CITY OF STOCKTON
Bicycle Master Plan

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FEHR & PEERS

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1. DEVELOPING THE PLAN

1.1 Introduction

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

Stockton spans an area of approximately ten miles by six miles, generally bordered by 8 Mile Road to the north, the San Joaquin River Delta to the west, SR-99 to the east, and Arch Airport Road/French Camp Road to the south. Stockton includes dozens of neighborhoods which, for the purposes of this study, are divided among three districts, broadly defined as North (north of the Calaveras River), Central (South of the Calaveras River to SR-4), and South (South of SR-4). Several unincorporated communities are encircled by or adjacent to Stockton including Country Club, French Camp, Garden Acres, Kennedy, Lincoln Village, Morada, and Taft Mosswood. Stockton has a mild, Mediterranean climate and a flat topography.

Stockton is a regional employment hub, home to approximately 100,000 jobs, most heavily concentrated around Downtown. Stockton is also a regional hub for transportation including the Port of Stockton, the Stockton Metropolitan Airport, three freeways (I-5, SR-99, and SR-4), intercity rail (Amtrak and the Altamont Corridor Express (ACE)) and multiple freight railways. Several educational institutions are located within Stockton including the University of the Pacific, California State University Stanislaus-Stockton, San Joaquin Delta Community College, and a variety of vocational schools.

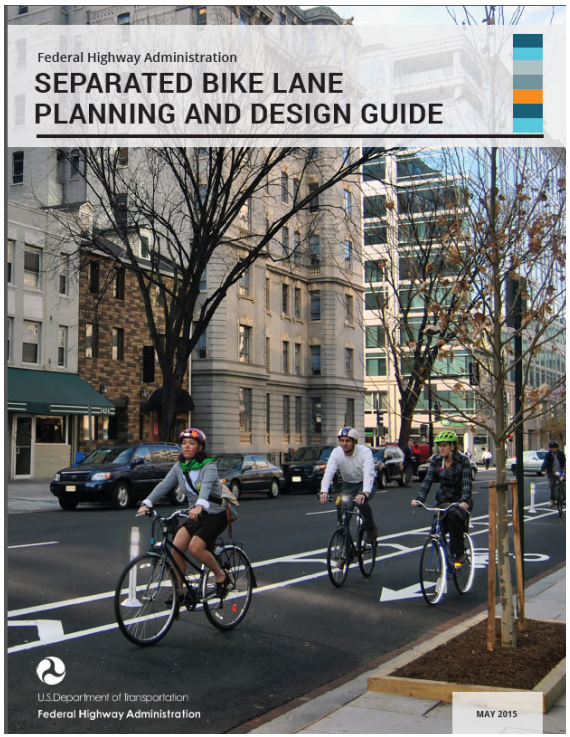
While Stockton features ample automobile access throughout the City, bicycling as a means of transportation is limited and disconnected. To positively contribute to the overall quality of life for all residents in Stockton, a citywide plan for safe and accessible bicycle infrastructure is needed. The City of Stockton's Bicycle Master Plan Update (BMP) will provide the City with a clear plan for implementing bicycle-friendly, complete streets in Stockton that encourage people of all ages, abilities, and means to bicycle. With a focus on the equitable distribution and implementation of projects, the BMP will guide infrastructure and programmatic decisions to create a low-stress, accessible bicycle network that works for everyone.

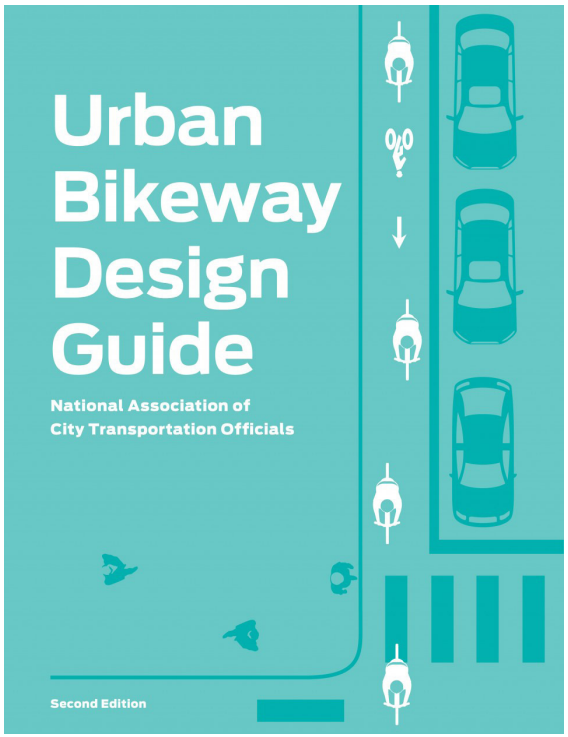
1.2 What Is this Plan?

The BMP is the result of an extensive, community-driven planning process involving close collaboration between the City of Stockton and its residents. The goals, vision, and implementation strategy of the Plan are informed by the needs of the community, and codified in the plan's vision statement. This update to the City of Stockton Bicycle Master Plan is intended to not only envision a future for Stockton where bicycling is a viable option for people of all ages and abilities, but to also serve as an implementation roadmap for elected officials and City staff to achieve that goal.

1.3 Why Update Now?

The 2007 Stockton Bicycle Master Plan (the 2007 Plan) was developed and adopted as part of a 2035 General Plan adopted in 2007 to provide a comprehensive system of bicycle lanes on arterial streets, bicycle routes on residential streets, and paths. However, few projects have been implemented to truly accommodate users of all ages and abilities, and many of the projects are disjointed. The City of Stockton launched this Plan Update to completely rethink how facilities are selected and prioritized for investment. This update provides a forum to reengage with the public, learning what issues are important to them and where the City can best serve their needs. Coming out of the Great Recession, a reassessment of investments in bicycle infrastructure was necessary to identify affordable, equitable travel options in Stockton. Midway through this BMP update, the City of Stockton also began updating the General Plan. The Bicycle Master Plan bikeway network, goals, and policies will be incorporated into the existing 2035 General Plan. The City is currently in the process of updating the General and all components of the Bicycle Master Plan will be incorporated and coordinated with that update. The General Plan update will be informed by the recommended outcomes of this project, which is scheduled for completion first.





The NACTO Urban Bikeway Design Guide, 2nd Edition and the FHWA Separated Bike Lane Planning and Design Guide provide best practice guidance for innovative bicycle facilities in the United States.

1.3.1 Innovative Bicycle Planning & Design

In addition to changes at the local level, important innovations in bicycle design nationally have affected how U.S. cities plan for and build streets for all modes of transportation, including bicycles. A variety of new bicycle planning tools and innovative designs have been tested in the San Francisco Bay Area, Sacramento Area, and across the United States and North America. Numerous best practice design guidelines detail the state of the practice in bicycle facility design including the Federal Highway Administration's (FHWA) Separated Bike Lane Planning and Design Guide and the National Association of City Transportation Officials' (NACTO) Urban Bikeway Design Guide, 2nd Edition. On the planning side, research has focused on bicycle comfort to help understand' the potential for bicycle ridership and mode shift as a result of a bicycle facility design. The Level of Traffic Stress (LTS) methodology analyzes the comfort level (a quality of service metric) experienced by the typical cyclist on a given roadway by evaluating roadway and bikeway characteristics that cause stress. The LTS evaluation allows for planning of bicycle networks that are comfortable for riders of all ages and abilities, including young bicyclists and those who may be new to bicycling.

This Plan update will give City staff and the public access to these new tools to ensure Stockton stays at the forefront of sustainable transportation planning through the implementation of new but tested best practices in the planning and design of bicycle facilities.

1.4 Plan Organization

The BMP is divided into ten chapters that tell the story of bicycling in Stockton: what policies have historically influenced the implementation and design of bicycle facilities, and the vision for the future of bicycling in Stockton. This section provides brief summaries of each chapter. The four main chapters (5-8) of the BMP are derived from the four main community-developed goals based on the multi-faceted public engagement efforts that went into development of this plan.

Chapter 1: Developing the Plan

Provides an overview of the Stockton Bicycle Master Plan, explains the importance of the plan, and identifies the structure of this document.

Chapter 2: Community Engagement

Provides an overview of the outreach completed in the development of the Bicycle Master Plan update process along with a description of the online platforms, surveys, and multiple rounds of community workshops held throughout the city.

Chapter 3: Bicycling in Stockton Today

Provides an overview of existing conditions in Stockton, including existing bikeways, barriers to cycling, and collision trends used in the development of the proposed bikeway network.

Chapter 4: Vision

Provides a detailed overview of the development of the vision statement and discusses how new advancements in bikeway planning and design were used to develop the citywide bikeway network. A map of the proposed City of Stockton Bikeway Network is presented in this chapter.

Chapter 5: Goal One – Enhance Citywide Connectivity

Provides an overview of how the Backbone Network was designed to support citywide connectivity by closing gaps caused by high-stress arterials and collectors. Descriptions and project fact sheets are provided for the four highest priority projects that will help the City of Stockton implement enhancements to citywide connectivity.

Chapter 6: Goal Two – Safety First for All Users

Provides an overview of how collision data, safety concerns, and personal security concerns necessitate projects that address high-injury corridors and bicycle theft. Descriptions and project fact sheets are provided for the four highest priority projects that will help the City of Stockton promote safety for all roadway users through enhanced complete streets planning efforts and updated standard design review practices.

Chapter 7: Goal Three – Mode Shift and Access

Provides an overview of projects that will help to reach various users that might not feel comfortable using existing facilities and provides new facility options or addresses key connections that will encourage a transformative increase in bicycle ridership. Descriptions and project fact sheets are provided for the three highest priority projects that will promote a modal shift or highly increase access along key corridors.

Chapter 8: Goal Four – Education & Support Programs

Provides an overview of supportive programmatic and educational campaigns which create safer biking practices. This goal was directly influenced by community feedback that safety practices are more than just the facilities themselves, and that education and enforcement are critical. Descriptions of key supportive educational opportunities and programs are summarized for implementation in addition to the physical improvements proposed in this Plan.

Chapter 9: Implementation and Funding

Provides an overview of the Backbone Network project prioritization, implementation strategies, and funding options the City of Stockton can use to build upon the momentum of this planning effort.

Chapter 10 – Plan Evaluation & Performance Measures

Provides a framework for assessing the implementation of the Plan to allow the City to reorient efforts to meet the community driven goals.

1.5 Fact Sheets and Multi-Modal Alternatives Assessments

The intent of this Plan is to provide key project details the City of Stockton can use to implement the citywide Backbone Network. For this reason, project Fact Sheets and Multi-Modal Alternatives Assessments are provided in each chapter that can act as standalone documents for use in grant application or future planning efforts.

1.5.1 Priority Project Fact Sheets

Chapters 5, 6, and 7 provide an overview of the specific goals and policies and feature Fact Sheets for the 11 priority projects that resulted from this Plan based on criteria voted upon during the community engagement and stakeholder outreach process. A summary of the prioritization criteria can be found in **Chapter 9**. The priority projects work to help promote the intent of each overarching goal in this project. Educational and programmatic descriptions can be found separately throughout **Chapter 8**. Fact Sheets provide a description of the projects, a summary of issues and opportunities to be addressed, cost estimates, implementation guidance, and cross-sections for proposed alternatives. Additional information on these 11 priority projects can be found on the individual Fact Sheets, which are located on the following chapters :

Chapter 5

Goal One – Enhance Citywide Connectivity

1. California Separated Bikeway (Pg. 36)
2. East/West Access Road Diets and Alpine Avenue Pilot Project Multi-Modal Alternatives Assessment (Pg. 38)
3. Pacific Avenue Complete Streets Study and Multi-Modal Alternatives Assessment (Pg. 44)
4. El Dorado/Center Separated Bikeways (Pg. 50)

Chapter 6

Goal Two – Safety First for All Users

5. West Lane/Airport Way Complete Streets Study – Highest collisions in the City concentrated at Hammer intersection. (Pg. 56)
6. Dr Martin Luther King Jr Complete Streets Study – Highest collision area in South Stockton that provides critical east/west connectivity. (Pg. 62)
7. Harding Way Complete Streets Study (Pg. 68)
8. Citywide Bicycle Parking Program (Pg. 72)

Chapter 7

Goal Three – Mode Shift and Access

9. Airport Way Separated Bikeway between Hazelton & Performance – Primary South Stockton access to the rest of the city. (Pg. 76)
10. Monte Diablo/Acacia Bicycle Lanes – Connects multiple bicycle boulevards to California and Downtown. Alternative parallel route to Harding. (Pg. 78)
11. Bicycle Boulevards Implementation – Multiple Projects. Kensington/Baker will be the Pilot project. (Pg. 80(

1.5.2 Multi-Modal Alternatives Assessments

Five of the high priority projects were further analyzed to assess qualitative multi-modal issues and opportunities. Key modal trade-offs are summarized for each potential design alternative of corridor implementation segments in a consolidated evaluation table. The multi-modal alternatives assessments are intended to be used as scoping mechanisms for future complete streets studies or to identify trade-offs for implementation. Additional information on these five corridors can be found throughout the BMP within each Plan goal:

1. East/West Access Road Diets and Alpine Avenue Pilot Project Multi-Modal Alternatives Assessment (Goal One)
2. Pacific Avenue Complete Streets Study and Multi-Modal Alternatives Assessment (Goal One)
3. West Lane/Airport Way Complete Streets Study (Goal Two)
4. Dr Martin Luther King Jr Boulevard Complete Streets Study (Goal Two)
5. Harding Way Complete Streets Study (Goal Two)

For a breakdown of the scoring criteria used in the Multi-Modal Alternatives qualitative assessments see **Appendix G**.

Disclaimer: All cross-sections and designs shown in the Bicycle Master Plan Update are meant for illustrative planning purposes. Engineering evaluation and designs should be assessed prior to any implementation or construction.

2. COMMUNITY ENGAGEMENT

Fehr & Peers and the Local Government Commission (LGC) partnered on this project to conduct stakeholder outreach and community engagement for the Stockton Bicycle Master Plan Update. This project tried to maximize stakeholder participation and community engagement in the project planning and design process using several tools though the various stages of plan development.

- Community-Based Bicycle Safety Training
- Steering Committee
- Outreach and Communication
- Survey Tools
- Stakeholder Focus Group Meetings
- Needs/Demand Workshops
- Citywide Bicycle Network and Design Workshops
- Living Preview

The public engagement activities for the Bicycle Master Plan were held at multiple locations throughout the City of Stockton during each phase of the project in North, Central, and South Stockton. This helped to provide a forum for residents to vote on specific projects that they would like to see included in the Bicycle Master Plan. In the first phase of the project, residents directly identified where they want to walk bicycle in Stockton both in the public workshops and through the interactive webmap survey tool that allowed residents to draw their desire lines. This input was then turned into the bikeway network that was presented back to the public. The public was then allowed to vote on their priority projects at a second series of workshops that were again held throughout the City. Each project identified in the Bicycle Master Plan is a direct result of stakeholder input throughout the Update process. The results of the resident-selected priority projects can be found in Chapter 9.

2.1 Community-Based Bicycle Safety Training

UC Berkeley SafeTREC selected Stockton as a pilot community in northern California for a Community Based Bicycle Safety Training. As a consultant to SafeTREC's statewide effort, Fehr & Peers joined SafeTREC in conducting the training in Stockton on September 2015 at the Huddle Cowork. This workshop was held prior to the beginning of the main Master Plan Update process to build stakeholder capacity and bolster participation and support for the Master Plan Update development. The 4-hour workshop included a presentation on the tools available to improve bicycle infrastructure as well as for education, engagement, and enforcement strategies. Participants were also led on a walking assessment of nearby bicycle routes and led in small group discussions to set priorities for improvements to bicycling in the Stockton.

Steering Committee

2.2 Steering Committee

A Steering Committee was put together to guide and inform the planning process. Stakeholders and community representatives were invited to participate in the Committee. Throughout the project the team held meetings that were informal, open discussions among the project partners and Committee members.

Four Committee meetings occurred at key points in the study and community engagement process. Meetings were held at the Public Works Department in Stockton. Over the course of the project, the meeting schedule and key discussion topics included:

- **Meeting #1 – October 1, 2015:** At this meeting the team provided an overview of the project, outlined the goals and vision of the project, identified team data needs and related planning efforts, and began preparing for the focus groups, surveys and Needs/Demand Workshops.
- **Meeting #2 – January 12, 2016:** The purpose of this meeting was to identify key elements and components for the plan vision, goals and develop organizational framework. This included plan storyboarding, outlining the project performance measures, and a review of the first round of public workshops.
- **Meeting #3 – February 22, 2016:** The third meeting focused on the Draft Citywide Network and 10-12 priority projects. Attendees reviewed the vision, goals, and table of contents drafted from the previous Steering Committee meeting. They also discussed walk/bike audit locations, and began preparations for the living previews and second round of workshops for Citywide Bicycle Network and Design.
- **Meeting #4 – May 9, 2017:** At the final committee meeting members reviewed draft priority projects, support programs and policies, and implementation and funding.

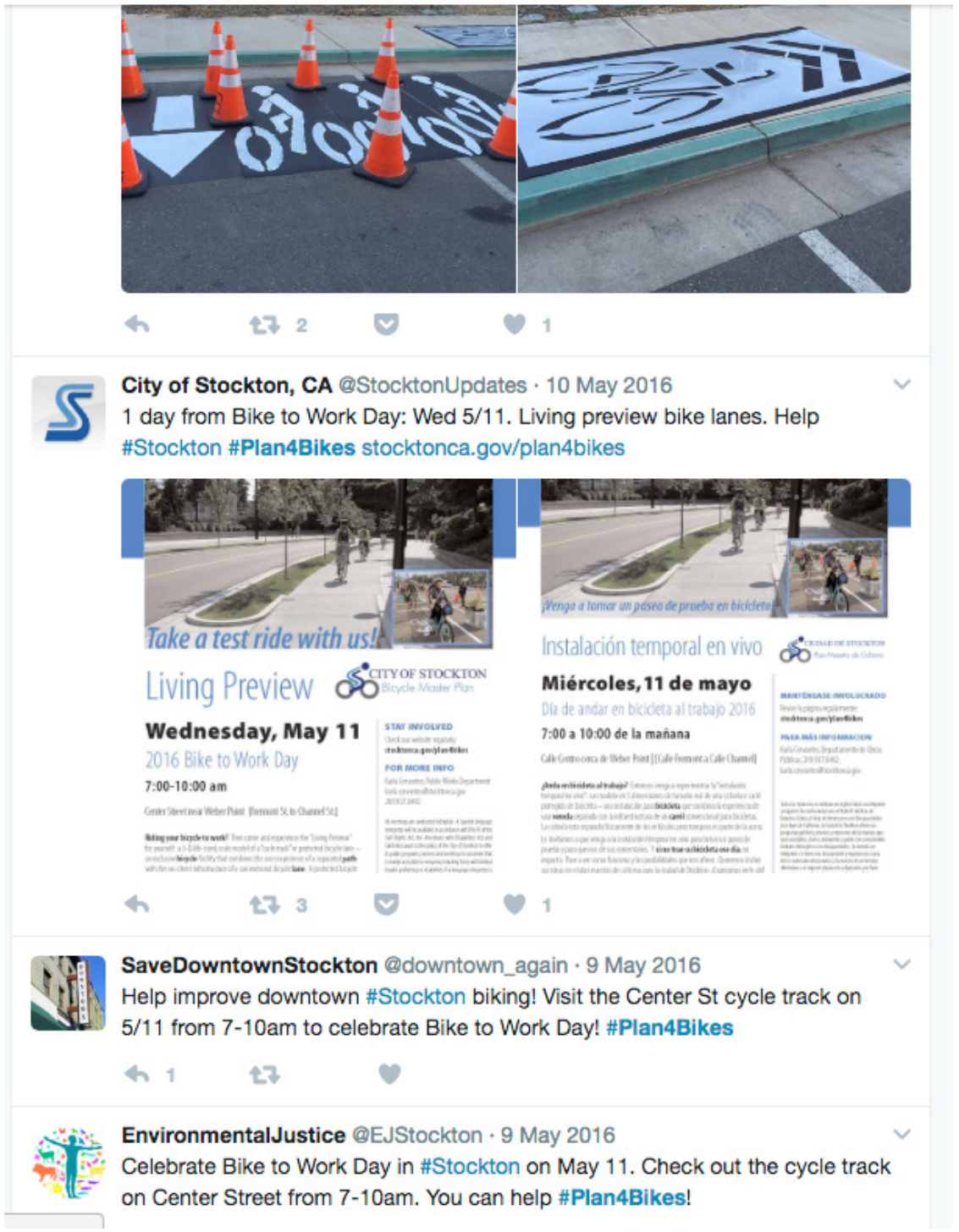
2.3 Outreach and Communication

Public participatory planning events are most effective when highly attended. To maximize participation, residents must know about the event, and the event should be welcoming, relevant, engaging, easy to get to and happening at a convenient time. There was a sincere intent by the team to have the public involved in a meaningful way to craft their own future.

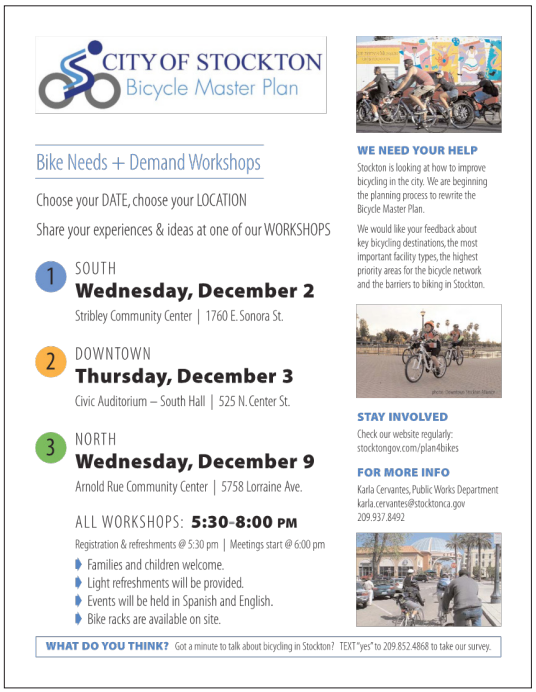
Fehr & Peers worked with the City to create a logo to help brand the Stockton Bicycle Master Plan Update. The logo was used in materials throughout the project.

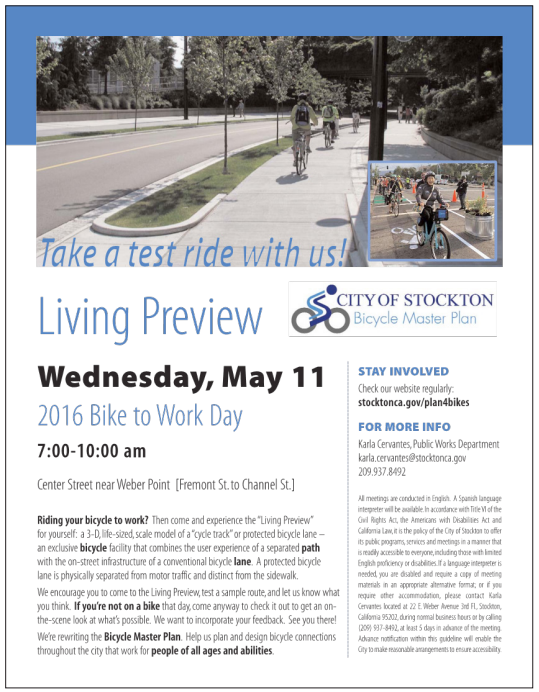
LGC collaborated with organizations such as San Joaquin Bike Coalition, Downtown Stockton Alliance, Reinvent South Stockton, and California Center for Public Health Advocacy, and City agencies to distribute outreach materials through their networks. Efforts were made to reach out to organizations focused on sections of the community that are not normally involved in these types of planning efforts. LGC maintained a list of contacts for the project that was accessible to the project team, City staff, and the Steering Committee.

The team employed various methods to reach across the broad diversity of Stockton residents and stakeholders. Public presentations, flyers, and website content were available in English and Spanish where appropriate. Promotional and informational materials and distribution methods are highlighted below.



The team used social media to promote events and generate interest in the project using the hashtag #Plan4Bikes.





Flyer from Needs and Demands Workshops (left); Spanish version of Network and Design Workshops (middle); Flyer for the Living Preview (right).

- Project website. Event notices and other project materials released to the public were made available through the Public Works Department's project website (stocktongov.com/plan4bikes).
- AskStockton. The City used their site to allow the public to sign up for additional information about the project.
- Project Factsheet. A factsheet was created that provided an overview of the project details and process, and methods for contact the project team for more information.
- English/Spanish Flyers and Mailers. Flyers or Mailers announcing the public workshops were circulated to the Committee and other email lists as well as posted on web and social media site. Print versions will be distributed to school students and parents at schools in the nearby districts, libraries, local businesses, workout and health centers, bicycle shops, churches and other foot traffic areas.
- Social Media. The team used Facebook and Twitter to provide announcements for the workshops and living preview.
- Other Sites. Announcements were posted to online calendar sites such as the Stockton Chamber of Commerce calendar of events (stocktonchamber.org/calendar-of-community-events) and the eStockton events calendar (www.estockton.com)
- The City distributed announcements for the workshops and living preview through their local media contacts, including:
  - Stocktongov.com community calendar
  - Stockton Updates
  - Channel 97
  - Distribution to local and Sacramento media market
  - The Stockton Record
  - Central Valley Business Journal

The team also utilized other public events to engage the community on the project. LGC setup a booth at the San Joaquin Bike Fest on September 26, 2016 at the University of Pacific, and during Stockton Bike to Work Day on May 11, 2016.

Paul Zykofsky with the Local Government Commission, meeting with representatives from the NAACP and Center for Public Health Advocacy (left) and from other community advocacy stakeholders (right).

2.4 Survey Tools

To offer engagement opportunities beyond in-person meetings and events, Fehr & Peers and LGC also used survey tools to gather public input and help to ensure we were engaging a broader spectrum of the public.

Online Mapping Tool

Fehr & Peers worked with the City to develop a web-based mapping tool (gis.fehrandpeers.com/StocktonBicycleMasterPlan) to allow people to provide comments about their bicycling experience at specific locations. The tool was accessible from the City's website.

Online and Mobile Surveys

LGC used Textizen and SurveyMonkey to conduct short surveys of the community during the project. This offered the team an opportunity to help meet stakeholders where they were, to learn quick insights and easily display the data, and stay engaged with participants throughout the project.

- Survey #1 — Who Bicycles and Why (September 2015 – September 2016)
- Survey #2 – Living Preview Survey (May 2016)

Textizen's mobile text-based survey tool offered a local number (209 area code) where people could text responses to survey questions and sign up to receive project notices. These surveys were also duplicated on SurveyMonkey to provide people a web-based alternative to Textizen. Spanish-language versions of the surveys were also provided.

Results of the surveys will be summarized in the Appendix.

2.5 Stakeholder Focus Groups

The LGC led five listening sessions prior to the broader community workshops. These provided a smaller, more informal, group setting where participants had the opportunity to discuss their hopes, concerns and questions about the Bicycle Master Plan. These meetings were meant to capture sensitivities to bear in mind during the project and to add knowledge from the perspective of users and interest groups that would not be readily apparent from mapping and data sources. They also provided further direction on questions to ask in the survey, and help build interest and momentum for increased participation in the community meetings.

- Focus Group 1: Transportation and Agencies, October 29, 2015
- Focus Group 2: Business Chambers and Associations, October 29, 2015
- Focus Group 3: NAACP and Center for Public Health Advocacy, November 5, 2015
- Focus Group 4: Community Stakeholders, November 5, 2015
- Focus Group 5: Obesity and Chronic Disease Prevention Task Force, November 19, 2015

Residents had an opportunity to discuss the draft network (left), as well as begin prioritizing potential projects (right).

2.6 Bike Needs and Demands Workshops

LGC and Fehr & Peers organized and facilitated three 2-hour community meetings with the intent to gather community input on the most important issues and highest priority areas for the bicycle network that would form the basis of the draft plan. Workshops were held at venues selected in different locations of the City to help maximize participation and provide broader geographic coverage. The agenda for each workshop included a presentation current existing conditions and best practices from comparable communities; interactive exercises to identify residents' visions for a more bikeable Stockton; and small group working sessions on aerial maps to identify the issues at locations and offer the solutions and projects they wanted to see for improving bicycling conditions in the City.

- Needs/Demands Workshop #1 (Central) — Wednesday, December 2, 2015, Civic Auditorium
- Needs/Demands Workshop #2 (South) — Thursday, December 3, 2015, Stribley Community Center
- Needs/Demands Workshop #3 (North) — Wednesday, December 9, 2015, Arnold Rue Community Center

Key Takeaways from these Workshops:

- Connectivity: There is a lack of north/south and east/west connectors for commuters and recreational riders.
- Safety: Bicycle parking is not available at most locations and bikes are often stolen.
- Safety: Existing facilities are not always family friendly and many need maintenance.
- Education: Programs to encourage and educate kids, families, low-income residents, and other high needs groups should be incorporated.
- Access: Many traffic lights and intersections do not detect bikes.
- Access: Bicycle facilities should connect with transit and to key destinations.

2.7 Citywide Bicycle Network and Design Workshops

The next series of public workshops featured Jennifer Toole from Toole Design, a firm with national expertise in bicycle planning and design and the author of the AASHTO Bicycle Design Manual, the national design standard. Jennifer shared lessons learned and key toolbox options from experiences in communities similar to Stockton. Fehr & Peers then provided an overview presentation of the draft bicycle transportation network skeleton. During the remainder of the workshop attendees were invited to provide input at facilitated mapping and prioritization stations. Team members helped facilitate the stations.

- Network and Design Workshop #1 (North) – Saturday, March 12, 2016, Seifert Community Center
- Network and Design Workshop #2 (Central) – Tuesday, March 15, 2016, Civic Auditorium
- Network and Design Workshop #3 (South) – Wednesday, March 16, 2016, Merlo Gym

Input gathered at these meetings helped the team focus on which segments of the network to keep or change, identified Innovative treatments to consider for candidate segments or intersections, and prioritized installations. Results from these workshops helped form the basis of the infrastructure recommendations in the following chapters.

2.8 Living Preview Project Installation

During 2016 Bike to Work day on May 11, the LGC and Fehr & Peers, in coordination with the City, San Joaquin Bicycle Coalition and a few volunteers conducted a "living preview" of a cycle track on Center Street near Weber Point from Fremont Street to Channel Street. It was an opportunity for bicycle riders to experience first-hand a 3-D, life-sized, scale model of a "cycle track" or protected bicycle lane — an exclusive bicycle facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bicycle lane — and the City to see how infrastructure like this could function. The temporary installation was setup using colored tape, colored tar paper and hay bales. The cycle track was open early in the morning to capture bicycle commuters and others participating in the Stockton Bike to Work Day activities. Survey stations were setup to capture input from riders on their experience through Textizen and paper surveys, as well as to chat with residents and City staff about the living preview. Input from users through mapping and in-person feedback of the cycle track indicated they felt the separation from motor vehicles helped to make them feel comfortable traversing the busy street on a bicycle and that they wanted to see more of these types of treatments. Others noted that connections to the waterfront and pedestrian enhancements for crossings should also be added with projects like this, especially in Downtown.

Bicycle riders had the opportunity to experience riding on the street with a buffer from the nearby traffic.

The team also coordinated with the San Joaquin Bicycle Coalition, who was leading the Bike to Work Day activities, to have part of their bicycle routes pass through the cycle track and to setup a project information booth at the Janet Leigh Plaza.

3. BICYCLING IN STOCKTON TODAY

Bicycling in Stockton has been influenced by both the physical characteristics of the City — including land use context in combination with the nature of the existing roadway network — and through the implementation of existing plans or policies. Together, the existing Stockton bicycle network creates challenges for riders attempting to navigate the expansive, mostly flat topography available to residents. The information provided in this chapter is meant to provide a snapshot of some of the existing opportunities and constraints evaluated during creation of the Backbone Network.

3.1 Regulatory Framework for Bicycling in Stockton

The City of Stockton's guiding policies, programs, and practices with respect to bicycles can be found in the following documents:

- City of Stockton General Plan 2035 (Adopted in 2007)
- City of Stockton Bicycle Master Plan (Adopted in 2007)
- City of Stockton Climate Action Plan (Adopted in 2014)
- City of Stockton Street Design Standards (Update to the 2003 Standards – Adopted in 2011)

3.1.1 City of Stockton General Plan 2035 (Adopted 2007)

The City of Stockton General Plan 2035 contains many bicycle-related goals and policies. The General Plan provides a vision for what cycling could be in Stockton and how to integrate bicycle facilities throughout the City. In particular, the General Plan encourages bikeways and trails to be developed within existing public areas and along utility easements. The 2035 future bikeway network is generally reflective of the 2007 Bicycle Master Plan adopted concurrently with the 2035 General Plan. While the General Plan provides a vision for bicycling, only limited sections of the recommended network have been implemented due to a combination of right-of-way and funding limitations, slowing of development during the recession, and lack of political/community support for the General Plan.

3.1.2 City of Stockton Bicycle Master Plan (Adopted 2007)

In conjunction with the General Plan 2035, the current Bicycle Master Plan was adopted to meet local and state requirements at the time. However, the update was essentially a slight modification to an existing plan formed during the General Plan 2035 process; therefore, it was not a "state of the art" plan update. Limited implementation has occurred, and some of the programs and policies that are supportive of bicycling have no clear implementation strategy or identified funding source. The overarching goals of the 2007 plan will be updated as part of this BMP Update based on input from public workshops and the BMP Steering Committee. Measurable implementation metrics will also be a priority during the BMP Update to show how the City is making progress on all goals and policies.

3.1.3 Stockton Climate Action Plan

The Stockton Climate Action Plan was adopted in August 2014. The purpose of the Climate Action Plan is to reduce greenhouse gas emissions generated by the community. The Climate Action Plan recognizes the necessity of implementing policies which support multi-modal streets to encourage transit, walking, and cycling trips in addition to or instead of vehicle trips. The Climate Action Plan includes similar Safe Routes to School and Transportation Demand Management policies as the other City of Stockton guiding documents mentioned previously. However, unlike more general goals and policies, the Climate Action Plan includes a cost benefit analysis to inform plan implementation.

3.1.4 City of Stockton Street Design Standards

The City of Stockton Street Design Standards were adopted in November 2003 and updated in 2011. The Design Standards were updated to incorporate Complete Streets concepts including bicycle and pedestrian infrastructure guidance; for instance, the standards specify that bicycle sidewalk paths are required on streets defined as Collectors and Arterials. The City's Standard Specifications and Plans complement the street design standards by detailing exactly how streets should be implemented in Stockton. Recommended updates to the City's Standard Specifications and Plans are provided in **Appendix H** to ensure designs are consistent with national best practices standards and to facilitate the development of low-stress bikeways in Stockton.

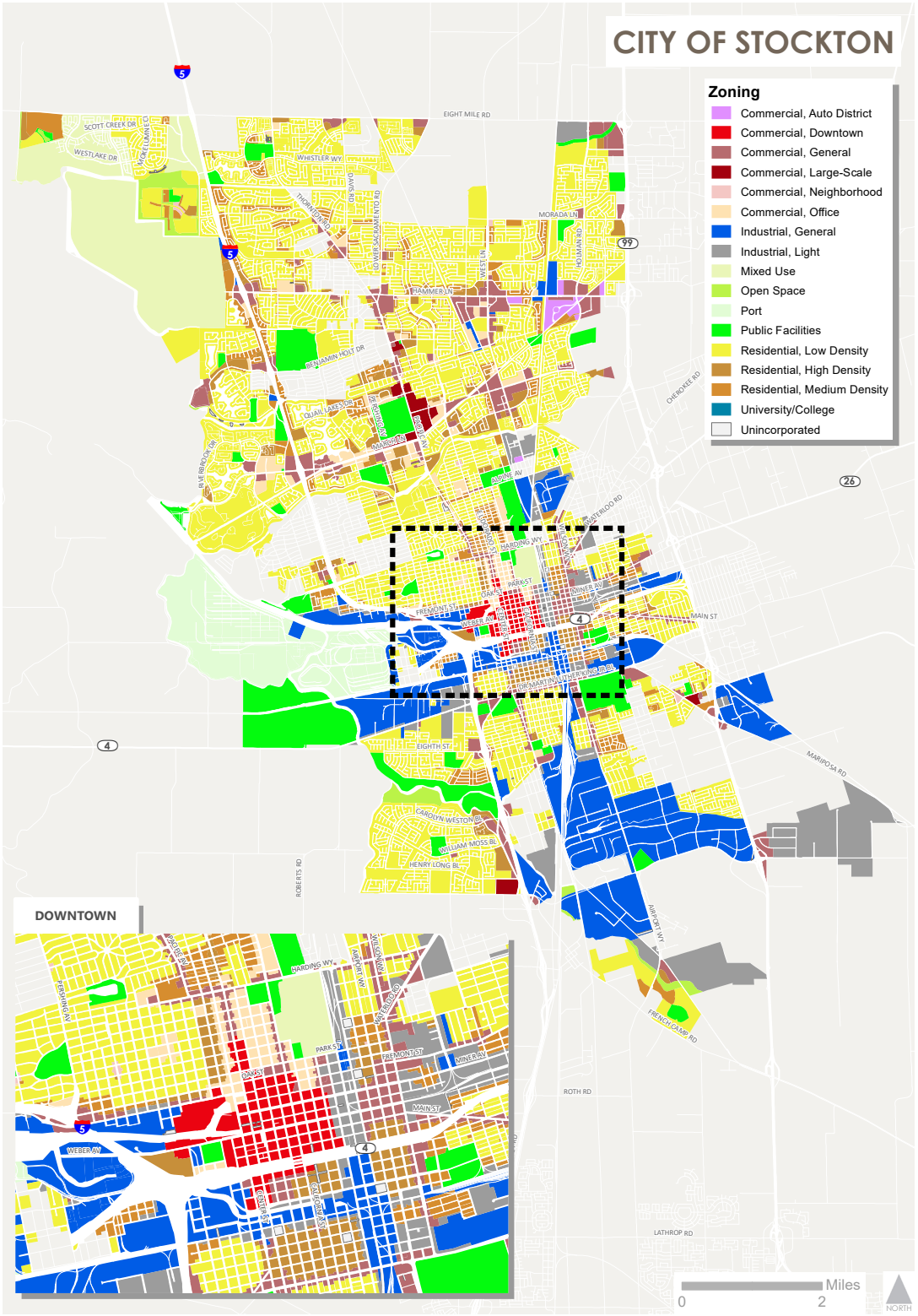


Figure 3-1:
City of Stockton
Zoning Map

3.2 Existing Land Uses

Land-use accessibility and built environment forms often contribute to the ability of cyclists to travel between uses and reach critical destinations. Land-use decisions can directly impact the transportation network and the modes of transportation available to residents. **Figure 3-1** shows existing land uses in Stockton consistent with the City of Stockton Zoning Code Map.

The land uses in Stockton generally consist of lower density suburban residential development patterns with commercial and medium-density residential along larger corridors. Downtown Stockton features a wider mix of commercial and higher-density residential uses in a more compact area. This mix of uses provides an opportunity to easily connect with adjacent land uses by bicycle.

3.3 Geographic Barriers

Stockton's geographic barriers (waterways, railways, freeways, etc.) pose unique challenges to bicycle circulation. In several locations across the

City, crosstown circulation is limited to a handful of bridges and underpasses; consequently, these barriers pose both challenges and opportunities to bicycle circulation. Stockton has seven bicycle/pedestrian-only bridges across the City, most of which provide more direct access than street alternatives. However, no major street bridges or underpasses provide dedicated bicycle facilities. Bicyclists are sometimes informally accommodated along sidewalks.

3.4 Existing Bikeway Network

The existing bikeway network was assessed to understand what types of facilities are currently available to bicyclists in Stockton and how those facilities provide connectivity to adjacent land-uses and promote citywide access.

3.4.1 Bikeway Facilities

The bikeway facilities currently available in Stockton follow standards approved by the California Department of Transportation (Caltrans) in the Highway Design Manual (Chapter 1000: Bikeway Planning and Design) and California Assembly Bill 1193 which codify distinct classifications of bikeways. The bikeway types listed below are currently present in Stockton. New bikeway treatments and state of the practice tools are further described in Chapter 4.

- **Class I Bikeway (Bike Path)** Bike paths provide a completely separate right-of-way and are designated for the exclusive use of people riding bicycles and walking with minimal cross-flow traffic. Such paths can be well-situated along creeks, canals, and rail lines. Class I Bikeways can also offer opportunities not provided by the road system by serving as both recreational areas and/or desirable commuter routes.
- **Class II Bikeway (Bike Lane)** Bike lanes provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage.
- **Class III Bikeway (Bike Route**) Bike routes provide enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets.

3.4.2 Existing Bikeway Network & Connectivity

The City of Stockton has approximately 117 miles of existing bikeways, including 46 miles of bike paths, 36 miles of bike lanes, and over 35 miles of bike routes. However, the level of comfort and connectivity offered by these facilities varies. A summary of the existing bicycle facilities is provided below. **Figure 3-2** displays the existing bicycle network for facilities that meet the Caltrans Highway Design Manual standards and best practice guidance for applications.

Overall, the citywide network is disconnected:

- Few neighborhoods have access to inter-neighborhood bicycle facilities. Barriers such as waterways, railways, freeways, and high-speed arterials limit access to other neighborhoods and destinations. In particular, access to Downtown Stockton is limited to one street with bicycle lanes in certain segments (California Street), and no facilities wholly span Downtown.
- North-south connectivity across the City is particularly limited. West Lane provides the only designated north-south route from Downtown to north of the Calaveras River, yet few bicyclists ride along the street, likely because of its high-speed, mixed traffic conditions.
- Many of Stockton's trails (such as the Calaveras River Trail) have limited connectivity to on-street facilities, and challenging crossings.
- Stockton officially designates a network of approximately 35 miles of bike routes; however, these facilities are generally unsigned and many are high-speed, high-volume roadways. Few types of cyclists would feel comfortable using Class III facilities identified on major arterials; therefore, these types of facilities were not included on the map to the right.

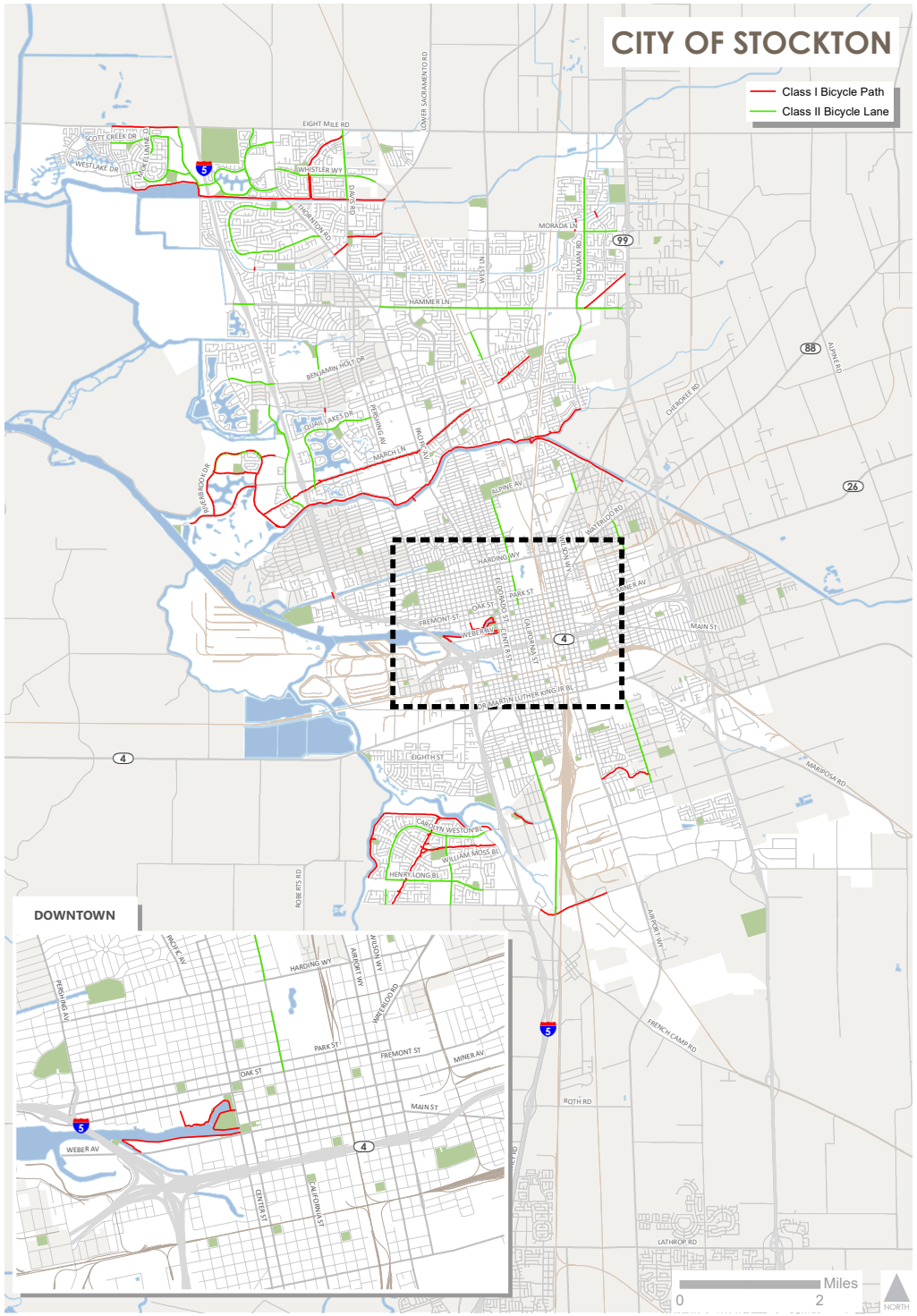


Figure 3-2: City of Stockton Existing Bicycle Network

3.5 Addressing All User Types and Abilities in the Existing Bikeway Network

A successful bicycle network is one that has the ability to accommodate all users, ages, and abilities. However, different types of bikeways feel more or less comfortable depending on the individual cyclist's confidence and experience. The BMP planning process considered that multiple user types may want to ride a bicycle but simply feel they do not have enough facilities designed for their comfort or experience level. To address this, the BMP includes a citywide assessment of every street in Stockton to identify how comfortable each street is for different skill levels of bicyclists.

3.5.1 Bicycle Comfort

The citywide assessment of bicycle comfort was conducted using a Level of Traffic Stress (LTS) analysis for each roadway in Stockton. This methodology seeks to measure how much stress is experienced by bicyclists across a street network due to various characteristics of roads and bicycle facilities. A Level of Traffic Stress (LTS) methodology was developed by Merkuria, Furth, and Nixon in ***Low-stress Bicycling and Network Connectivity (2012)***.[1] LTS methodology is based on an application of Dutch bicycling standards and existing research in bicycle transportation. LTS rankings range from 1 (very low-stress; tolerable by all) to 4 (very high-stress; tolerable to only a few). Historically, bicycle network planning did not take LTS into account and how different users may use the bikeway network.

[1] Methodology available here: http://transweb.sjsu.edu/PDFs/research/1005-low-stress-bicycling-network-connectivity.pdf

The LTS Analysis for the BMP was conducted in GIS in a manner consistent with the methodology developed by Merkuria, Furth, and Nixon. .

As shown in **Figure 3-3**, most streets in Stockton are low-stress bikeways; however, nearly all of the City's crosstown arterials and collectors are high stress. Low-stress bikeways (LTS 1 and 2) make up about two-thirds of Stockton's streets and permeate the City's residential neighborhoods. Yet, it is difficult to find low-stress routes that allow for traveling between neighborhoods, accessing major destinations, and crossing major geographic barriers. Most destinations for employment (e.g., Downtown), shopping (e.g., Lincoln Center), and education (e.g., Delta College) can only be accessed via high-stress facilities, constraining mobility options for all but the most confident bicyclists in Stockton.

The most common factors contributing to high LTS scores across Stockton include high posted speed limits (30-45 MPH), wide streets with multiple lanes, and a lack of bicycle lanes and paths. Additionally, many low-stress residential side street segments received high LTS scores at unsignalized crossings of arterials; these "weak links" can turn what would otherwise be a low-stress facility into a high-stress route.

LEVEL OF TRAFFIC STRESS

Level of traffic stress (LTS) is a way to evaluate the stress a bike rider will experience while riding on the road. It is used to categorize roads by the types of riders above who will be willing to use them based on:

Number of Travel Lanes | Speed of Traffic | Number of Vehicles | Presence of Bike Lanes | Width of Bike Lanes | Presence of Physical Barrier

LTS 1 Most children can feel safe riding on these streets.

LTS 2 The mainstream "interested but concerned" adult population will feel safe riding on these streets.

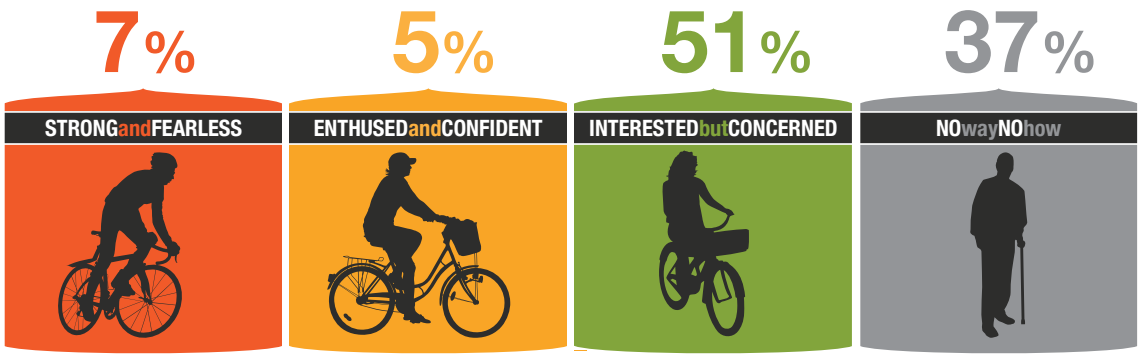
LTS 3 Streets that are acceptable to "enthused and confident" riders who still prefer having their own dedicated space.

LTS 4 High-stress streets with high speed limits, multiple travel lanes, limited or non-existent bikeways, and long intersection crossing distances.

LTS Calculations

Roadway characteristics and type of bicycle infrastructure are the primary variables influencing the Level of Traffic Stress (LTS). The LTS score enables the public and local jurisdictions to understand who is likely to feel comfortable riding on a given roadway.

THE FOUR TYPES OF BICYCLISTS



Understanding What Types of Cyclists Use the Network

The Four Types of Cyclists and their typical breakdown across the population are shown at right. Research has shown that the Interested but Concerned are a large segment of the population that are attracted to highly comfortable bicycle facilities on which they feel safe riding. To feel comfortable and safe, they require low traffic stress (LTS 1 or 2) roadways that access important destinations throughout the city.

LTS is also closely related to the Four Types of Cyclists theory as depicted below[2]. While the Four Types of Cyclists theory focuses on willingness to bicycle, LTS measures the quality of a person's experience while bicycling. The two are inter-related: low-stress bikeways (LTS 1 and 2) are generally tolerated by Strong and Fearless, Enthused and Confident, and most Interested but Concerned cyclists; in contrast, high-stress bikeways are tolerated mainly by Strong and Fearless cyclists. The development of a low-stress network and elimination of high-stress barriers is critical to broadening the appeal of bicycling, especially for "Enthused and Confident" and "Interested but Concerned Cyclists," who represent the largest share of the population in most areas. The low-stress bicycle network must therefore have a broad reach with continuous facilities and comfortable crossings to promote new bicycling trips.

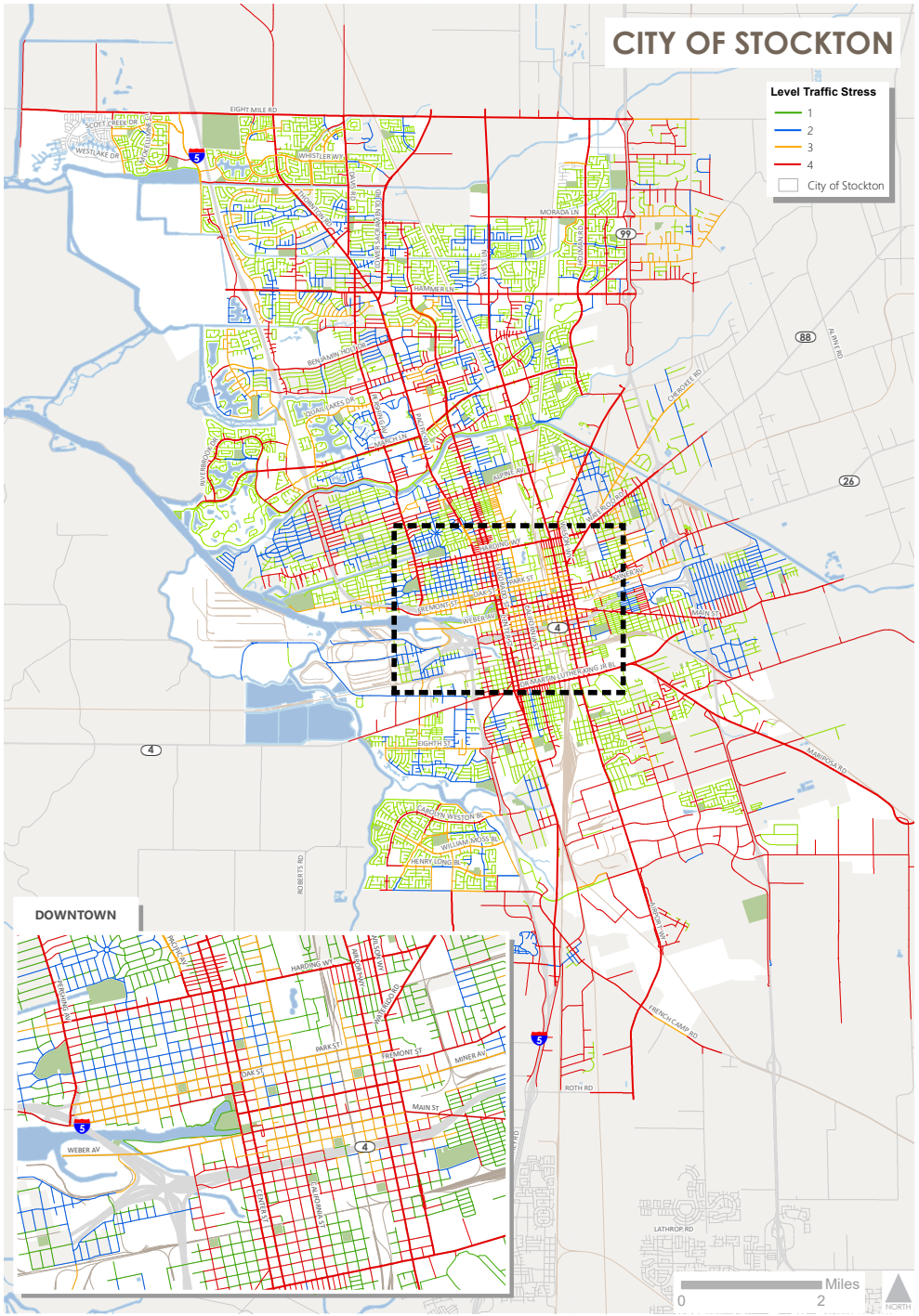


Figure 3-3: Citywide Level of Traffic Stress

[2] Roger Geller, "Four Types of Cyclists," undated. https://www.portlandoregon.gov/transportation/article/264746

Table 3-1 highlights the Level of Traffic Stress scores for Stockton's existing designated bikeways. Approximately 70 percent of Stockton's bike lanes, paths, and routes are high-stress facilities, while 30 percent are low-stress facilities.

- Two-thirds of Stockton's Class I Bike Paths are low-stress facilities; the remaining one-third are high-stress due to unsignalized and unmarked crossings of arterials.
- Nearly all of Stockton's Class II Bike Lanes are high-stress facilities due to adjacent high-speed traffic and frequent conflicts at intersections and driveways.
- Seventy percent of Stockton's Class III Bike Routes are high-stress facilities due to their location along high-speed arterial and collector streets.

Table 3-1: LTS for Existing Designated Bicycle Facilities

LTS Score	Miles of Bike Paths (Class I)	Miles of Bike Lanes (Class II)	Miles of Bike Routes (Class III)	Total Bikeway Miles	Percentage of Bikeways
1	28	1	2	31	26%
2	2	1	6	9	9%
3	4	19	3	26	23%
4	11	15	23	49	42%
Total Bikeways	**45**	**36**	**34**	**115**	**100%**

3.6 Bicycle Mode Share

Understanding the existing mode share in Stockton relative to the State of California mode share averages provides a glimpse of how the average resident in Stockton compares to those around the state. Two surveys provide a snapshot of the total share of trips by bicycle within Stockton:

- The California Household Travel Survey (CHTS, 2012) estimates that less than 1 percent (approximately 0.6 percent) of all trips in Stockton occur via bicycle. Statewide, it estimates 1.5 percent of trips occur via bicycle. For commute trips in Stockton, the CHTS estimates that about 2.7 percent of commute trips by Stockton residents take place by bicycle. It is important to note that the CHTS sample size for commute trips made by Stockton residents is rather small (approximately 230 trips) so the margin of error for 95 percent confidence is about +/- 2.2 percent.
- The American Community Survey (ACS, 2014) has a different result, estimating that 0.9 percent of commute trips in Stockton occur via bicycle. Statewide, it estimates 1.2 percent of commute trips occur via bicycle. It is important to note that the ACS sample size is also relatively small (approximately 670 trips) and the margin of error for 90 percent confidence is about +/- 0.2 percent.

While the two surveys employ different methodologies and have slightly different results, it is clear that bicycling generally makes up a small share of the personal travel that occurs in Stockton, and that residents of Stockton travel by bicycle less frequently than the average Californian. However, many trips in Stockton are within an easy biking distance. According to the California Household Travel Survey, approximately 51 percent of trips in Stockton are three miles or less (about a 15 to 20-minute bike ride), and 18 percent of trips are one mile or less (about a five to seven-minute bike ride). The high proportion of short trips within the City suggests an opportunity for growth in bicycling as an everyday mode of transportation.

3.7 Bicycle Safety & Collisions

Citywide bicycle collision data was assessed to pinpoint high-injury areas for cyclists and reveal any trends that affect the safety of cyclists in Stockton. . A summary of the key bicycle collision statistics and locations in Stockton over a five-year span between 2008 and 2012 is provided below. The source for the collision data is the Statewide Integrated Traffic Records System (SWITRS) by the California Highway Patrol (CHP), accessed via the Transportation Injury Mapping System (TIMS) maintained by the Safe Transportation Research and Education Center (SafeTREC) at the University of California, Berkeley.

3.7.1 Collision Summary

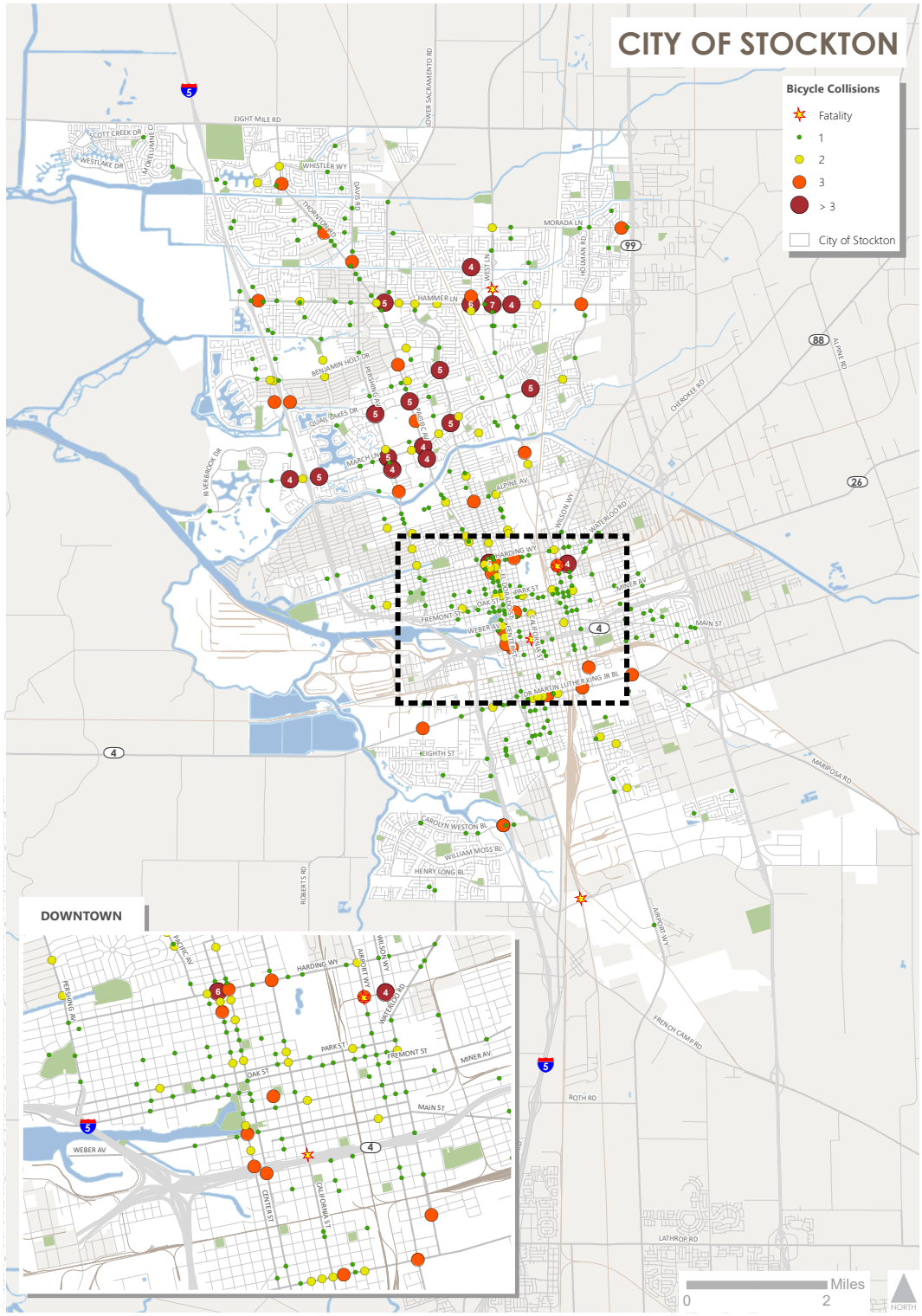
Between 2008 and 2012, 585 vehicle-bicyclist collisions occurred within the City of Stockton. Of these collisions, five involved fatalities and 17 resulted in severe injuries. Bicyclist-involved collisions accounted for eight percent of all traffic collisions, seven percent of all serious traffic injuries, and six percent of all traffic fatalities within the City, all disproportionately higher than the City's bicycle mode share (0.6 percent of all trips). Stockton experiences a high rate of hit-and-run collisions involving bicyclists: 21 percent of bicycle-related collisions (123 total) were misdemeanor or felony hit-and-run, significantly higher than the statewide average of 12 percent. Approximately 83 percent of collisions occurred in daylight, while 17 percent occurred during dusk, dawn, or night conditions. Four bicyclist fatalities occurred in the City during this time period. **Figure 3-4** shows where the bicycle-involved collisions and fatalities occurred throughout Stockton between 2008-2012. **Table 3-2** summarizes the highest-injury intersection locations.

Table 3-2: Top Vehicle-Bicyclist Collision Injury Locations in Stockton, 2008-2012

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

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

Figure 3-4: Reported Bicycle Collision Locations (2008-2012)



3.7.2 Collision Causes

Data regarding the cause and type of vehicle-bicycle collisions in Stockton is limited due to the number of incomplete records from the California Highway Patrol reports included in the SWITRS database. A large proportion of collisions are uncategorized by type and cause, and data often falls short of capturing the nuance of how collisions occurred. However, a few trends can be inferred regarding causes and types of bicycle-involved collisions. **Table 3-3** and **Table 3-4** summarize the causes, types, and severity of collisions.

