CITY OF ELK GROVE

Bicycle, Pedestrian, & Trails Master Plan

MAY 2021

Prepared for the City of Elk Grove by GHD Inc.
with support from Toole Design Group, LLC & AIM Consulting, Inc.

Table of Contents

Table of Figures

Table of Tables

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Introduction

Elk Grove is well poised to increase walking and bicycling for recreation, exercise, and transportation purposes. This is especially true for local trips within the community. The City has a mild climate most of the year, is relatively flat, and has a large network of existing sidewalks and on-street bikeways.

These investments and natural assets provide a foundation upon which the City can continue to build a high-quality network for bicycling and walking—one that is accessible and comfortable for people of all ages and abilities, and can be used for transportation, recreation, and exercise.

This Bicycle, Pedestrian, and Trails Master Plan (BPTMP) is a critical tool for City staff and the development community as they shape a balanced transportation system for Elk Grove. Similarly, the BPTMP provides residents with an understanding of the current status and long-term vision for the active transportation network, as well as supporting policies and programs in Elk Grove. The prior BPTMP was adopted in 2014; this updated BPTMP reflects the current environment for walking and bicycling in the community. The BPTMP presents a focused, achievable action plan for improvements to the bicycling, walking, and trail facilities, providing both short-term priority projects and longer-term improvements.

The ultimate goal of this plan is to improve the quality of life in Elk grove by providing a robust bicycle, pedestrian, and trail network, which will provide a variety of benefits to the community such as improved safety, reduction in greenhouse gas emissions, health benefits, opportunities for recreation and exercise, and improved access to the City's parks, open spaces, and waterways.

Purpose of the Plan

This Bicycle, Pedestrian, and Trails Master Plan (BPTMP) updates the 2014 plan to establish a long-term vision for improving walking, bicycling, and equestrian uses in Elk Grove and identify a short-term action plan of implementable projects, programs, and policies.

The BPTMP provides a strategy to develop citywide walking, bicycling, and equestrian networks that provide access between residential neighborhoods, schools, transit, and jobs. These network improvements are combined with a menu of options for recommended education, encouragement, and evaluation programs to provide a holistic approach to improving active transportation in Elk Grove. This report also identifies a plan to implement these projects and programs through prioritization and phasing to ensure implementation is manageable and achievable.

This BPTMP represents an aspirational vision for walking and bicycling in Elk Grove and recognizes that limited funding and resources will require strategic phases of implementation over many years.

The City has established six objectives for this BPTMP:

- Improve and encourage bicycle and pedestrian transportation within the City
- Improve and encourage the use of an off-street multi-use trail system
- Provide direction but also flexibility to revise when necessary regarding location and design for future bicycle, pedestrian, and trail facilities and amenities, including those for equestrians
- Enhance mobility throughout the City and allow for connections with the surrounding area
- Establish prioritization criteria for implementation of active transportation infrastructure over the next 5-10 years
- Identify potential funding sources for planning, construction, and maintenance of bicycle, pedestrian, and trail facilities

Relationship to Other Documents

Elk Grove's General Plan establishes a vision for the future of the community, guiding physical development of the City and informing actions of decision makers. A key supporting principal of the General Plan is a well-connected transportation network that provides for safe and efficient movement of people and goods using all modes of transportation. In short: transportation for all.

This BPTMP is a critical tool to help the City achieve this vision, working in tandem with the goals, policies, and implementation actions identified in the General Plan, Climate Action Plan, and the 5-year Capital Improvement Program. It also supports and is consistent with regional active transportation goals and policies identified in the Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS).

This BPTMP will help Elk Grove continue to meet the goals as listed below and to the right.

Additionally, the BPTMP is consistent with the guidance and standards outlined in the City's Municipal Code, approved development guidelines and standards, Rural Road Policy and Standards, and the Parks Master Plan.

Elk Grove

GENERAL PLAN

- All streets in the City, both public and private, are complete and sensitive to context
- Active transportation for all
- A connected parks and trails system
- Open spaces that are safe, connected and accessible to all

CLIMATE ACTION PLAN

- Implement strategies and policies that reduce demand for personal motor vehicle travel for local trips
- Provide for safe and convenient pedestrian and bicycle travel through implementation of the BPTMP and increased bicycle parking standards
- Reduce greenhouse gas emissions to 1990 levels by 2020 and to 40% below 1990 levels by 2030

AREA PLANS

Area plans include visions, policies, and standards for bicycle and pedestrian connectivity and equestrian trails in developing areas of the community:

- Eastern Elk Grove Community Plan
- Laguna Ridge Specific Plan
- Southeast Policy Area Community Plan and Special Planning Area
- Rural Area Community Plan
- Rural Road Improvement Policy and Rural Road Improvement Standards

Sacramento Regional Plans

SACOG MTP/SCS

- Build vibrant places for today's and tomorrow's residents
- Foster the next generation of mobility solutions
- Modernize the way we pay for transportation infrastructure
- Build and maintain a safe, reliable, and multimodal transportation system

California

TOWARD AN ACTIVE CALIFORNIA

- By 2040, people in California of all ages, abilities, and incomes can safely, conveniently, and comfortably walk and bicycle for their transportation needs

Vision and Goals

This BPTMP outlines a plan of action to guide the City and its partners as they work to improve walking and bicycling in the Elk Grove community.

The goals and recommendations included in this Plan reflect needs and priorities expressed by members of the community through public outreach activities. These goals inform the selection and prioritization of projects, programs, and policies. Milestones set specific targets against which the City can measure success as they implement the recommendations in this Plan.

Vision

Elk Grove will be a community where bicycling and walking are viable choices for people of different ages, abilities, and backgrounds for everyday trips within the City.

Goal 1: Increase bicycling and walking

MILESTONES

- Increase the total share of people walking or bicycling to work to two percent by 2030 and five percent by 2040

Goal 2: Support a culture where walking and bicycling are safe and convenient transportation options

MILESTONES

- Reduce the percent of arterial streets that are Level of Traffic Stress (LTS) 4 from 84 percent to 70 percent by 2040
- Double the number of short-term and long-term bicycle parking locations by 2040

Goal 3: Promote safe behavior by all road users

MILESTONES

- Undertake an average of 3 initiatives per year that may work to reduce pedestrian and bicycle collisions and fatalities

Goal 4: Improve connectivity and accessibility

MILESTONES

- Complete studies identified in this plan by 2040
- Construct 30 miles of bicycle or pedestrian facilities by 2031
- Construct 6 new lane miles of bicycle/pedestrian trail facilities, focused on increasing trail system connectivity, by the end of 2030

Goal 5: Improve Regular Trail Maintenance

MILESTONES

- Implement a trail surface inspection process with 50 percent of the City's trails inspected annually, starting in 2021
- Create a 5-year trail maintenance plan by December 2022, with annual maintenance projects outlined

Organization of this Plan

This BPTMP is organized into the following chapters:

- **Introduction** sets the planning context and vision for this plan
- **Existing Conditions** documents the current walking and bicycling environment
- **Outreach** summarizes community engagement activities and key feedback received
- **Recommendations** presents infrastructure projects, programs, and policies that will improve active transportation in Elk Grove
- **Implementation Plan** outlines a strategy to prioritize and fund the recommendations in this plan, with an emphasis on the next five years

In addition, several appendices provide detailed data or analysis:

- **Appendix A: Design Protocols**
- **Appendix B: Bicycle Level of Traffic Stress**
- **Appendix C: Outreach Documentation**
- **Appendix D: Recommendations**

Together, these elements—the plan and appendices, including the design protocols—will guide the City of Elk Grove as it works to improve bicycling and walking in the community.

In the future, additional plans for certain trails may be completed as well, such as the Laguna Creek Interregional Trail Plan and the Powerline Trail Plan.

Existing Conditions

Understanding current conditions, challenges, and opportunities forms the foundation for strategic project, program, and policy recommendations that meet the needs of the Elk Grove community. This chapter describes the active transportation landscape in Elk Grove today.

Local Context

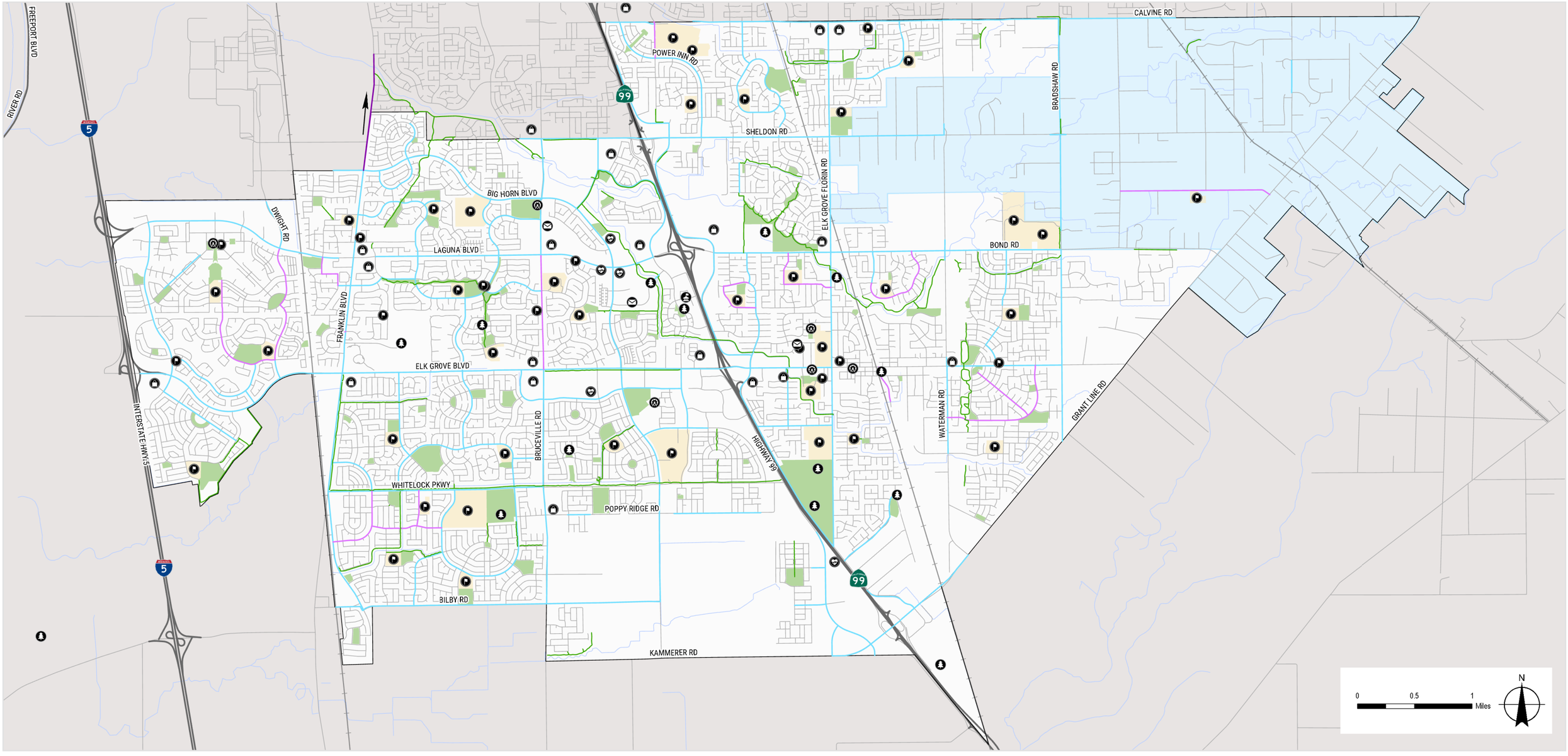
Elk Grove is a developing community, growing as a result of increasing employment opportunities and available land proximate to Downtown Sacramento. Reflecting population growth experienced by the broader Sacramento region, the City of Elk Grove has grown from 72,665 residents in 2000 to nearly 173,000 residents in 2018.

This increase in population has been accompanied by an increase in vehicle traffic throughout the City, contributing to challenges for people walking and bicycling. By improving conditions for walking and bicycling in Elk Grove, particularly for short local trips and for connections to transit, the City hopes to reduce driving trips. Additional benefits for the community could include reduced traffic, more recreational opportunities, better access to local destinations, improved public health, reduced noise, improved air quality, and energy conservation.

Land Use and Major Destinations

The City of Elk Grove is approximately 42 square miles in southern Sacramento County, with higher-density urban development concentrated in the west and central parts of the City and lower-density rural residential neighborhoods in the northeastern portion of the City.

The urban area is characterized by single-family homes within subdivisions, with vehicle access provided by arterial roadways. Large commercial employment centers are concentrated at intersections of major arterials and along State Route 99 and Interstate 5. Schools, parks, and other civic uses are located throughout the City, within walking distance for many residents. These destinations are shown in Figure 1.



Major Destinations

Legend

Existing Bicycle Facilities

- Existing Class I Multi-Use Path
- Existing Class II Bicycle Lane
- Existing Class III Bicycle Route
- Existing Class IV Bikeway

Destinations

- City Hall
- Community Center
- Recreation Facilities
- Library/Museum
- Medical Services
- Post Office
- School
- Shopping

- Roads
- Highways
- Railroads
- Creeks

Boundaries

- Park
- School
- Rural Policy Area
- City Boundary

CITY OF ELK GROVE

FIGURE 1

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Data source: . Created by: pthornton

Demographics

All demographic data reflects 2017 5-year estimates from the American Community Survey.

POPULATION

Elk Grove is home to nearly 173,000 residents, or about 52,000 households. Along with the rest of the Sacramento region, population growth is expected to increase by as much as 25 percent by 2060.

AGE

As shown in Table 1, there are a lot of young people in Elk Grove, with more than 27 percent of residents under 18 years of age. The majority of the under 18 cohort are unable to drive themselves in personal vehicles, which increases the need to walk, bicycle, or take transit to their destinations.

Table 1: Age of Elk Grove Residents

Age Group	Percent
Under 18	27.2%
18-24	9.0%
25-44	26.4%
45-64	26.1%
65 and over	11.4%

ACCESS TO CARS

Just over 800 households in Elk Grove, or about one percent, do not have access to a car. This means approximately 2,500 people may rely on walking, bicycling, or taking transit for their daily transportation needs.

An additional 8,362 households in Elk Grove have access to only one car, making them "car light." If these households have two or more household members who are employed or attending an educational institution, there may be a reliance on other modes of transportation for their commute.

INCOME

Median household income in Elk Grove is $85,556, higher than both the Sacramento County median of $60,239 and the California median of $67,169.

DISADVANTAGED COMMUNITIES

The presence of disadvantaged communities (those with lower income or increased exposure to environmental or other hazards) can be measured in several ways. In 2017, the City prepared an analysis using the California EnviroScreen3.0 tool from the State Office of Environmental Health Hazard Assessment and did not identify any disadvantaged communities within the City.

The Sacramento Area Council of Governments (SACOG) also has a methodology for measuring disadvantage, which was used in the environmental justice analysis for the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy. This methodology considers minority population, low-income, and where these two overlap. It also considers "other vulnerabilities," which are absent in Elk Grove.

A third methodology, the Centers for Disease Control and Prevention (CDC) Social Vulnerability Index (SVI), is another tool that can be used to identify concentrations of socially vulnerable people. Census tracts are scored on 15 social factors using US Census data, including poverty levels, lack of access to vehicles, minority status, and crowded housing. The most recent available year of SVI data is 2018.

The SVI provides an overall score for each Census tract as well as scores for four themes that are focused on certain topic areas, including Socioeconomic Status, Household Composition & Disability, Minority Status & Language, and Housing Type & Transportation. SVI rankings are based on percentiles. Percentile ranking values ranging from 0 to 1, with higher values indicating higher vulnerability.

The BPTMP identifies disadvantaged communities using the overall vulnerability flag variable, which indicates the number of "flags" across the four themes for each Census tract. The SVI data flags Census tracts in the top 10 percent, or those at the 90th percentile of values. Census tracts in the top 10 percent for a given variable are assigned a flag value of 1 to indicate high vulnerability, while tracts below the 90th percentile are given a value of 0. The overall flag value is the number of flags for the four themes.

Figure 2 shows the range of flag values for Census tracts in the City of Elk Grove. In Elk Grove, flag values range from zero to three, meaning that the most vulnerable Census tract was identified for high vulnerability based on three of the four themes. No census tract in the City was assigned high vulnerability for all four themes. Census tracts with zero flags represent the least vulnerable communities, while those with three flags represent the most vulnerable.

FREEPORT BLVD
RIVER RD
I-5
BIG HORN BLVD
DWIGHT RD
LAGUNA BLVD
FRANKLIN BLVD
ELK GROVE BLVD
INTERSTATE HWY 5
WHITELOCK PKWY
BRUCEVILLE RD
POWER INN RD
SHELDON RD
HIGHWAY 99
ELK GROVE FLORIN RD
POPPY RIDGE RD
BILBY RD
KAMMERER RD
WATERMAN RD
BRADSHAW RD
CALVINE RD
BOND RD
GRANT LINE RD
0 0.5 1 Miles
N

Disadvantaged Community Map

Legend

Social Vulnerability Index Scores

- No SVI Theme Flags (Not Considered Vulnerable)
- One SVI Theme Flag (Low Vulnerability)
- Two SVI Theme Flags (Moderate Vulnerability)
- Three SVI Theme Flags (Highest Vulnerability)

- Roads
- Highways
- Railroads
- Creeks

- City Boundary
- Rural Policy Area
- SACOG 2020 Disadvantaged Communities

CITY OF ELK GROVE

FIGURE 2

Transportation Behavior

Commute to Work

MODE OF TRANSPORTATION

Nearly 80 percent of employed residents in Elk Grove drive alone to work, according to 2017 5-year estimates from the American Community Survey. Less than one percent of Elk Grove workers walked or bicycled for their commute compared to three percent in Sacramento County and nearly eight percent statewide.

Table 2: Mode of Transportation to Work

	Elk Grove	Sacramento County	California
Drive alone	78.1%	77.1%	73.6%
Carpool	12.1%	10.4%	10.4%
Public transit	2.2%	2.7%	5.2%
Walk	0.6%	1.9%	2.7%
Bicycle	0.2%	1.1%	1.1%
Other	1%	1.3%	1.5%
Work from home	5.9%	5.5%	5.6%

TRAVEL TIME TO WORK

More than 40 percent of workers who live in Elk Grove travel more than 30 minutes to their workplace, suggesting they commute to downtown Sacramento or other regional employment centers.

While long commutes may be unlikely candidates to shift to walking or bicycling, about eight percent of workers in Elk Grove, or more than 5,500 people, travel less than ten minutes to work each day. An additional 20 percent, or more than 14,000 people, travel between ten and 20 minutes to work. If improved connections between residential neighborhoods and employers within Elk Grove are created, these short commutes represent opportunities to increase walking and bicycling trips.

Survey Data and Outreach

Elk Grove has conducted multiple community surveys in recent years that includes questions on walking, bicycling, or other transportation topics in the City.

WALKING & BICYCLING IN THE CITY SURVEY

The City surveyed residents in 2018 to gather information about bicycling and walking in the community. Responses provide insight into priorities and preferences of people walking and bicycling in Elk Grove.

Walking to work or to transit stops were ranked as most important by respondents, with nearly 40 percent saying they walk five or more days per week.

Exercise or recreation are the most common purposes for both walking and bicycling trips among respondents.

Bicyclists strongly prioritized multi-use trails on the survey, with residential streets being the lowest priority for bicycle facilities. About one-third each of survey respondents respectively bicycle two to three days each week, or less than one time per month.

Please continue the dedicated multi-use trails! This is the safest option for families and a great way for kids to explore their hometown and be in nature!

-Bicycling in the City survey respondent

PLAN FOR PLAY SURVEY

The Cosumnes Community Services District (CCSD), which operates many parks and recreation services in the City, conducted an online survey in Spring 2017 as part of the Community Needs Assessment for the Plan for Play, the CCSD Master Plan for future parks, facilities, and open space. Key findings indicate community preferences for future improvement and provide information on current use.

Residents travel to parks located along trails on foot but tend to drive to parks not located along trails. Respondents reported willingness to walk to parks, with nearly half stating they would walk 10 minutes to reach a park. Most trail users reported walking or bicycling to reach trails in Elk Grove.

Respondents reported trail connectivity as a key concern, and a desire to improve connectivity and wayfinding in the future. Adding restroom facilities for trail users was also desired.

General themes of the survey findings included a desire to maintain the feeling of nature within parks and the desire to increase shade trees in the parks and along trails.

STRAVA METRO

Strava Metro aggregates anonymized user data from people that track their bicycle rides, runs, and walks with the Strava mobile application. Strava Metro data for Elk Grove was used to understand the travel patterns and potential safety challenges for bicyclists and pedestrians who logged trips within the City. This insight helped to identify streets or trail locations where bicycle and pedestrian activity are high, but existing facilities may be insufficient, as well as neighborhood routes which are utilized as an alternative to arterials with more motor vehicle traffic.

NATIONAL COMMUNITY SURVEY

In 2019, Elk Grove conducted the National Community Survey, which allows agencies to add custom questions to the citywide survey to gather information on topics of interest. A statistically significant sample of the community was surveyed.

Just 14 percent of respondents used Elk Grove trails daily or almost daily in the last 12 months, while 27 percent said they had not used the trails at all.

Among residents who use the trails, 83 percent used them for walking and 48 percent used them for bicycling. About one third of respondents walked pets on the trails, and one quarter used the trails for jogging or running.

About half of respondents said they have not ridden a bicycle in the last 12 months, and two-thirds said they would like to bicycle more often. Not enough paved, off-street trails was the most common reason cited for not bicycling more often, with 26 percent of respondents saying this affected their decision. About 20 percent each cited a lack of separation between bicycle lanes and traffic and not enough bicycle lanes on streets as concerns that prevent them from bicycling more often.

More than 80 percent of respondents said they worry about being hit by a car while riding a bicycle. Nearly 70 percent said they would be more likely to bicycle if there was a physical barrier between the bicycle facility and vehicle traffic.

RURAL RESIDENTIAL AREA MOBILITY

Since 2006, the City has conducted several outreach efforts to understand the unique needs of Rural Area residents. Outreach conducted in 2006 led to the development of the Rural Road Policy and Standards documents.

Building on the findings from that process, the City conducted a mail survey in July 2014 to understand community interest in increased mobility for non-vehicular modes. The survey was mailed to all households (1,592) located within the Rural Residential Area boundary. The results showed that 68 percent of respondents were generally supportive of bicycle mobility improvements and 69% were generally supportive of pedestrian improvements, so long as the rural character of the area could be maintained.

An accompanying Mobility Forum was held the following month, in August 2014, with more than 70 participants. Results from the Forum indicated residents from the Rural Residential Area wanted to explore specific mobility improvements on a site-by-site basis.

Following the Forum, the City partnered with two rural neighborhood associations to conduct community-led outreach to develop neighborhood-level recommendations for the Rural Residential Area. Three phases of community meetings and canvassing were conducted from March 2015 to October 2015.

Key recommendations for the Rural Residential Area were developed:

- Mobility improvements in the Rural Area should promote safety and preserve rural character
- Manage traffic volume and speeds through traffic calming on main arterials
- Maintain rural character by limiting rural area-wide mobility improvements to community-identified key routes, such as:
  - Excelsior Road
  - Pleasant Grove School Road
  - Bader Road
  - Bradshaw Road
  - Waterman Road
  - Calvine Road
  - Sheldon Road

Transportation Network

Streets and Highways

The majority of Elk Grove is organized into "superblocks" separated by a large grid of major arterials. Many of these arterials are six lanes wide, and they typically intersect with other arterials at signalized intersections.

Within the superblocks, collector streets provide access to neighborhoods characterized by cul-de-sac and loop streets in some neighborhoods; other neighborhoods exhibit a grid pattern.

Interstate 5 (I-5) and State Route (SR) 99 run north-south through Elk Grove, providing regional connections. I-5 runs along the western City limit while SR 99 passes through the center of Elk Grove, which presents connectivity challenges for walking and bicycling.

Bicycle Facilities

The City has a strong network of existing bikeways throughout the community, including many scenic trails through parkland or along creeks and drainageways. This network provides a foundation for bicycling in Elk Grove, though gaps remain.

Bikeway planning and design in California typically relies on guidelines and standards established in the Caltrans *Highway Design Manual*. There are four "classes" of bicycle facilities that provide varying levels of separation and comfort for bicyclists. These classes are descried below. Existing bikeways in Elk Grove, by class, are summarized in Table 3 and illustrated in Figure 3.

Table 3: Existing Bikeway Miles

Bikeway Class	Existing Miles
Class I Shared Use Path	35.2 mi
Class II Bicycle Lanes	91.6 mi
Class III Bicycle Routes	11.2 mi
Class IV Separated Bikeways	0.5 mi

CLASS I SHARED USE PATHS

Class I shared use paths are paved trails completely separate from the street. They allow two-way travel by people walking and bicycling, and are considered the most comfortable facilities for children and inexperienced bicyclists as there are few potential conflicts with people driving.

CLASS II BICYCLE LANES

Class II bicycle lanes are striped preferential lanes in the roadway for one-way bicycle travel. Some bicycle lanes include a striped buffer on one or both sides of the lane to increase separation from the traffic lane or from parked cars, where people may open doors into the bicycle lane.

CLASS III BICYCLE ROUTES

Class III bicycle routes are signed routes where people bicycling share a travel lane or shoulder with people driving. Because they are shared facilities, bicycle routes are typically appropriate only on quiet, low-speed streets with relatively low traffic volumes.

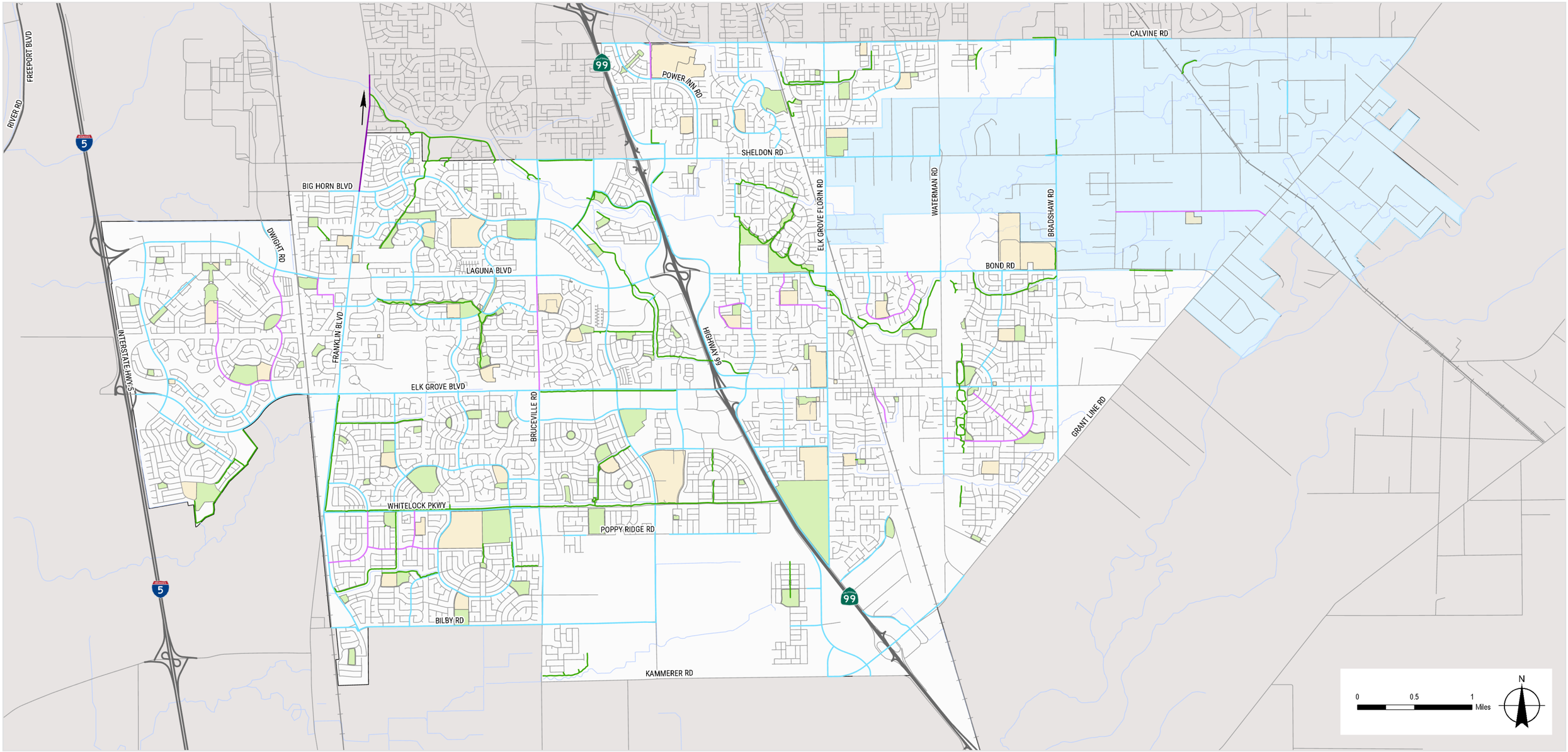
Some bicycle routes include shared lane markings or "sharrows" that recommend proper bicycle positioning in the center of the travel lane and alert drivers that bicyclists may be present. Others include more robust traffic calming features to promote safety and comfort for people bicycling and are known as "bicycle boulevards."

CLASS IV SEPARATED BIKEWAYS

Class IV separated bikeways are on-street bicycle facilities that are physically separated from motor vehicle traffic by a vertical element or barrier such as a curb, bollards, or vehicle parking aisle. They can allow for one- or two-way travel on one or both sides of the roadway.

Equestrian Facilities

Most of the City's off-street equestrian facilities are located in the northeast region of Elk Grove. The City's longest equestrian trail follows Laguna Creek for 3.5 miles, running through the Camden Creek Greenbelt and extending southeast of the Bond Road/Elk Grove Florin Road intersection. Some gaps between existing equestrian facilities are currently served by Class I trails and could be adapted to serve equestrians and create a longer and better-connected network of equestrian facilities.



Existing Bicycle Network

Disclaimer: Trails through parks are not shown for clarity, but can be seen in Figure 4

Legend

Existing Bicycle Facilities

- Existing Class I Multi-Use Path
- Existing Class II Bicycle Lane
- Existing Class III Bicycle Route
- Existing Class IV Bikeway

Boundaries

- Parks
- Schools
- Rural Policy Area
- City Boundary
- Roads
- Highways
- Railroads
- Creeks

CITY OF ELK GROVE

FIGURE 3

Support Facilities

In addition to a network of bikeways, support facilities are also needed to attract and maintain bicyclists by considering their needs throughout their journey. People are less likely to ride their bicycles to destinations without secure bicycle parking. Other support facilities include showers or lockers at destinations, repair stations with basic tools, and wayfinding signs to help bicyclists navigate to routes and destinations.

BICYCLE PARKING

Secure bicycle parking is a critical part of a complete bicycle network. Bicycle parking is typically divided into two categories serving different purposes: short-term convenient bicycle racks and longer-term higher-security parking.

Short-term bicycle parking consists of bicycle racks placed in highly visible, convenient locations near the entrances to destinations. They serve bicyclists who need to park for a few hours or less, including visitors, customers, or other short-term users.

Long-term bicycle parking consists of bicycle lockers or secure parking areas like bicycle cages or bike rooms. They are intended for bicyclists who need to park for longer periods of time or overnight, including employees, students, transit riders, or residents in multifamily buildings.

The Elk Grove Municipal Code requires bicycle parking to be provided at all public and civic facilities, schools, commercial, retail, office, industrial and multi-family uses. Provisions for long-term bicycle parking are not currently included in the Municipal Code.

SHOWER AND CHANGING FACILITIES

For commuters, having access to a place to shower, change, and securely store their belongings makes bicycling to work easier and more attractive.

The Elk Grove Municipal Code currently allows developers to reduce a project's vehicle parking requirements for commercial, office, and industrial uses if they provide facilities or programs that reduce vehicle parking demand, including showers, locker rooms, or additional secure bicycle parking beyond the minimum.

These facilities are typically provided by private developers or business owners for their tenants or employees, and the City does not currently keep an inventory of where they are located. The City does not currently have any publicly owned and operated shower and changing facilities.

Pedestrian Facilities

SIDEWALK

Together with Class I shared use paths, sidewalks form the backbone of the pedestrian transportation network.

Elk Grove has 961.6 miles of existing sidewalks, including both sides of most streets in the more urban western part of the City. Few sidewalks exist in the rural area located northeast of Bond Road, which is consistent with the Rural Road Improvement Policy and Standards. The Rural Area Community Plan area is illustrated in Figure 4.

For a map of existing pedestrian facilities, see Figure 4.

CROSSWALKS

Crosswalks are an extension of the sidewalk and provide guidance for pedestrians by defining a path of travel across the roadway at intersections. Crosswalks are not required to be marked but marked crosswalks alert drivers to the crossing and increase yielding for pedestrians.

Marked crosswalks can use standard parallel lines or "ladder-style" high visibility markings that include bold perpendicular markings between crosswalk edge lines. In school zones, crosswalks are yellow.

CURB RAMPS

Curb ramps are necessary for people using wheelchairs to access sidewalks and crosswalks as well as people pushing strollers or who may have difficulty stepping onto a raised curb. Under the Americans with Disabilities Act (ADA), curb ramps are required to be installed with all new or retrofitted sidewalks.

At corners, two curb ramps should be provided that align with each crosswalk.

PEDESTRIAN SIGNALS AND RECTANGULAR RAPID FLASHING BEACONS

Pedestrian signals and rectangular rapid flashing beacons (RRFBs) are pedestrian activated devices used to facilitate crossings at midblock or uncontrolled locations (locations without a traffic control device such as stop sign or traffic signal).

Pedestrian signals control traffic at midblock crossing locations. The traffic signal rests on green for vehicles until a pedestrian pushes a button to cross the street. The signal changes to yellow and then red to stop traffic, and pedestrians are shown a "walk" signal.

RRFBs include bright amber rectangular lights that flash in an alternating pattern when a pedestrian pushes a button. The beacon is dark when not activated. RRFBs increase visibility of the crosswalk, and alert drivers when a pedestrian is crossing the street.

Regional Connections

While the focus of this BPTMP is improving bicycling and walking within the City, connecting to existing and planned facilities in Sacramento County and the City of Sacramento will support longer trips to nearby communities.

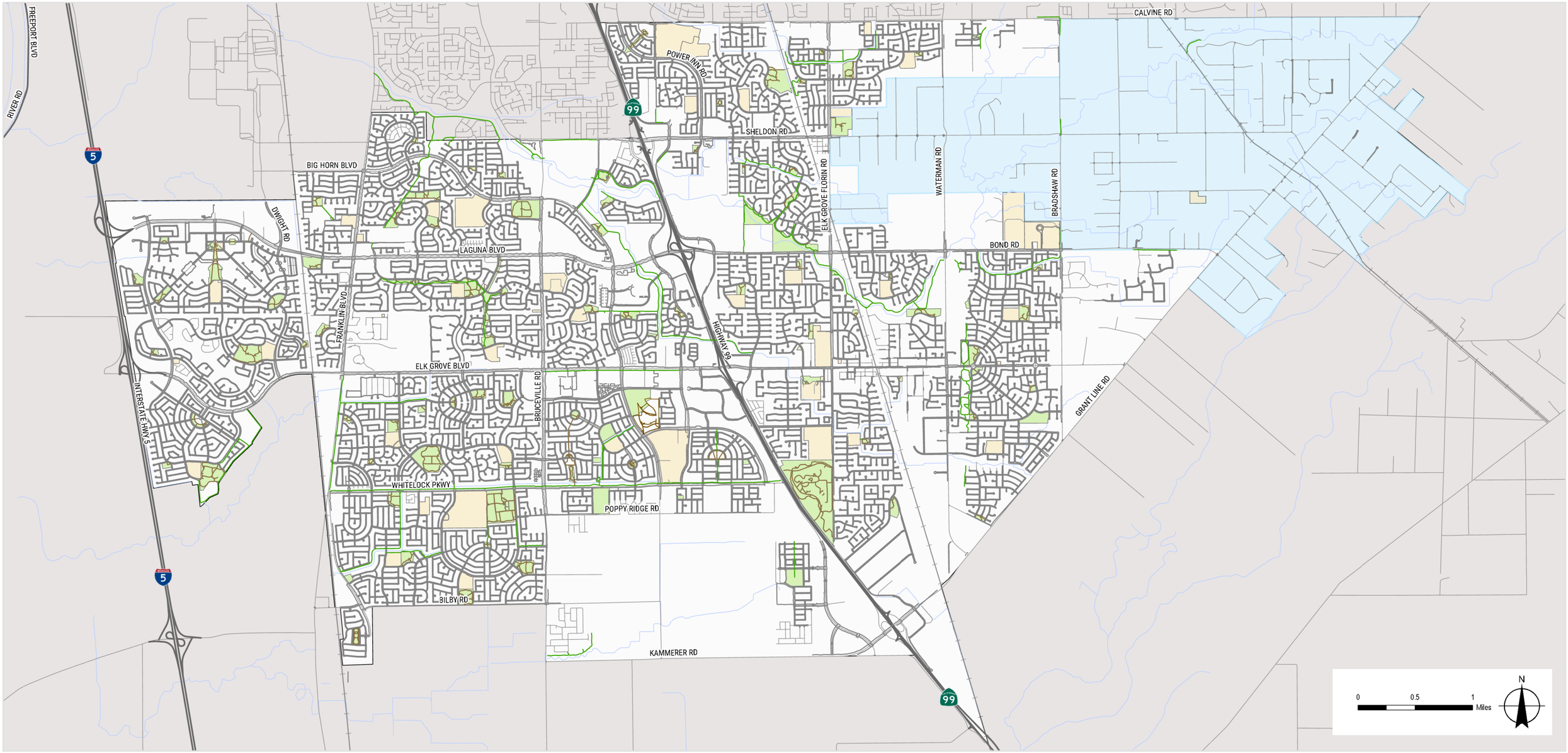
Regional bikeway connections include routes along:

- Franklin Boulevard
- Laguna Creek Inter-Regional Trail
- Bruceville Road
- Elk Grove-Florin Road
- Grant Line Road

The 34-mile Capital SouthEast Connector Project is currently in progress and will provide a regional connection to the northeast via Kammerer Road and Grant Line Road. Additional large-scale connections could be pursued to the American River Parkway, or to connect into the City of Sacramento along the Sacramento River Levee.

Barriers

Natural and man-made barriers can present challenges to people walking and biking in Elk Grove. SR 99 and three rail lines run north-south through the City. These barriers present challenges for people walking and biking in places where crossings are limited or active transportation facilities are interrupted or narrowed. Gaps in the active transportation network are also created by the City's extensive network of creeks and streams, which create longer and circuitous routes for people walking and biking. Other barriers to walking and bicycling may be context or site specific, including features like drainage facilities, large parking lots, limited bicycle parking availability at destinations, and inadequate lighting or sightlines along trails.



Existing Pedestrian Network

Legend

Existing Pedestrian Facilities

- Class I Multi-Use Path
- Park Trails
- Sidewalk

- Roads
- Highways
- Railroads
- Creeks

Boundaries

- Park
- Schools
- Rural Policy Area
- City Boundary

FIGURE 4

Data source: City of Elk Grove GIS; TigerLine U.S. Census Bureau Created by: bwhite3

Safety

Collision data involving people walking and bicycling in Elk Grove was acquired from the City. Just over five years of data was evaluated, from October 2013 through December 2018. Findings related to bicycling and walking collisions are highlighted in the following sections.

A total of 5,042 collisions were reported in Elk Grove during the study period, 4.8 percent of which involved people bicycling and 3.2 percent of which involved people walking.

Bicycle-Related Collisions

During the study period, 249 reported collisions involved a bicyclist. Of these, one was fatal and nine resulted in severe injuries.

Bicycle collisions are mapped in Figure 5.

AGE

Among collisions where the age of the bicyclist was reported, 52 percent were under 18 years old. Children under 18 make up just 27 percent of the Elk Grove population, suggesting youths are overrepresented among collision victims.

PRIMARY COLLISION FACTORS

In bicycle collisions where the bicyclist was determined to be at fault, more than 26 percent of collisions were attributed to bicyclists traveling on the wrong side of the road. No collision factor was identified in nearly half of collision reports.

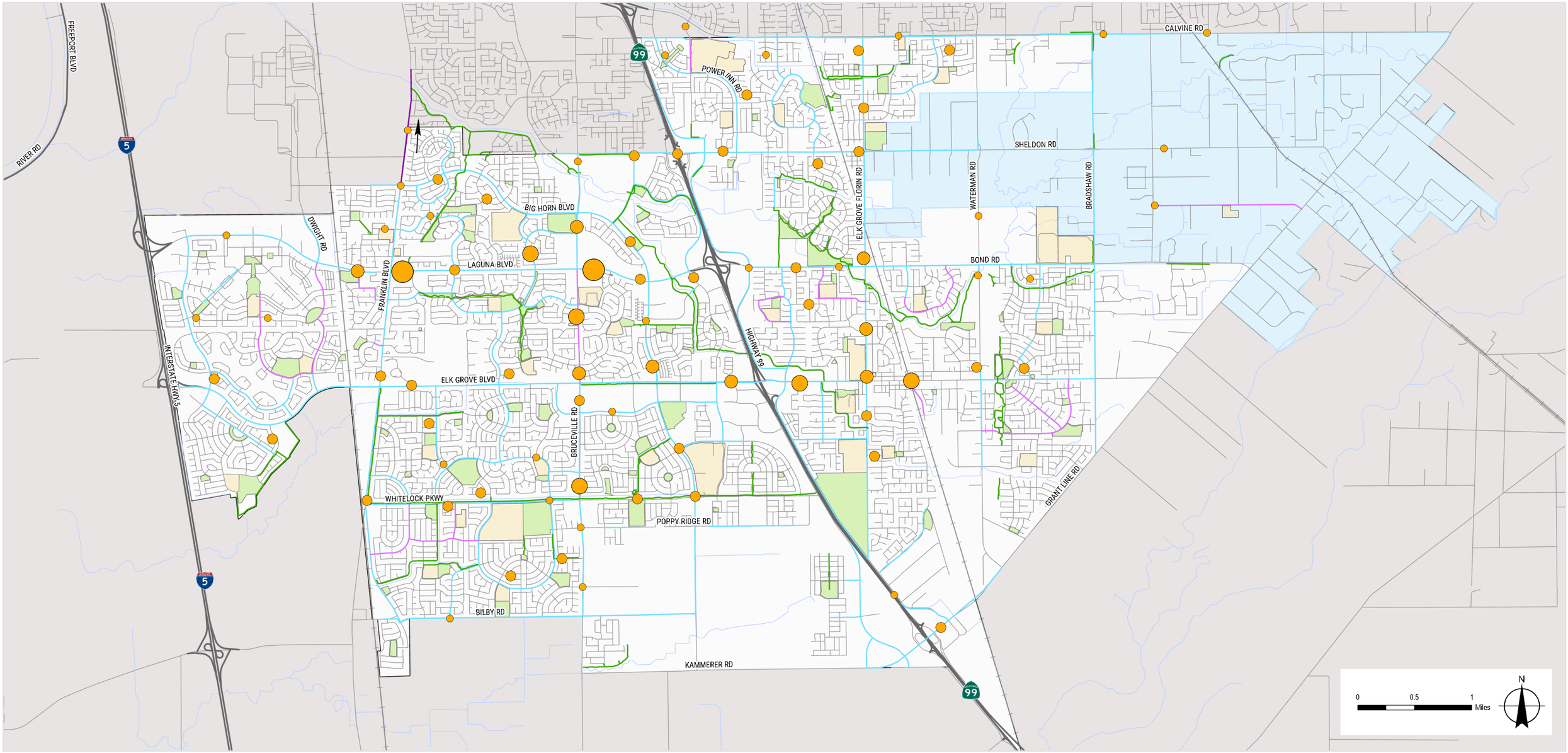
Among collisions when drivers were determined to be at fault, 40 percent were attributed to a driver failing to yield the right-of-way to another road user and 23 percent were attributed to improper turning.

MOVEMENTS

Nearly one-third of all bicycle collisions occurred between a bicyclist proceeding straight and a driver making a right turn.

Of bicycle collisions that occurred on arterials, 39 percent were "right hook" collisions with a bicyclist proceeding straight and a driver making a right turn. Some roadway characteristics were common to many of these crashes:

- 39 percent occurred at midblock driveways
- 27 percent occurred at locations where Class II bicycle lanes end before an intersection to accommodate a vehicle right-turn lane, requiring bicyclists to merge with traffic
- 24 percent occurred at locations where a Class II bicycle lane is placed to the right of a vehicle right-turn lane, requiring drivers to turn across the bikeway



Bicycle Collisions

Legend

Bicycle Involved Collisions (2013-2018)

- 1
- 2-4
- 5-7
- 8-10
- 11-12

Existing Bicycle Facilities

- Class I Multi-Use Path
- Class II Bike Lane
- Class III Bike Route
- Class IV Bikeway

- Roads
- Highways
- Railroads
- Creeks

Boundaries

- Parks
- Schools
- Rural Policy Area
- City Boundary

CITY OF ELK GROVE

FIGURE 5

Data source: City of Elk Grove GIS; TigerLine U.S. Census Bureau. Created by: pthornton

BIKEWAY PRESENCE

Among bicycle collisions, 77 percent occurred on roads with Class II bicycle lanes. Only 14 percent of collisions occurred on roads with no bicycle facility.

ROADWAY CHARACTERISTICS

When collisions on roadways with Class II bicycle lanes are examined further, several key characteristics are overrepresented among bicycle collisions:

- Posted speed limits of 45 mph account for 33 percent of bicycle lane mileage and 47 percent of collisions
- Posted speed limits of 35 mph account for 15 percent of bicycle lane mileage and 21 percent of collisions
- Roadways with six vehicle lanes account for 15 percent of bicycle lane mileage, while 40 percent of all bicycle crashes on Class II bicycle lanes occurred on these roads

INTERSECTION CHARACTERISTICS

Nearly half of bicycle collisions occurred at 213 of the City's key intersections, which represent all signalized intersections, and unsignalized intersections along arterial and collector roadways. Of the bicycle-involved collisions occurring at the City's key intersections, 95 percent occurred at signalized intersections.

Pedestrian-Related Collisions

During the study period, 161 reported collisions involved a pedestrian. Of these, three were fatal and 17 resulted in severe injuries.

Pedestrian collisions are mapped in Figure 6.

AGE

Among collisions where the age of the pedestrian was reported, 36 percent of pedestrians were under 18 years old. Children under 18 make up just 27 percent of the Elk Grove population, suggesting youths are overrepresented among collision victims.

FAULT DETERMINATIONS

Of the 161 reported pedestrian collisions, 63 percent were determined to be the fault of the driver and 23 percent were determined to be the fault of the pedestrian. No fault determination was made in the remaining 14 percent of reported collisions.

PRIMARY COLLISION FACTORS

In pedestrian collisions where the pedestrian was determined to be at fault, 97 percent of collisions were attributed to a pedestrian violation. This could include crossing against a pedestrian signal, crossing outside of a legal crosswalk, or other behaviors.

Among collisions where drivers were determined to be at fault, the most commonly reported collision factors were "other hazardous movement" (38 percent), violating the right of way of another automobile (15 percent), and violating the right of way of a pedestrian (10 percent).

SIDEWALK PRESENCE

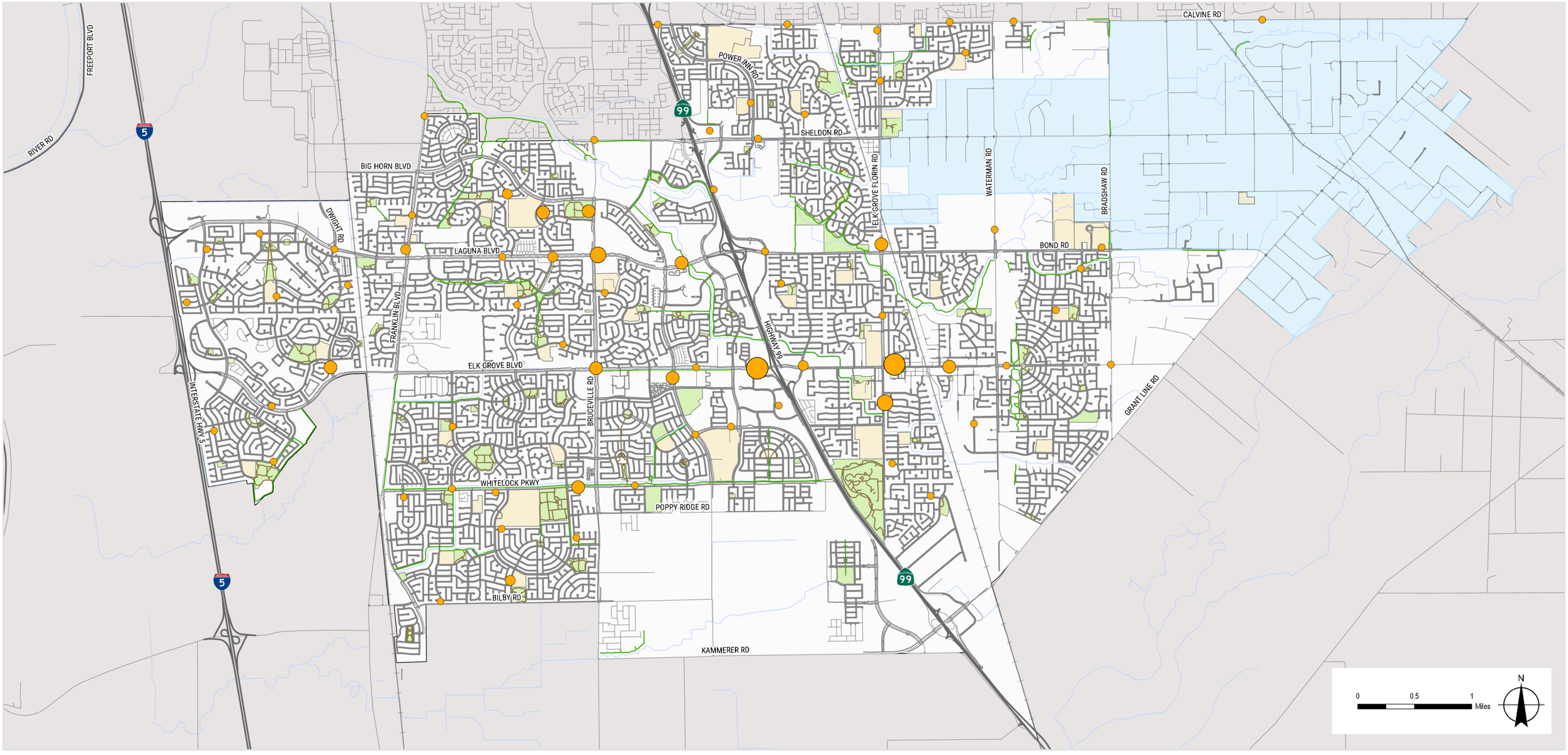
Ninety four percent of pedestrian collisions occurred on roadways with sidewalks on both sides of the street. Since much of Elk grove has sidewalk on both sides of the street, it would be expected that collisions would occur primarily in those areas.

INTERSECTION CHARACTERISTICS

Nearly half of pedestrian collisions occurred at signalized intersections.

CROSSWALKS

Nearly half of reported pedestrian collisions, or 77 collisions, occurred while the pedestrian was crossing the street in a crosswalk. Of these, 92 percent (71 collisions), were determined to be the fault of the driver.



Pedestrian Collisions

Legend

Pedestrian Involved Collisions (2013-2018)

- 1
- 2-3
- 4-5
- 6-7
- 8-9

Existing Pedestrian Facilities

- Class I Multi-Use Path
- Park Trails
- Sidewalk

- Roads
- Highways
- Railroads
- Creeks

Boundaries

- Park
- Schools
- Rural Policy Area
- City Boundary

CITY OF ELK GROVE

FIGURE 6

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Data source: City of Elk Grove GIS; TigerLine U.S. Census Bureau. Created by: pthornton

Level of Traffic Stress

This section provides information about the level of traffic stress (LTS) analysis and results for the bicycle network in Elk Grove.

LTS is the perceived sense of danger associated with bicycling or walking in or adjacent to vehicle traffic. Studies have shown that traffic stress is one of the biggest deterrents to bicycling and walking. The less stressful the experience, and the lower the LTS score, the more likely it is to appeal to a broader segment of the population.

A bicycle and pedestrian network will attract a large portion of the community if it is designed to reduce stress associated with potential motor vehicle conflicts and connects people to their destinations.

Bicycle and pedestrian facilities are considered low stress if they have few interactions with vehicle traffic (such as slow, low-traffic neighborhood streets) or if greater separation is provided between people walking or bicycling and vehicle traffic.

LTS scores were used to develop project recommendations that would create a lower stress network for people of different ages, abilities, and comfort with bicycling in Elk Grove. Using the LTS scores presented here, the Project team was able to select facility recommendations to increase separation between bicyclists and vehicle traffic, especially on higher-speed, multi-lane arterials. LTS scores were also used as a metric to prioritize the composite list of recommendations. Prioritization is discussed in greater detail in the Implementation Chapter.

As a relatively newly developed community, the pedestrian network in Elk Grove was conditioned with development and is fairly complete. Within neighborhoods, where traffic speeds and volumes are low, the pedestrian experience is already low-stress and comfortable for most people. Because of this, a comprehensive Pedestrian LTS analysis was not completed as part of this BPTMP update. Pedestrian interventions will be focused on known high-stress points along arterials and crossings.

Types of Bicyclists

Research conducted by the Portland, Oregon Bureau of Transportation indicates the majority of people in the United States would bicycle if dedicated bicycle facilities were provided. Based on their skill level and confidence, most people self-identify as one of the four "types of bicyclists" shown in the graphic below. Only a small percentage of Americans are willing to ride if no facilities are provided—the Strong and Fearless cyclists.

To better meet the needs of the "Interested but Concerned" bicyclists, it is recommended that communities work to decrease stress and improve comfort on their bikeway network. LTS 1 and 2 roads are typically appealing to these bicyclists.

Bicycle Level of Traffic Stress

Bicycle LTS assigns a score from 1 to 4 to street segments, intersection approaches, and intersection crossings based on roadway data, including:

- Posted speed limit
- Number of vehicle lanes
- Intersection control devices (stop signs, traffic signals)
- Type of bikeway, if applicable
- Separation between bicycle facility and vehicles
- Configuration of right-turn lanes at intersections

A score of LTS 1 indicates a street with low stress and high comfort for people bicycling. LTS 4 reflects a highly stressful experience.

Detailed methodology and results are provided in Appendix B.

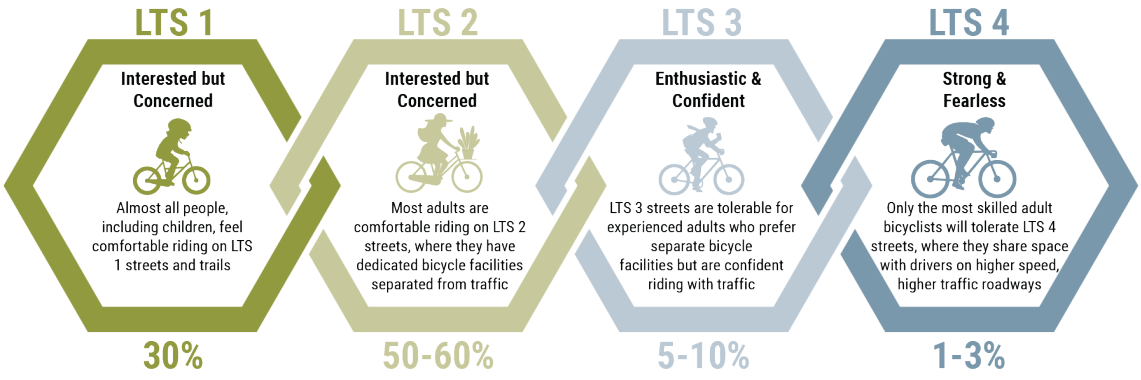


Image was created by GHD, using POBT data

A lower-stress network means all bicyclists, regardless of age or ability, can comfortably ride to their destination.

SEGMENTS

The segment LTS scores shown in Figure 7 illustrate the low-stress connections and gaps in Elk Grove today. While much of the network in the City was scored LTS 1 (75 percent), these facilities are primarily minor local roads or off-street paths. Low-stress islands are surrounded by higher stress arterials where most average adults would not feel comfortable bicycling.

When only arterial roadways are examined, which serve as the direct connections to most destinations, 84 percent are LTS 4 (see Figure 8). The majority of residents may not feel comfortable bicycling outside their immediate neighborhood on low-stress local streets. This means reaching major destinations from residential areas may not be possible given most people's tolerance for bicycling with traffic, even on streets that have bicycle lanes.

