

South Stockton Community Mobility Assessment



FINAL REPORT | June 2020



SJCOG
SAN JOAQUIN COUNCIL OF GOVERNMENTS



KITTELSON
& ASSOCIATES

aim
consulting

San Joaquin Council of Governments Staff

Christine Corrales
Associate Regional Planner

David Ripperda
Associate Regional Planner

Ashley Goldlist
Assistant Regional Planner

Consultant Team

Kittelson & Associates, Inc.

Matt Braughton, RSP
Laurence Lewis, AICP
Mike Alston, RSP
Alex Garbier, RSP
Claire Casey
Grace Carsky

AIM Consulting

Gladys Cornell
Nicole Porter
Isabelle Gaillard
Taylor Coover
Vanessa Buckley

Table of Contents

- 1 | Introduction..... 4
 - 1.1 Study Area 6
 - 1.1.1 Demographics..... 6
 - 1.1.2 Activity Centers..... 7
 - 1.2 Existing Conditions 8
 - 1.2.1 Existing Plans 8
 - 1.2.2 Community Outreach Findings..... 10
 - 1.2.3 Walking Audit and Field Visits 11
- 2 | Issues 13
 - 2.1 Pedestrian Infrastructure 13
 - 2.1.1 Sidewalks..... 14
 - 2.1.2 Crossings..... 16
 - 2.1.3 Placemaking 18
 - 2.1.4 Personal Security 21
 - 2.2 Connectivity 22
 - 2.2.1 Rail Lines 23
 - 2.2.2 Freeways 23
 - 2.2.3 Bicycle Connectivity..... 26
 - 2.2.4 Transportation Safety..... 27
- 3 | Opportunities 33
 - 3.1 Near-Term Opportunities..... 33
 - 3.1.1 Road Diet and Complete Streets Projects..... 33
 - 3.1.2 Safe Routes to School Project Development 34
 - 3.1.3 Build the Backbone Bike Network 35
 - 3.1.4 Future Studies 35
 - 3.2 Systemic Opportunities..... 37
 - 3.2.1 Addressing Sidewalk Quality and Gaps..... 37
 - 3.2.2 Creating a Transit-Supportive Environment 37
 - 3.2.3 Enhanced Pedestrian Crossing Implementation 38
 - 3.3 Long-Term Opportunities..... 39
 - 3.3.1 Coordinate with Caltrans on Interchanges and Freeway Crossings..... 39
 - 3.3.2 Rail Crossing Improvements..... 39
 - 3.4 Stakeholder Feedback..... 40
- 4 | Conclusion and Next Steps..... 41
- Attachment A | Public Outreach Summary 42
- Attachment B | Stakeholder Workshops 43
- Attachment C | Pedestrian Crossing Project Concept Development 46

1 | Introduction

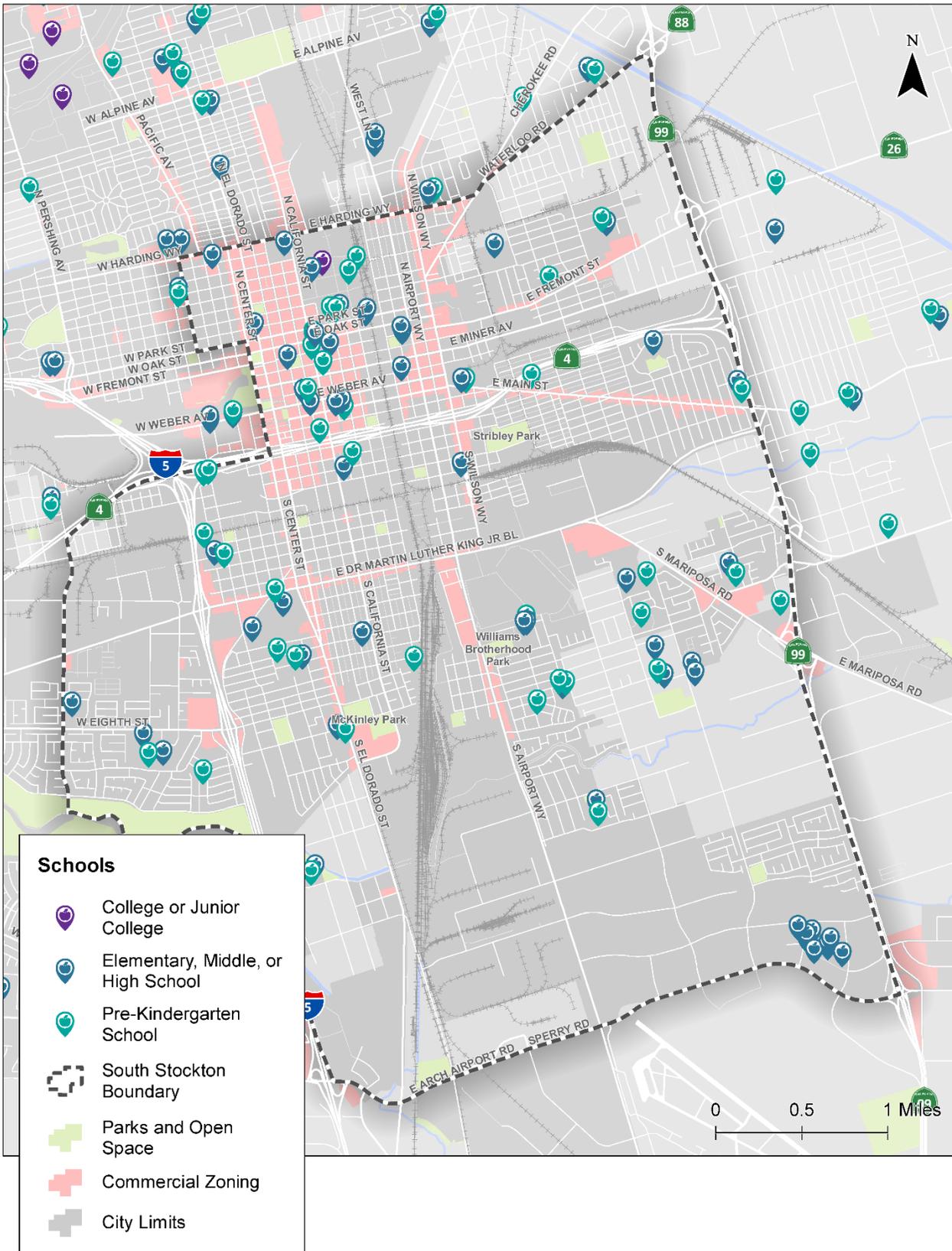
The South Stockton Promise Zone (SSPZ) initiative was developed by a coalition of government agencies, non-profits, foundations, and churches to improve the quality of life in South Stockton and bring in new resources and investments to the community. The study area for this assessment follows the boundary established by the SSPZ, shown in Exhibit 1, and is referred to throughout as South Stockton or the SSPZ. The community area is bounded by Harding Way to the north, Highway 99 to the east, Arch Airport Road to the south, and Interstate 5 (I-5) / State Route 4 (SR 4) / Center Street to the west. While the majority of this area lies within the City of Stockton, portions of the study area lie within the County of San Joaquin's jurisdiction, including the unincorporated communities of Kennedy and Taft Mosswood.

San Joaquin Council of Governments (SJCOG) has undertaken the South Stockton Community Mobility Assessment as a case study of community-level SCS implementation in order to identify challenges and opportunities for SJCOG to support local jurisdictions with implementation. The assessment focuses the transportation needs of people walking, rolling, biking, driving, and taking transit within the study area. This assessment identifies challenges and opportunities for improving mobility, accessibility, and safety for South Stockton residents, including ways that SJCOG can assist the City in promoting sustainable mobility within the community.

Improving mobility for people walking and biking (including those making connections to transit) would help to support the City's progress on SCS goals related to active transportation and environmental benefits. Evidence is emerging that bicycle infrastructure can support economic activity as well. A recent study examined bicycle infrastructure projects in four US cities and evaluated employment data, wage data, and retail sales tax data in the vicinity of the projects. The study found that these projects were associated with either positive or negligible impacts.¹

¹ Liu, Jenny H., and Wei Shi. Understanding Economic and Business Impacts of Street Improvements for Bicycle and Mobility—A Multicity Multiapproach Exploration. No. NITC-RR-1031-1161. 2020.

Exhibit 1: South Stockton Community Boundary



Source: City of Stockton, SJCOG, and Kittelson & Associates, Inc., 2019.

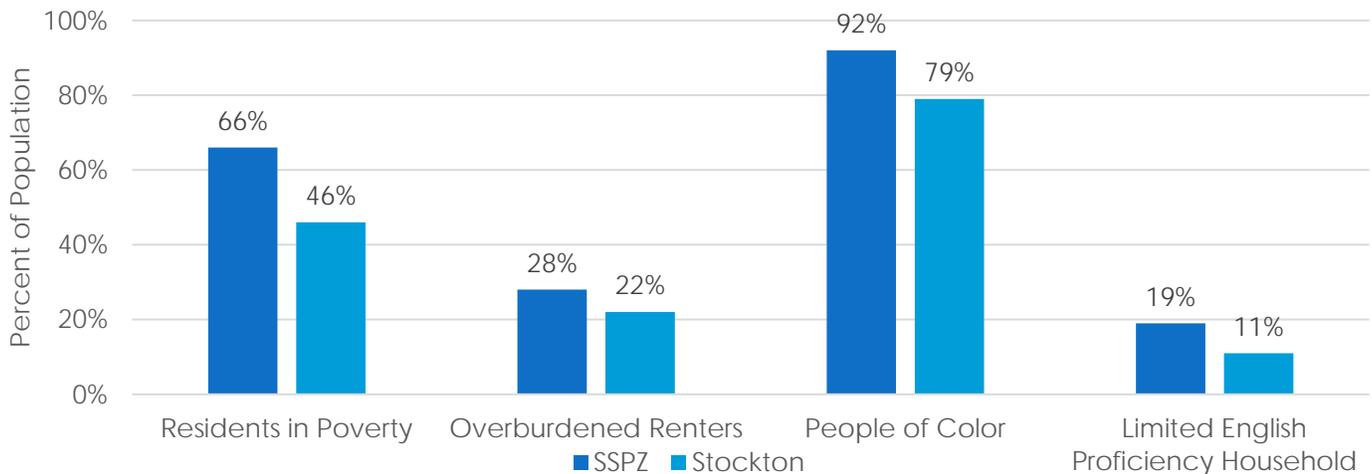
1.1 Study Area

This subsection provides a brief summary of selected social, demographic, and economic statistics for residents of the South Stockton study area to frame the purpose and need for the South Stockton Community Mobility Assessment. This profile of the study area is followed by a brief discussion of activity centers and their relation to travel patterns within and beyond the community. This discussion provides context for the issues and opportunities discussed later in the assessment.

1.1.1 Demographics

As of 2017, there were 75,680 residents and 21,968 households in South Stockton, which represents approximately 25 percent of the City of Stockton’s population. Residents living in South Stockton are generally lower-income and more likely to be burdened by housing costs relative to the Stockton population as a whole. Figure 3-1 presents select comparisons between the study area and the overall City population.

Figure 1: South Stockton Resident Characteristics (2013-2017)^{2,3,4}



Source: US Census Bureau, American Community Survey 2013-2017 five-year estimates, 2019.

Almost two thirds (66%) of South Stockton residents experience some level of poverty, and 28% of households are occupied by renters who are burdened by housing costs.^{2,3} Residents of South Stockton are also more likely than the city’s population as a whole to be a person of color or come from a limited English speaking household.⁴ The community is primarily Hispanic or Latino (69%), with additional significant minority populations for African American and Asian populations (10% each). Each of these factors are considered as part of SJCOG’s environmental justice considerations when making project investment decisions per Executive Order 12898. These statistics are indicators of community members who may disproportionately face mobility challenges: for example, struggling to navigate transit schedules in English or the inability to afford a motor vehicle.

Figure 2 provides additional comparisons between the South Stockton community and the City population as a whole as it relates to potential transportation dependency. Transportation dependence in this context is

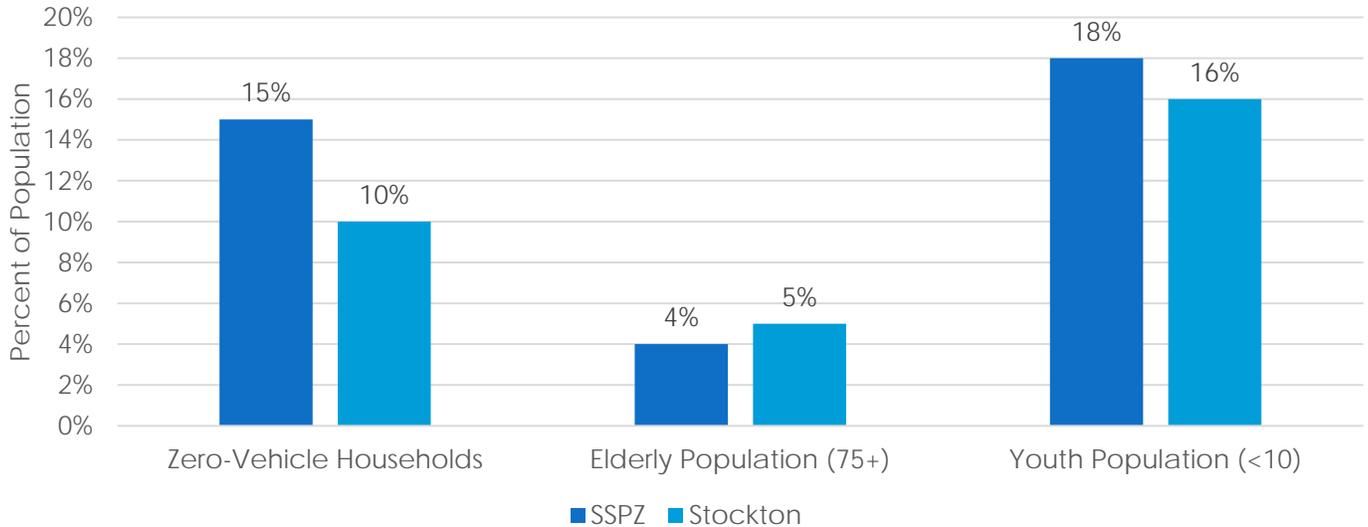
² Poverty is defined here as households below 200% of the Federal Poverty Line. As of 2019, the Federal Poverty Line for a household of four is \$25,750. More information is available online at <https://aspe.hhs.gov/2019-poverty-guidelines>.

³ Rent burdened is defined as a household paying at least 40 percent of monthly income toward rental costs.

⁴ People of color is defined here as all races and ethnicities other than Non-Hispanic White.

defined as individual's lack of access to a vehicle and thus reliance on walking, biking, or transit for everyday travel or need for others to drive to destinations.

Figure 2: Transportation Dependence, South Stockton Residents (2013-2017)



Source: U.S. Census Bureau, ACS Five Years Data (2013-2017), 2019.

The South Stockton community also has a higher share of zero-vehicle households (15%) relative to the overall Stockton population (10%). Although this difference is not drastic, it does indicate that community residents are likely more dependent on walking, biking, or public transit to get to jobs, complete errands, and/or go to school than a typical Stockton resident. Approximately 22% of South Stockton residents are either over the age of 75 or under 10 years old, in line with the City as a whole. Residents of these ages face mobility challenges. Youth are dependent on family for travel and access needs when they cannot walk, bike, roll, or take transit. Elderly residents may no longer be able to drive and may have limited ability to walk.

Again, these indicators suggest that residents of the South Stockton community, relative to the rest of the City, are more likely to choose (or to rely) on travel modes other than driving. In particular, the percentage of zero-vehicle households is 50% higher than the citywide percentage. Infrastructure or programmatic opportunities that can be identified to enhance mobility within South Stockton would provide valuable quality of life improvements for community members.

1.1.2 Activity Centers

Exhibit 1 also identifies the location of commercial areas, schools, parks, and open space within South Stockton. These land uses represent local activity centers and destinations that South Stockton community members access on a regular basis. The commercial areas in the community are concentrated in Downtown Stockton and along several corridors indicated in light red. The primary commercial corridors include:

- Downtown Stockton
- Doctor Martin Luther King, Jr. (MLK Jr) Boulevard between El Dorado Street and S Airport Way
- El Dorado Street between MLK Jr Boulevard and California Street
- S Airport Way between MLK Jr Boulevard and E 12th Street
- E Main Street between SR 4 and N Wilson Way
- N Wilson Way between E Harding Way and MLK Jr Boulevard

Schools are generally dispersed throughout the community, with a number of elementary and middle schools located within residential areas. Outside of the residential areas, there is a concentration of high schools within the Downtown area and a smaller cluster in the far southeast of the community near the Stockton Metropolitan Airport. Edison High School, at the intersection of MLK Jr Boulevard and South Center Street, is the public high school for South Stockton.

Neighborhood parks are also located in residential areas often adjacent to public schools. The parks in South Stockton are generally small, neighborhood parks. Stribley Park, McKinley Park, and Williams Brother Park are the larger neighborhood parks in the community, with several smaller parks in neighborhood areas.

1.2 Existing Conditions

This subsection documents the existing conditions related to mobility within South Stockton. This memo generally defines existing conditions based on the following sources:

- **Data and Existing Plans:** Kittelson has reviewed existing plan documents, including the 2017 Stockton Bicycle Master Plan, the 2018 Envision Stockton 2040 General Plan, and Safe Routes to School assessments to confirm previously identified mobility issues and opportunities within the South Stockton community. The ongoing Greater Downtown Active Transportation Plan (GDATP) was also reviewed for overlapping recommendations in the study area.
- **Community and stakeholder outreach:** Kittelson and AIM Consulting conducted community outreach to learn about key mobility challenges from the community; key findings are included in this memo. Ongoing coordination with the City of Stockton and community organizations has also identified or reiterated mobility issues.
- **Walking audit and field visits:** Data, plans, and outreach were supplemented with a neighborhood walking audit and field visits along arterial routes within South Stockton to note existing infrastructure conditions.

Combining these sources, an assessment of existing conditions mobility issues is presented below.

1.2.1 Existing Plans

Envision Stockton 2040 General Plan (2018)

The Envision Stockton 2040 General Plan (2040 General Plan) Plan was reviewed for policies and recommendations relevant to the community mobility assessment. The General Plan is not written in the level of detail discussed here but does include the following policy goals which align with the intent of the Community Mobility Assessment shown in Table 1. Many of these goals directly align with the issues and opportunities identified during the mobility assessment. Although the General Plan does not make specific place-based recommendations, these policies form a relevant supportive framework for mobility enhancements in South Stockton. Where issues or opportunities overlap with these General Plan goals, they are noted in the assessment.

Table 1: 2040 General Plan Goals Aligned with this Memorandum

Goal/Policy	Action
Goal TR-1: Mobile Community	
Policy TR-1.1:	Ensure that roadways safely and efficiently accommodate all modes and users, including private, commercial, and transit vehicles, as well as bicycles and pedestrians and vehicles for disabled travelers.
	Action TR-1.1.A: Direct truck traffic to designated truck routes that facilitate efficient goods movement and minimize risk to areas with concentrations of sensitive receptors, such as schools, for example by disallowing any new truck routes to pass directly on streets where schools are located, and vulnerable road users, like pedestrians and bicyclists.
	Action TR-1.1D: Update existing Precise Road Plans to reflect the 2040 General Plan, including changes in land use and level of service requirements, and a shift in priority from vehicular travel to travel by all modes through complete streets.
	Action TR-1.1E: Work with local school districts to implement pedestrian crossing enhancements like stop signs within neighborhoods around schools, encourage activities like a walking school bus, and create educational programs that teach students bicycle safety.
Policy TR-1.2:	Enhance the use and convenience of rail service for both passenger and freight movement.
	Action TR-1.2C: Provide grade separations at railroad crossings on arterial streets where feasible to ensure public safety and minimize traffic delay.
GOAL TR-2: Active Community	
Policy TR-2.1:	Develop safe and interconnected bicycle and pedestrian facilities, including along “complete” streets that target multiple travel modes.
	Action TR-2.1A: Require safe and secure bicycle parking facilities to be provided at major activity centers such as public facilities, employment sites, and shopping and office centers, along with showers and lockers for major employment sites.
	Action TR-2.1B: Maintain and implement the City of Stockton Bicycle Master Plan.
	Action TR-2.1C: Maintain and implement the City of Stockton Safe Routes to School Plan
Policy TR-2.3:	Utilize natural features and routes with lower traffic volumes and speeds to encourage residents to walk and wheel more frequently.
	Action TR-2.3A: Develop and maintain bikeways on separate rights-of-way (e.g., Calaveras River, East Bay Municipal Utility District easement, French Camp Slough, [Mormon Slough,] and Shima Tract Levee).
Goal TR-3: Sustainable Transportation	
Policy TR-3.1:	Avoid widening existing roadways in an effort to preclude inducement of additional vehicle traffic.
	Action TR-3.1A: Limit street widths to the minimum necessary to adequately carry the volume of anticipated traffic, while allowing for safe bicycle and pedestrian facilities, emergency access, and large vehicle access.
	Action TR-3.1B: Where feasible and appropriate, reduce the width of existing streets using bulb-outs, medians, pedestrian islands, shade tree landscaping, appropriate signage, and similar methods, while not jeopardizing emergency response.
	Action TR-3.1C: Preserve right-of-way for transit and bicycle uses when designing new roadways and improving existing roadways and ensuring adequate and clear signage.

Source: Envision Stockton 2040 General Plan, 2018.

2017 Bicycle Master Plan

In 2017 Stockton updated its Bicycle Master Plan as part of its General Plan update. The plan used historical crash data, an assessment of existing facilities, and public input to develop a vision bicycle network consisting of a mix of bikeway types. Bikeways are classified by Caltrans based on their level of separation from traffic as follows:

- **Class I bikeway (bike path):** This is a dedicated, separate path for people biking, walking, or rolling that does not permit motorized travel.
- **Class II bikeway (bike lane):** This is a portion of the roadway network that has been striped and signed for bicycle use. Class II bikeways may include striped buffers but do not include any physical elements.
- **Class III bikeway (bike route):** These routes include signage but do not have roadway markings or striping to indicate reserved space for the bicyclists. Bicyclists traveling on Class III facilities must share travel lanes with vehicle traffic.
- **Class IV bikeway (separated bike lane):** This is a dedicated, separated and protected on-street lane for bicyclists. Separated bike lanes provide additional protection for bicyclists through the use of vertical separation, such as concrete curb or safe-hit posts.

The Plan's findings with respect to access, connectivity, and safety trends are discussed in the subsequent section on bicycle connectivity (Section 3.1.3).

Greater Downtown Active Transportation Plan

Stockton is currently developing the GDATP, which builds off of the 2040 General Plan and the 2017 Bicycle Master Plan to make recommendations for prioritized bicycle and pedestrian projects in Downtown Stockton. The plan's study area extends south to MLK Jr Boulevard and overlaps with this community mobility study. The plan's draft materials have been reviewed for relevance and incorporation into the issues and opportunities identified in this memorandum.

Safe Routes to School Studies

San Joaquin County Public Health Services (SJPHS) provided seven Safe Routes to School (SRTS) assessments conducted for schools in South Stockton. Each SRTS assessment reported feedback from the school community regarding mobility issues in and around the school. The issues identified provide an understanding of mobility challenges at these schools, which are likely similar at many other school locations in the community. The SRTS assessments are discussed in more detail in Section 2.1.3 (Placemaking).

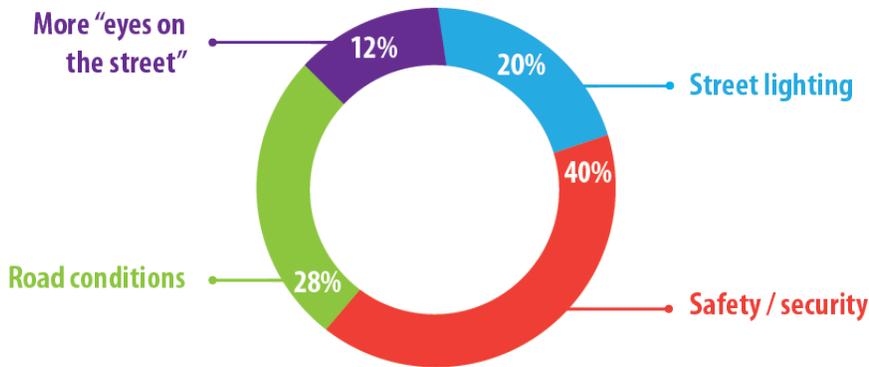
1.2.2 Community Outreach Findings

Kittelson and AIM Consulting held a pop-up workshop on June 8, 2019, to engage community members in the South Stockton area at a local family-friendly event, the STAND Wellness Fair and 5k Color Run. The pop-up workshop provided an opportunity to engage community members in discussions about their experiences traveling around South Stockton, including the modes of transportation they use and the mobility challenges they perceive. Community members were encouraged to provide input through one-on-one discussions with project team members and sharing their written perspective on interactive board displays. These findings are summarized below. Figure 3 shows the break-down of the main areas of concern for community members.

- **Personal Security and Safety:** Community members shared their concerns about their personal safety and security in the South Stockton community. Input related to personal security and safety is briefly summarized below.
 - About 40 percent of participants responded with concerns about safety and security, primarily when walking or biking.

- Approximately 28 percent of participants responded with concerns about road conditions, including issues with trash in the street, potholes, and broken signs.

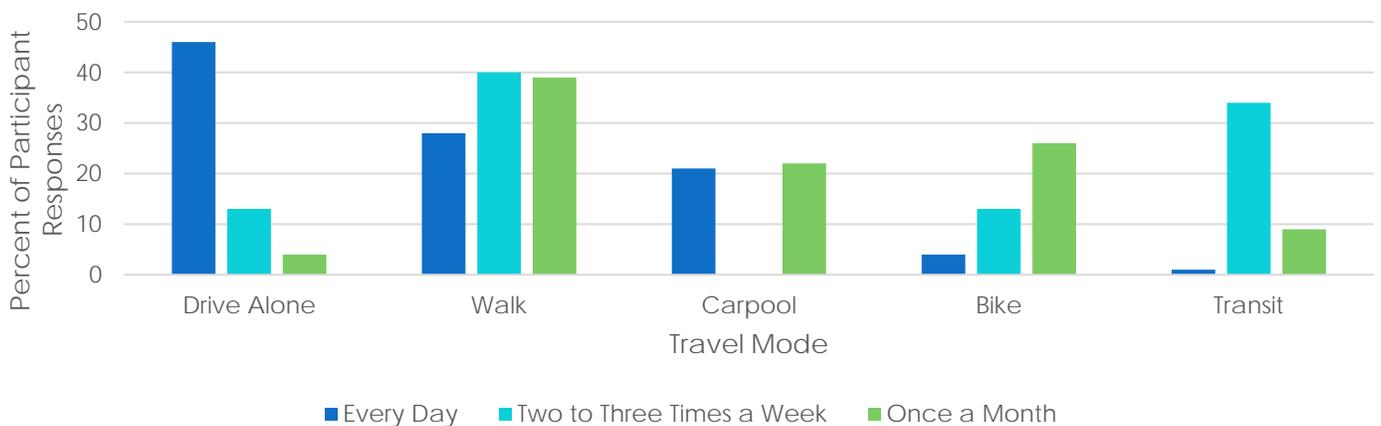
Figure 3: Community members’ main concerns for existing infrastructure.



Source: AIM Consulting, 2019.

- **Travel Modes:** Community members shared their most frequent means of travel to, from, and within South Stockton. A summary of that feedback is provided below:
 - Figure 4 shows how frequent community members said they use different travel modes. Forty-six percent of respondents shared that they drive alone every day. Forty percent of respondents walk to locations two to three times a week, and another 28 percent walk daily.
 - The majority of respondents indicated that they frequently travel within South Stockton (28 of 40) and/or to schools within and near the area (22 of 40).

Figure 4: Frequency of Travel Modes used by Community Members

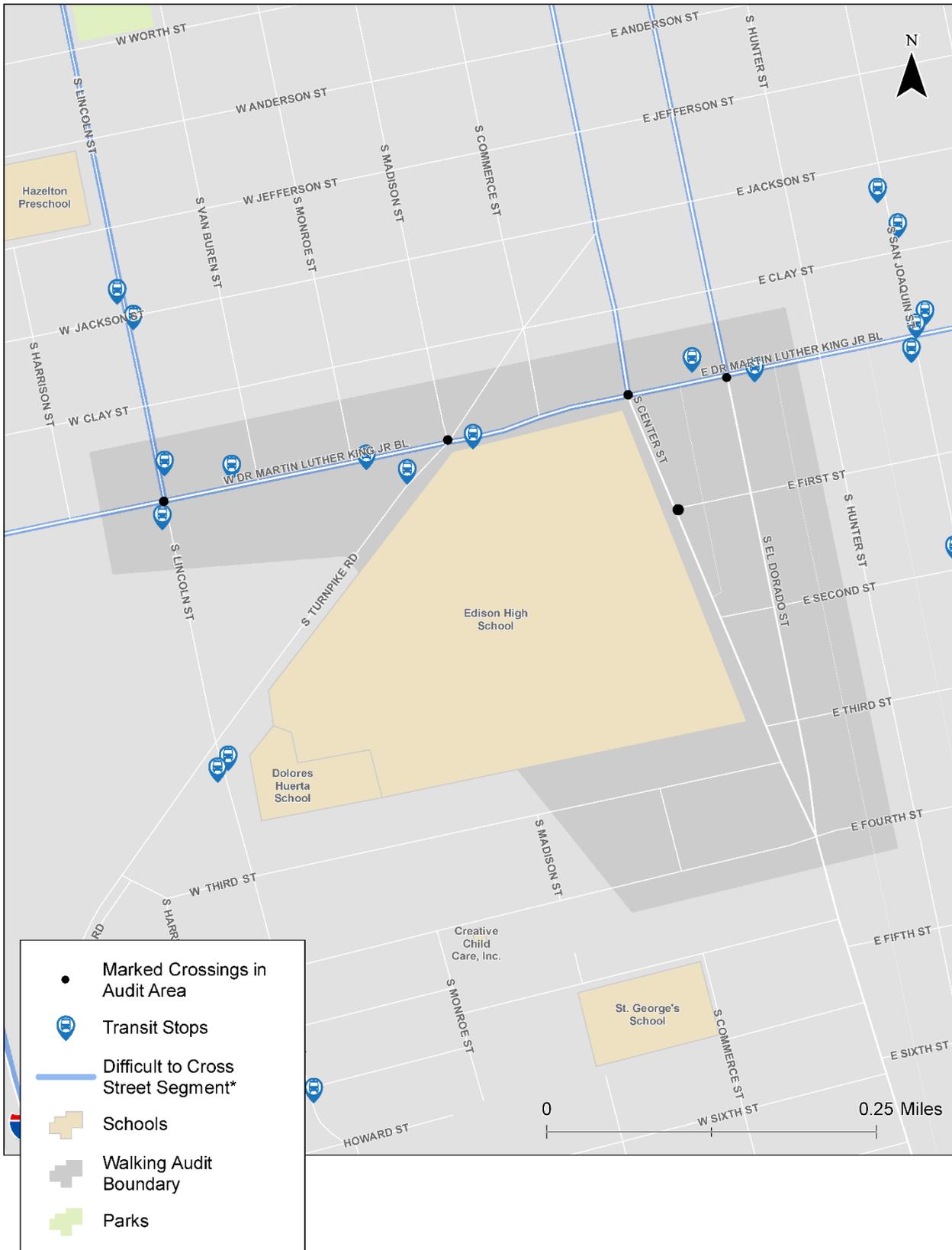


Source: AIM Consulting, 2019.