3.7.3 Collision Demographics

Bicyclist-involved collisions in Stockton do not occur evenly across Stockton's demographics. Eighty-two percent of bicyclists involved in collisions between 2008 and 2012 were male, even though only 49 percent of the City's population is male[3]. Twenty-eight percent of collisions involved youth, a proportion that mirrors the city's youth population. As shown in **Table 3-5**, African American and White populations were disproportionately affected by bicycle collisions, while Asian American and Hispanic/Latino populations did not experience the same collision rates (although collision data may be skewed due to the potential for underreporting often identified from minority groups).

Table 3-3: Type of Bicycle Collisions

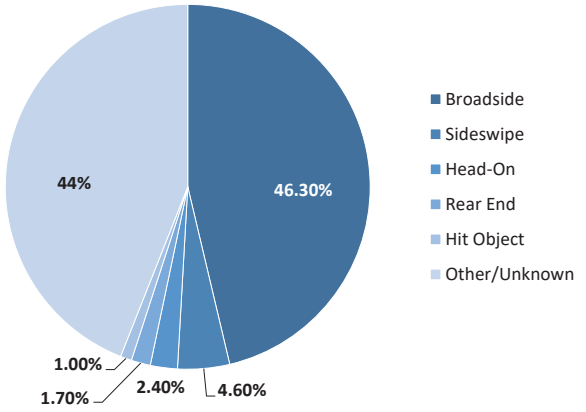


Table 3-4: Cause of Bicycle Collisions

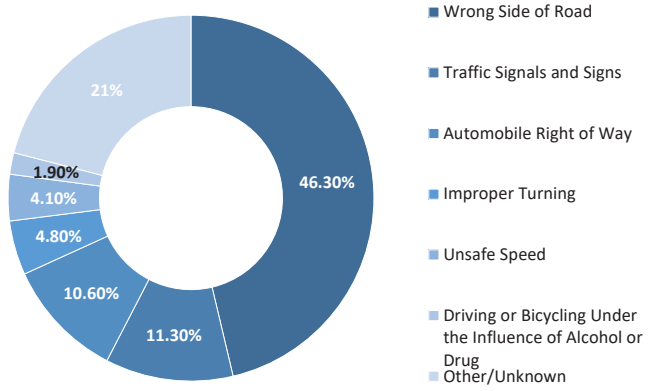
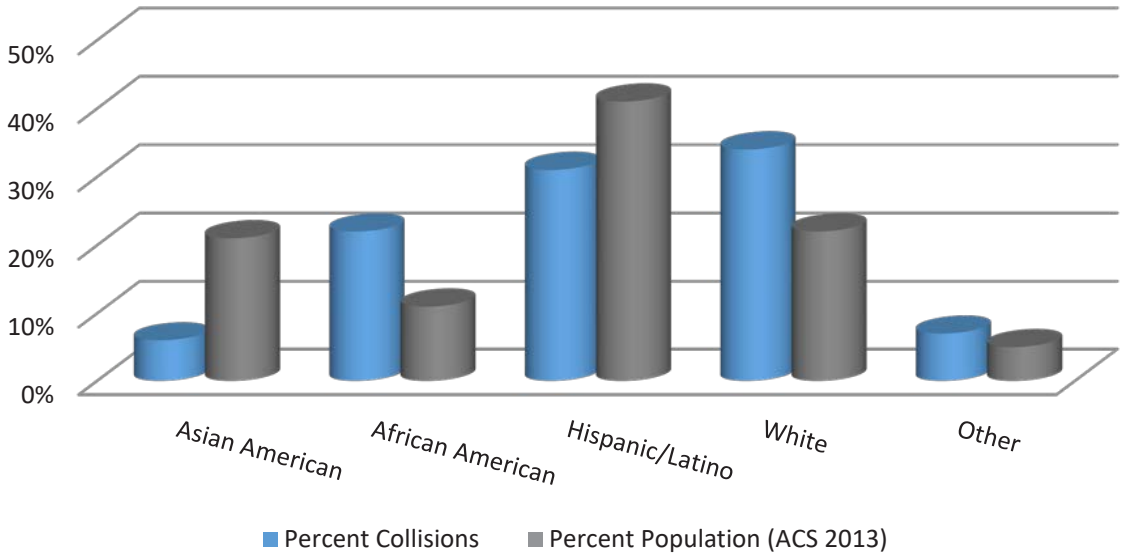


Table 3-5: Collisions by Race/Ethnicity



[3] American Community Survey, 2015

3.8 Existing Educational & Support Programs

Educational and support programs offer training and knowledge building for people of all ages and abilities to feel comfortable when bicycling. These programs help to promote safe bicycling practices and can help reduce some collision types. Stockton currently implements a host of bicycling-related education and support programs that serve as the basis for stimulating awareness of best cycling practices.

3.8.1 Safe Routes to School

The San Joaquin Council of Governments (SJCOG), the Regional Transportation Planning Agency for San Joaquin County, adopted the Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan in September 2012. This regional plan serves as a guide to planning, developing, and managing a regional bicycle and pedestrian network, including Safe Routes to School (SRTS) programs. The goal of the plan is to increase commuter walking and bicycling, and support active and safe transportation to and from school. The City of Stockton is currently developing its first SRTS Plan, which is discussed in **Chapter 8**.

3.8.2 Educational Programs

Stockton currently sponsors some educational programming, primarily through its Safe Routes to School-related activities, which include bicycle rodeos, school presentations, public service announcements and the distribution of pamphlets and posters. The City has also published a map of bicycle facilities in the city on their website. San Joaquin County Public Health Services and the Safe Kids Coalition also support Safe Routes to School activities (e.g., parent engagement and Walktober events). Local bicycle advocacy organizations such as the San Joaquin Bike Coalition also provide some bicycle education programs.

In the past, the San Joaquin Bike Coalition has hosted a bicycle event called the San Joaquin Bike Festival. The Festival includes activities focused on youth education and bicycle safety and skills training through a bike rodeo and youth workshops. More information can be found here: www.sjbike.org

The Stockton Police Department occasionally hosts other educational programs, including in-classroom education on traffic safety, and drinking and driving, focused on high-school aged drivers.

3.8.3 Enforcement Programs

Current enforcement programs offered by the Stockton Police include school traffic enforcement and bicycle patrol officers. The Police Department provides resource officers, with some stationed at schools, for school traffic enforcement. The Police Department also has bicycle patrol officers who receive some specialized training.

3.8.4 Encouragement Programs

The City participates in event-based and TDM-related encouragement programs, primarily organized by Dibs (formerly known as Commute Connection), which is SJCOG's regional TDM resource center. Bike to Work is an important event to encourage bicycling in Stockton. The city has partnered with Dibs, the San Joaquin Bike Coalition and Downtown Stockton Alliance to sponsor and coordinate guided Bike to Work Day routes and an energizer station providing refreshments, encouragement, and bicycle information in downtown Stockton. Dibs also promotes Bike to Work Month during the month of May and provides information to encourage bicycling on their website (https://www.dibsmyway.com/biking-walking/). Other educational programs also have an encouragement function in generating support and interest for bicycling, such as the San Joaquin Bike Festival.

3.8.5 Maintenance Programs

Currently, roadway surfaces where on-street bicycle facilities exist are generally acceptable and are routinely maintained as part of ongoing maintenance and operations work. The City also offers a See-Click-Fix program for hazard reporting. Off-street facilities are more expensive and more difficult to maintain, particularly in terms of maintaining pavement quality. Trail maintenance, however, is often a source of comments from the public. For example, maintenance and clearing of debris along the Calaveras River Path was cited as a deterrent for families to use trails, especially at underpasses. The city does not have dedicated funding for resurfacing of trails operated by the City, but has been successful in securing grant funding for trail reconstruction and enhancements of multiple paths throughout the City.

3.9 Community Concerns Guiding the Planning Process

Using input gathered during community engagement activities including the public workshops and online surveys, it is evident that there are many reasons that prevent residents from riding in Stockton. The survey posted on the City's website and used in the mobile-based Textizen platform provided a forum for residents to identify, "What changes would make you more likely to ride a bicycle in Stockton?" The top responses to this open-ended question captured many of the critical gaps for Stockton to address, which eventually were transformed into the goals of this Plan:

- More bike lanes, bike lane continuity and connectivity
- Safety
- More separation from traffic, slower speeds, protected lanes
- More trails/off-street paths
- More education and awareness for motorists and bicyclists
- More bike racks, secure storage
- Signage/wayfinding

Many of these topics revolve around creating an inter-connected system of bicycle facilities that offer a more comfortable, continuous experience for riders to traverse the City. While safety can be measured using the collision data presented in the BMP, it is important to supplement this historical data with anecdotal evidence provided through the web-based interactive maps. Collisions only tell part of the story and do not show us where near-misses occur or where residents feel unsafe to ride due to security concerns or hazardous conditions. Together, the input from the community engagement process, analysis of historical data, assessment of national best practices, and first-hand anecdotal data was combined to help guide a new vision for what bicycling in Stockton should look like.

4. VISION

The BMP is guided by the following vision statement:

The Stockton Bicycle Master Plan seeks to implement a vibrant, safe, and supportive bicycle network that connects residents in every neighborhood with desirable places to ride for any trip purpose. The Bicycle Master Plan should be the catalyst for starting a cultural shift toward cycling in Stockton by effectively marketing cycling as a healthy, active transportation option and through funding supportive educational programs to reach people of all ages and abilities.

4.1 A New Vision for Stockton

The vision statement above is meant to highlight the changing needs of the resident demographics and the changing landscape of health concerns in communities that can be directly influenced by increases in active transportation. Ensuring this planning effort addresses both spatial and socio-economic disparities in the recommendation of bicycle facilities and programs is essential. The BMP addresses accessibility and equity for all ages, abilities, and means by ensuring low-stress, safe facilities are implemented and prioritized in all areas of the City.

To increase the number of bicycling trips, Stockton needs a BMP that is visionary and forward-looking, addresses the current needs for bicycling today, and establishes a robust network of bicycle facilities that attracts people new to bicycling. This vision for a bikeable Stockton is planned through a complete streets lens to ensure bicycle facilities are implemented on a citywide scale and not solely viewed as separate, stand-alone endeavors.

4.2 Toward an Equitable Stockton

The City of Stockton staff, elected officials, Stakeholder Advisory Committee and a substantial number of members of the community influenced the BMP to consider equity as a cornerstone of the Plan's development. The equitable distribution of resources throughout Stockton takes into account two priority principles:

1. The Bicycle Master Plan should prioritize spatial and geographic equity. This means investments in new bicycle facilities and programs should be balanced throughout all parts of Stockton.
2. The Bicycle Master Plan should prioritize socio-economic equity. This means investments in new bicycle facilities and programs should be targeted for implementation in areas with historically underserved or disadvantaged communities.

4.3 A New Citywide Bicycle Network

To implement the vision of the all ages and abilities network and address the barriers to access formed by the high-stress arterials and collectors, the BMP proposes a network of bicycle facilities that creates a citywide "Backbone Network." The Backbone Network consists of only bicycle facilities that result in low-stress ratings (LTS 1 or LTS 2). Many new corridor and intersection tools are incorporated into the Backbone Network to create low-stress facilities.

4.3.1 New Biking Tools

Bicyclists in Stockton are already familiar with the paths, routes, and bicycle lanes implemented in parts of the City. In addition to those, the following new bicycle facilities are recommended in this Plan:

Separated Bikeways (Class IV) are bicycle lanes that are fully protected from auto traffic through raised elements such as curbs, plastic bollards, landscaping, or parking. They are a key element of the all ages and abilities network due to their comfort and safety benefits. They are also known as protected bike lanes or cycle tracks.

Bicycle Boulevards (Class III) are similar to bicycle routes, where bicyclists and drivers share the travel lane; however, they are always located on low auto volume and low speed residential streets. They

typically include traffic calming measures to create, safe, comfortable streets, together with enhanced signage and pavement markings. They are important element of the all ages and abilities network and often provide important safe routes to school connections for children.

Buffered Bicycle Lanes (Class II) are similar to standard bicycle lanes except they are enhanced with a striped area between the bicycle lane and the vehicular travel lane. These facilities provide increased separation along medium volume collectors or arterials. These are often used in locations where full vertical separation is not feasible: e.g., areas that necessitate increased driveway or on-street parking that would block visibility of cyclists.

For more information on these and other bicycle treatments refer to **Appendix A** Bicycle Design Guidelines.

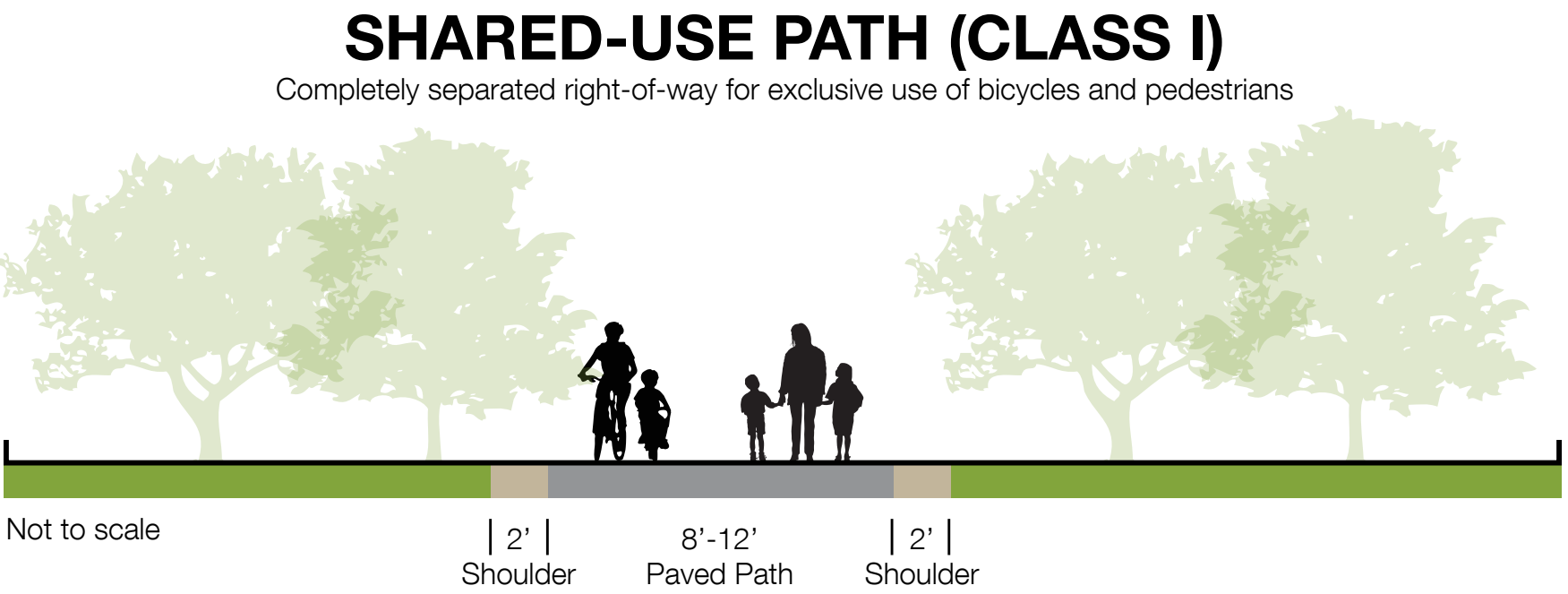
Example of a separated bikeway

Example of a bicycle bouldevard

Example of a buffered bicycle lane

4.3.2 Bikeway Facilities

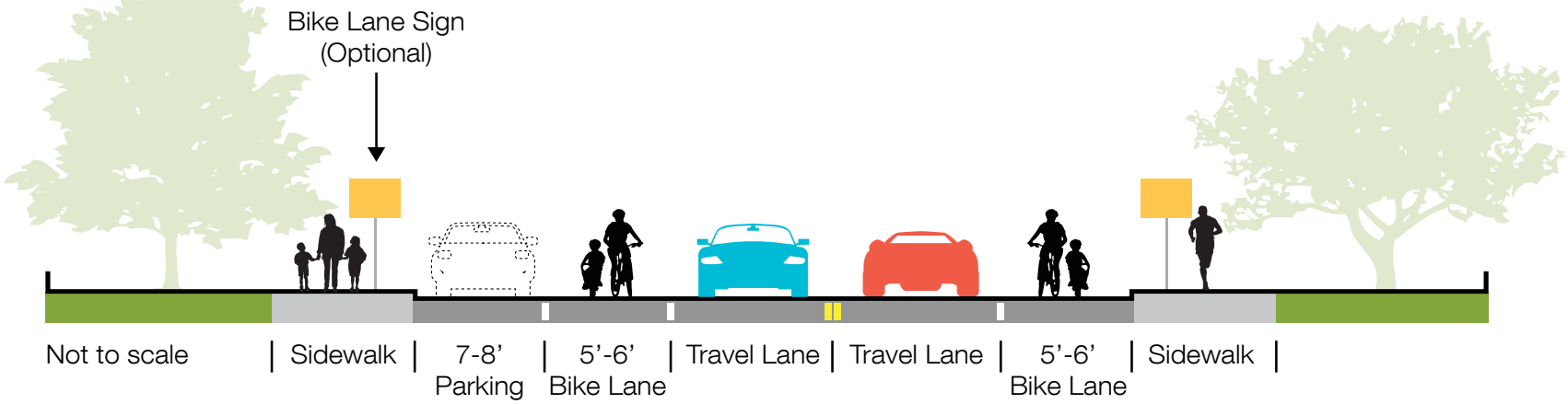
The bikeway facilities described in the BMP are approved by the California Department of Transportation (Caltrans) in the Highway Design Manual (Chapter 1000: Bikeway Planning and Design) and California Assembly Bill 1193 which codify four distinct classifications of bikeways. Each bikeway class is intended to provide bicyclists with enhanced riding conditions. Bikeways offer various levels of separation from traffic based on traffic volume and speed, among other factors. The four bikeway types in California and appropriate contexts for each are detailed below. These facility types were used to develop the low-stress Stockton Backbone Network.



Class I Bikeway (Bike Path) Bike paths provide a completely separate right-of-way and are designated for the exclusive use of people riding bicycles and walking with minimal cross-flow traffic. Such paths can be well-situated along creeks, canals, and rail lines. Class I Bikeways can also offer opportunities not provided by the road system by serving as both recreational areas and/or desirable commuter routes.

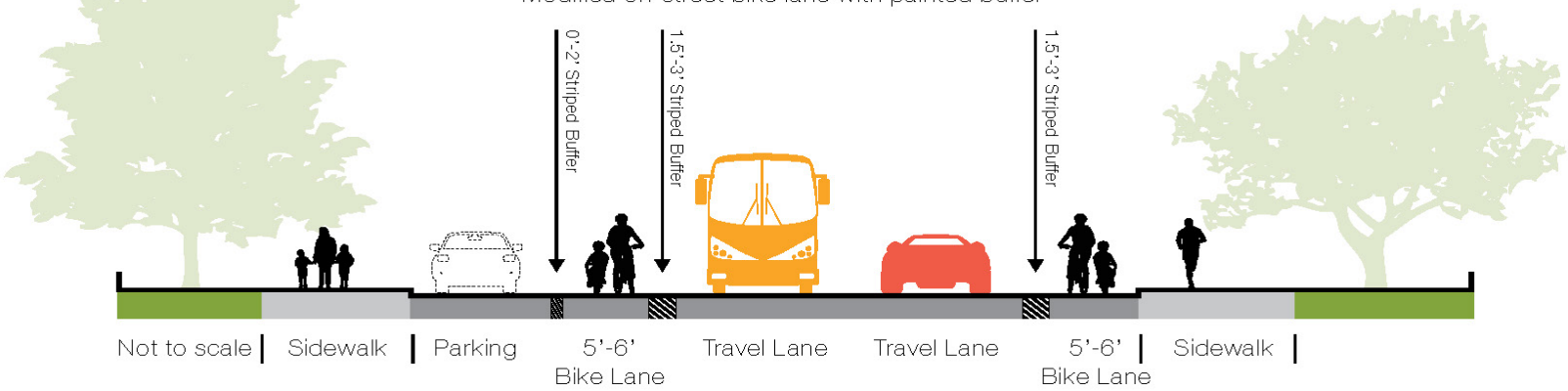
BICYCLE LANE (CLASS II)

On-street striped lane for one-way bike travel



BUFFERED BICYCLE LANE (CLASS II)

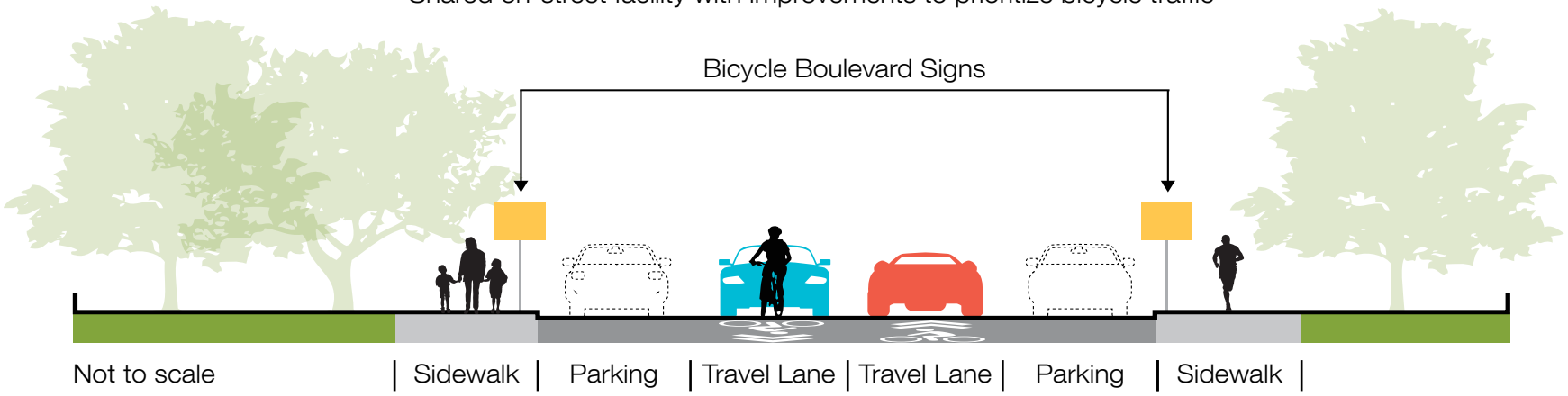
Modified on-street bike lane with painted buffer



Class II Bikeway (Bike Lane) Bike lanes provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage. Bike lanes may be enhanced with painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections). At a minimum, buffer striping should be provided between the bicycle lane and the vehicle travel lanes. To further enhance the bikeway, a buffer can be striped between the parking lane and the bicycle lane to prevent door jam incidents.

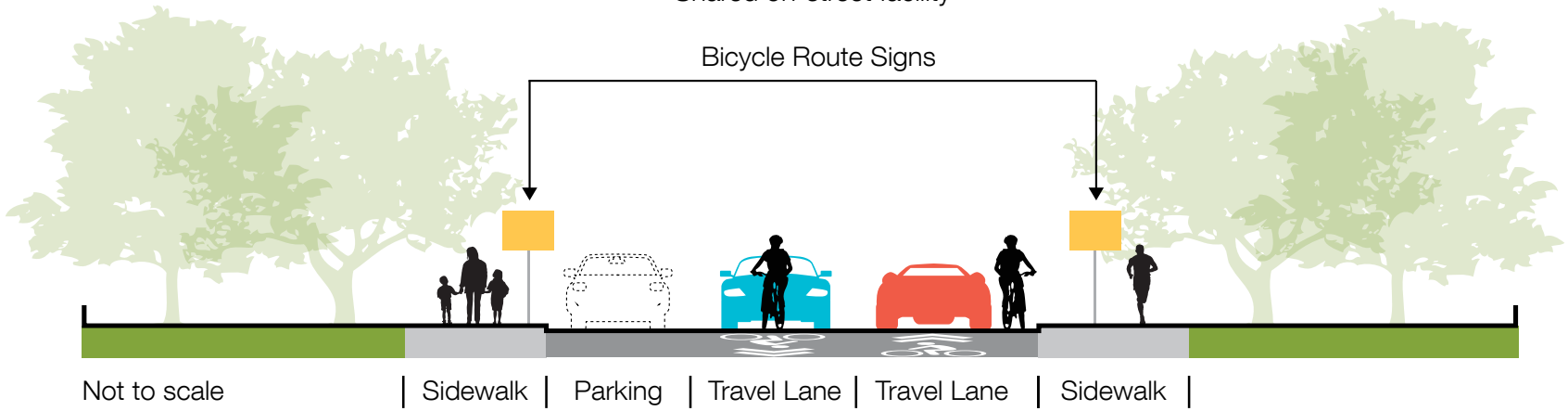
BICYCLE BOULEVARD (CLASS III)

Shared on-street facility with improvements to prioritize bicycle traffic



BICYCLE ROUTE (CLASS III)

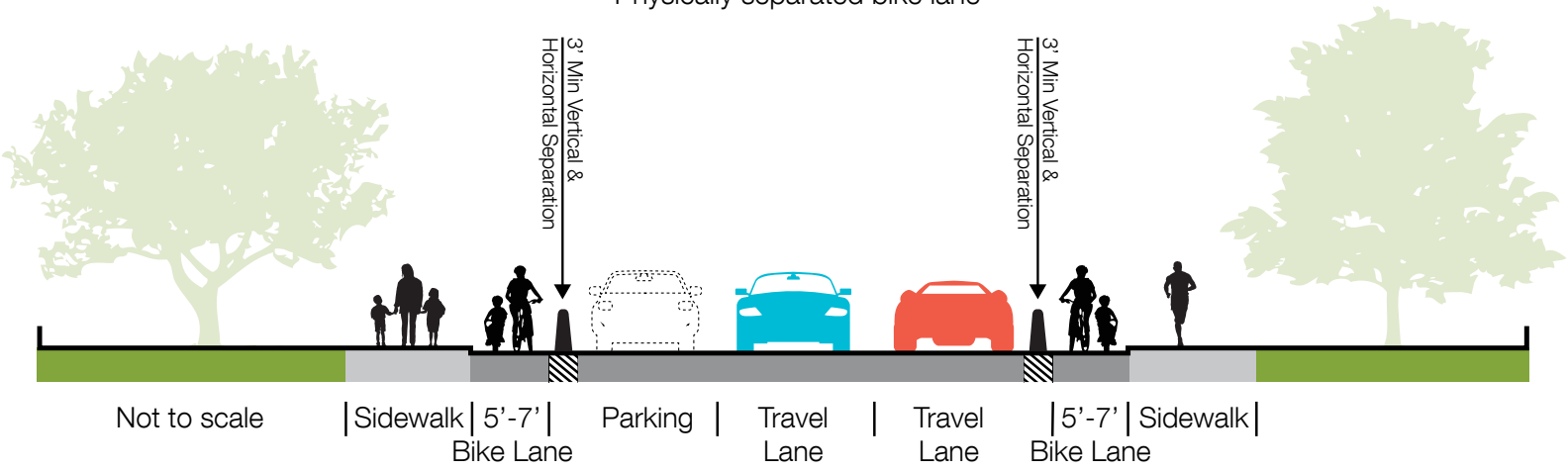
Shared on-street facility



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

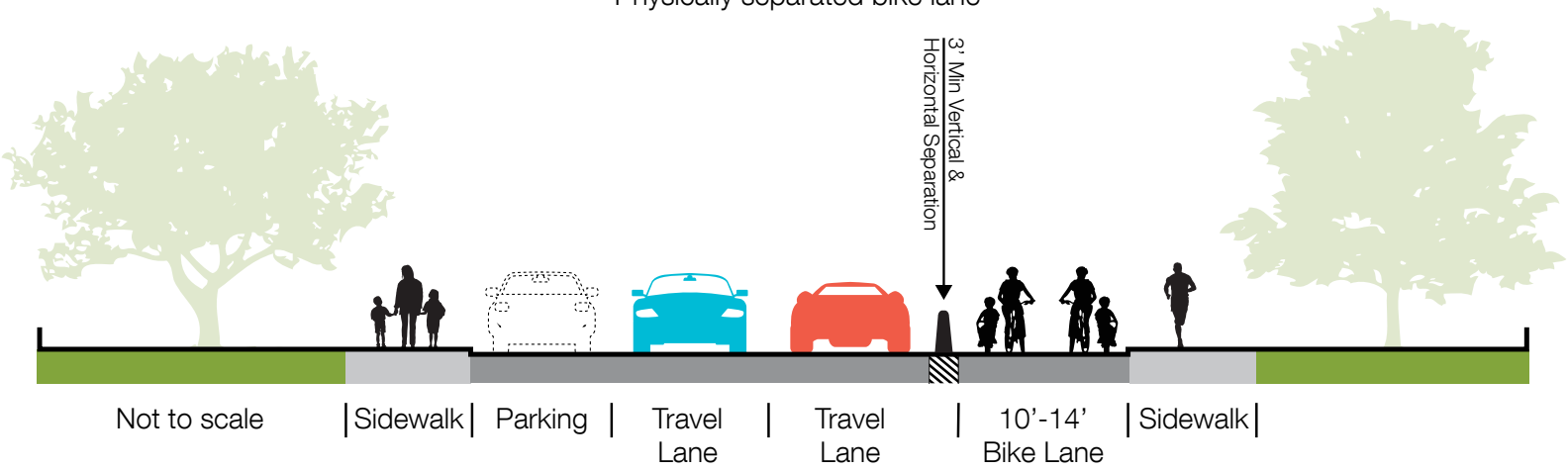
ONE-WAY SEPARATED BIKEWAYS (CLASS IV)

Physically separated bike lane



TWO-WAY SEPARATED BIKEWAY (CLASS IV)

Physically separated bike lane



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

4.4 City of Stockton Backbone Bikeway Network

As observed during the creation of this Plan and field visits to North, Central, and South Stockton, many types of cyclists other than average bike commuter already use bicycles to traverse the city. The Backbone Network would better serve these existing populations, as well as attract new riders, who may have more options or be too timid to ride in current conditions. **Figure 4-1** shows the full extent of the Citywide Backbone Network as envisioned by the BMP and supported by the extensive outreach processes in North, Central, and South Stockton.

4.4.1 Addressing High-Stress Gap in the Bikeway Network (BMP Goal One)

To address the existing bicycle network's disjointed nature, the BMP proposes to create a citywide "Backbone Network" of low-stress facilities that work to bridge the major gaps which prevent citywide travel and inter-neighborhood connectivity. For a facility to be shown on the Backbone Network it must produce a Level of Traffic Stress rating of 1 or 2 (LTS 1/2) and connect with other citywide Backbone Network facilities. The Backbone includes a range of facility types that can meet this rating, including separated bikeways, bike boulevards, paths, and bike lanes on low volume/low speed roads. The final vision for the City of Stockton Backbone Network map incorporates new or upgraded bikeways to meet low-stress ratings for all facilities.

Key Priority Project Fact Sheets Supporting Goal One:

1. California Separated Bikeway
2. East/West Access Road Diets and Alpine Avenue Multi-Modal Alternatives Assessment
3. Pacific Avenue Corridor Study and Multi-Modal Alternatives Assessment
4. El Dorado Street/Center Street Separated Bikeways

4.4.2 Addressing Safety & Collisions (BMP Goal Two)

During the community engagement process, Stockton residents and the Bicycle Master Plan Stakeholder Advisory Committee highlighted safety concerns as one of the biggest deterrents to riding in the city. Many of the City's most heavily-traveled corridors do not currently address the needs and safety of all users and modes of transportation due to previous roadway designs that did not account for competing needs along these multi-modal corridors. Almost 600 vehicle-bicycle collisions occurred between 2008 and 2012, accounting for eight percent of all collisions within Stockton while the City's bicycle mode share is only 0.6 percent of all trips. The disproportionate collision burden on cyclists is indicative of the density of collisions along many of the major arterials and priority corridors in Stockton.

Using the collision data identified in **Figure 3-4**, clusters of bicycle-involved collisions were identified along several major arterials. When compared with the Citywide Level of Traffic Analysis (**Figure 3-3**) it was evident these corridors also received high-stress ratings (LTS 3 or 4) and represented gaps in citywide connectivity. These roadways present key challenges because they must accommodate a wide variety of users and multiple modes of transportation. Therefore, the priority projects recommended as part of this chapter primarily focus on conducting in-depth Complete Streets Studies that will engage the local community members and businesses to prioritize improvements in these corridors.

Key Priority Project Fact Sheets Supporting Goal Two:

1. West Lane/Airport Way Complete Streets Study
2. Dr Martin Luther King Jr Boulevard Complete Streets Study
3. Harding Way Complete Streets Study
4. Citywide Bicycle Parking Program

4.4.3 Using New Bikeway Treatments to Promote a Modal Shift (BMP Goal Three)

Transformative projects are those that provide the greatest potential to include all types of cyclists for all purposes. In Stockton, this can be done using newer bicycle boulevard treatments which implement traffic calming and wayfinding along neighborhood roadways to prioritize cyclists. As lower cost bicycle infrastructure options, these types of treatments can be implemented on a larger scale and are often popular with students and families due to lower traffic volumes. These facilities have been proven to be effective in situations where non-local motor vehicle traffic is discouraged and enhanced traffic control at major roadway crossings is installed

to ensure the facilities are low-stress.

The use of separated bikeways can also be transformative on corridors where entirely new parts of the City are connected and active transportation modes are made an option in areas once thought only available to people who drive. Separated bikeways can support the use of transit connections and provide transit island stops. Physical barriers and vertical separation create low-stress facilities that can encourage families, older riders, or others to ride on corridors that provide access to key destinations.

Supportive Bikeway Facilities Selection

The buildout of the Backbone Network does not prohibit and is not designed to inhibit the City of Stockton from adding bicycle facilities to other streets that are not part of the Backbone. The success of the Backbone Network will be enhanced by encouraging more connections between the Backbone and local neighborhoods. A Bicycle Facilities Selection tool provides a framework for installing other bikeway facilities in Appendix A, Table A-1. The Bicycle Facilities Selection tool also provides guidelines that should be reviewed when considering adding facilities during repaving projects or when implementing other Capital Improvement Projects that may not have been highlighted during the community engagement process of the BMP.

Key Priority Project Fact Sheets Supporting Goal Three:

1. Airport Way Separated Bikeway
2. Monte Diablo/Acacia Bicycle Lanes
3. Bicycle Boulevards Implementation

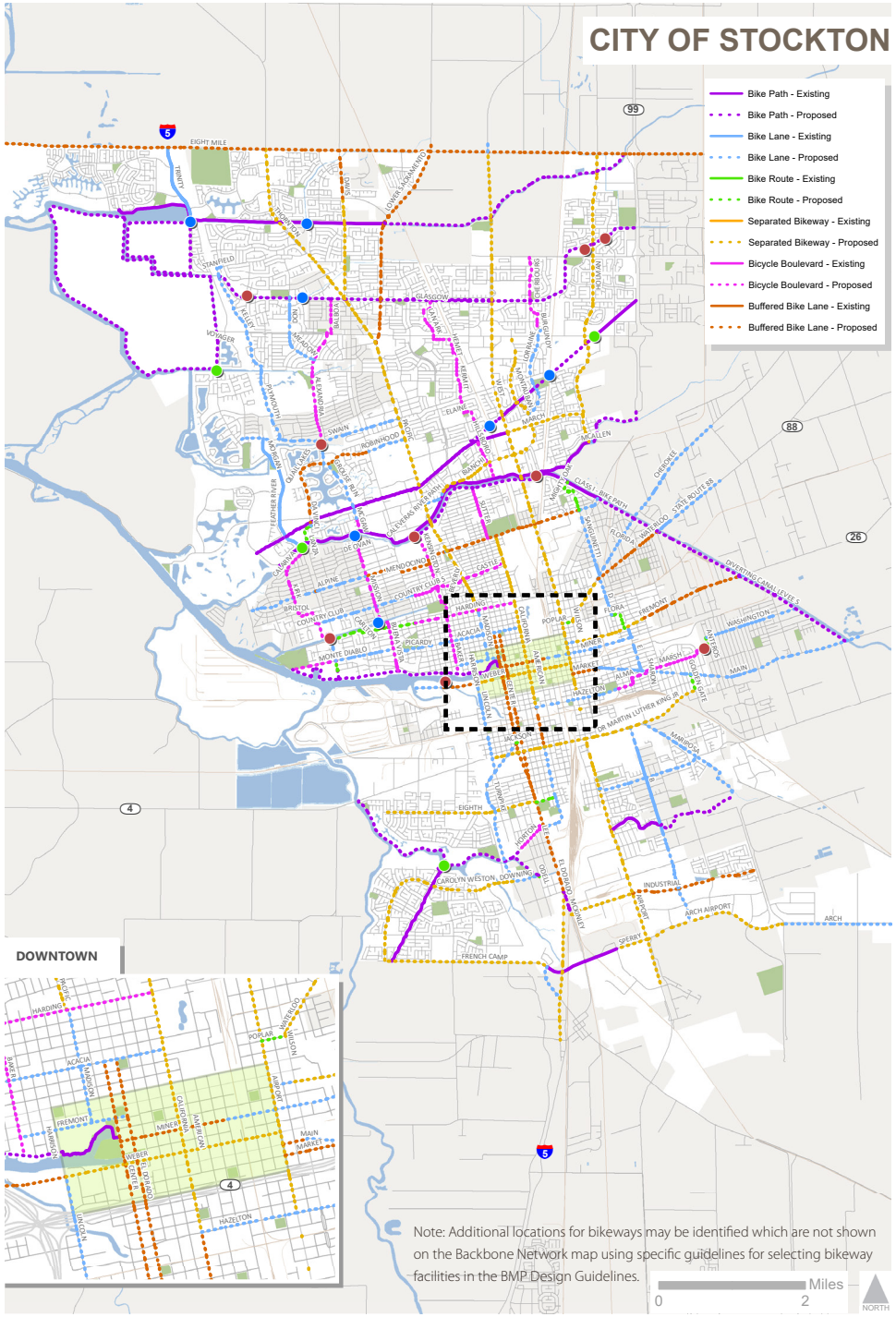
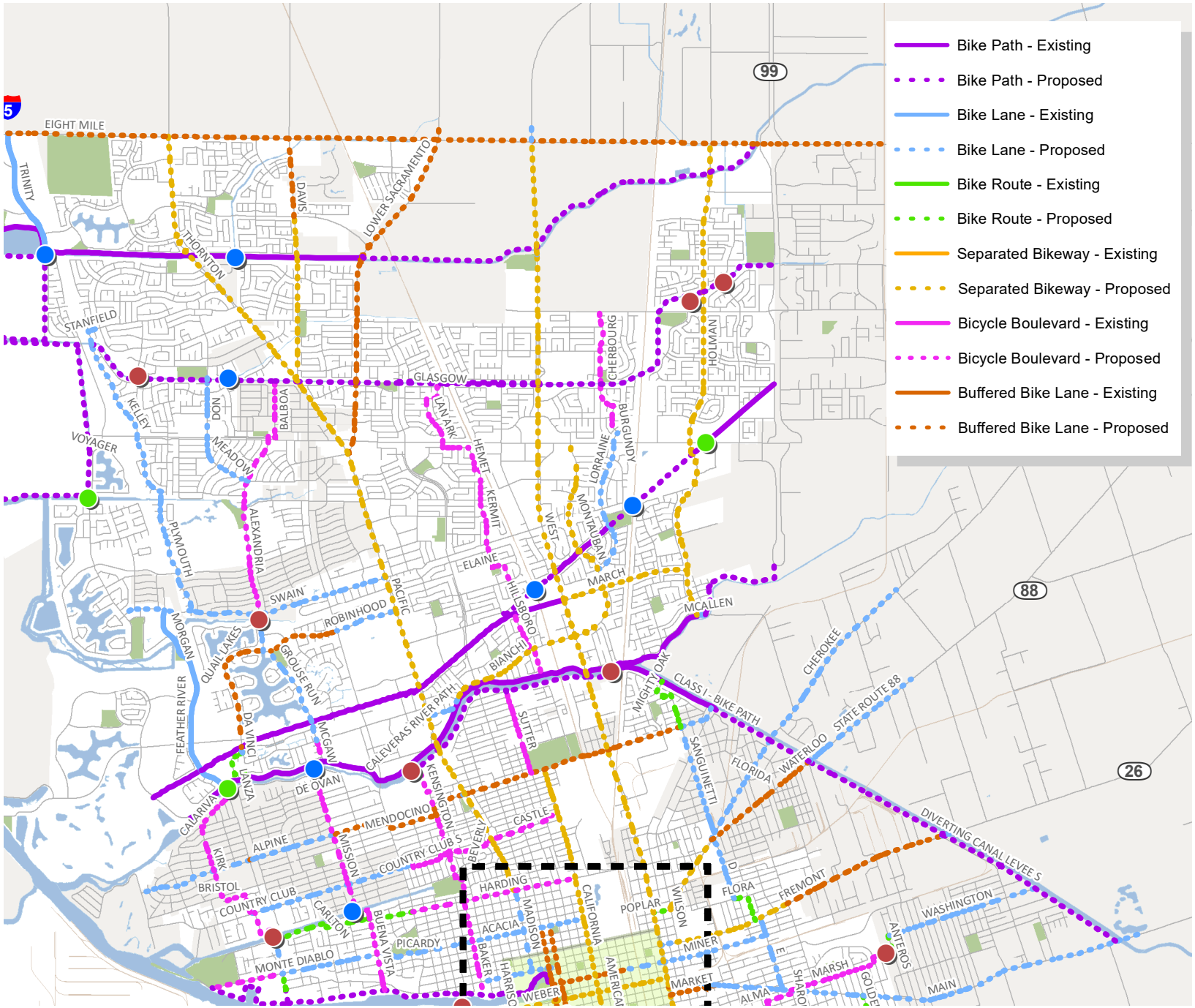


Figure 4-1.A: Citywide Backbone Network Map by Facility Type

Figure 4-1.B: North Stockton Citywide Backbone Network Map by Facility Type



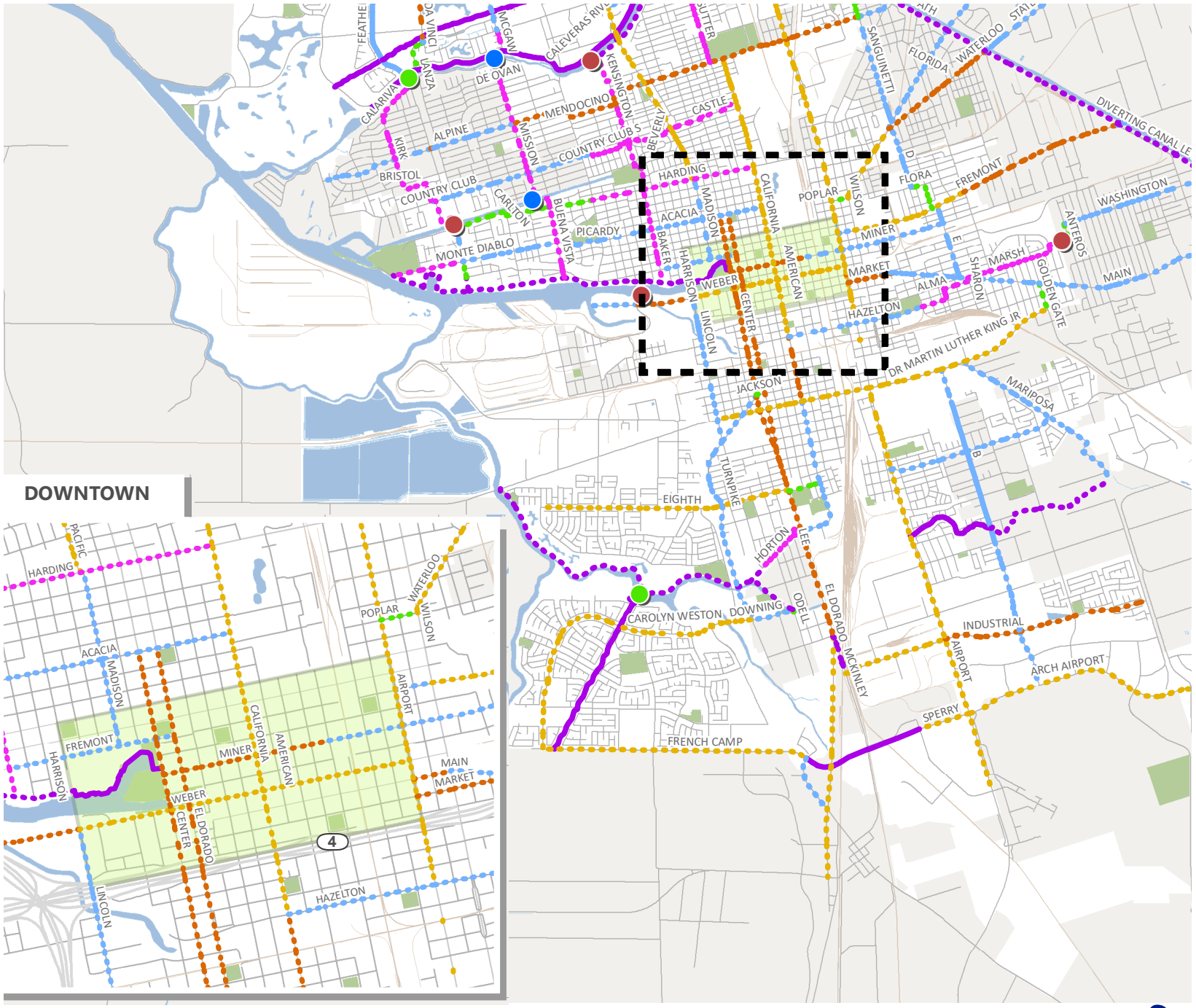


Figure 4-1.C: South Stockton Citywide Backbone Network Map by Facility Type

4.5 Citywide Connectivity Analysis

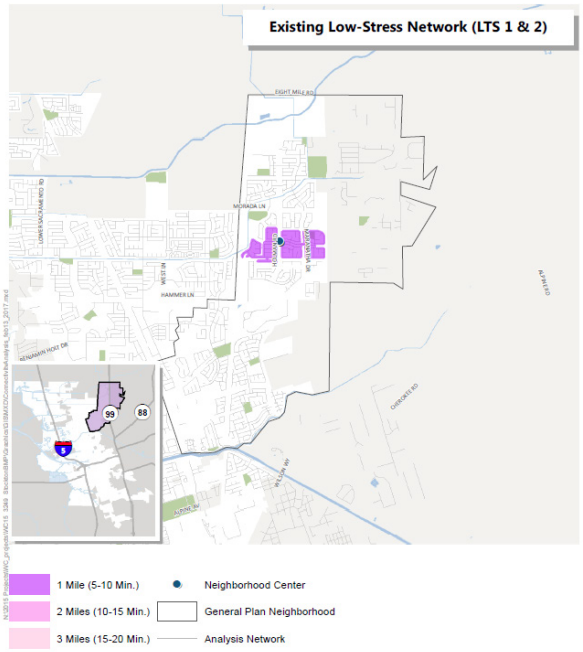
The Backbone Network is reinforced by a neighborhood connectivity analysis conducted in GIS using advanced network analyst tools to show where cyclists currently have limited ability to connect with areas outside their neighborhoods using low-stress facilities. The connectivity analysis was then rerun assuming the full implementation of the Backbone Network to show where increases in connectivity would occur for each neighborhood. **Appendix C** and the illustrative example below show how the Backbone Network enhances citywide connections for each neighborhood in Stockton. **Table 4-1** summarizes the results by neighborhood based on the change in bicycle-accessible land area. As evidenced in the table, each neighborhood would experience dramatic increases in connectivity that would support all types of cyclists. **Figure 4-2** summarizes the percentage change in connectivity by neighborhood with the implementation of the Backbone Network.

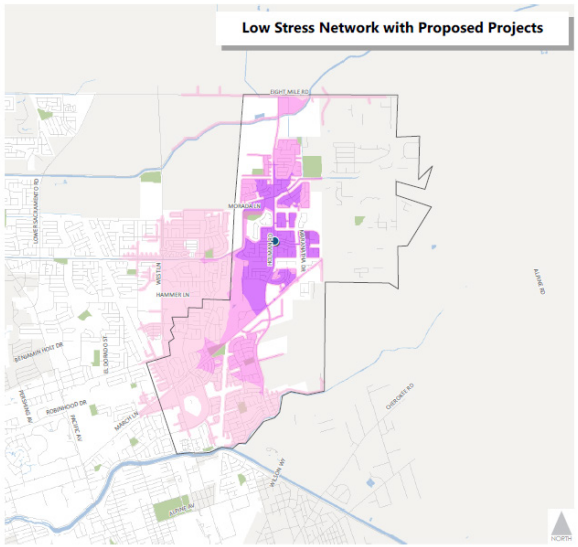
The neighborhoods that would see the largest increases in connectivity (over a 500% increase in accessible land area) were neighborhoods 1, 3, 4, 7, 8, 9, 10, 12, and 13. Many of those neighborhoods are located in Eastern, Downtown, or South Stockton and are considered disadvantaged communities according to the CalEnviroScreen Assessment described in **Chapter 9**. The connectivity analysis shows how the City will work to address the implementation and prioritization of new bikeways in those communities.

Table 4-1: Neighborhood Connectivity Analysis Summary

Neighborhood	Existing Area Connectivity (sq. miles)	With Backbone Network Connectivity (sq. miles)	% Change in Connectivity (Increase in bicycle-accessible land area accessible with the Backbone Network)
1	1.71	12.74	645%
2	3.37	10.29	205%
3	0.50	6.18	1140%
4	0.82	5.52	574%
5	0.73	1.70	134%
6	1.07	2.42	125%
7	2.13	12.90	507%
8	0.30	4.77	1495%
9	0.01	3.45	68352%
10	0.25	1.64	547%
11	0.18	0.30	65%
12	0.24	4.25	1682%
13	0.93	10.41	1017%

Source: Fehr & Peers, 2017





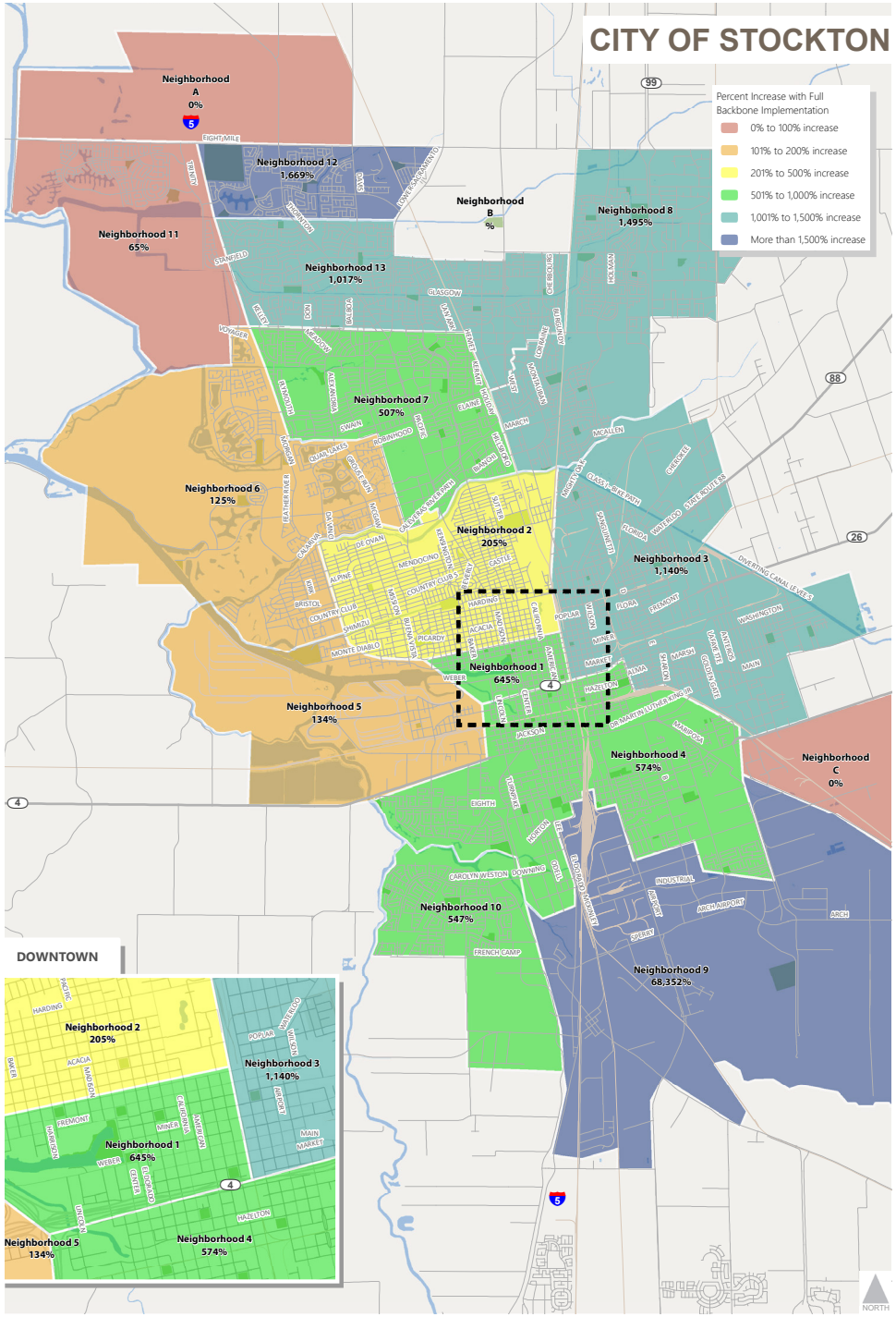


Figure 4-2: Connectivity Percentage Increase with Full Backbone Network Implementation

5. GOAL ONE – ENHANCE CITYWIDE CONNECTIVITY

Goal One: Provide a connected bicycle grid of low stress facilities that acts as the primary spine for north/south and east/west routes while closing gaps in the existing bicycle network.

A complete, comprehensive bicycle network in Stockton relies on access along and across major arterials to connect all residents with employment centers, retail areas, schools, or other key destinations. With a goal of creating a citywide grid of connected low-stress facilities, the major north/south and east/west routes in Stockton need to include bicycle facilities suitable for 8- to 80-year-olds wishing to cycle in Stockton.

5.1 Goal One: Supporting Policies & Actions

This section sets forth the policies and actions in support of enhancing citywide connectivity.

Policy 1-1:

Through the implementation of priority Backbone Network projects, the City shall create and expand an interconnected, low-stress bikeway network and close gaps in the existing system.

Action 1-1A: Implement improvements identified in the BMP beginning with the projects identified as priority projects.

Action 1-1B: Provide bikeways near key destinations, services, schools, or other major attractions that will allow residents of Stockton to be where they would otherwise access with an automobile. All future projects identified should meet bicycle user desire lines and connect people to where they want to be.

Policy 1-2:

Coordinate and cooperate across City departments to maximize funding to build out the Low-Stress Backbone Network, using dedicated funding streams for bicycling in addition to strategically folding bicycle projects into other typical Capital Improvement Program (CIP) and routine maintenance programs.

Action 1-2A: Continue to work across City departments to routinely identify and integrate bicycle improvements into all standard maintenance (e.g., overlays and repaving), planning studies, roadway redesign, auto-focused CIP projects (e.g., new signals or signal modifications). Work across City departments to prioritize roadways with existing or proposed bicycle facilities within routine maintenance work and to stripe/restripe meaningful bikeway segments so they have logical start/end points within the context of the bicycle network, even if this goes beyond the limits of routine maintenance projects.

Action 1-2B: Continue to allocate staff time to pursue competitive funding sources for which Stockton is likely highly eligible such as the Caltrans Active Transportation Program (ATP), Caltrans Highway Safety Improvement Program (HSIP), and Measure K. Pursue other grant programs as they become available. Prioritize projects that can be implemented at lower costs or in groups of projects to fund the creation of the Backbone Network.

Action 1-2C: Assess the feasibility of designating a full- or part-time Active Transportation Coordinator to implement bicycle and pedestrian related projects and programs, and to pursue grant funding. Additional Active Transportation design training should be prioritized for this person to ensure national best practices are being implemented. This staff person would review development proposals and engineering designs to ensure new projects meet the intent of the BMP and implement national best practices in bikeway design or Complete Streets.

Policy 1-3:

Implement a routine maintenance program for bicycle facilities.

Action 1-3A: Maintain bikeways, including paved trails, and bicycle parking facilities with adequate sweeping, pavement repairs and trimming vegetation on a regular and frequent basis.

Action 1-3B: Work with the City's existing "Ask Stockton" online system to create a way to report bicycle facilities in need of repair and/or clean-up.

Action 1-3C: Allocate a percentage of each year's Transportation Maintenance Funding to path, roadway maintenance (including on-street bicycle facilities), bicycle signal detection installation and maintenance, and roadway improvements along bicycle facilities.

Action 1-3D: Include costs of major maintenance needs of bicycle facilities when calculating maintenance needs of streets and roadways generally.

Action 1-3E: Develop a program to ensure all actuated signalized intersections detect bicycles and are regularly tested to ensure they remain functional.

Action 1-3F: Include consideration of bicycle routing, safety, and comfort in each roadway construction and temporary traffic control modifications in the City, such as construction or repair activities affiliated with roadways or building development, to ensure bicycle safety at all times, minimize disruptions to bicycle facilities and provide well-marked and equivalent alternative routes with wayfinding when needed.

5.2 Goal One: Priority Projects

The key to establishing a citywide network is based on the implementation of a network that follows major desire lines, to facilitate travel through and to the primary destinations in Stockton. Citywide connections must allow cyclists to easily traverse major arterials and connect with other citywide routes. By implementing projects where desire lines exist and where facilities were requested most by the public, the City of Stockton can leverage increases in ridership along these facilities to support the implementation of other goals.

The following priority projects implement the intent of Goal 1 and would help to provide a catalyst for other investments in bicycle facilities throughout the City. Descriptions of how each project supports Goal 1 are provided below, followed by fact sheets that include an overview of the project, implementation options, estimated costs, and proposed cross-sections. For projects with proposed Road Diets, an operational study or parking assessment can be included to identify impacts to automobile traffic and parking. Traffic impacts should be mitigated where possible. However, the General Plan Update should prioritize bikeway facilities over traffic impacts along corridors on the Backbone Network and in Downtown Stockton, which provides key linkages to accessing the rest of the City.

5.2.1 California Street Separated Bikeway

The California Street Separated Bikeway would be the "spine" of the Backbone Network that would support north/south bicycle travel where cyclists currently want to be and could support multiple east/west connections (up to nine east/west Backbone Network corridors at full buildout).

5.2.2 East/West Access Road Diets

The East/West Access Road Diet project would implement bikeways on three key corridors in Stockton that would all connect with the north/south "spine" on California Street. These corridors include AlpineAvenue, Eighth Street, and Hazelton Avenue. Alpine Avenue should be implemented as a pilot project to assess potential design challenges prior to implementing the other corridors. A multi-modal alternatives assessment of Alpine Avenue is provided with the Fact Sheet to facilitate project outreach and design recommendations.

5.2.3 Pacific Avenue Complete Streets Study

The Pacific Avenue corridor was one of the most requested locations for bicycle facilities during community engagement activities due to the major destinations and attractions located along the corridor. The Pacific Avenue corridor would provide a key funnel route for North Stockton toward Downtown and Central Stockton. The corridor would connect with the East Bay MUD/March Lane Path, Calaveras River Path, and the Alpine Avenue Bikeway (which would provide citywide access via the central Backbone Network spine along California Street). This is a challenging corridor where any substantive change will have significant impacts; therefore, a Complete Streets Study is recommended to ensure all user needs, modes of transportation, and land uses are considered with additional focused community engagement and more detailed tradeoff analysis. A multi-modal alternatives assessment of Pacific Avenue is provided with the Fact Sheet to facilitate project outreach and design recommendations.

5.2.4 El Dorado Street/Center Street Separated Bikeways

The El Dorado Street/Center Street corridor would provide direct access from South Stockton into Downtown and Central Stockton promoting citywide connections where none currently exists. A temporary installation of a two-way separated bikeway was implemented during Bike to Work Day in 2016 and gained support from local residents and commuters.

California Street Separated Bikeway

Corridor Overview

The California Street Separated Bikeway extends from Alpine Avenue to El Dorado Street (South). This corridor is intended to function as Stockton's bicycle spine that would connect North and Central Stockton through the downtown with South Stockton. This north/south facility would connect seven east/west backbone facilities throughout Stockton. The California Separated Bikeway is one of the highest priority projects from the Bicycle Master Plan due to its ability to promote citywide spatial equity and socio-economic equity by connecting multiple disadvantaged neighborhoods, as defined by the California Office of Environmental Health Hazard Assessment's CalEnviroscreen environmental justice data.

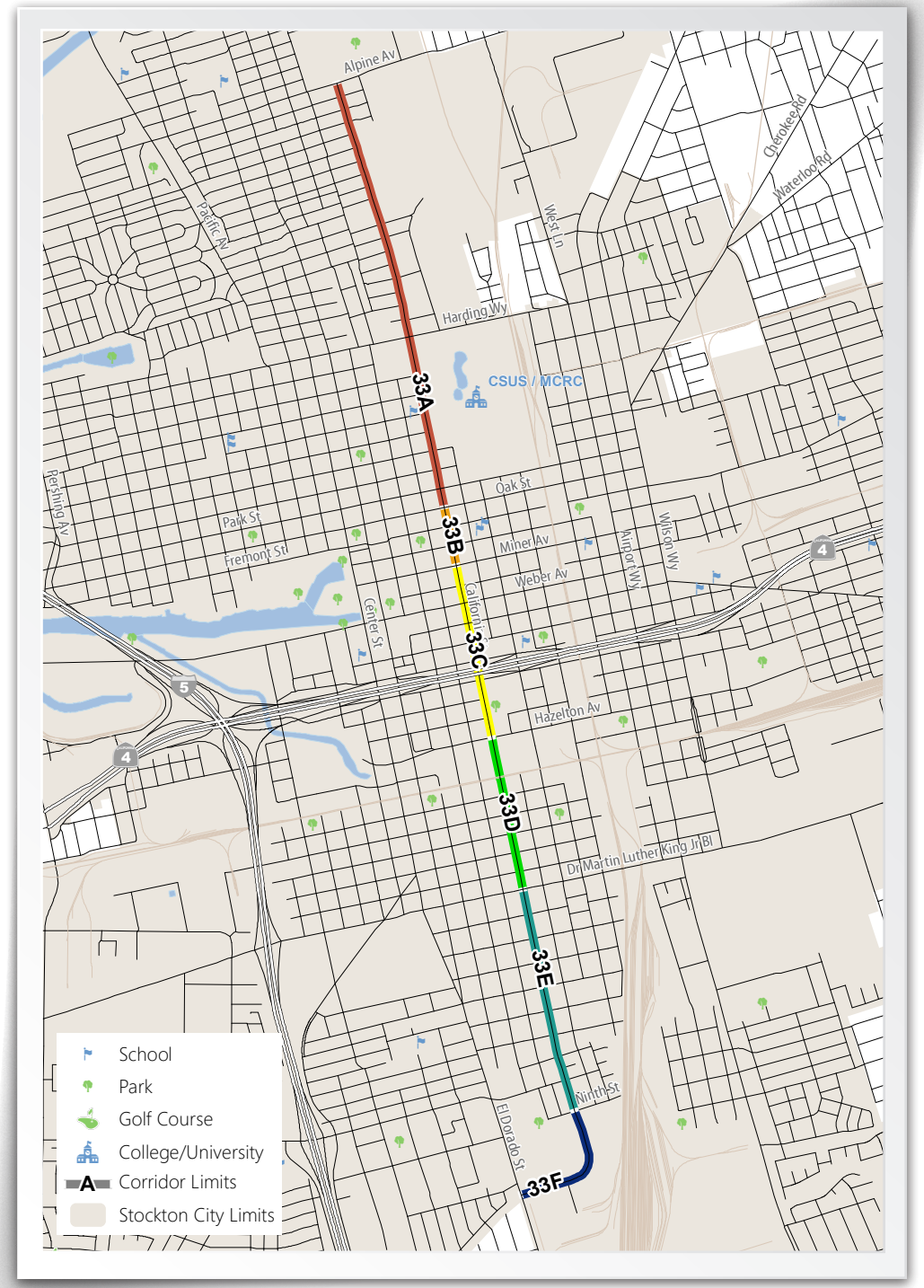
The existing four lane cross-section has no parking in the northern segment with Class II bicycle lanes, while the southern segment includes parking on both sides of the street with no bicycle facilities. The preferred low-stress alternative would implement a road diet to include seven-foot, one-way separated bikeways in each direction. In the near-term, the separated bikeways could be implemented through striping buffers with soft-tipped posts. In the full buildout, raised medians should separate the bikeways from the automobile areas. The preferred alternative would retain parking on side consistently throughout the corridor. Parking would be dropped at the intersections to provide space for left-turn lanes, where needed. An operational assessment should be conducted to ensure adequate vehicular operations. Loading zones for deliveries should also be considered in lieu of some parking areas or located on side streets.