APPROACHES

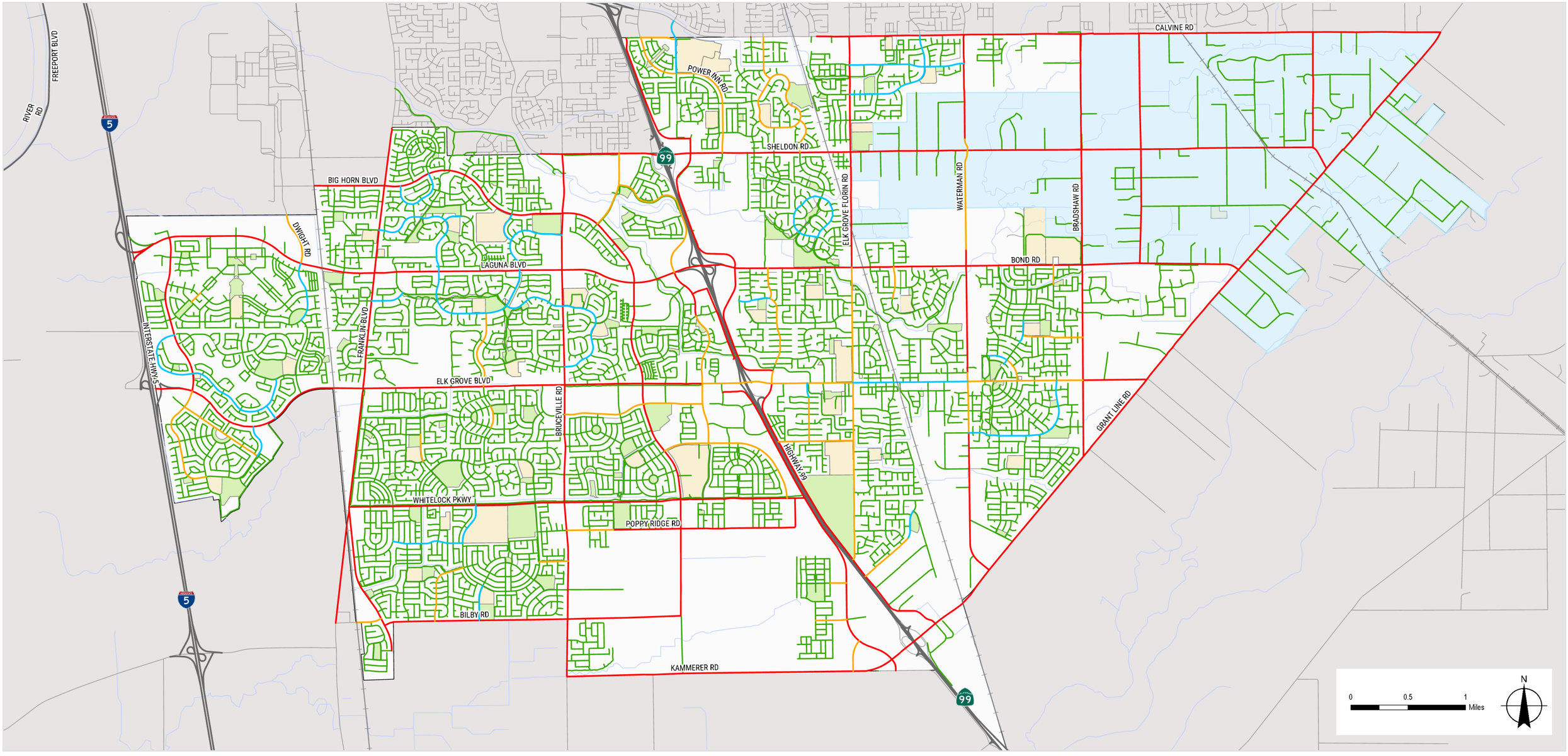
Approach LTS scores, shown in Figure 9, reflect high-stress experiences at almost all intersections evaluated. Many of these are locations where bicycle lanes end abruptly, creating a stressful environment when bicyclists must mix with traffic unexpectedly. High-stress intersection approaches can present an increased risk of collision with motor vehicles, as drivers merge with bicyclists or turn across bicycle lanes.

CROSSINGS

Crossings at intersections of two local residential streets were typically found to be low-stress, likely to be easy for most adults and children on bicycles to navigate.

Moderately stressful LTS 3 crossings were identified primarily along collector and arterial roadways, contributing to the perception of these larger streets as barriers to low-stress connectivity. A stressful crossing can discourage a potential bicyclist, even if the route is otherwise low-stress.

Bicycle LTS scores for crossings are mapped in Figure 10.



Bicycle Level of Traffic Stress (LTS) - Segments

Legend

Segment LTS

- LTS Score 1
- LTS Score 2
- LTS Score 3
- LTS Score 4

- Roads
- Highways
- Railroads
- Creeks

Boundaries

- Park
- Schools
- Rural Policy Area
- City Boundary

CITY OF ELK GROVE

FIGURE 7

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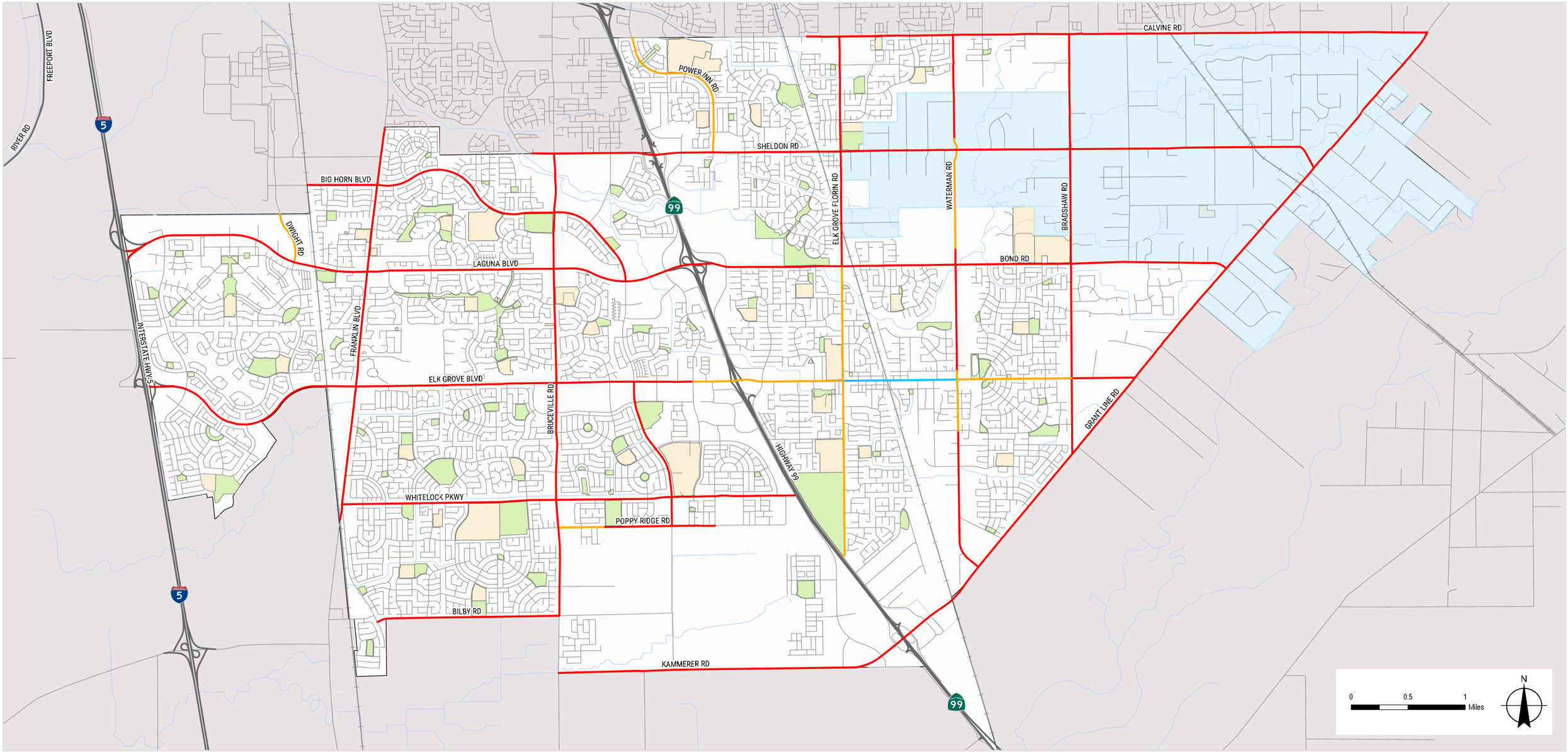
Data source: City of Elk Grove GIS; Tiger/Line U.S. Census Bureau. Created by: pthornton



Bicycle Level of Traffic Stress (LTS) - Arterial Segments

Legend

Arterial Segment LTS

- LTS 1 Arterial
- LTS 2 Arterial
- LTS 3 Arterial
- LTS 4 Arterial

- Roads
- Railroads
- Creeks
- Highways

Boundaries

- Park
- Schools
- Rural Policy Area
- City Boundary

CITY OF ELK GROVE

FIGURE 8

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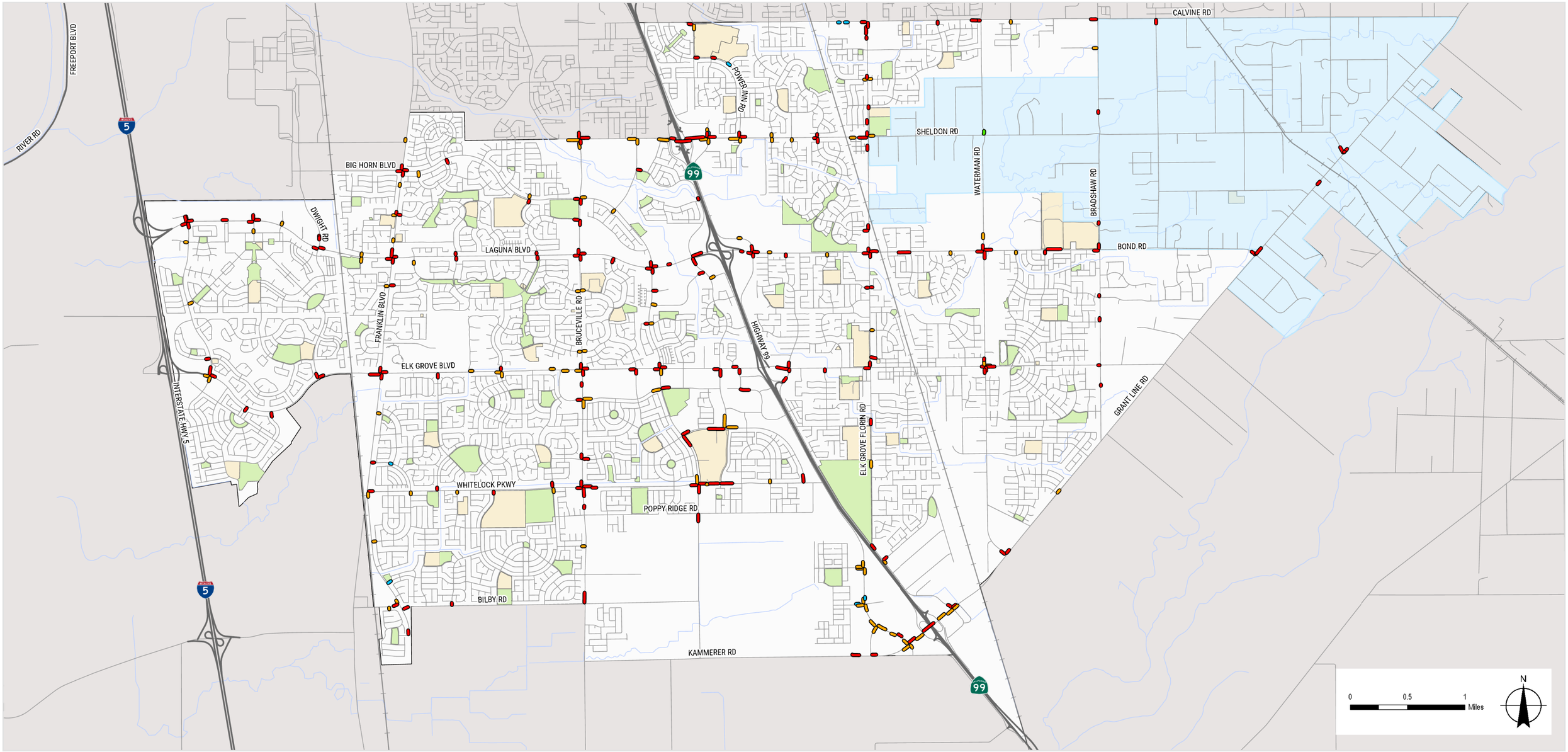
Data source: City of Elk Grove GIS; TigerLine U.S. Census Bureau Created by: pthornton



Bicycle Level of Traffic Stress (LTS) - Approaches

Legend

Approach LTS

- LTS Score 1
- LTS Score 2
- LTS Score 3
- LTS Score 4

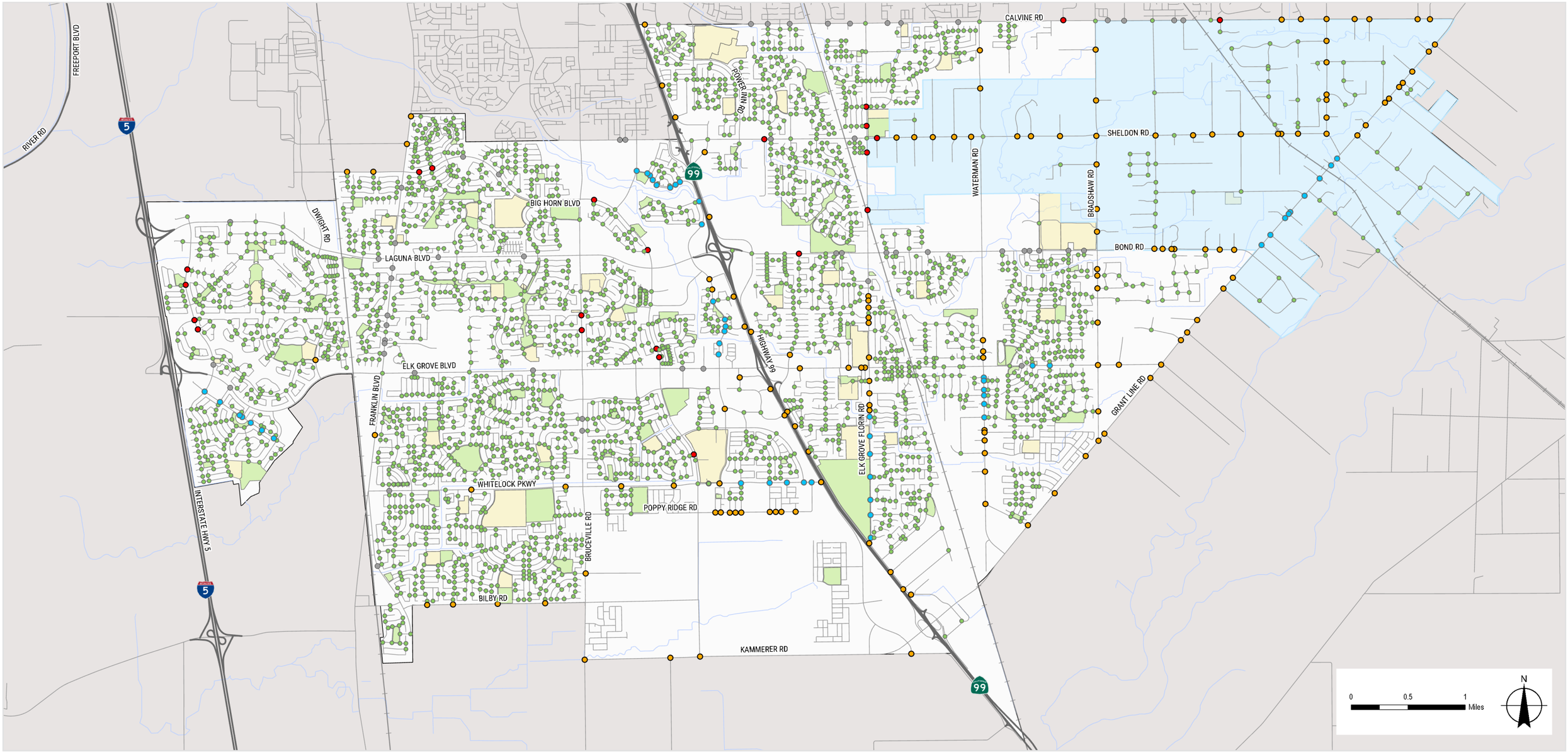
- Roads
- Railroads
- Creeks
- Highways

Boundaries

- Park
- Schools
- Rural Policy Area
- City Boundary

CITY OF ELK GROVE

FIGURE 9



Bicycle Level of Traffic Stress (LTS) - Crossings

Legend

Crossing LTS

- LTS Score 1
- LTS Score 2
- LTS Score 3
- LTS Score 4
- Not Scored - Median Prevents Crossing

- Roads
- Railroads
- Creeks
- Highways

Boundaries

- Parks
- Schools
- Rural Policy Area
- City Boundary

Disclaimer: The Crossing LTS results shown here include unsignalized crossing locations only. The crossing LTS methodology does not analyze signalized intersections, as they are generally considered to provide adequate crossing protections and are assumed to be low stress.

CITY OF ELK GROVE

FIGURE 10

Data source: City of Elk Grove GIS, TigerLine U.S. Census Bureau . Created by: bwhite3

Programs

Programs support walking and bicycling in a community by sharing information, promoting safety, and fostering a vibrant active transportation culture.

Communities with high rates of walking and bicycling often use a "Five E's" approach, with education, encouragement, evaluation, and equity complementing **engineering** improvements.

- **Education** programs share information about safety, benefits of active transportation, and resources or facilities available in the community. They should address people bicycling, walking, and driving.
- **Encouragement** programs promote bicycling and walking as fun, convenient, and enjoyable modes of transportation and recreation.
- **Evaluation** programs monitor success through counts, surveys, and data review to inform adjustments or modifications to programs, policies, and the built environment.
- **Equity** is a lens through which all programs and infrastructure projects should be viewed to ensure disadvantaged members of the community have access to and benefit from the City's investments in active transportation.

The City and its partners have been carrying out the following programs in recent years to support bicycling and walking.

May is Bike Month

SACOG coordinates a regional May is Bike Month campaign each year, which many members of the Elk Grove community participate in. People can register on the campaign website to log bicycling trips, form teams to compete against others, and attend events throughout the month.

Safe Routes to School

Safe Routes to School (SRTS) programs offer education and encouragement activities intended to increase the number of children who walk or bicycle to school and reduce traffic congestion in school areas.

Elk Grove Unified School District (EGUSD) has promoted SRTS since 2002. All elementary schools in the City participate in the program, which includes a number of activities.

- **Walk to School Day** is celebrated each October and **Bike to School Day** is celebrated each May. Both activities celebrate and encourage students who walk to school.
- **Walking School Buses** can address parent concerns by organizing groups of students to walk to school together along a "bus route" with supervision from a parent or other volunteer. They are sometimes combined with **Remote Drop-off** programs that encourage parents who drive students to school to park at a designated location a few blocks away and then walk to school.
- **Bike Rodeos** offer on-bike skills practice for students and are held either during school as part of an assembly or physical education, or after school. In Elk Grove, these are typically offered by the Elk Grove Police Department and include bicycle and helmet inspections and bicycle safety demonstrations. In prior years, the Elk Grove Police Department and the California Highway Patrol have distributed free helmets at these events.
- **Bike Helmet Safety Education** includes information on the importance of wearing a helmet as well as proper fit and adjusting straps. Prairie Elementary School and Anna Kirchgater Elementary School are designated Helmet Safety Centers and provide free helmets to students or community members in need. In addition, the Elk Grove Police Department has provided free helmets to students and other community members in need through a similar program.

Advancing Walk and Roll Environments (AWARE)

Between 2013 and 2017, the City of Elk Grove and EGUSD partnered together to conduct the Advancing Walk and Roll Environments (AWARE) project. The project targeted K-8 schools in EGUSD to increase walking and biking to school and identify effective strategies and programs to carry forward after the completion of the project.

At the end of the project, AWARE reached a total of 37 elementary schools and 8 middle schools in the EGUSD. Key takeaways from project AWARE included:

- The most successful programs for increasing student active transportation are those that incorporate safety education, adult supervision for younger students, and make pick-up and drop-off routines easier
- The Walking School Bus was the number one most effective strategy at increasing student active transportation
- Bike rodeos and other on-bike safety education is a key strategy to improving parent confidence in bicycling to school
- Well-equipped and well-trained crossing guards are an important component to increasing pedestrian safety around EGUSD school sites

Opportunities for Improvement

Based on this review of existing walking and bicycling conditions, along with results from analysis of safety and other data, the following opportunities for improvement were identified:

Bicycling Needs

- Increase separation between bicycle facilities and vehicle traffic, especially on higher-speed, multi-lane arterials
- Improve connectivity of the low-stress bicycle network within and between neighborhoods
- Improve visibility of bicyclists at midblock driveways
- Reduce right-hook collisions at intersections
- Provide wayfinding to share route and distance information to common destinations

Walking Needs

- Provide pedestrian pathways in rural areas that meet safety and accessibility needs while preserving rural neighborhood character
- Increase permeability between neighborhoods with cul-de-sac or loop streets
- Reduce stress at crossings of arterial roadways
- Increase visibility and driver awareness of pedestrian crossings, especially on higher speed, multi-lane arterials

Equestrian Needs

- Provide equestrian-appropriate surfaces in rural areas along new and existing designated Class I shared use paths
- Develop crossing treatments and specify appropriate locations for current and future equestrian crossing needs
- Develop and implement a plan to collect data on equestrian use and needs over time

Program and Policy Needs

- Update bicycle parking standards to uncouple them from vehicle parking requirements
- Develop distinct short-term and long-term bicycle parking requirements and identify appropriate locations for current and future parking needs
- Foster educational opportunities for all roadway users and all age groups to increase awareness of bicycling and walking, and to improve safety

Outreach

Engaging the Elk Grove community has been a priority throughout development of this BPTMP. A variety of outreach opportunities were used to seek input and gather feedback from community members to ensure this plan reflects the vision and priorities of Elk Grove residents.

The development process also included extensive coordination with partner agencies and City departments to create a set of recommendations and an implementation strategy that advances the initiatives and goals of local and regional partners.

Widespread shelter-in-place orders were enacted in Spring 2020 in response to the global COVID-19 pandemic. These unprecedented circumstances disrupted many planned in-person outreach events, necessitating a shift to web-based meetings and online engagement tools to maintain the City's commitment to broad and inclusive outreach without compromising the health and safety of the community.

The public was engaged with the project via:

- An online interactive mapping tool, which received over 400 public comments
- A Technical Advisory Committee that met three times throughout the development of the Plan
- A well-attended, two-day virtual community workshop
- A pop-up event at the NeighborGood Market
- A virtual public meeting to present the Draft Plan
- Committee and Commission Meetings with the Trails Committee, Disability Advisory Committee, and Planning Commission
- A public comment form on the project website, where community members could provide specific comments about the Draft Plan

The Plan and the recommendations were shaped and revised according to public feedback throughout the Plan process. This chapter presents an overview of the format and approach for each outreach activity, along with a summary of feedback received. Additional documentation of outreach is provided in Appendix B.

Online Interactive Mapping Tool

An interactive mapping tool was posted on the Project website from April 2020 through July 2020 to gather input and feedback from the community directly on a map of the City.

Community members were encouraged to place pins on the map to add concerns and categorize them as bicycle-, pedestrian-, or trail-related. Respondents could also view and respond to pins and comments added by others, including voting "up" or "down" for comments they agreed or disagreed with.

More than 400 comments were entered on the map by the community. Figure 11 depicts a distribution of comments received in the online tool. Comments included the following themes:

TRAILS

- Close gaps between existing trail segments and provide spur connections to shopping centers and other destinations
- Bollards and curb conditions at trail entrances are challenging for some bicyclists to navigate
- Desire for some unpaved trail segments to be paved
- Desire to maintain soft-surface trails in some locations
- Need for increased connectivity across freeways and railroad lines
- Concerns about frequent flooding of trails in some areas
- Need for signs or programming to support safe behavior for bicyclists and pedestrians sharing trails
- Where trails are heavily used, consider wider paths that offer more separation between bicyclists and pedestrians

AMENITIES & LANDSCAPING

- Need for additional bag stations and waste receptacles in areas where people walk dogs
- Need for water fountains in some parks and trail areas
- Desire for additional shade trees or landscaping along exposed sections of trails

BICYCLE CONNECTIONS & SEPARATION

- Highlighted corridors that feel unsafe currently
- Identified locations for new on-street bicycle facilities
- Concerns about traffic speeds
- Concerns about navigating highway interchanges and other challenging intersections on bicycles
- Need for additional separation between bicycle facilities and traffic on some corridors
- Desire for wayfinding signs to direct bicyclists to quiet streets or trail connections that are less intuitive but offer lower-stress routes

CROSSINGS & INTERSECTIONS

- Identified locations for new bicycle and pedestrian crossings
- Highlighted challenging locations where drivers are not consistently yielding to bicyclists/pedestrians in crosswalks creating unsafe conditions for people walking and bicycling
- Need for improved crossings at some railroad locations where rails create challenges for bicyclists, wheelchair users, and others
- Need for improved bicycle detection at traffic signals

MAINTENANCE

- Noted locations where uneven pavement or cracking exist
- Need for vegetation maintenance at key locations to maintain visibility and clear paths of travel
- Need for increased sweeping to keep trails and bicycle lanes free of debris that can cause flat tires or create other challenges for bicyclists
- Challenges with people parking in bicycle lanes
- Concerns about community cat colonies along the trail

PEDESTRIAN CONNECTIONS

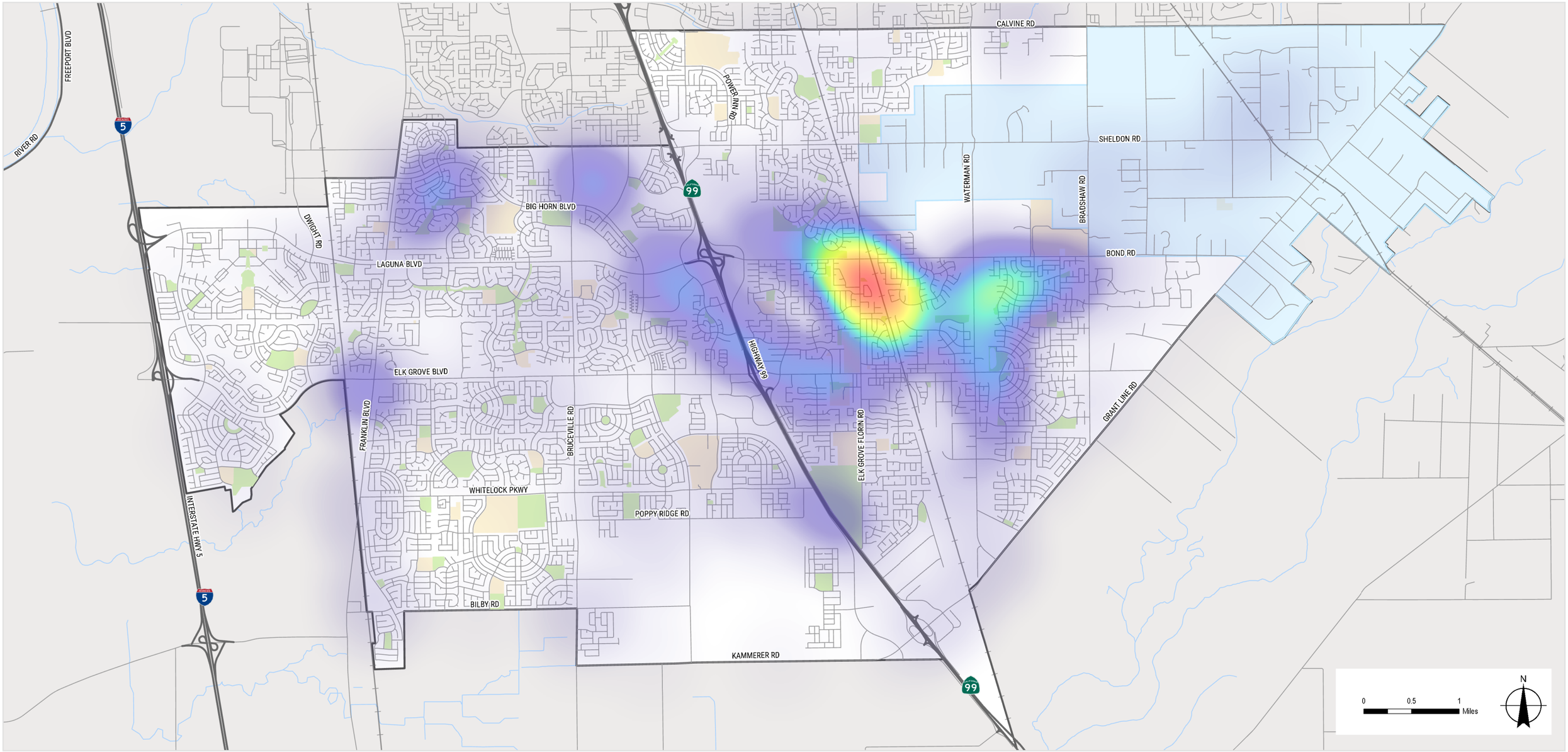
- Desire for paseos or alleys to increase permeability of neighborhoods for pedestrians
- Close gaps in existing sidewalk networks

SAFE ROUTES TO SCHOOLS

- Desire for improvements around schools to be prioritized to increase safety and comfort for students walking and bicycling to school
- Identified improvements include sidewalks, bicycle lanes, and trails
- Traffic calming and other measures should be considered in key locations to address speeding and other unsafe driver behavior

Draft Plan Public Comment Form

The Draft Plan was shared on the project website, along with a public comment form for the community to submit feedback about the Draft Plan and recommendations. Comments were similar in nature to the comments received on the interactive mapping tool and provided additional insight about challenging locations or community needs that the Plan could address. Feedback was used to refine the Plan and recommendations.



Distribution of Comments Received

Legend

Comment Density

- Sparse
- Dense

- Roads
- Highways
- Railroads
- Creeks

Boundaries

- Parks
- Schools
- Rural Policy Area
- City Boundary

FIGURE 11

Technical Advisory Committee

A Technical Advisory Committee (TAC) was convened to provide strategic direction throughout development of this Project. The TAC met two times throughout the plan development process to share guidance or give feedback on key project milestones.

TAC members include representatives from local and regional agencies who may be partners in funding, implementing, or maintaining bicycle, pedestrian, or trail facilities in Elk Grove or adjacent communities. Agencies invited to participate included:

- City of Sacramento
- Cosumnes Community Services District
- Elk Grove Cycling Club
- Elk Grove Unified School District
- Sacramento Air Quality Management District
- Sacramento Area Council of Governments

MAY 20, 2020

The first TAC meeting was held via web conference to introduce the Project and gather input on general challenges and opportunities to improve bicycling in Elk Grove, as well as specific feedback on a vision and goals for the BPTMP.

Comments from TAC members included:

- Safer connections between neighborhoods and schools are a priority
- Need for trail corridor standards that include amenities and features outside the paved trail surface to ensure consistency between developments
- Balance needs of commuter bicyclists trying to reach local destinations and needs of recreational bicyclists trying to access longer regional routes
- Create selection criteria to inform types of bicycle and pedestrian facilities that are appropriate for different Elk Grove streets
- Elevate regional connections by working with the City of Sacramento and Sacramento County to provide consistent, high-quality bikeways across jurisdictional boundaries

NOVEMBER 5, 2020

The second TAC meeting was held via web conference to review Project goals, present draft recommendations, and gather feedback on recommendations and how projects should be prioritized. The committee discussed seven prioritization categories by which projects could be scored and ranked.

Comments from TAC members included:

- Consider conveying prioritization in tiers rather than individual rankings so that lower-ranked projects are competitive for grant funding
- Need for robust bicycle parking options that accommodate a variety of bicycle types, including charging for e-bikes
- Consider location of existing restroom facilities in relation to proposed trail sections
- Convey recommendations using clear terminology and illustrate concepts with examples where possible

When I was growing up in Sacramento, I rode my bike to school every day. I don't see that happening in Elk Grove, and I think that's really a shame.

Supporting safe passage for school kids between their homes and the schools is high on my list.

–Karl Okamoto, Elk Grove Cycling Club

MARCH 15, 2021

The third meeting was held via web conference. It began with a review of the project background, goals, schedule, then focused on presentation and discussion of Plan components, including Implementation Plan, Trail Maintenance Plan, Design Protocols. The committee provided feedback on the draft recommendations and content covered in the Plan.

Comments from committee members included:

- Describe in greater detail how public outreach and the LTS analysis was factored into the development of recommendations
- Consider developing a monitoring system to quantify the increase in walking and biking trips in the City
- Pursue other planning opportunities like a Local Road Safety Plan to bolster funding opportunities for implementing recommendations
- Several specific comments on connections to other regional facilities in development

Community Workshops

JUNE 23 & 25, 2020

Two virtual community workshops were held on June 23 and June 25, 2020 to introduce the planning process to the community and engage attendees in discussions about neighborhood contexts, their vision for Elk Grove, and how to measure success of this plan. The two workshops followed the same agenda but offered different times to accommodate more community member schedules.

Between the two dates, more than 50 people participated in the workshops. Most were long-time residents of Elk Grove, reporting they have lived in the City for more than ten years.

During the workshops, polling questions asked participants to share information or provide input on their vision for Elk Grove. When asked what makes their neighborhood unique, many participants mentioned trails. Other responses highlighted trees, rural character, parks, walking to restaurants, and social connections with other residents.

A series of polling questions asked participants about their current walking and bicycling behavior, including asking how people have been participating in outdoor recreation during shelter-in-place orders related to the coronavirus.

Happy people are able to get to places without having to get in their cars.

Sharon Anderson

Pop Up Events

Due to the COVID-19 pandemic, pop-up events were not possible for much of the Project duration. The Project team was able to hold one socially distanced pop-up as described below.

NeighborGood Market

The NeighborGood Market is held on Thursday evenings at The Avenue at District 56.

NOVEMBER 12, 2020

The Project team designed the pop-up booth space to facilitate conversations with participants while maintaining a six-feet distance.

Participants were able to review a series of informational board displays and ask questions of the Project team members, as well as sign up for email updates on a sign-in sheet or online via a QR code provided on materials at the booth. The pop-up workshop engaged more than 40 community members and residents.

Community Meeting

JANUARY 19, 2021

A virtual community meeting was held on January 19, 2021 to share aspects of the Draft BPTMP and answer community member's questions. This meeting was held over Zoom and was attended by 66 community members. At the meeting participants learned about the project background, and goals, plan components, project highlights and next steps. The meeting finished with a question-and-answer portion.

During the meeting, the project team gave an overview of the Draft Plan with a focus on the plan's draft policy and project recommendations, which was the primary objective of the event. This was followed by question-and-answer (Q&A) with participants to conclude the meeting.

Participants were able to ask questions in the Chat Box feature of the virtual meeting. Q&A topics were focused on the following concerns:

- Bikeable Communities
- Connectivity
- Design Protocols
- Maintenance

A more detailed summary of the community workshops and meeting is provided in Appendix C.

City Committee and Commission Meetings

Trails Committee

The Trails Committee was a key partner in identifying challenges and developing recommendations to improve and expand the trail network in Elk Grove.

MAY 18, 2020

The Project team presented to the Trails Committee at their regular meeting, which was conducted via web conference.

The Project team introduced the Project, and the committee provided input on goals and general needs for the BPTMP, including:

- Prioritize closing gaps in existing trail networks
- Need for complete cross-town trail connections
- Need for clear standards for new development
- Need for community education around sharing paths safely, and education on sidewalks vs trail facilities

The Committee was also encouraged to share the Social Pinpoint mapping tool with their networks to drive engagement with the broader community.

MARCH 15, 2021

The Project team presented the Draft Plan and recommendations to the Trails Committee via web conference. After the presentation, the Project team gathered feedback about the Plan and recommendations. Input from the Trails Committee included:

- Ensure continued connectivity between existing and future development
- An annual ride-along or trailing for City staff and Trails Committee members may identify connectivity challenges that arise as Elk Grove grows
- Bicycle facilities along Franklin Boulevard should be better connected and cohesive
- Need for trail etiquette signage
- Ensure maintenance for Class IV facilities is addressed

Disability Advisory Committee

The Disability Advisory Committee was also a key partner in identifying the conditions and challenges that are unique to disabled users of the bicycle, pedestrian, and trail network in Elk Grove.

MAY 20, 2020

The Project team presented to the Disability Advisory Committee at their regular meeting, which was conducted via web conference.

The Project team introduced the Project, and the committee provided input on goals and general needs for the BPTMP, including:

- Need for community education around sharing paths safely with vision-impaired users
- Need for community education around appropriate use of bicycle vs pedestrian facilities
- Need for clear signage or markings where trails are appropriate for bicyclist use
- Bicycle facilities should be wide enough to accommodate specialized bicycle equipment, such as recumbent bicycles
- Need for complete cross-town trail connections

The Committee was also encouraged to share the Social Pinpoint mapping tool with their networks to drive engagement with the broader community.

MARCH 17, 2021

The Project team presented the Draft Plan and recommendations to the Disability Advisory Committee via web conference. After the presentation, the Project team gathered feedback about the Plan and recommendations. Input from the Disability Advisory Committee included:

- Address bicycle parking and how locations for future parking will be determined
- Would like to have a trails/bikeways app that is mobile-friendly
- The City may wish to consider including an icon for "Bike Friendly Businesses" on printed Bicycle and Trails maps when they are updated

Planning Commission

The Project team presented the Draft Plan to the Planning Commission on April 15, 2021 and included a summary of changes to be made to the Plan following comments made by the public. After the presentation, the Planning Commission members shared comments on the Draft Plan, which included:

- Concern over the collision information summarized in the Plan, and a recommendation that the City focus on increasing safety for people walking and bicycling
- Enthusiasm in seeing that the City is putting in considerable effort to plan for improved conditions for walking and bicycling in Elk grove, allowing people to be more active

The Planning Commission unanimously recommended the Draft Plan be adopted by the City Council.

Recommendations

This chapter presents infrastructure, programmatic, and policy recommendations identified to support improvements to the City's bicycle, pedestrian, and trail networks, and describes the approach toward developing these recommendations.

The recommendations development process began with creating an improvement dataset that combines unconstructed projects previously proposed in several relevant planning documents, including the City's 2014 BPTMP and 2020 - 2025 Capital Improvement Program (CIP) 5-Year Plan. This approach provided the opportunity to begin the current recommendation process with a list of previously identified projects intended to address the City's needs.

Building upon the list of previously proposed improvements, the Project team identified gaps and opportunities for improvement in the project list. By examining results of technical analyses that informed the needs identified in the existing conditions assessment (refer to Existing Conditions chapter for more information), as well as concerns expressed during the community engagement process, an updated list of recommended projects was developed.

The recommendations are intended to provide Elk Grove residents with accessible, connected, and safe options for bicycle, pedestrian, and equestrian uses in the City. The intent of these recommendations is to present short-term and long-term recommendations to improve the bicycle, pedestrian and trail networks throughout Elk Grove and provide a framework for the City to successfully implement these projects.

While the proposed improvements are the result of a comprehensive examination of the City's needs, all recommendations have been developed within a planning-level analysis framework. For a project to advance, additional analyses may be required prior to implementation, design, or construction. These analyses may include an engineering study to understand any relevant site-specific issues and develop a design in compliance with state and local design standards, additional public review, and procuring the necessary project funding.

Given the nature of this document as a planning-level framework, there will be a need for minor modifications or adjustment that nonetheless support the overall vision of improving walking and bicycling in Elk Grove. Proposed minor adjustments would need to be approved by the Director of Public Works or their designee and would need to adhere to the Design Protocols and support the vision and goals outlined in this Plan. Examples of minor adjustments include, but are not limited to:

- Relocation within a project area
- The connectivity no longer makes sense
- The property is rezoned for a different use that would not require the same improvements
- A CIP project included a connection, so it is no longer needed at that location
- A determination that a relocation would increase safety
- Provide improved connectivity to amenities
- Other reason as described by the Public Works Director which enhances the overall system functionality
- Improve bicycle or pedestrian circulation

This list is not intended to be fully inclusive. The Director of Public Works, or their designee, has the

flexibility to make the final determination on when a minor adjustment would make more sense. Where it is determined that the map best fits the character of the project then they will be required, and development applications shall execute such at the sole discretion of the City.

This chapter includes the following sections:

- Infrastructure Recommendations describes proposed engineering improvements related to the City's bicycle, pedestrian and trail networks, including on- and off- street facilities like bicycle lanes, sidewalks, multi-use paths, equestrian trails, and crossing improvements, as well as studies for locations where further analysis or community outreach is necessary to determine the most appropriate improvement type for the location.
- Programmatic Recommendations includes recommended education, encouragement, enforcement, and evaluation programs to be pursued by the City and its partner organizations.
- Policy Recommendations includes changes to municipal codes, operating procedures, or other policies that will support a more accessible and comfortable bicycle, pedestrian, and trails network in Elk Grove.

For a table of the full list of infrastructure and study recommendations, see Appendix D.

Infrastructure Improvements

Recommended infrastructure improvements are summarized in the following sections describing bicycle, pedestrian, and trail network recommendations, which includes equestrian facilities.

Recommended projects for the three network categories are described separately in the following sections, with the exception of Class I Multi-Use Paths and Class I Bikeway Crossings. These facilities are included in each network category because the Class I facilities benefit bicyclists, pedestrians, and trail users equally, such as joggers and in some cases equestrians.

Crossing improvements are shown in combination with network improvements and in Figure 15, a separate Crossing Improvements figure. They are categorized by bicycle-specific approach/crossing improvements, pedestrian-specific crossing improvements, other crossing improvements, and Class I Bikeway crossings, including at-grade and grade-separated Class I Bikeway crossings. Some crossing improvements address both bicycle and pedestrian needs and are included in both proposed networks, while others address only one mode of transportation and are only included in the proposed network type that benefits from the crossing improvement.

Design Protocols

The Bicycle, Pedestrian and Trails Master Plan Design Protocols accompanies this 2021 Plan update and the recommendations outlined in this chapter. As recommended projects are implemented, the Design Protocols will provide direction on planning, design, construction, and maintenance. Some items detailed in the Design Protocols are mandatory and others are advisory, however, all facilities should comply with federal, state, and local laws. The Design Protocols reflect national best practices to ensure quality and consistency as projects are implemented over time.

Bikeway Projects

Recommended bicycle facilities include on- and off-street bicycle lanes and bikeways, as well as crossing improvements.

Bikeway recommendations, when combined with existing local and regional bicycle facilities, are intended to create a well-connected and low-stress network for people riding bicycles. As future development and additional site and engineering assessments occur, some recommendations may be added, changed, or removed in order to maximize the low-stress connectivity of the bicycle network. For example, if further assessment determines that a specific bikeway recommendation is not feasible at one location it may be shifted to a nearby location, or if an assessment determines that a Class IV is not feasible, a Buffered Class II might serve as a context-appropriate substitution. Ultimately, bikeway projects are intended to maximize the vision and goals set forth in the Introduction.

Bikeway projects are categorized based on the four classifications recognized by Caltrans, along with several sub-classifications, described in detail in the Existing Conditions Chapter. These include:

- Class I Multi-Use Paths: Dedicated paths for walking and bicycling completely separate from the roadway
- Class II Bicycle Lanes: Striped lanes for bicyclists
  - Class II Bicycle Lanes with Green-Colored Pavement: Striped lanes for bicyclists that includes green-colored pavement, either as a corridor treatment along the length of a bike lane or in conflict areas
  - Class II Buffered Bicycle Lanes: Bicycle lanes that includes a striped "buffer" area either between the bicycle lane and travel lane or between the bicycle lanes and parked cars
- Class III Bicycle Routes: Signed routes for bicyclists on low-speed, low-volume streets where lanes are shared with motorists
  - Class III Bicycle Boulevards: Bicycle routes that are further enhanced with traffic calming features or other treatments to prioritize bicyclist comfort
- Class IV Separated Bikeways: On-street bicycle facilities with a physical barrier between the bicycle space and motor vehicle lanes, including bollards, curbs, or parking

In addition to on- and off-street bicycle projects, the proposed bikeway network includes the following bicycle crossing improvement types:

- **At-Grade Class I Bikeway Crossings:** An intersection between a Class I Bikeway and roadway where bicyclists and motorists share the road
- **Grade-Separated Class I Bikeway Crossings:** An intersection between a Class I Bikeway and roadway or railroad where bicyclists are physically separated from other modes via an overcrossing or undercrossing structure
- **Bicycle-Specific Approach/Crossing Improvements** at intersections, including:
  - **Conflict Markings:** Dashed bicycle facility markings where turning motorists cross the bike lane, typically located near intersections and on-ramps
  - **Bike Boxes:** Designated area for bicycles to wait in front of stopped motor vehicles during a red signal phase
  - **Bike Ramps:** A ramp that facilitates the transition between the roadway and an off-street bicycle facility
  - **Bicycle Signals/Leading Bicycle Interval:** Signal heads that provide a designated period for bicycles to enter the intersection ahead of motor vehicles
  - **Intersection Approach Improvements:** Dedicated bicycle facilities that extend through the intersection completely, located where existing facilities currently stop short of the intersection
  - **Bicycle Loop and Video Detection:** Actuated signal at a bicycle crossing that detects the presence of a bicyclist

Nearly 150 miles of new bikeways are proposed in this Plan update. A summary of existing and proposed bicycle network improvements is provided in Table 4, and mapped in Figure 12.

Table 4: Proposed Bikeway Miles

Bikeway Type	Existing Miles	Proposed Miles	# of Projects	Total Existing + Proposed Miles	Percent Increase
Class I Shared Use Path	35.2	62.9	104	98.1	178%
Class II Bicycle Lanes	91.6	22.5	32	114.1	25%
Class II Buffered Bicycle Lanes	-	31.5	26	31.5	-
Class III Bicycle Routes	11.2	17.2	30	28.4	153.2%
Class IV Separated Bikeways	0.5	12.8	7	13.3	2,560%

Existing and Proposed Bicycle Network

Legend

Proposed Bicycle Facilities

- Proposed Class I Multi-Use Path
- Proposed Class II Bicycle Lane
- Proposed Class II Buffered Bicycle Lane
- Proposed Class III Bicycle Route
- Proposed Class IV Bikeway
- Proposed Class II Green Painted Bicycle Lane

In Progress Bicycle Facilities

- Class I Multi-Use Path (In Progress)
- Class II Bicycle Lane (In Progress)

Existing Bicycle Facilities

- Existing Class I Multi-Use Path
- Existing Class II Bicycle Lane
- Existing Class III Bicycle Route
- Existing Class IV Bikeway

Proposed Crossing Improvements

- Proposed At-Grade Class I Bikeway Crossing
- Proposed Grade-Separated Class I Bikeway Crossing
- Proposed Bicycle Specific Approach/ Crossing Improvement

Boundaries

- Park
- Proposed Park
- In Progress Park
- Schools
- Rural Policy Area
- City Boundary

- Roads
- Highways
- Railroads
- Creeks

Disclaimer: The map layout has an inherent flexibility and is meant to guide the final configuration of bicycle, pedestrian and trail facilities through the approval of subsequent tentative maps. Final determination of location for proposed facilities will be done in consultation with City engineering to ensure best fit.

At-grade crossings at existing or planned signalized roadway intersections are not shown for clarity. Trails through parks are also not shown for clarity, but can be seen in figures 13 and 14.

CITY OF ELK GROVE

FIGURE 12

Pedestrian Network Projects

The proposed pedestrian network includes Class I Multi-Use Paths, also discussed in the previous section, along with sidewalks and spot improvements such as crossings and curb ramps. Pedestrian recommendations are intended to make walking trips safer, more comfortable, more convenient and enjoyable for users of all ages and abilities.

SIDEWALKS AND PATHS

Sidewalks and paths are a vital element to a safe, comfortable and connected pedestrian network. These facilities provide comfortable walking space separate from the roadway and are a fundamental element of Americans with Disabilities Act (ADA) compliance.

There are many streets in Elk Grove with sidewalk or pedestrian paths, but the network is incomplete in some areas. Much of the proposed sidewalk network is located near new development or is intended to close gaps between existing facilities.

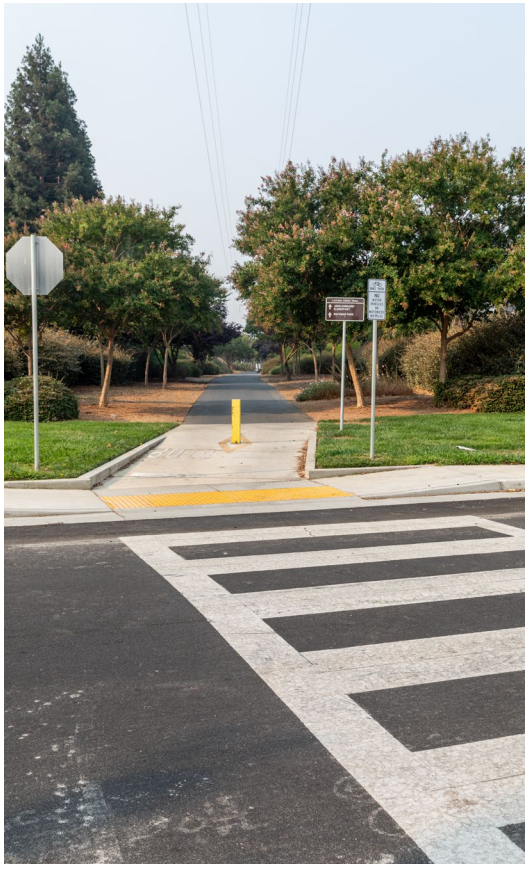
Many rural streets do not include improvement recommendations at this time. Consistent with the Rural Road Improvement Standards and Policy and the results of extensive community outreach, proposed sidewalks located in the Rural Road area are intended to strike a balance between context sensitive development and community need. As such, sidewalks and dedicated bike facilities are primarily located along key routes. Locations for proposed rural sidewalks were selected using community input collected during this Plan and previous outreach efforts. They will connect pedestrians to schools, neighborhoods, and other key destinations in the northeast region of the City.

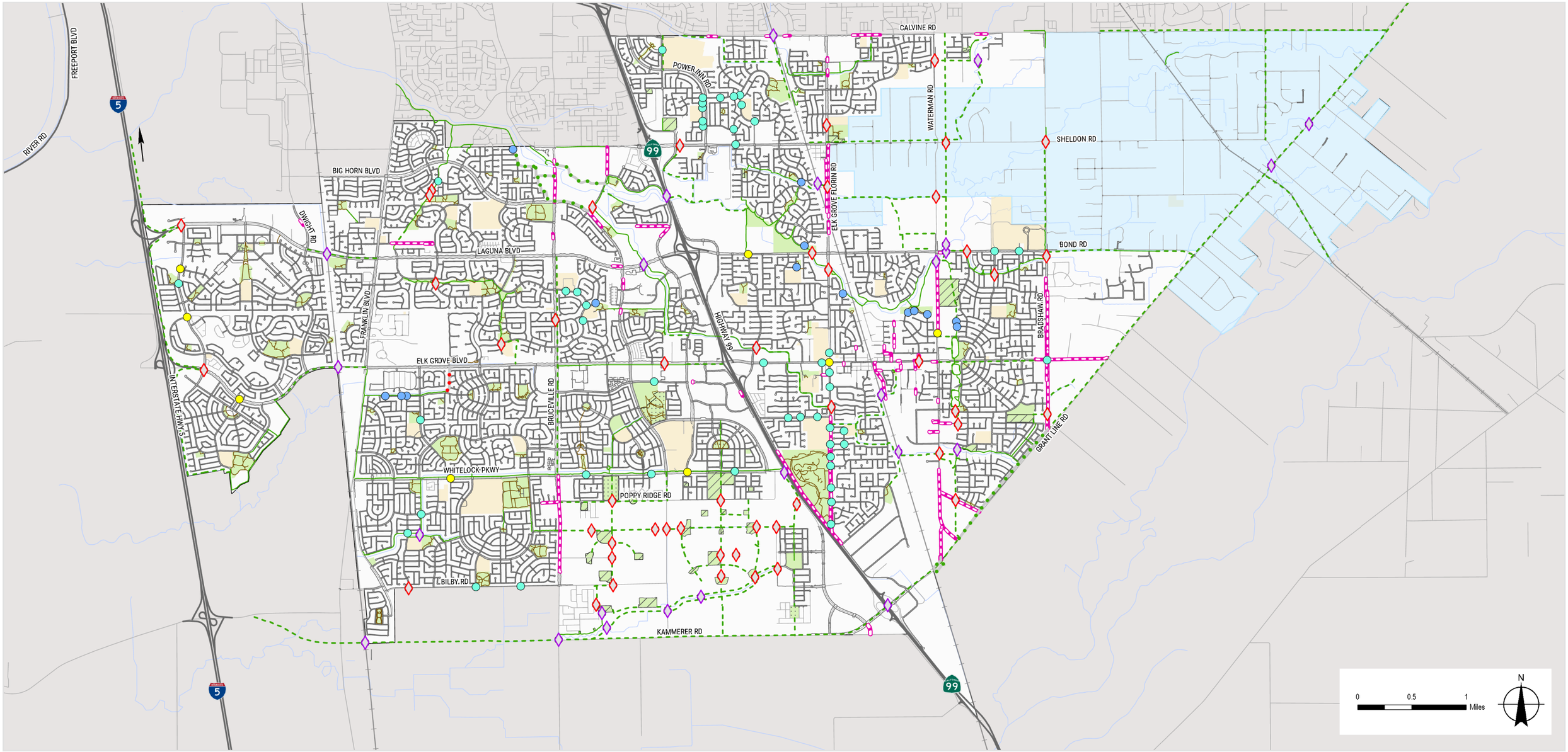
While not every street without existing sidewalk is recommended for improvement in this Plan, the goal is to provide a comprehensive network of pedestrian facilities by providing a balance between recommended sidewalks and multi-use paths, identified community need, and neighborhood context.

This Plan update includes 14.8 miles of proposed sidewalk and 62.9 miles of Class I Multi-Use Paths, which are mapped in Figure 13.

CROSSING IMPROVEMENTS

Many crossing improvements benefit trail users and bicyclists in addition to pedestrians. Because many crossing improvements benefit multiple networks, they are described in greater detail in the following Crossing Improvements section. Recommendations for pedestrian crossings are included in Figure 13 alongside the existing and proposed pedestrian network recommendations, as well as Figure 15, alongside trail and bicycle crossing improvements.





Existing and Proposed Pedestrian Network

Legend

Proposed Pedestrian Facilities

- Proposed Sidewalk
- Proposed Class I Multi-Use Path
- Proposed At-Grade Class I Bikeway Crossing
- Proposed Grade-Separated Class I Bikeway Crossing
- Proposed Pedestrian-Specific Crossing Improvement
- Proposed Curb Ramp Improvement
- Proposed Other Crossing Improvement

Existing Pedestrian Facilities

- Existing Sidewalk
- Existing Class I Multi-Use Path
- Existing Park Trail

In Progress Pedestrian Facilities

- Class I Multi-Use Path
- Pedestrian/Jogging Trail

Boundaries

- Park
- Proposed Park
- In Progress Park
- Schools
- Rural Policy Area
- City Boundary

- Roads
- Highways
- Railroads
- Creeks

Disclaimer: The map layout has an inherent flexibility and is meant to guide the final configuration of bicycle, pedestrian and trail facilities through the approval of subsequent tentative maps. Final determination of location for proposed facilities will be done in consultation with City engineering to ensure best fit.

At-grade crossings at existing or planned signalized roadway intersections are not shown for clarity.

CITY OF ELK GROVE

FIGURE 13

Trail Network Projects

The proposed trail network includes Class I Multi-Use Paths, which are also discussed in the previous sections and referred to as "off-street trails" here, along with equestrian facilities and spot improvements, crossings and pavement rehabilitation. Trail recommendations are intended to meet the needs of many unique users, such as joggers, bicyclists, dog walkers, families with strollers, equestrians, users of all ages, and persons with wheelchairs. Improvements to the trail network are meant to address these unique needs equitably and make access to the off-street network safer and more convenient for all users regardless of age, ability, or neighborhood.

EQUESTRIAN FACILITIES

Equestrian facilities are a unique feature of the trail network in Elk Grove. Improvements to equestrian facilities are intended to balance the needs of equestrians with the needs of bicyclists and pedestrians. The City has a few existing equestrian trails, predominantly located in the northeast region of Elk Grove. The equestrian trail facilities proposed by this 2021 Plan update will close gaps between the existing facilities and create a trail network that is safer and more comfortable for riders. These facilities will provide equestrian appropriate surfaces in rural areas along new and existing designated Class I shared use paths.