1.2.3 Walking Audit and Field Visits

Based on community feedback and an assessment of existing conditions data, Kittelson conducted a walking audit along Center Street, MLK Jr Boulevard, and El Dorado Street near Edison High School (see Exhibit 2) to identify challenges and barriers to mobility and accessibility. Key barriers are discussed below and are supplemented with findings from data analysis, a review of planning documents and additional field review.

Exhibit 2: Walking Audit



*As identified in the Draft Greater Downtown Active Transportation Plan

Source: City of Stockton, SJCOG, and Kittelson & Associates, Inc., 2019.

2 | Issues

Based on the sources and activities described above, sustainable mobility issues were identified for the South Stockton community area. These issues have been broadly defined in the following categories:

- **Pedestrian Infrastructure**
 - Sidewalks
 - Crossings
 - Placemaking
 - Personal Security
- **Connectivity**
 - Rail lines
 - Freeways
 - Bicycle Connectivity
- **Transportation Safety**
 - Intersections
 - Interchanges

Each issue is presented and discussed in further detail below, followed by specific examples indicating where the issues affect mobility within South Stockton. These issues present opportunities for Stockton and SJCOG to enhance mobility meaningfully within the community. A discussion of opportunities is provided in the following section of the assessment.

2.1 Pedestrian Infrastructure

Appropriate infrastructure is essential to support walking as a viable mode of transportation. With a supportive walking environment, people may choose to walk rather than to drive, and those who do walk will be able to reach their destinations safely. The basic elements of pedestrian infrastructure include providing the following:

- **Sidewalks** to enable safe and comfortable travel along the street outside the traveled way.
- **Crossings** to provide sufficient opportunities to safely cross the street (at signalized intersections, unsignalized intersections, or midblock).
- **Placemaking** to create a supportive, secure, and pleasant walking environment.

In much of South Stockton, the existing infrastructure is not conducive to support walking; as a result, residents may be discouraged from doing so for any purpose. However, many people still do walk to destinations or to transit connections as indicated in the Existing Conditions section, and those who do walk have safety, security, and environmental concerns as expressed in the community outreach input. Each of the infrastructure elements listed is discussed as they relate to the South Stockton community below.

2.1.1 Sidewalks

Sidewalks of adequate width and quality are essential to support walking. Prevailing guidance encourages sidewalks with a clear pedestrian through zone free of street furniture of 5 to 7 feet in residential settings and 8 to 12 feet in commercial areas. An absolute minimum of four feet of clear width is required, in accordance with the Americans with Disabilities Act of 1990 (ADA – see further discussion below).⁵ The clear width, or pedestrian through zone, is reduced where objects like street trees, trash cans, or other fixed or mobile objects occupy key sidewalk width (see Figure 5, left). Within the study area, there are areas that lack sidewalks altogether and areas with sidewalks of mixed quality and width.

In many cases where sidewalks are present, the following characteristics still reduce the ability to comfortably use the sidewalk, especially for people rolling in a wheelchair or using other assistive devices:

- Tree uprooting or other deterioration has led to uneven sidewalk surface, with tripping hazards and accessibility barriers.
- Fences along lot lines visually reduce the walking area and constrain the effective width of sidewalks. In many cases, these fences are likely in place for the security of the landowner but impact pedestrians on the sidewalk, especially in the presence of two-way sidewalk traffic.
- Frequent curb cuts for driveways create pedestrian-vehicle conflict points. As shown in the right image of Figure 5, parking adjacent to a curb cut or side street can obstruct a pedestrian’s and driver’s views of one another, creating a safety concern.

Figure 5: Left – Sidewalk quality and width interrupted by a tree, with possible uprooting. Right – On-street parking obstructing sight lines (curb cut outlined in red).



Source: Kittelson & Associates, Inc., 2019.

⁵ Refer to US Access Board Guidelines and Standards, Section X02.1.3. Available online at <https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/background/access-advisory-committee-final-report/x02-new-construction-minimum-requirements-x02-1-public-sidewalks>

In addition to desired and required sidewalk width, accessibility and compliance with the ADA is legally mandated in other ways: any facility that is accessible needs to be accessible to people with disabilities. A set of draft Public Rights-of-Way Accessibility Guidelines (PROWAG) (2011) is generally considered best practice. These guidelines include the following elements:

- Maintaining at least four feet clear width. This provides room for people in wheelchairs to move along the sidewalk.
- Providing directional curb ramps at crossings, with detectable warning strips to indicate the transition between sidewalk and vehicle traveled way (see Figure 6, left).
- Providing accessible pedestrian signals with audible cues for crossing phases.
- Providing a buffer zone between the sidewalk and the traveled way. This allows for a pedestrian who is blind or with low vision to identify the edge of the sidewalk and locate crossing opportunities by the absence of the buffer (see Figure 6, right). The buffer zone also provides extra lateral separation from moving traffic, giving pedestrians a sense of security and a more pleasant experience.

These infrastructure elements provide compliance with ADA and PROWAG but also enhance the walking environment and provide redundant visual and audible cues for everyone, making for a more pleasant walking experience.

Figure 6: Left – Detectable warning strip at pedestrian crossing along Center Street. Right – Example of a sidewalk with buffer zone



Source: Kittelson, 2019 (left) and NCHRP Report 834.

2.1.2 Crossings

In order to promote connectivity and prevent out-of-direction travel, people walking need frequent and safe opportunities to cross the street. In California, intersections provide legal pedestrian crossing opportunities even if they are unmarked. Within neighborhoods with short block lengths, and especially along local roadways with low speeds and short crossing distances, pedestrians have frequent crossing opportunities.

However, collector and arterial roadways connect these local streets and neighborhoods to key destination and generally do not share these characteristics. Within South Stockton, many arterials have long block lengths, long crossing distances (wide roadways), and few or no midblock crossing opportunities. For example, El Dorado Street does not include a marked crossing opportunity for the half-mile length between MLK Jr Boulevard and 6th Street (see Exhibit 3), a segment that includes key crossings for Edison High School students to access the school from their homes as well as access to destinations east of the campus.

Research has shown that in many cases, marking a crossing alone does not improve safety.⁶ Number of lanes, speed, and traffic volume are all factors that can influence the additional crossing enhancements necessary to help provide safer pedestrian crossings. In many cases, a marked crossing and additional safety enhancement is necessary to provide appropriate pedestrian crossings. The Federal Highway Administration’s *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations* (2018) provides more detail on the crossing treatments appropriate for a given roadway.⁷ The City also includes relevant treatments and recommendations to improve crossing safety in its 2003 *Pedestrian Safety and Crosswalk Installation Guidelines*.⁸ Both resources provide recommendations based on lane configuration, traffic volumes, and vehicle speeds at a given location.

The left image in Figure 7 provides an example of an enhanced crossing in South Stockton near McKinley Elementary School that includes a pedestrian hybrid beacon. The righthand image in Figure 7 illustrates a three-lane, one-way roadway crossing on El Dorado Street with no marked crossing or enhancement, making for a difficult crossing environment.

**Figure 7: Left – Pedestrian Hybrid Beacons at 9th Street across El Dorado Street
Right – El Dorado Street between E 2nd Street and E 3rd Street**



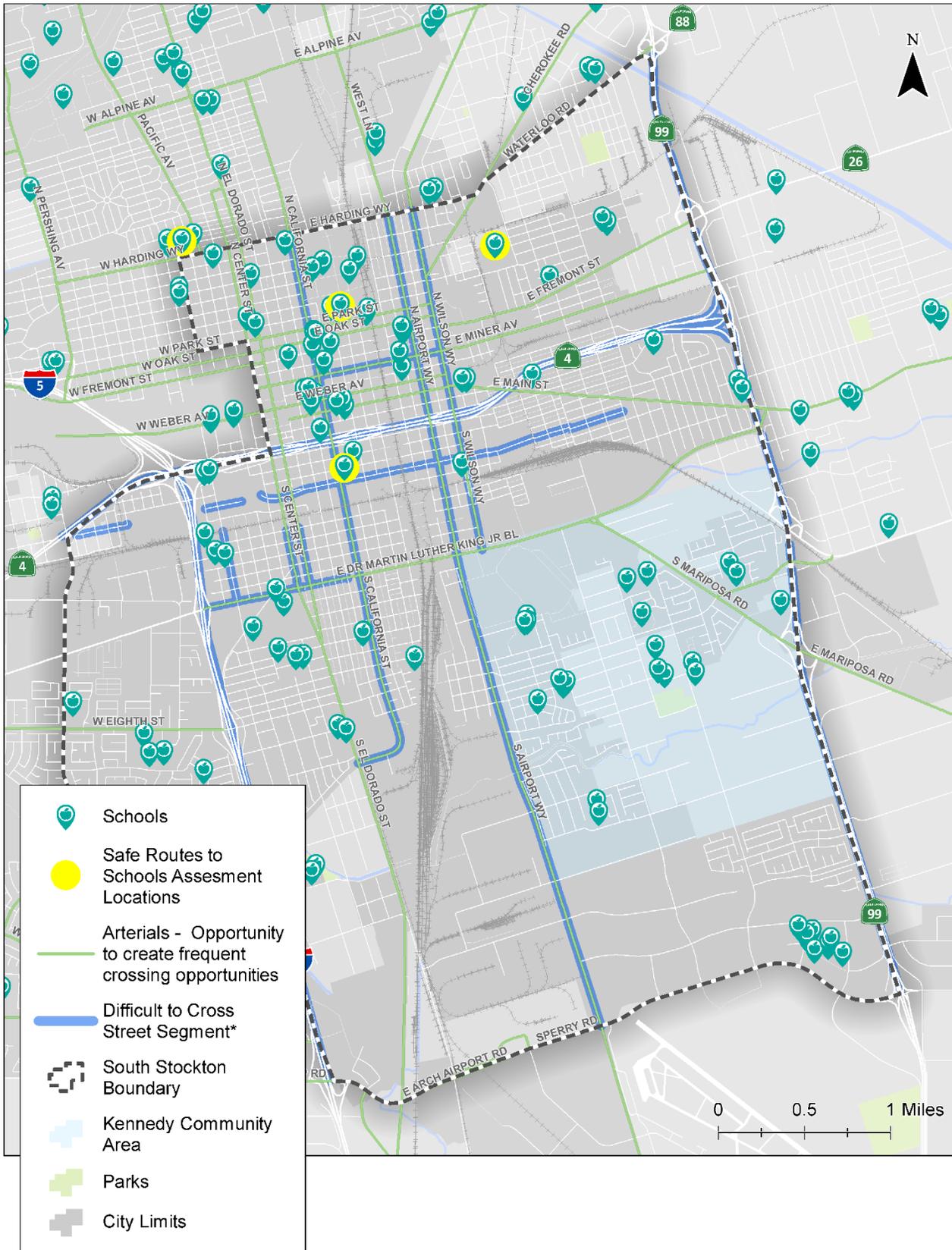
Source: Kittelson & Associates, Inc., 2019.

6 Federal Highways Administration, Safety Effects of Marked versus Unmarked Crosswalks at Uncontrolled Locations (2005).

7 Federal Highway Administration, Guide for Improving Pedestrian Safety at Uncontrolled Locations, July 2018 Updated. Available at https://safety.fhwa.dot.gov/ped_bike/step/docs/STEP_Guide_for_Improving_Ped_Safety_at_Unsig_Loc_3-2018_07_17-508compliant.pdf

8 Available online at <http://www.stocktongov.com/files/PedestrianSafetyAndCrosswalkInstallationGuidelines.pdf>.

Exhibit 3: Pedestrian Infrastructure Focus Areas



*As identified in the Draft Greater Downtown Active Transportation Plan

Source: City of Stockton, Kittelson & Associates, Inc., 2019.

Many other arterials similarly lack crossing opportunities. Waterloo Road, which connects Wilson Way to destinations in the northeastern portion of the South Stockton community, features a four-lane undivided cross-section with parking lanes and striped crossings for which enhancement or control would be appropriate, per FHWA guidance.⁹ Major roadways should provide enhanced crossing opportunities at regular intervals, especially in locations without signalized intersections.

The draft GDATP assessed and identified roadways deemed “difficult to cross,” based on collision history, stakeholder input, and roadway characteristics. Several locations identified are in South Stockton and are indicated on Exhibit 3 above.

2.1.3 Placemaking

A focus on placemaking can create certain environmental characteristics that make walking a more pleasant option. These characteristics and infrastructure elements can encourage the mode as a viable alternative to driving and can promote the use of transit as well, including walking to and waiting at bus stops.

Some of the elements already discussed contribute to a pleasant walking environment, including adequate sidewalk width and quality and buffer zones between the sidewalk and adjacent traffic. As previously noted, sidewalk width and quality are mixed throughout South Stockton (see Figure 8, left). The location shown on the left in Figure 8 at an undercrossing along MLK Jr Boulevard shows how minimal separation, loud vehicle traffic, and an unpleasant walking experience can reduce the desire to walk along a segment. Elements that promote a pleasant walking environment include:

- **Street trees:** Street trees serve to buffer the sidewalk area from moving traffic and can provide shade on hot, sunny days. Street trees are present on many neighborhood roads but are intermittent on commercial corridors like MLK Jr Boulevard – many locations with bus stops lack tree cover.
- **Adequate and accessible transit infrastructure:** For pedestrians walking to transit connections, high-quality infrastructure at the transit stop can improve the experience. There is variety in the quality of bus stops and shelters within South Stockton. The RTD’s rapid transit network, which includes relatively frequent headways, is also accompanied by covered shelters, bike parking, and seating (see Figure 8, right). The non-rapid network stops, which runs less frequently and thereby may require more waiting, often include just a pole in the ground to indicate the presence of the bus stop.
- **Pedestrian-scale lighting:** Lighting has several benefits that provide a secure and pleasant walking environment. Pedestrian-scale lighting along the sidewalk can provide security and peace of mind to people walking at night, illuminating their traveled path and helping them remain aware of their surroundings. Pedestrian-scale lighting at crossing locations provides critical visibility to drivers of crossing pedestrians and vice versa. Much of the lighting present in the South Stockton community is designed and oriented around lighting the roadway for motor vehicles, with minimal lighting at a pedestrian scale on the sidewalk or at crossing locations.

⁹ Ibid.

Figure 8: Left – Sidewalk and Limited Sidewalk along MLK Jr Boulevard. Right – SJRTD rapid transit stop



Source: Kittelson & Associates, Inc., 2019

An additional obstacle to a secure and pleasant walking environment is the presence of heavy truck traffic. Many of the main arterials within South Stockton include a considerable amount of truck traffic, which is loud, contributes to localized air pollutants, and necessitates street and intersection design elements that are in tension with pedestrian-supportive infrastructure (see the discussion of intersection principles on page 30).

Focus Areas

While the issues identified are prevalent throughout much of the South Stockton community, locations from the field visits and community input that were specifically identified as focus areas to provide essential walking connections to key destinations:

- **Kennedy Community:** The Kennedy subarea lacks a cohesive pedestrian infrastructure network, with many roads lacking sidewalks and crosswalks. This neighborhood is bounded by County jurisdiction and includes infrastructure that has recently urbanized and is still urbanizing. The infrastructure that exists today is not fully supportive of the accompanying development.
- **Mariposa Road & MLK Jr Boulevard:** This interchange is adjacent to the Kennedy subarea and forms the connection of two arterials that are now within an urban context. The interchange/intersection design is more appropriate for a high-speed rural context intended to move a high volume of cars outside of an urban area. Other locations that have experienced rural to urban land use context changes are key locations to study to determine how infrastructure may need to change to suit the corridors' new land use context. Other areas that could be explored include the Taft Mosswood and Boggs Tract neighborhoods.
- **Safe Routes to Schools (SRTS):** Connections to schools within South Stockton have missing or poor-quality sidewalks and infrastructure. As noted in the community outreach findings, schools are major walking destinations. Many students walk to and from school regardless of sidewalk quality or the presence of marked and enhanced crossing opportunities. Providing sidewalks and other supportive infrastructure will help enhance the walking environment and improve safety for students and families walking to and from schools.

Table 2 provides key observations of challenges at each of the seven SRTS Assessments conducted by the San Joaquin County Public Health Services within South Stockton. SRTS assessments do not include high schools, so the recommendations are limited to elementary and middle schools.

Table 2: Safe Routes to School Mobility Issues

School Location	Vehicles Fail to Yield / Difficult to Cross	Missing Curb Cut	Vehicle Speeds	No Marked Crossing	At-grade Rail Crossing	Security and Environment Concerns	Sidewalk Gap(s)
El Dorado Elementary School	✓	✓					
Fremont Elementary School	✓		✓	✓			
Pittman Charter School	✓		✓		✓	✓	
Roosevelt Elementary School	✓		✓	✓		✓	✓
Spanos Elementary School	✓		✓		✓	✓	
Dr Lewis Dolphin Stallworth Charter School	✓		✓	✓			✓
Taylor Skills Elementary School			✓			✓	

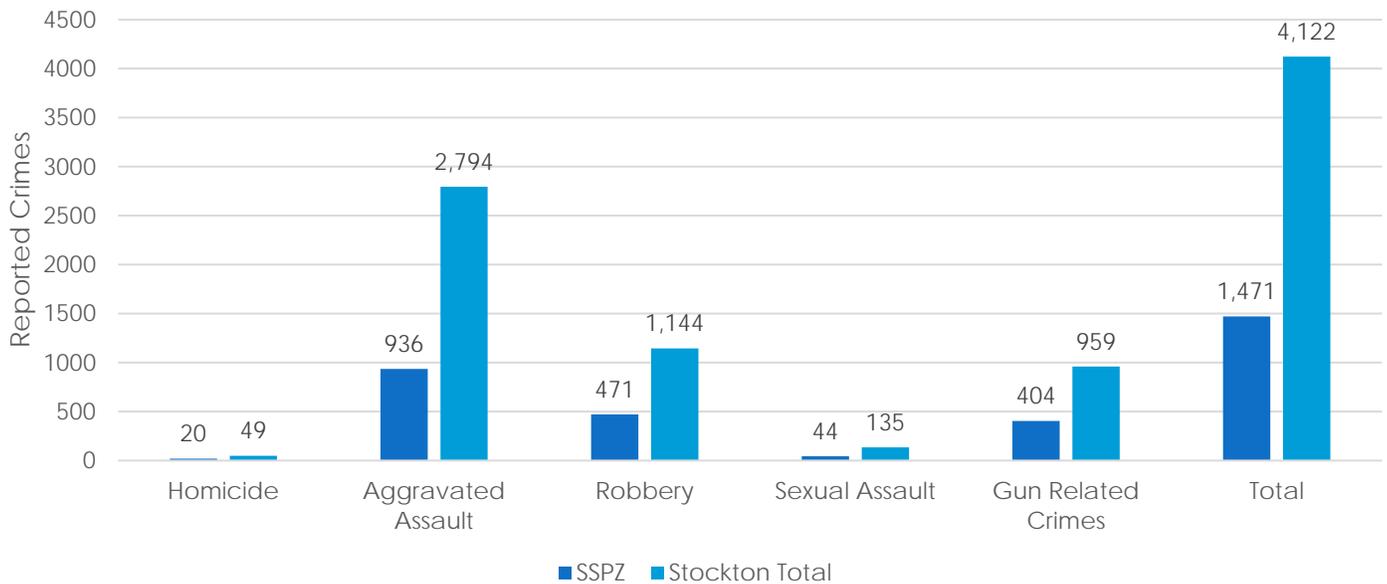
Source: San Joaquin County Public Health Services.

Exhibit 3 above highlights these locations for the City to focus on pedestrian-supportive infrastructure, including recommendations from the GDATP and SRTS assessments.

2.1.4 Personal Security

Personal security is a major issue for people walking in the community, as reflected in summary from community outreach (see Attachment 1). As shown in Figure 9, there were 1,471 reported violent and gun related crimes in South Stockton in 2015¹⁰, approximately 36% of the citywide share of these crimes. Comparatively, South Stockton’s population makes up only 25% of Stockton’s overall population. When residents are concerned for their personal safety due to violent crime, they will be less comfortable walking as a means of transportation or waiting (e.g., for a bus) in areas where violent crime is common.¹¹

Figure 9: Violent and Gun Related Crimes in the SSPZ (2015)



Source: Reinvent South Stockton Coalition, South Stockton Promise Zone Plan, 2016.

The 2016 South Stockton Promise Zone Plan provided location concentration information of violent and property crime, showing three areas that each have a relatively high concentration of related crime in South Stockton:

- Western downtown Stockton, north of SR 4;
- Downtown between Union Street and North Wilson Way; and
- MLK Jr Boulevard between El Dorado St and Aurora Street

There are other obstacles to personal security and comfort walking in the community, as well. In particular, tent encampments that obstruct the sidewalk partially or wholly in many places. Many tent encampments in the City include dogs off leash which pose a threat to pedestrians. The encampments are frequently along sidewalks or Class I paths. People experiencing homelessness themselves rely on walking, biking, and transit for mobility and access to opportunity. In the absence of adequate resources, navigation centers, or temporary facilities, homelessness will continue to have a negative impact on mobility in the SSPZ.

Ensuring that pedestrians feel secure walking to and from key destinations in the SSPZ is a challenge that requires more than just improved infrastructure. At the same time, infrastructure that is supportive of personal

¹⁰ Data is limited to 2015 based on availability.

¹¹ Deka, D. et al. Exploration of the effect of violent crime on recreational and transportation walking by path and structural equation models, *Health Place* 52:34-45 (2018). doi: 10.1016/j.healthplace.2018.05.004

security provides co-benefits for walking comfort and safety, as discussed above. Infrastructure investments that can improve comfort and security for people walking or waiting are briefly summarized below:

- Lighting is essential to provide awareness of surroundings at nighttime and, as already discussed, also provides roadway safety and enhances the environment for people on the sidewalk.
- Providing sight distance and clear width for pedestrians allows people walking to better assess their surroundings, especially at nighttime, but also enhances the walking environment by providing a more comfortable walking experience and ensuring that pedestrians and other road users can see one another.

2.2 Connectivity

Pedestrian and bicyclist connectivity promote broader mobility and increased transportation choices for South Stockton community members. For people walking, connectivity means supportive infrastructure and facilities that provide direct connections with minimal out-of-direction travel – people walking have quality direct routes to their destinations. For bicyclists, connectivity similarly equates to a connected low-stress bicycle network. The stress of a route can be measured by bicycle level of traffic stress (LTS). LTS is a rating given to a road segment to indicate the level of stress associated with riding along the roadway. Scores range from 1 to 4:¹²

- **LTS 1:** Strong separation from all except low speed, low volume traffic. Simple crossings. Suitable for children.
- **LTS 2:** Except in low speed and low volume traffic situations, cyclists have their own place to ride that keeps them from having to interact with traffic except at formal crossings. Physical separation from higher speed and multilane traffic. Crossings that are easy for an adult to negotiate. Corresponds to design criteria for Dutch bicycle route facilities. A level of traffic stress that most adults can tolerate, particularly those sometimes classified as “interested but concerned.”
- **LTS 3:** Involves interaction with moderate speed or multilane traffic, or close proximity to higher speed traffic. A level of traffic stress acceptable to those classified as “enthused and confident.”
- **LTS 4:** Involves interaction with higher speed traffic or close proximity to high speed traffic. A level of stress acceptable only to those classified as “strong and fearless.”

For pedestrians and bicyclists, if a key roadway or crossing is stressful, unsafe, or unpleasant, then connectivity is prevented by that location. A connected network is vital to supporting walking and biking as viable modes within the community. Barriers to connectivity hinder accessibility, resulting in fewer people choosing to walk or bike.

Some barriers to pedestrian connectivity have already been described in the prior subsection, including a **lack of crossing facilities**. The subsequent section on safety describes how an urban form that promotes **large roadways, intersections, and interchanges** can further degrade pedestrian connectivity.

Within South Stockton, there are two significant infrastructure barriers to walking and biking connectivity: **rail right-of-way** and **freeway structures**. These two barriers are described below.

¹² These definitions are provided by Peter G Furth, who developed the measure. More information is available at <http://www.northeastern.edu/peter.furth/research/level-of-traffic-stress/>

2.2.1 Rail Lines

Rail lines create a significant barrier to walking for several reasons. Primarily, rail lines limit the connectivity by reducing crossing opportunities and, as a result, creating a barrier between neighborhoods that may be a short distance apart. This is further complicated given that rail lines and right-of-way are owned and operated by the Union Pacific Railroad (UPRR) and are outside local jurisdiction's purview. As a result, even though a community may desire an additional connection point across the rail line, these new crossings must be negotiated with private rail companies.

Additionally, for rail operating through the City, all at-grade crossings are impassable while trains are passing. For freight trains, this can be several minutes and can create an impediment in walking time and accessibility as well as introducing unpredictability to the walking experience. Out-of-direction or delayed travel is a more significant barrier for people walking than for people driving, especially in a hot climate like Stockton where waiting for a train to pass may be unpleasant during the summer.

The alternative to at-grade crossings is to provide grade separation (e.g., a bridge or tunnel). This provides for safe passage of trains without risk of crashes with pedestrians, bicyclists, or motor vehicles and removes any delay associated with trains passing through the community. However, these crossings can be cost-prohibitive to construct and must be done so in coordination with the rail owner. Additionally, grade-separated crossings must be designed in a way to encourage their use, as people may choose to just cross the tracks instead of going up a ramp or staircase to cross the rail line. Undercrossings in particular must be designed with care to avoid creating an unpleasant walking environment. Care should be taken to ensure that drainage, lighting, and maintenance are sufficient to provide a comfortable walking or biking experience.

As shown in Exhibit 4, railroad tracks run north-south through the center of the South Stockton community. Between SR 4 and the southern border of South Stockton, there are only six rail crossings. Only the crossing at MLK Jr Boulevard is grade separated; all others are at-grade crossings. South of MLK Jr Boulevard, the only rail crossing is at S McKinley Avenue at the far southern end of South Stockton. Railroad tracks also run east-west through the northern half of the South Stockton community area, parallel to East Worth Street. Several north-south streets are discontinuous, limiting connectivity across the tracks. The majority of the crossings are at-grade; only Center Street and El Dorado Street provide grade separations. Additionally, the bridge structures for these crossings were also designed in an era with limited attention paid to people walking or biking and lower traffic volumes. As such, they often have minimal sidewalk for the overcrossing and there is limited right-of-way to consider including bicycle facilities. The rail lines effectively bifurcate South Stockton because of the crossings barriers they create.

2.2.2 Freeways

Freeways traversing and bounding South Stockton also create barriers, as illustrated in Exhibit 4. Connectivity is affected differently along different community borders. These barriers are briefly described below.

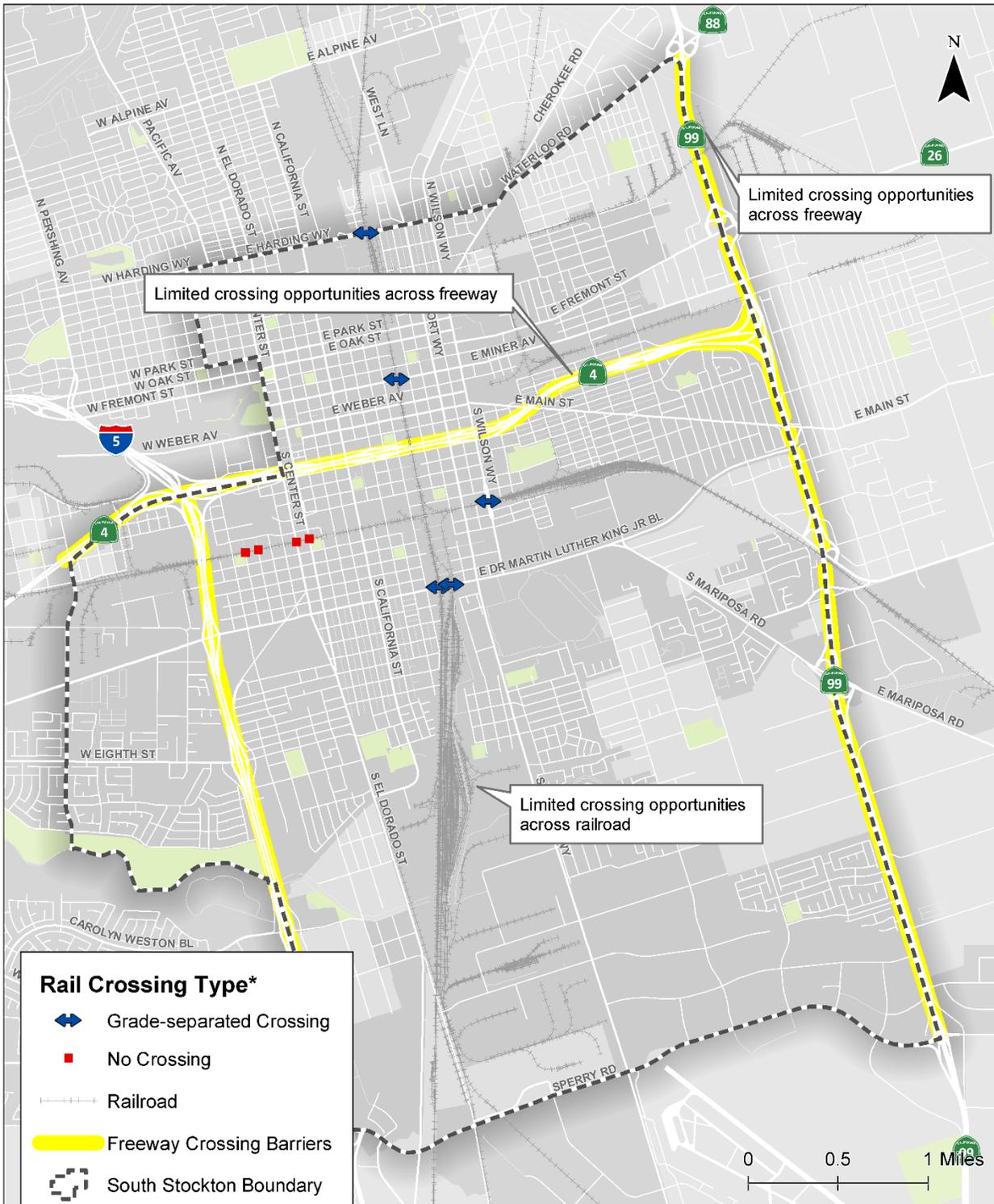
- SR 4 runs east-west on the south side of Downtown Stockton and is elevated above the street grid west of E Main Street; SR 4 is below grade at East Main Street and further west. The road network generally connects across the highway, though the connections are unpleasant walking routes (see previous section on placemaking) and have safety challenges (see subsequent section on interchanges). Crossing SR 4 provides connections between South Stockton and the downtown area, the University of the Pacific, and many other key destinations.
- I-5 runs north-south on the west side of South Stockton. Crossings across I-5 are more limited relative to SR 4. There are four east-west connections between the part of the zone west of I-5 and the rest of the

South Stockton community. With relatively few connections across I-5, access between the South Stockton community and the Weston Ranch, Boggs Tract, and other neighborhoods is limited.

