-grade in most cases. Arterials are high-volume facilities that connect the regional roadway

network to the local roadway network, while collector streets typically connect residential and local-serving commercial areas with the arterial system.

Freeways and Highways

I-5 is a major north-south freeway that traverses the western U.S., originating in southern California and continuing north toward Sacramento and beyond. It runs through the western portion of the city, generally providing four travel lanes in each direction through the central portion of Stockton (between Charter Way and Country Club Drive) and three lanes in each direction along the remaining segments, with widening to provide four lanes per direction under construction between County Club Drive and Hammer Lane. Twelve interchanges are provided along the 14-mile stretch of I-5 within and adjacent to the city limit. Average daily traffic volumes on I-5 range between 80,000 in northern Stockton, over 140,000 throughout central Stockton, and approximately 110,000 in southern Stockton.

SR 99 traverses the Central Valley, connecting Sacramento and points north with numerous Central Valley cities including Modesto, Merced, Fresno and Bakersfield. Three travel lanes are provided in each direction north of SR 4, while the segments south of SR 4 include two lanes per direction, with on-going widening that would ultimately provide three travel lanes per direction through Stockton to SR 120 in Manteca. Twelve interchanges are provided along the 12-mile length of SR 99 within and adjacent to the city limit. Average daily traffic volumes on SR 99 range between 80,000 in the northern and southern portions of the city around Morada Lane and Mariposa Road to over 105,000 in the central Stockton area.

The portion of SR 4 between I-5 and SR 99 also functions as a freeway. Known as the Crosstown Freeway, it traverses the city in an east-west direction just south of the Downtown area. This four-mile section is accessed by four interchanges, excluding the freeway-to-freeway interchanges located at the eastern and western ends of the city. The Crosstown Freeway currently carries approximately 100,000 vehicles per day.

Three highways also connect Stockton with points east and west of the city. SR 4 connects with Contra Costa County to the west, and the Sierra foothills and mountains of Calaveras and Alpine Counties in the east. It carries approximately 20,000 vehicles per day west of I-5 and 10,000 vehicles per day east of SR 99. SR 26 connects Stockton to Calaveras County, approximately 40 miles east. Daily traffic volumes on SR 26 are approximately 22,000 east of SR 99. SR 88 connects Stockton with Amador County to the east, and continues to the Nevada state line. This facility is

of particular inter-regional significance as it is one of only three all-weather, east-west highways serving Northern California. East of SR 99, SR 88 carries approximately 26,000 vehicles per day.

Arterials

The primary function of arterial streets is to connect the regional roadway network with the local roadway network. Limited access is provided to abutting parcels in many cases. Arterial streets are typically high-volume, high-speed roadways generally serving between 20,000 and 50,000 vehicles per day with four to eight travel lanes; some minor arterials serve fewer than 20,000 vehicles per day. Traffic signals on arterial roadways in Stockton are generally connected to the City's Traffic Management System, which provides signal coordination and incident response services. The following lists the key north-south and east-west arterials in the city:

North-South Arterials	East-West Arterials
Pershing Avenue	Eight Mile Road
Davis Road	Hammer Lane
Lower Sacramento Road	Benjamin Holt Drive
West Lane	Alpine Avenue
Pacific Avenue	Harding Way
El Dorado Street	Charter Way/ Dr. MLK Jr. Boulevard
Center Street	Arch-Airport/Sperry Road
Wilson Way	Miner Avenue (west of Wilson Way)
Airport Way	March Lane
Thornton Road	Morada Lane
	East Weber Avenue

Collectors

Collector streets serve as principal traffic arteries within residential and commercial areas. These streets typically carry up to 10,000 vehicles per day, although some collectors may carry more vehicle traffic for short segments as they convey traffic between arterial streets and local residential streets. Two to four travel lanes are typically provided on collector streets in Stockton.

Major key collectors include:

- Swain Road
- Quail Lakes Drive
- Bianchi Road
- Tam O'Shanter Drive
- 8th Street
- B Street
- Pock Lane
- A.G. Spanos Boulevard
- Country Club Boulevard (west of I-5)
- Brookside Road
- Miner Avenue (east of Wilson Way)
- Carolyn Weston Boulevard
- Henry Long Boulevard
- Holman Road
- McKinley Avenue
- Industrial Drive
- Fresno Avenue
- Fremont Street
- Feather River Drive
- Whistler Way
- Kelly Drive
- Montauban Avenue
- Lorraine Avenue
- Navy Drive

EXISTING CONDITIONS AND DEFICIENCIES

The roadway network was evaluated to identify existing operational conditions and deficiencies considering roadway segment analyses and accident data. The City of Stockton has established a level of service (LOS) standard to evaluate the operating conditions of roadway segments and intersections within the city.

LOS is a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (free flow conditions) to LOS F (over capacity conditions). LOS E corresponds to operations "at capacity." When volumes exceed capacity, stop-and-go conditions result and operations are designated as LOS F. The City of Stockton has historically strived to maintain LOS D or better for peak hour intersection and daily roadway segment operations. To encourage the development of a multi-modal transportation system and to acknowledge constraints in developed portions of the city, the current General Plan designates the standard as LOS E for intersections in the Downtown area (bounded by Harding Way, the Union Pacific railroad tracks, Charter Way/Dr Martin Luther King Jr. Boulevard, I-5, and Pershing Avenue), permitting LOS F if improvements for vehicle travel could degrade the quality of the transportation system for other roadway users. A number of other

intersections and roadway segments are also exempt from the LOS D standard due to physical constraints (Existing Policy TC-2.1).

Daily operations of roadway segments were evaluated by comparing the traffic volume on a roadway facility to the functional capacity of the roadway (see **Appendix A** for a description of the analysis method and results), based on the volumes presented on **Figure 2**, the existing functional classification, as presented on Figure 1, and the existing number of lanes. Analysis results indicate that overall, the City of Stockton roadway network functions within capacity, although some potential deficiencies were identified. Detailed analysis results are presented in the Appendix. Of the roadway segments evaluated, most operate at LOS D or better on a daily basis. The following segments operate at LOS E or F:

- SR 99 between Dr. Martin Luther King Jr Blvd and Farmington Road [LOS F] (this freeway section is under construction to add one lane in each direction in Fall 2016, which would result in LOS C operations)
- Eight Mile Road between Lower Sacramento Road and West Lane [LOS F]
- Ben Holt Drive between Plymouth Road and Pacific Avenue (This roadway is exempt from City of Stockton LOS standards due to physical constraints that limit potential roadway improvements. Although a portion of the roadway is located within unincorporated San Joaquin County, the City of Stockton LOS standards prevail as this facility is within the City of Stockton Sphere of Influence [County General Plan Policy TM-3.1].)
- Thornton Road between Davis Road and Waudman Avenue [LOS F]
- Thornton Road between Davis Road and Pershing Avenue [LOS E] (LOS E is considered acceptable for this roadway segment due to physical constraints)
- Lower Sacramento Road between Eight Mile Road and Bear Creek [LOS E]
- Pershing Avenue at Calaveras River [LOS E]

Although the roadway facilities generally provide for vehicle travel, the level of service analysis does not capture the mobility experience of other roadway users. As part of the General Plan Update process, the City may consider policies related to measuring the performance of other travel modes within the City of Stockton.

AUTOMOBILE COLLISIONS

Automobile collision data in Stockton was reviewed for a six-year span between 2009 and 2014. The source for the collision data is the Statewide Integrated Traffic Records System (SWITRS) from the California Highway Patrol (CHP), accessed via the Transportation Injury Mapping System (TIMS) maintained by the Safe Transportation Research and Education Center (SafeTREC) at the University of California, Berkeley.

Between 2009 and 2014, 3,945 motor vehicle collisions occurred within the City of Stockton. Of these collisions, 42 were fatal and 87 resulted in severe injuries. The most common types of collisions were broadside (42 percent of auto collisions) and rear-end collisions (44 percent of auto collisions). The rate of misdemeanor or felony hit and run collisions for automobile-only collisions in Stockton is 12 percent of automobile collisions (444 total), as compared to 9 percent of automobile collisions at the statewide level . Approximately 82 percent of collisions occurred in daylight, while 18 percent occurred during dusk, dawn, or night conditions.

The location of automobile-only collisions is shown on **Figure 3.** The intersections with the highest level of automobile collisions are shown in **Table 4**. **Table 5** summarizes the primary collision factors.

TABLE 4
TOP 20 TRAFFIC COLLISION LOCATIONS, 2009-2014

Intersection	Total Collisions	Fatal	Injury
Interstate 5 Ramps & March Lane	82	1	81
March Lane & Pershing Avenue	52	0	52
Interstate 5 Ramps & Charter Way	42	1	41
Interstate 5 Ramps & Downing Avenue	35	0	35
March Lane & Quail Lakes Drive	35	0	35
Interstate 5 Ramps & Benjamin Holt Drive	33	1	32
Interstate 5 Ramps & State Route 4	33	0	33
Interstate 5 Ramps & Hammer Lane	32	1	31
El Dorado Street & March Lane	31	0	31
Hammer Lane & Tam O'Shanter Drive	30	0	10

TABLE 4
TOP 20 TRAFFIC COLLISION LOCATIONS, 2009-2014

Intersection	Total Collisions	Fatal	Injury
Interstate 5 Ramps & 8th Street	29	2	27
Interstate 5 Ramps & Monte Diablo Avenue	29	0	29
State Route 4 & Filbert Street	26	2	24
State Route 99 & Arch Road	26	0	25
West Lane & March Lane	23	0	23
Airport Road & Park Street	21	0	21
Hammer Lane & Holman Road	21	0	21
Interstate 5 Ramps & Country Club Boulevard	21	0	21
Pacific Avenue & Benjamin Holt Drive	21	0	21
State Route 4 & Wilson Way	20	0	20
Interstate 5 Ramps & Pershing Avenue	17	1	16

Source: California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS) 2009-2014 data provided by the University of California, Berkeley Transportation Injury Mapping System (TIMS). Fehr & Peers, 2016.
Note: Data from 2014 may not be complete as noted on the TIMS website.

TABLE 5
PRIMARY COLLISION FACTORS, 2009-2014

Primary Collision Factor	Percent of Collisions
Unsafe Speed	31%
Automobile Right of Way	15%
Traffic Signals and Signs	12%
Improper Turning	9%
Driving or Bicycling Under the Influence of Alcohol or Drug	7%
Unknown	6%
Wrong Side of Road	4%

TABLE 5
PRIMARY COLLISION FACTORS, 2009-2014

Primary Collision Factor	Percent of Collisions
Unsafe Lane Change	4%
Pedestrian Violation	3%
Pedestrian Right of Way	3%
Not Stated	2%
Unsafe Starting or Backing	1%
Other Than Driver (or Pedestrian)	1%
Following Too Closely	1%
Other Hazardous Violation	1%

Source: California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS) 2009-2014 data provided by the University of California, Berkeley Transportation Injury Mapping System (TIMS). Fehr & Peers, 2016.
Note: Data from 2014 may not be complete as noted on the TIMS website.

TRANSIT NETWORK

There are numerous transit options for travel within Stockton or regional travel to neighboring counties and beyond. Bus services support local and regional travel, while rail lines provide connectivity to the Bay Area, Sacramento, and Southern California and beyond.

BUS SERVICE

Bus service within Stockton is operated by a major transit provider with some supportive services from operators from around the region.

Primary Local and Regional Service

The San Joaquin Regional Transit District (RTD) is the primary regional transit provider in San Joaquin County. San Joaquin RTD provides public transit services in the Stockton Metropolitan area, as well as inter-city and rural transit services countywide. San Joaquin RTD offers multiple fare prices including a standard rate, discounted rate for seniors and Medicare card holders, and students. Day-long or multi-day passes can also be purchased by regular transit riders.

San Joaquin RTD provides multiple service options as described below with specific routes and ridership information provided in **Table 6,** and the transit route coverage presented on **Figure 4**. Overall, routes with the highest frequency of service have the highest levels of ridership.

Intercity

San Joaquin RTD offers a fixed route service to connect Stockton with Lodi. The Lodi Station offers connections with the Lodi Grapeline, Calaveras Transit, Delta Breeze, and SCT/LINK buses to facilitate travel beyond Stockton.

Metro

Fixed route services within the Stockton Metropolitan Area are provided by Metro Express buses with increased frequencies along major corridors in Stockton, and standard service buses that provide connections to most other areas of Stockton. On normal weekdays, this service provides many routes with great coverage of Stockton. These routes are consolidated on weekends. Some Metro routes have Bus Rapid Transit (BRT) features, including pre-boarding ticket vending machines at stops to reduce dwell time and more frequent peak hour service.

Hopper

San Joaquin RTD offers two levels of Hopper Service including the Metro Hopper and the County Hopper. These are deviated fixed route bus services which serve popular destinations throughout Stockton. There are eight Metro Hopper routes within the city limit that run approximately every hour. These lines can deviate from their route up to approximately one mile which increases transit coverage to approximately 75 percent of the Stockton Metro Area for Americans with Disabilities Act (ADA)-certified customers. Similarly, the County Hopper offers a similar service with more direct connections between Stockton, Tracy, Manteca, Ripon, Lodi, and Lathrop.

Interregional Commuter

San Joaquin RTD provides regional connectivity between the Stockton Transit Center, Altamont Commuter Express (ACE) train station, Tracy, Manteca, Livermore and the Dublin/Pleasanton Bay Area Rapid Transit (BART) station. Other routes connect Stockton with Sacramento and two major Bay Area employers including Lockheed Martin and Northrop-Grumman in Sunnyvale. Reservations and monthly subscription passes are available for this service to give riders confirmation they will have a seat available.

Dial-A-Ride

San Joaquin RTD has two types of Dial-A-Ride services including one for the general public and one for passengers with ADA certification. The general public service provides curb-to-curb service in areas not being served by RTD routes or other public transportation options. The Stockton Metro Area Dial-A-Ride (SMA-ADA) provides curb-to-curb service for passengers who have received ADA certification with San Joaquin RTD to qualify for paratransit services.