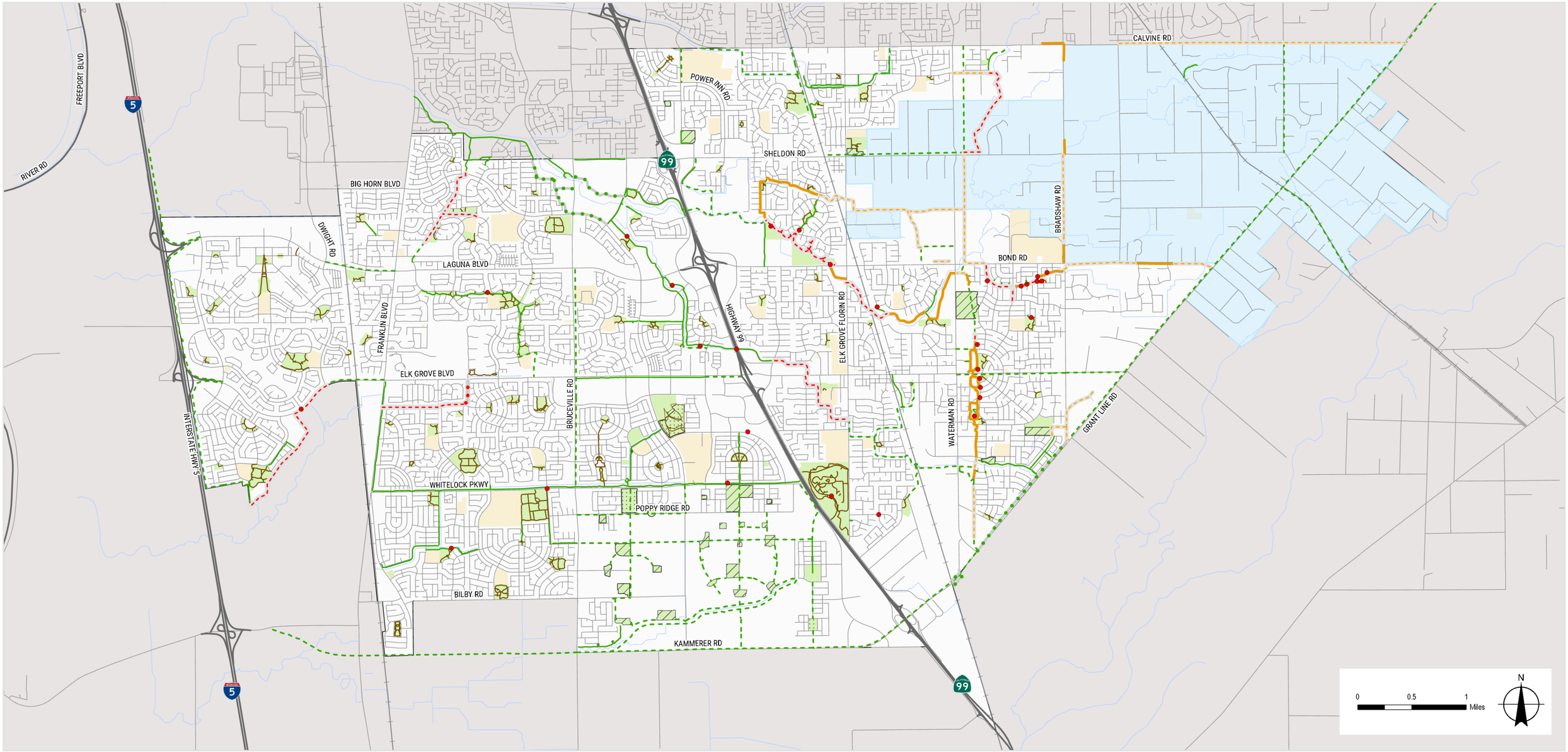
The 2021 Plan update includes 9.34 miles of proposed equestrian facilities, which are mapped in Figure 14.

SPOT IMPROVEMENTS

Within the trail network, spot improvements address challenges at intersections and specific sites along the trails. Proposed curb ramps will increase wheelchair accessibility and provide easier access to the existing trail network for bicycles and other users, such as families with strollers.

Trail Improvement Spot Locations include the following recommendations:

- Vegetation Maintenance: Vegetation should be routinely maintained on a system-wide scale, which is detailed in this Plan update in the Trail Maintenance Plan chapter. In addition, the community identified some key locations in the outreach process of this Plan update. These spot improvements involve maintaining clear sightlines and safe passage of trails and ensuring motorists can clearly see non-motorists near the roadway or in crosswalks.
- Trail Etiquette Signage: Clearly indicates appropriate behaviors for different types of trail users, including bicyclists, pedestrians, and equestrians.
- Wayfinding signage: Clearly indicates commonly used routes and key destinations that will provide wayfinding to trail users.
- Barrier Removal: Barriers are any object that physically hinders comfortable passage along a trail. The most common barrier addressed by the recommendations in this 2021 Plan update include bollards in inconvenient locations.
- Trail Realignment: Realignment of the trail at locations where a curve or sharp turn presents a challenge to cyclists or other wheeled devices.
- Pet Waste Station: Pet waste stations provide a waste receptacle for pet waste and an overhead sign encouraging pet owners to pick up after their pets.
- Pavement Rehabilitation: Refers to spot locations where trail maintenance is needed to address potholes or cracks.



Existing and Proposed Trail Network

Legend

Proposed Trail Facilities

- Trail Improvement
- Proposed Equestrian Trail
- Proposed Off-Street Trail
- Proposed Trail Improvement Spot Location

Existing Trail Facilities

- Existing Off-Street Trail
- Existing Park Trail
- Existing Equestrian Trail

In Progress Trail Facilities

- Class I Multi-Use Path
- Pedestrian/Jogging Trail

Boundaries

- Park
- Proposed Park
- In Progress Park
- Schools
- Rural Policy Area
- City Boundary

- Roads
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Disclaimer: The map layout has an inherent flexibility and is meant tc guide the final configuration of bicycle, pedestrian and trail facilities through the approval of subsequent tentative maps. Final determination of location for proposed facilities will be done in consultation with City engineering to ensure best fit.

CITY OF ELK GROVE

FIGURE 14

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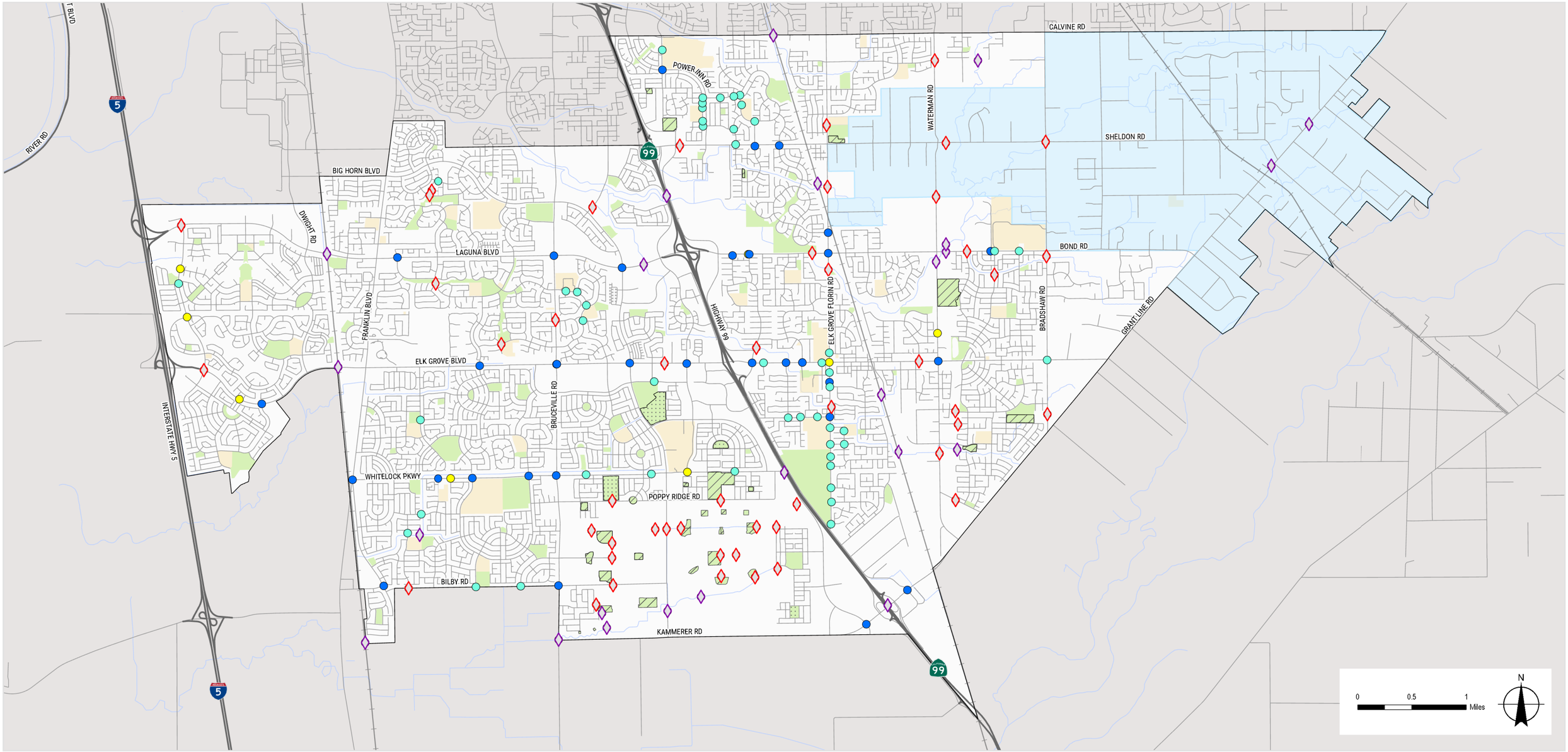
Crossing Improvements

Recommendations that improve crossing conditions for all three networks are described here and illustrated in Figure 15. As noted in previous sections, some crossing improvements that are illustrated in Figure 15 appear in a corresponding bicycle, pedestrian or trail network figure as well.

- At-Grade Class I Bikeway Crossings: An intersection between a Class I Bikeway and roadway where bicyclists and motorists share the road.
- Grade-Separated Class I Bikeway Crossings: An intersection between a Class I Bikeway and roadway where bicyclists are physically separated from motorists via an overcrossing or undercrossing structure.
- Crosswalks: Legal crosswalks exist at all intersections; however, crosswalk markings increase driver awareness of the crossing and visibility of people that may be crossing the street. Marked crosswalks should be as wide as or wider than the walkway it connects to so that groups of people can pass comfortably. Crosswalk markings include:
  - Standard or Transverse Markings: Two parallel lines that mark the edges of the crosswalk.
  - Ladder Crosswalk: Bold white bars that run perpendicular to the pedestrian path of travel.
- Advance Stop Bar or Yield Markings: A bold white bar or triangular "shark's teeth" markings located six to eight feet in advance of a crosswalk at a controlled intersection (stop bar) or uncontrolled crossing (yield markings) to reinforce yielding to pedestrians. Stop bars and yield markings are placed perpendicular to the travel lane and not necessarily parallel to the crosswalk or the adjacent street.
- Rectangular Rapid Flashing Beacon (RRFB): User-actuated flashing lights that supplement pedestrian crosswalk signs at unsignalized intersections and midblock crosswalks, where traffic volumes do not warrant a signal or stop. Flashing beacons can be actuated by a push-button or through passive detection. Many assemblies are relatively inexpensive, operating as stand-alone units that run on solar power rather than requiring costly wiring work.
- Signalized Midblock Crossing: A signalized midblock crossing stops road traffic as needed to allow for non-motorized crossings of major streets at midblock locations where a beacon is determined to be insufficient. A traffic signal at the crossing location rests on green. When activated by a pedestrian, the signal changes to yellow and then red, and the pedestrian is shown a Walk signal.
- Americans with Disabilities Act (ADA) Compliant Curb Ramp: Curb ramps must be provided at street crossings that involve a change in grade to ensure crosswalks are accessible to people using wheelchairs, people with wheeled devices, and people with low or no vision. ADA Complaint Curb Ramps are also recommended at regular and convenient locations along trails for wheelchair and wheeled device access.
- Curb Extensions: Curb extensions extend the sidewalk or curb line into the parking lane on a street, reducing the street width at crossings. Curb extensions reduce crossing times and distances, which reduces potential conflicts between people in the crosswalk and motorists.
- Leading Pedestrian Interval: Signalized intersections with a walk phase that precedes the green phase for motorists by a few seconds to allow pedestrians to get a head start across the street. This improves visibility, bringing pedestrians forward in the field of view of motorists.



Proposed Crossing Improvements

Legend

Proposed Crossing Improvements

- Pedestrian-Specific Crossing Improvement
- Bicycle-Specific Approach/ Crossing Improvement
- Other Crossing Improvement
- Proposed At-Grade Class I Bikeway Crossing
- Proposed Grade-Separated Class I Bikeway Crossing

Boundaries

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CITY OF ELK GROVE

FIGURE 15

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Programs

This section describes a menu of recommended options for bicycle and pedestrian related programs for the City of Elk Grove. As funding or partnership opportunities become available, programs could be selected from this menu for implementation.

Recommended programs are organized in three Es:

- **Education** programs are designed to improve safety and awareness. They can include programs that teach students how to safely cross the street or teach drivers where to anticipate bicyclists and pedestrians and how to share the road safely.
- **Encouragement** programs provide incentives and support to help people leave their car at home and try walking or bicycling instead.
- **Evaluation** programs measure success at meeting the goals and milestones of this BPTMP and identify adjustments that may be necessary.

There are two additional Es commonly included in discussions of active transportation: **Engineering** and **Equity**. Engineering is reflected by the recommended infrastructure improvements in this chapter. Equity is a lens through which implementation of all projects and programs should be viewed, emphasizing investment in communities that are most dependent on active transportation and ensuring disadvantaged communities are not disproportionately burdened by impacts.

Programs recommended on the following pages should include outreach and materials in both English and other languages identified by Title IV LEP analysis as needed to serve the diverse Elk Grove community. Given limited staff time and resources available, programs should be implemented or continued as funding and resources allow. Partnering with local organizations and other agencies is a key strategy to sustainable program activities.

Education

"STREETSMARTS" CAMPAIGN

A Streetsmarts campaign uses print and digital media, radio, and television to educate the community about safe driving, bicycling, and walking behavior. A Streetsmarts campaign could be used to target behaviors that are particularly prevalent in Elk Grove. Through the outreach process of this Plan update the community identified some behaviors that create challenges for bicyclists and pedestrians walking and biking in Elk Grove. An educational campaign could address:

- How to properly position trash cans so they don't obstruct bicycle facilities
- How to park so that bicycle facilities are left unobstructed, and how to obey "No Stopping" and "No Parking" signs
- How to stop at a Pedestrian Hybrid Beacon
- Bicycling with traffic
- Educational needs of youth bicyclists and pedestrians

Future Streetsmarts campaigns could also be used to educate Elk Grove residents about new active transportation facilities as this Plan is implemented.

BICYCLE SAFETY EDUCATION FOR ADULTS

In the past, the Sacramento Area Bicycle Advocates (SABA) has offered periodic Smart Cycling classes and on-bicycle educational rides. These courses are typically based on a curriculum from the League of American Bicyclists that focuses on how bicyclists should behave so they are safer, more predictable, and can be confident bicycling on streets both with and without dedicated bicycle facilities.

This Plan recommends continuing these classes, which the City can support with advertising and by providing meeting space or other in-kind support.

BICYCLE REPAIR PROGRAM

A bicycle repair program could be hosted by the City, a community organization, bicycle shop, or a collaboration of multiple partners. The program could offer courses on bicycle repair and proper bicycle maintenance. The program could also gather community input on key locations where fix-it stations would be well-positioned in the City. SABA offers a similar program and might serve as a collaborator or resource for additional information. Additional regional examples include the Sacramento Bicycle Kitchen, which provides community bicycle repair space and is staffed by volunteer bicycle mechanics to assist with do-it-yourself repairs.

Encouragement

HIRE A BICYCLE AND PEDESTRIAN COORDINATOR

This Plan recommends dedicating a City staff position or hiring a staff person to focus on bicycle and pedestrian projects and program coordination on a full-time basis. This position would assist planning, public works, and transportation projects in accounting for bicyclists and pedestrians. The position would also be leveraged to prepare grant applications to fund projects and programs and support coordination with the public and neighboring jurisdictions.

To support this role, the City may also consider utilizing a system to count and monitor bicycling trips taken in the City. SACOG offers a mobile counter equipment loan program and companies like Streetlight and Strava use anonymized mobile phone data to provide data on walking and bicycling.

If funding is not available to create a new position, the City may consider an interim measure, including adding this as a program element of an existing position, hiring as a part time position, or dedicating lower-cost internship resources to work on bicycle and pedestrian projects until a full-time position can be funded. Some organizations and foundations will fund staff member salaries, fellowships, or contractor salaries for a set period of time. The City may consider applying for grants from one or more of these foundations.

SOCIAL WALKS/RIDES

Supporting social walks and bicycle rides in Elk Grove can provide many benefits to the community. People who are uncomfortable walking or bicycling alone, or who are unfamiliar with the best routes to use, will benefit from having a group to show them the way. Rides can also be used as informal educational opportunities to remind participants about safe walking or bicycling behavior and sharing the road.

MOBILE FRIENDLY TRAIL MAP

Currently, the City produces a printed map of City trails; copies of the map are available to the public as a PDF on the City website. A mobile friendly Trail Map could provide a current and comprehensive wayfinding resource for people walking and bicycling in Elk Grove. The Map could be hosted on the City website. The City could also consider providing a link on its website to an opensource trail application such as AllTrails. AllTrails is a free, mobile trail map application that provides real-time wayfinding by using the GPS in a user's mobile phone. Some Elk Grove trails are already mapped in the AllTrails database, but the full trail network could be added to the application through a formal partnership with AllTrails or by adding individual trails through a free user account.

WALKING & BICYCLING AMBASSADORS

The Guadalupe River Park Conservancy in San Jose operates a volunteer trail ambassador program, where volunteers wear green vests to identify themselves and spend at least 45 minutes each week bicycling or walking on the trail. In addition to reporting maintenance needs, ambassadors carry small kits with supplies for basic first aid, bicycle repairs, graffiti removal, or other tasks based on their interest and preference.

An ambassador program in Elk Grove could recruit volunteers to act as eyes on the trail, report maintenance needs, share educational materials and maps, and provide a friendly presence on the trail network. Staffing needs for this program could be limited to coordinating occasional volunteer training sessions. Trusted volunteers may be enlisted to help with program coordination, and grant funds could be pursued to offer a stipend to ambassadors or coordinators.

This Plan recommends Elk Grove consider a pilot ambassador program in partnership with SABA.

BIKE RACK PROGRAM

Bicycle rack programs coordinate and streamline bicycle rack installation. The program could be managed by a staff member who would work with staff and business owners to install bicycle racks and bicycle corrals Citywide. This also ensures bicycle racks are properly installed to avoid blocking sidewalks and are located to make them convenient and accessible for bicyclists.

The City could also develop customized bicycle racks. These racks can serve as a "brand," highlighting the identity of Elk Grove as a bicycle-friendly community and can double as art features.

Where appropriate, this program could also coordinate with local businesses to provide bicycle lockers or other secure parking for employees and long-term visitors. Secure long-term parking is a key component of the bicycle network to encourage employees to bicycle instead of driving and helps reduce bicycle theft.

BICYCLE FRIENDLY BUSINESS PROGRAM

Bicycle Friendly Business programs recognize businesses that make it easy and convenient for both employees and customers to arrive by bicycle. This requires different strategies to accommodate the different needs of customers and employees. To accommodate customers, providing bicycle parking and supporting City bicycle infrastructure projects can make it more comfortable and easier to travel by bicycle. Some businesses also choose to offer discounts or incentives to people who arrive by bicycle.

For employees, offering secure long-term parking for bicycles is key. This could include a secure gated bicycle parking area, indoor bicycle parking room, or access to bicycle lockers. If space is not available for dedicated secure bicycle parking, business owners and landlords can consider allowing employees and tenants to bring bicycles inside and store them in their workspace or another dedicated location. Providing changing areas, showers, or lockers to store belongings can also make it easier for employees to bicycle to work.

By recognizing businesses who support bicycling, Elk Grove can support the local economy while fostering partnerships with the Chamber of Commerce and business owners to build community support for bicycling projects and programs. One way to highlight the Bicycle Friendly Businesses will be to locate them on future print and digital maps of Elk Grove trails and bikeways. The League of American Bicyclists has a Bicycle Friendly Business program, and some communities have chosen to develop their own programs.

Evaluation

ANNUAL REPORT CARD

An annual report card would assess the City's progress toward the goals and milestones outlined in this BPTMP, implementation of the recommended projects and programs, and desired increases in active transportation. Annual report cards can also incorporate a review of effectiveness to evaluate costs and benefits of various efforts and adjust investments to maximize results.

This Plan recommends the City work with the Trails Committee to develop an Annual Report Card that tracks progress toward implementing this BPTMP and incorporates annual collision data, program participation data, and other relevant metrics to highlight successes and challenges of improving bicycling and walking each year. Measures can also be included to monitor implementation, successes, and challenges related to equestrian uses. Specific performance measures identified by the City and the community should be included in this card on an annual basis to track key metrics over time and better understand successes and challenge areas.

The Annual Report Card could be included as part of the General Plan annual report presentation to the City Council in March, which is generally timed well with the preparation of the forthcoming Capital Improvement Program.

ANNUAL RIDE-ALONG

An Annual Ride-Along could include City staff, Trails Committee members, Disability Advisory Committee members, and other community stakeholders. The purpose of the Ride-Along would be to identify new opportunities or challenges that may arise in the future as new development and this Plan are implemented in Elk Grove. The ride-along would also provide on-the-ground insight into the needs of people who bicycle in Elk Grove. Findings from the Annual Ride-Along could be included in the Annual Report Card.

Policies

Vision Zero

The 2021 Plan update recommends the City consider adopting a Vision Zero policy regarding traffic collisions. Vision Zero is a traffic safety philosophy that reframes the idea that crashes are inevitable "accidents," aiming instead to view serious injuries and fatalities as unacceptable and preventable.

Strategies to improve safety and comfort for bicyclists and pedestrians include:

- Street Design that recognizes safety as more important than speed.
- Prioritize Bicyclists and Pedestrians at Crossings by providing leading pedestrian intervals at appropriate signalized intersections, as well as bike boxes and conflict zone markings at intersections and approaches.
- Champion Multimodal Options that provide people with diverse choices for walking and bicycling so they are more likely to travel without cars. Offer robust bicycle and pedestrian facilities as well as technologies like dockless e-bikes and bicycle parking with charging station options for e-bikes.
- Continue to Monitor Collision Data to uncover emerging trends and locations as driver habits, bicyclist and pedestrian behavior, and community layout change over time.

Pet Waste Stations

Residents and visitors alike are attracted to the extensive trail network in Elk Grove. To maintain the beauty and safety of the trail system, pet waste should be managed through the adequate placement and management of pet waste stations, and through encouraging courteous community behavior for pet owners to pick up after their pets. This Plan recommends pet waste stations be placed at convenient intervals and emptied regularly. It is recommended that maintenance of pet waste stations be integrated into existing park maintenance practices.

Vegetation Maintenance

Overgrown or unsightly vegetation can present challenges to motorists, bicyclists and pedestrians. Vegetation should be maintained so that sightlines are clear and passage through the trails remains unhindered. Careful consideration should be given to the placement and height of plantings located near crosswalks and trail entrances so that views of approaching pedestrians are unobstructed, particularly for motorists. Vegetation maintenance guidelines are addressed in greater detail in the Trail Maintenance Plan chapter.

Bicycle Parking

Creating a well-connected bicycle network includes careful consideration of not just the roadway network, but also how they navigate the end-point – parking. Parking options should be adequate in quantity, quality, and placement for bicyclists. Key considerations are described here.

UNCOUPLE BICYCLE PARKING REQUIREMENTS FROM VEHICLE PARKING

The City's existing bicycle parking policy states the number of required bicycle parking spaces as a proportion of the number of required vehicle parking spaces. As the City shifts more trips from motor vehicle to other modes, it is expected that the need for motor vehicle parking would decrease, while the need for bicycle parking would increase. Rather than assigning bicycle parking requirements as a proportion of vehicle parking, bicycle parking requirements should be based on expected need and use. For example, the City of Sacramento's bicycle parking code (17.608.030) establishes parking space minimums based on land use and location within four types of parking districts (Central Business and Arts and Entertainment, Urban, Traditional, and Suburban).

IDENTIFY QUANTITIES AND LOCATIONS FOR BOTH LONG AND SHORT-TERM PARKING

People have different bicycle parking needs depending on their destination and length of their stay. An employee arriving at work for an 8-hour shift needs secure parking and is less concerned with convenience than a customer arriving at the same business. The City should survey and map existing short and long-term bicycle parking, and ensure that key destinations like libraries, civic buildings, stores, and restaurants are served by adequate bicycle parking.

PROVIDE PARKING AT EVENTS SUCH AS FESTIVALS AND FARMER'S MARKETS

This Plan recommends the City assess the need for bicycle parking at large events and consider providing secure, attended bicycle parking if large crowds are expected.

In addition to regional examples like Sacramento, the Bicycle Parking Guidelines Handbook developed by the Association of Pedestrian and Bicycle Professionals may be a useful resource as bicycle parking in Elk Grove is reimagined. As the City considers other changes to bicycle parking requirements addressed in this section, it should also consider adopting the APBP Bicycle Parking Guidelines outlined in the Handbook. The handbook can be accessed here: https://www.apbp.org/Publications

Safe Routes to School

Elk Grove's Safe Routes to School (SRTS) Program is managed by Elk Grove Unified School District (EGUSD) and encourages students and families to walk and bike to school to improve student fitness, decrease traffic congestion, improve air quality, and build stronger community connections.

A student's experience arriving to school can set the tone for the rest of their school day. Studies show that students who walk and bike to school are better prepared to start the school day, having higher levels of concentration, academic performance, and regular attendance. Walking and biking to school fills an average of 16 of the 60 minutes of physical activity recommended for school aged children.

To realize the benefits of walking and biking to school, the SRTS Program offers informational resources on its website and encourages active transportation through events like Walk and Roll to School Days and Bike Rodeos

This section provides recommendations for expanding the existing SRTS Program to increase adoption of active transportation and improve safety and comfort for students and families who walk and bike to school.

Safe Routes to School Coordinator

Historically, a dedicated Safe Routes to School coordinator within EGUSD has helped to design and implement SRTS programming in Elk Grove, but that position is currently vacant. The SRTS Coordinator position at EGUSD originated with a grant awarded jointly to the City and School District. Cooperation between the School District and the City continues when the opportunity arises.

This Plan encourages that the District fill the currently vacant SRTS Coordinator position. The SRTS coordinator would organize and facilitate events like Walk and Roll to School days and elevate the SRTS Program as a priority for Elk Grove's schools. The SRTS coordinator could also play a key role in coordinating with the City's implementation of the programs outlined here and identifying other programs and events.

Safe Routes to School Plans

A Safe Routes to School Plan documents existing walking and bicycling routes located near a school and can also be used to make additional project and program recommendations to increase walking and biking to school. This Plan recommends the EGUSD develop a Safe Routes to School Plan for each school in Elk Grove, which includes a map of preferred walking and bicycling routes to school. The SRTS Plans should be made available to parents and students via digital or print media. SRTS Plans should be updated to illustrate changes to routes as this Plan is implemented.

Walk and Bike Audits

Conducting walk and bike audits can help to identify challenges and strategies to improve walking and biking near schools and along student routes. An audit can be conducted at any time; sometimes, specific concerns prompt audits, but they can also be conducted to determine what opportunities are present for improvement. On a walk and bike audit, community members survey active transportation routes together, noting conditions that make their streets feel comfortable and those that make them challenging. Walk and bike audits can be used to:

- Document barriers to walking and biking
- Identify disparities between neighborhoods that may have different walking and biking environments
- Identify problems that can be easily addressed and problems that need a greater investment of time and funding
- Encourage walking and biking to school
- Engage students in understanding and improving their communities

A walk and bike audit should improve safety, comfort, and accessibility for students of all ages, abilities, and socioeconomic backgrounds. Walk and bike audits can be conducted successfully using many different strategies. For additional information, the Safe Routes to School National Partnership provides detailed guidance in their manual, *How to Plan and Conduct a Walk Audit*. The manual and other resources can be found at www.saferoutespartnership.org.

Walking School Buses and Bike Trains

Walking school buses and bike trains create regular and ongoing opportunities for groups of parents and students who live together in neighborhoods to walk and bike together. Walking and biking as a group improves community connections, increases visibility, and can encourage wider adoption of active transportation. In the past, EGUSD has emphasized walking school buses as an active way to arrive to school. This Plan recommends implementing regular programming, with information located on the EGUSD website. A SRTS coordinator could help to implement and advertise regular walking school buses and bike trains.

Address Walking and Biking in Arrival and Dismissal Procedures

Arrival and dismissal can be a challenge for students and parents traveling by any mode, whether it be walking or biking, taking the bus, or riding in the car. When developing a school arrival and dismissal program, some key principles should address pedestrians and bicyclists specifically:

- Assess needs through walk and bike audits
- Prioritize the safety and comfort of students walking and biking
- Use multiple strategies that incorporate the Es of SRTS: Engineering, Education, Encouragement, Evaluation, and Equity
- Separate buses and vehicles from pedestrians and bicyclists and reduce conflict points and areas between them
- Clearly demarcate and enforce the appropriate channels for vehicles and bicyclists and pedestrians with signs, pavement markings, and educational materials and events

The Safe Routes National Partnership published an infobrief for implementing these strategies, called *Keep Calm and Carry on to School: Improving Arrival and Dismissal for Walking and Biking*. The manual and other guidance for implementing SRTS strategies can be found at www.saferoutespartnership.org.

Emerging Mobility Devices

The transportation landscape has changed dramatically since the previous BPTMP was adopted in 2014. Emerging mobility devices such as electric bicycles (e-bikes), electric scooters, bicycle and scooter share programs, ridesharing, and other advances require reconsideration of some active transportation infrastructure, amenities, and policies.

This section presents recommended approaches and key topics for consideration on the following areas:

- State definitions and regulations
- Local policies and procedures
- Privately owned devices
- Shared mobility systems
- Rideshare and microtransit
- Curb management
- Evaluation

State Definitions and Regulations

The California Vehicle Code (CVC) includes several definitions and regulations that apply to e-bikes and electric scooters.

E-BIKES

CVC 312.5 describes three classes of electric bicycles, all of which are bicycles "equipped with fully operable pedals and an electric motor of less than 750 watts." The three classes are defined based on the top speed at which the motor will provide assistance and whether the rider must be pedaling:

- Class 1 electric bicycles, also called low-speed pedal-assisted, provide assistance only when the rider is pedaling and do not provide assistance above 20 mph
- Class 2 electric bicycles, also called low-speed throttle-assisted, may use the motor to propel the bicycle without requiring the rider also be pedaling, and do not provide assistance above 20 mph
- Class 3 electric bicycles, also called high-speed pedal-assisted, provide assistance only when the rider is pedaling but provide assistance up to 28 mph and are equipped with a speedometer

CVC 21207.5 prohibits Class 3 e-bikes from being operated on bicycle paths or trails unless the local agency adopts an ordinance to specifically allow this. It also clarifies that local agencies have authority to prohibit Class 1 or 2 e-bikes from bicycle paths and trails through adoption of a local ordinance.

CVC 21213 prohibits people under 16 years of age from operating Class 3 e-bikes.

Additionally, e-bikes are subject to the same regulations as conventional bicycles.

MOTORIZED SCOOTERS AND BOARDS

CVC 407.5 defines a motorized scooter as "any two-wheeled device that has handlebars, has a floorboard designed to be stood upon while riding, and is powered by an electric motor. This device may also have a driver seat which does not interfere with the ability of the rider to stand and ride and may also be designed to be powered by human propulsion." The definition specifically excludes motorcycles, mopeds, and motorized bicycles.

In general, the CVC places many of the same regulations on motorized scooters that are placed on traditional bicycles, including requirements about helmet use, lights and reflectors at night, prohibiting riding under the influence of drugs or alcohol, and riding in bicycle lanes where they are present. Some code sections place additional restrictions on motorized scooters, including CVC 21230 and 21235.

CVC 21230 states motorized scooters may be operated on bicycle paths or trails, unless prohibited by the local agency.

CVC 21235 includes several regulations:

- The operator must have a valid driver's license or instruction permit.
- Motorized scooters must be ridden on the road, not on sidewalks.
- Motorized scooters may not be operated on streets with posted speed limits higher than 25 mph. Local agencies may allow motorized scooters on streets up to 35 mph through a local ordinance or resolution. Motorized scooters may be operated on roads where a Class II or Class IV facility is available.
- Motorized scooters have a maximum speed limit of 15 mph regardless of a higher posted speed limit on the roadway.

Many of these regulations are also applied to electrically motorized boards (CVC 21290-21296), which are defined as "any wheeled device that has a floorboard designed to be stood upon when riding…and has an electric propulsion system averaging less than 1,000 watts, the maximum speed of which, when powered solely by a propulsion system on a paved level surface, is no more than 20 miles per hour. The device may be designed to also be powered by human propulsion."

Local Policy and Procedures

While some regulatory decisions are made at the State level, there are several policy areas related to emerging mobility devices that should be considered at the local level. Elk Grove should investigate the following topics and consider adopting local policies before the relevant emerging mobility device(s) become widely used or sharing programs are implemented in the community.

By discussing policies before shared mobility providers look to operate in the City, staff and decisionmakers will have time to research, discuss, engage the public, and adopt desired policies in a transparent process. This proactive approach will support a safe, comfortable transportation network for all users by providing guidance before potential conflicts arise.

Policy areas to be considered include:

- Permitting procedures for offering shared mobility services such as bike share, e-bike share, and electric scooter share
- Operating procedures for shared mobility vendors including geographic "rebalancing" of devices, data collection and sharing, and parking regulations
- Parking requirements for both shared and privately-owned devices, including providing space and racks to lock devices securely and citation procedures for violations
- Geographic restrictions on use of shared devices
- Restricting speeds along trails to 15 mph
- Width restrictions that limit electric mobility devices to be no more than a single rider wide
- Defining devices in local code to clarify beyond what is provided in the CVC
- Requiring power assisted devices be electric and restricting the use of gas or diesel mobility devices

There are a number of municipalities in the region that have developed and implemented policies that could be consulted for guidance. For example, the City of Sacramento has adopted the following policies:

- Instituted a permitting process for shared mobility device programs
- Restricted shared mobility devices to a maximum speed of 15 mph by requiring "governors" that regulate speed on all devices
- Specified that bike share programs must include a "lock-to" policy, requiring users to lock bicycles to a public bicycle rack at the end of their ride and prohibiting locking bicycles to sign poles, trees, or other objects

Shared Mobility Systems

DOCKED SYSTEMS

Since the start of the commercial shared mobility wave in the United States around 2008, the predominant model for bike share systems has changed. In the first wave of systems, bicycles were parked at docking stations. These "docked" systems require bicycles to be checked out and returned at docks, which are provided near activity hubs. Users rent bikes either through a kiosk at the docking station or with a radio frequency identification card (RFID).

Challenges with docked systems include:

- Lack of available docks at stations during peak times or near popular destinations can prevent users from being able to return their bicycle, forcing them to detour to a nearby dock with available space
- Space is needed on the street or sidewalk near activity hubs to provide docking stations
- System coverage is dependent on feasible locations for docks, based on both demand for bicycles and on available space
- High start-up costs due to dock infrastructure and approvals process through local government

DOCKLESS SYSTEMS

Around 2016, "dockless" bike share systems began to appear in the United States. Dockless systems allow users to start and end trips anywhere in the service area by locating and unlocking a bicycle with a smartphone app. Some systems may include a small number of docking stations in addition to dockless functionality. System operators monitor locations of bicycles and redistribute them as needed to serve demand and collect e-bikes that need to be charged before redeploying them.

In some cases, dockless bike share systems were deployed without the knowledge or approval of the local government, resulting in bicycles parked haphazardly or stacked in piles, blocking accessible paths of travel. Some municipalities fined the system operators for operating without a permit or business license. Others imposed permitting processes and regulations similar to those described in this section. Even with local ordinances in place, some communities continue to experience challenges with bicycles parked blocking sidewalks or curb ramps.

EQUITABLE ACCESS AND PAYMENT

A critical equity consideration for both docked and dockless systems is whether they require a user to have a smartphone and credit card to use the service. Some low-income people, people of color, and others in disadvantaged communities may be less likely to have a smartphone or credit card, and would therefore not be able to use a bike share system that required these.

Some systems, such as Bay Wheels in the San Francisco Bay Area and Jump in the Sacramento region, offered RFID cards (or the option to link any existing RFID card) to lock and unlock bicycles. Bay Wheels also allowed use of prepaid debit cards to rent bicycles, offering an option for people who did not have a credit or debit card.

For bike share systems to be equitable, they must not only be accessible but also affordable for low-income community members. Some systems adopt pricing schemes that make the service affordable for those who qualify, reflecting a policy decision of the local agency permitting the system. Bay Wheels and Jump both offered a discounted membership rate for community members who demonstrated economic hardship through qualification for income-based programs including CalFresh or PG&E CARE.

DATA COLLECTION AND UTILIZATION

Shared mobility devices are typically equipped with Global Positioning Systems (GPS) units that record the start and end point of each rental as well as the trip route. This and other useful data collected by system operators should be requested by the City as part of permitting requirements for shared mobility programs. To protect privacy, user data can be stripped and data can be shared in a raw, disaggregated format.

The GPS data recorded by mobility devices can provide the following:

- Origin and destination of trip
- Start time, end time, and duration of trip
- Trip route and speed

This data can provide insight into:

- Preferred routes
- Peak use times
- Points of interest

By combining these data with information on existing bicycle and trail facilities, the City can determine where there is demand for expanded or improved facilities, what roads or trails are avoided, and what neighborhood streets are used as low-stress routes and should be considered for improvement as bicycle routes or bicycle boulevards.

Privately Owned Devices

While shared mobility systems offer opportunities to regulate devices through permitting processes and requirements placed on system providers, privately owned devices may be more challenging due to a lack of a centralized service.

Speed regulation of privately owned devices cannot be accomplished by requiring governors, as many shared mobility systems do. Speed limits for streets and trails may be set by the local agency. Compliance may take time and require a concerted effort to educate the travelling public on the safe and proper use of devices on different facility types. For example, trails may have signage and pavement markings noting the speed limit. Educational campaigns can provide simple information on where and how to operate mobility devices; for example, noting restrictions on roadway use by speed limit, noting the prohibition on scooters on sidewalks, and listing any trail speed limit. Positive, community-focused messaging can be useful, but may need to be followed up by targeted outreach campaigns if specific areas are experiencing higher levels of non-compliance.

Privately owned e-bikes and scooters also require parking at destinations to become viable modes of transportation for Elk Grove residents. Because they cannot be parked at docking stations for shared systems, secure parking must be provided by other means potentially through the City, local businesses, or other community groups.

Distributing safety information and other notices to private owners is also more challenging, because they are not using an app or website that can be used to push notifications.

Rideshare and Microtransit

Rideshare companies such as Uber and Lyft and on-demand transit services ("microtransit") have emerged as a desirable option for people who do not drive themselves but do not ride traditional transit systems.

App-based rideshare services allow users to request a ride on demand. A driver is assigned to pick them up and they typically ride alone to their destination. While microtransit is also often app-based and provides service to and from custom destinations, the ride is not usually immediately available and may follow a less direct route. This is because users are grouped into a queue with others making compatible journeys, and vehicle operators use software to optimize pick-up and drop-off for multiple riders on one trip.

Both rideshare and microtransit offer enticing options for people who wish to take a faster, more direct trip than offered by fixed-route transit. However, there are logistical challenges that require attention from local agencies. Unlike fixed-route transit, microtransit and rideshare do not have designated stops and often stop in travel lanes, at red curbs, or in bicycle lanes. This can result in traffic delays or create challenges for people bicycling and walking. In addition, local agencies that operate their own fixed-route transit systems need to ensure that microtransit services complement and do not compete with their more cost-efficient fixed-route services, nor impede fixed-route service operations by limiting a bus's ability to stop at certain locations along its designated route.

To proactively manage shared mobility services, local agencies should consider providing designated loading spaces for rideshare and microtransit, which do not compete with any existing fixed-route bus stops, as part of a curb management program. In addition, local agencies should consider, when feasible, the incorporation of bicycle amenities, such as bike racks installed onboard the microtransit buses and/or racks/parking areas located adjacent to designated loading spaces.

Curb Management

Traditional curb management has focused on providing space for parking motor vehicles and allocating space for transit stops, loading zones, and no parking zones where appropriate. Increasing demands on curb space from rideshare and microtransit as well as increased provision of bicycle facilities have resulted in agencies reevaluating how the curb is used. A variety of strategies exist which can assist local agencies with managing the needs of all roadway users who have a periodic need for curb space.

With the increase in delivery vehicles due to online shopping and delivery services, as well as an increase in microtransit and rideshare which do not have designated stops, allocating curb space to temporary uses should be considered in urban areas. Local policies can be adopted to allocate shared space for microtransit, rideshare, and delivery vehicles, allowing these drivers to park legally and avoid blocking bicycle facilities or vehicle lanes. Businesses and business associations can be important partners in publicizing parking options.

Shared mobility devices should also be considered in curb management policies. Shared mobility devices often have parking areas designated along curbs either in a parking aisle or on the sidewalk. Ample parking for both shared devices and personal bicycles and scooters is essential to supporting a shift toward active transportation; individuals are less comfortable parking personal devices out of their sight, and shared mobility devices should be visible to encourage use. Allocating an appropriate amount of space for shared and personal mobility devices at key activity generators has the dual benefit of promoting the adoption of active modes, as well as encouraging appropriate parking of devices outside of the clear zone on sidewalks and pathways.

While much of Elk Grove has ample curb space for the variety of uses currently present, some areas could benefit from application of curb management policies and practices, such as Old Town and near the Community Center.

School Zones: Applying curb management in school zones could help delineate loading zones, provide preferential routing for people walking and bicycling, and include wayfinding to secure long-term mobility device/bicycle parking.

Shopping Areas: Areas with higher concentration of retail and restaurant uses, such as Old Elk Grove, may have the need for a full curb management strategy in advance of wider adoption of microtransit and mobility devices. Wayfinding to preferred drop-off locations as well as device parking could help as well.

Larger Employers: While the loading/unloading and mobility device storage needs are typically the purview of the employer as they tend to be onsite, a City-wide suggested curb management strategy provided to employers directly during outreach could be helpful to encourage adoption of best practices and encouraging use of alternatives to single occupant vehicles.

Evaluation

An evaluation strategy should be adopted alongside policy and infrastructure changes. Stakeholders who helped shape policy and infrastructure changes should be invited to continue to comment as implementation is underway. Neighborhood associations and business associations are good stakeholders to solicit feedback from over time; many new programs have a mixed reception from the community but are viewed more favorably over time. Incorporating regular evaluation into the agency work program for emerging technology strategies will help create an atmosphere of growth, transparency, and accountability, as well as allow unanticipated issues to be addressed in a timely manner.

Implementation Plan

This BPTMP provides updated recommendations for projects, programs, and policy changes intended to make Elk Grove a more walkable and bikeable community. Implementation of this Plan will require community support, political leadership, and significant funding.

This chapter outlines a strategy toward implementation of the infrastructure projects, including a thoughtful evaluation of projects to prioritize investment of limited resources, a brief review of how COVID-19 may continue to impact transportation behavior and needs, and a summary of funding programs for bicycle and pedestrian projects.

Cost Estimates

Unit Cost Assumptions

Table 5 presents planning level unit cost assumptions used to develop project construction cost estimates. For linear projects, the unit cost method uses a single functional unit (mile or linear foot) that serves as a multiplier. The appropriate unit cost is multiplied by the length of the improvement to develop a planning-level project cost estimate.

Unit cost estimates were developed based on recent local project costs bid in 2017 and 2018, as well as the City Trail Project List and Detail Estimates. Estimates include assumed costs for:

- Mobilization
- Traffic control
- Earthwork
- Signs
- Pavement delineation and markings
- Utility coordination, grading, and erosion control

In addition, estimates include 30 percent soft costs including engineering design (15 percent), administration (3 percent), and construction management (12 percent). There is also a 15 percent contingency. Cost estimates for projects in this plan are in 2020 dollars and do not include cost escalation. Project cost estimates have been rounded to the nearest $100.

At the planning level, cost assumptions do not consider project-specific or location-specific factors that may affect actual costs, including acquisition of right-of-way or road widening. For some projects, actual costs may differ significantly from the planning-level estimates. Signal timing/phase adjustments are assumed to be staff time only. If additional infrastructure or equipment is needed, that would be an additional cost.

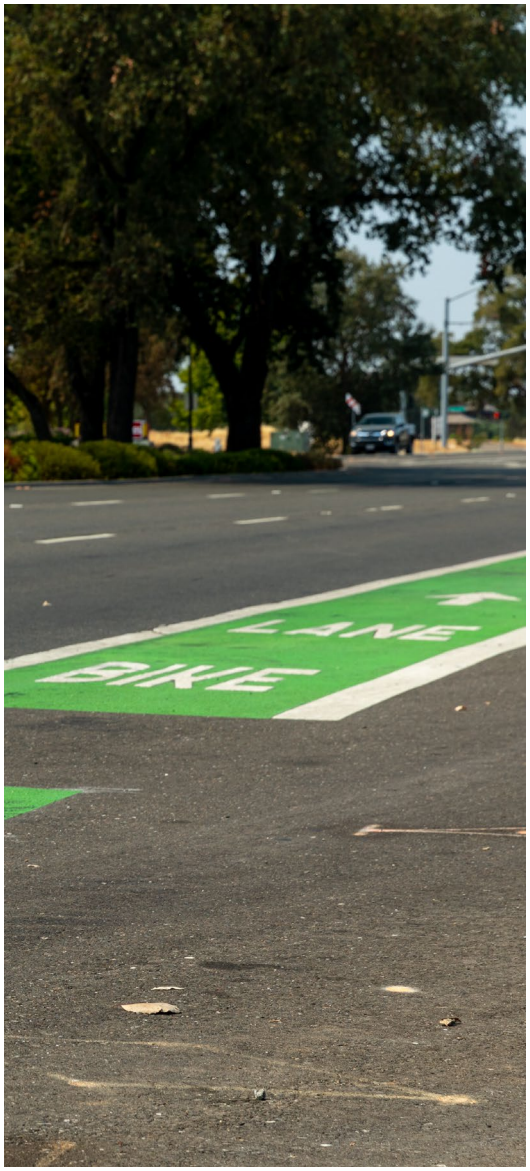


Table 5: Unit Cost Assumptions

Improvement	Unit	Estimated Unit Cost	Notes
Class I Shared Use Path	MI	$2,615,000	Assumes 10' wide path and minor grading
Class I Shared Use Path with Equestrian Tread, Easement Only	MI	$954,000	Assumes a 40 ft wide easement in infill areas and 24 ft in new development.
Class I Shared Use Path without Equestrian Tread, Easement Only	MI	$515,000	Assumes a 30 ft wide easement in infill areas and 14 ft in new development.
Class II Bicycle Lanes	MI	$75,000	Both sides of street
Class II Buffered Bicycle Lanes	MI	$175,000	Both sides of street
Class III Bicycle Route	MI	$10,000	Includes signage and pavement markings
Class III Bicycle Boulevard	MI	$75,000	Assumes speed tables, sharrows, and curb extensions in addition to signing
Class IV Separated Bikeway	MI	$750,000	Includes signing and striping for a one- or two-way facility with small curb separation, no roadway widening
Sidewalk	LF	$130	Assumes 6' wide sidewalk with curb and gutter
Transverse Marked Crosswalk	EA	$450	White or yellow
High Visibility Marked Crosswalk	EA	$1,800	White or yellow
Advance Stop or Yield Line	EA	$750	Includes sign and pavement marking
Curb Ramp	EA	$10,000	
Curb Extension	EA	$4,500	Includes each side of crosswalk
Pedestrian Refuge Island	EA	$3,000	Assume two 6' by 4' islands
Rectangular Rapid Flashing Beacon (RRFB)	EA	$50,000	Solar assembly, two units
Signalized Midblock Crossing	EA	$250,000	Solar assembly, two units
Crosswalk Lighting	EA	$45,000	Includes one light; for most crosswalks assume two lights are needed, or three lights for wide streets or where a median refuge is provided
Signs	EA	$600	
Green Conflict Markings	EA	$3,000	Assume 6' by 50', including a white edge line
Green Painted Class II	MI	$316,800	Assume 6' wide
Bike Box	EA	1,100	Assume 10' deep by 11' wide

Key - EA: Each; MI: Mile; LF: Lineal Foot

Estimates include assumed costs for mobilization, traffic control, earthwork, signs, pavement delineation and markings, utility coordination, grading, and erosion control. In addition, estimates include 30 percent soft costs including engineering design (15 percent), administration (3 percent), and construction management (12 percent). There is also a 15 percent contingency.

Source: Unit cost estimates were developed based on recent local project costs bid in 2017 and 2018, as well as the City Trail Project List and Detail Estimates

Project Evaluation

This section presents a phased implementation approach for infrastructure projects recommended in this BPTMP. Projects were systematically evaluated to prioritize improvements based on the anticipated benefit to the community and to consider the complexity of implementation.

Projects are scored 'high' or 'low' on each of the two evaluations: project priority and project complexity. The results from the two evaluations are then combined to create four groups of projects, as shown below.

PROJECT PRIORITY	LOWER	HIGHER
HIGHER	**SHORT-TERM** Projects that score high on prioritization and are not very complex should be pursued for implementation within the first five years. These "quick wins" may be able to be implemented as part of the City's Capital Improvement Program or may be grouped together to pursue funding through competitive sources.	**LONG-TERM** Projects that score high on prioritization but are more complex may require further analysis or funding from additional sources for construction. These projects will likely take more time to construct, but grant applications or studies should be undertaken in the first five to ten years.
LOWER	**OPPORTUNITIES** Projects that score lower on prioritization and are not very complex can be implemented as opportunities arise. These opportunities might include nearby development or capital projects with similar types of work.	**FUTURE PROJECTS** Projects that score lower on prioritization and are more complex are part of the long-term vision for active transportation in Elk Grove, but the challenges to implement these projects likely outweigh the benefit they would currently offer. These projects would likely not be undertaken for at least 10 years.

PROJECT COMPLEXITY

Project Priority

Infrastructure projects were prioritized based on the criteria listed in Table 6 below. The full points listed were assigned if the criterion was met; no partial scores were awarded.

Project priority is only one consideration when pursuing grant opportunities. The City considers both the priority and the grant criteria in determining the project or projects to pursue for grant funding.

Project Complexity

In addition to assessing priority of projects, this evaluation also considers the complexity of implementing different types of improvements. Projects were initially rated as higher or lower complexity based on the type of improvement or class of bikeway, and then reviewed and reassigned as needed based on location-specific contexts or other considerations related to design, construction, and maintenance of the facility.

LOWER COMPLEXITY

In general, lower complexity projects include crosswalk markings, Class II and Class III bicycle facilities, and other projects that consist primarily of signs and pavement markings.

HIGHER COMPLEXITY

More complex projects typically include Class I and Class IV bicycle facilities, sidewalks, grade-separated crossings, and other projects that include paving, hardscaping, or acquisition of additional right of way.

Table 6: Project Priority Evaluation Criteria

Criteria	Description	Points Possible
Activity Generator	Projects located within ¼ mile of an activity generator such as parks, schools, civic facilities (libraries, community centers, City Hall), medical services	2
Safe Routes to School	Projects located within ¼ mile of a K-12 school	3
Gap Closure	Projects that close a gap between existing bicycle or trail facilities	4
Community Input	Projects that address a challenge or include an improvement identified by the community during public engagement activities for this plan or otherwise	2
Safety	Projects located within 500 feet of a location with a history of recurring bicycle or pedestrian collisions	3
Equity	Projects located in an area identified as vulnerable by the Social Vulnerability Index (SVI)	4
Low-Stress Network	Bicycle projects that result in LTS 1 or 2, or sidewalk projects	2
	Total Points Possible	**20**

Priority Recommendations

Given the high volume of recommended improvement projects, this Plan update recommends the City focus on a short list of priority recommendations to be implemented first.

A list of 32 priority recommendations were selected using the project evaluation methodology described above. Priority projects are divided into Higher Complexity, Lower Complexity, and Sidewalks in the following tables. Projects with a score of 12 or higher were selected as priority recommendations. There are no Class III projects included in the list of Priority Low-Complexity Bikeways because they did not reach the total score threshold of 12 points; however, Class III bikeways are good opportunity projects as they are low cost and can be added to other anticipated roadway projects as opportunities arise. The full recommendations table may be found in Appendix D, which shows project complexity and priority evaluation scores for every project.

City staff will use these recommendations when reviewing development applications and updating the City's 5-year Capital Improvement Program. Given the various funding sources needed to fund these types of projects, Capital Improvement Program (CIP) staff will also look at how available grant funding aligns with these recommendations. CIP Staff will consider lower priority recommendations when they better align with funding sources and grants.

Table 7: Priority Recommendations – Higher Complexity

ID	Facility	Location	Start	End
541	Class I Multi-Use Path	Bruceville Rd	Soaring Oaks Dr	Elk Grove Blvd
315	Class I Multi-Use Path	Elk Grove Blvd	Franklin Blvd	Stonelake Apartments
326	Class I Multi-Use Path	Big Horn Blvd	Whitelock Pkwy	Poppy Ridge Rd
497	Class I Multi-Use Path	Sheldon Rd	Elk Grove Florin Rd	Waterman Rd
283	Class I Multi-Use Path	Elk Grove Creek Trail	Waterman Rd	Elk Grove Florin Rd
298	Class I Multi-Use Path	Unnamed (Crosses LC Tributary 4)	Willow Falls Cir	Rising Creek Way
209	Class I Multi-Use Path	Strawberry Creek Trail/Trail Extension	Monterey Trail High School	Jones Family Park
477	Class I Multi-Use Path	Laguna Creek Trail	Boulder Falls Ct	Rocky Falls Ct/Winding Brook Way
306	Class I Multi-Use Path	Bond Rd	Bradshaw Rd	Shire Oaks Way
509	Class IV Bikeway	Elk Grove Blvd	Franklin Blvd	Bruceville Rd
504	Class IV Bikeway	Whitelock Pkwy	Bruceville Rd	W Stockton Blvd
223	Class IV Bikeway	Franklin Blvd	Big Horn Blvd	Elk Grove Blvd

Note: While higher complexity projects require more time and funding to implement than lower complexity projects, they often represent critical connections for the community. Accordingly, they should be included for implementation focus in the short term, which may include further study and/or application for outside funding.

Table 8: Priority Recommendations – Lower Complexity

ID	Type	Location	Start	End
218	Class II Buffered Bicycle Lane	Emerald Oak Dr	Elk Grove Blvd	Valley Oak Ln
513	Class II Buffered Bicycle Lane	Elk Grove Blvd	Emerald Vista Dr/E Stockton Blvd	Elk Grove Florin Rd
494	Class II Buffered Bicycle Lane	Elk Grove Florin Rd	E Stockton Blvd	Bond Rd
538	Class II Buffered Bicycle Lane	Laguna Blvd	Bruceville Rd	Laguna Springs Dr
486	Class II Buffered Bicycle Lane	Bruceville Rd	Laguna Blvd	Elk Grove Blvd
523	Class II Buffered Bicycle Lane	Bruceville Rd	Big Horn Blvd	Laguna Blvd
536	Class II Buffered Bicycle Lane	Sheldon Rd	Bruceville Rd	Elk Grove Florin Rd
490	Class II Green Painted Bicycle Lane	Lotz Pkwy	Big Horn Blvd	Auto City Dr
525	Class II Buffered Bicycle Lane	Elk Grove Blvd	Harbour Point Dr/W Taron Dr	Four Winds Dr
516	Class II Buffered Bicycle Lane	Laguna Blvd	Laguna Oaks Dr	Bruceville Rd
526	Class II Buffered Bicycle Lane	Taron Dr	Riparian Dr	Riparian Dr
473	Class II Buffered Bicycle Lane	Taron Dr	Riparian Dr	Riparian Dr
579	Class II Bicycle Lane	Heritage Hill Dr	Four Seasons Dr	Elk Grove Florin Rd
334	Class II Buffered Bicycle Lane	Elk Grove Blvd	School Street	Waterman Rd

Table 9: Priority Recommendations - Sidewalks

ID	Facility	Location	Start	End
451	Sidewalk	E Stockton Blvd	Lismore Dr	E Stockton Blvd
414	Sidewalk	South side of Calvine Rd	Merryhill Elementary School	Lemberger Way
441	Sidewalk	north side of Southside Ave	Melrose Ave	Elk Grove Florin Rd
447	Sidewalk	East side of Elk Grove Florin Rd	Sheldon Rd	Campbell Rd
637	Sidewalk	Laguna Blvd	Big Horn Blvd	400 feet West of Big Horn/Laguna Blvds intersection
214	Sidewalk	Elk Grove Florin Rd (Elk Grove-Florin Road and Elk Grove Park Sidewalk Infill)	Valley Oak Lane	Carmel Valley Way

COVID-19

The global COVID-19 pandemic was ongoing during the development of this Plan. The pandemic and the associated public health restrictions dramatically transformed the way people live, work, and recreate, which correlated with a shift in the way people use transportation. People are driving less and walking and biking more.