- SR 99 is on the east side of South Stockton. Similar to I-5, there are relatively few pedestrian crossings across SR-99. These crossings are generally along multilane arterial roads at interchanges. The sparse crossing opportunities limits access to the Garden Acres area.

Where walking and biking connections exist across the freeways, they do present safety challenges (see subsequent *Safety* section).

Exhibit 4: Rail and Freeway Barriers in South Stockton



Source: Kittelson & Associates, Inc., 2019.

2.2.3 Bicycle Connectivity

The roadway network within South Stockton is comprised of a number of major arterial roadways that present barriers for people biking (see Exhibit 3). The preceding crossing opportunities discussion presented the way in which these major arterials present barriers to pedestrian connectivity and safety; they similarly serve as barriers for people biking. The 2017 Bike Master Plan identified these roadways as key pieces in the planned “Backbone Network.” These arterials also present uncomfortable walking or crossing environments for pedestrians due to the speed and volume of vehicle traffic and long crossing distances.

The Bicycle Master Plan identified the following access, connectivity, and safety trends:

- **Barriers to connectivity.** Barriers between neighborhoods prevent citywide bicycle connectivity. These barriers include waterways, railways, freeways, and high-speed arterials.
- **City network lacks low-stress facilities.** A considerable portion (35 of 117 miles) of the existing designated bikeway network includes Class III facilities that do not provide low-stress biking opportunities.
- **North-south bicycle connectivity is limited.** A limited portion of California Street includes Class II facilities into downtown, and a portion of Airport Way within the South Stockton community includes Class II facilities. These roadway segments are not connected to a larger network of bikeways.
- **Class I facilities are limited.** Class I bike facilities exist within Stockton (including along the Calaveras River). However, none are located within South Stockton and the existing trail roadway crossings are challenging.

The Bicycle Master Plan includes a recommended backbone network and a series of roadway reconfiguration (road diet) studies, including the following projects within South Stockton:

- California Street Separated Bikeway;
- Pacific Avenue Complete Streets Study;
- El Dorado/Center Separated Bikeways;
- West Lane/Airport Way Complete Streets Study;
- Dr Martin Luther King Jr Boulevard Complete Streets Study;
- Harding Way Complete Streets Study;
- Airport Way Separated Bikeway;
- Monte Diablo/Acacia Bicycle Lanes; and
- East/West Access Road Diets, including along Eighth Street and Hazelton Avenue.

Among the identified projects, two major north-south arterials—El Dorado Street and Airport Way – include six- and eight-lane segments and have no existing bicycle infrastructure. Including appropriate bicycle facilities on these roadways would greatly enhance bicycle connectivity within South Stockton. Similarly, many east-west connections across the north-south arterials are difficult crossings that form barriers in a low-stress bicycle network. Connecting low-stress facilities across neighborhoods would enhance connectivity.

The City of Stockton was also recently awarded a safe routes to school safety and connectivity improvement Active Transportation Program grant to eliminate gaps and barriers for students walking and biking by adding sidewalks and bike lanes and enhancing intersection crossings near six schools in the City. These improvements seek to increase walking and biking comfort, safety, and visibility for students going to school.

2.2.4 Transportation Safety

Many essential infrastructure elements promoting pedestrian and bicyclist safety have already been discussed. The South Stockton community area has a relatively high historical frequency of crashes among all road users and travel modes (see Table 3) based on crash data maintained by the Statewide Traffic Records System (SWITRS). Between January 1, 2013 and December 31, 2017, there were 1,093 reported crashes (219 per year) that resulted in an injury or death in South Stockton. Of these, 112 were recorded as fatal or severe injury (i.e., broken bones, or unconscious when taken from the scene of the crash) crashes. Pedestrians and bicyclists were involved in 31 percent of reported injury and fatal crashes but a much higher 68 percent of fatal and severe injury crashes. People walking and biking are vulnerable road users whose trips are typically shorter and more locally oriented than motor vehicle trips; they are overrepresented in fatal and severe injury outcomes relative to their share of travel within the SSPZ.

Table 3: Five Year Summary of Injury Crashes in South Stockton (Jan. 1, 2013 - Dec. 31, 2017)

Bicycle Crashes	Fatal Crash	Severe Injury	Other Injury	Total Injury or Fatal
Pedestrian Crashes	20	31	155	206
Bicycle Crashes	4	21	109	134
Motor-Vehicle Only	13	23	717	753
Total	37	75	981	1,093

Source: Kittelson & Associates, Inc., UC Berkeley Transportation Injury Mapping (TIMS), 2019.

The California Office of Traffic Safety (OTS) provides comparative safety performance statistics for jurisdictions across the state.¹³ The rankings are compiled based on the SWITRS database. Cities are grouped into comparison groups based on population estimates from California Department of Finance (DOF). Based on the 2017 OTS rankings, Stockton ranked second-highest in total fatal and injury collisions among 15 cities with populations above 250,000. Based on the same comparison group, the City was sixth-highest in pedestrian and bicyclist collisions. Exhibit 5 and Exhibit 6 display reported injury and fatal pedestrian and bicycle crashes from 2013 through 2017. The concentration of crashes by mode are summarized below:

Fatal and Severe Pedestrian Crashes:

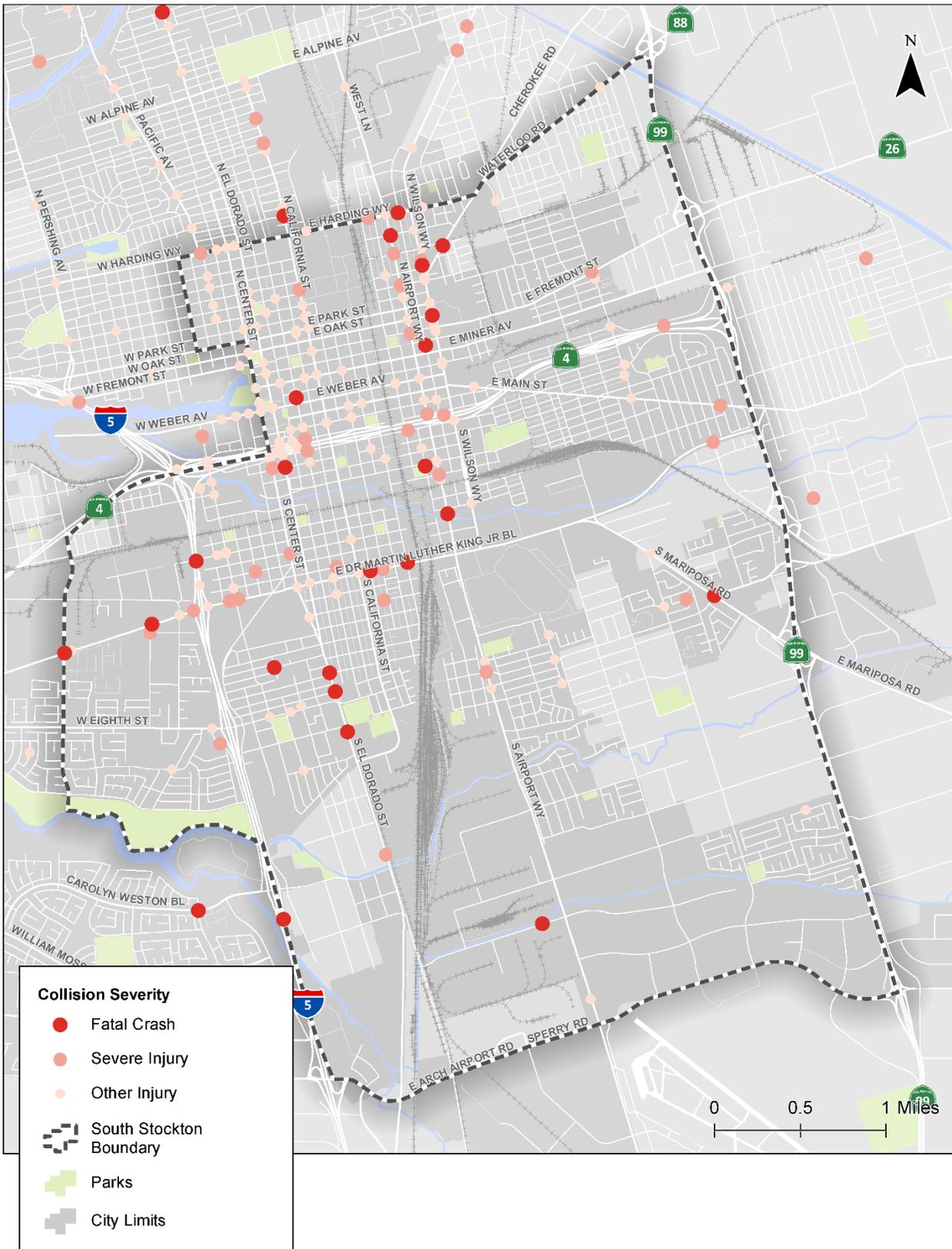
- MLK Jr Boulevard west of S Airport Way – This roadway segment includes several SJRTD lines and a significant commercial corridor, both of which make it a significant walking corridor.
- El Dorado Street south of MLK Jr Blvd – This street segment was the location of the walking audit and includes school-related travel (proximity to Edison High School) and limited crossing opportunities.
- On the west side of Downtown – As illustrated in Exhibit 5, these areas correspond with freeway crossings, school locations, and “difficult to cross segments” as identified in the GDATP.
- N Airport Way and N Wilson Way north of MLK Jr Boulevard – These roads are major north-south arterials and are also “difficult to cross segments” as identified in the GDATP.

Fatal and Severe Bicycle Crashes:

- MLK Jr Boulevard – See discussion above. This roadway segment includes several SJRTD lines and a significant commercial corridor, both of which make it an important destination within South Stockton.
- N Airport Way and North Wilson Way north of SR 4 – These roads are major north-south arterials and are also “difficult to cross segments” as identified in the GDATP.

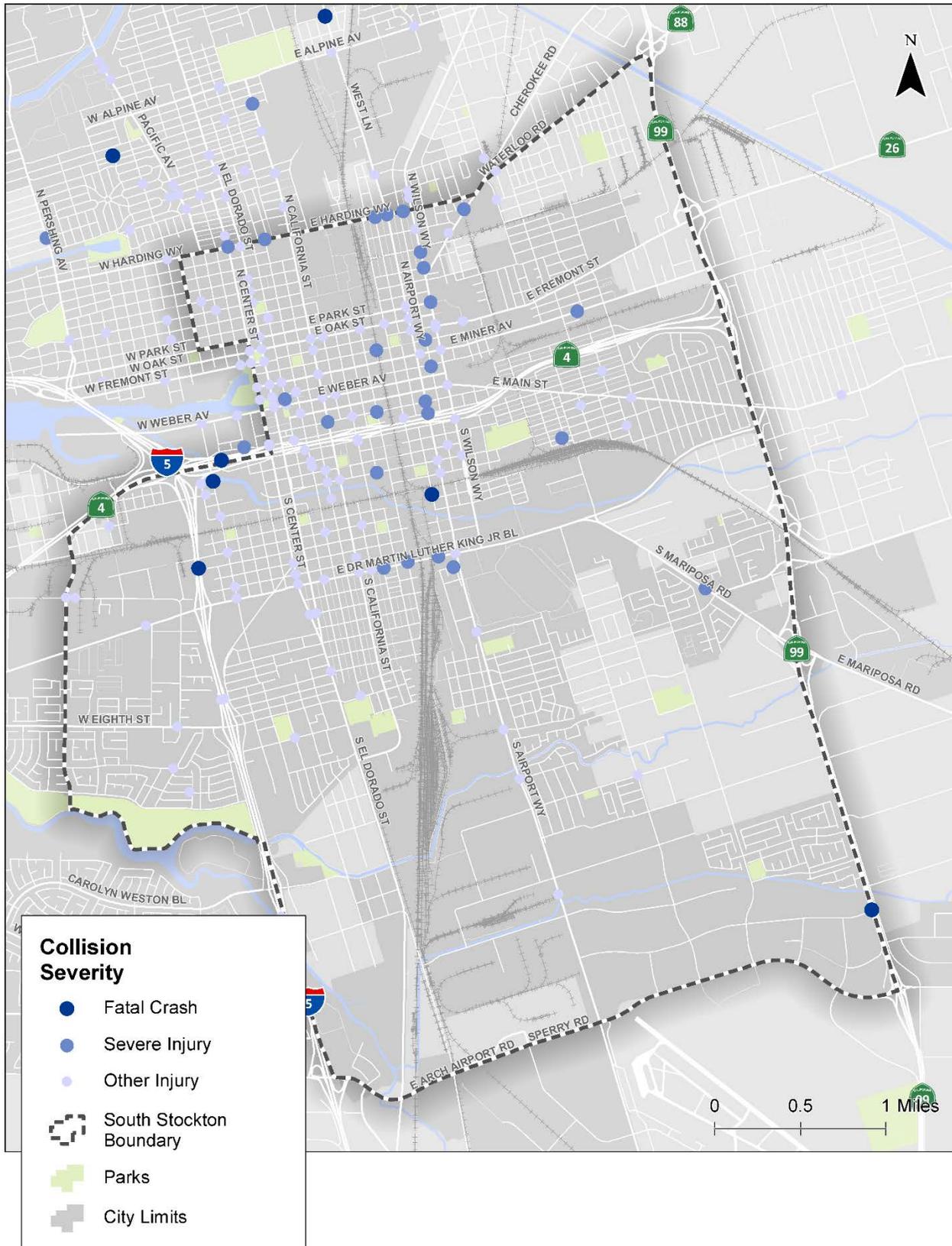
¹³ Per the OTS website: “City rankings are for incorporated cities only, for local streets in those cities, and state highways that run through cities with shared jurisdiction with the CHP and the city. City rankings do not include numbers of crashes, killed or injured on freeways and on state highways where cities do not have jurisdiction. County Rankings include all crashes, killed, and injured on roadways within county limits.”

Exhibit 5: Pedestrian-Involved Crashes by Severity (Jan. 1, 2013 - Dec. 31, 2017)



Source: Kittelson & Associates, Inc., UC Berkeley Transportation Injury Mapping (TIMS), 2019.

Exhibit 6: Bicyclist-Involved Crashes by Severity (Jan. 1, 2013 - Dec. 31, 2017)



Source: Kittelson & Associates, Inc., UC Berkeley Transportation Injury Mapping (TIMS), 2019.

Intersections

Intersections provide connections for motorists and bicyclists and provide natural crossing opportunities for pedestrians. At the same time, intersections introduce additional conflict points (i.e., locations where travel paths conflict) for all users in comparison to roadway segments. For bicyclists and pedestrians crossing at an intersection, the exposure to several converging traffic streams presents crash risk.

There are some general principles for intersections that can promote safety for all users, especially the more vulnerable bicyclists and pedestrians. The principles below are referenced from the NACTO *Urban Street Design Guide* and Caltrans *Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians*.

- **Compact size:** All else equal, a smaller overall intersection footprint reduces exposure for crossing pedestrians, works to calm traffic, and reduces the number of possible conflict points. In general, excess pavement (wider and more lanes) accommodates higher speeds, so road users are better served with less pavement. At signalized intersections, a smaller intersection footprint helps bicyclists clear the intersection within the allotted green and yellow signal phase time (which is typically timed for motor vehicles rather than for bikes).
- **Visibility and Sight Distance:** For crossing pedestrians, or for turning motorists or bicyclists, adequate sight distance of potential conflicts is essential. This means a clear sight triangle of appropriate distance for the given vehicle speeds (higher speeds require more clear sight distance).
- **Perpendicular approaches:** Perpendicular approaches required motorists to make turns at relatively slow speeds compared to skewed approaches with gentle turns that can be taken at speed. They also allow for a smaller intersection footprint, all else equal, and provide for direct and intuitive pedestrian crossings.
- **Managed access:** Driveways within an intersection's influence area introduce more conflict points in areas that are already dense with conflicting movements and require road users to process a large amount of information to navigate safely.
- **Separated decision points:** Conflicts should be separated in space or in time. Protected turn phases at signalized intersections separate decision points in time for drivers, who would otherwise have to judge a gap in oncoming traffic and concurrently look out for crossing pedestrians. Conflicts can also be separated in space—for example, by locating a channelized turn lane to separate a turning driver's pedestrian yielding decision from their merging decision.

These principles promote efficient vehicle operations, and they also enhance safety for all users. Within South Stockton, achieving all of these principles is challenging given historical land use patterns and roadway development. The intersection of MLK Jr Boulevard and French Camp Turnpike/S Madison Street provides an example of a location where the roadway configuration prioritizes motor vehicle capacity. The potential for improvement at this location was identified during the Walking Audit with community stakeholders (see Exhibit 7). The challenges are not unique to this intersection and could apply to other similar locations. Additional corridors within South Stockton that result in frequent skewed intersections include Mariposa Road, Main Street, Cherokee Road, Waterloo Road, and Wilson Way, as well as the intersection of 8th Street & El Dorado Street.

Exhibit 7: Dr Martin Luther King Jr Boulevard and French Camp Turnpike/S Madison Street



Source: Kittelson & Associates, Inc., 2019.

Interchanges

Freeway interchanges and their ramp terminal intersections present barriers to walking and biking from a placemaking perspective and with respect to the preceding discussion of design principles. Interchanges may include an extra approach leg to accommodate a freeway on- or off-ramp, and they accommodate motor vehicles either accelerating to, or decelerating from, freeway speeds. Interchanges pose jurisdictional challenges, as well: the ramp terminal intersection footprint is typically owned by Caltrans so any modifications must be done in coordination with the agency.

Grade-separated freeways traverse and bound the South Stockton community to the west, north, and east, including SR 4, I-5, and SR 99. These highways are discussed in detail in Section 3.1.2.

Within South Stockton elevated freeways also pose a connectivity challenge for people walking, with limited opportunities to cross over freeway right-of-way. In turn, pedestrian, bicycle, and motor vehicle movements are channelized to the interchanges, with heavy volumes creating increasing exposure to potential conflicts and decreasing walking and biking.

3 | Opportunities

This section presents near-term and long-term opportunities identified for SJCOG to support improved mobility for the South Stockton community. These were identified based on the issues already presented, conversations with SJCOG and local jurisdiction staff, available data and studies, and the community outreach and field visits to the community. While these opportunities are based on the completed work described in this report, Kittelson recognizes SJCOG must consider and balance a range of other factors when making programming decisions. These opportunities have been identified to develop a roadmap for SJCOG to help support local implementation of mobility improvements and supporting programs and/or policies.

The opportunities are presented in three categories in the following subsections:

- **Implementable Short-term Solutions:** These opportunities represent spot locations or “ready-to-go” implementable potential solutions that address mobility issues within South Stockton.
- **Systemic Issues:** These opportunities represent opportunities to address issues that are prevalent throughout the study area. These opportunities cannot be addressed at a single location or corridor and may not be able to be addressed in a short time horizon.
- **Longer-Term Opportunities:** These are opportunities that may be specific in location or type, but would require a longer horizon because of the cost, necessary coordination, or the need for a feedback loop to implement.

Each of the three opportunity categories is discussed below including a discussion of how SJCOG can support each individual opportunity.

3.1 Near-Term Opportunities

There are several implementable short-term solutions that could enhance mobility within the South Stockton community area by helping speed up implementation or identify longer-term plans for mobility improvements. These include:

- Road diet or complete streets projects;
- Safe Routes to School implementation;
- Backbone Bike Network implementation; and
- Planning studies

3.1.1 Road Diet and Complete Streets Projects

The 2017 City of Stockton Bicycle Master Plan identified candidate corridors for roadway reconfigurations, and the 2040 General Plan’s Policy TR-3.1 and associated actions emphasize limiting roadway widths to provide facilities for all users regardless of their mode choice. These projects represent “easy-win” opportunities to implement the established vision for the City while also improving walking and biking within the South Stockton community. Each of these corridors represent an opportunity to reconfigure available roadway right-of-way to better serve people walking and biking, as well as an opportunity to manage speeds in the South Stockton community by “right-sizing” vehicle lanes.

El Dorado Street and Center Street were highlighted as opportunities for lane reductions to support a complete streets approach in the Bicycle Master Plan as well as with the stakeholder group as part of the walking audit for this study. These corridors may be considered for lane reductions and/or conversion to two-way streets

along with associated walking and bicycle facility improvements. These two corridors were identified in the Bicycle Master Plan as priority projects for Class IV separated bike lanes, as well as the parallel California Street for buffered bike lanes. Additionally, during field reviews San Joaquin Street was identified as a potential location that could be restriped without reducing vehicle lanes to provide bike lanes in the community.

For all of these candidate corridors, further feasibility work would be needed to prepare the projects to be ready for funding and implementation. For example, the City would need to identify feasibility of proposed design with respect to lane allocation, lane widths, and turning movements along roadways that serve as truck routes.

How Can SJCOG Help?

SJCOG can work with Stockton to identify and fund evaluations of roadways that are currently overbuilt. Road diets/rightsizing projects would encourage active transportation while slowing vehicle traffic speeds. SJCOG could coordinate with the City of Stockton to implement these priority projects by providing technical assistance to and/or encouraging the City to seek appropriate funding to carry these projects to the next phase of work. This could take the form of SJCOG setting aside Measure K funding to target feasibility, design, and construction funding to support projects of these types for all local jurisdictions, or identifying appropriate funding sources (e.g., Caltrans Active Transportation Program or Sustainable Transportation Planning grants) to fund the projects.

Additionally, SJCOG could consider building on the South Stockton Community Mobility Assessment pilot study to identify priority projects with the City of Stockton to carry forward into additional feasibility analysis (to determine the appropriate configuration for a road diet/reconfiguration) or initiate the design phase of identified and feasible projects.

3.1.2 Safe Routes to School Project Development

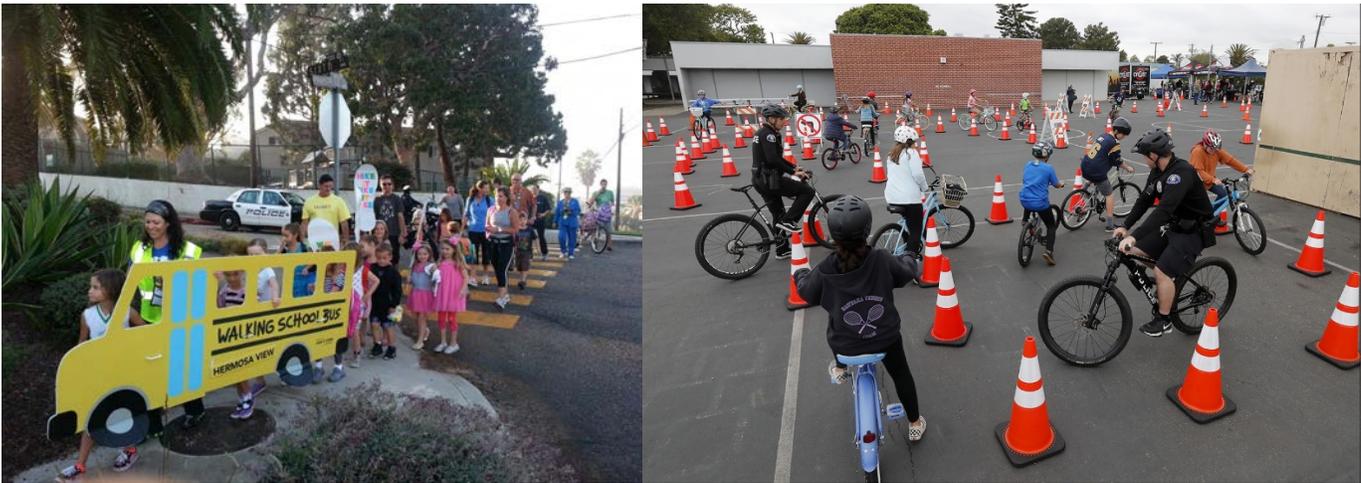
Initial planning work has taken place to replicate safe routes to school projects like the enhanced crossing shown in Figure 7. Additionally, the walking audits conducted by San Joaquin County Public Health Services for schools within the South Stockton community have identified a number of potential implementation projects to improve accessibility for students and parents walking or biking to schools. Each of these walkability audits include a series of "Major Areas of Concern" that identify potential improvement projects based on parent feedback and a walkability assessment. In keeping with its 2040 General Plan *Mobile Community* goal and associated Action TR-1.1E, the City can continue to work with the local school district to implement similar projects at other school locations.

How Can SJCOG Help?

SJCOG could help fund feasibility studies for Safe Routes to School-related projects (walking or biking improvements within a half-mile of a school that serve school walking or biking routes). Additionally, based on the already-identified projects through the walkability audits, SJCOG could identify a funding mechanism for school-related walking and biking improvements. Also related to funding, SJCOG could help school districts and local jurisdictions coordinate on potential improvement projects and help facilitate and inform local jurisdictions of grant application opportunities related to these projects.

SJCOG may also consider education and encouragement programs in partnership with San Joaquin County Public Health Services and local school districts or other interested agencies to promote walking and biking to school within the South Stockton community. This could take the form of helping organize standard outreach events or more engaged events like "bike rodeos" to teach students about safe bicycling practices or "walking school buses" to provide comfortable walking opportunities for students.

Figure 10: Examples of a Walking School Bus and Bike Rodeo



Source: L.A. Parent and Los Angeles Times, 2020.

3.1.3 Build the Backbone Bike Network

The City of Stockton has identified a “Backbone Network” of bike facilities in the 2017 Bicycle Master Plan, and the County of San Joaquin is currently updating their bicycle master plan. In locations where projects (rather than studies) have been identified, efforts should be made to prioritize those projects that help to fill the gap and address bicyclist safety and connectivity as discussed in this memorandum. Prioritized facilities of note on the City’s Backbone Network that are within the SSPZ and include:

- Airport Way Separated Bikeway
- El Dorado Street Separated Bikeway
- Center Street Separated Bikeway
- California Street Separated/Buffered Bikeway
- Eighth Street Separated Bikeway
- Hazelton Avenue Bikeway
- Washington Street Bikeway

Prioritizing the implementation of these low-stress backbone facilities for the South Stockton community would enable comfortable and convenient bicycle travel within, into, and out of the community area.

How Can SJCOG Help?

SJCOG can help the City of Stockton identify and fund bikeway implementation projects. This could take the form of Measure K or other available funding sources as well as assisting with bikeway-related grant opportunities. Additionally, SJCOG can serve as an implementation supporter by providing encouragement and support to the City in their implementation to help move projects through the project development lifecycle.

3.1.4 Future Studies

In addition to implementation assistance, SJCOG can also help promote mobility in the South Stockton community by helping to fund or by assisting in the development of studies to help address the issues identified above:

- **Road Diet Feasibility:** As mentioned above, the City of Stockton has identified a number of locations for potential road diets that could be further evaluated and moved forward toward implementation with more detailed analysis and preliminary design.
- **Two-way Conversions:** The City of Stockton’s 2040 General Plan has also identified a number of one-way roadways that could be converted to two-way roadways and potentially included walking or biking improvements. Example locations in South Stockton for this type of improvement include El Dorado Street and Center Street.
- **Placemaking/Urban Design:** SJCOG could work with the City of Stockton or local community organizations to study how to transform the existing urban design of South Stockton streets to encourage placemaking and a street design that encourages and supports walking. Potential corridors that could be prioritized for placemaking or streetscape improvements to encourage walking include:
 - Airport Way
 - MLK Jr Boulevard
 - El Dorado Street/Center Way
 - East Main Street
 - Waterloo Road
 - Wilson Way
- **Data collection efforts:** As noted above in the Issues section of the Community Mobility Assessment, there are a number of opportunities to collect additional data to help address mobility concerns within the South Stockton community. Potential data collection efforts that would help further project identification and speed up implementation of supportive projects include:
 - **Sidewalk Gap Identification:** Our field reviews and walking audit with community stakeholders identified a number of sidewalk gaps locations and community areas (such as the unincorporated community of Kennedy) where sidewalks need repairs to make them accessible or there is a gap in the sidewalk network. However, in order to completely identify sidewalk gaps and needed repairs, a comprehensive review of the South Stockton community area’s sidewalk inventory and condition is needed to identify potential projects and prioritize projects for near-term implementation within that longer list of opportunities. The City’s operations and maintenance may have updated information on planned sidewalk gap closures or existing sidewalk gaps that can serve as a foundation for future identification; an internally maintained spatial database would be helpful to ensure the success of any inventory going forward.
 - **ADA/Curb Ramp Improvements:** Similar to the above sidewalk gap identification study, a review of curb ramps and sidewalk ADA accessibility would help to identify priority areas for removing obstacles preventing rolling within the South Stockton community as well as where the lack of curb ramps prevents a rolling road user from using the sidewalk or crossing the roadway.
 - **Pedestrian Crossing Enhancements:** There are a number of difficult to cross roadways within the South Stockton study area. Identifying appropriate locations for the addition or enhancement of pedestrian crossings would help pave the way for longer-term implementation and funding requests. Corridors that were identified through the field review as priorities for pedestrian crossing enhancements include:
 - MLK Jr Boulevard

- Airport Way
 - El Dorado Street
 - Center Street
 - Fremont Street
 - Waterloo Road
 - Cherokee Road
- **Safety Plan:** The existing conditions review of crash history within the South Stockton community showed a high frequency and severity of crashes for bicyclists, pedestrians, and motorists. A detailed review of crash and safety-related data would provide a more detailed understanding of potential transportation safety concerns within the South Stockton community and allow for a prioritized action plan with projects that could be taken to help address roadway safety within the community.

