MASTER PLAN

Bicycle · Pedestrian · Trails

2024

2018 West Sacramento Bicycle, Pedestrian, and Trails Master Plan (2024 Update)

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CITY OF WEST SACRAMENTO

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LWA | LARSEN WURZEL & Associates, Inc.

INTRODUCTION

1.1 Our Vision, Our Goal

To be one of the United States' top bicycle- and pedestrian-friendly communities through the creation of a world-class bicycle and pedestrian trails network that efficiently and safely connects users of all ages to work, school, shopping and recreational amenities throughout the City.

This seamless network will benefit all travelers by:

- reducing roadway congestion
- improving roadway safety
- reducing emissions
- enhancing community health
- reducing the need for road expansions and new parking infrastructure
- improving the overall commuting experience

By enhancing the current pedestrian, bicycle and trails network, the City of West Sacramento will offer attractive travel alternatives to motor vehicle use. The network will capitalize on the City's key strengths including:

- an existing robust bicycle and trail network
- dense downtown development areas
- flat terrain
- mild weather
- extensive linear infrastructure along its rivers and canals, and
- regional connections to the cities of Sacramento and Davis, both of which are also official Bicycle Friendly Communities according to the League of American Bicyclists.

West Sacramento has made substantial progress towards being more bicycle and pedestrian friendly by implementing significant infrastructure improvements. The City has identified four signature projects that, in combination with other improvements identified in this report, will substantially accelerate the City's ability to achieve our vision, including:

Signature projects:

- Sycamore Trail Extension
- Southport Setback Levee Recreational Trail
- I Street Bridge Deck Conversion
- West Capitol Avenue Improvements

1.2 Purpose

West Sacramento strives to provide well-designed and maintained facilities that promote public use and foster cycling and walking as viable and preferred modes of transportation. The purpose of this update to the 2013 Bicycle, Pedestrian, and Trails Master Plan (BPTMP) is to lay out a renewed vision of connected bikeways, walkways, and trails that link together neighborhoods, places of employment, shopping centers, parks, and schools.

Biking and walking are low-cost, non-polluting, healthy, fun and sustainable forms of transportation that are ideal for many people and types of trips. The success of this BPTMP depends upon the communities' ongoing commitment to acting as stewards of the vision and remaining involved. The BPTMP update seeks to build awareness and support for a shared roadway with equal use by bicyclists, pedestrians and drivers. The ultimate goal of the BPTMP is to increase the number of people in West Sacramento who choose to bike or walk to work, school, errands or recreation.

Proposed and Existing Bicycle Trails

1.3 Benefits

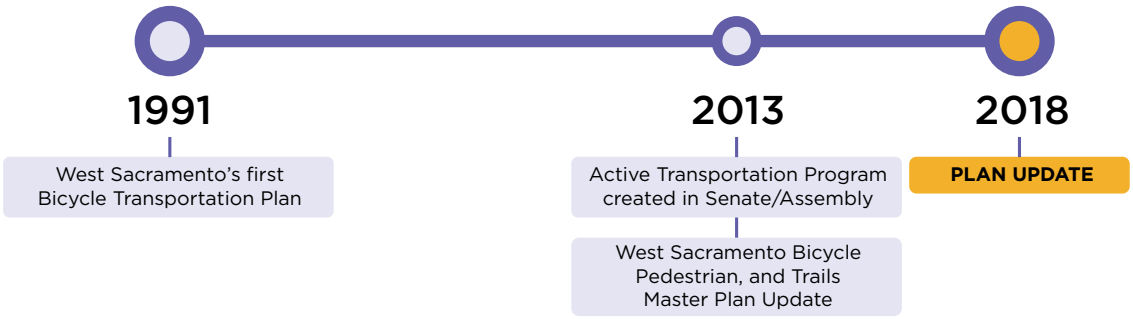
West Sacramento has dense, urban redevelopment areas where biking and walking are convenient forms of transportation. The City features several corridors with opportunity for high-quality bike paths along its rivers and canals. The level terrain, combined with its abundant sunshine, low levels of precipitation, and relatively dense land use pattern help make biking and walking viable travel options and recreational activities year-round.

Bicycling and walking benefits include:

- Viable alternatives for many short trips at a reduced travel cost
- Cardiovascular exercise + improved health and well-being = reduced healthcare costs
- Reduced air pollution and consumption of non-renewable resources
- Enjoyment for all ages/ experience levels = enhanced quality of life

1.4 Background

The Active Transportation Program (ATP) created by Senate Bill 99 (Chapter 359, Statutes of 2013) and Assembly Bill 101 (Chapter 354, Statutes of 2013) encourages increased use of active modes of transportation such as biking and walking. To qualify for funding through the California Transportation Commission (CTC), an Active Transportation Plan (such as this updated BPTMP) must include, but not be limited to 17 specific elements (see **Table 1**), or explain why the element is not applicable. This 2018 updated plan contains all 17 elements and will once again qualify West Sacramento to receive CTC grant funds.



As envisioned by the West Sacramento General Plan, the BPTMP has established goals, policies, implementation actions, and priorities for the development of bike and pedestrian facilities in West Sacramento. This updated plan builds upon the existing plan and furthers its efforts to find ways to reduce traffic stress.

Key elements of the updated plan include:

- Maps of existing and proposed bicycle facilities
- Proximity to major activity centers
- Thorough level of traffic stress analysis
- Prioritized projects and cost estimates

Table 1. Active Transportation Plan (ATP) Required Elements

Location addressed within Updated Plan	Required Element
	Active Transportation Plan
SECTION 1.8	• Description of community involvement in development of plan
CHAPTER 2	• Description of how plan is coordinated with neighboring jurisdictions
SECTION 4.1 SECTION 4.4 SECTION 4.5 SECTION 4.6 SECTION 4.8 SECTION 4.9 SECTION 4.10	• Map of existing/proposed bicycle facilities • Map of existing/proposed multimodal connections • Description of existing/proposed bicycle parking facilities • Map of existing/proposed land use and settlement patterns • Description of past expenditures and future financial needs for bike/pedestrian facilities • Estimated existing bike/pedestrian trips and projected increase following Plan implementation • Number and location of bike/pedestrian collisions, serious injuries, and fatalities. Goals for reducing accidents
SECTION 5.1 SECTION 5.6	• Map of existing/proposed bicycle facilities • Map of existing/proposed bicycle parking facilities
CHAPTER 5, 6 & 7	• Map of existing/proposed pedestrian facilities
CHAPTER 8	• Description of bike/pedestrian safety, education, and encouragement programs
CHAPTER 9	• Descriptions of projects/programs proposed and priorities for implementation
SECTION 9.3 SECTION 9.4 SECTION 9.6	• Description of proposed signage providing wayfinding • Description of steps to implement this plan and report progress • Description of policies/procedures for O & M of existing/proposed bike/pedestrian facilities

1.5 Setting

The City of West Sacramento is a regional hub: the area through which other places of interest are connected; such as, the cities of Sacramento and Davis, and the city of Woodland, and the California Delta. Some of the City's notable facts:

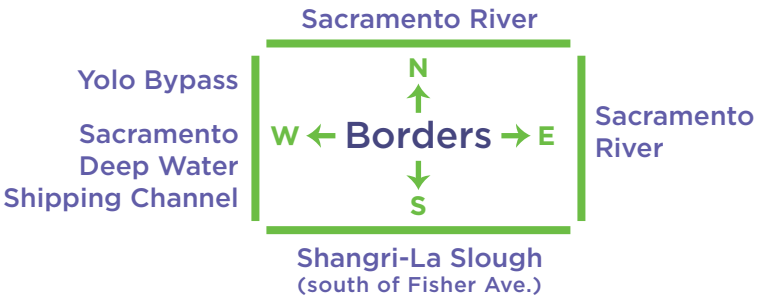
One of the **premier cities** in Yolo County and the Sacramento metropolitan area

Population:

53,160

Southport
(incorporated city south of the Deep Water Ship)
is West Sacramento's **major growth area**

Commercial land uses range from neighborhood commercial uses such as those on West Capitol Avenue at Jefferson Boulevard to regional commercial centers such as Riverpoint Marketplace, which includes Ikea, Walmart, and Home Depot. The City has a significant industrial area and the Port of West Sacramento.



Residential Density

Bridge District

Washington Specific Plan Area

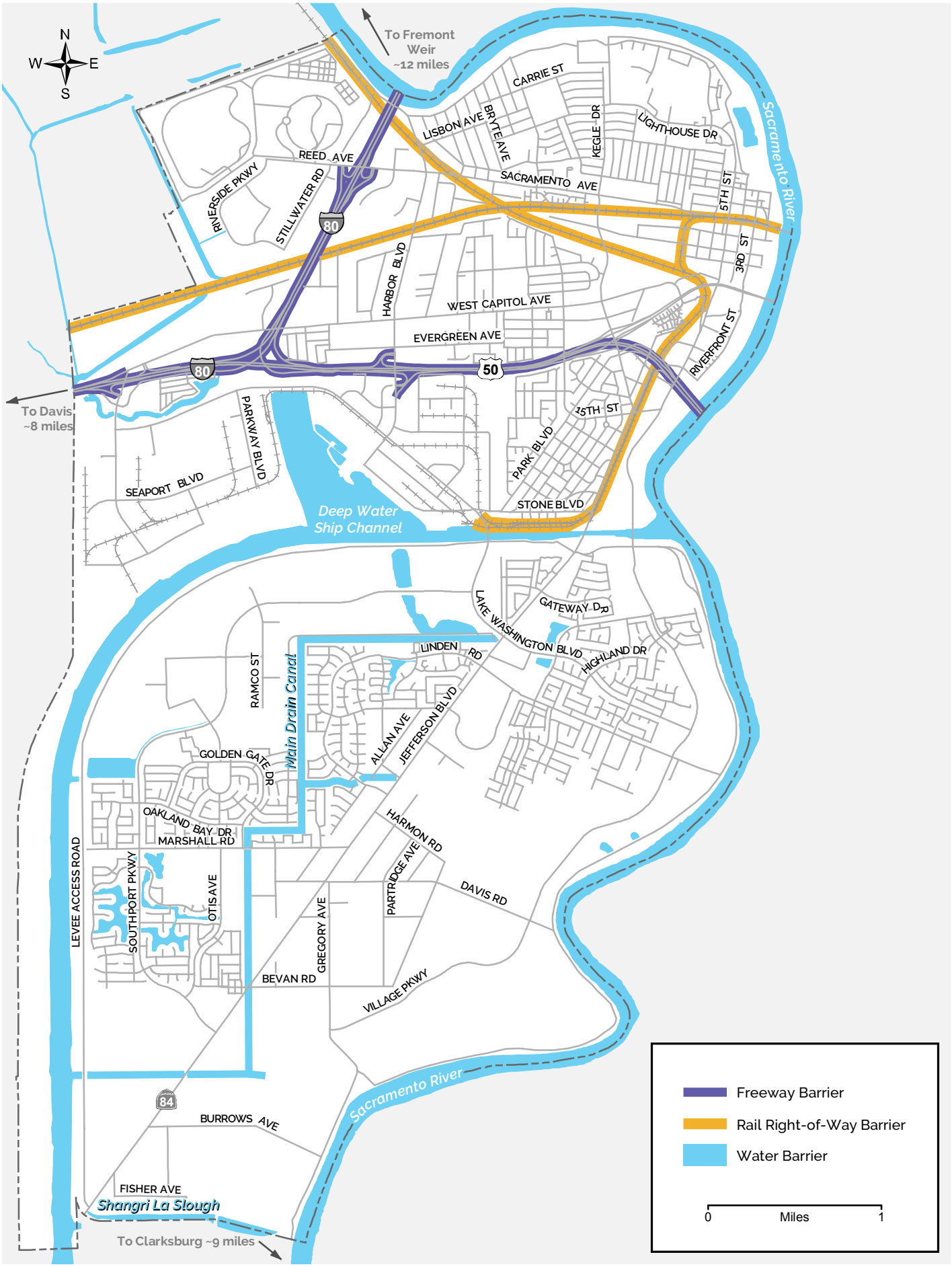
Southport
(north of Davis Ave.)

Southport
(south of Davis Ave.)

Regional bicycle travel generally occurs between Davis, West Sacramento and Sacramento. Most Davis to Sacramento commuters use the bike path on the Yolo Causeway and pass through West Sacramento on West Capitol Avenue, Tower Bridge Gateway, and Tower Bridge. To the south, the City owns the entire 10-mile length of the Clarksburg Branch Line abandoned railroad right-of-way between the Deep Water Ship Channel and Clarksburg in unincorporated Yolo County. Within the City limits, this right-of-way forms the Clarksburg Branch Line Trail. Additionally, to the north the City is studying the possibilities for a bicycle trail north, through the Elkhorn Basin on the east side of the Yolo Bypass and continuing across the bypass, north of Interstate 5, and into Woodland.

Many of West Sacramento's transportation facilities and nearby waterways pose barriers to bicycling and walking. These are shown in **Figure 1**.

Figure 1 - Barriers to Bicycle, Pedestrian & Trail Connectivity



1.6 Achievements

Since the 2013 BPTMP update, West Sacramento has made significant progress in implementing the proposed improvements shown below.

COMPLETED

- Clarksburg Branch Line Trail and Sycamore Trail Phase 1 (2 miles) — CLASS I BIKE PATH
- Village Parkway (3 miles) — CLASS II BIKE LANE
- Linden Loop (1.8 miles) — CLASS IV SEPARATED BIKEWAY

FUNDED

- Sycamore Trail Extension *Highway 50 via bike/pedestrian bridge to Westmore Oaks Elementary School* (0.25 miles) — CLASS I BIKE PATH
- West Capitol Avenue (2.6 miles) — CLASS IV SEPARATED BIKEWAY

PLANNED

- Sycamore Trail Extension *North under UPRR; South over ship channel*
- I Street Bridge Deck Conversion
- Southport Setback Levee Trail (7.2 miles)

CLASS I BIKE PATH

The City has implemented the Bike Share Program which services downtown and across the river to Sacramento. This program is discussed in detail in **Chapter 3.4**.

SILVER Bicycle Friendly Community

The City is focused on elevating our rating to Gold by reducing the Level of Traffic Stress (LTS) score for our overall trail network, increasing the number of miles of trails and providing more access to all communities. Ongoing education of the public about bike safety and shared roadways will continue to be a focus.

1.7 Public Participation

Public participation played an essential role in the update of this plan. The City presented the 2013 BPTMP to the public in May 2016 and solicited input regarding existing conditions for bicyclists and pedestrians; desired biking and walking infrastructure; and types of support facilities or programs needed to improve biking in West Sacramento.

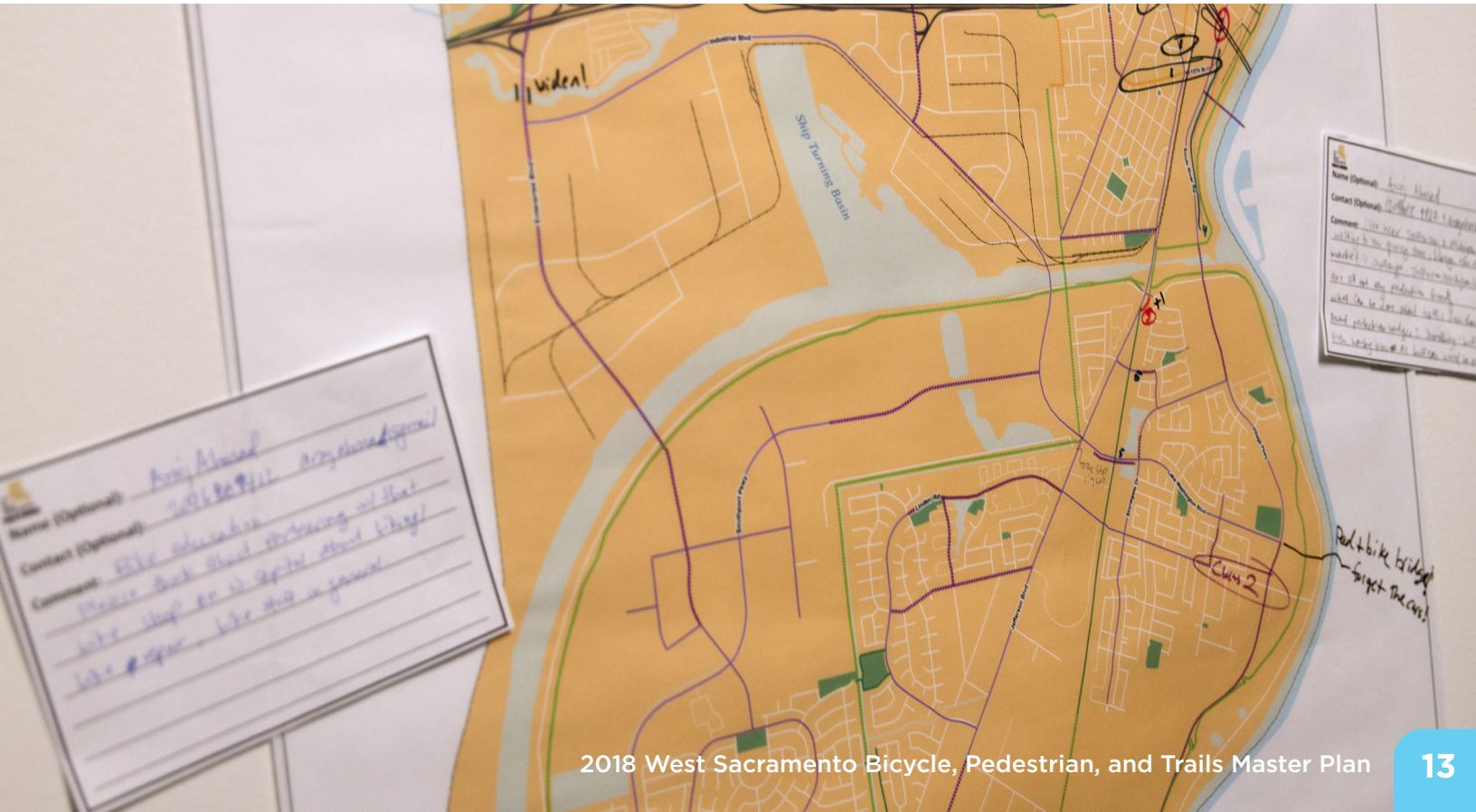
Public input was used to develop and prioritize the recommended network of bikeways and to develop complementary educational, encouragement, and enforcement programs. The public participation included the following elements:

1.7.1 Public Workshops

The City hosted two public workshops on May 17, 2016 from 12 p.m. to 2 p.m. and May 18, 2016 from 5 p.m. to 8 p.m. The workshops were promoted through direct mail invitations to the stakeholder and property owners database. Input was gathered through comment cards, on easel pads and through discussions at the workshops. Following are several verbatim comments received:

- *Great session and very informative.*
- *Would love to get more information regarding bike education. I would love to commute to work and to run errands around town now, but I haven't ridden a bike regularly for years.*
- *I'd love to see the trail go along the river.*
- *Walking to the grocery store, library, and the farmers market is a challenge. What can be done about traffic slow down?*

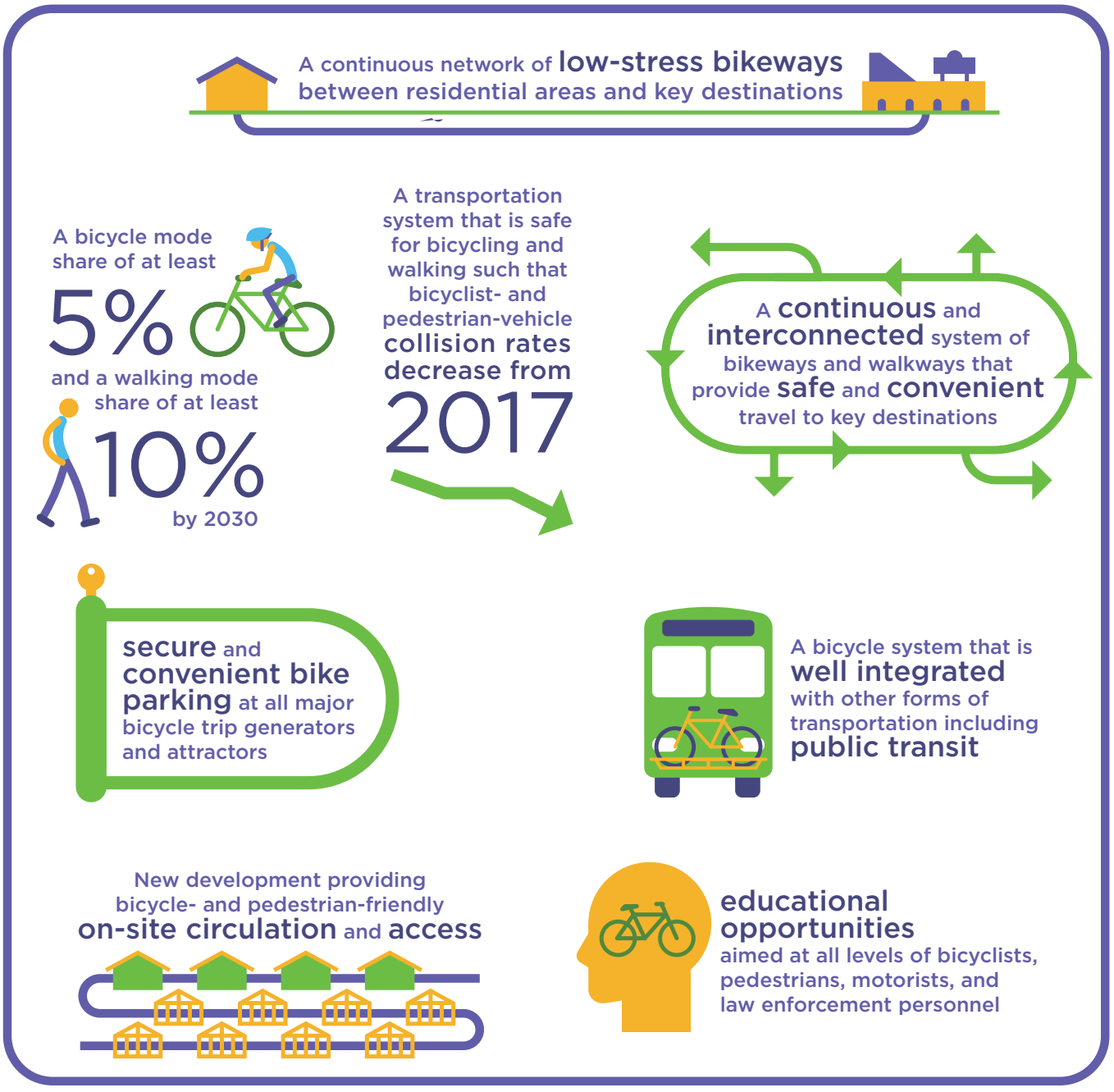
Comment cards and sign-in sheet from a previous public workshop



MASTER PLAN GOALS AND RELATIONSHIP TO OTHER PLANS

2.1 Master Plan Goals

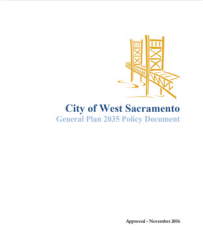
Specific goals have been identified for the BPTMP to provide a framework for future decisions regarding bicycle, pedestrian, trail planning and infrastructure within the City. The goals identified below are intended to guide long-term BPTMP implementation.



An implementable BPTMP must be consistent with adopted plans and local, regional, and statewide policies that affect the construction and use of bicycle and pedestrian transportation facilities. The following planning documents, policies, and legislation are supportive of the BPTMP goals and have been taken into consideration during the development of this plan.

2.2 Citywide Plans

2.2.1 West Sacramento General Plan 2035



The City of West Sacramento General Plan 2035 Policy Document ***(General Plan 2035)*** was adopted by the City Council on November 16, 2016, after a comprehensive update process that originally began in 2007. The ***General Plan 2035*** establishes the vision for future growth within the City.

The goals and policies of the General Plan reflect the City's vision of an interlinked bicycle, pedestrian, and trails system that becomes a critical part of the community's transportation infrastructure and provides a key community amenity. The City envisions that its regional and local bicycle/pedestrian trail network will continue to expand and be enhanced, providing active transportation and connections to a range of urban and delta destinations.

Goals and policies specifically applicable to the City's bicycle, pedestrian, and trails network include:

Land Use
ensures development is sustainable, neighborhoods walkable, and open space protected and interconnected.

Urban Structure and Design
identifies City's visual land use pattern - focusing on overall structure and how different areas connect and transition from rural landscapes to the urban core.

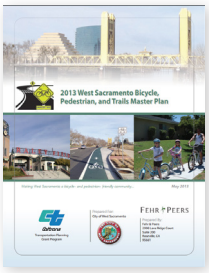
Mobility
supports increased densities and mixed uses in multi-modal districts to make walking and biking practical for short trips • supports improving transit to serve highly-frequented destinations • conserves energy resources, reduces greenhouse gas emissions and air pollution, while continuing to accommodate auto mobility through creation of complete streets.

Parks and Recreation
sets framework for an expanded park system and recreation corridor to support a greater variety of recreational activities. West Sacramento's riverfront and natural open spaces are envisioned to be linked via recreation corridors and greenways, enhancing opportunities to walk, bike, picnic, participate in water sports and appreciate natural open spaces and conservation areas.

Natural and Cultural Resources
ensures trails and other recreational improvements are sited to minimize impacts on sensitive wildlife habitat.

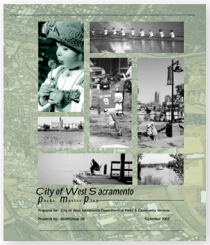
Healthy Community
results in health benefits associated with a network of parks, trails, open space and green spaces, including the ability for children to safely get to and from school.

2.2.2 2013 West Sacramento Bicycle, Pedestrian, and Trails Master Plan



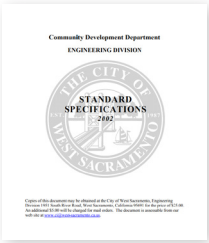
The 2018 *West Sacramento Bicycle, Pedestrian, and Trails Master Plan* (City of West Sacramento, 2018) will supersede the *2013 West Sacramento Bicycle, Pedestrian, and Trails Master Plan* (City of West Sacramento, 2013).

2.2.3 West Sacramento Parks Master Plan (2003)



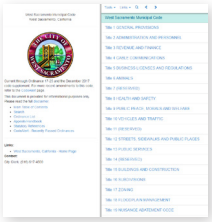
The *West Sacramento Parks Master Plan* (City of West Sacramento, 2003) is a long-range plan that guides the development, operation, and maintenance of the City's park and open space system. It includes a description of recreation corridors with multi-purpose pathways that can be used for walking, running, biking, and equestrian use. The City is currently in the process of updating the *Parks Master Plan*.

2.2.4 West Sacramento Standard Specifications and Details (2002)



West Sacramento's Standards Specifications and Details (City of West Sacramento, 2002 with amendments in 2009, 2010 and 2015) provide minimum standards for the design, construction, repair, and alternation of streets. Several design standards are relevant to bicycling and walking infrastructure.

2.2.5 West Sacramento Municipal Code (2016)



West Sacramento Municipal Code (City of West Sacramento, 2016) includes several regulations that apply to bicyclists and pedestrians. It also includes building standards for new development. The City's Transportation Systems Management Ordinance (section 17.67 West Sacramento Municipal Code) aims to reduce single-occupant vehicle commute trips from employers/developers with 25 or more employees. Several of the measures required to be included in the Transportation Management Plan promote bicycling and pedestrian commutes such as additional bicycle parking and shower facilities.