Californians began to "shelter-in-place" in mid-March of 2020. A month later, county-level data showed that vehicle miles travelled (VMT) for Sacramento County had decreased by 21.6 million miles, or 34 percent by mid-April (data at the city-level for Elk Grove was not yet available when this Plan was written).[1] Although VMT went up again after April, as of October 2020, VMT in the United States was still down 16 percent compared to 2019 levels. For comparison, during the 2008 recession VMT also declined, but only by 3.5 percent.[2] This nationwide trend in decreased driving is unprecedented.

What does this mean for active transportation?

With many gyms, restaurants, and businesses closed or operating at limited capacity, people are turning toward active transportation for outdoor recreation and exercise. Compared to 2019, 2020 saw a 12 percent increase in bike ridership nationwide (as of November). This increase in ridership coincides with a need for greater access to safe and convenient bicycling facilities.

This demand for greater access to walking and bicycling facilities was reflected in feedback from community members of Elk Grove. Throughout the development of this Plan, Elk Grove residents overwhelmingly reported they wanted greater access to nearby walking and bicycling facilities, closed gaps between existing facilities, and improved trail conditions, with several commenters citing COVID-19 as a contributing factor.

Responses to COVID-19 have shown that, in some cases, reimagining our streets to accommodate multi-modal use can be done quickly and inexpensively. Around the United States, cities are deploying creative, low-cost solutions to adapting streets to accommodate more walking, bicycling, jogging, and recreating. For example, "Slow Streets" have been implemented in San Francisco, which limit through traffic on certain residential streets, creating a shared space for people using active transportation. This low to no-cost solution requires only a "Road Closed to Through Traffic" sign to be placed at either end of the street. In Sacramento, some streets have been completely closed off to cars to create dedicated space for active transportation, recreation, and outdoor dining. These temporary solutions could be modified and made permanent through traditional planning and construction processes if they are well received by the community.

These low-cost solutions will not replace dedicated facilities for walking and biking, but they demonstrate that roads can and should accommodate all users and can serve our communities for more than motorized transportation. More transportation data related to COVID-19 will become available as the pandemic continues and should be used to make informed decisions as this Plan is implemented.

[1] Streetlight Data. COVID-19 VMT Monitor. Data pulled for April 16, 2020. https://www.streetlightdata.com/vmt-monitor-by-county/#other_metrics

[2] Streetlight, (2020). "COVID Transportation Trends: What You Need to Know About the New Normal." E-Book.

Funding

A variety of existing transportation funding sources as well as those more specifically aligned with bicycle and pedestrian uses exist. Many are limited to new construction, though some may also offer funds for maintenance of existing facilities. Capital Projects for bicycle and pedestrian facilities are typically funded through a combination of sources and not one single source.

Local and Regional Programs

ACTIVE TRANSPORTATION FEE PROGRAM

The Elk Grove Roadway Fee Program formerly collected transportation impact fees for both roadway and multimodal improvements. The new Active Transportation Fee Program was developed as this Plan was developed. The Program will direct active transportation-related fees into a dedicated fund for multimodal projects in Elk Grove. The funds are generated by development impact fees, which support the growth and infrastructure improvements needed to support that development.

LOCAL TRANSPORTATION FUNDS – BICYCLES AND PEDESTRIANS

Elk Grove is allocated Local Transportation Funds (LTF) from the County's Local Transportation Fund. The LTF is funded through a one quarter cent portion of the sales taxes collected in Sacramento County and proceeds are allocated to cities via a population-based formula. Two percent of this allocation is to be used for bicycle and pedestrian improvements, with the remainder to be spent on public transit services.

ELK GROVE ROADWAY FEE

The Elk Grove Roadway fee is a local development impact fee used to pay for improvements to the transportation network caused by new development. This fee program is primarily for new roads, intersections, and bridges.

MEASURE A TRANSPORTATION SALES TAX & MITIGATION FEE

In 2004, Sacramento County Voters approved a 30-year Local Sales Tax Measure called Measure A. This new measure began in 2009 has a Mitigation Fee component. Measure A is managed by the Sacramento Transportation Authority (STA) and mitigation fees are collected by the City. These funds are used to reduce traffic congestion, improve public transit, fix local streets and roads, implement bike path and trail upgrades, repair sidewalks, and protect the environment.

COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM

The Community Development Block Grant (CDBG) Program is a flexible federal funding program that provides communities with resources to address a wide range of unique community needs. These funds are provided through the U.S. Department of Housing and Urban Development (HUD). These funds are allocated to the City annually and can be used for capital projects that remove a barrier to accessibility.

REGIONAL PROGRAM

The Regional Program is SACOG's largest Federal and State funding competitive program. In 2018 the Regional Program combined the Regional/Local and the Bicycle and Pedestrian applications into one program. The objective of the Regional Program is to fund cost-effective projects that develop and maintain the regional transportation network and provide both local and regional benefits while aligning with the policies in the MTP/SCS.

COMMUNITY DESIGN FUNDING PROGRAM

The Community Design Funding Program is administered to local governments by SACOG to build placemaking projects. State and Federal Funding is awarded to projects that incorporate any of the SACOG Blueprint Principles, which include housing, transportation, infill development, mixed land use, compact development, preservation of natural resources, and quality design projects. The most commonly awarded projects in past funding cycles have been streetscape improvement projects. Elk Grove was previously awarded funding through this program for the Old Elk Grove Streetscape Phase 2 project, which included bicycle lanes, landscaping, sidewalks, crosswalks, bus shelters, pedestrian benches, refuse receptacles, undergrounding of utilities, and signing/striping improvements.

State and Federal Programs

ACTIVE TRANSPORTATION PROGRAM (ATP)

The ATP was created by SB 99 to encourage increased use of active modes of transportation, such as walking and biking. ATP consolidated various transportation programs into a single program and was originally funded at about $123 million a year from a combination of state and federal funds. Senate Bill 1 (SB 1) directed an additional $100 million annually to the ATP (see SB 1 – Road Repair and Accountability Act, below). The goals of the ATP include, but are not limited to, increasing the proportion of trips accomplished by walking and biking, increasing the safety and mobility of non-motorized users, advancing efforts of regional agencies to achieve greenhouse gas (GHG) reduction goals, enhancing public health, and providing a broad spectrum of projects to benefit many types of users including disadvantaged communities. Application cycles occur approximately every two years, typically in late spring or summer. Funding is awarded at both the state level though the Californian Transportation Commission (CTC) and at the regional level through SACOG.

AFFORDABLE HOUSING AND SUSTAINABLE COMMUNITIES PROGRAM (AHSC)

The Affordable Housing Sustainable Communities (AHSC) Program funds land-use, housing, transportation, and land preservation projects to support infill and compact development that reduce GHG emissions. The program assists project areas by providing grants and/or loans, or any combination thereof, that will achieve GHG emissions reductions and benefit Disadvantaged Communities through increasing accessibility of affordable housing, employment centers, and key destinations via low-carbon transportation resulting in fewer vehicle miles traveled through shortened or reduced trip length or mode shift from single occupancy vehicle use to transit, bicycling, or walking. The three Project Area types include:

- Transit Oriented Development Project Areas
- Integrated Connectivity Project Areas
- Rural Innovation Project Areas

SB 1 – ROAD REPAIR AND ACCOUNTABILITY ACT

The "Road Repair and Accountability Act" of 2017 (SB 1) invests $54 billion over a decade to repair roads, improve traffic safety, and expand public transit systems across California, with funds split equally between state and local investments. SB 1 directs $100 million annually to the ATP to fund infrastructure projects, program implementation, and plan development to increase bicycling and walking. SB1 funds come to the City either directly or through one of several competitive programs.

HIGHWAY SAFETY IMPROVEMENT PROGRAM

The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned roads and roads on tribal land. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads with a focus on performance.

LOCAL ROADWAY SAFETY PLAN

A Local Road Safety Plan (LRSP) identifies and analyzes systemic safety problems and makes recommendations for safety improvements. The process of preparing an LRSP facilitates the development of local agency partnerships and results in a prioritized list of improvements and actions that can be used to apply for federal and State funds. Beginning in 2022, an LRSP or equivalent document will be required for an agency to be eligible for HSIP funds. Agencies can apply for State funding to assist with the development of their LRSP.

LOCAL HIGHWAY BRIDGE PROGRAM (HBP)

The Local Highway Bridge Program (HBP) replaces or rehabilitates public highway bridges over waterways, other topographical barriers, other highways, or railroads when the State and the Federal Highway Administration (FHWA) determine that a bridge is significantly important and qualifies under the HBP program guidelines. Reimbursable scopes of work include replacement, rehabilitation, painting, scour countermeasures, and preventative maintenance activities.

SUSTRAINABLE TRANSPORTATION PLANNING GRANTS

Caltrans Sustainable Transportation Planning Grants are available to communities for planning, study, and design work to identify and evaluate projects, including conducting outreach or improving pilot projects. Communities are typically required to provide an 11.47 percent local match, with staff time or in-kind donations both eligible to be used towards the match.

OFFICE OF TRAFFIC SAFETY GRANTS

Office of Traffic Safety (OTS) Grants are supported by federal funding. They can be used to establish new traffic safety programs, expand ongoing programs, or address deficiencies in current programs. Eligible grantees include government agencies, state colleges and universities, local agencies, school districts, fire departments, and public emergency services providers. Grant funding cannot replace existing program expenditures, nor can traffic safety funds be used for program maintenance, research, rehabilitation, or construction. Grants are awarded on a competitive basis, and priority is given to agencies with the greatest need. Evaluation criteria to assess need include potential traffic safety impact, collision statistics and rankings, seriousness of problems, and performance on past OTS grants.

Trail Maintenance Plan

Successful trail systems across the nation provide staff and resources to manage and operate the many miles of public trails that cross their communities. Successful trail operation programs focus staff, volunteers, and equipment on visitor services, patrol, maintenance tasks and long-term care and rehabilitation of trail facilities. Trails that are not monitored and maintained can easily fall victim to neglect and activities that are a detriment to the communities that host them.

Maintenance of trails in Elk Grove is complicated by the many interagency and private agreements that govern ownership and care for trails. The two primary agencies responsible for care and maintenance of trails are the CCSD and the City. This chapter divides some recommendations between trail surfaces and the other aspects of the trail (such as signage and vegetation) to reflect the division of responsibilities between CCSD and the City. Other recommendations can apply to all parties equally and may even represent an opportunity for collaboration.

Data Management

A key component of an organized approach to trail maintenance is keeping data that identifies important aspects of the trail system. A comprehensive approach to data for trails will make interagency cooperation easier and allows responsible parties to measure and track progress on important aspects of trail maintenance within their purview.

Update the Trail Classification System

Just like the street system, there are various usage patterns at different points of the trail system. Some parts of the system serve a utilitarian, transportation-oriented purpose while other parts have more value for recreational purposes. Still other parts of the trail system might be short and inconsequential but provide access to more important trail segments.

It is recommended that the City and CCSD work together to update the typology of trail segments and classify every part of the system. The typology may be flexible to fit the specific needs of agencies involved. An example classification might include the following trail classes:

- Commuter trails
- Recreational trails
- Neighborhood connectors

In addition to different trails, the City may wish to include Class IV maintenance in this typology, due to the nature of maintenance for this facility type. Class IV facilities currently are maintained with automated street sweepers, along with the

adjacent roadway. A schedule for Class IV cleaning should be included, but may need to be modified from the roadway sweeping schedule, depending on debris accumulation.

Trail classification is necessary because it clarifies the importance of various parts of the trail for different purposes and can help to focus resources. For example, commuter trails might receive more regular cleanup of trash and debris than a neighborhood connector because of their function as a primary link in the system.

Continue to Maintain GIS Data

This Plan recommends ongoing updates to the existing comprehensive spatial dataset of trails. An effort of this nature is already underway at the City. This effort should continue and include input from CCSD and other stakeholder organizations. The assets include the following information:

- Trail segment classification
- Agency/entity responsible for pavement maintenance
- Agency/entity responsible for other types of maintenance
- Land ownership
- Date of last inspection
- Surface type
- Surface condition at last inspection

As some trails are located within or adjacent to parks, it may also be useful to combine the City trails network along with CCSD's parks mapping to provide an understanding of each agency's purview, as well as opportunities for shared management goals.

It is also recommended to store trail centerlines in such a way that they are compatible with, or even included in, the street centerline dataset. This allows trails to be included for regional modeling and other analytical applications related to the bicycle and pedestrian network.

Having an accurate GIS dataset of this nature can also improve communication with residents about portions of the trail system managed by the City. For example, publishing a simple map of trail segments under city management may reduce unnecessary service calls for maintenance issues on private sections of trail.

Trail Surfaces

The City is generally responsible for maintenance of asphalt trail surfaces, whereas CCSD maintains the irrigated trail landscaping. Progress is currently being made on a more comprehensive approach to pavement maintenance on trails. Some of these recommendations reflect practices the City is in the process of implementing.

Establish a Surface Condition Inspection Schedule

A regular schedule for surface condition trail inspections allows the City to be proactive in addressing deficiencies in pavement before remedies require major repair work or total reconstruction. The City's current goal is to complete a surface condition inspection of 50% of the trail system annually. This type of inspection is similar to the City's pavement management program (PMP) that is used for the City streets. The surface condition inspection does not replace the routine trail inspection that address complaints and repairs that require an immediate response. The surface condition inspection is used for long term planning and does not replace the expectations of both the City or CSD staff to report an issue they discover during trail maintenance activities.

Fine-Tune Surfacing Maintenance and Repair Protocols

The City is exploring surface repair options and materials that would not require the use of large equipment for smaller repairs. The use of larger equipment not only disrupts trail use but can also degrade the pavement (particularly the edges) over time if trails are not constructed to withstand use by larger vehicles.

Surface Materials for Reducing Urban Heat Island Effect

The City may consider using pavement with an albedo of at least 0.25 – 0.53 to reduce localized heat effects and help mitigate the regional urban heat island effect. The City is currently conducting a pilot program to explore this technology.

Adopt New Technologies for Operations and Maintenance Tasks

Identifying and embracing new and emerging technologies will play a key role in the future success of Elk Grove's expanding trail system. Personnel costs are the bulk of every public budget. New technologies can allow a small number of employees to perform a wide range of duties more efficiently and can become a staff multiplier. Examples include:

Drones

Tasks that once required multiple employees and hours or days to complete can now be performed in short order by drones. Drones are being used to record and visually inspect large areas, assist with search and rescue operations, provide site security at special events and real-time information in remote areas. Drones are used to record site damage from natural disasters or manmade events, survey work progress and document conditions in sensitive areas. Drones provide real-time information to event managers. Drones document before and after conditions during construction or reclamation operations.

Irrigation Management

Expanding the City's use of automated irrigation control could allow for better management of water, time and labor producing cost savings. Knowing where all water is used or lost on a single or shared mainline by valve, by controller, 24/7 from anywhere in the City provides the means to manage all resources. Calsense is a water resource management system that provides field intelligence, data collection, and analytics. The use of a water resource management system like Calsense could produce an annual average savings of 20 to 40% of water consumption and costs. Trail landscape and maintenance costs, in addition to water usage, may be greatly reduced by upgrading the system to newer smart technologies.

Remote Control Mowers

Landscape maintenance tasks that once required multiple employees and hours or days to complete can now be performed in short order by remote controlled mowers. The latest in landscape innovation, the remote controlled, non-rider mower, would assist the City with clearing and mowing major and minor landscape areas. Advanced landscaping technology uses only a handheld device reducing labor costs and the need for multiple ride-along mowers ultimately reducing time and risk. As all landscape maintenance of irrigated trail landscape is performed by contract managed by CCSD with individual landscape maintenance contractors any adoption of such technology would need to be done in coordination with contractors.

Adopt a Standardized Pavement Rating System

The City has begun to define a pavement rating system based on the pavement ratings applied to regular roadways in the City. That rating system is presented in Table 10. This work is critical for understanding the needs of the trail system. The City should add to the existing photo collection of trail conditions to complement the text in the table, including for the Standardized Pavement Rating System.

Table 10: Trail Pavement Rating System

Surface Rating	Visible Distress	General Condition / Treatment Measures
10 Excellent	None.	New construction/No treatment required
9 Excellent	None.	Recent overlay/No treatment required
8 Very Good	No longitudinal cracks, except at paving joints. Occasional transverse crack widely spaced 40' or greater. All cracks sealed or tight or open less than 1/4".	Recent sealcoat/Little or no maintenance required
7 Good	Very slight or no raveling, surface shows some wear. Longitudinal cracks open 1/4" to do reflection or paving joints. Transverse cracks open to less than 1/4" and spaced 10' or more apart. No patching or very few patched in excellent condition	Normal aging/Maintain with routine crack sealing and small spot repairs
6 Good	Slight raveling, surface shows some wear. Longitudinal and transvers cracks open 1/4" to 1/2" spaced more than 10' apart.	Shows some advanced aging, but with sound structural condition/Crack sealing and spot repairs
5 Fair	Moderate to severe raveling. Longitudinal and transvers cracks open 1/2" with signs of raveling and secondary cracks. Block cracking up to 50% of surface. Some patching in good condition.	Surface aging. Sound structural condition/Needs crack seal and seal coat or thin non-structural overlay.
4 Fair	Severe surface raveling. Multiple longitudinal and transverse cracking with slight raveling. Block cracking over 50% of surface. Patching in fair condition. Minor rutting or distortions 1/2' deep or less.	Significant aging and beginning to show structural issues/Larger patch repairs and crack seal. May require a thin overlay
3 Poor	Closely space longitudinal and transvers crack often showing raveling and erosion. Severe block cracking. Some alligator cracking, less than 25% of the surface. Patches in fair condition. Moderate rutting or distortions.	Needs extensive patching/R&R as required and partial overlay.
2 Very Poor	Alligator cracking over 25% of the surface. Severe distortions. Extensive patching in poor condition. Pothole.	Needs extensive reconstruction and base repair
1 Failed	Severe distress with extensive loss of surface integrity	Failed. Needs total reconstruction

The visible distresses described within the Trail Pavement Rating System take into account distresses that have already been repaired either by temporary or permanent methods. A trail with multiple potholes that have been filled during routine maintenance will score low due to the potential for underlaying issues that require more extensive work in the future.

Other Trail Features

There are many other aspects of trail maintenance not related to pavement that are handled by other entities such as the CCSD. The following ideas are based on national best-practices, and not all practices will be readily applicable to the Elk Grove environment. They are presented here to spark ideas and not intended to be copied wholesale.

Designate Vegetation Management Zones and Establish a Maintenance Schedule

Trail vegetation areas can be divided into management zones for mowing and irrigation. These zones are simple mowing patterns that show and direct the frequency and location of mowing operations and irrigation.

Management zones enhance staff and visitor safety, reduce maintenance costs and create a uniform, predictable look for a trail corridor.

Management zones are simple to establish and can be defined after the initial landscape installation. For mowing, these zones can easily be programmed into Autonomous Robotic Mowers (ARM) as GPS programs or mowing maps. Any definition of vegetation management zones should ensure they fit within the City's local water efficient landscape requirements and updates provided by California Department of Water Resources in the Model Water Efficient Landscape Ordinance Guidebook.

VEGETATION MANAGEMENT ZONE 1

Zone 1 (VMZ1) is mowed every time maintenance occurs and are irrigated at the highest frequency. VMZ1 areas are mowed on both sides of a hard surface trail, on both sides of an at-grade crossing, around benches and trail information kiosks, and along the edge of parallel roads. VMZ1 areas are used as a trailside safe zone for visitors to congregate, to avoid collisions, and stop and repair equipment without congesting the travel portion of the trail. In general, VMZ1 areas are between 48 - 60 inches wide trailside. VMZ1 turf areas adjacent to at-grade crossings should be individually evaluated to maximize visibility and safety for both trail visitors and drivers. Landscape plants should not be placed in VMZ1 areas to avoid interrupting sight lines for drivers and trail visitors and to prevent woody and noxious growth restricting visitor movement. Additional VMZ1 areas can be placed in locations where private property is impacted by trail view sheds and aesthetics as the need arises.

VEGETATION MANAGEMENT ZONE 2

Zone 2 (VMZ2) areas are managed as needed and may or may not be irrigated due to plant selection which may include drought tolerant/low maintenance and native type plants. Weather dictates the frequency of mowing more than any other factor. VMZ2 picks up from the edge of VMZ1 and continues to the edge of the property, to a wood line or to the edge of VMZ1 along a parallel road. VMZ2 typically includes drainage areas and ditches, steep slopes, and areas that are only marginally impacted by higher vegetation. In Elk Grove, drainage areas are the sole responsibility of the City and may not be appropriate to include in such a categorization. Whenever possible VMZ2 areas should have native plants that require low maintenance, can thrive in this climate and will attract local wildlife.

VEGETATION MANAGEMENT ZONE 3

Zone 3 (VMZ3) are areas that are never mowed or irrigated. Open space areas and the hard surface trail and parking lots where irrigated landscaping is not growing are all classified as VMZ3.

Browsing/Grazing

Not all vegetation needs to be managed with equipment. Some areas, other than parks, and utility corridors can be browsed annually with herbivores that will efficiently keep vegetation like young woody plant growth and shrubs under control at a very reasonable cost. Livestock herds are particularly effective and have been used by agencies across the country (including by the City) to manage vegetation, reduce wildfire risks, and eliminate invasive species. Elk Grove has an established program which has run for four consecutive years and includes the largest amount of acreage in the region managed by livestock. Care is taken to ensure that herds do not traverse trails or encroach on trial landscaping to maintain trail aesthetics.

Vegetation Maintenance Schedule

Once Irrigation/Mowing Zones are identified, a schedule for management of vegetation should be established. This should include routine mowing but also trimming of bushes, trees, and other vegetation near the trail.

Adopt Signage and Wayfinding Standards

Trail users benefit from a uniform, informative system of signage and wayfinding. Signage is minimal on most trails at present so wayfinding standards may be largely aspirational for the time being. The importance of having standards is to guide replacement of existing signs and steer the development of new signage as part of major maintenance activities or system expansion.

Communications

Given the need to coordinate trail maintenance across multiple agencies, communication will be a critical component of any successful trail maintenance program. Coordination between the City and CCSD occurs currently on an ad hoc basis. Updating the City's Customer Relations Management (CRM) reporting tools to include App use and picture uploading abilities would engage both the trail users and lead to better communications between the agencies. Users will have the ability to report a problem instantly and easily along any point of a trail and get real-time responses from both the City and CCSD.

Adopt Uniform Operations Guidelines for Trails

There are currently 20 miles of trail throughout Elk Grove. Maintenance tasks are shared among various staff members at the City as well as staff at CCSD. A broad spectrum of maintenance practices has emerged. Current conditions reveal that mowing patterns, invasive growth management, placement of safety and regulation signs, and tree trimming vary among the districts and trails. Some practices are effective and promote visitor safety and a welcoming experience and some do not. This Plan recommends the adoption of standardized trail maintenance guidelines to manage costs and provide a safe, efficient and uniform trail system to the public. The FHWA has collected sample manuals and guidance for design, construction, operation and maintenance issues, as well as sign regulations at http://www.fhwa.dot.gov/environment/recreational_trails/guidance/manuals.cfm.

Having uniform guidelines ensures that maintenance is done to an appropriate level regardless of the agency or staff member involved. Only by setting forth clear standards can the trail system be maintained at a consistent level with coordination between the various responsible parties.

Explore a Shared Asset Management System

The City and CCSD are gearing up to use Cityworks for asset management. Managing assets through a database can help the City better identify ownership, maintenance responsibility, and maintenance costs over time. The City and CCSD should investigate the possibility of streamlining maintenance standards and service levels of trails, so that both agencies have a shared understanding of asset management in Elk Grove. To that end, each agency should have dedicated GIS staff to assist with data collection and preparation of a lifecycle maintenance database. There is also likely an opportunity for interoperability between the two systems as it relates to trails. The City and CCSD should investigate this possibility. Interoperability would facilitate maintenance requests, initiate work orders, and track routine operations.

Conclusion

The City is already implementing some changes that will greatly improve maintenance of Elk Grove's trail system. The creation of a pavement rating system and a Five-Year Plan for maintenance are an excellent foundation on which to build the rest of the trail maintenance program. The Plan's recommendations build on that success, positioning the City, CCSD, and other partners for success as the City and its trail system grow.

CITY OF ELK GROVE

Bicycle, Pedestrian, & Trails Master Plan

Appendix A. Design Protocols

MAY 2021

Prepared for the City of Elk Grove by GHD Inc.
with support from Toole Design Group, LLC & AIM Consulting, Inc.

All photos by GVP Studios except where noted

Table of Contents

Table of Figures

Table of Tables

Introduction

This appendix of the Elk Grove Bicycle, Pedestrian, and Multi-Use Trails Plan provides Design Protocols for Elk Grove's active transportation network. The following Design Protocols are presented to direct the planning, design, construction, and maintenance of bicycle, pedestrian, and trails facilities in Elk Grove. Some items are mandatory (i.e., standards typically utilize the word "shall," "must," or "will"), whereas others are advisory (i.e., guidelines typically utilize the words "may" and "should"). Items that are advisory in this Plan may become mandatory to a project through conditioning.

The Design Protocols reflect national best practices to ensure consistency and quality as Elk Grove's active transportation network develops over time. The information provided is compatible with the guidance provided at federal, state, and local levels. Reference documents are listed below.

At a minimum, all bicycle, pedestrian, and trail facilities within the city shall comply with Chapter 100 Basic Design Policies of the Caltrans *Highway Design Manual* and shall be designed in accordance with the most up-to-date federal and State accessibility requirements.

At the same time, the guidance in this chapter needs to also be implemented with engineering judgment. The Design Protocols integrate design flexibility that supports active transportation while meeting requirements mandated by local, state, and federal authorities.

Reference Documents

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

Guide for the Development of Bicycle Facilities, 2012 (new edition forthcoming)

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

Manual of Uniform Traffic Control Devices, 2012
Bikeway Selection Guide, 2019
Separated Bike Lane Planning and Design Guide, 2015
Safe Transportation for Every Pedestrian (STEP) Program
Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts, 2016
Small Town and Rural Multimodal Networks Guide, 2016
Accessible Shared Streets: Notable Practices and Considerations for Accommodating Pedestrian with Vision Disabilities, 2017

FHWA AND RAILS TO TRAILS COALITION

Shared-Use Path Level of Service Calculator, 2006

US ACCESS BOARD

Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG), 2011
Americans with Disabilities Act and Architectural Barriers Act Standards for Accessibility Design, 2010

CALTRANS

Highway Design Manual (HDM), 2019
Class IV Bikeway Design Guidance (Design Information Bulletin 89-01), 2018
California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014
California Standard Plans, 2020
California Standard Specifications, 2020

NATIONAL ASSOCIATION OF CITY TRANSPORTATION OFFICIALS (NACTO)

Urban Bikeway Design Guide, 2012
Urban Street Design Guide, *2013*
Transit Street Design Guide, 2016

ASSOCIATION OF PEDESTRIAN AND BICYCLE PROFESSIONALS (APBP)

Essentials of Bike Parking: Selecting and Installing Bike Parking that Works, 2015

CITY OF ELK GROVE

City of Elk Grove Improvement Standards Manual, 2020
City of Elk Grove Standard Drawings, 2018

Document Organization

The Design Protocols include four main sections, described below.

MULTIMODAL DESIGN PRINCIPLES

The Design Protocols were developed based on a set of overarching design principles centered on the intended users of Elk Grove's active transportation network, their characteristics, needs, and how they should best be accommodated. Focusing on the design user shifts the focus from decision-making based simply on what is feasible to solutions that result in a successful multimodal network attractive to Elk Grove residents and visitors.

BICYCLE DESIGN PROTOCOLS

The Caltrans *Highway Design Manual* (HDM) Chapter 1000, Design Informational Bulletin (DIB) 89-01, the FHWA *Separated Bike Lane Planning and Design Guide*, and the AASHTO *Guide for the Development of Bicycle Facilities* address many aspects of the design of bicycle facilities. In addition, the APBP *Essentials of Bicycle Parking* addresses bicycle parking facilities. This section is intended to complement existing design references by providing more detailed guidance on facility selection, intersection treatments, and best practices based on the comfort, safety, and convenience of the intended design users.

PEDESTRIAN DESIGN PROTOCOLS

The Caltrans *Highway Design Manual (*HDM) provides basic design guidance for pedestrian facilities as an important but secondary function of highways but stops short of providing design guidance for different types of streets and pedestrian facilities. It recognizes that, "Most local agencies in California have adopted varying design standards for urban and rural areas, as well as more specific requirements that are applicable to residential settings, downtowns, special districts, and other place types. These standards are typically tied to zoning requirements for land use established by local agencies. These land use decisions should consider the ultimate need for public right-of-way, including the transportation needs of bicyclists and pedestrians," (105.02).

The HDM also provides guidance on determining the width of pedestrian facilities based on capacity, using the Level of Service (LOS) metric from the AASHTO's *A Policy on Geometric Design of Highways and Streets.*

The guidance in this chapter is intended to supplement existing federal, statewide, and local guidance and provide local design context. It also recognizes and addresses that walking is a vital part of any transportation network, active or motorized, and the design of pedestrian facilities must reflect and respond to the comfort, safety, and convenience of people walking.

MULTI-USE TRAIL PROTOCOLS

The design of multi-use trails is addressed in the HDM Chapter 1000 along with other bicycle facilities. The AASHTO *Guide for the Development of Bicycle Facilities* also provides trail guidance and reflects current best practices. This section of the Design Protocols addresses the design of trails, so they reflect Elk Grove's unique context and setting as well as a range of potential users (including bicyclists, pedestrians, other non-motorized users, and equestrians).

Alignment with Plan Goals and Vision

The Design Protocols were developed to meet the vision and goals of the Bicycle, Pedestrian, and Trails Master Plan. Below are the Plan goals with corresponding multimodal design principles. Note that accessibility is assumed to be inherent in all objectives.

GOAL 1: INCREASE BICYCLING AND WALKING

GOAL 2: SUPPORT A CULTURE WHERE WALKING AND BICYCLING ARE SAFE AND CONVENIENT TRANSPORTATION OPTIONS

Bikeways should be designed to be comfortable, intuitive, and easy to use and understand for bicyclists of all ages and abilities as well as other roadway users such as micro mobility users (e.g., people using e-scooters). Pedestrian facilities should be designed to not only be safe and accessible but also attractive.

The paths on which people travel (i.e., the bike, pedestrian, or trail facilities) should incorporate elements that make the experience of travel comfortable, pleasurable, and fun.

Design Principles

- Design for All Ages and Abilities
- Path as Place

GOAL 3: PROMOTE SAFE BEHAVIOR BY ALL ROAD USERS

Bicycle, pedestrian, and trail facilities should accommodate the diverse range of users in a way that reduces conflicts between bicyclists and other roadway users including drivers, pedestrians, and users of micro mobility devices by making it easy and intuitive for people to use the roadway as intended.

Design Principles

- Right Design Invites Right Use

GOAL 4: IMPROVE CONNECTIVITY AND ACCESSIBILITY

Bicycle, pedestrian, and trail facilities should be designed with consistency and should connect seamlessly to destinations and other facilities. They should be continuous, direct, and convenient.

GOAL 5: IMPROVE REGULAR TRAIL MAINTENANCE

Bicycle, pedestrian, and trail facilities should be maintained to ensure the longevity and safety of the existing and future network. Trail widths should accommodate maintenance vehicles and equipment wherever possible. Pavement materials should be selected for durability to reduce the cost and frequency of future replacements or repairs. Plantings that are water efficient and require little maintenance should be used to minimize water consumption and obstructions to sightlines.

Design Principles

- Consistency and Connectivity

Multimodal Design Principles

DESIGN FOR ALL AGES AND ABILITIES

Several studies have shown that most people feel safer and more comfortable bicycling on streets with low vehicle volumes and speeds, or on higher speed and higher volume streets with increased separation and protection from vehicle traffic. In fact, approximately half of the population has little tolerance for interacting with vehicles unless vehicle speeds and volumes are very low.[1]

As indicated in the Existing Conditions (p. 20), decreasing the Level of Traffic Stress and improving comfort on bikeways better meets the need of "Interested but Concerned" bicyclists. These bicyclists represent the largest potential for mode shift away from private vehicles in Elk Grove. Designing bicycle facilities as described above (i.e., greater separation on roads with higher traffic volumes and speeds) not only increases comfort for bicyclists, but also accommodates a wider range of bicyclists with varied biking abilities and ages. The term All Ages and Abilities is used to describe bicycle facilities designed for people from age 8 to 80.

PATH AS PLACE

Beyond safety and functionality, the quality of the travel environment has a big effect on bicyclists, pedestrians, equestrians, and other active transportation users. A high-quality active transportation environment that addresses physical comfort and has visual interest and coherent wayfinding is likely to draw more users and result in more enjoyable trips. The design of bicycle, pedestrian, and trail facilities should consider the needs of the users as well as physical context. Elements that can make a path more of a place include street trees and plantings; shade; opportunities for seating, resting, and gathering; wayfinding signs and cues; human-scaled urban details like windows and modulation in building facades; and separation from parking lots.

RIGHT DESIGN INVITES RIGHT USE

Whether bicyclists and pedestrians have exclusive spaces like bike lanes and sidewalks, are combined on multi-use paths, or just encounter one another at intersections or driveways, effective design can ensure that the interactions between modes minimize the potential for conflicts. Bicycle, pedestrian, and trail facilities should be designed to accommodate these interactions by being intuitive to understand and navigate, organizing users, indicating proper positioning, and creating predictable movement. A large part of this approach is understanding the operational spaces of each user type, accounting for the speed differential between people who walk and people who bike, and accounting for the expected volume and mix of users.

CONSISTENCY AND CONNECTIVITY

With higher density urban development in the west and central parts of Elk Grove and lower density rural residential neighborhoods in the northeastern portion of the city, active transportation facilities may differ across the city. However, it is important to balance context-sensitive active transportation facilities and cohesive, consistently designed facilities that make the entire system easy to understand and use. Consistency is an important part of creating a safe active transportation network.

Rights-of-way, land uses, and other conditions vary even on the same roadway, and sometimes facility types must change in response. Creating seamless connections and transitions between destinations and facility types, for example between a multi-use trail and bike lanes, ensures that these connections do not pose barriers for users. Connections between facilities and to destinations should be direct, intuitive to navigate,

[1] Dill, D. and N. McNeil. Revisiting the Four Types of Cyclists. In Transportation Research Record 2587. TRB, National Research Council, Washington, DC, 2016

and closely spaced. The more connections a network has, the more useful it is to users.

ACCESSIBILITY

The requirement to provide equivalent access to facilities for all individuals, regardless of disability, is stated in several laws adopted at both the state and federal levels. Two of the most notable references are the Americans with Disabilities Act of 1990 (ADA) and Section 4450 of the California Government Code. Title II of the ADA prohibits discrimination on the basis of disability by state and local governments (public entities). This means that a public entity may not deny the benefits of its programs, activities, and services to individuals with disabilities because its facilities are inaccessible. A public entity's services, programs, or activities must be readily accessible to and usable by individuals with disabilities. Sections 4450 through 4460 of the California Government Code require that buildings, structures, sidewalks, curbs, and related facilities that are constructed using any state funds, or the funds of cities, counties, or other political subdivisions, be accessible to and usable by the physically disabled. The FHWA has directed Caltrans to use the ADA *Accessibility Guidelines for Buildings and Facilities* as the federal design guidelines for pedestrian accessibility. This information, as well as additional guidelines for complying with ADA, is contained in Chapter 1000 of the Caltrans *Highway Design Manual*.

All bicycle, pedestrian, and trail facilities within the City shall comply with Chapter 1000 Basic Design Policies of the Caltrans Highway Design Manual and shall be designed in accordance with the most up-to-date federal and State ADA requirements.

It is important to note that many people with disabilities are dependent on active transportation and transit networks. Design for the safety, comfort, convenience, and dignity of all people (a practice called Universal Design) should be standard beyond basic compliance with accessibility requirements. When active transportation facilities address the needs of the city's most vulnerable users, all users benefit.

Bicycle Design Protocols

Introduction

Bicycle facilities within the city shall be designed in accordance with Chapter 1000 "Bicycle Transportation Design" of the Caltrans *Highway Design Manual*. Other resources useful in facility planning and design include Chapter 9 from the FHWA *Manual on Uniform Traffic Control Devices* (MUTCD) and Caltrans *Manual on Uniform Traffic Control Devices* (CA MUTCD) and the *Guide for Development of Bicycle Facilities* by the American Association of State Highway and Transportation Officials.

Bicycle Facility Selection

To achieve the Plan's goals of increasing bicycling and walking and supporting a culture where walking and bicycling are a safe, convenient transportation option, the selection of bicycle facility types should be based on the intended design users and respond to roadway characteristics and use. For Elk Grove, this means focusing on the "Interested but Concerned" group of cyclists, as described in the Existing Conditions chapter.

Table 1. Examples of Interested but Concerned Bicyclists

		
A mother and daughter who enjoy Saturday rides along the Laguna Creek Trail to Laguna Village. Concern about crossing a busy road prevents them from riding together to the child's elementary school during the week.	A 45-year-old father of two who was just diagnosed with pre-diabetes. His doctor encouraged him to be more active, so he's been thinking about doing short errands by bike. As a motorist, he feels uncomfortable passing bicyclists, so he isn't sure he'd feel comfortable as a bicyclist sharing the road with cars.	A resident who just started a new job at Apple. He enjoys riding in his neighborhood as long as he stays on quiet streets or the sidewalk. He'd like to be able to ride to work and other destinations, but he's uncomfortable crossing busy roads and intersections along the way.

Interested but Concerned bicyclists prefer physical separation as traffic volumes and speeds increase and also desire intersections where bicycle travel is designed for rather than accommodated (e.g., crossing a major street at a signal, rather than waiting for a gap in traffic and rushing across multiple or fast-moving travel lanes).

The bikeway facility selection charts on the following pages identify bikeway facilities that improve the operating environment for this bicyclist type at different roadway speeds and traffic volumes. The "Enthusiastic and Confident" bicyclist will also prefer bikeway treatments noted in this chart. As Elk Grove's goal is to increase bicycling, it is appropriate to select facility types based on this chart. Per the AASHTO facility section chart below, consider roadway speeds and volumes when determining the appropriate bike facility.

In addition to roadway characteristics, consider pedestrian and bicycle volumes or, in the absence of volume, consider land use. It is important to note that a physically separated facility means a separated bike lane or multi-use path, separated from traffic by parking, posts, curb, or other similar mechanisms.

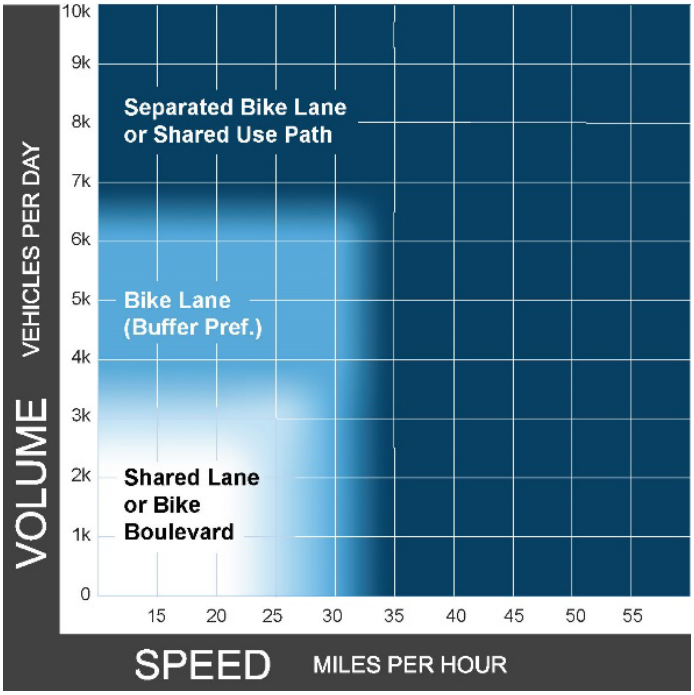


Figure 1. Bikeway facility selection chart

Source: Draft AASHTO Bikeway Design Guide, 2019.
Notes:

1. *Chart assumes the project involves reconstruction or retrofit in constrained conditions. For new construction, follow recommended shoulder widths in the AASHTO Green Book.*
2. *A separated multi-use pathway (Class I) is a suitable alternative to providing paved shoulders.*
3. *Charts assumes operating speeds are similar to posted speeds. If they differ, use operating speed rather than posted speed.*
4. *If the percentage of heavy vehicles is greater than 10%, consider providing a wider shoulder or a separated pathway (Class I).*

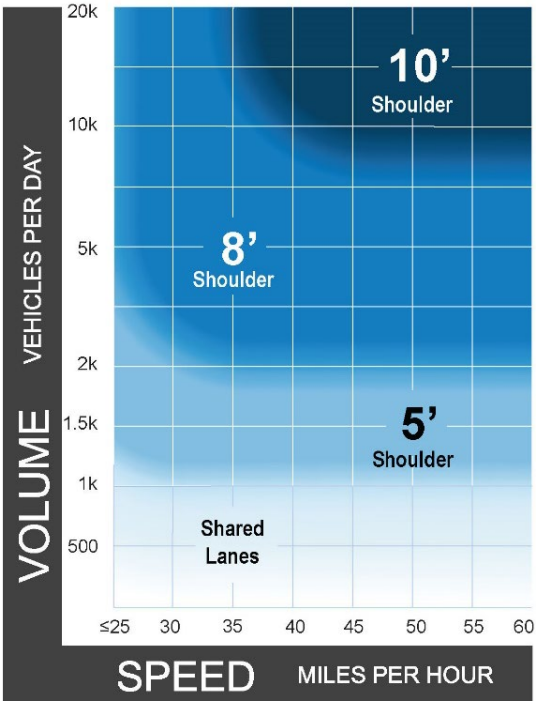
Shoulder Widths for Rural Roadways

In rural areas, such as in eastern Elk Grove, paved roadway shoulders are oftentimes the most appropriate and feasible treatment to accommodate bicyclists and pedestrians. Figure 2 provides guidance for selecting shoulder widths on such roadways. When selecting a minimum shoulder width, the decision should be based on traffic volumes and posted speeds. For the purposes of determining the appropriate shoulder width, it is assumed that posted speeds are approximately the same as operating speeds. If operating speeds differ from posted speeds, then operating speed should be used instead of posted speed. Note that pedestrian needs differ from bicyclists', and provision and width of a shoulder as a pedestrian facility should be evaluated separately.

Bicycle Facility Types

The recommended bikeways included in the proposed bicycle network range from off-street multi-use paths to shared lane bike routes. Descriptions of bikeway facility types are provided on the following page.

Figure 2. Shoulder width selection chart



Source: AASHTO Bikeway Design Guide, 2019. Chart assumes operating speeds are similar to posted speeds. If they differ, use operating speed rather than posted speed.

Table 2. Bicycle Facility Types

CLASS I MULTI-USE PATHS

Class I multi-use paths are paved trails completely separate from the street. They allow two-way travel by people walking and bicycling and are considered the most comfortable facilities for children and inexperienced bicyclists as there are few potential conflicts with people driving.

CLASS III BICYCLE ROUTES

Class II bicycle lanes are striped preferential lanes in the roadway for one-way bicycle travel. Some bicycle lanes include a striped buffer on one or both sides of the lane to increase separation from the traffic lane or from parked cars, where people may open doors into the bicycle lane.

Credit: Toole Design

CLASS III BICYCLE ROUTES

Class III bicycle routes are signed routes where people bicycling share a travel lane with people driving. Because they are shared facilities, bicycle routes are typically appropriate only on quiet, low speed streets with relatively low traffic volumes. Some bicycle routes include shared lane markings or "sharrows" that recommend proper bicycle positioning in the center of the travel lane and alert drivers that bicyclists may be present. Others include more robust traffic calming features to promote safety and comfort for people bicycling and are known as "bicycle boulevards.

Credit: Toole Design

CLASS IV SEPARATED BIKEWAYS

Class IV separated bikeways are on-street bicycle facilities that are physically separated from motor vehicle traffic by a vertical element or barrier such as a curb, bollards, or vehicle parking lane. They can allow for one- or two-way travel on one or both sides of the roadway.

Design Vehicle

It is important to consider different ages, abilities, riding styles, and bicycle types when designing bicycle facilities. Even if the number of bicyclists with specialized operating characteristics is small, their comfort and safety is still important. Some examples of varied bicycle design vehicles include:

- Families that bike use a variety of different types of bikes as their children grow into independent bicyclists. Cargo bikes and trail-alongs are longer, and sometimes wider, and thus must be accounted for in intersection queuing areas, at trail crossings, and through turns.
- Parents riding with children who are newly independent cyclists need space to ride alongside their small riding companions, as those kids may wobble or weave.
- Riders of e-bikes operate similarly to other cyclists but need space to pass slower riders.
- Riders of adaptive bikes like handcycles and recumbent bikes are typically lower to the ground, so visibility considerations amongst other bicyclists and at intersections are different.

Credit: Toole Design

Figure 3. Design Vehicle

Local Context and Other Users

It is important to understand the local context in the siting and design of bikeways, and to anticipate and design for interactions with other users. Bicycle facilities are often, but not always, intended for exclusive use by bicyclists, but that doesn't mean bicyclists won't encounter pedestrians, vehicles, and other active transportation users. Class IV bikeways, for example, can be sited adjacent to and at the same level as a sidewalk, creating the possibility of pedestrians—particularly people with vision disabilities--encroaching on the bikeway, or vice-versa. Commercial driveways can also be potential high conflict areas. Providing additional operating space, using geometric design to organize and guide users, and adding elements like pavement markings, colored paving, texture, and signs are tools that are commonly used to make bikeways responsive to site-specific conditions.

Intersections

Intersections are often one of the most challenging and high-stress parts of the bicycle network to navigate. In many cases, bike lanes end before the intersection (e.g., bike lane striping does not continue all the way to the stop bar) and are not carried through to the other side, causing confusion and stress for bicyclists as well as drivers. In addition, signalized intersections oftentimes do not detect bicyclists or require bicyclists to wait extended periods of time to cross. Unsignalized crossings can also be challenging to navigate and may require long waiting times for a gap in vehicular traffic to cross.

Treatments that enhance safety and comfort at intersections can significantly improve the riding experience throughout the network. Intersection treatments may include signal improvements, geometric changes, or supplementary pavement markings, signage, and lighting.

Intersection treatments for bicyclists provide the following functions:

- Show bicyclists and drivers where to safely position themselves
- Enhance visibility of bicyclist's path of travel
- Provide dedicated space and time (e.g., a dedicated signal phase) for bicyclists to travel through an intersection
- Reduce conflicts with vehicle movements
- Reduce turning vehicle speeds
- Provide confirmation and positioning for actuating signals

While these improvements may be completed as opportunities arise (e.g., as part of routine resurfacing or street improvement projects), the City should strive to complete a series of improvements to intersections as low-stress corridors in the proposed bicycle network are implemented. This coordinated approach will enable bicyclists to travel along continuous low-stress routes.

Figure 4. Bicycle Intersection Treatment

Bikeway Preferred and Minimum Widths

The following table presents preferred and minimum widths for different bikeway classifications that should be used for new construction.

Table 3. Summary of Bikeway Design Protocols

Class II	Class II Enhanced	Class III	Class IV
LOCATION			
Bike Lanes	Buffered Bike Lanes	Bike Route or Bike Boulevard	One-way Protected Bikeways Two-way PBLs
Delineated within roadway, adjacent to curb or parking lane	Delineated within roadway, adjacent to curb or parking lane	Within roadway	Within roadway, adjacent to curb (street level) or adjacent sidewalk (sidewalk level)
GEOMETRICS*			
Minimum of 6 ft for roadways posted 40 mph or higher (preferred), Minimum of 5 ft for all other roads, These are both preferably exclusive of gutter pan, but at least 36" of the bikeway must be on the same surface as the vehicular travel lane	See bike lanes; buffer width dependent on roadway speeds, volumes, and % of heavy vehicles; 18 in. minimum	Bike boulevards include traffic calming treatments to ensure lower speed and lower volume vehicular traffic	7 ft (preferred), 5 ft (minimum) for one-way 12 ft (preferred), 10 ft (minimum) for two-way Buffer width >3 ft (preferred), 2 or 3 ft (minimum) for street level PBLs, depending on presence of parking lane Buffer width 1.5 ft (minimum) for sidewalk level PBLs
SURFACING			
Same as roadway	Same as roadway	Same as roadway	Same as roadway (street level) Asphalt, to differentiate from walking space (sidewalk level)

Class II	Class II Enhanced	Class III	Class IV
SIGNAGE AND STRIPING			
Delineated with 6 or 8 in white lines Bike lane word or symbol shall be placed at the beginning of the bikeway and at regular intervals up to 0.5 mile, also at far side of all arterial crossings and at decision points Regulatory and wayfinding signs	Delineated with 6 or 8 in white lines Bike lane word or symbol shall be placed at the beginning of the bikeway and at regular intervals up to 0.5 miles, also at far side of all arterial crossings and at decision points Regulatory and wayfinding signs	Shared lane markings (SLMs): 4 ft min. from curb without parking, 11 ft minimum from curb with parking SLMs should be placed up to every 250 ft along a route and at decision points where route turns Regulatory and wayfinding signs	PBL delineated with painted buffer (6 or 8 in white lines) or physical buffer Bike lane word or symbol shall be placed at the beginning of the bikeway and at regular intervals up to 0.5 mile, also at far side of all arterial crossings and at decision points Regulatory and wayfinding signs
CROSSINGS/INTERSECTION TREATMENTS			
Bike lane extension markings at intersections Painted conflict markings at locations/driveway with high right turn volumes, high conflict/collision rates, or high conflict potential due to converging maneuvers Two-stage turn box: at multi-lane intersections where there are large bike left turn volumes Bike box: to facilitate left turns for bicyclists, group bicyclists together to clear an intersection quickly, to reduce turn conflicts, or facilitate a Leading Pedestrian Interval		Wayfinding signage and SLMs as needed	Protected intersection treatments (preferred), which create bicyclist separation from vehicles in time and space Bike lane extension markings at intersections
AMENITIES			
Wayfinding signage		Wayfinding signage	Wayfinding signage

* *CTHMD Ch. 1000, AASHTO Guide for the Development of Bicycle Facilities, DIB 89,* Width per City standard

For additional information, reference the City Improvement Standards

Bicycle Intersection Toolbox

Most bicycle facilities cross streets, driveways, or alleys at multiple locations along a corridor. At these locations, the crossings should be designed to 1) delineate a preferred path for people bicycling through the intersection and 2) encourage driver yielding behavior, where applicable. Bicycle crossings may be supplemented with green pavement, yield lines, and/or regulatory signs.

Credit: Toole Design

BIKE LANE EXTENSION MARKINGS

Bike lane extension markings are designed to improve visibility, alert all roadway users of expected bicyclist behavior, and reduce conflicts with turning vehicles

PAINTED CONFLICT AREA MARKINGS

Similar to bike lane extensions, conflict area markings are intended to improve visibility, alert all roadway users of expected behaviors, and reduce bicyclists' conflicts with turning motor vehicles. Per the Manual on Traffic Control Devices (MUTCD), conflict area markings must be used in tandem with Class II bike lanes or Class IV separated bikeways.

Credit: Toole Design

BIKE BOX

A bike box provides dedicated space between the crosswalk and motor vehicle stop line where bicyclists can queue during a red light at signalized intersections. Bike boxes allow bicyclists to take a position in front of motor vehicles at the intersection, which improves visibility and motorist awareness and allows bicyclists to "claim the lane," if desired. Bike boxes aid bicyclists in making left turning maneuvers at intersections and provide more queuing space for multiple bicyclists than a typical bike lane.

Credit: Toole Design

TWO-STAGE TURN BOX

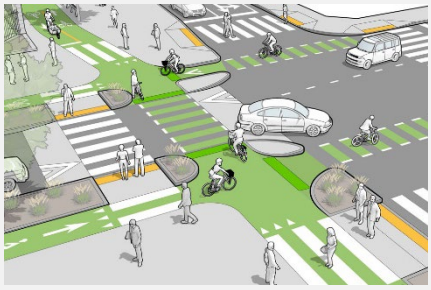
The two-stage turn box designates a space outside the path of traffic for bicyclists to wait while performing a two-stage turn at an intersection. Two-stage turn queue boxes may be used with any type of bicycle facility. A two-stage turn queue box should be considered where separated bike lanes are continued up to an intersection and a protected intersection is not provided

Credit: Toole Design

BICYCLE DETECTION

The California MUTCD Supplement requires the provision of bicycle and motorcycle detection on all new and modified approaches to traffic actuated signals. Bicycle detection at signalized intersections can provide a substantial safety improvement for bicyclists and motorists. Detection for vehicles and bicycles is usually provided via metal-detecting "loop detectors," which trigger a green light when they sense metal nearby.

Video and radar detection systems can also be used to detect bicycles and the City is currently focusing on replacing loops with video detection as feasible and is now considering this practice standard for future development.



Credit: Tool Design

PROTECTED INTERSECTION

Protected intersections are set back from parallel motor vehicle traffic, providing a dedicated path for bicyclists moving through the intersection. A corner island separates bikes from motor vehicles and prevents motor vehicles from encroaching on the bikeway. This configuration reduces the crossing distance for bicyclists and pedestrians traveling through the intersection and encourages safer turning movements. Protected intersections should be considered as an option at locations where separated bike lanes are continued up to an intersection. They may be implemented at signalized and stop-controlled intersections.

WAYFINDING SIGNAGE

A well-planned and attractive system of destination signs, trail maps, and markers can greatly enhance bikeway facilities by signaling their presence and location to motorists, bicyclists, pedestrians, and other users. By leading people to bikeways and trails, effective signage can encourage more people to bicycle and walk. All wayfinding signs and bicycle striping on public roadways in Elk Grove shall conform to the guidelines laid out in the Caltrans *Highway Design Manual* Chapter 1000 and the CA MUTCD Supplement. Signs should be designed to convey direction, destination, distance, and distinction. The City should consider using D11-1 Bike Route Signs in conjunction with the D1 Bicycle Guide Signs as part of the wayfinding system. These signs should be installed at key points along on-street corridors directing bicyclists to transit stations, trails, and other major destinations like schools, parks, civic buildings, and shopping centers.

SAFETY AND SECURITY

Security or perceived security may be an issue, especially along portions of Class I multi-use trails, overcrossings, and under crossings. The following actions are recommended to address these concerns.

The Sacramento County BMP (2011) provides a broad list of recommendations to ensure the safety and security of bicycle facilities. The following recommendations have been extracted from this resource and should be incorporated into the planning and development of bicycle facilities in the city whenever possible.

- Maintain adequate recording and response mechanisms for reported safety problems.
- Respond to crash investigations with appropriate design or operation improvements.

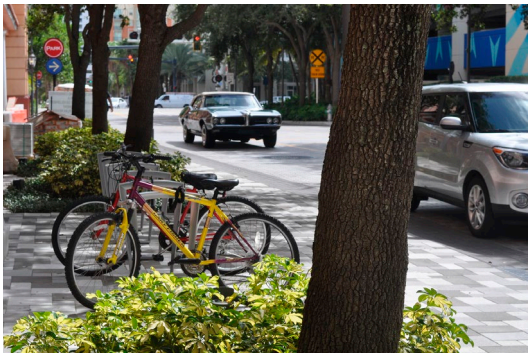
Bike Parking

In order to encourage bicycling, it is essential that bicyclists are able to lock their bicycles at a secure and convenient location, usually adjacent to their destination. If the bicycle will be parked for several hours, a bike locker or other means of secure, long-term bike parking —such as bicycle racks in an enclosed, weather protected area—is desirable.

Factors to consider when planning for bike parking include the type of trip being made, weather conditions, and perceived safety and security of the area.

Short-term Bicycle Parking Facilities

Short-term parking is defined as a few hours or less; the key to success is accessibility and convenience. Well-sited and designed bicycle parking keeps the right-of-way organized and makes it work better for all users.



Credit: Toole Design

Credit: Toole Design

Figure 5. (Top) On-street bike parking. (Bottom) Well-sited bike racks with cargo bike

Bike Rack Siting and Placement

- Bike parking should be located close to and visible from the entrance of a destination, ideally within 50 feet. It should be placed in a location with good public visibility to ensure public surveillance.
- Bicycle parking spaces should be a minimum of 6 to 8 feet long (longer to accommodate cargo bikes, trailers, and similar accessories) and 2.5 to 3 feet wide, with sufficient overhead clearance. Single racks can be easily accommodated in the furnishing zone of a sidewalk, placed parallel to the curb.
- Bicycle racks or lockers should be securely anchored to a surface or structure.
- Bicycle racks should allow the frame and at least one wheel to be locked to the rack.
- Bicycle racks should allow for two points of contact between the bicycle and rack to ensure bicycles remain upright, decreasing potential for blocking other parts of the right-of-way and damage to bicycles.
- Racks should have a minimum of 24 inches and ideally 36 inches of clearance from all directions from any vertical obstructions such as parked cars, other racks, walls, and landscaping.
- The siting of racks on a sidewalk should consider the need for a 4-foot absolute minimum pedestrian through zone (6-foot preferred minimum).