3.2 Systemic Opportunities

Systemic opportunities include the potential to address mobility concerns or limitations that are broadly dispersed or not easily addressed through a single project within the community area. The Community Mobility Assessment identified two key areas for systemic improvement within the study area: **pedestrian infrastructure needs** and **transit-supportive improvements**. As highlighted in the Near-Term Opportunities section above, collecting data and helping to prioritize among these numerous projects could be an initial study to help lay the framework to address these systemic issues within the study area in a data-driven and logical manner. The two systemic opportunities are discussed below.

3.2.1 Addressing Sidewalk Quality and Gaps

The sidewalk quality and completeness within the South Stockton community is highly varied with some areas having recent sidewalk installation or enhancements while other areas have deteriorating sidewalk or were developed without sidewalks, limiting the ability to walk within areas of the community safely and comfortably. A sidewalk presence and quality inventory could help to determine where sidewalks are or are not present and their quality or needs. Short of a complete sidewalk inventory, prioritization criteria could be developed to help identify areas with the highest need for sidewalk improvements to help focus limited funding to the areas of greatest need.

How Can SJCOG Help?

SJCOG can work with the City of Stockton and County of San Joaquin to evaluate and prioritize sidewalk infill areas. Through field reviews it was noted that the Kennedy community area generally lacks sidewalks. Commercial corridors like Airport Way, El Dorado Street, and Center Street, and MLK Jr Boulevard have sidewalks in place, but given the expected pedestrian activity the width is limited. There are also frequent obstructions limiting the available clear width within which to walk and there is minimal buffering of the pedestrian walkway from higher-speed vehicle traffic. In addition to supporting the two local jurisdictions to evaluate and prioritize, SJCOG can also assist them with securing funding to work toward addressing these systemic issues within the community. This funding could potentially come from a variety of sources including the Highway Safety Improvement Program (for new sidewalk), the Active Transportation Program, or Measure K.

3.2.2 Creating a Transit-Supportive Environment

The San Joaquin Regional Transit District (SJRTD) has been implementing bus rapid transit (BRT) routes along major transit corridors in Stockton in the past few years. BRT routes included increased service frequency as well as supportive improvements at each BRT stop to create a comfortable and accessible waiting area for transit

riders. This includes enhanced information on transit routes through informational kiosks, as well as enhanced waiting areas with covered benches to protect waiting transit riders from direct sunlight and/or rain. These enhancements encourage ridership by making waiting for the bus a more pleasant experience as well as helping guide potential riders with information on how and where to connect with other routes.

Bike Share Pilot Study

SJRTD completed a project in June 2020 to study the feasibility of a bike share program in Stockton. The study identified recommendations for bike share program implementation.

How can SJCOG Help?

SJCOG can work with SJRTD to look at transit stop locations and the infrastructure provided at the stop itself. This evaluation could identify locations for transit stop enhancements to improve accessibility or comfort at the stop. Locations could be identified to provide enhanced waiting infrastructure for high ridership bus stops or prioritize locations where access improvements like sidewalk infill or repair projects or curb ramp upgrades could increase the accessibility of the stop.

3.2.3 Enhanced Pedestrian Crossing Implementation

A third systemic opportunity includes the enhancement of existing uncontrolled and controlled marked crosswalks within the South Stockton community area. This effort would also likely include the identification of new desired crossing locations where existing crosswalks are widely spaced and additional crossings would help improve pedestrian safety and mobility. As noted in the Issues section above, arterials represent difficult crossings for pedestrians due to the speed and volume of traffic as well as the longer crossing distances and exposure times when crossing multilane roadways. New or enhanced pedestrian crossings should be developed consistent with the City of Stockton's *Pedestrian Safety and Crosswalk Installation Guidelines* (2003) and the Federal Highway Administration's recent *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations* (2018) to determine the appropriate location and treatments for any marked crosswalk based on roadway configuration, posted speed, and average daily vehicle traffic. Additionally, the City and County may consider pedestrian enhancements at signalized crossing locations such as leading pedestrian intervals or prohibiting right turns on red at selected locations to reduce pedestrian exposure to turning vehicle conflicts and improve visibility while crossing.

Traffic calming efforts can also help reduce vehicle speeds to improve pedestrian crossing safety and comfort. Traffic calming refers to roadway design techniques that induce slower driver speeds, typically through horizontal or vertical street elements. Traffic calming is closely related to pedestrian crossing issues: as mentioned in the discussion of pedestrian crossing, speed is an influencing factor in the infrastructure to be provided for pedestrian crossings. The City employs a community-based Neighborhood Traffic Management Program (NTMP) with the goal of reducing speeding vehicles on residential streets to improve quality of life for residents. The NTMP includes the following goals:

- Providing neighborhood residents with the education and information necessary to become active participants in addressing their neighborhood-identified traffic issues through a traffic calming plan;
- Implementing traffic calming techniques and effective engineering principles; and
- Targeted police enforcement.

More information about the City's NTMP is available online at

<http://www.stocktongov.com/government/departments/publicWorks/tCalm.html>.

How Can SJCOG Help?

As noted in the Near-Term Opportunities subsection above SJCOG can help the City of Stockton identify locations for new or enhanced pedestrian crossings through a review and study of existing crosswalks in the South Stockton community area. This effort would help identify high-priority locations for new or enhanced crosswalks that could then be targeted for grant funding or other funding opportunities. Given the large number of potential locations within the South Stockton community, addressing this systemic issue is likely to be an incremental process with improvements made over a longer time horizon. Funding opportunities could take the form of Measure K or other available funding sources as well as assisting with pedestrian-related grant opportunities. Additionally, SJCOG can serve as an implementation supporter by providing encouragement and support to the City in their implementation to help move projects through the project development lifecycle.

As part of the South Stockton Community Mobility Assessment, SJCOG and Kittelson were able to develop a series of conceptual enhanced pedestrian crossing improvements throughout the South Stockton community for the City of Stockton. These locations were identified to address pedestrian crash history throughout the study area on higher-speed, multilane roadways that frequently present barriers to pedestrians mobility. This initial project development is documented in Attachment C.

3.3 Long-Term Opportunities

Longer-term opportunities require coordination between multiple stakeholders and larger infrastructure investments, which may require more detailed planning and design to effectively address. Our assessment identified two important long-term opportunities to improve mobility within and to/from the South Stockton community: **coordinating with Caltrans on interchange improvements as well as potential freeway crossings** and **working with Union Pacific to identify new or improved rail crossing opportunities**. These two long-term opportunities are discussed below.

3.3.1 Coordinate with Caltrans on Interchanges and Freeway Crossings

As discussed in the Issues section above, interchanges can represent challenges for people walking or biking and discourage walking or biking connections between community areas separated by a freeway facility. Additionally, due to the limited connections between community areas like South Stockton with Weston Ranch, Boggs Tract, or Garden Acres, people desiring to walk or bike between the communities may have to take circuitous routes to access their destinations. Adding new crossings or improving existing crossings so they are comfortable for walking and biking may lead to increased walking and biking activity between communities.

How Can SJCOG Help?

As identified in Caltrans' *Complete Intersections: A Guide to Reconstructing Intersections for Bicyclists and Pedestrians* (2010), intersections and interchanges are major points of conflicts for road users and can have a significant impact on the mobility of people walking and biking. This guide can also serve as the basis for facilitating and initiating conversations to identify bicycle and pedestrian interchange improvements in South Stockton. Once a location is identified for potential improvements, SJCOG could help the City identify funding opportunities to move the project through the project development process.

3.3.2 Rail Crossing Improvements

As with interchange or freeway crossings, existing rail lines within the South Stockton community significantly limit connections among the four quadrants of South Stockton split by the two primary rail lines running through the community area. Because of the limited connectivity, walking or biking between areas within the community require significant out-of-direction travel. The crossings that do exist tend to be across high-volume roadways like MLK Jr Boulevard or Arch Airport Road, which are difficult and stressful to cross. Improving these existing

crossings to make sure they allow comfortable walking and biking across the rail lines would help improve overall mobility within the community area. Additionally, new shared-use over- or undercrossings may be considered to provide additional connections between neighborhoods. Potential locations to evaluate for a new crossing could include the area near Eighth Street between McKinley Park and Williams Brotherhood Park or a potential trail connection from El Dorado Street to Ralph Avenue to connect the Taft Mosswood neighborhood with the Kennedy community.

Stockton Diamond Grade Separation Project

The Stockton Diamond, just north of Dr Martin Luther King Jr Blvd between California Street and Airport Way, is the intersection of a north-south UPRR line and the east-west BNSF railway. Both lines include at-grade roadway crossings in the vicinity of the rail intersection. The San Joaquin Regional Rail Commission (SJRCC) is advancing the Stockton Diamond Grade Separation Project to construct a grade separation.¹⁴ This project would improve freight movements for what is the busiest at-grade railway junction in California, and the project as proposed also includes bike, pedestrian, and roadway improvements at ten at-grade local road crossings in the City of Stockton, which would enhance safety and access connectivity, improving mobility within and to the SSPZ. As currently proposed, the project would be complete by 2025.

How Can SJCOG Help?

SJCOG could serve to facilitate conversations between the City of Stockton or County of San Joaquin with UPRR and other necessary stakeholders to identify opportunities for bicyclists and pedestrians to improve the safety and comfort crossing rail lines. Additionally, SJCOG could serve as the lead for studying the feasibility of potential crossing locations within the community area and guiding the local jurisdictions through the alternatives analysis. If a location is determined to be feasible and approved by UPRR, SJCOG could help facilitate identifying funding opportunities for these improvements and serve as a coordinator and facilitator between key stakeholders.

3.4 Stakeholder Feedback

The opportunities sections 3.1 through 3.3 provide a variety of possible actions for SJCOG. To help prioritize recommendations, the key themes and proposed recommendations list were shared with local stakeholders. This outreach included two presentations with listening sessions—one each to the following groups:

- **Public Health Advocates**, a nonprofit working to improve healthy outcomes in San Joaquin County.
- **San Joaquin Healthy Neighborhoods Collaborative**, a cross-cutting organization committed to building healthier, equitable, sustainable neighborhoods through land use and transportation planning.

At both sessions, the findings and recommendations were presented with a significant amount of time devoted to discussion and feedback. The feedback shared from each workshop included spatial recommendations (placing notes on a map) and opportunity prioritization (voting for strategies). The feedback from these sessions is included in Attachment B.

¹⁴ Project information is available at <https://acerail.com/stockton-diamond-grade-separation-project/>

4 | Conclusion and Next Steps

The issues and opportunities identified within this Community Mobility Assessment serve as a near-term and long-term roadmap for SJCOG to work with the City of Stockton, County of San Joaquin, and stakeholders to improve mobility within the South Stockton community. Near-term opportunities provide lower-cost, implementable projects and planning studies that could lay the groundwork for improvements to the community's comfort and connectivity for people walking, biking, rolling, or taking transit. The systemic and long-term opportunities identify some of the challenges within the community area that can begin to be addressed in the short-term but will require ongoing efforts and coordination to comprehensively address them for the entire South Stockton community area.

For the opportunities identified within this assessment, specific locations have been identified where appropriate based on community and stakeholder input as well as field reviews within the community. These locations should serve as a starting point for identifying improvements within the community and could act as templates for future improvement projects within South Stockton. SJCOG and its local agency partners should consider how these identified issues and opportunities may be best addressed or further expanded through improvement projects or additional feasibility studies given likely funding opportunities and community support to create a safer, more comfortable travel experience for all community members in South Stockton.

Attachment A | Public Outreach Summary

Pop-up Workshop Summary

Introduction

The San Joaquin Council of Governments (SJCOC) adopted the [Sustainable Communities Strategy \(SCS\) Implementation Study](#) in 2018. This study is part of a regional effort to identify barriers and opportunities to achieve the SCS goals countywide by transportation investments with land use changes.

The SCS Implementation Study is composed of two evaluations: a regional assessment of San Joaquin County to identify macro-level policies and approaches to achieving the regional SCS goals, and a case study of South Stockton to identify mobility gaps in one of the region's communities of concern. These evaluations will showcase how regional and local partners can work together to overcome challenges associated with SCS implementation.

Pop-up Workshop Purpose

The project team held a pop-up workshop in June to engage community members in the South Stockton area at a local family-friendly event, the STAND Wellness Fair and 5k Color Run. The pop-up workshop, which took place in two parts, provided an opportunity to engage community members in discussions about their experience traveling around South Stockton, what modes of transportation they use, and their thoughts about existing conditions in the area.

The first half of the pop-up workshop took place prior to the event's fun run from 8:00 – 9:00 a.m. at the Williams Brotherhood Park in Stockton. The second half of the pop-up workshop took place at the STAND Wellness Fair from 10:00 a.m. – 1:00 p.m. at 2222 South Airport Way in Stockton.



Study Area Map



Pop-up Workshop Format

Community members were encouraged to stop by the pop-up workshop to learn about the project and provide their input on three interactive board displays and through one-on-one discussions with project team members. An overview of the board displays is below, and digital copies of the boards are available in this document’s appendix. All boards and printed materials were available in both English and Spanish, and a Spanish-speaking team member was available for translations throughout the workshop.

Board #1: Existing Conditions and Crash History

- This board display presented a map of bicycle and pedestrian crash history and existing transportation conditions in the project area.
- Participants responded to the prompt, “Let us know your thoughts!” by writing their comments on post-it notes and placing them on the board.

Board #2: Destinations

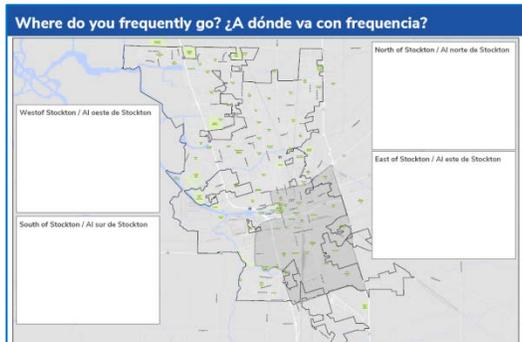
- This board display asked participants to respond to the prompt, “Where do you frequently go?”
- Participants placed a dot on a map of the project area to indicate an origin or destination they travel to or from.

Board #3: Travel Mode & Experience

- This board display asked participants to respond to the prompt, “How do you travel around South Stockton?”
- Participants used emoji stickers to represent their quality of experience while traveling via specific modes of transportation and how frequently they traveled using that mode.



Board #1



Board #2



Board #3

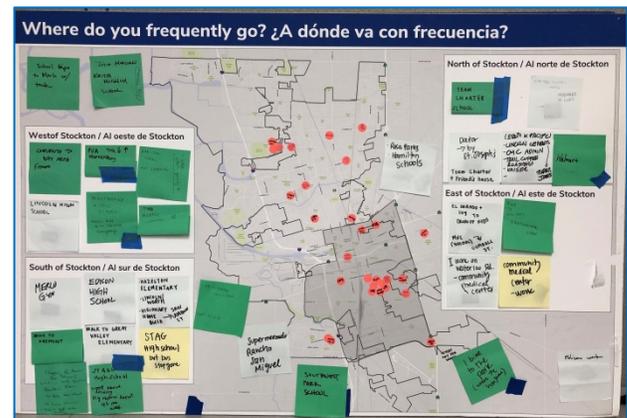
Compilation of Feedback

Below is a compilation of all the feedback obtained from pop-up workshop participants.

Where do you frequently go?

South Stockton

- Van Buren Elementary School (4)
- Community Medical Centers (2)
- Edison High School
- Great Valley Elementary School
- Hazelton Elementary
- Kennedy Elementary School
- Lincoln Street
- Merlo Gym
- Trail Coffee Roasters
- Walgreens (Mariposa Road)
- Worth Street
- Team Charter School (2)
- Aspire Rosa Parks Elementary
- El Dorado Street
- Hamilton School Elementary School
- Merlo Institute of Environmental Technology
- Nightingale Elementary School
- Monroe Elementary School
- Rancho San Miguel
- South/West Park Elementary School
- Visionary Home Builders
- West Ivy Avenue
- Williams Brotherhood Park



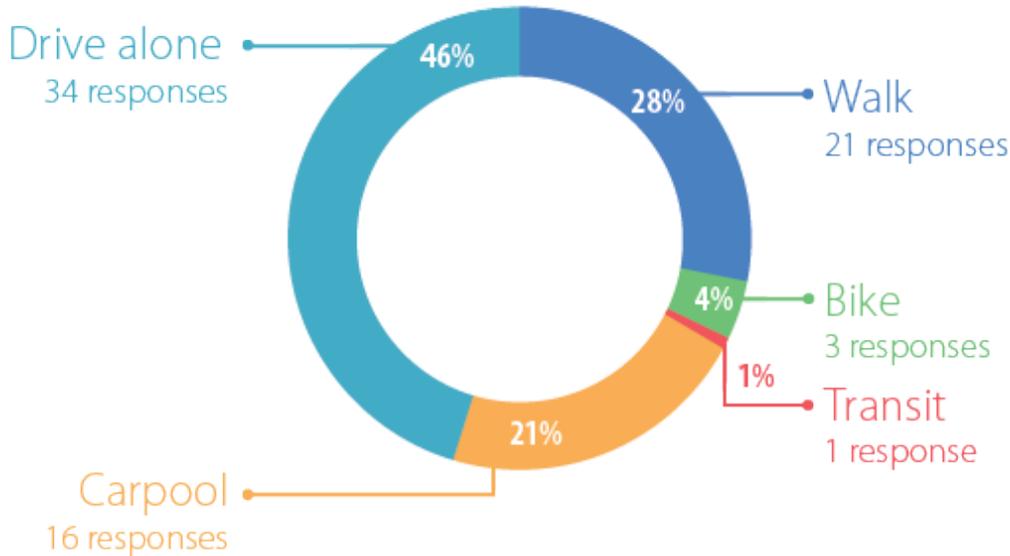
Community input was collected on interactive board displays during the pop-up workshop.

Outside of South Stockton

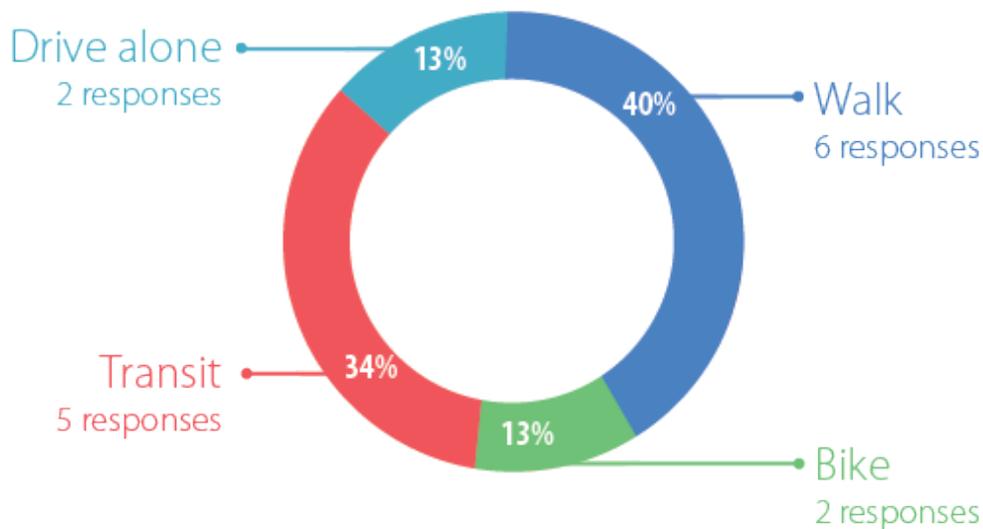
- McDonald's (Lodi)
- Stagg High School (2)
- Bay Area
- Christa McAuliffe Middle School
- Julia Morgan Elementary School
- Kaiser Permanente Medical Offices
- Lincoln High School
- St. Joseph's Medical Center
- Trader Joe's at the Lincoln Center
- Walmart
- Waterloo Road

How do you travel around South Stockton?

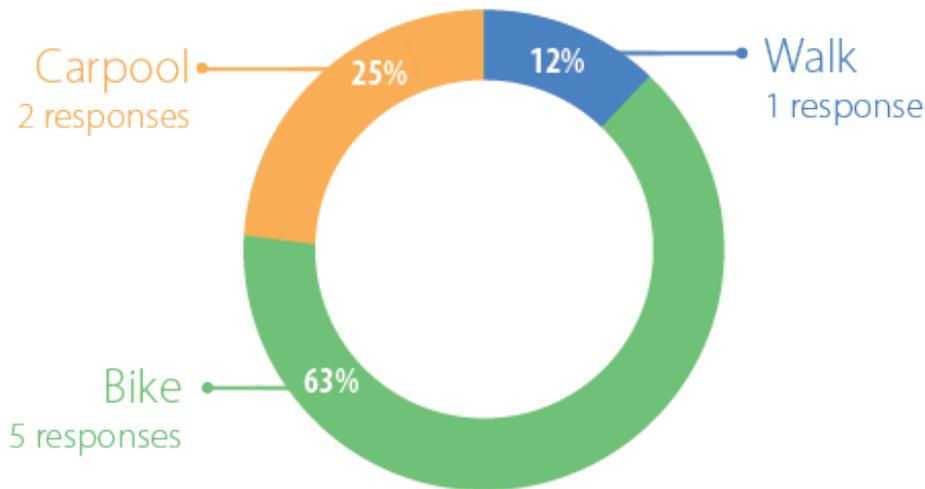
Every day:



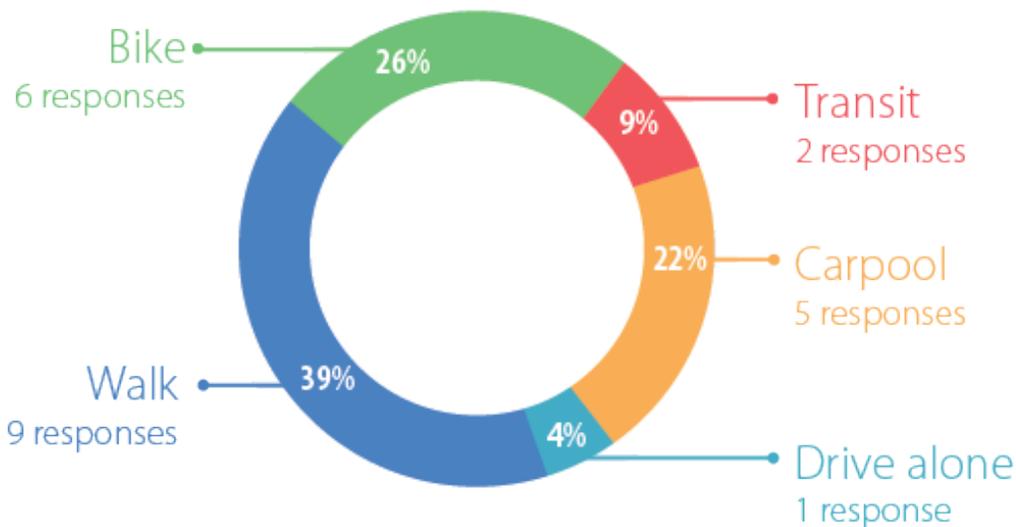
Two to three times a week:



Once a week:

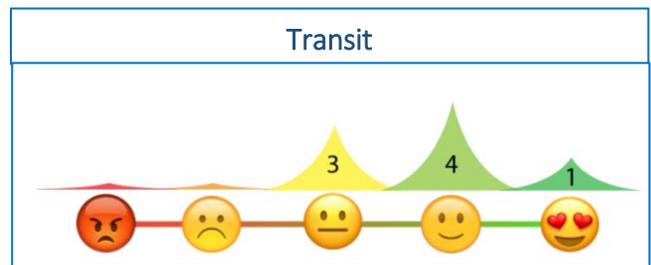
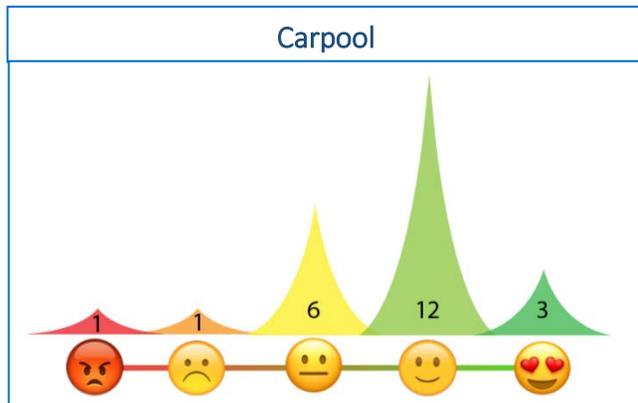
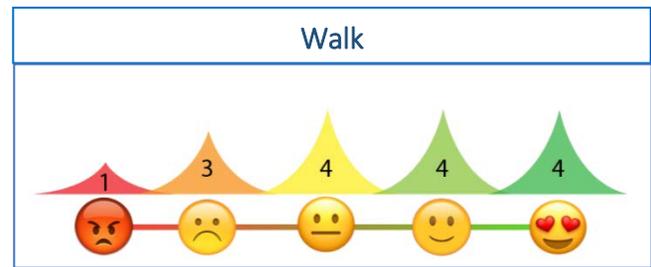
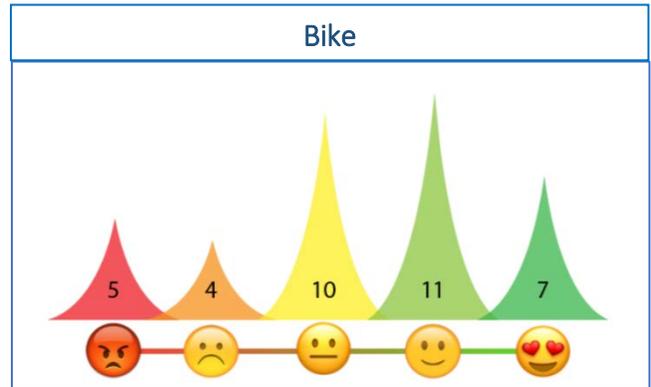
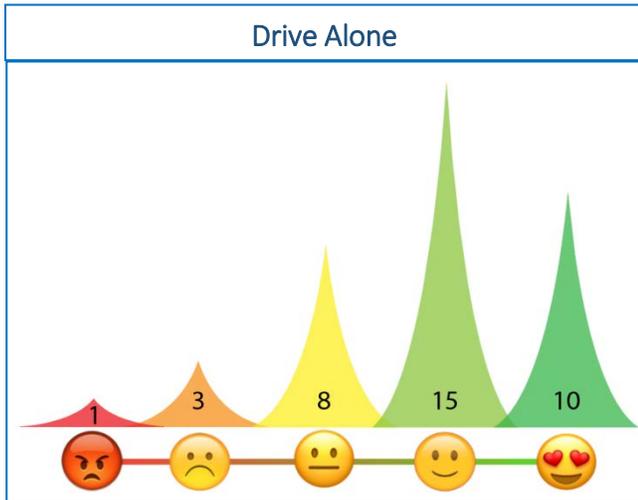


Once a month:



What is your travel experience like around South Stockton?

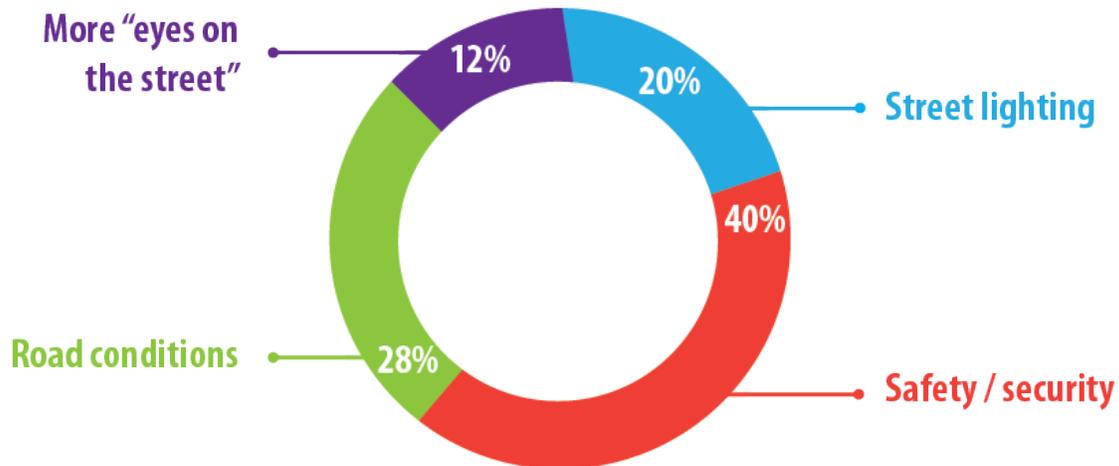
For this exercise, participants used emoji stickers to represent their quality of experience while traveling via specific modes of transportation.



Let us know your thoughts!

Below is a summary of comments which discussed existing conditions around the study area.

The graph below represents the topics which these comments focused on.



Safety / security

- I don't feel safe walking in the area.
- I don't feel safe walking or biking in the area.
- Pedestrian signal near Williams Brotherhood Park should be on the other side. It's hard to see cars and pedestrians.
- We walk downtown 2-3 times a week. Its ok, but crosswalks and better lighting would be nice.
- I'd like to see more bike lanes and more crosswalks.
- I don't let my kids walk or bike in the neighborhood because it isn't safe.



Road conditions

- Traffic and roadwork ruin my drive.
- There is too much trash in the street when walking.
- Fix the potholes.
- Fix the broken signs.
- Potholes, other cracks make it hard to bike/drive. There is a lot of trash on the street.

Street lighting

- I would feel safer at night if there was better lighting. I feel mostly safe during the day.
- We need more street lights.
- Need more street lights and cameras at intersections.
- We need better lighting at night, more crosswalks, and better enforcement.

More “eyes on the street”

- We need more events in the neighborhood.
- Walking around downtown is nice and enjoyable.
- More activities, more people out would make me feel safer walking.