Issues and Opportunities to be addressed by the project include:

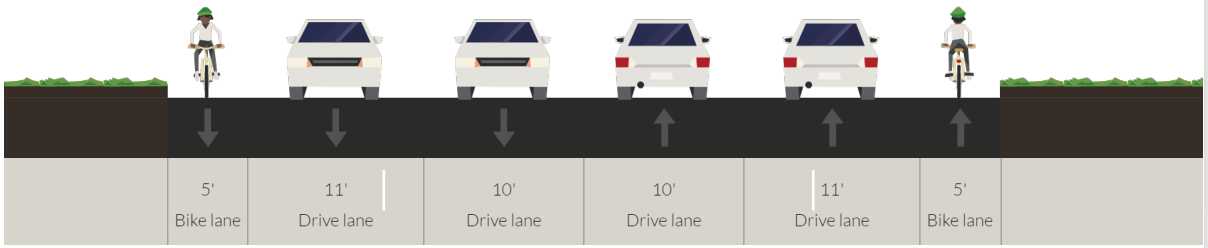
- Upgrading the existing bicycle lanes in the northern segment and providing a continuous north to south bicycle connection through Downtown where no connection currently exists.
- Addressing the need for all ages and abilities bikeways on or near the California Street corridor.
- Improving pavement conditions.
- Improving bicycle access to or near schools including: Woodrow Wilson Elementary School, Commodore Stockton Junior High School, Stockton Unified Early College Academy, Stanislaus State Stockton Center, Pittman Elementary School, Spanos Elementary School, and Stockton Unified Special Education department
- Improving bicycle access to or near essential services including: St. Joseph's Medical Center, San Joaquin General Hospital, San Joaquin County Mental Health, San Joaquin Psychiatric Health Facility, and Mckinley Recreation Center.

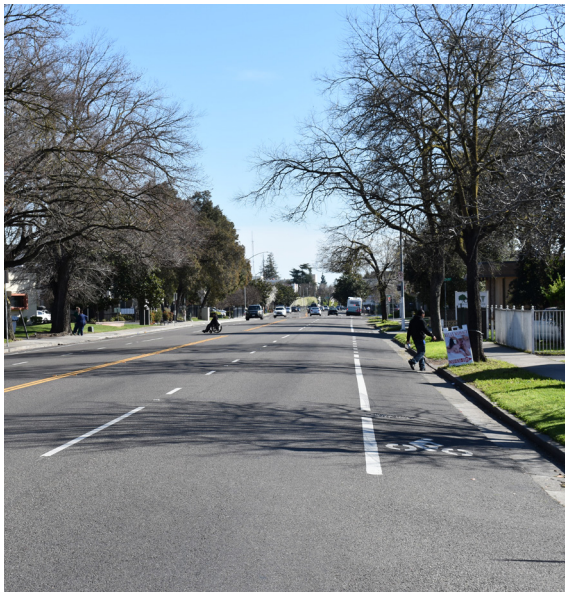
Cost and Extents

Project Number	Proposed Facility	Implementation	Distance (miles)	Cost Estimate x $1,000	Class IV Estimate #2 (Curb - Full Buildout) x $1,000
33A	Class IV Separated Bikeway	Road Diet	4.3	$1,808	$11,259
33B	Class IV Separated Bikeway	Road Diet	0.2	$90	$558
33C	Class IV Separated Bikeway	Road Diet	0.6	$266	$1,655
33D	Class II Buffered Bicycle Lanes	Road Diet	0.6	$136	
33E	Class II Bicycle Lanes	Road Diet	0.8	$174	
33F	Class II Bicycle Lanes	Lane Striping	0.5	$102	

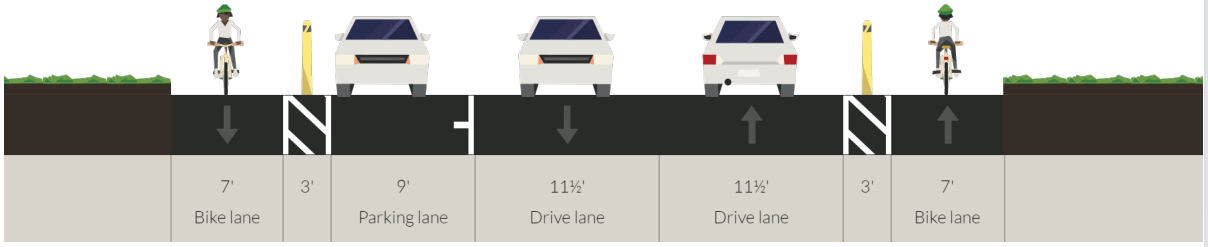


Existing Conditions: California Street from Alpine Avenue to Oak Street

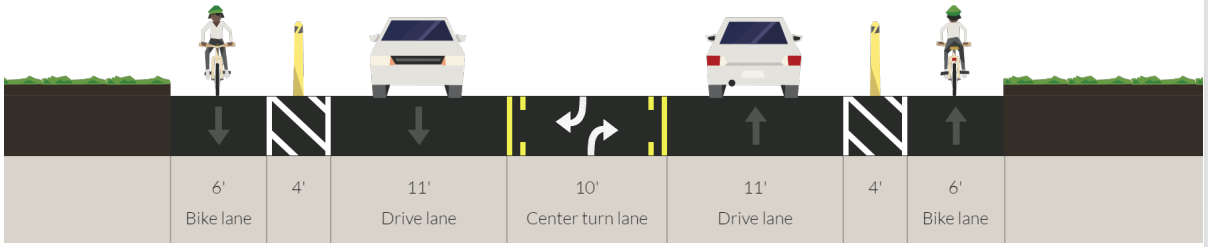




Preferred Low-Stress Alternative A: California Street from Alpine Avenue to Oak Street



Preferred Low-Stress Alternative B: California Street from Alpine Avenue to Oak Street



East/West Access Road Diets

Corridor Overview

The East/West Access Road Diets project includes Alpine Way, Eighth Street, and Hazelton Avenue. Each corridor connects with the California Separated Bikeways project, thus increasing overall Citywide connectivity by facilitating east/west travel to the central bikeway spine of the backbone network. Individually, each corridor ranks as high priority projects in the Bicycle Master Plan and together they can be implemented to create a more impactful modal shift in multiple Stockton neighborhoods. These projects promote citywide spatial equity and socio-economic equity by connecting disadvantaged neighborhoods in central and south Stockton[1].

1 As designated by the California Office of Environmental Health Hazard Assessment's CalEnviroscreen environmental justice data.

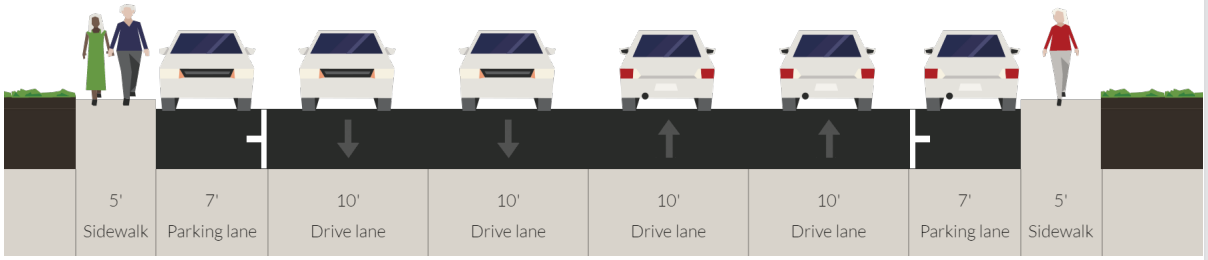
Issues and Opportunities to be addressed by the project include:

- Creating East/West bicycle connectivity to the Citywide Backbone Network.
- Addressing the need for all ages and abilities bikeways on or near the three major corridors.
- Improving bicycle access to or near many schools throughout Stockton.
- Improving bicycle access to or near many essential services and job centers throughout Stockton.
- Providing low cost, feasible bicycle facilities that can be implemented throughout the City, with broad visibility and potential for use.

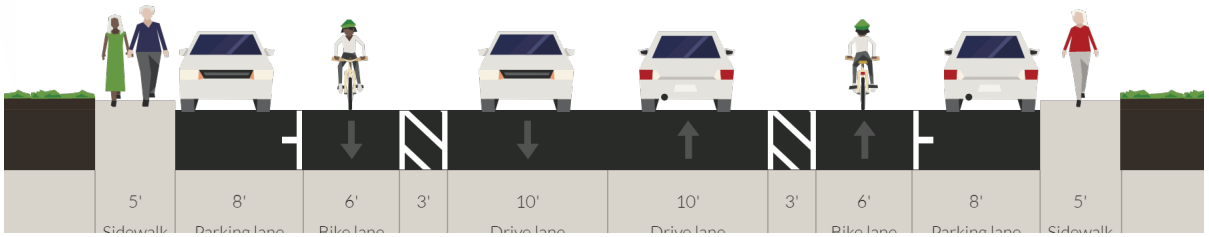
Cost and Extents

Project Number	Proposed Facility	Implementation	Distance (miles)	Cost Estimate x $1,000	Class IV Estimate #2 (Curb - Full Buildout) x $1,000
26A	Class II Bicycle Lanes	Lane Striping with Parking Removal	0.3	$67	
26B	Class II Buffered Bicycle Lanes	Road Diet	2.6	$640	
26C	Class II Bicycle Lanes	Further Study	1.4	$300	
46A	Class II Bicycle Lanes	Road Diet	0.9	$185	
46B	Class II Bicycle Lanes	Lane Striping with Parking Removal	0.4	$91	
51A	Class IV Separated Bikeway	Road Diet	2.3	$980	$6,104
51B	Class III Bicycle Route	Signage Only	0.3	$19	

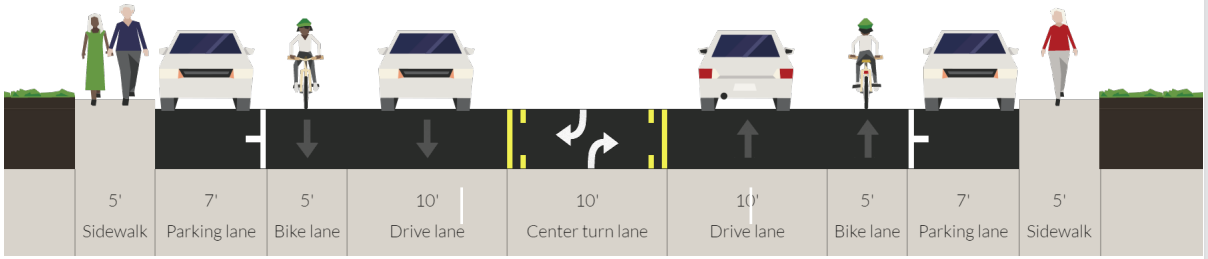
Existing Conditions: Alpine Avenue from Ryde Avenue to California Street



Preferred Low-Stress Alternative A: Alpine Avenue from Ryde Avenue to California Street

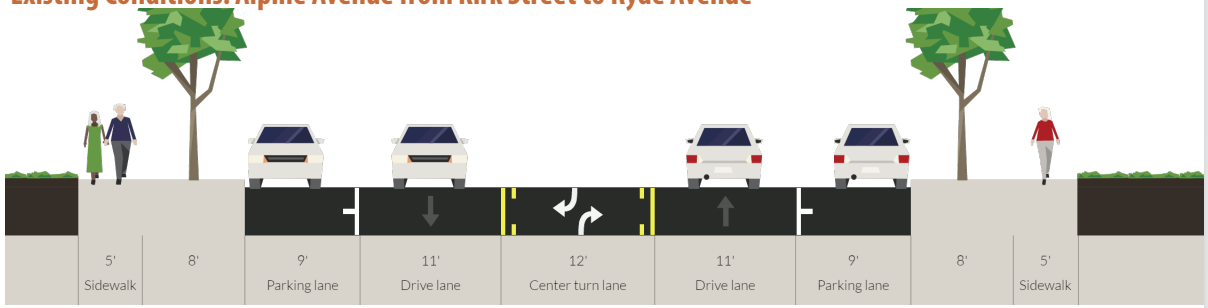


Preferred Low-Stress Alternative B: Alpine Avenue from Ryde Avenue to California Street



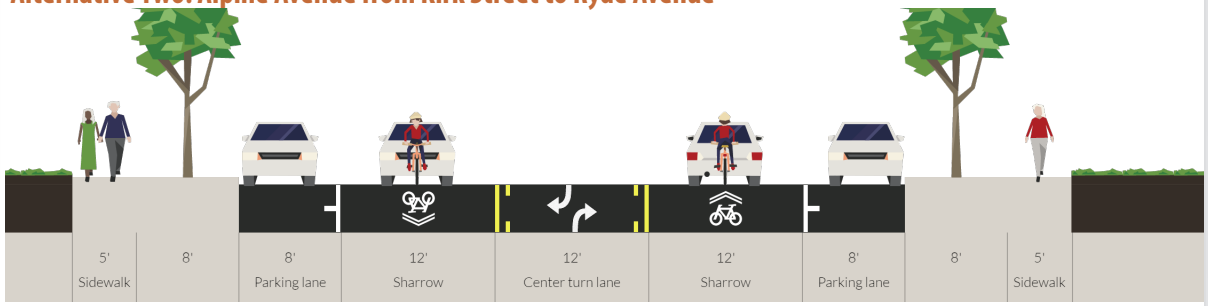
Alpine Avenue Bikeway

Existing Conditions: Alpine Avenue from Kirk Street to Ryde Avenue



Preferred Low-Stress Alternative One: Alpine Avenue from Kirk Street to Ryde Avenue

Alternative Two: Alpine Avenue from Kirk Street to Ryde Avenue



Multi-Modal Alternatives Assessment

Segment One: Alpine Avenue from Kirk Street to Ryde Avenue (San Joaquin County)

Cross-sections shown at Alpine Avenue between Kirk Street and Delano Avenue

This segment of Alpine Avenue currently provides one travel lane in both directions, a center left-turn lane and on-street parking on both sides of the roadway. The posted speed limit is 30 mph. There are no designated bicycle facilities in this segment of the corridor. The Preferred Low-Stress Alternative One would install Class II bicycle lanes on each side of the roadway by either removing on-street parking on one side of the roadway consistently throughout the corridor or by retaining parking on both sides of the roadway but eliminating the center left-turn lane. Parking could be dropped at intersections to retain left-turn pockets. Alternative Two would produce a medium stress bicycle facility (LTS 3) by creating a Class III shared route connection along this portion of the corridor. This would maintain the existing cross-section. Alternative Two should incorporate traffic calming to reduce speeds to 25 mph by implementing curb extensions, raised crosswalks, speed humps, or other infrastructure improvements.

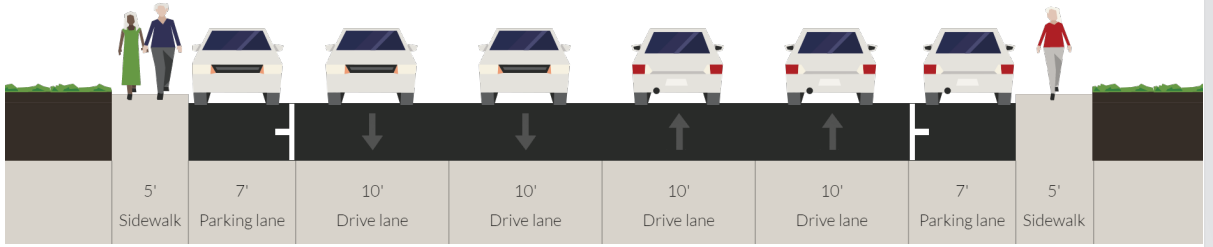
Multi-Modal Alternatives Assessment

Segment Two: Alpine Avenue from Ryde Avenue to California Street

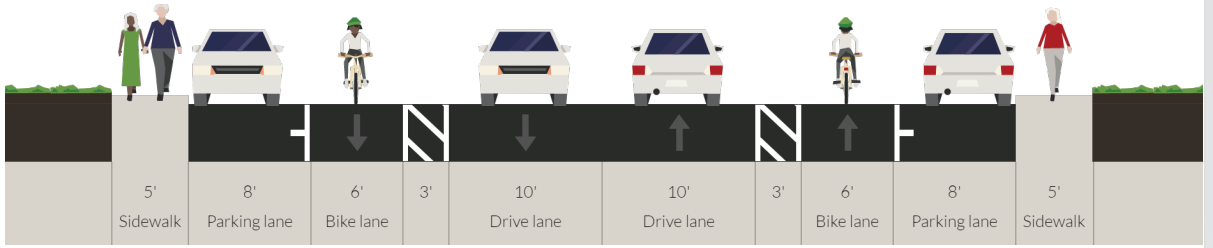
Cross-sections shown at Alpine Avenue between Marine Avenue and Margaret Avenue

This segment of Alpine Avenue provides two travel lanes in both directions with on-street parking facilities on both sides of the roadway. There are no designated bicycle facilities. The posted speed limit is 30 mph. The Preferred Low-Stress Alternative One would install Class II buffered bicycle lanes on each side of the roadway by implementing a road diet. This would retain parking on both sides of the roadway and provide one travel lane in each direction. Parking could be eliminated at the intersections to install left-turn pockets, where necessary. Alternative Two would produce a medium stress bicycle facility (LTS 3) by installing narrow Class II bicycle lanes on each side of the roadway by implementing a road diet with narrow travel lanes. This would retain parking on both sides of the roadway and provide one travel lane in either direction as well as a center left-turn lane. From Pershing Way to the Kensington/Baker Bicycle Boulevard, a buffered bicycle lane or trail connection along the University of the Pacific should be studied.

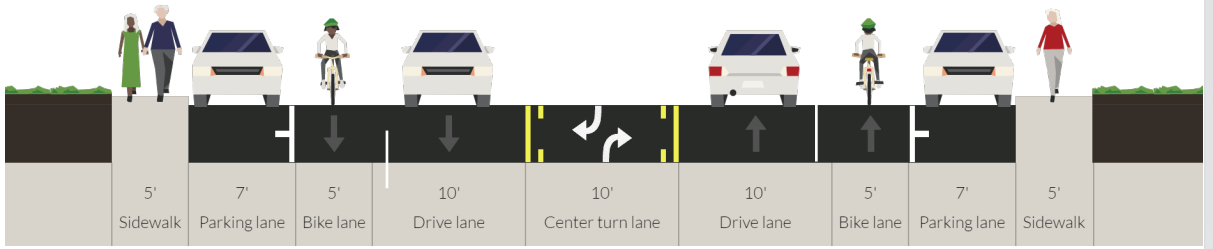
Existing Conditions: Alpine Avenue from Ryde Avenue to California Street



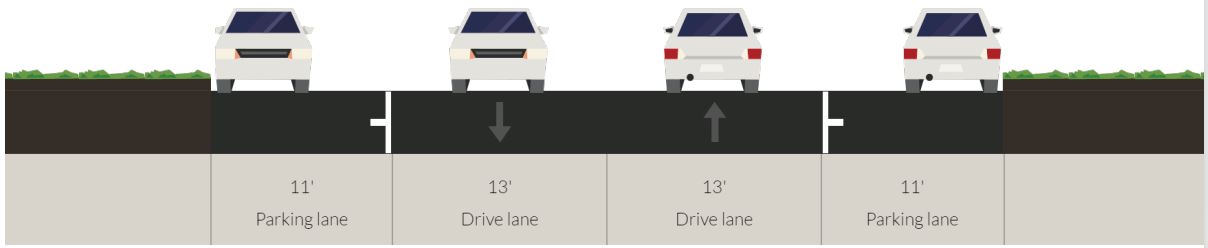
Preferred Low-Stress Alternative One: Alpine Avenue from Ryde Avenue to California Street



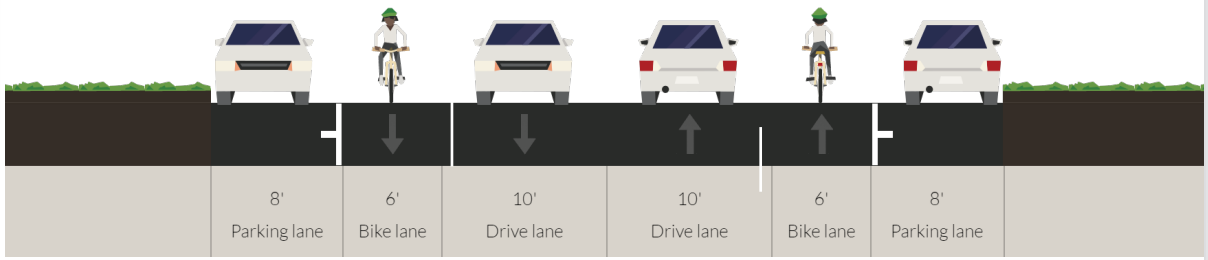
Alternative Two: Alpine Avenue from Ryde Avenue to California Street



Existing Conditions: Alpine Avenue from California Street to Wilson Way



Preferred Low-Stress Alternative One: Alpine Avenue from California Street to Wilson Way



Multi-Modal Alternatives Assessment

Segment Three: Alpine Avenue from California Street to Wilson Way

Cross-sections shown at Alpine Way between West Lane and Sanguinetti Lane

This segment of Alpine Avenue provides two travel lanes in both directions from California Street to West Lane and one wide travel lane in both directions with on-street parking on both sides of the roadway from West Lane to Wilson Way. This segment does not have designated bicycle facilities. The posted speed limit is 30 mph. The Preferred Low-Stress Alternative One would install Class II bicycle lanes on each side of the roadway by narrowing lane widths. Since this part of Alpine Avenue is residential and traffic speeds are slower, this option would achieve a low-stress rating (LTS 2). Further expansion of the roadway could be considered by the General Plan and low-stress facilities conducive with a larger design should be provided.

Multi-Modal Alternatives Assessment

Metrics	Roadway Configuration Alternatives							
	Segment One: Alpine Avenue from Kirk Street to Ryde Avenue			Segment Two: Alpine Avenue from Ryde Avenue to California Street			Segment Three: Alpine Avenue from California Street to Wilson Way	
	Existing	Preferred Alt	Alt 2	Existing	Preferred Alt	Alt 2	Existing	Preferred Alt
Pedestrian Circulation								
Allows Optimum Sidewalk Width (8 feet plus landscape areas)	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Poor
Provides Buffer Between Sidewalk and Travel Lane	Good	Good	Good	Good	Good	Good	Good	Good
Minimizes Crossing Distance or Pedestrian Exposure to Autos	Poor	Fair	Poor	Poor	Good	Fair	Poor	Good
Slows Traffic Speeds	Poor	Good	Poor	Fair	Good	Good	Poor	Good
Bicycle Circulation								
Provides no bike lane; a bike lane; or a cycle track/buffered bike lane	Poor	Fair	Poor	Poor	Good	Fair	Poor	Fair
Minimizes conflicts at intersections (turning vehicles)	Poor	Fair	Poor	Poor	Fair	Fair	Poor	Fair
Minimizes conflicts along block lengths (buses, driveways)	Poor	Fair	Poor	Poor	Good	Fair	Poor	Fair
LTS Score	Fair	Good	Fair	Fair	Good	Fair	Fair	Good
Transit Circulation								
Facilitates Provision of Bus Bulbs or Platforms	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
Expanded Sidewalk Area Facilitates Enhanced Bus Stop Amenities	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
Resolves of Bus/Bike Conflicts at Bus Stops	Poor	Fair	Poor	Fair	Good	Fair	Poor	Fair
Optimize bus stop locations for operations	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
Accommodates Potential Queue Jump Lanes and Signal Priority	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
Auto Circulation								
Promotes Slower Traffic Speeds to Increase Safety	Poor	Good	Poor	Fair	Good	Good	Poor	Good
Number of Lanes Reduces Conflict Points	Fair	Good	Fair	Fair	Good	Good	Fair	Good
Facilitates Ease/Safety of Parking Maneuvers	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
Provides network connectivity	Good	Good	Good	Good	Good	Good	Good	Good
Accommodates Traffic Flows Within Reasonable Congestion Limits	Good	Good	Good	Good	Fair	Fair	Good	Good
Parking Changes								
Change in On-Street Parking Supply Relative to Existing	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair
Composite Score (Maximum of 95 Points Possible)	**52**	**73**	**52**	**58**	**81**	**71**	**49**	**75**

Notes:: For a complete breakdown of the Scoring Criteria, see Appendix G of the City of Stockton Bicycle Master Plan (2017).
Source: Fehr & Peers, 2017.

Pacific Avenue Complete Streets Study

Corridor Overview

The Pacific Avenue Complete Streets Corridor Study is one of the highest priority projects from the Bicycle Master Plan and should address the varying cross-sections from Lower Sacramento Road to Harding Way. The Pacific Avenue corridor is a key north/south facility in Stockton which experiences a high numbers of bicycle-related collisions. This corridor would connect areas with the highest existing bicycle ridership and the University of the Pacific, with the Miracle Mile district, and on to downtown Stockton.

The cross-section varies throughout the corridor ranging from a six lane arterial with no parking to a three lane facility with parking on both sides of the roadway. The Complete Streets Study should address different needs based on land uses, pedestrian access, transit usage, north/south bicycle connectivity, heavy vehicle presence, and parking. The goal of the Complete Streets Study should be to implement low-stress bikeways. This may include separated bikeways on Pacific Avenue via a road diet or enhanced bicycle facilities and wayfinding on parallel routes. In the near term, the raised curb buffers could be substituted with striped buffers and soft-tipped posts. In the Miracle Mile district, parking could be shifted to all parallel spaces on both sides of the roadway to provide space for the separated bikeways and replaced in off-street lots as needed. Parking could be eliminated at intersections to provide space for left-turn lanes or reduced pedestrian crossing distances.

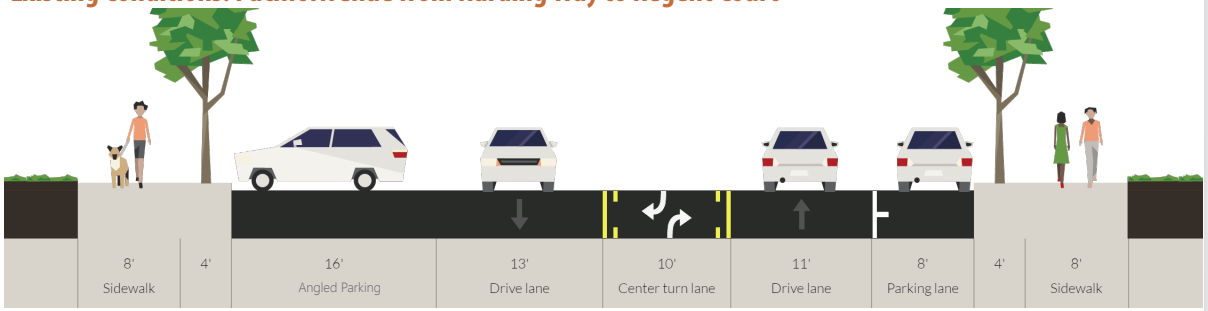
Issues and Opportunities to be addressed by the project include:

- Addressing the need for all ages and abilities bikeways in north and central Stockton.
- Improving access to higher education facilities including the University of the Pacific and San Joaquin Delta College.
- Improving bicycle and pedestrian access to major transit facilities and routes along Pacific Avenue.
- Addressing high bicycle-involved collision areas throughout the corridor.
- Improving bicycle access to or near schools including: Lincoln Elementary School, Humphreys University, John Adams Elementary School, Wilson Elementary School, Stagg High School and El Dorado Elementary School.
- Improving bicycle access to or near essential services or destinations including: retail and job centers along Hammer Lane and March Lane, Calaveras River Path, Caldwell Park, and the Miracle Mile district.

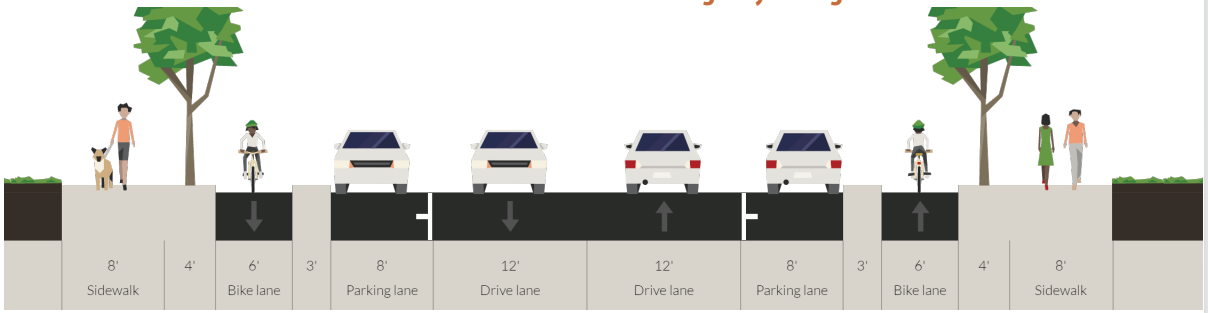
Cost and Extents

Project Number	Proposed Facility	Implementation	Distance (miles)	Cost Estimate x $1,000	Class IV Estimate #2 (Curb - Full Buildout) x $1,000
14A	Class IV Separated Bikeway	Further Study	3.9	$1,651	$10,282

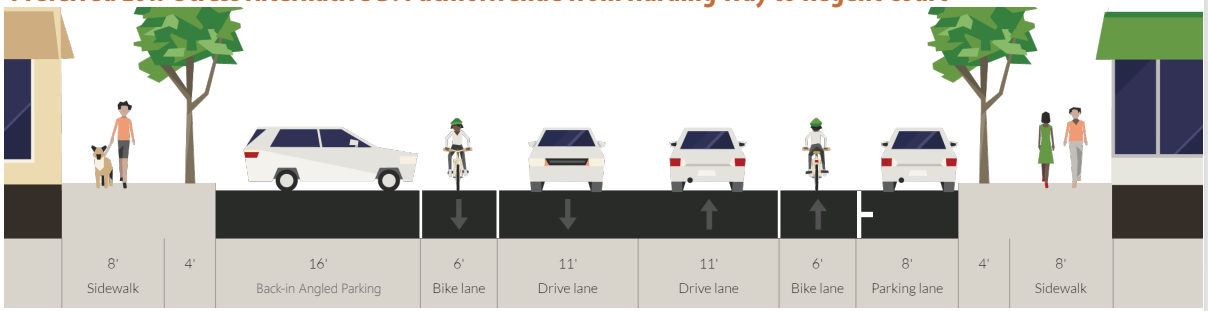
Existing Conditions: Pacific Avenue from Harding Way to Regent Court

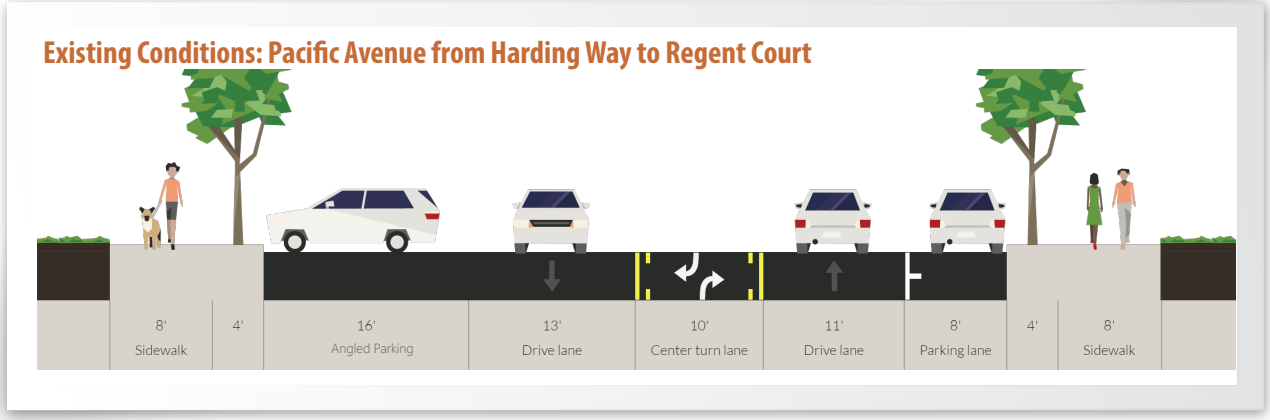


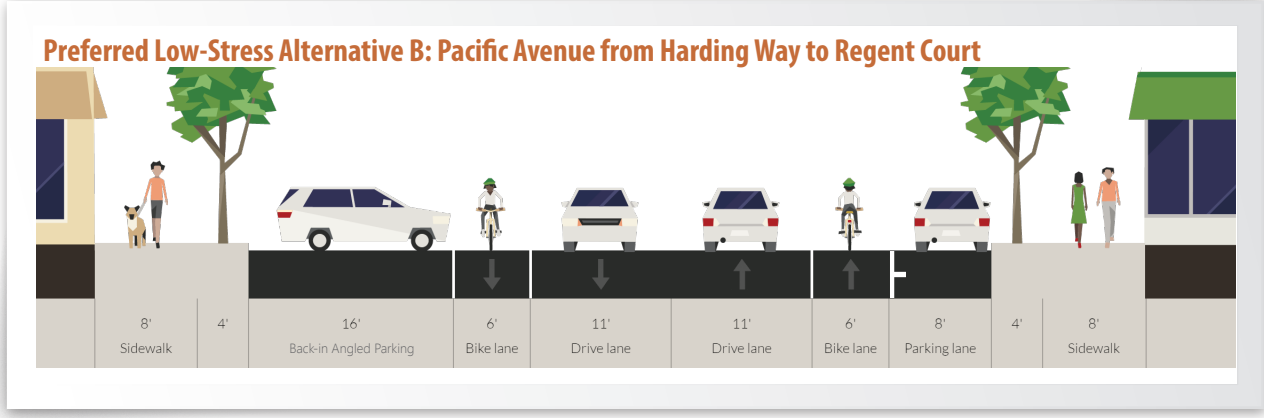
Preferred Low-Stress Alternative A: Pacific Avenue from Harding Way to Regent Court



Preferred Low-Stress Alternative B: Pacific Avenue from Harding Way to Regent Court







Multi-Modal Alternatives Assessment

Segment One: Pacific Avenue from Harding Way to Regent Court

Cross-sections shown at Pacific Avenue between Adams St & Pine Street

This segment of Pacific Avenue provides one travel lane in both directions, a center left-turn lane and no designated bicycle facilities. This part of the corridor has front-in angled parking on the west side of the street and parallel parking on the east side of the street. As this is a retail corridor, traffic speeds can range from slower to high speeds depending on the amount of pedestrians present. The Preferred Low-Stress Alternative One would install Class IV separated bikeways by removing the center left-turn lanes and converting the existing front-in angled parking to parallel parking. Narrowing of the roadway is assumed to reduce traffic speeds to allow for a new posted speed limit of 25 mph and an associated low-stress rating (LTS 2). Alternative Two would result in a medium stress facility (LTS 3) by converting the existing front-in angled parking to back-in angled parking and installing Class II bicycle lanes. This could be accomplished by removing the center left-turn lanes. For both alternatives, consider removing on-street parking at intersections to retain left-turn pockets or prohibit some left turns throughout the corridor.

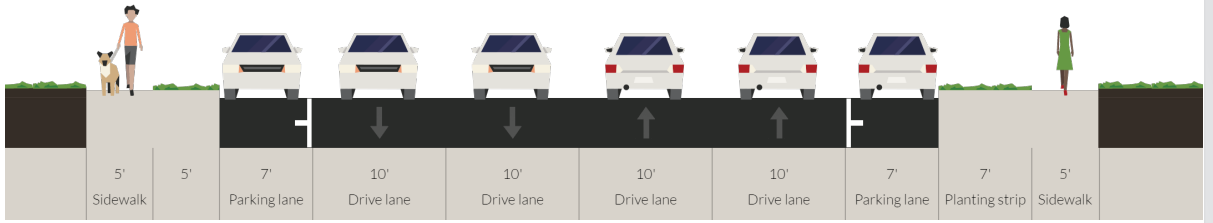
Multi-Modal Alternatives Assessment

Segment Two: Pacific Avenue from Regent Court to the Calaveras River Bridge

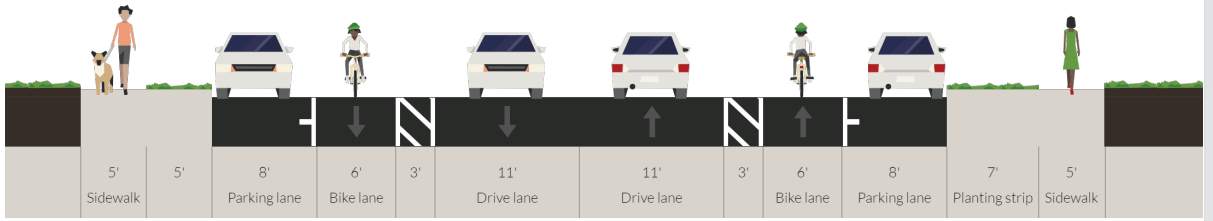
Cross-sections shown at Pacific Avenue between Alpine Ave and Monterey Ave

This segment of Pacific Avenue currently provides two travel lanes in both directions with on-street parking along both sides of the roadway. The posted speed limit is 40 mph. The Preferred Low-Stress Alternative One would install Class II buffered bicycle lanes (bikeways with painted buffers) on both sides of the roadway by implementing a road diet. On-street parking facilities would be maintained under this alternative. Traffic speeds are assumed to be reduced by the road diet to allow for a new posted speed limit of 30 mph and an associated low-stress rating (LTS 2). Alternative Two would result in a medium stress alternative (LTS 3) and would retain vehicle capacity similar to the existing conditions. However, on-street parking would be removed to install Class II buffered bicycle lanes.

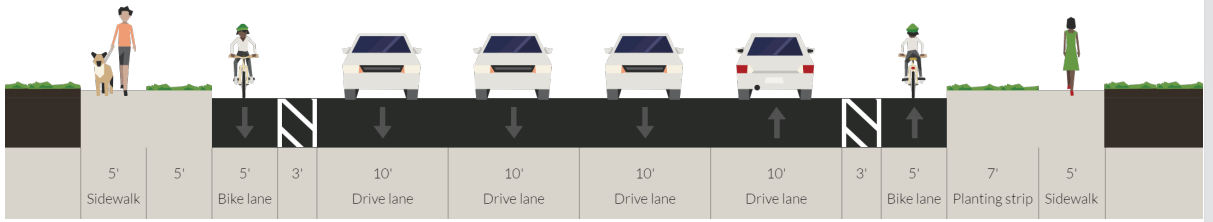
Existing Conditions: Pacific Avenue from Regent Court to the Calaveras River Bridge



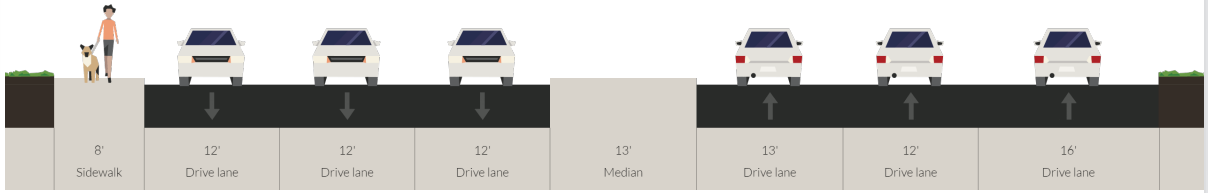
Preferred Low-Stress Alternative One: Pacific Avenue from Regent Court to the Calaveras River Bridge



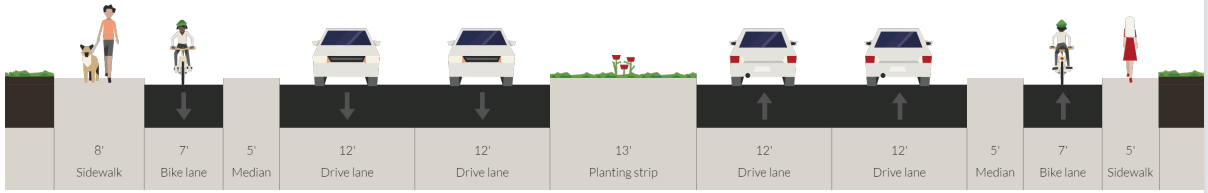
Alternative Two: Pacific Avenue from Regent Court to the Calaveras River Bridge



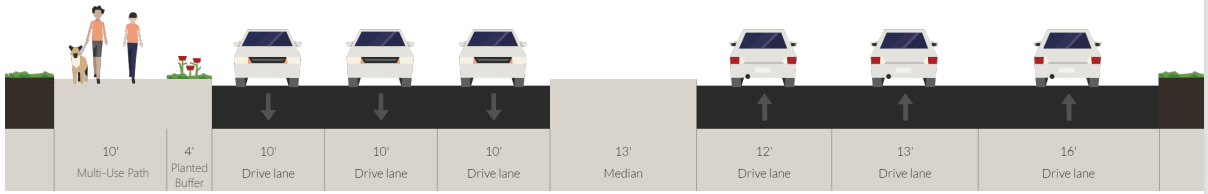
Existing Conditions: Pacific Avenue from the Calaveras River Bridge to Lower Sacramento Road



Preferred Low-Stress Alternative One: Pacific Ave from the Calaveras River Bridge to Lower Sacramento Rd



Alternative Two: Pacific Avenue from the Calaveras River Bridge to Lower Sacramento Road



Multi-Modal Alternatives Assessment

Segment Three: Pacific Avenue from the Calaveras River Bridge to Lower Sacramento Road

Cross-sections shown at Pacific Avenue between Benjamin Holt Drive and Swain Road

This segment of Pacific Avenue provides three travel lanes in both directions and does not provide any designated bicycle facilities or on-street parking. The posted speed limit is 40 mph. The Preferred Low-Stress Alternative One would install Class IV separated bikeways on both sides of the roadway by implementing a road diet. Traffic speeds are assumed to be reduced by the road diet to allow for a new posted speed limit of 35 mph and an associated low-stress rating (LTS 2). Alternative Two would widen the sidewalk on the west side of the street to create a multi-use path near San Joaquin Delta College. Doing so would maintain a low-stress facility (LTS 1). Southbound lanes would be narrowed but vehicle capacity would remain the same as existing conditions with three lanes in each direction.

Photo Credit: Google

Multi-Modal Alternatives Assessment

Metrics	Roadway Configuration Alternatives								
	Segment One: Pacific Avenue from Harding Way to Regent Ct.			Segment Two: Pacific Avenue from Regent Ct. to the Calaveras River Bridge			Segment Three: Pacific Ave. from the Calaveras River Bridge to Lower Sacramento Rd.		
	Existing	Preferred Alt	Alt 2	Existing	Preferred Alt	Alt 2	Existing	Preferred Alt	Alt 2
Pedestrian Circulation									
Allows Optimum Sidewalk Width (8 feet plus landscape areas)	Good	Good	Good	Fair	Fair	Fair	Fair	Fair	Good
Provides Buffer Between Sidewalk and Travel Lane	Good	Good	Good	Good	Good	Good	Fair	Good	Good
Minimizes Crossing Distance or Pedestrian Exposure to Autos	Poor	Good	Poor	Poor	Poor	Poor	Poor	Good	Fair
Slows Traffic Speeds	Poor	Fair	Good	Fair	Fair	Fair	Poor	Good	Fair
Bicycle Circulation									
Provides no bike lane; a bike lane; or a cycle track/buffered bike lane	Poor	Good	Fair	Poor	Good	Good	Poor	Good	Good
Minimizes conflicts at intersections (turning vehicles)	Poor	Good	Fair	Poor	Good	Good	Poor	Good	Good
Minimizes conflicts along block lengths (buses, driveways)	Poor	Good	Fair	Poor	Good	Good	Poor	Good	Good
LTS Score	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Good
Transit Circulation									
Facilitates Provision of Bus Bulbs or Platforms	Fair	Good	Fair	Fair	Fair	Fair	Fair	Good	Fair
Expanded Sidewalk Area Facilitates Enhanced Bus Stop Amenities	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Good	Good
Resolves of Bus/Bike Conflicts at Bus Stops	Poor	Good	Fair	Poor	Good	Good	Poor	Good	Good
Optimize bus stop locations for operations	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
Accommodates Potential Queue Jump Lanes and Signal Priority	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
Auto Circulation									
Promotes Slower Traffic Speeds to Increase Safety	Poor	Good	Good	Good	Good	Good	Poor	Good	Fair
Number of Lanes Reduces Conflict Points	Fair	Good	Good	Fair	Good	Fair	Poor	Good	Poor
Facilitates Ease/Safety of Parking Maneuvers	Poor	Fair	Good	Fair	Fair	Fair	n/a	n/a	n/a
Provides network connectivity	Good	Good	Good	Good	Good	Good	Good	Good	Good
Accommodates Traffic Flows Within Reasonable Congestion Limits	Good	Fair	Fair	Good	Fair	Good	Good	Fair	Good
Parking Changes									
Change in On-Street Parking Supply Relative to Existing	Fair	Poor	Fair	Fair	Fair	Poor	Fair	Fair	Fair
Composite Score (Maximum of 95 Points Possible)	**49**	**83**	**73**	**56**	**77**	**73**	**44**	**89**	**80**

Notes:: For a complete breakdown of the Scoring Criteria, see Appendix G of the City of Stockton Bicycle Master Plan (2017).
Source: Fehr & Peers, 2017.

El Dorado Street/Center Street Separated Bikeways

Corridor Overview

The El Dorado/Center Separated Bikeways, one of the highest priority projects from the Bicycle Master Plan, would extend from Harding Way to the southern City limits. This corridor would connect southwest Stockton neighborhoods with downtown and central Stockton. A temporary installment of a two-way separated bikeway was implemented on Bike to Work Day in 2016 and gained support from local residents and commuters. This project would promote Citywide spatial equity and socio-economic equity by connecting disadvantaged neighborhoods in southeast and southwest Stockton[1].

The existing cross-section on both El Dorado Street and Center Street generally consists of 3-4 one-way travel lanes with parking on both sides of the roadway. This project should assess feasibility of installing one-way or two-way separated bikeways on El Dorado Street and/or Center Street in addition to assessing road diets and the one-way couplet conversion to two-way vehicle traffic on both roadways, as is being considered with the General Plan update.

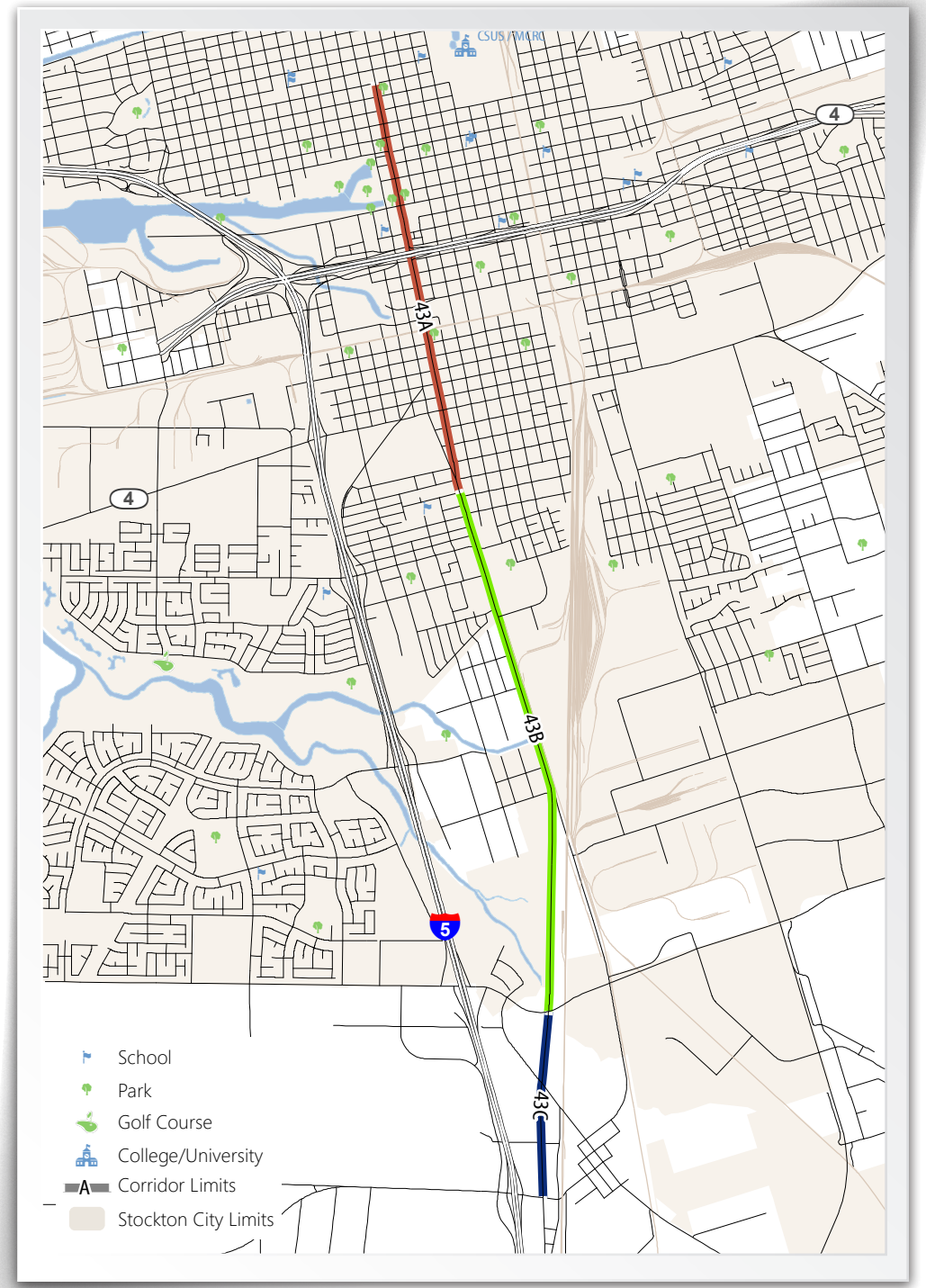
1 As designated by the California Office of Environmental Health Hazard Assessment's CalEnviroscreen environmental justice data.

Issues and Opportunities to be addressed by the project include:

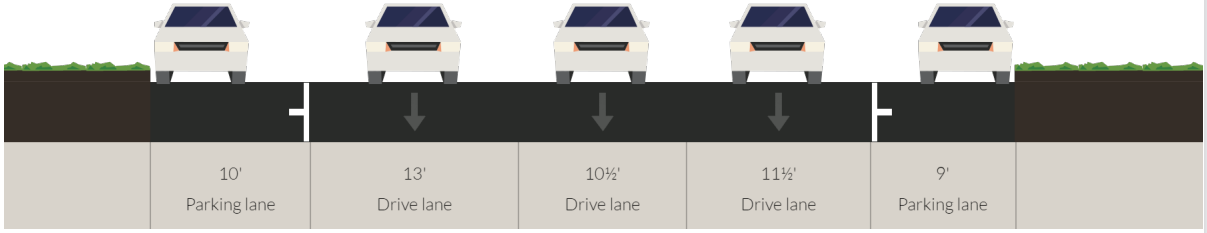
- Addressing access to downtown Stockton and promoting alternative transportation options to key economic centers.
- Building on existing public support and previous tactical urbanism design implementation from Bike to Work Day.
- Addressing high bicycle-involved collision areas on both El Dorado Street and Center Street.
- Improving bicycle access to or near schools including: El Dorado Elementary School, Stockton Unified Early College Academy, Edison High School, and McKinley Elementary School.
- Improving bicycle access to or near essential services or key destinations such as: Miracle Mile district, Cesar Chavez Central Library, Stockton Memorial Civic Auditorium, City of Stockton government buildings, downtown Stockton, Greyhound bus depot, McKinley Park, and San Joaquin General Hospital.

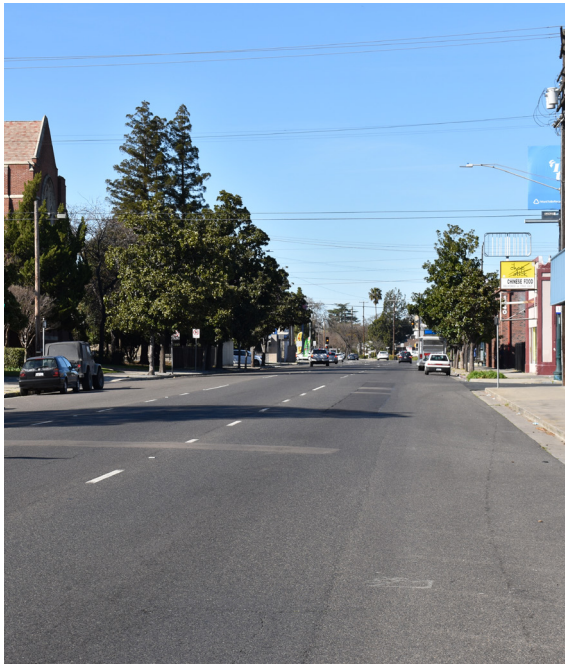
Cost and Extents

Project Number	Proposed Facility	Implementation	Distance (miles)	Cost Estimate x $1,000	Class IV Estimate #2 (Curb - Full Buildout) x $1,000
43A	Class IV Separated Bikeway	Road Diet	2.0	$856	$5,331
43B	Class IV Separated Bikeway	Lane Striping	2.6	$1,110	$6,915
43C	Class II Bicycle Lanes	Lane Striping	0.8	$167	

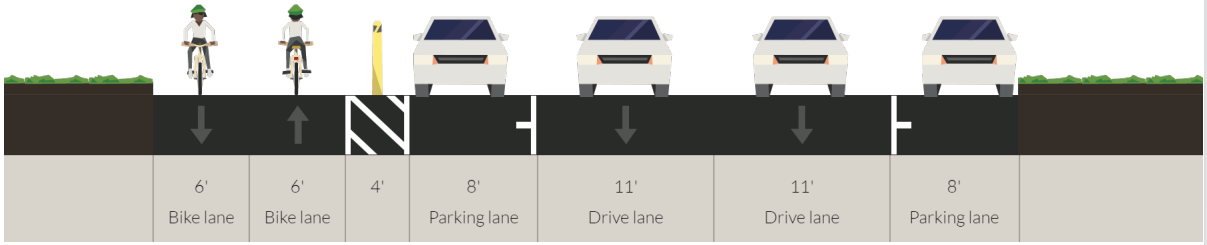


Existing Conditions: El Dorado St from Acacia St to Park St

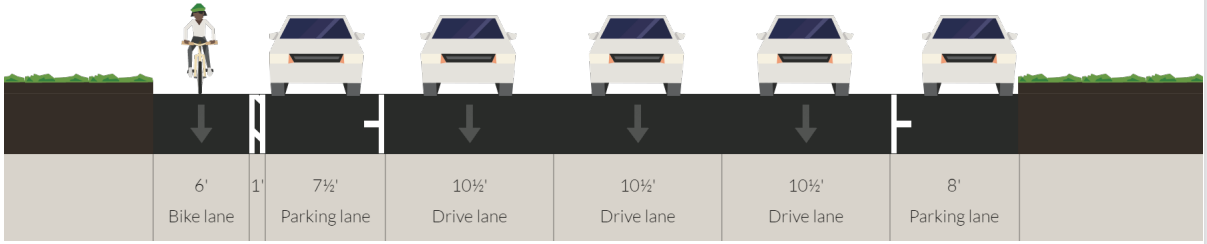




Preferred Low-Stress Alternative A: El Dorado St from Acacia St to Park St



Preferred Low-Stress Alternative B: El Dorado St from Acacia St to Park St




40 METRO EXPRESS
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6. GOAL TWO – SAFETY FIRST FOR ALL USERS

Goal Two: Make Stockton a bike-friendly city with multi-modal complete streets design and secure, convenient bicycle parking, while reducing the number of severe injuries and fatalities using Vision Zero principles.

Many of the key corridors in Stockton face competing needs from all modes of transportation due to the limited availability of major accessible North/South and East/West facilities, which is described in previous chapter. However, multiple corridors in Stockton include additional concerns over safety based on historical collision data and anecdotal accounts from local stakeholders. Conducting an in-depth evaluation of historical collision data on every corridor throughout the City was not part of the scope of this BMP update; instead, future Complete Streets Studies are recommended along three corridors based on their collision history and the identification of safety-related concerns through the community engagement process.

One important recent trend in transportation safety planning and policy is the growing adoption of Vision Zero, which is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, and equitable mobility for all. Vision Zero acknowledges that traffic deaths and injuries are preventable, which allows cities to approach prioritizing projects differently – not only addressing current problems, but proactively predicting and preventing future concerns. It was first implemented in Sweden in 1997 and has since gained momentum in Europe and the US. In Northern California, Fremont, Sacramento, San Francisco, and San Jose have adopted Vision Zero, and several other cities are considering adopting the strategy. Many additional cities are exploring Vision Zero or other systemic, proactive safety strategies through the new Caltrans Systemic Safety Analysis Report Program (SSARP) program, of which Stockton is also a recent recipient.

The most frequent request from the community engagement process was to install safe, secure bicycle parking. One of the most reported concerns centered on bicycle theft, with particular emphasis on the placement of bicycle racks in areas that are well-lit and visible from surrounding buildings. Providing secure end-of-trip facilities to reassure riders their property will be safe once they arrive at their destination is an essential component of encouraging increased bicycle usage. A systematic bicycle parking program should be implemented to install short-term racks and long-term lockers. Further, a process should be developed that allows residents and business owners to request bicycle parking at locations beyond the key destinations in the BMP. In addition, "Bike Valet" services should be encouraged at special events, or required as part of event permit.

Many stakeholders voiced concern about bicycling in some neighborhoods due to feelings of personal safety. While infrastructure projects can help to make biking more visible, strategies to address personal safety and security must include best practice elements of Crime Prevention through Environmental Design such as clear sight lines, adequate lighting, and routes to avoid hot spots.

6.1 Goal Two: Supporting Policies & Actions

Policy 2-1:

Plan and design for low traffic stress facilities for bicyclists on the Backbone Network and new streets.

Action 2-1A: Design bikeways for the "interested but concerned" population of Stockton who tolerate a very low level of traffic stress, such as children, seniors, and those who may be new to biking and may not want to ride in traffic.

Action 2-1B: Ensure low levels of traffic stress on the Backbone Network are maintained at intersections through protected intersections, removed or modified slip lanes, bicycle signals, turning support, and crossing enhancements on neighborhood bikeways.

Action 2-1C: Provide and maintain signal detection for bicyclists at all intersections, including on side streets and in left-turn pockets. Ensure the green and yellow times provide enough clearance time for the average bicyclist, with slower speeds assumed where bicyclists travel near schools, parks, and senior facilities.

Action 2-1D: On residential Class III Bicycle Boulevards, provide traffic calming to reduce speeds and, where needed, traffic volumes to maintain a low-traffic stress, family-friendly bicycle environment. At crossings with major roadways, provide enhanced crossings to reduce the level of traffic stress at intersections.

Policy 2-2:

Work to eliminate bicycle-involved crashes, particularly fatal and severe injuries.

Action 2-2A: Implement a program to monitor and report bicycle-related collisions on an annual basis. Conduct bicycle volume counts, identify safety countermeasures, and recommend safety improvements on an annual basis.

Action 2-2B: dopt a Vision Zero or similar policy in Stockton to reduce fatal and severe injuries to zero and create a framework to address systemic safety concerns throughout the City.

Action 2-2C: Implement the Backbone Network with high levels of protection (such as separated bikeways) on arterials, trail connections where feasible, and bicycle boulevards with traffic calming on low-volume residential streets.

Action 2-2D: Apply for Caltrans Highway Safety Improvement Program (HSIP) and other grants to support the implementation of safety projects.

Policy 2-3:

Proactively plan and design all streets as complete streets to address citywide bicycle safety and design for people of all ages and abilities while balancing the needs of all modes of transportation.

Action 2-3A: Implement the citywide low-stress Backbone Network, including protected intersections and/or bicycle signals at major intersections where low stress bikeways intersect.

Action 2-3B: Explicitly prohibit parking in dedicated bicycle facilities and work with the Police Department to provide enforcement. Design separated bikeways to provide for good commercial and passenger loading to discourage bikeway blockages.

Action 2-3C: Install traffic calming improvements on bicycle boulevards or bicycle routes

Action 2-3D: Adopt and implement a multi-modal safety assessment methodology for all City traffic studies that considers safety and comfort impacts to bicyclists of all ages and abilities in its impact analysis in addition to site access, bicycle parking, and other bikeway improvements associated with development.

Action 2-3E: Remove slip lanes and tighten corner radii at intersections to slow turning vehicular traffic and improve bicycle safety at intersections, particularly on the Backbone Network.

Policy 2-5:

Increase the amount of secure, convenient, and accessible bicycle parking throughout Stockton.

Action 2-5A: Create a process for residents, businesses, employers, and others to request long-term bicycle lockers or short-term bicycle racks (including bike corrals and parklets) from the City at existing developments or major attractions in Stockton to increase the number of end-of-trip facilities in Stockton. Reference the San Francisco Parklet Manual for best practice guidance on establishing parklet programs and creating parklets.

The San Francisco Parklet Manual can be assessed at http://pavementtoparks.org/parklets/#parklet-manual.

Action 2-5B: Identify a dedicated funding mechanism to install racks and lockers each year as identified in this Plan or as requested by the public.

Action 2-5C: Update the City's Bicycle Parking Standards in the Municipal Code to follow the Association of Bicycle and Pedestrian Professional (APBP) Bicycle Parking Guidelines, 2nd edition.

Action 2-5D: Install, operate, and maintain secure, publicly available bicycle parking in all City and Parking Authority owned parking structures and parking lots.

6.2 Goal Two: Priority Projects

Addressing bicycle safety in Stockton needs to start with addressing the highest collision and injury corridors to make these facilities accessible to all users, and to learn lessons from these locations to proactively extrapolate to other areas. The focused Complete Streets Studies should address different needs based on land uses, pedestrian access, transit usage, bicycle connectivity, heavy vehicle needs, bicycle parking, and vehicular parking. The goal of the Complete Streets Studies should be to implement low-stress bikeways along these corridors and reduce citywide barriers to access. The studies will involve extensive consultation with residents and business owners, as any solution along the corridor will involve either a road diet or parking reductions with associated impacts. If low-stress bikeways are not feasible directly along a corridor, then the study should consider medium-stress facilities on the corridor and parallel low-stress routes with wayfinding.

The following priority projects support inter-modal connectivity. Descriptions of how each project supports Goal 2 are provided below followed by fact sheets that provide an overview of the project, implementation options, estimated costs, and proposed cross-sections.

6.2.1 West Lane/Airport Way Complete Streets Study

The West Lane/Airport Way Complete Streets Study would assess the feasibility of providing separated bikeways to a large segment of the population in multiple areas of eastern Stockton. The West Lane/Airport Way corridor would provide a key funnel route into Downtown Stockton and connectivity in South Stockton. As a high-injury collision corridor that sees heavy vehicular volumes and high speeds, this corridor needs to balance the needs of diverse land uses and modes of transportation while aiming to separate cyclists from traffic.