TABLE 6
SAN JOAQUIN RTD BUS SERVICE AND TYPICAL MONTHLY RIDERSHIP

Route	Major Locations & Service Area	Frequency	Approx. Monthly Ridership (# of passengers)
Intercity Service			
23	Stockton to Lodi via Lower Sacramento Road.	Weekday: 1 hour during peak periods	10,000
Stockton Metropolitan Area Service			
40	Metro Express service for the Pacific Avenue corridor to the Downtown Transit Center and Hammer Lane Triangle.	Weekday: 10 minutes Weekend: Varies 20-30 minutes	203,000
43	Metro Express service along the Hammer Lane corridor generally between Holman Road and Mariners Drive.	Weekday: 15 minutes Weekend: 30 minutes	87,000
44	Metro Express service along the Airport Way corridor between the Downtown Transit Center and Ralph Avenue.	Weekday: 20 minutes Weekend: 30 minutes	59,000
51	El Dorado Street, San Joaquin Street, Malls, Amtrak, and SJ County Hospital. No weekend service is provided.	Weekday: 1 hour	20,000
52	Honor Farm, Downtown Transit Center, California Street, West Lane, and Kaiser. No weekend service is provided.	Weekday: 1 hour	31,000
54	Eighth Street, Dr. Martin Luther King Jr. Boulevard, Amtrak Station, and Downtown Transit Center. No weekend service is provided.	Weekday: 1 hour	14,000

TABLE 6
SAN JOAQUIN RTD BUS SERVICE AND TYPICAL MONTHLY RIDERSHIP

Route	Major Locations & Service Area	Frequency	Approx. Monthly Ridership (# of passengers)
55	Carolyn Weston Boulevard, Dr. Martin Luther King Jr. Boulevard, Stanislaus Street, and Downtown Transit Center. No weekend service is provided.	Weekday: 1 hour	10,000
60	Pixie Woods, Monte Diablo Avenue, Fremont Street, Weber Avenue, and Downtown Transit Center. Morning service is limited to the peak period and afternoon services operate between 12:15 PM and 6:30 PM. No weekend service is provided.	Weekday: 1 hour	6,000
61	Sherwood Mall, San Joaquin Delta College, Quail Lakes Drive, Pershing Avenue, Alpine Avenue, and Downtown Transit Center.	Weekday: 55 minutes – 1 hour	21,000
63	Cumberland Place, Benjamin Holt Drive, Sherwood Mall, and San Joaquin Delta College. Limited morning service and afternoon service until 6:00 PM.	Weekday: 1 hour	5,000
66	Ponce de Leon Avenue, Hickcock Drive, Thornton Avenue, Spanos Park West, Davis Road, Woodcreek, and Hammer Lane. Limited morning service; no weekend service is provided.	Weekday: 1.5 hour (limited service)	6,000
70	Hammer Lane, El Dorado Street, and Downtown Transit Center. No weekend service is provided.	Weekday: 1 hour	18,000
71	San Joaquin Delta College, Sherwood Mall, March Lane, Bianchi Road, Holman Road, Hammer Lane, and West Lane. Limited morning service; no weekend service is provided.	Weekday: 1 hour to 1 hour and 15 minutes	5,000
76	Downtown Transit Center, Sanguinetti Lane, Wilson Way, Weber Avenue and Church Street. Limited morning service; no weekend service is provided.	Weekday: 1 hour to 1 hour and 15 minutes	7,000

TABLE 6
SAN JOAQUIN RTD BUS SERVICE AND TYPICAL MONTHLY RIDERSHIP

Route	Major Locations & Service Area	Frequency	Approx. Monthly Ridership (# of passengers)
77	Downtown Transit Center, Miner Avenue, Flora Street, and Waterloo Road. Limited morning service; no weekend service is provided.	Weekday: 1 hour to 1 hour and 15 minutes	6,000
80	Sherwood Mall, San Joaquin Delta College, Pershing Avenue, Acacia Street, Downtown Transit Center, Miner Avenue, Wilson Way, Dr. Martin Luther King Jr. Boulevard, County Fairgrounds, and Farmington Road. No weekend service is provided.	Weekday: 1 hour	32,000
83	Downtown Transit Center, Main Street, Washington Street, and Oro Avenue. No weekend service is provided.	Weekday: 1 hour	18,000
85	Limited service between the Downtown Transit Center, Miner Avenue, Fremont Street, Oro Avenue, Farmington Road, B Street, and Arch Airport Road. No weekend service is provided.	Weekday: Limited	1,000
310	Downtown Transit Center, Dr. Martin Luther King Jr. Boulevard, and McKinley Park/Community Center. No weekend service is provided.	Limited Weekday Crosstown Service (2-5 buses per day)	1,000
315	Downtown Transit Center, Amtrak, San Joaquin Street, Dr. Martin Luther King Jr. Boulevard, and Eighth Street. No weekend service is provided.		1,000
340/345	Hammer Lane, Holman Road, March Lane, Wilson Way, Filbert Street, and Fremont Street. No weekend service is provided.		2,000/6,000
360/390	Downtown Transit Center, Miner Avenue, Waterloo Road, Harding Way, and Wilson Way. No weekend service is provided.		1,000/2,000

TABLE 6
SAN JOAQUIN RTD BUS SERVICE AND TYPICAL MONTHLY RIDERSHIP

Route	Major Locations & Service Area	Frequency	Approx. Monthly Ridership (# of passengers)
365	Stockton Medical Plaza and northern Stockton neighborhoods with limited service to San Joaquin Delta College and Sherwood Mall transfer center. No weekend service is provided.		1,000
375	Downtown Transit Center, Cherokee Road, Holman Road, and Hammer Lane. No weekend service is provided.		2,000
380	Downtown Transit Center, Fremont Street, Oro Avenue, Farmington Road, B Street, and Airport Way. No weekend service is provided.		4,000
385	Downtown Transit Center, Fremont Street, Oro Avenue, Farmington Road, B Street, Industrial Drive, and Arch Airport Road. No weekend service is provided.		2,000
710	Downtown Transit Center, San Joaquin Street, Carolyn Weston Boulevard, McDouglas Boulevard, and San Joaquin General Hospital. No weekday service is provided.	Weekend: 1 hour	3,000
715	West Eighth Street, Dr. Martin Luther King Jr. Boulevard, Airport Way, and East Eighth Street. No weekday service is provided.	Weekend: 1 hour	1,000
720	Downtown Transit Center, California Street, Alpine Avenue, and Wilson Way. No weekday service is provided.	Weekend: 1 hour	1,000
723	Downtown Transit Center to Lodi Transit Station via El Dorado Street, Pacific Avenue, Swain Road and West Lane. No weekday service is provided.	Weekend: Approx. 1 hour	2,000
725	Acacia Street, Miner Avenue, Downtown Transit Center, Filbert Street, and Main Street. No weekday service is provided.	Weekend: 1 hour	2,000

TABLE 6
SAN JOAQUIN RTD BUS SERVICE AND TYPICAL MONTHLY RIDERSHIP

Route	Major Locations & Service Area	Frequency	Approx. Monthly Ridership (# of passengers)
745	Sherwood Mall, San Joaquin Delta College, Robinhood Drive, Goose Run Drive, Pershing Avenue, and Alpine Way. No weekday service is provided.	Weekend: 1 hour	1,000
797	Downtown Transit Center, Tracy, and Manteca. No weekday service is provided.	Weekend: 2 hour	1,000
Metro Hopper Service			
1	Northwest Stockton	Weekday: 1 hour	4,000
2	Northwest Stockton	Weekday: 1 hour	3,000
3	North Stockton	Weekday: 1 hour	2,000
4	Central Stockton	Weekday: 1 hour	4,000
5	Central Stockton	Weekday: 1 hour	6,000
6	Northeast Stockton	Weekday: 1 hour	2,000
7	South Stockton	Weekday: 1 hour	4,000
8	Northeast Stockton	Weekday: 1 hour	2,000
9	Southeast Stockton	Weekday: 1 hour	1,000
County Hopper Service			
90	Stockton to Tracy. No weekend service is provided.	Weekday: Varies, primary service during peak commute period	9,000
91	Stockton to Manteca and Ripon. No weekend service is provided.	Weekday: Varies, primarily service during peak commute periods	9,000
93	Stockton to Lodi. No weekend service is provided.	Weekday: Varies, primarily service during peak commute periods	7,000

TABLE 6
SAN JOAQUIN RTD BUS SERVICE AND TYPICAL MONTHLY RIDERSHIP

Route	Major Locations & Service Area	Frequency	Approx. Monthly Ridership (# of passengers)
97	Tracy to Lathrop and Stockton. No weekend service is provided.	Weekday: Varies, primarily service during peak commute periods	2,000
Interregional Commuter Service			
150	RTD BART Commuter	Weekday: Limited	8,000
152	Stockton/Lathrop to Livermore	Weekday: Limited	2,000
163	Sacramento via Highway 99	Weekday: Limited	3,000
164	Lockheed Martin 2	Weekday: Limited	2,000
165	Sacramento via Interstate 5	Weekday: Limited	4,000
166	Lockheed Martin 3	Weekday: Limited	2,000
172	Lockheed Martin 4	Weekday: Limited	3,000
173	Northrop Grumman/Sunnyvale	Weekday: Limited	2,000

Source: San Joaquin Regional Transit District, www.sanjoaquinrtd.com. Fehr & Peers, 2016.

Park-n-Ride Lots

The San Joaquin RTD Interregional Commuter services are supported by five Park-n-Ride lots located throughout Stockton. These Park-n-Ride lots currently offer free parking for San Joaquin RTD transit riders. The following Park-n-Ride lots are located within Stockton:

- Benjamin Holt Drive and Herndon Place at the Marina Shopping Center (45 spaces)
- Kelley Drive at the Calvary First Assembly of God Church (40 spaces)
- Hammer Lane and Holman Road near the Super Walmart (50 spaces)
- Michigan Avenue at the LifeSong Community Church (45 spaces)
- Morada Ranch Shopping Center (35 spaces)

The SJCOG Park-and-Ride Lot Master Plan identifies approximately ten priority areas within the City of Stockton for new or expanded Park-and-Ride facilities.

Supportive Regional Service

The Calaveras Transit Delta Gold Line provides a connection from the San Andreas Government Center to the Stockton Downtown Transit Center. The Delta Gold Line also provides additional service within Stockton to Amtrak and San Joaquin Delta College. The service runs twice a day to and from Stockton.

Private Bus Service

The Stockton Greyhound bus station is located at 121 S. Center Street on the northern end of Downtown Stockton. Greyhound provides regional service to many parts of northern and southern California with national bus service connections as well.

PASSENGER RAIL SERVICE

The passenger rail services are described in this section while the commercial freight rail operators are discussed with goods movement later in this memorandum. Stockton is served by two heavy rail operators which provide connections within California and beyond.

Altamont Corridor Express (ACE Train)

The Altamont Corridor Express (ACE Train) is a heavy rail service that connects the Central Valley with the Bay Area. The ACE Train is managed under a Cooperative Services Agreement between the San Joaquin Regional Rail Commission, Alameda County Congestion Management Agency, and the Valley Transportation Authority. The San Joaquin Regional Rail Commission is the primary owner/operator of the ACE Train and contracts with Herzog Transit Services, Inc. to operate and maintain the service.

The existing ACE route currently operates between Stockton and San Jose with four round trip services per day (four westbound AM trains and four eastbound PM trains). The ACE Train currently stops in Lathrop, Tracy, Livermore, Pleasanton, Fremont, Milpitas, and Santa Clara. The Stockton Station is located at 949 East Channel Street between Miner Avenue and Weber Avenue on the east side of Downtown. It takes approximately two hours to complete the trip between Stockton and San Jose.

The San Joaquin Regional Rail Commission has also launched ACEforward, a program to start planning for the future of the ACE Train with the goal of establishing six roundtrip trains between Stockton and San Jose while also planning the expansion of a new line to Merced.

Based on data from fall 2015, the Stockton ACE Station serves approximately 350 passengers per day, which is about 10 percent of the total ACE ridership.

Amtrak

The City of Stockton is currently serviced by one Amtrak line which connects from Bakersfield to Oakland or Sacramento. The trip from Stockton to Oakland is approximately two hours. Amtrak stops at both the Downtown Stockton Train Station, which also serves ACE trains on Channel Street, and a station south of Downtown on San Joaquin Street between Hazelton Avenue and Worth Street.

Amtrak provides thruway buses to connect the train service with other metropolitan areas such as San Francisco and the Dublin/Pleasanton BART station. Connections to southern California can be made at the Bakersfield Station.

BICYCLE NETWORK

This section provides a summary of the existing bicycle network including types of facilities, significant routes, and bicycle parking locations. Stockton's geographic barriers (e.g. waterways, railways, and freeways) pose unique challenges to bicycle circulation. In several locations across the city, crosstown circulation is limited to a few bridges and underpasses; consequently, these barriers may pose challenges to bicycle circulation. Stockton has seven bicycle/pedestrian-only bridges across the city, most of which provide more direct access than street alternatives. Bicyclists are generally accommodated on the sidewalk along major street bridges and underpasses.

The City of Stockton is currently updating its Bicycle Master Plan, which provides a more detailed existing conditions assessment than the summary provided below. More information can be found on the City's project website[6]. As part of that process, the proposed bicycle network may

[6] http://www.stocktongov.com/government/departments/publicworks/projBike.html

be modified, and other programmatic elements will be considered, such as bicycle share opportunities, bicycle parking, and other supportive policies and programs.

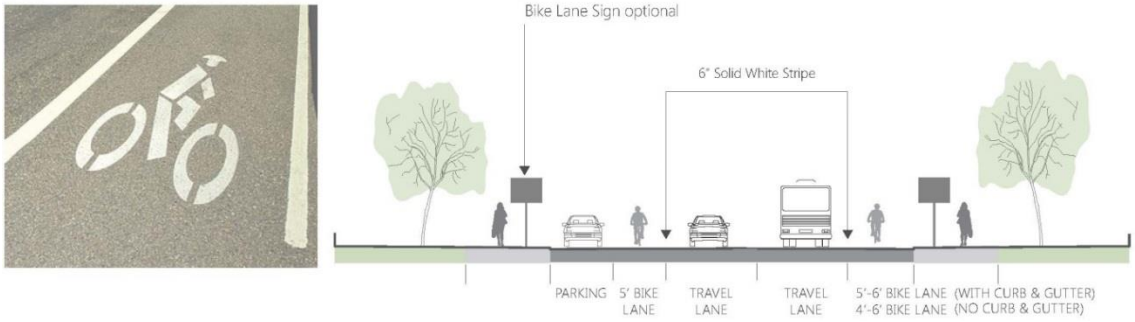
BIKEWAY CLASSIFICATIONS

Caltrans' *Highway Design Manual* (Chapter 1000: Bikeway Planning and Design) and California Assembly Bill 1193 codify four distinct classifications of bikeways. Each bikeway class is intended to provide bicyclists with enhanced riding conditions. Different bikeway designs offer various levels of separation from traffic based on traffic volume and speed, among other factors. The four bikeway types in California and appropriate contexts for each are detailed below.