Appendix

- Pop-up workshop flier
- Board displays

Appendix: Pop-up Workshop Flier + Board Displays



SJCOG
SAN JOAQUIN COUNCIL OF GOVERNMENTS

STAND

Help plan for safer streets in

Ayudará a planificará por calles mas seguras en del

SOUTH STOCKTON

*Stop by and share your
experience traveling in the area.*

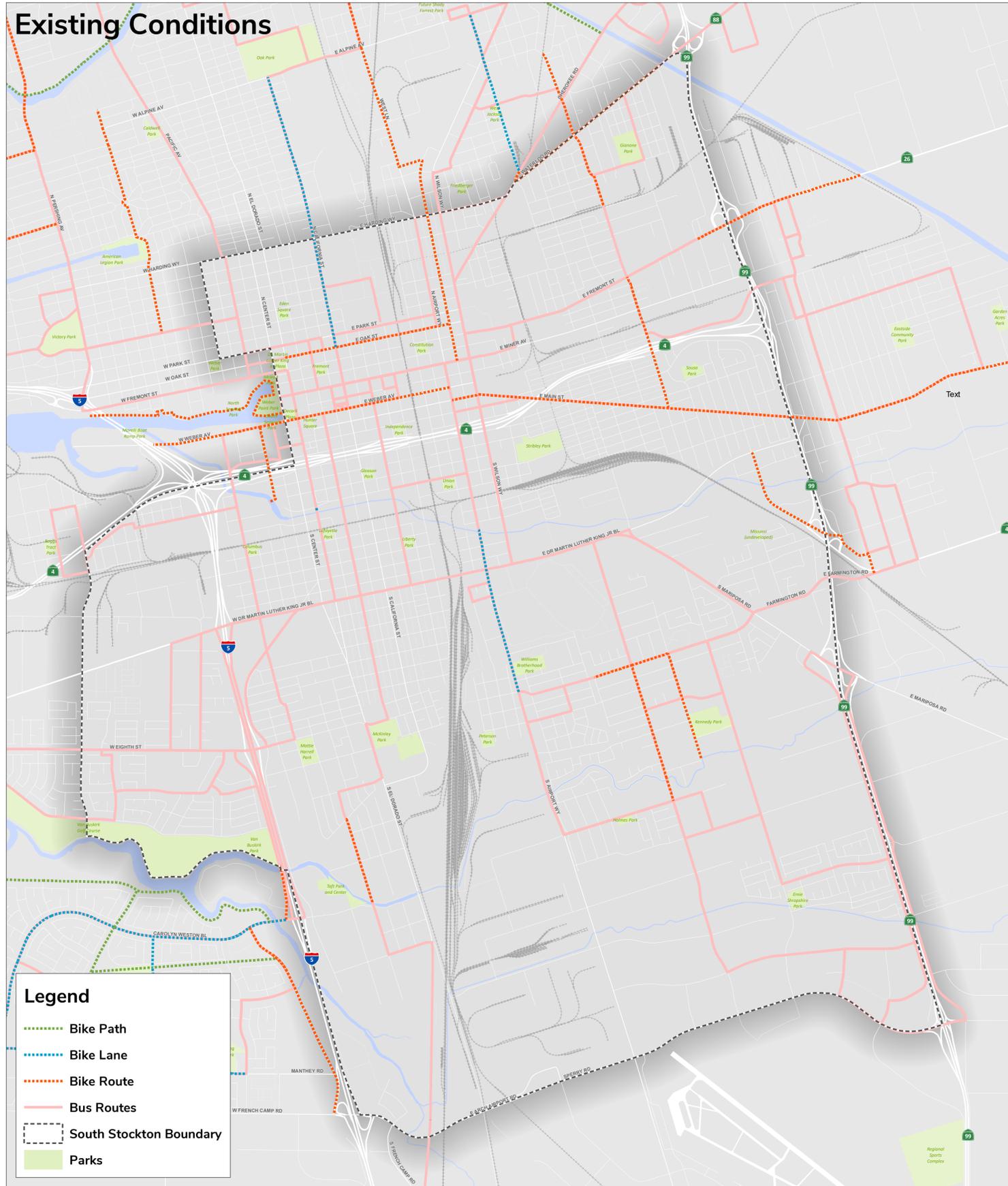
*Pasen y sobre sus
experiencias viaja del área.*

SATURDAY, JUNE 8 • SÁBADO 8 DE JUNIO

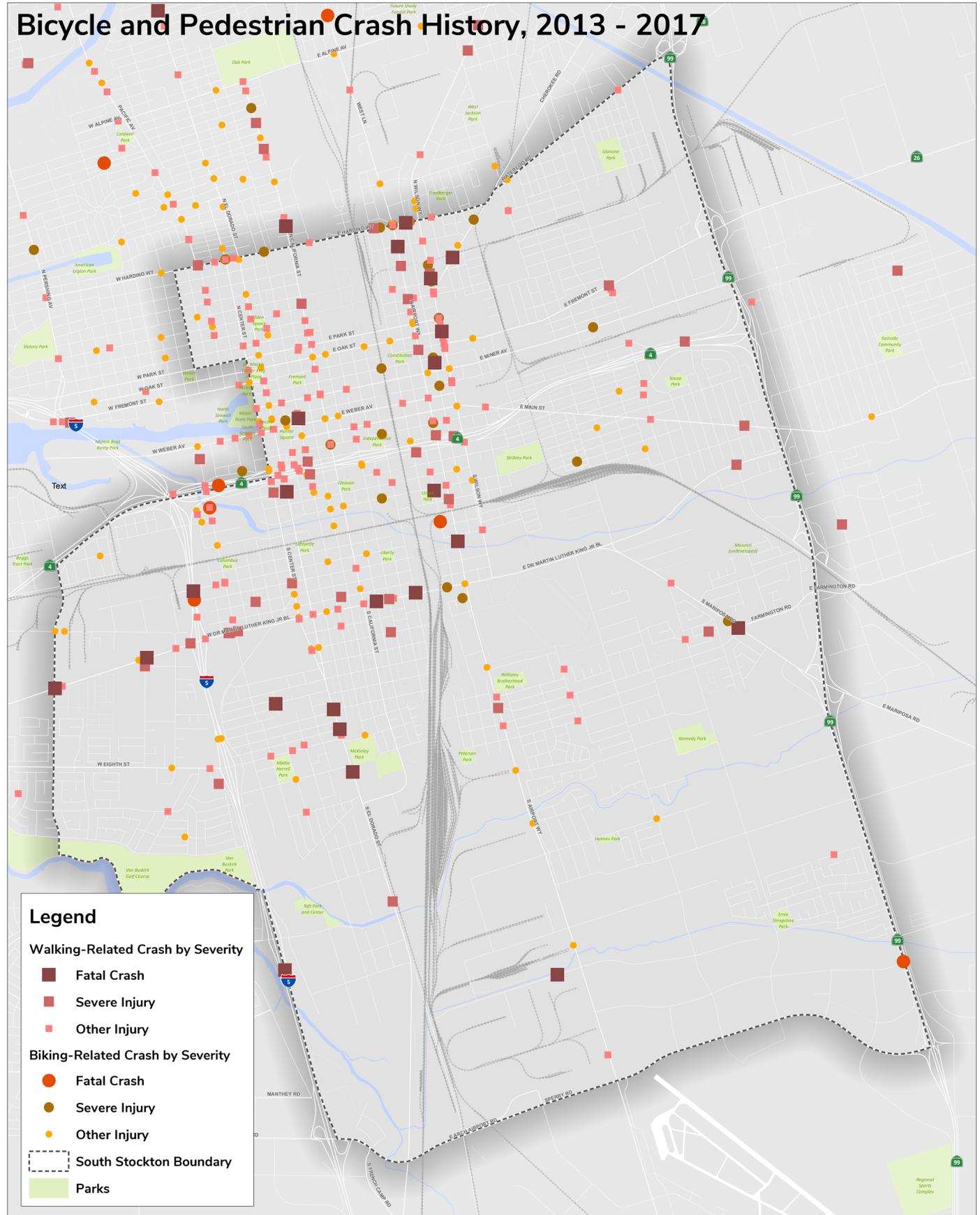
STAND SUMMER WELLNESS FESTIVAL & 5K COLOR FUN RUN

Let Us Know Your Thoughts! ¡Cuéntenos su opinión!

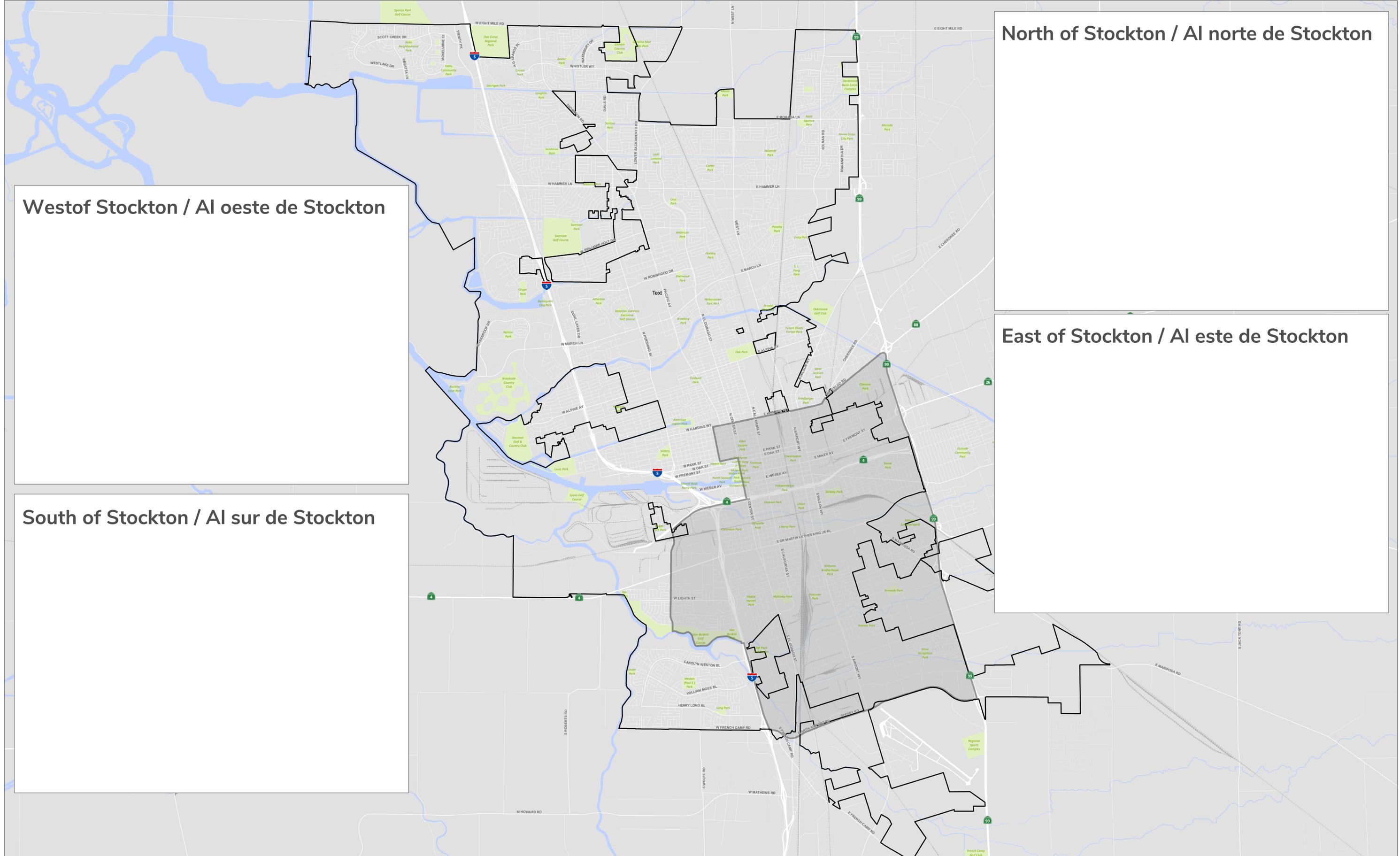
Existing Conditions



Bicycle and Pedestrian Crash History, 2013 - 2017



Where do you frequently go? ¿A dónde va con frecuencia?



North of Stockton / Al norte de Stockton

West of Stockton / Al oeste de Stockton

East of Stockton / Al este de Stockton

South of Stockton / Al sur de Stockton

How do you travel around South Stockton?

¿Cómo te los viajes en South Stockton?

Let us know which modes of transportation you use, how often you use that mode, and what your experience is like with a sticker.

Cuéntenos saber qué medios de transporte usas, con qué frecuencia usas, y como es tu experiencia con un adhesivo Emoji.

	 Walk	 Bike	 Transit	 Carpool	 Drive alone
Every day					
2-3 times a week					
Once a week					
Once a month					

HELP PLAN FOR SAFER STREETS

AYUDARÁ A PLANIFICAR POR
CALLES MAS SEGURAS

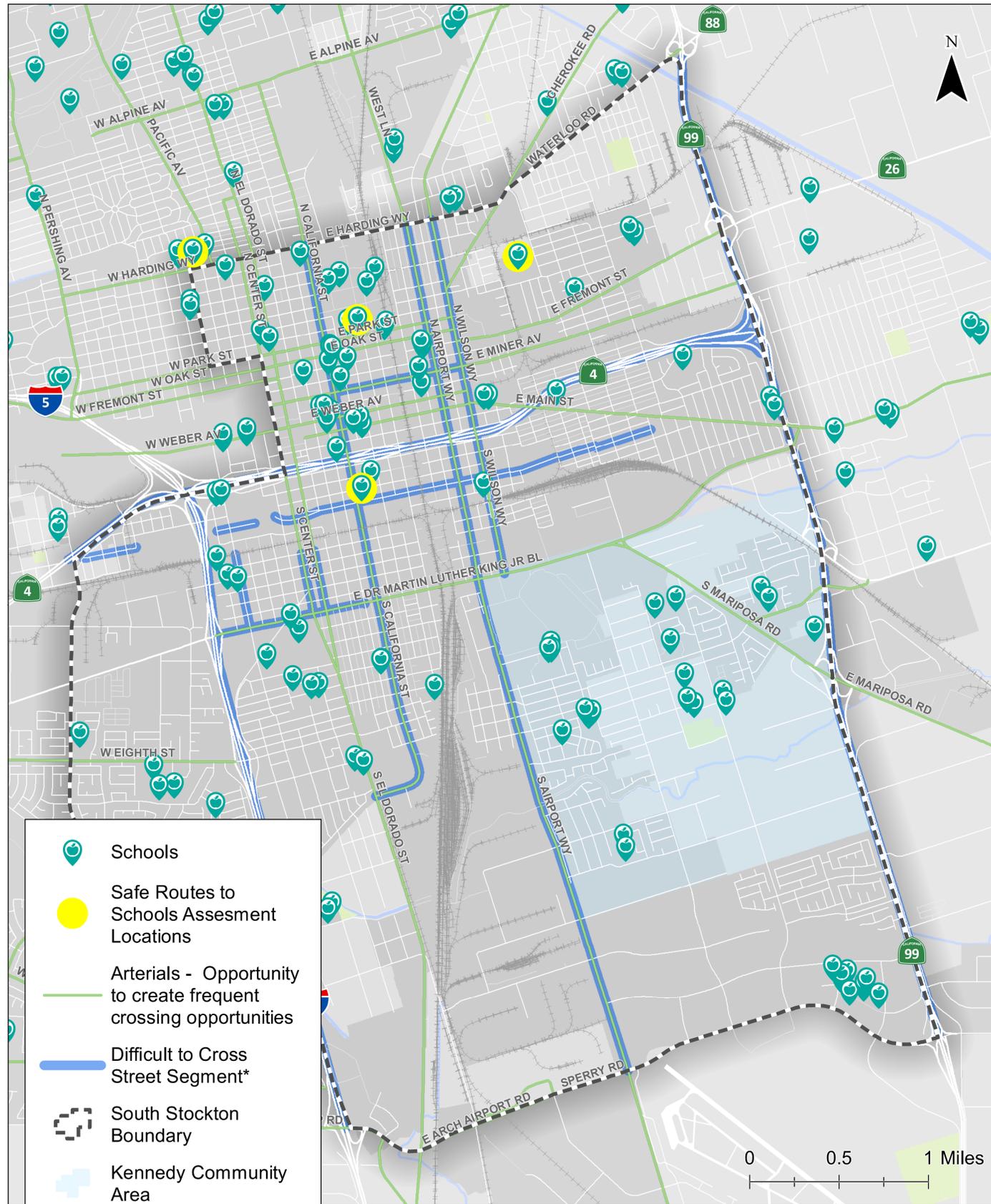
&

WIN A PRIZE!

¡GANAR UN PREMIO!

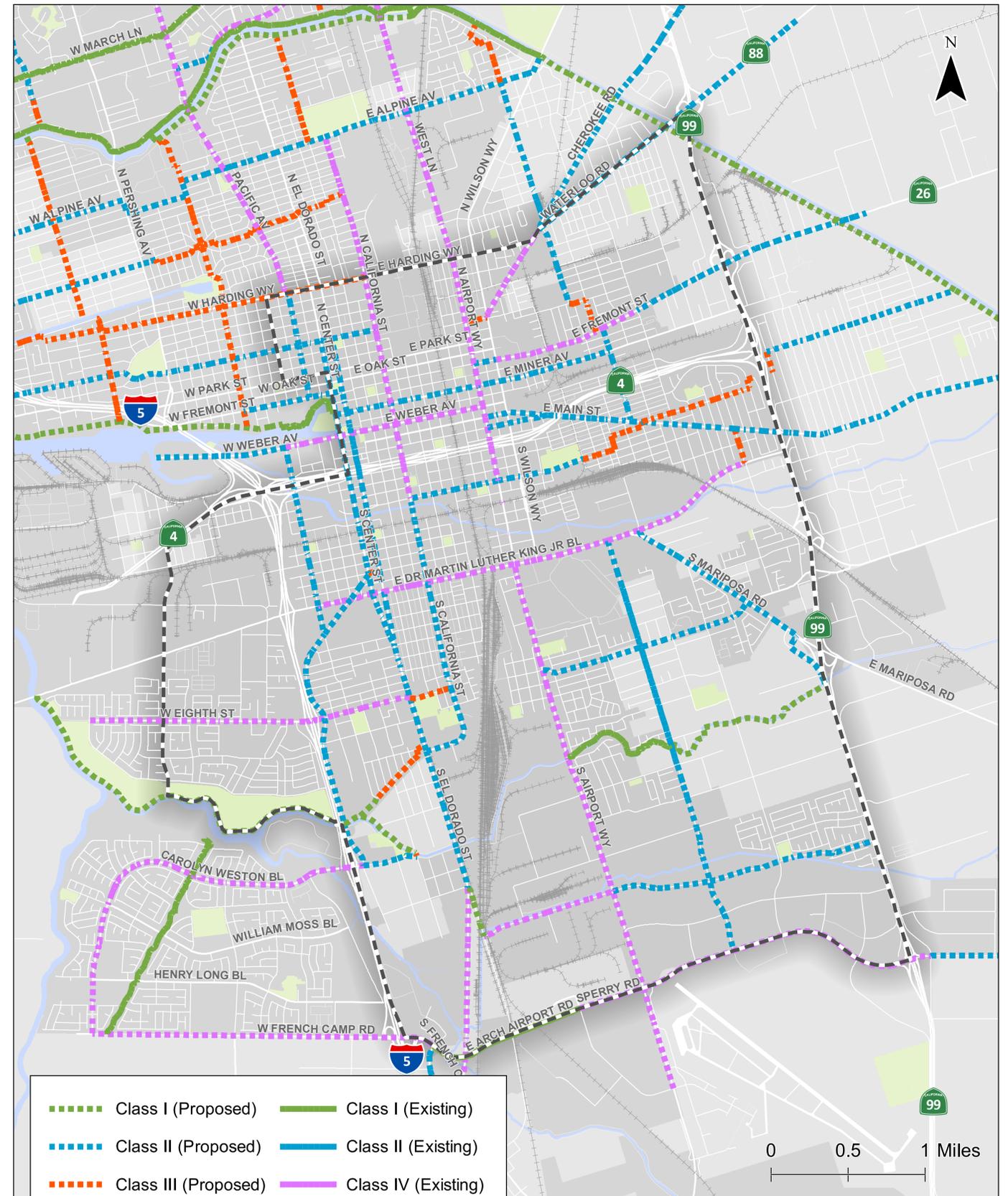
Attachment B | Stakeholder Workshops

South Stockton Community Focus Areas



Pedestrian Infrastructure Focus Areas

*As identified in the Draft Greater Downtown Active Transportation Plan



Backbone Network 2017 Bike Master Plan

SJCOG SCS Implementation Study Recommendations

REGIONAL ASSESSMENT



Educate

Best Practices Training, Public Information Sessions, Grant Application Workshops



Research

Best Practices, Pilot Studies



Encourage

Capacity Building, Coordination Assistance



Plan

Feasibility Studies, Regional Vision Plans, Local Mobility Studies



Assist

Data Clearinghouse



Other

What did we miss?



Fund

SOUTH STOCKTON COMMUNITY MOBILITY ASSESSMENT



Road Diet and Complete Street Project Support



Invest in Transit-Supportive Environment



Safe Routes to School Project Development



Fund Enhanced Pedestrian Crossings



Support the Backbone Bike Network Development



Coordinate with Caltrans to Improve Interchange and Freeway Crossings for Biking and Walking



Fund Future Studies



Coordinate to Improve Rail Crossings



Address Sidewalk Gaps and Quality



SJCOG SCS Implementation Study

January 2020

Overview

- ▶ What is the SCS?
- ▶ What is the purpose of the study?
- ▶ What have we done?
- ▶ What have we missed?
- ▶ Next steps

What is the SCS?

- ▶ **Sustainable Communities Strategy:** A part of the region's Regional Transportation Plan (RTP) that focuses on long-term sustainable transportation planning to improve public health, mobility, and economic vitality while reaching greenhouse gas reduction targets.
- ▶ SJCOG's RTP/SCS has established **eight goals:**
 - ▶ Enhancing the Environment for Existing and Future Generations
 - ▶ Maximize Mobility and Accessibility
 - ▶ Increase Safety and Security
 - ▶ Preserve the Efficiency of the Existing Transportation System
 - ▶ Support Economic Activity
 - ▶ Promote Interagency Coordination and Public Participation
 - ▶ Maximize Cost-Effectiveness
 - ▶ Improve the Quality of Life for Residents

What is the purpose of the SCS Implementation Study?

- ▶ Two parallel evaluations for the SCS
 - ▶ **Regional Assessment:**
 - ▶ Stakeholder and Local Agency staff interviews
 - ▶ Identify successes, challenges, and barriers to local implementation of the SCS
 - ▶ Develop actions for SJCOG to build on success and help remove barriers
 - ▶ **South Stockton Community Mobility Assessment Pilot Study:**
 - ▶ Localized evaluation of sustainable mobility in the South Stockton community
 - ▶ Identify issues that hinder walking, biking, and transit use.
 - ▶ Develop strategies for SJCOG to work with local agency partners to improve localized implementation with an emphasis on the region's most disadvantaged community areas.

What have we done?

Regional Assessment

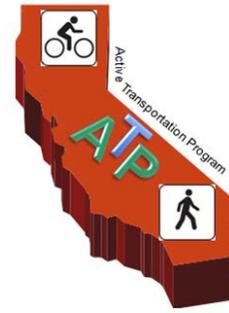
- ▶ Targeted interviews with:
 - ▶ City/County staff from each local jurisdiction
 - ▶ Stakeholders focus group meetings, including:
 - ▶ Building associations
 - ▶ Business organizations
 - ▶ Advocacy organizations
 - ▶ San Joaquin Regional Transit District
- ▶ Develop common concerns and barriers
- ▶ Identify success stories

What have we done?

Regional Assessment – Recommended Actions

▶ Educate

- ▶ Best Practices Training
- ▶ Public Information Sessions
- ▶ Grant Application Workshops

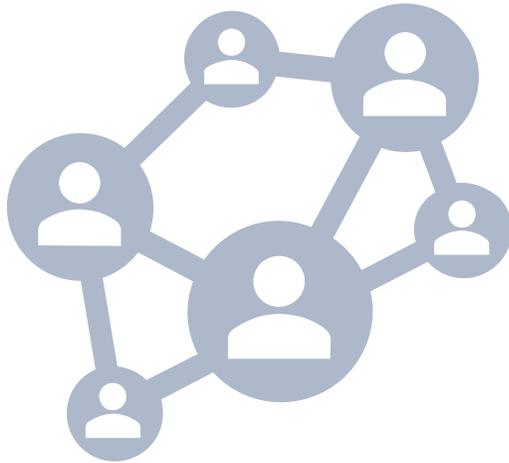


What have we done?

Regional Assessment – Recommended Actions

▶ Encourage

- ▶ Capacity Building
- ▶ Coordination Assistance



SJCOG Staff:

- ❑ Mr. Ryan Niblock and Mr. David Ripperda spearheaded regional delivery efforts.
- ❑ Met with agencies at the start of the fiscal year to identify projects ready to start (including those programmed in later years), tabulated overall funding need

Local Agencies:

- ❑ Submitted funding requests for projects programmed in the current year, and advanced a substantial number of projects.
- ❑ Prepared applications earlier in the year to stay ahead of the deadlines and peak period.

Caltrans Local Assistance:

In Stockton District 10:

- ❑ Mr. Nabil Hasan – worked on Requests for Authorizations beyond Caltrans' internal cutoff deadlines to move them; diligence in walking agencies through the paperwork.
- ❑ Mr. Parminder Singh – cut the Caltrans review & processing time down to less than 2 weeks.

SJCOG staff continued....

- ❑ Negotiated with Caltrans HQ to allow the region to make use of unclaimed funds from other regions.
- ❑ Acted as a "help desk" for local agencies, answering questions to expedite paperwork completion.

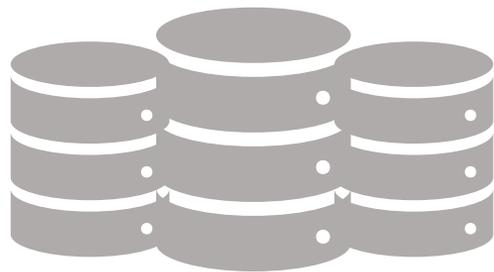


What have we done?

Regional Assessment – Recommended Actions

▶ Assist

▶ Data Clearinghouse



Explore Data Categories
Click on each icon to show available data by category

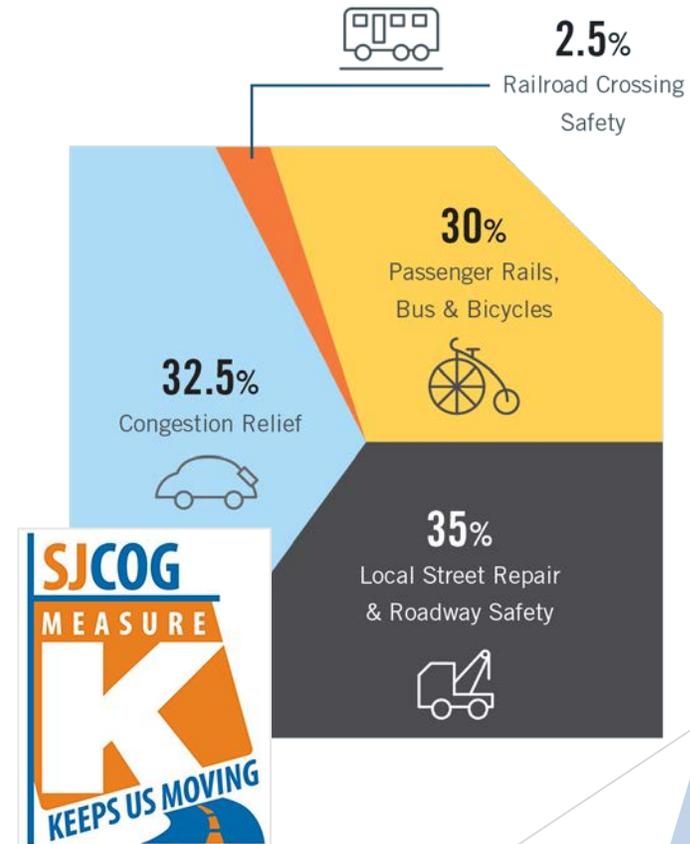
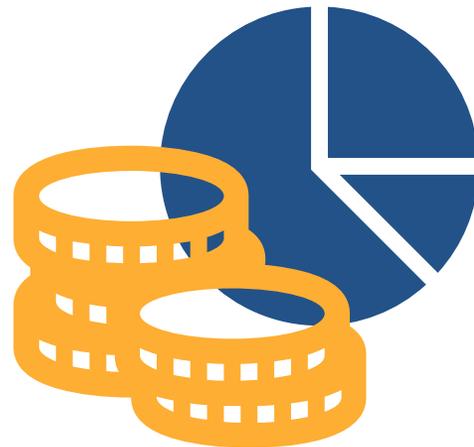
 Traffic Counts	 Transit	 Roads, Highways & Networks	 Boundaries	 Performance
 Bicycle & Pedestrian	 Cooperative Forecast & Planning	 Federal Data (USDOT, Census, etc.)	 Aviation	 Long-Range Planning & MPO Resources

What have we done?