6.2.2 Dr Martin Luther King Jr Boulevard Complete Streets Study

The Dr Martin Luther King Jr Boulevard Complete Streets Study would assess the feasibility of providing separated bikeways along one of Stockton's highly accessed commercial routes. This corridor has many competing transportation needs including providing freeway access for heavy vehicles, allowing access to adjacent land uses, ensuring transit accessibility, and ensuring a safe place for bicyclists and pedestrians to traverse the corridor. As a high-injury corridor with a concentration of bicycle collisions, a Complete Streets Study is recommended to provide an in-depth analysis of multi-modal safety and accessibility.

6.2.3 Harding Way Complete Streets Study

With the highest concentration of collisions along, at, and near the Harding Way corridor out of all corridors in Stockton, a Complete Streets Study is recommended to assess how best to facilitate multi-modal connectivity and access along one of the primary corridors that connects North Stockton to Downtown Stockton. Local community and stakeholder engagement should be used to identify the key trade-offs along the corridor for the diverse mix of land-uses and to ensure a safe environment for all modes of transportation.

6.2.4 Citywide Bicycle Parking Program

A citywide bicycle parking program should be implemented to allow residents, businesses, employers, and others to request long-term and short-term bicycle parking installations. For short trips, visible parking racks that allow bicycles to be secured with a U-lock are critical. For trips to work or other longer outings, more secure parking is often needed, such as bicycle lockers or bicycle cages, which typically require a special key or code for access. This is important not only at civic and commercial uses but also in residential areas, particularly in larger multi-family apartment buildings where space may be limited.

The proposed program would establish guidelines for siting different types of bicycle parking. Applicants would be required to indicate how their request addresses the guidelines. Sites deemed appropriate for installation would be added to the City's to a list of future bicycle parking installation locations. Dedicated funding should be identified for bicycle parking installations every year. Additional grant funding opportunities should be explored to enhance funding availability. An initial map of proposed bicycle parking locations can be found on the Citywide Bicycle Parking Program Fact Sheet.

West Lane/Airport Way Complete Streets Study

Corridor Overview

The West Lane/Airport Way Complete Streets Corridor Study should address the entire length of the corridor extending from Eight Mile Road to Hazelton Avenue. The West Lane/ Airport Way corridor is a key north/south facility in Stockton which experiences high numbers of bicycle and pedestrian-involved collisions and connects many disadvantaged neighborhoods[1].

The cross-section varies throughout the corridor, ranging from an eight lane arterial with no parking to a four lane arterial with parking. The Complete Streets Study should address different needs based on land uses, pedestrian access, transit usage, north/south bicycle connectivity, heavy vehicle presence, and parking. The goal of the Complete Streets Study should be to implement low-stress bikeways. This may include separated bikeways on West Lane/ Airport Way via a road diet or enhanced bicycle facilities and wayfinding on parallel routes. The study should include operations analysis, parking utilization studies, and initial concept designs to address localized design issues and corridor complexities. Additional focused public outreach should be targeted in the various segments of the corridors.

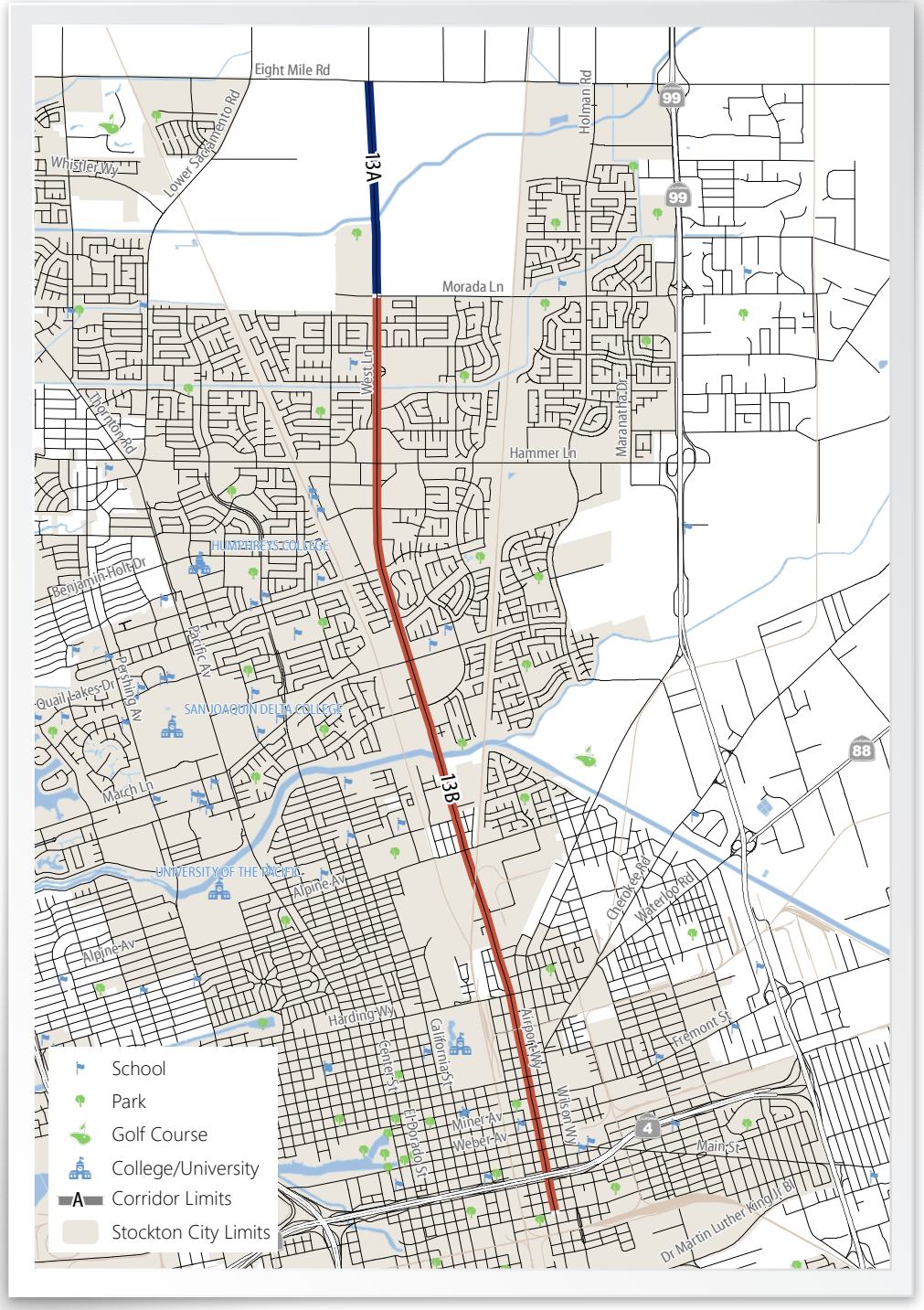
1 As designated by the California Office of Environmental Health Hazard Assessment's CalEnviroscreen environmental justice data.

Issues and Opportunities to be addressed by the project include:

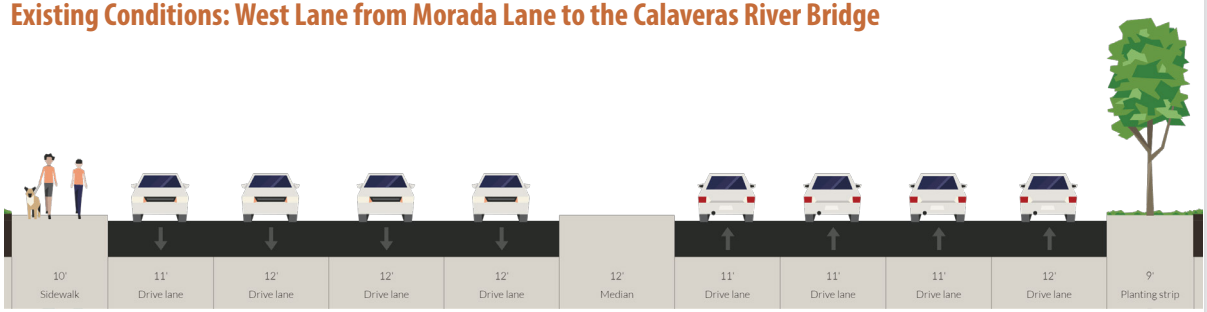
- Addressing the need for all ages and abilities bikeways to connect north and central Stockton to downtown Stockton.
- Improving separation from heavy truck traffic along the corridor and maintaining heavy truck turning capabilities.
- Addressing high collision areas near, at, and along Hammer Lane and Harding Way.
- Improving bicycle access to or near schools including: Ronald E. McNair High School, Westwood Elementary School, Stockton Christian Academy, Clairmont Elementary School, Rio Calaveras Elementary School, Acacia Community Charter Elementary School, Aspire Langston Hughes Academy, Aspire Port City Academy, Grunsky Elementary School, and Jane Frederick Continuation High School.
- Improving bicycle access to or near essential services and destinations including: Hammer Lane retail and job corridor, Kaiser Permanente Stockton, March Lane retail and job corridor, Calaveras River Path, and Downtown Stockton.

Cost and Extents

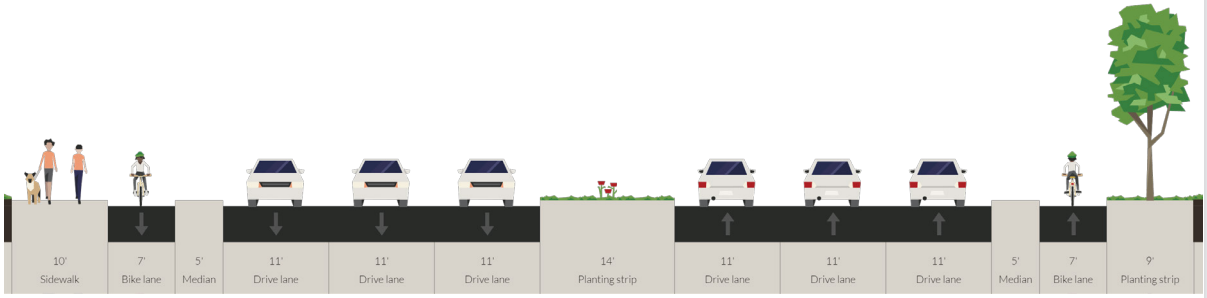
Project Number	Proposed Facility	Implementation	Distance (miles)	Cost Estimate x $1,000	Class IV Estimate #2 (Curb - Full Buildout) x $1,000
13A	Class IV Separated Bikeway	Capital Improvements	1.4	$581	$3,618
13B	Class IV Separated Bikeway	Further Study	6.1	$2,569	$15,999



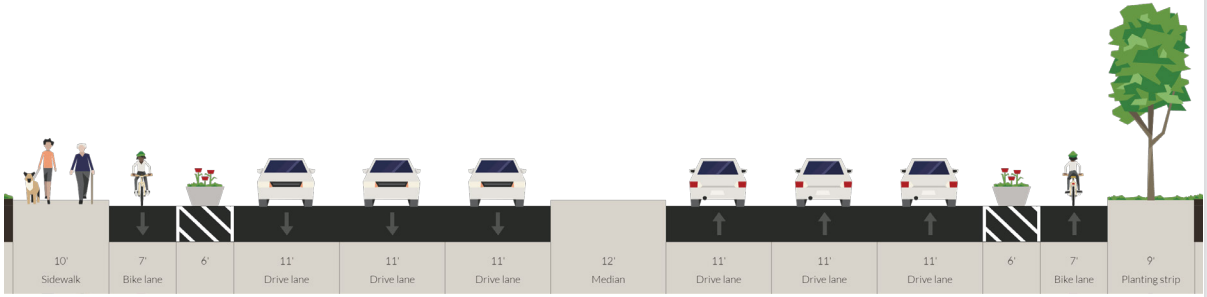
Existing Conditions: West Lane from Morada Lane to the Calaveras River Bridge



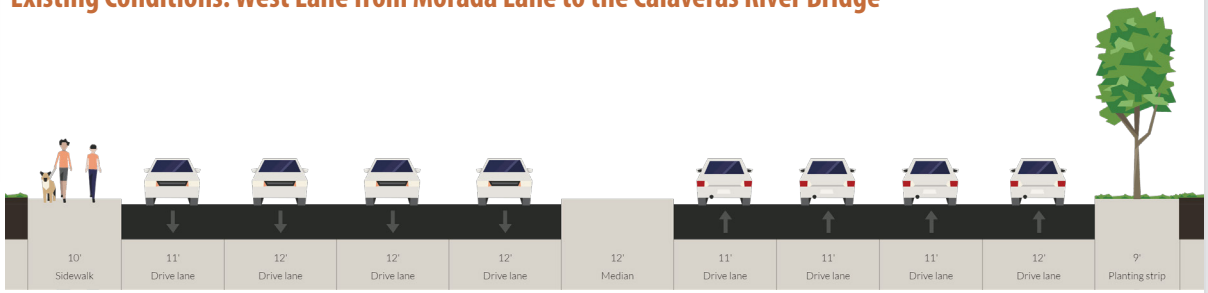
Preferred Low-Stress Alternative A: West Lane from Morada Lane to the Calaveras River Bridge



Preferred Low-Stress Alternative B: West Lane from Morada Lane to the Calaveras River Bridge



Existing Conditions: West Lane from Morada Lane to the Calaveras River Bridge



Preferred Low-Stress Alternative One: West Lane from Morada Lane to the Calaveras River Bridge

Multi-Modal Alternatives Assessment

Segment One: West Lane from Eight Mile Road to the Calaveras River Bridge

Cross-sections shown at West Lane between Tommydon Street and Hammertown Drive

This segment of West Lane currently has four travel lanes in each direction with a posted speed limit which varies from 45-55 mph. The segment does not have on-street parking provided or designated bicycle facilities. The Preferred Low-Stress Alternative One would implement a road diet and install Class IV separated bikeways in both directions. Traffic speeds are assumed to be reduced by the road diet to allow for a new posted speed limit of 35 mph and an associated low-stress rating (LTS 2) along the corridor. While full buildout should include raised curb separation from traffic, buffered bicycle lanes with soft-tipped posts could be implemented in the near-term to provide separation.

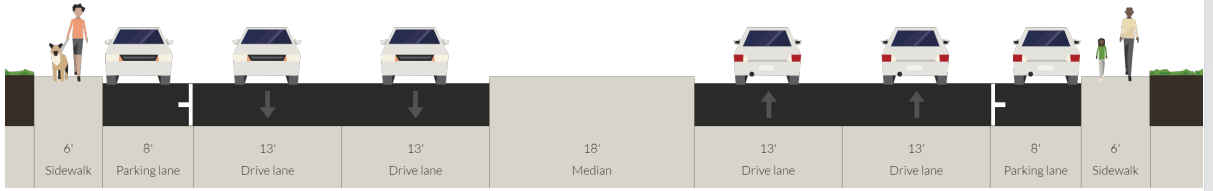
Multi-Modal Alternatives Assessment

Segment Two: West Lane from the Calaveras River Bridge to Harding Way

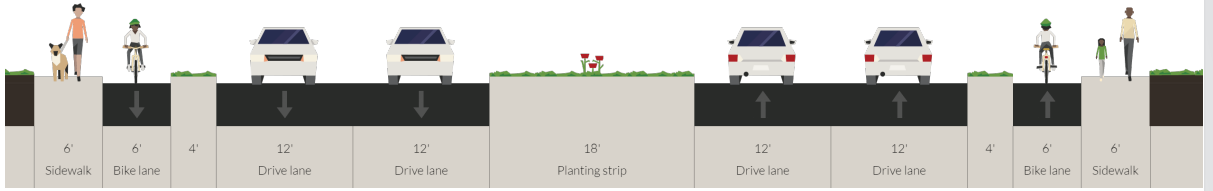
Cross-sections shown at West Lane between Fulton Street and Stadium

This segment of West Lane currently has two travel lanes in both directions and provides on-street parking on both sides of the street. The segment does not have on-street bicycle facilities. The posted speed limit is 35 mph. The Preferred Low-Stress Alternative One would install Class IV separated bikeways on both sides of the roadway by removing on-street parking. Two travel lanes would be retained in either direction with a narrower cross-section that would typically reduce traffic speeds and maintain the posted speed limit of 35 mph and an associated low-stress rating (LTS 2) along the corridor. Alternative Two would result in a medium stress bicycle facility (LTS 3) by retaining two travel lanes in either direction as well as on-street parking on both sides of the roadway. This alternative would install Class II bicycle lanes on both side of the street. This could be accomplished by narrowing existing vehicle travel lane widths to 10 to 11 feet.

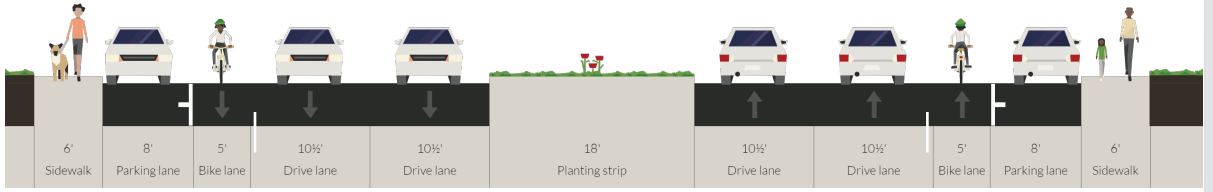
Existing Conditions: West Lane from the Calaveras River Bridge to Harding Way



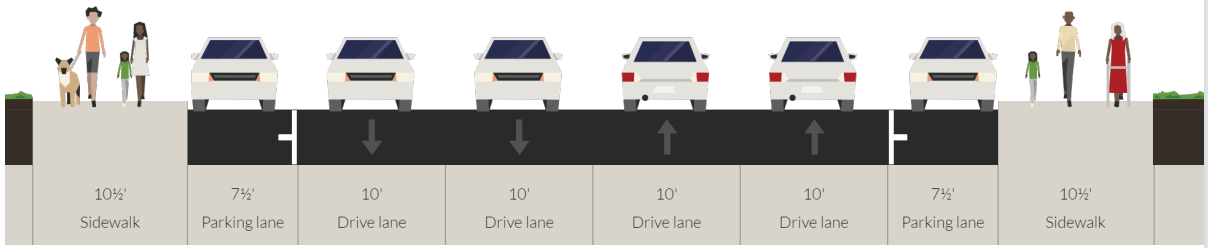
Preferred Low-Stress Alternative One: West Lane from the Calaveras River Bridge to Harding Way



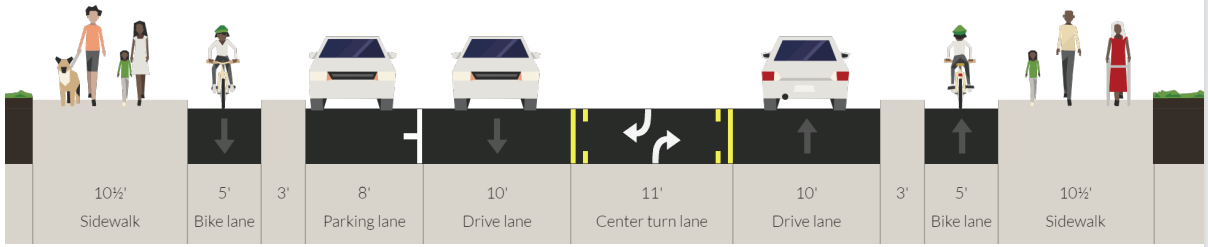
Alternative Two: West Lane from the Calaveras River Bridge to Harding Way



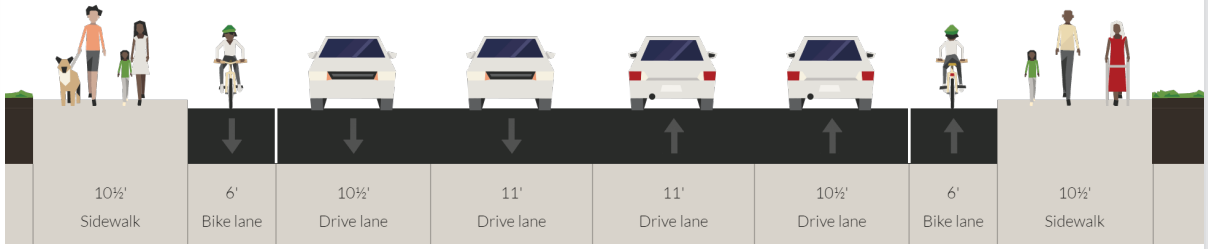
Existing Conditions: Airport Way from Harding Way to Hazelton Avenue



Preferred Low-Stress Alternative One: Airport Way from Harding Way to Hazelton Avenue



Alternative Two: Airport Way from Harding Way to Hazelton Avenue



Multi-Modal Alternatives Assessment

Segment Three: Airport Way from Harding Way to Hazelton Avenue

Cross-sections shown at West Lane between Lindsay Street and Miner Avenue

This segment of Airport Way has two travel lanes in both directions with center left-turn lanes. This part of the corridor does not provide on-street parking or bicycle facilities. The posted speed limit is 40 mph. The Preferred Low-Stress Alternative One would install Class IV separated bikeways on both sides of the road while retaining on-street parking along one side of the roadway by implementing a road diet. This alternative would provide one lane in both directions and retain the center left-turn lane. Traffic speeds are assumed to be reduced by the road diet to allow for a new posted speed limit of 35 mph and an associated low-stress rating (LTS 2) along the corridor. Alternative Two would result in a medium stress bicycle facility (LTS 3) by retaining two travel lanes in either direction and removing the center turn lane to install Class II bicycle lanes on both sides of the roadway.

Multi-Modal Alternatives Assessment

Metrics	Roadway Configuration Alternatives							
	Segment One: West Lane from Morada Lane to the Calaveras River Bridge		Segment Two: West Lane from the Calaveras River Bridge to Harding Way			Segment Three: Airport Way from Harding Way to Hazelton Avenue		
	Existing	Preferred Alt	Existing	Preferred Alt	Alt 2	Existing	Preferred Alt	Alt 2
Pedestrian Circulation								
Allows Optimum Sidewalk Width (8 feet plus landscape areas)	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
Provides Buffer Between Sidewalk and Travel Lane	Fair	Good	Good	Good	Good	Fair	Good	Fair
Minimizes Crossing Distance or Pedestrian Exposure to Autos	Poor	Good	Poor	Good	Poor	Poor	Good	Poor
Slows Traffic Speeds	Poor	Good	Poor	Fair	Good	Poor	Good	Good
Bicycle Circulation								
Provides no bike lane; a bike lane; or a cycle track/buffered bike lane	Poor	Good	Poor	Good	Fair	Poor	Good	Fair
Minimizes conflicts at intersections (turning vehicles)	Poor	Good	Poor	Good	Fair	Poor	Good	Fair
Minimizes conflicts along block lengths (buses, driveways)	Poor	Good	Poor	Good	Fair	Poor	Good	Fair
LTS Score	Poor	Good	Poor	Good	Fair	Poor	Good	Fair
Transit Circulation								
Facilitates Provision of Bus Bulbs or Platforms	Fair	Good	Fair	Good	Fair	Fair	Good	Fair
Expanded Sidewalk Area Facilitates Enhanced Bus Stop Amenities	Fair	Good	Fair	Fair	Fair	Fair	Fair	Fair
Resolves of Bus/Bike Conflicts at Bus Stops	Poor	Good	Poor	Good	Fair	Poor	Good	Fair
Optimize bus stop locations for operations	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
Accommodates Potential Queue Jump Lanes and Signal Priority	Fair	Poor	Fair	Poor	Fair	Fair	Poor	Fair
Auto Circulation								
Promotes Slower Traffic Speeds to Increase Safety	Poor	Good	Poor	Fair	Good	Good	Good	Good
Number of Lanes Reduces Conflict Points	Poor	Fair	Fair	Fair	Fair	Fair	Good	Good
Facilitates Ease/Safety of Parking Maneuvers	n/a	n/a	Fair	Fair	Fair	n/a	Fair	n/a
Provides network connectivity	Good	Good	Good	Good	Good	Good	Good	Good
Accommodates Traffic Flows Within Reasonable Congestion Limits	Good	Fair	Good	Good	Good	Good	Fair	Good
Parking Changes								
Change in On-Street Parking Supply Relative to Existing	Fair	Fair	Fair	Poor	Fair	Fair	Good	Fair
Composite Score (Maximum of 95 Points Possible)	**44**	**84**	**49**	**77**	**68**	**51**	**85**	**69**

Notes:: For a complete breakdown of the Scoring Criteria, see Appendix G of the City of Stockton Bicycle Master Plan (2017).
Source: Fehr & Peers, 2017.

Dr. Martin Luther King, Jr. Boulevard Complete Streets Study

Corridor Overview

The Dr Martin Luther King Jr Boulevard Complete Streets Corridor Study, one of the highest priority projects from the Bicycle Master Plan, extends from Lincoln Street to Golden Gate Avenue. This corridor experiences high bicycle-involved collisions. The existing cross-section features four travel lanes with parking on both sides of the roadway. As one of the few east-west corridors in South Stockton, Dr Martin Luther King Jr Boulevard has heavy truck use and high transit demand. A low-stress bicycle facility on Dr Martin Luther King Jr Boulevard would promote citywide spatial equity and socio-economic equity by connecting disadvantaged neighborhoods in southeast and southwest Stockton[1].

The Complete Streets Study should address different needs based on land uses, pedestrian access, transit usage, north/south bicycle connectivity, heavy vehicle presence, and parking. The goal of the Complete Streets Study should be to implement low-stress bikeways. This may include separated bikeways on Dr Martin Luther King Jr Boulevard via a road diet or enhanced bicycle facilities and wayfinding on parallel routes. In the near term, the raised curb buffers could be substituted with striped buffers and soft-tipped posts. Parking could be preserved on both sides of the roadway unless four travel lanes are deemed necessary for traffic operations and meeting community values. A parking analysis could identify sites where replacement off-street parking could be located.

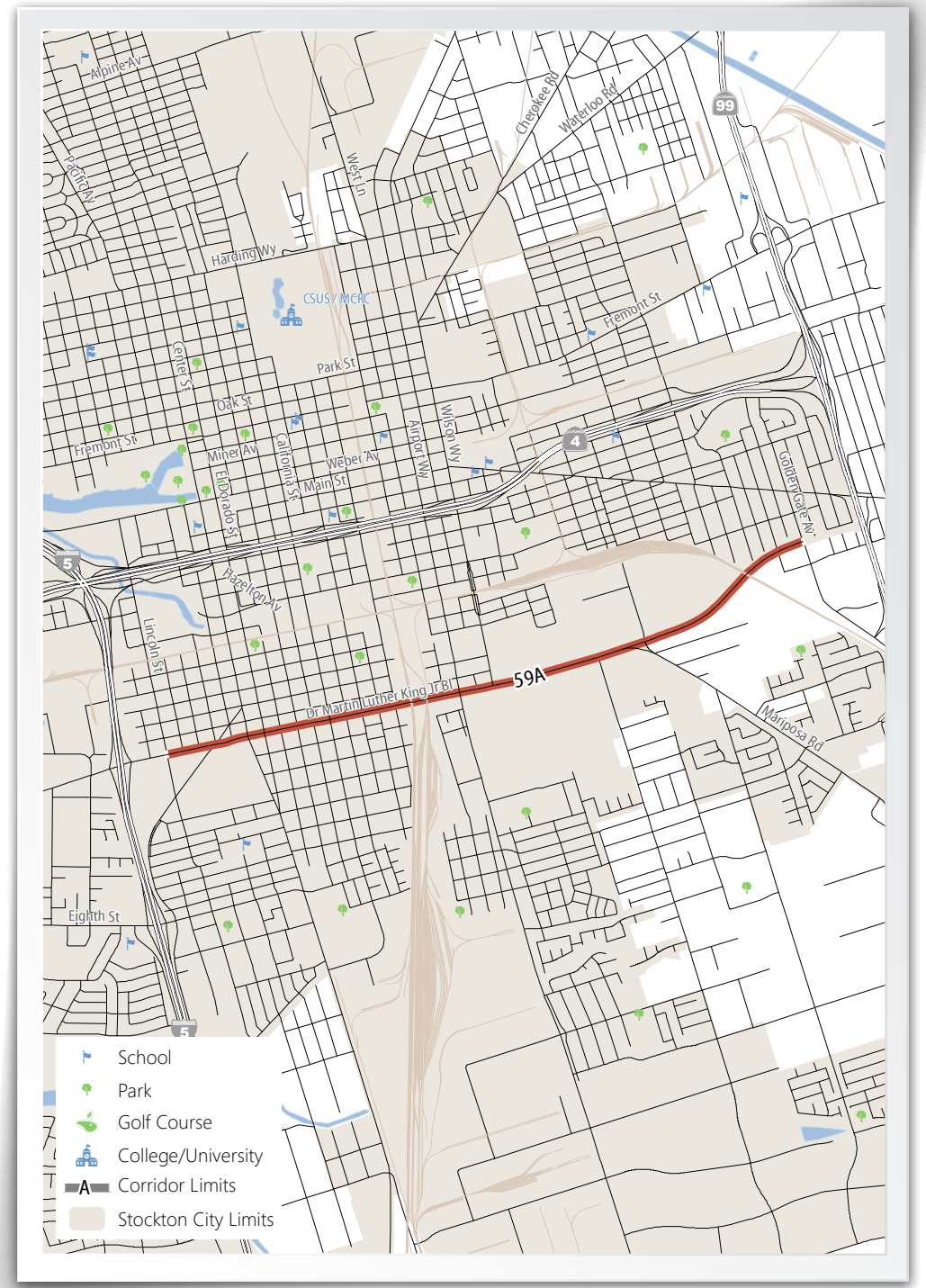
1 As designated by the California Office of Environmental Health Hazard Assessment's CalEnviroscreen environmental justice data.

Issues and Opportunities to be addressed by the project include:

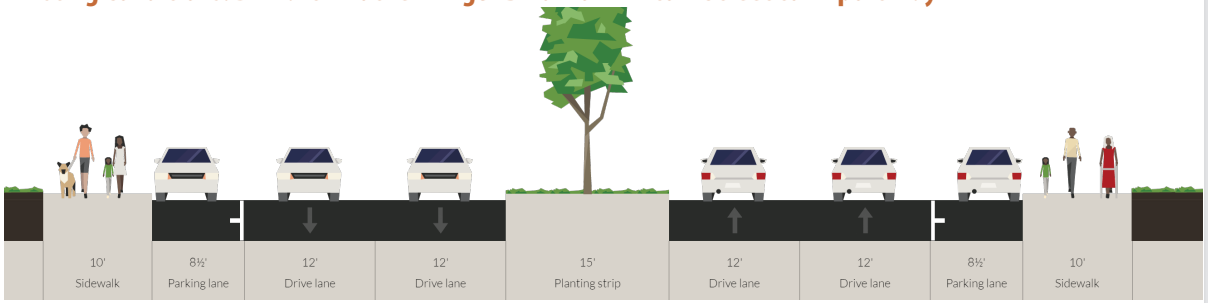
- Addressing high bicycle-involved collision areas throughout the corridor.
- Improving bicycle access to or near Horton Elementary School and Edison High School.
- Improving bicycle access to or near essential services and destinations including: retail and job centers and the San Joaquin County Fairgrounds.

Cost and Extents

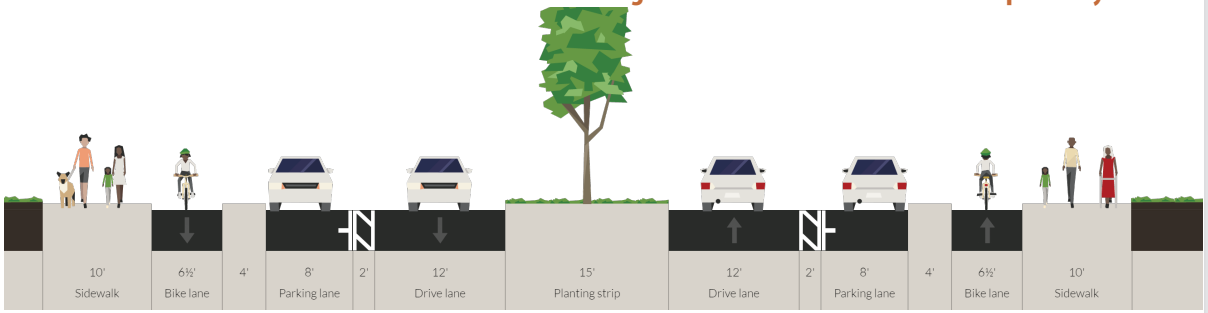
Project Number	Proposed Facility	Implementation	Distance (miles)	Cost Estimate x $1,000	Class IV Estimate #2 (Curb - Full Buildout) x $1,000
59A	Class IV Separated Bikeway	Further Study	3.0	$1,255	$7,813



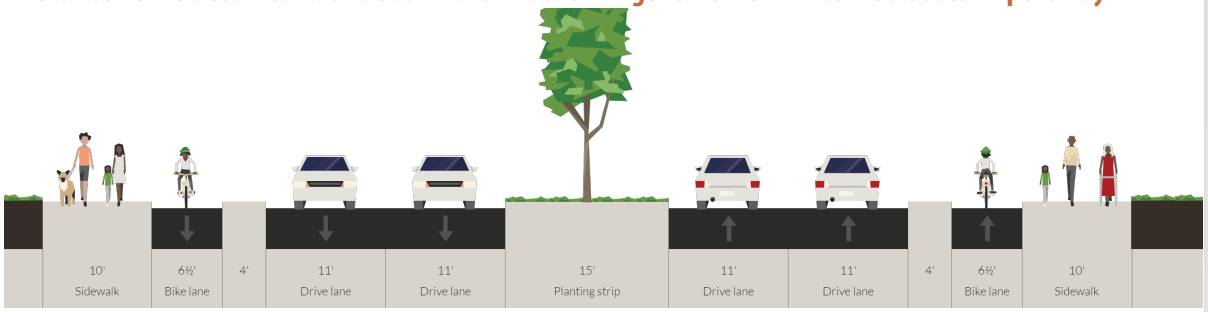
Existing Conditions: Dr Martin Luther King Jr Blvd from Lincoln Street to Airport Way



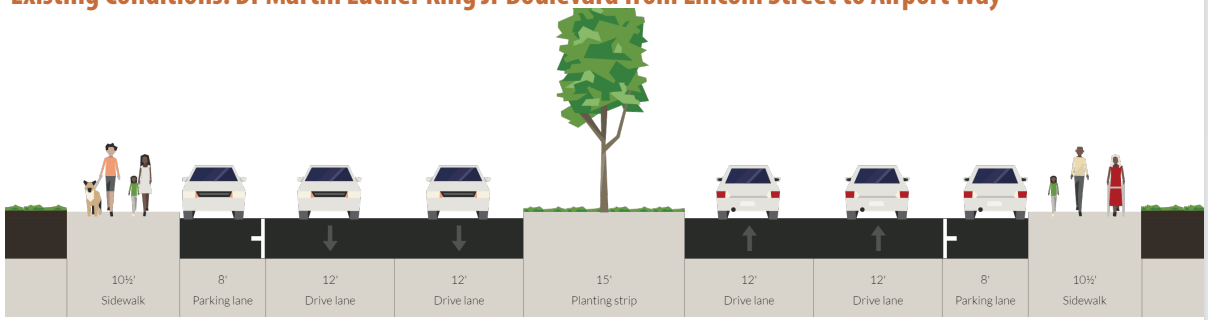
Preferred Low-Stress Alternative A: Dr Martin Luther King Jr Blvd from Lincoln Street to Airport Way



Preferred Low-Stress Alternative B: Dr Martin Luther King Jr Blvd from Lincoln Street to Airport Way



Existing Conditions: Dr Martin Luther King Jr Boulevard from Lincoln Street to Airport Way



Preferred Low-Stress Alternative One: Dr Martin Luther King Jr Blvd from Lincoln Street to Airport Way

Alternative Two: Dr Martin Luther King Jr Boulevard from Lincoln Street to Airport Way

Multi-Modal Alternatives Assessment

Segment One: Dr Martin Luther King Jr Boulevard from Lincoln Street to Airport Way

Cross-sections shown at Dr Martin Luther King Jr Boulevard between California Street and American Street

This segment of Dr Martin Luther King Jr Boulevard provides two travel lanes in both directions with on-street parking on both sides of the street and no bicycle facilities. The posted speed limit is 35 mph. The Preferred Low-Stress Alternative One would install Class IV separated bikeways while retaining on-street parking by implementing a road diet. Alternative Two would similarly provide a low-stress bicycle facility (LTS 2) by installing Class IV separated bikeways on both sides of the roadway but would retain two travel lanes in either direction by removing on-street parking along the corridor. The corridor study should locate potential areas for replacement parking. For both Alternative 1 and 2, traffic speeds are assumed to be reduced with the road diet to maintain a posted speed limit of 35 mph and an associated low-stress rating (LTS 2) along the corridor. The limited right-of-way under the Union Pacific Rail Road is a critical bottleneck and will need to be examined in greater depth.

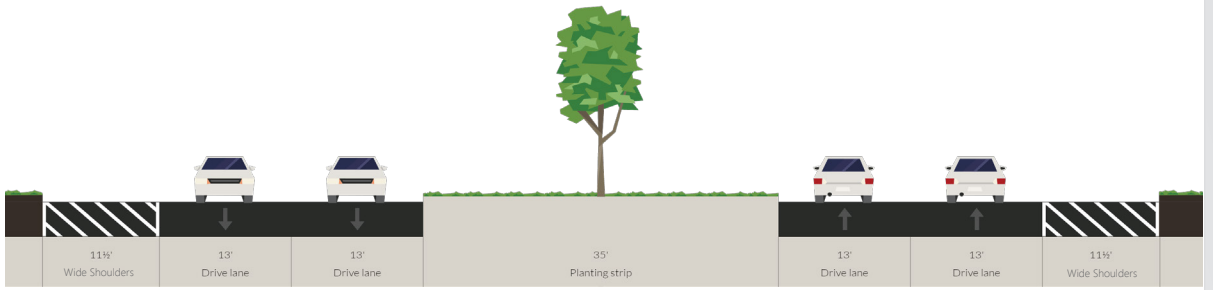
Multi-Modal Alternatives Assessment

Segment Two: Dr Martin Luther King Jr Boulevard from Airport Way to Mariposa Road

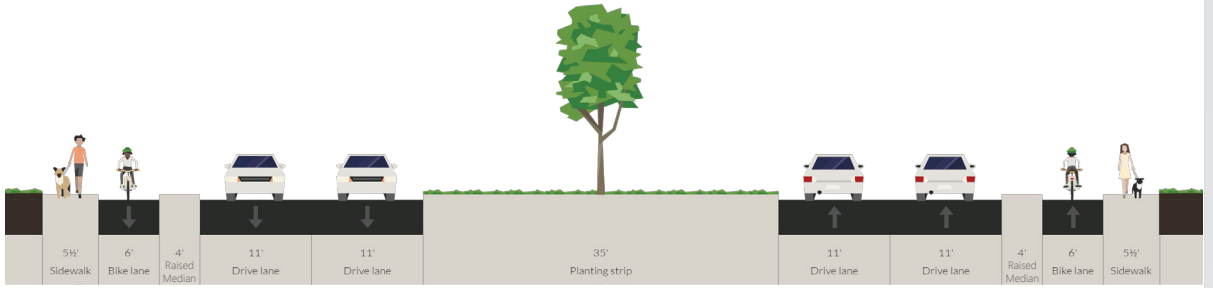
Cross-sections shown at Dr Martin Luther King Jr Boulevard between Wilson Way & Diamond Street

This segment of Dr Martin Luther King Jr Boulevard has two wide travel lanes in both directions as well as wide paved shoulders. The posted speed limit is 40 mph. This part of the corridor does not have on-street parking or bicycle facilities present. The Preferred Low-Stress Alternative One would install Class IV separated bikeways and sidewalks on both sides of the roadway by narrowing lane widths to 11 feet. Traffic speeds would be assumed to be reduced with a narrower cross-section to allow for a posted speed limit of 30 mph and an associated low-stress rating (LTS 2) along the corridor. Alternative Two would similarly provide a low-stress facility (LTS 1) by installing a Class IV two-way separated bikeway on the south side of the roadway and a sidewalk on the north side. This could be accomplished by narrowing lane widths and/or reducing the wide paved shoulder.

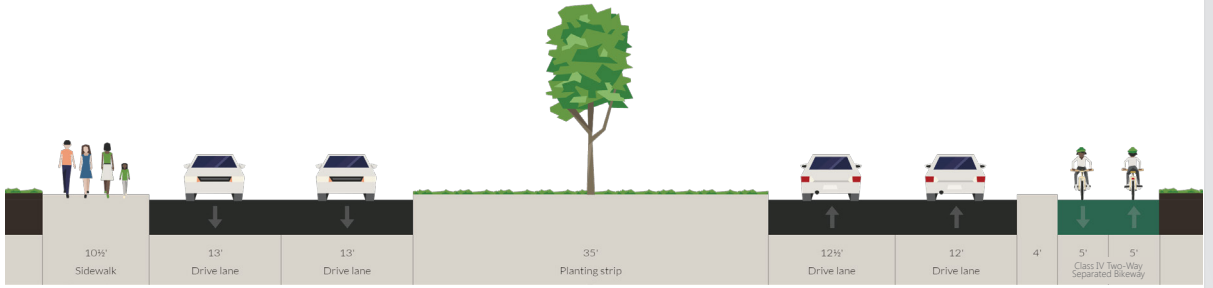
Existing Conditions: Dr Martin Luther King Jr Boulevard from Airport Way to Mariposa Road



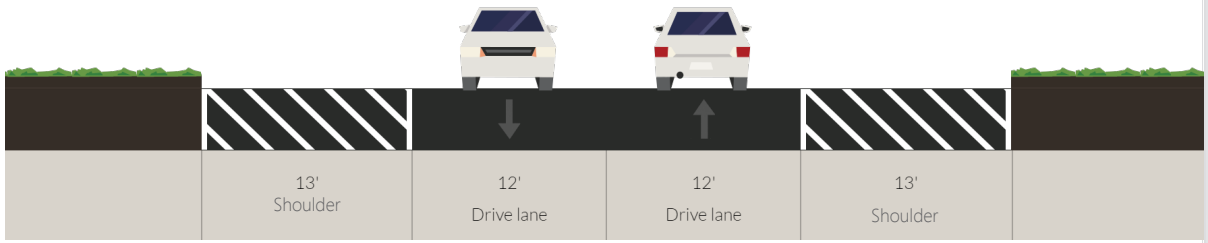
Preferred Low-Stress Alternative One: Dr Martin Luther King Jr Blvd from Airport Way to Mariposa Road



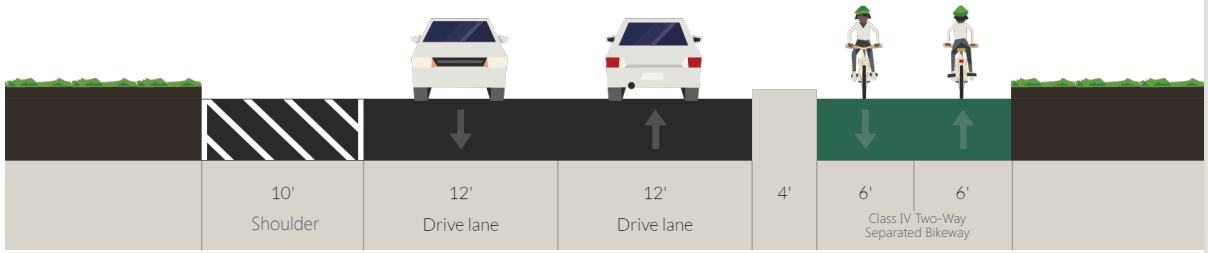
Alternative Two: Dr Martin Luther King Jr Boulevard from Airport Way to Mariposa Road



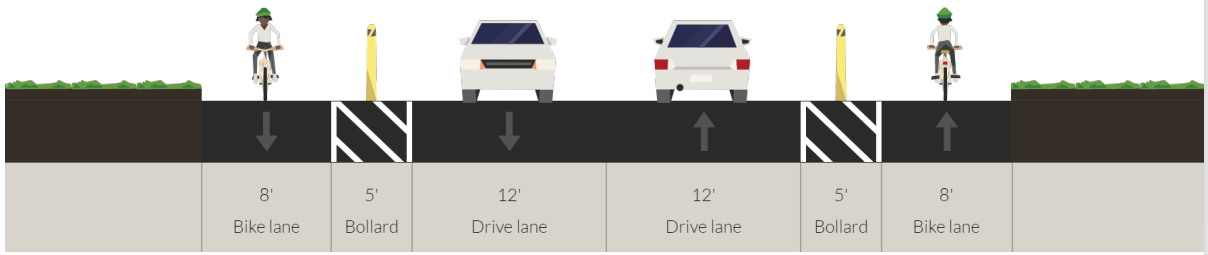
Existing Conditions: Dr Martin Luther King Jr Boulevard from Mariposa Road to Golden Gate Avenue



Preferred Low-Stress Alternative One: Dr Martin Luther King Jr Blvd from Mariposa Rd to Golden Gate Ave



Alternative Two: Dr Martin Luther King Jr Boulevard from Mariposa Road to Golden Gate Avenue



Multi-Modal Alternatives Assessment

Segment Three: Dr Martin Luther King Jr Boulevard from Mariposa Road to Golden Gate Avenue

Cross-sections shown at Dr Martin Luther King Jr Boulevard between Mariposa Road & Golden Gate Avenue

This segment of Dr Martin Luther King Jr Boulevard has one wide travel lane in both directions with wide paved shoulders. This segment does not have on-street parking or designated bicycle facilities. The posted speed limit is 50 mph. The Preferred Low-Stress Alternative One would install a Class IV two-way separated bikeway on the south side of the roadway and retain a paved shoulder on the north side of the roadway. Alternative Two would similarly provide a low-stress bicycle facility (LTS 2) by installing Class IV separated bicycleways with soft-tipped posts in place of the existing paved shoulder. Traffic speeds are assumed to be reduced by narrowing the cross-section to allow for a posted speed limit of 35 mph and an associated low-stress rating (LTS 2). The BNSF underpass has a constrained width and will need to be studied further in the Complete Streets study.

Photo Credit: Google

Multi-Modal Alternatives Assessment

Metrics	Roadway Configuration Alternatives								
	Segment One: Dr Martin Luther King Jr Blvd. from Lincoln St. to Airport Wy			Segment Two: Dr Martin Luther King Jr Blvd. from Airport Wy to Mariposa Rd.			Segment Three: Dr Martin Luther King Jr Blvd. from Mariposa Rd. to Golden Gate Ave.		
	Existing	Preferred Alt	Alt 2	Existing	Preferred Alt	Alt 2	Existing	Preferred Alt	Alt 2
Pedestrian Circulation									
Allows Optimum Sidewalk Width (8 feet plus landscape areas)	Fair	Fair	Fair	Poor	Fair	Fair	Poor	Good	Poor
Provides Buffer Between Sidewalk and Travel Lane	Good	Good	Good	Fair	Good	Good	Fair	Good	Fair
Minimizes Crossing Distance or Pedestrian Exposure to Autos	Poor	Good	Good	Poor	Good	Good	Poor	Good	Good
Slows Traffic Speeds	Poor	Good	Good	Poor	Good	Fair	Poor	Fair	Fair
Bicycle Circulation									
Provides no bike lane; a bike lane; or a cycle track/buffered bike lane	Poor	Good	Good	Poor	Good	Good	Poor	Good	Good
Minimizes conflicts at intersections (turning vehicles)	Poor	Good	Good	Poor	Good	Good	Poor	Good	Good
Minimizes conflicts along block lengths (buses, driveways)	Poor	Good	Good	Poor	Good	Good	Poor	Good	Good
LTS Score	Poor	Good	Good	Poor	Good	Good	Poor	Good	Good
Transit Circulation									
Facilitates Provision of Bus Bulbs or Platforms	Fair	Good	Good	Fair	Good	Good	Fair	Good	Good
Expanded Sidewalk Area Facilitates Enhanced Bus Stop Amenities	Fair	Fair	Fair	Fair	Good	Good	Fair	Good	Fair
Resolves of Bus/Bike Conflicts at Bus Stops	Poor	Good	Good	Poor	Good	Good	Poor	Good	Good
Optimize bus stop locations for operations	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Fair
Accommodates Potential Queue Jump Lanes and Signal Priority	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
Auto Circulation									
Promotes Slower Traffic Speeds to Increase Safety	Poor	Good	Good	Poor	Good	Fair	Poor	Fair	Fair
Number of Lanes Reduces Conflict Points	Fair	Good	Good	Fair	Good	Good	Fair	Fair	Fair
Facilitates Ease/Safety of Parking Maneuvers	Fair	Fair	Fair	n/a	n/a	n/a	n/a	n/a	n/a
Provides network connectivity	Good	Good	Good	Good	Good	Good	Good	Good	Good
Accommodates Traffic Flows Within Reasonable Congestion Limits	Good	Fair	Good	Good	Good	Good	Good	Good	Good
Parking Changes									
Change in On-Street Parking Supply Relative to Existing	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair
Composite Score (Maximum of 95 Points Possible)	**49**	**85**	**85**	**44**	**93**	**89**	**44**	**87**	**78**

Notes:: For a complete breakdown of the Scoring Criteria, see Appendix G of the City of Stockton Bicycle Master Plan (2017).
Source: Fehr & Peers, 2017.

Harding Way Complete Streets Study

Corridor Overview

The Harding Way Complete Streets Corridor Study, one of the highest priority projects from the Bicycle Master Plan, extends from Baker Street to California Street. It experiences high bicycle and pedestrian-involved collisions. The existing cross-section features four travel lanes with parking on both sides of the roadway. Harding Way is a key east-west corridor in central Stockton.

The Complete Streets Study should address different needs based on land uses, pedestrian access, transit usage, north/south bicycle connectivity, heavy vehicle presence, and parking. The goal of the Complete Streets Study should be to implement low-stress bikeways. This may include bicycle lanes on Harding Way via a road diet or enhanced bicycle facilities and wayfinding on parallel routes. Parking could be preserved on both sides of the roadway unless four travel lanes are deemed necessary for traffic operations and meeting community values. A parking analysis could identify sites where replacement off-street parking could be located.

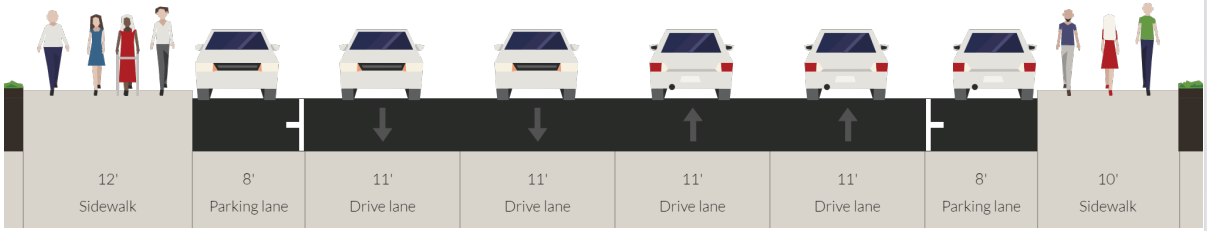
Issues and Opportunities to be addressed by the project include:

- Improving bicycle and pedestrian access to a key retail and transit corridor.
- Addressing high bicycle-involved collision areas throughout the corridor.
- Improving bicycle access to or near El Dorado Elementary School, Stockton Unified Early College Academy, and University of the Pacific.
- Improving bicycle access to or near essential services and destinations including: retail and job centers and the San Joaquin County Fairgrounds.

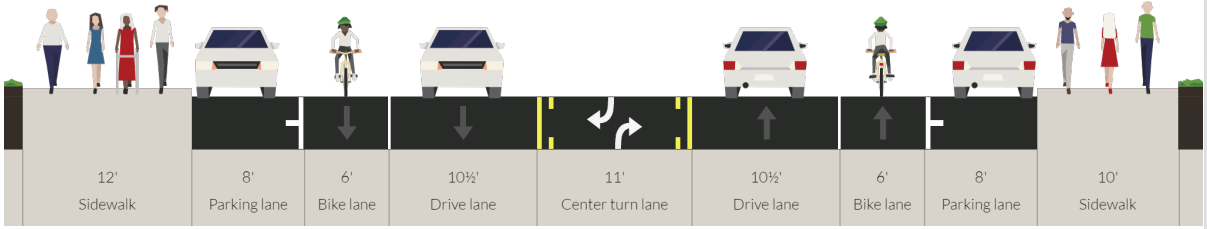
Cost and Extents

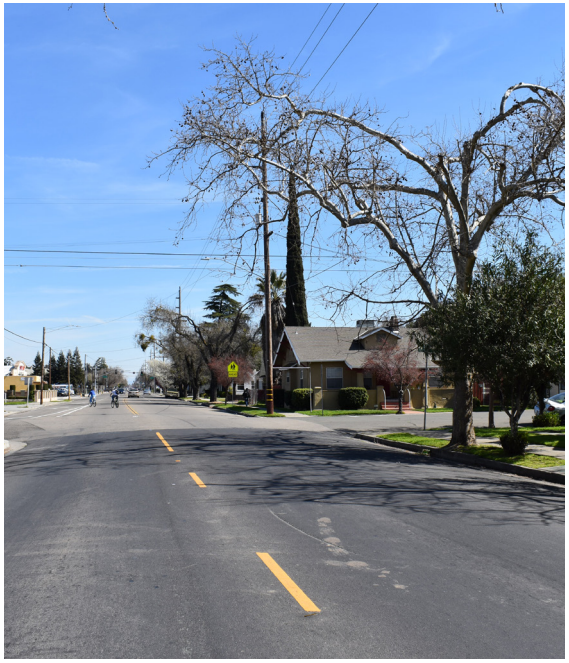
Project Number	Proposed Facility	Implementation	Distance (miles)	Cost Estimate x $1,000	Class IV Estimate #2 (Curb - Full Buildout) x $1,000
67A	Class II Buffered Bicycle Lanes	Further Study	0.9	$232	

Existing Conditions: Harding Way from Baker Street to California Street

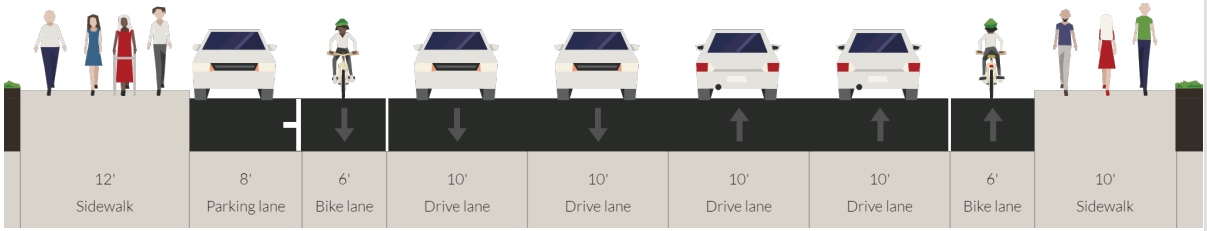


Preferred Low-Stress Alternative A: Harding Way from Baker Street to California Street

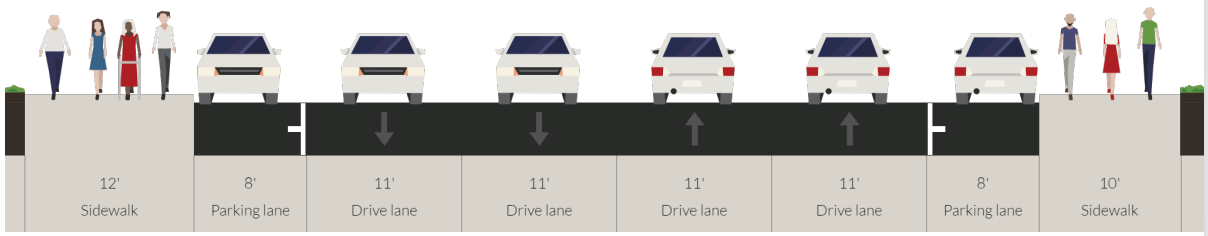




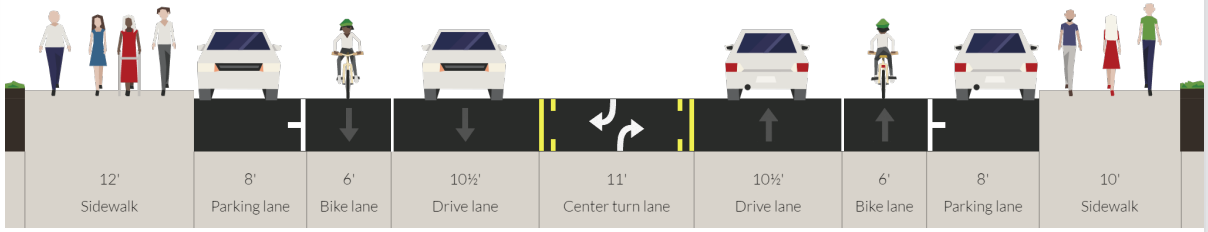
Preferred Low-Stress Alternative B: Harding Way from Baker Street to California Street



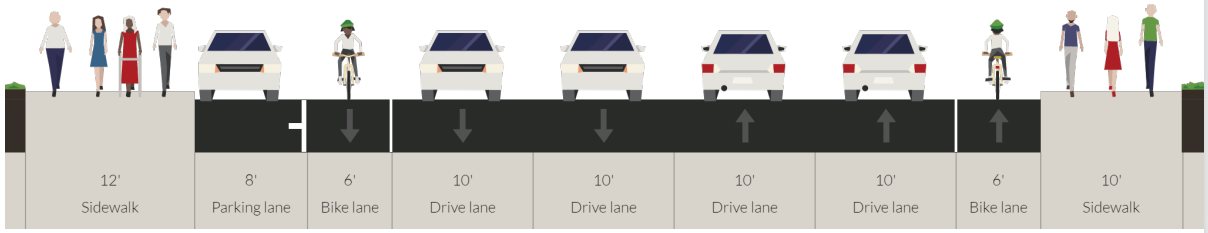
Existing Conditions: Harding Way from Baker Street to California Street



Preferred Low-Stress Alternative One: Harding Way from Baker Street to California Street



Alternative Two: Harding Way from Baker Street to California Street



Multi-Modal Alternatives Assessment

Segment One: Harding Way from Baker Street to California Street

Cross-sections shown at Harding Way between Madison Street and Commerce Street

This segment of Harding Way provides two travel lanes in both directions with on-street parking on both sides of the roadway. There are no designated bicycle facilities in this segment. The posted speed limit is 30 mph. The Preferred Low-Stress Alternative One would install Class II bicycle lanes on each side of the roadway by implementing a road diet. The road diet would provide one travel lane in both directions as well as center left-turn lane. Traffic speeds are assumed to be reduced with the road diet to maintain a posted speed limit of 30 mph and an associated low-stress rating (LTS 2). Alternative Two would produce a medium stress bicycle facility (LTS 3) by retaining two travel lanes in either direction with Class II bicycle lanes. This alterative would remove on-street parking on one side of the roadway.

Harding Way Complete Streets Study

Multi-Modal Alternatives Assessment

Metrics	Roadway Configuration Alternatives		
	Segment One: Harding Way from Baker Street to California Street		
	Existing	Preferred Alt	Alt 2
Pedestrian Circulation			
Allows Optimum Sidewalk Width (8 feet plus landscape areas)	Fair	Fair	Fair
Provides Buffer Between Sidewalk and Travel Lane	Good	Good	Fair
Minimizes Crossing Distance or Pedestrian Exposure to Autos	Poor	Good	Fair
Slows Traffic Speeds	Poor	Good	Good
Bicycle Circulation			
Provides no bike lane; a bike lane; or a cycle track/buffered bike lane	Poor	Fair	Fair
Minimizes conflicts at intersections (turning vehicles)	Poor	Fair	Fair
Minimizes conflicts along block lengths (buses, driveways)	Poor	Fair	Fair
LTS Score	Poor	Good	Fair
Transit Circulation			
Facilitates Provision of Bus Bulbs or Platforms	Fair	Fair	Fair
Expanded Sidewalk Area Facilitates Enhanced Bus Stop Amenities	Fair	Fair	Fair
Resolves of Bus/Bike Conflicts at Bus Stops	Poor	Fair	Fair
Optimize bus stop locations for operations	Fair	Fair	Fair
Accommodates Potential Queue Jump Lanes and Signal Priority	Fair	Fair	Fair
Auto Circulation			
Promotes Slower Traffic Speeds to Increase Safety	Poor	Good	Good
Number of Lanes Reduces Conflict Points	Fair	Good	Fair
Facilitates Ease/Safety of Parking Maneuvers	Fair	Fair	Fair
Provides network connectivity	Good	Good	Good
Accommodates Traffic Flows Within Reasonable Congestion Limits	Good	Fair	Good
Parking Changes			
Change in On-Street Parking Supply Relative to Existing	Fair	Fair	Poor
Composite Score (Maximum of 95 Points Possible)	**49**	**75**	**66**

Notes:: For a complete breakdown of the Scoring Criteria, see Appendix G of the City of Stockton Bicycle Master Plan (2017).
Source: Fehr & Peers, 2017.

Citywide Bicycle Parking Program

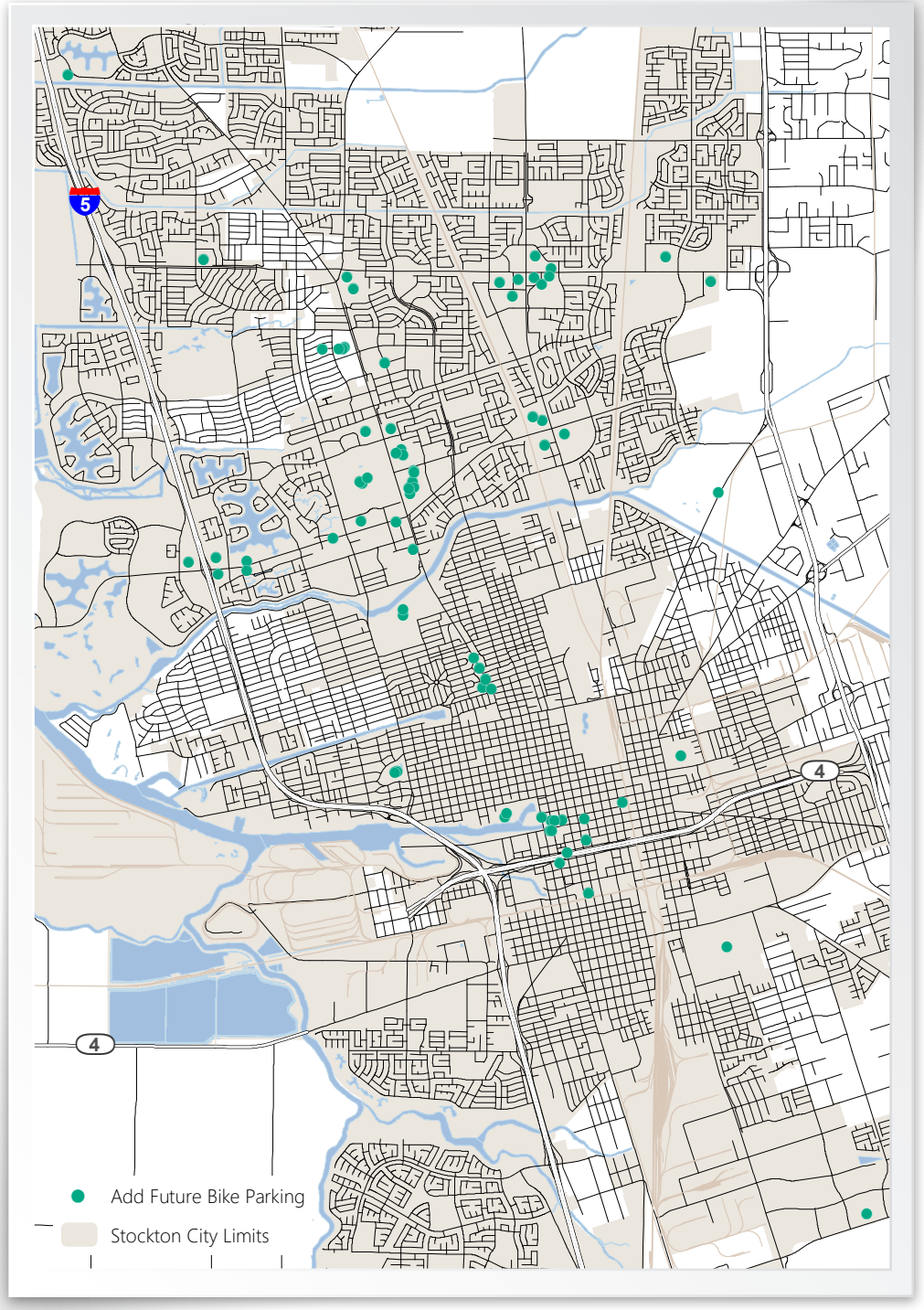
Project Overview

Bicycle parking in Stockton is generally limited to major transit locations and institutional uses. Safe, secure bicycle parking was the most frequently cited need during outreach for the Bicycle Master Plan. Residents and business owners stated that bicycles are often stolen and racks are not located in visible locations. This prevents many who have a choice of other modes from cycling in the City. A Citywide Bicycle Parking Program should install end of trip facilities in well lit, visible locations and provide options for both short-term racks and long-term lockers or bicycle valets.