2.2.6 Other Plans

The City has completed several other plans or documents relevant to development and infrastructure:

- *Southport Set back Levee Recreation Trail Report* (City of West Sacramento, 2017)
- *Washington Realized, A Sustainable Community Strategy* (City of West Sacramento, 2015)
- *Pioneer Bluff Transition Plan* (City of West Sacramento, 2014)
- *West Sacramento Grand Gateway Master Planning Document* (City of West Sacramento, 2013)
- *Bridge District Specific Plan* (City of West Sacramento, 2009)
- *Phase 1 Summary Report, Downtown/Riverfront Streetcar Study* (City of West Sacramento et al., 2012)
- *Riverfront Master Plan* (City of West Sacramento, 2003)
- *Southport Framework Plan* (City of West Sacramento, 1998)
- *Washington Specific Plan* (City of West Sacramento, 1996)

2.3 Regional Plans

2.3.1 SACOG Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) 2035 (2016)

The BPTMP maintains consistency with regional programs that seek to reduce single-occupant motor vehicle travel. The *Metropolitan Transportation Plan/Sustainable Communities Strategy* (MTP/SCS) (Sacramento Area Council of Governments [SACOG], 2016) recognizes the importance of bicycling and walking as a component of an effective transportation system and as a means for reducing greenhouse gas emissions to meet requirements set by the California Air Resources Board. The MTP/SCS envisions a larger and more complete bicycle and pedestrian network that will provide greater mobility through walking and biking and associated transit use.

2.3.2 California Delta Trail

The California Delta Trail is envisioned as a continuous recreational corridor trail network through all five Delta counties linking the San Francisco Bay Trail system to the planned Sacramento River trails in Yolo and Sacramento Counties. The plan for the Great California Delta Trail is to include routes for bicycling and hiking, with interconnections to other trails, recreational facilities, and public transportation. Water trails are proposed to be identified to ensure trail continuity in places where land trails are not feasible.

In December 2015, the West Sacramento City Council adopted Resolution 15-64, which approved the designation of the existing segments of the Clarksburg Branch Line Trail, the Riverwalk Trail and the Sycamore Trail as part of the Great California Delta Trail.

2.3.3 Sacramento River Crossings Alternatives Study (2011)

The *Sacramento River Crossings Alternatives Study* (City of West Sacramento and City of Sacramento, 2011) evaluates potential new crossings of the Sacramento River to provide connectivity to communities on both sides of the river. As an outcome of the study, the cities of West Sacramento and Sacramento are pursuing three new Sacramento River crossings: a new all modes bridge between C Street in West Sacramento and the Railyards in Sacramento, a bicycle- and pedestrian-only bridge between the Bridge District in West Sacramento and R Street in Sacramento, and an all modes bridge between Pioneer Bluff in West Sacramento and Broadway in Sacramento.

2.3.4 Sacramento Riverfront Master Plan (2003)

The *Sacramento Riverfront Master Plan* (City of West Sacramento and City of Sacramento, 2003) presents a vision for the future of the Sacramento Riverfront. It includes elements that address land use, transportation, open space, infrastructure, and other issues. Within West Sacramento, its study area extends from The Rivers to Pioneer Bluff.

2.3.5 Other Bicycle Plans

The BPTMP is consistent with the following bicycle plans of neighboring jurisdictions:

- *City of Sacramento Bikeway Master Plan* (City of Sacramento, 2016)
- *County of Yolo Bicycle Transportation Plan – Bicycle Routes and Priorities* (County of Yolo, 2006)

2.4 Statewide Initiatives and Legislation

2.4.1 Assembly Bill 32 (2006) and Senate Bill 375 (2008)

Senate Bill 375 (SB 375) (Steinberg, 2008) is the implementation legislation for *Assembly Bill 32* (AB 32) (Nunez and Pavley, 2006). AB 32 requires the reduction of greenhouse gases (GHG) by 28 percent by the year 2020 and by 50 percent by the year 2050. Reducing automobile trips is one method of reducing GHG emissions. This may be achieved by promoting modes other than the automobile, such as walking, bicycling, or riding transit.

2.4.2 Assembly Bill 1358 (2007)

Assembly Bill 1358 (Leno and Levine, 2007), also known as the Complete Streets Act, requires that all Cities and Counties "upon any substantive revision of the circulation element of the general plan, modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways, defined to include motorists, pedestrians, bicyclists, children, persons with disabilities, seniors, movers of commercial goods, and users of public transportation, in a manner that is suitable to the rural, suburban, or urban context of the general plan."

2.4.3 Assembly Bill 1581 (2012)

Assembly Bill 1581 (Wieckowski and Wolk, 2012) provides direction that projects constructing new actuated traffic signals or modifying existing traffic signals to include technology that has the ability to detect bicycles and motorcycles. It also calls for the timing of actuated traffic signals to account for bicycles.

2.4.4 Assembly Bill 1193 (2014)

Assembly Bill 1193, known as the Protected Bikeways Act (2014), recognizes Class IV "protected" bikeways as a legal bicycle facility and requires Caltrans to establish and maintain minimum safety design criteria for their planning and construction. Caltrans subsequently published Design Information Bulletin Number 89 with design guidelines for local agencies. Collectively, these documents provide the legal groundwork for the implementation of Class IV bikeways in the State of California.

2.4.5 California State Bicycle and Pedestrian Plan

In 2014, Caltrans released the *Complete Street Implementation Action Plan 2.0* in an effort to integrate complete street functionality into all of Caltrans' projects. One of the action items resulting from this document was the development of the California State Bicycle and Pedestrian Plan, which is entitled *Toward an Active California* (May 2017). This document guides the planning and development of non-motorized facilities. The plan includes recommendations for improving connections between the State's bicycle facilities with the existing and planned network of local and regional bicycle routes.

EXISTING TRAILS

3.1 - Existing Trails

Existing trails were inventoried in 2017 primarily using aerial photography. Based on that inventory, West Sacramento has 52 miles of existing trails, as shown in **Figure 3** (page 27) and described in **Table 2**. The classifications of these bikeways and trails are described in more detail in **Appendix A**.

The League of American Bicyclists Bicycle Friendly Communities (BFC) program uses criteria to track and rate all Bicycle Friendly Community applicants. West Sacramento was rated Bronze in 2016, and recently re-applied and was rated "Silver" in 2018. On a scale that goes up to Diamond, Silver is mid level; but, most communities are not rated as Bicycle Friendly at any level. West Sacramento is one of only 61 communities in the state of California to be given any Bicycle Friendly Community rating.

While the City of West Sacramento is already exceeding the average Gold rated community in few categories, in order to achieve Gold the City can still make significant improvements and increases to its bike trail system (**Table 2** shows mileage by type for the current trail network). Increasing ridership and reducing bicycle accidents are two other areas where the City can make significant strides to achieve Gold.

BICYCLE FRIENDLY COMMUNITY Spring 2018 THE LEAGUE OF AMERICAN BICYCLISTS SILVER

WEST SACRAMENTO, CA

TOTAL POPULATION 53,000

TOTAL AREA (sq. miles) 21.4

POPULATION DENSITY 2,477

OF LOCAL BICYCLE FRIENDLY BUSINESSES 0

OF LOCAL BICYCLE FRIENDLY UNIVERSITIES 0

10 BUILDING BLOCKS OF A BICYCLE FRIENDLY COMMUNITY

	Average Gold	West Sacramento
High Speed Roads with Bike Facilities	35%	100%
Total Bicycle Network Mileage to Total Road Network Mileage	80%	27%
Bicycle Education in Schools	GOOD	GOOD
Share of Transportation Budget Spent on Bicycling	14%	64%
Bike Month and Bike to Work Events	VERY GOOD	VERY GOOD
Active Bicycle Advocacy Group	YES	YES
Active Bicycle Advisory Committee	MEETS AT LEAST MONTHLY	MEETS EVERY TWO MONTHS
Bicycle–Friendly Laws & Ordinances	GOOD	VERY GOOD
Bike Plan is Current and is Being Implemented	YES	YES
Bike Program Staff to Population	1 PER 36K	1 PER 18K

CATEGORY SCORES

ENGINEERING *Bicycle network and connectivity*	4.5/10
EDUCATION *Motorist awareness and bicycling skills*	3.3/10
ENCOURAGEMENT *Mainstreaming bicycling culture*	4.7/10
ENFORCEMENT *Promoting safety and protecting bicyclists' rights*	3.1/10
EVALUATION & PLANNING *Setting targets and having a plan*	5.5/10

KEY OUTCOMES

	Average Gold	West Sacramento
RIDERSHIP *Percentage of Commuters who bike*	5.2%	1.62%
SAFETY MEASURES CRASHES *Crashes per 10k bicycle commuters*	291	437
SAFETY MEASURES FATALITIES *Fatalities per 10k bicycle commuters*	2	16

KEY STEPS TO GOLD

» Adopt a comprehensive road safety plan or a Vision Zero policy to create engineering, education, and enforcement strategies to reduce traffic crashes and deaths for all road users, including bicyclists and pedestrians. Road diets, lane diets, and traffic calming treatments are important engineering components for addressing safety.

» Develop a design manual that meets current NACTO standards or adopt the NACTO Urban Bikeway Design Guide. This will make it easier for city staff to propose and implement bicycle facility designs that have been shown to improve conditions for people who bike in other cities throughout the United States.

» Work with local business owners and public agencies to conduct a bike parking study or audit to determine current conditions of bike parking in the community, and to identify any gaps in service.

» Continue to expand the bike network and increase connectivity through the use of different types of bicycle facilities appropriate for the speed and volume of motor vehicle traffic on each road.

» Work with local bicycle groups and interested parents to expand and improve the Safe Routes to School program to all K-12 schools. In particular, high school education efforts could be improved and are important as older students learn to drive and share the road.

» Encourage local businesses, agencies, and organizations to promote cycling to their employees and customers and to seek recognition through the national Bicycle Friendly Business program.

» Create a bicycle count program that utilizes several methods of data collection to create an understanding of current bicyclists and the effects of new facilities on bicycling in West Sacramento. Automated bicycle counters provide long-term data on bicycle use at fixed points in a community and mobile counters can provide periodic or before/after data related to a change in your community's road or bicycle network. Observational counts can supplement automated data in order to collect demographic information and examine social equity goals.

LEARN MORE » WWW.BIKELEAGUE.ORG/COMMUNITIES SUPPORTED BY eco counter AND LEAGUE MEMBERS

Table 2 - Existing Trails

CLASSIFICATION	ATTRIBUTES	MILEAGE
Class I Bike Path	**exclusive right of way** for bicyclists and pedestrians, **away from roadway** and with **cross flows by motor traffic minimized**	4.6
Class II Bike Lanes (roads with speeds < 35mph)	established **along streets**, defined by **pavement striping** and **signage**	23.9
Class II Bike Lanes (roads with speeds > 35mph)		18.9
Class III Bike Route (roads with speeds < 35mph)	designated **preferred route** for bicyclists on streets **shared with motor traffic**, defined by **signage** and optional **road markings**	1.8
Class III Bike Route (roads with speeds > 35mph)		0
Class IV Separated Bikeway	physical barrier between bicyclists and pedestrians and roadway	1.8
Unpaved Trail	multipurpose facilities suitable for recreational use by **hikers, pedestrians, equestrians, and off-road cyclists**	10.7
	TOTAL:	61.7

The existing bicycle and pedestrian trail network, while improved since the original 2013 BPTMP, still has many gaps and higher stress routes. Improving the entire network such that it is composed of low-stress trails is economically infeasible. However, focusing improvements within the network that create a continuous interconnected system of low stress routes between residential and key destinations is feasible.

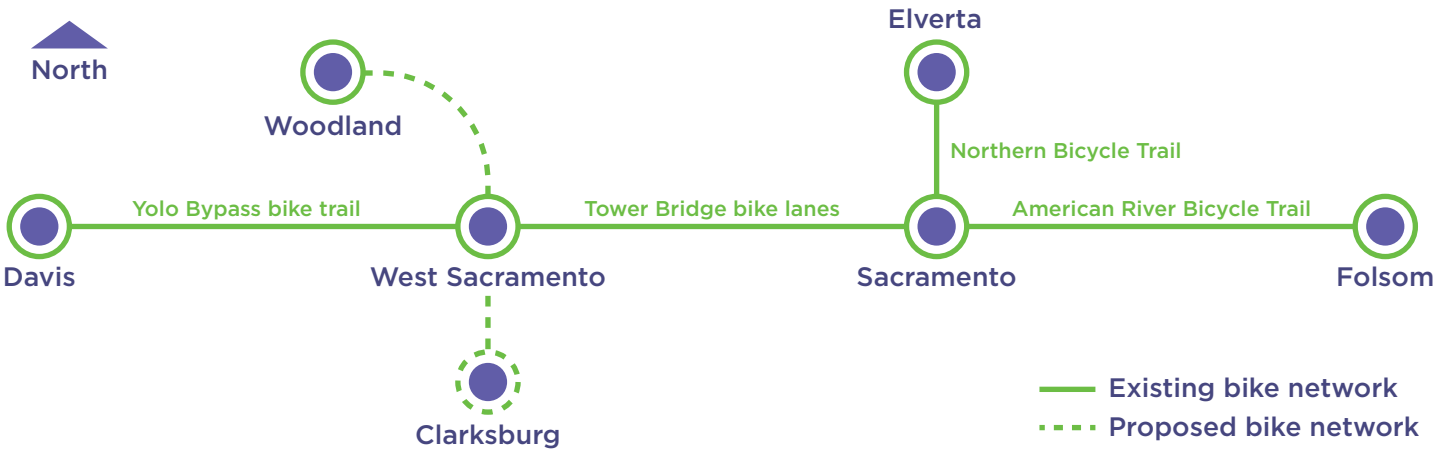
3.2 Regional Connections

Daily use of the bike paths between the cities of Sacramento and Davis occur in the following areas:

- North side of I-80 (across Yolo Bypass)
- West Capitol Avenue
- Tower Bridge

Once across the Sacramento River, users can connect to an extensive regional network that runs to the east in Sacramento County by accessing the Jedediah Smith Memorial Trail (American River Bicycle Trail) to the City of Folsom or to the north along the Sacramento Northern Bicycle Trail to Elverta.

However, existing trail connections are limited to the north, south and west of the City. West Sacramento plans to greatly improve its regional connections through the Regional Trails Initiative. The initiative identifies expansion to the north and west further into Yolo County and south through Clarksburg linking to the Great California Delta Trail. These new extensions will link the metropolitan areas of Woodland, Davis, Clarksburg and Sacramento which provides the necessary infrastructure to attract bicyclists and biking as an alternate mode of travel.



3.3 Multimodal Connections

West Sacramento is pursuing multiple transit mode options for its residents. Adaptable transit integration allows the City to bring together bicycle and transit facilities to move people their first and last mile.

Yolobus is the primary transit provider in West Sacramento and offers both fixed-route and demand-response bus service. Currently, eight fixed local routes provide hourly or peak-only service within West Sacramento; service hours vary by route and day of the week.

Yolobus
Yolo County Transportation District

Bike Access is available as follows:

- Accommodates up to three bikes at a time
- No extra charge or special permit required to use racks
- Bus bike racks available on a first-come, first-served basis
- Cyclists responsible for loading/unloading (bus driver may be available to assist if it is safe to do so)
- Bikes are not allowed inside the buses at any time
- Bus stops do not typically feature bike racks

The Downtown Riverfront Streetcar is currently under design and will provide transit service between West Sacramento and Sacramento. Within West Sacramento there will be transit stops at the Civic Center, along Tower Bridge Gateway and the Riverfront District.

Additionally, West Sacramento has received a grant from the Sacramento Area Council of Governments and voter-approved City Innovation Funds to contract with

Downtown Riverfront STREETCAR

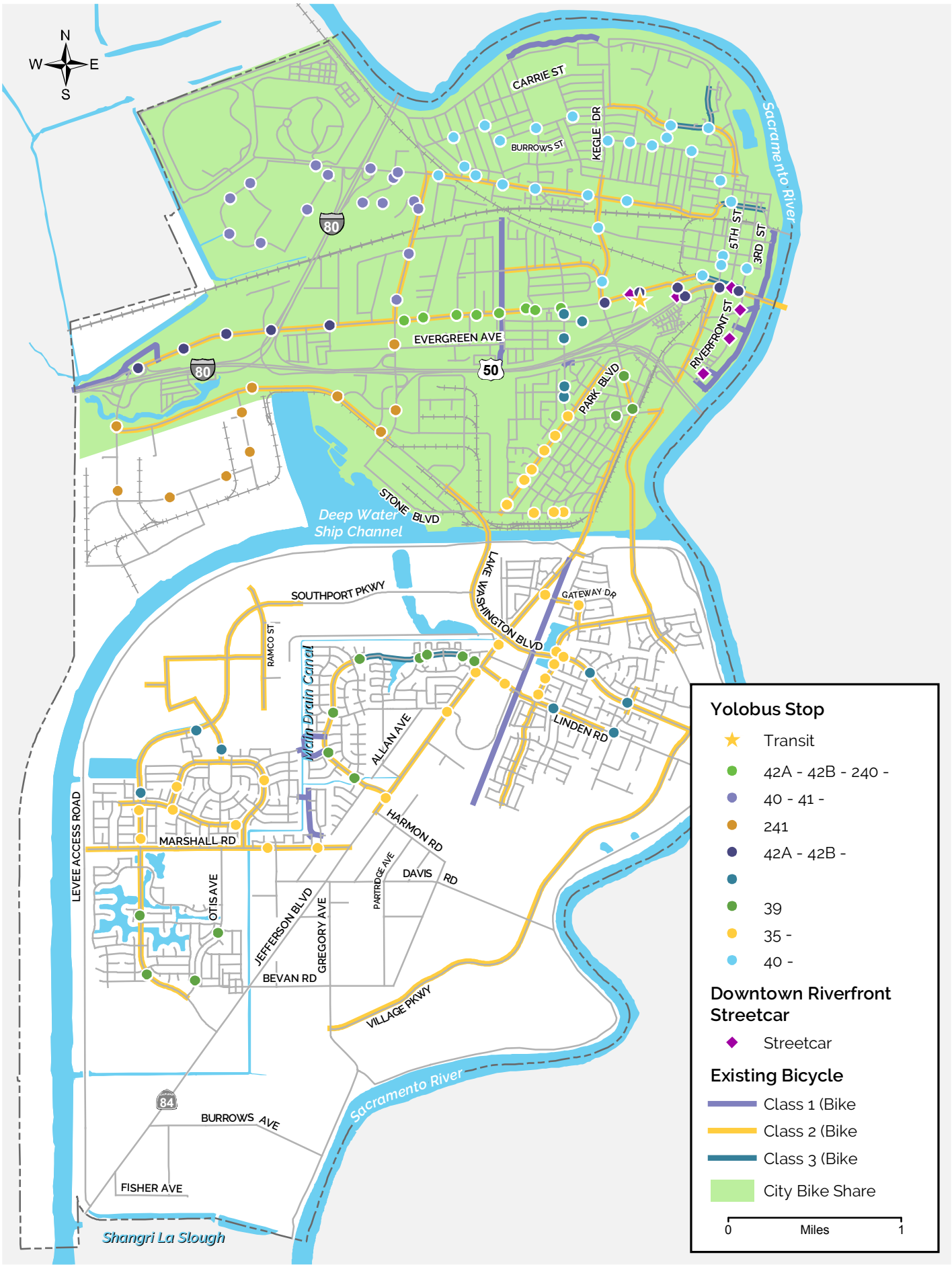
Via, a leading technology developer and provider of dynamic on-demand ride share. Via will provide a comprehensive on-demand public transit service that will offer an innovative and dynamic city-wide amenity to complement other public transportation options.

Via Pilot Program:

- The City approved the initial one-year program in late 2017
- Starting in Spring 2018, Via will deploy a fleet of 10 Mercedes-Benz vans that will function like a hybrid of ride share and buses
- Book a seat in a shared, dynamically-routed vehicle using the Via app
- Via's sophisticated algorithm will instantly match passengers with other riders going their direction
- Van follows an optimized, flexible route that minimizes detours and delays
- Vans will pick up several riders and make multiple stops, similar to buses
- Riders may be asked to walk a block or two, but the City will try to avoid the half-mile walk required for some public transit riders to get to their destinations

Figure 2 shows existing multimodal connections in West Sacramento, including Yolobus routes, park-and-ride locations, Streetcar stops, and the West Sacramento Transit Center.

Figure 2 - Current Multimodal Connections



3.4 Support Facilities

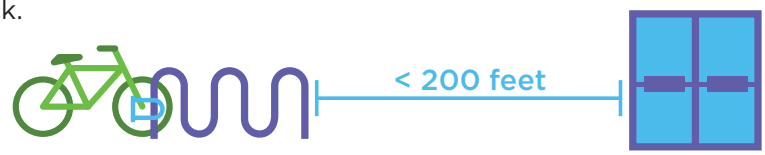
Bicycle support facilities include bicycle parking, shower/changing space, and secure storage for bicycle gear. While short-term bicycle parking is provided at several locations in West Sacramento, including schools, commercial centers, parks, and municipal buildings, it is missing at many older commercial centers and some major trip attractors like Raley Field. There are few long-term bicycle parking and shower/locker facilities existing today with some exceptions including a limited number of bike lockers available at City Hall. **Figure 5** shows the locations of existing bicycle parking at bicycle and pedestrian trip generators and attractors in West Sacramento.

In 2017, West Sacramento partnered with Sacramento Area Council of Governments (SACOG) and the City of Sacramento to initiate a bike share program. The Tower Bridge Bike Share Preview started on May 18, 2017 with a total of 50 bikes and eight bike share stations located in West Sacramento (see **Figure 2**). The City is transitioning to the JUMP Bike Share Program that will be implemented by Social Bicycles in contract with SACOG. The JUMP Bike Share Program will initially consist of 300 electric-assist bicycles (e-bikes) distributed throughout the cities of West Sacramento, Sacramento, and Davis beginning in May 2018 with an additional 600 e-bikes coming summer 2018. The e-bikes will be accessible through a smart phone app, as well as indoor and outdoor kiosks located at select parking stations and future partner locations. For users without credit cards, there is an option for cash payments. Visit http://socialbicycles.com to learn how this system works and view app download options.

Currently, the City has adopted the *2016 California Green Building Standards Code* (California Building Standards Commission, 2016) as mandatory provisions in *West Sacramento Municipal Code* Section 15.12.040. The mandatory provisions include the following language regarding bicycle parking requirements at non-residential buildings:

Short-Term Bicycle Parking (Buildings anticipated to generate visitor traffic)

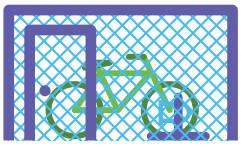
Provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for five percent of the visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack.



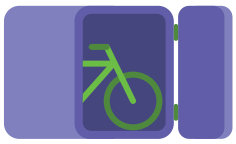
Long-Term Bicycle Parking (Buildings with over ten tenant-occupants)

Provide secure bicycle parking for five percent of motorized vehicle parking capacity, with a minimum of one space. Acceptable parking facilities shall be convenient from the street and shall include one of the following:

Covered, lockable enclosures with permanently anchored racks for bicycles



Lockable bicycle rooms with permanently anchored racks



Lockable, permanently anchored bicycle lockers

In addition to the *2016 California Green Building Standards Code* (California Building Standards Commission, 2016) the City's Transportation Systems Management Ordinance includes measures to promote bicycling and pedestrian commutes such as additional bicycle parking or shower facilities for commuters.

3.5 Existing and Future Land Use Patterns

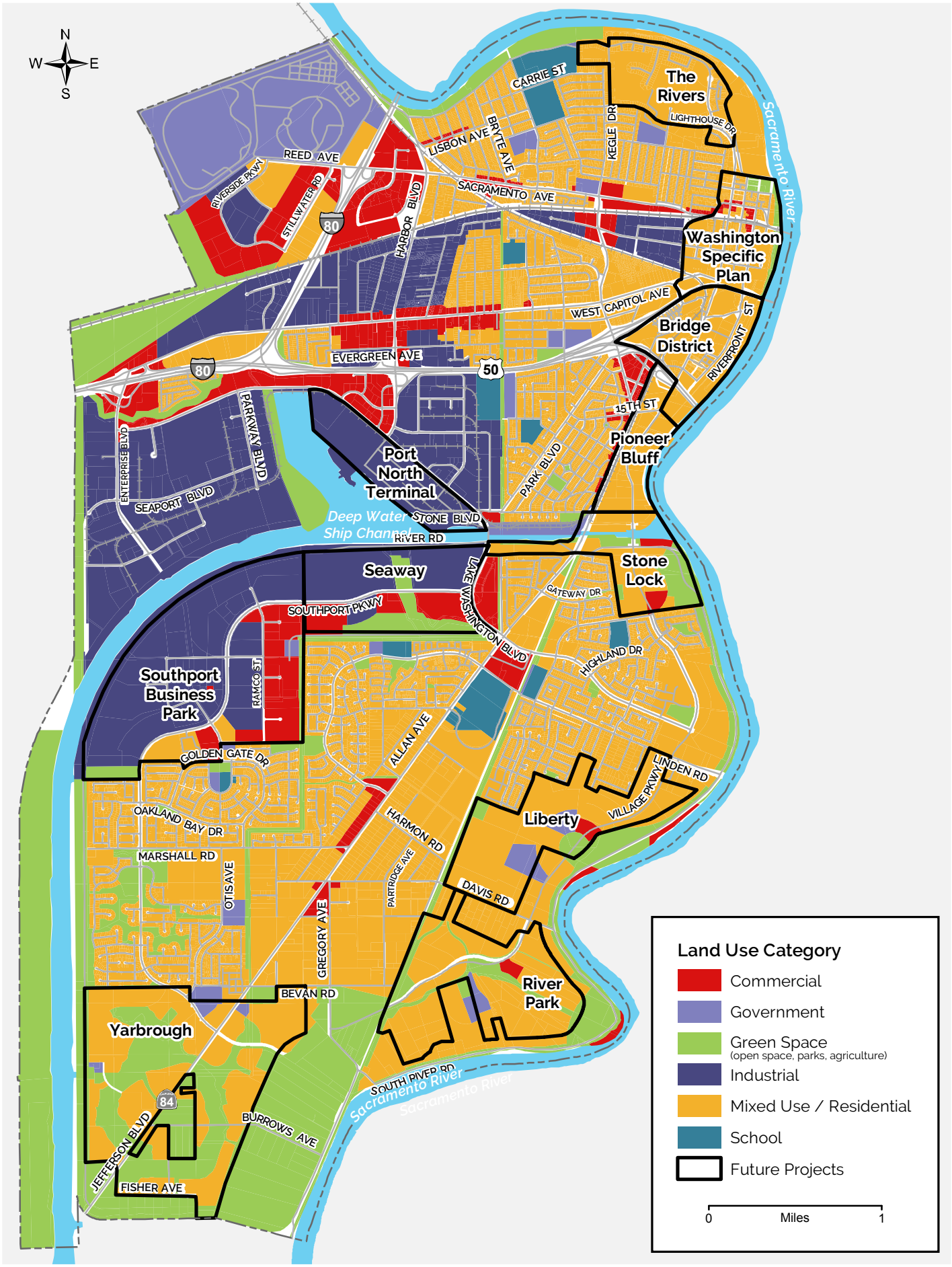
West Sacramento includes a diversity of land uses as shown in **Figure 4**. A goal of the BPTMP is to provide the plan for a continuous, interconnected trail system with low stress routes between residential areas and key destinations (see **Chapter 4** for further explanation and discussion of Low Stress Routes). The City has gone a long way toward achieving this goal in the Bridge District, the Stonegate area of Southport, and the Westfield Village neighborhood with the addition of the Sycamore Trail (as shown in **Figure 3**).

Additional planned projects that will provide increased connectivity include:

- Completion of the Clarksburg Branch Line Trail as well as the Southport Setback Levee Trail will be critical to providing a low stress network for the Liberty and Riverpark developments and Southport community.
- Completion of the Central Park and Stone Locks Trail will be critical for the Stone Lock and Pioneer Bluffs area.
- Extension of the Riverwalk Trail south from the Bridge District and through the Pioneer Bluff area will provide a complete north-south low stress route on the east side of Jefferson Boulevard.
- Completion of the Main Drain Canal Trail and connection with the trail along the Ship Channel will provide a key low stress route in Southport on the west side of Jefferson Boulevard.