Regional Assessment – Recommended Actions

▶ Fund

- ▶ Measure K Funding
- ▶ RTIF Set-Asides
- ▶ RTP Prioritization

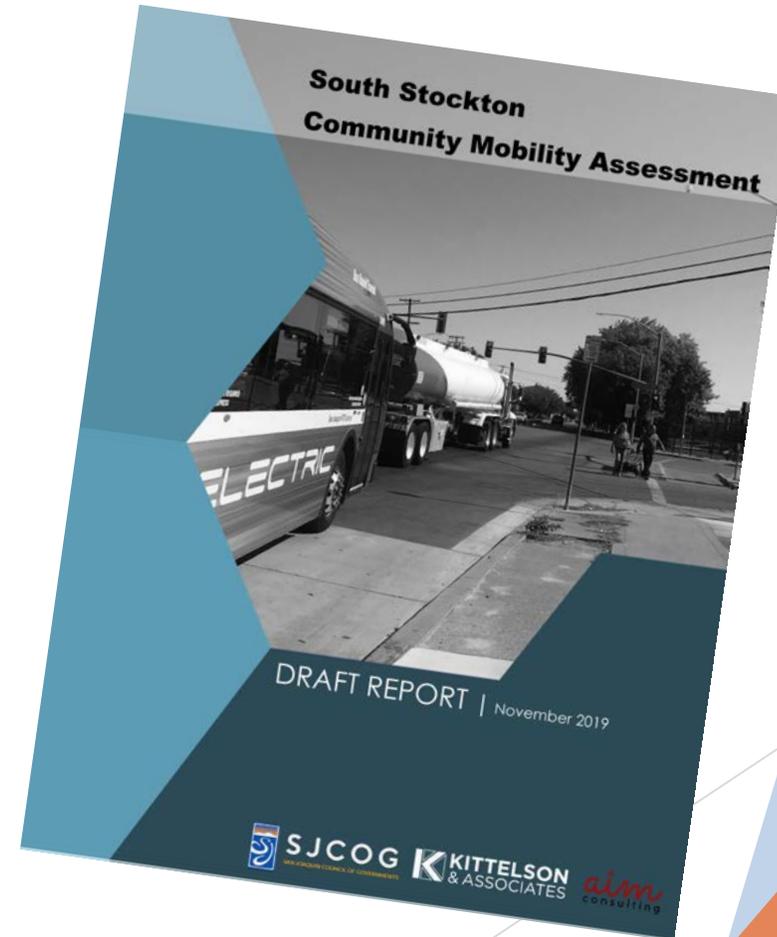
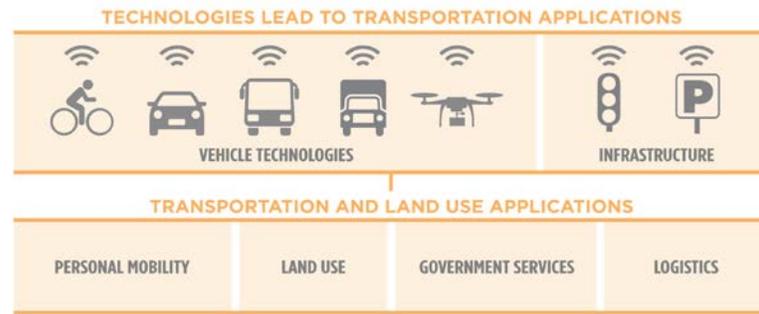


What have we done?

Regional Assessment – Recommended Actions

▶ Research

- ▶ Best Practices
- ▶ Pilot Studies
- ▶ Infrastructure Improvements
- ▶ Electrification



What have we done?

Regional Assessment – Recommended Actions

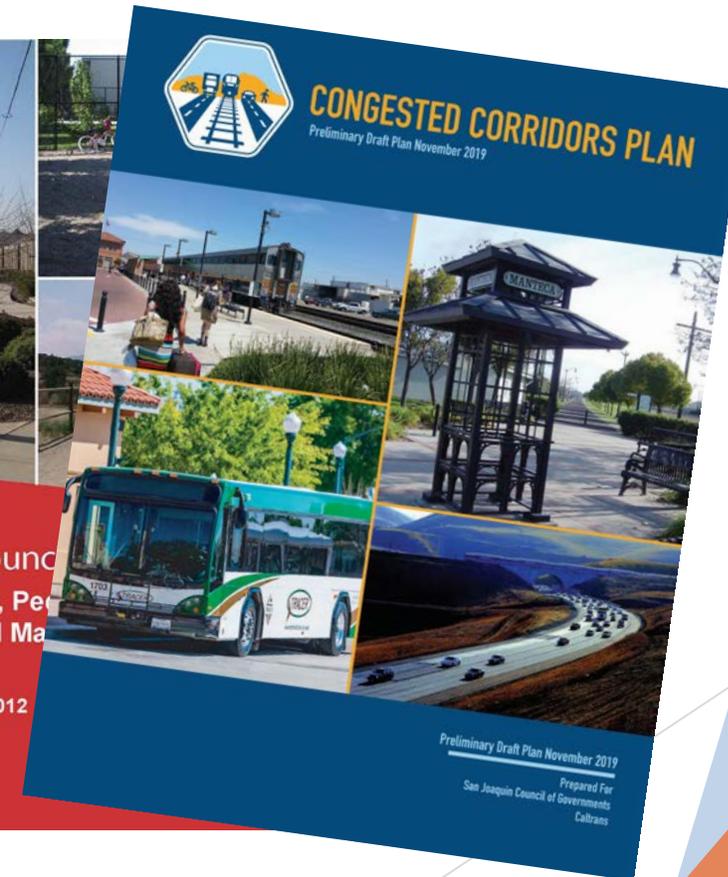
► Plan

- Feasibility Studies
- Regional Vision Plans
- Local Mobility Studies



San Joaquin Council of Governments
Regional Bicycle, Pedestrian, and
Routes to School Map

Adopted September 2012



Preliminary Draft Plan November 2019

Prepared For
San Joaquin Council of Governments
Caltrans

What have we done?

Community Mobility Assessment

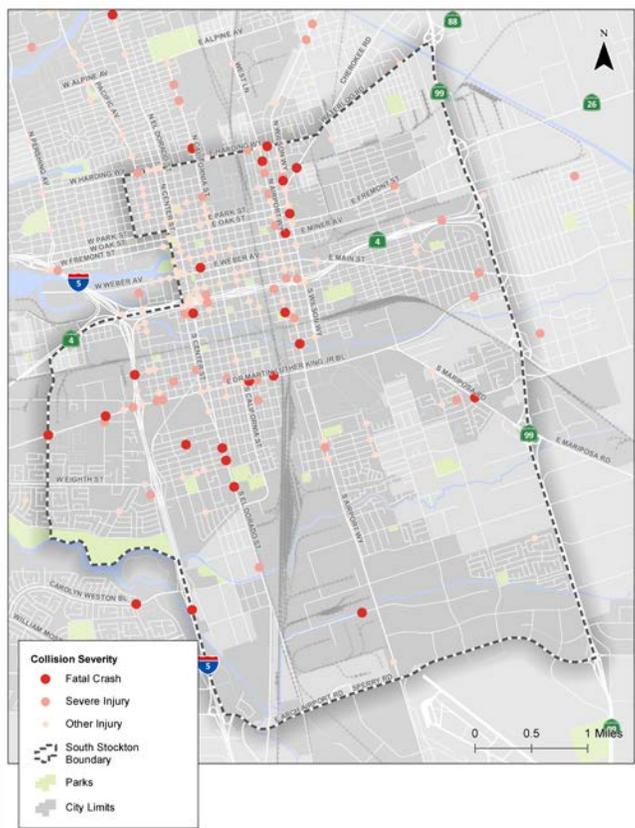
- ▶ Review of existing conditions in South Stockton
- ▶ Community outreach
- ▶ Walking audit with local stakeholders
- ▶ Field visits to support walking audit findings
- ▶ Identify challenges and opportunities to sustainable mobility
- ▶ Recommend actions for SJCOG to support



What have we done?

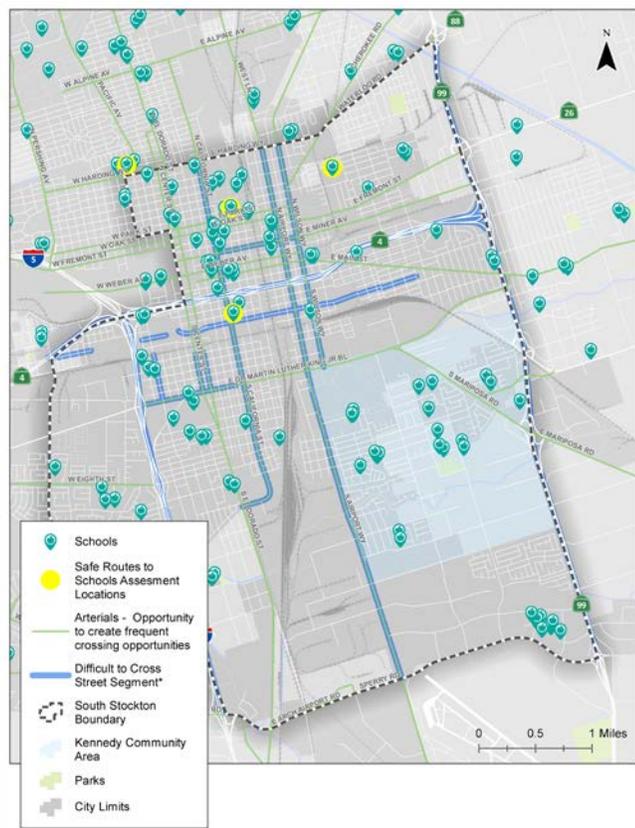
Community Mobility Assessment

SJCOG SCS Implementation Study



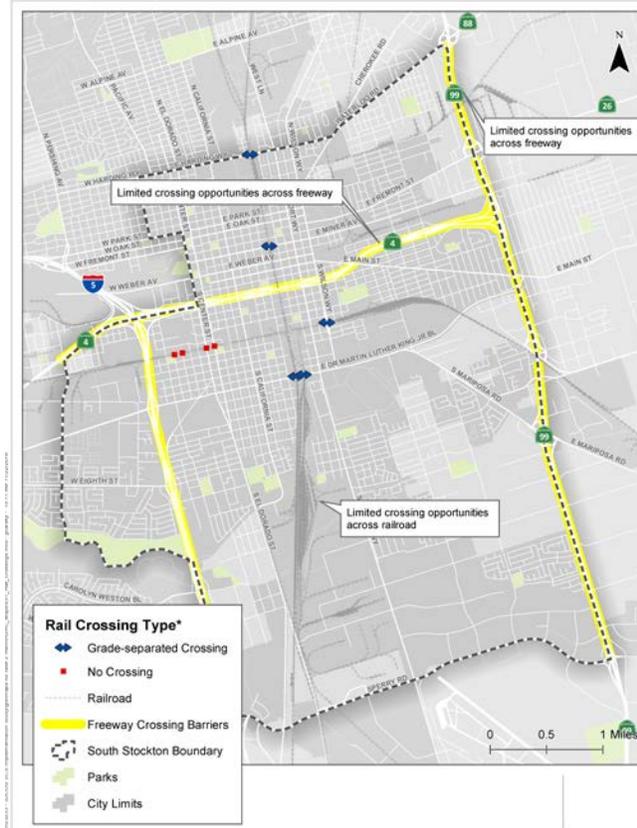
KITTELSON & ASSOCIATES

SJCOG SCS Implementation Study



KITTELSON & ASSOCIATES

SJCOG SCS Implementation Study

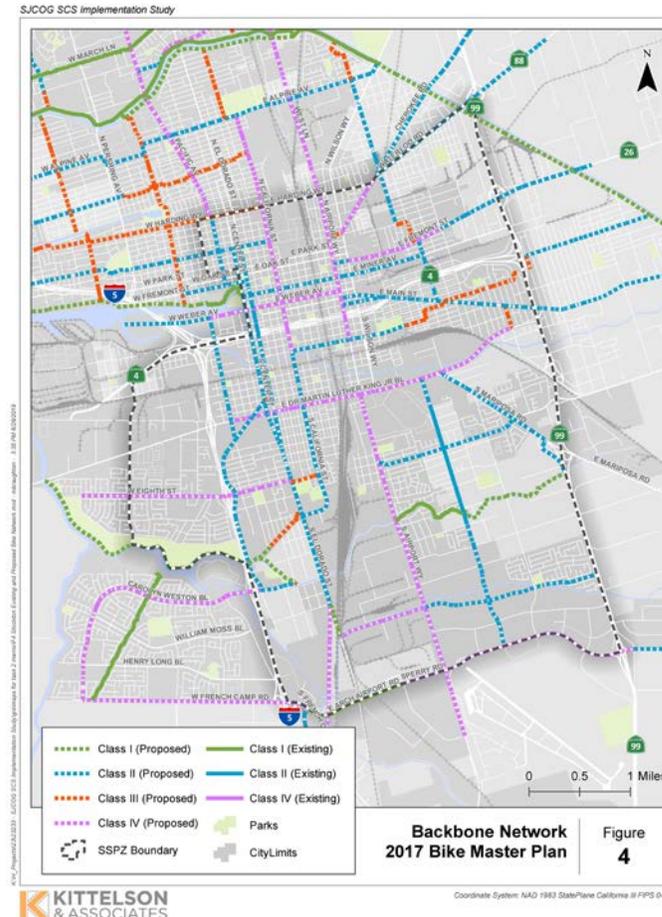


KITTELSON & ASSOCIATES

What have we done?

Community Mobility Assessment - Opportunities

- ▶ Near-Term
 - ▶ Support Road Diet/Complete Street Projects
 - ▶ Safe Routes to School Evaluations
 - ▶ Backbone Bike Network Implementation
 - ▶ Additional Planning Studies



What have we done?

Community Mobility Assessment - Opportunities

- ▶ Systemic
 - ▶ Addressing Sidewalk Quality and Gaps
 - ▶ Creating a Transit-Supportive Environment
 - ▶ Enhanced Pedestrian Crossing Implementation



What have we done?

Community Mobility Assessment - Opportunities

- ▶ Long-Term
 - ▶ Coordinate with Caltrans on Interchanges and Freeway Crossings
 - ▶ Rail Crossing Improvements



What have we missed?

- ▶ What questions do you have for us?
- ▶ Are there other opportunities we should include?



Exhibit B-1: Map-Based Feedback from Public Health Advocates Stakeholder Outreach

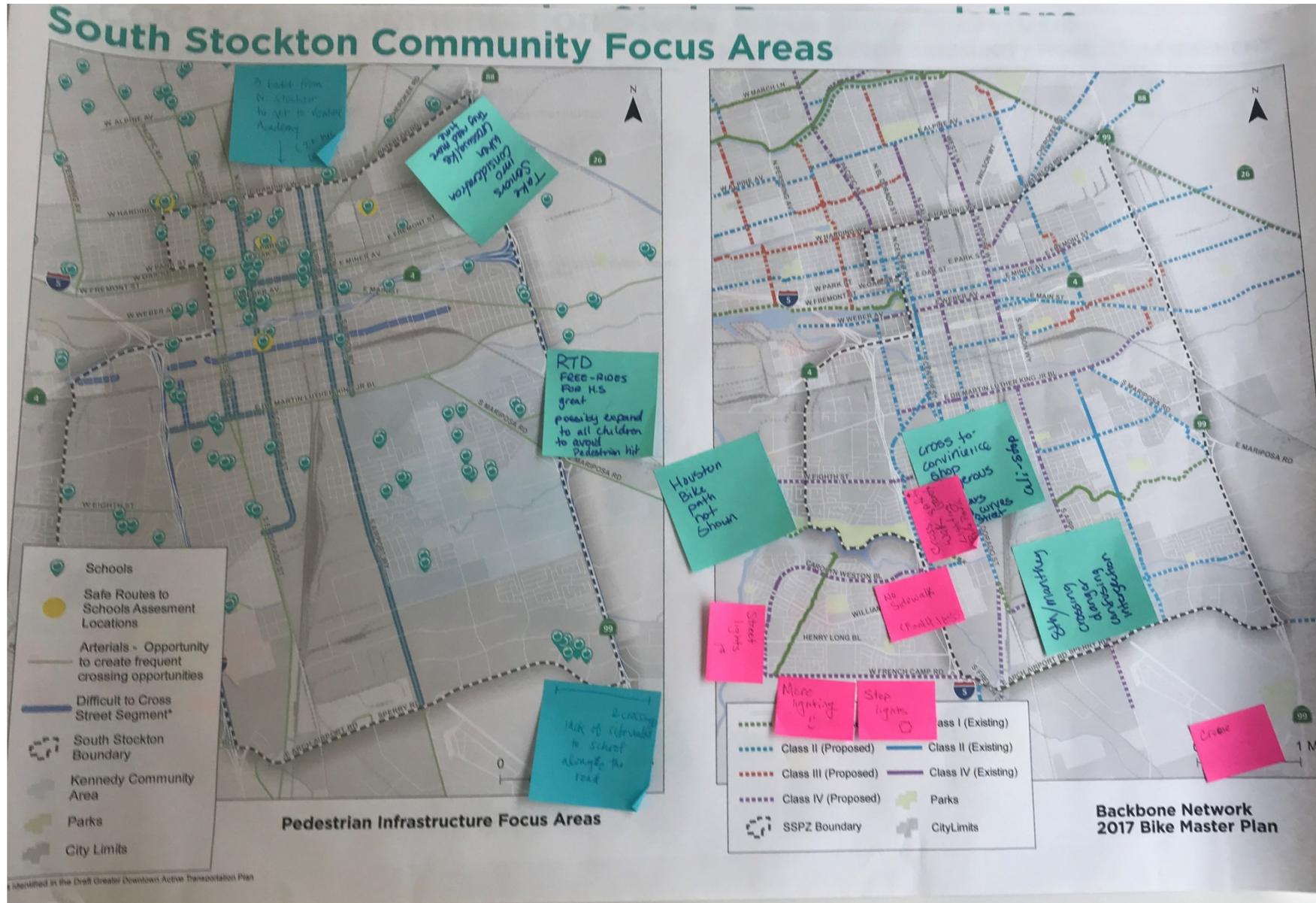
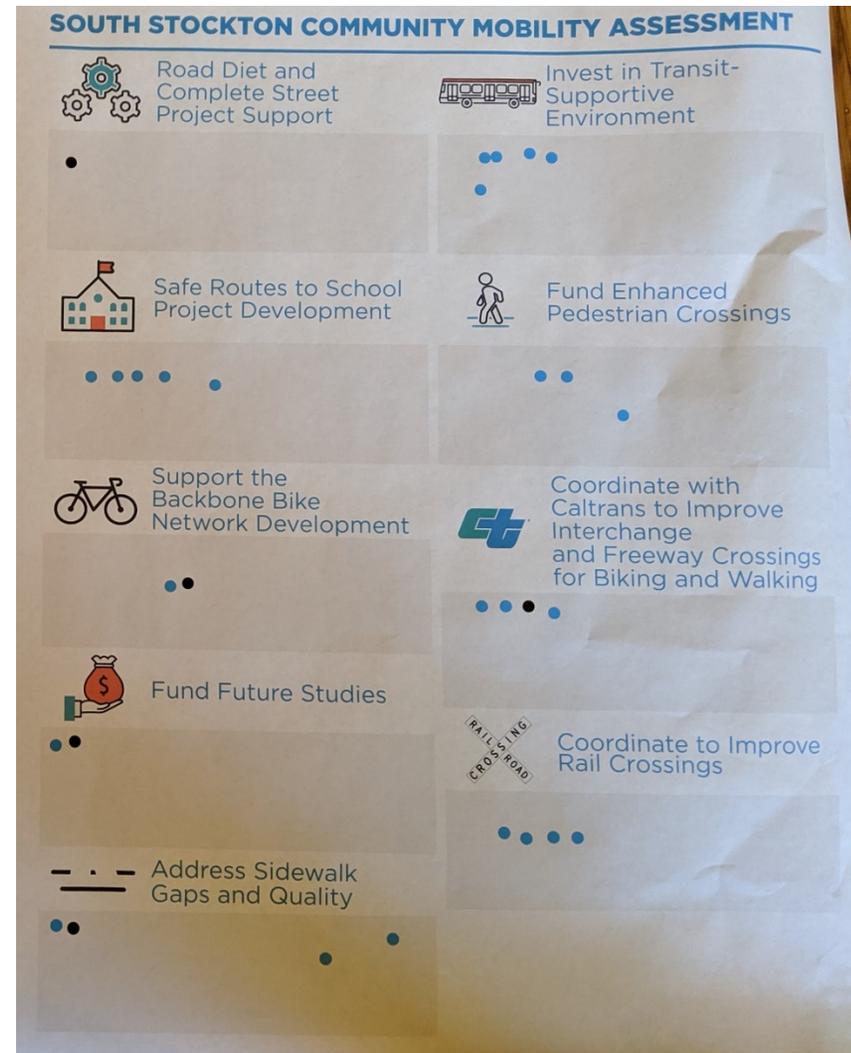
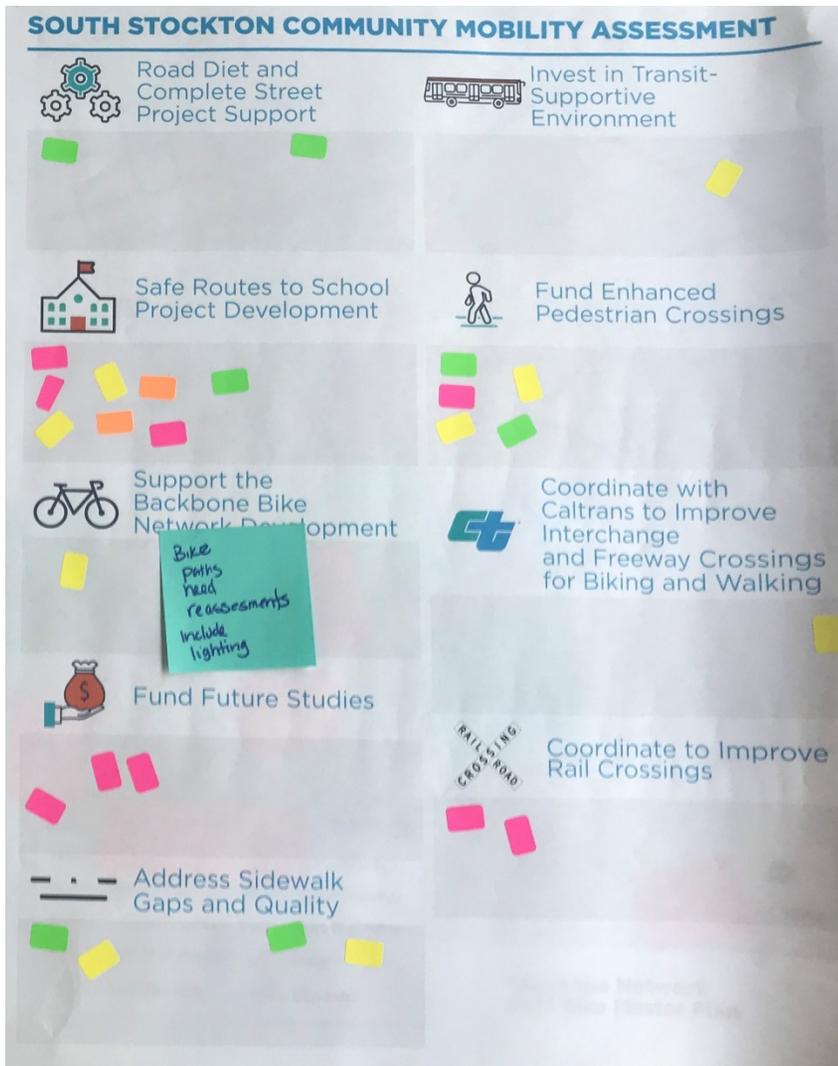


Exhibit B-2: Recommendation Feedback from Public Health Advocates Stakeholder Outreach (left) and San Joaquin Healthy Neighborhoods Collaborative (right)



Attachment C | Pedestrian Crossing Project Concept Development

TECHNICAL MEMORANDUM

Date: June 29, 2020

Project #: 23233

To: Christine Corrales, San Joaquin Council of Governments

From: Matt Braughton, RSP, Mike Alston, RSP, Grace Carsky

Project: SCS Implementation Study and South Stockton Mobility Study

Subject: Systemic Pedestrian Hybrid Beacons in South Stockton

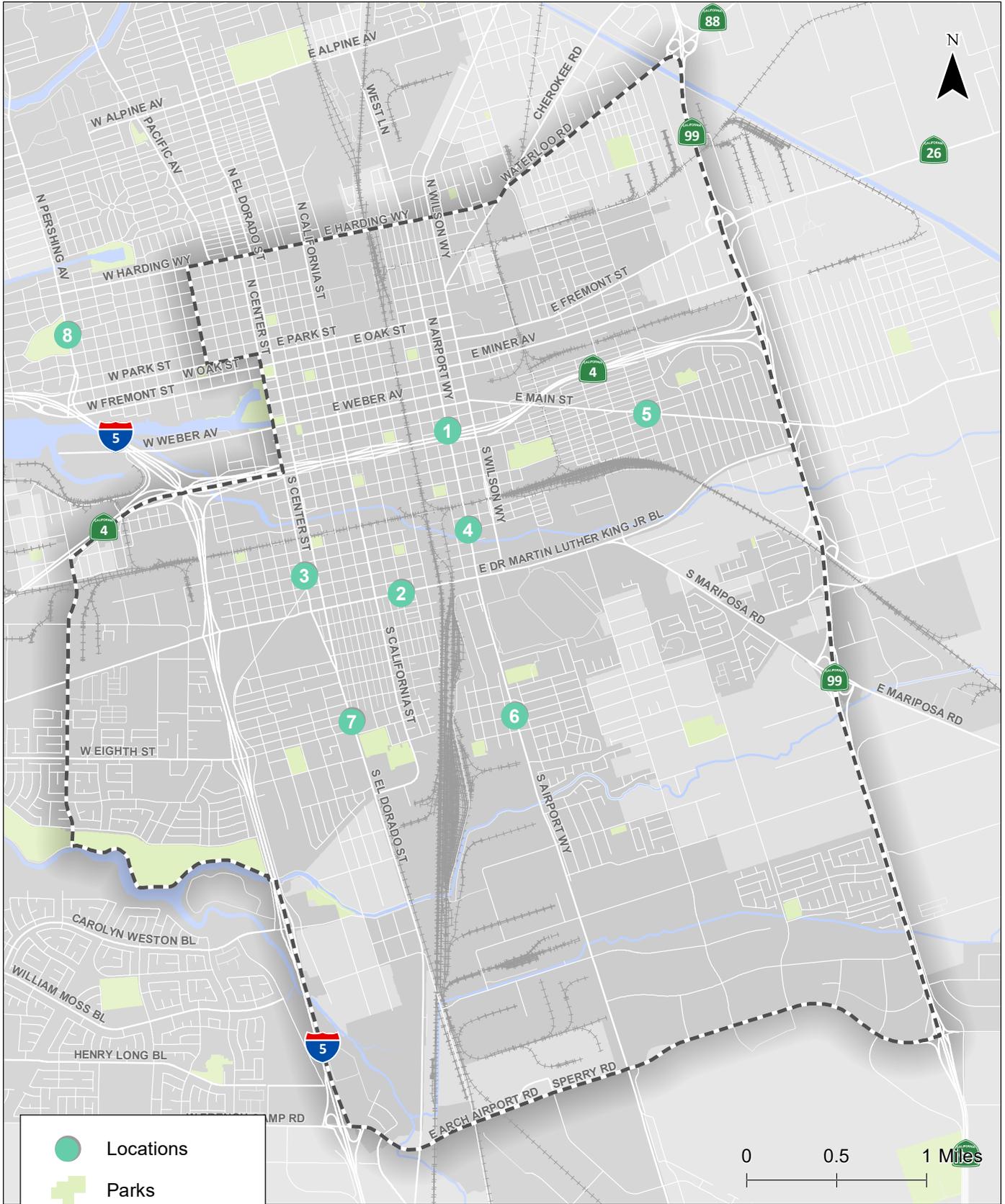
SUMMARY

Kittelison & Associates, Inc. (Kittelison) assisted the San Joaquin Council of Governments (SJCOG) and the City of Stockton in developing a set of systemic pedestrian crossing improvements using pedestrian hybrid beacons (PHBs) consistent with Caltrans' Highway Safety Improvement Program guidance as part of the SJCOG Sustainable Communities Strategy Implementation Study and South Stockton Mobility Study to enhance pedestrian connectivity and safety. These potential improvements were identified through data analysis of crash history within the South Stockton community, community outreach to determine preferred improvement types, and discussions with City of Stockton staff. After reviewing crash history, land use context, and previously identified or funded pedestrian safety improvements, eight locations were identified. These locations were moved forward, and initial project scopes were developed for the potential projects. This memo summarizes the chosen locations, the project descriptions, and the methods used to develop the eight potential projects.

PROJECT LOCATIONS

The following locations were identified as candidates for a systemic application of PHBs (Figure 1):

1. Airport Way & Washington Avenue
2. Martin Luther King Jr. Boulevard & Stanislaus Street
3. Center Street & Jefferson Street
4. Airport Way & Anderson Street
5. Main Street & Searchlight Avenue
6. Airport Way & 9th Street
7. El Dorado Street & 7th Street
8. Pershing Avenue & Rose Street



H:\23122233 - SJCOG SCS Implementation Study\gis\bonus task\stockton crashes for bonus_v3.mxd - garsky - 5:04 PM 6/25/2020

- Locations
- Parks
- - - SSPZ Boundary
- CityLimits

HSIP Locations 2020 Application

PROJECT DESCRIPTION

Install Pedestrian Hybrid Beacons (HSIP Countermeasure NS 23PB) with curb extensions.

PROJECT IDENTIFICATION

The most recent five years of crash from the UC Berkeley Transportation Injury Mapping System (TIMS) were downloaded covering the five complete years from January 2015 to December 2019. Pedestrian crashes were identified as a priority crash type as part of the South Stockton Mobility Study and were isolated to identify locations within the South Stockton community area where fatal or severe pedestrian crashes had occurred. Crashes that were identified as pedestrians *crossing not in crosswalk*¹ to further identify locations that could benefit from pedestrian enhancements. Locations that had been previously improved or programmed for improvements in previous HSIP grant funding cycles (Cycles 7 – 9) were removed.

After the initial list of locations was identified, potential improvement locations were reviewed to determine whether a pedestrian crossing improvement could address the crash history at each site. Multiple locations were identified where pedestrian crossing improvements could be made at eight uncontrolled crossing locations with four or more lane roadways, higher volumes (greater than 10,000 vehicles per day), and posted speeds of 30 miles per hour or more. According to the latest FHWA guidance on pedestrian crossings (*Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations* (2018)) these locations were best suited for PHBs to provide controlled pedestrian crossings of the multilane roadways. Each location provides an opportunity to provide increased pedestrian connectivity across arterial and collector roadways for pedestrians and connect local residential community areas to transit stops, schools, and commercial activity centers.

PRIOR ATTEMPTS TO ADDRESS THE SAFETY ISSUES

No prior attempts have been made at any of the eight sites to address the identified pedestrian and bicycle crash history.

PROJECT BENEFIT-COST ANALYSIS

Cost estimates based on recent construction bid documents for similar improvements were developed for each location. Using these cost estimates, a preliminary benefit-cost analyses were conducted to determine the overall project's value assuming a 40% contingency. The eight locations together were found to have a benefit-cost ratio of 9.75. By removing the location with the lowest project benefit (Pershing Avenue & Rose Street), the project benefit-cost ratio increased to 11.12.

¹ Pedestrian Action Code in SWITRS crash data.