As a nearby example, the City of Sacramento recently started a Public Bicycle Rack Program through the Public Works Department. This program installs both short-term and long-term bicycle parking throughout the city. Community organizations, businesses, and local residents may request bicycle racks for their neighborhood by submitting an application detailing that a proposed site meet a set list of criteria for either short-term or long-term bicycle parking.

Issues and Opportunities to be addressed by the project include:

- Addressing the limited supply of secure end-of-trip facilities throughout the City.
- Improving the design and siting requirements of future short-term racks and long-term lockers.
- Building on public support identified from the Bicycle Master Plan as the most requested program.
- Constructing secure bicycle parking in City and Parking Authority owned parking structures and lots is a key implementation factor.
- Long-term funding for maintenance of bicycle parking facilities, particularly lockers.
- The City should explore opportunities to partner with local business or allow for advertising at certain locations to cover partial or complete cost of installation.



Example Long-term Bicycle Lockers

Example Short-term Bicycle Racks

Example Bicycle Corral in a Parklet


Miracle Mile

7. GOAL THREE – MODE SHIFT AND ACCESS

Goal Three: Accommodate all trip types and cyclist needs with family friendly facilities, connections to critical services, connections to transit, effective branding, and advances in technology.

Most trips in Stockton involve traveling a distance of less than three miles from someone's home or work. These short, "bikeable-distance" trips can see the highest gains in ridership from the creation of a grid of interconnected bicycle facilities. As noted in Section 4.4.3, the bicycle facility network can be expanded beyond the backbone network to improve local accessibility and promote short distance cycling trips. Mode shift can be accomplished through highly-visible projects that spark use by the "interested but concerned" group of cyclists and increase access to attractive destinations.

7.1 Goal Three: Supporting Policies & Actions

Policy 3-1:

Use the Bikeway Selection Guide in the BMP Design Guidelines when considering the implementation of facilities not identified on the Backbone Network.

Action 3-1A: Ensure that facilities that are not prescribed in the BMP backbone network meet the intent of providing low-stress facilities in Stockton.

Action 3-1B: Implement facilities that have logical start and end points, connect with other bicycle facilities, connect with the Backbone Network, or provide access to local schools, services, job centers, or transit. If a project would only implement part of a facility, the project should be extended to complete the bikeway connection and not leave cyclists stranded between facilities or forced into higher stress situations.

Policy 3-2:

Provide safe, comfortable, and convenient bicycle connections and support facilities at transit stations.

Action 3-2A: Provide safe, comfortable, convenient, and continuous bicycle facilities within ½-mile of Park and Ride lots and ACE stations, and within an eighth of a mile of RTD bus stops.

Action 3-2B: Provide short-term bicycle racks and longer-term secure bicycle parking, such as bicycle lockers or a bicycle station, at the ACE station.

7.2 Goal Three: Priority Projects

Promoting mode shift and access in Stockton needs to start with addressing the key concerns of the "interested but concerned" group of riders. This group of riders needs protected, low-stress bikeway facilities and access to major destinations that are currently only available to them by driving.

The following priority projects implement the intent of Goal Three and help support a modal shift through new treatments that reach new places or provide transformative connections. Descriptions of how each project supports Goal Three are provided below followed by fact sheets with an overview of the project, implementation options, estimated costs, and proposed cross-sections.

7.2.1 Airport Way Separated Bikeway

The Airport Way Separated Bikeway would connect South Stockton to Downtown and beyond with a low-stress bicycle facility. Airport Way is the only roadway that connects southeast Stockton north to Dr Martin Luther King Jr Boulevard and into the Hazelton Avenue road diet. Vertical separation is key for this project to promote ridership for the "interested but concerned" group of users due to the heavy amounts of truck traffic along this facility. Connectivity to other industrial uses in South Stockton also helps to allow workers in those areas to access jobs by bicycle in a safe, efficient manner.

7.2.2 Monte Diablo Avenue/Acacia Street Bicycle Lanes

The Monte Diablo Avenue/Acacia Street Bicycle Lanes will provide a key alternative route to Harding Way which experiences the highest number of bicycle-involved collisions in the City. This route will promote connections from four north/south bikeways (including three bicycle boulevards) and funnel them to the California Street Separated Bikeway, opening up connections to many parts of northern and central Stockton to Downtown.

7.2.3 Bicycle Boulevards Implementation

Using local neighborhood roadways where cyclists currently want to be, the Bicycle Boulevards Implementation project aims to install traffic calming and wayfinding on seven neighborhood routes throughout Stockton. These facilities will work to provide low-stress options on bicycle priority roadways that are comfortable for all ages and abilities.

Airport Way Separated Bikeway

Corridor Overview

The Airport Way Separated Bikeway extends from Hazelton Avenue to Performance Drive. This corridor is intended to function as the primary access to the Citywide backbone network for southeast Stockton, which is largely cut-off from the rest of the City due to the barrier created by railroad tracks. Heavy truck traffic on Airport Way necessitates the implementation of separated bikeways to create a low-stress, all ages and abilities environment. This separated bikeway is one of the highest priority projects because it improves Citywide spatial equity and socio-economic equity by connecting multiple disadvantaged neighborhoods, as defined by the California Office of Environmental Health Hazard Assessment's CalEnviroscreen environmental justice data.

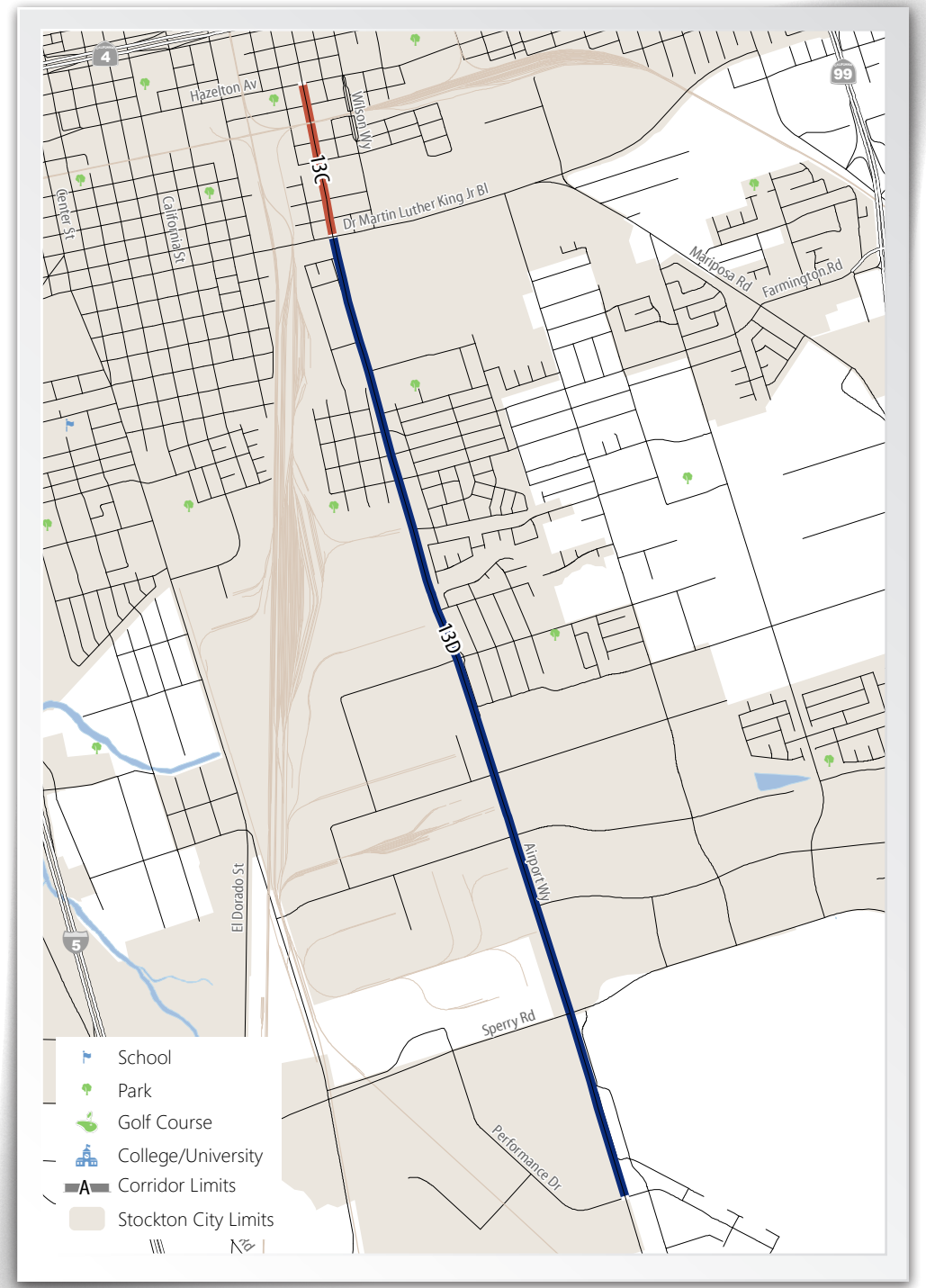
The existing four lane cross-section includes a wide median and wide travel lanes with no dedicated on-street bicycle facilities. The preferred low-stress alternative would reduce travel lanes to 12 feet and install seven-foot, one-way separated bikeways in each direction with planted medians. In the near-term, Alternative B shows that the medians could be substituted with striping and soft-tipped flex posts. On-street parking is generally limited or not included along Airport Way in this segment, and would not be provided in the preferred alternative.

Issues and Opportunities to be addressed by the project include:

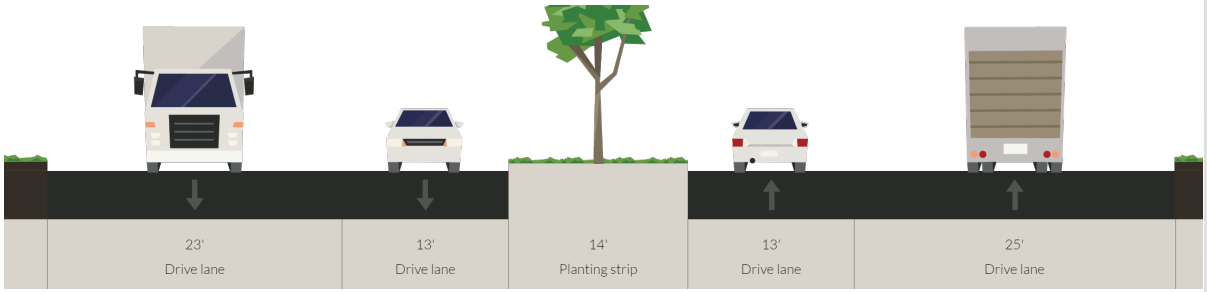
- Providing low-stress bicycle access between southeast Stockton and downtown.
- Improving separation from heavy truck traffic along the corridor while maintaining heavy truck turning capabilities.
- Improving bicycle access to Van Buren Elementary School.
- Improving bicycle access to or near essential services and destinations including: San Joaquin County Public Health, San Joaquin County Fairgrounds, Williams Brotherhood Park, and Stribley Park.

Cost and Extents

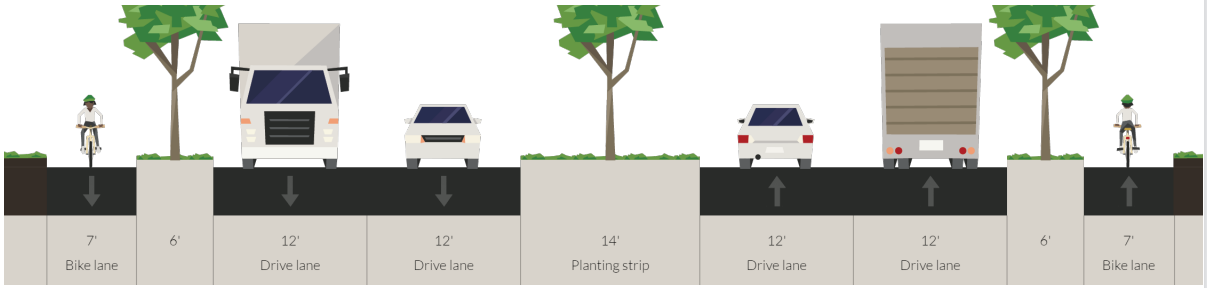
Project Number	Proposed Facility	Implementation	Distance (miles)	Cost Estimate x $1,000	Class IV Estimate #2 (Curb - Full Buildout) x $1,000
13C	Class IV Separated Bikeway	Lane Striping with Parking Removal	0.6	$234	$1,454
13D	Class IV Separated Bikeway	Capital Improvements	3.5	$1,479	$9,211



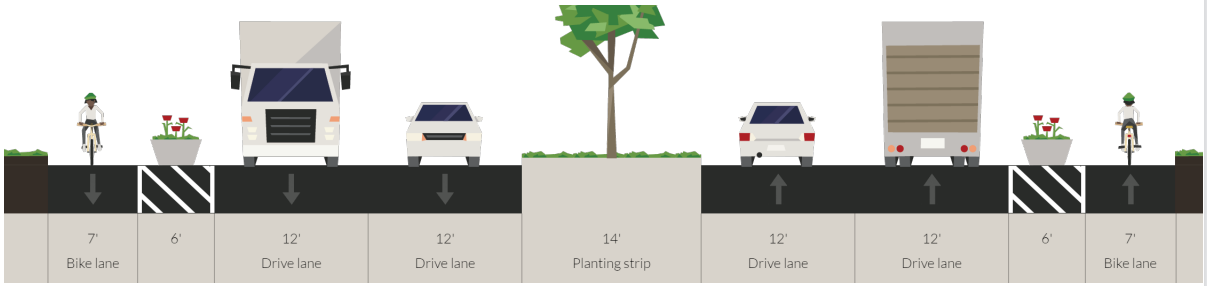
Existing Conditions: Airport Way from Dr Martin Luther King Jr Blvd to Performance Drive



Preferred Low-Stress Alternative A: Airport Way from Dr Martin Luther King Jr Blvd to Performance Drive



Preferred Low-Stress Alternative B: Airport Way from Dr Martin Luther King Jr Blvd to Performance Drive



Monte Diablo Avenue/Acacia Street Bicycle Lanes

Corridor Overview

The Monte Diablo/Acacia Bicycle Lanes would extend from Louis Park to California Street to provide an east/west connection for five north/south backbone bicycle facilities in central Stockton. This facility will address safety concerns on Harding Way, which has experienced many bicycle and pedestrian-involved collisions, by providing a key low-stress alternative for cyclists. The facility would provide neighborhood connectivity to local parks, business districts, and schools.

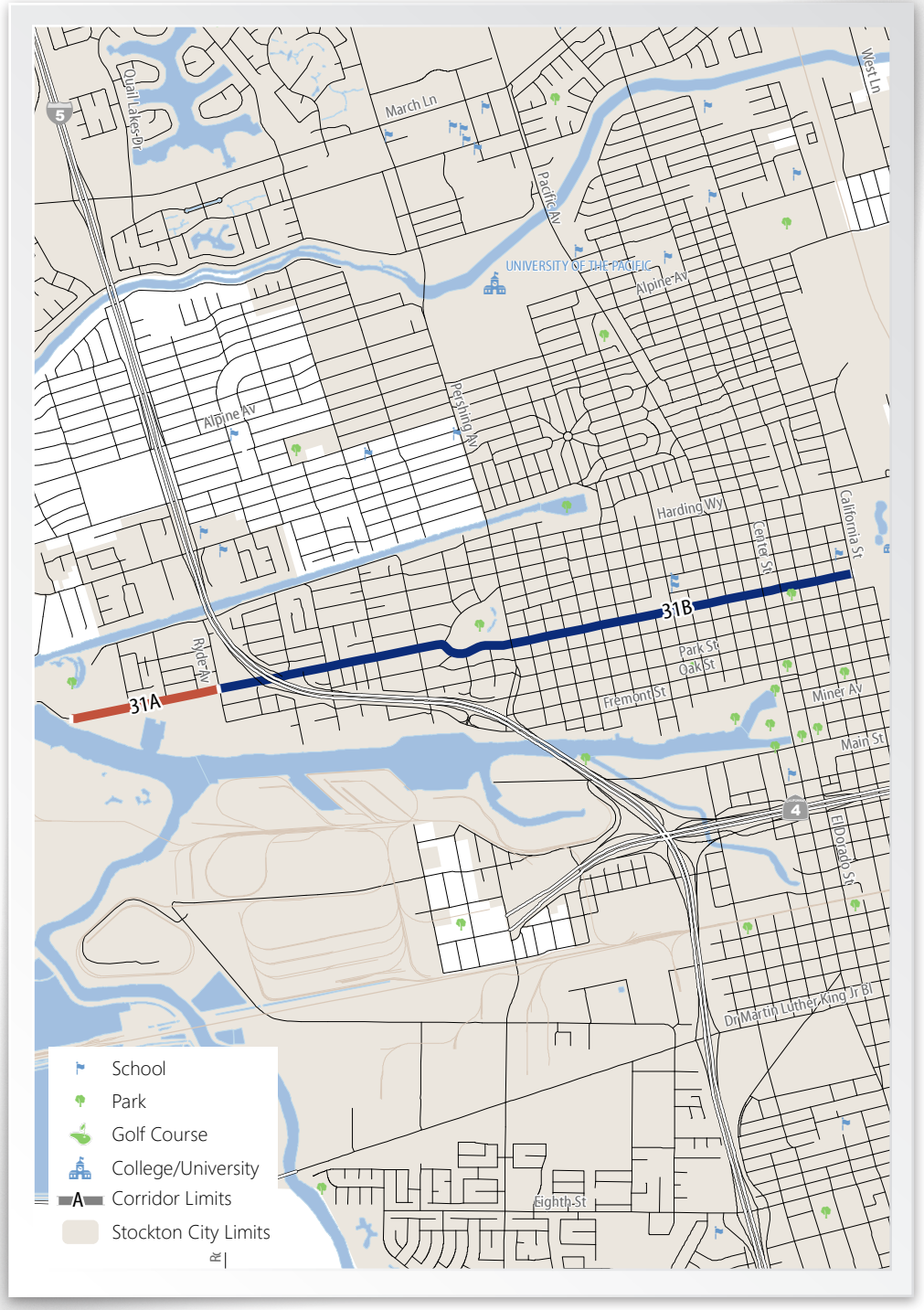
The existing two-lane cross-section generally has parking located along both sides of the street. The preferred, low-stress alternative would add on-street Class II bicycle lanes by removing parking on one side of the street. A parking utilization study should be conducted prior to implementation. A bicycle boulevard could be implemented, with associated traffic calming features, where parking removal is not feasible.

Issues and Opportunities to be addressed by the project include:

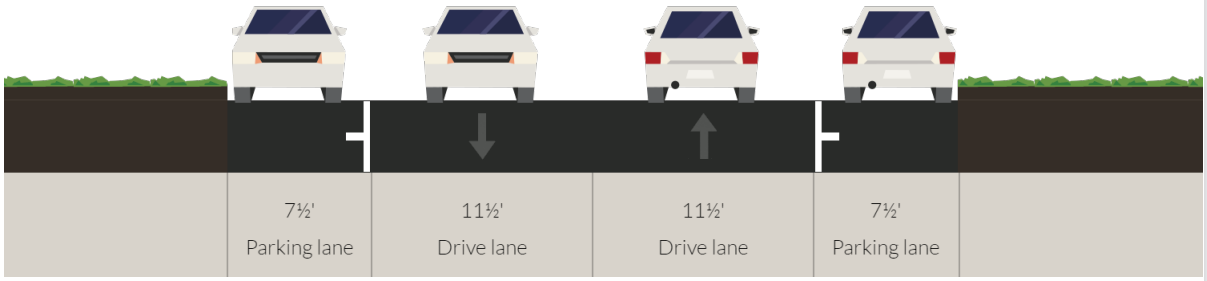
- Addressing the need for all ages and abilities bikeways in central Stockton by providing low-stress bicycle facilities.
- Providing an east/west alternative to Harding Way which experiences high bicycle and pedestrian-involved collisions.
- Improving bicycle access to or near schools including: Victory Elementary School, Cathedral of the Annunciation School, and Stanislaus State Stockton Center.
- Improving bicycle access to or near essential services and destinations including: Pixie Woods, Louis Park, Victory Park, Dameron Hospital, Eden Park, and other social services along California Street.

Cost and Extents

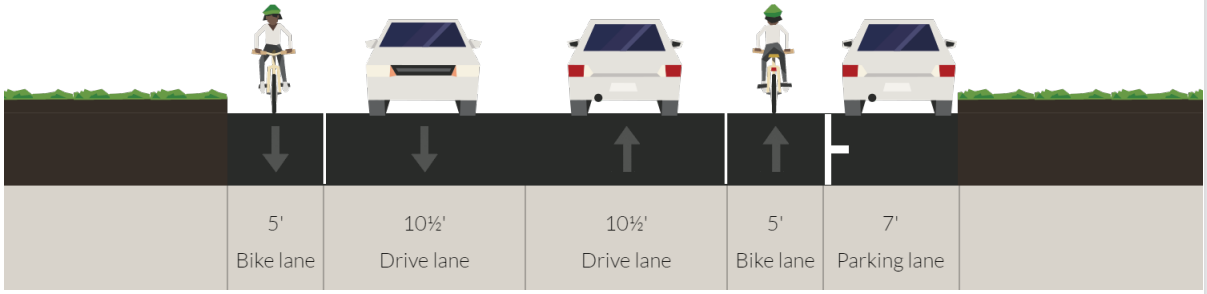
Project Number	Proposed Facility	Implementation	Distance (miles)	Cost Estimate x $1,000
31A	Class III Bicycle Boulevard	Traffic Calming	0.6	$215
31B	Class II Bicycle Lanes	Lane Striping with Parking Removal	2.6	$551



Existing Conditions: Monte Diablo Ave/Acacia St from Ryde Ave to California St



Preferred Low-Stress Alternative A: Monte Diablo Ave/Acacia St from Ryde Ave to California St



Bicycle Boulevards Implementation

Corridor Overview

The Bicycle Boulevards project combines seven bicycle boulevards into one consolidated project including the West Side Bikeway Bicycle Boulevard, Alexandria Bicycle Boulevard, Mission Bicycle Boulevard, Kermit Bicycle Boulevard, Country Club Crosstown Bicycle Boulevard, Kensington/Baker Bicycle Boulevard, and Marsh Bicycle Boulevard. Together these lower cost facilities would provide low-stress bicycle options on streets with low motorized traffic volumes and speeds to give cyclists priority. These bicycle boulevards provide access to a multitude of schools and connect to other citywide backbone facilities. The Bicycle Boulevard project is one of the highest priority projects from the Bicycle Master Plan due its ability to promote Citywide spatial equity and socio-economic equity by connecting a range of disadvantaged neighborhoods through north, central, and south Stockton[1].

The bicycle boulevards should feature the use of wayfinding signs, pavement markings, and traffic calming measures to maintain slower vehicular speeds. Traffic calming measures to consider implementing on bicycle boulevard corridors can include, but are not limited to: speed humps, speed cushions, speed tables, raised crosswalks, curb extensions, edge islands, neighborhood traffic circles, chicanes, pinch points or chokers, neck downs, forced turns or turn restrictions, and partial or full vehicular diverters. The Kensington/Baker Bicycle Boulevard should be implemented as a pilot project to connect the University of the Pacific, Calaveras River Path, and Miracle Mile district to downtown Stockton to test treatment applications in a local context.

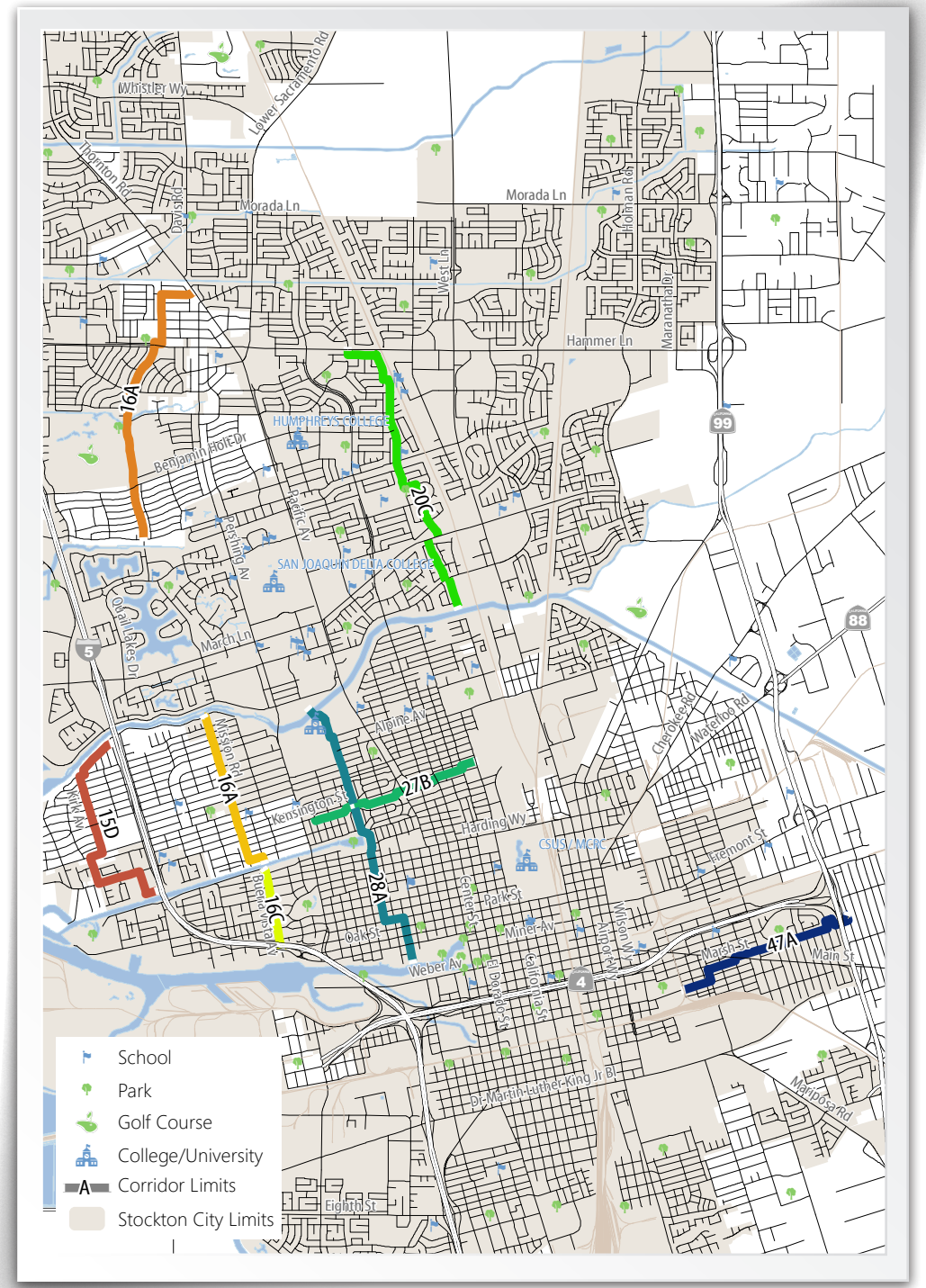
1 As designated by the California Office of Environmental Health Hazard Assessment's CalEnviroscreen environmental justice data.

Issues and Opportunities to be addressed by the project include:

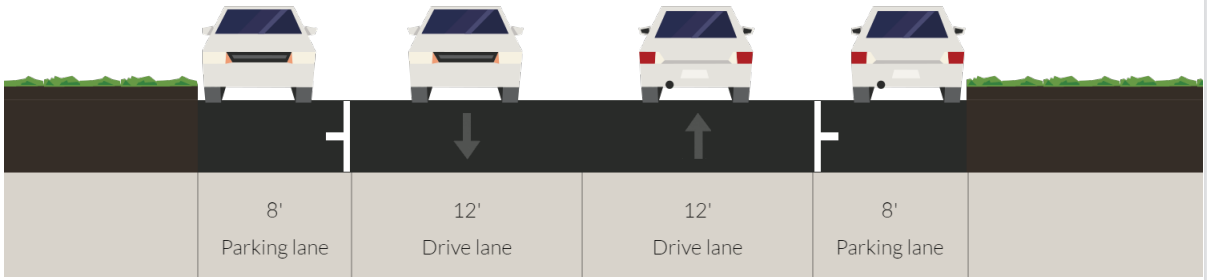
- Providing alternative north/south or east/west connections away from high volume or high speed roadways.
- Improving bicycle access to or near many schools throughout Stockton.
- Improving bicycle access to or near many essential services and job centers throughout Stockton.
- Providing low cost, feasible bicycle facilities that can be implemented throughout the City, with broad visibility and potential for use.
- Building on and formalizing preferred routes currently in use by "interested by concerned" cyclists.
- Addressing crossing barriers that currently limit low-stress access.

Cost and Extents

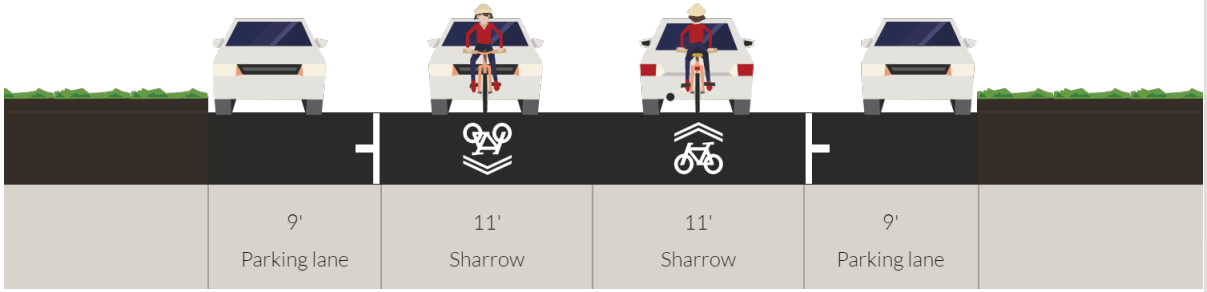
Project Number	Proposed Facility	Implementation	Distance (miles)	Cost Estimate x $1,000
15D	Class III Bicycle Boulevard	Traffic Calming	1.7	$599
16A	Class III Bicycle Boulevard	Traffic Calming	2.2	$778
16B	Class III Bicycle Boulevard	Traffic Calming	1.2	$419
16C	Class III Bicycle Boulevard	Traffic Calming	0.8	$278
20B	Class III Bicycle Boulevard	Traffic Calming	0.6	$225
20C	Class III Bicycle Boulevard	Traffic Calming	2.4	$858
27B	Class III Bicycle Boulevard	Traffic Calming	1.5	$522
28A	Class III Bicycle Boulevard	Traffic Calming	2.1	$746
47A	Class III Bicycle Boulevard	Traffic Calming	1.6	$574



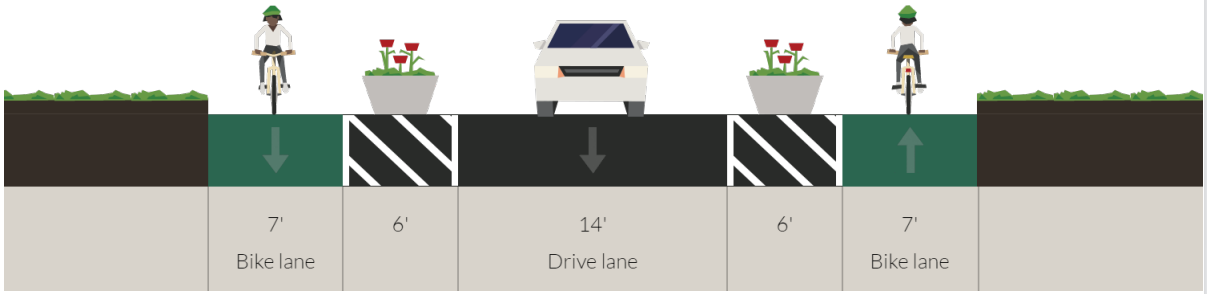
Existing Conditions: Baker Street from Tuxedo Ave to Flora St



Preferred Low-Stress Alternative A: Baker Street from Tuxedo Ave to Flora St



Preferred Low-Stress Alternative B: Baker Street from Tuxedo Ave to Flora St (Pinch Point Traffic Calming)



8. GOAL FOUR – EDUCATION & SUPPORT PROGRAMS

Goal Four: Educate roadway users of all ages and abilities about proper cycling techniques and laws, health benefits, economic opportunities, sustainability, and supportive programs to increase cycling as a preferred mode of transportation in Stockton.

Many of the key issues cited by stakeholders during Plan development, such as wrong way riding, limited helmet use, and misunderstanding of traffic laws, likely stem from a lack of training and educational programs geared toward residents of Stockton. While Safe Routes to Schools (SR2S) programs are an important cornerstone of the existing educational programs, SR2S focuses only on children or parents involved in the program. This has left a need for broader educational and support programs to fully address multi-modal safety for all ages, abilities, and means. Programs geared toward homeless populations, adult riders, and other residents who are already biking in Stockton should be prioritized.

In 2013, the City of Stockton participated in a Pedestrian and Bicycle Safety Assessment (PBSA) with the University of California, Berkeley's ITS Tech Transfer program. As part of the PBSA, the project team conducted an in-depth telephone interview on August 1, 2013 with City staff regarding the City's pedestrian and bicycle safety policies, programs, and practices. The PBSA team also reviewed the City's website and relevant documents. The City's policies, programs, and practices were compared with national best practices, which led to recommendation of many of the programs identified in this chapter.

Bicycle support programs typically consist of the "five E's": education, encouragement, enforcement, evaluation, and equity programs that supplement engineering improvements. The support programs recommended for Stockton are listed below and described in more detail in the following sections:

- Safe Routes to School
- Education
- Enforcement
- Encouragement
- Evaluation
- Maintenance
- Bike Share

8.1 Goal Four: Supporting Policies & Actions

Policy 4-1:

Increase bicycle mode share by increasing public awareness of the available bicycle and trail facilities and programs, particularly the proposed Backbone Network.

Action 4-1A: Expand the scope and number of education and encouragement events completed each year (e.g., during Bike to Work month).

Action 4-1B: Study the feasibility and pursue implementation of a bike share program as the Backbone Network is implemented.

Action 4-1C: Continue to implement and fund SR2S Programs to provide educational and encouragement curriculum and activities for Stockton's youth. Continue to conduct walking safety audits at schools to identify engineering, enforcement, education, and encouragement gaps at all schools in Stockton.

Action 4-1D: Encourage more schools in Stockton to participate in the City of Stockton and San Joaquin County Public Health Services Safe Routes to School programs.

Action 4-1E: Advertise Safe Routes to School Maps on the City's website for each school. Update maps as needed based on input from the City and the local school community (and to be consistent with implementation efforts following this Plan).

Action 4-1F: Continue to develop and promote education and encouragement programs, including but not limited to development of educational YouTube videos; Bike to Work Day, Walk and Roll School Day events; and bicycle safety courses. Work with the Police Department to implement programs such as School and Community Bicycle Rodeos, school workshops, bicycle pamphlets, and classroom education.

Action 4-1G: Create a "glossy" bicycle facilities and parking map to highlight the Backbone Network and improve wayfinding. Make this available in print and online formats. Ensure Google maps and other online navigation sites have the most recent network data.

Action 4-1H: Encourage and facilitate the use of bicycles by City employees and City officials for

commute and work travel purposes so that the City is seen as a model employer.

Action 4-1I: Collaborate with employers and residential developers as well as Dibs, a program offering commuter incentives, to provide financial incentives for bicycling as part of transportation demand management (TDM) plans for new development to encourage bicycling for short-trips including commute, recreational, and utilitarian trips.

Action 4-1J: Require new commercial and office developments to include secure bicycle parking and shower/change rooms.

Action 4-1K: Establish a Bicycle and Pedestrian Technical Advisory Committee (BPTAC) consisting of members from internal City of Stockton staff including Public Works, Community Development, Stockton Police Department, Economic Development Department, and external members from San Joaquin Council of Governments and San Joaquin Regional Transit District.

Policy 4-2:

Promote bicycle safety education in Stockton.
Action 4-2A: Work with the Stockton Police Department to establish an officer training program of bicycling safety issues and enforcement best practices.

Action 4-2B: Partner with community organizations and nonprofits such as the San Joaquin Bicycle Coalition on bicycle education and encouragement classes for adults, youth, and families. Programs may take the form of on- or off-the-bike safety trainings, bike mechanics classes, theft prevention workshops, social rides, learn-to-ride classes, and more. Seek funding to provide or support free classes locally, in addition to existing programs already provided on the county level. In addition, the City should promote the training of League of Certified Instructors (LCI).

Action 4-2C: Partner with community organizations and nonprofits such as the San Joaquin Bicycle Coalition on driver-focused education classes about safe operation of vehicles around people bicycling and walking. Classes may be targeted toward transit, delivery, or other professional drivers, or for teen learners.

Action 4-2D: Develop an anti-bicycle theft program similar to the City of San Francisco Police Department's Bicycle Anti-Theft Unit. The bicycle anti-theft program includes resources for bicycle owners such as a Twitter feed to post pictures of stolen bicycles, a bicycle registration, and informational videos, guides and forms for bicycle owners on security techniques. More information on the program can be found at https://twitter.com/sfpdbiketheft.

Policy 4-3:

Promote a healthy community through the investment in a safe and inviting bicycle network.

Action 4-3A: Work with the San Joaquin County Public Health Department and the City's Community Services and Planning Departments to improve health outcomes, such as decreasing obesity, and launch a health and bicycling marketing campaign.

Policy 4-4:

Emphasize the safety of vulnerable road users (e.g., pedestrians, cyclists) through traffic enforcement.

Action 4-4A: Provide targeted enforcement against common motorist and bicyclist behaviors that endanger and increase the potential of severe injury collisions for bicyclists

Action 4-4B: Provide targeted enforcement against unsafe bicyclist behaviors, e.g., riding on the wrong side of the road, lack of lights at night

Action 4-4C: Institute a Bicycle Traffic School ticket diversion program as allowed per California Vehicle Code Section 42005.3. This would reduce or remove the cost of a bicycle traffic ticket through attendance at a free bicycle education workshop, which could be led by San Joaquin Bike Coalition. These classes could be scheduled regularly with funding from the City or the Police Department and be available to both ticketed individuals and the public.

Action 4-4D: Inform residents about and enforce the three-foot passing law, AB-1371, which requires drivers stay at least three feet away when passing bicyclists.

Policy 4-5:

Increase the visibility and improve the navigation of the Backbone Network by creating a citywide wayfinding program and branding campaign to support the use of larger scale infrastructure investments.

Action 4-5A: Develop and install a citywide signage and wayfinding system for bicyclists that directs bicyclists to major destinations on all bikeways. The wayfinding program should be paired with a distinct branding campaign to ensure that the bicycle network is easily recognized by all riders in Stockton. This could build on the logo created for this Plan.

Policy 4-6:

Plan for and establish a maintenance program that regularly services bicycle facilities.

Action 4-6A: Integrate the City's high priority on-street bikeways with the existing repaving program to prioritize repaving on key bikeways through the City.

Action 4-6B: Work with East Bay Municipal Utility District, San Joaquin County Public Works, and other agencies that operate and maintain levees, canals, and waterways in Stockton, to pave new trails and maintain existing trails while accommodating the needs of public agency vehicles on shared maintenance/trail links.

Action 4-6C: Work across City departments to secure an ongoing funding source for path and trail maintenance and to ensure the bicycling facilities are maintained as a part of ongoing operations and maintenance work.

Action 4-6D: Consider lifecycle and maintenance costs in the development and design of all bicycle projects.

Action 4-6E: Include bicycle projects in the Capital Improvements Program.

Action 4-6F: Consider using development agreements to install and maintain bicycling facilities fronting, adjacent to, or in proximity to new development.

Action 4-6G: Inform property owners about the impact of overgrown shrubbery or other blockages on bicycle facilities. Overgrown vegetation can limit or block the path of travel for bicyclists traveling in the curb lane. Ask residents to trim any vegetation infringing on a clear travel path. Consider a "Trim Your Shrubbery Day" with the help of neighborhood associations and environmental groups. Create a campaign to remind residents that trash cans placed in bike lanes force cyclists into vehicle travel lanes.

Action 4-6H: Coordinate with maintenance crews to prioritize regular sweeping and maintenance of separated bikeways; ensure that the placement of raised bikeway elements (e.g., pylons or armadillos) provides necessary clear widths for street sweepers.

8.2 Goal Four: Supporting Programs

8.2.1 Safe Routes to School

The City of Stockton is currently developing its first SRTS Plan, which will discuss existing conditions for walking and bicycling near schools in Stockton, and develop recommendations for projects and programs to make Stockton a healthier, safer, and more sustainable community. Some of the desired outcomes of the STRS Plan are improved air quality and less traffic congestion by reducing the number of school-related vehicle trips. The City's SRTS vision is informed by the "6 E's" of Safe Routes to School: Education, Encouragement, Enforcement, Engineering, Evaluation and Equity. The City's SRTS Plan will include 64 schools in the following four school districts: Stockton Unified School District, Lodi Unified School District, Lincoln Unified School District, and Manteca Unified School District.

This SRTS Plan will include recommendations both on school campuses (to be completed by the School District) and on the surrounding streets (to be completed by the City). Examples include installing new sidewalks, moving existing crosswalks, adding bicycle lanes, restriping parking lots/drop-off areas, and adding bicycle parking. Program recommendations will primarily involve education and encouragement elements. These include bicycle rodeos to teach students safe bicycling behavior, developing Suggested Walking and Biking Routes to School Maps that provide route information for a more comfortable walk or ride to school, and active transportation challenges that create competitions

between classrooms and schools to see who has the most walk or ride to school on a given day.

The SRTS Plan and recommended projects will be adopted following the adoption of the BMP. Together, these projects can be used to explore additional SRTS funding for both infrastructure construction and education programs.

8.2.2 Multi-Modal Safety Education Campaign

Encourage development of a sustained multi-modal safety education campaign using social media, online videos, bus shelters, yard signs, bumper stickers, radio messages, and billboard ads. One of the major issues identified by the community through the public outreach process was the need to educate drivers on proper behavior with bicyclists to maximize safety for all roadway users. The ad campaign could have separate ads to appeal to people who drive, bicycle, and walk, respectively. Seattle's safety focused materials include videos and ads: http://www.seattle.gov/visionzero/materials, and the City of Fort Worth has videos that inform people of the new bicycle facilities in the community, such as separated bikeways: https://www.youtube.com/watch?v=N8k5FRloTfQ. Focal points of the campaign may include:

- Driver safety tips for interacting with bicycles and pedestrians
- Bicyclist safety tips for interacting with drivers and pedestrians
- Pedestrian safety tips for interacting with drivers and bicyclists
- Examples of the walking and/or bicycling distance and preferred route to get between popular destinations. For example, a campaign could advertise the short amount of time it takes to bike to Downtown from a nearby residential neighborhood or from transit stops/stations to local employers
- Messages specific to safety trends identified through this Plan
- Messages related to new devices and treatment types recommended in this Plan such as protected intersections, two stage turn boxes, and Class IV separated bikeways

Example of a safety campaign from North Carolina: http://www.watchformenc.org/

8.2.3 Bike Share Feasibility Study

Bike share systems have been growing in cities around the world and throughout the state of California over the past decade. Bike share systems are often implemented with the goal of offering residents more active transportation options and increasing bicycling as well as reducing congestion and greenhouse gas emissions. Other potential benefits related to bike share include increasing accessibility, improving first/last-mile connections to transit, and public health benefits related to bicycling.

Stockton does not currently have a bike share system. The feasibility of a bike share system in Stockton is an open question for the City and one that will require on-going dialogue and research. Based on a presentation and brainstorming session with City stakeholders in 2016, the main goals for bike share in Stockton include: encouraging mode shift, equity and access; encouraging bicycling culture change by increased visibility of bikes on the road (e.g. marketing opportunity); and promoting sustainability through a "green" transportation option. Key barriers that were initially identified include the city size (i.e. mid-sized city with lower densities), a need to define success realistically and agree on key goals, and a lack of a reliable funding source for ongoing operations costs. Bike sharing should be assessed after parts of the Backbone Network have been constructed to create meaningful, low-stress facilities for bike share usage.

The following actions are recommended to study the feasibility and further pursue the implementation of a bike share system in Stockton:

1. Conduct a bike share feasibility study and develop a bike share business plan through Strategic Growth Council (SGC), Caltrans Planning, and/or San Joaquin Valley Air Pollution Control District grants.

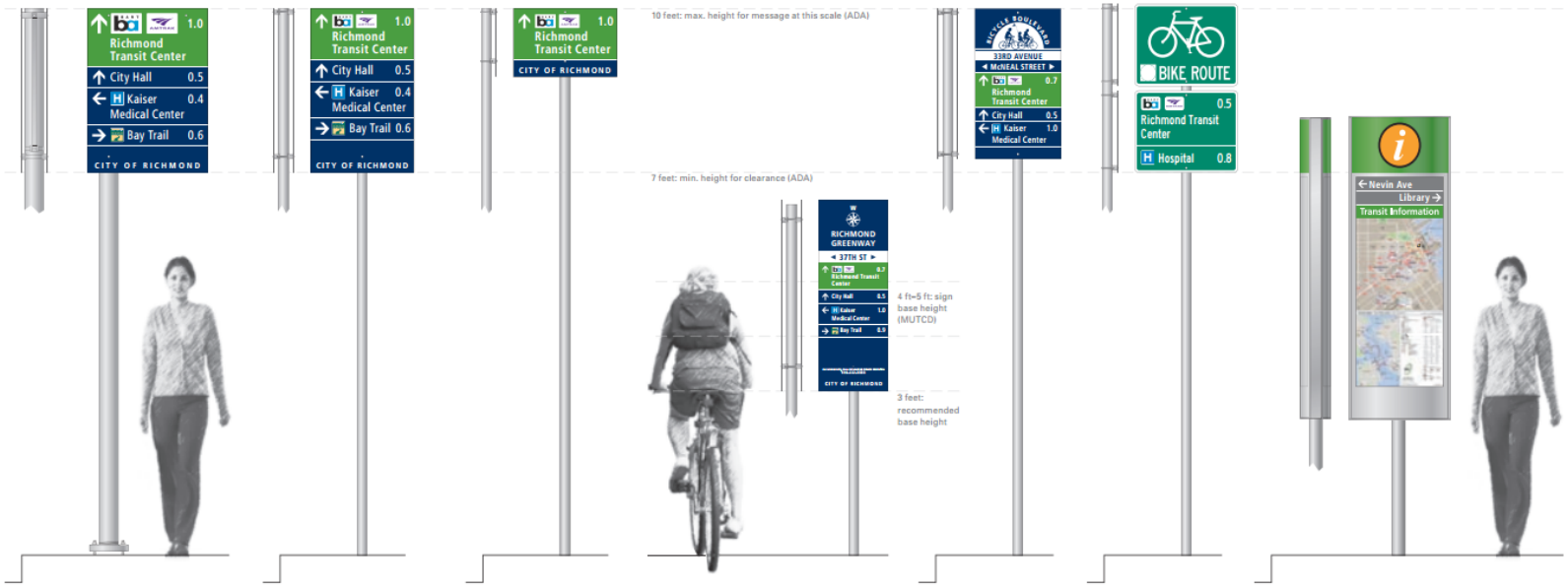
2. Study possible funding and infrastructure models, including consideration of public-private partnerships with area employers.
3. Evaluate availability of capital grant and startup funding for five-year operations costs through Active Transportation Program (ATP) or Cap & Trade funds.
4. Develop implementation and maintenance partnerships with County Public Health Services, San Joaquin Regional Transportation District (RTD), Downtown Stockton Alliance (DSA), area employers, academic institutions (e.g. University of the Pacific) and other relevant City departments.

8.2.4 Wayfinding Program

Wayfinding is important to provide reinforcement and education on the preferred walking and bicycling routes to use in the City. Wayfinding is proposed as a key element of all Backbone Network projects and is important on both trails and on-street bicycle networks, particularly on bicycle boulevards that often wind through residential communities on a variety of streets. Good wayfinding signage is at an appropriate height for bicyclists and pedestrians. Signs confirm directions to nearby destinations and typically include estimated time or distance to those destinations.

Wayfinding signs should be CA MUTCD-compliant, installed at key decision points in the bicycle network, and include confirmation signs that display destinations and mileage. Stockton should also consider a branded wayfinding program for neighborhood bikeways, bicycle routes, trails, and other destinations using the established BMP logo.

Wayfinding signage can be targeted to multiple users including vehicles, transit, pedestrians, and cyclists. A fully coordinated wayfinding program, such as the one shown on the following page, can offer consistent citywide navigation experiences when transfering between modes. Customized signage can also be established for use at transit centers, along pathways or trails, and on-street facilities.



P1
Pedestrian Wayfinding
Commercial Districts
28 x 36
2-sided (2 panels)
2 colors + retroreflective white + color logos

P2
Pedestrian Wayfinding
Residential Streets
24 x 36
2-sided (2 panels)
2 colors + retroreflective white + color logos

P3
Pedestrian Wayfinding
Transit Destination Only
24 x 15 (shown; may need to be 24 x 18)
1-sided (1 panel)
2 colors + retroreflective white + color logos

B1
Bike/Ped Wayfinding
Off-Street Path
16 x 42
2-sided (2 panels)
2 colors + retroreflective white + color logos

B2
Bicycle Wayfinding
Bicycle Boulevards
20 x 33
2-sided (2 panels)
2 colors + retroreflective white + color logos

B3
Bicycle Wayfinding
On-Street Routes
24 x 18 (vertical dimension of lower panel may vary)
1-sided (2 panels)
1 color + retroreflective white + color logos

M1
Map Kiosk (Transit Information)
Transit Centers
2-sided
Identical to MTC standard

Stockton could establish a branded wayfinding program similar to that developed by the West Contra Costa Transportation Advisory Committee (WCCTAC) Transit Enhancement Plan and Wayfinding Guide, shown above.

9. IMPLEMENTATION & FUNDING

This chapter details the overarching prioritization criteria used to select the key projects identified throughout this Plan. An implementation strategy is included with an action plan for the City to carry out policy, program, practice, and project recommendations contained in the previous chapters. The chapter also presents the estimated total cost of the Plan, maintenance costs and potential funding sources to assist the City in planning, budgeting, and delivering the recommendations.

9.1 Prioritization Criteria

Prioritization of the projects identified in the BMP is necessary to understand how the community would like to see City investments for biking directed, and to strategically position the City for competitive grants. The methodology for prioritizing projects uses criteria selected during the community outreach and addresses common grant funding criteria as outlined in **Table 9-1**. For a breakdown of the scoring system used to implement the prioritization criteria refer to the matrix provided in **Appendix G**.

Table 9-1: Prioritization Criteria

Community Selected Criteria	Common Grant Funding Criteria
1. Identified on the Low-Stress Backbone Network should be implemented first 2. Inexpensive and quick to construct 3. Located near schools 4. Promotes spatial equity and a balance between all neighborhoods in Stockton 5. Promotes socio-economic equity by implementing facilities in disadvantaged communities	1. Directly requested by local communities (Caltrans Active Transportation Program grant criteria) 2. Addresses safety concerns or works to address areas with high collision rates (Caltrans Active Transportation Program and Highway Safety Improvement Program grant criteria)

9.1.1 Equity Through Prioritization

To ensure that the BMP is sensitive to equity issues, the community engagement process resulted in two of the five prioritization criteriabeing related to equity, in terms of spatial and socioeconomic distribution of investments. This was accomplished through use of a tool developed by the Office of Environmental Health Hazard Assessment (OEHHA) known as the California Communities Environmental Health Screening Tool (CalEnviroScreen). The data set identifies California communities burdened with environmental pollution and socioeconomic challenges. CalEnviroScreen has two major components: 1) Pollution Burden (Exposure and Environmental Effects) and 2) Population Characteristics (Sensitive Populations and Socioeconomic Factors). **Table 9-2** summarizes the inputs included in the CalEnviroScreen data.

Table 9-2: CalEnviroScreen Equity Indicators

Pollution Burden	Population Characteristics
EXPOSURE • Ozone concentrations in air • PM 2.5 concentrations in air • Diesel particulate matter emissions • Drinking water contaminants • Use of certain high-hazard, high-volatility pesticides • Toxic releases from facilities • Traffic density	SENSITIVE POPULATIONS • Asthma emergency department visits • Cardiovascular disease (emergency department visits for heart attacks) • Low birth-weight infants
ENVIRONMENTAL EFFECTS • Toxic cleanup sites • Groundwater threats from leaking underground storage sites and cleanups • Hazardous waste facilities and generators • Impaired water bodies • Solid waste sites and facilities	SOCIOECONOMIC FACTORS • Educational attainment • Housing burdened low income households • Linguistic isolation • Poverty • Unemployment

The overall CalEnviroScreen score therefore identifies disadvantaged communities based on geographic, socioeconomic, public health, and environmental hazard criteria. The data was then combined with the neighborhood boundaries identified as part of the City of Stockton General Plan Update process to show how each neighborhood in Stockton scores according to the data. The percentile range of scores by neighborhood are presented in Figure 9 1 and were used to determine where proposed Backbone Network bicycle facility investments would support the priority principle of socio-economic equity in Stockton.

While specific data could be used to calculate the socio-economic equity, spatial equity implies that projects work to establish connections between neighborhoods and are not isolated projects. Connectivity must be increased between neighborhoods to qualify as promoting spatial equity; the performance of each project was established through the Connectivity Analysis described in Chapter 4.

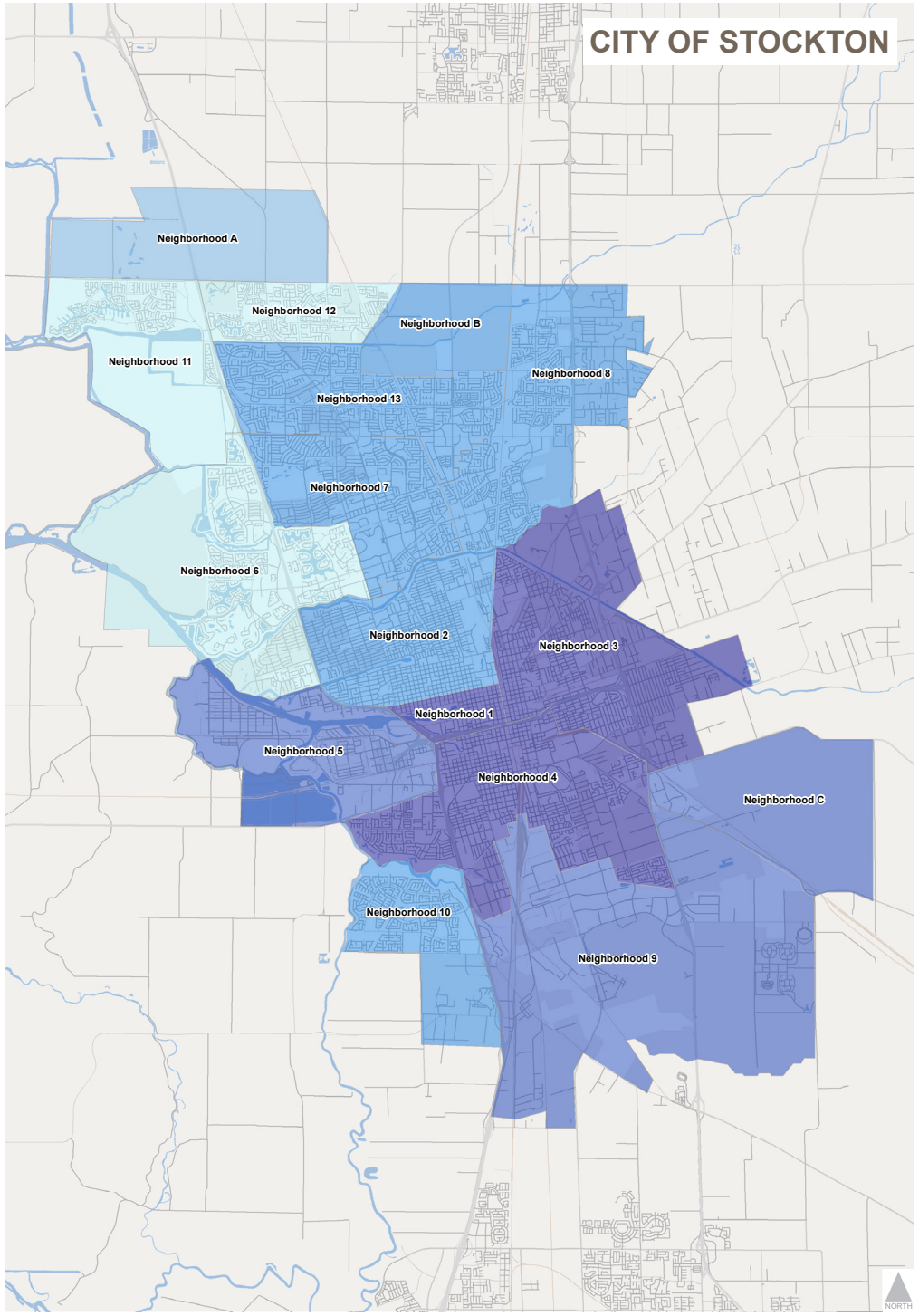


Figure 9-1: Stockton Neighborhood Socio-Economic Equity Characteristics

9.1.2 Prioritized Backbone Network Project List

The prioritized list gives the city a clear framework for how to allocate discretionary funding for bicycle or complete streets projects. **Table 9-3** below summarizes how each project identified in **Appendix B** ranks using the prioritization criteria described above. The projects are then sorted into High, Medium, and Low priority project categories to assist the City with implementing projects in accordance with the community selected goals. While this provides a general road map of community priorities, in some cases, lower priority projects may be implemented sooner as discrete opportunities arise, such as through repaving projects or development-related improvements.