Figure 3 - Existing Bicycle Facilities

Figure 4 - Current Land Use and Future Projects

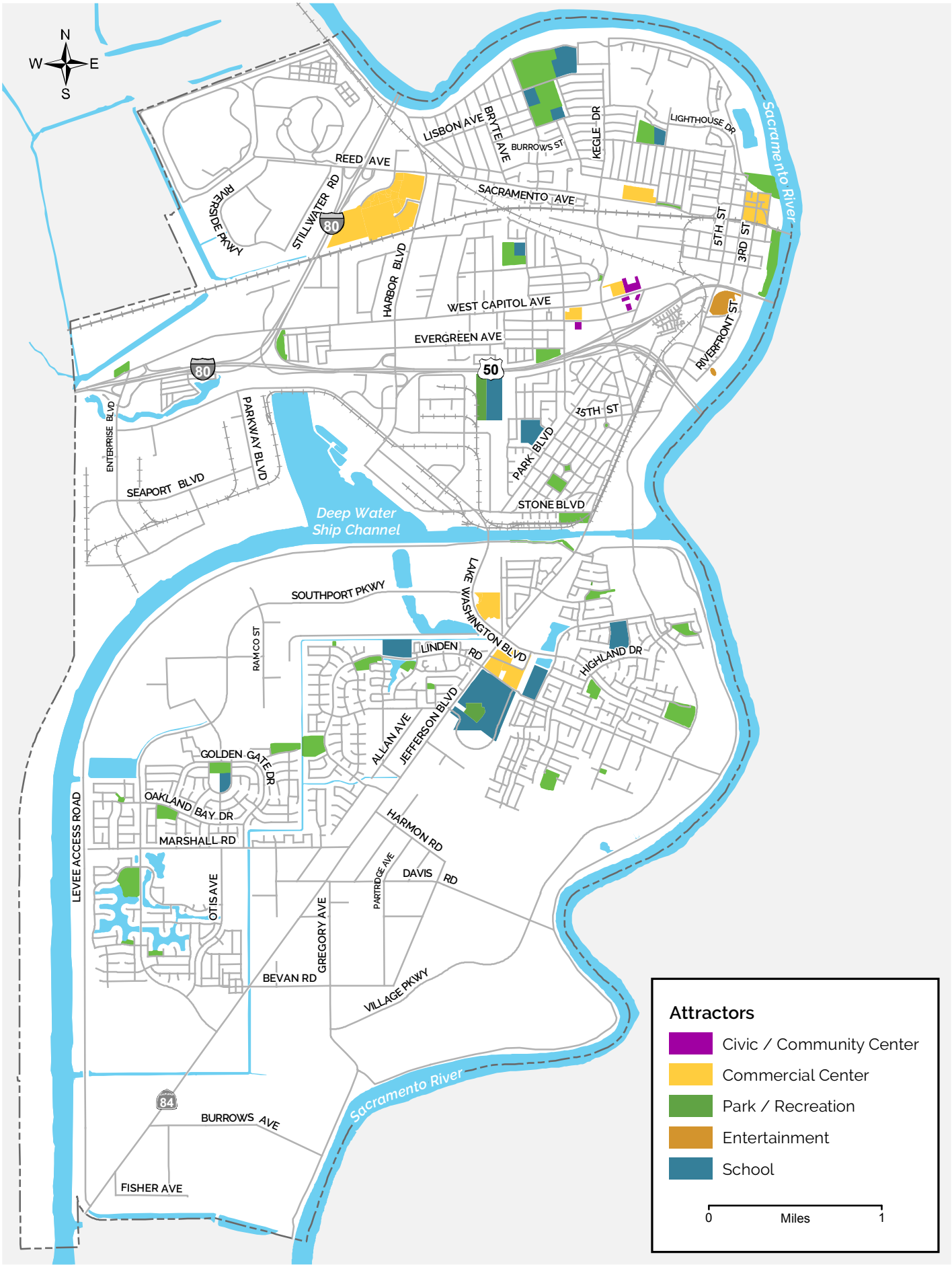


3.6 Trip Generators and Attractors

Based on the activities taking place and quite often the age of those attending, activity centers such as schools, parks, commercial retail centers and even municipal buildings attract bicycle and pedestrian travel. The City's BPTMP attempts to provide connections to as many of these major activity centers as possible. **Figure 5** shows the locations of major bicycle and pedestrian trip generators and attractors.

Currently, West Sacramento has seven elementary schools, one high school (River City High School), and a few private and alternative schools. Additionally, Sacramento City College, part of the Los Rios Community College District, operates the West Sacramento Center on West Capitol Avenue. West Sacramento recognizes the importance of safe pedestrian and bicycle routes to school sites. The City will continue to work cooperatively with local school districts in developing and improving safe pedestrian and bicycle travel routes to schools.

Figure 5 - Bicycle and Pedestrian City Attractors



3.7 Past Improvements on Bicycle Facilities

The 2013 BPTMP provided a description of improvements through 2013 (shown in **Table 3**). Since that time the City has continued to invest in improvements to its trail network as shown in **Table 4**.

Table 3 - Bicycle Facility Improvements through 2013

CLASSIFICATION	MILEAGE
CLASS I BIKE PATH	3.3
CLASS II BIKE LANES	30.0
CLASS III BIKE ROUTE	3.2
UNPAVED TRAIL	7.5
TOTAL:	44.0

Table 4 - Bicycle Facility Improvements since 2013

CLASSIFICATION	MILEAGE
CLASS I BIKE PATH	1.3
CLASS II BIKE LANES	13.2
TOTAL:	14.5

3.8 Existing and Estimated Bicycle and Pedestrian Trips

Data regarding existing bicycle use in West Sacramento is limited. However, the 2015 American Community Survey (ACS) data (US Census Bureau, 2010) includes information regarding means of transportation to work. According to that data, 2.5 percent of West Sacramento residents bicycled and 2.5 percent walked as their primary means of transportation to work. This total (five percent of City working-age residents who either bike or walk to work) represents a 1.4 percent increase over the past five years, with the 2010 ACS data identifying 2.3 percent of the public utilizing bicycles and 1.3 percent walking to work. According to the California Department of Finance, West Sacramento's population as of January 2017 was approximately 53,160, and data obtained from the California Employment Development Department indicated that approximately 24,400 of those working-age residents were currently employed. Assuming the 2015 ACS ride

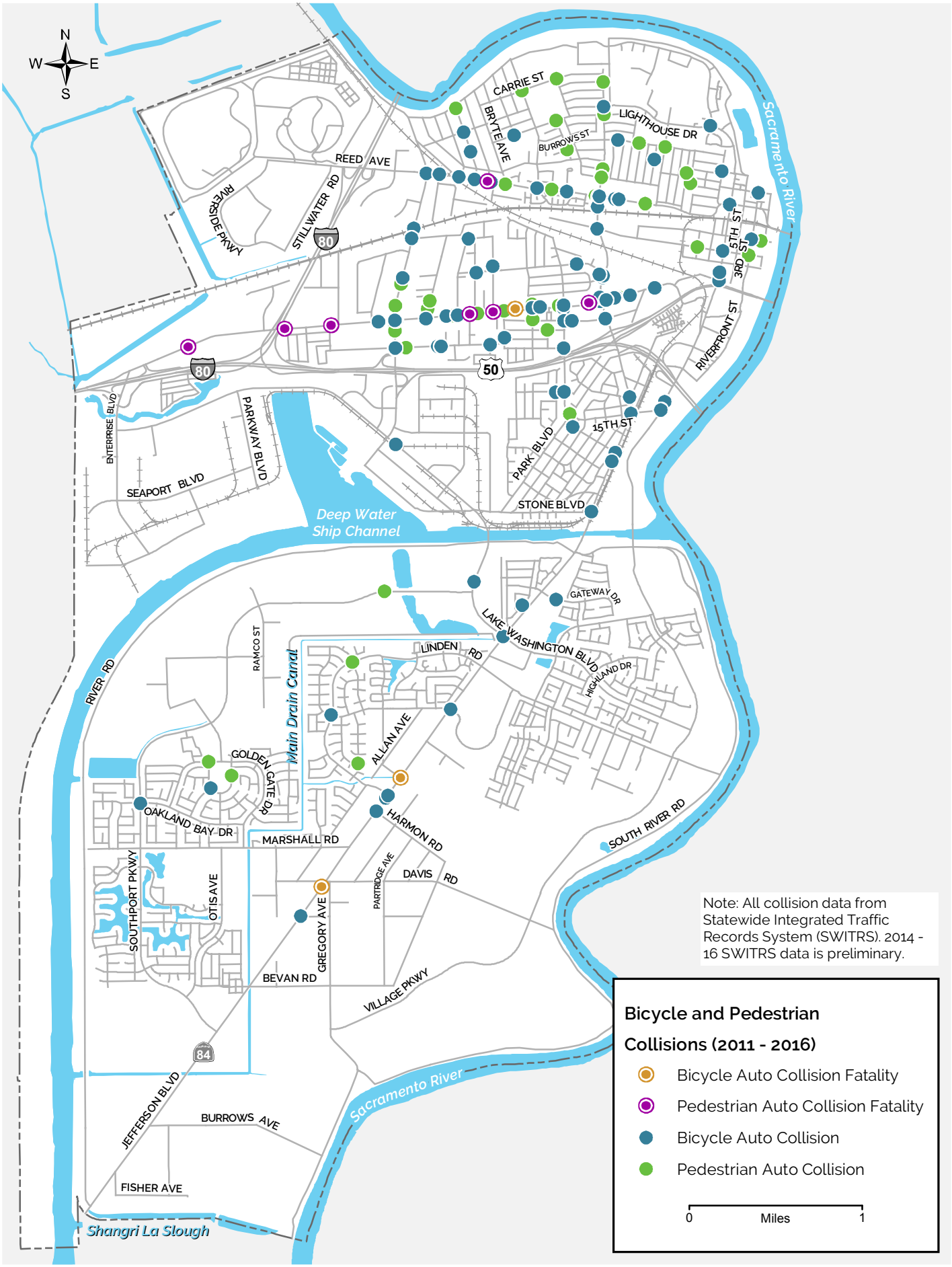
and walk to work data remains consistent today, **more than 600 West Sacramento residents currently bike and more than 600 walk as their primary means of transportation to work**. These figures do not account for the occasional bike or walk to work commuters, nor do they include non-commute bike or walk trips to locations such as schools or shopping centers.

In most areas, the percentage of non-commute bike and walk trips are greater than the percentage of bike and walk commute trips, as commute trips tend to be longer and less attractive for bicycling and walking. Therefore, West Sacramento's overall bike/walk mode split is likely higher than the ACS estimates. **West Sacramento's goal is to achieve a bicycle mode share of five percent and a walk mode share of 10 percent by the year 2030.** This combined bike/walk mode share of 15 percent would nearly match the Federal Highway Administration (FHWA) goal of 15.8 percent. According to SACOG, West Sacramento's population is expected to grow to 73,500 residents by 2030. Assuming the City achieves a five percent bicycle mode share and a ten percent walk mode share there would be **over 1,600 bicycle commuters and over 3,300 walk commuters in 2030**, based on the current rate of employed residents.

3.9 Bicycle Safety

Five years of California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) data for bicyclist-vehicle collisions was reviewed to identify collision locations and trends in West Sacramento. **Figure 6** shows the five year picture (between 2011 and 2016) of the locations of bicyclist-vehicle and pedestrian-vehicle collisions.

Figure 6 - 5-year Bicycle and Pedestrian Collisions with Autos (2011 - 2016)

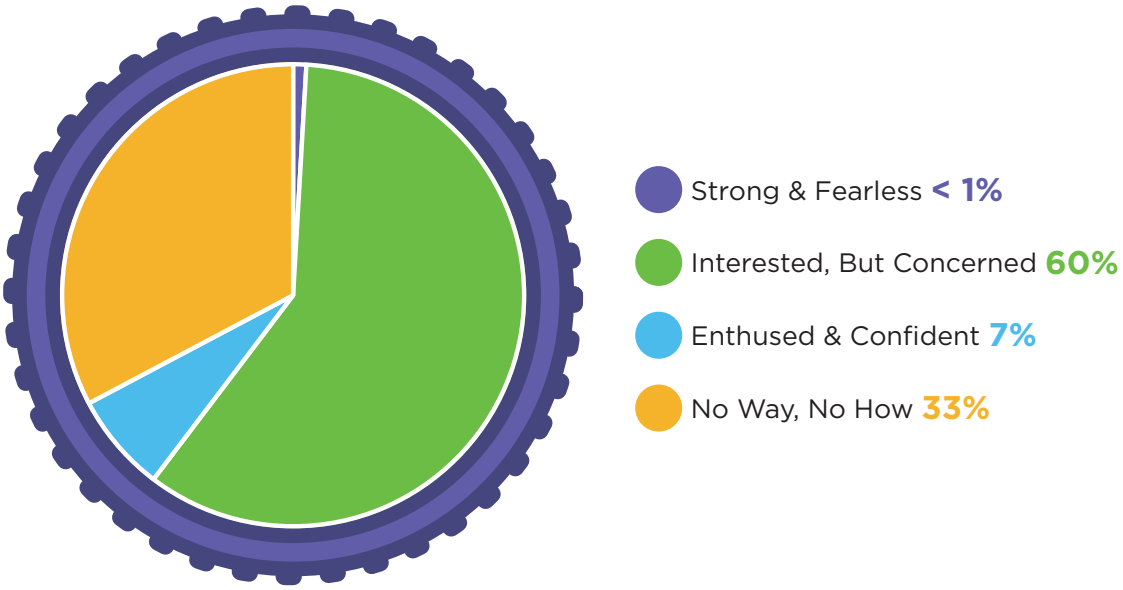


LOW STRESS BICYCLING – EXISTING CONDITIONS

4.1 Low-Stress Bicycle Routes

The cyclist population is diverse, ranging from novice to experienced riders. Nonetheless, both groups look to a roadway network for safe facilities. Roger Geller, Portland, Oregon's Bicycle Coordinator, developed a classification scheme to place individual bicyclists into four different categories based on their comfort level associated with biking. This information was developed through a local survey and is summarized in **Figure 7**

Figure 7 - Transportation Cyclists by Proportion of Population



Of the four groups, the majority of those surveyed were "Interested, But Concerned," demonstrating the desire for safe and comfortable facilities. This group prefers standalone paths and streets with little and slow traffic.

Bicycle Level of Service (BLOS) has traditionally been used to rate bicycle facilities; however, there are limitations to the approach. The A through F score is derived using a heavily qualitative formula, requiring prior knowledge of the roadway's volume and lane widths. Moreover, the methodology does not provide a minimum threshold or connection to a cyclist's comfort level.

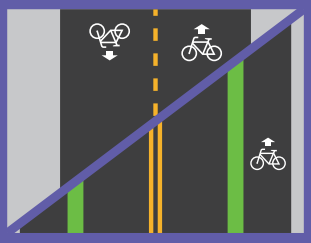
Looking for an alternative approach to Geller's skill-based criteria, the Mineta Transportation Institute developed a new classification scheme. Level of Traffic Stress (LTS) provides a comprehensive evaluation of a bicycle network to best determine user tolerance and connectivity to a final destination. A sample cross section and description of each stress level is shown in **Figure 8** on page 35.

Figure 8 - Levels of Traffic Stress (LTS)

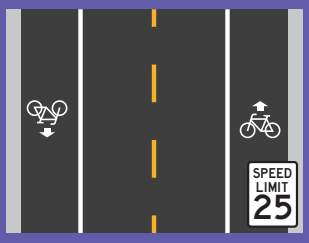
LTS 1

Little traffic stress, relaxed ride, attractive to beginner and experienced cyclists

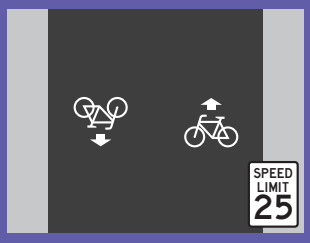
Examples:



Class I and Class IV facilities



Class II facilities along low speed roadways with sufficient riding and/or buffer space

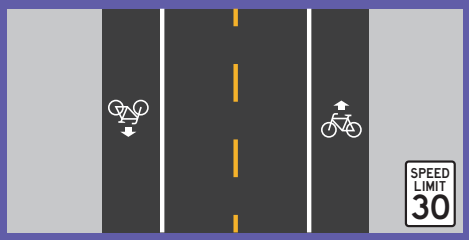


Class III facilities along low speed, neighborhood streets with no marked centerline

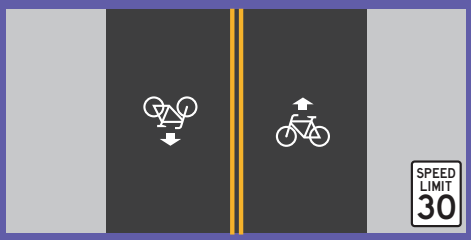
LTS 2

Little traffic stress, relaxed ride, more attention required

Examples:



Class II facilities along low speed roadways

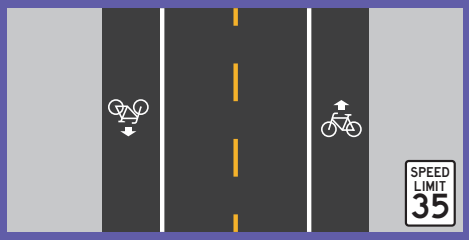


Class III facilities along low speed, neighborhood streets with a marked centerline

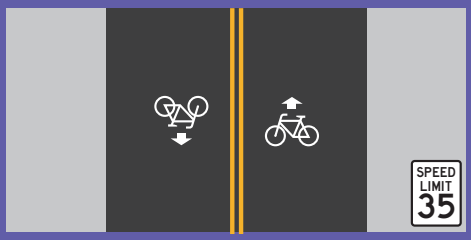
LTS 3

Moderate traffic stress, dedicated space on lower speed roadways

Examples:



Class II facilities along moderate speed roadways

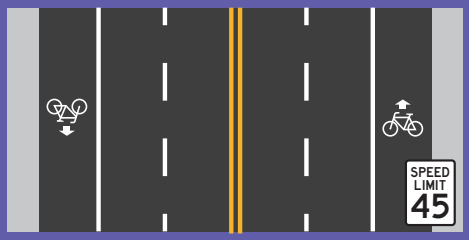


Class III facilities along moderate speed roadways with a marked centerline

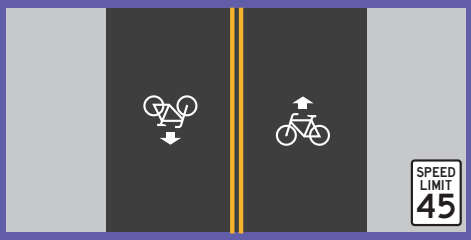
LTS 4

High traffic stress, high speed roadways, attractive to experienced riders

Examples:



Class II facilities along high speed roadways



Class III facilities along multi-lane, high speed roadways

The City of West Sacramento's May 2013 Bicycle, Pedestrian, and Trails Master Plan evaluated LTS for existing and proposed bikeways. During the Master Plan update, the LTS analysis was expanded to include all roadways within City boundaries including arterials, collectors and local streets. Benefits of this approach include:

- A network map of results that provides the ability to see the LTS score of each roadway segment in the network and identify barrier locations.
- Identification of potential bicycle improvements such as routing around higher stress facilities or specifically targeting improvements that connect low-stress routes and facilities. Improvements on key roadway segments with higher LTS scores can also be targeted to reduce LTS to lower levels.

4.2 Data Requirements

Data sources used for analysis include:

- Centerline roadway network with attribute information
- Existing and proposed bicycle facility network

A gutter width of two feet, consistent with Caltrans design standards, was assumed for all segments where gutter was observed and posted speed was determined based on the functional highway classification number. Limited access highways and private roads were eliminated to avoid false low-stress connections and limit the analysis to only segments bicyclists are permitted to use.

4.3 Existing LTS Methodology

The City's LTS methodology mirrors the Mineta Low-Stress Bicycling and Network Connectivity Report. The analysis was divided into four tiers based upon facility classification. For each segment, the LTS was calculated per direction with the higher directional LTS controlling the overall segment stress.

Class I and Class IV facilities have a LTS equal to 1. These facilities offer a distinct and separated riding space, ultimately providing maximum level of comfort for riders. For Class II roadways, the LTS is dependent on parking presence. **Table 5** outlines the LTS criteria for bike lanes not located alongside a parking lane. **Table 6** outlines the LTS criteria for bike lanes alongside a parking lane.

Table 5 - Criteria for Bike Lanes Not Alongside Parking Lanes

Criteria	LTS 1	LTS 2	LTS 3	LTS 4
Street Width – through lanes per direction	1	2, if separated by a raised median	More than 2, or 2 without a separating median	(no effect)
Bike lane width	6 feet or more	Less than 6 feet	(no effect)	(no effect)
Speed limit	30 mph or less	(no effect)	35 mph	40 mph or more
Bike lane blockage	rare	(no effect)	frequent	(no effect)

(no effect) = factor does not trigger an increase to this level of traffic stress.

If a four-lane roadway (two lanes per direction) provides a moderate posted speed limit and bike lanes, it is considered a low stress route or has a LTS 1 or 2. As the number of lanes and speed increase, so does the stress level.

Table 6 - Criteria for Bike Lanes Alongside Parking Lanes

Criteria	LTS 1	LTS 2	LTS 3	LTS 4
Street Width – through lanes per direction	1	(no effect)	2 or more	(no effect)
Sum of bike lane and parking lane width (includes marked buffer and paved gutter)	15 feet or more	14-15 feet	Less than 14 feet	(no effect)
Speed limit	25 mph or less	30 mph	35 mph	40 mph or more
Bike lane blockage	rare	(no effect)	frequent	(no effect)

(no effect) = factor does not trigger an increase to this level of traffic stress.

Adding a parking lane creates more stress due to vehicles potentially encroaching into the bicyclist's path. Bike lanes located directly adjacent to high turnover parking lanes without adequate clearance create conflict with the "door zone," ultimately resulting in much higher stress. Unlike before, a low stress route is now dependent on available space provided for both bicycle and parking lanes. The number of lanes for a low stress route with provided parking is limited to two lanes (one per direction).

For Class III facilities and segments with no existing bicycle lanes, the LTS was based on the total roadway width and posted speed limit (see **Table 7**).

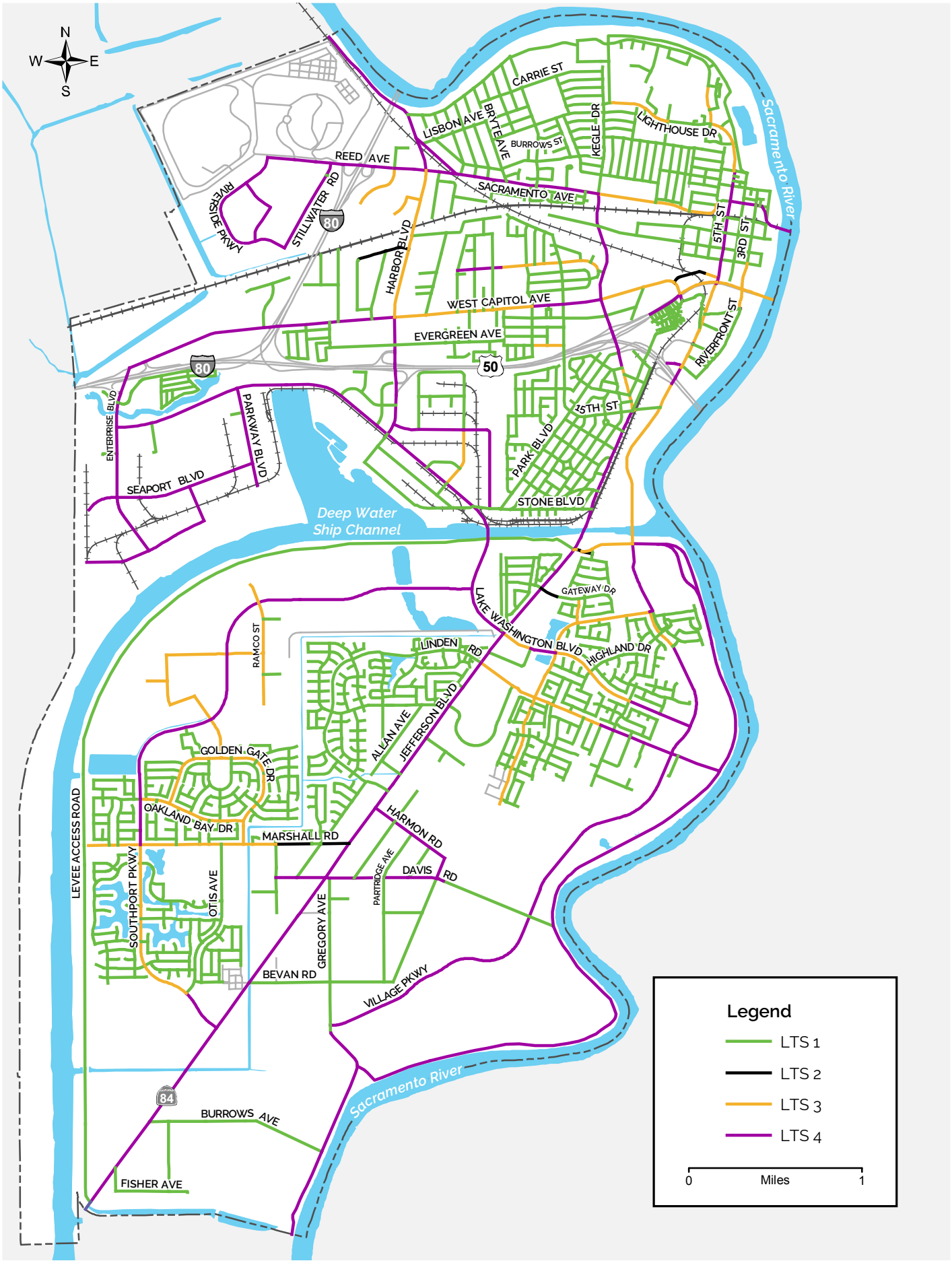
Table 7 - Criteria for Level of Traffic Stress in Mixed Traffic

	Street Width (Both Directions)		
Speed Limit	2-3 lanes[1]	4-5 lanes	6+ lanes
Up to 25 mph	LTS 1 or 2	LTS 3	LTS 4
30 mph	LTS 2 or 3	LTS 4	LTS 4
35+ mph	LTS 4	LTS 4	LTS 4

[1]Use lower value for streets classified as residential, or without marked centerlines

Existing low stress routes are shown in **Figure 9.**

Figure 9 - Existing LTS Routes



PROPOSED TRAILS

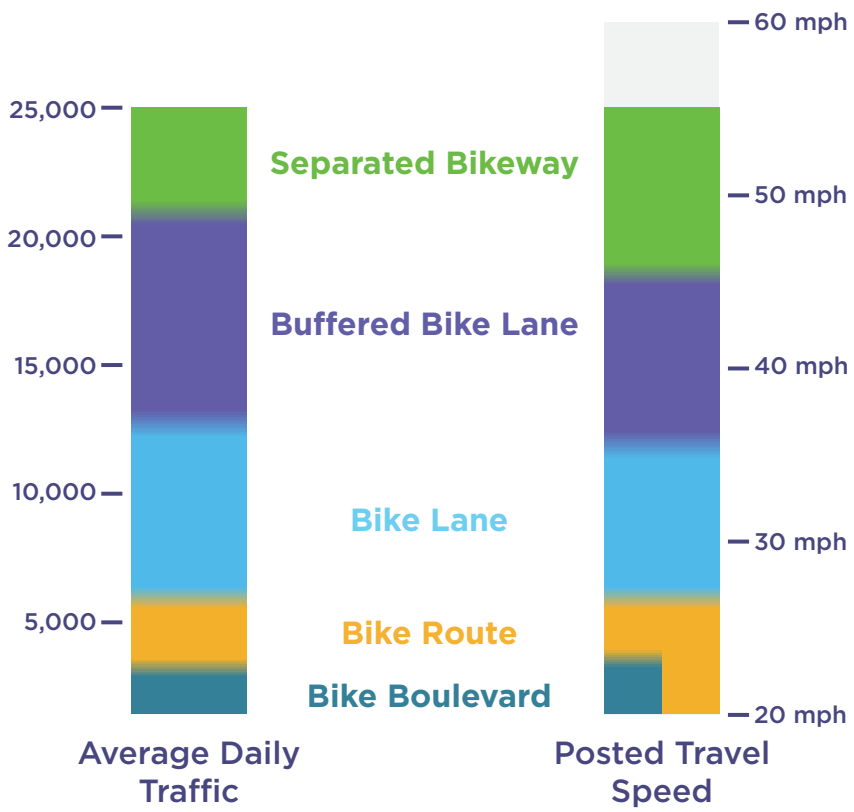
This chapter describes potential improvements to West Sacramento's trail network including proposed trail and support facilities that would enhance utilization and enjoyment of trails throughout the City.