SUPPORTING DOCUMENTATION

In support of project development and future funding opportunities, in addition to the identification of the project locations for and type of pedestrian crossing improvements, project conceptual layouts, collision diagrams, collision lists, and cost estimates were prepared. This information is provided in Attachment A.

Attachment A. Supporting Documentation

Conceptual Project Layouts



Airport Way

Install advanced warning signs



Install lighting at intersection



Washington Street

Install curb extensions with crosswalk



Install Pedestrian Hybrid Beacon (PHB) and crossing signs



Install post-mounted flashing beacon under SR 4 to activate with PHB



Install advanced warning signs



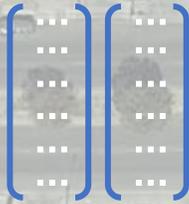


Stanislaus Street

PHB could be constructed midblock; curb extensions are not applicable at midblock locations

Install Pedestrian Hybrid Beacon (PHB) and crossing signs

MLK Jr. Boulevard



Install curb extensions

Install advanced warning signs

Install advanced warning signs





























































































































































































































































































































Install advanced warning signs



Center Street



Install Pedestrian Hybrid Beacon (PHB) and crossing signs



Jefferson Street

Install curb extensions



Install lighting at intersection



Install advanced warning signs



Install advanced warning signs



Airport Way



Install Pedestrian Hybrid Beacon (PHB) and crossing signs



Install lighting at intersection



Anderson Street

Install curb extensions



Install advanced warning signs

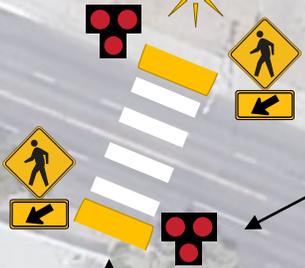




Install lighting at intersection



Install Pedestrian Hybrid Beacon (PHB) and crossing signs



Install curb extensions



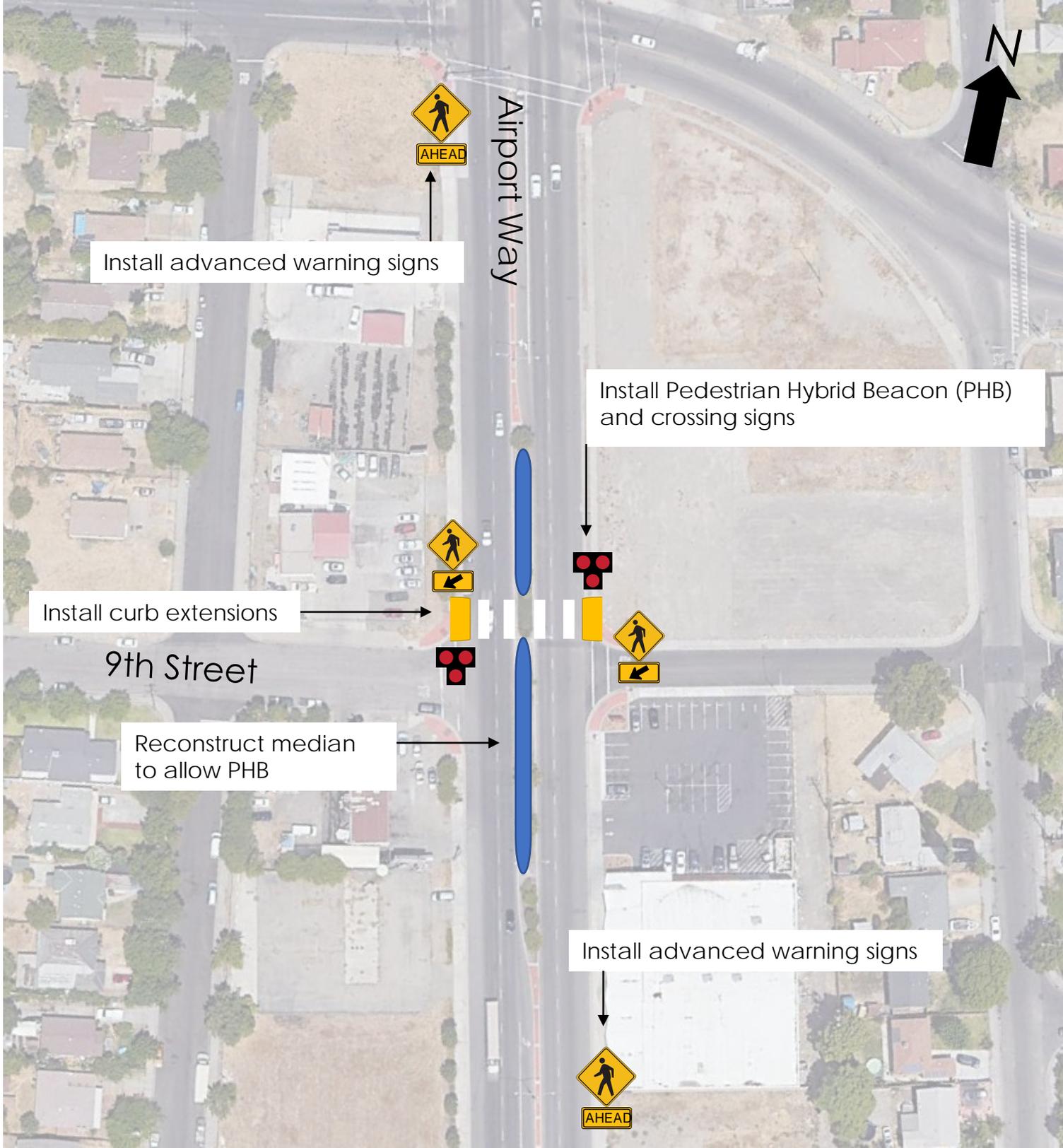
Install advanced warning signs



Main Street

Searchlight Avenue





Airport Way

Install advanced warning signs

Install Pedestrian Hybrid Beacon (PHB) and crossing signs

Install curb extensions

9th Street

Reconstruct median to allow PHB

Install advanced warning signs





El Dorado Street

7th Street

Install advanced warning signs

Install Pedestrian Hybrid Beacon (PHB) and crossing signs

Install curb extensions

Install lighting at intersection

Install advanced warning signs





Pershing Avenue

Rose Street

Install advanced warning signs



Install Pedestrian Hybrid Beacon (PHB) and crossing signs



Install lighting at intersection



Install curb extensions



Install advanced warning signs



Cost Estimates

Stockton Systemic PHB Cost Estimates
Totals by Location
 City of Stockton



Engineer's Conceptual Estimate

Prepared By: Mike Alston and Matt Braughton

Date: June 23, 2020

Prepared By: Reviewer Name

This Estimate has a Rating of:

3C (See rating scale guide below.)

ITEM	UNIT	Total Quantity	Unit Price	Airport Way & Washington Street	Airport Way & Anderson Street	Main Street & Searchlight Avenue	Dr. Martin Luther King Jr Way & Stanislaus Way	Jefferson & Center	Airport & Ninth	El Dorado & Seventh	Rose & Pershing as PHB	TOTAL COST
Mobilization	LS	0	\$42,000.00	\$42,000.00	\$40,000.00	\$40,000.00	\$44,000.00	\$40,000.00	\$45,000.00	\$43,000.00	\$41,000.00	\$335,000.00
Traffic Control	LS	0	\$63,000.00	\$63,000.00	\$60,000.00	\$61,000.00	\$67,000.00	\$60,000.00	\$69,000.00	\$65,000.00	\$63,000.00	\$508,000.00
Erosion Control	LS	0	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$40,000.00
Removal of Structures and Obstructions	LS	0	\$9,000.00	\$9,000.00	\$9,000.00	\$9,000.00	\$10,000.00	\$9,000.00	\$10,000.00	\$10,000.00	\$9,000.00	\$75,000.00
Clearing and Grubbing	LS	0	\$8,000.00	\$8,000.00	\$8,000.00	\$8,000.00	\$9,000.00	\$8,000.00	\$9,000.00	\$9,000.00	\$8,000.00	\$67,000.00
Asphalt Roadway - Full Depth	SF	4800	\$20.40	\$12,240.00	\$12,240.00	\$12,240.00	\$12,240.00	\$12,240.00	\$12,240.00	\$12,240.00	\$12,240.00	\$97,920.00
Asphalt Roadway - Grind & Inlay (2" Depth)	SF	70500	\$6.30	\$43,470.00	\$43,470.00	\$48,195.00	\$68,985.00	\$43,470.00	\$76,545.00	\$64,260.00	\$55,755.00	\$444,150.00
Concrete Median Island	SF	120	\$25.00	-	-	-	\$1,500.00	\$0.00	\$1,500.00	\$0.00	\$0.00	\$3,000.00
Detectable Warnings	EA	33	\$1,500.00	\$6,000.00	\$6,000.00	\$4,500.00	\$9,000.00	\$6,000.00	\$9,000.00	\$4,500.00	\$4,500.00	\$49,500.00
Pedestrian Ramps (price is for each corner -- 2 ramps per corner)	EA	16	\$20,000.00	\$40,000.00	\$40,000.00	\$40,000.00	\$40,000.00	\$40,000.00	\$40,000.00	\$40,000.00	\$40,000.00	\$320,000.00
Storm Water System, Complete	LS	0	\$36,000.00	\$36,000.00	\$36,000.00	\$37,000.00	\$47,000.00	\$36,000.00	\$49,000.00	\$43,000.00	\$40,000.00	\$324,000.00
Pavement Markings, Complete	LF	3850	\$3.00	\$1,500.00	\$1,500.00	\$2,250.00	\$1,500.00	\$900.00	\$900.00	\$1,500.00	\$1,500.00	\$11,550.00
Crosswalk Markings	SF	4800	\$10.00	\$4,800.00	\$4,800.00	\$5,300.00	\$7,200.00	\$4,800.00	\$8,200.00	\$6,900.00	\$6,000.00	\$48,000.00
Signage, Complete	EA	32	\$600.00	\$2,400.00	\$2,400.00	\$2,400.00	\$2,400.00	\$2,400.00	\$2,400.00	\$2,400.00	\$2,400.00	\$19,200.00
Illumination System, Complete	LS	0	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00	\$240,000.00
Pedestrian Hybrid Beacon System, Complete	LS	0	\$200,000.00	\$200,000.00	\$200,000.00	\$200,000.00	\$200,000.00	\$200,000.00	\$200,000.00	\$200,000.00	\$200,000.00	\$1,600,000.00
Flashing Beacon in advance of intersection (NB approach)	LS	1	\$20,000.00	\$20,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20,000.00
TOTAL CONSTRUCTION COST				\$523,410.00	\$498,410.00	\$504,885.00	\$554,825.00	\$497,810.00	\$567,785.00	\$536,800.00	\$518,395.00	\$ 4,202,320
40% Contingency				\$209,370.00	\$199,370.00	\$201,960.00	\$221,930.00	\$199,130.00	\$227,120.00	\$214,720.00	\$207,360.00	\$ 1,680,960
TOTAL ESTIMATED PROJECT COST				\$732,780.00	\$697,780.00	\$706,845.00	\$776,755.00	\$696,940.00	\$794,905.00	\$751,520.00	\$725,755.00	\$ 5,883,280

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Stockton Systemic PHB Cost Estimates
Airport Way & Washington Street
 City of Stockton



Engineer's Conceptual Estimate

Prepared By: Mike Alston and Matt Braughton		Date: June 23, 2020		
Prepared By: Reviewer Name				
This Estimate has a Rating of:		3C (See rating scale guide below.)		
ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
Mobilization	LS	ALL	\$42,000.00	\$42,000.00
Traffic Control	LS	ALL	\$63,000.00	\$63,000.00
Erosion Control	LS	ALL	\$5,000.00	\$5,000.00
Removal of Structures and Obstructions	LS	ALL	\$9,000.00	\$9,000.00
Clearing and Grubbing	LS	ALL	\$8,000.00	\$8,000.00
Asphalt Roadway - Full Depth	SF	600	\$20.40	\$12,240.00
Asphalt Roadway - Grind & Inlay (2" Depth)	SF	6,900	\$6.30	\$43,470.00
Concrete Curbs - Standard Curb & Gutter	LF	0	\$36.70	\$0.00
Concrete Walks	SF	0	\$21.90	\$0.00
Detectable Warnings	EA	4	\$1,500.00	\$6,000.00
Pedestrian Ramps (price is for each corner -- 2 ramps per corner)	EA	2	\$20,000.00	\$40,000.00
Storm Water System, Complete	LS	ALL	\$36,000.00	\$36,000.00
Pavement Markings, Complete	LF	500	\$3.00	\$1,500.00
Crosswalk Markings	SF	480	\$10.00	\$4,800.00
Signage, Complete	EA	4	\$600.00	\$2,400.00
Illumination System, Complete	LS	ALL	\$30,000.00	\$30,000.00
Pedestrian Hybrid Beacon System, Complete	LS	ALL	\$200,000.00	\$200,000.00
Flashing Beacon in advance of intersection (NB approach)	LS	1	\$20,000.00	\$20,000.00
TOTAL CONSTRUCTION COST			\$	523,410
40% Contingency			\$	209,370
TOTAL ESTIMATED PROJECT COST			\$	732,780

Assumptions:

- Mobilization, traffic control, removal of structures, clearing and grubbing are all on a percentage of project basis.
- No earthwork, so erosion control is lump sum guesstimate.
- Full depth asphalt 2 feet each side. Grind and inlay between. Length of each is conservative and matches length of curb associated with extension; width based on Google Earth roadway width measurement.
- Curb extensions including ramps assumed to include sidewalk and curb costs. Cost estimate Includes removal and rebuild.
- For a similar project with no curb extension, can reduce the asphalt roadway length assumptions by 1/3.
- Two directional ramps assumed for each corner.
- Pavement markings 50 ft in each direction on all approaches. Cost is per LF per line.
- Crosswalk markings cost based on stencil size and width of roadway. Marked crossings on all approaches.
- Illumination: Two lights needed, one for each approach direction.
- Traffic control increased to 15% of costs to account for accessible pedestrian routes.

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Stockton Systemic PHB Cost Estimates
Airport Way & Anderson Street
 City of Stockton



Engineer's Conceptual Estimate

Prepared By: Mike Alston and Matt Braughton		Date: June 23, 2020			
Prepared By: Reviewer Name					
This Estimate has a Rating of:		3C (See rating scale guide below.)			
ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST	
Mobilization	LS	ALL	\$40,000.00	\$40,000.00	
Traffic Control	LS	ALL	\$60,000.00	\$60,000.00	
Erosion Control	LS	ALL	\$5,000.00	\$5,000.00	
Removal of Structures and Obstructions	LS	ALL	\$9,000.00	\$9,000.00	
Clearing and Grubbing	LS	ALL	\$8,000.00	\$8,000.00	
Asphalt Roadway - Full Depth	SF	600	\$20.40	\$12,240.00	
Asphalt Roadway - Grind & Inlay (2" Depth)	SF	6,900	\$6.30	\$43,470.00	
Concrete Curbs - Standard Curb & Gutter	LF	0	\$36.70	\$0.00	
Concrete Walks	SF	0	\$21.90	\$0.00	
Detectable Warnings	EA	4	\$1,500.00	\$6,000.00	
Pedestrian Ramps (price is for each corner -- 2 ramps per corner)	EA	2	\$20,000.00	\$40,000.00	
Storm Water System, Complete	LS	ALL	\$36,000.00	\$36,000.00	
Pavement Markings, Complete	LF	500	\$3.00	\$1,500.00	
Crosswalk Markings	SF	480	\$10.00	\$4,800.00	
Signage, Complete	EA	4	\$600.00	\$2,400.00	
Illumination System, Complete	LS	ALL	\$30,000.00	\$30,000.00	
Pedestrian Hybrid Beacon System, Complete	LS	ALL	\$200,000.00	\$200,000.00	
TOTAL CONSTRUCTION COST				\$	498,410
40% Contingency				\$	199,370
TOTAL ESTIMATED PROJECT COST				\$	697,780

Assumptions:

- Mobilization, traffic control, removal of structures, clearing and grubbing are all on a percentage of project basis.
- No earthwork, so erosion control is lump sum guesstimate.
- Full depth asphalt 2 feet each side. Grind and inlay between. Length of each is conservative and matches length of curb associated with extension; width
- Curb extensions including ramps assumed to include sidewalk and curb costs. Cost estimate Includes removal and rebuild.
- For a similar project with no curb extension, can reduce the asphalt roadway length assumptions by 1/3.
- Two directional ramps assumed for each corner.
- Pavement markings 50 ft in each direction on all approaches. Cost is per LF per line.
- Crosswalk markings cost based on stencil size and width of roadway. Marked crossings on all approaches.
- Illumination: Two lights needed, one for each approach direction.
- Traffic control increased to 15% of costs to account for accessible pedestrian routes.

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Stockton Systemic PHB Cost Estimates
Main Street & Searchlight Avenue
 City of Stockton



Engineer's Conceptual Estimate

Prepared By: Mike Alston and Matt Braughton		Date: June 23, 2020		
Prepared By: Reviewer Name				
This Estimate has a Rating of:		3C (See rating scale guide below.)		
ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
Mobilization	LS	ALL	\$40,000.00	\$40,000.00
Traffic Control	LS	ALL	\$61,000.00	\$61,000.00
Erosion Control	LS	ALL	\$5,000.00	\$5,000.00
Removal of Structures and Obstructions	LS	ALL	\$9,000.00	\$9,000.00
Clearing and Grubbing	LS	ALL	\$8,000.00	\$8,000.00
Asphalt Roadway - Full Depth	SF	600	\$20.40	\$12,240.00
Asphalt Roadway - Grind & Inlay (2" Depth)	SF	7,650	\$6.30	\$48,195.00
Concrete Curbs - Standard Curb & Gutter	LF	0	\$36.70	\$0.00
Concrete Walks	SF	0	\$21.90	\$0.00
Detectable Warnings	EA	3	\$1,500.00	\$4,500.00
Pedestrian Ramps (price is for each corner -- 2 ramps per corner)	EA	2	\$20,000.00	\$40,000.00
Storm Water System, Complete	LS	ALL	\$37,000.00	\$37,000.00
Pavement Markings, Complete	LF	750	\$3.00	\$2,250.00
Crosswalk Markings	SF	530	\$10.00	\$5,300.00
Signage, Complete	EA	4	\$600.00	\$2,400.00
Illumination System, Complete	LS	ALL	\$30,000.00	\$30,000.00
Pedestrian Hybrid Beacon System, Complete	LS	ALL	\$200,000.00	\$200,000.00
TOTAL CONSTRUCTION COST				\$ 504,885
40% Contingency				\$ 201,960
TOTAL ESTIMATED PROJECT COST				\$ 706,845

Assumptions:

- Mobilization, traffic control, removal of structures, clearing and grubbing are all on a percentage of project basis.
- No earthwork, so erosion control is lump sum guesstimate.
- Full depth asphalt 2 feet each side. Grind and inlay between. Length of each is conservative and matches length of curb associated with extension; width
- Curb extensions including ramps assumed to include sidewalk and curb costs. Cost estimate Includes removal and rebuild.
- For a similar project with no curb extension, can reduce the asphalt roadway length assumptions by 1/3.
- Two directional ramps assumed for each corner.
- Pavement markings 50 ft in each direction on all approaches. Cost is per LF per line.
- Crosswalk markings cost based on stencil size and width of roadway. Marked crossings on all approaches.
- Illumination: Two lights needed, one for each approach direction.
- Traffic control increased to 15% of costs to account for accessible pedestrian routes.

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Stockton Systemic PHB Cost Estimates
Dr. Martin Luther King Jr Way & Stanislaus Way
City of Stockton



Engineer's Conceptual Estimate

Prepared By: Mike Alston and Matt Braughton		Date: June 23, 2020		
Prepared By: Reviewer Name				
This Estimate has a Rating of:		3C (See rating scale guide below.)		
ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
Mobilization	LS	ALL	\$44,000.00	\$44,000.00
Traffic Control	LS	ALL	\$67,000.00	\$67,000.00
Erosion Control	LS	ALL	\$5,000.00	\$5,000.00
Removal of Structures and Obstructions	LS	ALL	\$10,000.00	\$10,000.00
Clearing and Grubbing	LS	ALL	\$9,000.00	\$9,000.00
Asphalt Roadway - Full Depth	SF	600	\$20.40	\$12,240.00
Asphalt Roadway - Grind & Inlay (2" Depth)	SF	10,950	\$6.30	\$68,985.00
Concrete Median Island	SF	60	\$25.00	\$1,500.00
Concrete Curbs - Standard Curb & Gutter	LF	0	\$36.70	\$0.00
Concrete Walks	SF	0	\$21.90	\$0.00
Detectable Warnings	EA	6	\$1,500.00	\$9,000.00
Pedestrian Ramps (price is for each corner -- 2 ramps per corner)	EA	2	\$20,000.00	\$40,000.00
Storm Water System, Complete	LS	ALL	\$47,000.00	\$47,000.00
Pavement Markings, Complete	LF	500	\$3.00	\$1,500.00
Crosswalk Markings	SF	720	\$10.00	\$7,200.00
Signage, Complete	EA	4	\$600.00	\$2,400.00
Illumination System, Complete	LS	ALL	\$30,000.00	\$30,000.00
Pedestrian Hybrid Beacon System, Complete	LS	ALL	\$200,000.00	\$200,000.00
TOTAL CONSTRUCTION COST			\$	554,825
40% Contingency			\$	221,930
TOTAL ESTIMATED PROJECT COST			\$	776,755

Assumptions:

- Mobilization, traffic control, removal of structures, clearing and grubbing are all on a percentage of project basis.
- No earthwork, so erosion control is lump sum guesstimate.
- Full depth asphalt 2 feet each side. Grind and inlay between. Length of each is conservative and matches length of curb associated with extension; width
- Curb extensions including ramps assumed to include sidewalk and curb costs. Cost estimate Includes removal and rebuild.
- For a similar project with no curb extension, can reduce the asphalt roadway length assumptions by 1/3.
- Two directional ramps assumed for each corner.
- Pavement markings 50 ft in each direction on all approaches. Cost is per LF per line.
- Crosswalk markings cost based on stencil size and width of roadway. Marked crossings on all approaches.
- Illumination: Two lights needed, one for each approach direction.
- Traffic control increased to 15% of costs to account for accessible pedestrian routes.

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Stockton Systemic PHB Cost Estimates
Jefferson & Center
 City of Stockton



Engineer's Conceptual Estimate

Prepared By: Mike Alston and Matt Braughton		Date: June 23, 2020			
Prepared By: Reviewer Name					
This Estimate has a Rating of:		3C (See rating scale guide below.)			
ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST	
Mobilization	LS	ALL	\$40,000.00	\$40,000.00	
Traffic Control	LS	ALL	\$60,000.00	\$60,000.00	
Erosion Control	LS	ALL	\$5,000.00	\$5,000.00	
Removal of Structures and Obstructions	LS	ALL	\$9,000.00	\$9,000.00	
Clearing and Grubbing	LS	ALL	\$8,000.00	\$8,000.00	
Asphalt Roadway - Full Depth	SF	600	\$20.40	\$12,240.00	
Asphalt Roadway - Grind & Inlay (2" Depth)	SF	6,900	\$6.30	\$43,470.00	
Concrete Curbs - Standard Curb & Gutter	LF	0	\$36.70	\$0.00	
Concrete Walks	SF	0	\$21.90	\$0.00	
Detectable Warnings	EA	4	\$1,500.00	\$6,000.00	
Pedestrian Ramps (price is for each corner -- 2 ramps per corner)	EA	2	\$20,000.00	\$40,000.00	
Storm Water System, Complete	LS	ALL	\$36,000.00	\$36,000.00	
Pavement Markings, Complete	LF	300	\$3.00	\$900.00	
Crosswalk Markings	SF	480	\$10.00	\$4,800.00	
Signage, Complete	EA	4	\$600.00	\$2,400.00	
Illumination System, Complete	LS	ALL	\$30,000.00	\$30,000.00	
Pedestrian Hybrid Beacon System, Complete	LS	ALL	\$200,000.00	\$200,000.00	
TOTAL CONSTRUCTION COST			\$	497,810	
40% Contingency			\$	199,130	
TOTAL ESTIMATED PROJECT COST			\$	696,940	

Assumptions:

- Mobilization, traffic control, removal of structures, clearing and grubbing are all on a percentage of project basis.
- No earthwork, so erosion control is lump sum guesstimate.
- Full depth asphalt 2 feet each side. Grind and inlay between. Length of each is conservative and matches length of curb associated with extension; width
- Curb extensions including ramps assumed to include sidewalk and curb costs. Cost estimate Includes removal and rebuild.
- For a similar project with no curb extension, can reduce the asphalt roadway length assumptions by 1/3.
- Two directional ramps assumed for each corner.
- Pavement markings 50 ft in each direction on all approaches. Cost is per LF per line.
- Crosswalk markings cost based on stencil size and width of roadway. Marked crossings on all approaches.
- Illumination: Two lights needed, one for each approach direction.
- Traffic control increased to 15% of costs to account for accessible pedestrian routes.

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Stockton Systemic PHB Cost Estimates
Airport & Ninth
 City of Stockton



Engineer's Conceptual Estimate

Prepared By: Mike Alston and Matt Braughton		Date: June 23, 2020			
Prepared By: Reviewer Name					
This Estimate has a Rating of:		3C (See rating scale guide below.)			
ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST	
Mobilization	LS	ALL	\$45,000.00	\$45,000.00	
Traffic Control	LS	ALL	\$69,000.00	\$69,000.00	
Erosion Control	LS	ALL	\$5,000.00	\$5,000.00	
Removal of Structures and Obstructions	LS	ALL	\$10,000.00	\$10,000.00	
Clearing and Grubbing	LS	ALL	\$9,000.00	\$9,000.00	
Asphalt Roadway - Full Depth	SF	600	\$20.40	\$12,240.00	
Asphalt Roadway - Grind & Inlay (2" Depth)	SF	12,150	\$6.30	\$76,545.00	
Concrete Median Island	SF	60	\$25.00	\$1,500.00	
Concrete Walks	SF	0	\$21.90	\$0.00	
Detectable Warnings	EA	6	\$1,500.00	\$9,000.00	
Pedestrian Ramps (price is for each corner -- 2 ramps per corner)	EA	2	\$20,000.00	\$40,000.00	
Storm Water System, Complete	LS	ALL	\$49,000.00	\$49,000.00	
Pavement Markings, Complete	LF	300	\$3.00	\$900.00	
Crosswalk Markings	SF	820	\$10.00	\$8,200.00	
Signage, Complete	EA	4	\$600.00	\$2,400.00	
Illumination System, Complete	LS	ALL	\$30,000.00	\$30,000.00	
Pedestrian Hybrid Beacon System, Complete	LS	ALL	\$200,000.00	\$200,000.00	
TOTAL CONSTRUCTION COST			\$	567,785	
40% Contingency			\$	227,120	
TOTAL ESTIMATED PROJECT COST			\$	794,905	

Assumptions:

- Mobilization, traffic control, removal of structures, clearing and grubbing are all on a percentage of project basis.
- No earthwork, so erosion control is lump sum guesstimate.
- Full depth asphalt 2 feet each side. Grind and inlay between. Length of each is conservative and matches length of curb associated with extension; width
- Curb extensions including ramps assumed to include sidewalk and curb costs. Cost estimate Includes removal and rebuild.
- For a similar project with no curb extension, can reduce the asphalt roadway length assumptions by 1/3.
- Two directional ramps assumed for each corner.
- Pavement markings 50 ft in each direction on all approaches. Cost is per LF per line.
- Crosswalk markings cost based on stencil size and width of roadway. Marked crossings on all approaches.
- Illumination: Two lights needed, one for each approach direction.
- Traffic control increased to 15% of costs to account for accessible pedestrian routes.

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Stockton Systemic PHB Cost Estimates
El Dorado & Seventh
 City of Stockton



Engineer's Conceptual Estimate

Prepared By: Mike Alston and Matt Braughton		Date: June 23, 2020			
Prepared By: Reviewer Name					
This Estimate has a Rating of:		3C (See rating scale guide below.)			
ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST	
Mobilization	LS	ALL	\$43,000.00	\$43,000.00	
Traffic Control	LS	ALL	\$65,000.00	\$65,000.00	
Erosion Control	LS	ALL	\$5,000.00	\$5,000.00	
Removal of Structures and Obstructions	LS	ALL	\$10,000.00	\$10,000.00	
Clearing and Grubbing	LS	ALL	\$9,000.00	\$9,000.00	
Asphalt Roadway - Full Depth	SF	600	\$20.40	\$12,240.00	
Asphalt Roadway - Grind & Inlay (2" Depth)	SF	10,200	\$6.30	\$64,260.00	
Concrete Median Island	SF	0	\$25.00	\$0.00	
Concrete Walks	SF	0	\$21.90	\$0.00	
Detectable Warnings	EA	3	\$1,500.00	\$4,500.00	
Pedestrian Ramps (price is for each corner -- 2 ramps per corner)	EA	2	\$20,000.00	\$40,000.00	
Storm Water System, Complete	LS	ALL	\$43,000.00	\$43,000.00	
Pavement Markings, Complete	LF	500	\$3.00	\$1,500.00	
Crosswalk Markings	SF	690	\$10.00	\$6,900.00	
Signage, Complete	EA	4	\$600.00	\$2,400.00	
Illumination System, Complete	LS	ALL	\$30,000.00	\$30,000.00	
Pedestrian Hybrid Beacon System, Complete	LS	ALL	\$200,000.00	\$200,000.00	
TOTAL CONSTRUCTION COST			\$	536,800	
40% Contingency			\$	214,720	
TOTAL ESTIMATED PROJECT COST			\$	751,520	

Assumptions:

- Curb extensions including ramps assumed to include sidewalk and curb costs.
- Two directional ramps assumed for each corner
- Illumination: Two lights needed, one for each approach direction.
- Traffic control increased to 15% of costs to account for accessible pedestrian routes.
- Contingency not included in this sheet; included in HSIP analyzer instead.