Table 9-3: Prioritized Backbone Network Infrastructure Project List

Rank	Project Number ID	Project Name	Community Selected Prioritization Criteria					Grant Criteria		Percentage of Criteria Met (Out of 100%)
			Low-Stress Facility	Inexpensive/ Easily Implemented	Near Schools	Spatial Equity	Socio-Economic Equity	BMP Outreach	Safety/ Collisions	
High Priority Projects (70-100 Percent of Prioritization Criteria Met)										
1	13	**West Lane/Airport Way Separated Bikeways**	Yes	Yes	High	High	High	Medium	High	**89%**
2	26	**Alpine Bikeway**	Yes	Yes	High	High	Medium	High	High	**89%**
3	33	**California Street Separated Bikeway**	Yes	Yes	High	High	High	Medium	High	**89%**
4	14	**Pacific Avenue Separated Bikeway**	Yes	No	High	High	Medium	High	High	**83%**
5	15	**West Side Bikeway**	Yes	Yes	High	High	Low	High	High	**83%**
6	6	**East Bay MUD Path (Western Segment)**	Yes	No	High	High	Medium	Medium	High	**78%**

Rank	Project Number ID	Project Name	Community Selected Prioritization Criteria					Grant Criteria		Percentage of Criteria Met (Out of 100%)
			Low-Stress Facility	Inexpensive/ Easily Implemented	Near Schools	Spatial Equity	Socio-Economic Equity	BMP Outreach	Safety/ Collisions	
7	43	**El Dorado/Center Separated Bikeways**	Yes	Yes	High	High	High	No	High	**78%**
8	51	**Eighth Street Separated Bikeways**	Yes	Yes	High	High	High	Medium	Low	**78%**
9	67	**Harding Way Complete Streets Study**	Yes	No	High	High	Medium	Medium	High	**78%**
10	2	**Bear Creek Multi-Use Pathway Extension**	Yes	No	High	High	Medium	High	Low	**72%**
11	16	**Alexandria Bicycle Boulevard**	Yes	Yes	High	High	Medium	Low	Medium	**72%**
12	28	**Kensington/Baker Bicycle Boulevard**	Yes	Yes	High	Medium	Medium	Medium	Medium	**72%**
13	46	**Hazelton Bikeway**	Yes	Yes	High	High	High	No	Medium	**72%**
14	52	**Carolyn Weston Separated Bikeways**	Yes	Yes	High	High	Medium	Medium	Low	**72%**
15	53	**Downing Bicycle Lanes**	Yes	Yes	High	Low	High	Medium	Medium	**72%**
16	59	**Dr. MLK, Jr. Blvd Separated Bikeways**	Yes	No	High	High	High	No	High	**72%**
17	31	**Monte Diablo/ Acacia Bicycle Lanes**	Yes	Yes	High	High	Medium	No	High	**72%**

Rank	Project Number ID	Project Name	Community Selected Prioritization Criteria					Grant Criteria		Percentage of Criteria Met (Out of 100%)
			Low-Stress Facility	Inexpensive/ Easily Implemented	Near Schools	Spatial Equity	Socio-Economic Equity	BMP Outreach	Safety/ Collisions	
Medium Priority Projects (50-70 Percent of Prioritization Criteria Met)										
18	4	**Swain Road Bicycle Lanes**	Yes	Yes	High	Medium	Medium	Low	Medium	**67%**
19	5	**Quail Lakes Bicycle Improvements**	Yes	Yes	Medium	Medium	Low	High	Medium	**67%**
20	10	**Thornton Road Separated Bikeway**	Yes	No	High	High	Medium	No	High	**67%**
21	35	**East Side Bikeway**	Yes	Yes	High	High	High	No	Low	**67%**
22	40	**Main Street Bikeway**	Yes	Yes	Medium	High	High	No	Medium	**67%**
23	41	**Fremont Downtown Connector**	Yes	Yes	Medium	High	High	No	Medium	**67%**
24	45	**Weber Separated Bikeways**	Yes	Yes	Low	High	High	No	High	**67%**
25	50	**French Camp Turnpike Bikeway**	Yes	Yes	High	Medium	High	No	Medium	**67%**
26	7	**East Bay MUD Path (Eastern Segment)**	Yes	No	Low	Medium	Medium	Medium	High	**61%**
27	19	**Holman Road Separated Bikeway**	Yes	No	High	High	Medium	No	Medium	**61%**

Rank	Project Number ID	Project Name	Community Selected Prioritization Criteria					Grant Criteria		Percentage of Criteria Met (Out of 100%)
			Low-Stress Facility	Inexpensive/ Easily Implemented	Near Schools	Spatial Equity	Socio-Economic Equity	BMP Outreach	Safety/ Collisions	
28	23	**Bianchi/ Montauban Bikeway**	Yes	Yes	High	Medium	Medium	No	Medium	**61%**
29	25	**Calaveras River Path South Connection**	Yes	No	Medium	Medium	Medium	Medium	Medium	**61%**
30	36	**Waterloo Bikeway**	Yes	Yes	Low	Medium	High	No	High	**61%**
31	39	**Miner Bicycle Lanes**	Yes	Yes	Low	Medium	High	Low	Medium	**61%**
32	49	**Lincoln Bicycle Lanes**	Yes	Yes	High	Low	High	No	Medium	**61%**
33	61	**B Street Bikeway Extension**	Yes	Yes	Medium	High	High	No	Low	**61%**
34	62	**Eighth Street Bicycle Lanes (Southwest)**	Yes	Yes	High	Medium	High	No	Low	**61%**
35	63	**Mariposa Bicycle Lanes**	Yes	Yes	High	Medium	High	No	Low	**61%**
36	3	**Mosher Slough Multi-Use Pathway**	Yes	No	Medium	High	Medium	No	Medium	**56%**

Rank	Project Number ID	Project Name	Community Selected Prioritization Criteria					Grant Criteria		Percentage of Criteria Met (Out of 100%)
			Low-Stress Facility	Inexpensive/ Easily Implemented	Near Schools	Spatial Equity	Socio-Economic Equity	BMP Outreach	Safety/ Collisions	
37	8	**March Lane Separated Bikeway**	Yes	Yes	High	Low	Medium	No	Medium	**56%**
38	11	**Davis Road Bicycle Lanes**	Yes	Yes	High	Medium	Low	No	Medium	**56%**
39	12	**Lower Sacramento Road Buffered Bike Lanes**	Yes	No	Medium	Medium	Medium	Low	Medium	**56%**
40	17	**Mission Bicycle Bouldevard**	Yes	No	Medium	Medium	Medium	Medium	Low	**56%**
41	42	**Madison Street Bicycle Lanes**	Yes	Yes	Medium	Medium	Medium	No	Medium	**56%**
42	47	**Marsh Bicycle Boulevard**	Yes	Yes	High	Low	High	No	Low	**56%**
43	56	**French Camp Bikeway**	Yes	No	High	Medium	High	Low	No	**56%**
44	57	**Arch Airport Separated Bikeways**	Yes	No	Low	Medium	High	Low	Medium	**56%**
45	21	**Burgundy Bicycle Boulevard**	Yes	Yes	High	Low	Medium	No	Low	**50%**

Rank	Project Number ID	Project Name	Community Selected Prioritization Criteria					Grant Criteria		Percentage of Criteria Met (Out of 100%)
			Low-Stress Facility	Inexpensive/ Easily Implemented	Near Schools	Spatial Equity	Socio-Economic Equity	BMP Outreach	Safety/ Collisions	
46	27	**Country Club Bikeway Improvements**	Yes	Yes	Low	High	Medium	No	Low	**50%**
47	34	**Diverting Canal Multi-Use Path (South)**	Yes	No	Low	High	High	Low	No	**50%**
48	38	**Fremont Bikeway**	Yes	Yes	Low	Medium	High	No	Low	**50%**
49	54	**San Joaquin River Levee Trail**	Yes	No	Low	Medium	High	Medium	No	**50%**
50	55	**Horton Bicycle Boulevard**	Yes	Yes	Medium	Medium	High	No	No	**50%**
51	60	**Golden Gate Bike Route**	Yes	Yes	Medium	Low	High	No	Low	**50%**
Low Priority Projects (1-50 Percent of Prioritization Criteria Met)										
52	1	**Eight Mile Road Buffered Bike Lanes**	Yes	Yes	Low	Medium	High	No	No	**44%**
53	18	**Don/Meadow Bicycle Lanes**	Yes	Yes	Medium	Low	Medium	No	Low	**44%**
54	32	**Miners Levee Multi-Use Path Extension**	Yes	No	Low	Medium	High	No	Low	**44%**

Rank	Project Number ID	Project Name	Community Selected Prioritization Criteria					Grant Criteria		Percentage of Criteria Met (Out of 100%)
			Low-Stress Facility	Inexpensive/ Easily Implemented	Near Schools	Spatial Equity	Socio-Economic Equity	BMP Outreach	Safety/ Collisions	
55	37	**Cherokee Bicycle Lanes**	Yes	No	Low	Medium	High	No	Low	**44%**
56	58	**Industrial Bikeway**	Yes	Yes	Low	Medium	High	No	No	**44%**
57	9	**Calaveras River Path North Extension**	Yes	No	Low	Low	Medium	Medium	No	**39%**
58	20	**Kermit Bicycle Boulevard**	Yes	Yes	Low	Medium	Medium	No	No	**39%**
59	22	**Lorraine Bikeway**	Yes	No	Low	Medium	Medium	No	Low	**39%**
60	24	**Sutter Bicycle Boulevard**	Yes	Yes	Low	Low	Medium	No	Low	**39%**
61	29	**Pathway Improvement to Miners Levee Connection**	Yes	No	Low	Low	High	No	Low	**39%**
62	44	**McKinley Avenue Connector**	Yes	No	Low	Medium	High	No	No	**39%**
63	48	**Washington Bicycle Lanes**	Yes	No	Low	Low	High	No	Low	**39%**
64	64	**Duck Creek Trail Extension**	Yes	No	Low	Low	High	No	Low	**39%**

Rank	Project Number ID	Project Name	Community Selected Prioritization Criteria					Grant Criteria		Percentage of Criteria Met (Out of 100%)
			Low-Stress Facility	Inexpensive/ Easily Implemented	Near Schools	Spatial Equity	Socio-Economic Equity	BMP Outreach	Safety/ Collisions	
65	65	**Delta Cove Multi-use Path**	Yes	No	High	Medium	Low	No	No	**39%**
66	66	**Sanctuary Multi-use Path**	Yes	No	High	Medium	Low	No	No	**39%**
67	30	**Shimizu Bike Route**	Yes	Yes	Low	Low	Medium	No	No	**33%**

9.2 Implementation Plan

Table 9-4 presents the implementation plan for the BMP. Many of the implementation plan elements will be completed on an ongoing basis, and the table outlines which should be initiated upon plan adoption with demonstrated progress in the next five years. The table also identifies lead agency/partners, timeline and relative cost for each action. While this plan provides a general road map of community priorities, in some cases, lower priority projects may be implemented sooner as discrete opportunities arise, such as through repaving projects or development-related improvements.

Table 9-4: Implementation Plan

Task	Task	Lead Agency/ Partners	Timeline	Relative Cost
Annually Report on Performance Measures	• Provide annual report to the BPTAC (or other newly established advisory committee) on how the City has progressed on each of the four performance measure in **Table 10-1**. Ensure that stakeholders citywide are informed. • Report to include descriptions of funding, approval, and project development process to facilitate citizen engagement	City Public Works Department, BPAC	Annual	$
Apply for and Secure Funding	• Apply "80/20" rule for bicycle project funding, so that 80 percent of funding covers the highest need facilities and 20 percent of funding are reserved for spot/ as needed improvements. • Allocate funding or staff time to develop competitive grant applications to projects that will be highly competitive for funding, such as safety and complete streets projects with strong public support. • Refer to Section 9.7 and Appendix F Funding Sources to identify available funding sources for each project in the prioritized project list.	City Public Works Department	Ongoing, 5 Years	$$
Build Out the Near-Term All Ages & Abilities Backbone Network	• Integrate bikeway projects into repaving programs and prioritize the highest priority bikeway projects wherever possible • Partner with transit agencies (e.g. SJRTD, ACE) to improve access to transit, provide seamless transitions between transit facilities and the public right-of-way and bicycle network, and provide secure bicycle parking at transit stations and major bus stops	City Public Works Department, SJRTD, ACE	Ongoing, 5-10 Years	$$$$
Conduct Complete Streets Studies	• Seek grants for the Harding Way, Dr Martin Luther King Jr Boulevard, Pacific Avenue, and West Lane/Airport Way complete streets studies	City Public Works Department, City Community Development Department	Ongoing, 5-10 Years	$$$

Task	Task	Lead Agency/ Partners	Timeline	Relative Cost
Build Out the Backbone Network	• Opportunistically build out the bikeway projects, as adjacent parcels redevelop or as repaving or other maintenance projects occur on those roadways, insuring connections with existing facilities.	City Public Works Department, Partner with San Joaquin County when necessary	Opportunistically, 10+ Years	$$-$$$$
Deploy Educational, Encouragement, and Enforcement Programs	• Work with the San Joaquin County Public Health Services' Safe Routes to School Program to increase participation in safe routes to school programs • Work with the Police Department to enhance and further development education, encouragement, and enforcement programs • Apply for Bicycle Friendly Community status with build out of the Backbone Network and investment in support programs	City Public Works Department, San Joaquin County Public Health Services, Stockton Police Department	Ongoing, 5 Years	$$-$$$
Enhance Bicycle Parking Program	• Amend the city's Municipal Code to include bicycle parking requirements for short-term and long-term parking • Establish corral and locker bicycle parking programs at key destinations, such as Downtown and the Miracle Mile	City Public Works Department, Downtown Stockton Alliance	Ongoing, 5 Years	$$
Enhance Bicycle Signals Program	• Upgrade bicycle detection at locations where video or loop detection is not present • Ensure that signals provide sufficient green, yellow, and red time to allow bicyclists to clear the intersection per Section 4D.105 of the California Manual on Uniform Traffic Control Devices (CA MUTCD).	City Public Works Department	Ongoing, 5 Years	$$
Enhance Maintenance and Ongoing Operations	• Develop a maintenance plan for City-operated trails and separated bikeways • Coordinate with Street Landscaping and Maintenance division to provide a well maintained bicycle network	City Public Works Department, City Maintenance & Repair Services	Ongoing, 5 Years	$$

9.3 Bicycling Forecasts

With the implementation of the projects described in this Plan, increase in the mode share for biking is anticipated. The Alameda County Transportation Commission Demand Forecasting Tool estimates that 0.9 percent of all trips will take place by bicycle, with full implementation of the Backbone Network by 2040. This estimate applies to all trips and is based on currently available mode shift elasticities. This estimate represents an increase from the existing 0.6 percent of all trips, as estimated by the California Household Travel Survey (see Section 3.6). The Alameda County Transportation Commission Demand Forecasting Tool is one of the best available tools to estimate changes in mode share. However, ongoing research in communities focused on low-stress bikeway implementation suggests a much greater mode shift potential, with the implementation of the Backbone Network, especially for short trips.

9.4 Cost of the Plan

The total cost of the all projects identified in **Table 9-3** are presented in order to provide a base for the City to seek funding opportunities for implementation. **Table 9-5** summarizes the cost to complete the Plan for all infrastructure-related projects. These are planning-level cost estimates that include contingencies. The City will develop detailed estimates during the preliminary engineering stage as individual projects advance toward implementation. Programmatic elements in the BMP are not provide cost estimates as the scale of implementation and scope of work can vary drastically. The City should outline the necessary components of each project and establish a cost prior to the implementation of education and support programs.

Table 9-5: Estimated Cost of the Plan

Facility Type	New Miles	Cost
Class I	45.2	$98,250,000
Class II Bike Lanes	44.2	$9,476,000
Class II Buffered Bike Lanes	21.8	$5,322,000
Class III Bike Boulevard	18.1	$6,472,000
Class III Bike Routes	1.9	$132,000
Class IV Separated Bikeways – Near-term Buildout (Striping & Soft-tipped Posts)	56.6	$23,671,000
Bicycle and Pedestrian Bridge Improvements	1.2	$20,535,000
Total Near-Term Plan Cost		**$163,858,000**
Class IV Separated Bikeways – Long-term Buildout (Raised Curb, Landscaping, & Protected Intersection Installations)	56.6	$145,596,000
Total Long-Term Plan Costs		**$309,454,000**

For purposes of this Plan, conceptual construction costs for the proposed system were based on the following assumptions:

- New Class I facilities would be constructed on generally flat right-of-way with no grade separation and minimal grading needed given the existing topography within the City; cost of right-of-way acquisition is not included.
- Most new Class II bikeways would require minimal or no roadway improvements, such as roadway widening, unless otherwise called out in the project description
- New Class III bikeways would require sharrows and striping. Bicycle boulevards assume traffic calming measures would also be installed.
- New Class IV separated bikeways can vary substantially in cost, due to the wide variety of treatment types and materials used. It is assumed the City will primarily use striped buffers with plastic pylons in the near-term but install raised curb barriers and protected intersections in the long-term buildout of the Backbone Network.

9.5 Maintenance Costs

Multi-use path maintenance includes cleaning, resurfacing, and re-striping an asphalt path, repairing bridges and other structures, cleaning drainage systems, removing trash, and landscaping. While typical month-to-month maintenance may be low, deferred maintenance can lead to costly repairs.

The estimated annual maintenance expenses for shared-use paths is approximately $13,000 per mile for landscaping work, including monthly trash collection, biannual weeding and asphalt cleaning, and annual tree pruning. This annual estimate is in addition to slurry seal treatments, which should occur roughly once every ten years, and cost approximately $28,000 per mile (based on $4 per square yard and a 12-foot-wide trail, including restriping). If slurry seal is applied every 10 years, more expensive trail rehabilitation (i.e., pavement overlay and reconstruction) may not be necessary. If all of the proposed bike paths were implemented, this would yield approximately 86 total miles of paths including 41 miles of proposed pathways plus the 45 miles of existing pathways (approximately three miles are proposed to be rehabilitated under the BMP). Thus the annual maintenance cost for Class I facilities is estimated at about $1,118,000, which does not include the cost of periodic slurry seal treatments.

For bicycle lanes, the cost consists of maintaining pavement markings and striping. The estimated annual cost is $30,000 for a full build-out of approximately 65 miles of Class II facilities (including paint only buffered Class II bike lanes), based on an annual cost of $455 per mile in restriping (including the cost to restripe bike lanes and refresh stencils). This annual expense is in addition to sign replacement costs of about $2,000 per sign. Signs need to be replaced roughly once every ten years.

Class III facilities will require maintenance of bike signs located along the bike route every ten years (with costs of about $2,000 per sign).

The cost for maintaining Class IV facilities depends on the type of bikeway constructed. If Class IV facilities are designed to be raised bikeways than maintenance costs are more similar to sidewalk maintenance costs, equating to approximately $132,000 per mile every ten years. For bikeways separated by painted buffer and a vertical element such as a bollard, per mile maintenance costs are approximately $15,000/year. For a proposed network of approximately 60 miles of Class IV bikeways, the annual maintenance cost for Class IV facilities in Stockton is estimated at about $849,000. It is also important to note that on street bikeway facilities (as opposed to off street, Class I trail facilities) are repurposed vehicular road space, which would otherwise require vehicular pavement maintenance. Total maintenance costs for on street bikeway facilities may be partially offset by cost savings to standard pavement maintenance.

Table 9-6: Citywide Conceptual Annual Maintenance Costs for Near-Term Buildout

Facility Type	Description	Length of Existing Plus Proposed Near-Term Segments	Estimated Cost (2017 $)
Class I	Bicycle Path	86 miles	$1,118,000
Class II	Bicycle Lane[1]	66.0 miles	$30,000
Class III	Bicycle Route/Boulevard	20.0 miles	Sign Replacement (Every 10 Years)
Class IV	Separated Bikeway	56.6 miles	$849,000
		Total Annual Maintenance Costs	$1,997,000

[1] Includes buffered bicycle lanes, which require similar maintenance costs as Class II bicycle lanes.

Costs are in 2017 dollars, excluding right-of-way costs. Cost do not include sign replacement and other maintenance that does not occur annually.

9.6 Past and Future Expenditures

Since Fiscal Year 2012/2013 the City of Stockton has spent approximately $3.2 million on bicycle facilities, and anticipates spending $15 million on bicycling facilities over the next five years. The following projects are either currently active and/or anticipated to receive funding from SJCOG over the next five years:

- Bear Creek and Pixley Slough Bicycle and Pedestrian Path
- Calaveras River Bike Path Improvement Project
- El Dorado Street Road Diet
- Hunter Street Road Diet
- Lincoln Street and Eighth Street Roundabout and Bicycle Lane
- March Lane/ East Bay Municipal Utility District (EBMUD) Bicycle and Pedestrian Path Connectivity Improvements
- Miner Avenue Complete Streets
- Montauban Ave and Hammertown Drive Roundabout and Bicycle Lane
- San Joaquin Trail
- Tam O'Shanter Drive and Knickerbocker Drive Roundabout and Bicycle Lane
- Citywide Bicycle Facilities Upgrade (installation of various Class II & Class III facilities)
- Active Transportation Plan in Greater Downtown District

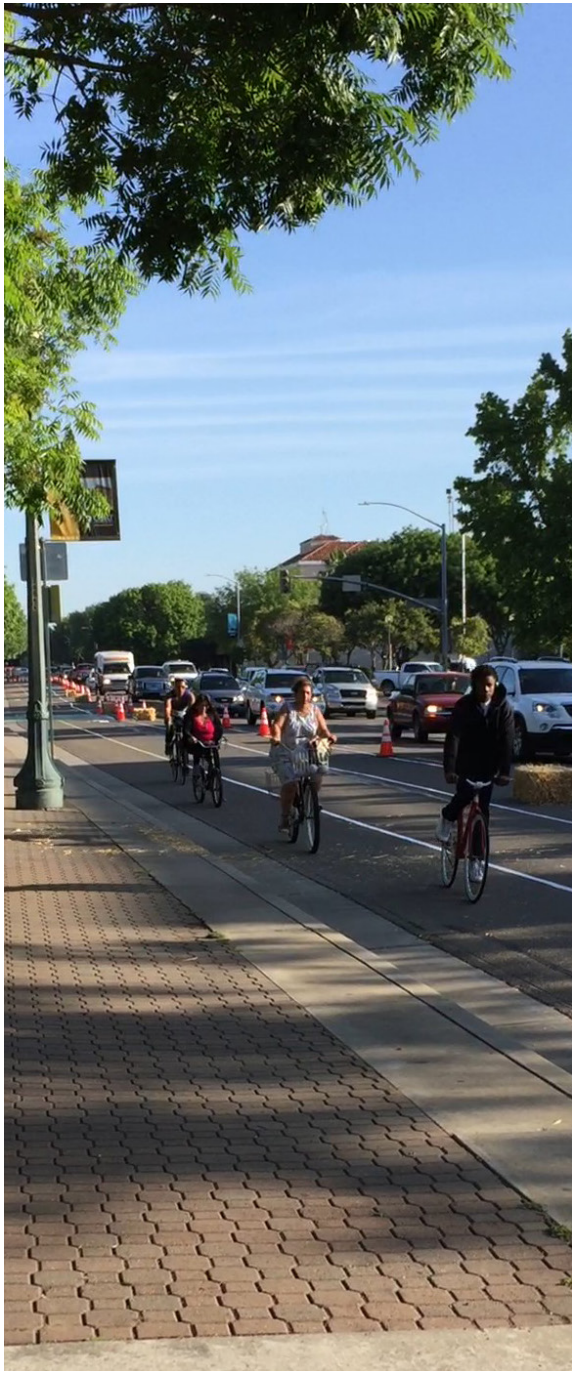
Anticipated funding sources including Measure K, gas tax, and Transportation Development Act (TDA). Stockton has also been successful in winning grant funding from the Caltrans Active Transportation Program (ATP), the Caltrans Highway Safety Improvement Program (HSIP), and the SJCOG Congestion Mitigation and Air Quality Improvement Program (CMAQ). The City should continue to use these sources to supplement funding in order to implement the Backbone Network.

9.7 Potential Funding Sources

To fund the projects and programs outlined in this Plan, the following funding strategies should be considered:

- Include bikeway projects in the City's Transportation Impact Fee program(s)
- Require construction of bicycle facilities as part of new development
- Include proposed bikeways as part of all roadway projects, including widening, resurfacing, or other improvements
- Where projects will be competitive, reserve staff time or funding resources to complete competitive grant applications, such as the Caltrans Active Transportation Program, Caltrans Highway Safety Improvement Program (HSIP), San Joaquin Valley Air Pollution Control District grants, SJCOG Measure K Program, or other sources
- Use existing funding sources as matching funds for regional, state, or federal funding
- Consider joint applications with other local and regional agencies such as the Cities of Lathrop, Lodi, and Manteca, San Joaquin County, SJCOG, San Joaquin RTD, ACE, and Caltrans District 10 for competitive statewide funding programs

Appendix F presents summaries of potential funding sources available to the city.



10. PLAN EVALUATION AND PERFORMANCE TARGETS

Strong evaluation programs help inform future project prioritization and target investments to the most impactful types of engineering projects and support programs. **Table 10-1** presents four key performance targets to support a strong evaluation program in Stockton. These targets provide consistency with the policies established in each of the main goal chapters. Each year, the City can document performance on achieving the Plan goals using the metrics described below.

Table 10-1: Performance Targets

Performance Target	Corresponding Plan Goal(s)[1]	Metric	Key Actions
1. Construct the All Ages and Abilities Backbone network by 2040 and implement the top priority projects by 2025.	**Goal 1:** Provide a connected bicycle grid of low stress facilities that acts as the primary spine for north/south and east/west routes while closing gaps in the existing bicycle network. **Goal 3:** Accommodate all trip types and cyclists needs through providing family friendly facilities, connections to critical services, connections to transit, effective branding, and advances in technology to promote better access to cycling.	Establish a construction pace of one corridor project per year	• Integrate projects into routine maintenance activities, such as paving projects and intersection Capital Improvement Program (CIP) projects • Allocate staff to pursuing competitive grant funding for targeted sources (see **Chapter 9 Implementation & Funding** for more information) • Apply "80/20" rule for bicycling funding, so that 80 percent of funding covers the highest needs bicycling facilities, as outlined in **Chapters 5 – 8**, and 20 percent of funding is reserved for spot improvements/ quick response which consults the Bicycle Facilities Decision Matrix in **Appendix A**. • Review environmental documents and proposed development plans for consistency with this Plan and the ability of those projects to help fund bicycling projects.
2. Enhance citywide bicycle safety	**Goal 2:** Make Stockton a bike-friendly city with multi-modal complete streets design and secure, convenient bicycle parking while reducing the number of severe injuries and fatalities using Vision Zero principles. **Goal 4:** Educate roadway users of all ages and abilities about proper cycling techniques and laws, health benefits, economic opportunities, sustainability, and supportive programs to increase cycling as a preferred mode of transportation in Stockton.	Reduce total number of fatal and severe bicycle-involved collision by 50 percent in 2030 and an additional 50% in 2040	• Implement the programmatic recommendations in **Chapter 8**, particularly those focused on multi-modal adult education based on community feedback • Build out the All Ages and Abilities bicycle projects, as prioritized by safety needs
		Increase participation and promotion of bicycle programs	• Improve promotion and increase attendance at bicycle education and encouragement events and classes

Performance Targets	Corresponding Plan Goal(s)[1]	Metric	Key Actions
3. Encourage and facilitate a significant increase in active transportation mode share and trips.	**Goal 1:** Provide a connected bicycle grid of low stress facilities that acts as the primary spine for north/south and east/west routes while closing gaps in the existing bicycle network. **Goal 4:** Educate roadway users of all ages and abilities about proper cycling techniques and laws, health benefits, economic opportunities, sustainability, and supportive programs to increase cycling as a preferred mode of transportation in Stockton. **Goal 3:** Accommodate all trip types and cyclists needs through providing family friendly facilities, connections to critical services, connections to transit, effective branding, and advances in technology to promote better access to cycling.	Improve the percentage of **all** bicycling trips by 2030 by 25%.	• Build out the All Ages and Abilities Backbone Network projects • Require bicycle counts to be routinely collected with all intersection turning movement counts, such as for all environmental documents and traffic studies • Consider creating a GIS database of bicycle counts by location, including peak hour, weekday and weekend ADT, date, and source of data, as available • Review and monitor bicycle commute mode share from American Community Survey (ACS), employer data and/or the California Household Travel Survey • Survey residents, employees, and visitors to gauge if more women, children, and "interested but concerned" riders are bicycling in Stockton over time. • Acquire, install, and operate bicycle and pedestrian count technology, including permanent installations at key locations and mobile counters that can be moved to different locations
4. Encourage new bicycling trips to schools and transit	**Goal 3:** Accommodate all trip types and cyclists needs through providing family friendly facilities, connections to critical services, connections to transit, effective branding, and advances in technology to promote better access to cycling.	Improve the percentage of bicycling trips to school and transit by 2030 by 25%.	• Implement projects under the City of Stockton's Safe Routes to School Plan (to be adopted after the BMP) • Work with SJRTD, ACE and local employers to monitor the percentage of riders walking and bicycling to transit • Expand the number of schools participating in Stockton and San Joaquin County Public Health Services Safe Routes to School Programs, as recommended in **Chapter 8** • Work with ACE, SJRTD, and local developers to develop bicycle and pedestrian oriented developments around the ACE station and BRT routes and integrate with the projects outlined in **Chapters 5 – 8** • Use transportation demand management (TDM) programs and the Citywide Traffic Impact Fee to support increasing the number of biking trips to transit

[1] The four Bicycle Master Plan goals are presented in Chapter 5 – Chapter 8.
Source: Fehr & Peers, 2017.

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A. DESIGN GUIDELINES

The bicycle facility designs included in this guide are important for creating an all ages and abilities network in Stockton. Creating a network of facilities that is comfortable for users of all ages is a key step in encouraging "interested but concerned" bicyclists to ride on new bicycle routes. These design guidelines supplement the bicycle network recommendations presented in **Chapter 4** of the Plan update and inform the development of all new and enhanced bikeway projects in Stockton.

This section presents preferred treatments and preferred and minimum dimensions for all bikeways with emphasis on those in the All Ages and Abilities Vision Network such as separated bikeways, neighborhood bikeways, and protected intersections. In addition to those guidelines, this chapter includes clarifying policies and preferred and minimum dimensions for select active transportation facilities.

A-1 Changing the Culture around Multi-Modal Safety in Stockton

The implementation of the BMP should involve national best practices in multi-modal complete streets design. The Steering Committee and other stakeholders involved in the BMP realized a need to ensure all modes of transportation are included in design treatment selections. The following national best practice resources should be used when assessing potential treatments in multi-modal corridors:

- NACTO Urban Bikeway Guide, 2nd Edition
- NACTO Urban Streets Design Guide
- NACTO Transit Street Design Guide
- AASHTO Guide for the Development of Bicycle Facilities, 4th Edition
- Caltrans Highway Design Manual Chapter 1000 Bicycle Transportation Design
- Caltrans Class IV Bikeway Guidance
- Federal Highway Administration (FHWA) Separated Bicycle Lane Planning and Design Guide
- MassDOT Separated Bike Lane Planning and Design Guide
- CROW Design Manual for Bicycle Traffic 2017
- ITE Recommended Practices on Accommodating Pedestrian and Bicyclists at Interchanges

The BMP includes recommendations for newer facility types and treatment options such as Class IV Separated Bikeways and protected intersections that have not yet been implemented in Stockton. These newer facility types have begun to be implemented throughout California and in the Central Valley. These new treatments and resources can increase the safety of cyclists by providing adequate separation along heavily trafficked arterials or truck routes and have the ability to reduce vehicle conflicts at intersections. Priority use and safety considerations should be given to cyclists on corridors and at intersections identified as part of the Backbone Network.

Recent trends in multi-modal safety revolve around Vision Zero planning efforts which create strategies to eliminate all traffic fatalities and severe injuries while increasing safety, health, and equitable mobility for all users. Vision Zero projects identify high-injury networks by analyzing collision data and assessing future risk through predictive forecasting. Caltrans also introduced grants that can be geared toward Vision Zero planning known as the Systemic Safety Analysis Report Program (SSARP). As a recent SSARP recipient, the City has the opportunity to tailor this funding to meet the goals of the BMP and to reduce all collision types citywide.

A-2 Travel Lane Widths

The City of Stockton accepts 10- to 11-foot lane widths on most roadways. At turn pockets, the City will consider 9- to 10-foot pocket width.

A-3 Bicycle Facility Selection

Selection of the most appropriate type of bicycle facility requires consideration of a variety of factors. On the All Ages and Abilities Network, this decision is critical, as the facility must be comfortable enough for bicyclists representing a wide range of experience levels. Characteristics of the roadway such as auto volumes, number of travel lanes, typical auto speeds, and available roadway width are also important considerations that significantly influence bicyclist safety and comfort. While other engineering and feasibility considerations also influence the type of bicycle facility proposed, **Table A-9** presents the key bicycle facility selection criteria for the All Ages and Abilities Network. If the bikeway type does not meet these criteria, it likely is not comfortable enough to be considered part of the All Ages and Abilities Network.

The following guidelines should also be considered when selecting bicycle facilities for facilities not located on the Backbone Network:

- Proposed facilities should provide access with logical start and end points that facilitate connections to schools, major employment centers, services, or connect to the Backbone Network.
- Proposed facilities should strive to implement all ages and abilities treatments recommended in the design guidelines in Table A-1.
- When roadway resurfacing or other maintenance projects occur, new bikeway facilities should be considered. The new facilities should connect with other bikeway facilities or destinations even if the new bikeway treatments extend beyond the original project limits to ensure they tie in with other facilities and/or the larger Backbone Network.

Table A-1: All Ages and Abilities Bicycle Facility Select Based on Speed and Number of Travel Lanes

Typical Speed	Bicycle Facility Type	Number of Travel Lanes		
		2	3	4 or more
25 MPH or less	Path[1]			
	Separated Bikeway			
	Bicycle Lanes or Buffered Bicycle Lanes[2]	■	■	■
	Bicycle Boulevards[3]	■	■	
	Bicycle Routes	■	■	
26-30 MPH	Path[1]		■	■
	Separated Bikeway		■	■
	Bicycle Lanes or Buffered Bicycle Lanes[2]	■	■	■
	Bicycle Boulevards			
	Bicycle Routes[4]			
31-34 MPH	Path[1]		■	■
	Separated Bikeway		■	■
	Bicycle Lanes or Buffered Bicycle Lanes[2]	■	■	■
	Bicycle Boulevards			
	Bicycle Routes[4]			
35 MPH or more	Path[1]	■	■	■
	Separated Bikeway	■	■	■
	Bicycle Lanes or Buffered Bicycle Lanes[2]			
	Bicycle Boulevards			
	Bicycle Routes[4]			

■ Suggested treatment to accommodate people of all ages and abilities

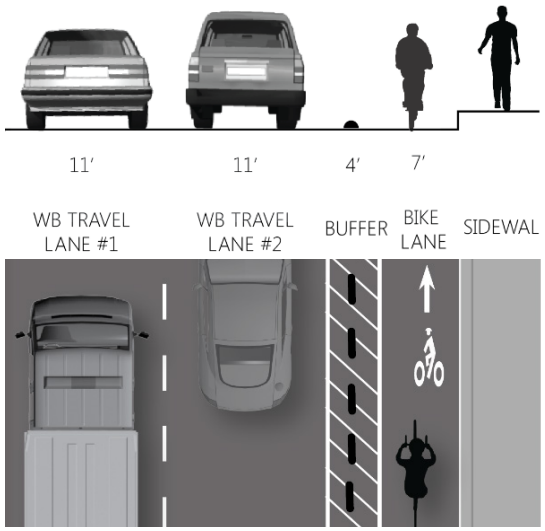
1. According to the MassDOT Separated Bike Lane Planning & Design Guide, paths could be considered instead of dedicated bicycle facilities (e.g. separated bikeway) only where walking and biking demand is low and expected to remain low.
2. Assumes bicycle lane blockages are rare and that bicycle lanes are a minimum of six feet. If parking is present, assumes bicycle lane width and parking width is greater or equal to 14 feet. When there are four or more travel lanes, a median must be present.
3. Per NACTO Urban Bikeway Guide, 1,500 vehicles per day (VPD) is preferred with a maximum of 3,000 VPD. Above 3,000 VPD, bicycle lanes, separated bikeway, or volume-control traffic calming measures should be considered.
4. If the street is classified as residential or does not have a marked centerline, speed can be up to or equal to 30MPH.

Note: Additional roadway characteristics and engineering study should always be considered, particularly for separated bikeways. Facilities should be designed to preferred dimensions and best practices per the PBMP Design Guidelines. Guidance is based on Level of Traffic Stress criteria.

A-4 Separated Bikeways

This section defines the preferred cross-section and materials for separated bikeways in Stockton. The NACTO Urban Bikeway Guide, 2nd Edition, FHWA Protected Bicycle Lane Planning and Design Guide, and MassDOT Separated Bike Lane Planning and Design Guide should also be consulted when planning for and designing separated bikeways in Stockton.

Separated bikeways are needed in order to provide all ages and abilities facilities on most major roadways in Stockton. For example, multi-lane roadways with speeds over 30 MPH generally need a separated bikeway in order to provide a comfortable bikeway for the average rider. Separated bikeways can also be considered on narrower or slower roadways where there may be vulnerable roadway users such as children riding near schools, or to provide important and/or complex connections between bikeways.



A-4.1 Preferred Design

A Class IV Separated Bikeway is an on-street bicycle facility that is physically separated from automobile traffic and also distinct from the sidewalk. These facilities offer a higher level of safety and comfort than bicycle lanes. While all Class IV facilities separate bicyclists from motor vehicle travel lanes, there are many different designs for these facilities. They may be at street level ("in roadway"), sidewalk level, or intermediate level. They are always separated from auto traffic by a raised element such as plastic delineators, median islands, on-street parking, and/or landscaping. Pavement material, streetscape elements, or landscape may separate the facility from the sidewalk. Typically, separated bikeways are located with the direction of traffic, one in each direction. Sometimes two-way separated bikeways are appropriate, where both separated bikeways are located side-by-side. Directional or "one-way" separated bikeways are almost always preferred.

The minimum width of the buffer is dependent on the type of buffer used. In Stockton, the preferred design of the separated bikeway is typically a striped buffer with flexible delineator posts. As additional funding becomes available these can be replaced with concrete islands or landscape islands to provide high-quality streetscapes.

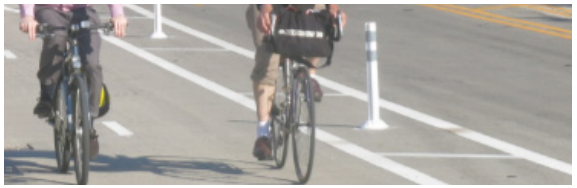
The preferred separated bikeway design has a three- to four-foot striped buffer with vertical barriers and a seven-foot bicycle lane. The minimum striped buffer width is 1.5 feet with a five-foot bicycle lane. A minimum of four feet of rideable surface must be clear of gutter pans. Posts are recommended to be placed consistently every 20 to 24 feet, on center, and require low initial capital cost at $8 per linear foot. As grant funding or developer funding is available, raised concrete buffers with decorative stamped pavement can be phased in. The separated bikeway must remain wide enough to allow for street sweepers to maintain the area.

A-4.2 Preferred Barrier Separation: Interim Design

The preferred interim design is a "paint and plastic" that will allow Stockton to build out its separated bikeway network sooner. As larger funding sources become available, high-quality improvements such as median islands and, where feasible, landscape islands, can replace the striped buffer and plastic posts.

"Armadillo" Or "Zebra" Traffic Separators

Rubber Curb Traffic Separator



Delineator/Soft-Tipped Posts

A-4.3 Preferred Barrier Separation: Long-Term or Grant-Funded Design

Reconfiguring streetscapes to use raised medians, on-street parking, curbs, bollards, planters, or other features to separate the bikeway is more expensive and labor-intensive. As such, these design options are considered for long-term or grant-funded implementation.

Bikeway separated by landscaping and raised concrete curb

A-4.4 Separated Bikeway and Transit

When separated bikeways are provided along a bus route, the preferred design is for bus boarding islands to separate bicycle, pedestrian, and bus intersections as much as possible. Where roadways have a higher speed limit, consideration should be given to whether or not in-lane stopping should be encouraged. Bus boarding islands should be wide enough to house a bus shelter and provide ADA clear paths of travel and a comfortable pedestrian waiting environment. To reduce bicycle-pedestrian interactions, fencing is encouraged to channelize pedestrians and provide clearly marked crosswalks across the separated bikeway.

A-4.5 Separated Bikeway Intersection Control

Separated bikeways require special design consideration at intersections to ensure the facility is safe and comfortable for bicyclists. Signalized intersections require additional design treatment to ensure turning automobiles do not conflict with bicycle traffic, as the separated bikeway places bicyclists to the right of turning vehicles. Preferred solutions include protected intersections or protected right and left turns to remove the right-hook conflict between bicyclists and autos. Separated bicycle lanes should continue up to an intersection to maximize protection for bicyclists and to truly be considered an All Ages and Abilities facility. A variety of design solutions are available at both signalized and unsignalized locations. For more information, see the FHWA Separated Bike Lane Planning and Design Guide, MassDOT Separated Bike Lane Planning and Design Guide, and the NACTO Urban Bikeway Guide, 2nd edition.

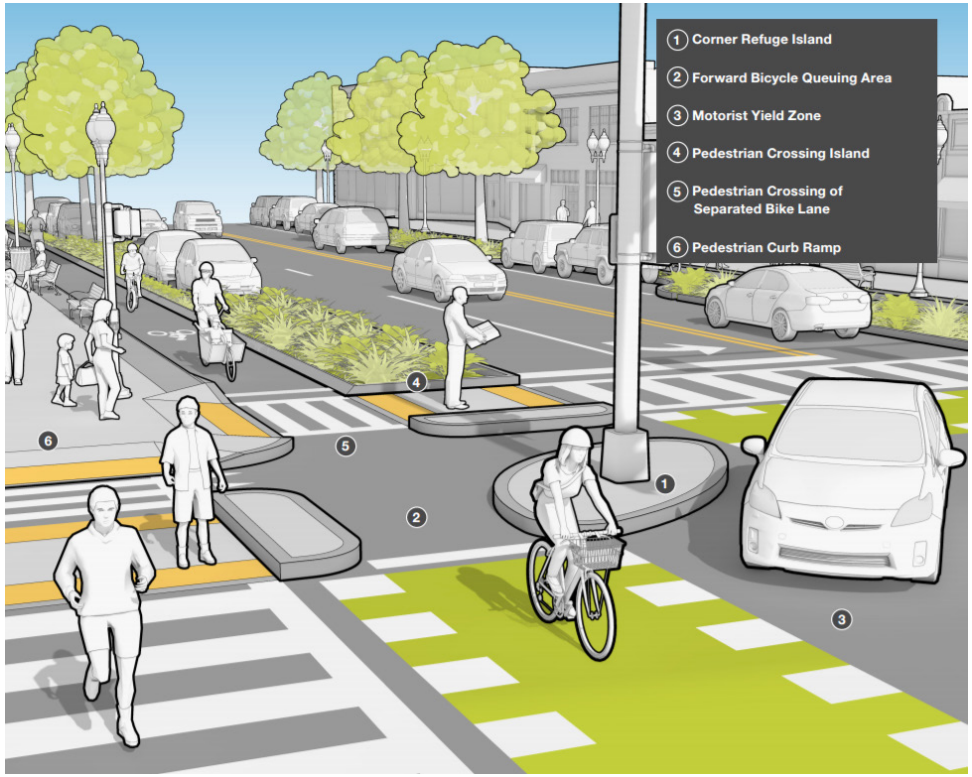
Protected Intersections

Protected intersections should be provided wherever Separated Bikeways and Buffered Bike Lanes intersect in Stockton, where room allows. Protected intersections give bicyclists a head start at intersections, improve sight lines between drivers and bicyclists, and reduce pedestrian exposure to automobiles. They also facilitate left-turns for bicyclists. Protected intersections continue the separated bikeway all the way to the intersection and include additional islands that provide queuing space for turning bicyclists and refuge islands for pedestrians. They create predictability of movement, making them comfortable and intuitive.

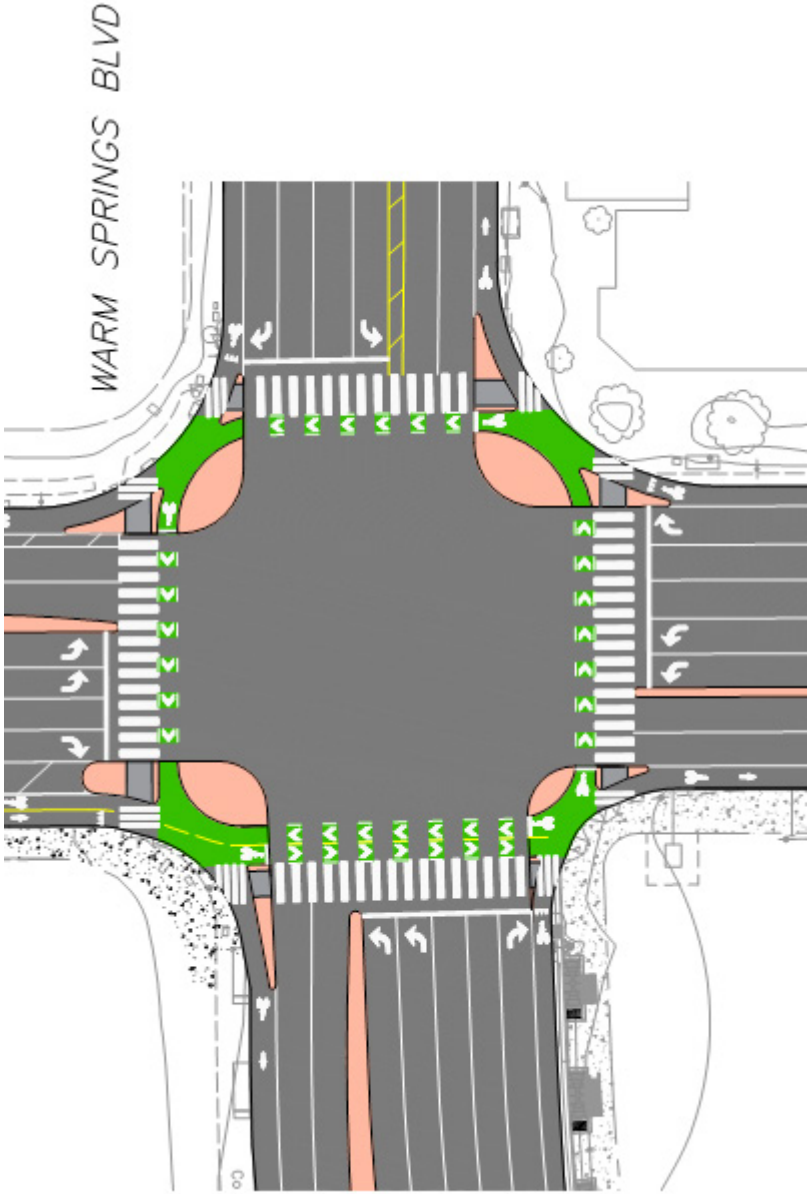
Protected intersections should generally be provided where two bikeways in the low stress network intersect. Protected intersections should also be considered:

- Where any dedicated bikeways in the network intersect
- At major intersections along separated bikeways where bicyclists need improved sightlines and additional protection from heavy traffic volumes
- Opportunistically at any intersection where bicyclists need assistance making turning movements

Where automobile right-turn volumes are heavy, protected intersections may need to be supplemented with bicycle signals and protected right-turns for autos. For more information, see the FHWA Separated Bike Lane Planning and Design Guide and MassDOT Separated Bike Lane Planning and Design Guide.



Example protected intersection showing how pedestrians, bicyclists, and drivers use the intersection. Source: MassDOT Separated Bikeway Guide



Example protected intersection (at bottom of image) from planned improvements on Warm Springs Boulevard at the future Wisdom Road. A two stage

A-5 Multi-Use Paths

The AASHTO Guide for the Development of Bicycle Facilities, 4th Edition should be consulted when planning for and designing trails in Stockton. The following section provides general information and focuses on trail crossing design guidance.

Typical Design

Class I Paths or Multi-Use Paths provide a completely separate right-of-way for bicyclists and pedestrians. In most cases, paths provide the most comfortable option for people walking and bicycling as paths are separated from the roadway and typically have few intersections with autos. Where paths intersect the roadway network, trail crossings are critical. An unsafe trail crossing can diminish the value of the trail itself and has the highest collision rate. For these reasons, minimizing vehicle and pedestrian cross-flow at crossings to improve the safety of path users is essential. Paths intersecting many driveways and roadways have a high collision potential for cyclists, because drivers exiting driveways or traveling on intersecting roads often do not look for cyclists approaching in the opposite direction of traffic. Thus the City should consider warning signs and pavement markings wherever driveways and side-streets must cross Class I Paths. The preferred dimension for multi-use paths is 10 to 14 feet wide. The minimum dimension for a path to be considered multi-use is eight feet wide with shoulders.

Preferred Crossing Design

Providing a consistent trail crossing design in Stockton will provide a consistent message to drivers, pedestrians, and bicyclists alike. The preferred crossing design consists of high-visibility ladder striping or "triple-four" striping, which consists of three 4' segments, two dashed lines on the outside, with a clear space in the center to direct pedestrian traffic. Where the volume of trail users is high, the crosswalk should be widened. A bicyclist and pedestrian pavement legends with arrows may be placed within the triple-four striping to indicate to bicyclists and pedestrians they share the space, indicate the preferred directional path of travel, and reinforce the validity of bicyclists riding through the crossing. The preferred trail crossing design also includes wide curb ramps oriented parallel to the crosswalk, to orient those with mobility impairments as well as bicyclists directly into the marked crossing. Trail crossing enhancements, such as signals and lighted beacons, should be considered at uncontrolled locations.

Trail Crossing Signage

Modified triple-four striping with bicycle legends

A-6 Buffered and Standard Bicycle Lanes

The NACTO Urban Bikeway Guide, 2nd Edition should be consulted whenever designing bicycle lanes or buffered bicycle lanes in Stockton. The following section provides general guidance, definition of terms, and preferred dimensions and practices for Stockton.

Typical Design

A Class II bicycle lane is typically a six foot dedicated area for bicyclists designated by striping, signage, and pavement markings for the use of bicyclists. Bicycle lanes improve bicyclist safety by reducing interactions between cyclists and traffic, and by facilitating predictable behavior. Unlike Class IV Separated Bikeways, bicycle lanes have no physical barrier between bicyclists and motorized traffic. Bicycle lanes and buffered bicycle lanes are not necessarily All Ages and Abilities bikeways. They can be low stress facilities when speeds are 30MPH or less and on multi-lane roadways separated with a median. On wider and higher speed roadways, separated bikeways are needed to provide All Ages and Abilities bicycle facilities. When bicycle lanes are installed adjacent to a parking lane, the width of the parking lane and bicycle lane should total 14 feet or greater (i.e., six-foot bicycle lane next to eight-foot parking lane). Dimensions narrower than 14 feet can be stressful for bicyclists relative to drivers getting into and out of vehicles and potential conflicts in the "door zone."

A striped buffer space separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane distinguishes buffered bicycle lanes. Buffered bicycle lanes feature painted buffers of typically 2 feet or more in width, marked with two solid white lines and interior diagonal cross hatching. The buffers do not include a raised separation, but that can be phased in with special consideration at intersections to provide separated bikeways. The recommended striped buffer width is 3 feet next to a 6-foot bicycle lane. The minimum striped buffer width is 1.5 feet next to a 5-foot bicycle lane.

Typical Design Elements

In addition to those described above, green "skip" striping should be applied at conflict zones and major driveways where cars will frequently turn or merge across the bicycle lane. This includes slip lanes, right-turn pockets, and large commercial driveways with heavy turnover. Where right-turn lanes or pockets are added, such as at signalized intersections or at freeway ramps, the bicycle lane should remain adjacent to the curb until approximately 200 feet or less before the intersection, at which point the bicycle lane should transition with colorized green markings between the through and right travel lanes. Bicycle lanes should always be striped up to the stop bar/crosswalk and should not drop to allow for turn pockets to be added.

Design Issues to Consider

The minimum width of a bicycle lane should be five feet against a curb or adjacent to a parking lane, with six feet as the preferred standard with. A minimum of four feet of rideable surface must be clear of gutter pans. Poor pavement quality and inconsistent striping or disappearing lanes are also design issues of concern for bicycle lanes and other on-street facilities.

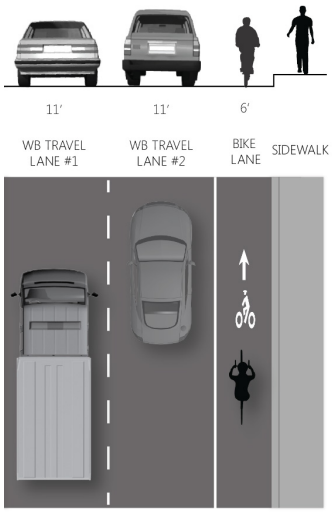


Figure A-8
Bicycle Lanes Preferred Width

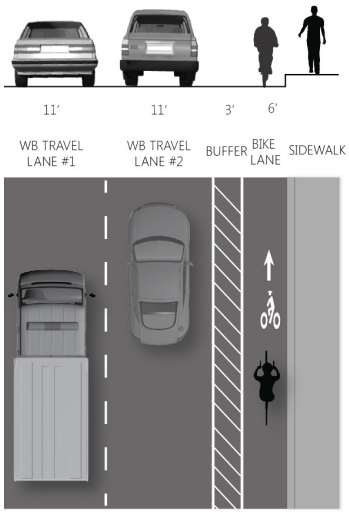
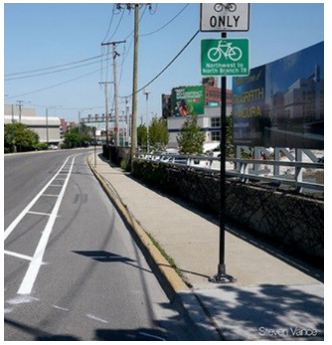
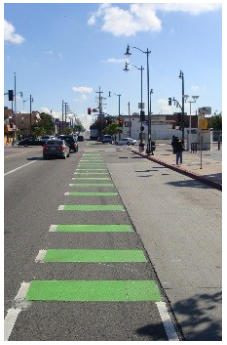


Figure A-9
Buffered Bicycle Lanes Preferred Width



Buffered bicycle lane with wayfinding signage



Green skip-striping at intersection where cars may merge across or into the bicycle lane

Bicycle lane painted over gutter pan

Poor pavement quality in a bicycle lane

A-7 Neighborhood Bikeways

The NACTO Urban Bikeway Guide, 2nd Edition should be consulted whenever planning for or designing neighborhood bikeways in Stockton. This section provides general guidance on neighborhood bikeways and discusses opportunities to enhance the City's existing Traffic Calming Program to accommodate neighborhood bikeways.

Typical Design

Neighborhood bikeways are low-volume, low-speed streets shared by bicyclists and autos. These are comfortable for bicyclists due to the low number of interactions with automobile traffic. Typically, these are located as alternative routes to higher speed collector and arterial roadways. Neighborhood bikeways have sharrows, wayfinding signage, enhanced facilities at crossings of major arterials, and traffic calming measures where appropriate. Neighborhood bikeways are intended for local/residential streets with low speeds and volumes. Maintaining low volumes and speeds on these streets is critical, as many of these routes serve children – who have less experience riding – as bicycle routes to school.

Standard Neighborhood Bikeway Elements

In addition to the elements described above, wayfinding is an important element of neighborhood bikeways. This is because in taking advantage of quieter streets, neighborhood bikeways often involve some turns. Wayfinding confirms bicyclists are on the preferred path and provides information about how to get to nearby destinations. Wayfinding signs also help brand the City's bicycle network, and inform cyclists by identifying intersecting bikeways and travel times to nearby destinations.

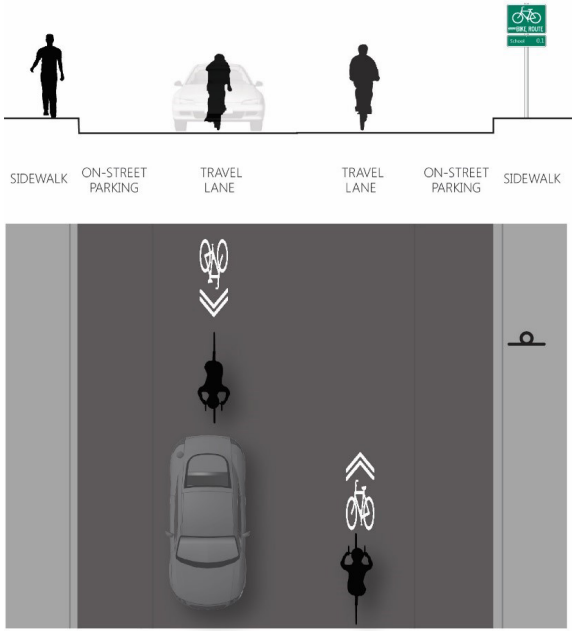


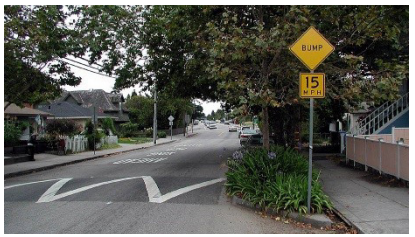
Figure A-10 Neighborhood bikeway Preferred Widths

Potential Traffic Calming Enhancements

Consideration of enhancing neighborhood bikeway streets should be based on roadway volumes and speeds. To be an All Ages and Abilities bikeway, speeds and volumes should be low. The NACTO Urban Bikeway Guide establishes volume and speed thresholds for neighborhood bikeways. These treatments benefit bicyclists while also helping to create "quiet" streets for residents and other road users.

Bicycle route wayfinding with destinations and distances

Enhanced crossing of arterial via median refuge traffic diverter



Speed lump

Chicane

Traffic circle on neighborhood bikeway

A-7.1 Neighborhood Bikeway Crossing Treatments

Where neighborhood bikeways intersect major arterial and busy collector roadways, additional support is needed to assist bicyclists in crossing these roadways. In Stockton, many of these locations are signalized, which is helpful, but additional enhancements can be provided. Example neighborhood bikeway crossing treatments at may include:

- **Bicycle Video Detection** (at signals) – bicycle detection legends and operating bicycle video detection can be used to detect, count and better utilize bike crossing green timing
- **Bicycle Clearance Intervals** (at existing signals) – at neighborhood bikeway crossings where children or seniors are expecting, slower crossing times should be anticipated
- **Bike Boxes** – Described in Section A.3.7, these provide a place for bicyclists to wait ahead of auto traffic on the side street
- **Traffic Diverters** – where feasible, consider traffic diverters to provide bicycle-exclusive access. These can be located at the entrance to streets or as median refuges to allow bicyclists to cross the major roadway in two stages.
- **Flashing Beacons** (at uncontrolled locations) – rectangular rapid flashing beacons (RRFBs) can be used support bicyclists crossing the street. Bicyclists can activate these to signal their intent to cross, similar to how pedestrians would cross the street. Where feasible, these can be used with median refuges.
- **Pedestrian Hybrid Beacons** (at existing uncontrolled locations) – these devices require autos to come to a full stop when activated by a bicyclist or pedestrian.

For more information, see the NACTO Urban Bikeway Guide on neighborhood bikeway crossing treatments: http://nacto.org/publication/urban-bikeway-design-guide/bicycle-boulevards/major-street-crossing/.

Example uncontrolled bicycle and pedestrian crossing with RRFBs

Bicycle Box

Two-Stage Turn Box

Intersection Crossing Markings

Green Conflict Zone Striping

A-8 Other Intersection Treatments

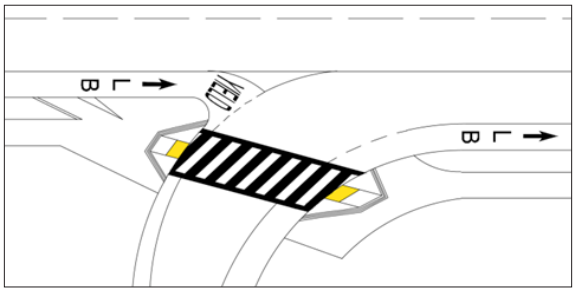
Other treatments that can be implemented at intersections include bicycle boxes, two stage turn boxes, and intersection crossing markings. Two-stage turn boxes facilitate bicyclist left turns, allowing them to cross the intersection in two stages, making an "L" through the intersection. First the bicyclist proceeds straight with traffic, and a green box provides them a space to queue ahead of opposing traffic that has a red signal. When the cross-street receives a green signal, the bicyclists proceeds straight with traffic. Bike boxes are similar to advanced stop bars and provide a designated space for bicyclists to queue ahead of traffic. This discourages right-hook collisions between drivers and bicyclists, and can also provide a space for bicyclists to make two stage turns. Both should be implemented with no right turn on red restrictions to avoid motorists encroaching into the bike space.

Intersection crossing markings such as green conflict zone striping and extending the bike lane through the intersection indicate the intended path of bicyclists through the intersection. These markings can reduce conflicts between bicyclists and motorists by raising awareness for both to potential conflict areas; guiding bicyclists through the intersection and making bicycle movements more predictable; and reinforcing that through bicyclists have priority over turning vehicles or vehicles entering the roadway. This type of treatment is typically used along roadways with bike lanes or separated bikeways across signalized intersections, especially wide or complete intersections, as well as across driveways and Stop or Yield-controlled cross streets.

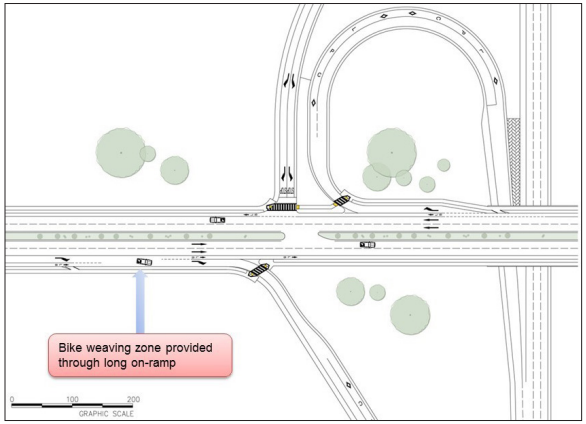
A-9 Bicyclists at Interchanges

Interchanges are difficult to navigate and stressful for pedestrians and bicyclists due to the high speeds and volume of vehicles. New techniques have been developed for improved interchange design to better accommodate both pedestrians and bicyclists with respect to safety and accessibility while effectively moving auto traffic. ITE's Recommended Design Guidelines to Accommodate Pedestrians and Bicycles at Interchanges presents preferred concepts for providing safe, comfortable connections for bicyclists and pedestrians through a variety of highway ramp geometries that are fully compliant with national design standards. The report should be consulted when considering enhancements at interchanges. The following should always be considered as pedestrian facilities and bikeways are considered near and/or through interchanges:

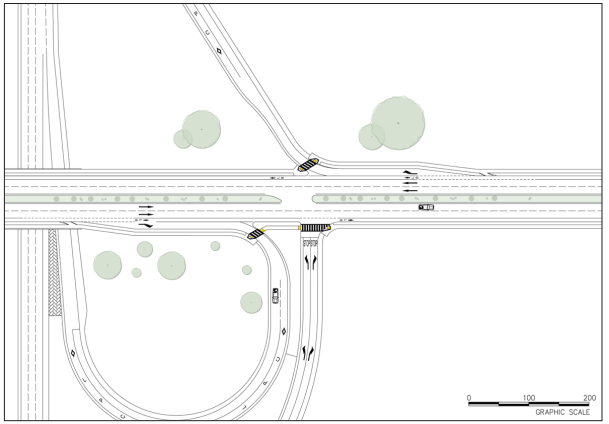
- Upgrade interchange to square up all ramps to improve multi-modal safety
- Providing single lane approaches at on-ramps, where possible, to minimize the number of conflict points between pedestrians, bicyclists, and vehicles (e.g. start HOV lanes downstream of the crosswalk),
- Site crosswalk to "split the difference" between the shortest crossing distance and slowest vehicle speed through the turn, where speed is lowest and visibility is highest (see inset image)
- Use the X-Walk+ ASAP-branded Tool (or other current best practice resource) to select appropriate crossing treatments, which can range from advance yield or stop lines, raised crosswalks, to a pedestrian hybrid beacon or a pedestrian traffic signal
- Provide multiple options for bicyclists to navigate through interchanges, including separated bikeways on the street and enhanced crosswalks and bicycle ramps to allow bicyclists to use the sidewalk through the ramps
- Implement bike weaving zone at long on-ramps (see inset figure below), placing the bicycle lane between two lanes of auto traffic for no longer than 150'
- Keep bicycle lanes curbside until 150' before the ramp intersection to minimize the distance bicyclist have to ride between two auto travel lanes
- Minimize ramp geometries to reduce vehicle speeds for vehicles entering/exiting on/off ramps (see image below)



Bike Lane Crossing Detail at Highway Interchanges



Recommended Bicycle and Pedestrian Improvements at On Ramp Entered from Long, Single Right Lane



Recommended Bicycle and Pedestrian Improvements at Arterial Entered from Stop/Merge Off Ramp (Combined Ramps)

A-10 Bicycle Parking

Citywide bicycle parking facilities are necessary to provide safe, convenient, and secure places to park bicycles while people are working, going to school, accessing transit, shopping or doing other activities. Lack of adequate, secure bicycle parking can be a major deterrent to riding a bicycle. Bicycle parking facilities are typically classified either as long-term (also known as Class I) or short-term (Class II). Class I parking is meant to be used for more than two hours and is typically used by employees at work, students at school, commuters at transit stations and residents at home. Class I facilities are secure and weather-protected: examples include bicycle lockers and "bicycle corrals" (fenced-in areas usually secured by lock and opened by keys provided to users). Class I facilities are typically located in civic centers, office buildings and multi-family residential buildings. Class II, or short-term parking, is meant for visitors, customers at stores and other users who normally park for less than two hours. The most common example of Class II parking is bicycle racks. All bicycle parking facilities should be purchased, installed, and sited per the design guidelines in the APBP Bicycle Parking Guidelines, 2nd Edition.

Recommended Enhancements

The following enhancements to the bicycle parking program are recommended:

1. Update the Stockton Municipal Code to provide citywide bicycle parking and end-of-trip facilities (e.g. shower and lockers) requirements with all new development, using the parking generation factors from the Association of Bicycle and Pedestrian Professional's (APBP's) Bicycle Parking Guideline, 2nd edition.
2. Select, site, and install bicycle parking fixtures and facilities per the APBP Bicycle Parking Guidelines, 2nd edition.
3. Require new developments to provide the location and amount of bicycle parking to the City's Traffic Engineering Division to allow for easy tracking and mapping. Also record the location of new bicycle racks installed by the City or RTD.
4. Create a bicycle corral pilot program to install several pilot projects in locations requested and supported by the community.
5. Create a long-term bicycle pilot project to install secure bicycle parking, such as bicycle lockers using the Bicycle Link system, at major destinations in Stockton such as Downtown, major retail attractions, and the Stockton Arena, including City and Parking Authority owned parking garages and parking lots.
6. Develop and implement campaign to educate users on how to securely park bicycle and prevent theft.
7. Consider working with local artists and across City departments to create decorative branded racks for Downtown.