5.1 Proposed Trails

Vehicle volume and posted speed limit on a street can impact bicyclists' comfort and decision to use a route or choose to not bike at all. Identifying the appropriate bikeway facility type is important and can be a challenge. The selection guide shown below is a helpful tool to identify which bikeway type is appropriate, such as: On-Street Bike Lane, Buffered Bike Lane, Separated Bikeway or Cycle Track. The goal of the guide is to provide a framework to implement low stress bikeways that are comfortable for all ages and abilities by using the posted speed limit and average daily traffic volume. This is only a guide and site specific factors should be considered when determining the appropriate bikeway facility.

Additionally, physical space constraints, vehicle parking requirements, and other factors can also drive the type of bike facility that is possible along any given roadway or through neighborhoods and commercial areas.

Bikeway Facility Selection Guidelines



All of these factors were considered in developing recommendations for proposed bicycle trail improvements. The existing and proposed trail network presented in **Figure 10** is a continuous system of trails connecting to numerous local destinations within the city as well as regional destinations. The design of the network aims to accommodate all levels of bicyclists and increase the amount of both utilitarian and recreational bicycling in West Sacramento. **Table 8** summarizes the mileage of existing and proposed trails by type. As shown, the proposed trail network expands upon existing Class I bike paths and Class II bike lanes in the City, adds critical neighborhood Class III bike route connections, and a long segment of unpaved trail.

Table 8. Length of Existing and Proposed Trails by Classification

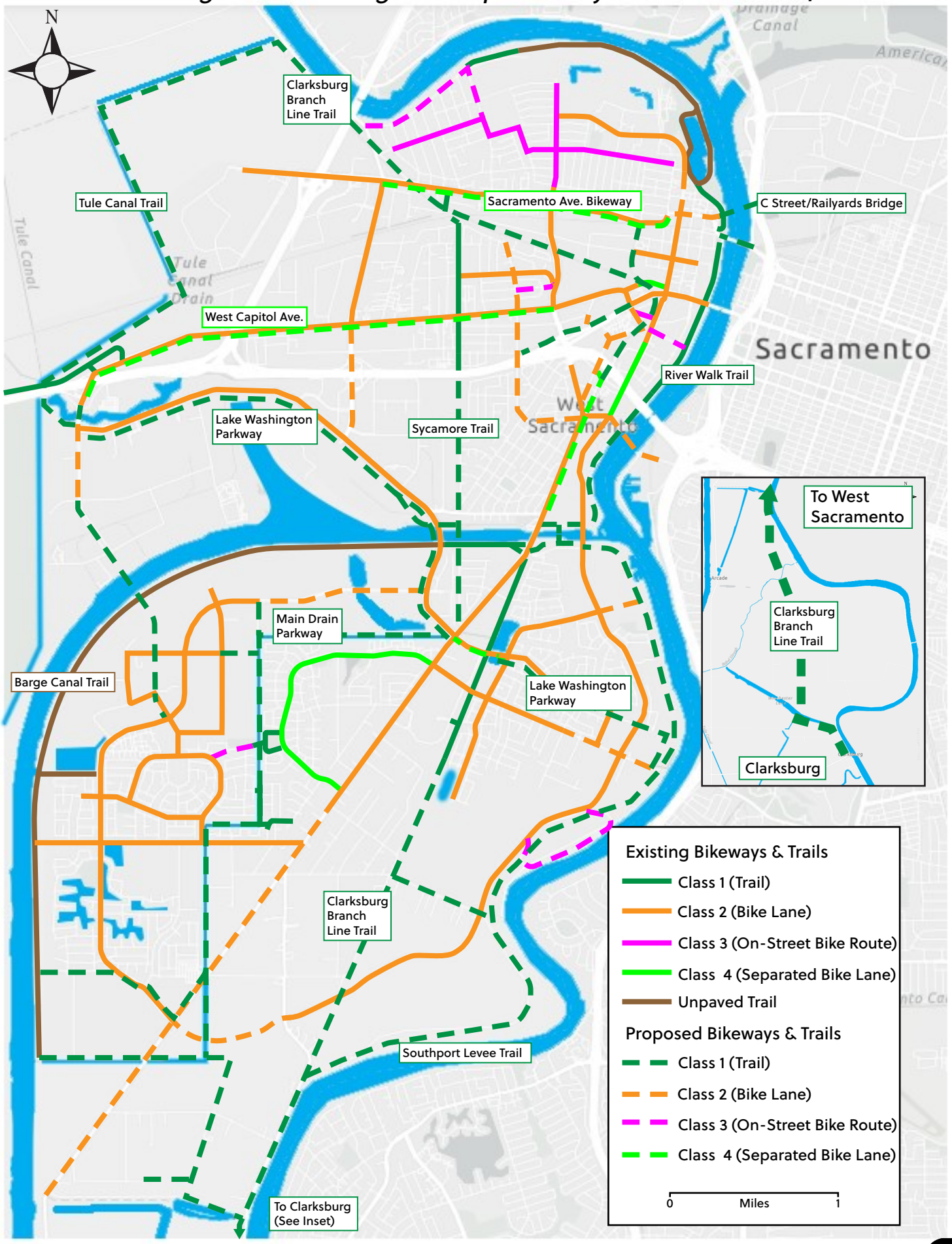
CLASSIFICATION	EXISTING MILEAGE	PROPOSED MILEAGE	TOTAL
CLASS I BIKE PATH	4.6	22.3	26.9
CLASS II BIKE LANES	42.8	11.7	54.5
CLASS III BIKE ROUTE	1.8	7.2	9
CLASS IV BIKEWAY	1.8	2.7	4.5
UNPAVED TRAIL	10.7	-3.3[1]	7.4
TOTAL:	61.7	40.6	102.3

[1] Tule Jake unpaved trail converted to Class 1 Bike Path

As shown in **Figure 10** on page 41, Class I bike paths are primarily located along opportunity right-of-ways such as rivers, canals, and abandoned railroads. Class II bike lanes are proposed for several arterial and collector streets. Class III bike routes, proposed by this plan as high-quality bike boulevards, are envisioned throughout the Bryte and Broderick neighborhoods.

River Walk Trail approaching the Barn

Figure 10 - Existing and Proposed Bicycle Network - 2024



5.2 Class I Bike Paths

The proposed network of bicycle facilities shown in **Figure 10** includes several miles of additional Class I bike paths that form a connected system of high-quality bicycle facilities. Highlights of this proposed system of Class I bike paths are discussed below:

- **Sycamore Trail** – The City has already completed Phase 1 of this five-phase project. Phase 1 provided a bike path through Westfield Village from the Union Pacific Railroad (UPRR) south to West Capitol Avenue. Phases 2-5 will complete a bike path that connects at West Capitol Avenue and goes south over Highway 50 and down across the Deep Water Ship Channel to finally connect at Lake Washington Boulevard in Southport.
- **Southport Setback Levee Recreation Trail** – The City recently completed a feasibility study that showed there is a feasible way to construct the bike path on top of the maintenance road on top of the levee. This trail will connect to the Clarksburg Branch Line Trail and provide a continuous 10-mile loop with great recreational cycling opportunities along the Sacramento River.
- **Clarksburg Branch Line Trail** – This proposed bike path is currently an unpaved trail along an abandoned UPRR right-of-way. The City owns the entire 10-mile length between the Deep Water Ship Channel and Clarksburg in unincorporated Yolo County. As proposed, the entire length would become paved including the section in unincorporated Yolo County. The City has already paved the trail between South River Road and River City High School/Cherokee Road. The trail will cross the Deep Water Ship Channel using the unused UPRR right-of-way on the Jefferson Boulevard Bridge and the proposed path will connect east Southport to destinations north of the Deep Water Ship Channel. The City will coordinate with Yolo County regarding implementation beyond City limits.
- **Pioneer Bluffs** – This proposed bike path would connect the existing River Walk Park Trail with the Mike McGowan Bridge enabling continuous Class I (and low stress) travel all the way from the I Street Bridge to the southern end of Southport.
- **Main Drain Parkway** – Segments of this proposed bike path are already open for public access; however, they are unpaved. This proposed bike path will run parallel to the Main Drain Canal and connect west Southport to destinations north of the Deep Water Ship Channel.
- **River Walk Park Trail** – Segments of this proposed bike path are already constructed along the Sacramento River between Capital City Freeway and I Street. As proposed, this bike path will be continuous between the Deep Water Ship Channel and Riverbank Road, including under crossings at the existing Tower Bridge and I Street Bridge.

5.3 Class II Bike Lanes

The proposed West Sacramento bikeway network includes several new, extended, or improved Class II bike lanes, designed to capitalize upon previous investments in on-street lanes and increase the viability of commuter bicycling. Many of these bike lanes interface with one or more of the previously discussed Class I bike paths. The plan includes new and/or improved bicycle lanes within existing commercial areas and connections to several City schools and parks. In total, almost 49 miles of Class II bike lanes are included in the proposed bicycle network. One of the key projects is **Village Parkway** which provides the primary bicycle access connecting the new developments on the east side of Southport. Also, new bike lanes on **Industrial Boulevard** will greatly improve the level of traffic stress in the port area.

5.4 Class III Bike Routes

The proposed bikeway network includes key Class III bike route projects classified as "bicycle boulevards," which is a local street or series of contiguous street segments that have been modified to function as a through street for bicyclists. Bicycle boulevards typically discourage major through vehicle travel while maintaining local access. One of the key bicycle boulevards is **Bryte Park Bicycle Boulevard**. This proposed

project will connect Bryte Park, Riverbank Elementary School, Elkhorn Village Elementary School, and the residential neighborhoods north of Sacramento Avenue to the new bridge over the Sacramento River at C Street. Several improvements may be necessary to make this a high-quality bicycle lane including traffic calming to ensure vehicle speeds remain below 25 mph, reorientation of traffic control devices, wayfinding signs and markings, and crossing treatments at C Street. In combination with River Walk Park Trail, the Bryte Park Bicycle Boulevard could form a recreational loop in West Sacramento's Bryte and Broderick neighborhoods.

5.5 Proposed Low-Stress Bikeways

Figure 15 (page 49) shows the proposed low-stress bikeways in West Sacramento that have a LTS 1 or LTS 2 score. The proposed low-stress bikeway network provides extensive continuity to many local and regional destinations in West Sacramento. Completion of the proposed low-stress bikeway network will offer the greatest opportunity to significantly increase West Sacramento's bicycle mode share, allowing residents and visitors of all ages and abilities to complete various trips to school/work or for errands/recreation by bicycling and walking. Additionally, by contributing to a high quality of life in West Sacramento, completion of the proposed low-stress bikeways will attract high quality economic development.

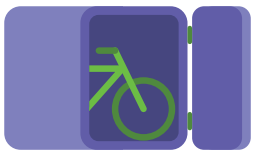
On some existing and proposed bikeways that do not qualify as low-stress, the LTS could be decreased by implementing one of several innovative design treatments. Candidate innovative design treatments primarily include buffered bike lanes and protected or raised cycle tracks. The City should evaluate innovative designs to reduce the Level of Traffic Stress.

5.6 Support Facilities

5.6.1 Bicycle Parking

It is recommended the City should modify the Municipal Code to reflect the *2016 California Green Building Standards Code* mandatory provisions regarding bicycle parking in *West Sacramento Municipal Code* Chapter 17.34 Off-Street Parking and Loading.

The *2016 California Green Building Standards Code* mandatory provisions regarding bicycle parking represent basic accommodations for bicyclists. The City should consider adopting revised bicycle parking requirements that reflect national best practices, such as the *Essentials of Bike Parking: Selecting and Installing Bike Parking that Works* (Association of Pedestrian and Bicycle Professionals [APBP], 2015) or the City of Portland minimum required bicycle parking spaces describe in *Portland Zoning Code* Chapter 33.266 (City of Portland, 2017).



It is also recommended the City amend the zoning code for private development and require bike racks for short-term storage and bike lockers for long-term storage.

5.6.2 Shower Changing Facilities

It is recommended the City should require developers to apply the *2016 California Green Building Standards Code* voluntary measures for changing/shower facilities with the following:

Changing Rooms - *For buildings with over 10 tenant-occupants, provide changing/shower facilities in accordance with Table A5.106.4.3 or document arrangements with nearby changing/shower facilities.*

*For public schools and community colleges, provide changing/shower facilities for the "number of administrative/teaching staff" equal to the "number of tenant-occupants" shown in Table A5.106.4.3. (**Table 9**)*

Table 9 - 2016 California Green Building Standards Code Table A5.106.4.3

Number of Tenant-Occupants	Shower/Changing Facilities Required[2]	2-Tier (12"×15"×72") Personal Effects Lockers[1,2] Required
0–10	0	0
11–50	1 unisex shower	2
51–100	1 unisex shower	3
101–200	1 shower stall per gender	4
Over 200	1 shower stall per gender for each 200 additional tenant-occupants	One 2-tier locker for each 50 additional tenant-occupants

[1]One 2-tier locker serves two people. Lockers shall be lockable with either padlock or combination lock.
[2]Tenant spaces housing more than 10 tenant-occupants within buildings sharing common toilet facilities need not comply; however, such common shower facilities shall accommodate the total number of tenant-occupants served by the toilets and include a minimum of one unisex shower and two 2-tier lockers.

Source: 2016 California Green Building Standards Code

5.7 Signature Projects

The City has highlighted four signature projects that received high ranks in one or more prioritization criteria. These signature projects, each significant and unique, offer solutions to mobility barriers within the City of West Sacramento.

The signature projects cross significant mobility barriers, provide additional mobility choices and increased connections between neighborhoods and activity centers, and will facilitate a mode-shift from walking to biking. The projects are showcased in more detail on the following pages and include:

- Sycamore Trail
- Southport Setback Levee Trail Additions
- Proposed I Street Bridge Deck Trail Additions
- Proposed West Capital Trail Additions

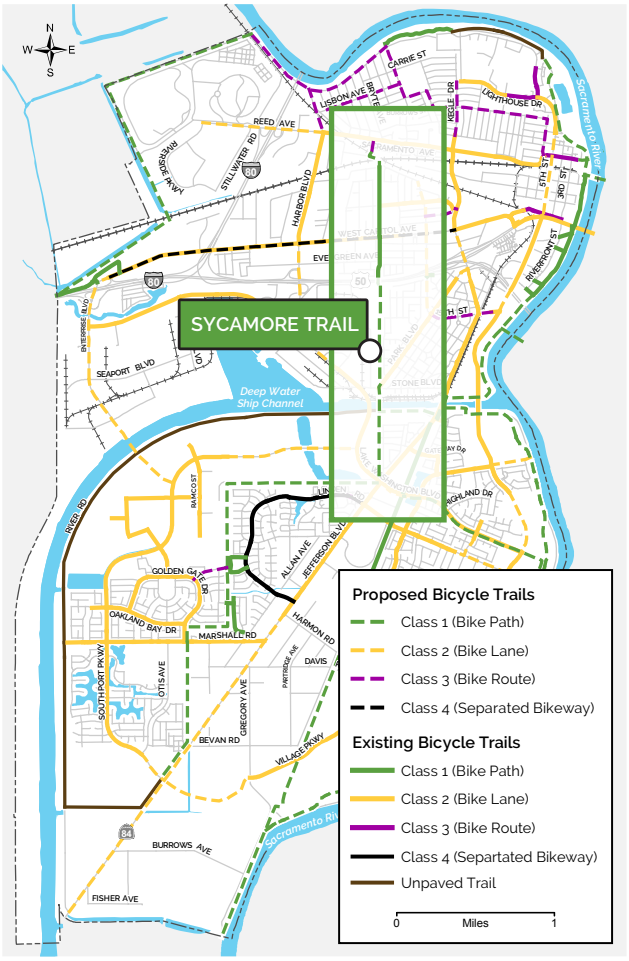
Figure 11 - Project Spotlight - Sycamore Trail Project

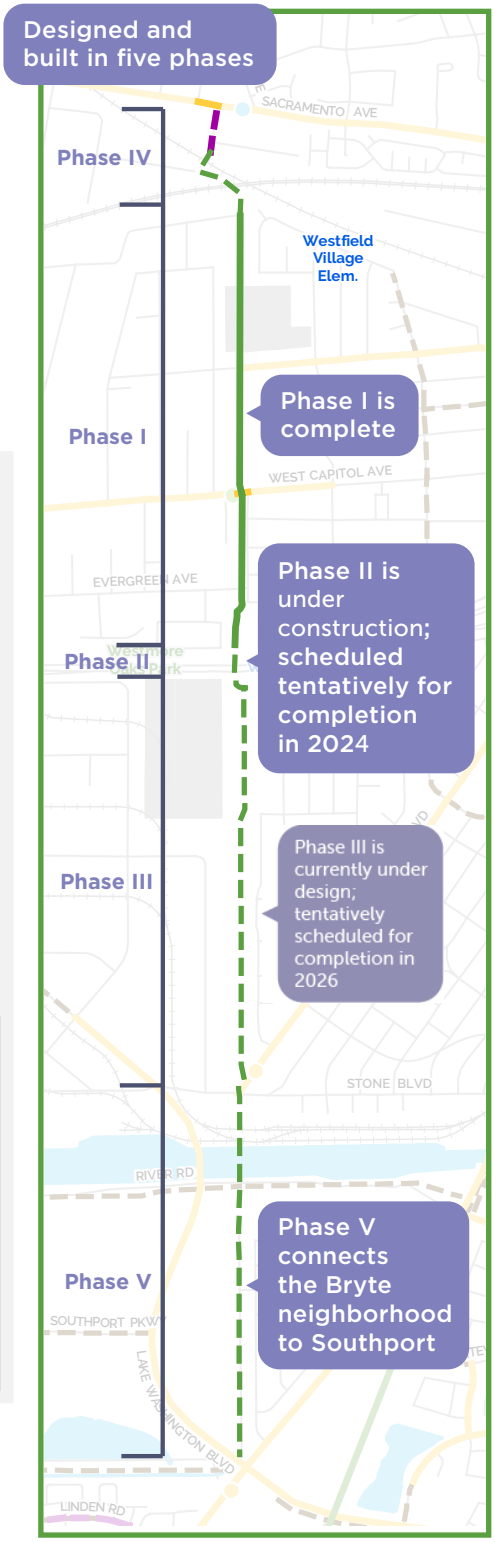
SIGNATURE PROJECTS — Sycamore Trail Project

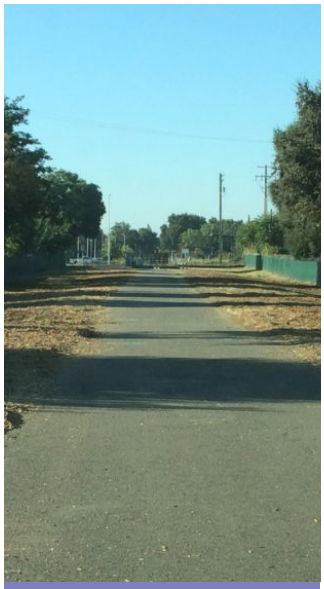
The Sycamore Trail Extension is a five-phase project that is most significant because it connects the Westfield Village neighborhood with the City's larger trail network. The Westfield Village neighborhood is more established and is somewhat remote; disconnected by the UPRR to the north and US 50 to the south. Residents have not been able to travel by bicycle beyond their smaller neighborhood borders so this project provides Class I Bike Path access north to Sacramento Avenue (which has Class II Bike Lanes and connects to the Bryte neighborhood). This project also provides Class I Bike Path access south all the way to Southport.

Project Benefits

- More than doubles length of City's existing Class I Bike Paths
- Provides a low stress bike and pedestrian trail through the heart of the City
- Creates access across US 50 and the Deep Water Ship Channel via two separate overcrossings
- Provides safe passage across the railroad tracks in the north via a tunnel to connect with Yolo Street







Existing Facility

Phase II Rendering of US 50 Overcrossing

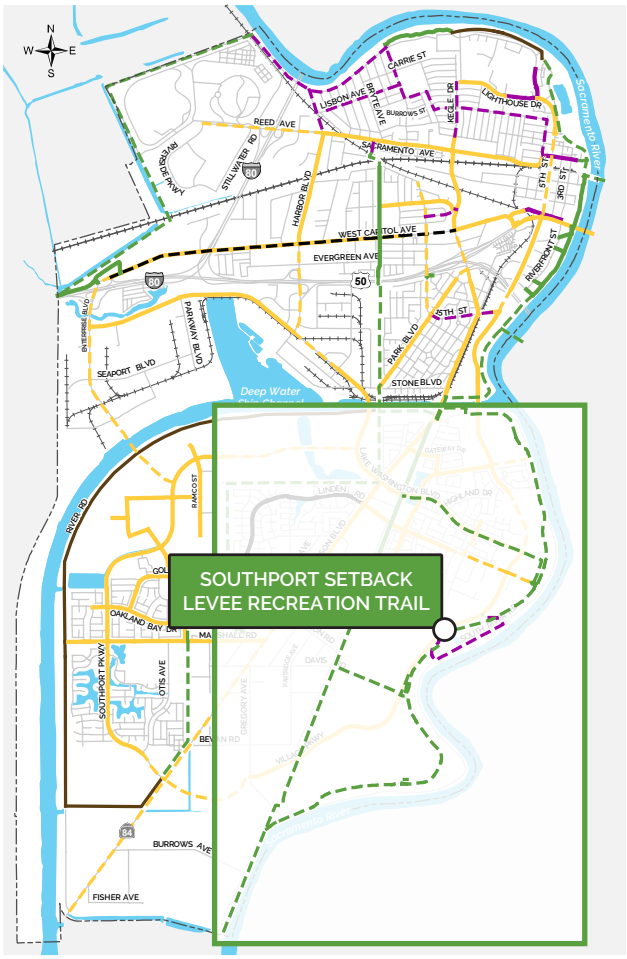
Figure 12 - Project Spotlight - Southport Setback Levee Trail Additions

SIGNATURE PROJECTS — Southport Setback Levee Trail Additions

The City recently completed a feasibility study that identified a way to construct the bike path on top of the maintenance road on the levee. This trail will connect to the Clarksburg Branch Line Trail and provide a continuous 10-mile loop with great recreational cycling opportunities along the Sacramento River. The planning is complete and the City of West Sacramento is currently seeking funding for construction.

Project Benefits

- Provides an alternative transportation route for bicycle commuters in the Southport community
- Offers a much safer corridor for connecting recreational users to natural areas adjacent to South River Road
- At full build out, the Levee Trail will connect with several other facilities to form smaller interior loops of connectivity
- Connects to the larger Greater California Delta Trail



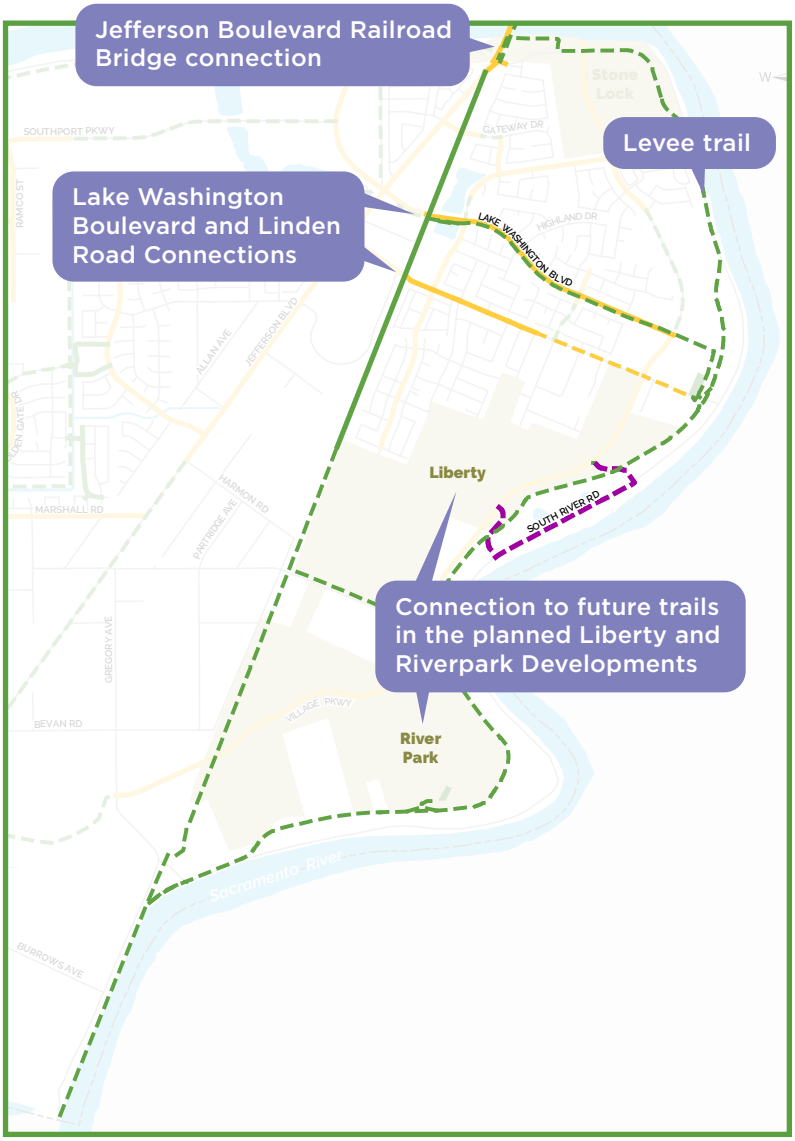


Figure 13 - Project Spotlight - Proposed I Street Bridge Deck Trail Additions

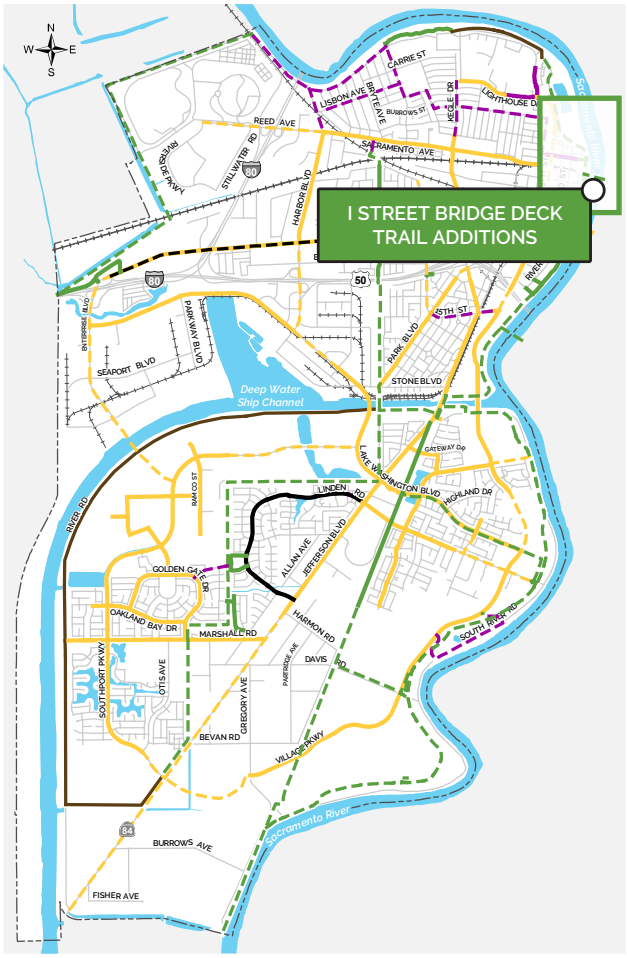
SIGNATURE PROJECTS — Proposed I Street Bridge Deck Trail Additions

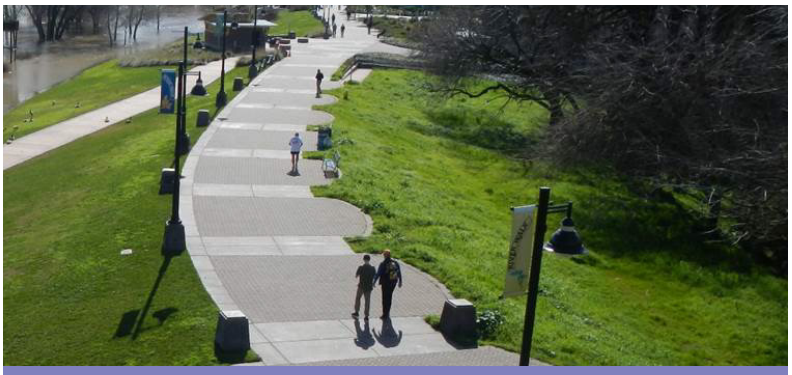
The I Street Bridge Deck Conversion is an important project aimed at maintaining vital connectivity between the Washington neighborhood and Downtown Sacramento. It is envisioned that this historically significant transportation facility will feature some park-like elements to both attract visitors and celebrate the history of the I Street Bridge, the two cities, and the railroad that share the bridge.