- *Class I Bikeway (Bike Path)* Bike paths provide a completely separate right-of-way and are designated for the exclusive use of people riding bicycles and walking with minimal cross-flow traffic. Stockton has many such paths located along creeks, canals, and rail lines. Class I Bikeways can also offer opportunities not provided by the road system by serving both recreational and commute trips.

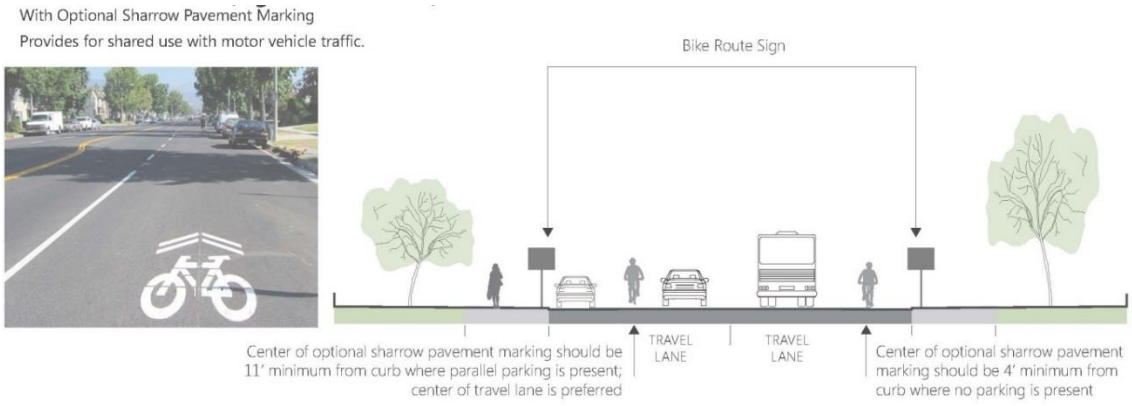
- *Class II Bikeway (Bike Lane)* Bike lanes provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage. Bike lanes may be enhanced with painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections).

Provides a striped lane for one-way bike travel on a street or highway.

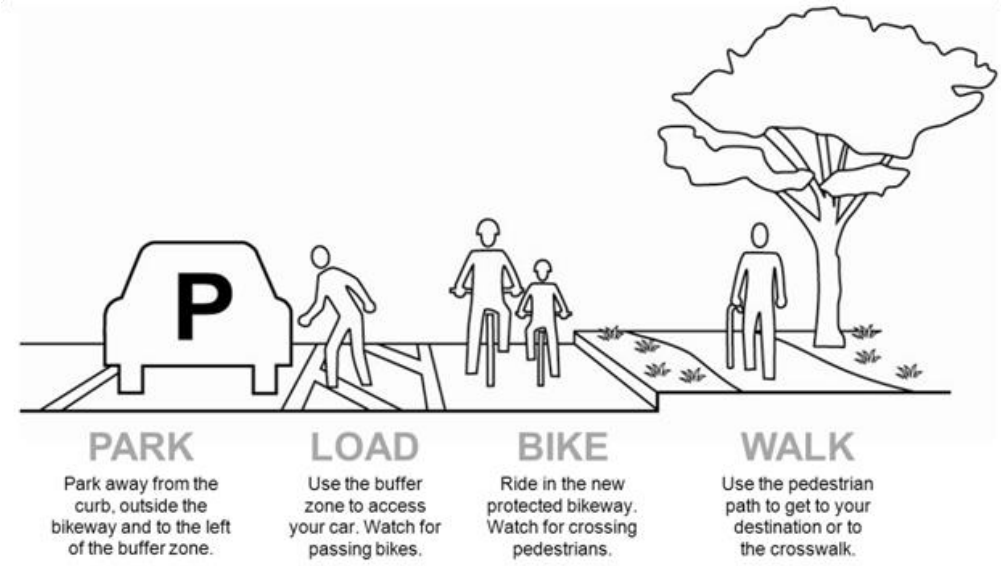


- *Class III Bikeway (Bike Route)* Bike routes provide enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets. Bicycle boulevards provide further enhancements to bike routes by encouraging slow speeds and discouraging non-local vehicle traffic, often through the use of traffic calming. Bicycle boulevards can also feature special wayfinding signage to nearby destinations or other bikeways.

With Optional Sharrow Pavement Marking
Provides for shared use with motor vehicle traffic.



- *Class IV Bikeway (Separated Bikeway)* Separated Bikeways, also referred to as cycle tracks or protected bikeways, are bikeways for the exclusive use of bicycles which are physically separated from vehicle traffic. Separated Bikeways were recently adopted by Caltrans in 2015. Types of separation may include, but are not limited to, grade separation, flexible posts, physical barriers, or on-street parking.



EXISTING BICYCLE NETWORK

The City of Stockton has about 117 miles of existing bikeways including approximately 46 miles of bike paths, 36 miles of bike lanes, and over 35 miles of bike routes. However, the level of comfort and connectivity offered by these facilities varies. Overall, the citywide network is largely disconnected:

- Some neighborhoods have access to bicycle facilities that provide links between neighborhoods. However, barriers such as waterways, railways, freeways, and high-speed arterials limit access to other neighborhoods and destinations. In particular, access to Downtown Stockton is limited to one street with bicycle lanes in certain segments (California Street), and no facilities wholly span Downtown.
- North-south connectivity across the city is limited. West Lane provides the only designated north-south route from Downtown to north of the Calaveras River, yet few bicyclists are observed to use the street, likely because of its high-speed mixed traffic conditions.

- Many of Stockton's trails (such as the Calaveras River Trail) have limited connectivity to on-street facilities.

A summary of the existing bicycle network is provided below with **Figure 5** displaying the existing Class I and Class II facilities on the bicycle network.

Bike Paths (Class I)

Class I bike paths form the backbone of Stockton's existing bicycle network. Stockton contains 46 miles of bike paths along the city's rivers, creeks, and canals, mostly aligned in an east-west direction. Popular bike paths include the Calaveras River, March Lane, Bear Creek, and French Camp Slough trails. Additionally, Stockton includes several bicycle- and pedestrian-only bridges, including, but not limited to, two across the Calaveras River (at the University of Pacific campus and east of West Lane), across Smith Canal west of I-5, and across White Slough at Alexandria Place.

Bike Lanes (Class (II)

Stockton contains 36 miles of bike lanes, mostly located in neighborhoods north of the Calaveras River as well as in Weston Ranch. Notable streets with bike lanes include portions of Carolyn Weston Boulevard, El Dorado Street, South B Street, California Street, Feather River Drive, Quail Lakes Drive, Hammer Lane, Holman Road, and Whistler Way.

Bike Routes (Class III)

Stockton officially designates a network of approximately 35 miles of bike routes; however, these facilities are generally unsigned and do not include traffic calming features. These bike routes span a range of street types, from neighborhood streets like Baker Street to major arterials like West Lane. Due to their varied and inconsistent nature, Stockton's designated bike routes do not provide strong guidance toward bicycle-friendly corridors.

Separated Bikeways (Class IV)

The City of Stockton does not have any separated bikeways: this class is a new designation available since the city's current Bicycle Plan was adopted in 2007.

Informal Facilities

Stockton's bicycle network is augmented by a network of informal or unmarked trails associated with levee access roads along the city's waterways and utility rights-of-way. While some of these levee trails have been upgraded to Class I facilities discussed above, many paved and unpaved trails are located along private rights-of-way and are typically gated, unsigned, and/or unpaved; therefore, they are not included in the official bicycle network.

BICYCLE ACTIVITY

Bicycle counts provide a snapshot of cycling activity across Stockton. Counts were conducted for twelve-hour periods on select Tuesdays in September and October 2015. A total of 1,814 bicyclists were counted at 16 locations. Count locations were selected in coordination with City staff in consideration of features such as bicycle facilities, bridges/underpasses, and key destinations.

Over 900 bicycle trips were observed crossing the Calaveras River at the city's six bridge locations. As key gateways across the city, the use of each bridge illustrates the relative popularity of north-south routes. Bridges at the University of the Pacific, North Pershing Avenue, and Pacific Avenue were the most heavily used, each accounting for over 200 trips. Bridges at El Dorado Street, West Lane, and east of West Lane were less used (approximately 100 or fewer trips each).

Several other key bridges and underpasses exhibited relatively strong bicycle activity. In South Stockton, Lincoln Street and Airport Way each carried over 100 trips at bridges over Mormon Slough; the El Dorado Street and Center Street bridges carried far fewer trips. In North Stockton, the Hammer Lane crossing of the UPRR and the Thornton Road bridge across White Slough both carried over 100 trips.

Bicycle activity was fairly consistent from 7 AM to 2 PM, with each hour experiencing between 7 to 8 percent of the daily activity. Between 2 PM and 6 PM, bicycle activity increased to approximately 10 to 11 percent of daily activity, with the peak hour of observed bicycle travel between 3 PM and 4 PM, as summarized in **Table 7.**

TABLE 7
SAMPLE BICYCLE ACTIVITY

Time Period	Number of Bicyclist Observed	Percent of Daily Total
7 to 8 AM	128	7%
8 to 9 AM	103	6%
9 to 10 AM	136	7%
10 to 11 AM	148	8%
11 AM to 12 PM	140	8%
12 to 1 PM	139	8%
1 to 2 PM	134	7%
2 to 3 PM	176	10%
3 to 4 PM	195	11%
4 to 5 PM	181	10%
5 to 6 PM	186	10%
6 to 7 PM	148	8%

Source: Fehr & Peers, based on data collected in September and October 2015 at sixteen locations throughout the city.

BICYCLE COLLISIONS

Bicycle-vehicle collision data was reviewed for a six-year span between 2009 and 2014 including the frequency, cause, type, and severity of collisions involving bicyclists in Stockton. The source for the collision data is the same as for the automobile collision data discussed above: CHP's SWITRS, accessed via the TIMS maintained by SafeTREC at the University of California, Berkeley. The following presents a summary of findings with detailed information provided in the updated Bicycle Master Plan.

Between 2009 and 2014, 404 vehicle-bicyclist collisions occurred within the City of Stockton. Of these collisions, nine were fatal and ten resulted in severe injuries. Bicyclist-involved collisions accounted for approximately eight percent of all traffic collisions, five percent of all serious traffic injuries, and nine percent of all traffic fatalities within the city, all disproportionately higher than the city's 2014 bicycle mode share (0.6 percent of commute trips as presented in Table 1). Stockton experiences a high rate of hit and run collisions involving bicyclists: 22 percent of collisions (89 total) were misdemeanor or felony hit and run, higher than the statewide average of

12 percent. Approximately 83 percent of bicycle involved collisions occurred in daylight, while 17 percent occurred during dusk, dawn, or night conditions.

The location of bicycle collisions is shown on **Figure 6**. The intersections with the highest level of bicycle collisions are shown in **Table 8**. Between 2009 and 2014, nine bicyclist fatalities occurred in the city.

TABLE 8
TOP VEHICLE-BICYCLIST COLLISION INJURY LOCATIONS IN STOCKTON, 2009-2014

Intersection	Number of Bicyclist Injury Collisions
West Lane & Hammer Lane	7
Hammer Lane & Tam O Shanter Drive	6
Pershing Avenue & Quail Lakes Drive	6
Pacific Avenue & Robinhood Drive	6
Harding Way & Center Street	5
Hammer Lane & Lower Sacramento Road	4
Pershing Avenue & March Lane	4

Source: California Highway Patrol
Notes: This table is based on the total number of collisions and does not adjust for vehicle or bicyclist volumes (exposure).
Notes: Midblock collisions were assigned to the nearest intersection.

Data regarding the cause, type, and severity of vehicle-bicycle collisions in Stockton is limited and incomplete. A large proportion of collisions are uncategorized by type and cause, and data often falls short of capturing the nuance of how collisions occurred. **Table 9** and **Table 10** summarize the primary collision factor and type of collision.

TABLE 9
PRIMARY COLLISION FACTORS – BICYCLE COLLISIONS IN STOCKTON, 2009-2014

Primary Collision Factor	Percentage
Wrong Side of the Road	45%
Other/Unknown	13%
Automobile Right of Way	11%
Traffic Signals and Signs	11%
Improper Turning	6%
Unsafe Speed	5%
Not stated	4%
Other Hazardous Violation	2%
Driving or Bicycling Under the Influence of Alcohol or Drugs	2%

Source: California Highway Patrol

TABLE 10
TYPES OF BICYCLE COLLISIONS STOCKTON, 2009-2014

Primary Collision Factor	Percentage
Other	45%
Broadside	42%
Sideswipe	5%
Head-On	2%
Vehicle/Pedestrian	2%
Rear-end	1%
Hit Object	1%

Source: California Highway Patrol

LEVEL OF TRAFFIC STRESS ANALYSIS

The Bicycle Master Plan is evaluating the Level of Traffic Stress (LTS) on roadways throughout Stockton. LTS analysis seeks to measure how much stress is experienced by bicyclists across a city's street network due to various characteristics of roads and bicycle facilities. The LTS methodology was developed by the Mineta Transportation Institute in *Low Stress Bicycling and Network Connectivity,*[7] and is based on an application of Dutch bicycling standards and existing research in bicycle transportation. LTS rankings range from 1 (very low stress; tolerable by all) to 4 (very high stress; tolerable to only a few). Additional details are provided in the city's Draft Bicycle Master Plan.