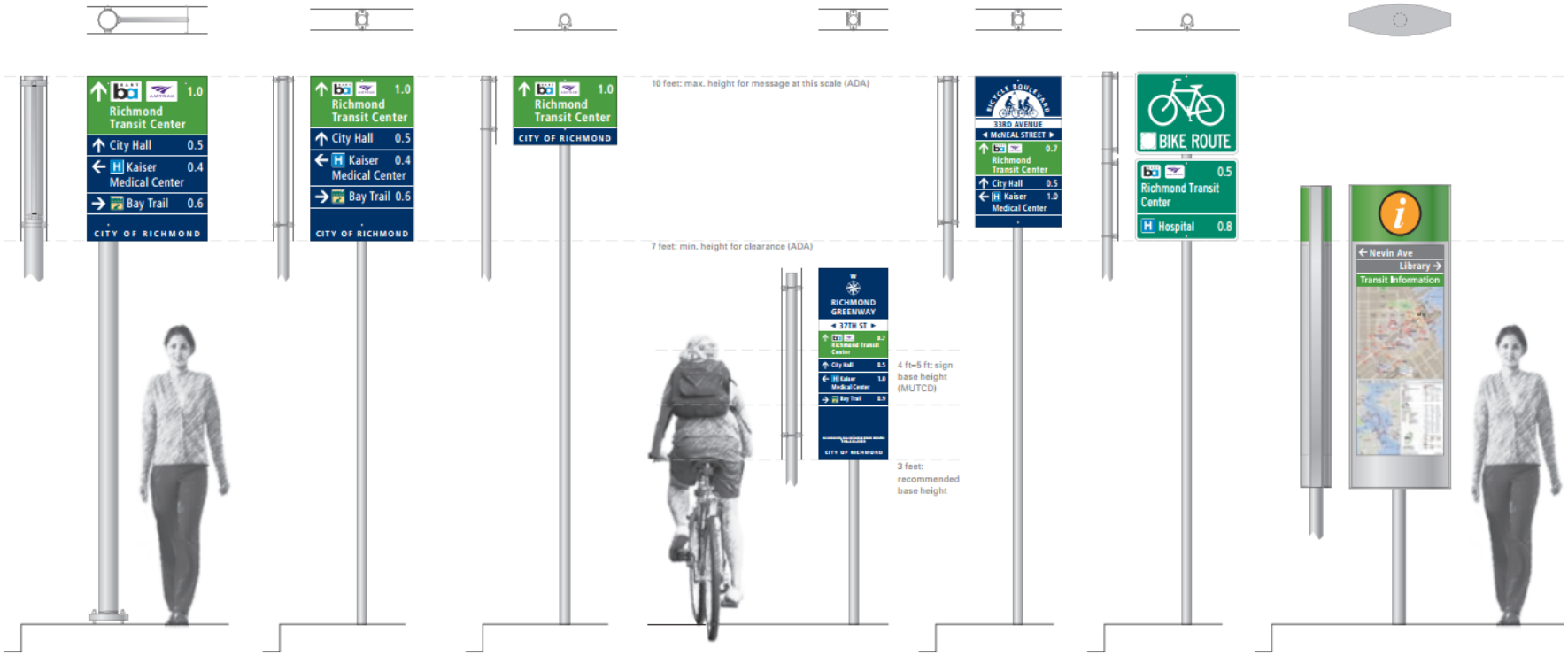
A-11 Green Infrastructure

Green infrastructure and sustainable stormwater management treatments such as bioswales, flow-through planters, pervious strips and pervious pavement should be used whenever possible with bikeway and complete streets design.

For more information, see the NACTO Urban Street Design Guide on stormwater management: http://nacto.org/publication/urban-street-design-guide/street-design-elements/stormwater-management/. The City of San Francisco also provides Stormwater Design Guidelines, as well as construction level detail for stormwater design treatments in their Green Stormwater Infrastructure Typical Details document: http://sfwater.org/index.aspx?page=446.

A-12 Wayfinding

A high quality bicycle network also includes wayfinding to assist Stockton residents and visitors in navigating the City and accessing key destinations by bicycle. Wayfinding is important on trails and along on-street facilities, particularly neighborhood bikeways meandering through residential communities. Bicycle wayfinding should be placed at an appropriate height for bicyclists. Signs confirm directions to nearby destinations and typically include estimated time or distance to those destinations. Another function of wayfinding could be branding for the City of Stockton. Wayfinding signs should be CA MUTCD-compliant, installed at key decision points in the bicycle network, and include confirmation signs that display destinations and mileage. Stockton should consider a branded wayfinding program using the BMP logo for neighborhood bikeways, bicycle routes, trails, and other destinations.



P1
Pedestrian Wayfinding
Commercial Districts
28 x 36
2-sided (2 panels)
2 colors + retroreflective white + color logos

P2
Pedestrian Wayfinding
Residential Streets
24 x 36
2-sided (2 panels)
2 colors + retroreflective white + color logos

P3
Pedestrian Wayfinding
Transit Destination Only
24 x 15 (shown; may need to be 24 x 18)
1-sided (1 panel)
2 colors + retroreflective white + color logos

B1
Bike/Ped Wayfinding
Off-Street Path
16 x 42
2-sided (2 panels)
2 colors + retroreflective white + color logos

B2
Bicycle Wayfinding
Bicycle Boulevards
20 x 33
2-sided (2 panels)
2 colors + retroreflective white + color logos

B3
Bicycle Wayfinding
On-Street Routes
24 x 18 (vertical dimension of lower panel may vary)
1-sided (2 panels)
1 color + retroreflective white + color logos

M1
Map Kiosk (Transit Information)
Transit Centers
2-sided
Identical to MTC standard

Stockton could establish a branded wayfinding program similar to that developed by the West Contra Costa Transportation Advisory Committee (WCCTAC) Transit Enhancement Plan and Wayfinding Guide, shown above.

B. BICYCLE IMPROVEMENT NETWORK PROJECT LIST

City of Stockton Bicycle Master Plan Update
Final Citywide Backbone Network Project List

CITY OF STOCKTON
Bicycle Master Plan

Project Number	Implementation Extents	Existing Facility	Proposed Facility	Implementation	Jurisdiction	Additional Analysis Needed	Distance (miles)	Cost Estimate	Class IV Estimate #2 (Curb - Full Buildout)
1	**Eight Mile Road Buffered Bike Lanes**								
A	Between Regatta Lane (Future Extension) and Stony Gorge Drive	Partial Buildout Class I Multi-Use Path	Class II Buffered Bicycle Lanes	Lane Striping	City of Stockton/SJ County		2.3	$ 558,000	
B	Between Stony Gorge Drive and Chantel Lane	None	Class II Buffered Bicycle Lanes	Capital Improvements	City of Stockton/SJ County		5.9	$ 1,439,000	
2	**Bear Creek Multi-Use Pathway Extension**								
A	Between Lower Sacramento Road and Eight Mile Road	None	Class I Multi-use Path	Capital Improvements	City of Stockton/SJ County		3.6	$ 7,903,000	
B	Between Thornton Road and Davis Road	Class I Multi-Use Path	Bicycle & Pedestrian Bridge	Capital Improvements	City of Stockton		0.9	$ 969,000	
C	West of Interstate 5	Class I Multi-Use Path	Class I Multi-use Path	Capital Improvements	City of Stockton		1.2	$ 2,635,000	
3	**Mosher Slough Multi-Use Pathway**								
A	Between Kelley Drive and SR-99 Frontage Road	None	Class I Multi-use Path	Capital Improvements	City of Stockton		5.9	$ 12,916,000	
4	**Swain Road Bicycle Lanes**								
A	Between Cumberland Place and Plymouth Road	None	Class II Bicycle Lanes	Lane Striping with Parking Removal	City of Stockton	Parking Study	0.6	$ 125,000.0	
B	Between Plymouth Road and Pacific Avenue	None	Class II Bicycle Lanes	Lane Striping with Parking Removal	City of Stockton/SJ County	Parking Study	1.7	$ 357,000.0	
C	Between Pacific Avenue and West Lane	None	Class II Bicycle Lanes	Road Diet	City of Stockton	Operations Analysis	1.4	$ 295,000.0	
5	**Quail Lakes Bicycle Connectivity Improvements**								
A	Robinhood Drive Between Pershing Avenue and Pacific Avenue	None	Class II Bicycle Lanes	Road Diet	City of Stockton		2.3	$ 482,000.0	
B	Quail Lakes Drive between March Lane and Pershing Avenue	Class II Bicycle Lanes	Class II Buffered Bicycle Lanes	Road Diet	City of Stockton		0.6	$ 137,000	
6	**East Bay MUD Path Connectivity Improvements (Western Segment)**								
A	EBMUD Corridor Between Brookside Road and West Lane	Class I Multi-Use Path	Class I Multi-use Path	Capital Improvements	City of Stockton		3.9	$ 8,478,000	
7	**East Bay MUD Path Connectivity Improvements (Eastern Segment)**								
A	EBMUD Corridor Between March Lane and West Lane	None	Class I Multi-use Path	Capital Improvements	City of Stockton		0.6	$ 1,273,000	
B	Bridge Connection over railroad tracks between Holiday Drive and West Lane	None	Bicycle & Pedestrian Bridge	Capital Improvements	City of Stockton		0.2	$ 4,142,000	
C	EBMUD Corridor Between Lorraine Avenue and 99 Frontage Road	Partial Buildout Class I	Class I Multi-use Path	Capital Improvements	City of Stockton		1.8	$ 3,965,000	
D	Bridge Connection over railroad tracks between Lorraine Avenue and Holman Drive	None	Bicycle & Pedestrian Bridge	Capital Improvements	City of Stockton		0.2	$ 4,142,000	
8	**March Lane Separated Bikeway**								
A	Between West Lane and Holman Road	None	Class IV Separated Bikeway	Road Diet	City of Stockton		0.3	$ 147,000	$ 915,000
9	**Calaveras River Path North Extension**								
A	Between McAllen Road and SR-99 Frontage Road	None	Class I Multi-use Path	Capital Improvements	City of Stockton/SJ County		0.9	$ 2,057,000	
10	**Thornton Road Separated Bikeway**								
A	Between Pacific Avenue and Eight Mile Road	None	Class IV Separated Bikeway	Capital Improvements	City of Stockton/SJ County		3.1	$ 1,307,000	$ 8,137,000
11	**Davis Road Bicycle Lanes**								
A	Between Eight Mile Road Whistler Way	Class II Bicycle Lanes	Class II Buffered Bicycle Lanes	Capital Improvements	City of Stockton		0.7	$ 140,000.0	
B	Between Whistler Way and Thornton Road	None	Class IV Separated Bikeway	Road Diet	City of Stockton		1.3	$ 285,000.0	
12	**Lower Sacramento Road Buffered Bike Lanes**								
A	Between Eight Mile Road and Royal Oak Drive	None	Class II Buffered Bicycle Lanes	Capital Improvements	City of Stockton/SJ County		1.6	$ 404,000	
B	Between Royal Oak Drive and Pacific Avenue	None	Class II Buffered Bicycle Lanes	Lane Striping	City of Stockton		1.1	$ 279,000	
13	**West Lane/Airport Way Separated Bikeways**								
A	West Lane Between Eight Mile Road and Morada Lane	None	Class IV Separated Bikeway	Capital Improvements	City of Stockton		1.4	$ 581,000	$ 3,618,000
B	West Lane between Morada Lane and Harding Way, Airport Way between Harding Way and Hazelton Avenue	None	Class IV Separated Bikeway	Further Study	City of Stockton	Parking Study	6.1	$ 2,569,000	$ 15,999,000
C	Airport Way between Hazelton Avenue and Dr. Martin Luther King Jr. Boulevard	None	Class IV Separated Bikeway	Lane Striping with Parking Removal	City of Stockton		0.6	$ 234,000	$ 1,454,000
D	Airport Way between Dr. Martin Luther King Jr. Boulevard and C.E. Dixon Street	None	Class IV Separated Bikeway	Capital Improvements	City of Stockton		3.5	$ 1,479,000	$ 9,211,000
14	**Pacific Avenue Separated Bikeway**								
A	Between Lower Sacramento Road and Harding Way	None	Class IV Separated Bikeway	Further Study	City of Stockton		3.9	$ 1,651,000	$ 10,282,000
15	**West Side Bikeway**								
A	Kelley Drive Between Stanfield Drive and Plymouth Road, Plymouth Road between Kelley Drive and Swain Road	None	Class II Bicycle Lanes	Lane Striping with Parking Removal	City of Stockton	Parking Study	2.5	$ 539,000.0	
B	Morgan Place between Swain Avenue Feather River Drive, Feather River Drive between Swain Road and Calaveras River Path	Class II Bicycle Lanes	Class II Bicycle Lanes	Traffic Calming	City of Stockton		1.8	$ 390,000.0	
C	Bicycle & Pedestrian Bridge bewteen Feather River Drive to Ryde Avenue over the Calaveras River	None	Bicycle & Pedestrian Bridge	Capital Improvements	City of Stockton/SJ County		0.1	$ 1,399,000.0	
D	Calariva Drive between Ryde Avenue and Del Rio Drive, Del Rio Drive between Calariva Drive and Kirk Street, Kirk Street between Del Rio Drive and Michigan Avenue, Michigan Avenue between Kirk Street and Oregon Avenue, Oregon Avenue between Michigan Avenue and Country Club Boulevard, Fontana Avenue between Country Club and Smith Canal Bridge	None	Class III Bicycle Boulevard	Traffic Calming	City of Stockton/SJ County		1.7	$ 599,000	

CITY OF STOCKTON
Bicycle Master Plan

Project Number	Implementation Extents	Existing Facility	Proposed Facility	Implementation	Jurisdiction	Additional Analysis Needed	Distance (miles)	Cost Estimate	Class IV Estimate #2 (Curb - Full Buildout)
E	Smith Canal Pedestrian Bridge between Fontana Avenue & Shimizu Drive, Shimizu Drive between Smith Canal Bridge & Ryde Avenue	Pedestrian Bridge	Bicycle & Pedestrian Bridge	Capital Improvements	City of Stockton		0.1	$ 2,046,000	
F	Ryde Avenue between Shimizu Drive and Fremont Street	None	Class II Bicycle Lanes	Lane Striping with Parking Removal	City of Stockton		0.5	$ 116,000.0	
16	**Alexandria Bicycle Boulevard**								
A	Cortez Avenue between Thornton Road and Balboa Avenue, Balboa Avenue between Cortez Avenue and Hammer Lane, Alexandria Place between Hammer Lane and Swain Road	None	Class III Bicycle Boulevard	Traffic Calming	City of Stockton/SJ County		2.2	$ 778,000	
B	Alexandria Place between Swain Road and Quail Lakes Drive, Grouse Run Drive between Quail Lakes Drive and March Lane, McGaw Street between March Lane and Rosemarie Lane.	None	Class II Bicycle Lanes	Lane Striping	City of Stockton/SJ County		1.2	$ 250,000.0	
C	McGaw Street between Rosemarie Lane and Brookside Drive	None	Class II Bicycle Lanes	Lane Striping with Parking Removal	City of Stockton		0.2	$ 36,000.0	
D	Bicycle and Pedestrian bridge between McGaw Street and Mission Road over the Calaveras River	None	Bicycle & Pedestrian Bridge	Capital Improvements	City of Stockton		0.1	$ 1,699,000.0	
17	**Mission Bicycle Boulevard**								
A	Mission Road between River Road and Tuxedo Avenue, Tuxedo Avenue between Mission Road and Buena Vista Avenue	None	Class III Bicycle Boulevard	Traffic Calming	City of Stockton/SJ County		1.2	$ 419,000	
B	Bicycle and Pedestrian bridge to connect Buena Vista Avenue over Smith Canal	None	Bicycle & Pedestrian Bridge	Capital Improvements	City of Stockton/SJ County		0.1	$ 2,046,000	
C	Buena Vista Avenue between Smith Canal and Fremont Street	None	Class III Bicycle Boulevard	Traffic Calming	City of Stockton		0.8	$ 278,000	
18	**Don/Meadow Bicycle Lanes**								
A	Don Avenue Between Mosher Slough Path and Hammer Lane, Meadow Avenue between Hammer Lane and Alexandria Place	None	Class II Bicycle Lanes	Lane Striping with Parking Removal	City of Stockton	Parking Study	1.0	$ 218,000.0	
19	**Holman Road Separated Bikeway**								
A	Between Eight Mile Road and Hendrix Drive	None	Class IV Separated Bikeway	Capital Improvements	City of Stockton		0.7	$ 275,000	$ 1,713,000
B	Between Hendrix Drive and Telstar Place	Class II Bicycle Lanes	Class IV Separated Bikeway	Road Diet	City of Stockton		2.1	$ 904,000	$ 5,626,000
C	Between Telstar Place and McAllen Road	Class II Bicycle Lanes	Class IV Separated Bikeway	Road Diet	City of Stockton		1.3	$ 534,000	$ 3,321,000
20	**Kermit Bicycle Boulevard**								
A	Mosher Slough Multi-Use Path (Future Facility) Connection to Glasgow Avenue	None	Class I Multi-use Path	Capital Improvements	City of Stockton		0.04	$ 79,000	
B	Glasgow Avenue to between Mosher Slough Multi-Use Path Connection and Falkirk Drive, Falkirk Drive between Glasgow Avenue and Glencannon Street, Glencannon Street between Farlkirk Drive and Lan Ark Drive, Lan Ark Drive between Glencannon Street and Hammer Lane	None	Class III Bicycle Boulevard	Traffic Calming	City of Stockton		0.6	$ 225,000	
C	Lan Ark Drive between Hammer Lane and Prado Way, Prado Way between Lan Ark Drive and Hemet Avenue, Hemet Avenue between Prado Way and Murillo Drive, Murillo Drive between Hemet Avenue and Kermit Lane, Kermit Lane between Murillo Lane and Elaine Drive, Elain Drive between Kermit Lane and Holiday Drive, Holiday Drive between Elaine Drive and March Lane, March Lane between Holiday Drive and Hillsboro Way, Hillsboro Way between March Lane and Bianchi Road, Bianchi Road between Hillsboro Way and Townehome Drive, Townehome Drive between Bianchi Road and Caribrook Way, Caribrook Way between Townehome Drive & Calaveras River Path Connection (Unnamed Driveway)	None	Class III Bicycle Boulevard	Traffic Calming	City of Stockton		2.4	$ 858,000	
21	**Burgundy Bicycle Boulevard**								
A	Cherbourg Way between Morada Lane and Burgundy Drive, Burgundry Drive between Cherbourg Way and Loarraine Avenue	None	Class III Bicycle Boulevard	Traffic Calming	City of Stockton		1.1	$ 391,000	
22	**Lorraine Bikeway**								
A	Lorraine Avenue between Burgundry Drive and Montauban Avenue	None	Class II Bicycle Lanes	Lane Striping	City of Stockton		1.2	$ 265,000.0	
23	**Bianchi/Montauban Bikeway**								
A	Montauban Avenuee between Hammer Lane and March Lane, Bianchi Road between March Lane and Carson Place	None	Class IV Separated Bikeway	Road Diet	City of Stockton		4.9	$ 2,069,000	$ 12,885,000
B	Bianchi Road between Carson Place and Pacific Avenue	None	Class II Bicycle Lanes	Lane Striping with Parking Removal	City of Stockton	Parking Study	0.1	$ 22,000.0	
24	**Sutter Bicycle Boulevard**								
A	Sutter Street between Calaveras River and Alpine Avenue	None	Class III Bicycle Boulevard	Traffic Calming	City of Stockton		0.7	$ 255,000	
25	**Calaveras River Path South Connection**								
A	Southern side of the Calaveras River between University of the Pacific Bicycle and Pedestrian Bridge and the Bicycle and Pedestrian Bridge East of West Lane	None	Class I Multi-use Path	Capital Improvements	City of Stockton		2.1	$ 4,663,000	
26	**Alpine Bikeway**								
A	Alpine Avenue between Kirk Street and Ryde Avenue	None	Class II Bicycle Lanes	Lane Striping with Parking Removal	SJ County	Parking Study	0.3	$ 67,000.0	
B	Alpine Avenue between Ryde Avenue and California Street (Includes jog around University of the Pacific on Pershing Avenue, Mendocino Avenue, & Kensington Way)	None	Class II Buffered Bicycle Lanes	Road Diet	City of Stockton/SJ County	Operations Analysis and Parking Study	2.6	$ 640,000	

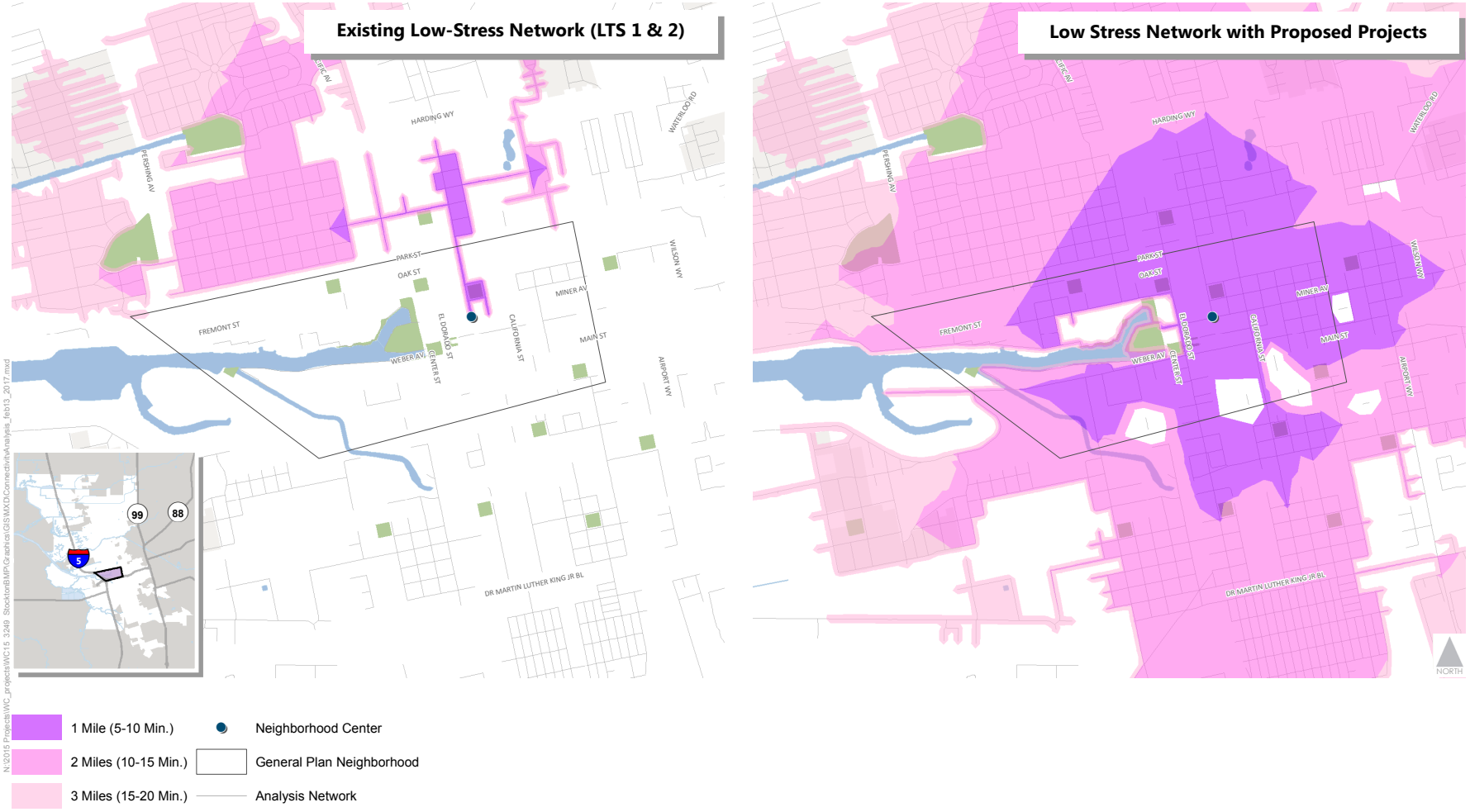
Project Number	Implementation Extents	Existing Facility	Proposed Facility	Implementation	Jurisdiction	Additional Analysis Needed	Distance (miles)	Cost Estimate	Class IV Estimate #2 (Curb - Full Buildout)
C	Alpine Avenue between California Street to Wilson Way	None	Class II Bicycle Lanes	Further Study	City of Stockton/SJ County		1.4	$ 300,000.0	
27	**Country Club Crosstown Connectivity Improvements**								
A	Country Club Boulevard Between Fontana Avenue and Argonaut Street	None	Class II Bicycle Lanes	Lane Striping	City of Stockton/SJ County		1.4	$ 301,000.0	
B	Country Club Boulevard (South) between Argonaut Street and Oxford Circle, Oxford Circle between Country Club Boulevard and Central Avenue, Central Avenue (South) between Oxford Circle and Central Court, Central Court between Central Avenue and Pacific Avenue, Castle Street between Pacific Avenue and El Dorado Street, El Dorado Street between Castle Street and Hampton Street, Hampton Street between El Dorado Street and Sutter Street, Sutter Street between Hampton Street and Hampton Street, Hampton Street between Sutter Street and California Street	None	Class III Bicycle Boulevard	Traffic Calming	City of Stockton		1.5	$ 522,000	
28	**Kensington/Baker Bicycle Boulevard**								
A	Stagg Way between Brookside Road over University of Pacific bridge and Dave Brubeck Way, Kensington Way between Dave Brubeck Way to Oxford Circle, Oxford Circle between Kensington Way and Kensington Way, Kensignton Way between Oxford Circle and Baker Place, Baker Place between Kensington Way and Baker Street, Baker Street between Baker Place and Flora Street, Flora Street between Baker Street and Harrison Street, Harrison Street between Flora Street and Miners Levee Path	None	Class III Bicycle Boulevard	Traffic Calming	City of Stockton/University of the Pacific		2.1	$ 746,000	
29	**Pathway Improvement to Miners Levee Connection**								
A	Miners Levee Path between Harrison Street and current terminus near Ballpark	None	Class I Multi-use Path	Capital Improvements	City of Stockton		0.6	$ 1,215,000	
30	**Shimizu Bike Route**								
A	Shimizu Drive between Ryde Avenue and Harding Way	None	Class III Bicycle Route	Signage Only	City of Stockton		0.4	$ 29,000	
B	Harding Way between Shimizu Drive and Baker Street	None	Class III Bicycle Boulevard	Traffic Calming	City of Stockton		1.2	$ 437,000	
31	**Monte Diablo/Acacia Bicycle Lanes**								
A	Monte Diablo Avenue between Shimizu Drive and Ryde Avenue	None	Class III Bicycle Boulevard	Traffic Calming	City of Stockton		0.6	$ 215,000	
B	Monte Diablo Avenue between Ryde Avenue and Picardy Drive, Picardy Drive between Monte Diablo Avenue and Pershing Avenue, Acacia Street between Pershing Drive and California Avenue.	None	Class II Bicycle Lanes	Lane Striping with Parking Removal	City of Stockton	Parking Study	2.6	$ 551,000.0	
32	**Miners Levee Multi-Use Path Extension**								
A	Between Harrison Street and Monte Diablo Avenue	None	Class I Multi-use Path	Capital Improvements	City of Stockton		2.39	$ 5,190,000	
33	**California Separated Bikeway**								
A	Between Alpine Avenue and Oak Street	Class II Bicycle Lanes	Class IV Separated Bikeway	Road Diet	City of Stockton	Operations Analysis	4.3	$ 1,808,000	$ 11,259,000
B	Between Oak Street and Miner Avenue	None	Class IV Separated Bikeway	Road Diet	City of Stockton		0.2	$ 90,000	$ 558,000
C	Between Miner Avenue and Hazelton Avenue	None	Class IV Separated Bikeway	Road Diet	City of Stockton	Operations Analysis	0.6	$ 266,000	$ 1,655,000
D	Between Hazelton Avenue and Dr. Martin Luther King Jr. Boulevard	None	Class II Buffered Bicycle Lanes	Road Diet	City of Stockton	Operations Analysis	0.6	$ 136,000	
E	Between Dr. Martin Luther King Jr. Boulevard and Ninth Street	None	Class II Bicycle Lanes	Road Diet	City of Stockton		0.8	$ 174,000.0	
F	Between Ninth Street and El Dorado Street	None	Class II Bicycle Lanes	Lane Striping	City of Stockton		0.5	$ 102,000.0	
34	**Diverting Canal Multi-Use Path (South)**								
A	Extension East of West Lane to Main Street	None	Class I Multi-use Path	Capital Improvements	City of Stockton/SJ County		5.0	$ 10,879,000	
35	**East Side Bikeway**								
A	Mighty Oak Drive between Calaveras River and Oak Forest Avenue, Oak Forest Avenue between Mighty Oak Drive and Shady Forest Way, Shady Forest Way between Oak Forest Avenue and Sanguinetti Lane, and Sanguinetti Lane between Shady Forest Way and Alpine Avenue.	None	Class III Bicycle Route	Signage Only	City of Stockton		0.5	$ 35,000	
B	Sanguinetti Lane between Alpine Avenue and Bradford Street	None	Class II Bicycle Lanes	Lane Striping	SJ County		0.8	$ 168,000.0	
C	Sanguinetti Lane between Bradford Street and Cherokee Road	None	Class II Bicycle Lanes	Capital Improvements	SJ County		0.1	$ 28,000.0	
D	Cherokee Road between Sanguinetti Lane and D Street, and D Street between Waterloo Road and Flora Street	None	Class II Bicycle Lanes	Lane Striping	City of Stockton		0.5	$ 113,000.0	
E	Flora Street between D Street and E Street, and E Street between Flora Street and Fremont Street	None	Class III Bicycle Route	Signage Only	City of Stockton		0.3	$ 23,000	
F	E Street between Fremont Street and Main Street	None	Class II Bicycle Lanes	Lane Striping	City of Stockton		0.6	$ 132,000.0	
36	**Waterloo Bikeway**								
A	Waterloo Road Between Wilson Way/Poplar Street and Cherokee Road	None	Class IV Separated Bikeway	Road Diet	City of Stockton		0.7	$ 289,000	$ 1,795,000
B	Poplar Street between Airport Way and Wilson Way	None	Class III Bicycle Route	Signage Only	City of Stockton		0.1	$ 10,000	
C	Waterloo Road Between Cherokee Road and SR-99	None	Class II Buffered Bicycle Lanes	Road Diet	City of Stockton/SJ County		1.3	$ 319,000	
D	Waterloo Road Between SR-99 and Beyer Lane	None	Class II Bicycle Lanes	Lane Striping	SJ County		0.8	$ 176,000.0	
37	**Cherokee Bicycle Lanes**								
A	Cherokee Road between Waterloo Road and the Diverting Canal	None	Class II Bicycle Lanes	Capital Improvements	SJ County		1.0	$ 215,000.0	
B	Cherokee Road between the Diverting Canal and Overhiser Road	None	Class II Bicycle Lanes	Capital Improvements	SJ County		1.5	$ 318,000.0	

Project Number	Implementation Extents	Existing Facility	Proposed Facility	Implementation	Jurisdiction	Additional Analysis Needed	Distance (miles)	Cost Estimate	Class IV Estimate #2 (Curb - Full Buildout)
38	**Fremont Bikeway**								
A	Fremont Street between Airport Way and Wilson Way	None	Class II Bicycle Lanes	Lane Striping with Parking Removal	City of Stockton	Parking Study	0.1	$ 31,000.0	
B	Fremont Street between Wilson Way and Filbert Street.	None	Class IV Separated Bikeway	Road Diet	City of Stockton		1.0	$ 414,000	$ 2,576,000
C	Fremont Street between Filbert Street and SR-99	None	Class II Buffered Bicycle Lanes	Road Diet	City of Stockton/SJ County		0.6	$ 157,000	
D	Fremont Street between SR-99 and the Diverting Canal	None	Class II Buffered Bicycle Lanes	Lane Striping	SJ County		0.9	$ 213,000	
39	**Miner Bicycle Lanes**								
A	Miner Avenue between Center Street and A Street	None	Class II Bicycle Lanes	Road Diet	City of Stockton		1.4	$ 291,000.0	
B	Miner Avenue between A Street and E Street	None	Class II Bicycle Lanes	Capital Improvements	City of Stockton		0.5	$ 100,000.0	
40	**Main Street Bikeway**								
A	Market Street between Airport Way and Main Street	None	Class II Buffered Bicycle Lanes	Road Diet	City of Stockton		0.4	$ 92,000	
B	Main Street between Airport Way and Wilson Way	None	Class II Buffered Bicycle Lanes	Lane Striping with Parking Removal	City of Stockton	Parking Study	0.1	$ 36,000	
C	Main Street between Wilson Way and SR-99	None	Class II Bicycle Lanes	Road Diet	City of Stockton		1.5	$ 327,000.0	
D	Main Street between SR-99 and Del Mar Avenue	None	Class II Bicycle Lanes	Road Diet	SJ County		0.7	$ 149,000.0	
41	**Fremont Downtown Connector**								
A	Fremont Street between Baker Street and Harrison Street	None	Class II Bicycle Lanes	Lane Striping with Parking Removal	City of Stockton		0.1	$ 31,000.0	
B	Fremont Street between Baker Street and El Dorado Street	None	Class II Bicycle Lanes	Road Diet	City of Stockton		0.5	$ 109,000.0	
42	**Madison Street Bicycle Lanes**								
A	Madison Street between Harding Way and Fremont Street	None	Class II Bicycle Lanes	Road Diet	City of Stockton		0.7	$ 149,000.0	
43	**El Dorado/Center Separated Bikeways**								
A	El Dorado Street between Acacia Street and Fifth Street, Center Street between Acacia Street and Fifth Street	None	Class IV Separated Bikeway	Road Diet	City of Stockton	Operations Analysis	2.0	$ 856,000	$ 5,331,000
B	El Dorado Street between Fifth Street and City Limits	Class II Bicycle Lanes	Class IV Separated Bikeway	Lane Striping	City of Stockton	Operations Analysis	2.6	$ 1,110,000	$ 6,915,000
C	El Dorado Street South of City Limits	None	Class II Bicycle Lanes	Lane Striping	City of Stockton/SJ County		0.8	$ 167,000.0	
44	**McKinley Avenue Connector**								
A	McKinley Avenue between El Dorado Street and Industrial Drive	None	Class I Multi-use Path	Capital Improvements	SJ County		0.3	$ 726,000	
45	**Weber Separated Bikeways**								
A	Weber Avenue between Washington Street and Lincoln Street	None	Class II Buffered Bicycle Lanes	Lane Striping	City of Stockton		0.5	$ 115,000	
B	Weber Avenue between Lincoln Street and Center Street	None	Class IV Separated Bikeway	Road Diet	City of Stockton		0.4	$ 154,000	$ 955,000
C	Weber Avenue between Center Street and Airport Way	None	Class IV Separated Bikeway	Further Study	City of Stockton		0.9	$ 398,000	$ 2,477,000
46	**Hazelton Bikeway**								
A	Hazelton Avenue between California Street and Wilson Way	None	Class II Bicycle Lanes	Road Diet	City of Stockton		0.9	$ 185,000.0	
B	Hazelton Avenue between Wilson Way and B Street	None	Class II Bicycle Lanes	Lane Striping with Parking Removal	City of Stockton	Parking Study	0.4	$ 91,000.0	
47	**Marsh Bicycle Boulevard**								
A	Hazelton Avenue between B Street and Court Street, Court Street between Hazelton Avenue and Alma Street, Alma Street between Court Street and Sharon Avenue, Sharon Avenue between Alma Street and Main Street, Marsh Street between Main Street and Broadway Avenue, Lafayette Street between Marsh Street and Garden Avenue, and east of Garden Avenue to Crosstown Freeway Bicycle & Pedestrian Bridge	None	Class III Bicycle Boulevard	Traffic Calming	City of Stockton		1.6	$ 574,000	
48	**Washington Bicycle Lanes**								
A	Wayfinding only for Anteros Avenue between the Crosstown Freeway Bicycle & Pedestrian Bridge and Washington Street, and installation of bicycle lanes for Washington Street between Anteros Avenue and the Diverting Canal.	None	Class II Bicycle Lanes	Capital Improvements	SJ County		1.4	$ 305,000.0	
49	**Lincoln Bicycle Lanes**								
A	Lincoln Street between Weber Avenue and French Camp Turnpike	None	Class II Bicycle Lanes	Road Diet	City of Stockton		1.2	$ 264,000.0	
50	**French Camp Turnpike Bikeway**								
A	French Camp Turnpike between Center Street and Lincoln Avenue	None	Class II Bicycle Lanes	Road Diet	City of Stockton		0.5	$ 104,000.0	
B	French Camp Turnpike between Lincoln Avenue and Eighth Street	None	Class II Bicycle Lanes	Lane Striping	City of Stockton		0.6	$ 130,000.0	
C	French Camp Turnpike between Eighth Street and Ninth Street	None	Class II Bicycle Lanes	Lane Striping with Parking Removal	City of Stockton	Parking Study	0.2	$ 36,000.0	
D	French Camp Turnpike between Ninth Street and San Joaquin River Levee Rd/Walker Slough	None	Class II Bicycle Lanes	Lane Striping	City of Stockton		0.5	$ 100,000.0	
E	French Camp Turnpike between San Joaquin River Levee Rd/Walker Slough and Downing Avenue	None	Class II Bicycle Lanes	Capital Improvements	City of Stockton		0.3	$ 58,000.0	
51	**Eighth Street Separated Bikeways**								
A	Eighth Street between Houston Avenue and El Dorado Street	None	Class IV Separated Bikeway	Road Diet	City of Stockton		2.3	$ 980,000	$ 6,104,000
B	Eighth Street between El Dorado Street and California Street	None	Class III Bicycle Route	Signage Only	City of Stockton		0.3	$ 19,000	
52	**Carolyn Weston Separated Bikeways**								
A	Carolyn Weston Boulevard between French Camp Road and Ews Wood Boulevard (Includes future roadway through vacant parcel)	Class II Bicycle Lanes	Class IV Separated Bikeway	Road Diet	City of Stockton		1.8	$ 754,000	$ 4,692,000
B	Carolyn Weston Boulevard between Ews Wood Boulevard and Downing Avenue, Downing Avenue between Carolyn Weston Boulevard and French Camp Turnpike	Class II Bicycle Lanes	Class IV Separated Bikeway	Further Study	City of Stockton	Operations Analysis	0.9	$ 390,000	$ 2,427,000

Project Number	Implementation Extents	Existing Facility	Proposed Facility	Implementation	Jurisdiction	Additional Analysis Needed	Distance (miles)	Cost Estimate	Class IV Estimate #2 (Curb - Full Buildout)
53	**Downing Bicycle Lanes**								
A	Downing Avenue between French Camp Turnpike and Odell Avenue	None	Class II Bicycle Lanes	Lane Striping with Parking Removal	City of Stockton/SJ County		0.4	$ 76,000.0	
54	**San Joaquin River Levee Trail**								
A	Levee Road (North Side of Walker Slough) between Eighth Street and French Camp Turnpike	None	Class I Multi-use Path	Capital Improvements	City of Stockton		2.6	$ 5,548,000	
B	Levee Road (North Side of Walker Slough) between French Camp Turnpike and El Dorado Street	None	Class I Multi-Use Path	Capital Improvements	City of Stockton		0.8	$ 1,800,000	
C	New connection between the San Joaquin River Levee Trail and Horton Avenue	None	Class I Multi-use Path	Capital Improvements	City of Stockton		0.2	$ 340,000	
D	Bridge between San Joaquin River Levee Trail & Weston Ranch Path	None	Bicycle & Pedestrian Bridge	Capital Improvements	City of Stockton		0.2	$ 4,092,000	
55	**Horton Bicycle Boulevard**								
A	Horton Avenue between future San Joaquin River Levee and El Dorado Street	None	Class III Bicycle Boulevard	Traffic Calming	City of Stockton		0.5	$ 175,000	
56	**French Camp Bikeway**								
A	French Camp Road between Carolyn Weston Boulevard and Frank W Circle	None	Class IV Separated Bikeway	Capital Improvements	City of Stockton/SJ County		2.2	$ 943,000	$ 5,872,000
B	French Camp Road between Frank W Circle and EL Dorado Street	None	Class II Bicycle Lanes	Capital Improvements	SJ County		0.2	$ 50,000.0	
57	**Arch Airport Separated Bikeways**								
A	Sperry Road between Performance Drive and Airport Way, and Arch Airport Road between Airport Way and Alitalia Way	None	Class IV Separated Bikeway	Capital Improvements	City of Stockton/SJ County		0.8	$ 347,000	$ 2,161,000
B	Arch Airport Road between Alitalia Way and Pock Lane	None	Class IV Separated Bikeway	Capital Improvements	City of Stockton/SJ County		0.3	$ 132,000	$ 818,000
C	Arch Airport Road between Pock Lane and SR-99 Frontage Road, and Arch Road between SR-99 and City Limits	None	Class IV Separated Bikeway	Capital Improvements	City of Stockton/SJ County		2.5	$ 1,076,000	$ 6,700,000
58	**Industrial Bikeway**								
A	Industrial Drive between McKinley Avenue and Airport Way	None	Class IV Separated Bikeway	Capital Improvements	City of Stockton		0.9	$ 374,000	$ 2,327,000
B	Industrial Drive between Airport Way and SR-99 Frontage Road	None	Class II Buffered Bicycle Lanes	Road Diet	City of Stockton		1.7	$ 425,000	
59	**Dr. MLK Jr. Separated Bikeways**								
A	Dr. Martin Luther King Jr. Boulevard between Lincoln Street and Golden Gate Avenue	None	Class IV Separated Bikeway	Further Study	City of Stockton		3.0	$ 1,255,000	$ 7,813,000
60	**Golden Gate Bike Route**								
A	Golden Gate Avenue between Main Street and Dr. Martin Luther King Jr. Boulevard	None	Class III Bicycle Route	Signage Only	City of Stockton		0.2	$ 16,000	
61	**B Street Bikeway Extension**								
A	B Street between Dr. Martin Luther King Jr. Boulevard and Fourth Street	None	Class II Bicycle Lanes	Lane Striping	City of Stockton		0.3	$ 70,000.0	
B	B Street between Ralph Avenue and Arch Airport Road	None	Class II Bicycle Lanes	Lane Striping	City of Stockton		1.3	$ 269,000.0	
62	**Eighth Street Bicycle Lanes (Southwest)**								
A	East Eighth Street between Airport Way and Mariposa Road	None	Class II Bicycle Lanes	Lane Striping	City of Stockton/SJ County		1.4	$ 303,000.0	
63	**Mariposa Bicycle Lanes**								
A	Mariposa Road between Dr. Martin Luther King Jr. Boulevard and 99 Frontage Road	None	Class II Bicycle Lanes	Road Diet	City of Stockton/SJ County		1.2	$ 255,000.0	
B	99 Frontage Road between Mariposa Road and future Duck Creek Trail Extension	None	Class II Bicycle Lanes	Lane Striping	City of Stockton/SJ County		0.4	$ 86,000.0	
64	**Duck Creek Trail Extension**								
A	Duck Creek between B Street and 99 Frontage Road	None	Class I Multi-use Path	Capital Improvements	SJ County		2.2	$ 4,804,000	
65	**Delta Cove Multi-use Path**								
A	Surrounding the future Delta Cove development on the levee	None	Class I Multi-use Path	Capital Improvements	City of Stockton		3.0	$ 6,472,000	
66	**Sanctuary Multi-use Path**								
A	Surrounding the future Sanctuary development on the levee	None	Class I Multi-use Path	Capital Improvements	City of Stockton		8.0	$ 17,307,000	
67	**Harding Way Complete Streets Study**								
A	Harding Way between Baker Street and California Street	None	Class II Buffered Bicycle Lanes	Further Study	City of Stockton	Operations Analysis and Parking Study	0.9	$ 232,000	
							Total	**$ 163,858,000**	

	Lane Miles Totals	Cost Estimate	Class IV Estimate #2 (Curb - Full Buildout)
Class I	45.2	$ 98,250,000.00	$ -
Class II Bike Lanes	44.2	$ 9,476,000.00	$ -
Class II Buffered Bike Lanes	21.8	$ 5,322,000.00	$ -
Class III Bike Boulevard	18.1	$ 6,472,000.00	$ -
Class III Bike Routes	1.9	$ 132,000.00	$ -
Class IV Separated Bikeways	56.6	$ 23,671,000.00	$ 145,596,000.00
Bridges	1.2	20,535,000.0	0.0
All Facilities	187.8	$ 163,858,000.00	$ 145,596,000.00
Total All Facilities		$	309,454,000.00

C. NEIGHBORHOOD CONNECTIVITY ANALYSIS MAPS

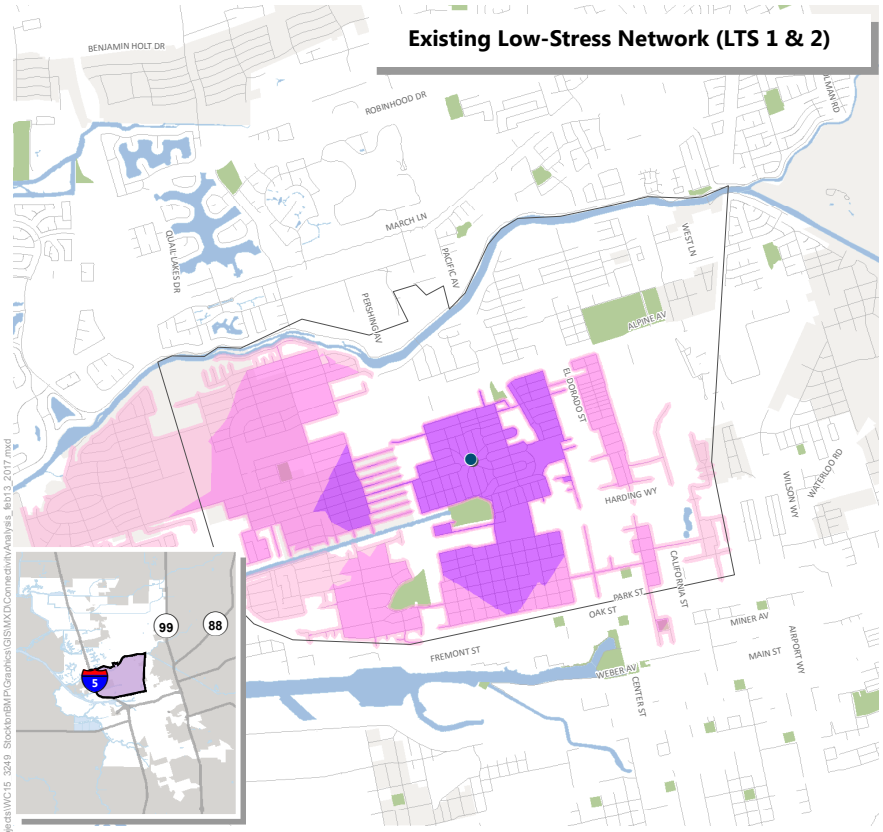


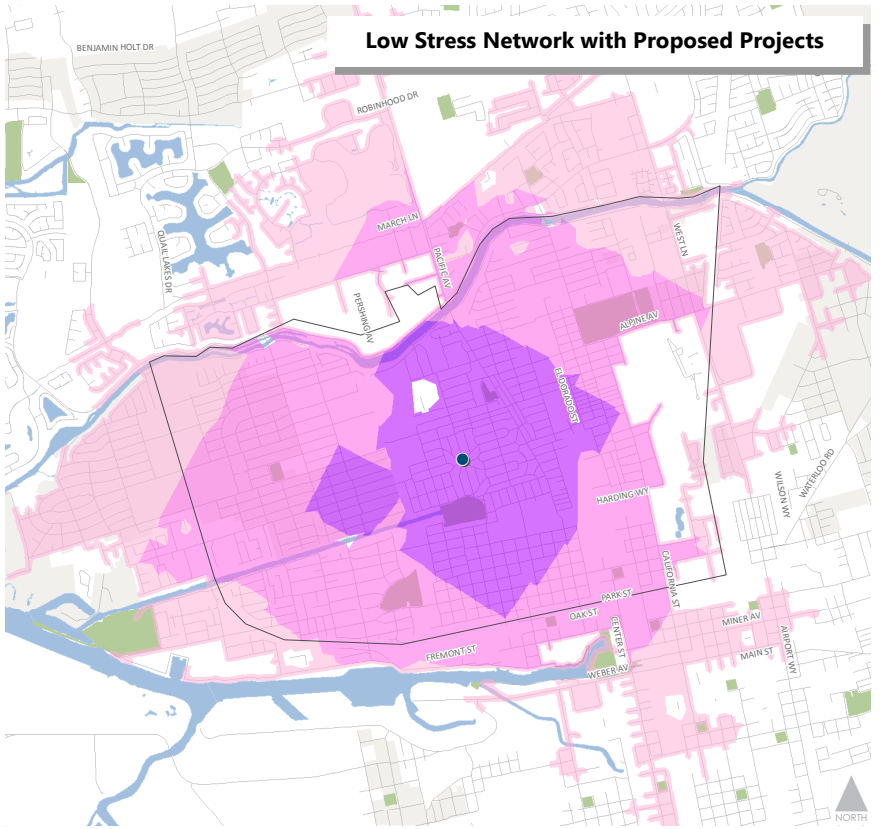
CITY OF STOCKTON
Bicycle Master Plan

FEHR PEERS

Figure 16.1

Connectivity Analysis - General Plan Neighborhood 1



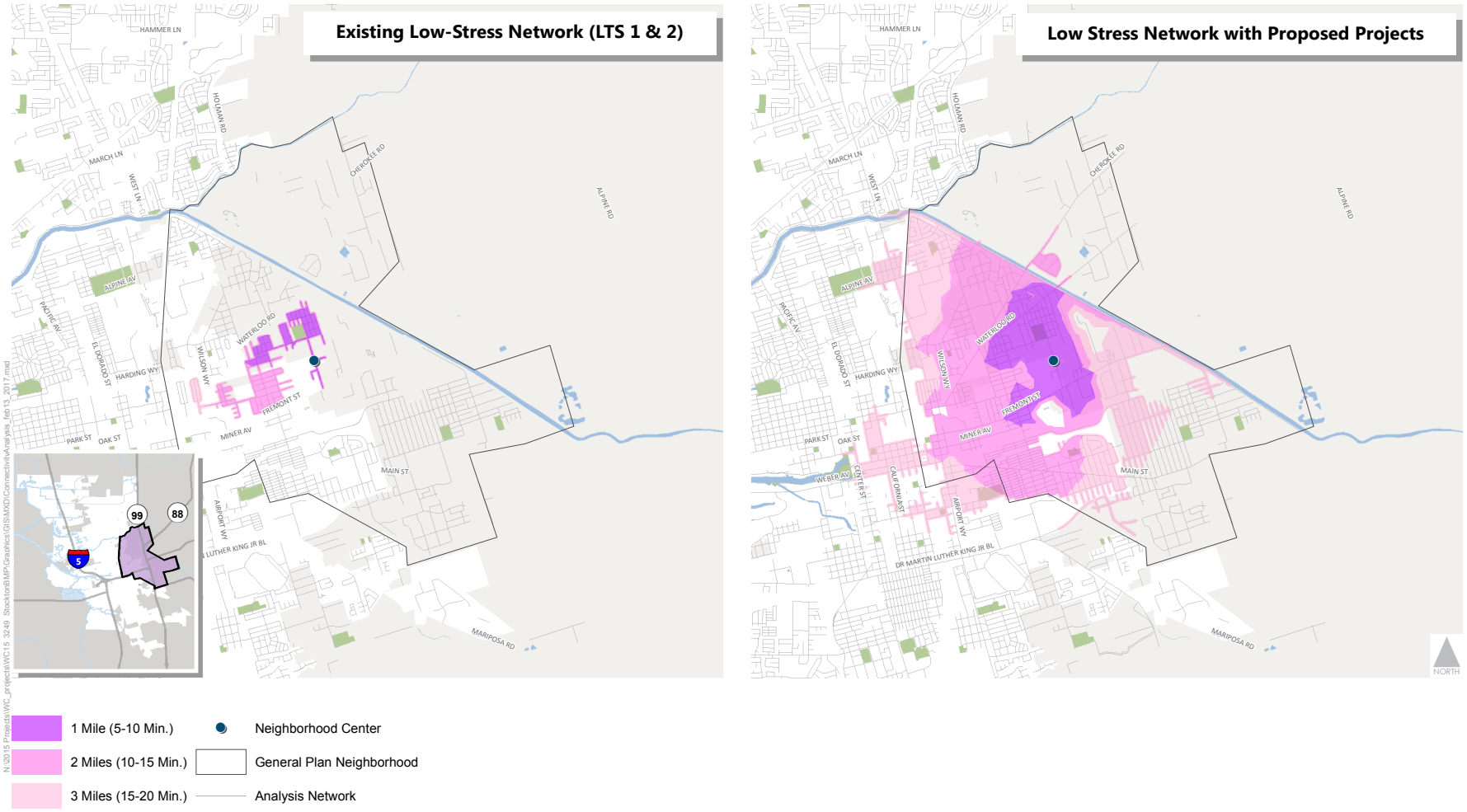


CITY OF STOCKTON
Bicycle Master Plan

FEHR & PEERS

Figure 16.2

Connectivity Analysis - General Plan Neighborhood 2

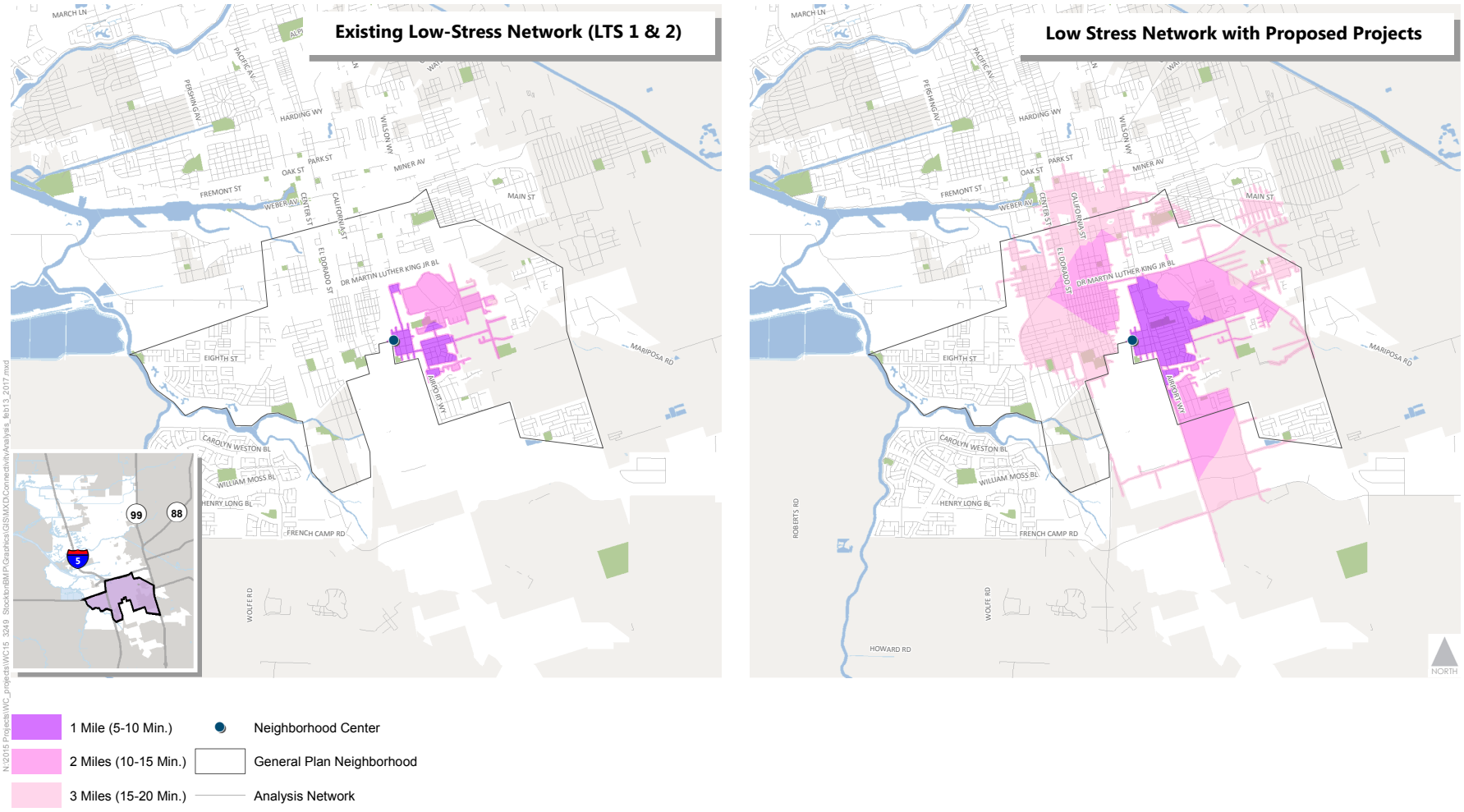


CITY OF STOCKTON
Bicycle Master Plan

FEHR PEERS

Figure 16.3

Connectivity Analysis - General Plan Neighborhood 3



N:\2015 Projects\WC_projects\WC-15_3249_Stockton\BMP\Graphics\GIS\MXD\ConnectivityAnalysis_feb13_2017.mxd

CITY OF STOCKTON
Bicycle Master Plan

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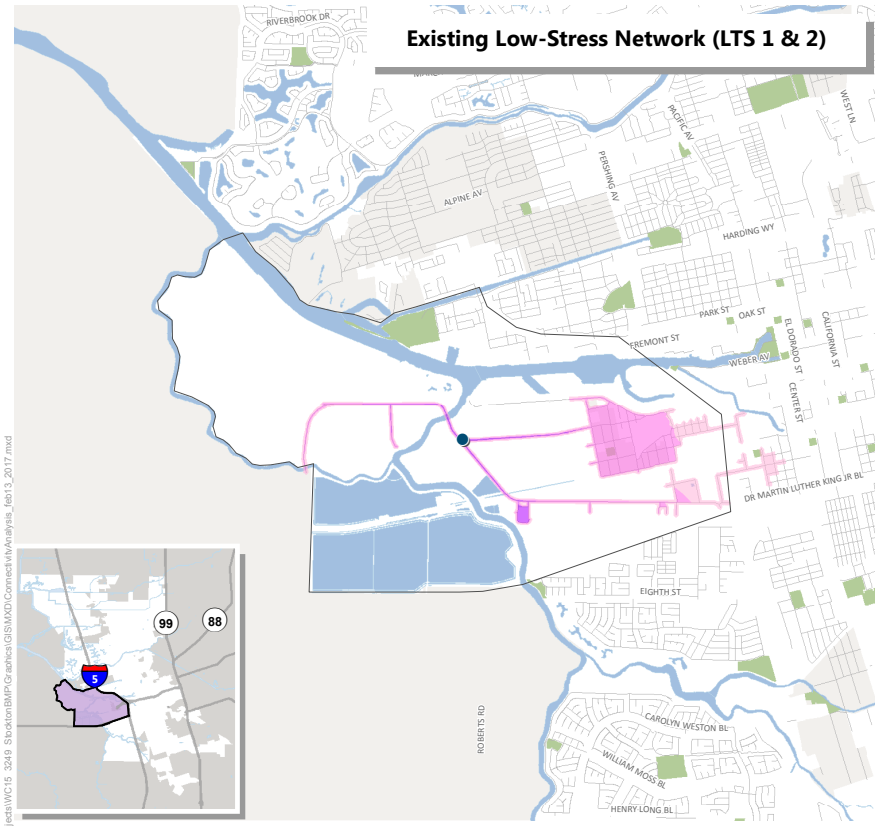
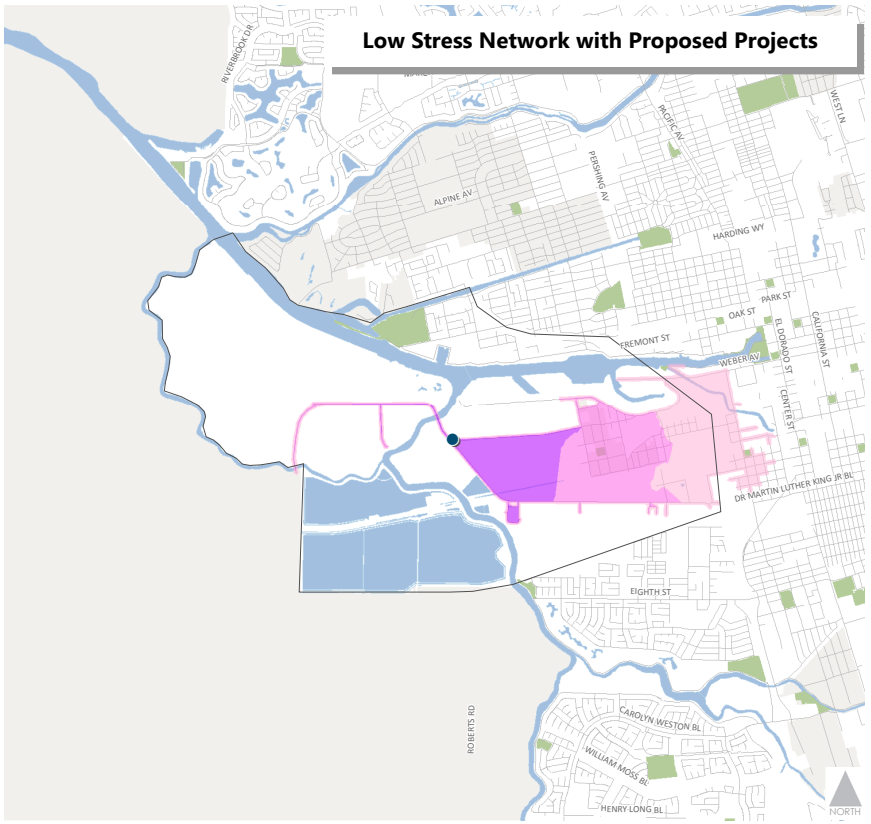
Figure 16.4

Connectivity Analysis - General Plan Neighborhood 4





CITY OF STOCKTON
Bicycle Master Plan

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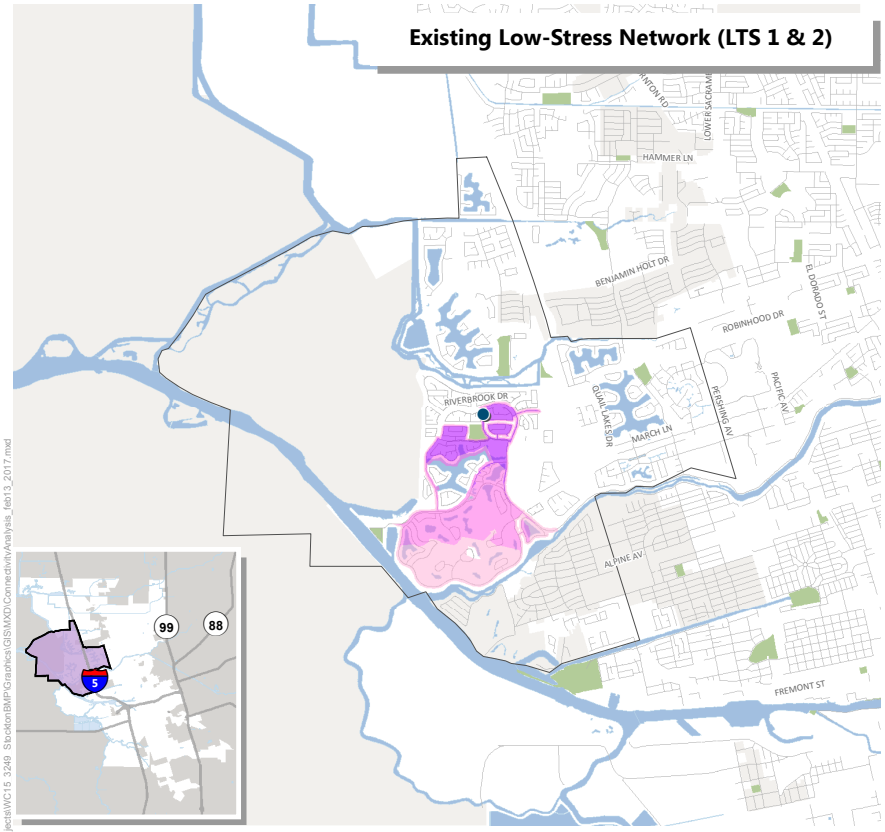
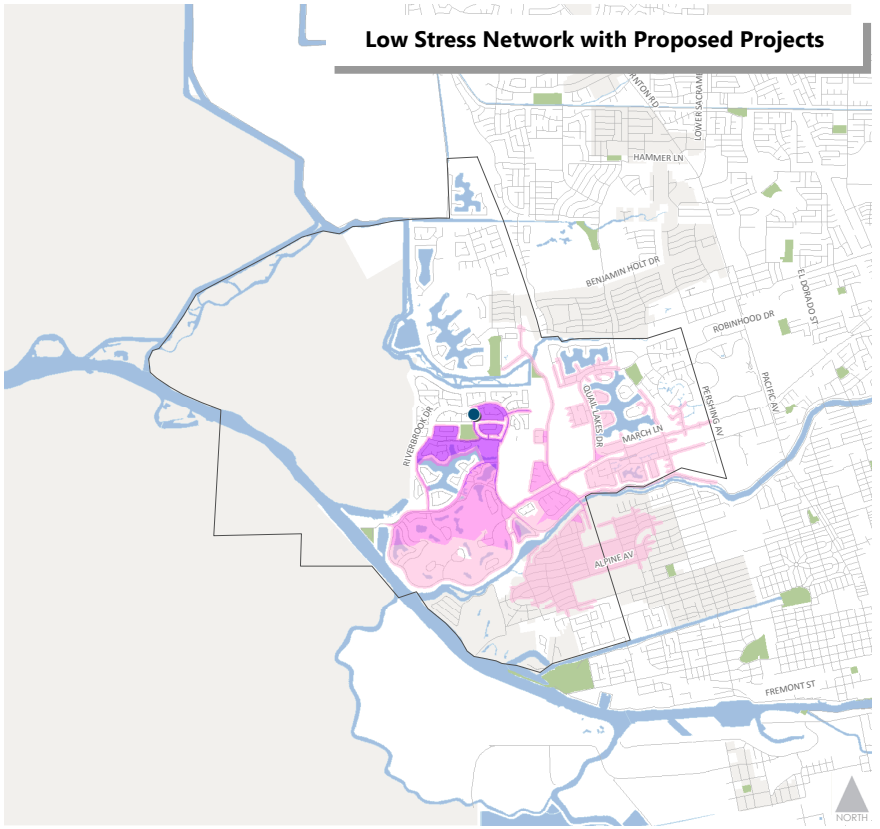
Figure 16.5