The project is currently in the design phase and will convert the upper deck of the existing I Street Bridge from a vehicle crossing to a bicycle and pedestrian crossing.

Project Benefits

- Connects the River Walk Trail in West Sacramento to the Sacramento River Bike Trail
- Provides a critical recreation and bicycle transportation link to the Washington neighborhood





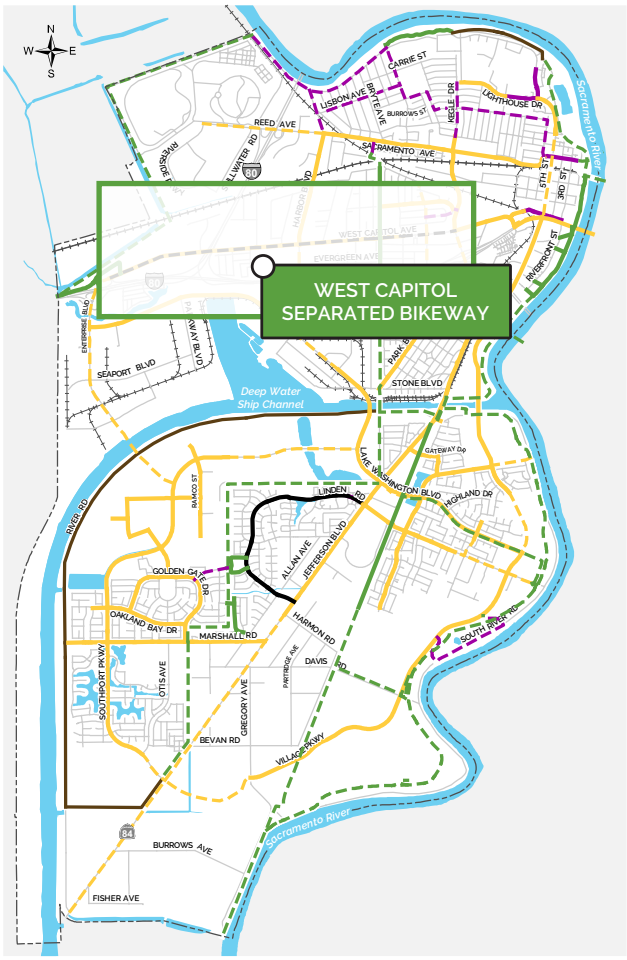
Connection to River Walk Trail in West Sacramento

Figure 14 - Project Spotlight - West Capitol Avenue Separate Bikeway

SIGNATURE PROJECTS — West Capitol Avenue Separated Bikeway

West Capitol Avenue is envisioned as the City of West Sacramento's Downtown — a central core with a vibrant main-street that includes a number of key community destinations including the Civic Center, Community Center, a Transit Hub, as well as residential, commercial and urban parks that are accessible via multiple modes of transportation. The West Capitol Avenue Separated Bikeway, an integral part of the Road Rehabilitation Project, will greatly improve public safety along the City's most dangerous bike route. The planned bikeway offers a separated or buffered bike lane on both the east and west side of West Capitol Avenue.

The Design is currently in progress and the City of West Sacramento is currently seeking funding for construction which is targeted for 2019.



Project Benefits

- Offers significant public safety improvements within an active central Downtown core
- Includes enhancements such as lighting, mid-block pedestrian crossings, high visibility crosswalks and rapid flashing beacons

LOW STRESS BICYCLING – FUTURE CONDITIONS

6.1 Future Conditions LTS

Updated future conditions LTS scores were calculated for each trail segment based upon planned bicycle network improvement projects, as well as preliminary planning and design assumptions for specific improvements provided by the City.

In some cases, the addition of planned bicycle lanes in the future LTS analysis caused the LTS score to increase from a LTS 1 to LTS 2. However, both LTS 1 and 2 are considered to be low stress facilities, so addition of the bicycle facility is not detrimental to the bicycle environment.

Future low stress routes are shown in **Figure 15**.

Figure 15 - Future LTS

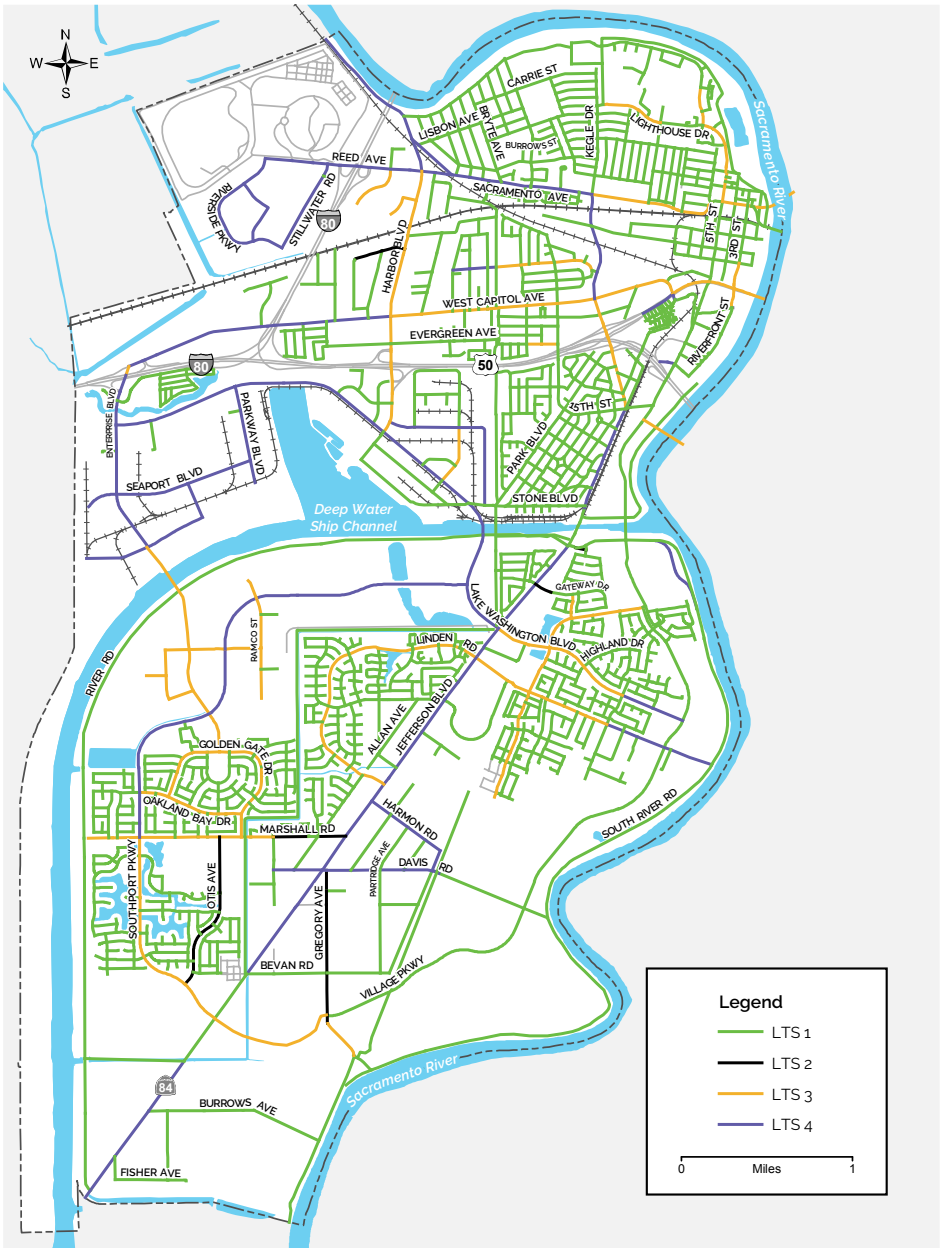


Figure 16 - LTS by Centerline Mileage

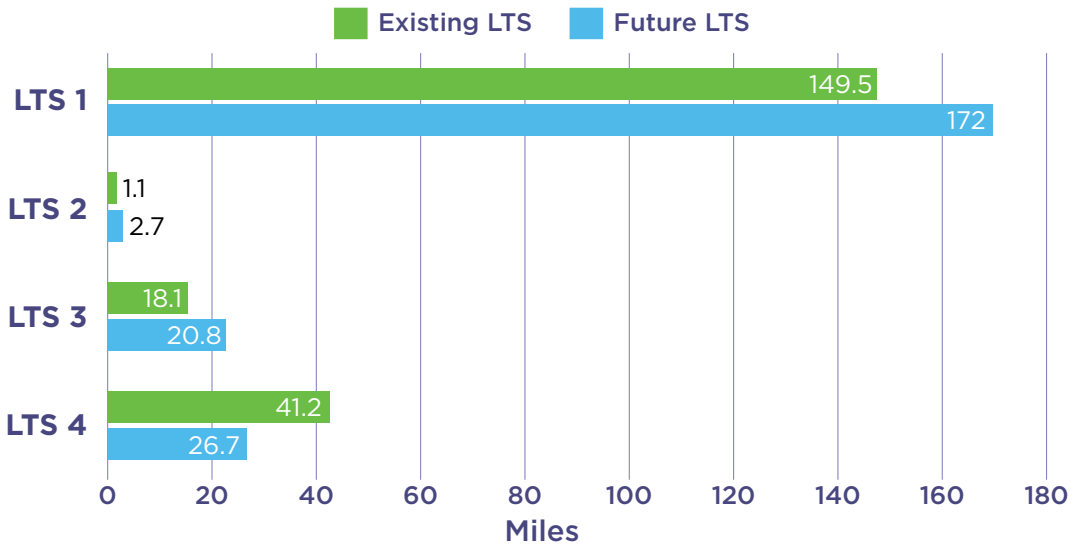


Figure 16 shows the total centerline miles by LTS score within City boundaries based on the existing[1] and proposed conditions. As shown, **more than 150 miles (70%) of the approximate 210 miles of roadway within the City are currently low-stress, having a LTS of 1 or 2. There are over 170 miles (82%) of low-stress routes within the future roadway network, which is equivalent to an increase of over 20 miles**.

The slight increase in routes having a LTS 3 is due to proposed Class II facilities on roadways with speeds exceeding 30 mph. Although the addition of a bike lane adds a dedicated space for bicyclists, higher speed roadways continue to generate higher stress[1].

6.2 Intervention & Implementation

The majority of barriers identified within the City are low-stress routes crossing higher stress arterial roadways. There are several treatments that may be used ranging from striping updates to altered geometry and signal enhancements. In addition, the following pedestrian crossing treatments have been successful in minimizing crashes at high-volume bicycle crossings and may be enhanced to include bicyclist warning signs, such as:

6.2.1 Rectangular Rapid Flashing Beacons (RRFBs)

- Bicyclist or pedestrian activated high intensity flashing beacons that increase motorist awareness and visibility of non-motorized crossings. MUTCD sign W11-15 may be used to indicate frequent bike crossings.
- It is preferred to mount signs on both sides of the street and within the median (if one is present).

MUTCD W11-15

6.2.2 Pedestrian Hybrid Beacon (PHB)

- Also known as a HAWK (High-intensity Activated crossWalK), the beacon consists of two red lenses over a single yellow lens on a major street with pedestrian and/or bicycle indicators for crossing movement.
- May result in less delay for vehicle traffic compared to a full traffic signal because stopped vehicles are permitted to move if the crossing is clear once the beacon begins to flash red in a wig-wag pattern. This occurs during normal pedestrian 'flashing don't walk' phase that immediately follows the pedestrian 'walk' phase during a double solid red indication for motorists.
- Have similar driver yielding rates as RRFBs and generally used on higher speed roadways with two or more travel lanes in each direction.

[1] The existing network is defined as those segments accessible to bicyclists. Highways and private roadways are not included.

- In addition, leading pedestrian intervals and dynamic signage may also be incorporated at intersection locations. Decisions on appropriate traffic control devices for crossings should be based on criteria such as pedestrian (and bicycle) crossing volume, major street traffic volume, and length of crossing. RRFBs are typically not used on roadways with more than four through lanes; in those locations, a PHB or full traffic signal is preferred.

Modified geometry such as tighter turning radius to improve bicyclist comfort levels at larger, high speed intersections. Raised medians and crossings may be incorporated for added sight lines. The islands separate conflicts and provide a safe refuge for bicyclists to cross in two-stages.

If a crossing is not available adjacent to a bicycle facility, enhancements may be made alongside corridors and to existing intersections for alternate connections.

If the total street width allows, lane widths may be reduced to provide additional space for a multi-use pathway. Intersection signage and striping may also be enhanced to alert motorists of increased bicycle traffic and intersection changes.

Sample treatments identified for three high-stress crossing locations are included in the following pages. The samples should be used for planning purposes and serve as examples of how other crossings and facility connections may be completed to link segments in the bicycle network. It is suggested a traffic study be completed at each intersection to identify and address operational and additional safety issues that may exist.

Channelized Raised Crossing

Rectangular Rapid Flashing Beacons (RRFBs) are proven treatments in raising the percentage of drivers who yield to bicyclists at midblock crossings.

Pedestrian Hybrid Beacons (PHB) are used to improve crossings for non-motorized users where side street vehicular or non-motorized traffic volumes do not meet the minimum warrant thresholds for installation of a traffic signal.

Raised Median with Refuge may be raised or flushed with the roadway using painted islands. Angling the crossing through the median or island forces the bicyclist to "face" oncoming traffic and make better eye contact with approaching drivers.

Bicyclist Activating RRFB-Controlled Midblock Crossing

Example Location A: Jefferson Boulevard and Higgins Road

Existing Conditions

- Jefferson Boulevard is currently a four-lane divided roadway with a posted speed greater than 30 mph, currently operating at a LTS 4.
- Higgins Road is a two-lane roadway with a striped centerline with a speed of 25 mph currently operating at a LTS 1.
- There is an existing bike lane on Jefferson Boulevard that continues through the intersection.
- River City High School is located east of the intersection.

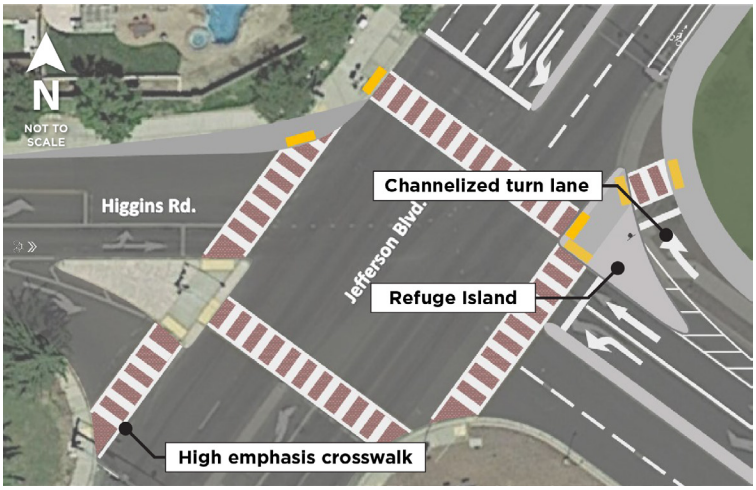
Future Conditions

- Proposed facilities include a bike lane connection along Higgins Road.
- Due to the high posted speed along Jefferson Boulevard, the future LTS remains equal to 4.

Additional Sample Treatments

- High emphasis crosswalks increase pedestrian visibility within the intersection. An additional crosswalk is proposed for the north leg of the intersection.
- A dedicated right turn lane exiting the school allows for a two-stage crossing at the east leg of the intersection. The crossing between the street edge and the right turn island can be raised as a flat-top speed table to slow traffic and further enhance the environment for bicyclists and pedestrians.
- A modified curb radius on the northwest corner of the intersection naturally reduces right-turning vehicle speeds.

The proposed improvements make the intersection more compact and shortens the exposed crossing distances for both bicyclists and pedestrians.



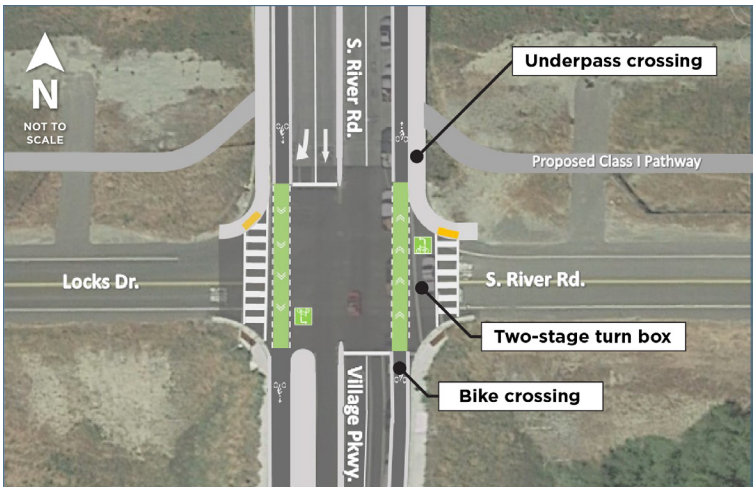
Example Location B: Locks Drive/South River Road and Village Parkway

Existing Conditions

- South River Road north of the intersection is currently a two-lane divided roadway with a posted speed of 35 mph, currently operating at a LTS 3. A wide shoulder is provided for bicyclists.
- South River Road east of the intersection is a two-lane roadway with a striped centerline and speed of 35 mph, currently operating at a LTS 4.
- Locks Drive continues to the west as a two-lane roadway with a posted speed of 30 mph.
- There is an existing bike lane located on Village Parkway south of the intersection. The section currently operates at a LTS 4.

Future Conditions

- Proposed facilities include a Class IV cycle track along South River Road/Village Parkway and a Class 1 pathway along Locks Drive/South River Road with potential to continue beneath the South River Road Bridge.
- The addition of the two bicycle facilities lowers the stress of all segments to a LTS 1.



Additional Sample Treatments

- A median is provided south of the intersection to separate vehicle traffic and the cycle track. High emphasis, green crosswalks increase bicycle visibility within the intersection.
- If the intersection becomes signalized, two-stage turn boxes may be provided for left-turning bicyclists wanting to continue west and east along Locks Drive/South River Road.
- If the intersection is signalized, it is recommended to provide an exclusive southbound right turn signal phase so bicyclists continuing south in the cycle track can do so without conflicts with southbound right turning vehicles. A bicycle signal head can be used to show the green signal phase for cyclists.

One-Way Cycle Track

Cycle Track Treatment at Intersection with Two-Stage Turn Box

HAWK with Bike Phase

Example Location C: Sacramento Avenue and Bryte Avenue

Existing Conditions

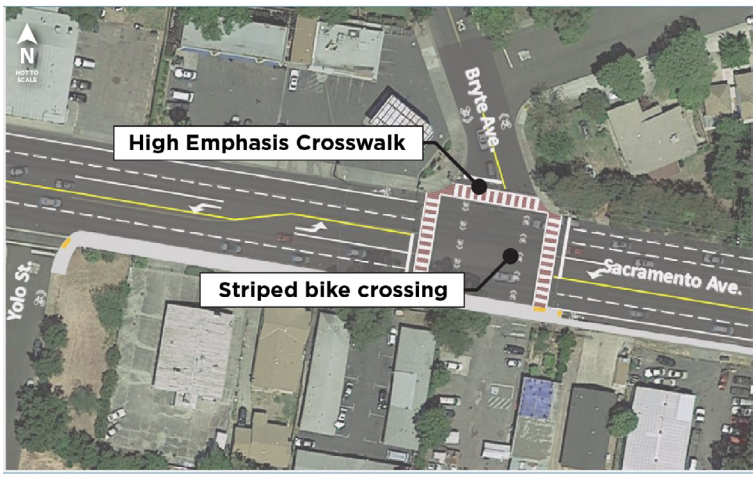
- Sacramento Avenue is currently a four-lane roadway with left turn lanes at intersection locations. It has a posted speed greater than 30 mph and operates at a LTS 4. There is an existing bike lane along the roadway.
- Bryte Avenue is a two-lane 25 mph residential roadway operating at a LTS 1.
- Yolo Street is a two-lane 25 mph roadway operating at a LTS 1.

Future Conditions

- Proposed facilities include a trail connection south of Yolo Street and Class 3 connections from the Yolo Street/Sacramento Avenue intersection continuing onto Bryte Avenue.
- Due to the high speed along Sacramento Avenue, the future LTS remains a 4.

Additional Sample Treatments

- The bicycle lane on the south side of Sacramento Avenue, from Yolo Street to Bryte Avenue, is replaced with a multi-use pathway. The connection allows a shared space for pedestrians and bicyclists who wish to cross Sacramento Avenue and continue north to Bryte Avenue. This proposed sample improvement becomes much more valuable from a citywide bicycle network perspective if/when a crossing of the railroad corridor on the south end of Yolo Street is achieved.
- The existing signalized intersection at Bryte Avenue also provides the opportunity to reduce conflicts with turning vehicles through a leading pedestrian interval.
- High emphasis crosswalks increase pedestrian and bicyclist visibility within the intersection.
- A striped bicycle crossing parallel to the pedestrian crosswalk provides a continuous route for cyclists wishing to cross to/from Bryte Avenue.



6.2.3 LTS Analysis Attributes

The following attributes are available within the city's LTS geospatial database:

- LTS_ID: Unique identifier assigned to each segment
- FULLSTREET: The full street name as listed in the City of West Sacramento (COWS) roadway centerline database.
- TO: Beginning segment limit
- FROM: Terminating segment limit
- SPEED: Posted speed (mph)
- TOTALLANE: Total roadway width, expressed as number of lanes
- ADT: Average Daily Traffic
- MEDIAN: Raised median width (ft.)
- N_E_PATH: Northbound/eastbound multi-use pathway presence
- N_E_LANE: Denotes a bike lane in the north/east direction
- N_E_PARK: Denotes on-street parking in the north/east direction
- N_E_LANE_W: Northbound/eastbound bike lane width
- N_E_L_P_W: Northbound/eastbound cumulative bike lane and on-street parking width
- N_E_BLOCK: Denotes blockage due to on-street parking in the north/east direction: (rare) represents little to no parking and (frequent) represents recurrent parking along the specified segment
- S_W_PATH: Northbound/eastbound multi-use pathway presence
- S_W_LANE: Denotes a bike lane in the south/west direction
- S_W_PARK: Denotes on-street parking in the south/west direction
- S_W_LANE_W: Southbound/westbound bike lane width
- S_W_L_P_W: Southbound/westbound cumulative bike lane and on-street parking width
- S_W_BLOCK: Denotes blockage due to on-street parking in the south/west direction: (rare) represents little to no parking and (frequent) represents recurrent parking along the specified segment
- N_E_LTS: Northbound/eastbound LTS
- S_W_LTS: Southbound/westbound LTS
- SEG_LTS: Roadway LTS
- LENGTH: Segment length (ft.)

EXISTING CONDITIONS FOR PEDESTRIANS

7.1 Existing Pedestrian Facilities

Continuous sidewalks are provided on many roadways in West Sacramento, but there are numerous gaps in the sidewalk network, including several on busy streets such as Sacramento Avenue, West Capitol Avenue and Jefferson Boulevard. Consistent with rural designation, many rural residential roadways in Southport do not feature sidewalks.

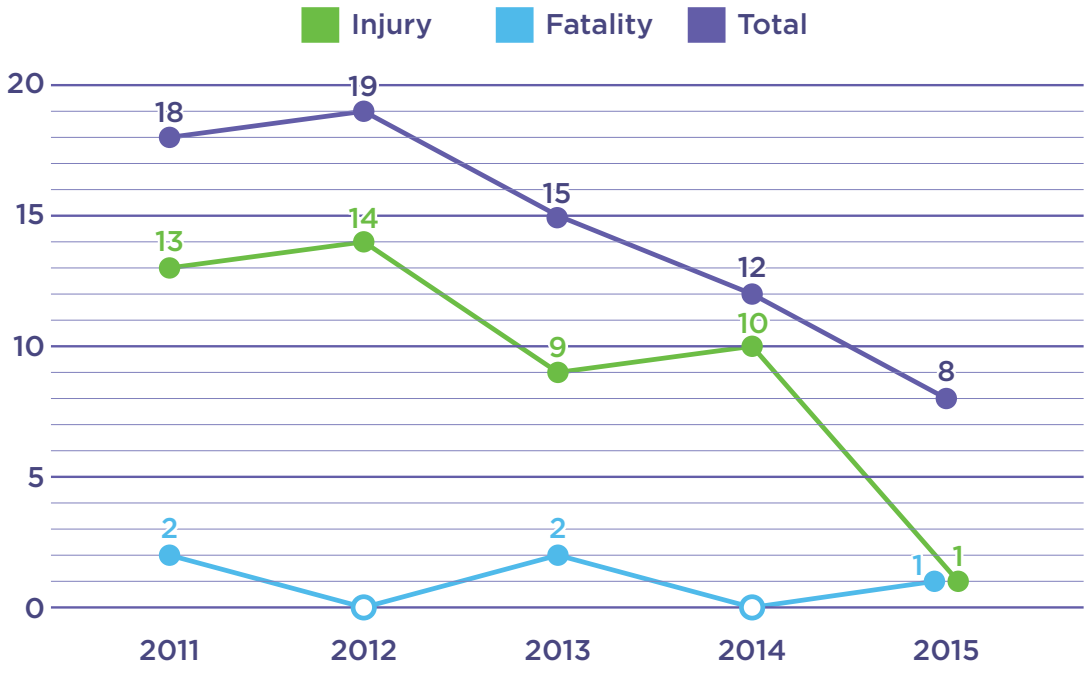
Marked crosswalks are provided at approaches to most signalized intersections and some stop-controlled intersections. Uncontrolled marked crosswalks exist at several locations where high pedestrian traffic is experienced and are located on multi-lane roadways. The City's current standard is to use marking patterns for controlled crosswalks and triple-four marking patterns for uncontrolled crosswalks.

Curb ramps, which make crosswalks and sidewalks accessible for wheelchairs, strollers, and bikes, are provided at most intersection corners. However, there are several locations in the City that are missing curb ramps or have existing curb ramps that do not meet current standards. The Public Works department is currently implementing an ADA Transition Plan to place new curb ramps and other improvements for people with disabilities.

7.2 Collision Analysis

Five years of California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) data for pedestrian-vehicle collisions was reviewed to identify collision locations and trends in West Sacramento. **Figure 6** on page 33, shows the locations of pedestrian collisions and **Table 10** below summarizes the data by year and severity.

Table 10 - West Sacramento Pedestrian-Vehicle Collision Summary (January 2011 – December 2015)



The SWITRS data was also analyzed for the Primary Collision Factors (PCFs). **Table 11** shows the most common PCFs for pedestrian-vehicle collisions in West Sacramento.

Table 11 - West Sacramento Pedestrian-Vehicle Collision Summary Primary Collision Factors (January 2006 – December 2010)

PRIMARY COLLISION FACTOR	NUMBER OF PEDESTRIAN-VEHICLE COLLISIONS			
	NON-INJURY	INJURY	FATALITY	TOTAL
Pedestrian Violation (Pedestrian not yielding or crossing illegally)	4	17	1	22
Pedestrian Right-of-Way (Driver not yielding)	5	10	1	16
Unsafe Starting or Backing	1	6	0	7
Driving or Bicycling Under the Influence of Alcohol or Drugs (Does not include pedestrians under the influence)	2	2	1	5
Wrong Side of Road	1	4	0	5
Other	8	7	2	17

Source: California Highway Patrol

As shown in **Table 11**, the most common PCFs were pedestrians crossing illegally (such as crossing against a signal or mid-block between signals) and drivers not yielding the right-of-way to pedestrians in crosswalks.