In addition to along sidewalks and building faces, bike parking can be accommodated in many locations within the public right-of-way: in "leftover" or otherwise unusable spaces, such as next to angled parking, under building awnings for protection, and at corners where parking is prohibited to ensure street visibility.

Preferred Bike Rack

Based on best practice for simplicity of design, cost, and theft resistance, the preferred short-term bicycle rack design is the "Inverted-U" style rack (Figure 9). These racks offer a simple, secure design for placement where space is limited. When installing more than one, racks should be 3 to 4 feet apart and at least 2.5 feet from other objects.

Bike Corrals

On-street bike corrals can be used to meet higher bike parking demand in a small area and free up sidewalks for pedestrian activity. They can be installed along the curb, in place of one or two vehicle parking spaces, or in areas where parking is not allowed, such as at corners. Bike corrals are typically configured to accommodate 6-12 bicycles. They are usually demarcated with pavement markings, parking stops, and flex posts, but they can also provide opportunities for incorporation of shelters and public art. Bike corrals should be designed to prevent encroachment by parking or driving vehicles.

Monitored Event Parking

Accommodating larger scale bike parking at events, even smaller weekly events like the Farmer's Market, through the installation of temporary bike parking areas is an excellent way to bolster visibility and support of bikes and even reduce congestion. Event parking can include valet bike parking, or simply the provision of many temporary racks, which are often available for rent from private vendors, or provided by bike valet providers

Credit: Toole Design

Credit: Toole Design

Figure 6. (Top) On-Street Bike Corral. (Bottom) Preferred Bike Rack

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Figure 7. Recommended Long-Term Bicycle Parking Facilities: Bike locker (Top) Bicycle Stations (Bottom), or Bicycle Cages/Room (Not Pictured)

Long-term Bicycle Parking Facilities

Long-term bicycle parking facilities are intended to provide secure bicycle storage for commuters and other long-term users. Long-term bicycle parking is appropriate at park and ride lots, transit centers, schools, and employment centers (i.e., anywhere where bicyclists will leave their bicycles for more than a few hours). For long-term bicycle parking, security and weather-protection are more critical than convenience, though good lighting and a sense of personal safety are also important.

Long-term facilities protect the entire bicycle, components, and accessories against theft and inclement weather. Examples of long-term bicycle parking facilities, shown in Figure 11, include lockers, bicycle cages, stations/check-in facilities, monitored parking, and bike parking rooms within buildings. Electronic bike lockers provide secure individualized parking that can be accessed with an electronic card. Unlike standard key lockers which provide one key for one renter, a single e-locker can be rented by multiple bicyclists each week by using smart card technology. The improved efficiency translates into greater availability and is a popular option at transit stations. Each parking space in a bike locker, cage, or room should be accessible without moving another bicycle. Generally, about 5 feet of maneuvering space should be provided behind bicycle parking spaces. Covered long-term bicycle parking facilities are preferred.

Bicycle Parking on Private Property

Safe and secure bike parking, both short and long-term, is a concern for people who bike to work, people who live in apartments or other small dwellings that may not have space for bicycle storage within the dwelling itself, and people shopping. The City requires developers of both multifamily housing and commercial properties to plan for bicycle parking, both outside and inside buildings.

Multi-Use Trail Design Protocols

The City has adopted the following trail design protocols below to direct the planning, design, construction, and maintenance of trails in the City.

Introduction

Unlike the design of on-street bikeways, which must fit within a given roadway curb-to-curb width and compete for space with other modes of travel, there is typically more latitude in the design of trails (especially when they are sited within a separate right-of-way). This flexibility, combined with the separation from vehicle traffic, provides the opportunity to meet the needs of a wider range of users and also to respond to the physical setting and surrounding landscaping. As a result, trails can become the most widely used part of the active transportation network by providing a safe, secure, comfortable, and enjoyable user experience for everyone in the community. One notable exception is trails along streams which may present their own constraints to trail design, though trail design in these situations should still seek to accommodate a wide range of users.

The following protocols address siting and design protocols, trail design, landscaping, signage and markings, and amenities.

General Siting and Design Protocols

CONNECTIVITY WITH SURROUNDING LAND USES

Trail connectivity shall be provided to surrounding land uses. Where trail corridors abut commercial and office areas, trail access shall be provided to those areas where appropriate. Where trail corridors abut residential neighborhoods, trail access shall be provided at regular intervals of approximately 600 feet. Where possible, trails shall be incorporated into parks and open spaces.

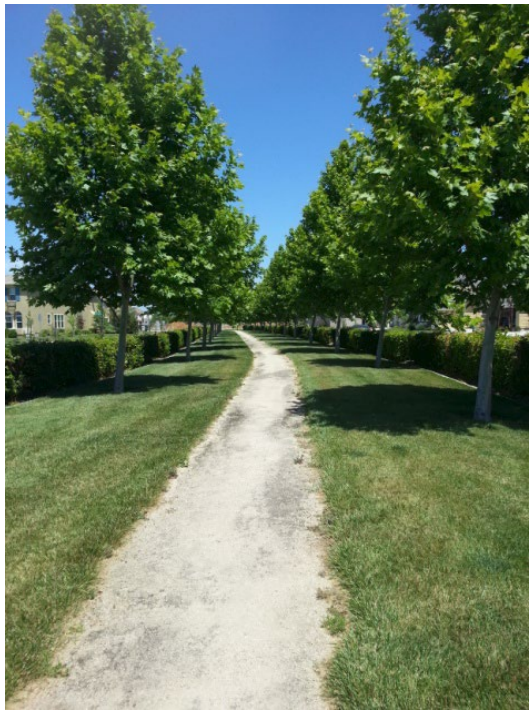

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Figure 9. Trail that is compatible with the surrounding landscape

COMPATIBILITY WITH SURROUNDING LAND USES

Trail design shall be compatible with surrounding land uses. The design of trails shall provide a degree of privacy to surrounding residences, but still allow for informal monitoring of the trail. Trails shall be designed in cooperation with adjacent property owners in order to minimize adverse impacts on adjacent land uses.

Trails shall be designed to be easily accessible via bicycle or on foot to reduce the need for parking and trailheads.

DESIGN AND COMPATIBILITY WITH SURROUNDING LANDSCAPE

In general, trails shall be designed to blend in with the surrounding landscape, shall use materials and colors that are not in contrast to the surrounding context, and, where possible, shall have alignments that are in conformance with land contours. Trail design and locations shall avoid site-specific hazardous conditions, avoid impacting potential habitat or other sensitive

areas, and not exacerbate flood conditions. It is encouraged that trail design enhance habitat for native species. Trails that parallel streams shall be located beyond wetlands, the riparian corridor, and the 10-year floodplain, where possible. Environmental sensitivity shall also inform the design of any trail crossing over a drainage channel; crossings should be arched wherever possible to minimize impacts and maintenance costs. Consultation with City engineers and regional resource agencies may be necessary in order to develop trail designs that minimize environmental impacts.

COMPATIBILITY WITH USER CHARACTERISTICS AND NEEDS

Trails design shall result in facilities that are welcoming to all user types and are easy and enjoyable for users of all ages and abilities. The design of trails shall be compliant with federal and State access requirements. They should accommodate a wider range of active transportation modes, including inline skating, scooters, e-scooters, pedal bikes, e-bikes, adaptive and recumbent bikes, skateboards, longboards, and other mobility devices. Trails should accommodate both recreational and transportation-focused trip types as well as other non-motorized users, including people walking, jogging, dog walking, riding cargo bikes and using bike trailers, pushing strollers, and participating in school group activities.

TRAIL CROSSINGS

At-grade roadway crossings that interrupt existing Class I trails shall be limited where possible to reduce interactions and conflicts between trail users and vehicles. Grade separated crossings are preferred along Class I trails, especially across major roads, to create a more enjoyable and comfortable trail experience.

TRAIL ALIGNMENT

The City uses the Caltrans Highway Design Manual Chapter 1000 standards for Class I trail alignment specifications. Trail alignment design shall be based on a 20 MPH, 25 MPH, or 30 MPH design speed. Wherever practical, trails should be normally crowned and should not be superelevated. The minimum horizontal alignment radius without superelevation is 100 feet for 20 miles per hour, 180 feet for 25 miles per hour, and 320 feet for 30 miles per hour.

Trail Dimensions and Clearance

OPPORTUNITIES FOR CALTRANS HIGHWAY DESIGN MANUAL CHAPTER 1000 STANDARDS

Wherever possible and especially where regional funding is desired, the design of combined bicycle and pedestrian facilities shall meet the Caltrans Highway Design Manual Chapter 1000 standards for Class I bikeways. These standards pertain to trail tread widths, horizontal and vertical clearances, design speeds, cross-slopes, and stopping distances.

TRAIL CORRIDOR WIDTH

A trail corridor is defined as the area within which a trail is constructed, along with landscaping and any other improvements necessary to ensure the operation of the trail. In general, trail corridors shall be as wide as possible, and at minimum, address the need for trail maintenance and emergency access where appropriate. Trail corridors shall be wider than trail tread widths to ensure flexibility in alignment possibilities for aesthetic value, safety considerations due to site conditions, and avoidance of possible habitat or other sensitive areas. Trail corridor easements shall coincide, where possible, with easement boundaries to ensure flexibility in alignment possibilities. In some cases, trail corridors will need to be narrower than would be typically desired—for instance, in infill situations where limited space is available to complete a trail connection or along a roadway where the right-of-way is narrow. In these cases, a narrow trail

corridor may be used at the discretion of the Public Works Director or their designee. Similarly, accessibility by maintenance and emergency vehicles, although desired, may not be possible on all trails.

CAPACITY AND USER MIX

The capacity of the trail system shall be a primary design focus. Trails shall be designed to accommodate expected volumes and mix of users. For instance, some features such as the trail tread width may need to be increased beyond the minimum specified in order to provide adequate capacity.

In determining the projected volume of users, trail designers should consider the area the trail serves, the number of entry points, the variety of destinations the trail services, and the trail's role in the active transportation network, as either a major or minor trail.

Trails shall be designed to accommodate two-way traffic for all user groups. Trails shall be designed to accommodate as many trail user groups as possible. In order to facilitate increased access to trails for users of varying abilities, rest areas and other trail amenities shall be provided, and steep grades shall be avoided (while in some limited circumstances the grade may be up to 8.3 percent for short distances, the maximum recommended grade is 5 percent, and it is recommended that sustained grades be limited to a maximum of 2 percent).

DESIGN TO MINIMIZE POTENTIAL USER CONFLICTS

The design of trails shall reduce potential conflicts between different user groups. Pedestrian and bicycle trail users may share combined facilities, but additional trail width may be required to allow generous passing areas on portions of the trail where high use is expected.

To the greatest extent possible, equestrian trails shall be separated from other user groups, through the use of buffers, vegetation, or grade separation.

EQUESTRIAN TRAILS

Equestrian trail treads shall be separated from other user trail treads by a minimum horizontal distance of 5 feet wherever possible, and a wider separation is encouraged. The minimum equestrian trail tread width is 5 feet, although it may be as narrow as 3 feet (with passing areas at reasonable intervals) in constrained locations. The trail tread width shall be clear of all obstructions. Trail horizontal clearances/shoulders are not required unless site conditions require them for safety. The minimum vertical clearance for equestrian trail tread is 12 feet above the tread and any horizontal clearances/shoulders. At site-specific locations, a lower clearance may be allowed (e.g., at bridge undercrossing), but in no case shall clearance be less than 10 feet.

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Figure 10. Trail that accommodates a mix of user types

Figure 11. Equestrian on trail

BICYCLE AND PEDESTRIAN TRAILS

The minimum bicycle and pedestrian trail right of way shall be 25 feet, which is consistent with minimum landscaping setback requirements for trails adjacent to roadways. Wherever feasible, the preferred width for trail right of way is 40 feet. A width of 40 feet accommodates a paved multi-use path, shoulders, retaining walls, landscaping, maintenance access, and if appropriate, separation for equestrians. The tread width shall be 10 feet of paved trail, which is consistent with Cosumnes CSD fire standards so that trails can double as fire roads. An increased trail tread width of up to 12 feet is preferred and may be required in order for the trail to provide appropriate capacity. There shall also be a graded shoulder immediately adjacent to either side of the paved surface, 3 ft preferred and 2 ft minimum. This graded shoulder should also provide the required horizontal clearance. These dimensions shall be clear of all obstructions. Additional shoulder and horizontal clearance width are not required except where there are site conditions that necessitate additional horizontal clearance for safety. The minimum width for the paved surface may be as narrow as 8 feet and the graded shoulders may be eliminated for short distances (i.e., less than 1000 feet), only in special site-specific circumstances where the terrain makes the implementation of these standards unsafe or impossible. For example, this exception may be granted if the trail is to be placed in a narrow trail infill situation where development on either side has already occurred, or if there are continuous site constraints such as a creek or vertical objects on either side of the trail. The minimum vertical clearance for bicycle and pedestrian trail tread widths is 10 feet above the tread and any horizontal clearances/shoulders. At site-specific locations, a lower clearance may be allowed (e.g., at bridge under crossings), but in no case shall clearance be less than 10 feet.

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Figure 12. Pedestrian along Laguna Creek, an example of a standard bicycle/pedestrian trail with a 10' width

Bikeway Preferred and Minimum Widths

The following table presents design protocols for Multi-Use Class I Trails, including preferred and minimum widths.

Table 4. Class I Trail Protocols

CLASS I TRAIL PROTOCOLS	CLASS I
Location	Separate right of way or adjacent to roadways
Geometrics*	12 ft (preferred), 10 ft wide (minimum); with 2 ft shoulders on each side within a 40 ft right of way
Surfacing	• Asphalt pathway with decomposed granite shoulders or native material that is harrowed and free from debris • Geotech report required with clay soils
Signage and Striping	• 4 in yellow centerline and edge lines at connections to roadways and along curves • Stop/yield signs at crossings • Wayfinding signs
Crossings/ Intersection Treatments	High-visibility trail crossing markings, warning signage, and/or actuated flashing beacons; refer to City Traffic Engineer for guidance
Amenities	Trailheads, informational signs, wayfinding, trash receptacles, seating

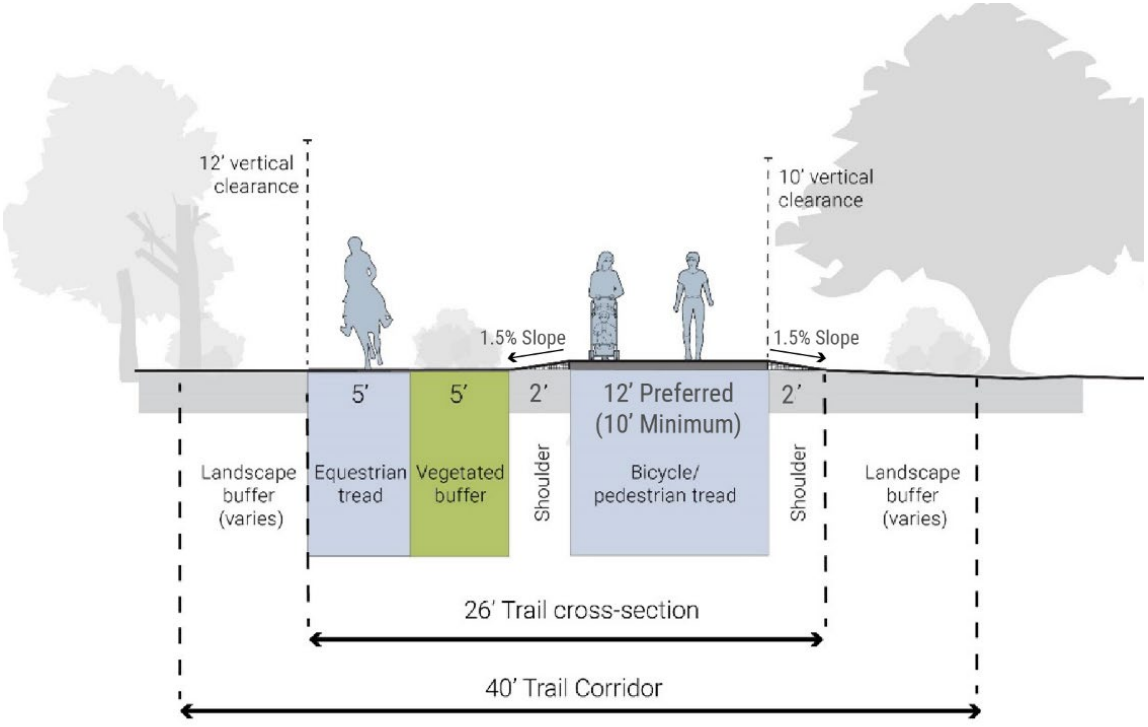

Figure 13. Trail cross-section protocols

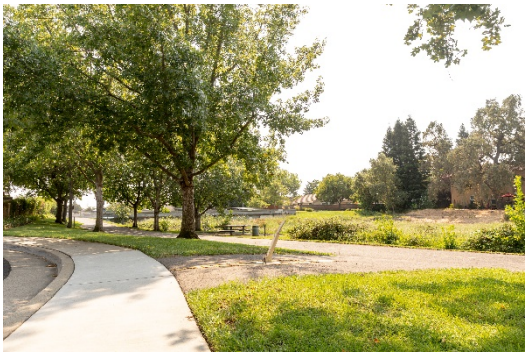

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Figure 14. Paved trail connecting to a sidewalk

TRAIL FOUNDATION

All trails shall be designed with consideration given to the structural characteristics of underlying soils and expected loadings. Loadings include typical trail use as well as maintenance vehicles and emergency vehicles. Trail foundations, and in particular, edges, shall assure trail longevity and shall support the weight of motorized vehicles required for emergencies and/or maintenance operations. Compressible, Clay, saturated, or other adverse subsurface foundation conditions should be mitigated prior to construction. The Trail pavement design should be designed with a Traffic Index (TI) of 5 with a 20-year design life.

SURFACE MATERIALS FOR BICYCLE AND PEDESTRIAN TRAIL TREADS

Trail surfaces shall be a minimum of 3 inches of Mot Mix Asphalt over 8 inches of Class 2 Aggregate Base. Permeable pavement may also be considered, as well as other materials that may aid in safety, landscaping maintenance, and/or trail user comfort. The paved surface of bicycle and pedestrian trail treads shall be of environmentally friendly recycled content wherever possible. Surface materials shall also be skid resistant. Increased thicknesses and content of surface materials shall be considered in order to improve durability. In limited circumstances, it may be permissible to temporarily open a trail prior to the installation of paving. The graded shoulder immediately adjacent to the paved surface shall be composed of decomposed granite. Shoulder in fill shall have an edge treatment sufficient to support the shoulder such as a concrete or aluminum edging.

SURFACE MATERIALS FOR EQUESTRIAN TRAIL TREADS

Like the graded shoulders of bicycle and pedestrian trails, equestrian trail treads are required to be composed of decomposed granite or native material that is thoroughly harrowed, free from debris (roots, gravel, and cobble, etc.), and suitable for use after inclement weather.

SURFACE QUALITY

All trail treads shall have continuous surface quality. If repairs are made to trail surfaces, they shall provide for a surface that is as smooth as the original surface. Additionally, drainage grates, manhole covers, driveways, or similar obstructions shall be located and installed to promote safety of trail users. Considerations include the design of all drainage grates and avoiding the construction of vertical lips between materials or keeping them to the maximum allowed by accessibility standards.

DRAINAGE

Trail treads shall be designed to prevent runoff from being erosive to their surface or of surrounding soils and vegetation. If collected, trail runoff shall be discharged in such a manner that prevents erosion and impacts to surrounding vegetation and should be conveyed to an area where natural treatment can occur prior to discharge to creeks or streams. Any drainage ditches and grates that are used shall be placed in locations so as to not present obstacles or hazards to trail users.

CROSS-SLOPE

Trails surfacing and shoulders shall have a cross-slope of 1.5 percent or as needed to ensure proper drainage but still conform to accessibility guidelines. Sloping in one direction only or a crowned trail is allowed.

Landscaping

PLANTING PALETTE

Plant materials shall be selected for their year-round vigor and shall be planted to have an immediate and ongoing aesthetic effect, as well to reduce urban the heat island effect. Preference should be given to use of native plants which are consistent with the trail location and provide habitat suitable for native species. Plant materials shall range in sizes from groundcovers, small shrubs (minimum size: 1 gallon), large shrubs (minimum size: 5 gallons), and trees (minimum size: 15 gallons for large trees, 24-inch box for smaller trees).

The trail planting palette may incorporate plants used elsewhere in the surrounding developed areas. Project proponents are also welcome to recommend landscape plant materials that meet the City's criteria for approval. Plant materials are being tested all the time and new or hybridized plants are welcome. Care shall be given to not utilize surface rooting trees near trails in order to lessen the likelihood of tree roots affecting the trail surface. Plant materials used shall not be toxic to humans or animals. Plant litter shall not pose a hazard to trail users (e.g., eucalyptus trees drop branches and leaves that can be trip hazards; some grasses and bushes have thorny seeds that can puncture bicycle tires).

Refer to Appendix D for a list of City-recommended plant materials. These trees, shrubs, perennials, and grasses are drought-tolerant or require low water use. There are two sizes of trees in the palette: trees that are large and can overhang the trails, and small trees for trails in electrical power line corridors. (Power companies have special requirements for plant materials within their easements.) Many trees listed in the palette have some sort of fruit, berry, cone, or acorn, as these are common features to most plants. The shrubs and perennials listed in the palette are low- spreading plants or grow 3 feet high or less. Smaller growing plants may have to be planted in masses but will require less maintenance.

Figure 15. Oak tree along Laguna Creek Trail

DESIGN FOR LOW MAINTENANCE, WATER EFFICIENCY, AND DROUGHT TOLERANCE

Landscaping along trails shall be designed for low maintenance, water efficiency, and drought tolerance, especially through the broad use of native and drought-tolerant plant materials, the use of efficient/water-conserving irrigation systems, the grouping of plants with similar water needs, and the use of mulch. Chapter 14.10 of the Elk Grove Municipal Code contains water-efficient landscape requirements for new and remodeled commercial developments that may be adapted for trail planting and irrigation. Most plant materials grown in plant nurseries are watered at least daily depending on the climate, and most drought-tolerant plants will need to be weaned from the nursery watering and have an automatic spray, bubbler, or drip irrigation system installed. Irrigation systems should be designed to ensure the establishment and perpetuation of plant materials. One potential issue with drip irrigation systems are blockages in the drip line, resulting in plants dying before maintenance staff can repair the drip line. A spray or bubbler irrigation system allows the maintenance staff to visually inspect

the system and the amount of water being applied. Three-inch-deep wood chip mulch is recommended around and under shrubs and trees. Mulch helps retain moisture in the ground and reduce weed growth and maintenance.

PLACEMENT OF PLANT MATERIALS

Consideration shall be given to the placement of trees and shrubs in order to provide shade at regular intervals, especially at waysides, and not obscure views of significant features such as trailheads, trail crossings, and trail amenities, among others. Shrubs and trees may also be used to help screen undesirable views or ground-mounted equipment from the trail. Plant materials should be carefully placed at trailheads, staging areas, and trail crossings so that they do not interfere with necessary sight distances.

Placement of plant materials should also be based on the availability or need for irrigation. Trails through open space or along creek without irrigation should have limited native plantings that can easily be established without continuous truck watering.

NATURAL SURVEILLANCE

Applying the principles of Crime Prevention Through Environmental Design (CPTED) will enhance natural surveillance that helps to deter crime and unwanted behavior along the trail network. Some key principles of CPTED that apply to landscaping include:

- Vegetation should be located and maintained so that formal and informal monitoring of the trails is unimpaired. Corridors should be visually unobstructed by maintaining a minimum two-foot horizontal clearance from the paved edge of the trail and a preferred vertical clearance of ten feet (minimum of eight-foot vertical clearance)
- Vegetation that appears well-maintained and cared for demonstrates clear ownership and investment and discourages unwanted use
- Strategically place vegetation to prevent access to areas restricted from the public
- Maintain tree canopy so that it does not interfere with lighting fixtures

VEGETATION CONTROL

To maintain a smooth trail surface for the safety of all users and to maintain the integrity and durability of the trail surface, the following vegetation management strategies are recommended.

- Use of a soil sterilant is required below all paved tread widths in order to prevent possible weed growth through trail surfaces.
- Root barriers guards shall be installed wherever trees are planted closer than 4 feet to paved tread widths. Root barriers shall be installed to extend at least 24 inches deep and to a distance of 10 linear feet from either side of the tree's trunk along the paved tread width or as approved by the City Engineer.

HEIGHT OF VEGETATION

In order to enhance visibility and reduce hiding places, the minimum vertical clearance for trees along trails is 10 feet from the surface of the trail to the lowest branch. Shrubs, such as in buffers, should not exceed 3 feet in height.

LIGHTING

Lighting shall only be used at localized points where necessary for trail safety and security, as determined by the Director of Public Works or their designee. For example, lighting shall be considered where there are trail crossings with streets or potential conflicts along paths, or through under crossings/tunnels for security and personal comfort. Trail lighting shall be designed to minimize light pollution.

FENCING

Fencing shall not be a component of trails unless necessary for safety reasons or avoidance of sensitive areas, or if directly adjacent to private property. When fencing is necessary and the trail is adjacent to open space, the fencing shall be open, see-through material (e.g., wrought iron) for scenic and safety reasons and to deter illegal dumping into the natural area. Post–and-cable fencing shall be used between trails and naturally sensitive areas.

Figure 16. Vegetation enhances the trail experience

Trail Signage and Markings

TYPES OF TRAIL SIGNAGE

A variety of signage types may be installed along trails. Signage shall be attractive, easily readable at varying speeds and distances, and provide a hierarchy of information. QR codes, which provide instantaneous links to websites, can be used in places where trail users are expected or invited to stop, such as at informational kiosks. In general, signage types include:

- Regulatory (e.g., indicates trail speed limit, clarifies right-of-way at intersections, lists hours of operation, lists activities that are restricted)
- Safety-oriented (e.g., provides notification of potential hazards, identifies when there is a convergence of trail user types, lists emergency contact information)
- Behavioral (e.g., lists codes of trail conduct, clarifies trail user rights-of-way and yield information, clarifies trail etiquette)
- Directional/wayfinding (e.g., identifies the trail and distances to popular destinations, provides mileage information, identifies cross-street names). The City should continue to use the G72(CA) Signs as part of the City's trail wayfinding system.
- Informational (e.g., identifies trail amenities and characteristics, lists trail maintenance and graffiti/vandalism abatement contact information, lists contact information to find out more about the city trail system, indicates that the trail is publicly owned)
- Educational/interpretive (e.g., provides descriptions of adjacent natural features or cultural resources, provides information on local watersheds)

REQUIRED SIGNAGE STANDARDS

Trail signage shall meet all applicable signage standards where necessary, including ADA Accessibility Guidelines and Applicable Title 24 California Codes, Caltrans *Highway Design Manual* Chapter 1000, CAMUTCD, the City Municipal Code, the City Police Department policies and standards, and the Cosumnes Community Services District (CCSD) regulations. Standards cover topics such as signage shapes, colors, dimensions, lettering, symbols, word messages, borders, and signage placement locations, heights, orientation, and offsets.

Figure 17. Signage along the Laguna Creek Trail

SIGNAGE LOCATIONS

Signage shall be provided at all of the following locations:

- At-grade street and railroad crossings and transitions. Signage for at-grade street crossings and transitions shall conform to all applicable standards. Detectable warnings shall be installed to assist trail users with visual impairments. The use of accessible pedestrian signals shall be considered in locations with signalized traffic control or active warning beacons for the cross-street. In advance of at-grade trail crossings with streets, trail users shall also be notified of the crossing, if the trail continues beyond the street or ends at the street, and if the crossing offers an opportunity to transition to an on-street facility, such as sidewalks or bicycle lanes. Signage shall be installed to notify motorists of upcoming trail crossings.
- Convergence of user groups. Approximately 100-200 feet in advance of any bicycle and pedestrian trail convergences with an equestrian trail, notification shall be posted along both trails regarding the convergence.

- Horizontal and vertical clearances. There may be instances where the minimum horizontal and vertical clearances cannot be accommodated, such as at bridge under crossings. In these instances, warning signage shall be placed on either side of the obstruction feature, and notification shall be posted 100-200 ft in advance of the obstruction to inform trail users of such conditions and appropriate behavior (e.g., reducing speeds or dismounting).
- Trail inundation (flooding). Notification shall be posted in advance of all possible trail inundation locations. This is typically done by operations and maintenance staff who perform regular inspections.
- Trailheads and staging areas. Notification of any trail regulations, trail codes of conduct, trail amenities and characteristics, emergency contact information, and trail maintenance contact information shall be posted at trailheads and staging areas. Brochures and maps may also be placed at these locations. The use of QR codes and audible informational signs shall also be considered.

SIGNAGE PLACEMENT AND LOCATION FREQUENCY

The frequency of signage locations shall depend upon the signage type/purpose. The number and location of signs shall be carefully considered, as a lack of signage or poorly located signage can create hazardous situations for trail users and an overabundance of trail signs can affect the aesthetic quality of the trail experience and decrease signage effectiveness. Signage may be placed at alternating sides of the trail and may be double-sided. In general, directional signage shall be placed at all trailheads/staging areas, major intersections, and turns and approximately every quarter mile as necessary.

SIGNAGE MATERIALS, CONSTRUCTION, AND INSTALLATION

Trail signage shall be of durable materials and shall be constructed and installed to be resistant to weather, vandalism, and theft.

CENTERLINE STRIPING

Reflective trail centerline striping is typically used to encourage trail users to stay to the right to avoid oncoming traffic and conflicts. Centerline striping is recommended at trail crossing approaches, when a trail is likely to be heavily used by two-way traffic, on curves with restricted sight distance, and where nighttime use is expected (and the trail is not illuminated). Striping is also recommended when tread widths run along continuous fixed objects (e.g., walls, fencing) so that users have improved ability to navigate their proximity to the object. On higher volume trails, striping can also be used to indicate separate sections for walking and bicycling.

TRAIL ENTRANCE BARRIERS

Low landscaping, knock-down trail bollards, or other forgiving entrance barriers shall be used at trail entrances as a deterrent to unauthorized motor vehicles. The use of barriers should not pose a safety hazard to trail users. The spacing of entrance barriers shall be wide enough to permit the passage of wheelchairs, bicycle-towed trailers, and adult tricycles, but shall not be wide enough to accommodate motor vehicles. Care shall be taken to carefully mark and ensure the visibility of entrance barriers through the use of reflective

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Figure 18. Shade structure/rest area

pavement markings and reflective markers on the barrier itself. A single reflective knock-down trail bollard at the middle of a trail entrance is an appropriate deterrent depending on trail width and cross-section, allows maintenance and emergency vehicles to quickly access the trail, and prevents trail users from having to navigate multiple bollards.

Trail Amenities

TRAIL STAGING AREAS AND TRAILHEAD GENERAL CONSIDERATIONS

Care must be given to the design and maintenance of trail staging areas and trailheads since they provide an initial impression of trail condition and amenities provided.

TRAIL AMENITIES

Trail amenities shall be provided for all potential trail user groups. Amenities include year-round shade areas/structures, water fountains, trash cans, pet waste bag stations, benches, public art, emergency equipment (e.g., call boxes), signage, educational kiosks or interpretive signage, bicycle racks, equestrian hitching posts, restrooms, picnic facilities, warm-up/stretching areas, and dog parks. These amenities should be provided frequently, but their locations, especially restrooms and water fountains, may be influenced by their proximity to existing utilities. Trail amenities shall also be located such that they can be monitored easily for security and lighted if necessary. Trail amenities shall be designed to be easy to maintain and constructed to be resistant to weather, vandalism, and theft. Trash cans shall be designed and located to be easily serviceable.

ACCESSIBILITY CONSIDERATIONS FOR TRAIL AMENITIES

Picnic areas, restrooms, parking areas, and other facilities along trails and at staging areas shall be accessible to all trail users. Rest areas with benches shall be provided at reasonable intervals, the frequency of which shall vary depending on the terrain, surroundings, available shade. Benches at rest areas shall have backrests and armrests to assist in resting and getting up from the bench. See the Introduction for additional accessibility guidelines.

SHADE AND TREES

Given the hot, dry climate of Elk Grove in the summer, it is important to provide shade trees along trails at regular intervals. Native trees should be provided along creeks and other natural drainages to help provide comfortable streamside viewing. Provision of shade trees, shade structures, or locations that provide other sources of shade should be considered for bench locations.

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Figure 19. Pet waste station along a trail

Table 5. Trail Amenities Placement Protocols

TRAIL AMENITIES	PLACEMENT
Seating	• Near scenic views, parks and playgrounds, and dog parks • Approximately every half mile • Consider available shade, lighting, and other pleasant or unpleasant surroundings, which will be site-specific
Wayfinding Signage	• Crossings and transitions • Approximately 100-200 feet in advance of trail convergences • Trailheads and staging areas • Approximately every half mile
Etiquette Signage	• Approximately 100-200 feet in advance of trail convergences • Trailheads and staging areas
Waste Receptacles	• Crossings and transitions • Trailheads and staging areas • Locations that are easily accessed by maintenance vehicles
Pet Waste Stations	• Crossings and transitions • Trailheads and staging areas • Locations that are easily accessed by maintenance vehicles

Note: These placements are not meant to be prescriptive; rather, they are meant to illustrate locations where amenities may be well-suited to meet the needs of trail users. Placement of tail amenities will be context and site specific and, as such, may also be well-placed in other areas not listed here.

Trail Crossings

The primary goal of the design of trail crossings is to prevent collisions. Trail crossings shall be designed so that they are intuitive to understand and easy for all users, as well as safe and comfortable to use.

Trail crossings are also natural nexus points and thus provide an opportunity for trail amenities like wayfinding signage, seating, trash receptacles, and water fountains to boost the convenience and comfort of the trail experience.

CLEAR ASSIGNMENT OF RIGHT OF WAY

The right of way at at-grade crossings shall be clearly assigned, given that conflicting traffic streams intersect one another at crossings. In assigning right of way, consideration shall be given to the behavior of trail users (e.g., delay tolerance, desire to maintain momentum, or children's traffic knowledge).

SIGHT DISTANCES AND TRAIL USER VISIBILITY

Intersection sight distances at crossings enable both trail users and motorists to anticipate and avoid collisions with one another.

Sight distances should be calculated for each crossing using both vehicle and trail user speeds and traffic control types. Where approach and departure sight triangles cannot be met or obstructions cannot to removed, traffic control devices, or geometric changes should be used to address sight distance concerns. Adequate warning signs shall be provided to allow bicyclists to stop before reaching the intersection, especially on downgrades. Stop signs shall be located as close as possible to the desired stopping point. Signage shall be placed so that it is not ambiguous as to which user it applies to.

CROSSING APPROACHES AND TRANSITIONS

Crossing approaches shall have a relatively flat grade. Ten-foot non-skid paved aprons at crossings shall be provided where trail treads are otherwise unpaved to accommodate the transition in trail tread surface out of the crossing area. Roadway surfaces near crossings shall be designed to minimize roadway debris blown into the trail surfaces.

EG BPTMP (2014)

Figure 20. (Top) Trail crossing with clear visibility and right of way assignment. (Bottom) Bridge crossing a natural feature

Crossings can be entrance and exit points for the trail system, so likely turning movements might be accommodated by flaring curb cuts to facilitate right turns for bicycles and other users on wheels. Ramps and curb cuts at crossings shall be the same width as the trail or wider in order to minimize user conflicts. Curb cuts with ramps and detectable warning surfaces shall also be provided to ensure a smooth transition to the crossing surface and comply with accessibility guidelines.

CROSSING TREATMENTS

Trail crossings shall be designed to make right of way assignment clear, through signs and pavement markings, and to slow and organize trail users as they cross. Crossing treatments must also indicate to drivers that motor vehicles are prohibited on the trail. Geometric changes, low plantings, pavement markings (i.e., "Road Ahead" or "Slow"), and flexible (i.e., knock-down) bollards can be used for crossing treatments. Minor crossings (driveways and low-volume streets) shall feature signs and markings. At uncontrolled locations, such as mid-block crossings, high-visibility treatments like flashing beacons, pedestrian signals, and high-visibility crosswalks and signage shall be used to increase awareness of the crossing.

AT-GRADE CROSSING TRAFFIC CONTROL DEVICES

Crossings may include traffic control devices to facilitate movements across busy streets. Devices to actuate traffic control (e.g., push buttons) should be installed such that all mounted trail users (i.e., bicyclists and equestrians) can use them without dismounting. Accessible pedestrian signals with vibro-tactile indicators shall be installed at these locations.

AT-GRADE TRAIL CROSSING LOCATIONS

All at-grade trail crossings must occur in predictable locations and where trail users will be clearly visible. Locations of at-grade road crossings may be influenced by motorized traffic volume, speeds, and road widths. Trails should cross at right angles with roadways and railroad tracks.

EG BPTMP (2014)

Figure 21. Grade separated trail alongside a roadway

At intersections, it is important to consider opportunities to reduce corner radii to slow motorists making right turns across the trail crossing as well as adjustments to traffic signals to enhance crossing convenience (e.g., restricting turning movements, providing leading pedestrian intervals, and establishing an all-red phase to allow for trail crossings). It is generally permissible for trail at-grade crossings with collector and local streets to occur at mid-block locations if vehicle speeds are under 30 mph and vehicle volumes allow for adequate gaps in traffic. In these situations, careful consideration shall be given to traffic control devices, the possibility for the use of refuge islands, access control, and pavement markings and illumination. If raised crossings are used, edges of the crossing shall be visually delineated (e.g., with pavement markings or different paving materials).

AT-GRADE CROSSING ACCESSIBILITY CONSIDERATIONS

At-grade crossings shall be accessible to the full range of trail users, which requires design that reflects the navigability and crossing times required for trail users of various abilities and modes. Considerations shall include but are not limited to the dimensions of the path of travel, grades and surfacing at curb cuts, the availability of detectable warning signals, and the maintenance of a clear crossing free of barriers, obstacles, and hazards. Refuge islands shall be considered where high-volume roadway traffic and/or speeds create unacceptable conditions for path users, roadway width is excessive given the available crossing time, or where the crossing will be used by a number of people who will cross more slowly (e.g., older adults, children, and people with disabilities). Refuge islands shall be large enough to accommodate platoons of users and provide enough distance from passing motorists for trail users to feel safe. See the Introduction for information and guidelines on accessibility.

AT-GRADE TRAIL CROSSINGS AT RAILROADS

The most desirable crossing is a perpendicular crossing, and at least 60 degrees is preferred (45 degrees minimum). If an angle is required, then the use of durable flangeway filler strips could be used on low-speed railroad tracks to increase crossing safety for trail users. The trail could also be widened (which might necessitate acquiring additional right-of-way) at the crossing so that users can choose their desired crossing angle.

GRADE-SEPARATED CROSSINGS

Grade-separated trail crossings may be planned for and pursued as a last resort, when other design options have been exhausted.

Candidate locations for grade-separated crossings include barriers like highways, roadway crossings around schools and parks where there are young trail users, and roadway crossings along trails that are particularly high in usage. In limited instances where public funding for a grade-separated crossing might not be immediately forthcoming, it may be permissible to construct an interim at-grade crossing.

GRADE-SEPARATED CROSSING DESIGN CONSIDERATIONS

In order to ensure that grade-separated crossings are well used, these crossings shall be located such that they allow for a direct route of travel relative to any nearby at-grade crossings. Further, they shall have a grade that is flat enough to accommodate differences in trail user abilities, and they shall be designed so that trail user entrapment areas are not created. In general, the trail shall not narrow at overpasses or underpasses and approaches may be flared to allow for improved clearance. Other trail user provisions shall be considered 1000 feet on either side of the bridge to ensure a safe transition. Planking for overpasses and underpasses shall be angled at 45 degrees or more to prevent diversion of bicycle wheels.

EG BPTMP (2014)

Figure 22. Trail etiquette sign

User Management

TRAIL ETIQUETTE

In keeping with the rules established for regional trails like the American River Parkway, the right of way rules for Class I bikeways in the City are as follows:

- Bicyclists should keep to the right lane, except to pass.
- Bicyclists should announce by voice or by bell, when passing pedestrians or slower bicyclists.
- Pedestrians should keep to the left lane, so they can see approaching cyclists.
- Faster traffic should yield to slower traffic. Bicyclists should yield when entering and crossing trails.
- Bicyclists should pull off of the trail if they need to stop.
- Equestrians should travel at a safe speed and let others know if it is safe to pass their horse. Typically, all users yield to and pause for equestrians.

Providing adequate trail width, especially in cases where there are either many more bicyclists than pedestrians, will help reduce the potential for conflicts between users.

Safety and Security Considerations

Security or perceived security may be an issue, especially along portions of Class I multi-use trails, overcrossings, and under crossings. The following actions are recommended to address these concerns specifically for Class I multi-use trails:

- Manage vegetation so corridors are visually unobstructed by maintaining a minimum two-foot horizontal clearance from the paved edge of Class I facilities, in accordance with the Caltrans Highway Design Manual Chapter 1000. The minimum vertical clearance from vegetation should be 8 feet and where practical, the preferred clearance is 10 feet.
- Provide adequate lighting at tunnels, under crossings, and overcrossings.
- Place benches and other path amenities at locations with good visual surveillance and high activity.
- Provide mileage markers at half-mile increments and clear directional signage for orientation.
- Create a "Path Watch Program" involving local residents, which is a program that provides an opportunity for local residents to become actively involved in creating inviting spaces for residents and families to enjoy trail facilities safely.

Security on the trail system will largely be provided through the informal monitoring of the trail by trail users. Security shall also be facilitated through the design of the trail system elements (including but not limited to horizontal clearances, signage, landscaping, lighting) and through the enforcement of security by the Elk Grove Police Department.

SECURITY

Trail user security on the trail system will largely be provided through the informal monitoring of the trail by other trail users. Security shall also be facilitated through the design of the trail system elements (including but not limited to horizontal clearances, signage, landscaping, lighting, and location of amenities) as well as Crime Prevention through Environmental Design tenets.

Pedestrian Design Protocols

Introduction

Whether driving, biking, or taking transit, all trips start with and end with a walk. The design of pedestrian facilities shall account for both travel along roadways and travel across roadways to ensure that all waking trips, whether long or short, are safe and comfortable.

All pedestrian facilities in the city shall be designed in compliance with Caltrans *Highway Design Manual* Chapter 1000, Topic 105 – Pedestrian Facilities. This chapter covers sidewalk design (e.g., standard minimum width, crossings, maintenance), pedestrian grade separations, accessibility requirements, and location and design of curb ramps. Further resources for the planning and design of pedestrian facilities include:

- Pedestrian Facilities Users Guide – Providing Safety and Mobility, 2002, FHWA
- Design Guidance for Accommodating Bicycle and Pedestrian Travel: A Recommended Approach, FHWA
- Manual on Uniform Traffic Control Devices (MUTCD), FHWA
- Safe Transportation for Every Pedestrian (STEP), FHWA
- Small Town and Rural Multimodal Networks Guide, FHWA
- Americans with Disabilities Act Accessibility Guidelines (ADAAG) for Buildings and Facilities, US Access Board
- Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG) Accessibility Guidelines, US Access Board
- Rural Road Improvement Standards

In addition, recommendations and best practices for pedestrian facility enhancements are outlined below.

Sidewalks: Travel along the Roadway

Sidewalks in Elk Grove should be designed to be both functional and inviting. Providing adequate width and a well-maintained surface free of major cracks and root upheavals is an important start. A buffer from motor vehicle travel lanes, provided by a row of parallel parking, a bike lane, or street trees or plantings, vastly improves the experience of walking by providing separation from the roadway. Street trees also provide needed shade. Seating is an important need for younger and older users, and benches should be provided at regular intervals in areas where there are higher pedestrian volumes. The character along the property line is also important. Sidewalks adjacent to surface parking lots should be buffered by low walls or vegetation. Ideally, buildings are set close to the property line closest to the roadway, to provide a sense of enclosure and visual interest, as long as they feature façades with windows and pedestrian-scale detailing.

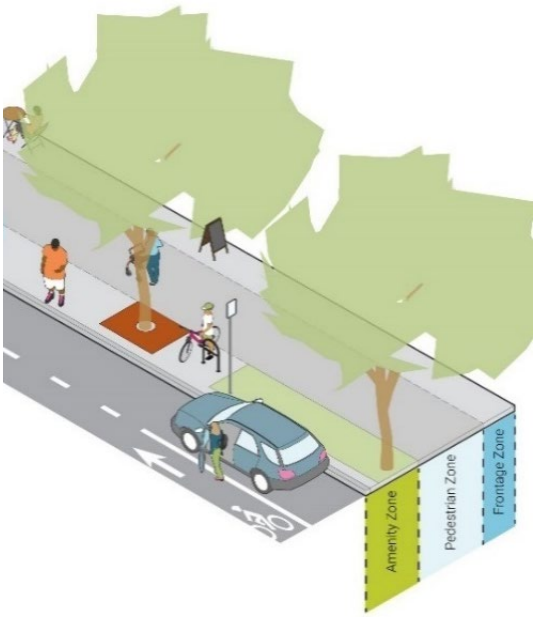


Figure 23. Sidewalk zones

SIDEWALK WIDTHS

The minimum desirable width for a sidewalk in Elk Grove is 5 feet. In areas where higher pedestrian volumes can be expected, such as business districts, widths of 8 to 10 feet are desirable. The City of Elk Grove Improvements Standards Manual should be consulted for information on exact sidewalk widths depending on land use and location. A sidewalk consists of several zones, each dictated by the type of street, as shown below.

Table 6. Sidewalk Zones and Widths

ZONE	WIDTHS
The **Frontage Zone**, along the property line, which allow for door swings and other building features. Wider widths accommodate café seating.	Refer to the City of Elk Grove Improvement Standards
The **Pedestrian Zone**, which includes the pedestrian walking zone. Some factors that would call for a wider Pedestrian Zone include more intense land use and presence of a transit line.	Refer to the City of Elk Grove Improvement Standards
The **Amenity Zone,** located immediately adjacent to the curb, accommodates people stepping out of parked cars, parking meters, signs, street trees, lighting, transit stops, and bike parking.	Refer to the City of Elk Grove Improvement Standards

Rural Roadway Improvement Protocols

Sidewalks may not be feasible or appropriate on rural roadways. Paved shoulders and shared use paths can provide safe, physical or visually separated space for walking along rural roadways. In case where these options are not feasible, there are some strategies than can be used to increase safety and comfort. These center on increasing driver awareness through additional lighting and signs and increasing reaction time by reducing speed limits.

Crossings: Travel Across the Roadway

CROSSING ENHANCEMENTS

Well-designed street crossings are vital for improving pedestrian mobility and connecting neighborhoods. Well-marked, high-visibility pedestrian crossings prepare drivers for the likelihood of encountering a pedestrian. They also create an atmosphere of walkability and safety for pedestrians. For instance, if pedestrians must travel substantial distances out of their way to use a crossing at a controlled intersection, there is often an increase in crossing at unmarked mid-block locations, which increases the risk of pedestrian/vehicle collisions.

As with sidewalks, street crossings are particularly important near key destinations such as schools, transit stops, parks, and other pedestrian activity generators. Where trails intersect with roadways, careful design of the intersection is necessary to ensure that the crossing is safe and convenient for all road and trail users. The addition of new street crossings may be most effective where there are existing safety deficiencies and a high demand for street crossings.

FHWA provides a variety of resources to help designers select the most appropriate crossing treatment. Table 7, from the FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations, provides pedestrian crash countermeasures to consider based on roadway configuration, posted speed limit, and AADT.

Overall, the goal of street crossing treatments is to reduce pedestrian and bicyclist exposure time to vehicles, and to increase visibility and predictability.

The following toolbox provides a list of sidewalk and crosswalk enhancement devices that can be used to improve the safety and walkability of the pedestrian environment.

Figure 24. Signalized pedestrian crossing in Elk Grove

Table 7. FHWA Guide for Pedestrian Crash Countermeasure Selection

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	❶ 2 4 5 6	❶ 5 6 7 9	① 5 6 ❼ ❾	❶ 4 5 6	❶ 5 6 7 9	① 5 6 ❼ ❾	❶ 4 5 6 7 9	① 5 6 7 9	① 5 6 ❾
3 lanes with raised median (1 lane in each direction)	❶ 2 3 4 5	❶ ❸ 5 7 9	① ❸ 5 ❼ ❾	① 3 4 5 7 9	① ❸ 5 ❼ ❾	① ❸ 5 ❼ ❾	① ❸ 4 5 7 9	① ❸ 5 ❼ ❾	① ❸ 5 ❾
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	❶ 2 3 4 5 6 7 9	❶ ❸ 5 6 7 9	① ❸ 5 6 ❾	① 3 4 5 6 7 9	① ❸ 5 6 ❼ ❾	① ❸ 5 6 ❾	① ❸ 4 5 6 7 9	① ❸ 5 6 ❾	① ❸ 5 6 ❾
4+ lanes with raised median (2 or more lanes in each direction)	❶ ❸ 5 7 8 9	❶ ❸ 5 7 8 9	① ❸ 5 8 ❾	① ❸ 5 7 8 9	① ❸ 5 ❼ 8 ❾	① ❸ 5 8 ❾	① ❸ 5 ❼ 8 ❾	① ❸ 5 8 ❾	① ❸ 5 8 ❾
4+ lanes w/o raised median (2 or more lanes in each direction)	❶ ❸ 5 6 7 8 9	① ❸ 5 ❻ 7 8 9	① ❸ 5 ❻ 8 ❾	① ❸ 5 ❻ 7 8 9	① ❸ 5 ❻ ❼ 8 ❾	① ❸ 5 ❻ 8 ❾	① ❸ 5 ❻ ❼ 8 ❾	① ❸ 5 ❻ 8 ❾	① ❸ 5 ❻ 8 ❾

Given the set of conditions in a cell,

\# Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.

● Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.

○ Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

1 High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
2 Raised crosswalk
3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
4 In-Street Pedestrian Crossing sign
5 Curb extension
6 Pedestrian refuge island
7 Rectangular Rapid-Flashing Beacon (RRFB)**
8 Road Diet
9 Pedestrian Hybrid Beacon (PHB)**

*Refer to Chapter 4 of the Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations for more information about using multiple countermeasures and a list of studies that informed the development of this table.

**It should be noted that the PHB and RRFB are not both installed at the same crossing location.

Pedestrian Intersection Enhancement Toolbox

Credit: Toole Design

REDUCE CORNER RADII AND PROVIDE DIRECTIONAL CURB RAMPS

Smaller corner radii are one of the most important tools for creating safe crossings for pedestrians at intersections. Reduced radii force drivers to turn more slowly (i.e. 15 mph) and better align cars to approach and enter a crosswalk with better visibility of crossing pedestrians. They also provide the opportunity to create directional curb ramps that align with crosswalks in each direction, thus creating shorter and more direct pedestrian crossings. Curb radii can be adapted through retrofit, as shown in the example.

Credit: Toole Design

CURB EXTENSIONS/BULB-OUTS

Curb extensions can be installed at intersections or mid-block locations to extend the curb and pedestrian space further into the roadway, helping to shorten the length of crosswalks. They serve to calm vehicular traffic by narrowing the roadway and improving visibility of pedestrians.

EG BPTMP (2014)

PEDESTRIAN ISLANDS

Raised pedestrian islands can be placed in the center of a wide roadway with cutouts along the pedestrian path and may be located at intersections or mid-block crossings. Islands provide pedestrians with a safe place to stop at the midpoint of a roadway before crossing the remaining distance. Center turn lanes may be converted into crossing islands, or they may be accommodated by reducing travel lane widths or removing travel or parking lanes entirely.

Credit: Toole Design

High-Visibility Crosswalk Signage and Striping

Marked crosswalks guide pedestrians and alert drivers to a crossing location, so it is important that both drivers and pedestrians clearly see the crossings. High-visibility crosswalk signage and striping treatments include markings made of longer-lasting plastic or epoxy materials embedded with reflective glass beads, ladder marking design (rather than traditional parallel line crosswalk design), and yellow or fluorescent pedestrian warning signs.

Credit: Toole Design

RAISED CROSSWALK

Raised pedestrian crosswalks serve as traffic-calming measures by extending the sidewalk across the road and ramping motor vehicles up to sidewalk height. They act as speed humps to slow vehicular traffic, allow pedestrians to cross at a nearly constant grade, and increase pedestrian conspicuity.

COLORED AND TEXTURED PAVEMENT

Colored or textured paving materials can be used to call attention to sidewalks and crossings and distinguish them as part of the pedestrian realm.

Credit: Toole Design

TRUCK APRONS AND SLOW TURN WEDGES

Truck aprons, made of durable contrasting materials, can be used to reduce a corner radius visually. They alter the effective turning movement of vehicles while allowing a wider actual radius for trucks, buses, and other heavy vehicles.

Slow turn wedges are typically flex posts or rubber curbs and bollards that are installed to guide drivers into slower turns to reduce pedestrian crossing exposure and increase pedestrian visibility.

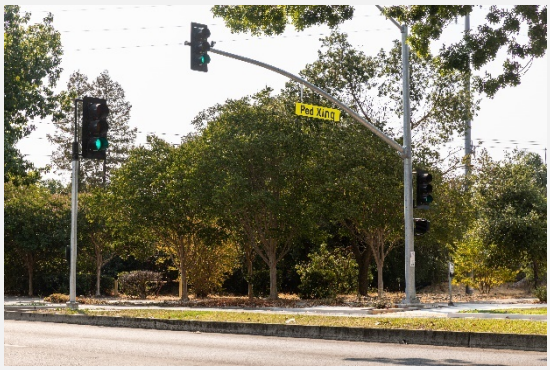
PEDESTRIAN SIGNAL HEAD

A pedestrian signal head is a conventional traffic control device used at intersections and mid-block locations with traffic signals. Pedestrian signal heads indicate to pedestrians when it is safe to cross an intersection by displaying a lighted sign with a "Walk" symbol (walking person) or "Do Not Walk" symbol (raised hand). In areas of high pedestrian activity, an option is to set pedestrian signals to automatic recall so that pushbuttons are not required. Countdown pedestrian signal heads are the new standard for pedestrian signals, per the California MUTCD. Countdown signals indicate how many seconds remain to cross the street and allow pedestrians the flexibility to speed up if the crossing time is about to expire. Accessible Pedestrian Signals (APS), which provide vibrotactile, beeping or chirping, and sometimes verbal signals, are designed to help visually impaired pedestrians safely cross an intersection. They should be installed at all new signalized locations, where there has been a request, where there is potential demand, or where traffic volumes or intersection complexity would make it challenging for people with vision disabilities to safely navigate the crossings.

Two additional signalization tools that provide safety benefits to active transportation users are protected left turns and Leading Pedestrian Intervals (LPIs). Protected turn phases greatly reduce the potential for conflict between left turning vehicles, especially on high-volume, multi-lane roadways, and crossing pedestrians. LPIs give pedestrians a Walk signal 3 to 7 seconds before vehicles traveling in the same direction receive a green signal, enabling pedestrians to establish right of way in the crosswalk and have priority over turning vehicles. LPIs are recommended in areas with high pedestrian demand or a collision history.

RECTANGULAR RAPID FLASH BEACONS

Rectangular Rapid Flashing Beacons (RRFBs) are used at uncontrolled locations to increase the visibility of and yielding to crossing pedestrians by motorists. The flashing beacons are installed with crosswalk markings and are activated by the crosswalk user rather than flashing at all times. Studies suggest that RRFBs can significantly increase vehicle yielding rates compared to standard pedestrian warning signs alone.



PEDESTRIAN ACTIVATED TRAFFIC SIGNAL

Pedestrian-activated signals allow pedestrians and bicyclists to stop traffic to cross high-volume streets. This type of signal may be used in lieu of a full signal that meets any of the traffic signal control warrants in the MUTCD. It may also be used at locations which do not meet traffic signal warrants but where assistance is needed for pedestrians or bicyclists to cross a high-volume arterial street.

Credit: Toole Design

LIGHTING

Street lighting is one of the most effective ways to improve pedestrian safety and comfort. Properly lit intersections and pedestrian-scale lighting along sidewalks ensure that movement along and across the roadway feels safe for pedestrians and ensures that pedestrians are visible to drivers.

CUT THROUGHS

Cut throughs between parking lots, business districts, neighborhoods, and cul-de-sacs provide continuity and convenience for pedestrians and bicyclists. Where roadway networks are circuitous, development has occurred over time, or other barriers exist, pedestrian connectivity can suffer due to lack of connection, out of direction travel, or other barriers.

All trips start and end with walking. The experience and needs of pedestrians differ from all other modes – pedestrians are more vulnerable to the impacts of roadways design to favor drivers, to climate, and to land use. It is thus important to consider the pedestrian environment as a whole—not just sidewalks and intersections, but the experience created by the pedestrian's surroundings.