The results of the LTS analysis compare the citywide LTS analysis on all roadways and paths with the LTS for designated bicycle-only facilities. As shown in **Table 11** and **Figure 7**, most streets in Stockton constitute low stress bikeways; however, nearly all of the city's crosstown arterials and collectors are high stress. Low-stress bikeways (LTS 1 and 2) comprise about two-thirds of Stockton's streets and permeate the city's residential neighborhoods. Low stress bikeways provide limited connectivity for traveling between neighborhoods, accessing major destinations, and crossing major geographic barriers. Most destinations for employment (e.g., Downtown), shopping (e.g., Lincoln Center), and education (e.g., Delta College) can only be accessed via high stress facilities.

The most common factors contributing to high LTS scores across Stockton include high posted speed limits (30-45 MPH), wide streets with multiple lanes, and limited bicycle lanes and paths. Many low stress residential side street segments received high LTS scores at unsignalized intersection crossings of arterials, creating a large number of "weak links."

As part of the General Plan Update, policies related to desired LTS scores may be developed.

[7] Mekuria, Maaza, Peter Furth, and Hilary Nixon. *Low-Stress Bicycling and Network Connectivity*. Mineta Transportation Institute, San Jose State University, 2012. Print.

TABLE 11
CITY OF STOCKTON LTS SUMMARY

LTS Score	Miles of Streets	Percent of Total Streets
1 – interested but concerned child riders (facility appropriate for all users)	547	45%
2 – interested but concerned adult riders (facility appropriate for most users)	183	15%
3 – enthused and confident riders (facility appropriate for some users)	109	9%
4 – strong and fearless riders (facility appropriate for few users)	371	31%
Total Streets	***1,210***	***100%***

Source: City of Stockton Bicycle Master Plan Update, 2016.

PEDESTRIAN NETWORK

The pedestrian network environment generally consists of sidewalks and multi-use trails. Sidewalks are provided in most developed subdivisions and commercial areas. There are gaps in the sidewalk network within unincorporated county pockets. The City of Stockton does not currently have an inventory of sidewalk locations or where gaps exist in the sidewalk network.

The City's *Street Design Guidelines* (November 2003) as reflected in the current *Standard Plans and Specifications* were developed to provide uniform facilities for pedestrian and bicycle travel within Stockton.

To complement the Street Design Guidelines, the City of Stockton developed *Pedestrian Safety and Crosswalk Installation Guidelines* (November 2003). This document establishes standards for installing various crosswalk treatments for controlled intersections, unsignalized crossings, and mid-block locations. According to City staff, the City plans to update this document in the near future to be consistent with the current state of the practice.

PEDESTRIAN COLLISIONS

This section reviews recent citywide vehicle-pedestrian collision data. The data presented includes the frequency, cause, type, and severity of collisions involving pedestrians in Stockton over a six-year span between 2009 and 2014.

Between 2009 and 2014, 413 vehicle-pedestrian collisions occurred within the City of Stockton. Of these collisions, 33 were fatal and 43 resulted in severe injuries. Pedestrian-involved collisions accounted for approximately eight percent of all traffic collisions, 22 percent of all serious traffic injuries, and 31 percent of all traffic fatalities within the city, all disproportionately higher than the city's pedestrian mode share (1.4 percent of commute trips as presented in Table 1). Stockton experiences a high rate of hit and run collisions involving pedestrians: 26 percent of collisions (107 total) were misdemeanor or felony hit and run, higher than the statewide average of 14 percent. Approximately 64 percent of collisions occurred in daylight, while 36 percent occurred during dusk, dawn, or night conditions.

Pedestrian collision locations are shown on **Figure 8**. **Table 12** shows the top vehicle-pedestrian collision locations by street corridor.

TABLE 12
TOP VEHICLE-PEDESTRIAN COLLISION INJURY LOCATIONS IN STOCKTON, 2009-2014

Street Corridor	Number of Pedestrian Injury Collisions
El Dorado Street	26
Hammer Lane	18
March Lane	15
Wilson Way	15
Pacific Avenue	14
California Street	12
Harding Way	12
8th Street	9
Center Street	9

Source: California Highway Patrol
Notes: This list is based on number of collisions and does not adjust for vehicle or pedestrian volumes (exposure).

Data regarding the cause, type, and severity of vehicle-pedestrian collisions in Stockton (and elsewhere in the state) is limited and incomplete. A large proportion of collisions are uncategorized by type and cause, and data often falls short of capturing the nuance of how collisions occurred. Where data is available, the primary collision factors are typically pedestrian violations, such as crossing at a location where no pedestrian facilities are provided (i.e., "jaywalking") or right-of-way violations, such as when a vehicle makes a turn and does not yield to the pedestrian in the crosswalk.

GOODS MOVEMENT

Freight transportation systems in the City of Stockton consist of rail, truck, air, and port facilities as shown on **Figure 9**.

RAIL

Two major transcontinental railroads (BNSF and UPRR) operate within the Stockton area. BNSF serves 28 western states and operates from a 425-acre intermodal facility on the southeast edge of the city. UPRR serves 23 western states and operates a major intermodal facility and other terminal operations in southern Stockton. Both provide rail service to Mexico and Canada and both serve the Port of Stockton.

In addition to the major railroads, several short line railroads also operate in Stockton. The Central California Traction Company (CCT), jointly owned by BNSF and UPRR, operates 52 miles of freight service between Stockton and Lodi and is the short line operator for the Port of Stockton. CCT connections are made with BNSF, UPRR, and the Stockton Terminal & Eastern (STE) Railroads, which run from Stockton to Linden. The 25 miles of freight service operated by STE includes connections with BNSF, UPRR, Tidewater Southern, and CCT.

TRUCK

Truck routes in Stockton consist primarily of the State Highway system and the major arterials within the city (see Figure 9). Of particular importance are SR 99 and I-5, which are major truck routes connecting Central Valley cities to other metropolitan areas throughout the state. As shown in **Table 13**, truck traffic accounts for about 13 to 25 percent of traffic on these two inter-regional facilities. The Crosstown Freeway (SR 4) and Arch-Airport Road also support crosstown

truck circulation, as well as provide connections to the airport and BNSF intermodal facility. Many other truck routes focus on the Port of Stockton and Downtown areas, and the commercial and industrial corridors.

TABLE 13
CURRENT DAILY TRUCK VOLUMES

Route Segment	Total Daily Traffic	Truck Traffic	Percent Truck Traffic
SR 4 – West of Fresno Avenue	23,000	2,970	13%
SR 4 – West of SR 99	99,500	12,200	12%
I-5 – North of Hammer Lane	73,000	16,500	23%
I-5 – South of French Camp Road	107,000	26,750	25%
SR 99 – North of Wilson Way	87,000	11,570	13%
SR 99 – South of Mariposa Road	87,000	11,480	13%
SR 26 – East of SR 99	29,300	3,050	10%

Source: 2014 Annual Average Daily Truck Traffic on the California State Highway System, Caltrans, April 2016.

PORT OF STOCKTON

The Port of Stockton is a deep water port located 75 nautical miles east of the Golden Gate Bridge. According to the *Port of Stockton 2014 Annual Report*, the 4,200-acre port complex contains over 7.7 million square feet of warehousing facilities, 1.1 million square feet of dockside transit sheds and berthing space for approximately 19 vessels. Major imports include cement, liquid fertilizer, molasses, ammonia and cottonseed, while major exports include rice, sulfur, wheat, and scrap steel. As shown in **Table 14**, in 2002 a total of about 2.3 million metric tons of goods passed through the port, which almost doubled by 2014. The Port of Stockton is also a Foreign Trade Zone. Foreign trade zone designation allows for some imports to be held within the zone without paying custom fees and provides other benefits to facilitate international trade and increase the global competitiveness of United States based companies. More detailed information can be found on the port's website[8].

[8] http://www.portofstockton.com/foreign-trade-zone

TABLE 14
PORT OF STOCKTON STATISTICS

	2002	2014
Imports/Exports	2.3 million metric tons	4.1 million metric tons
Port Revenue	$24,000,000	$53,000,000
Number of railcars serving Port	19,000	90,000
Number of Employees	2,000	4,500

Source: Port of Stockton, 2002 and 2014 Annual Reports

Connections to the intercontinental railway system (via UPRR and BNSF) are provided in the port area, where the main short line operator (CCT) handled over 19,000 railcars in 2002 and 90,000 in 2014. Over 200 trucking companies also service the port, including all major transcontinental carriers.

AIR

The Stockton Metropolitan Airport is at the city's southern limit between I-5 and SR 99. The Airport is served by an 8,690-foot long carrier-certified runway and a 4,458-foot long general aviation runway. Passenger service is provided from Stockton to Las Vegas, Nevada, Phoenix/Mesa, Arizona, and San Diego, California by Allegiant. The Stockton Metropolitan Airport is also a designated Foreign Trade Zone.

As shown in **Table 15**, a total of 82,300 commercial enplanements occurred in the 2014 year, which represents a 15-percent increase from 2013. Since 2014, new passenger service has been offered from Stockton, so the current level of enplanements is likely higher than the 2014 data.

Air Cargo service is provided from the Stockton Metropolitan Airport with intermodal connections to truck, rail, and the port. Air Transport Services Group Inc. currently provides air cargo service.

TABLE 15
STOCKTON METROPOLITAN AIRPORT STATISTICS

	2013	2014	Percent Change
Commercial Passengers Enplanements	71,760	82,300	15%
Aircraft Operations Air Carrier Air Taxi Military General Aviation Local General Aviation Itinerant Total		1,138 1,535 5,575 20,030 25,132 **53,410**	

`Source: FAA Enplanement Statistics (http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/media/cy14-commercial-service-enplanements.pdf)

OTHER APPROVED PROJECTS WITHIN THE CITY OF STOCKTON

The City has approved projects that would impact the existing transportation network and may be required to provide improvements or new transportation infrastructure. The developments below are planned to be constructed over the next five to 20 years:

Sanctuary

Located in the northwest corner of Stockton, this master planned community is approximately 2,000 acres and would include 7,070 housing units and 30 acres of mixed-use development. This project would construct a levee to protect the development to 300-year flood levels which exceeds the required protection. New and improved roadway connections would need to be constructed to support this project, including an extension of Hammer Lane, Trinity Parkway, Otto Drive and Regatta Lane. A new interchange with Interstate 5 at Otto Drive was identified as mitigation to support build-out of this project and other adjacent developments.

Westlake Villages

Located in the northwest corner of Stockton, this master planned community is approximately 700 acres with 2,630 planned housing units. This development is currently under construction and is estimated to take five to eight years to reach full buildout. Access to this development is provided primarily by Eight Mile Road, which currently tapers to two travel lanes west of I-5. Eight Mile Road would ultimately be widened to provide six to eight travel lanes along the project boundary.

Crystal Bay

Located in the northwest corner of Stockton, this master planned community is approximately 200 acres with 1,343 planned housing units. Construction has not been initiated and a levee with 200-year protection would be constructed. Access to this development is provided primarily by Eight Mile Road, which currently tapers to two travel lanes west of I-5. Eight Mile Road would ultimately be widened to provide four to six travel lanes along the project boundary.

Delta Cove

Located in the northwest corner of Stockton, this master planned community is approximately 360 acres with 1,545 planned housing units. Three acres of commercial area is also planned. The developer will provide a levee with 300-year protection. New and improved roadway connections would need to be constructed to support this project, including an extension of Trinity Parkway and Otto Drive. A new interchange with Interstate 5 at Otto Drive was identified as mitigation to support build-out of this project and other adjacent developments.

North Stockton Projects – Phase III

Located in north Stockton near the intersection of Eight Mile Road and Lower Sacramento Road, this master planned community is approximately 400 acres with 2,455 planned housing units. Multi-family residential and commercial development is also planned to be incorporated. Improvements to Eight Mile Road and Lower Sacramento Road are proposed as part of the project.

Cannery Park

Located in northeast Stockton, this master planned community is approximately 450 total acres with 104 acres of commercial and 58 acres of industrial development planned. In total, 1,191

housing units are planned over multiple phases. Access to the development is provided primarily by Holman Road and Eight Mile Road. Improvements to Eight Mile Road and Holman Road are proposed as part of the project.

Tidewater Crossing

Located in south Stockton, this master planned community features approximately 900 acres planned to encompass 2,365 housing units, 16 acres of commercial development, and 224 acres of industrial development. Access to the development is provided primarily by Airport Way and French Camp Road near the Stockton Municipal Airport. A new interchange with State Route 99 was planned to support the project, in conjunction with widening of portions of French Camp Road and Airport Way. This project may be re-envisioned to reduce the residential component and increase the industrial component, which could change the level of transportation improvements needed to support project development.

Weston Ranch Towne Center

Located in south Stockton, this major commercial development is located near the I- 5 and French Camp Road interchange. The shopping center will feature approximately 480,000 square feet of commercial area with almost 100,000 square feet dedicated to a proposed Walmart. French Camp Road would be widened along the project frontage.

Mariposa Lakes

Located just outside of southeast Stockton, this master planned community is approximately 3,800 acres with 10,514 planned housing units. Additionally, one million square feet of commercial and 11.5 million square feet of industrial development is proposed. Access to the development would be provided from SR 4, Farmington Road, and Mariposa Road. These roadways would be improved to accommodate vehicle traffic generated by the project, including the widening of Mariposa Road to provide 6 travel lanes.

Airpark 599

Located adjacent to the Stockton Municipal Airport, this primarily industrial and office development project is approximately 550 acres in size. Access to the development is provided primarily by Arch Airport Road and SR 99.