Table 12 shows the most common pedestrian actions, which describe what the pedestrian was doing immediately before the collision occurred.

Table 12 - West Sacramento Pedestrian-Vehicle Collision Summary Pedestrian Actions (January 2006 – December 2010)

PRIMARY COLLISION FACTOR	NUMBER OF PEDESTRIAN-VEHICLE COLLISIONS			
	NON-INJURY	INJURY	FATALITY	TOTAL
Crossing not in Crosswalk	4	17	1	22
Crossing in Crosswalk at Intersection	7	8	1	16
In Road, Including Shoulder	2	11	0	13
Not in Road	1	3	0	4
Crossing in Crosswalk not at Intersection	0	0	2	2
Other	7	8	1	15

Source: California Highway Patrol

The majority of the collisions have been along West Capitol Avenue, Sacramento Avenue, and Jefferson Boulevard. The proposed Class IV separated bikeway along West Capitol Avenue will greatly increase both bicycle and pedestrian safety. The vast majority of the collisions along Jefferson Boulevard have been between automobiles and bicycles, not pedestrians. The proposed Class II bike lanes along Jefferson Boulevard from Harmon Road to the southern city limit will help increase bicycle safety, but Jefferson Boulevard remains a high stress route (LTS 4).

RECOMMENDATIONS FOR PEDESTRIANS

A detailed engineering study is necessary to determine exactly what improvements, if any, are appropriate at a particular crosswalk location. Both controlled and uncontrolled crossings may be improved to welcome pedestrian use.

8.1 Uncontrolled Crossing Locations

Public outreach participants generally indicated that some uncontrolled crosswalks in West Sacramento may pose a potential safety concern. The following treatments may be implemented to lower the stress at these locations:

High-visibility signs to increase driver awareness of pedestrians in areas with high pedestrian volumes.

Raised Medians in the center of a street, separating opposing lanes of traffic, to provide a refuge area for people crossing a street.

Guidance for uncontrolled crosswalks is available from the following sources:

- The Federal Highway Administration (FHWA) study *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations* (Campbell, Feaganes, Huang, Lagerwey, Stewart, and Zegeer, 2005), also known as the "Zegeer Study"
- *National Cooperative Highway Research Program 562: Improving Pedestrian Safety at Unsignalized Crossings* (NCHRP 562) (Transportation Research Board, 2006)
- Various studies on the effectiveness of individual crossing treatments

In some cases where pedestrian demand is insufficient or where crosswalk enhancement devices will not provide the desired level of pedestrian safety, not marking a crosswalk (or removing a marked crosswalk) is a potential improvement option.

8.1.1 Choosing to Mark a Crosswalk

Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations, also known as the "Zegeer Study," is widely recognized as one of the most relevant resources for determining marked crosswalk locations and enhancement measures. The most commonly referenced component of the FHWA study is **Table 13**, which makes recommendations for installing marked crosswalks based on roadway characteristics.

*Table 13. Recommendations for installing marked crosswalks and other needed pedestrian improvements at uncontrolled locations**

Roadway Type (Number of Travel Lanes and Median Type)	Vehicle ADT ≤ 9,000			Vehicle ADT > 9,000 to 12,000			Vehicle ADT > 12,000 to 15,000			Vehicle ADT > 15,000		
	Speed Limit**											
	≤ 48.3 km/h (30 mph)	56.4 km/h (35 mph)	64.4 km/h (40 mph)	≤ 48.3 km/h (30 mph)	56.4 km/h (35 mph)	64.4 km/h (40 mph)	≤ 48.3 km/h (30 mph)	56.4 km/h (35 mph)	64.4 km/h (40 mph)	≤ 48.3 km/h (30 mph)	56.4 km/h (35 mph)	64.4 km/h (40 mph)
Two lanes	C	C	P	C	C	P	C	C	N	C	P	N
Three lanes	C	C	P	C	P	P	P	P	N	P	N	N
Multi-lane (four or more lanes) with raised median***	C	C	P	C	P	N	P	P	N	N	N	N
Multi-lane (four or more lanes) without raised median	C	P	N	P	P	N	N	N	N	N	N	N

*These guidelines include intersection and midblock locations with no traffic signals or stop signs on the approach to the crossing. They do not apply to school crossings. A two-way center turn lane is not considered a median. Crosswalks should not be installed at locations that may present an increased safety risk to pedestrians, such as where there is poor sight, distance, complex or confusing designs, a substantial volume of heavy trucks or other dangers, without first providing adequate design features and/or traffic control devices. Adding crosswalks alone will not make crossing safer nor will they necessarily result in more vehicles stopping for pedestrians. Whether or not marked crosswalks are installed, it is important to consider other pedestrian facility enhancements (e.g., raised median, traffic signal, roadway narrowing, enhanced overhead lighting, traffic-calming measures, curb extensions), as needed, to improve the safety of the crossing. These are general recommendations; good engineering judgment should be used in individual cases for deciding where to install crosswalks.

**Where the speed limit exceed 64.4 km/h (40 mph), marked crosswalks alone should not be used to unsignalized locations.

***The raised median or crossing island must be at least 1.2 m (4 ft.) wide and 1.8 m (6 ft.) long to serve adequately as refuge area for pedestrians, in accordance with CA MUTCD and American Association of State Highway and Transportation Officials (AASHTO) guidelines.

C = Candidate sites for marked crosswalks. Marked crosswalks must be installed carefully and selectively. Before installing new marked crosswalks, an engineering study is needed to determine whether the location is suitable for marked crosswalk. For an engineering study, a site review may be sufficient at some locations, while a more in-depth study of pedestrian volume, vehicle speed, sight distance, vehicle mix, and other factors may be needed at other sites. It is recommended that a minimum utilization of 20 pedestrian crossings per peak hour (or 15 or more elderly and/or child pedestrians) be confirmed at a location before placing a high priority on the installation of a marked crosswalk alone.

P = Possible increase in pedestrian crash risk may occur if crosswalks are added without other pedestrian facility enhancements. These locations should be closely monitored and enhanced with other pedestrian crossing improvements, if necessary, before adding a marked crosswalk.

N = Marked crosswalks alone are insufficient, since pedestrian crash risk may be increased by providing marked crosswalks alone. Consider using other treatments, such as traffic-calming treatments, traffic signals with pedestrian signals where warranted, or other substantial crossing improvement to improve crossing safety for pedestrians.

Based on daily traffic volume, speed limit, and roadway type, **Table 13** of the FHWA study identifies whether a site is a candidate for a marked crosswalk, if there is potential for increased pedestrian crash risk, or if a marked crosswalk alone is insufficient. The City should use the study recommendations when determining whether or not an existing or proposed uncontrolled crosswalk is a candidate site for a marked crosswalk. The recommendations of this study are meant to inform, but not replace, engineering judgment. Therefore, site-specific characteristics may affect the determination of whether or not a location is a candidate site for a marked crosswalk.

Based on the outcome of the FHWA study, the California Manual on Uniform Traffic Control Devices (CA MUTCD) includes language recommending against installing uncontrolled marked crosswalks on certain roadways:

New marked crosswalks alone - without other measures designed to reduce traffic speeds, shorten crossing distances, enhance driver awareness of the crossing, and/or provide active warning of pedestrian presence - should not be installed across uncontrolled roadways where the speed limit exceeds 40 mph and either:

*A. Four or more travel lanes of travel **without** a raised median or pedestrian refuge island and an ADT of 12,000 vehicles per day or greater; or*

*B. Four or more travel lanes **with** a raised median or pedestrian refuge island and an ADT of 15,000 vehicles per day or greater.*

Pedestrian demand is an important consideration when deciding to install a new or enhance an existing marked crosswalk. The FHWA study states:

> *While overuse of marked crossings at uncontrolled locations should be avoided, higher priority should be placed on providing crosswalk markings where pedestrian volume exceeds about 20 per peak hour (or 15 or more elderly pedestrians and/or children per peak hour).*

Several California cities have adopted crosswalk policies that address issues pertaining to choosing to mark a crosswalk and crosswalk enhancement devices. The City of West Sacramento should consider adopting a similar policy to ensure that future crosswalk installations follow established City guidelines.

Safety Treatment	Description	Key Factors
Marked Crosswalk 	Typically used at signalized or all-way stop-controlled. Intersections: Designated pedestrian crossings should be considered at locations with pedestrian volumes greater than 20 per hour and/or with high vehicle-pedestrian collisions.	- Indicates to pedestrians and drivers preferred locations for crossing. - Signals a clear "channel" for pedestrian pathways to both pedestrians and drivers. - Assists in facilitating eye contact by moving pedestrian directly into the driver's field of vision. - Reduces pedestrian-vehicular collisions. - Can provide a false sense of security, especially at uncontrolled crossings.
High Visibility Signs & Markings 	Posted at crossings to increase driver awareness of pedestrian crossing and (state law) requirements. Typically applied at unsignalized and signalized locations where pedestrian or bicycle movements need to be emphasized.	- Beneficial in areas where drivers might not expect a pedestrian crossing or where a higher level of driver attention is required due to potential pedestrian and bicycle conflicts.
Advance Yield Lines 	Placed in advance of marked, uncontrolled crosswalks or at crossings with Rectangular Rapid Flash Beacons. Used to establish the location in which drivers should stop and yield to pedestrians (used in conjunction with R1-5 "Yield Here To Pedestrians" sign). Useful in areas where pedestrian visibility is low.	- Increases visibility between pedestrians and motorists. - Reduces number of vehicles encroaching on the crosswalk when pedestrians are present. - Reduces multiple threat crash typology where two traffic lanes approach a crosswalk from the same direction and one driver yields to the crossing pedestrians but other does not due to limited pedestrian visibility caused by first vehicle.

Safety Treatment	Description	Key Factors
Raised Crossing at Channelized Right Turn 	Used in locations with high bicycle/ pedestrian activity combined with higher speed right turning vehicular traffic.	- Provides safety advantage to pedestrians with demonstrated increased yielding by drivers. - Slows driver turning speeds.
Median Islands 	Raised islands in the center of a street, separating opposing lanes of traffic with access cutouts along pedestrian routes. Provides a refuge area for people crossing a street. Used in locations on single lane or multi-lane streets where there is a defined mid-block crossing desire line or at intersections. Can also split up a multi-lane road and act as a supplement to other pedestrian facility treatments.	- Allows pedestrians to cross the street in two stages, focusing on each direction of traffic separately. - Provides pedestrians with a better view of oncoming traffic and increases pedestrian visibility for drivers.
Staggered Median Islands 	Mid-block crossings staggered such that a pedestrian crosses half the street and then must walk towards traffic to reach second half of crosswalk. Used in locations on single lane or multi-lane roadways where there is a defined mid-block crossing desire.	- Increase in concentration of pedestrians at a crossing and provision of better traffic views for pedestrians. - Motorists are better able to see pedestrians as they walk through staggered refuge.
Flashing Beacons 	Flashing amber lights installed on overhead signs or roadside in advance of or at marked crosswalks. Considered along higher speed streets where increased driver visibility of multimodal crossing is desired. Can be activated via push button, passive detection or continuously flashing.	- Blinking lights during pedestrian crossing times increase the number of drivers yielding for pedestrians and reduce pedestrian-vehicle conflicts. - Improves yielding compliance and pedestrian safety conditions on multi-lane streets.

Safety Treatment	Description	Key Factors
Rectangular Rapid Flashing Beacons 	Rapid flashing LED strobe lights post-mounted in between a pedestrian or trail crossing warning sign. May be push-button activated or with passive pedestrian detection. Typically applied on single-lane streets where there is a defined mid-block crossing desire and established evaluation criteria is met.	- Increases driver yielding compliance. - Solar panels reduce energy costs associated with the device. - Wireless capabilities reduces installation cost.
Pedestrian Hybrid 	Combination of a beacon flasher and a traffic control signal. When actuated, displays yellow (warning) indication followed by a solid red. During pedestrian clearance, driver sees a flashing red "wig-wag" pattern until clearance interval has ended and the signal goes dark. Considered along higher speed multi-lane streets where increased driver visibility of multimodal crossing is desired and established evaluation criteria is met.	- Reduces pedestrian-vehicle conflicts and increases driver compliance with yielding to pedestrians. - Reduces vehicle delay when compared to standard pedestrian traffic signal.
Pedestrian Countdown Signal 	Used at signalized intersections and displays the amount of time remaining during pedestrian clearance interval.	- Reduces pedestrian-vehicle conflicts and slows traffic speeds. - Provides pedestrians with increased awareness of how much time they have remaining to finish crossing the street.
Decorative Crosswalk 	Comprised of thermoplastic or pavement markings installed within typical crosswalk areas with decorative printed patterns. White longitudinal markings need to be provided to define limits of the crosswalk and pedestrian route.	- Not considered a safety improvement measure. - Have the benefit of creating visual connections, enhancing neighborhood characters and identity, and improving streets aesthetic quality. - Cannot utilize colors or patterns that result in driver confusion regarding intended purpose of crosswalk.

8.2 Location-Specific Recommendations

8.2.1 Jefferson Boulevard

Public outreach participants most commonly cited Jefferson Boulevard as the most difficult roadway for walking in West Sacramento. North of the Deep Water Ship Channel, barriers to walking include the interchange at Capital City Freeway, missing sidewalk segments, and limited crossing locations. In Southport, there are sidewalks missing along currently undeveloped parcels.

At minimum, it is recommended the City require new development to complete sidewalk gaps along their frontage. In already developed areas, it is recommended the City include sidewalk construction in its Capital Improvement Program (CIP). The City could also develop a Complete Streets plan to address pedestrian needs regarding the Capital City Freeway interchange and limited crossings north of the Deep Water Ship Channel.

8.2.2 West Capitol Avenue

In February 2007, the City completed the West Capitol Avenue Streetscape Master Plan which identifies urban design strategies, development opportunities, and a conceptual design for the corridor between Riske Lane and Harbor Boulevard. In 2008, the City was awarded $7 million through the Sacramento Area Council of Governments' Community Design Program for Phase 1 of the West Capitol Avenue Streetscape Project. Those improvements are complete between Riske Lane and Jefferson Boulevard.

To address pedestrian access and safety on West Capitol Avenue, the City should continue to implement the recommendations of the Streetscape Master Plan. Between Glide Avenue and Jefferson Boulevard, the Streetscape Master Plan proposes a four lane roadway with no bike lanes and frontage access lanes to accommodate bicyclists and parallel parking. Given the importance of West Capitol Avenue as a bicycle transportation corridor, the City should reconsider installing bike lanes during the project's design and also complete missing sidewalk segments west of Harbor Boulevard.

8.2.3 Enterprise Boulevard

Despite being a primarily commercial/industrial street, public outreach participants commonly cited Enterprise Boulevard as one of the most difficult roadways for walking in West Sacramento. Enterprise Boulevard has an interchange at I-80 with nearby park-and-rides and provides access to highway commercial parcels south of I-80 and some single-family residences, as well as accesses many of West Sacramento's industrial areas. It does not feature sidewalks along much of its length or marked crosswalks at major intersections.

The City is developing a complete streets plan for Enterprise Boulevard that includes targeted public outreach to key stakeholders as well as identifies and resolves perceived walking barriers. The plan should also recognize that Enterprise Boulevard primarily serves industrial land uses therefore unique solutions may be required.

EDUCATION, ENCOURAGEMENT, AND ENFORCEMENT

In addition to implementing bicycling and walking infrastructure, the best way to increase levels of biking and walking is through programs aimed at education, encouragement, and enforcement.

9.1 Existing Programs

The City will benefit most from supporting existing local and regional bike/pedestrian programs rather than creating new ones. The following are several existing programs in the City and Sacramento region.

9.1.1 Safe and Healthy Routes to School Project

WALKSacramento is partnered with the City and the Washington Unified School District to complete the Safe and Healthy Routes to School Project. The project includes walk assessments at eight local schools and programs to improve the culture of walking and biking to school in West Sacramento. The most recent walk and bike audit completed by WALKSacramento was conducted at Westmore Oaks Elementary School on April 1, 2017.

9.1.2 Walk to School Day and Bike to School Day With WALKSacramento

Walk to School Day is held every October and Bike to School Day is held every May, which can be individually promoted by both the schools and school districts. Working with a local advocacy organization can be helpful for event organization and administration. Each year, WALKSacramento coordinates with local schools to promote and administer both events.

9.1.3 Sacramento Region 511

Sacramento Region 511, promoted by SACOG, is an information hub for traveling in the Sacramento Region. 511 includes several resources for commuter bicycling, including:

- Sacramento Region Bicycle Friendly Business awards
- Bicycle Trip Planner that provides directions from origin to destination and allows users the option to select a route that is either most bike-friendly or most direct
- Bicycle Commute Guide
- Bike Maps
- Other local, regional, and statewide resources

9.1.4 Bike Share Program

On May 18, 2017, the Tower Bridge Bike Share Preview was rolled out in West Sacramento and Sacramento. Both cities teamed with SACOG and Social Bicycles to implement a smart bike system that included placing 50 rentable bicycles within the Washington and Bridge Districts of West Sacramento as well as in downtown and midtown Sacramento. There are eight bike share stations located in West Sacramento. The initial preview is transitioning to the JUMP Bike Share Program that will be implemented by Social Bicycles through a contract with SACOG. The JUMP Bike Share Program will initially consist of 300 electric-assist bicycles distributed throughout the cities of West Sacramento, Sacramento, and Davis starting on May 15, 2018 with an additional 600 electric-assist bicycles by summer 2018.

9.1.5 Smart Cycling

Smart Cycling provides bicycle education throughout the Sacramento region. Courses are funded by the Sacramento Transportation Management Association (TMA) and includes one-hour clinics on Smart

Cycling, All-Weather Cycling, Basic Bicycle Maintenance, and Nutrition for Cyclists. A three-part class series taught by League-Certified instructors aimed to help bicyclists more confident and comfortable on streets. Participants who complete all three classes and an exam earn a Traffic Skills 101 certificate from the League of American Bicyclists. Several City departments, including Police and Public Works, team with the Sacramento TMA to schedule courses.

9.1.6 May is Bike Month

"May is Bike Month" is a competition program sponsored by several local agencies throughout the Sacramento region to challenge participants in a fun and active way. The program motivates bicyclists of all ages and skill levels to set and achieve a mileage goal for the month of May. Participants can compete on behalf of their employer, team/bike club or school. The ultimate goal of "May is Bike Month" is for residents of the Sacramento region to collectively ride over 2,000,000 miles in May.

9.1.7 Light On!

The Sacramento Area Bicycle Advocates (SABA) administered the Light On! Program through 2011. Through the program, SABA volunteers set up an intercept booth at night and offered free lights to bicyclists without lights. SABA is currently looking for sponsors to help underwrite the purchase of more lights so they can resume the giveaways.

9.1.8 Bike Valet

In partnership with the Sacramento Metropolitan Air Quality Management District (SMAQMD), SABA provides bike valet parking at several major events. Event organizers can hire SABA to provide bike parking, but rates vary depending on the event size and duration.

9.2 Candidate Programs

9.2.1 Bike Parking on Private Property

Several cities in the United States encourage existing businesses to install bike parking by providing basic guidelines on rack types, installation parameters, and local bike rack manufacturers. West Sacramento could develop similar materials for local businesses, add the information to the City website and distribute through volunteers. Most cities cannot install free bike racks on private property, therefore this type of encouragement program would be a reasonable step to increase the number of businesses in West Sacramento that offer bike parking.

9.2.2 Mode Share Monitoring Program

To better understand the effectiveness of City efforts to increase levels of walking and bicycling, a mode share monitoring program could be implemented through a stand-alone City program or regional participation program. Mode share monitoring programs in other regions take many different forms, such as transportation surveys of residents or bike/pedestrian counts at locations throughout a city or region. Both methods could be helpful for the City to establish and monitor bike/pedestrian-related performance measures. At minimum, the City should require that bicyclist and pedestrian volumes be a part of intersection counts for traffic studies.

9.2.3 Education Programs

Adult Bicycling Education

In partnership with Smart Cycling and local bicycling organizations, the City could host Smart Cycling clinics or classes in locations where they would be attended by target populations.

Safe Routes to School

The Safe Routes to School program is currently focusing on improving the culture for walking and biking to school in West Sacramento. The City could administer a Safe Routes to School program that focuses on improving safety for biking or walking to school. Examples of best-practices from other jurisdictions include bike and pedestrian safety education, hiring of a full-time Safe Routes to School coordinator, creating a parent group to implement education programs, bike-to-school events, bike rodeos, and traffic safety assemblies.

Safety Equipment Giveaways

Through public outreach, several residents indicated that some West Sacramento bicyclists often ride without helmets and at night without lights or reflective clothing. At minimum, the City could work with SABA to administer a "Light On!" event in West Sacramento.

Additionally, the City could distribute lights, reflective vests, and helmets to interested residents at regular fixed locations. For example, parents can pick up a bike helmet for their child at any fire station. Cities often apply for local or state grants and work with local businesses on sponsorships to help fund these types of safety equipment giveaways.

9.2.4 Encouragement Programs

May is Bike Month Event

Given the success of the existing May is Bike Month competition, the City could work with SACOG and local advocates to host a combined event for bicycling education, enforcement, and encouragement.

Recreational Events

To encourage bicycling, walking, and running, and promote the City's network of bike paths and trails, the City could work with local organizations to host bike races (e.g., West Sacramento Cyclocross Grand Prix), challenge rides, running races, or other events. Recreational events should be coordinated with appropriate agencies (Police Department, Public Works Department, etc.).

Open Streets Events

Open streets events are designed to attract a diversity of participants and offer them a variety of healthy ways to experience their neighborhoods or communities. Unlike bike rides, fun runs or walking events, the route is not directional, rather it functions as a linear public park that participants are free to explore in their own way and at their own pace. Open streets events are often described community-wide block parties.

By providing a positive biking and walking experience, open streets events can generate broad support among residents, public officials and local community businesses for policies and initiatives to make neighborhoods more bikeable and walkable. Many open streets participants and supporters talk about experiencing their community in an entirely new way.

9.2.5 Enforcement Programs

Moving Violations

Decreasing moving violations that are committed by motorists, bicyclists, and pedestrians is critical to improving bicycle and pedestrian safety and encouraging all roadway users to share the road. Studies have shown that roadway users of all types are commonly unaware of laws regarding the interaction of motorists, bicyclists, and pedestrians. The City and the Police Department can apply for grants through the California Office of Traffic Safety to establish a "target week" for these types of violations. In lieu of fines, the City could develop educational diversion programs for motorists, bicyclists, and pedestrians.

Radar Speed Signs

Radar speed signs feature a changeable message sign linked to a radar unit. The signs display a vehicle's actual speed as the vehicle approaches the sign. They can be mounted permanently to a pole or placed on a trailer (also known as a "speed trailer") and deployed on a temporary basis. Studies in the United States have shown that radar speed signs are an effective way of slowing traffic.

Trail Watch

Similar to a Neighborhood Watch program, a Trail Watch program relies on volunteers to regularly be visibly present on the trail and report crime or maintenance issues. Anchorage, Alaska has a model program with an online interface where Trail Watch Ambassadors can submit online summaries of trail conditions and maintenance issues. Following the implementation of the Trail Watch program, 70 percent of trail users reported that the trail felt safer and more inviting because of the program.

9.2.6 Operational Programs

Maintenance

The City seeks to keep all bicycle pathways and bike lanes clean and free of debris. The City will research ways to modify the type of street sweeper and increase the frequency of street cleaning on heavily traveled corridors to keep bike lanes clean. The City should start an "Adopt a Mile" program for Class I bike trails as an opportunity for local businesses and organizations to advertise and assist in the ongoing maintenance of the City's bike trail network.

The City shall monitor and correct bicycle detection units at intersections to ensure they are properly functioning and well-marked in order to eliminate travel barriers for bicyclists. Often cyclists wait at a signal until a car triggers a change or ends up breaking the law because the signal is non-responsive. With these bad experiences, some travelers will simply choose not to take the bike trip and end up in the car.

IMPLEMENTATION

10.1 Cost Estimates

Unit cost estimates were developed on a per mile basis for material costs and adjusted to account for mobilization, minor items, design fees, construction management, and contingencies. Material costs were escalated from the 2013 BPTMP costs to 2018 based on the Corps Civil Works Construction Cost Index System 1110-2-1304. **Table 14** shows the unit cost estimates for bicycle facilities.

Table 14. Unit Cost Estimates

IMPROVEMENT TYPE		COST/MILE
CLASS I BIKE PATH	Class I Bike Paths - Paved	**$1.5 million**
CLASS II BIKE LANES	Class II Bike Lanes - Add Striping	**$20,800**
	Class II Bike Lanes - Widen (w/o Curb and Gutter)	**$760,000**
	Class II Bike Lanes - Widen (with Curb and Gutter)	**$1.6 million**
CLASS III BIKE ROUTE	Bike Boulevard (Enhanced Class III Bike Route)	**$32,900**
	Class III Bike Routes	**$11,000**
CLASS IV BIKEWAY	Class IV Separated Bikeways	**$650,000**

10.2 Prioritization

The three main goals of the prioritization effort were to improve Safety, Connectivity, and Accessibility, and provide recommendations for which projects should be implemented more quickly, depending on funding availability. Projects were rated based on criteria which showed how they supported achievement of the three goals **(see Table 15)**. Additionally, projects were categorized as High, Medium, or Low priority recommended implementation categories. Rankings of individual projects within each category were not specified in order to give the City flexibility in implementing projects based on available funding opportunities. The list of prioritized projects is shown in Appendix B. They were vetted through public workshop.

Table 15. Project Prioritization

CRITERIA	SCORE
Improves Safety	Reduces the current Level of Traffic Stress (LTS 1, 2, 3, or 4)
Improves Connectivity	Closes existing gaps in the overall trail network by providing a new connection between 2 or more existing trails
Improves Accessibility	Provides access to key destinations or city attractors by improving direct access to schools, commercial centers, and parks

10.3 Design Standards for New Bikeways

The *Guide for the Development of Bicycle Facilities* and *Highway Design Manual* (HDM) Chapter 1000, Bikeway Planning and Design, establishes recommended criteria for planning and designing bikeways. The CA MUTCD Part 9, Traffic Control for Bicycle Facilities, provides standards and specifications for traffic control devices on bicycle facilities.

The following design standards for different types of bikeways should apply to new bikeways in West Sacramento. These design standards were developed based on nationwide best practices and are consistent with the *Guide for the Development of Bicycle Facilities*, HDM, and CA MUTCD. In some cases, these standards reflect more stringent criteria than what is specified by these design standard/guidance documents.

10.3.1 Class I Bike Paths or Trails

Design Standards

West Sacramento's required minimum width for a Class I bike path is 12 feet; 10 feet may be allowed where low use is expected. According to the HDM, the minimum paved width for a two-way bike path is eight feet, but should only be allowed where right-of-way constraints make 12 feet or 10 feet infeasible. The minimum horizontal clearance to obstructions adjacent to the pavement is two feet; three feet is preferred to maximize bicyclist comfort. The pavement material and structure of a bike path should reflect local conditions and appropriate design criteria. Appropriate landscaping should be chosen to have minimal effect on pavement quality and landscaping should also maintain appropriate path visibility. To accommodate equestrians, West Sacramento's standard is to provide a decomposed granite equestrian path along Class I bike paths wherever possible. An equestrian path width of eight feet is preferable; however, a minimum width of four feet may be allowed where right-of-way constraints make eight feet infeasible. A landscaped buffer of six feet is preferable but may be replaced by an attached shoulder where right-of-way constraints make separation infeasible. Where absolutely infeasible, Class I bike paths may only feature standard graded shoulders.