City of Elk Grove

Bicycle, Pedestrian, & Trails Master Plan

Appendices B, C, and D

May 2021

Table of Contents

Table of Figures

Table of Tables

Appendix B
Level of Traffic Stress

This appendix summarizes the Level of Traffic Stress (LTS) analysis. Existing traffic stress within the City was analyzed based on Bicycle Level of Traffic Stress (Bicycle LTS). The methodological approach utilized in this analysis, assumptions, and results are presented in the following sections.

Methodology

Based on the methodology presented in the Mineta Transportation Institute's *Report 11-19 Low Stress Bicycling and Network Connectivity* (2012), Bicycle LTS quantifies the stress level of a given roadway segment by considering a variety of criteria, including street width (number of lanes), speed limit or prevailing speed, presence and width of bike lanes, and the presence and width of parking lanes. Bicycle LTS is a suitability rating system of the safety, comfort, and convenience of transportation facilities from the perspective of different subsets of the population. Moreover, the methodology allows planning practitioners to assess gaps in connectivity that may discourage active users from traversing roadways.

Bicycle LTS places roadway facilities into one of four classifications or ratings for measuring the effects of traffic-based stress on bicycle riders, with 1 being the lowest stress or most comfortable, and 4 being the highest stress or least comfortable. Generally, an LTS score of 1 indicates the facility provides a low-stress experience likely to be tolerable by most bicyclists including children. LTS 1 can also reflect multi-use paths that are separated from motorized traffic, making them inherently low-stress facilities. An LTS score of 4 indicates a stress level tolerable by only the most experienced bicyclists who are confident bicycling in high-volume and high-speed, mixed traffic environments.

Data Sources

Several types of data, listed below, were obtained to collect data on existing infrastructure characteristics.

- Existing Bikeway Facilities
- Existing City Street Network
  - Roadway Names and Locations
  - Roadway Speeds
- Signalized and Unsignalized Intersections
- Elk Grove Streetsaver
  - Functional Classification
  - Speed
  - Number of Through Lanes
- Street Markings
  - Right Turn Barrier Pavement Markings
- Speed Limit Map

Data was verified for accuracy using aerial and street view imagery, and corrected where necessary for use in the LTS analysis presented herein. Specifically, the number of lanes and speeds of a given roadway, and the classification of some bikeway facilities were found to be inaccurate through the verification process. Data from the previously described sources were merged into a single dataset, and utilized to complete the analysis in a GIS environment.

Analytical Approach & Assumptions

The Bicycle LTS methodology is comprised of three scoring categories: roadway segments, intersection approaches where right turn lanes exist, and unsignalized intersection crossings.

Infrastructure characteristic criteria are applied separately for each category to ascribe a given LTS score. Scoring operates on the "worst case principle," meaning the highest stress infrastructure characteristic prevails for an overall score for each category.

Segments

Functional classification was utilized to prioritize the scoring of roadway segments, beginning with arterial roadways and followed by collector roadways.

For roadway segments classified as arterial or collector, the complete Mineta methodology was applied. In particular, for mixed traffic segments with one to two thru lanes and speeds of less than 30 mph, the existence of a roadway centerline differentiated segments scored as LTS 1 or LTS 2, as described in Table A-1.

Unless a roadway classified as Residential/Local features a classified bikeway facility, these roadways were assumed to be LTS 1 due to low speeds and traffic volumes associated with locally classified roadways. All bikeways classified as Class I facilities were assigned a score of LTS 1.

Table B-1: Bicycle LTS Criteria for Bicycle Lanes Alongside a Parking Lane

	LTS 1	LTS 2	LTS 3	LTS 4
Annual Average Daily Traffic	Up to 5,000	5,001-12,000	12,001-15,000	More than 15,000
Sum of bicycle lane width and parking lane width[1]	15 feet or more	14 to 15 feet	Less than 14 feet	No effect
Speed Limit or Prevailing Speed	Up to 25 mph	30 mph	35 mph	40 mph or more
Bike Lane Blockage	Rare	No effect	Frequent	No effect

[1]Includes marked buffer and paved gutter, if present

Table B-2: Bicycle LTS Criteria for Bicycle Lanes Not Alongside a Parking Lane

	LTS 1	LTS 2	LTS 3	LTS 4
Annual Average Daily Traffic	Up to 5,000	5,001-12,000	12,001-15,000	More than 15,000
Bicycle lane width[1]	6 feet or more	Less than 6 feet	No effect	No effect
Speed Limit or Prevailing Speed	Up to 30 mph	No effect	35 mph	40 mph or more
Bike Lane Blockage	Rare	No effect	Frequent	No effect

[1]Includes marked buffer and paved gutter, if present

Table B-3: Bicycle LTS Criteria for Mixed Traffic Segments

Posted Speed Limit	Street Width			
	2-3 Lanes (no CL)	2-3 Lanes (w/ CL)	4-5 Lanes	6+ Lanes
Up to 25 mph	LTS 1	LTS 2	LTS 3	LTS 4
30 mph	LTS 2	LTS 3	LTS 4	LTS 4
35+ mph	LTS 4	LTS 4	LTS 4	LTS 4

Approaches

Based on the Mineta methodology, only approaches with right turn markings were included in the analysis of approach LTS. The criteria used for analyzing approaches along roadways segments with Class II bike lanes are displayed in Table A-4, and criteria for approaches along mixed traffic roadway segments are displayed in

Table A-5.

Table B-4: Bicycle LTS Criteria for Approaches Along Bicycle Lanes

Configuration	LTS
Single right-turn lane up to 150 ft long starting abruptly while bicycle lane continues straight AND intersection angle/curb radius such that turning speed is ≤15 mph	LTS ≥2
Single right-turn lane longer than 150 ft starting abruptly while bicycle lane continues straight AND intersection angle/curb radius such that turning speed is ≤15 mph	LTS ≥3
Single right-turn lane with bicycle lane that shifts to the left AND intersection angle/curb radius such that turning speed is ≤15 mph	LTS ≥3
Single right-turn lane with any other configuration OR dual right-turn lanes OR right-turn lane along with a combined through/right lane	LTS 4

Table B-5: Bicycle LTS Criteria for Approaches Along Mixed Traffic Segments

Configuration	LTS
Single right-turn lane up to 75 ft long AND intersection angle/curb radius such that turning speed is ≤15 mph	(no effect)
Single right-turn lane between 75 ft and 150 ft long AND intersection angle/curb radius such that turning speed is ≤15 mph	LTS ≥3
Any other configuration	LTS 4

Crossings

Only crossings at unsignalized intersections were considered in the LTS analysis. Unsignalized intersections with median refuges of at least six feet and those without a median refuge are analyzed separately, as seen in Table A-6 and Table A-7.

According to the Mineta methodology, signalized crossings are generally not analyzed as these crossing control types generally do not create a barrier to connectivity. In most cases, signalization provides adequate protection when crossing an intersection. An exception to this scoring criteria is roadways that are exceptionally wide (i.e. more than 8 travel lanes), or where data exists to suggest that signal timings do not provide adequate crossing time for cyclists.

Crossings at intersections between two roadways classified as local/residential that received LTS 1 (low stress) scores, were also assumed to be low stress due to low volumes and speed.

Table B-6: Bicycle LTS Criteria for Crossings with a Median Refuge of at least 6 feet

Speed Limit of Street Being Crossed	Width of Street Being Crossed		
	Up to 3 lanes	4-5 lanes	6+ lanes
Up to 25 mph	LTS 1	LTS 1	LTS 2
30 mph	LTS 1	LTS 2	LST 3
35 mph	LTS 2	LST 3	LTS 4
40+	LST 3	LTS 4	LTS 4

Table B-7: Bicycle LTS Criteria for Crossings without a Median

Speed Limit of Street Being Crossed	Width of Street Being Crossed		
	Up to 3 lanes	4-5 lanes	6+ lanes
Up to 25 mph	LTS 1	LTS 2	LTS 4
30 mph	LTS 1	LTS 2	LTS 4
35 mph	LTS 2	LST 3	LTS 4
40+	LST 3	LTS 4	LTS 4

Results

Segment LTS

Segment LTS is mapped in Figure A-1. Arterial roadways and some collector roadways feature high level of traffic stress, with LTS scores of 3 or 4. The main characteristic resulting in high stress on these roadways was speeds higher than 35 mph. Even where Class II bike lanes exist, high speeds result in high stress.

Additionally, Class II facilities alongside parking resulted in moderate stress (or LTS 3), due to the combined widths of parking and bike lanes of between 11 and 12 feet. Per the Mineta methodology, Class II bicycle facilities of any width (including parking lane) along roadways classified as residential streets are acceptable for LTS 2. Segments with bicycle lanes alongside parking on roadways classified as collectors are considered LTS 3. That said, if a roadway segment with a Class II facility alongside parking is known to have very low traffic volumes or parking is rare, the case could be made that these factors could potentially result in lowered traffic stress scores.

All Class I bikeways are considered LTS 1. Mixed traffic roadway segments functionally classified as Residential/Local resulted in low traffic stress, scored as LTS 1. Moreover, segments with one to two travel lanes and speeds of less than 30 mph resulted in the low traffic stress, with LTS score of one or two, depending on whether the roadway features a marked centerline.

Intersection LTS

Figure A-2 shows the results of the analysis of level of traffic stress at unsignalized intersections. As seen, the majority of unsignalized intersections along local/residential streets provide low stress connectivity, while those along arterial roadways and some collector roadways resulted in higher stress (LTS 3 or 4). In many cases, speed was the factor that resulted in high stress in these locations.

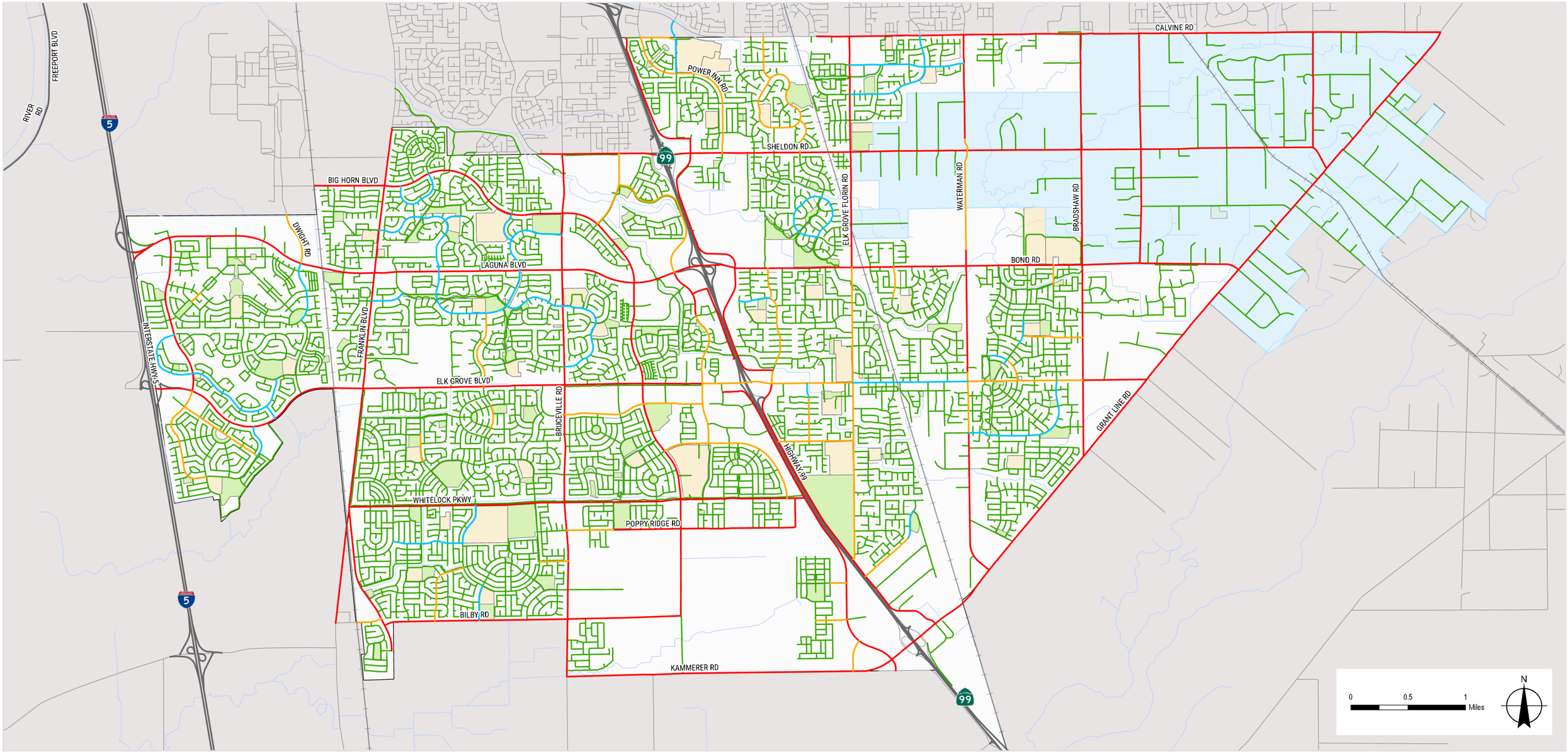
In addition to LTS scores, Figure A-2 also displays signalized locations and locations that were not considered for other reasons. In most cases, a crossing location was not considered due to a median configuration that physically prevents crossing. While signalized locations are not included in the analysis presented herein (based on the Mineta methodology), signalized locations should be analyzed through other means including survey results from the public or locations with high incidence of collisions. Moreover, locations not considered due to an intersection configuration that prevents crossing should be noted as barriers to connectivity.

Approach LTS

The results of the level of traffic stress analysis of approaches where right turn lanes exist are shown in Figure A-3. As seen, the overwhelming majority of approaches analyzed for level of traffic stress resulted in high stress scores of LTS 3 or LTS 4.

Within mixed traffic environments, approaches resulted in high stress due to turn pocket lengths of longer than 75 feet, the existence of a through-right lane, a dual right lane or a free right. In these cases, the length of time bicyclists are exposed to right turning traffic and the uncertainty caused by lane configurations other than a single right-turn lane result in high stress.

Similarly, for approaches along segments with bike lanes, high levels of traffic stress resulted along lengthy turn pockets, or in locations with dual right lanes, through-right lanes or free rights. Some right turn pockets were observed between 150 to 600 feet in length. Additionally, when the bike lane was "trapped" along the right side of the right turn pocket, or dropped completely at the intersection approach this resulted in high stress. In some instances, bike lanes were designed to veer to the left or continue straight at the approach. In cases where the bike lane is configured straight with a short turn pocket (i.e. less than 75 feet), traffic stress is lower. However, bike lane markings were often dropped for extended distances between the bike lane along the segment and at the approach, resulting in high stress.



Bicycle Level of Traffic Stress (LTS) - Segments

Legend

Segment LTS

- LTS Score 1
- LTS Score 2
- LTS Score 3
- LTS Score 4

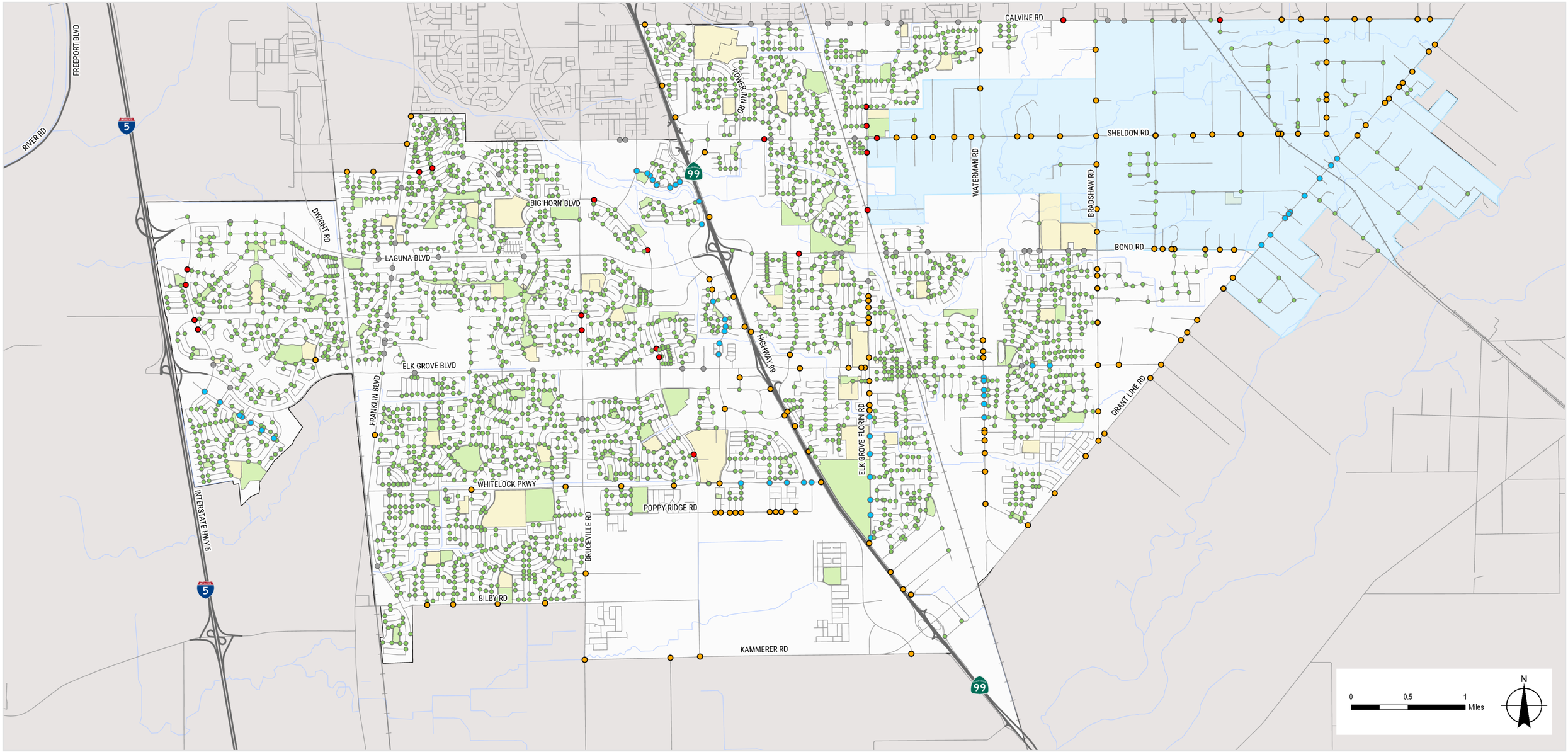
- Roads
- Highways
- Railroads
- Creeks

Boundaries

- Park
- Schools
- Rural Policy Area
- City Boundary

CITY OF ELK GROVE

FIGURE B-1



Bicycle Level of Traffic Stress (LTS) - Crossings

Legend

Crossing LTS

- LTS Score 1
- LTS Score 2
- LTS Score 3
- LTS Score 4
- Not Scored - Median Prevents Crossing

- Roads
- Railroads
- Creeks
- Highways

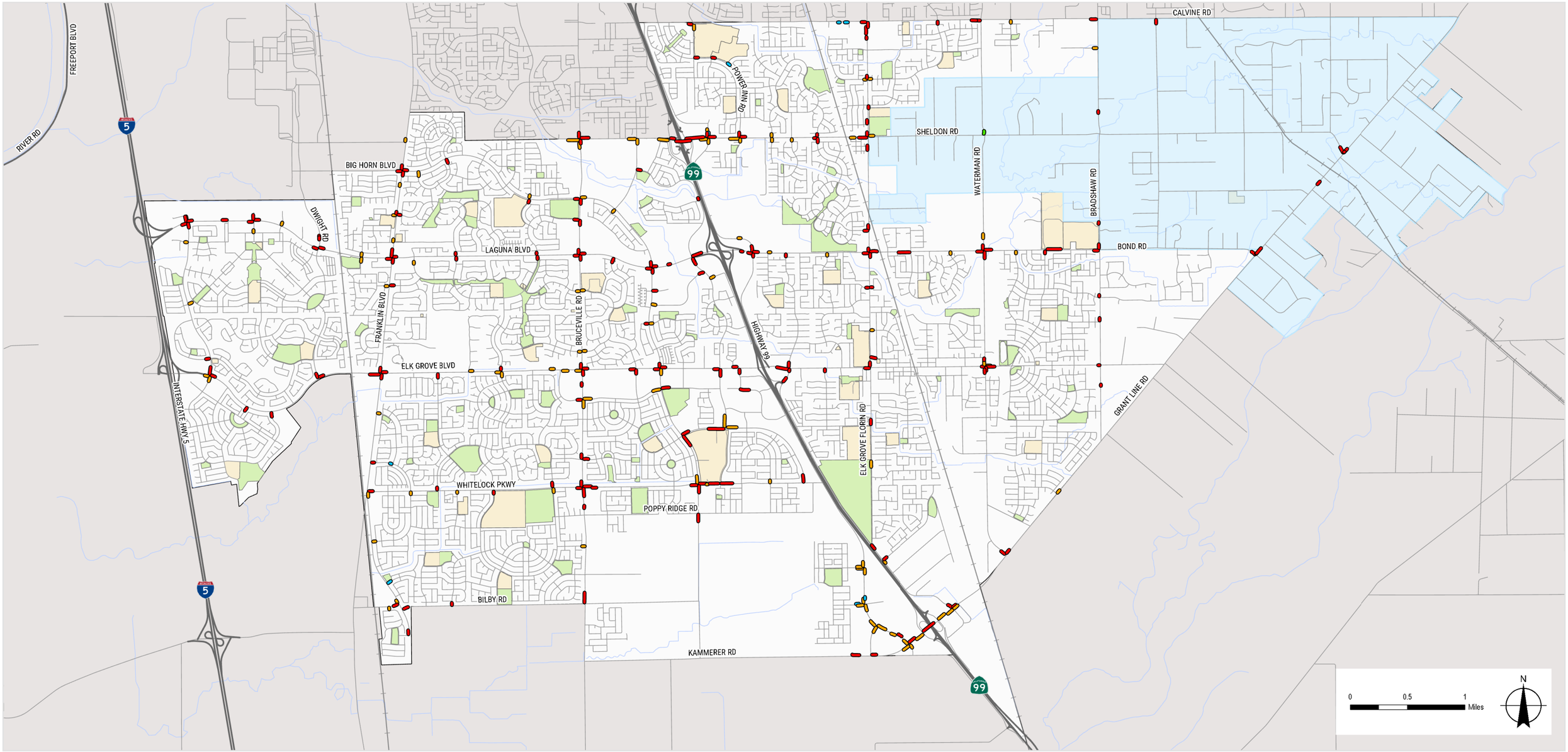
Boundaries

- Parks
- Schools
- Rural Policy Area
- City Boundary

Disclaimer: The Crossing LTS results shown here include unsignalized crossing locations only. The crossing LTS methodology does not analyze signalized intersections, as they are generally considered to provide adequate crossing protections and are assumed to be low stress.

CITY OF ELK GROVE

FIGURE B-2



Bicycle Level of Traffic Stress (LTS) - Approaches

Legend

Approach LTS

- LTS Score 1
- LTS Score 2
- LTS Score 3
- LTS Score 4

- Roads
- Railroads
- Creeks
- Highways

Boundaries

- Park
- Schools
- Rural Policy Area
- City Boundary

CITY OF ELK GROVE

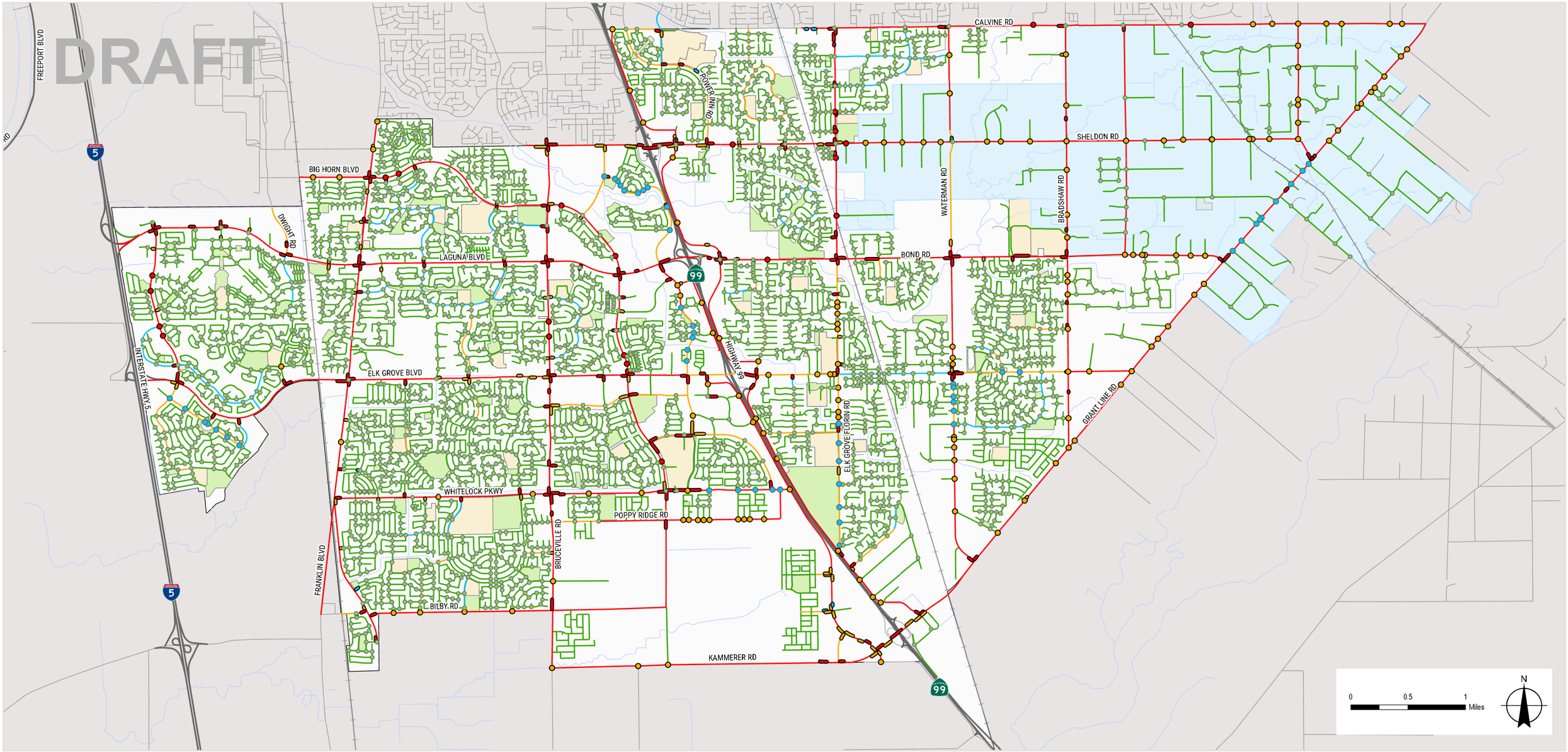
FIGURE B-3

Data source: City of Elk Grove GIS; TigerLine U.S. Census Bureau. Created by: bwhite3

Overall LTS

Figure A-4 shows the results of the three LTS categories examined in this analysis. Taken together, the three traffic stress analyses presented in the previous sections highlight that high speed roadways result in high stress for segments and intersections. For approaches, high stress results when bicyclists are exposed to right turning traffic for extended lengths and are required to navigate this traffic while unprotected and within precarious intersection configurations. Unsurprisingly, these types of approaches are also found along high speed roadways classified as arterial or collectors.

DRAFT



Bicycle Level of Traffic Stress (LTS) - Overall

Legend

Segment LTS
- LTS Score 1
- LTS Score 2
- LTS Score 3
- LTS Score 4

Crossing LTS
- LTS Score 1
- LTS Score 2
- LTS Score 3
- LTS Score 4

Approach LTS
- LTS Score 1
- LTS Score 2
- LTS Score 3
- LTS Score 4

- Roads
- Highways
- Railroads
- Creeks

Boundaries
- Park
- Schools
- Rural Policy Area
- City Boundary

CITY OF ELK GROVE

FIGURE B-4

Data source: City of Elk Grove GIS; TigerLine U.S. Census Bureau . Created by: bwhite3

Appendix C
Outreach Documentation

This appendix provides additional detail on format, attendees, and feedback gathered at outreach activities conducted during development of this plan.

Online Interactive Mapping Tool

The online interactive mapping tool was hosted on the City website and shared through City social media pages. In addition, several local organizations and public figures shared information about the online mapping tool on their social media accounts to encourage members of the community to provide input. Groups and people who shared information on social media include:

- Elk Grove Bicycle Shop
- Elk Grove Cycling Club
- Councilwoman Nguyen

Technical Advisory Committee

A Technical Advisory Committee (TAC) was convened to provide strategic direction throughout development of this project. The TAC met three times throughout the plan development process to share guidance or give feedback on key project milestones.

TAC members include representatives from local and regional agencies who may be partners in funding, implementing, or maintaining bicycle, pedestrian, or trail facilities in Elk Grove or adjacent communities.

May 20, 2020

The first TAC meeting was conducted via web conference from 9:00-10:00 am on May 20, 2020. Participants included:

- City of Sacramento – Andrew Hart
- Cosumnes Community Services District – Paul Mewton
- Elk Grove Cycling Club – Karl Okamoto
- Elk Grove Unified School District – Bill Heinecke, Kim Williams, and Susan Bell
- Sacramento Air Quality Management District – Joseph Hurley
- Sacramento Area Council of Governments – Victoria Cacciatore and Dustin Foster

Following a brief presentation on the project purpose, schedule, and plan components, the TAC provided feedback on draft goals for the plan as well as general input.

Comments on the draft goals and vision for Elk Grove included:

- Connect neighborhood to schools to enable more students to walk or bicycle to school
- Traffic congestion around schools is challenging currently

- Existing Safe Routes to School program has varying levels of participation between schools
  - This plan represents an opportunity to improve and expand program activities as well as infrastructure
- Need for trail corridor standards to maintain consistency in landscaping, amenities, and other features
  - Needed to have more productive negotiations with developers
  - Need for similar maintenance standards
- Consider needs of different trip purposes
  - Utilitarian trips to run errands, go downtown, commute to work or school need safe, comfortable routes that offer separation from 50+ mph traffic on busy arterials
  - Recreational trips to access longer regional routes outside City boundaries need improvement to access starting points, especially east of Highway 99
- Opportunities to create 'positive pressure' for high-quality bikeways and trails at borders with other jurisdictions
  - Cooperate to plan and implement consistent facilities for active transportation users across boundaries
- Engage the community in developing selection criteria to match types of bikeways and separation needed to different roadway contexts around Elk Grove
  - Community buy-in will be helpful in state and regional funding programs
- Support for "all ages and abilities" language in the draft plan
- Set milestones and performance measures that are aspirational yet achievable

The Social Pinpoint interactive mapping tool was also shared with TAC members, including a walkthrough of the process to access the tool and provide comments. TAC members were asked to share the link to the tool with their networks and organizations.

November 5, 2020

The second TAC meeting was held via web conference on November 5, 2020 from 3:00-4:00 pm. In addition to the project team and City of Elk Grove staff, participants included:

- Elk Grove Cycling Club – Karl Okamoto
- Cosumnes Community Services District – Paul Mewton
- Sacramento Air Quality Management District – Joseph Hurley
- Elk Grove Unified School District – Bill Heinecke, Kim Williams, and Susan Bell
- City of Sacramento – Drew Hart
- Sacramento Area Council of Governments – Victoria Cacciatore and Dustin Foster

The meeting began with a review of the project background, goals, schedule, and plan components, then focused on presentation and discussion of draft recommendations to be included in the Plan. The committee provided feedback on the draft recommendations, project prioritization methodology and the seven prioritization categories by which projects could be scored and ranked.

The draft recommendations presented during this TAC meeting included both policy and project recommendations for the City's bicycle, pedestrian, and trails networks. In addition, the methodology for prioritizing these projects was discussed. Committee feedback on these topics included:

- Consider the location of existing bathroom facilities along or near trail sections where facilities are being recommended. The CSD now incorporates restroom facilities in newly built parks.

  - Although not currently in the CSD's Park Design Principles (community support has previously been low due to the perception of public nuisance), provision of bathrooms has become a CSD priority, as equity has become more embraced by residents.
- Need for robust bicycle parking options that accommodate a variety of bicycle types, including charging for e-bikes as well as consideration of minimum bicycle parking requirements at retail locations.
  - Addressed in the Plan with APBP standards and City already has a TDM, as part of the CAP, also includes some policies related to that.
- Activity generators, gap closure and LTS prioritization criteria should consider the quality of access and network connectivity – what does access look like?
- Consider conveying prioritization in tiers rather than individual rankings so that the lower-ranked projects are competitive for grant funding. Using tiers or groups rather than a ranked list empowers staff to be more strategic in how they pursue projects.
- Convey recommendations using clear terminology and illustrate concepts with examples where possible.

March 15, 2021

The third TAC meeting was held via web conference on March 15, 2021. In addition to the project team and City of Elk Grove staff, attendees included:

- Sacramento Area Council of Governments – Victoria Cacciatore and Dustin Foster
- Sacramento Air Quality Management District – Joseph Hurley
- Elk Grove Unified School District – Susan Bell
- City of Sacramento – Drew Hart
- Cosumnes Community Services District – Paul Mewton

The meeting began with a review of the project background, goals, schedule, then focused on presentation and discussion of Plan components, including Implementation Plan, Trail Maintenance Plan, Design Protocols. The committee provided feedback on the draft recommendations and content covered in the Plan.

The draft recommendations presented during this TAC meeting included both policy and project recommendations for the City's bicycle, pedestrian, and trails networks. Committee feedback on these topics included:

- Need for a more specific summary of outreach conducted throughout the Plan process – describe how public outreach was factored into the development of recommendations.
- Describe in greater detail, how LTS analysis was factored into the recommendations.
- Discuss importance of increasing walking and biking commute trips in the Recommendations chapter.
  - Develop a monitoring system to quantify the progress with increasing walking and biking
- If a bicycle and pedestrian coordinator position is established, ensure other City staff are still engaged with achieving the City's walking and biking goals.
  - This might look like monthly walking or biking tours, or an educational series held regularly.
- Opportunity for the City to pursue LRSP funding to pursue targeted safety elements of the Plan.
- Were protected intersections considered as a facility recommendation? The components are there, but the specific recommendation is not.

City Advisory Committee/Commission Meetings

Trails Committee

May 18, 2020

The Project team presented to the Trails Advisory Committee at their regular meeting on Monday, May 18, 2020 from 6:00-7:00 pm. Due to shelter-in-place orders related to the COVID-19 pandemic, the meeting was conducted via Zoom web conference.

Committee members and City staff present at the meeting included:

- Mark Mendenhall, Chair
- Sharon Anderson, Vice Chair
- Erika Smith, Member
- Mark Doty, Member
- Deanna Donohue, Member
- Darren Wilson, Development Services
- Sandy Kyles, Committee Staff
- Kristin Parsons, Public Works
- Carrie Whitlock, City Manager's Office

Two attendees participated in the meeting as well.

Following a brief presentation on the project purpose, schedule, and plan components, the committee provided feedback on draft goals for the plan as well as general input.

Comments on the draft goals and vision for Elk Grove included:

- Need for cross-town trail connectivity
  - Short trail segments dead-end today and can be difficult to connect via streets
  - Laguna Creek Trail may be a candidate for an east-west connection
  - Levee system in west Elk Grove may be an asset for a north-south connection that includes connections to regional destinations
- Need for standards to guide future development, so that connections are built consistently and support a cohesive vision
- Need for dedicated active transportation/trail access to destinations, separate from vehicle driveways and parking lots
- Restore a bikeway on or parallel to the Bruceville Road corridor

General comments and discussion about the BPTMP included:

- Need to balance implementation of active transportation improvements with negative impacts to drivers, such as reduced speed limits
- Bicyclists are often seen riding on sidewalks, which creates challenges for pedestrians
  - Provide appropriate bicycle facilities separate from sidewalks to reduce desirability of sidewalk riding
  - Educate the community on which facilities are sidewalks and which are trails intended to be used by bicyclists as well as pedestrians

- Need for education on sharing paths safely
- Using Traffic Stress to discuss the experience of bicyclists is helpful

Disability Advisory Committee

May 20, 2020

The Disability Advisory Committee was convened on Wednesday, May 20, 2020 from 6:00-7:00pm. Due to shelter-in-place orders related to the COVID-19 pandemic, the meeting was conducted via web conference.

Committee members and City staff present at the meeting included:

- Ted Clark, Chair
- Ann Hennessey, Member
- Steven Capps, Member
- Bruce Cager, Member
- Jim Ramsey, City Manager's Office
- John Griffin, Public Works
- Kristin Parsons, Public Works
- Carrie Whitlock, City Manager's Office

One attendee participated in the meeting as well.

Following a brief description of the project purpose, schedule, and plan components, the committee provided feedback on draft goals for the plan as well as general input.

To facilitate a discussion about goals and a vision for Elk Grove, attendees were invited to imagine the City 10 years in the future. General comments and discussion about the BPTMP included:

- Align the BPTMP with other Elk Grove development goals, especially land use goals for new businesses and new schools
- Need for bicycle facilities, especially class II bike lanes, to be wide enough to accommodate specialized equipment that may be wider than a standard two-wheel bicycle
- Need for educational signage and programming to instruct users on safe and appropriate behaviors, such as passing others and sharing trails and sidewalks, especially with regards to differently abled users
- Educate the community on which facilities are appropriate for different modes and users
- Need for improved visibility along wooded trails to support natural surveillance and discourage potential crime and other unsafe behavior
- Need for an east-west trail connection

Planning Commission

April 15, 2021

The Project team presented the Draft Plan to the Planning Commission on April 15, 2021. After the presentation, the Planning Commission members shared comments on the Draft Plan, which included:

- Concern over the collision information summarized in the Plan, and a recommendation that the City focus on increasing safety for people walking and bicycling

- Enthusiasm in seeing that the City is putting in considerable effort to plan for improved conditions for walking and bicycling in Elk grove, allowing people to be more active

The Planning Commission unanimously recommended the Draft Plan be adopted by the City Council.

Public Engagement Events

Community Workshops

June 23 & 25, 2020

Two virtual community workshops were held on June 23 and June 25, 2020 to introduce the BTPMP Update, plan elements, schedule and to discuss and develop an understanding of current bicycling and walking behaviors including routes, destinations, and interests of the community, current perception of safety for pedestrian and bicyclists within the City's neighborhoods, identify corridors or areas that feel unsafe or stressful for bicyclists or pedestrians, and finally, determine success measurements for the Plan.

The two workshops followed the same agenda but offered different times to accommodate more community member schedules.

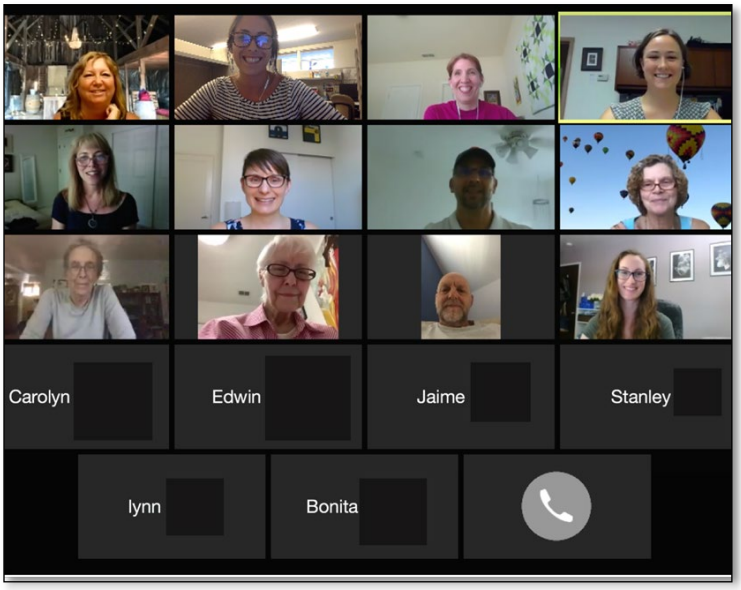


Photo of June 25th Virtual Community Workshop participants during the Zoom meeting

During the workshop notification process, approximately 90 respondents expressed interest in learning more about the plan. Between the two dates, more than 50 participants joined the workshops. Most were long-time residents of Elk Grove, reporting they have lived in the City for more than ten years.

The meeting began with an introduction from Gladys Cornell, Principal of AIM Consulting. Gladys introduced the project team members, the goals, and objectives of the workshop, and gave an overview of the agenda. Following the introduction, Gladys led an icebreaker live poll to orient participants in the live polling application and to help understand the participants' interest in the active transportation within the City of Elk Grove. See below for the results of the interactive poll.

DAY 1

How long have you lived in Elk Grove?

10+ years	62%
5-10 years	14%
Less than 5 years	14%
I just arrived!	10%

What is your interest in this plan for our community?

Participants were encouraged to choose more than one option.

Improving walking	48%
Improving cycling	76%
Creating better public health	33%
Creating better environmental health	52%
Maintaining neighborhood integrity	38%
Creating more recreational trails	62%

DAY 2

How long have you lived in Elk Grove?

10+ years	70%
5-10 years	20%
Less than 5 years	10%
I just arrived!	0%

What is your interest in this plan for our community?

Participants were encouraged to choose more than one option.

Improving walking	70%
Improving cycling	70%
Creating better public health	60%
Creating better environmental health	50%
Maintaining neighborhood integrity	40%
Creating more recreational trails	60%

Following the introductions, Carrie Whitlock, Strategic Planning and Innovation Program Manager with the City of Elk Grove, and City's project manager for this Master Plan Update, provided the participants with the background of the BPTMP.

The BPTMP is intended to guide and influence pedestrian, bicycle, and trail policies, programs, and development standards to make biking and walking in the City of Elk Grove more safe, comfortable, convenient, and enjoyable for all community members. The goal of the BPTMP is to increase the number of persons who walk and bicycle for transportation to work, school, errands, and for recreation. The City seeks to have exemplary bicycle, pedestrian, and trail facilities that provide connectivity throughout the City and the to the wider Sacramento region to offer transportation and recreational opportunities for City residents.

After Carrie, Kendra Ramsey, Active Transportation Manager at GHD and the consultant's project manager for the BPTMP, gave an overview of the Plan goals, process and implementation, and an overview of what's been done so far. View the entire presentation here. The presentation:

- Introduced and explained the project goals
  - The plan goals are to increase bicycling and walking, support a culture where walking and bicycle are convenient transportation options, promote safe behavior by all road users, and improve connectivity and accessibility.
- Provided a high-level overview of the planning timeline and background
  - This project began in January 2020 and this spring the project team began outreach to gather ideas from community to inform the plan. So far, the project team has completed draft existing conditions reports, including information about current transportation behavior, existing street, bicycle, and pedestrian networks, safety, and level of traffic stress.
- Explained the next steps for public outreach and the plan
  - Throughout this summer, the project team will develop recommendations and improvements and seek your feedback on them. Next, we will complete further stakeholder and community-wide outreach, produce recommendations for projects, programs and policies based on that outreach, and create an implementation plan including cost estimates, and a five-year prioritization.

- In the fall, we will develop a draft plan reflecting how the City can reach their plan goals through specific recommendations and improvements which will be based upon our technical analysis, best practices within the active transportation profession and community input.
- The draft plan will be available for public comment. In winter 2020 or early 2021, we will complete the plan and the City will begin prioritizing projects and seek funding for improvements.

Following the introductory remarks participants engaged in a group discussion which included interactive polling and discussion questions about active transportation.

Live Polling and Group Discussion

To introduce themselves participants were asked to respond to the following questions by via Mentimeter, a live polling application. As participants answered the question, the software displayed a word cloud with the responses. The larger the word denotes the greater frequency of the response.

Live Polling Question 1: What neighborhood do you live in?

June 23rd workshop responses:

Word cloud from the June 23rd workshop. The larger the word, the more frequently it was submitted.

June 25th workshop responses:

Word cloud from the June 25th workshop. The larger the word, the more frequently it was submitted.

Note: Some respondents added their neighborhoods in the chat box instead of in the word cloud. See below for their responses.

Day 1

- By Elk Grove Park
- Del Webb Glenbrooke
- Perry Ranch
- Del Webb Glenbrooke
- Stonelake
- Del Webb
- Del Webb
- Del Webb

Day 2

- No neighborhoods were submitted in the chat box on Day 2.

Live Polling Question #2: What makes your neighborhood unique?

June 23rd workshop responses:

Word Cloud from June 23rd. The larger the word, the more frequently it was submitted

June 25thworkshop responses:

Word cloud from the June 25th workshop. The larger the word, the more frequently it was submitted.

Note: Some respondents added what makes their neighborhood unique in the chat box instead of in the word cloud. See below for their responses.

Day 1:

- We are one big family
- Access to the South County river system and downtown
- 55+ active senior community

Day 2:

- No comments where entered in the chat box for this question.

The participants were then guided through an interactive polling of a series of questions to better understand community members current walking and cycling travel behavior and their perception of safety for both travel modes.

Based on participants responses in both workshops, participants generally have a strong sense of personal safety when both walking and cycling in Elk Grove. Most participants engage in a high to moderate level of walking and cycling activities. Most of these travel activities are centered around recreation and exercise with a slightly smaller number of respondents who walk and cycle to get to a specific destination such as shopping, work, and school.

DAY 1

What is the experience like to walk in your neighborhood today?

Very safe	**74%**
Somewhat safe	**21%**
Somewhat unsafe	**5%**
Very unsafe	**0%**

What is the experience like to bike in your neighborhood today?

Very safe	**37%**
Somewhat safe	**42%**
Somewhat unsafe	**16%**
Very unsafe	**5%**

What types of outdoor activity, if any, have you participated in during this shelter in place?

Participants were encouraged to choose more than one option.

Walking the dog	**37%**
Walking by myself or with my family	**84%**
Biking by myself or with family	**84%**
Running	**16%**
Skating/Scooting	**16%**
Other	**11%**
None	**0%**

How often do you and your family walk or bike within the City of Elk Grove?

Once a day	**74%**
Once a week	**5%**
2-3 times per month	**5%**
Less than 3 times per month	**11%**
Never	**5%**

Where are your household's main destinations when you are walking or biking? (select all that apply)

Participants were encouraged to choose more than one option.

School	**16%**
Work	**11%**
Shopping	**37%**
To parks or on trails	**79%**
Around the neighborhood	**89%**
Other	**21%**

DAY 2

What is the experience like to walk in your neighborhood today?

Very safe	57%
Somewhat safe	43%
Somewhat unsafe	0%
Very unsafe	0%

What is the experience like to bike in your neighborhood today?

Very safe	29%
Somewhat safe	57%
Somewhat unsafe	0%
Very unsafe	14%

What types of outdoor activity, if any, have you participated in during this shelter in place?

Participants were encouraged to choose more than one option.

Walking the dog	14%
Walking by myself or with my family	100%
Biking by myself or with family	71%
Running	29%
Skating/Scooting	0%
Other	29%
None	0%

How often do you and your family walk or bike within the City of Elk Grove?

Once a day	57%
Once a week	29%
2-3 times per month	14%
Less than 3 times per month	0%
Never	0%

Where are your household's main destinations when you are walking or biking? (select all that apply)

Participants were encouraged to choose more than one option.

School	0%
Work	0%
Shopping	14%
To parks or on trails	71%
Around the neighborhood	86%
Other	57%

Some participants responded in the chat box instead of in the live polling. See below for their responses.

What is the experience like to bike in your neighborhood today?

- I have had near misses on my bike with cars who are distracted by their cell phones
- I would love to bike to work in East Sacramento, but doesn't feel safe
- I selected biking as somewhat safe due to the traffic on roads and poor crossings
- Safety is a mix; I ride Franklin to Cosumnes to Freeport
- Generally, it is safe in our neighborhood in terms of walking/biking, but for my daughter to walk/bike to school the answer would be somewhat unsafe.

What types of outdoor activity, if any, have you participated in during this shelter in place?

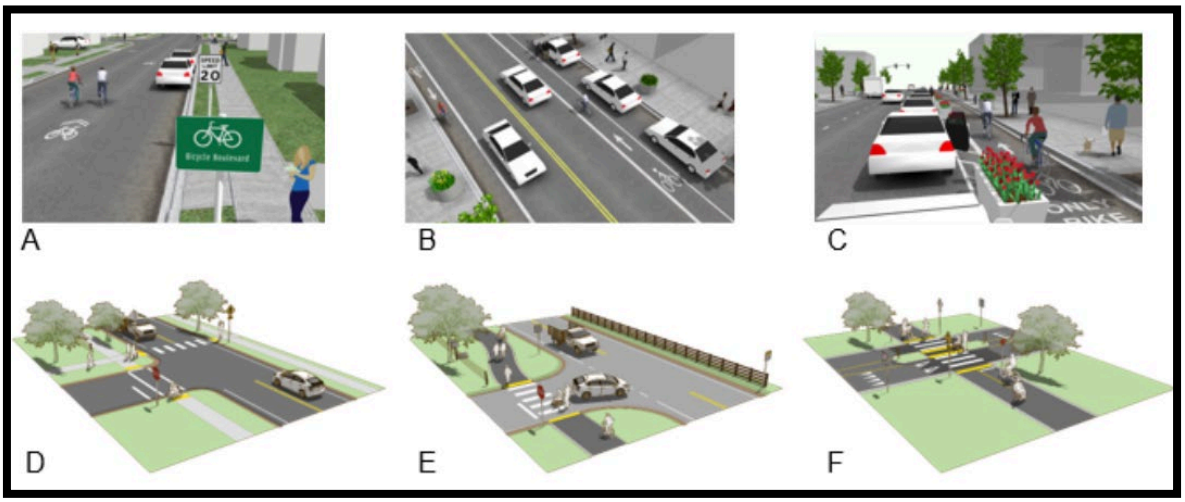
- I try to walk every day
- Feel safe walking in neighborhood. I walked every few days in neighborhood, for exercise, or to shop.
- Tried to ride our bikes on a section Waterman and didn't feel safe without a bike lane.
- Horseback riding

Where are your household's main destinations when you are walking or biking? (select all that apply)

- Friend's homes
- Library
- No specific location, just tallying up mileage
- Walk to the library

- Cycling through the delta
- Bike to church before pandemic
- With E-bikes more people will have opportunities to go to Sacramento
- I'll ride my e-bike to the post office or the grocery stores. Almost daily (pre-COVID)
- Within my neighborhood is safe but difficult to venture out to other neighborhoods.
- Perry Ranch neighborhood does not have access to trails for walking or biking. Would like to continue the existing trail in the Jordan Ranch neighborhood to continue southward toward Bond Road and connect to Jack Hill Park to the existing creek trail in the Fallbrook neighborhood.

In an effort to better understand community members preference for context sensitive solutions, the project team explored different bicycle and pedestrian facilities and encouraged participants to provide their thoughts on which types of facilities would work or wouldn't work in their neighborhoods and why. The top row (A, B, C) depicts bike lanes that would be used in an urban environment and the bottom row (D, E, F) depict infrastructure for a suburban or lower density environment.



1) *What feels like it would fit within the context of your neighborhood? What doesn't fit within the context of your neighborhood?*

Summary of Finding for Question 1: Many respondents expressed interest in option C for densely populated areas with heavy traffic. Respondents felt that option C would make traveling on high traffic roads safer and could potentially increase biking in Elk Grove. Respondents liked all options for the rural areas (D-F).

Respondents comments are shown below.

- I see example C in Sacramento and its very appropriate for high density areas and park cars – A&B would fit more within Elk Grove.
- The rural area neighbors would prefer options D or F; dedicated roadways to get to Sacramento and better connectivity within Elk Grove. Better connectivity and more roadways would help transition people from driving everywhere to biking more often. A wide bike lane doesn't make fast roads safer, people still speed.
- I am with the Laguna Creek Watershed – I live in Wilton. I travel on the main roads to shopping, doctors' appointments, etc. I often take the main arterials, like Sheldon, Laguna, Bond Road, etc. I like option C; it makes it safer. The main arterials are way too fast. Design C is an excellent model for how you could get a little traffic

calming on those roads and create a meaningful way for people to have a way to get around the city. Some of the current trails are not effective ways in getting folks around town.

- I have a concern with bicycling in town, it is not safe. I have had near misses a couple of times. I would like to see the bike paths separated with the vehicles. I like C as an option, but I would prefer F, to be completely away from the traffic. I would like us to consider this in our new growth areas as a new policy. In some areas it may not work, so the next best would be E. Our traffic will not get better unless we get people walking and biking more, which would mean they have to feel comfortable and safe to do so.
- Great presentation so far. I prefer option E in my neighborhood. It will aesthetically transition and appear to be more in tune with the current landscaping in my area. It provides an opportunity for cyclists and pedestrians to share the same area. I am opposed to option C; it provides a bike lane too close to the cars. The barriers are pretty, but if someone is not paying attention, they may hit the barrier. We used to have barriers where I live, and the community complained.
- On developed arterial roads, option C is the best since you separate bikes from cars. For the new neighborhoods and roads, the option E is best.
- Coming from a different background of cycling, I have had experience with these. Option C is great on our busy roads since Elk Grove is a car-friendly commuter community. Cyclists have a higher sense of security with option C on those busy roads. Where housing is denser, options A, or D-F would work well. The rural options cater to these options. The largest disparity for Elk Grove is that we have a lot more casual cyclists versus enthusiasts, which creates different levels of comfort and preferences on the types of roadways and bikeways cyclists feel comfortable using.
- I agree with the above, I ride my bike for transportation and to get from place to place, can we look at not having so many road crossings on our trails?
- In Sacramento, many of the main streets have been redesigned along the lines of option C.
- I like C
- All options fit in Stone Lakes
- A and B for most roadways here.
- C would be great for the larger streets. Right now, they are more like B, but it feels unsafe, especially for kids.
- B & D would fit; A & C would not
- C & D
- A & C
- D and E fit best. I am unsure about F
- C on the major roads
- Not A or B
- D through F fits, A through C does not

2) In 5-10 years, what would you consider a successful outcome of this Master Plan update?

Summary of Findings for Question 2: The main themes in these responses are increasing connectivity, especially trail access and maintenance, and to improve safety for active transportation users.

- I'd like to see full funding for our regional trails systems and a better understanding of where our parks/destinations are to connect with. South Camden spur trail opened up so much of a big fan. Better connectivity with neighborhoods should be prioritized.

- Crosswalks with mid-block crossings are unsafe in high traffic areas. We should increase the rate of yields for pedestrians, potentially with beacons for mid-block crossings.
- The number one successful outcome is safety. Going from point A to Point B safely. Ensure we create facilities safely walking and biking.
- More access to our nature and retail through any form of transportation.
- I would love to see something where Elk Grove connects with Sacramento or, specifically Downtown Sacramento, and provide a more streamlined route to commute to work. I would like to create an easier and safer route and more connections from Elk Grove to other destinations.
- In 5-10 years, I would like all of our trails to be connected and any new growth areas to have bike trails with less road crossings. I would like to feel safe riding my bike in town.
- On the question 'what would I like to see in the next 5-10 years', there are two things: I'd like to see 50% of planned improvements come into being. I'd like to see all new neighborhoods have connections to the existing network of trails. Thanks for providing such a well-run zoom meeting. From a family member: Trim back branches encroaching on bike paths (Whitlock particularly).

Notification

The project team implemented a robust notification plan that included an email-blast to a City-wide distribution list. The team also sent personal emails and made personal follow up calls to stakeholders, including active transportation advocates, neighborhood associations within the City of Elk Grove, public health and safety organizations, and bike and pedestrian focused retails stores and clubs. Additionally, the team posted on social media to promote the two open houses. Below are the organizations that helped spread the word about the open houses:

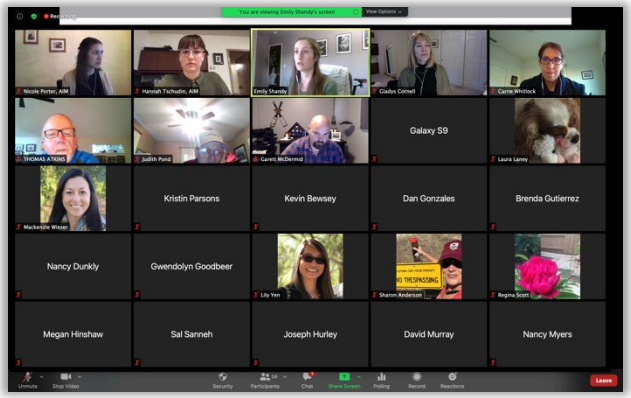
- Elk Grove Chamber of Commerce
- Elk Grove Bike Shop
- Elk Grove Bike Park
- Laguna Creek Watershed
- Greater Sheldon Homeowners Association
- Glenbrooke Community Association
- Consumnes Fire CSD
- Health Education Council (HealZone-Kaiser)
- Ride Downtown 916
- South County Transit

Notification flyer for the virtual open houses

Community Meeting

January 19, 2021

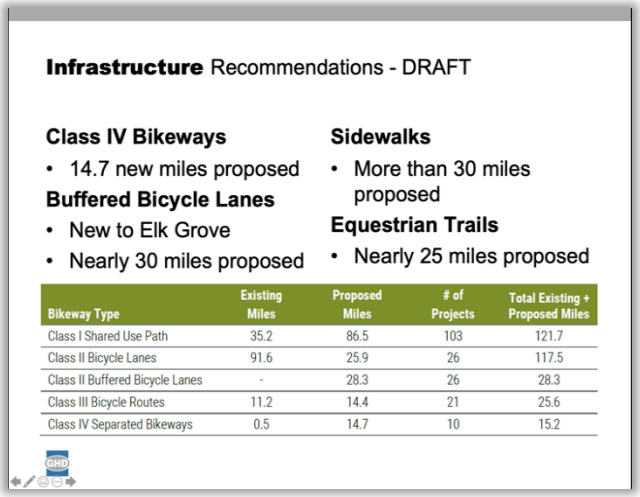
A virtual community meeting was held on January 19, 2021 to share aspects of the draft BPTMP and answer community member's questions. This meeting was held over Zoom and was attended by 66 community members. At the meeting participants learned about the project schedule, project background, the planning process, and the plan goals.