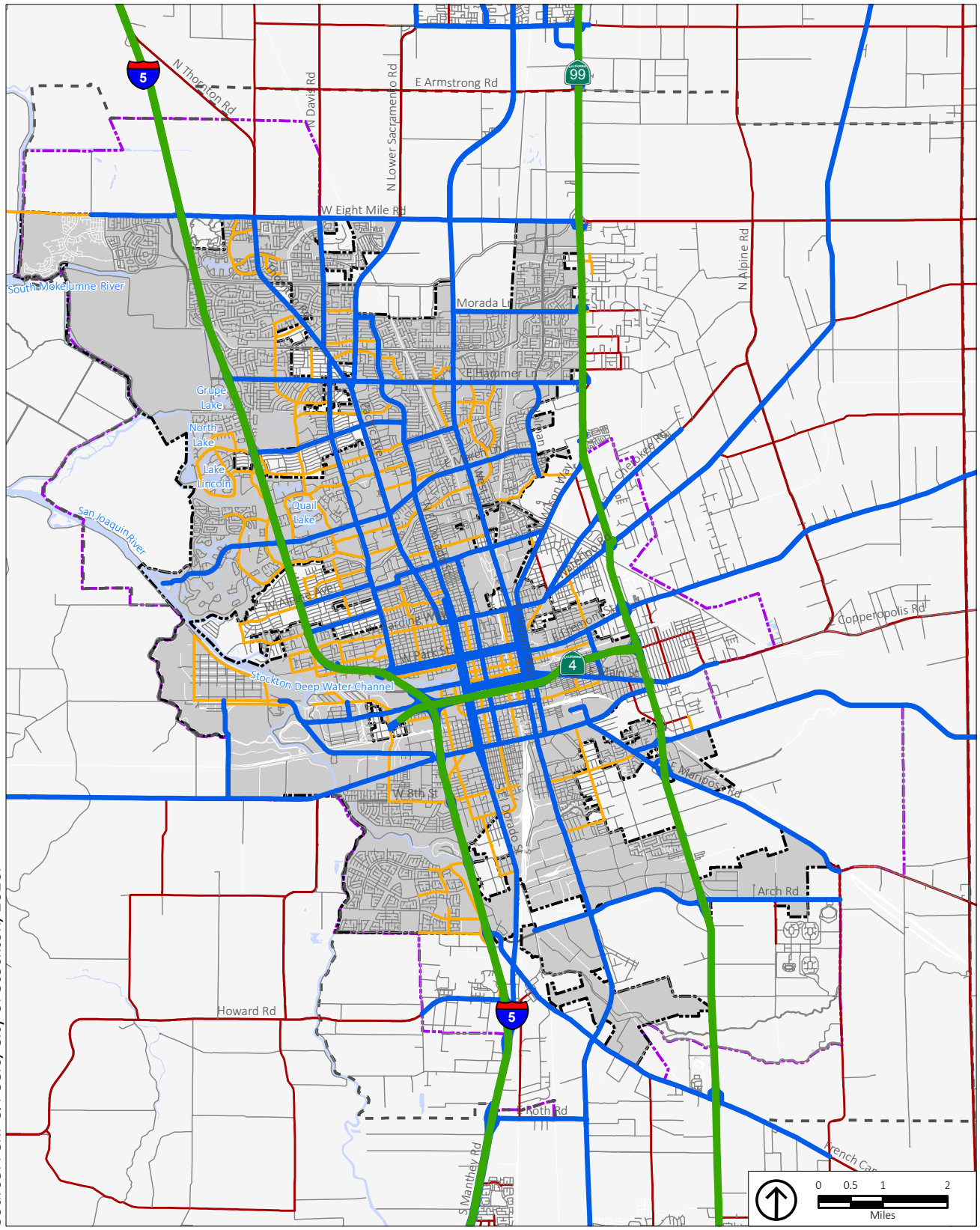
IMPLICATIONS FOR GENERAL PLAN UPDATE

Based on the existing transportation conditions assessment for the City of Stockton, the following could be considered further in the General Plan Update process:

- Review other City planning documents, such as the Climate Action Plan and Bicycle Master Plan, and align policies outlined in those documents with the General Plan Update. Potential opportunities will be identified as part of the policy review process.
- Review regional planning documents related to planned regional roadway network improvements for consistency with the City of Stockton Circulation network. Potential inconsistencies will be identified as part of the travel demand model development process.
- Increase employment opportunities within Stockton such that a larger percentage of employed residents have opportunities to work within the city.
- Evaluate level of service as the metric for evaluating the transportation system and consider how to incorporate other transportation system metrics, such as vehicle miles of travel, level of traffic stress, transit accessibility and pedestrian route directness. Potential options will be provided for City staff review that consider the CEQA implications.
- Evaluate if approved but not yet constructed development projects conform to updated General Plan policies and Capital Improvement Plan projects.

FIGURES

Appendix A Level of Service Analysis

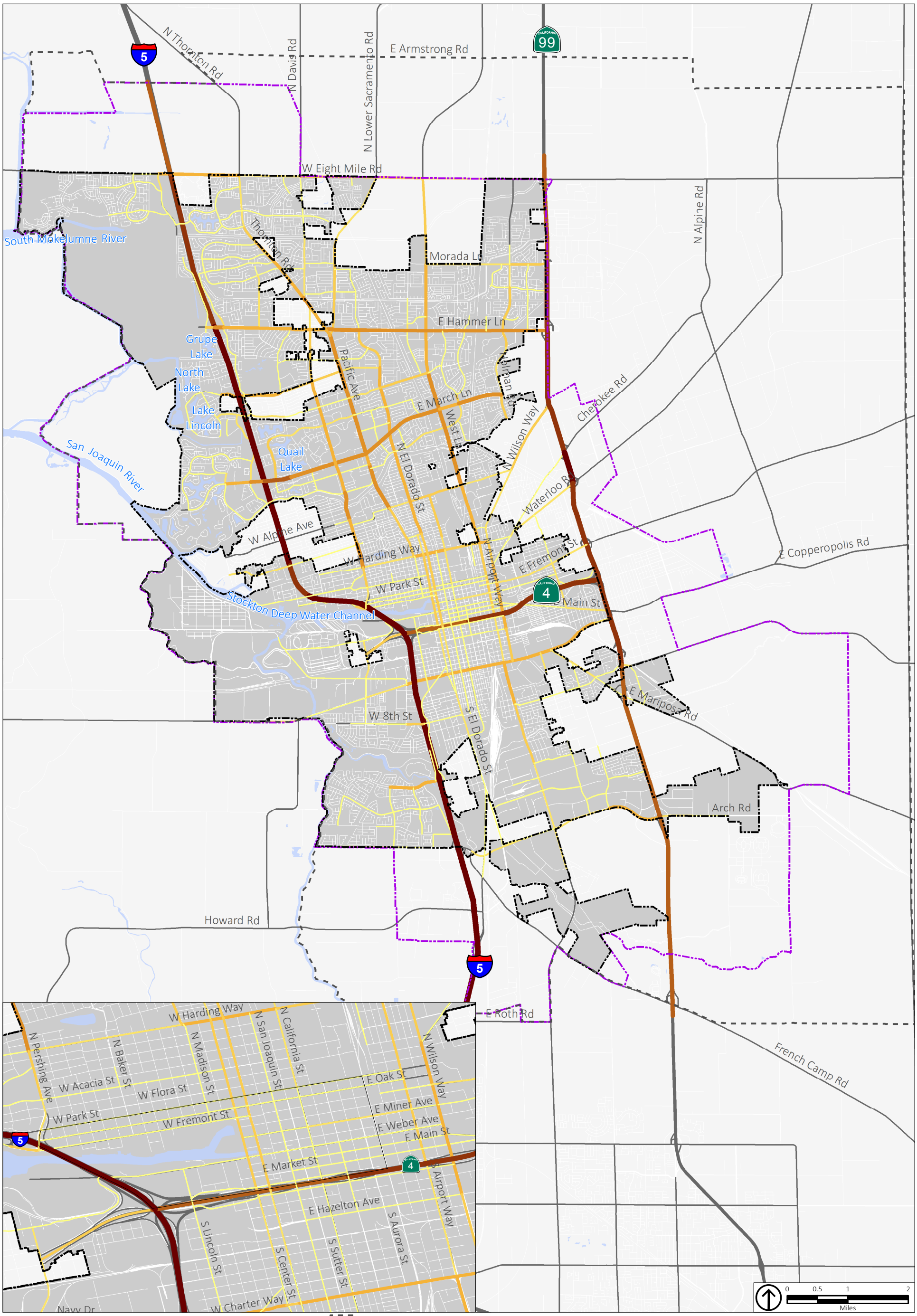


Source: Fehr & Peers, City of Stockton, 2016.

- Interstates and Highways
- Arterials
- Collectors
- Rural Road
- Local Roads
- General Plan Planning Area
- City Limit
- Sphere of Influence

Figure 1

Existing Functional Classification

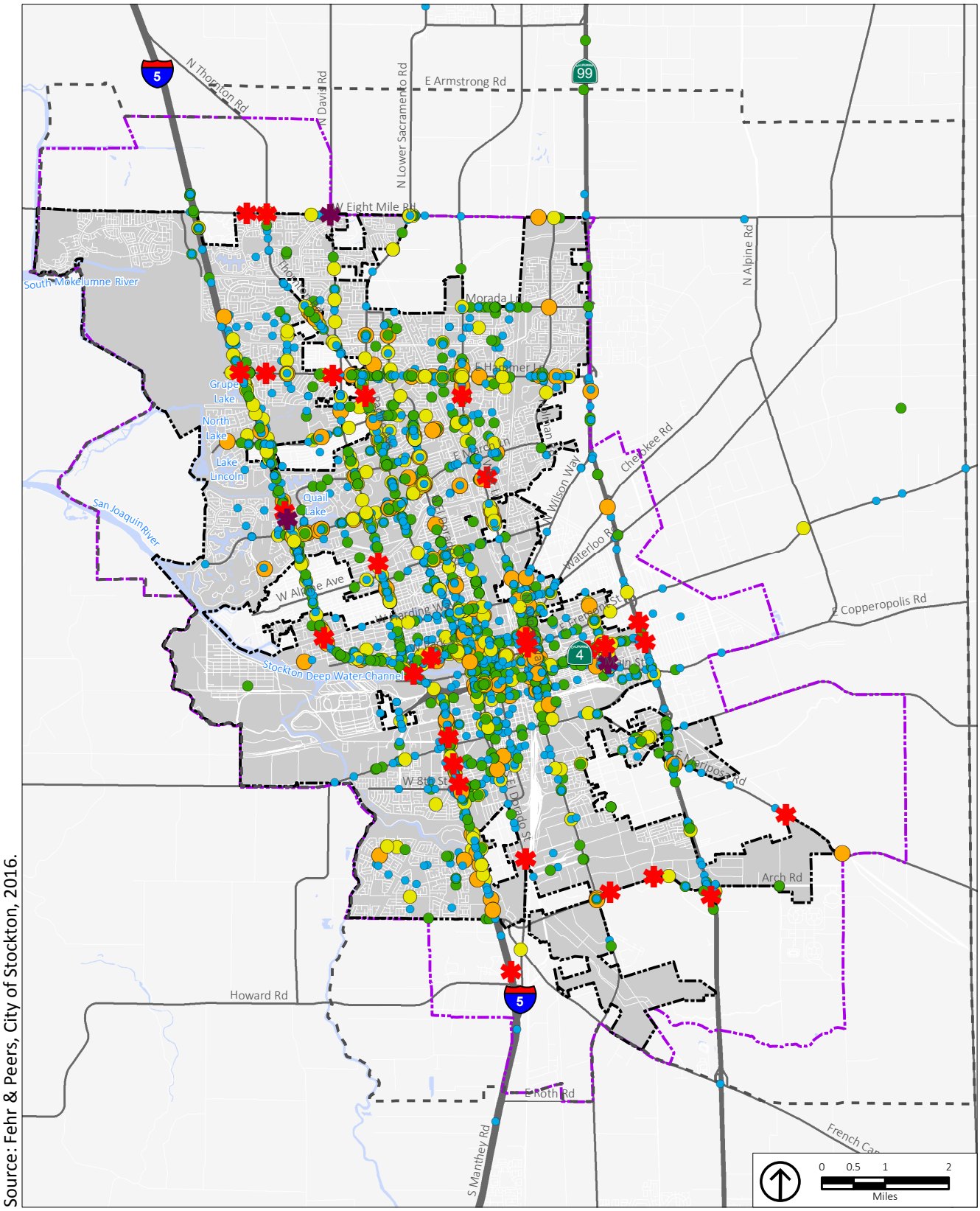


Source: Fehr & Peers, City of Stockton, 2016.

Daily Traffic Volumes (2014)
- <10,000
- 10,001 - 15,000
- 15,001 - 20,000
- 20,001 - 30,000
- 30,001 - 50,000
- 50,001 - 80,000
- 80,001 - 100,000
- >100,000

- General Plan Planning Area
- City Limit
- Sphere of Influence

Figure 2
Existing Daily Traffic Volumes

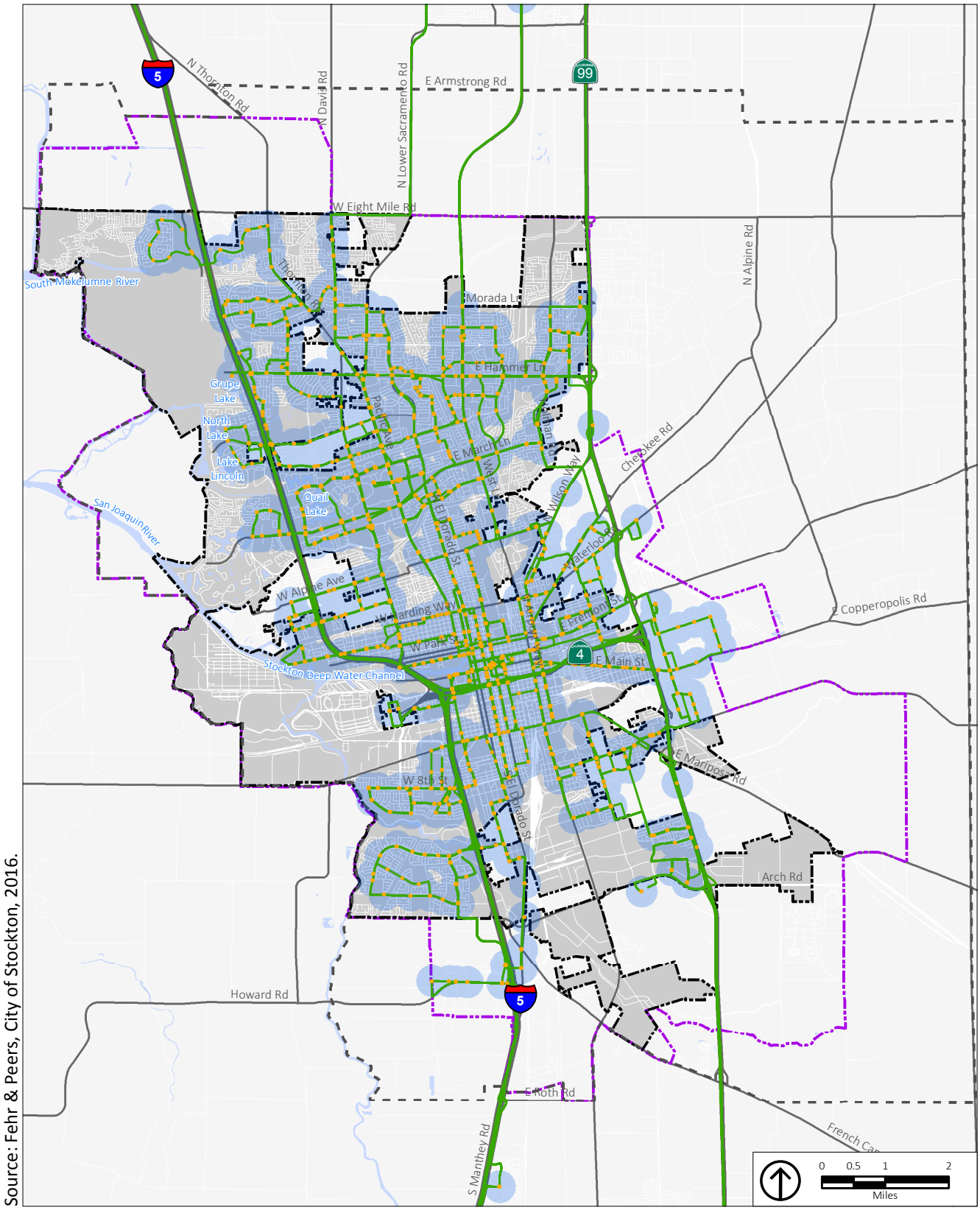


Source: Fehr & Peers, City of Stockton, 2016.