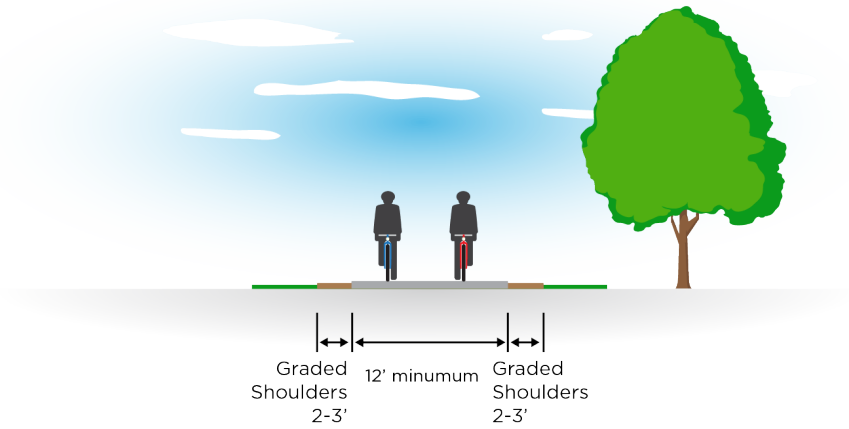
Bike Path Design for Security

Successful Class I bike paths provide users with a high degree of personal security, which contributes to high levels of use and minimized vandalism. Since adding bike paths to regular police patrols is prohibitively expensive, it is important that bike paths be properly designed to provide high degrees of personal security. In order to accomplish this, bike paths should be easily accessible to police vehicles and feature good visibility from nearby roadways and land uses. Visibility can be maximized by not locating paths in isolated areas, providing adequate lighting, and regularly maintaining landscaping. Call boxes and orientation markings and signs help bike path users identify their location in the event of an emergency.

10.3.2 Class II Bike Lanes

Design standards for Class II bike lanes vary depending on whether if the roadway has a curb, gutter and on-street parking. Design standards are provided for each scenario and for bike lanes at intersections.

Class I - Bike Path

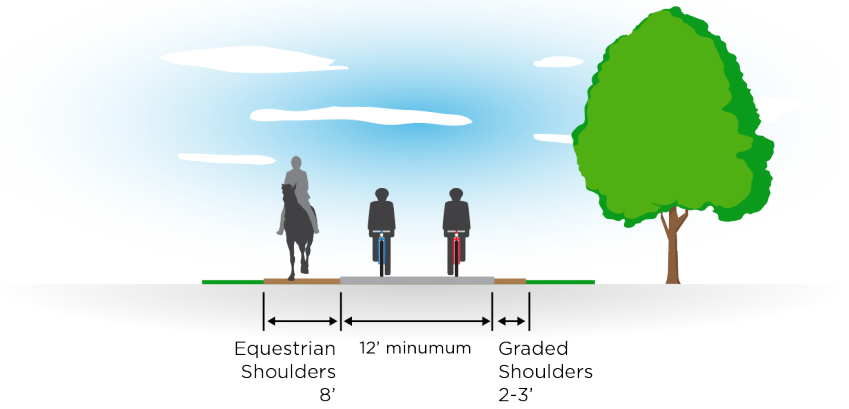


CLASS I - Bike Path

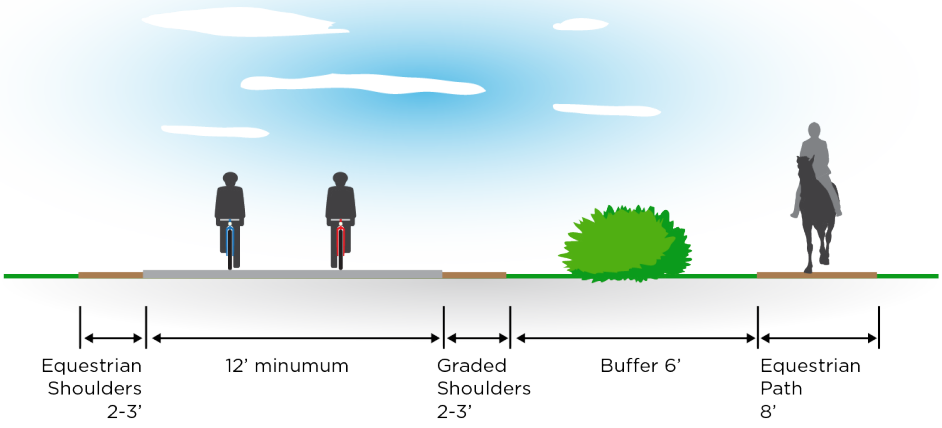
Provides a completely separated right-of-way for exclusive use of bicycles and pedestrians with crossflow minimized

MUTCD R44A (CA)

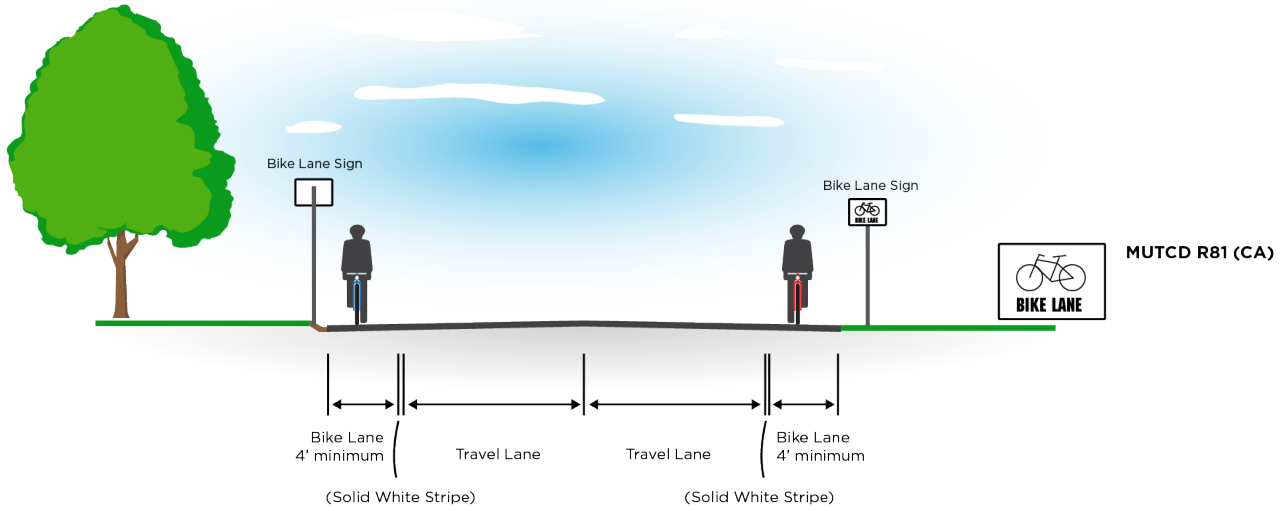
Class I - Bike Path with Extra Width for Equestrians



Class I - Bike Path with Separated Unpaved Equestrian/Jogger Path

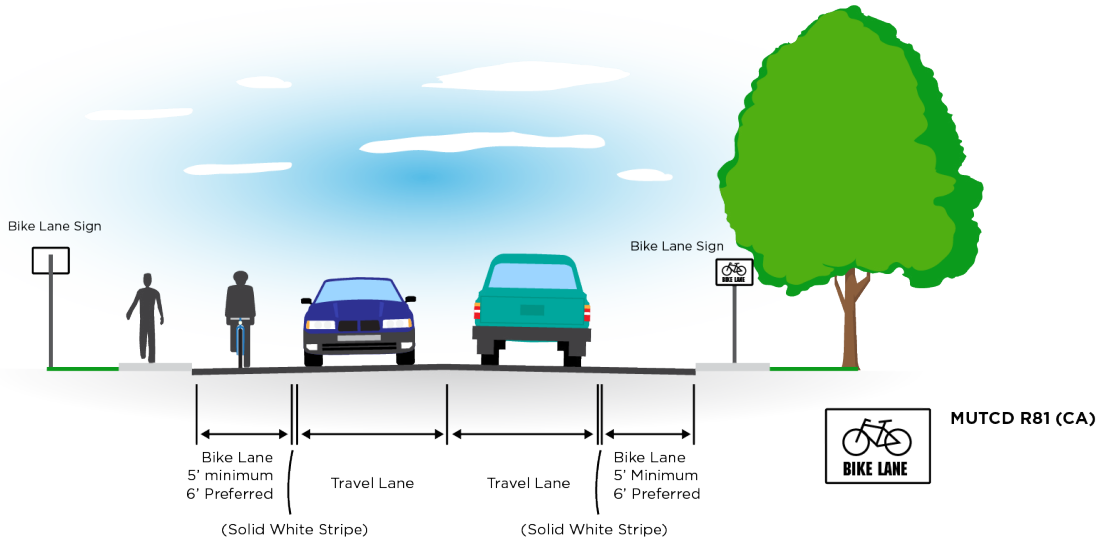


Roadways Without Curb and Gutter



On roadways without curb and gutter, the CA MUTCD requires a minimum bike lane width of four feet.

Roadways With Curb and Gutter Without On-Street Parking



On roadways with curb and gutter without on-street parking, the CA MUTCD requires a minimum bike lane width of five feet. A minimum bike lane width of six feet is preferable for bicyclist comfort since most bicyclists avoid riding on the concrete gutter.

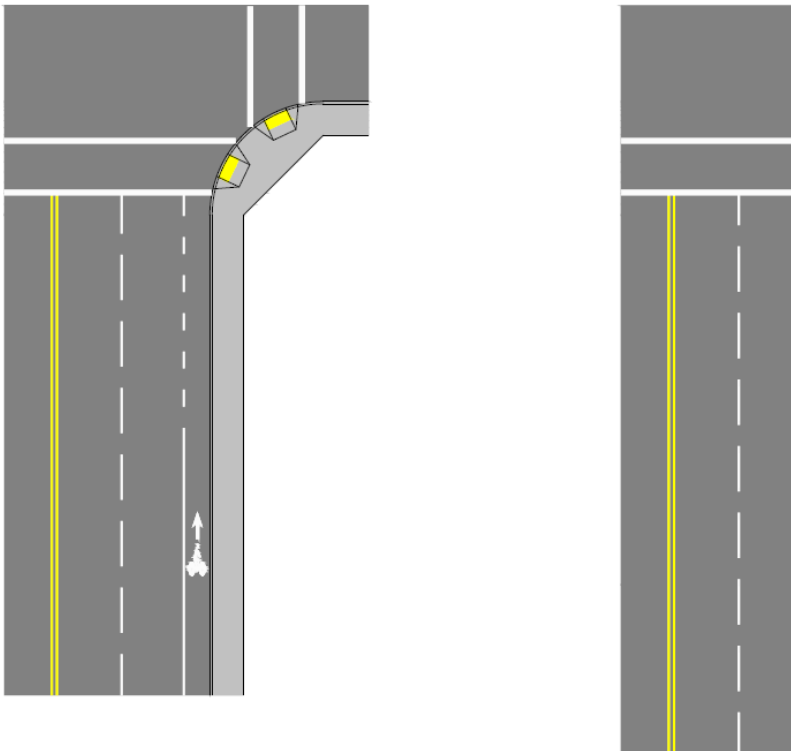
Roadways With Curb and Gutter With On-Street Parking

On roadways with curb and gutter, the CA MUTCD requires a minimum bike lane width of five feet (with or without on-street parking). A minimum bike lane width of six to seven feet is preferable for bicyclist safety so they can avoid riding in vehicles' door zone. To accommodate a bike lane width of six feet, parallel parking stalls can be reduced to a width of seven feet. Wider bike lanes of up to seven feet are also preferable for bicyclists on high speed (greater than 45 mph) or high volume roadways.

As an alternative to conventional bike lanes, the City may pursue innovative designs for buffered bike lanes that add a striped buffer between the bike lane and travel lane. The minimum recommended buffer width is two feet.

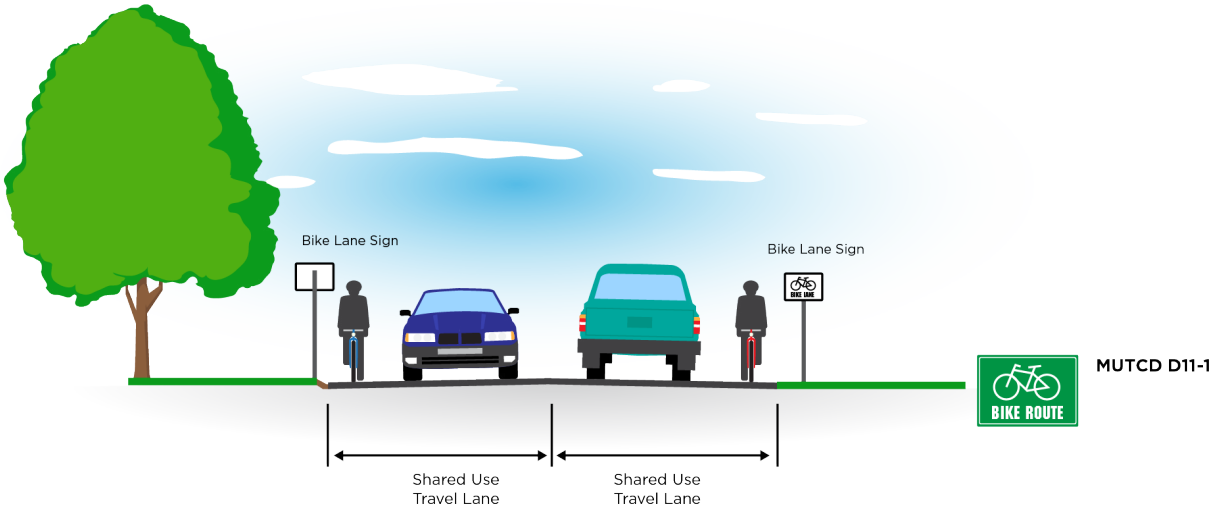
Bike Lanes at Intersections

Bike lanes at intersections are primarily affected by the presence of right-turn only lanes for vehicles. Where no right-turn only lane is provided for vehicles, the bike lane should feature dotted lines as it approaches the intersection. According to the CA MUTCD, dotted lines are optional when a right-turn only lane is provided; however, dotted lines are preferred to emphasize the merge area for bicyclists and drivers. Bike lanes should not be discontinuous (dropped) through new intersections.



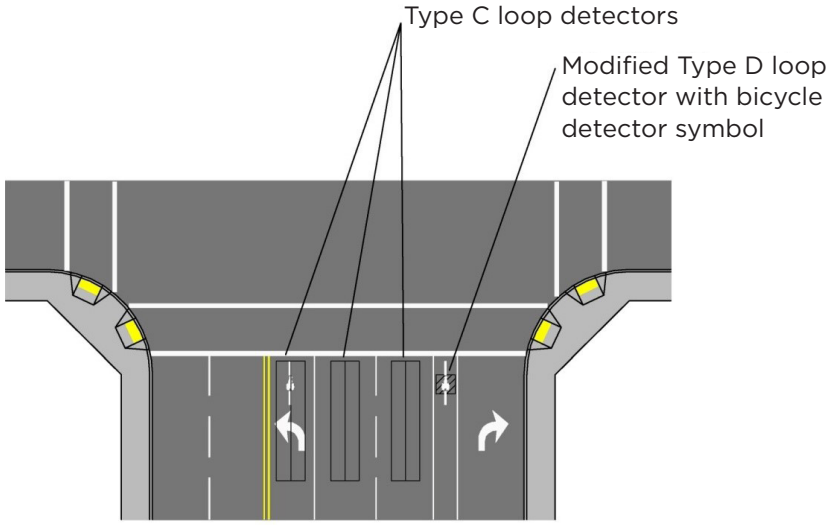
10.3.3 Class III Bike Routes

On Class III bike routes, the CA MUTCD specifies that bike route guide signs (CA MUTCD D11-1) may be repeated at regular intervals so that bicyclists entering from side streets will have an opportunity to know that they are on a bicycle route.



10.3.4 Bicycle Detection

The CA MUTCD requires the provision of bicycle and motorcycle detection on all new and modified approaches to traffic-actuated signals. The City has successfully used modified Type C and Type D loop detectors to detect bicyclists at intersections. Limit line detector loops should be modified Type C so that a bicyclist can be detected from any lane. Bike lanes at signalized intersections should include modified Type D loop detectors with the bicycle detector pavement marking. Outside of the bicycle lane or if not provided with a bicycle lane, bicycle detector pavement markings should indicate where to position their bicycle to activate the signal.



10.3.5 Green Colored Pavement

In April 2011, the Federal Highway Administration (FHWA) issued an Interim Approval for the optional use of green colored pavement in marked bike lanes, extensions of bike lanes through intersections, and other traffic conflict areas. In August 2011, the FHWA Interim Approval was adopted in California.

Since the FHWA Interim Approval was issued, jurisdictions have implemented green colored pavement in bike lanes primarily according to two different criteria. Some jurisdictions have chosen to implement green colored pavement to reinforce the restricted nature of bike lanes where cross flow by vehicles is discouraged. Other jurisdictions have chosen to implement green colored pavement to highlight bike lane conflict areas and the bicycle-vehicle weaving areas near intersections. Research described in "Evaluation of blue bike lane treatment in Portland, Oregon" (Hunter, Harkey, Stewart, and Birk, 2000) showed that significantly more motorists yielded to bicyclists when approaching bike lane conflict areas when the conflict areas feature colored pavement.

In November 2011, the City completed a series of streetscape improvements on Tower Bridge Gateway that included green colored pavement in bike lanes between 5th Street and Tower Bridge. This reinforces areas where cross flow by vehicles is discouraged and highlights bike lane conflict areas. Additionally, the green color used on Tower Bridge Gateway is darker than the bright green used elsewhere.

In coordination with other cities in the Sacramento region, the City should adopt a design standard for green colored pavement in bike lanes that either reinforces the restricted nature of bike lanes where cross flow by vehicles is discouraged or highlights conflict areas. The standard should also identify the shade of green to be used.

10.4 Procedures for Implementation

To implement the recommendations in this plan, the City should take these specific actions in support of the overall bike and pedestrian trail network:

- Upgrade the City's specifications for roadways and bicycle facilities
- Develop a logical decision support procedure for determining the specific type of bicycle facility needed
- Develop a specification for trailheads
- Develop a citywide, automated bicycle and pedestrian counting system
- Add wayfinding

10.4.1 Class I Bike Paths or Trails

Each of the proposed Class I bike path or trail facilities will require a feasibility assessment for implementation (a recent example is the City's Southport Setback Levee Recreation Trail Report). The feasibility assessment should identify or include:

- Preferred route
- Trail surface type (pavement, aggregate, compacted earth)
- Proposed solutions to key roadway or waterway crossings
- Preliminary engineering and cost estimates
- Permitting requirements
- Operations & Maintenance (O&M) Plan
- Statements of stakeholder interest

Following a feasibility assessment, the City can fund project design and construction, add the cost to a schedule of development impact fees or pursue grant funding.

10.4.2 Class II Bike Lanes

Where Class II bike lanes are proposed, the City shall require that roadways be modified to the desired standard for Class II bike lanes when various roadway projects are completed. Width for bike lanes can be acquired in two ways:

1. Add width to the existing roadway

2. Reduce the width of travel lanes on the existing roadway

Further feasibility assessment should determine the proposed implementation strategy for individual Class II bike lane projects.

10.4.3 Separated or Buffered Bike Lanes

Table 16. Considerations for Protected Bikeways

CONSIDERATION	LESS APPLICABLE	APPLICABLE	MOST APPLICABLE
Traffic Speed	< 25 mph	< 35 mph	< 45 mpg
Passenger Vehicle Volume		< 20,000 ADT	> 20,000 ADT
Truck Volume	None	Low	High
Number of Traffic Lanes	2	4	> 4
Excess Lane Width	None	Narrow	Wide
Access Control & Intersection Spacing	Low	Medium	High
Bicycle Crash History	None	Low	High
Bike Volume		Low	High
Pedestrian Volume		Low	High
Proximity to City Attractors	> 2 miles	1/2 to 2 miles	< 1/2 mile
Gap Closure of Class 1 Bike Lane	Parallel to Class 1	No	Yes
Bus Stop		Low Frequency	High Frequency
Parking		Low Turnover	High Turnover

10.5 Funding

10.5.1 Federal and State

The majority of public funds for bicycle, pedestrian, and trails projects are accessible through a core group of federal and state programs. Federal funds from the **Surface Transportation Program (STP)**, **Transportation Alternatives Program (TAP)** and **Congestion Mitigation Air Quality (CMAQ)** programs are allocated to SACOG and distributed regionally either competitively or proportionally according to jurisdiction population.

Limited amounts from the **Local Transportation Fund (LTF)**, which is derived from a quarter cent of general sales tax collected statewide, can be used for bicycle and pedestrian facilities. Specifically, two percent of the remaining funds is made available to counties and facilities provided for the exclusive use of pedestrians and bicycles.

Bicycle facilities can be funded through the **California Bicycle Transportation Account (BTA)**. Annually, $7.2 million is available for projects through the BTA.

The **Active Transportation Program (ATP)** is a statewide grant program that encourages bicycling and walking, especially for children traveling to school and residents of disadvantaged communities. **Safe Routes to School (SRTS)** grants are awarded through the ATP, and school-based projects and programs are highly competitive based on criteria. In 2016, $240 million was awarded competitively as grants to communities across California for SRTS, walking, and bicycling projects and programs. That amount represents two years of state and federal active transportation funding from the years 2019-2020 through 2020-2021. The next call for projects is anticipated to occur in 2018.

The **Urban Greening Grant Program** is providing $76 million in available funds in 2017 to urban greening projects. The California Natural Resources Agency anticipates one funding cycle, but is contingent upon the number of competitive applications. There is no minimum or maximum funding amount for this program.

The **California River Parkways Program** seeks projects that produce multiple benefits that reduce greenhouse gas emissions, increase water use efficiency, reduce risks from climate change impacts,

and demonstrate collaboration with local, state and community entities. In 2016, 23 projects received approximately $10.3 million in funding with five of those projects related to bikes and trails receiving approximately $1.8 million in funding. There are no minimum or maximum funding amounts for this program.

The **California State Parks Recreational Trails Program (RTP)** provides funds annually for recreational trails and related projects. The RTP is administered at the federal level by FHWA and at the state level by the California Department of Parks and Recreation and the Department of Transportation (Caltrans) ATP. Cities are eligible applicants for the approximately $5.7 million available annually. During the 2015 cycle, nine projects were awarded a total of approximately $8.4 million in funding. Caltrans Transportation Planning Grants are available to jurisdictions and can be used for planning or feasibility studies. The maximum funding available per project is $300,000.

The **Highway Safety Improvement Program (HSIP)** is a core federal-aid program administered by Caltrans that aims to reduce traffic fatalities and serious injuries on public roads. HSIP funds can be used for projects such as bike lanes on local roadways, improvements to Class I multi-use paths, pedestrian safety improvements or for traffic calming measures. Applications that identify a history of incidents and demonstrate a project's improvement to safety are most competitive for funding. The HSIP call for projects is on a one to two-year cycle. The timing and magnitude of the request for proposals is determined by funding appropriations, HSIP FTIP capacity and the delivery of the existing HSIP projects.

The **Land and Water Conservation Program**, administered by the National Park Service and California State Parks, offers funds for the acquisition or development of public outdoor recreation areas and facilities. Cities are eligible applicants. Funds are available annually and require a 50% local match. In 2016, local park projects were awarded a total of $8.8 million in funding.

Policies at the federal level have resulted in a series of programs that promise to provide increased funding in the coming years for bicycle projects. The **HUD-DOT-EPA Interagency Partnership for Sustainable Communities** has generated a series of new grant programs to-date, including **Urban Circulator grants**, **BUILD grants**, and **Sustainable Communities Planning grants**.

The State is working on a new Bond that would provide funding for California Parks and the environment. If successful this would be another potential source of funding to be administered under existing or new State programs. The 2018 Parks Bond currently proposes to provide $3 billion in funding in the 2018 ballot.

Regional and Local Programs

SACOG issues requests for projects and allocates funding based on available appropriations of **Regional Congestion Mitigation and Air Quality (CMAQ)**, **Regional Surface Transportation Program (RSTP)**, **State Transportation Improvement Program (STIP)**, and **Active Transportation Program (ATP)** funds. These funds are distributed through Regional ATP, Air Quality, Regional Bicycle & Pedestrian Funding Program (BPFP), Community Design, Transportation Demand Management (TDM), and Regional/Local Funding Programs. The funding cycles for the Regional ATP, Regional BPFP, Community Design, and Regional/Local Programs occur approximately every two years and anticipate issuing the next request for projects in 2018.

The Regional ATP targets projects that increase walking/biking, improve safety, and benefit disadvantaged communities. The Regional BPFP concentrates on project performance to implement the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS). Together, the programs strive to improve the region's active transportation system, air quality, and overall quality of life. In early 2017, the Regional ATP awarded four projects with a total of approximately $7 million in funding. In 2016, the Regional BPFP awarded 10 projects with a total of approximately $9.8 million.

The Community Design Funding Program was established to provide financial assistance to implement the principles of SACOG's Blueprint Projects: mixed land uses, transportation options, housing choice, compact development, use existing assets, quality of design, and natural resource protection. The program offers funding for transportation projects by local jurisdictions that implement these principles, but only in Sacramento, Sutter, Yolo, and Yuba Counties. In the Program's seventh round (2016), SACOG awarded approximately $18.3 million to 11 projects during the program cycle.

The Regional/Local Program is SACOG's largest competitive program to fund projects that help implement the MTP/SCS by providing regional benefits. The program seeks to promote effective and efficient use of limited state and federal funding resources to both develop and maintain the regional transportation network. Award recipients for Bicycle & Pedestrian, Community Design, and Regional/Local funding programs totaled $190 million during the 2014 funding cycle.

Private/local funding for pedestrian projects comes primarily from development projects, either in improvements constructed directly by developers or through development fee programs.

The table below illustrates eligibility and competitiveness of each project, planning effort, and program proposed for various funding sources.

Table 17. Project Eligibility and Competitiveness for Funding Sources

PROJECT ELIGIBILITY AND COMPETITIVENESS FOR FUNDING SOURCES

Funding Source	Bicycle Projects			Pedestrian Objects	Other Projects[1]	Planning and Programs
	Class I Bike Path	Class II Bike Lane	Class II Bike Route			
Federal and State Programs						
Local Transportation Fund	✓	✓	✓	✓	✓	✓
California Bicycle Transportation Account	✓	✓	✓	✗	✓	✓
State Active Transportation Account	✓	✓	✓	✓	✓	✓
Urban Greening Program	✓	✓	✓	✓	✓	✓
California River Parkways Program	✓	✗	✗	✗	✗	✗
California State Parks and Recreational Trails Program	✓	✗	✗	✗	✗	✗
Caltrans Transportation Planning Grants	✗	✗	✗	✗	✗	✓
Highway Safety Improvement Program	✓	✓	✓	✓	✓	✗
Land and Water Conservation Program	✓	✗	✗	✗	✗	✗
Urban Circulator Grants	✓	✓	✓	✓	✓	✓
TIGER Grants	✓	✓	✓	✓	✓	✓
Sustainable Communities Planning Grants	✓	✓	✓	✓	✓	✓
Regional and Local Programs						
Regional Active Transportation Program	✓	✓	✓	✓	✓	✓
Regional Bicycle and Pedestrian Program	✓	✓	✓	✓	✓	✓
Community Design Funding Program	✓	✓	✓	✓	✓	✓
Regional/Local Program	✓	✓	✓	✓	✓	✓

[1]Includes non-pavement elements such as signal equipment, vehicle speed feedback signs, police equipment, or crossing guard equipment.

✓ **Represents Eligible under the Funding Program**

✗ **Represents Ineligible under the Funding Program**

Project Highly Competitive for Funding Program	Project Somewhat Competitive for Funding Program	Project Not Competitive for Funding Program

10.5.2 Coordination with Safe Routes to School Projects

Should *Safe Routes to School* funding continue beyond 2013, several of the proposed bikeways can be funded by *Safe Routes to School* programs. The City is currently developing a *Safe Routes to School* plan and should coordinate the implementation of Safe Routes to School projects with projects from this plan. In general, bikeway projects that are most competitive for *Safe Routes to School* funding have the following characteristics:

- Directly accesses a school
- Part of low-stress bikeways network such that students and parents are comfortable bicycling on the facility
- Resolves a documented safety problem or concern
- Strong support from school officials and nearby residents

10.6 Operations and Maintenance

The cost of O&M for the existing and proposed trails should be relatively low compared to the City's other O&M costs (buildings, grounds, streets, etc.) since the trail network mainly consists of on-street bike lanes and routes that will be treated as part of the routine roadway maintenance program. During routine maintenance, extra emphasis should be put on keeping the bike lanes and roadway shoulders clear of debris and vegetation overgrowth from blocking visibility or creeping into the roadway. The City should schedule frequent roadway sweeping on the bikeway network. As required under the City code, costs to maintain the sidewalk network will primarily be the responsibility of property owners. Intersection and crossing projects will also be treated as part of the normal roadway maintenance program.