Connectivity Analysis - General Plan Neighborhood 5





CITY OF STOCKTON
Bicycle Master Plan

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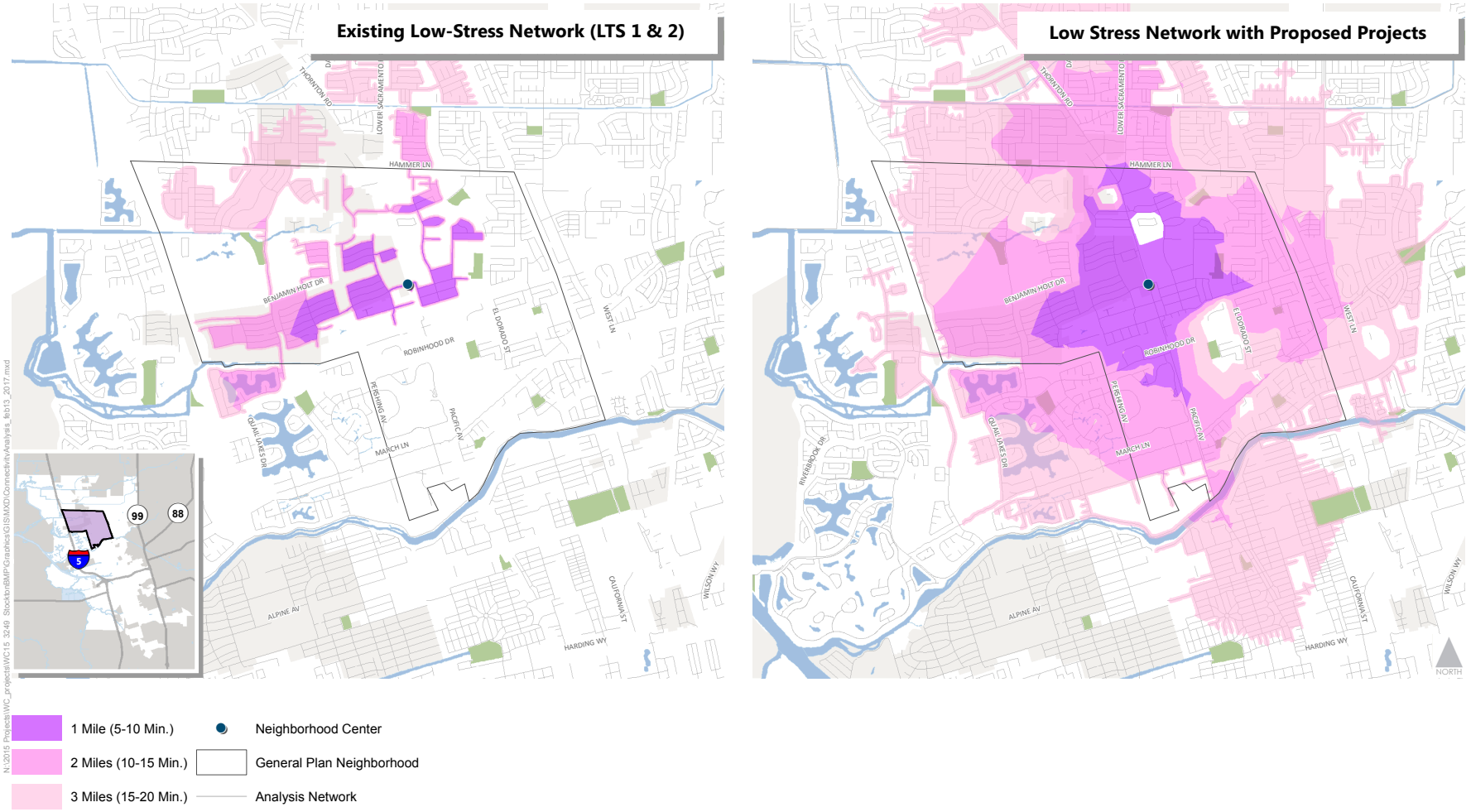
Figure 16.6

Connectivity Analysis - General Plan Neighborhood 6



CITY OF STOCKTON
Bicycle Master Plan

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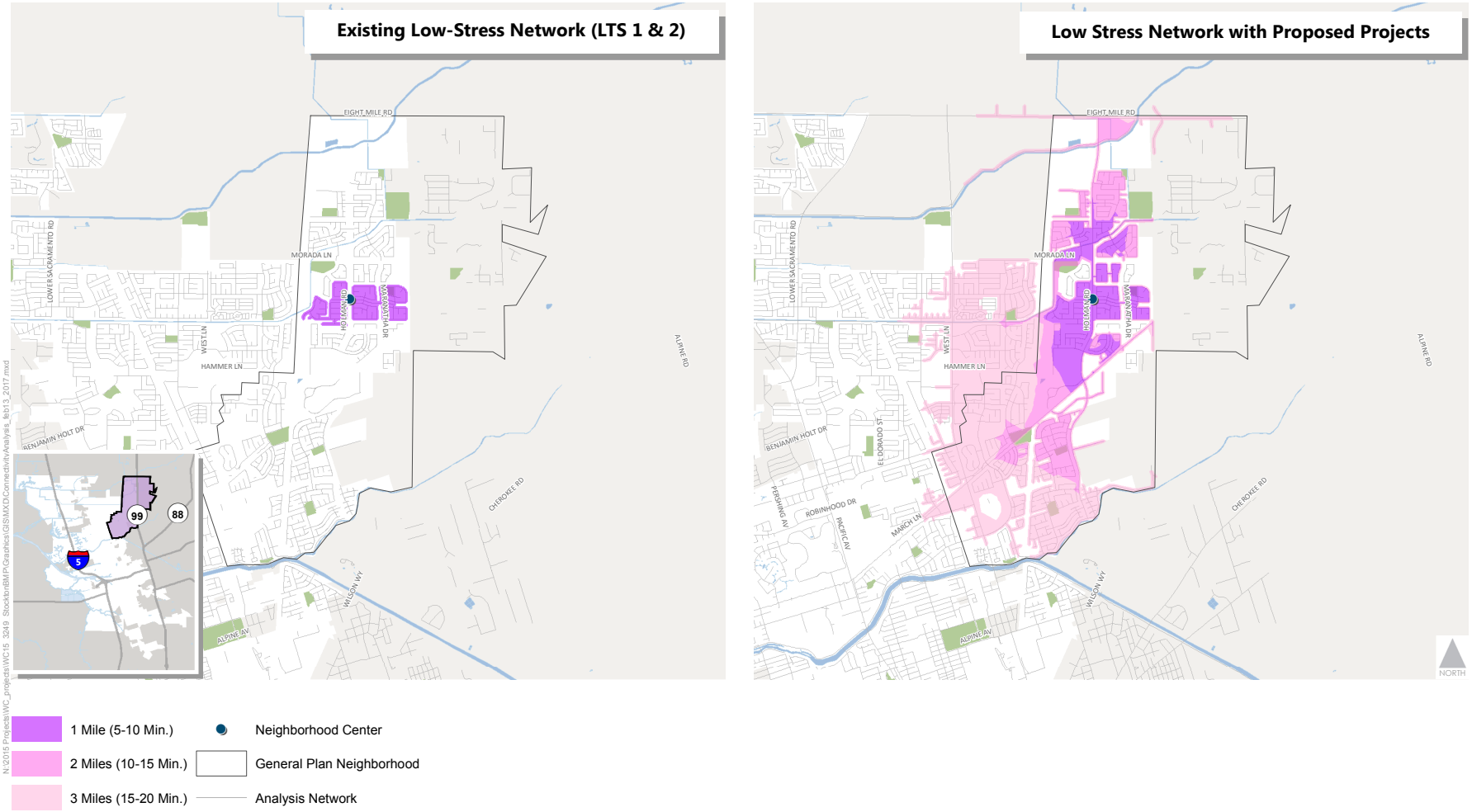
Figure 16.7

Connectivity Analysis - General Plan Neighborhood 7



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Bicycle Master Plan

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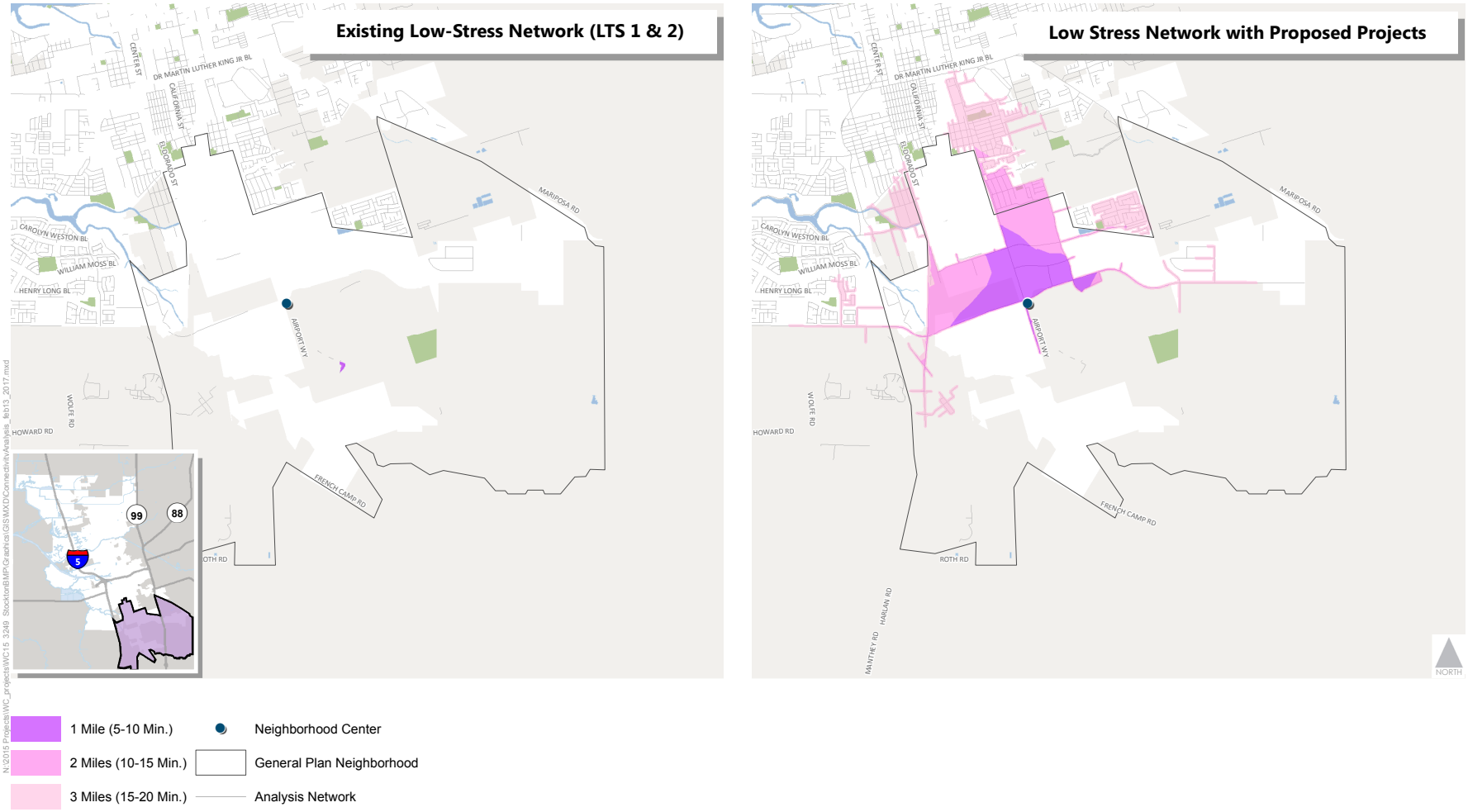
Figure 16.8

Connectivity Analysis - General Plan Neighborhood 8



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Bicycle Master Plan

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Figure 16.9
Connectivity Analysis - General Plan Neighborhood 9

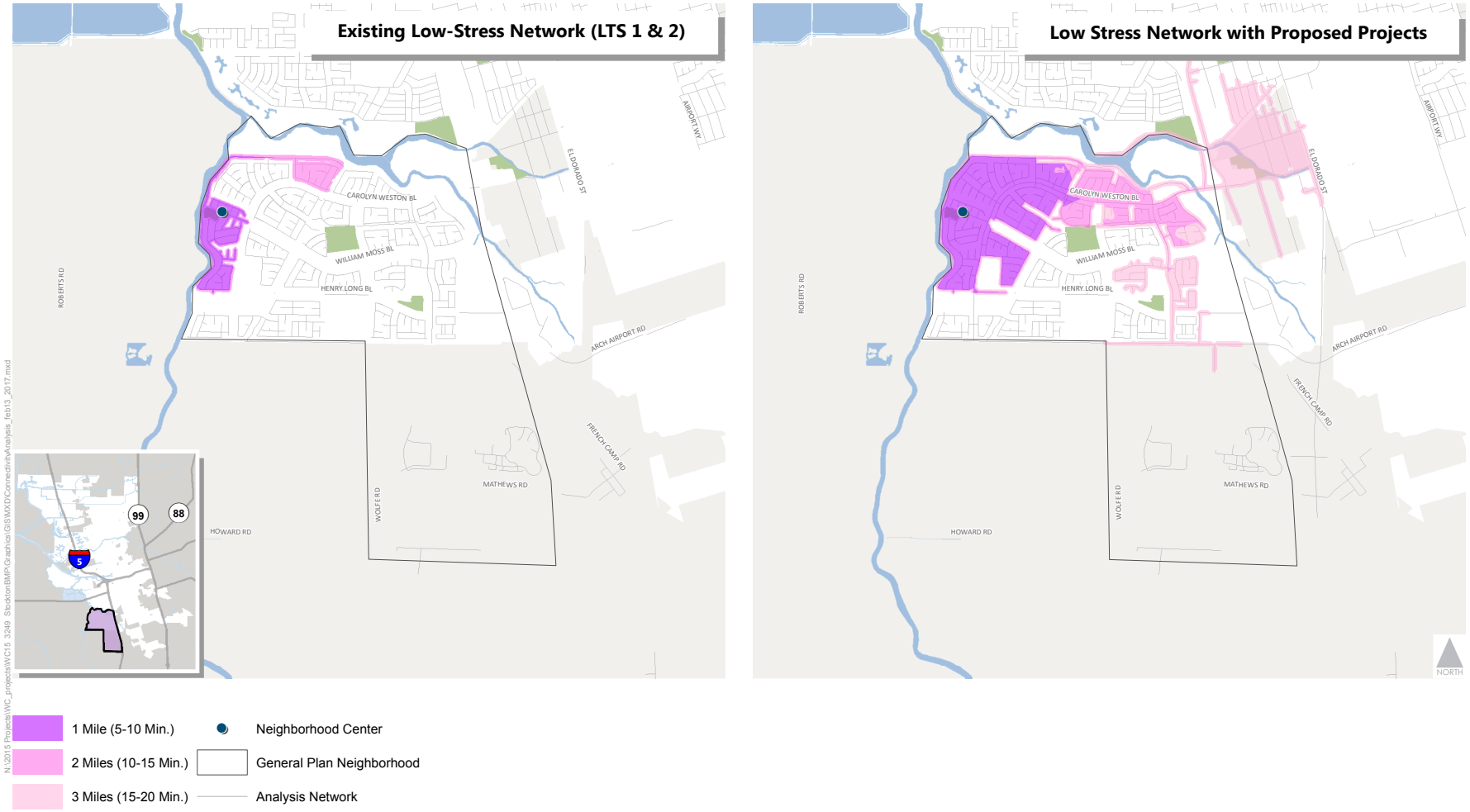
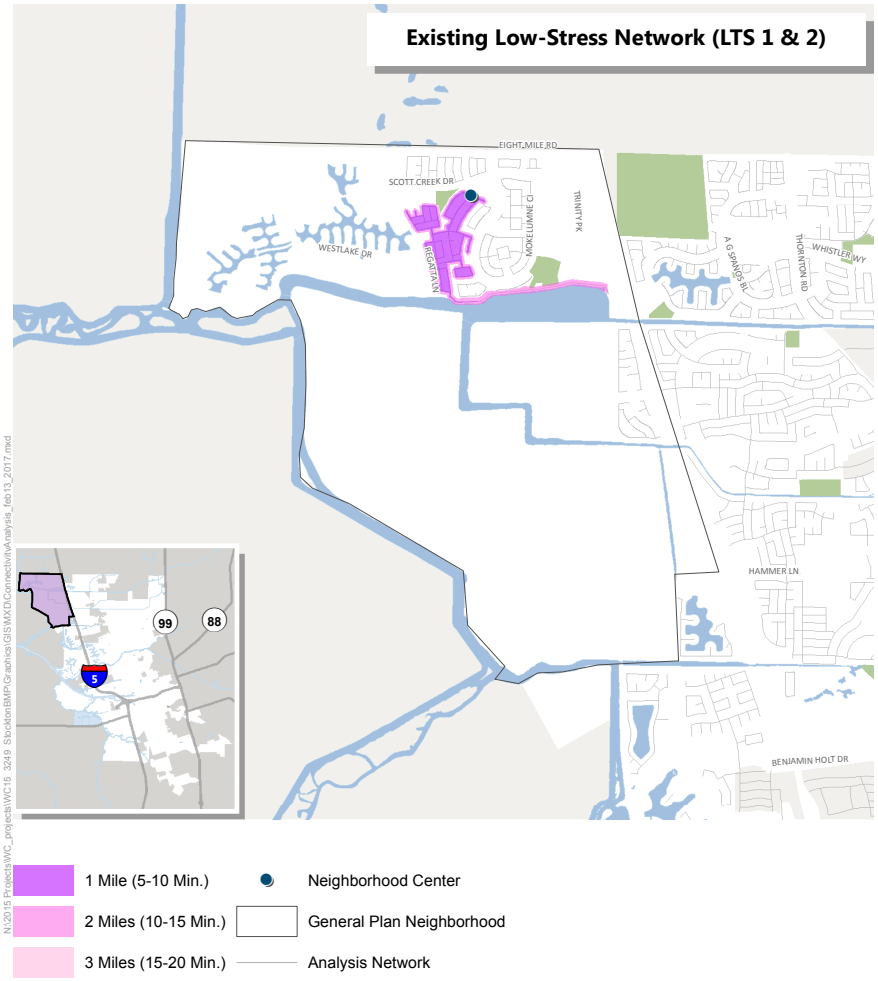
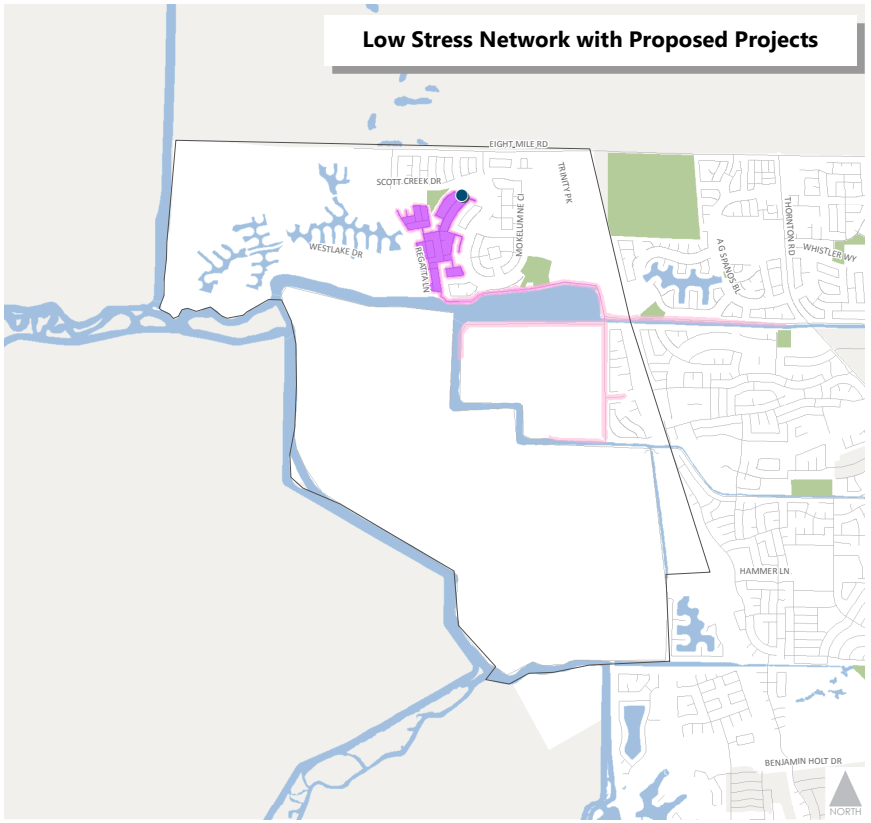


Figure 16.10

Connectivity Analysis - General Plan Neighborhood 10





CITY OF STOCKTON
Bicycle Master Plan

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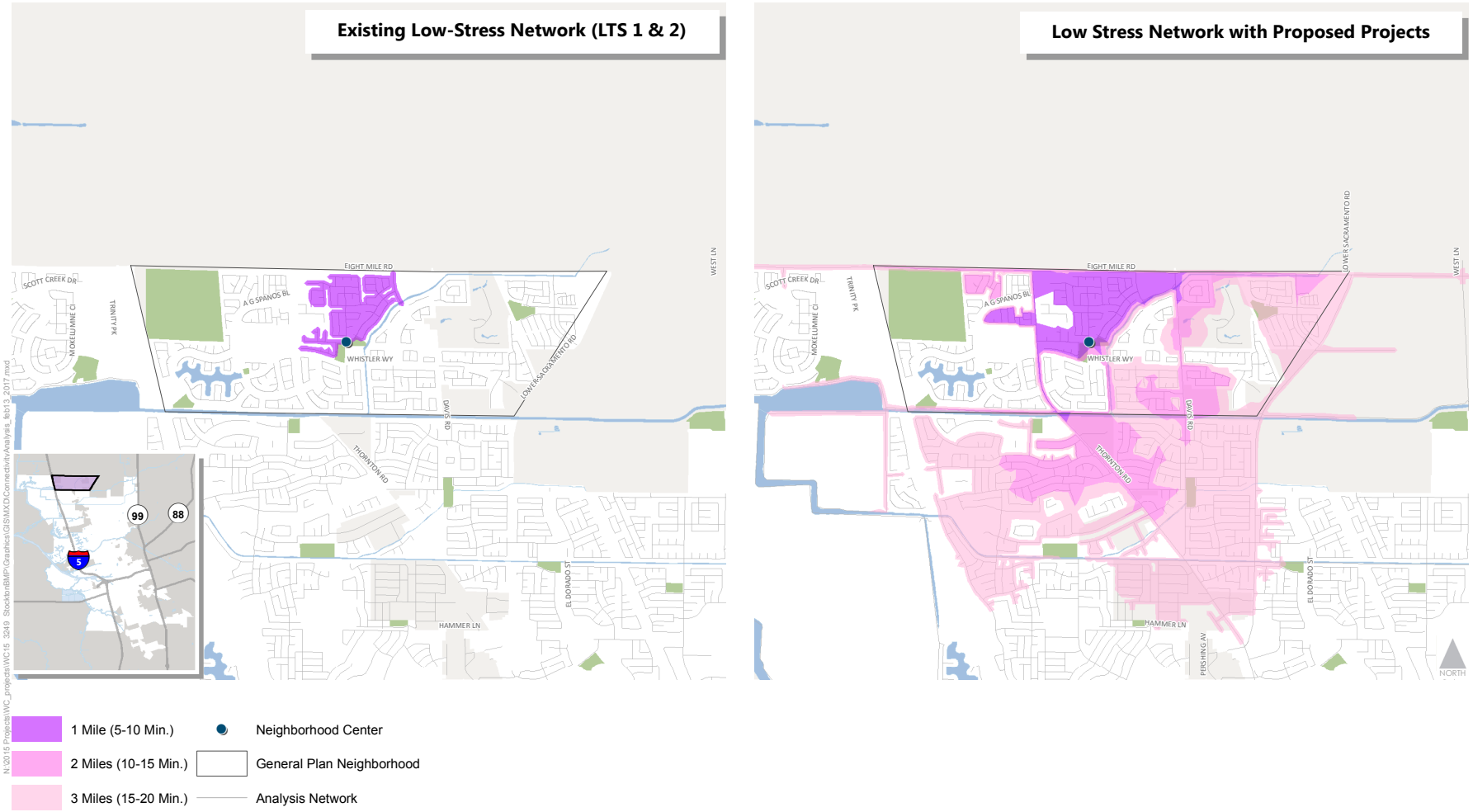
Figure 16.11

Connectivity Analysis - General Plan Neighborhood 11

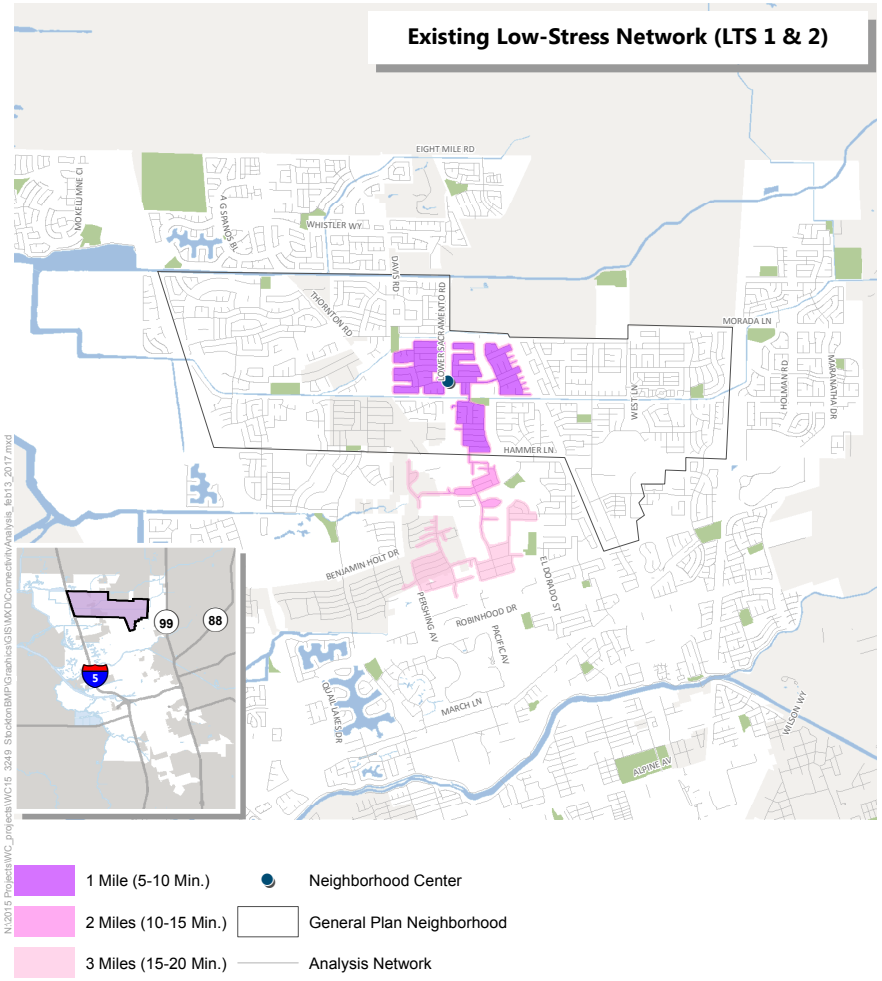


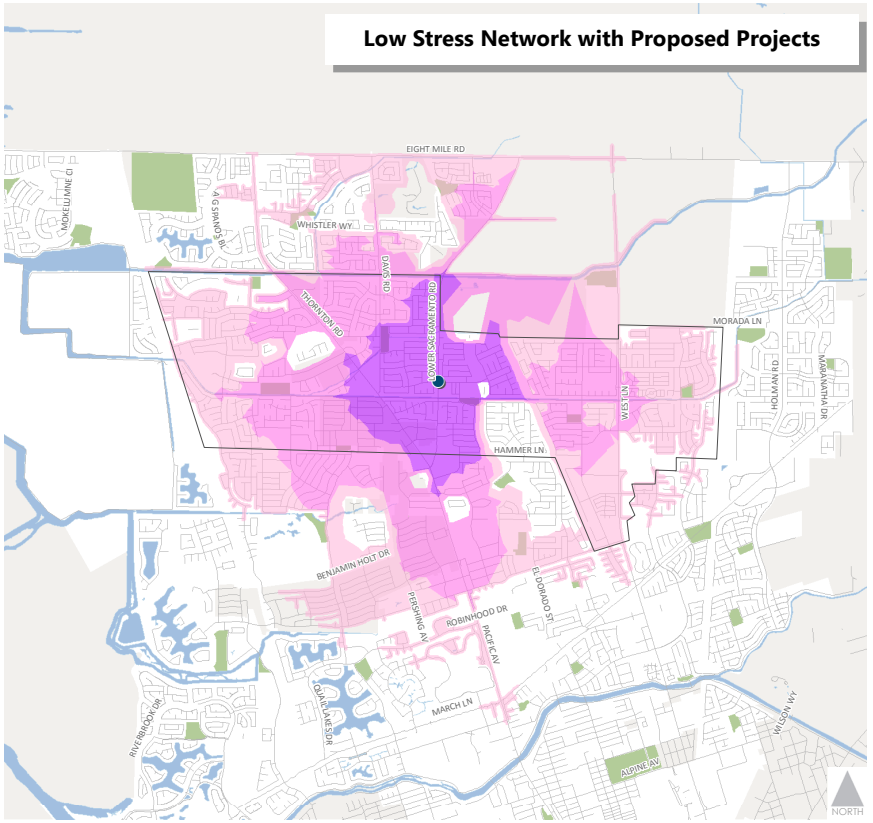
CITY OF STOCKTON
Bicycle Master Plan

FEHR PEERS

Figure 16.12

Connectivity Analysis - General Plan Neighborhood 12



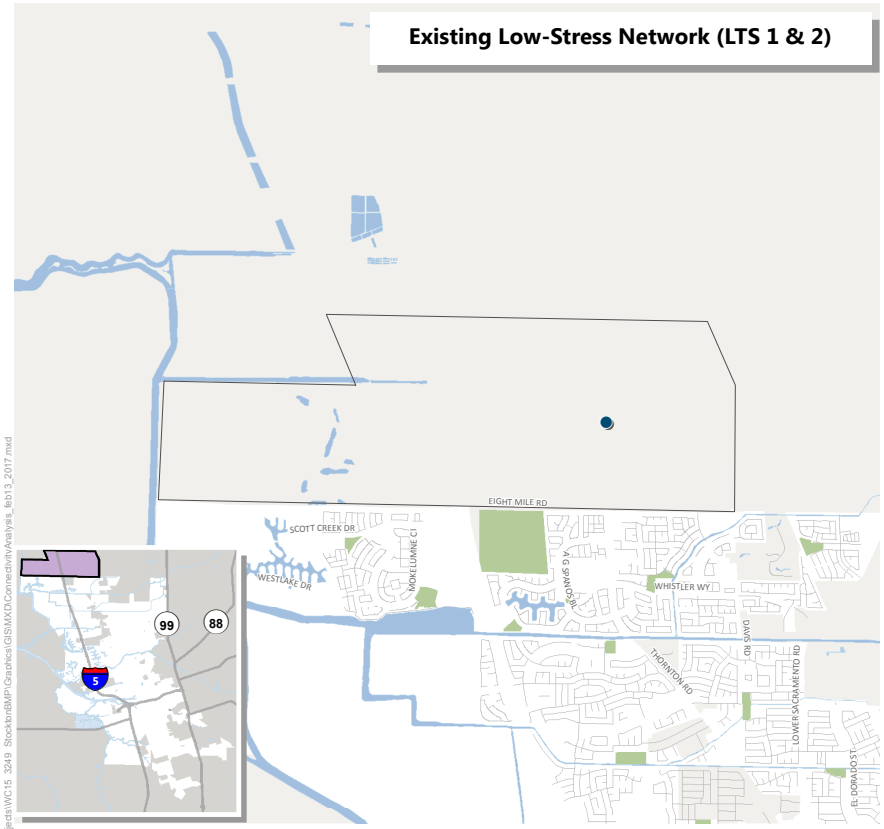


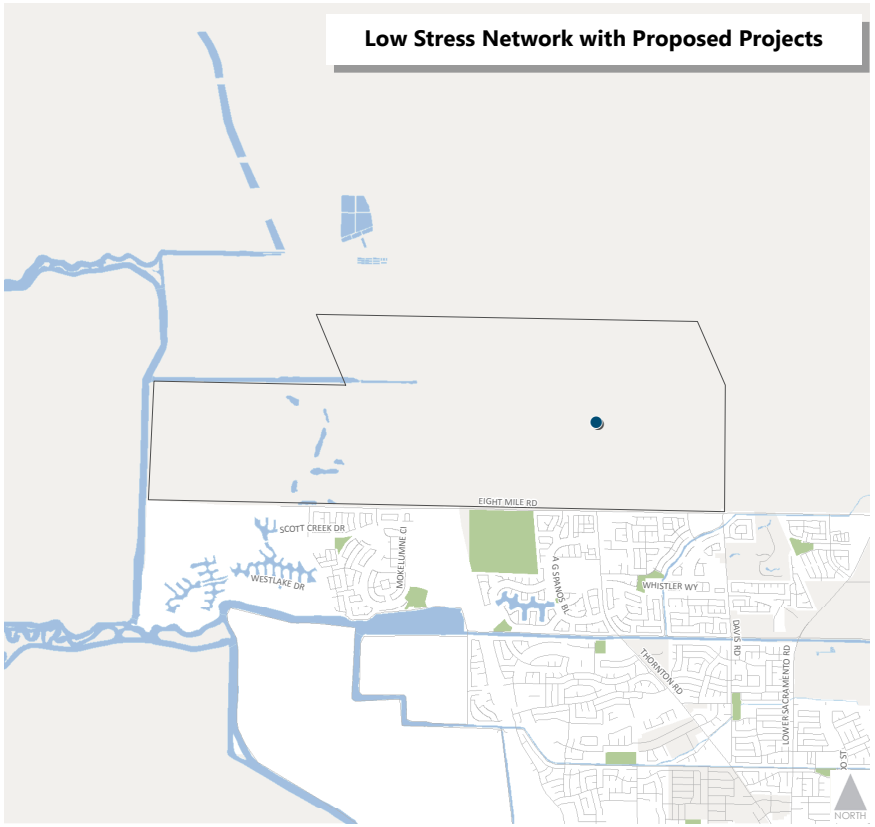
CITY OF STOCKTON
Bicycle Master Plan

FEHR & PEERS

Figure 16.13

Connectivity Analysis - General Plan Neighborhood 13



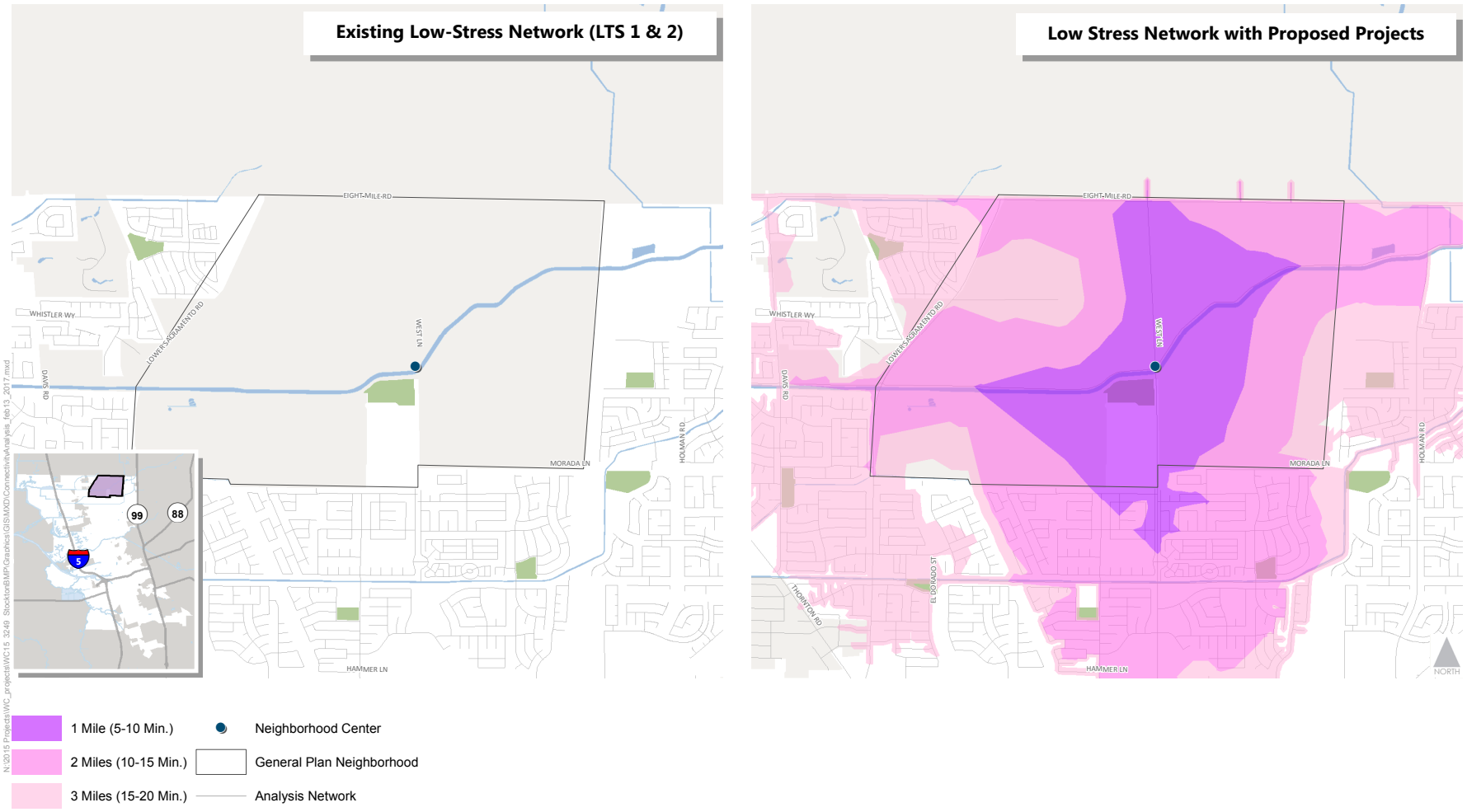


CITY OF STOCKTON
Bicycle Master Plan

FEHR PEERS

Figure 16.14

Connectivity Analysis - General Plan Neighborhood A



CITY OF STOCKTON
Bicycle Master Plan

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Figure 16.15
Connectivity Analysis - General Plan Neighborhood B

CITY OF STOCKTON
Bicycle Master Plan

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Figure 16.16

Connectivity Analysis - General Plan Neighborhood C

D. CALTRANS ATP GUIDELINES

Table D-1: Caltrans ATP Requirements for Disadvantaged Communities

Requirement	Chapter
The estimated number of existing bicycle trips and pedestrian trips in the plan area, both in absolute numbers and as a percentage of all trips, and the estimated increase in the number of bicycle trips and pedestrian trips resulting from implementation of the plan.	Ch 9
The number and location of collisions, serious injuries, and fatalities suffered by bicyclists and pedestrians in the plan area, both in absolute numbers and as a percentage of all collisions and injuries, and a goal for collision, serious injury, and fatality reduction after implementation of the plan.	Ch 3, Appx D
A map and description of existing and proposed land use and settlement patterns which must include, but not be limited to, locations of residential neighborhoods, schools, shopping centers, public buildings, major employment centers, and other destinations.	Ch 3
A map and description of existing and proposed bicycle transportation facilities, including a description of bicycle facilities that serve public and private schools and, if appropriate, a description of how the five Es (Education, Encouragement, Enforcement, Engineering, and Evaluation) will be used to increase rates of bicycling to school.	Ch 4, Ch 9
A map and description of existing and proposed end-of-trip bicycle parking facilities.	Appx D, Ch 6
A description of existing and proposed policies related to bicycle parking in public locations, private parking garages and parking lots and in new commercial and residential developments.	Appx D, Ch 6
A map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes. These must include, but not be limited to, bicycle parking facilities at transit stops, rail and transit terminals, ferry docks and landings, park and ride lots, and provisions for transporting bicyclists and bicycles on transit or rail vehicles or ferry vessels.	Appx D, Ch 6
A map and description of existing and proposed pedestrian facilities, including those at major transit hubs and those that serve public and private schools and, if appropriate, a description of how the five Es (Education, Encouragement, Enforcement, Engineering, and Evaluation) will be used to increase rates of walking to school. Major transit hubs must include, but are not limited to, rail and transit terminals, and ferry docks and landings.	Not Applicable
A description of proposed signage providing wayfinding along bicycle and pedestrian networks to designated destinations.	Ch 8, Appx A
A description of the policies and procedures for maintaining existing and proposed bicycle and pedestrian facilities, including, but not limited to, the maintenance of smooth pavement, ADA level surfaces, freedom from encroaching vegetation, maintenance of traffic control devices including striping and other pavement markings, and lighting.	Ch 8, Ch 9
A description of bicycle and pedestrian safety, education, and encouragement programs conducted in the area included within the plan, efforts by the law enforcement agency having primary traffic law enforcement responsibility in the area to enforce provisions of the law impacting bicycle and pedestrian safety, and the resulting effect on collisions involving bicyclists and pedestrians.	Ch 8
A description of the extent of community involvement in development of the plan, including disadvantaged and underserved communities.	Ch 2
A description of how the active transportation plan has been coordinated with neighboring jurisdictions, including school districts within the plan area, and is consistent with other local or regional transportation, air quality, or energy conservation plans, including, but not limited to, general plans and a Sustainable Community Strategy in a Regional Transportation Plan.	Ch 3
A description of the projects and programs proposed in the plan and a listing of their priorities for implementation, including the methodology for project prioritization and a proposed timeline for implementation.	Ch 9
A description of past expenditures for bicycle and pedestrian facilities and programs, and future financial needs for projects and programs that improve safety and convenience for bicyclists and pedestrians in the plan area. Include anticipated revenue sources and potential grant funding for bicycle and pedestrian uses.	Ch 9
A description of steps necessary to implement the plan and the reporting process that will be used to keep the adopting agency and community informed of the progress being made in implementing the plan.	Ch 9
A resolution showing adoption of the plan by the city, county or district. If the active transportation plan was prepared by a county transportation commission, regional transportation planning agency, MPO, school district or transit district, the plan should indicate the support via resolution of the city(s) or county(s) in which the proposed facilities would be located.	Appx H

E. FUNDING SOURCES

Numerous funding sources exist at the federal, state, regional, county and local levels to support Stockton in implementing the projects and programs in the Plan. Below is a description of the most applicable funding programs available for the proposed projects.

E-1 Federal Funding Sources

Fixing America's Surface Transportation Act (FAST Act)

The FAST Act provides funding for roads, transit, safety, and environmental enhancements. The FAST Act, signed into law in December 2015, supplanted the Moving Ahead for Progress in the 21st Century Act (MAP-21). Relative to MAP-21, the FAST Act makes more federal-aid highway funding available to locally-owned transportation infrastructure and also increases overall spending for the Surface Transportation Block Grant (STBG) program.

Cities, counties, and transit operators can apply for FAST Act funds, although a local match is required for these funds. Several bicycle-related programs are funded through the FAST Act. These include the following:

- **Surface Transportation Block Grant (STBG) Program** – The STBG, formerly known as the Surface Transportation Program, provides block grant funds that are used for roads, bridges, transit capital, and bicycle projects. Eligible bicycle projects include bicycle transportation facilities, bicycle-parking facilities, equipment for transporting bicycles on mass transit facilities, bicycle activated traffic control devices, preservation of abandoned railway corridors for bicycle trails, and improvements for highways and bridges. Cities, counties, metropolitan planning organizations (MPO), and transit operators can apply for STBG funds. An 11.47 percent local match is required for these funds when used for bicycle projects. STBG funds are awarded through SJCOG, with Stockton typically receiving approximately $2.6 million annually.
- **Congestion Mitigation and Air Quality Improvement Program (CMAQ)** – CMAQ funds are available for projects that will help attain National Ambient Air Quality Standards (NAAQS) identified in the 1990 Federal Clean Air Act Amendments. Projects must be located within jurisdictions in non-attainment areas. Eligible projects include bicycle facilities intended for transportation purposes, bicycle route maps, bicycle-activated traffic control devices, bicycle safety and education programs, and bicycle promotional programs. Cities, counties, MPO, state, and transit operators can apply for CMAQ funds. An 11.47% percent local or state match is required for these funds, which are competitively awarded by SJCOG.
- **Section 405 National Priority Safety Programs** – The National Highway Traffic Safety Administration (NHTSA) administers a new non-motorized safety funding program. Of the $280 million allocated to the program, approximately $14 million will be awarded to States on an annual basis to decrease bicycle and pedestrian crashes with motor vehicles. Eligible states must have bicycle and pedestrian fatalities that constitute more than 15 percent of all fatal crashes, including California. Unlike HSIP, funding may be used for training law enforcement officials, organizing enforcement campaigns, or increasing awareness of bicycle and pedestrian laws.
- **Highway Research and Development (HRD)** Program – The HRD program funding, continued under the FAST Act, funds strategic investment in research activities that address current and emerging highway transportation needs. As such, HRD funding can be used to improve bicycle safety through education, police enforcement, and traffic engineering. Cities, counties, and state agencies can apply for these funds. A 20 percent state or local match is required for these funds.

Land and Water Conservation Fund (LWCF)

The Land and Water Conservation Fund (LWCF) uses offshore drilling royalties paid by energy companies to provide matching grants for state and local parks and recreation projects, among other uses. The LWCF state assistance program provides matching grants to help states and local communities protect parks and recreation resources, including off-street bicycle paths.

- California Department of Parks and Recreation LWCF application webpage: http://www.parks.ca.gov/?page_id=21360

E-2 Statewide Funding Sources

Active Transportation Program (ATP)

California's Active Transportation Program (ATP) was created in 2013 by Senate Bill 99 and Assembly Bill 101. Its purpose is to encourage increased use of active modes of transportation, including bicycling and walking. The ATP consolidated previously-existing funding programs, including the federal Transportation Alternatives Program (TAP), state Bicycle Transportation Account (BTA), and the federal and state Safe Routes to School programs. Program funding is divided into three components. Half of ATP funding is awarded through a statewide competitive program. Ten percent of funding is awarded through the small urban and rural area competitive program. Forty percent of funding is awarded by Metropolitan Planning Organizations, such as SJCOG, through the large urbanized area competitive program.

- California Transportation Commission ATP Webpage: http://www.catc.ca.gov/programs/ATP.htm

Transportation Development Act (TDA), Article 3

TDA Article 3 is perhaps the most readily available source of local funding for bicycle projects. TDA funds are derived from a statewide quarter-cent retail sales tax. This tax is returned to the county of origin and distributed to the cities and county on a population basis. Under TDA Article 3, two percent of each entity's TDA allocation is set aside for pedestrian and bicycle projects; Stockton receives approximately $240,000 annually for this purpose. Eligible projects include the design and construction of walkways, bicycle paths and bicycle lanes, and safety education programs.

- SJCOG's Procedures for the TDA Program: http://www.sjcog.org/index.aspx?nid=109

Caltrans Sustainable Transportation Planning Grant Program

The Caltrans Division of Transportation Planning offers Sustainable Transportation Planning Grants to provide funding to support transportation planning (not construction or environmental review). The grants are intended to strengthen the economy, promote equity, and protect the environment. Eligible projects include safe routes to school plans, streetscape plans, complete street plans, and safety enhancement plans. The program requires a 20% local match. Grants are available in amounts from $100,000 to $500,000.

- Caltrans Sustainable Transportation Planning Grant Program: http://www.dot.ca.gov/hq/tpp/grants.html

California State Parks Recreational Trails Program (RTP)

The Recreational Trails Program (RTP) provides funds for recreational trails and trails-related projects, including Class I Bicycle Paths. The program is administered at the state level by the California Department of Parks and Recreation (DPR) and the Caltrans Active Transportation Program (ATP). While DPR does not anticipate conducting another cycle before 2018, the agency does intend to create a new application guide in 2017 to incorporate updated information based on the FAST Act. Applicant, including cities and towns, are responsible for obtaining a match amount that is at least 12% of the total project cost.

- PR RTP application site: http://www.parks.ca.gov/?page_id=24324

California Cap-and-Trade Funding

The Global Warming Solutions Act of 2006 (AB 32) directed the California Air Resources Board (ARB) to institute programs to reduce greenhouse gas (GHG) emissions. The Cap-and-Trade Program, a key element of the ARB's plan to reduce emissions, funds several programs that support the goals of AB 32. Several of these programs relate to transportation and mode shift. The Affordable Housing and Sustainable Communities Program (AHSC), for one, provides funding to support active transportation and complete streets initiatives, among other project types. Applications for FY 2015-2016 AHSC funding were due in June 2016.

- Cap-and-trade auction proceed-funded programs, including AHSC: http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/ggrfprogrampage.htm#Transportation

Highway Safety Improvement Program

The Highway Safety Improvement Program (HSIP) is a federal program administered by Caltrans that focuses on funding countermeasures applied at locations with documented collisions and safety issues. HSIP uses a cost-benefit ratio as a primary factor in the awarding of applications. Because both of these programs focus on roadway safety, projects with documented collision history – through frequency of collision but particularly collision severity – are typically ranked higher. Roadways with documented bicycle and pedestrian collision history, as discussed in Chapter 3 of this Plan, may be well-qualified for HSIP applications, particularly since many of the proposed projects would improve bicyclist and pedestrian safety at a lower cost than many of the highway projects also eligible for HSIP.

Successful projects have included:

- Separated bikeways
- Median refuges and curb extensions
- Curb, gutter, and sidewalk
- Paved shoulders
- Upgraded traffic signals with pedestrian countdown signals and pedestrian-scale lighting
- Bicycle lane striping
- Crosswalk striping
- In-pavement flashers and rectangular rapid flashing beacon (RRFB) at crossings

More information is available online: http://www.dot.ca.gov/hq/LocalPrograms/hsip.htm

E-3 Regional and Countywide Funding Sources

San Joaquin Council of Governments Measure K

San Joaquin County voters approved Measure K in 1990 to fund transportation projects through a half-cent sales tax increase, and voted to renew Measure K through 2041 in November of 2006. Thirty percent of Measure K Renewal funds are earmarked for public transit and active transportation projects (e.g. passenger rail, bus and bicycle projects), of which 7% is reserved for Bicycle, Pedestrian and Safe Routes to School projects. In addition, $65 million of Measure K is allocated to the Smart Growth Incentive Program.

The Measure K Bicycle, Pedestrian, and Safe Routes to School Program is divided into two components:

- 40% of the funding goes to a Non-Competitive Program distributed directly to each City and San Joaquin County. The City of Stockton will receive approximately $1.1 million total through Fiscal Year 2020/2021 through this program.
- 60% of the funding goes to a Competitive Program. Approximately $3.8 million will be available through this program in 2017.

Smart Growth Incentive Program

The Measure K Smart Growth Incentive program is a competitive program that provides funding for infrastructure enhancements that will assist local agencies in better integrating transportation and land use. These funds will be available to support infill development, neighborhood revitalization and downtown improvements. Program applicants must be public agencies eligible to receive federal funds. To be successful, applicants are encouraged to partner with other agencies/groups, including private and non-profit organizations, in applying for funds. Eligible projects include but are not limited to:

- Street calming
- Walkable community projects
- Transit amenities
- Alternative modes of transportation, including bicycling

Approximately $7.7 million will be available in this program in 2017.

In addition, Measure K has historically included bicycle facilities as part of congestion relief projects. As an example, Stockton received Measure K funding for the Thornton Road Widening project, which includes construction of buffered bicycle lanes in 2016-2017.

- SJCOG's Measure K: http://www.sjcog.org/index.aspx?NID=97

San Joaquin Council of Governments Regional Transportation Impact Fee (RTIF)

In 2005, SJCOG partnered with San Joaquin County and the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy to develop a Regional Transportation Impact Fee (RTIF) program. The RTIF is a county-wide, multi-jurisdiction capital improvement funding program intended to cover a portion of the costs for new transportation facilities

required to serve new development within the County. New development throughout the county is subject to the fee. The funding derived from the RTIF program is used in combination with other funding available to complete the needed transportation and transit improvements. Since program inception, approximately $50 million in RTIF funding has been generated. SJCOG is currently undertaking the 5-year update of the RTIF as required by the Mitigation Fee Act.

- SJCOG's RTIF program: http://www.sjcog.org/index.aspx?nid=118

San Joaquin Valley Air Pollution Control District Grants

The San Joaquin Valley Air Pollution Control District develops, implements and administers several grants and incentives programs that target projects and program that result in voluntary emissions reductions and therefore positively affect air quality in the Valley. These grant programs are partially funded by vehicle registration fee, which are currently $19.00 per year and are used to mitigate poor air quality in the air basin. These funds are converted into programs for transit, bikeways, alternative fuels, public awareness campaigns, ride share, etc. Funds are allocated through the San Joaquin Valley Air Pollution Control District through a competitive project application process.

- SJVAPCD Grants program: http://valleyair.org/grants

E-4 Local Funding Sources

A variety of local sources may be available for funding bikeway improvements; however, their use is often dependent on political support.

Park Development/Quimby Fees

The Quimby Act (Government Code Section 66477) provides that a county or city may, by ordinance, require the dedication of land or impose mitigation fees on residential subdivisions as a means of providing park and recreation facilities to serve the subdivision's expanded population. The City of Stockton currently charges a park fee, which covers both land acquisition and park development. Although Stockton has not used its park development fees to fund bikeway improvements, the park fee program could be modified to include bikeway funding in the future.

Landscaping and Lighting Districts (L&L)

The Landscaping and Lighting Act of 1972 permits the installation, maintenance and servicing of landscaping and lighting through annual assessments on real property benefiting from the improvement. The act also permits construction and maintenance of appurtenant features including curbs, gutters, bike paths, walls, sidewalks or paving, and irrigation or drainage facilities. A major advantage of L&Ls is that they can be established on a protest proceedings basis rather than with a two-thirds vote of the registered voters. In addition, the bond issuance costs are lower on L&L assessment bonds than on Mello-Roos CFD bonds.

The City of Stockton has several L&L districts. In the past, L&L Districts have funded maintenance of recently constructed bikeways. Due to the overall cost of maintaining the proposed bikeway projects, it is likely that L&L districts will need to remain in a role of funding bikeway maintenance.

Impact Fees

The City of Stockton charges an impact fee on new development for roadway improvements. A portion of these funds may be used for bikeway improvements as part of the overall capacity improvements on roads included in the fee program.

Roadway Construction and New Development

As development and roadway projects occur, changes to walking and bicycling facilities should always be considered. This may include closing sidewalk gaps, providing enhanced streetscape, and installing bicycle facilities. To ensure that development projects and roadway construction projects include the recommendations in this Plan, it is important that the review process includes a designated bicycle and pedestrian coordinator or City staff familiar with walking and bicycling issues. Planned roadway improvements in Stockton should always consult this Plan to assist in building out the bicycling and walking network in the City.

Homeowner Associations

Homeowner Associations are often a source of bikeway maintenance funds.

Other Funding Sources

Local sales taxes, developer or public agency land dedications, private donations, and fund-raising events are other local options to generate funding for bikeway projects. Creation of these potential sources usually requires substantial local support.

F. SCORING CRITERIA

F-1 Multi-Modal Qualitative Evaluation and Scoring Criteria

For each of the Multi-Modal Alternatives Assessments, the corridors focused on three representative segments that were selected for qualitate multi-modal evaluation. Each corridor segment was assessed qualitatively across five main categories – pedestrian circulation, bicycle circulation, transit circulation, auto circulation and parking changes – for both existing conditions as well as proposed conditions for one or two alternatives. **Table G-1** presents the multi-modal evaluation criteria by category. Each segment alternative was assigned a score of "good" (5 points), "fair" (3 points), or "poor" (1 point), for each of these criteria. A breakdown of how each score was derived can be found in **Table G-2**. Composite scores are provided for each project to show how adjusting conditions affect each modal category and overall multi-modal accessibility for each option.

Table F-1: Multi-Modal Evaluation Criteria

Category	Criteria
Pedestrian Circulation	• Allows Optimum Sidewalk Width • Provides Buffer Between Sidewalk and Travel Lane • Minimizes Crossing Distance or Pedestrian Exposure to Autos • Slows Traffic Speeds
Bicycle Circulation	• Provides bicycle facility • Minimizes conflicts at intersections (turning vehicles) • Minimizes conflicts along block lengths (buses, driveways) • Level of Traffic Stress Score
Transit Circulation	• Facilitates Provision of Bus Bulbs or Platforms • Expanded Sidewalk Area Facilitates Enhanced Bus Stop Amenities • Resolves of Bus/Bike Conflicts at Bus Stops • Optimize bus stop locations for operations • Accommodates Potential Queue Jump Lanes and Signal Priority
Auto Circulation	• Promotes Slower Traffic Speeds to Increase Safety • Number of Lanes Reduces Conflict Points • Facilitates Ease/Safety of Parking Maneuvers • Provides network connectivity • Accommodates Traffic Flows Within Reasonable Congestion Limits
Parking Changes	• Change in On-Street Parking Supply Relative to Existing

Table F-2 Multi-Modal Scoring Criteria

Metrics	Scoring Guide		
	Good	Fair	Poor
Pedestrian Circulation			
Allows Optimum Sidewalk Width (8 feet plus landscape areas)	Greater than 8 feet plus landscape areas	Less than 8 feet and/or without landscape areas	n/a
Provides Buffer Between Sidewalk and Travel Lane	Yes	No	
Minimizes Crossing Distance or Pedestrian Exposure to Autos	>10' reduction or lane reduction via road diet	≤ 10' reduction or lane reduction via road diet	Existing conditions
Slows Traffic Speeds	Lane width narrowed to 11 feet (or less)	n/a	Current lane widths
Bicycle Circulation			
Provides bicycle facility	Cycletrack or buffered bike lane	Bike lane	No bike facility
Minimizes conflicts at intersections (turning vehicles)	Lane adjacent to parking or curb, and connects to bike facilities either upstream, downstream, or both=Good	Lane adjacent to parking or curb, but dis-connect from or no connection to bike facilities upstream or downstream=Fair	
Minimizes conflicts along block lengths (buses, driveways)	Buffererd or cycletrack adjacent to curb or parking	Bicycle lane (no buffer) adjacent to curb or parking	No designated bikeway/sharrow
LTS Score	LTS 1 or 2	LTS 3	LTS 4
Transit Circulation			
Facilitates Provision of Bus Bulbs or Platforms	Widened ares for stops and/or platforms	Current conditions	n/a
Expanded Sidewalk Area Facilitates Enhanced Bus Stop Amenities	Any widening compared to existing	Existing width	n/a
Resolves of Bus/Bike Conflicts at Bus Stops	Buffered bicycle lane or cycletrack	Unprotected bike lane	No bike lane
Optimize bus stop locations for operations	Bus stops are located on or there is room for bus stops to be relocated to farside of the intersection	No bus stop relocations	n/a
Accommodates Potential Queue Jump Lanes and Signal Priority	Installs queue jump and signal priority	Design allows for future installations or maintains similar operations to existing	Design removes queue jump/signal priority
Auto Circulation			
Promotes Slower Traffic Speeds to Increase Safety	Lane widths are less than or equal to 11'	n/a	Lane widths are greater than or equal to 12'
Number of Lanes Reduces Conflict Points	Fewer lanes than existing	Same lanes as existing	6 lanes or more
Facilitates Ease/Safety of Parking Maneuvers	Angled parking adjacent to frontage lane or back in angle parking	Front in angled parking adjacent to travel lane	Parallel parking or back-in angled parking adjacent to travel lane
Provides network connectivity	Maintains existing left turn lanes on corridor	Eliminates some left turn lanes on corridor	Eliminates all left turn lanes
Accommodates Traffic Flows Within Reasonable Congestion Limits	No lane reduction or lane reduction with operations remaining under capacity	Lane reduction with operations near capacity	Lane reductions with operations exceeding capacity
Parking Changes			
Change in On-Street Parking Supply Relative to Existing	Increase	No Change	Decrease

F-2 Prioritization Scoring Criteria

The following prioritization criteria was used in Chapter 9 to implement the community directed goals of the Plan and to provide a sorted list of projects to the City for implementation. **Table G-3** was developed in coordination with the criteria voted on during the second round of workshops held throughout Stockton as part of the update to the BMP.

Table F-3: Prioritization Scoring Criteria

Prioritization Criteria	High (3 Points)	Medium (2 Points)	Low or Yes (1 Point)	No (0 Points)
Low-Stress Backbone Network	-	-	Project shown on Backbone Network	Project Not Shown on Backbone Network
Inexpensive/Easily Implemented	-	-	Project can be implemented using low-cost treatments such as signing, striping, or traffic calming. Includes near-term implementation of separated bikeways with striped buffers and soft-tipped posted or other temporary vertical separation.	Project require higher cost infrastructure investments or right-of-way acquisition.
Non-Infrastructure Programs	-	-	Project represents a citywide program for implementation.	Project is infrastructure-related.
Location Near Schools	Project provides direct access to at least one school and adjacent access to other schools.	Project provide adjacent access and connections for schools.	Project is within a reasonable distance from a school but may not provide direct access for most students.	-
Promotes Spatial Equity	Promotes East/West or North/ South Citywide Connectivity and connect more than one neighborhood	Connects between more than one neighborhood	Localized bike facility only.	-
Promotes Social-Economic Equity	Project located in a disadvantaged community (high CES rating between 67-89) per Figure 9-1.	Project located partially in a disadvantage community identified in Figure 9-1 or provides access to partially disadvantaged communities (medium CES rating between 57-66).	Project is generally not located in a disadvantaged community (low CES rating between 38-56).	-
BMP Outreach	Project was identified by more than four people in BMP workshop voting activity.	Project was identified by two to three people in BMP workshop voting activity.	Project was identified by one person in BMP workshop voting activity.	Project was not specifically identified during BMP workshops.
Addresses Safety or Collisions	Concentrated collisions along a project corridor	Concentrated collisions at primarily one location for a project corridor	Minimal collisions present along or adjacent to a project corridor	No collisions present on or near a project corridor

G. RESOLUTION FOR BMP CITY COUNCIL ADOPTION

City of Stockton City Council resolution to the adopt the BMP.