Virtual Community Meeting attendees learning about proposed recommendations in the plan.

The meeting opened with an introduction from Gladys Cornell, Principal of AIM Consulting; she welcomed attendees and provided a meeting orientation. Carrie Whitlock, the Strategic Planning & Innovation Program Manager for the City of Elk Grove introduced the project team and gave a brief overview of the meeting agenda. Emily Shandy, Senior Transportation Planner with GHD, gave an overview of the project schedule, plan components, project highlights, and next steps. The meeting finished with a question-and-answer portion.

During the meeting, the project team presented project background, goals, and purpose and gave an overview of the components and status of the draft plan. Presenting the plan's draft recommendations, including policy, programmatic and project recommendations, as well as the status of the components of the draft plan, and receiving public feedback was the primary objective of the event.



Bikeway Type	Existing Miles	Proposed Miles	# of Projects	Total Existing + Proposed Miles
Class I Shared Use Path	35.2	86.5	103	121.7
Class II Bicycle Lanes	91.6	25.9	26	117.5
Class II Buffered Bicycle Lanes	-	28.3	26	28.3
Class III Bicycle Routes	11.2	14.4	21	25.6
Class IV Separated Bikeways	0.5	14.7	10	15.2

Infrastructure Recommendations presented at the Virtual Community Meeting

<u>Question and Answer (Q&A) Discussion</u>

Following the initial presentation, participants were able to ask questions in the Chat Box feature of the virtual meeting during a question-and-answer (Q&A) session.

Below is a summary of the question-and-answer portion of the meeting.

<u>Bikeable Communities</u>

A meeting attendee asked how the City will make Elk Grove more bike friendly. The project team outline the ways to make Elk Grove more bike-friendly including: clear and appropriate signage, education programs to teach all roadway users how to share the road, and the possibility of "fix it stations" that are equip with tools and air pumps which will be placed in strategic locations for cyclist to make quick repairs on the go.

Connectivity

A participant asked about the possibility of increasing connectivity to Sacramento; specifically, a dedicated bike trail along the light rail train system. The project team responded, stating that the City is working on improvements to a Class IV bikeway along Franklin Boulevard which connects to Sacramento however, the focus of this plan is within the Elk Grove City limits. They also mentioned that the City is working on improving the interregional trail network so that bicycling is a suitable choice for commuters. The project team added that increasing connectivity is a goal of the bicycle, pedestrian, and trails master plan, especially within city limits however, these improvements will likely take longer than five years to complete.

Example of Elk Grove residents using a trail in the City

Design Protocols

One participant asked if there will be standards that provide adequate space for three-wheeled recreational trikes or strollers. The project team responded by mentioning that the Design Protocols talk about the need to ensure spacing wide enough for adult tricycles, bicycle-towed trailers, and wheelchairs. Another attendee asked if trail crossings would be modified to accommodate for straight-across traffic flow for bicyclists, the project team responded that the design protocols focus on making all crossings more comfortable and safer for all users.

Example of a well-maintained bike lane

Maintenance

In addition to improving connectivity, one participant asked if the City has a plan to maintain these new trials and bikeways. The City stated that as the new active transportation infrastructure is implemented the City will make sure all trails and bike paths are cleaned and maintained regularly to ensure that the bikeways and other facilities are utilized. Another participant inquired about the City's Adopt a Trail program to see if one was in place. The project team responded that they are not aware of an Adopt a Trail program and added that the City handles maintenance and the CSD handles trash removal.

To listen to the full question and answer portion of the meeting, please visit the project website elkgrovecity.org/trailsplan to watch a recording of the live virtual community meeting.

Public Awareness

Social Media:

To increase awareness about the City of Elk Grove's Bicycle, Pedestrian, and Trails Master Plan Update, AIM created a graphic to post on Social Media to increase our web presence. AIM shared this graphic on our Facebook page using a boosted post to target Elk Grove community members. The social media graphic was also shared with stakeholders to post on to their own social media accounts.

Results from AIM's boosted post are shown below:

Facebook boosted post #1

- People reached: 696
- Engagements: 244
- Post reactions: 24

Facebook boosted post #2

- People reached: 605
- Engagements: 65
- Post reactions: 54

Second Social Media Graphic

Email Campaign:

To reach community members directly, AIM worked with the City's PIO to use Constant Contact to send an email to an existing City of Elk Grove email distribution list.

Additionally, AIM worked with the City's PIO to send out a reminder about the Virtual Community Meeting in Elk Grove's weekly newsletter calls Week at a Glance to notify and remind residents about the upcoming meeting.

Notification of Live Virtual Community Meeting

Community Partners

AIM developed a list of stakeholder groups which represented the following categories: neighborhood associations, environmental interests, business, etc. All 55 stakeholders have received a personal call and email asking them to share with their organization or publicly through email or social media. At least 9 have responded saying they would share information about the Virtual Community Meeting.

Partners who shared information:

- SACOG
- Sacramento Area Bicycle Advocates
- Elk Grove Community Connection
- Elk Grove Bike Park
- Laguna Creek Watershed
- Sacramento Metropolitan Air Quality Management District (SMAQMD)
- Sheldon Community Association
- Greater Sheldon Estates Homeowners Association
- Glenbrooke Community Association

Pop Up Events

Due to the COVID-19 pandemic, opportunities for pop-up events were extremely limited, however the project team was able to hold one socially distanced pop-up event as described below.

November 12, 2020, NeighborGood Market

The NeighborGood Market is held on Thursday evenings at The Avenue at District 56.

Flyer used to build awareness about the Virtual Community Meeting

The Project team designed the pop-up booth space to facilitate conversations with participants while maintaining a six-feet distance.

Participants were able to review a series of informational board displays and ask questions of the project team members, as well as sign up for email updates on a sign-in sheet or online via a QR code provided on materials at the booth. . The pop-up workshop engaged more than 40 community members and residents.

Board Displays

Below is an overview of the three informational board displays that were present at the pop-up workshop.

- What We Heard: This board display highlighted community input obtained earlier in 2020 through a virtual community open house series and online workshop. It included key feedback and a map showing the types of

comments about needed bicycle and pedestrian improvements that were provided on an interactive map of the city.

- Proposed Bicycle Facilities: This board presented a map of proposed bicycle facilities in Elk Grove, along with example photos of these types of improvements.
- Proposed Pedestrian Facilities: This board presented a map of proposed pedestrian facilities in Elk Grove, along with example photos of these types of improvements.

The boards are depicted on the following pages.

What we heard from you

Elk Grove Bicycle, Pedestrian, & Trails Master Plan Update

An interactive mapping tool was posted on the project website from April 2020 through July 2020 to gather input and feedback from the community directly on a map of the City.

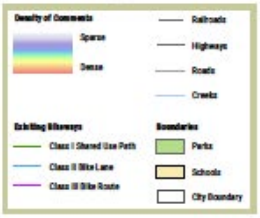
Community members were encouraged to place pins on the map to add concerns and categorize them as bicycle-, pedestrian-, or trail-related. Respondents could also view and respond to pins and comments added by others, including voting "up" or "down" for comments they agreed or disagreed with.

More than 400 comments were entered on the map by the community.

Comments included the following themes:

Where we heard Comments

Pedestrians



Trails

Bicycles

Sidewalks

Crossings

Bike Lanes

Signs

We want to hear from you!

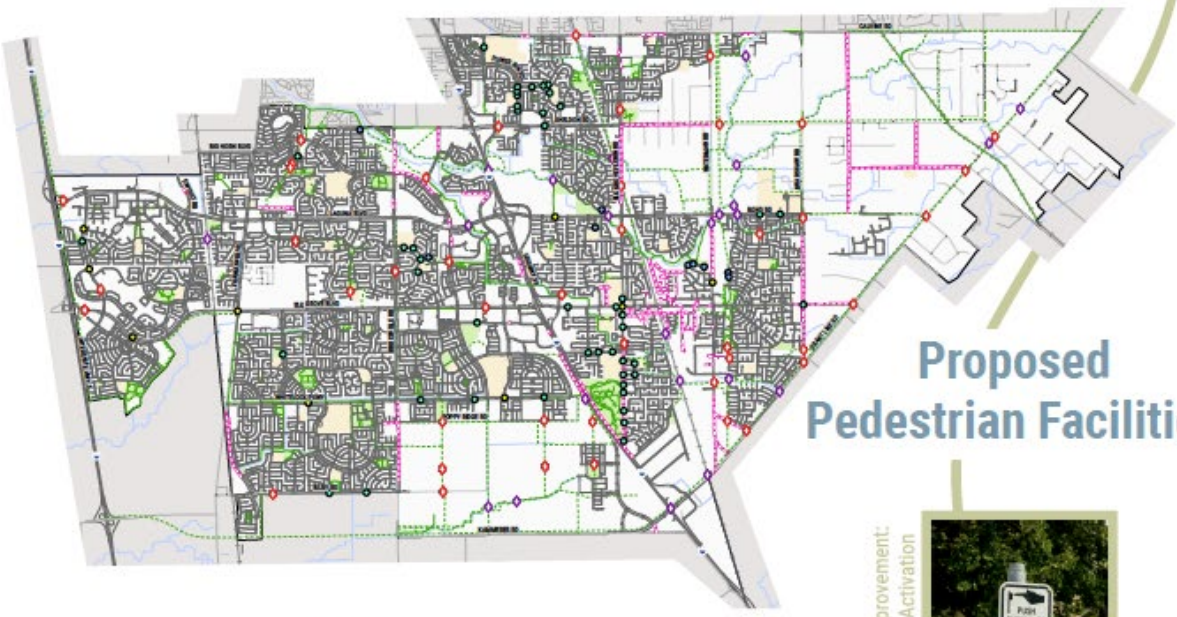
Elk Grove Bicycle, Pedestrian, & Trails Master Plan Update

Class I Bike Trail

Sidewalk

Crossing Improvement: Median Refuge

Curb Ramp



Proposed Pedestrian Facilities

Crossing Improvement: Pedestrian Activation

Crossing Improvement: Flashing Beacon

At-Grade Shared-Use Crossing

Grade-Separated Shared-Use Crossing

Legend

Proposed Pedestrian Facilities
- Proposed Sidewalk
- Proposed Class I Shared-Use Path
- At-Grade Class I Shared-Use Crossing Improvement
- Grade-Separated Class I Shared-Use Crossing Improvement

- Pedestrian-Specific Crossing Improvement
- Curb Ramp Improvement
- Other Crossing Improvement

Existing Facilities
- Existing Sidewalk
- Existing Class I Shared-Use Path

- Highways
- Roads
- Railroads
- Creeks

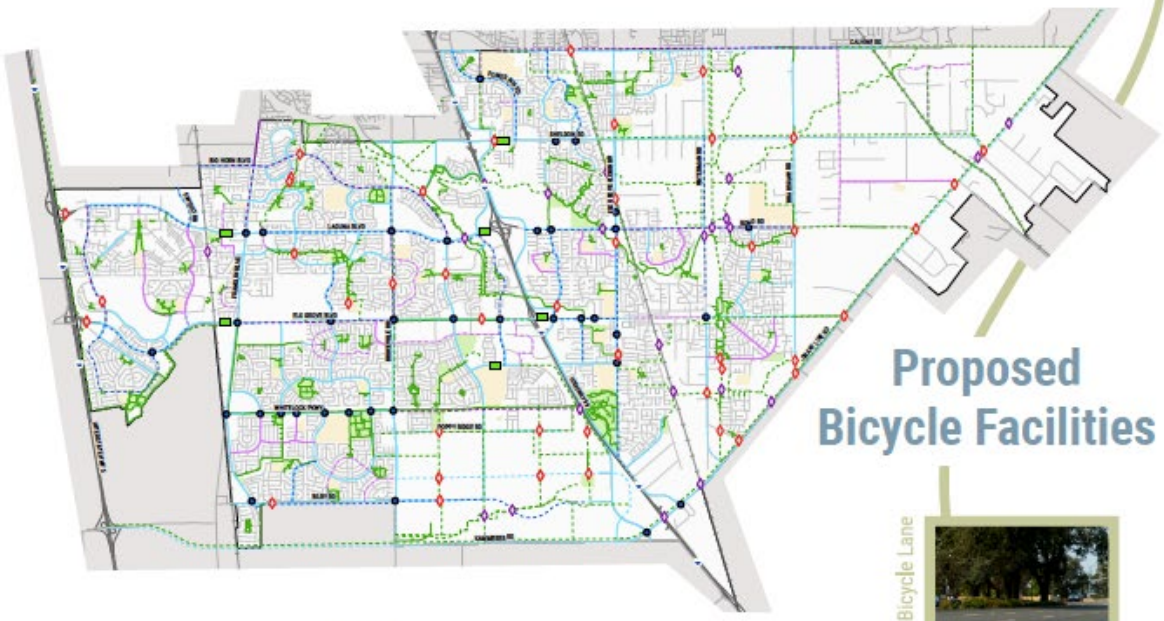
Boundaries
- Parks
- Schools
- City Boundary

What do you think?

CITY OF ELK GROVE

We want to hear from you!

Elk Grove Bicycle, Pedestrian, & Trails Master Plan Update



Proposed Bicycle Facilities

Legend

Proposed Bicycle Facilities
- Proposed Class I Shared-Use Path
- Proposed Class II Bike Lane
- Proposed Class II Buffered Bike Lane
- Proposed Class III Bike Route
- Proposed Class IV Bikeway
- At-Grade Class I Shared-Use Crossing Improvement
- Grade-Separated Class I Shared-Use Crossing Improvement
- Proposed Green Painted Bicycle Lanes
- Bicycle-Specific Approach/ Crossing Improvement

Existing Bicycle Facilities
- Existing Class I Shared-Use Path
- Existing Class II Bike Lane
- Existing Class III Bike Route
- Existing Class IV Bikeway

- Highways
- Roads
- Railroads
- Creeks

Boundaries
- Parks
- Schools
- City Boundary

What do you think?

CITY OF ELK GROVE

Appendix D
Recommendations

Table 8. Improvement Recommendations

ID	Facility	Additional Facility Description	Location Description	Start	End	Segment Length (mi)	Recommendation Description	Estimated Cost	Project Evaluation								Project Complexity
									Activity Generator	SR2S	Community Input	Safety	Gap Closure	Equity	Low Stress Network	Total Points	
19	Bicycle-Specific Approach/Crossing Improvement	Conflict Markings	Elk Grove Florin Rd/Valley Oak Ln	-	-	-	Add conflict zone markings for EB approach	$7,700	2	3	0	3	0	3	0	11	Low
24	Bicycle-Specific Approach/Crossing Improvement	Bike Box	Elk Grove Blvd/Williamson Dr	-	-	-	Install bike box on EB and WB approach(es)	$2,200	2	3	0	3	0	3	0	11	Low
25	Bicycle-Specific Approach/Crossing Improvement	Bike Box	Elk Grove Blvd/Emerald Oak Dr	-	-	-	Install bike box on EB and WB approach(es)	$2,200	2	3	0	3	0	3	0	11	Low
107	Bicycle-Specific Approach/Crossing Improvement	Bicycle Loop Detection	Elk Grove Blvd/Cresleigh Pkway/Foulks Ranch Dr	-	-	-	Install biycle loop detection at signal	Staff Time	2	3	2	3	0	1	0	11	High
207	Bicycle-Specific Approach/Crossing Improvement	Bike Box	Elk Grove Blvd/Emerald Oak Dr	-	-	-	Install bike box on EB and WB approach(es)	$2,200	2	3	0	3	0	3	0	11	Low
15	Bicycle-Specific Approach/Crossing Improvement	Conflict Markings	Franklin High Rd/Whitelock Pkwy	-	-	-	Add conflict zone markings/extend bike lane on NB approach	$15,000	2	3	0	3	0	1	1	10	Low
21	Bicycle-Specific Approach/Crossing Improvement	Bike Ramps & Conflict Markings	Atkins Dr/Whitelock Pkwy	-	-	-	Install bike ramp(s) & Install bike box on all approach(es)	$10,000	2	3	0	3	0	1	1	10	High
4	Bicycle-Specific Approach/Crossing Improvement	Bike Ramps, Conflict Markings & Bike Lane Extension	Bruceville Rd/Laguna Blvd	-	-	-	Install bike ramp(s) & Add conflict zone markings	$68,000	2	3	0	3	0	1	0	9	High
7	Bicycle-Specific Approach/Crossing Improvement	Bike Lane Extension & Conflict Markings	E Stockton Blvd/Emerald Vista Dr/Elk Grove Blvd	-	-	-	Extend Bike lane along SB approach to the intersection stop bar; add conflict zone markings on all approaches; reconfigure WB and NB bike lanes at approaches to ensure lane is not trapped by right turning vehicles.	$78,000	2	0	0	3	0	3	1	9	Low
8	Bicycle-Specific Approach/Crossing Improvement	Bike Lane Extension & Conflict Markings	Elk Grove Florin Rd/Bond Rd	-	-	-	Extend Bike lane to stop bar with conflict markings on NB approach and SB approach.	$33,000	2	0	2	3	0	1	1	9	Low
14	Bicycle-Specific Approach/Crossing Improvement	Bike Box & Conflict Markings	Bellaterra Dr/Whitelock Pkwy	-	-	-	Install bike box & Add conflict zone markings on EB and WB approach(es)	$17,200	2	3	0	3	0	0	1	9	Low

ID	Facility	Additional Facility Description	Location Description	Start	End	Segment Length (mi)	Recommendation Description	Estimated Cost	Project Evaluation								Project Complexity
									Activity Generator	SR2S	Community Input	Safety	Gap Closure	Equity	Low Stress Network	Total Points	
23	Bicycle-Specific Approach/Crossing Improvement	Bike Lane Extension & Conflict Markings	Elk Grove Florin Rd/Elk Grove Blvd	-	-	-	Extend Bike lane to stop bar & add conflict zone markings	$1,100	2	0	2	3	0	1	1	9	Low
20	Bicycle-Specific Approach/Crossing Improvement	Bike Box	Laguna Blvd/Laguna Oaks Dr	-	-	-	Install bike box on EB and WB approach(es)	$2,200	2	3	0	3	0	0	0	8	Low
142	Bicycle-Specific Approach/Crossing Improvement	Bicycle Conflict Markings	E Stockton Blvd/Grant Line Rd/Survey Rd	-	-	-	Install bicycle conflict markings through intersection for each leg of Grant Line Rd travel. Install conflict markings between end of bike lane and right turn pockets on these approaches and at the conflict zone NE of the intersection	$27,000	0	0	2	3	0	2	1	8	Low
1	Bicycle-Specific Approach/Crossing Improvement	Bike Lane Extension & Conflict Markings	Big Horn Blvd/Laguna Blvd	-	-	-	Extend bike lane to stop bar on SB and EB approaches. Continue bike lane straight, rather than shifting to the left and ensure right turn pocket is > 150 ft for LTS 2. Add conflict zone markings through intersection	$20,100	2	0	0	3	0	1	1	7	Low
2	Bicycle-Specific Approach/Crossing Improvement	Conflict Markings	Big Horn Blvd/Elk Grove Blvd	-	-	-	Add conflict zone markings all approaches	$18,000	2	0	0	3	0	1	1	7	Low
136	Bicycle-Specific Approach/Crossing Improvement	Bicycle Loop Detection	Sheldon Rd/Sheldon Creek Dr/Vytina Dr	-	-	-	Install bicycle loop detection/sensor	Staff Time	2	3	2	0	0	0	0	7	High
137	Bicycle-Specific Approach/Crossing Improvement	Bicycle Loop Detection	Sheldon Rd/Fresia Dr/Springhurst Dr	-	-	-	Install Bicycle Loop Detection or other bicycle sensor technology.	Staff Time	2	0	2	3	0	0	0	7	High
5	Bicycle-Specific Approach/Crossing Improvement	Conflict Markings	Bruceville Rd/Elk Grove Blvd	-	-	-	Add conflict zone markings on all approaches	$12,000	2	0	0	3	0	1	0	6	Low
12	Bicycle-Specific Approach/Crossing Improvement	Conflict Markings	Laguna Springs Dr/Elk Grove Blvd	-	-	-	Add conflict zone markings on NB approach from end of bike lane to stop bar	$24,000	2	0	0	3	0	1	0	6	Low
13	Bicycle-Specific Approach/Crossing Improvement	Bike Box & Conflict Markings	Waterman Rd/Elk Grove Blvd	-	-	-	Install bike box & Add conflict zone markings on SB, WB and NB approach(es)	$48,300	2	0	0	3	0	0	1	6	Low
18	Bicycle-Specific Approach/Crossing Improvement	Bike Box	Taron Dr/Elk Grove Blvd	-	-	-	Install bike box on all approach(es)	$12,000	2	0	0	3	0	1	0	6	Low

ID	Facility	Additional Facility Description	Location Description	Start	End	Segment Length (mi)	Recommendation Description	Estimated Cost	Project Evaluation								Project Complexity
									Activity Generator	SR2S	Community Input	Safety	Gap Closure	Equity	Low Stress Network	Total Points	
188	Bicycle-Specific Approach/Crossing Improvement	Leading Bicycle Interval/Bicycle Signal	Elk Grove Blvd/Bruceville Rd	-	-	-	Install leading bicycle signal to facilitate safe left turns from EB Elk Grove Blvd (west leg) to NB Bruceville Rd where Class I Paths are proposed.	Staff Time	2	0	0	3	0	1	0	6	High
6	Bicycle-Specific Approach/Crossing Improvement	Bike Box; Conflict Markings; Bike Lane Extension	Bruceville Rd/Whitelock Pkwy	-	-	-	Install bike box on SB and NB approach(es); Add conflict zone markings/extend bike lane on NB & SB approach	$62,200	2	0	0	3	0	0	0	5	Low
11	Bicycle-Specific Approach/Crossing Improvement	Bike Box	Franklin Blvd/Willard Pkwy/Whitelock Pkwy	-	-	-	Add conflict zone markings	$18,000	0	0	0	3	0	1	1	5	Low
127	Bicycle-Specific Approach/Crossing Improvement	Bicycle Loop Detection	Bilby Rd/Willard Pkwy	-	-	-	Install Bicycle loop detection at intersection for bicyclists traveling on Willard Pkwy	Staff Time	2	0	2	0	0	1	0	5	High
131	Bicycle-Specific Approach/Crossing Improvement	Bicycle Loop Detection	Bond Rd/Elk Crest Dr	-	-	-	Install Bicycle Loop detection/sensor at intersection	Staff Time	2	0	2	0	0	1	0	5	High
133	Bicycle-Specific Approach/Crossing Improvement	Bicycle Loop Detection	Bond Rd/Emerald Crest Dr	-	-	-	Install Bicycle loop detection/sensor	Staff Time	2	0	2	0	0	1	0	5	High
163	Bicycle-Specific Approach/Crossing Improvement	Bike Box	School Loop Rd/Stonebrook Dr/Bond Rd	-	-	-	Install bike box at SE corner	$1,100	2	3	0	0	0	0	0	5	Low
203	Bicycle-Specific Approach/Crossing Improvement	Bicycle Loop Detection	Power Inn Rd/Auberry Dr	-	-	-	Install Bicycle Loop detection at intersection to provide safe crossing between proposed Class I Paths to the north and south	Staff Time	2	3	0	0	0	0	0	5	High
125	Bicycle-Specific Approach/Crossing Improvement	Bicycle Loop Detection	Bilby Rd/Bruceville Rd	-	-	-	Install Bicycle Loop Detection for Bicyclists crossing Bilby Rd at Bruceville Rd intersection	Staff Time	2	0	2	0	0	0	0	4	High
126	Bicycle-Specific Approach/Crossing Improvement	Bicycle Loop Detection	Grant Line Rd/Kammerer Rd/ Promenade Pkwy	-	-	-	Install Bicycle Loop Detection at intersection for bicyclists along all legs	Staff Time	0	0	2	0	0	1	0	3	High
541	Class I Multi-Use Path	-	Bruceville Rd	Soaring Oaks Dr	Elk Grove Blvd	1.18	Widen existing sidewalk paths to accommodate Class I Bikeway (SSAR Rec). Extend this further South to Whitelock Pkwy (GHD Rec).	$3,089,223	2	3	2	3	2	1	2	15	High
315	Class I Multi-Use Path	-	Elk Grove Blvd	Franklin Blvd	Stonelake Apartments	0.94		$2,460,140	2	3	2	3	2	1	2	15	High

ID	Facility	Additional Facility Description	Location Description	Start	End	Segment Length (mi)	Recommendation Description	Estimated Cost	Project Evaluation								Project Complexity
									Activity Generator	SR2S	Community Input	Safety	Gap Closure	Equity	Low Stress Network	Total Points	
326	Class I Multi-Use Path	-	Big Horn Blvd	Whitelock Pkwy	Poppy Ridge Rd	0.26	Enhance 2014 BPTMP Rec to Class I Shared-Use Path (GHD Rec). May require ROW acquisition.	$670,269	2	3	2	3	0	1	2	13	High
497	Class I Multi-Use Path	-	Sheldon Rd	Elk Grove Florin Rd	Waterman Rd	1.27	Install Class I Shared-Use Path. May require some ROW acquisition, and narrowing of lanes from 11' to 10'. Segment west of Elk Grove Florin Rd has existing sidewalk/path, which could be widened and realigned to Class I standards.	$3,324,693	2	3	2	3	0	1	2	13	High
283	Class I Multi-Use Path	-	Elk Grove Creek Trail	Waterman Rd	Elk Grove Florin Rd	0.82	Create trail connectivity for the residential area near Florence Markofer Elementary School and connect to the proposed Class I network near Elk Grove Creek	$2,136,490	2	3	2	3	1	0	2	13	High
298	Class I Multi-Use Path	-	Unnamed (Crosses LC Tributary 4)	Willow Falls Cir	Rising Creek Way	0.04		$97,096	2	3	2	3	0	0	2	12	High
209	Class I Multi-Use Path	-	Strawberry Creek Trail/Trail Extension	Monterey Trail High School	Jones Family Park	1.72	Strawberry Creek Trail from Jones Park north along UPRR to Calvine Rd and along Strawberry Creek west to Monterey Trail High School. Also includes a bridge over Strawberry Creek at Union Pacific Railroad.	$4,492,928	2	3	2	3	0	0	2	12	High
477	Class I Multi-Use Path	-	Laguna Creek Trail	Boulder Falls Ct	Rocky Falls Ct/Winding Brook Way	0.04	Extend/connect Class I Path north across stream to connect to Boulder Falls Ct	$93,181	2	3	2	3	0	0	2	12	High
306	Class I Multi-Use Path	-	Bond Rd	Bradshaw Rd	Shire Oaks Way	0.63	Would require ROW acquisition of parcel to the south	$1,645,471	2	3	2	3	0	0	2	12	High
318	Class I Multi-Use Path	-	I-5	Beach Lake	Elk Grove Blvd	2.92		$7,630,510	2	3	0	3	0	1	2	11	High
540	Class I Multi-Use Path	-	Bruceville Rd	Soaring Oaks Dr	Elk Grove Blvd	0.83	Widen existing sidewalk path to accommodate Class I Bikeway (SSAR Rec). Extend this further South to Whitelock Pkwy (GHD Rec).	$2,168,050	2	0	2	3	1	1	2	11	High
419	Class I Multi-Use Path		Park Site east of Laguna Ridge Pappas	Whitelock Pkwy	Poppy Ridge Rd	0.25	West side of Whitelock Pkwy - cuts short of Kyler Rd	$658,737	2	3	2	0	1	1	2	11	High
282	Class I Multi-Use Path	-	Kilconnell Dr/West of St Elizabeth Ann Seton School	Racquet Ct	Elk Grove Blvd	0.39		$1,025,563	2	3	0	3	0	0	2	10	High
264	Class I Multi-Use Path	-	Laguna Creek	Camden Park	Proposed Whitehouse Creek Trail (Adjacent to Creekside Christian Church)	0.59	Construct Class I Trail that connects from Camden Park to Proposed Class I that extends to Stockton Blvd	$1,553,550	2	0	2	3	0	1	2	10	High

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644	Class I Multi-Use Path	-	Existing trail at Creekside Christian Church	Existing trail to the west	Sheldon Rd	0.41		$1,065,142	2	3	0	3	0	0	2	10	High
258	Class I Multi-Use Path	-	Existing trail at Creekside Christian Church	E Stockton Blvd	Elk Grove Creek	0.54		$1,419,590	2	3	0	3	0	0	2	10	High
506	Class I Multi-Use Path	-	Quail Run Ln/Poppy Ridge Rd	Quali Run Ln east of Kuhn Ranch Way	Poppy Ridge Rd/Whitelock Pkway	0.98	Class I shared-use path along south side (eastbound) of roadway. May require ROW acquisition. Class II bicycle lane exists along small segment, which is frequently blocked by parked cars.	$2,569,612	2	0	2	3	0	1	2	10	High
515	Class I Multi-Use Path	-	Elk Grove Blvd	Waterman Rd	Grant Line Rd	0.88	Widen existing sidewalk to Class 1 shared-use path standards.	$2,292,603	2	3	0	3	0	0	2	10	High
293	Class I Multi-Use Path	-	Elk Grove Creek Trail	Elk Grove Blvd	Florence Markofer Elementary School	0.87		$2,282,338	2	3	0	3	0	0	2	10	High
297	Class I Multi-Use Path	-	Unnamed (Crosses LC Tributary 4)	LC Tributary 4	Willow Pond Cir	0.06	Small bikeway to connect LC Tributary to residential area	$162,083	2	3	0	3	0	0	2	10	High
308	Class I Multi-Use Path	-	Strawberry Creek Trail	Calvine Rd	Brown Rd	0.37		$979,576	2	3	2	0	0	1	2	10	High
343	Class I Multi-Use Path	-	Kammerer Rd	Bruceville Rd/Kammerer Rd/SEPA Trail ID 5	Hood Franklin Rd	2.89		$7,550,651	2	0	2	3	0	1	2	10	High
263	Class I Multi-Use Path	-	Unnamed Trail	Nottoli Park	Elk Grove Blvd	1.66		$4,329,304	2	3	2	0	0	1	2	10	High
296	Class I Multi-Use Path	-	Unnamed (Crosses LC Tributary 4)	LC Tributary 4	Clear Springs Cir	0.03	Small bikeway to connect LC Tributary to residential area	$87,618	2	3	0	3	0	0	2	10	High
319	Class I Multi-Use Path	-	Bradshaw Rd	LC Tributary 4	Bond Rd	0.05		$135,247	2	3	0	3	0	0	2	10	High
320	Class I Multi-Use Path	-	Unnamed	Tegan Rd	Howard Wackman Park	0.17		$439,405	2	3	2	0	1	0	2	10	High
489	Class I Multi-Use Path	-	Black Swan Trail/South of Elk Grove Blvd	Elk Grove Blvd	Trail terminus	0.14	Pave existing trail if not already paved (public comment stated it was not).	$364,346	2	0	2	3	0	0	2	9	High
488	Class I Multi-Use Path	-	Black Swan Trail West of Lockford Way	Trail terminus SE of East Park Dr/Lockford Way	Elk Grove Blvd	0.24	Pave Trail	$627,274	2	0	2	3	0	0	2	9	High
324	Class I Multi-Use Path	-	Power Line Trail	Charolais Way	Scheurebe Pl	0.08	Extend the existing Power Line Trail south to connect to the existing Class I that starts adjacent to Scheurebe Pl	$197,242	2	3	2	0	0	0	2	9	High
275	Class I Multi-Use Path	-	Powerline Trail/Laguna Creek Trail (east of Waterman Rd, between Sheldon Rd and Bond Rd	Sheldon Rd	Bond Rd	1.03	Install Class I Path to avoid use of stressful Waterman Rd	$2,685,237	2	0	2	3	0	0	2	9	High

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333	Class I Multi-Use Path	-	Laguna Creek Trail	Proposed Laguna Creek Trail/Powerline Trail segment east of Waterman, north of Bond	Bond Rd/Sierra River Dr	0.22		$568,162	2	3	2	0	0	0	2	9	High
409	Class I Multi-Use Path	-	East side of Rhone River Dr	Rhone River Dr	Scheurebe Pl	0.01	East side of Rhone River Dr	$38,757	2	3	2	0	0	0	2	9	High
570	Class I Multi-Use Path	-	Connector Path (between Park Dr and Rancho Dr)	Park Dr	Waterman Rd/Rancho Dr	0.17		$449,719	2	0	2	3	0	0	2	9	High
269	Class I Multi-Use Path	-	Elk Grove Creek	Grant Line Rd/Bradshaw	EG Creek near Sedgefield	0.80	Connect the proposed Class I facilities along Elk Grove Creek to Bradshaw and Grant Line Rds.	$2,079,106	2	3	2	0	0	0	2	9	High
295	Class I Multi-Use Path	-	Laguna Creek Trail	Waterman Rd	East EG - Rainbow Creek (Trib Point Development) Laguna Creek Trail	0.07	Close a small gap between two existing Laguna Creek Class I paths	$170,336	2	0	2	3	0	0	2	9	High
305	Class I Multi-Use Path	-	Bradshaw Rd	Sheldon Rd	Bond Rd	0.81		$2,108,639	2	3	2	0	0	0	2	9	High
276	Class I Multi-Use Path	-	Unnamed	Waterman Rd	Bond Rd	0.45		$1,163,750	2	0	0	3	0	1	2	8	High
213	Class I Multi-Use Path	-	Southeast Policy Area Trails: Western North-South Bikeway and Bridge	Whitelock Pkwy	Bilby Rd	1.00	Assuming trail improvement is Class I Shared-Use Path, but need more info on where bridge is located and if trail will be to Class I standards.	$2,606,483	2	0	0	3	0	1	2	8	High
210	Class I Multi-Use Path	-	Power Line Trail	Calvine Rd	Sheldon Rd	0.97	Power Line Trail - Sheldon to Calvine	$2,548,215	2	0	0	3	0	1	2	8	High
511	Class I Multi-Use Path	-	Elk Grove Blvd	Laguna Springs Dr	SB 99 On-Ramp	0.33	Widen existing sidewalk to Class I Shared-Use Path	$853,191	2	0	0	3	0	1	2	8	High
615	Class I Multi-Use Path	-	Laguna Blvd	Dwight Rd	Franklin Blvd	0.65		$1,689,299	2	3	0	3	0	0	0	8	High
568	Class I Multi-Use Path	Trail Improvement	Laguna Creek Trail (East of Waterman Rd)	Waterman Rd/Sheldon Rd	East of Jordan Ranch Rd (Existing/Proposed Class I)	1.07		$2,788,796	2	0	0	3	0	1	2	8	High
222	Class I Multi-Use Path	-	Elk Grove Creek	Laguna Springs Drive	Oneto Park	0.24	This project will construct a new Class I Bikeway.	$628,318	2	0	2	0	1	1	2	8	High
217	Class I Multi-Use Path	-	Laguna Creek Trail	Lewis Stein Road	Bruceville Road	1.80	This project will construct approximately 8,250 feet of new 10' wide maintenance road/Class I Bikeway along Laguna Creek, 950' 8'-wide trail along Bruceville Rd (from Big Horn to north) and 1160' 5'-wide pedestrian path/sidewalk along Bruceville Rd	Project In Progress	2	0	2	0	0	1	2	7	High
301	Class I Multi-Use Path	-	Unnamed	Waterman Rd	North of Scheurebe Pl	0.14	Connect the proposed Elk Grove Creek Trail to Waterman Rd	$360,520	2	3	0	0	0	0	2	7	High

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294	Class I Multi-Use Path	-	Laguna Creek Trail	Bond Rd	Waterman Rd	0.13		$348,136	2	0	0	3	0	0	2	7	High
255	Class I Multi-Use Path	-	Unnamed roads - SEPA Trails 6,16, 24, 25	Poppy Ridge Rd	Shed C Channel	0.38		$1,000,948	2	0	2	0	0	1	2	7	High
643	Class I Multi-Use Path	-	Unnamed roads - SEPA Trails 6,16, 24, 25	Whitelock Pkwy	Shed C Channel	0.18		$458,158	2	0	2	0	0	1	2	7	High
304	Class I Multi-Use Path	-	Laguna Ridge east of Bruceville Rd	Parada Ct/Existing Class I adjacent to Machado Ranch Dr	Proposed SEPA Park Site IDs D and O.	1.16		$3,023,994	2	0	2	0	0	1	2	7	High
646	Class I Multi-Use Path	-	New development South of Kammerer Family Park	Kammerer Family Park existing trail segment (North of Upbeat Way/Allegra Dr)	Bilby Rd/Allegra Dr	0.16		$414,929	2	0	2	0	0	1	2	7	High
551	Class I Multi-Use Path	-	W Stockton Blvd (SEPA Trail IDs 36 & 37)	Whitelock Pkwy	Bilby Rd	0.55		$1,450,498	2	0	2	0	0	1	2	7	High
501	Class I Multi-Use Path	-	Auberry Rd	Geneva Pointe Dr	Power Inn Rd	0.31	Create Class I path on east side of road along school frontage	$809,767	2	3	0	0	0	0	2	7	High
302	Class I Multi-Use Path	-	Between Scheurebe Pl and Trebbiano Circle Bike Trail	Trebbiano Circle Bike Trail	Scheurebe Pl	0.03		$76,476	2	3	0	0	0	0	2	7	High
379	Class I Multi-Use Path	-	South side of Elk Grove Blvd	Bradshaw Rd	East of Mainline Dr	0.12	South side of Elk Grove Blvd. BPTMP recommended sidewalk, but upgrading this improvement to a two-way Class I facility would be ideal (GHD Rec), to accomodate more connected, low stress travel along EG Blvd.	$303,048	2	0	0	3	0	0	2	7	High
314	Class I Multi-Use Path	-	Calvine Rd	Bader Rd	LC Tributary 1	2.62		$6,857,640	2	0	0	3	0	0	2	7	High
565	Class I Multi-Use Path	-	Path Connector NE of Guttridge Park	Lewis Stein Rd	Guttridge Park	0.09	Class I Path connecting existing path at Guttridge and low stress local streets to SE.	$231,267	2	0	2	0	0	1	2	7	High
239	Class I Multi-Use Path	-	Elk Grove Blvd	Bradshaw Rd	Grant Line Rd	0.55	Upgrade Class II Bike Lanes recommendation to Class I Shared-Use Path	$1,440,798	2	0	0	3	0	2	0	7	High
284	Class I Multi-Use Path	-	Whitehouse Creek Trail	Springhurst Dr	Elk Grove Florin Rd	0.29		$749,586	2	0	2	0	1	0	2	7	High
322	Class I Multi-Use Path	-	Elk Grove Creek Trail	Waterman Rd	Elk Grove Florin Rd	0.60	Connect the proposed Class I facility along Elk Grove Creek over the railroad tracks to the west. Complete connectivity for new and proposed residential areas to Florence Markofer Elementary School, Elk Grove High School, and other locations	$1,566,808	2	0	2	0	1	0	2	7	High
493	Class I Multi-Use Path	-	Extension of McConnell Park Trail	Trail terminus NE of Falcon Hill Ct	Iron Rock Way	0.35	Create Class I shared use path along existing desire lines	$906,775	2	0	2	0	0	0	2	6	High

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259	Class I Multi-Use Path	-	Whitehouse Creek	Elk Grove Florin Rd	Proposed Powerline Trail	1.18	.7 mi of segment is Easement and Equestrian Tread cost only. Remainder of segment, .39 mi, is calculated using regular Class I Path unit cost.	$1,687,650	0	0	0	3	0	1	2	6	High
323	Class I Multi-Use Path	-	North of Strong Park-Est Park Dr north toward Wright Park Trail	Hambley Cir	Misty Springs Ct	0.45	Extend the existing Class I path to the north and south of this proposed route to improve connectivity of trail network	$1,169,458	2	0	2	0	0	0	2	6	High
492	Class I Multi-Use Path	-	Power Line Trail	Mainline Dr	Black Swan Dr/Viridian Way	0.21	Pave this side of the trail	$553,768	2	0	2	0	0	0	2	6	High
265	Class I Multi-Use Path	-	Unnamed	Roan Ranch Cir	Waterman Rd Spur	0.46	Extend existing Class I path to Grant Line Rd near the Waterman Rd intersection	$1,203,913	2	0	2	0	0	0	2	6	High
642	Class I Multi-Use Path	-	Unnamed	Waterman Rd Spur	Grant Line Road	0.13		$350,969	2	0	2	0	0	0	2	6	High
313	Class I Multi-Use Path	-	Grant Line Rd	Waterman Rd	Bradshaw Rd	1.30		Project In Progress	2	0	2	0	0	0	2	6	High
331	Class I Multi-Use Path	-	Laguna Creek Trail	Calvine Rd	Vista Creek Trail	0.15	Extend this trail to Calvine Rd to connect to adjacent existing and proposed low stress trail facilities	$397,371	2	0	2	0	0	0	2	6	High
272	Class I Multi-Use Path	-	Unnamed	Whitehouse Creek Trail	Unnamed	0.38		$1,001,870	2	0	0	0	0	1	2	5	High
307	Class I Multi-Use Path	-	Bond Rd	Waterman Rd	Crowell Dr	0.14		$359,892	2	0	0	0	0	1	2	5	High
216	Class I Multi-Use Path	-	Kammerer Rd/SEPA Trail ID 5	Existing Shed C Channel Class I Path	Upbeat Way	2.26		$5,908,334	2	0	0	0	0	1	2	5	High
342	Class I Multi-Use Path	-	Unnamed	Bilby Rd	Kammerer Rd	0.33		$866,815	2	0	0	0	0	1	2	5	High
592	Class I Multi-Use Path	-	Kammerer Rd	SEPA Trail ID 5	Waterman Rd	3.70		$9,664,078	2	0	0	0	0	1	2	5	High
636	Class I Multi-Use Path	-	Connector Path Between Proposed Park Sites	Tusacan Park	Tuscan/Treasure Homes Park	0.13		$335,996	2	0	0	0	0	1	2	5	High
609	Class I Multi-Use Path	-	SEPA Trail ID 23	SEPA Park ID I	Southeast of SEPA Park ID I	0.10		$261,723	2	0	0	0	0	1	2	5	High
614	Class I Multi-Use Path	-	SEPA Trail IDs 14 & 38	SEPA Park Site IDs F & L	SEPA Trail ID 37 (southern terminus)	0.34		$892,787	2	0	0	0	0	1	2	5	High
602	Class I Multi-Use Path	-	SEPA Trail ID 34	SEPA Trail ID 33	SEPA Trail ID 35	0.13		$328,217	2	0	0	0	0	1	2	5	High
601	Class I Multi-Use Path	-	SEPA Trail ID 33	SEPA Trail ID 31	SEPA Trail ID 34	0.08		$207,718	2	0	0	0	0	1	2	5	High
611	Class I Multi-Use Path	-	SEPA Trail ID 21	SEPA Park ID C	SEPA Trail id 22	0.12		$317,034	2	0	0	0	0	1	2	5	High
595	Class I Multi-Use Path	-	Bilby Rd (SEPA Trail ID 1)	Treasure Homes Park	SEPA Trail ID 2/Bilby Rd	0.16		$421,687	2	0	0	0	0	1	2	5	High
605	Class I Multi-Use Path	-	SEPA Trail IDs 17A/17B	South of SEPA Park ID F	SEPA Trail ID 19	0.19		$497,996	2	0	0	0	0	1	2	5	High

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607	Class I Multi-Use Path	-	SEPA Trail ID 15A/15B	SEPA Park ID D	SEPA Trail ID 18	0.18		$479,090	2	0	0	0	0	1	2	5	High
604	Class I Multi-Use Path	-	SEPA Trail ID 10	SEPA Trail ID 6	SEPA Park ID M	0.21		$547,855	2	0	0	0	0	1	2	5	High
593	Class I Multi-Use Path	-	Unname Road - SEPA Trail ID 7	Poppy Ridge Rd	SEPA Park ID M	0.09		$242,586	2	0	0	0	0	1	2	5	High
600	Class I Multi-Use Path	-	SEPA Trail ID 13	SEPA Park ID E/SEPA Trail ID 6/SEPA Trail ID 13	SEPA Park ID L/SEPA Park ID F	0.24		$620,631	2	0	0	0	0	1	2	5	High
594	Class I Multi-Use Path	-	Unnamed Road - SEPA Trail ID 11	SEPA Park ID M	SEPA Park ID L	0.07		$189,393	2	0	0	0	0	1	2	5	High
596	Class I Multi-Use Path	-	SEPA Trail ID 2	Bilby Road/SEPA Trail ID 1	SEPA Park ID J	0.18		$474,677	2	0	0	0	0	1	2	5	High
608	Class I Multi-Use Path	-	SEPA Trail ID 18	SEPA Trail ID 15A	SEPA Park ID I	0.16		$422,219	2	0	0	0	0	1	2	5	High
606	Class I Multi-Use Path	-	SEPA Trail ID 19	SEPA Trail ID 17A/17B	SEPA Park ID G	0.17		$457,438	2	0	0	0	0	1	2	5	High
612	Class I Multi-Use Path	-	SEPA Trail ID 22	SEPA Trail ID 21	SEPA Park ID G	0.14		$353,586	2	0	0	0	0	1	2	5	High
599	Class I Multi-Use Path	-	SEPA Trail ID 12	SEPA Park ID O	SEPA Park ID E/SEPA Trail ID 6/SEPA Trail ID 13	0.28		$726,474	2	0	0	0	0	1	2	5	High
610	Class I Multi-Use Path	-	SEPA Trail ID 20	SEPA Park ID I	SEPA Park ID C	0.08		$219,954	2	0	0	0	0	1	2	5	High
616	Class I Multi-Use Path	-	SEPA Trail IDs 4, 4B, 26, 27, 28, 29	SEPA Park Site J	Lotz Pkwy	1.41		$3,697,323	2	0	0	0	0	1	2	5	High
603	Class I Multi-Use Path	-	SEPA Trail ID 35	SEPA Trail ID 34	Kammerer Rd	0.12		$322,671	2	0	0	0	0	1	2	5	High
613	Class I Multi-Use Path	-	Undeveloped area NE of Elefa Ave	Tuscan Park Proposed Park Site	Arbor Park Proposed Park Site	0.24		$637,999	2	0	0	0	0	1	2	5	High
299	Class I Multi-Use Path	-	Waterman Rd	Brinkman Ct	Elk Grove Creek Trail	0.05	Create connectivity between proposed Class I paths with this shorter segment	$118,318	0	0	2	0	0	0	2	4	High
546	Class I Multi-Use Path	-	Elk Grove Florin Rd/Mineral King Ct	Elk Grove Florin Rd	Mineral King Ct	0.02	Create bicycle/pedestrian connection at E end of Mineral King Ct cul de sac to connect to Elk Grove Florin Rd, providing connectivity between residential uses to the east and destinations on Elk Grove Florin Rd.	$58,289	2	0	0	0	0	0	2	4	High
300	Class I Multi-Use Path	-	Between Waterman Rd and Trebbiano Circle	Trabbiano Circle Bike Trail	Waterman Rd	0.19	Connect the existing Class I path to Waterman Rd to the west	$495,402	0	0	2	0	0	0	2	4	High
547	Class I Multi-Use Path	-	Excelsior Rd	Calvine Rd	Sheldon Rd	1.00	Construct Class I Shared Use Path	$2,626,840	0	0	2	0	0	0	2	4	High
274	Class I Multi-Use Path	-	Grant Line Rd	Bradshaw Rd	North of Calvine Rd	5.69		$14,892,334	0	0	2	0	0	0	2	4	High
312	Class I Multi-Use Path	-	Bond Rd	Van Ruiten Ln	Grant Line Rd	0.33	Would require ROW acquisition of parcel to the south.	$861,934	0	0	2	0	0	0	2	4	High

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260	Class I Multi-Use Path	-	South of Daniels Ct (Laguna Creek/Powerline Trail connections)	Jordan Ranch Rd	Brown Rd/Waterman Rd	0.32	Install Class I Path to connect proposed trail at Jordan Ranch Rd at the east and Powerline Trail and Waterman Rd to the west.	$848,542	2	0	0	0	0	0	2	4	High
291	Class I Multi-Use Path	-	Cruz Ct	Waterman Rd	Black Swan Trail	0.05		$120,300	2	0	0	0	0	0	2	4	High
266	Class I Multi-Use Path	-	Railroad Tracks	Grant Line Rd	Austin Ct	0.97		$2,537,991	0	0	0	0	0	2	2	4	High
569	Class I Multi-Use Path	-	Waterman Ct	Waterman Ct	Waterman Rd/Grantline Rd	0.29	Trail at Waterman Ct under Grant Line Rd overpass (annexation project)	Project In Progress	0	0	0	0	0	0	2	2	High
579	Class II Bicycle Lane	-	Heritage Hill Dr	Four Seasons Dr	Elk Grove Florin Rd	0.24		$18,223	2	3	2	3	0	1	1	12	Low
480	Class II Bicycle Lane	-	Laguna Blvd	Franklin Blvd	Laguna Oaks Dr	0.19	Missing bike lane between Franklin Blvd and Laguna Oaks Blvd. Close bike lane gap and add green paint to increase driver awareness.	$60,447	2	3	2	3	1	0	0	11	Low
507	Class II Bicycle Lane	-	Laguna Blvd/UPRR Crossing	Laguna Pointe	Franklin Blvd	0.13	Support green bike lane installation, and extend bike lane past Santorini Drive to Franklin Blvd, where bike lane is dropped at intersection approach. Add buffer if feasible.	$9,612	2	3	2	3	1	0	0	11	Low
226	Class II Bicycle Lane	-	Adobe Spring Way	Amber Creek Dr	Bambridge Way	0.37	Install Class II Bicycle Lanes	$27,881	2	3	0	3	0	0	2	10	Low
225	Class II Bicycle Lane	-	Stonebrook Dr	Lyndley Plaza Way	Winding River Way	0.20	Install Class II Bicycle Lanes to fill lane gap between two existing segments.	$14,743	2	3	0	3	0	0	2	10	Low
503	Class II Bicycle Lane	-	Blue Maiden Way	Power Inn Rd	Shasta Lily Dr	0.31	Install Class II Bicycle Lane	$23,404	2	3	0	3	0	0	2	10	Low
550	Class II Bicycle Lane	-	Criswell Dr	Bradshaw Rd	Stonebrook Dr	0.52	Class II Bicycle Lanes only present along portion of roadway, and parking on both sides of the street/11 foot parking + bike lane results in LTS 3. Remove parking on one side, to provide additional bike lane width.	$39,159	2	3	0	3	0	0	2	10	Low
280	Class II Bicycle Lane	-	E Stockton Blvd	Elk Grove Florin Rd	Elkmont Way	0.48		$35,642	2	0	2	3	0	3	0	10	Low
278	Class II Bicycle Lane	-	Laguna Park Dr	Allbritton Way	Franklin Blvd	0.20		$14,944	2	3	0	3	0	0	2	10	Low
241	Class II Bicycle Lane	-	Elk Grove Blvd	Elk Grove Florin Rd	Gage St	0.20		$14,944	2	3	0	3	0	1	1	10	Low
227	Class II Bicycle Lane	-	Bambridge Way	Adobe Spring Way	Old Creek Dr	0.10	Install Class II Bicycle Lanes	$7,582	2	3	0	3	0	0	2	10	Low
252	Class II Bicycle Lane	-	Laguna Springs Dr	Laguna Blvd	Elk Grove Creek Trail	0.63	Upgrade recommendation to buffered class 2 for lowest-stress experience. Would be LTS 2 due to speeds, even with buffer.	$47,495	2	0	2	3	2	1	0	10	Low
587	Class II Bicycle Lane	-	Brown Rd	heritage Hill Dr	Waterman Rd	0.34	Install Class II bicycle lanes	$25,521	2	3	2	0	0	0	2	9	Low
585	Class II Bicycle Lane	-	Ridgerock Dr	Mainline Dr	Mainline Dr	0.26	Install Class II bicycle lanes	$19,179	2	3	2	0	0	0	2	9	Low
571	Class II Bicycle Lane	-	E Park Dr	Stinebrook Dr	End of E Park Dr	0.18		$13,227	2	0	2	3	0	0	2	9	Low
224	Class II Bicycle Lane	-	Machado Ranch Dr	Franklin High Rd	Bruceville Rd	0.25	Install Class II Bicycle Lanes	$18,797	2	0	0	3	0	1	2	8	Low
530	Class II Bicycle Lane	-	East of Willard Pkwy	Bilby Rd/Gilliam Dr	Proposed Class I Path S/O Bilby/Willard	0.62	Install Class II that will go along Willard Pkwy from Bilby Rd to Kammerer Rd.	$46,437	2	0	0	3	0	1	2	8	High

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235	Class II Bicycle Lane	-	Bradshaw Rd	Buna Ct	Bond Rd	0.16		$12,362	2	3	0	3	0	0	0	8	Low
332	Class II Bicycle Lane	-	Springhurst Dr	W Camden Dr	Sheldon Rd	0.46	Install Class II Bicycle Lane	$34,165	2	0	0	3	0	0	2	7	Low
289	Class II Bicycle Lane	-	Spring Flower Dr	Summer Glen Way	Harvest Park Dr	0.11		$8,614	2	0	2	0	0	1	2	7	Low
277	Class II Bicycle Lane	-	Frye Creek Dr	Big Horn Blvd	Francesca St	0.56	Leverage low volume/speed residential streets for low stress Class II experience.	$41,703	2	0	0	3	0	0	2	7	Low
339	Class II Bicycle Lane	-	Elfa Ave	Bruceville Rd	Promenade Pkwy	2.31		$173,574	2	0	0	3	0	1	1	7	Low
233	Class II Bicycle Lane	-	Sheldon Rd	Waterman Rd	Grant Line Rd	3.22	Class II facility not recommended because of high speeds and moderate ADT along this segment of Sheldon Rd. Class I equestrian trail to north is the preferred segment alternative (ObjectID 120).	$241,391	0	0	2	3	0	2	0	7	Low
586	Class II Bicycle Lane	-	Clarke Frams Dr	Elk Grove Blvd	Criswell Dr	0.37	Install Class II bicycle lanes	$27,386	2	3	0	0	0	0	2	7	Low
234	Class II Bicycle Lane	-	Waterman Rd	Calvine Rd	Rubia Dr	0.58		$43,682	2	3	0	0	0	1	0	6	Low
230	Class II Bicycle Lane	-	Grant Line Rd	Waterman Rd	Bradshaw Rd	1.28		Project In Progress	2	0	2	0	0	2	0	6	Low
279	Class II Bicycle Lane	-	E Stockton Blvd	Geneva Pointe Dr	North of Rick Chapman Way	0.39		$29,357	2	0	0	3	0	0	0	5	Low
237	Class II Bicycle Lane	-	Bruceville Rd	Bilby Rd	Kammerer Rd	0.50	Recommend installing bike lanes for more experienced riders	$37,470	2	0	2	0	0	1	0	5	Low
335	Class II Bicycle Lane	-	Waterman Rd	Kent St	Grant Line Rd	0.96		Project In Progress	2	0	2	0	0	0	0	4	Low
231	Class II Bicycle Lane	-	Excelsior Rd	Sheldon Park Way	Sheldon Rd	0.35	Connect the existing Class II facility along Excelsior Rd to Sheldon Rd	$25,935	0	0	2	0	0	0	0	2	Low
228	Class II Bicycle Lane	-	Grant Line Rd	Bradshaw Rd	North of Calvine Rd	5.66	Install Class II Bicycle Lanes	$424,449	0	0	2	0	0	0	0	2	Low
232	Class II Bicycle Lane	-	Excelsior Rd	Calvine Rd	Halfway Rd	0.38	Connect the existing Class II facility along Excelsior up to Calvine Rd	$28,176	0	0	0	0	0	0	0	0	Low
218	Class II Buffered Bicycle Lane	-	Emerald Oak Dr	Elk Grove Blvd	Valley Oak Ln	0.51	Remove parking lane and re-stripe existing Class II bike lanes to include an ample buffer.	$88,721	2	3	2	3	0	3	2	15	Low
513	Class II Buffered Bicycle Lane	-	Elk Grove Blvd	Emerald Vista Dr/E Stockton Blvd	Elk Grove Florin Rd	0.69	Upgrade existing Class II in both directions with 2 foot buffer.	$121,449	2	3	2	3	1	3	1	15	Low
494	Class II Buffered Bicycle Lane	-	Elk Grove Florin Rd	E Stockton Blvd	Bond Rd	2.54	Add buffer to existing Class II bike lane.	$445,173	2	3	2	3	1	3	1	15	Low
538	Class II Buffered Bicycle Lane	-	Laguna Blvd	Bruceville Rd	Laguna Springs Dr	1.00	Upgrade existing class II to buffered Class II. Road diet assessment needed, but could be accomplished by reducing width of travel lanes.	$174,215	2	3	2	3	3	1	0	14	Low