The cost of longer term O&M could be funded locally by the City, by capitalizing long-term maintenance costs as part of the overall project construction through a volunteer Adopt-a-Trail program or a combination of methods.

An **Adopt-a-Trail program** would identify volunteer stewards along portions of the trail that would provide time and/or donations to offset long-term O&M costs. This type of program would allow individuals, businesses, and organizations to have a stake in the well-being of the trail system.

The City should also take advantage of opportunities to partner with other agencies to share O&M responsibility and costs. There are opportunities to spread O&M costs where more than one purpose or function (recreation, flood control, environmental enhancement, etc.) coincide in the same geographic area. For example, the proposed Southport Setback Levee Trail can be maintained through a joint effort between the City and Reclamation District 900 (RD 900). RD 900 will perform levee O&M, which includes the road on top of the levee (also Class I Bike Path) and the access ramps to/from the levee. RD 900's maintenance will ensure that no weeds, shrubs, or trees grow around the Class I Bike Path or access ramps. The City will retain the O&M mission for the levee trail itself, which would consist of maintaining the pavement and other trail amenities (signage, benches, associated parking, etc.). It is recommended the City, in collaboration with RD 900, develop an O&M plan detailing specific and regular maintenance actions to be taken and then assign responsibilities for those actions. In this example, it may be possible to get Southport community involvement through a voluntary trail maintenance program that could be organized around neighborhoods (Stonegate, Liberty, Riverpark) to have regular (at least on a monthly basis) weekend gatherings to walk a particular segment of the trail and collect trash, remove graffiti, repair easy to fix items, and take note of larger repairs needed that could be reported back to the City's Parks and Recreation Department for future repairs.

BICYCLE AND PEDESTRIAN FACILITIES DESCRIPTIONS

Bicycle Facilities

Bicycle facilities can be classified into two types:

- Bikeways – facilities provided for bicycle travel
- Support Facilities – facilities for use by bicyclists while en route or once they have reached their destination

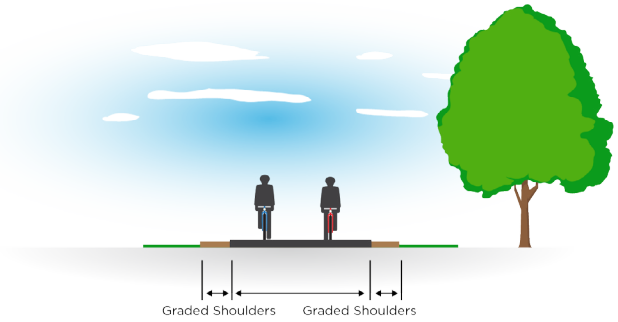
Bikeways

The *Guide for the Development of Bicycle Facilities* (American Association of State Highway and Transportation Officials [AASHTO], 2012) and Chapter 1000 of the *Highway Design Manual* (Caltrans, 2012) identify three primary types of bikeways: Class I Bike Paths, Class II Bike Lanes, and Class III Bike Routes.

Bike Path or Shared Use Path (Class I Bikeway)

Off-street bike paths are facilities for use exclusively by bicycles, pedestrians, equestrians, and other non-motorized users, with minimal cross-flow by motor vehicles. They are almost always located in an exclusive right-of-way.

Class I - Bike Path



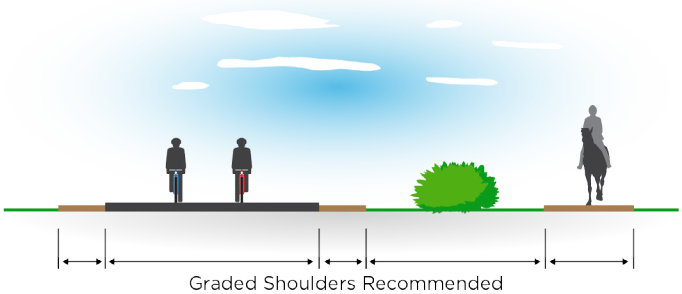
CLASS I - Bike Path

Provides a completely separated right-of-way for exclusive use of bicycles and pedestrians with crossflow minimized

MUTCD R44A (CA)

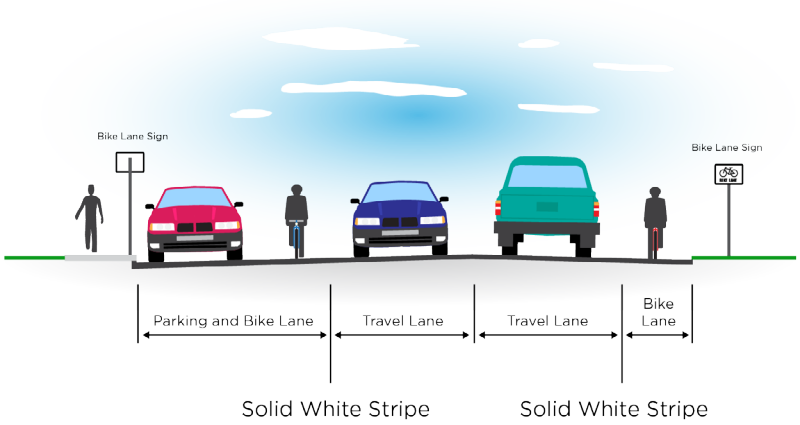
Class I - Bike Path with Extra Width for Equestrians

Class I - Bike Path with Separated Unpaved Equestrian/Jogger Path



Bike Lane (Class II Bikeway)

Bike lanes are areas within paved streets that are identified with striping, stencils, and signs for preferential (semi-exclusive) bicycle use.



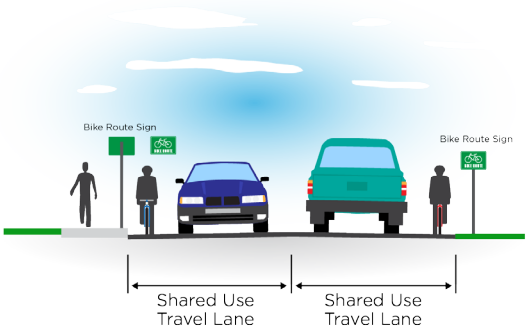
CLASS II - Bike Lane

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

MUTCD R81 (CA)

Bike Route or Shared Roadways (Class III Bikeway)

Shared roadways are on-street routes intended to provide continuity to the bikeway system. Bike routes are designated by signs or permanent marking and are shared by motorists. Many bike routes provide shoulders that can be used by bicyclists or pedestrians.



CLASS III - Bike Route

Provides a shared use with pedestrians or motor vehicle traffic, typically on lower volume roadways

MUTCD D11-1

Chapter 3, Existing Bikeways and Trails, discusses the locations of these types of bikeways in West Sacramento.

Innovative Bikeways

The *NACTO Urban Bikeway Design Guide* (National Association of City Transportation Officials [NACTO], 2012) includes design guidance for a standardized set of treatments for world-class bicycling streets in the United States. Several of these treatments can be implemented at present time per the *California Manual on Uniform Traffic Control Devices* (CA MUTCD) (Caltrans, 2012). The *NACTO Urban Bikeway Design Guide* includes design guidance for a variety of bike lanes, cycle tracks, intersection enhancements, signal enhancements, signing and marking enhancements, and bicycle boulevards.

Support Facilities

Support facilities include Class I bike path amenities, directional signage, bicycle parking, shower and changing space, and secure storage for bicycle gear.

Class I Bike Path Amenities

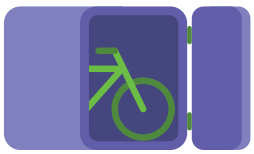
Amenities on Class I bike paths include lighting, location and directional signage, and resting locations including benches, water fountains, and restrooms.

Directional Signage

Directional signage can be used on all types of bikeways to direct bicyclists to other bikeways and major destinations, such as schools or major retail centers. Best-practices for directional signage design specifies that signage convey direction, destination, and distance.

Short-Term Bicycle Parking

Short-term bicycle parking is typically provided via bike racks and is usually used when cyclists park their bikes for a couple of hours or less.



Long-Term Bicycle Parking

Long-term bicycle parking is typically provided at major employment sites, schools, and transportation terminals in the form of bike lockers, bike cages, or bike rooms. Because access is limited to users, these facilities provide higher security, allowing bicyclists to feel comfortable leaving bicycles for long periods of time. Building owners/managers often regulate long-term parking and issue keys to bike cages or bike rooms. Alternatively, electronic bicycle lockers offer a keyless option allowing a user to pay for secure parking time.

Shower and Locker Facilities

People are more likely to commute to work on bicycles if they have convenient access to showers and lockers; these facilities assist in encouraging regular commuting via bicycle. Shower and locker facilities are typically implemented as a component of new commercial building construction and managed by the building owner/manager; they are rarely publicly owned and operated.

Pedestrian Facilities

Common pedestrian facilities include sidewalks, marked crosswalks, and curb ramps. There are several different types of crosswalk enhancements that aim to improve safety for pedestrians.

Sidewalks

There are two types of sidewalks: adjacent and separated.

Crosswalks

California Vehicle Code (CVC) (California Department of Motor Vehicles, 2013) Section 275 defines a crosswalk as either "that portion of a roadway included within the prolongation or connection of the boundary lines of sidewalks at intersections" or "any portion of a roadway distinctly indicated for pedestrian crossing by lines or other markings." Legal unmarked crossings are those at intersections defined by the prolongation of sidewalk areas.

Marked crosswalks feature striping and other enhancements to delineate a street crossing for pedestrians. There are two types of crosswalks: controlled and uncontrolled. At uncontrolled crosswalks, drivers are

legally required to yield to pedestrians, but do not have to stop when a pedestrian is not present. Controlled crosswalks are located at intersections with stop signs or traffic signals. Pedestrians should exhibit caution whenever crossing the street, regardless if the crosswalk is unmarked, marked, controlled or uncontrolled.

Curb Ramps

Curb ramps provide wheelchair access to sidewalks. The yellow truncated domes alert visually impaired pedestrians as they approach a street crossing.

Appendix B

PRIORITIZED PROJECT LIST

Prioritized Project List

On-Street Projects

Project	Type	Location	Limits	Distance (ft)	Cost Type	$/Mile	"2017 (Project Cost)"	Directly Accesses Key Destinations	Gap Closure	Level of Traffic Stress	Supports Established Neighborhood	Supports new development	Project Readiness	Utilitarian vs. Recreation	Ranking
Class II Bike Lanes on 15th St from Jefferson Blvd to 5th St	Class II Bike Lanes	15th St	Jefferson Blvd to 5th St	860	Class II Restripe	$20,400	$3,300	X	X	X	X	-	X	X	High
Westacre Class II Bike Lanes	Class III Bike Route	Westacre Rd, 15th St	Manzanita Way to Jefferson Blvd	14800	Class III	$10,800	$30,300	X	X	X	X	0	X	X	High
Class II Bike Lane on Village Pkwy (East Side) from Elk Valley St. to Lake Washington Blvd	Class II Bike Lanes	Village Pkwy (E Side)	Elk Valley St to Lake Washington Blvd	2500	Class II Widen (With Curb/ Gutter)	$1,667,000	$789,300	-	X	X	X	X	X	X	High
Convert Class III Bike Route to Class II Bike Lanes on C St from 6th St to 3rd St	Class II Bike Lanes	C St	6th St to 3rd St	2400	Class II Restripe	$20,400	$9,300	X	X	X	X	-	X	X	High
Class II Bike Lane on Linden Rd (North Side) from Clarksburg Branch Line Trail to Stonegate Dr	Class II Bike Lanes	Linden Rd (N Side)	Clarksburg Branch Line Trail to Stonegate Dr	500	Class II Widen (No Curb/ Gutter)	$795,800	$75,400	X	X	X	X	X	X	X	High
Class I Bike Trail on Industrial Blvd from Enterprise Blvd to Stone Blvd	Class I Parallel Trail	Industrial (South Side)	Enterprise Blvd to Stone Blvd	13500	Class I	$1,5M	$3,836,000	X	X	X	X	X	X	X	High
Class IV (protected bike lanes) on West Captiol Ave	Class IV protected bike lanes	West Capitol Avenue	East end of Yolo Bypass Causeway Class I Bike Path to Jefferson Blvd. To include restriping, median reduction?, repaving, bike lane physical barrier.	27500	Class IV (Separated Bike Lane)	n/a	6,000,000	2	1	4	0	0	3	2	High
Class II Bike Lanes on Southport Pkwy from Ramco to Lake Washington Blvd	Class II Bike Lanes	Southport Pkwy	Ramco Ave to Lake Washington Blvd	1400	Class II Widen (No Curb/ Gutter)	$795,800	$216,400	X	X	X	X	X	X	X	High
Class III Bike Route on Rockrose Rd from Westacre Rd to Michigan Blvd	Class III Bike Route - Shared use	Rockrose Rd	Westacre Rd to Michigan Blvd	2400	Class III	$10,800	$4,900	-	X	-	X	-	X	X	Medium
Class III Bike Route on Riverbank Road from N. Harbor Blvd to Todhunter Ave	Class III Bike Route - Shared use	Riverbank Road	N. Harbor Blvd to Todhunter Ave	7300	Class III	$10,800	$14,900	-	X	-	X	-	X	X	Medium

On-Street Projects (cont.)

Project	Type	Location	Limits	Distance (ft)	Cost Type	$/Mile	"2017 (Project Cost)"	Directly Accesses Key Destinations	Gap Closure	Level of Traffic Stress	Supports Established Neighborhood	Supports new development	Project Readiness	Utilitarian vs. Recreation	Ranking
Class III Bike Route on Kegle Dr from Cummins Way to Fremont Blvd	Class III Bike Route	Kegle Dr	Cummins Way to Fremont Blvd	2,400	Class III	$10,800	$4,900	-	X	-	X	-	X	X	Complete
Class II Bike Lanes on Southport Pkwy from Otis Ave to Jefferson Blvd	Class II Bike Lanes	Southport Pkwy	Otis Ave to Jefferson Blvd	1400	"WB - Class II Restripe, EB - Class II Widen (No Curb/ Gutter)"	"$20,400 $795,800"	$216,400	-	X	X	-	-	X	-	Medium
Class III Bike Route on Catalina Island Rd from Golden Date Rd. to Unpaved Main Drain Trail	Class III Bike Route	Catalina Island Rd	Golden Date Dr to Unpaved Main Drain Trail	2400	Class III	$10,800	$4,900	-	X	-	-	X	X	X	Medium
Class II Bike Lane (north side only) on Linden Rd from Spruce St to Sacramento River Levee Rd	Class II Bike Lane	Linden Rd (Partial S Side and Partial N& S Side)	Spruce St to Sacramento River Levee Rd	"3300 Total (1600 South Side widening only) (850 x 2 N & S Side widening)"	Class II Widen (No Curb/ Gutter)	$795,800	$497,400	-	X	X	X	X	X	X	Medium
Class II Bike Lanes on Harbor Blvd from W. Capitol Ave to Industrial Blvd	Class II Bike Lanes	Harbor Blvd	W. Capitol Ave to Industrial Blvd	"9200 (2600 x 2 Harbor) (2000 x 2 Beacon)"	Class II Restripe	$20,400	$35,500	X	X	X	-	-	-	X	Medium
Class II Bike Lanes on Jefferson Blvd from Gregory Rd to West Sacramento City Limit (Southwest)	Class II Bike Lanes	Jefferson Blvd	Gregory Rd to West Sacramento City Limit (Southwest)	25000	Class II Widen (No Curb/ Gutter)	$795,800	$3,768,000	-	X	X	-	-	-	-	Low
Class III Bike Route on N. Harbor Blvd from Sacramento Ave/Reed Ave to West Sacramento City Limit (Northwest)	Class III Bike Route	N. Harbor Blvd	Sacramento Ave/ Reed Ave to West Sacramento City Limit (Northwest)	8450	Class II Widen (No Curb/ Gutter)	$795,800	$1,273,600	-	-	-	-	-	X	X	Low
Class II Bike Lanes on Jefferson Blvd from Harmon Rd to Gregory Ave	Class II Bike Lanes	Jefferson Blvd	Harmon Rd to Gregory Rd	5000	Class II Restripe	$20,400	$19,300	-	X	X	-	-	-	-	Low
Class I Path on Enterprise Blvd Extension from Channel Dr to Southport Pkwy	Class I Bike Lanes	Enterprise Blvd Extension	Channel Dr to Southport Pkwy	7000	Class II Widen (No Curb/ Gutter)	$1.5M	$1,989,000	X	X	X	-	-	-	X	Low

Off-Street Projects

Project	Type	Location	Limits	Distance (ft)	Cost Type	$/Mile	2018 (Project Cost)	Directly Accesses Key Destinations	Gap Closure	Level of Traffic Stress	Supports Established Neighborhood	Supports new development	Project Readiness	Utilitarian vs. Recreation	Ranking
Lower NW Interceptor Easement Class I Bike Path (Sycamore Ph 3)	Class I Bike Path	Existing Sewer Easement	Park Blvd to Westmore Oaks Elementary	4,100.00	Class I Paved	$837,073	$650,000	X	X	X	X	-	X	X	High
Convert Unpaved Clarksburg Branch Line Trail to Class I Bike Path	Class I Bike Path	Clarksburg Branch Line Trail	"River City High School to S. River Rd"	11,600.00	Class I Paved	$682,759	$1,500,000	X	X	X	-	X	X	X	High
Class IV Bike Path on Lake Washington Blvd from Clarksburg Branch Line Trail to new Setback Levee	Class IV Bike Path	Lake Washington Blvd (South Side)	Clarksburg Branch Line Trail to new Setback Levee	6,864.00	Class I Paved	$1,384,615	$1,800,000	X	X	X	-	X	X	X	High
Southport Sacramento River Setback Levee Class I Bike Path	Class I Bike Path	Southport Sacremento River Setback Levee	Uses Southport Setback Levee extended from Locks Drive to Clarksburg Branchline Trail. Includes 4 parking areas.	26,700	Class I Paved	$822,058	$4,157,000	X	-	X	-	X	X	X	High
I Street Bridge Conversion	Class 1 Bike Path	Existing I Street Bridge	Riverwalk Park to Jibboom St	1,000	Bridge Conversion	n/a	13,000,000	X	X	X	X	X	X	X	High
Jefferson Blvd Railroad Bridge Class I Bike Path	Class I Bike Path	Jefferson Blvd Railroad Bridge	Across Deep Water Ship Channel	700	Class I Paved	$570,240	$75,600	-	X	X	X	X	X	X	High
Riverwalk Trail North	Class I Bike Path	I Street Bridge Connection to River Walk Trail	Rriverwalk Park to the Boat Launch	400.00	Class I Paved	$11,357,280	$860,400	X	X	X	X	-	X	X	Complete
Stone Lock Levee Trail	Class I Bike Path	Deep Water Channel	Lake Wahington Blvd to Locks Drive	4608.00	Class 1 Paved	$1,500,000	$1300000	X	X	X	-	X	X	X	High
Sycamore Trail Phase IV - Mikon Junction Underpass.	Class I Bike Path	Existing Sewer Easement	Rice Ave o Yolo St	700.00	Undercrossing	n/a	$8,000,000	X	X	X	X	-	-	X	Medium

Off-Street Projects (cont.)

Project	Type	Location	Limits	Distance (ft)	Cost Type	$/Mile	2018 (Project Cost)	Directly Accesses Key Destinations	Gap Closure	Level of Traffic Stress	Supports Established Neighborhood	Supports new development	Project Readiness	Utilitarian vs. Recreation	Ranking
Sycamore Phase V Class I Bike Path on Arlington Road and Deep Water Channel Crossing	Class I Bike Path	Arlington Rd - To include a Ped Bridge Crossing of the Deepwater ship channel and Class 1 bike path	Park Blvd. to Lake Washington Blvd	3,650.00	Class I Paved	$6,509,589	$4,500,000	X	X	X	X	X	-	X	Medium
Riverwalk Trail South	Class I Bike Path	Sacramento River Levee	Mill Street to McGowen Bridge	5,491.00	Class I Paved	$1,500,000	$2,000,000	X	X	X	-	X	-	X	Medium
Sacramento River Northeast Class I Bike Path	Class I Bike Path	Co Rd 136/Levee Rd	1st St to River Crest Dr	5,500.00	Class I Paved	$300,000	$312,500	-	X	X	X	-	-	-	Medium
Class I Bike Path under Tower Bridge Gateway	Class I Bike Path	Under Tower Bridge Gateway	River Walk Trail to River Walk Trail	300.00	Class I Paved	$11,357,280	$645,300	X	X	X	-	-	-	X	Medium
Main Drain Trail Class I Bike Path	Class I Bike Path	Main Drain Canal	Lake Washington Blvd to Deep Water Ship Channel (south end of town) - 2 miles unimproved area to convert to class 1 bike path plus 2.7 miles of existing ab trail converted to class 1 bike path	24,800.00	Class I Paved	$415,161	$1,950,000	-	X	X	X	X	-	X	Medium
Davis Rd Bike Trail	Class 1 Bike Path	Davis Rd	Clarksburg Branch Line Trail to new Setback Levee	3,500.00	Class 1 Paved	$1,500,000	$994,318	X	X	X	X	X	-	-	Medium
Northwest Bike Path	Class I Bike Path	Tule Jake Rd/Rd 127	N. Harbor Blvd to I-80	17,500.00	Class I Paved	$569,999	$1,889,200	-	X	X	-	-	-	X	Low
Class I Bike Path around Lake Washington	Class I Bike Path	Lake Washington	Deep Water Ship Channel to Main Drain Canal	7,900.00	Class I Paved	$569,973	$852,800	-	-	-	-	X	-	-	Low
Class I Bike Path adjacent to Proposed Village Pkwy from Clarksburg Branch Line Trail to Jefferson Blvd	Class I Bike Path	Proposed Village Pkwy	Clarksburg Branch Line Trail to Jefferson Blvd	5,300.00	Class I Paved	$570,041	$572,200	-	-	-	-	X	-	X	Low

SAFE ROUTES TO SCHOOL

Introduction

The goal of a Safe Routes to School (SR2S) program is to help more kids get to and from school by walking and bicycling. In addition to the health benefits this program provides to students, identifying and improving routes for children and school staff to walk or bicycle to school is also an effective means of reducing morning and afternoon traffic congestion and addressing safety problems around schools, which benefits not only students walking and biking to school, but also other cyclists and pedestrians using routes near schools.

SR2S focuses on the main routes currently used or those which could be used by students to commute to schools by walking or biking. The proposed bikeway network described in this plan incorporates this school routes concept. The City of West Sacramento has one school district, the Washington Unified School District, which oversees nine schools: seven elementary schools and two high schools. Eight of these schools were each individually studied in 2012 by WalkSacramento as part of the Safe and Healthy Routes to School Program and an update to those findings is needed. One of the two high schools, River City High School, was studied as part of the 2013 BPTMP, and again, an update is needed. The other high school, Washington Middle College High (also known as West Sacramento Early College Prep), was just chartered in 2017 and has not undergone a SR2S study.

Specific School Studies

The nine schools within the Washington Unified School District are:

- Bridgeway Island Elementary
- Elkhorn Village Elementary
- Riverbank Elementary
- Southport Elementary
- Stonegate Elementary
- Westfield Village Elementary
- Westmore Oaks Elementary
- River City High School
- Washington Middle College High School

The locations of these schools are shown in **Figure 5** on page 30 (Bicycle and Pedestrian City Attractors). What follows is an analysis of current walking and biking routes to and from each school site and recommendations for improving the safety of those routes.

School Location and Characteristics

Existing Conditions

- Pedestrian Facilities
- Bicycle Facilities

Student Travel Survey Summary

Key Issues to Address

Recommended Projects

Funding Programs

There are two separate Safe Routes to School programs administered by Caltrans. There is the federal program referred to as SRTS and the state-legislated program referred to as SR2S. Both programs are intended to achieve the same basic goal of increasing the number of children walking and bicycling to school by making it safer for them to do so.

The Safe Routes to School Program funds active transportation facilities in conjunction with improving access to schools through the Caltrans Safe Routes to School Coordinator. To qualify, a project must be within two miles of the school. Eligible projects may include:

- **Engineering improvements** These physical improvements are designed to reduce potential bicycle and pedestrian conflicts with motor vehicles. Physical improvements may also reduce motor vehicle traffic volumes around schools, establish safer and more accessible crossings, or construct walkways, trails or bikeways. Eligible improvements include sidewalk improvements, traffic calming/speed reduction, pedestrian and bicycle crossing improvements, on-street bicycle facilities, off-street bicycle and pedestrian facilities, and secure bicycle parking facilities.
- **Education and Encouragement Efforts** These programs are designed to teach children safe bicycling and walking skills while educating them about the health benefits and environmental impacts. Projects and programs may include creation, distribution and implementation of educational materials, safety based field trips, interactive bicycle/pedestrian safety video games, and promotional events and activities (e.g., assemblies, bicycle rodeos, walking school buses).
- **Enforcement Efforts** These programs aim to ensure that traffic laws near schools are obeyed. Law enforcement activities apply to cyclists, pedestrians and motor vehicles alike. Projects may include development of a crossing guard program, enforcement equipment, photo enforcement, and pedestrian sting operations.

AGE FRIENDLY ENHANCEMENTS

Appendix D. Age Friendly Enhancements

Appendix E

RULES OF THE ROAD

For Bicyclists

The *California Vehicle Code* (CVC) Division 11 contains the rules and regulations for operating a bicycle, commencing with Section 21200 through 21212. The CVC does not define bicycles as vehicles, but states that persons riding bicycles have the same rights and responsibilities as the drivers of vehicles. This means that bicycle riders must follow the basic traffic laws that all drivers follow, including but not limited to the following:

- Ride on the right side of the roadway
- Obey traffic control devices (signs, signals)
- Yield to cross traffic
- Yield when changing lanes
- Yield to pedestrians in crosswalks
- Maintain speed positioning: the general principle is that the slowest traffic stays right. Bicycles are typically slower than auto traffic and are therefore usually found on the right side of the road (or within a bike lane, if provided). According to the CVC, bicycles may leave the right side of the road or a bike lane:
  - When overtaking and passing another bicycle or vehicle proceeding in the same direction.
  - When preparing for a left turn at an intersection or into a private road or driveway.
  - When reasonably necessary to avoid conditions (including, but not limited to, fixed or moving objects, vehicles, bicycles, pedestrians, animals, surface hazards, or substandard width lanes) that make it unsafe to continue along the right-hand curb or edge.
  - When approaching a place where a right turn is authorized.
  - If in any circumstance a bicyclist feels that it is unsafe to be passed in the curb lane, they are allowed to "take the lane" - common causes include debris near the curb, trash cans, parked cars, or narrow lane widths.
- Maintain intersection positioning: at intersections, bicyclists should travel in the right-most lane that leads to their destination. This means that if a bicycle is preparing to make a left turn, they may leave the right side of the road, even if a bike lane is provided, to enter the left turn pocket or the innermost through lane if the road has no left turn pocket.

For Pedestrians

The CVC Division 11 contains the rights and duties of pedestrians in Sections 21949 through 21971. The following is a summary of major laws for pedestrians; additional laws exist that are not included in this section:

- The driver of a vehicle shall yield the right-of-way to a pedestrian crossing the roadway within any marked crosswalk or within any unmarked crosswalk at an intersection.
- Whenever any vehicle has stopped at a marked crosswalk or at any unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass the stopped vehicle.
- No pedestrian may walk upon any roadway outside of a business or residence district otherwise than close to his or her left-hand edge of the roadway.

- A pedestrian may walk close to his or her right-hand edge of the roadway if a crosswalk or other means of safely crossing the roadway is not available or if existing traffic or other conditions would compromise the safety of a pedestrian attempting to cross the road.