Fatalities: 1, 2
Injuries: 1, 2, 3, >3

General Plan Planning Area
City Limit
Sphere of Influence

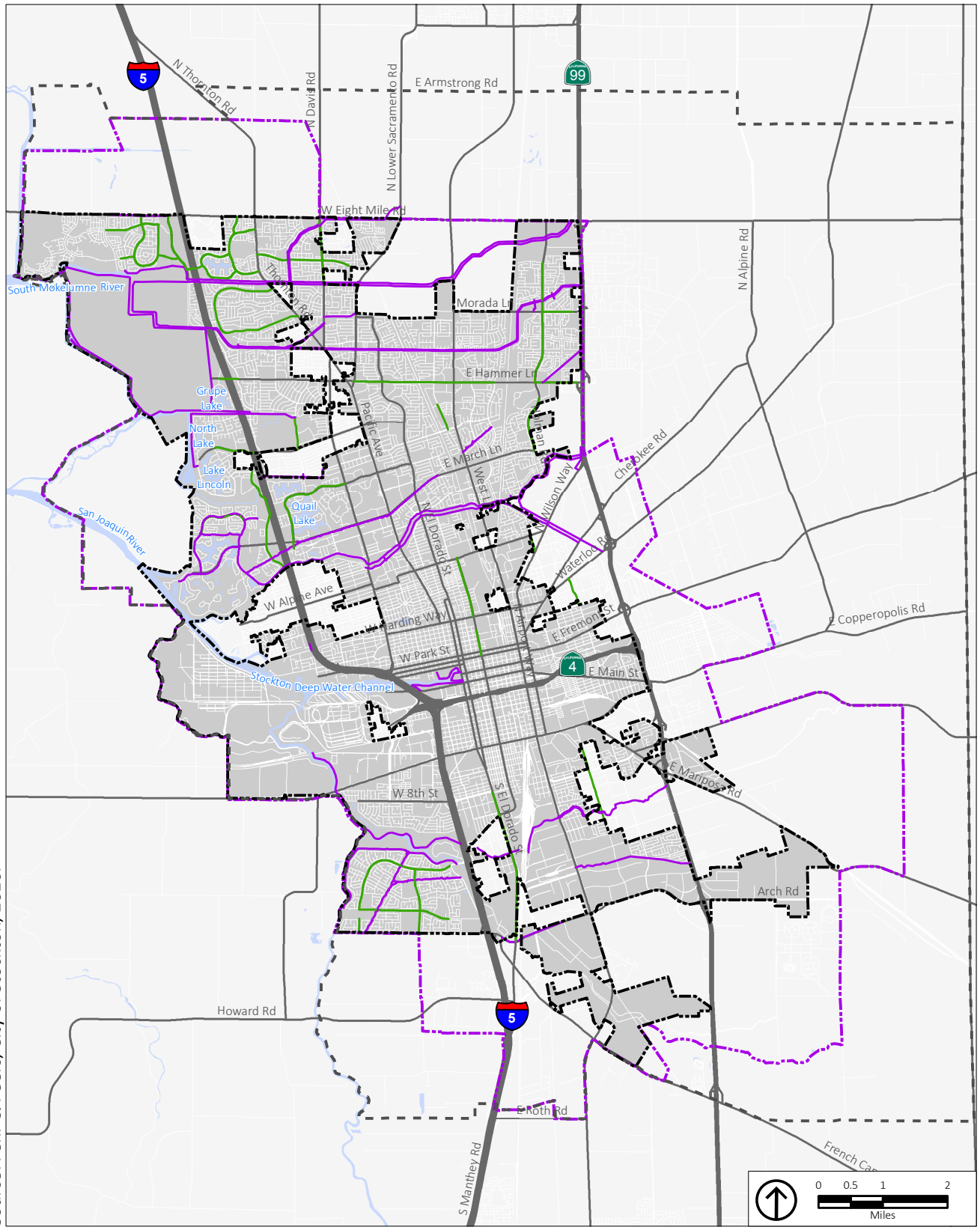
Figure 3
Vehicular Involved Collisions (2009-2014)



Source: Fehr & Peers, City of Stockton, 2016.

- Transit Stops
- Transit Routes
- Transit Stop 1/4 Mile Buffer
- General Plan Planning Area
- City Limit
- Sphere of Influence

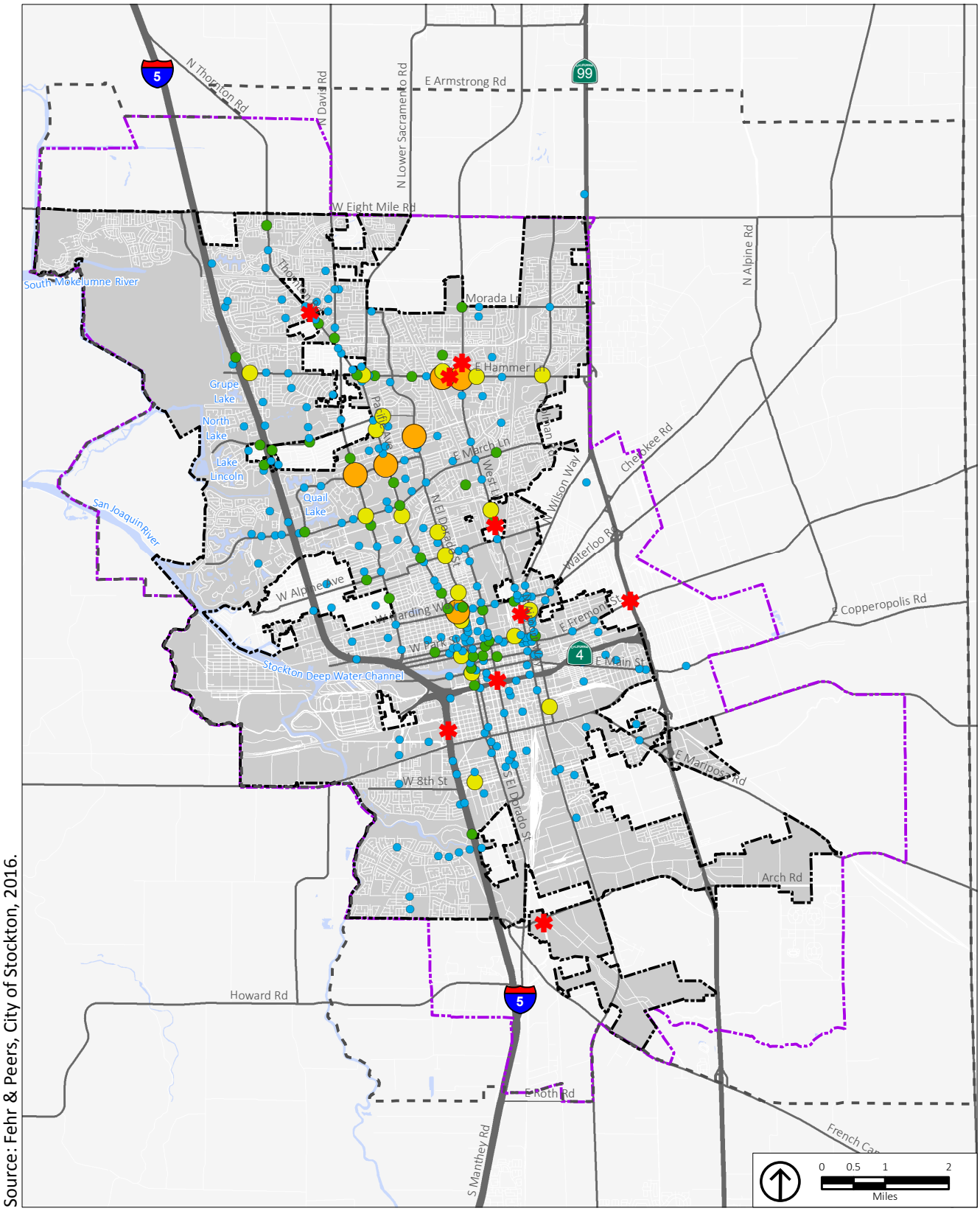
Figure 4
Existing Transit Coverage



Source: Fehr & Peers, City of Stockton, 2016.

Class 1 Path
Class 2 Bike Lane
General Plan Planning Area
City Limit
Sphere of Influence

Figure 5
Existing Bicycle Facilities

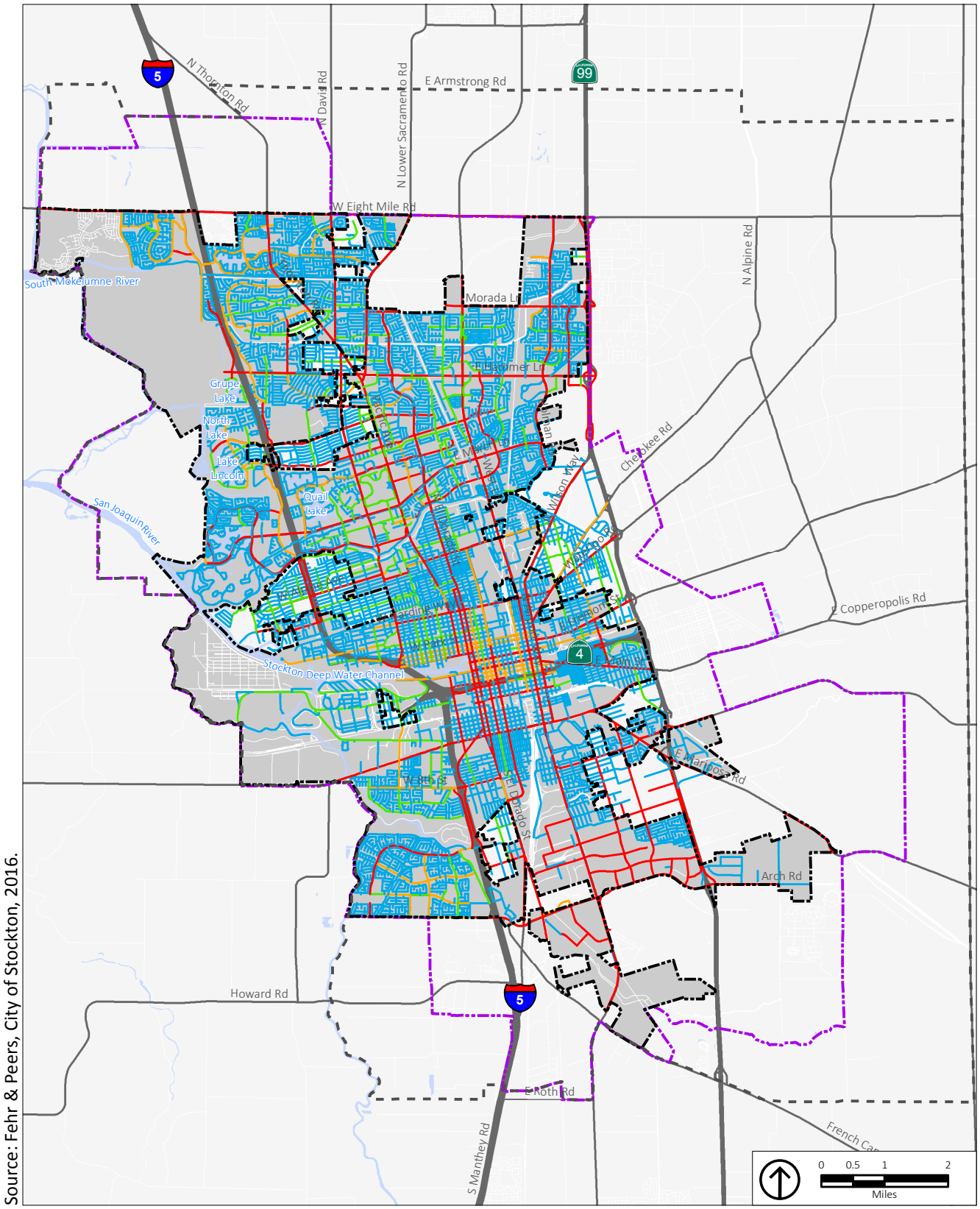


Source: Fehr & Peers, City of Stockton, 2016.