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Stockton Systemic PHB Cost Estimates

Rose & Pershing

City of Stockton



Engineer's Conceptual Estimate

Prepared By: Mike Alston and Matt Braughton		Date: June 23, 2020		
Prepared By: Reviewer Name				
This Estimate has a Rating of:		3C (See rating scale guide below.)		
ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
Mobilization	LS	ALL	\$41,000.00	\$41,000.00
Traffic Control	LS	ALL	\$63,000.00	\$63,000.00
Erosion Control	LS	ALL	\$5,000.00	\$5,000.00
Removal of Structures and Obstructions	LS	ALL	\$9,000.00	\$9,000.00
Clearing and Grubbing	LS	ALL	\$8,000.00	\$8,000.00
Asphalt Roadway - Full Depth	SF	600	\$20.40	\$12,240.00
Asphalt Roadway - Grind & Inlay (2" Depth)	SF	8,850	\$6.30	\$55,755.00
Concrete Median Island	SF	0	\$25.00	\$0.00
Concrete Walks	SF	0	\$21.90	\$0.00
Detectable Warnings	EA	3	\$1,500.00	\$4,500.00
Pedestrian Ramps (price is for each corner -- 2 ramps per corner)	EA	2	\$20,000.00	\$40,000.00
Storm Water System, Complete	LS	ALL	\$40,000.00	\$40,000.00
Pavement Markings, Complete	LF	500	\$3.00	\$1,500.00
Crosswalk Markings	SF	600	\$10.00	\$6,000.00
Signage, Complete	EA	4	\$600.00	\$2,400.00
Illumination System, Complete	LS	ALL	\$30,000.00	\$30,000.00
Pedestrian Hybrid Beacon System, Complete	LS	ALL	\$200,000.00	\$200,000.00
TOTAL CONSTRUCTION COST				\$ 518,395
40% Contingency				\$ 207,360
TOTAL ESTIMATED PROJECT COST				\$ 725,755

Assumptions:

- Curb extensions including ramps assumed to include sidewalk and curb costs.
- Two directional ramps assumed for each corner
- Illumination: Two lights needed, one for each approach direction.
- Traffic control increased to 15% of costs to account for accessible pedestrian routes.
- Contingency not included in this sheet; included in HSIP analyzer instead.

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Stockton Systemic PHB Cost Estimates
Rose & Pershing (RRFB Alternative)
 City of Stockton



Engineer's Conceptual Estimate

Prepared By: Mike Alston and Matt Braughton		Date: June 23, 2020		
Prepared By: Reviewer Name				
This Estimate has a Rating of:		3C (See rating scale guide below.)		
ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
Mobilization	LS	ALL	\$27,000.00	\$27,000.00
Traffic Control	LS	ALL	\$41,000.00	\$41,000.00
Erosion Control	LS	ALL	\$5,000.00	\$5,000.00
Removal of Structures and Obstructions	LS	ALL	\$6,000.00	\$6,000.00
Clearing and Grubbing	LS	ALL	\$6,000.00	\$6,000.00
Asphalt Roadway - Full Depth	SF	600	\$20.40	\$12,240.00
Asphalt Roadway - Grind & Inlay (2" Depth)	SF	10,200	\$6.30	\$64,260.00
Concrete Median Island	SF	0	\$25.00	\$0.00
Concrete Walks	SF	0	\$21.90	\$0.00
Detectable Warnings	EA	3	\$1,500.00	\$4,500.00
Pedestrian Ramps (price is for each corner -- 2 ramps per corner)	EA	2	\$20,000.00	\$40,000.00
Storm Water System, Complete	LS	ALL	\$43,000.00	\$43,000.00
Pavement Markings, Complete	LF	500	\$3.00	\$1,500.00
Crosswalk Markings	SF	690	\$10.00	\$6,900.00
Signage, Complete	EA	4	\$600.00	\$2,400.00
Illumination System, Complete	LS	ALL	\$30,000.00	\$30,000.00
RRFB System	LS	ALL	\$50,000.00	\$50,000.00
TOTAL CONSTRUCTION COST				\$ 339,800
40% Contingency				\$ 135,920
TOTAL ESTIMATED PROJECT COST				\$ 475,720

Assumptions:

- Curb extensions including ramps assumed to include sidewalk and curb costs.
- Two directional ramps assumed for each corner
- Illumination: Two lights needed, one for each approach direction.
- Traffic control increased to 15% of costs to account for accessible pedestrian routes.
- Contingency not included in this sheet; included in HSIP analyzer instead.

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Crash Diagrams

Airport Way & Washington Boulevard

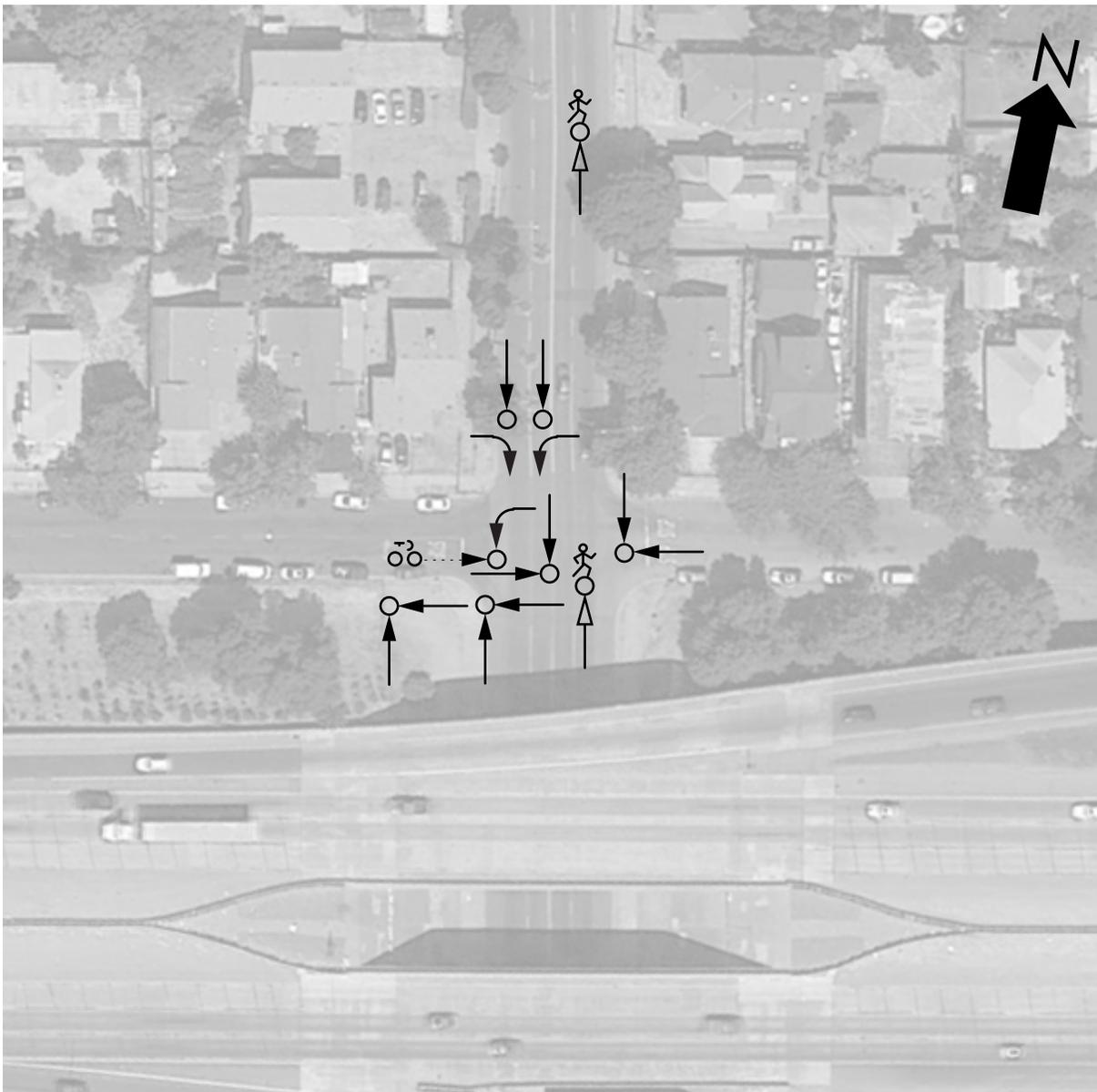
Crash Diagram

LEGEND

- ← Moving Vehicle
- ⊥ Stopped Vehicle
- ↔ Backing Vehicle
- ↘ Ran Off Road
- ⋯ Unknown Movement

- ↗ Right Turn
- ↙ Left Turn
- ⇄ Sideswipe
- ☀ Day
- ☾ Night

- 🚶 Pedestrian
- 📦 Fixed Object
- 🚲 Bicycle
- 🍷 DUI
- Injury
- ⊙ Fatal

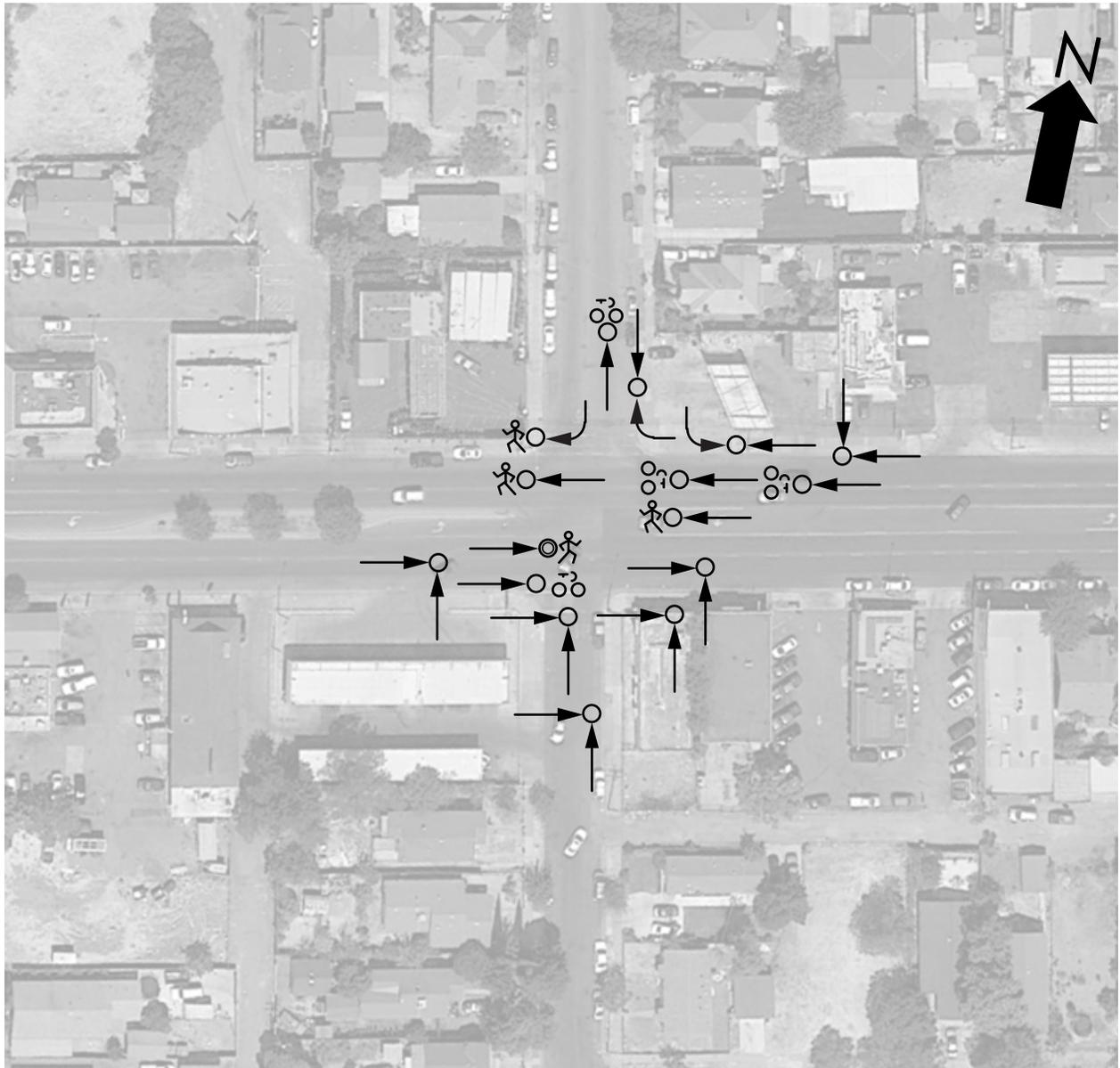


Dr Martin Luther King Jr Boulevard & Stanislaus Street

Crash Diagram

LEGEND

- | | | |
|--------------------|--------------|----------------|
| ← Moving Vehicle | ↘ Right Turn | 🚶 Pedestrian |
| ⏹ Stopped Vehicle | ↙ Left Turn | 📦 Fixed Object |
| ↔ Backing Vehicle | ↔ Sideswipe | 🚲 Bicycle |
| ↘ Ran Off Road | ☀ Day | 🍷 DUI |
| ⋯ Unknown Movement | 🌙 Night | ○ Injury |
| | | ⊙ Fatal |



Airport Way & Anderson Street

Crash Diagram

LEGEND

- ← Moving Vehicle
- ⊥ Stopped Vehicle
- ↔ Backing Vehicle
- ↘ Ran Off Road
- ⋯ Unknown Movement

- ↶ Right Turn
- ↷ Left Turn
- ⇄ Sideswipe
- ☀ Day
- ☾ Night

- 🚶 Pedestrian
- 📦 Fixed Object
- 🚲 Bicycle
- 🍷 DUI
- Injury
- ⊙ Fatal



Main Street & Searchlight Avenue

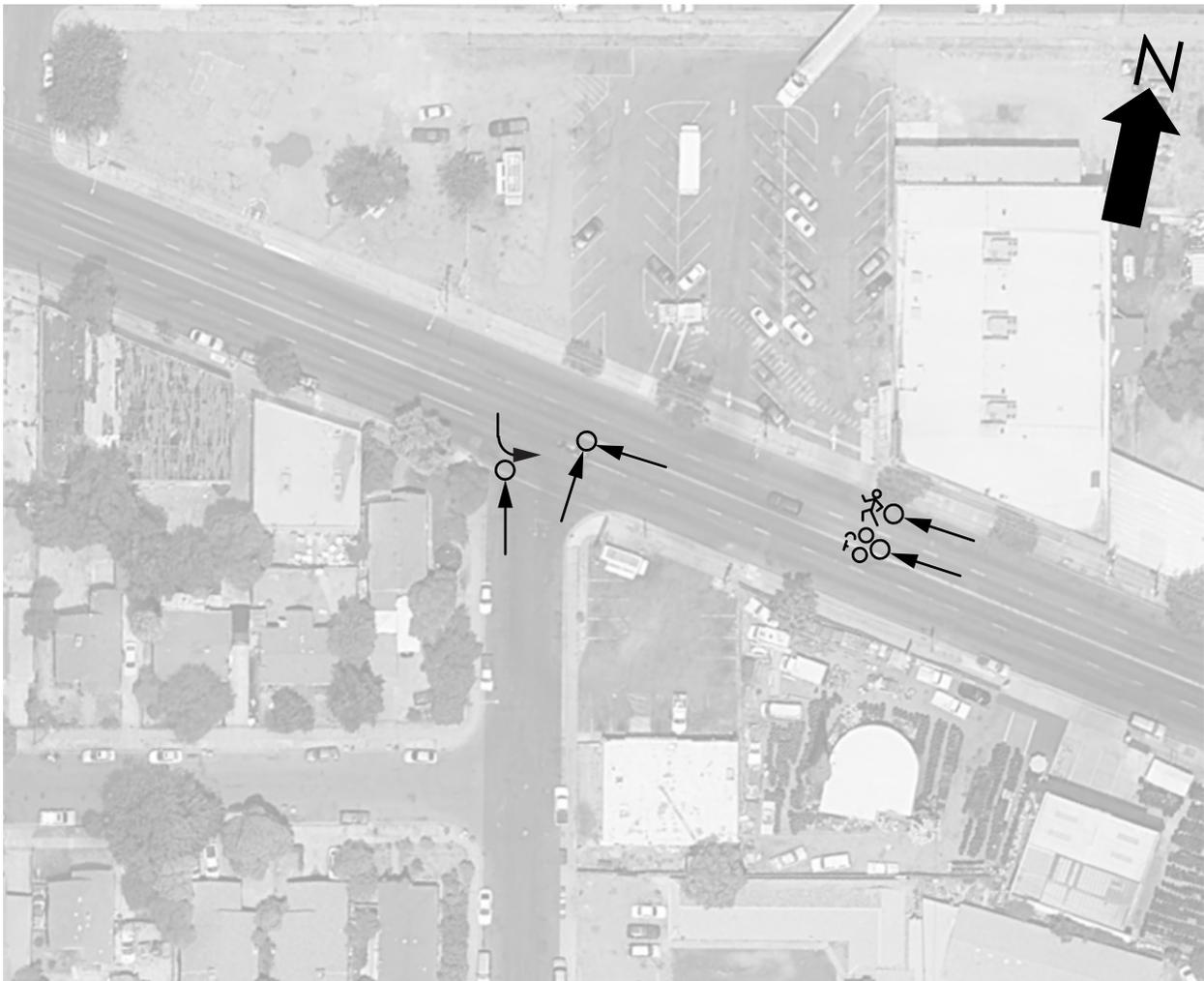
Crash Diagram

LEGEND

- ← Moving Vehicle
- ⊥ Stopped Vehicle
- ↔ Backing Vehicle
- ↘ Ran Off Road
- ⋯ Unknown Movement

- ↗ Right Turn
- ↙ Left Turn
- ↔ Sideswipe
- ☀ Day
- ☾ Night

- 🚶 Pedestrian
- 📦 Fixed Object
- 🚲 Bicycle
- 🍷 DUI
- Injury
- ⊙ Fatal



Airport Way & Ninth Street

Crash Diagram

LEGEND

- ← Moving Vehicle
- ⊥ Stopped Vehicle
- ↔ Backing Vehicle
- ↘ Ran Off Road
- ⋯ Unknown Movement

- ↻ Right Turn
- ↺ Left Turn
- ⇄ Sideswipe
- ← Day
- ◁ Night

- 🚶 Pedestrian
- 📦 Fixed Object
- 🚲 Bicycle
- 🍷 DUI
- ⊙ Injury
- ⊙ Fatal



El Dorado & Seventh Street Crash Diagram

LEGEND

- ← Moving Vehicle
- ⊥ Stopped Vehicle
- ↔ Backing Vehicle
- ↘ Ran Off Road
- ⋯ Unknown Movement

- ↶ Right Turn
- ↷ Left Turn
- ⇄ Sideswipe
- Day
- ↗ Night

- 🚶 Pedestrian
- 📦 Fixed Object
- 🚲 Bicycle
- 🍷 DUI
- Injury
- ⊙ Fatal



Pershing Avenue & Rose Street

Crash Diagram

LEGEND

- ← Moving Vehicle
- ⊥ Stopped Vehicle
- ↔ Backing Vehicle
- ↘ Ran Off Road
- ⋯ Unknown Movement

- ↗ Right Turn
- ↙ Left Turn
- ⇄ Sideswipe
- ☀ Day
- ☾ Night

- 🚶 Pedestrian
- 📦 Fixed Object
- 🚲 Bicycle
- 🍷 DUI
- Injury
- ⊙ Fatal



Crash Lists

Location	Case ID	Date	Location	Distance	Direction	Weather	Crash Severity	PCF Violation	Crash Type	Involved	Pedestian Action	Lighting	Pedestrian Crash	Bicycle Crash	Alcohol-Involved
1	8288215	1/14/2015	AIRPORT WY & WASHINGTON ST	0		Fog	Severe Injury	Unknown	Broadside	Bicycle	--	Daylight		Yes	
1	8288632	10/13/2015	AIRPORT RD & WASHINGTON ST	0		Clear	Severe Injury	Pedestrian Violation	Vehicle-Pedestrian	Pedestrian	Crossing Not in Crosswalk	Dark - No Street Lights	Yes		
1	7175831	12/15/2015	AIRPORT WY & WASHINGTON ST	0		Clear	Complaint of Pain	Auto Right of Way	Broadside	Other Motor Vehicle	--	Dark - Street Lights			
1	8028935	4/27/2016	AIRPORT WY & WASHINGTON ST	0		Cloudy	Complaint of Pain	Auto Right of Way	Broadside	Other Motor Vehicle	--	Daylight			
1	8187279	12/10/2016	AIRPORT WY & WASHINGTON ST	0		Clear	Complaint of Pain	Traffic Signals and Signs	Broadside	Other Motor Vehicle	--	Daylight			
1	8520541	11/22/2017	AIRPORT WY & WASHINGTON ST	0		Clear	Complaint of Pain	Auto Right of Way	Broadside	Other Motor Vehicle	--	Daylight			
1	8618973	4/19/2018	AIRPORT WY & WASHINGTON ST	0		Clear	Complaint of Pain	Auto Right of Way	Broadside	Other Motor Vehicle	--	Daylight			
1	8847693	3/19/2019	AIRPORT WY & WASHINGTON ST	124	N	Raining	Severe Injury	Pedestrian Violation	Vehicle-Pedestrian	Pedestrian	Crossing Not in Crosswalk	Dark - Street Lights	Yes		
2	7175791	12/12/2015	MARTIN LUTHER KING BL & STANISLAUS ST	52	W	Clear	Complaint of Pain	Auto Right of Way	Broadside	Other Motor Vehicle	--	Daylight			
2	7198144	1/13/2016	MARTIN LUTHER KING BL & STANISLAUS ST	0		Cloudy	Complaint of Pain	Traffic Signals and Signs	Broadside	Other Motor Vehicle	--	Daylight			
2	8029104	4/26/2016	MARTIN LUTHER KING BL & STANISLAUS ST	0		Clear	Other Visible Injury	Auto Right of Way	Broadside	Other Motor Vehicle	--	Daylight			
2	8103023	8/2/2016	MARTIN LUTHER KING BL & STANISLAUS ST	0		Clear	Severe Injury	Unsafe Speed	Vehicle-Pedestrian	Pedestrian	In Road	Dark - Street Lights	Yes		
2	8118010	8/13/2016	MARTIN LUTHER KING BL & STANISLAUS ST	0		Clear	Other Visible Injury	Under the Influence	Broadside	Other Motor Vehicle	--	Daylight			Yes
2	8118255	8/18/2016	MARTIN LUTHER KING BL & STANISLAUS ST	0	W	Clear	Other Visible Injury	Unsafe Speed	Rear End	Bicycle	--	Dark - Street Lights		Yes	
2	8119252	9/2/2016	MARTIN LUTHER KING BL & STANISLAUS ST	132	E	Clear	Other Visible Injury	Unsafe Starting or Backing	Vehicle-Pedestrian	Pedestrian	Approaching/Leaving School Bus	Daylight	Yes		
2	8482206	8/31/2017	MARTIN LUTHER KING BL & STANISLAUS ST	0		Clear	Severe Injury	Auto Right of Way	Other	Bicycle	--	Dark - Street Lights		Yes	
2	8480345	9/28/2017	MARTIN LUTHER KING BL & STANISLAUS ST	0		Clear	Complaint of Pain	Auto Right of Way	Broadside	Other Motor Vehicle	--	Dark - Street Lights			
2	8550199	1/8/2018	MARTIN LUTHER KING BL & STANISLAUS ST	131	E	Raining	Severe Injury	Auto Right of Way	Other	Bicycle	--	Dark - Street Lights		Yes	
2	8578589	2/8/2018	STANISLAUS ST & MARTIN LUTHER KING BL	96	S	Clear	Complaint of Pain	Unknown	Broadside	Other Motor Vehicle	--	Daylight			
2	8740657	9/10/2018	MARTIN LUTHER KING BL & STANISLAUS ST	0		Clear	Complaint of Pain	Pedestrian Violation	Vehicle-Pedestrian	Pedestrian	Crossing in Crosswalk at Intersection	Dark - Street Lights	Yes		
2	8465909	5/2/2019	MARTIN LUTHER KING BL & STANISLAUS ST	0		Clear	Fatal	Pedestrian Right of Way	Vehicle-Pedestrian	Pedestrian	Crossing in Crosswalk at Intersection	Dark - Street Lights	Yes		
2	8891016	6/14/2019	STANISLAUS ST & MARTIN LUTHER KING BL	79	N	Clear	Severe Injury	Wrong Side of Road	Broadside	Bicycle	--	Daylight		Yes	
2	8923265	7/22/2019	MARTIN LUTHER KING BL & STANISLAUS ST	170	E	Clear	Other Visible Injury	Auto Right of Way	Broadside	Other Motor Vehicle	--	Daylight			
2	8978522	10/1/2019	MARTIN LUTHER KING BL & STANISLAUS ST	115	E	Clear	Complaint of Pain	Auto Right of Way	Broadside	Other Motor Vehicle	--	Daylight			
3	8108768	9/17/2015	CENTER ST & JEFFERSON ST	45	S	Clear	Severe Injury	Pedestrian Violation	Vehicle-Pedestrian	Pedestrian	Crossing Not in Crosswalk	Dark - Street Lights	Yes		
3	8288682	10/16/2015	CENTER ST & JEFFERSON ST	0		Clear	Severe Injury	Unsafe Speed	Rear End	Parked Motor Vehicle	--	Dark - Street Lights			
3	7175025	11/1/2015	CENTER ST & JEFFERSON ST	0		Clear	Other Visible Injury	Traffic Signals and Signs	Broadside	Other Motor Vehicle	--	Daylight			
3	7175815	12/28/2015	CENTER ST & JEFFERSON ST	0		Raining	Other Visible Injury	Auto Right of Way	Broadside	Other Motor Vehicle	--	Dark - No Street Lights			
3	8550167	1/11/2018	CENTER ST & JEFFERSON ST	146	N	Clear	Complaint of Pain	Unsafe Speed	Broadside	Other Motor Vehicle	--	Daylight			
3	8570174	2/27/2018	CENTER ST & JEFFERSON ST	100	N	Clear	Complaint of Pain	Unsafe Speed	Rear End	Parked Motor Vehicle	--	Daylight			
4	8288085	5/27/2015	AIRPORT WY & ANDERSON ST	155	S	Clear	Other Visible Injury	Improper Turning	Sideswipe	Other Motor Vehicle	--	Daylight			
4	7199494	9/9/2015	AIRPORT WY & ANDERSON ST	180	S	Clear	Fatal	Pedestrian Violation	Vehicle-Pedestrian	Pedestrian	Crossing Not in Crosswalk	Dark - Street Lights	Yes		
4	8010249	3/19/2016	AIRPORT WY & ANDERSON ST	16	N	Clear	Complaint of Pain	Unsafe Lane Change	Rear End	Other Motor Vehicle	--	Daylight			
4	8031811	4/3/2016	SOUTH AIRPORT WY & E ANDERSON ST	0		Clear	Other Visible Injury	Unsafe Speed	Broadside	Other Motor Vehicle	--	Dark - Street Lights			
4	8023653	4/15/2016	ANDERSON ST & AIRPORT WY	12	W	Clear	Complaint of Pain	Auto Right of Way	Broadside	Other Motor Vehicle	--	Daylight			
4	8088076	7/13/2016	AIRPORT WY & ANDERSON ST	0		Clear	Complaint of Pain	Auto Right of Way	Broadside	Other Motor Vehicle	--	Daylight			
4	8353370	3/10/2017	AIRPORT WY & ANDERSON ST	0		Clear	Complaint of Pain	Traffic Signals and Signs	Broadside	Other Motor Vehicle	--	Daylight			
4	8351180	3/21/2017	AIRPORT WY & ANDERSON ST	0		Cloudy	Complaint of Pain	Auto Right of Way	Broadside	Other Motor Vehicle	--	Daylight			
4	8675930	6/24/2018	AIRPORT WY & ANDERSON ST	0		Clear	Complaint of Pain	Auto Right of Way	Broadside	Other Motor Vehicle	--	Daylight			
4	8711952	9/6/2018	AIRPORT WY & ANDERSON ST	0		Clear	Other Visible Injury	Auto Right of Way	Broadside	Other Motor Vehicle	--	Daylight			
4	8843970	2/28/2019	AIRPORT WY & ANDERSON ST	0		Clear	Complaint of Pain	Auto Right of Way	Broadside	Other Motor Vehicle	--	Daylight			
5	8404910	3/10/2018	MAIN ST & SEARCHLIGHT AV	100	E	Clear	Fatal	Pedestrian Violation	Vehicle-Pedestrian	Pedestrian	Crossing Not in Crosswalk	Dark - Street Lights	Yes		Yes
5	8639714	5/12/2018	SEARCHLIGHT AV & MAIN ST	28	S	Clear	Other Visible Injury	Under the Influence	Head-On	Other Motor Vehicle	--	Daylight			Yes
5	8675519	7/2/2018	MAIN ST & SEARCHLIGHT AV	1	W	Clear	Other Visible Injury	Auto Right of Way	Broadside	Other Motor Vehicle	--	Daylight			
5	8769887	11/13/2018	MAIN ST & SEARCHLIGHT AV	109	E	Clear	Other Visible Injury	Wrong Side of Road	Other	Bicycle	--	Dark - Street Lights		Yes	
6	7208564	2/22/2016	AIRPORT WY & 9TH ST	80	S	Clear	Complaint of Pain	Pedestrian Violation	Vehicle-Pedestrian	Pedestrian	Crossing Not in Crosswalk	Dark - Street Lights	Yes		Yes
6	8465886	2/27/2019	AIRPORT WY & 9TH ST	74	S	Cloudy	Fatal	Pedestrian Violation	Vehicle-Pedestrian	Pedestrian	Crossing Not in Crosswalk	Dark - Street Lights	Yes		
6	8946828	8/28/2019	9TH ST & AIRPORT WY	10	E	Clear	Complaint of Pain	Wrong Side of Road	Other	Bicycle	--	Dusk-Dawn		Yes	
7	8404676	10/7/2017	EL DORADO ST & 7TH ST	10	S	Clear	Fatal	Pedestrian Right of Way	Vehicle-Pedestrian	Pedestrian	Crossing Not in Crosswalk	Dark - Street Lights	Yes		Yes
7	8923360	8/3/2019	EL DORADO ST & 7TH ST	25	N	Clear	Complaint of Pain	Auto Right of Way	Head-On	Other Motor Vehicle	--	Daylight			
8	8118333	9/12/2016	PERSHING AVE & ROSE ST	0		Clear	Complaint of Pain	Unsafe Speed	Rear End	Other Motor Vehicle	--	Daylight			
8	8154976	10/31/2016	PERSHING AVE & ROSE ST	20	N	Clear	Complaint of Pain	Unsafe Speed	Rear End	Other Motor Vehicle	--	Daylight			
8	8286996	1/30/2017	PERSHING AVE & ROSE ST	0		Clear	Complaint of Pain	Unsafe Speed	Broadside	Parked Motor Vehicle	--	Daylight			
8	8288629	1/20/2017	PERSHING AVE & ROSE ST	6	S	Clear	Other Visible Injury	Improper Turning	Sideswipe	Other Motor Vehicle	--	Daylight			