Fatalities Injuries
1
2
3
>3

General Plan Planning Area
City Limit
Sphere of Influence

Figure 6
Bicyclist Involved Collisions (2009-2014)

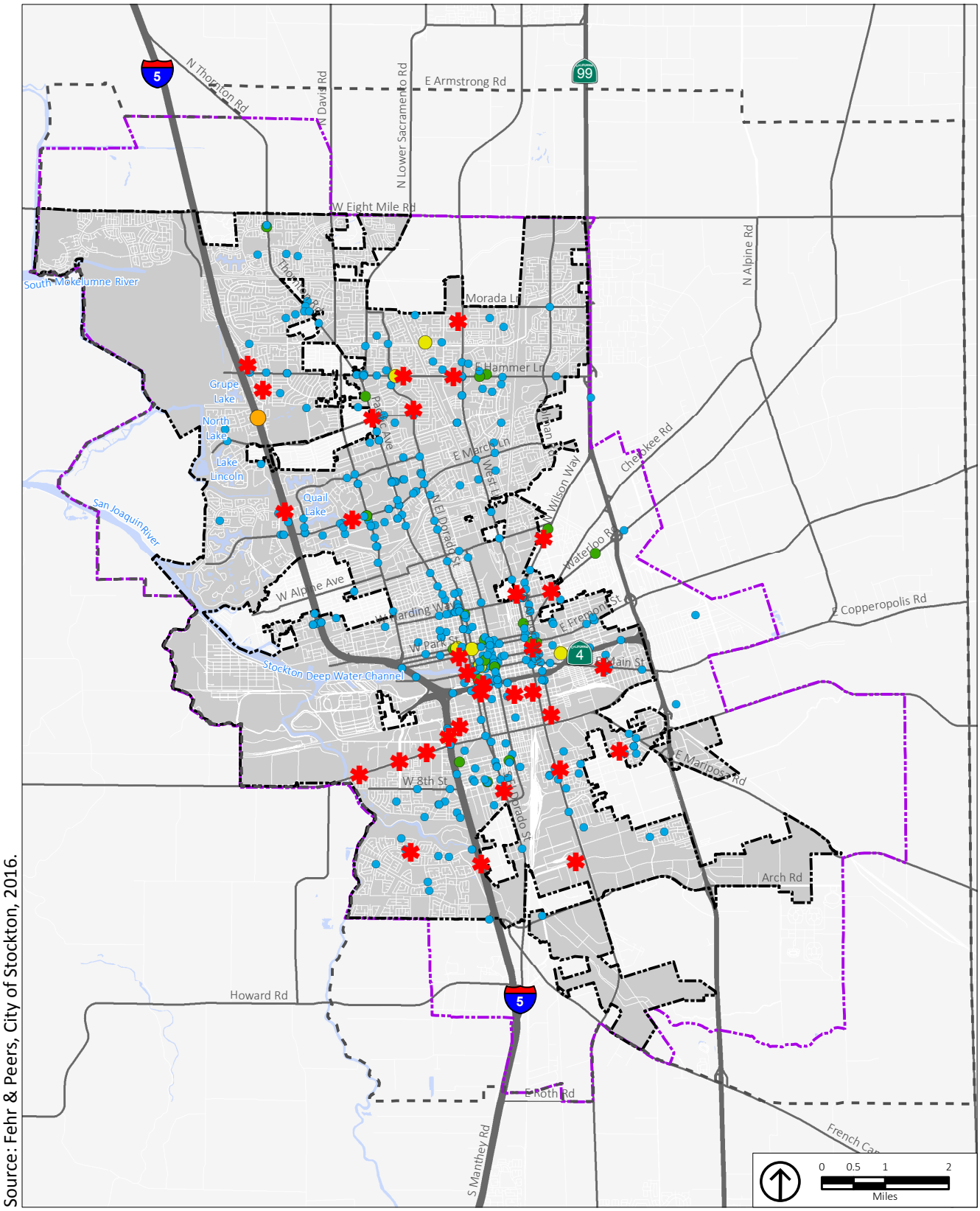


Source: Fehr & Peers, City of Stockton, 2016.

Level of Traffic Stress
- 1- For Interested but Concerned Child Riders
- 2- For Interested but Concerned Adult Riders
- 3- For Enthused and Confident Riders
- 4- For Strong and Fearless Riders

- General Plan Planning Area
- City Limit
- Sphere of Influence

Figure 7
Level of Traffic Stress for Bicyclists

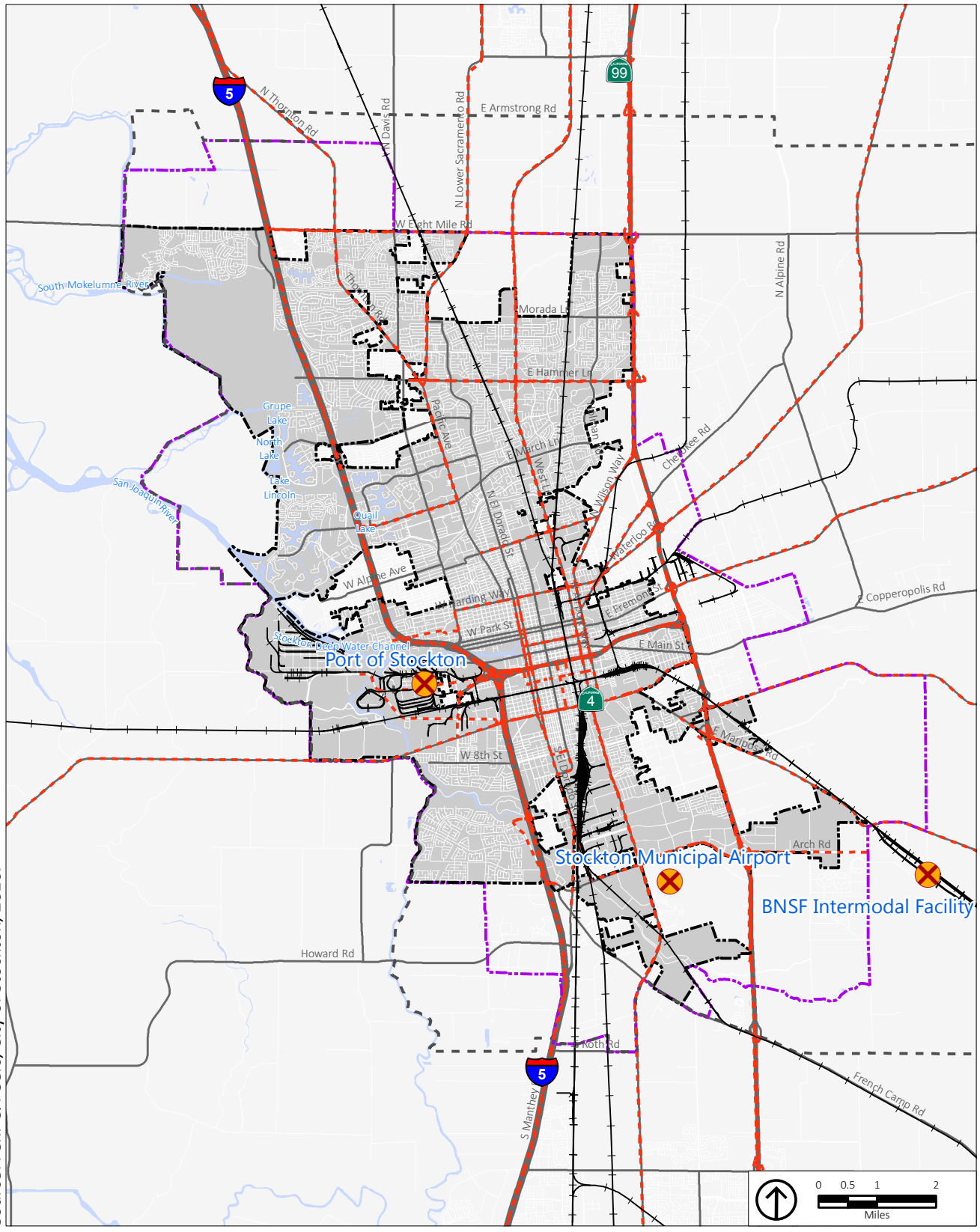


Source: Fehr & Peers, City of Stockton, 2016.

Fatalities Injuries
1
2
3
5

General Plan Planning Area
City Limit
Sphere of Influence

Figure 8
Pedestrian Involved Collisions (2009-2014)



Source: Fehr & Peers, City of Stockton, 2016.

Goods Movement Points of Interest
Rail Lines
Freight Routes
General Plan Planning Area
City Limit
Sphere of Influence

Figure 9
Goods Movement

APPENDIX A – LEVEL OF SERVICE ANALYSIS

ANALYSIS METHODOLOGY

To measure and describe the operational status of a roadway network, transportation engineers and planners commonly use a grading system called level of service (LOS). Level of service is a description of a facility's operation, ranging from LOS A (indicating free-flow traffic conditions with little or no delay) to LOS F (representing over-saturated conditions where traffic flows exceed design capacity, resulting in long queues and delays).

The analysis of the current operating conditions of the city's streets and highways was conducted using the method outlined in the 2035 General Plan Environmental Impact Report with the LOS thresholds used in this analysis listed in **Table A-1**. Thresholds for arterials and collectors were based on Highway Capacity Manual calculations and were developed in conjunction with City staff at the time the current General Plan analysis was prepared. The arterial thresholds distinguish between roads in the existing urbanized area and those in new development areas; because arterials in new development areas can be designed to higher standards, with medians, exclusive turn lanes, and controlled access from adjacent uses, the capacities are higher than those in previously-developed areas. Thresholds for freeways were based on Highway Capacity Manual procedures relating levels of service to vehicle density ranges. Level of service definitions are presented in **Table A-2.**

TABLE A-1
Roadway Segment Level of Service Thresholds (Bi-Directional)

Facility Class	Lanes	Area Type	LOS A	LOS B	LOS C	LOS D	LOS E
Freeway	4	All Areas	27,600	45,200	63,600	77,400	86,400
	6	All Areas	41,400	67,800	95,400	116,100	129,600
	8	All Areas	55,200	90,400	127,200	154,800	172,800
	10	All Areas	69,000	113,000	159,000	193,500	216,000
Arterial	2	Existing	8,400	9,300	11,800	14,700	17,300
	2	New	10,000	11,100	14,000	17,500	20,600
	4	Existing	18,600	20,600	26,000	32,500	38,200
	4	New	23,300	25,800	32,600	40,700	47,900
	6	Existing	28,800	32,000	40,300	50,400	59,300
	6	New	33,300	37,000	46,600	58,300	68,600
	8	Existing	38,100	42,300	53,300	66,600	78,400
	8	New	41,100	45,700	57,600	72,000	84,700
Collector	2	Existing	6,400	7,100	9,000	11,300	13,200
	2	New	6,400	7,100	9,000	11,300	13,200
	4	Existing	17,600	19,600	24,700	30,900	36,300
	4	New	21,100	23,500	29,600	37,000	43,500

The "Existing" Area is generally located between I-5 and SR 99, and between Eight Mile Road and French Camp Road.
Note: Eight Mile Road is considered a "New" arterial due to lack of existing development in the area.
Source: *Highway Capacity Manual*, Transportation Research Board, 2000; Fehr & Peers, 2005.

Level of service definitions are presented in **Table A-2.**

TABLE A-2
LEVEL OF SERVICE DEFINITIONS FOR ROADWAYS

Level of Service	Description
A	Free-flow operations where vehicles are relatively unimpeded in their ability to maneuver within the traffic stream. Effects of incidents are easily absorbed.
B	Relative free-flow operations where vehicle maneuvers within the traffic stream are slightly restricted. Effects of minor incidents are easily absorbed.
C	Travel is still at relative free-flow speeds, although freedom to maneuver within the traffic stream is noticeably restricted. Minor incidents may be absorbed, but local deterioration in service will be substantial. Queues begin to form behind significant blockages.
D	Speeds begin to decline slightly with increasing flows and densities begin to increase more quickly. Freedom to maneuver is noticeably limited. Minor incidents can be expected to create queuing as the traffic stream has little space to absorb disruptions.
E	Operation at capacity. Vehicles are closely spaced with little room to maneuver. Any disruption in the traffic stream can establish a disruption wave that propagates throughout the upstream traffic flow. Any incident can be expected to produce a serious disruption in traffic flow and extensive queuing.
F	Breakdown in vehicle flow.

Source: 2010 *Highway Capacity Manual.*

ANALYSIS RESULTS

Based on the existing traffic volumes, shown previously on Figure 2, and the existing roadway facility type and number of lanes, daily roadway segment level of service was calculated, as presented in **Table A-3.** Results of the analysis indicate that on a daily basis, most roadway facilities within Stockton operate within the available vehicular capacity, except for:

- SR 99 between Dr. Martin Luther King Jr Blvd and Farmington Road [LOS F] (this freeway section is under construction to add one lane in each direction in Fall 2016, which would result in LOS C operations)
- Eight Mile Road between Lower Sacramento Road and West Lane [LOS F]

- Ben Holt Drive between Plymouth Road and Pacific Avenue (This roadway is exempt from City of Stockton LOS standards due to physical constraints that limit potential roadway improvements. Although a portion of the roadway is located within unincorporated San Joaquin County, the City of Stockton LOS standards prevail as this facility is within the City of Stockton Sphere of Influence [County General Plan Policy TM-3.1].)
- Thornton Road between Davis Road and Waudman Avenue [LOS F]
- Thornton Road between Davis Road and Pershing Avenue [LOS E] (LOS E is considered acceptable for this roadway segment due to physical constraints)
- Lower Sacramento Road between Eight Mile Road and Bear Creek [LOS E]
- Pershing Avenue at Calaveras River [LOS E]

Table A-2
Existing Roadway Segment Level of Service Summary

Roadway Segment		General Count Location		ADT	Lanes	Facility Type	LOS
1	I-5	North of Eight Mile Road		79,000	6	Freeway	C
2	I-5	Eight Mile Road	Hammer Lane	82,000	6	Freeway	C
3	I-5	Hammer Lane	Ben Holt Drive	104,000	6	Freeway	D
4	I-5	Ben Holt Drive	March Lane	112,000	6	Freeway	D
5	I-5	March Lane	Country Club Boulevard	112,000	6	Freeway	D
6	I-5	Country Club Boulevard	Monte Diablo Avenue	99,000	8	Freeway	D
7	I-5	Monte Diablo Avenue	Pershing Avenue	122,000	8	Freeway	C
8	I-5	Pershing Avenue	Crosstown Freeway	137,000	8	Freeway	D
9	I-5	Crosstown Freeway	Charter Way	139,000	8	Freeway	D
10	I-5	Charter Way	8th Street	138,000	8	Freeway	D
11	I-5	8th Street	Downing Avenue	108,000	6	Freeway	D
12	I-5	Downing Avenue	French Camp Road	105,000	6	Freeway	D
13	I-5	French Camp Road	Mathews Road	105,000	6	Freeway	D
14	SR 99	North of Eight Mile Road		74,000	6	Freeway	C
15	SR 99	Eight Mile Road	Morada Lane	76,000	6	Freeway	C
16	SR 99	Morada Lane	Hammer Lane	81,000	6	Freeway	C

Table A-2
Existing Roadway Segment Level of Service Summary

Roadway Segment		General Count Location		ADT	Lanes	Facility Type	LOS
17	SR 99	Hammer Lane	Wilson Way	86,000	6	Freeway	C
18	SR 99	Wilson Way	Cherokee Road	86,000	6	Freeway	C
19	SR 99	Cherokee Road	Waterloo Road	97,000	6	Freeway	D
20	SR 99	Waterloo Road	Fremont Street	99,000	6	Freeway	D
21	SR 99	Fremont Street	Crosstown Freeway	96,000	6	Freeway	D
22	SR 99	Crosstown Freeway	Martin Luther King Jr. Boulevard	94,000	6	Freeway	C
23	SR 99	Martin Luther King Jr. Boulevard	Farmington Road	87,000	4	Freeway	**F**
24	SR 99	Farmington Road	Mariposa Road	73,000	4	Freeway	D
25	SR 99	Mariposa Road	Arch Road	69,000	6	Freeway	C
26	SR 99	Arch Road	French Camp Road	70,000	6	Freeway	C
27	SR 99	French Camp Road	Lathrop Road	70,000	6	Freeway	C
28	SR 4	West of I-5	West of I-5	16,500	4	Freeway	A
29	SR 4	I-5	El Dorado Street	79,000	6	Freeway	C
30	SR 4	El Dorado Street	Stanislaus Street	100,000	6	Freeway	D
31	SR 4	Stanislaus Street	Wilson Way	89,000	6	Freeway	C

Table A-2
Existing Roadway Segment Level of Service Summary

Roadway Segment		General Count Location		ADT	Lanes	Facility Type	LOS
32	Eight Mile Road	Mokelume Drive	Trinity Parkway	8,190	6	Arterial	A
33	Eight Mile Road	I-5	Thornton Road	28,620	4	Arterial	D
34	Eight Mile Road	Thornton Road	Davis Road	14,050	4	Arterial	A
35	Eight Mile Road	Davis Road	Lower Sacramento	15,390	4	Arterial	A
36	Eight Mile Road	Lower Sacramento	West Lane	18,560	2	Arterial	**F**
37	Eight Mile Road	West Lane	SPRR	11,970	2	Arterial	D
38	Eight Mile Road	West of Bear Creek	SR 99	10,740	2	Arterial	C
39	Morada Lane	West Lane	Cherbourg Way	12,990	2	Arterial	D
40	Morada Lane	Cherbourg Way	Fox Creek	14,030	3	Arterial	B
41	Morada Lane	Holman Road	SR 99	16,370	6	Arterial	A
42	Morada Lane	Mosher Creek	Holman	14,690	4	Arterial	A
43	Hammer Lane	Mariners Drive	I-5	15,460	4	Arterial	A
44	Hammer Lane	Westland Avenue	Richland Way	29,050	6	Arterial	B
45	Hammer Lane	Pershing Avenue	Valencia Avenue	26,010	4	Arterial	D
46	Hammer Lane	Lower Sacramento Road	El Dorado Street	37,980	8	Arterial	A
47	Hammer Lane	At WPRR		44,300	8	Arterial	D

Table A-2
Existing Roadway Segment Level of Service Summary

Roadway Segment		General Count Location		ADT	Lanes	Facility Type	LOS
48	Hammer Lane	SPRR	Holman Road	38,240	6	Arterial	C
49	Hammer Lane	Holman Road	SR 99	36,690	8	Arterial	A
50	Benjamin Holt Drive	Plymouth Road	Belmont Place	21,550	2	Arterial	**F**
51	Benjamin Holt Drive	Vicksburg Place	Gettysburg Place	15,600	2	Arterial	**E**
52	Swain Road	Pylmouth Road	Morgan Place	10,180	2	Collector	D
53	Swain Road	Pershing Avenue	Vicksburg Place	9,210	2	Collector	D
54	March Lane	Brookside Road	Morningside Drive	6,620	6	Arterial	A
55	March Lane	Feather River Drive	I-5	38,190	6	Arterial	C
56	March Lane	Quail Lakes Drive	Grouse Run Drive	41,000	6	Arterial	D
57	March Lane	Pershing Avenue	Pacific Avenue	40,870	6	Arterial	D
58	March Lane	Pacific Avenue	Claremont	31,490	6	Arterial	B
59	March Lane	At UPRR		36,950	6	Arterial	C
60	March Lane	West Lane	Bianchi	27,350	8	Arterial	A
61	Alpine Avenue	Pershing Avenue	Grange	8,700	4	Collector	A
62	Alpine Avenue	Dwight	Kensington	7,450	2	Arterial	A
63	Alpine Avenue	Center	Commerce	13,800	4	Arterial	A

Table A-2
Existing Roadway Segment Level of Service Summary

Roadway Segment		General Count Location		ADT	Lanes	Facility Type	LOS
64	Alpine Avenue	Sutter	San Joaquin	19,490	4	Arterial	B
65	Country Club Drive	Grange Avenue	Pershing Avenue	8,490	2	Arterial	B
66	Monte Diablo Avenue	San Juan	Buena Vista	3,370	2	Collector	A
67	Harding Way	Pershing	Columbia	3,630	2	Collector	A
68	Harding Way	Baker	Stockton	10,790	2	Collector	D
69	Harding Way	Commerce	Madison	23,140	4	Arterial	C
70	Harding Way	El Dorado	Center	24,680	4	Arterial	C
71	Harding Way	California	San Joaquin	20,450	4	Arterial	B
72	Harding Way	At UPRR		18,620	4	Arterial	B
73	Harding Way	Wilson	Sierra Nevada	20,990	4	Arterial	C
74	Fremont St	Watts	Laurel	13,910	4	Arterial	A
75	Fremont St	Broadway	Golden Gate	10,440	4	Arterial	A
76	Miner Ave	El Dorado Street	Center Street	6,820	4	Collector	A
77	Miner Ave	California	San Joaquin	8,350	4	Collector	A
78	Main St	California	Sutter	3,060	2	Collector	A

Table A-2
Existing Roadway Segment Level of Service Summary

Roadway Segment		General Count Location		ADT	Lanes	Facility Type	LOS
79	Main St	Court	Ash	9,420	4	Arterial	A
80	Main St	Netherton	Golden Gate	14,300	4	Arterial	A
81	Charter Way	W of Roberts	W of Roberts	10,500	2	Arterial	C
82	Charter Way	Tillie Lewis Drive	Fresno Avenue	9,600	2	Arterial	C
83	Charter Way	Navy	Fresno	13,400	2	Arterial	D
84	Charter Way	I-5	Navy	24,600	4	Arterial	C
85	Martin Luther King Jr. Boulevard	I-5	Lincoln	26,480	4	Arterial	D
86	Martin Luther King Jr. Boulevard	California	Airport Way	23,080	4	Arterial	C
87	Martin Luther King Jr. Boulevard	Airport Way	Wilson Way	21,960	4	Arterial	C
88	Martin Luther King Jr. Boulevard	Mariposa Road	Golden Gate Avenue	11,710	2	Arterial	C
89	Navy Drive	San Joaquin River	Washington	4,340	2	Arterial	A
90	Navy Drive	BN&SF RR	Tillie Lewis	4,850	2	Arterial	A
91	Navy Drive	Josephine	Fresno	3,780	2	Arterial	A
92	Washington Street	Agribusiness	Ventura	7,560	2	Arterial	A

Table A-2
Existing Roadway Segment Level of Service Summary

Roadway Segment		General Count Location		ADT	Lanes	Facility Type	LOS
93	8th Street	Argonaut	Fresno	9,250	4	Collector	A
94	8th Street	Monroe	Lincoln	6,070	4	Collector	A
95	8th Street	Pock	D	6,300	2	Collector	A
96	Carolyn Weston Road	Manthey	McDougald	21,280	4	Collector	B
97	French Camp Road	McDougald	E.W.S.Wood	7,910	2	Arterial	A
98	Sperry Road	Airport	McKinley	8,120	4	Arterial	A
99	Arch-Airport Road	Airport	Pock	12,830	4	Arterial	A
100	Arch-Airport Road	HW 99	Quantas	20,820	6	Arterial	A
101	Arch Road	Frontier	HW 99 Frontage	10,780	2	Arterial	C
102	Arch Road	Newcastle	Frontier	9,490	2	Arterial	C
103	Trinity Parkway	Scott Creek Road	Eight Mile Road	12,960	6	Arterial	A
104	Trinity Parkway	Cosumnes	McAuliffe	7,300	4	Arterial	A
105	Thornton Road	Bear Creek	Estate	19,220	3	Arterial	D
106	Thornton Road	Waudman	Davis	22,790	2	Arterial	**F**
107	Thornton Road	Aberdeen	Cortez	34,050	4	Arterial	**E**

Table A-2
Existing Roadway Segment Level of Service Summary

Roadway Segment		General Count Location		ADT	Lanes	Facility Type	LOS
108	Thornton Road	Hammer Lane	Rivera	20,590	5	Arterial	A
109	Davis Road	Chaparral	Laramie	10,440	4	Arterial	A
110	Davis Road	North of Bear Creek		8,340	3	Arterial	A
111	Davis Road	Ponce De Leon	Thornton	14,000	3	Arterial	A
112	Lower Sacramento Road	Armor	Royal Oaks	16,020	3	Arterial	C
113	Lower Sacramento Road	Bear Creek	Eight Mile	14,850	2	Arterial	**E**
114	Lower Sacramento Road	Hammer Lane	Rivera	16,010	4	Arterial	A
115	West Lane	Eight Mile Road	Morada Lane	15,620	4	Arterial	A
116	West Lane	Dalewood	Westmora	22,740	4	Arterial	C
117	West Lane	Hammer Lane	Hammertown	28,870	8	Arterial	A
118	West Lane	Swain	March	34,060	6	Arterial	C
119	West Lane	Bradford	Walnut	22,110	4	Arterial	C
120	Wilson Way	McAllen	Alpine	15,510	4	Arterial	A
121	Wilson Way	Main	Market	24,800	4	Arterial	C

Table A-2
Existing Roadway Segment Level of Service Summary

Roadway Segment		General Count Location		ADT	Lanes	Facility Type	LOS
122	Wilson Way	Market	Washington	25,090	4	Arterial	C
123	Pershing Ave	Venetian	Burke-Bradley	23,560	4	Arterial	C
124	Pershing Avenue	At Calaveras River		34,280	4	Arterial	**E**
125	Pershing Avenue	Magnolia	Acacia	19,470	4	Arterial	B
126	Pacific Avenue	Douglas	Porter	38,070	6	Arterial	C
127	Pacific Avenue	Yokuts	March	32,120	6	Arterial	C
128	Pacific Avenue	At Calaveras River		31,570	4	Arterial	D
129	Pacific Avenue	Cleveland	Wyandotte	19,200	2	Arterial	B
130	El Dorado Street	Lincoln	Loretta	16,970	4	Arterial	A
131	El Dorado Street	Mayfair	Robinhood	27,810	4	Arterial	D
132	El Dorado Street	At Calaveras River		27,670	4	Arterial	D
133	El Dorado Street	Pine	Cleveland	22,800	4	Arterial	C
134	El Dorado Street	Lindsay	Miner	19,610	4	Arterial	B
135	El Dorado Street	At AT & SF Overpass		14,680	4	Arterial	A
136	El Dorado Street	MLK Blvd	First	9,440	3	Arterial	A
137	El Dorado Street	Eighth	Ninth	10,700	4	Arterial	A

Table A-2
Existing Roadway Segment Level of Service Summary

Roadway Segment		General Count Location		ADT	Lanes	Facility Type	LOS
138	Center Street	Poplar	Flora	15,410	3	Arterial	C
139	Center Street	At AT & SF Overpass		14,940	3	Arterial	C
140	Holman Road	Auto Center	Auto Center	16,570	6	Arterial	A
141	Holman Road	Wind Flower	March	14,090	5	Arterial	A
142	Cherokee Road	Sierra	Sanguinetti	6,110	2	Arterial	A
143	Waterloo Road	E	Williams	13,230	4	Arterial	A
144	Airport Way	Pinchot	Roosevelt	18,950	4	Arterial	B
145	Airport Way	Fremont	Lindsay	19,460	4	Arterial	B
146	Airport Way	Main	Market	15,920	4	Arterial	A
147	Airport Way	Ninth	Tenth	16,740	4	Arterial	A
148	Airport Way	Sperry	Industrial	12,790	4	Arterial	A
149	Mariposa Road	Stagecoach	SR 99	8,690	2	Arterial	B
150	Mariposa Road	Farmington	SR 99	9,450	2	Arterial	C
151	Mariposa Road	MLK Blvd	Farmington	10,970	2	Arterial	C
152	B Street	Charter Way	Fourth	10,410	2	Collector	D
153	B Street	Ralph Ave	Arch Airport	3,490	2	Collector	A

Table A-2
Existing Roadway Segment Level of Service Summary

Roadway Segment		General Count Location		ADT	Lanes	Facility Type	LOS
154	Pock Lane	Mariposa	Sixth	2,860	2	Collector	A
155	Pock Lane	Togninali	Carpenter	3,980	2	Collector	A
1	I-5	North of Eight Mile Road	North of Eight Mile Road	79,000	6	Freeway	C
2	I-5	Eight Mile Road	Hammer Lane	82,000	6	Freeway	C
3	I-5	Hammer Lane	Ben Holt Drive	104,000	6	Freeway	D
4	I-5	Ben Holt Drive	March Lane	112,000	6	Freeway	D
5	I-5	March Lane	Country Club Boulevard	112,000	6	Freeway	D

Source: City of Stockton, 2014 and Fehr & Peers, 2016.