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486	Class II Buffered Bicycle Lane	-	Brucville Road	Laguna Blvd	Elk Grove Blvd	0.99	Upgrade improvement from existing Class III route and Class II bike lane recommended in the 2019 CIP to Class II Buffered Bike Lane, if feasible. Road diet assessment needed to investigate feasibility of Class II Buffered facility.	$172,883	2	3	2	3	2	0	1	13	Low
523	Class II Buffered Bicycle Lane	-	Bruceville Rd	Big Horn Blvd	Laguna Blvd	0.48	Upgrade existing Class II facility to buffered class II for lower stress experience.	$84,452	2	3	2	3	2	1	0	13	Low
536	Class II Buffered Bicycle Lane	-	Sheldon Rd	Bruceville Rd	Elk Grove Florin Rd	2.50	Upgrade existing Class II facility to Class II Buffered and Green Painted Bicycle Lane through conflict areas to lower traffic stress.	$436,682	2	3	2	3	2	1	0	13	Low
525	Class II Buffered Bicycle Lane	-	Elk Grove Blvd	Harbour Point Dr/W Taron Dr	Four Winds Dr	1.15	Upgrade existing Class II bicycle lane with buffered class II.	$201,224	2	3	2	3	1	1	0	12	Low
516	Class II Buffered Bicycle Lane	-	Laguna Blvd	Laguna Oaks Dr	Bruceville Rd	1.46	Upgrade existing Class II facilities to buffered bicycle lane. Additional road diet assessment needed but could be accomplished by reducing travel lanes.	$255,831	2	3	2	3	2	0	0	12	Low
526	Class II Buffered Bicycle Lane	-	Taron Dr	Riparian Dr	Riparian Dr	0.15		$27,088	2	3	2	3	0	1	1	12	Low
473	Class II Buffered Bicycle Lane	-	Taron Dr	Riparian Dr	Riparian Dr	1.67		$291,976	2	3	2	3	0	1	1	12	Low
334	Class II Buffered Bicycle Lane	-	Elk Grove Blvd	School Street	Waterman Rd	0.50	Install Buffered Class II Bicycle Lane	$87,353	2	3	2	3	1	0	1	12	Low
542	Class II Buffered Bicycle Lane	-	Bond Rd	E Stockton Blvd	Elk Grove Florin Rd	1.01	Upgrade existing Class II to buffered Class II. Road diet assessment needed, but could be accomplished by reducing lane width.	$176,477	2	3	2	3	0	1	0	11	Low
491	Class II Buffered Bicycle Lane	-	Bilby Rd	Willard Pkwy	Bruceville Rd	1.60	Install Class II Buffered Bike Lane. ~36 ft existing. Reduce lanes to 11 feet, with 6 foot bike lane, 1 foot buffer. Also ensure more frequent sweeping of the EB side of Bilby, as public stated there is buildup of debris.	$279,593	2	3	2	3	0	1	0	11	Low
517	Class II Buffered Bicycle Lane	-	Emerald Crest Dr/Emerald Vista Dr	Laguna Blvd	Elk Grove Blvd	1.03	Upgrade existing Class II facility to buffered Class II.	$180,129	2	3	0	3	1	1	1	11	Low
531	Class II Buffered Bicycle Lane	-	Coop Dr	Franklin High Rd	Bilby Rd	0.62	Upgrading existing Class II with additional width or buffered bike lane would require removal of parking. Would result in lowered LTS (2 instead of 3).	$108,538	2	3	0	3	0	1	1	10	Low
539	Class II Buffered Bicycle Lane	-	Laguna Blvd	Harbour Point Dr	Dwight Rd/Babson Dr	1.18	Upgrade existing Class II to I Buffered Bike Lane. Reducing travel lanes from 11' to 10' would allow for 3 additional feet on either side of roadway to reduce LTS slightly.	$206,491	2	3	2	3	0	0	0	10	Low

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519	Class II Buffered Bicycle Lane	-	Foulks Ranch Dr	Laguna Park Dr	Elk Grove Blvd	0.66	Upgrade existing Class II facility to buffered class II with ample buffer for lowest stress experience by removing parking on one side of roadway.	$116,125	2	3	0	3	1	0	1	10	Low
522	Class II Buffered Bicycle Lane	-	Big Horn Blvd	Franklin Blvd	Laguna Blvd	2.93	Install Class II Buffered Bicycle Lane	$512,246	2	3	0	3	1	1	0	10	Low
524	Class II Buffered Bicycle Lane	-	Power Inn Rd	Geneva Pointe Dr	Sheldon Rd	1.47	Upgrade existing Class II bike lanes to buffered Class II	$257,251	2	3	0	3	0	0	1	9	Low
639	Class II Buffered Bicycle Lane	-	Civic Center Dr	Bruceville Rd	Big Horn Blvd	0.69		$121,561	2	3	0	3	0	0	1	9	Low
327	Class II Buffered Bicycle Lane	-	Waterman Rd	Laguna Creek	Rancho Dr	0.72	Close the gap between existing facilities on the north and south end of Waterman Rd between Elk Grove Blvd and Bond Rd	$125,630	2	0	2	3	0	0	0	7	Low
328	Class II Buffered Bicycle Lane	-	Waterman Rd	Sheldon Rd	Bond Rd	0.91	Enhance Class II Rec to Buffered Class II for improvement to LTS 2.	$158,423	2	0	0	3	0	1	1	7	Low
238	Class II Buffered Bicycle Lane	-	Kammerer Rd	I-5	Lent Ranch Parkway	2.49		$435,056	2	0	2	0	0	1	0	5	Low
337	Class II Buffered Bicycle Lane	-	Bilby Rd	Bruceville Rd	Promenade Pkwy	2.25	Install Class II Buffered Bike Lane. ~36 ft existing. Reduce lanes to 11 feet, with 6 foot bike lane, 1 foot buffer. Also ensure more frequent sweeping of the EB side of Bilby, as public stated there is buildup of debris.	$394,133	2	0	0	0	0	1	0	3	Low
236	Class II Buffered Bicycle Lane	-	Dwight Rd	Bramblewood Way	Railroad Tracks	0.35	Enhance from BPTMP 2014 Class II Bicycle Lane recommendation to Class II Buffered Bicycle Lane toreduce traffic stress.	$61,267	2	0	0	0	0	0	0	2	Low
490	Class II Green Painted Bicycle Lane	-	Lotz Pkwy	Big Horn Blvd	Auto City Dr	0.56	Upgrade existing class II facilities to green painted class II with conflict markings at school entrance.	$176,771	2	3	2	3	0	1	1	12	Low
482	Class II Green Painted Bicycle Lane	-	Elk Grove Blvd/Franklin Blvd	NB Approach		0.07	Install conflict markings at NB approach to intersection in front of shopping center entrance	$22,971	2	0	2	3	2	1	1	11	Low
240	Class II Green Painted Bicycle Lane	-	Laguna Blvd/Bond Rd	Big Horn Blvd	E Stockton Blvd	0.89	Install Class II bicycle lane (SSAR Rec), and close bicycle lane gap east of Big Horn Blvd where lane is dropped. Install green painted bicycle lane, if feasible (GHD Rec).	$280,848	2	0	2	3	2	1	0	10	Low
512	Class II Green Painted Bicycle Lane	-	E Stockton Blvd	South of Elk Grove Blvd	NB 99 On-Ramp/Elk Grove Blvd	0.14	Upgrade Class II with green paint, especially through conflict zone.	$43,831	2	0	2	3	0	3	0	10	Low
246	Class III Bicycle Route	-	Stathos Dr	Franklin High Rd	Franklin High Rd	1.03	Leverage low stress residential streets for Class III Route. Additional signage and traffic calming in front of park and school to lower entire segment to LTS 1.	$10,322	2	3	0	3	0	1	2	11	Low

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521	Class III Bicycle Route	-	Auto Center Dr; Laguna Grove Dr; Auto City Dr; Auto Passage Dr	Elk Grove Blvd	Lotz Pkwy	0.82	Leverage low speeds/residential classification of these roadways to create a low-stress bicycling route.	$8,231	2	3	0	3	0	1	2	11	Low
645	Class III Bicycle Route	-	W Lake Dr	Babson Dr	Mumford Ct/Town Square Park	0.71		$7,119	2	3	2	3	0	1	0	11	Low
589	Class III Bicycle Route	-	Babson Dr	Four Winds Dr	Harbour Pointe Dr	1.17		$11,669	2	3	2	3	0	1	0	11	Low
330	Class III Bicycle Route	-	Laguna Crest Way	Laguna Crest Way	Laguna Blvd	0.08		$803	2	3	0	3	1	0	2	11	Low
292	Class III Bicycle Route	-	Laguna Oaks Dr	Laguna Woods Dr	Laguna Blvd	0.20		$1,976	2	3	0	3	1	0	2	11	Low
250	Class III Bicycle Route	-	Santorini Dr	Thira Way	Laguna Blvd	0.31		$3,116	2	3	0	3	0	0	2	10	Low
290	Class III Bicycle Route	-	Elk Spring Way	Amber Creek Dr	Murrell St	0.07	Add segment of Class III bicycle route connecting proposed Class II on Amber Creek Dr to the west and proposed Class I east of Murrell St	$707	2	3	0	3	0	0	2	10	Low
502	Class III Bicycle Route	-	Caldicot Dr	Brush Way	Power Inn Rd	0.18	Install Class III Bicycle Route, leveraging lower speeds and volume for low stress experience.	$1,771	2	3	0	3	0	0	2	10	Low
251	Class III Bicycle Route	-	Laguna Main St	Laguna Blvd	Renwick Ave	0.16		$1,553	2	3	0	3	0	0	2	10	Low
578	Class III Bicycle Route	-	Laguna Creek Dr/School Street	Laguna Creek Trail	Elk Grove Blvd	0.62		$6,187	2	0	0	3	0	3	2	10	Low
588	Class III Bicycle Route	-	Renwick Ave/Hausman St/Vaux Ave/Gropius St	Harbour Pointe Dr	Dwight Rd	1.29		$12,913	2	3	0	3	0	0	2	10	Low
572	Class III Bicycle Route	-	Wymark Dr	Soaring Oaks Dr	Civic Center Dr	0.66	Install Class III Route	$6,582	2	3	0	3	0	0	2	10	Low
584	Class III Bicycle Route	-	Adobe Springs Way	Big Horn Blvd	Bambridge Way	0.28	Install Class III Route	$2,764	2	3	0	3	0	0	2	10	Low
253	Class III Bicycle Route	-	Soaring Oaks Dr	Harrogate Way	Trenholm Dr	0.90	Install Class III Route	$9,020	2	3	0	3	0	0	1	9	Low
248	Class III Bicycle Route	-	Harvest Park Dr	Cresleigh Pkwy	Cresleigh Pkwy	0.62	Leverage low volume/speed residential roadway for low stress bicycling experience.	$6,161	2	0	0	3	1	1	2	9	Low
582	Class III Bicycle Route	-	Weeping Fig Way	Amber Creek Dr	Laguna Park Dr	0.11	Install Class III Route	$1,109	2	3	2	0	0	0	2	9	Low
338	Class III Bicycle Route	-	Lotz Pkwy	Porto Bay Dr	Whitelock Pkwy	0.77	0	$7,749	2	3	2	0	1	1	0	9	High
247	Class III Bicycle Route	-	Boa Noa Dr	Bilby Rd	Bruceville Rd	0.52	Leverage low volume and speeds for low stress bicycling experience connecting to major roadways with additional bicycle facilities, near parks and schools.	$5,212	2	0	0	3	0	1	2	8	Low
638	Class III Bicycle Route	-	Windwood Wy	Elk Grove Creek Trail West of Windwood Way	Laguna Springs Dr/Laguna Palms Way	0.13	Install class III to connect the class II on Laguna Springs Dr to the Elk Grove Creek Trail.	$1,284	2	0	2	3	0	1	0	8	Low
576	Class III Bicycle Route	-	Gilliam Drive	McLean Dr	Franklin Elementary School	0.21	0	$2,071	2	3	0	0	0	1	2	8	Low

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532	Class III Bicycle Route	-	Multiple Segments: Sping Flower Dr, Orchard View Dr, Radmere Dr, McKenna Dr, Toscano Dr, Baker Ranch Road, Civic Center Dr	Laguna Springs Dr	Summer Glen Way/Spring Flower Dr	0.88	Sign Civic Center to Backer Ranch to Toscano to McKenna to Radmere to Spring Flower to Erhardt bike trail for lower stress alternative to Elk Grove Blvd. Traffic calming needed along Civic Center Drive, as speeds are currently 35 mph.	$8,750	2	0	2	0	1	1	2	8	Low
249	Class III Bicycle Route	-	Castleview Dr	Franklin Blvd	Franklin Blvd	0.47		$4,716	2	0	0	3	0	0	2	7	Low
577	Class III Bicycle Route	-	Porto Rosa Dr	Hill Park	Elk Grove Blvd	0.50	Class III bicycle route leveraging low stress local street to connect to EG Blvd.	$4,981	2	0	0	3	0	0	2	7	Low
583	Class III Bicycle Route	-	Kilconnell Dr	Foulks Ranch DR	Bruceville Rd	0.72	Install Class III Route	$7,189	2	3	0	0	0	0	2	7	Low
244	Class III Bicycle Route	-	Bader Rd	Sheldon Rd	Bond Rd	0.99		$9,893	0	0	2	3	0	0	0	5	Low
580	Class III Bicycle Route	-	Fieldale Dr	Laguna Creek Trail North of North Laguna Creek Wildlife Area	Trail South of North Laguna Creek Wildlife Area	0.20		$1,957	2	0	0	0	0	0	2	4	Low
245	Class III Bicycle Route	-	Bader Rd	Calvine Rd	Sheldon Rd	1.00		$10,039	2	0	2	0	0	0	0	4	Low
243	Class III Bicycle Route	-	Sleepy Hollow Ln	Corfu Dr	Sheldon Rd	0.84		$8,355	0	0	0	0	0	0	2	2	Low
242	Class III Bicycle Route	-	Corfu Dr	Atlantis Dr	Excelsior Rd	0.74	Install signage to designate Class III Bicycle Route	$7,426	0	0	0	0	0	0	2	2	Low
509	Class IV Bikeway	-	Elk Grove Blvd	Franklin Blvd	Bruceville Rd	1.74	Remove Class II facility and install one way Class IV Bikeways adjacent to EB travel lanes. Road diet assessment needed.	$1,307,670	2	3	2	3	2	1	2	15	High
504	Class IV Bikeway	-	Whitelock Pkwy	Bruceville Rd	W Stockton Blvd	2.08	Install two-way Class IV Bikeway adjacent to EB travel lane. Would require road diet and/or ROW acquisition. Road diet assessment needed.	$1,561,779	2	3	2	3	1	1	2	14	High
544	Class IV Bikeway	-	Bond Rd	Elk Grove Florin Rd	Bradshaw Rd	1.39	Install Class IV Bikeway on either side of roadway. Road diet assessment needed. May be candidate for travel lane reduction, and/or lane width reduction. Roadway also needs maintenance due to debris, which causes safety hazards.	$1,040,480	2	3	2	3	0	1	2	13	High
223	Class IV Bikeway	-	Franklin Blvd	Big Horn Blvd	Elk Grove Blvd	1.78	Extend Franklin Cycle Track Phase 1 segment further south along Big Horn Blvd to Laguna Blvd. Road diet assessment needed, which may result in adjustment to Class IV bikeway.	$1,331,952	2	3	2	3	1	0	2	13	High
543	Class IV Bikeway	-	Bond Rd	Elk Grove Florin Rd	Bradshaw Rd	0.61	Install Class IV Bikeway on either side of roadway. Road diet assessment needed. May be candidate for travel lane reduction, and/or lane width reduction.	$455,504	2	3	2	3	0	0	2	12	High

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537	Class IV Bikeway	-	Calvine Rd	Cliffcrest Dr	Bader Rd	3.82	Class IV bikeway on each side of roadway, if feasible. Road diet assessment needed.	$2,862,210	2	3	0	3	0	0	2	10	High
527	Class IV Bikeway	-	Harbour Point Dr	Laguna Blvd	Elk Grove Blvd	1.39	Install Class IV bikeway adjacent to each side of roadway. 74' roadway width, 4 travel lanes with median. 11,406 ADT	$1,042,500	2	0	2	3	0	0	2	9	High
129	Crossing Improvement	Crosswalks, RRFB	Fire Poppy Dr/Summer Glen Way	-	-	-	Install RRFB on north leg and upgrade existing crosswalks on north and east legs to high visibility markings, install advance stop markings and advance warning signage on North and South approaches.	$55,100	2	3	2	3	0	1	2	13	High
185	Crossing Improvement	Crosswalk, Hybrid Beacon/Pedestrian Signal, Median Refuge Island	Elk Grove Florin Rd/ North of Southside Ave	-	-	-	Install high visibility crosswalk, Pedestrian Hybrid Beacon, Median Refuge Island	$254,800	2	3	0	3	0	3	2	13	High
85	Crossing Improvement	At-Grade Class I Bikeway Crossing	Bond Rd at existing crossing between Trout Way and Elk grove Florin Rd	-	-	-	Install Bicycle/Pedestrian Overcrossing - Safety challenge; great need for improved crossing conditions	Varies	2	3	2	3	0	0	2	12	High
165	Crossing Improvement	Crosswalk, Advance Stop Markings	Elk Grove Blvd/Melrose Ave	-	-	-	Mark transverse crosswalk with advance stop line on S leg	$1,200	2	3	0	3	0	3	0	11	Low
169	Crossing Improvement	Crosswalks, Advance Yield/Stop Markings	Elk Grove Florin Rd/Tralee Wy	-	-	-	Add advance yield lines to existing crosswalk on S leg. Mark yellow transverse crosswalk with advance stop line on E leg.	$1,950	2	3	0	3	0	3	0	11	Low
170	Crossing Improvement	Crosswalks, Advance Yield/Stop Markings	Elk Grove Florin Rd/Lismore Dr	-	-	-	Add advance yield lines to existing crosswalk on N leg. Mark yellow transverse crosswalk with advance stop line on E leg.	$1,950	2	3	0	3	0	3	0	11	Low
184	Crossing Improvement	Crosswalk, Median Refuge Island	Elk Grove Florin Rd/Emerald Park Dr	-	-	-	Install high visibility crosswalk, median refuge island	$4,800	2	3	0	3	0	3	0	11	High
204	Crossing Improvement	At-Grade Class I Bikeway Crossing	Elk Grove Florin Rd/ Rau Park Path terminus	-	-	-	Install high visibility transverse crosswalk midblock near path terminus at Rau park. Include median refuge, advance yield markings and pedestrian signal/PHB.	$255,550	2	3	0	3	0	1	2	11	High
39	Crossing Improvement	At-Grade Class I Bikeway Crossing	Elk Grove Florin Rd/Cadura Cir	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk, Advance Yield Markings/signage, RRFB	$3,750	2	3	0	3	0	0	2	10	High
49	Crossing Improvement	At-Grade Class I Bikeway Crossing	Sheldon Rd/E Stockton Rd	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk, Advance Yield Markings/Signage, Pedestrian Signal	$252,550	2	3	0	3	0	0	2	10	High

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52	Crossing Improvement	At-Grade Class I Bikeway Crossing	Kilconnell Dr/Hutton Dr	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk	$1,800	2	3	0	3	0	0	2	10	High
76	Crossing Improvement	At-Grade Class I Bikeway Crossing	Elk Grove Florin Rd/Cadura Cir	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk, Advance Yield Markings, RRFB	$52,550	2	3	0	3	0	0	2	10	High
89	Crossing Improvement	At-Grade Class I Bikeway Crossing	Elk Grove Florin Rd between Lamprey Dr and Bond Rd	-	-	-	Current signalized crossing is insufficient based on public comment; install advance yield markings and warning markings/signage at NB and SB approaches of Elk Grove Florin Rd.	$3,600	2	0	2	3	0	1	2	10	High
114	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Trail crossing on Laguna Blvd between Big Horn Blvd and W Stockton Blvd/Laguna Springs Dr	-	-	-	Install Bicycle/Pedestrian Overcrossing - Safety challenge; great need for improved crossing conditions	Varies	2	0	2	3	0	1	2	10	High
122	Crossing Improvement	At-Grade Class I Bikeway Crossing	Trail Crossing South of Bray Vista Way/ Brodie Ct and Emerald Vista Dr	-	-	-	Improve approach to At-Grade Class I Bikeway Crossing by installing advance yield markings and additional signage on the north and south approaches to existing RRFB crossing.	$750	2	0	2	3	0	1	2	10	High
197	Crossing Improvement	At-Grade Class I Bikeway Crossing	Bruceville Rd/Beaver Falls Way	-	-	-	Install high visibility tranverse crosswalk on north leg across Bruceville with PHB, median refuge island, advance yield markings, and advance warning signage/markings.	$255,550	2	3	0	3	0	0	2	10	High
26	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Laguna Creek Trail/Highway 99	-	-	-	Grade-Separated Class I Bikeway Crossing	Varies	2	0	2	3	0	0	2	9	High
95	Crossing Improvement	At-Grade Class I Bikeway Crossing	Trail terminus at Hollow Creek Way/ Stonebrook Dr	-	-	-	Install RRFB and advance yield markings at the existing crosswalk to improve visibility and reaction time. Improve alignment of trail as it approaches the crosswalk by removing vegetation and reconfiguring geometry at the East trail leg.	Varies	2	3	2	0	0	0	2	9	High
103	Crossing Improvement	At-Grade Class I Bikeway Crossing	Bertwin Way W/O Adobe Creek Way	-	-	-	Improve At-Grade Class I Bikeway Crossing by widening curb ramps and installing high-visibility crosswalk between misaligned and narrow existing trail termini.	Varies	2	3	2	0	0	0	2	9	High
104	Crossing Improvement	At-Grade Class I Bikeway Crossing	Adobe Springs Way W/O Adobe Creek Way	-	-	-	Improve At-Grade Class I Bikeway Crossing by widening curb ramps and installing high-visibility crosswalk between misaligned and narrow existing trail termini.	Varies	2	3	2	0	0	0	2	9	High

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195	Crossing Improvement	Crosswalk, Curb Extensions, Median Refuge Island, Pedestrian Signal, Advance Yield Markings, Advance Warning Signage	Whitelock Pkwy/W/O Nealon Dr near trail terminus	-	-	-	Install high visibility crossing, curb extensions, median refuge island, pedestrian signal, advance yield markings and advance warning signage.	$260,050	2	0	2	3	0	1	1	9	High
196	Crossing Improvement	Crosswalk, Median Refuge Island, Pedestrian Signal/PHB, Advance Yield Markings, Advance Warning Signage	Whitelock Pkwy/East of Carinata Dr	-	-	-	Install high visibility crosswalk, median refuge island, advance yield markings, advance warning signage/markings, and pedestrian signal. Extend Class I Path north of proposed crossing location to connect with crossing.	$255,550	2	3	2	0	0	1	1	9	High
198	Crossing Improvement	Crosswalk, Advance Warning Signage, Advance Stop Markings	Bilby Rd/Stathos Dr	-	-	-	Install high visibility transverse crosswalk across west leg of Bilby Rd, with advance warning signage, advance stop markings.	$2,550	2	3	0	3	0	1	0	9	Low
202	Crossing Improvement	Intersection Reconfiguration, Crosswalks, Advance Yield Markings, Curb Extensions, Median Refuge	Elk Grove Florin Rd/Sierra Street	-	-	-	Square up intersection geometry to reduce curb radii on east corners, install high visibility transverse crosswalk on south leg, and east leg; advance yield marking on north and south legs. curb extensions and median refuge at north and south legs.	Varies	2	3	0	3	0	1	0	9	High
629	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Laguna Blvd/UPRR	-	-	-		Varies	2	0	2	3	0	0	2	9	High
633	Crossing Improvement	At-Grade Class I Bikeway Crossing	Elk Grove Florin Rd/Proposed Whitehouse Creek Trail	-	-	-		Varies - Undeveloped Area	2	0	2	3	0	1	1	9	High
144	Crossing Improvement	Crosswalks, Advance Yield/Stop Markings	Carrcroft Drive/Soaring Oaks Drive	-	-	-	Mark transverse crosswalk across S leg with advance stop line. Add advance yield lines to East leg.	$1,950	2	3	0	3	0	0	0	8	Low
145	Crossing Improvement	Crosswalk, Advance Stop Markings	Harrogate Way/Soaring Oaks Drive	-	-	-	Mark transverse crosswalk across N leg with advance stop line.	$1,200	2	3	0	3	0	0	0	8	Low
149	Crossing Improvement	Crosswalks, Advance Yield Markings	Maranello Dr/Koto Dr/Villenueve Dr	-	-	-	Upgrade existing marked crosswalk on S leg to high visibility markings; add yellow high visibility crosswalk on N leg with advance stop line; add advance yield lines for existing marked crosswalk on W leg	$5,100	2	3	0	3	0	0	0	8	Low

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150	Crossing Improvement	Crosswalks, Advance Yield/Stop Markings	Maranello Dr/Enzo Way	-	-	-	Upgrade existing marked crosswalk on W leg to high visibility markings and add advance stop line; add yellow high visibility crosswalk with advance yield lines on N leg	$5,100	2	3	0	3	0	0	0	8	Low
151	Crossing Improvement	Crosswalk, Advance Yield Markings	Maranello Dr/Midblock, N of N school driveway	-	-	-	Mark yellow high visibility crosswalk with advance yield lines	$2,550	2	3	0	3	0	0	0	8	Low
152	Crossing Improvement	Crosswalk, Advance Yield Markings	Maranello Dr/Jenrose Way	-	-	-	Mark yellow high visibility crosswalk with advance yield lines on W leg	$2,550	2	3	0	3	0	0	0	8	Low
153	Crossing Improvement	Crosswalks, Advance Yield/Stop Markings	Modena Wy/Maranello Dr/Caldicot Dr	-	-	-	Upgrade existing marked crosswalk on S leg to high visibility markings; add yellow high visibility crosswalk on N leg with advance stop line; add advance yield lines for existing marked crosswalk on W leg	$5,100	2	3	0	3	0	0	0	8	Low
154	Crossing Improvement	Crosswalks	Shasta Lily Drive/Blue Maiden Way	-	-	-	Upgrade existing marked crosswalks on N and E legs to yellow high visibility markings and add yellow high visibility crosswalks on W and S legs	$7,200	2	3	0	3	0	0	0	8	Low
156	Crossing Improvement	Crosswalk, Advance Stop Markings	Shasta Lily Drive/Vytina Dr	-	-	-	Mark transverse crosswalk across S leg with advance stop line.	$1,200	2	3	0	3	0	0	0	8	Low
159	Crossing Improvement	Crosswalks, Advance Stop Markings	Windsor Point Way/Blue Maiden Way	-	-	-	Mark transverse crosswalks with advance stop lines on N and S legs.	$2,400	2	3	0	3	0	0	0	8	Low
160	Crossing Improvement	Crosswalk, Advance Stop Markings	Magnolia Hill Way/Blue Maiden Way	-	-	-	Mark transverse crosswalk with advance stop line on S leg.	$1,200	2	3	0	3	0	0	0	8	Low
162	Crossing Improvement	Crosswalk, Advance Stop Markings	Salmon Creek Dr/Bond Rd	-	-	-	Mark transverse crosswalk with advance stop line across S leg	$1,200	2	3	0	3	0	0	0	8	Low
166	Crossing Improvement	Crosswalk, Advance Stop Markings, Median Refuge, Curb Extensions	Minnie Cir/Valley Oak Ln	-	-	-	Upgrade existing marked crosswalk on W and N leg to high visibility markings with advance stop lines on the W leg. Install curb extensions and median refuge on W leg crossing.	$11,850	2	3	0	0	0	3	0	8	High
167	Crossing Improvement	Crosswalks, Advance Yield/Stop Markings	Vista Grande Wy/Valley Oak Ln	-	-	-	Mark transverse crosswalk with advance stop line on S leg, upgrade crosswalk marking on E leg.	$3,750	2	3	0	0	0	3	0	8	Low
168	Crossing Improvement	Crosswalks, Advance Yield/Stop Markings	Emerald Oak Dr/Valley Oak Ln	-	-	-	Mark yellow transverse crosswalks with advance stop lines on all legs	$4,800	2	3	0	0	0	3	0	8	Low
171	Crossing Improvement	Crosswalk, Advance Stop Markings	Elk Grove Florin Rd/Park Wy	-	-	-	Mark transverse crosswalk with advance stop line on W leg	$1,200	2	3	0	0	0	3	0	8	Low
172	Crossing Improvement	Crosswalk, Advance Stop Markings	Elk Grove Florin Rd/Park Meadows Dr	-	-	-	Mark transverse crosswalk with advance stop line on E leg	$1,200	2	3	0	0	0	3	0	8	Low

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177	Crossing Improvement	Crosswalks, Advance Yield Markings	Tralee way/Lismore Dr	-	-	-	Mark yellow transverse crosswalks with advance stop lines on all legs	$4,800	2	3	0	3	0	0	0	8	Low
183	Crossing Improvement	Crosswalk, Median Refuge Island	Elk Grove Blvd/Elk Ridge Way	-	-	-	Install high visibility crosswalk, median refuge island	$4,800	2	0	0	3	0	3	0	8	High
38	Crossing Improvement	At-Grade Class I Bikeway Crossing	Charolais Way/Black Swan Dr	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility XWALK, Advance Yield Markings	$2,550	2	3	0	0	0	0	2	7	High
43	Crossing Improvement	At-Grade Class I Bikeway Crossing	Bradshaw Rd/Bond Rd	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk, Advance Yield Markings	$2,550	2	3	0	0	0	0	2	7	High
54	Crossing Improvement	Crosswalk; Curb Ramp Improvement	Elk Spring Way/Murrell St	-	-	-	Increase width of existing crosswalk and widths of curb ramps	$20,450	2	3	2	0	0	0	0	7	High
58	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Grant Line Rd/SR 99	-	-	-	Grade-Separated Class I Bikeway Crossing	Varies	0	0	2	3	0	0	2	7	High
62	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Elk Grove Creek Trail/Waterman Rd	-	-	-	Grade-Separated Class I Bikeway Crossing	Varies	2	3	0	0	0	0	2	7	High
66	Crossing Improvement	At-Grade Class I Bikeway Crossing	Bond Rd/Sierra River Dr	-	-	-	Grade-Separated Class I Bikeway Crossing (BPTMP 2014); Curb Cut Redesign (Trails Committee)	Varies	2	3	0	0	0	0	2	7	High
68	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Waterman Rd/Laguna Creek Trail	-	-	-	At-Grade Class I Bikeway Crossing	Varies	2	0	2	3	0	0	0	7	High
72	Crossing Improvement	At-Grade Class I Bikeway Crossing	Elk Grove Blvd/Harbour Pointe Dr	-	-	-	At-Grade Class I Bikeway Crossing - Recommended in 2014 Plan. Recommended location TBD with further study.	Varies	2	3	0	0	0	0	2	7	Low
79	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Whitelock Pkwy/W Stockton Blvd	-	-	-	Grade-Separated Class I Bikeway Crossing	Varies	2	0	2	0	0	1	2	7	High
148	Crossing Improvement	Crosswalk, Advance Yield Markings, RRFB	Auberry Dr/Monterey Trail High School Main Driveway	-	-	-	Add advance yield lines and RRFB to existing yellow high visibility crosswalk on N leg.	$50,750	2	3	0	0	0	0	2	7	High
173	Crossing Improvement	Crosswalks, Advance Yield Markings, RRFB	Elk Grove Florin Rd/Park Trail Dr	-	-	-	Install transverse crossing on Elk Grove Florin Rd with advance yield markings, signage and RRFB. Extend existing Class I Path to the west of Elk Grove Florin to reach crosswalk.	$51,200	2	0	0	0	0	3	2	7	High
182	Crossing Improvement	At-Grade Class I Bikeway Crossing	Elk Grove Blvd/midblock West of Sabrina Ln, East of Big Timber Dr	-	-	-	Install high visibility crosswalk, Pedestrian Hybrid Beacon and Median Refuge Island	$254,800	2	0	0	3	0	1	1	7	High
632	Crossing Improvement	At-Grade Class I Bikeway Crossing	Waterman Rd/Proposed Whitehouse Creek Trail	-	-	-		Varies - Undeveloped Area	2	0	0	3	0	1	1	7	High
78	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Mandalay Ct/Railroad Tracks	-	-	-	Grade-Separated Class 1 Bikeway Crossing	Varies	2	0	2	0	0	0	2	6	High

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110	Crossing Improvement	At-Grade Class I Bikeway Crossing	Laguna Park Dr S/O Laguna Villa Way	-	-	-	Improve At-Grade Class I Bikeway Crossing with advance yield markings, advance warning signage, and RRFB (comments stated vehicles rarely stop for non-motorized users utilizing existing crossing).	$53,600	2	0	2	0	0	0	2	6	High
141	Crossing Improvement	At-Grade Class I Bikeway Crossing	Trail crossing at Mainline Dr/east of Founders Way/Lilac Fields Pl	-	-	-	Install high visibility crosswalk at trail crossing of Mainline Dr east of Founders Way/Lilac Fields Pl. Align trail termini by adding class I path extension to the west of southern trail segment.	Varies	2	0	2	0	0	0	2	6	High
189	Crossing Improvement	At-Grade Class I Bikeway Crossing	Bilby Rd/Gillam Dr	-	-	-	Install high visibility crosswalk and RRFB, advance stop bars and advance warning markings.	$2,550	0	0	0	3	0	1	2	6	High
556	Crossing Improvement	Trail/Crossing Alignment	McLean Dr/Franklin Creek Trail	-	-	-	Align crosswalk with trail access points by shifting crosswalk to the east	$450	2	3	0	0	0	1	0	6	High
557	Crossing Improvement	Crosswalk; Curb Ramps; Trail Access Improvement	Gilliam Drive/Franklin Creek Trail	-	-	-	Install crosswalk and curb ramps at east and west access points to Franklin Creek Trail to improve ADA access and bicycle access	$21,800	2	3	0	0	0	1	0	6	High
631	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Creek North of Franklin Elementary and Stephensen Family Park	-	-	-		Varies	2	3	0	0	0	1	0	6	High
634	Crossing Improvement	At-Grade Class I Bikeway Crossing	Porta Rosa/Elk Grove Blvd	-	-	-		Varies - Undeveloped Area	2	0	0	3	0	0	1	6	High
3	Crossing Improvement	Crosswalks	Bradshaw Rd/Elk Grove Blvd	-	-	-	Install high visibility crosswalks on all four legs	$7,200	2	0	0	3	0	0	0	5	Low
29	Crossing Improvement	At-Grade Class I Bikeway Crossing	Poppy Ridge Rd/Bridgeview Park Path	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk, Advance Yield, RRFB	$51,800	2	0	0	0	0	1	2	5	High
33	Crossing Improvement	At-Grade Class I Bikeway Crossing	Unnamed roadway east of Poppy Ridge Rd/proposed Class I Path (proposed Class I connects to existing Kammerer Family Park Path)	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk and signage	$3,000	2	0	0	0	0	1	2	5	High
50	Crossing Improvement	At-Grade Class I Bikeway Crossing	Lewis Stein Rd/Laguna Creek Trail	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk, Advance Yield Markings/Signage, RRFB	$52,550	2	0	0	0	0	1	2	5	High
123	Crossing Improvement	Crosswalks, Advance Yield/Stop Markings	Whitelock Pkwy/ Lousada Dr	-	-	-	Install high visibility transverse crossing on West leg, and advance stop markings on west leg and advance yield markings on east leg.	$3,300	2	0	2	0	0	1	0	5	Low

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146	Crossing Improvement	Crosswalks, Advance Stop Markings	Gallatin Dr/Soaring Oaks Dr/Trenholm Dr	-	-	-	Upgrade N, E, and S legs to yellow high visibility crosswalks, and add new yellow high visibility crosswalk on W leg. Include advance stop lines on all legs.	$10,200	2	3	0	0	0	0	0	5	Low
147	Crossing Improvement	Crosswalk, Advance Stop Markings	Soaring Oaks Drive/Melfort Way	-	-	-	Mark transverse crosswalk across E leg with advance stop line.	$1,200	2	3	0	0	0	0	0	5	Low
155	Crossing Improvement	Curb Extensions	Shasta Lily Dr/Midblock, at existing school crosswalk	-	-	-	Add curb extensions to existing midblock crossing	$4,500	2	3	0	0	0	0	0	5	High
158	Crossing Improvement	Crosswalks, Advance Stop Markings	Summer Pointe Dr/Vista Brook Dr	-	-	-	Mark transverse crosswalks with advance stop lines on all four legs	$4,800	2	3	0	0	0	0	0	5	Low
161	Crossing Improvement	Crosswalks, Advance Stop Markings	School Loop Rd/Stonebrook Dr/Bond Rd	-	-	-	Upgrade existing marked crosswalks on N, E, and S legs to yellow high visibility and add advance stop bars	$6,900	2	3	0	0	0	0	0	5	Low
175	Crossing Improvement	Crosswalks, Advance Yield/Stop Markings	Elk Grove Florin Rd/Mountain Home Ct	-	-	-	Mark transverse crosswalk with advance stop line on E leg, crosswalk with advance yield line on N leg.	$2,400	2	0	0	0	0	3	0	5	Low
176	Crossing Improvement	Advance Yield Markings	Tralee Wy/Midblock, north of Clancys Ct	-	-	-	Add advance yield lines to existing midblock crosswalk at school frontage	$750	2	3	0	0	0	0	0	5	Low
190	Crossing Improvement	Crosswalks, Advance Yield Markings, Advance Warning Signage, RRFB	Civic Center Dr/ E/O Big Timber Rd at park entrance	-	-	-	High visibility crosswalk markings across Civic Center, advance stop bar on east and west approach, RRFB, watch for bicyclists and pedestrians signage.	$54,500	2	0	0	0	0	1	2	5	High
191	Crossing Improvement	Crosswalks, Advance Yield Markings, Advance Warning Signage, RRFB, Median Refuge Island, Curb Extensions	Harbour Point Dr/Bastona Dr	-	-	-	Install high visibility crosswalk, curb extensions, median refuge island, advance stop bars, and advance warning signage.	$10,800	2	0	2	0	0	0	1	5	High
205	Crossing Improvement	At-Grade Class I Bikeway Crossing	Watermand Rd/Brown Rd/Proposed class I path connection to the east	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk, Advance Yield Markings, RRFB	$52,550	2	0	0	0	0	1	2	5	High
563	Crossing Improvement	At-Grade Class I Bikeway Crossing	Lotz Pkwy/New Road Between Shed Channel C and Promenade Pkwy	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalks, Advance Yield markings/Signage	$10,200	2	0	0	0	0	1	2	5	Low
617	Crossing Improvement	At-Grade Class I Bikeway Crossing	Southeast corner of Tuscan Park Proposed Site	-	-	-		Varies - Undeveloped Area	2	0	0	0	0	1	2	5	Low

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618	Crossing Improvement	At-Grade Class I Bikeway Crossing	Northeast of Tuscan Park proposed Site	-	-	-		Varies - Undeveloped Area	2	0	0	0	0	1	2	5	Low
619	Crossing Improvement	At-Grade Class I Bikeway Crossing	East of Big Horn Blvd/along Proposed Class I Path	-	-	-		Varies - Undeveloped Area	2	0	0	0	0	1	2	5	Low
620	Crossing Improvement	At-Grade Class I Bikeway Crossing	Big Horn Blvd/Proposed Class I Path west of SEPA Park ID D.	-	-	-		Varies - Undeveloped Area	2	0	0	0	0	1	2	5	Low
621	Crossing Improvement	At-Grade Class I Bikeway Crossing	Western boundary of SEPA park sites O &D.	-	-	-		Varies - Undeveloped Area	2	0	0	0	0	1	2	5	Low
622	Crossing Improvement	At-Grade Class I Bikeway Crossing	Eastern boundary of SEPA Park IDs L & F	-	-	-		Varies - Undeveloped Area	2	0	0	0	0	1	2	5	Low
623	Crossing Improvement	At-Grade Class I Bikeway Crossing	Southeast of Tempo Way/South of Lotz Pkwy near proposed SEPA Trail IDs 29 & 32	-	-	-		Varies - Undeveloped Area	2	0	0	0	0	1	2	5	Low
624	Crossing Improvement	At-Grade Class I Bikeway Crossing	Southeast of SEPA Park Site G along Shed Channel C	-	-	-		Varies - Undeveloped Area	2	0	0	0	0	1	2	5	Low
625	Crossing Improvement	At-Grade Class I Bikeway Crossing	North of SEPA Park Site ID H	-	-	-		Varies - Undeveloped Area	2	0	0	0	0	1	2	5	Low
626	Crossing Improvement	At-Grade Class I Bikeway Crossing	Northeast corner of SEPA Park Site ID J/east of Montaria Way	-	-	-		Varies - Undeveloped Area	2	0	0	0	0	1	2	5	Low
627	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	South of SEPA Park Site ID J	-	-	-		Varies	2	0	0	0	0	1	2	5	High
628	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Shed Channel C/SEPA Trail ID 5	-	-	-		Varies	2	0	0	0	0	1	2	5	High
635	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Bruceville Rd/Kammerer Rd	-	-	-		Varies	2	0	0	0	0	1	2	5	High
641	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Kammerer Rd/Railroad crossing near Franklin Blvd	-	-	-		Varies	2	0	0	0	0	1	2	5	High

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27	Crossing Improvement	At-Grade Class I Bikeway Crossing	Laguna Blvd/Harbour Point Dr	-	-	-	At-Grade Class I Bikeway Crossing - Recommended in 2014 Plan. Exact location TBD.	Varies	2	0	0	0	0	0	2	4	Low
36	Crossing Improvement	At-Grade Class I Bikeway Crossing	Mosher Rd between Waterman Rd and Rhone River Dr	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk and signage	$3,000	2	0	0	0	0	0	2	4	Low
40	Crossing Improvement	At-Grade Class I Bikeway Crossing	Bradshaw Rd/Proposed Class I Path South of Ridgerock Dr	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk, Advance Yield Markings/Signage, RRFB	$52,550	2	0	0	0	0	0	2	4	High
48	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Calvine Rd/Railroad Tracks	-	-	-	Grade-Separated Class I Bikeway Crossing	Varies	2	0	0	0	0	0	2	4	High
55	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Mandalay Ct/Railroad Tracks	-	-	-	Grade-Separated Class I Bikeway Crossing	Varies	2	0	0	0	0	0	2	4	High
60	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Railroad St/Railroad Tracks	-	-	-	Grade-Separated Class I Bikeway Crossing	Varies	2	0	0	0	0	0	2	4	High
61	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Elk Grove Creek Trail/Railroad Tracks	-	-	-	Grade-Separated Class I Bikeway Crossing	Varies	0	0	2	0	0	0	2	4	High
70	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Grant Line Rd/Deer Creek Tributary	-	-	-	Grade-Separated Class I Bikeway Crossing	Varies	0	0	0	0	0	2	2	4	High
200	Crossing Improvement	At-Grade Class I Bikeway Crossing	At proposed Class I Path termini east/west of Waterman Rd/ S/O Kent St	-	-	-	Install high-visibility crossing markings, RRFB, advance yield markings, advance warning signage/markings.	$52,550	0	0	2	0	0	0	2	4	High
561	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Laguna Creek/east of Waterman Rd	-	-	-	Grade-separated crossing over Laguna Creek.	Varies	2	0	0	0	0	0	2	4	High
567	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Laguna Creek East of Jordan Ranch Rd	-	-	-		Varies	2	0	0	0	0	0	2	4	Low
30	Crossing Improvement	At-Grade Class I Bikeway Crossing	Boa Nova Dr/Unnamed between Big Horn Blvd and Bruceville Rd	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk and signage	$3,000	0	0	0	0	0	1	2	3	High
31	Crossing Improvement	At-Grade Class I Bikeway Crossing	Bilby Rd/Unnamed between Big Horn and Bruceville Rd	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk and signage	$3,000	0	0	0	0	0	1	2	3	High
32	Crossing Improvement	At-Grade Class I Bikeway Crossing	Poppy Ridge Rd/Lousada Dr	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk and signage	$3,000	0	0	0	0	0	1	2	3	Low
34	Crossing Improvement	At-Grade Class I Bikeway Crossing	Lousada Dr/ Elfa Ave	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk and signage	$3,000	0	0	0	0	0	1	2	3	High
56	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Unnamed/Shed Channel C	-	-	-	Grade-Separated Class I Bikeway Crossing	Varies	0	0	0	0	0	1	2	3	High
57	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Unnamed/Shed Channel C	-	-	-	Grade-Separated Class I Bikeway Crossing	Varies	0	0	0	0	0	1	2	3	High

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73	Crossing Improvement	At-Grade Class I Bikeway Crossing	Boa Nova Dr/Unnamed undeveloped roads Bilby Rd	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk, Advance Stop Markings/Signage	$2,550	0	0	0	0	0	1	2	3	High
74	Crossing Improvement	At-Grade Class I Bikeway Crossing	Unnamed undeveloped roads - end of Bilby Rd	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk, Advance Stop Markings/Signage	$2,550	0	0	0	0	0	1	2	3	High
75	Crossing Improvement	At-Grade Class I Bikeway Crossing	Undeveloped area north of Shed C Channel/Kyler Rd	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk, Advance Stop Markings/Signage	$2,550	0	0	0	0	0	1	2	3	High
630	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Elk Grove Blvd/UPRR	-	-	-		Varies	2	0	0	0	0	1	0	3	High
47	Crossing Improvement	At-Grade Class I Bikeway Crossing	Sheldon Rd/Waterman Rd	-	-	-	At-Grade Class I Bikeway Crossing - High Visibility Crosswalk, Advance Yield Markings/Signage, RRFB	$52,550	0	0	0	0	0	0	2	2	High
67	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Bond Rd/Laguna Creek Trail	-	-	-	At-Grade Class I Bikeway Crossing	Varies	2	0	0	0	0	0	0	2	High
71	Crossing Improvement	Grade-Separated Class I Bikeway Crossing	Grant Line Rd/Deer Creek Tributary	-	-	-	Grade-Separated Class I Bikeway Crossing	Varies	0	0	0	0	0	0	2	2	High
157	Crossing Improvement	Crosswalk, Advance Stop Markings	Summer Pointe Dr/Sheldon Rd	-	-	-	Mark transverse crosswalk with advance stop line on N leg.	$1,200	2	0	0	0	0	0	0	2	Low
174	Crossing Improvement	Crosswalk, Advance Stop Markings	Elk Grove Florin Rd/Castle Park	-	-	-	Mark transverse crosswalk with advance stop line on E leg	$1,200	2	0	0	0	0	0	0	2	Low
199	Crossing Improvement	Crosswalks, PHB, Advance Yield Markings, Advance Warning Signage,	Bilby Rd/Boa Nova Dr	-	-	-	Install high visibility transverse crosswalk markings on east and north legs. Install PHB for EB and WB taffic, install advance yield markings and warning sigange on east and west leg	$255,100	0	0	0	0	0	1	1	2	High
206	Crossing Improvement	At-Grade Class I Bikeway Crossing	Bradshaw Rd/Sheldon Rd	-	-	-	Install high visibility crossings on all four legs, with advance stop markings (Rec may change with new information on existing conditions in this location due to inability to see aerials well).	$10,200	0	0	0	0	0	0	2	2	High
87	Curb Ramp Improvement	ADA Curb Ramp	Underwood Park trail terminus along Camden Lake Way, west of San Badger Way.	-	-	-	Install ADA ramp to accomodate bicyclists and pedestrians at Underwood Park trail entrance	$10,000	2	3	2	3	0	0	0	10	High
134	Curb Ramp Improvement	ADA Curb Ramp; No Parking Sigange/Markings; Trail Access Improvement	El Toreador Way/near trail outlet at Cantrell and Helen Catello Park	-	-	-	Install curb ramp with no parking zone at curb ramp location to improve trail access	$10,600	2	3	2	0	0	1	0	8	High

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111	Curb Ramp Improvement	ADA Curb Ramp; Trail Access Improvement	Trail terminus at Trenholm Dr E/O Soaring Oaks Dr	-	-	-	Install curb ramp for ADA and trail access	$10,000	2	3	2	0	0	0	0	7	High
91	Curb Ramp Improvement	ADA Curb Ramp	Trail terminus at Porto Rosa Dr	-	-	-	Install ADA ramps at all access points to Jack Hill Park.	$10,000	2	0	2	0	0	0	0	4	High
92	Curb Ramp Improvement	ADA Curb Ramp	Trail termius along Porto Rosa Dr	-	-	-	Install ADA ramp	$10,000	2	0	2	0	0	0	0	4	High
93	Curb Ramp Improvement	ADA Curb Ramp	Trail termius along Porto Rosa Dr	-	-	-	Install ADA ramp from ADA compliance and improved trail access	$10,000	2	0	2	0	0	0	0	4	High
99	Curb Ramp Improvement	ADA Curb Ramp; Trail Access Improvement	Powerline Trail Access W/O Hambley Circle	-	-	-	Improve curb ramp for ADA compliance and mitigating bicyclist difficulty navigating from trail to sidewalk	$10,000	2	0	2	0	0	0	0	4	High
100	Curb Ramp Improvement	ADA Curb Ramp; Trail Access Improvement	Trail W/O Hambley Circle	-	-	-	Improve curb ramp for ADA compliance and mitigating bicyclist difficulty navigating from trail to sidewalk	$10,000	2	0	2	0	0	0	0	4	High
553	Curb Ramp Improvement	Trail Access Improvement; ADA Access	Iris Meadow Way/Earhardt Channel Trail Access Point	-	-	-	Upgrade square curb access points to the Earhardt Channel Trail to improve access for bicycles and other wheeled vehicles.	$10,000	2	0	0	0	0	1	0	3	High
554	Curb Ramp Improvement	Trail Access Improvement; ADA Access	Paso Fino Way/Jungkeit Diary Trail - Franklin to Fire Poppy	-	-	-	Upgrade square curb access points to the Earhardt Channel Trail to improve access for bicycles and other wheeled vehicles.	$10,000	2	0	0	0	0	1	0	3	High
555	Curb Ramp Improvement	Trail Access Improvement; ADA Access	Paso Fino Way/Jungkeit Diary Trail - Franklin to Fire Poppy	-	-	-	Upgrade square curb access points to the Earhardt Channel Trail to improve access for bicycles and other wheeled vehicles.	$10,000	2	0	0	0	0	1	0	3	High
112	Curb Ramp Improvement	ADA Curb Ramp; Trail Access Improvement	Mannington Street/Class I Trail Terminus	-	-	-	Install curb ramp for ADA and trail access	$10,000	0	0	2	0	0	0	0	2	High
558	Curb Ramp Improvement	Curb Ramp; Trail Access Improvement	Laguna Creek Trail	-	-	-	Upgrade curb ramp from steep rounded curb for easier bicycle and wheelchair access to trail	$10,000	2	0	0	0	0	0	0	2	High
560	Curb Ramp Improvement	Curb Ramp; Trail Access Improvement	Whitehouse Creek Trail Access at Springhurst Dr	-	-	-	Upgrade existing rounded curb to improve bicycle and wheelchair access.	$10,000	2	0	0	0	0	0	0	2	High
505	Parking Enforcement	Parking Enforcement	Poppy Ridge Road	West of Big Horn Blvd (existing Class II Bicycle Lane begins)	East of Lousada Dr (existing Class II Bicycle Lane ends)	0.75	Enforce bike lane blockage to ensure bicycle lane is usable.	Varies	2	0	2	0	0	1	0	5	Low
9	Pedestrian-Specific Crossing Improvement	Leading Pedestrian Interval (LPI)	Elk Grove Florin Rd/Elk Grove Blvd	-	-	-	Implement Leading Pedestrian Interval (LPI) or Pedestrain Only Phase	Staff Time	2	3	0	3	0	3	0	11	High

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194	Pedestrian-Specific Crossing Improvement	Crosswalks; Curb Extenstions; Advance Stop Bar; Advance Warning Signage; Median Refuge Island; Pedestrian Signal	Whitelock Pkwy/Shana Way	-	-	-	Install new high visibility crosswalk with curb extensions, median refuge island, advance stop bars and warning signage and/or markings on on west leg. Install Pedestrian Signal	$260,050	2	3	0	3	0	1	1	10	High
106	Pedestrian-Specific Crossing Improvement	Signal Improvement: Pedestrian Signal Phase Update	Elk Grove Blvd/Stone Lake Club Dr	-	-	-	Update ped-actuated signal phase to activate for correct aprroach. Signal button activates the walk signal on the WB lane is set up on the wrong light- it activates the W/B light (this is a """"T"""" intersection; W/B is always clear).	Staff Time	2	0	2	3	0	1	0	8	High
164	Pedestrian-Specific Crossing Improvement	Crosswalk; Pedestrian Signal/Signalization,	Wolf Pack Ln/Fewster Way/Whitelock Pkwy	-	-	-	Mark high visibility crosswalk on E leg with signalized pedestrian crossing, median refuge island and advance stop markings, advance warning signage/markings (or signalize intersection).	$255,550	2	3	0	0	0	1	1	7	High
132	Pedestrian-Specific Crossing Improvement	Crosswalks; Advance Stop Markings	Bond Rd/Emerald Crest Dr	-	-	-	Upgrade existing crossing on the east leg to high visibility markings and install advance stop markings on the east leg. Add crosswalk markings to west leg.	$3,000	2	0	2	0	0	1	0	5	High
192	Pedestrian-Specific Crossing Improvement	Crosswalks; Curb Extenstions; Advance Stop Bar; Advance Warning Signage; Median Refuge Island	Harbour Point Dr/Maritime Dr	-	-	-	Upgrade to high visibility transverse crosswalks on all four legs, install curb extensions advance stop bar and signage, and pedestrian refuge island on north and south legs.	$23,700	2	0	2	0	0	0	1	5	High
80	Pedestrian-Specific Crossing Improvement	Curb Extensions; Median Refuge Island	Buckminster Dr/Harbour Point Dr	-	-	-	Install curb extensions and median refuge island.	$7,500	2	0	2	0	0	0	0	4	High
201	Pedestrian-Specific Crossing Improvement	Crosswalk; Advance Stop Markings; PHB	Waterman Rd/North of Rancho Dr	-	-	-	Install high visibility tranverse crosswalk on north leg with advance yield markings, and PHB, providing crossing opportunity between existing sidewalk to the west and proposed sidewalk to the east.	$252,550	2	0	0	0	0	0	1	3	High
483	Roadway Maintenance	Street Cleaning; Landscaping	Franklin Blvd	Whitelock Pkwy	Big Horn Blvd	2.79	Maintain roadway, including more frequent street sweeping and landscaping maintenance to improve bicyclist and pedestrian experience along segment.	Varies	2	3	2	3	0	1	0	11	Low
108	Roadway Maintenance	Bike Lane Maintenance	Bruceville Rd	-	-	-	Maintenance of Class II bike lane. Unsure of roadway extents needing maintenance based on comment.	Varies	2	0	2	0	0	1	0	5	Low

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128	Roadway Maintenance	Roadway Maintenance	Bilby Rd/Union Pacific RRX	-	-	-	A storm drain is missing a cover, and debris needs to be swept, both of which cause hazards for bicyclists.	Varies	2	0	2	0	0	1	0	5	Low
101	Roadway Maintenance	Bike Lane Maintenance/Materials Upgrade	Laguna Blvd/Citywide	-	-	-	Investigate material city uses for repaving on-street bicycle facilities, and recommend smoother material.	Varies	2	0	2	0	0	0	0	4	High
451	Sidewalk	-	E Stockton Blvd	Lismore Dr	E Stockton Blvd	0.78	West side of E Stockton Blvd	$535,465	2	3	2	3	0	3	2	15	High
414	Sidewalk	-	South side of Calvine Rd	Merryhill Elementary School	Lemberger Way	0.25	South side of Calvine Rd	$173,992	2	3	2	3	0	1	2	13	High
441	Sidewalk	-	north side of Southside Ave	Melrose Ave	Elk Grove Florin Rd	0.05	Fill gaps in sidewalk along north side of Southside Ave	$32,683	2	3	0	3	0	3	2	13	High
447	Sidewalk	-	East side of Elk Grove Florin Rd	Sheldon Rd	Campbell Rd	0.61	East side of Elk Grove Florin Rd	$420,099	2	3	2	3	0	1	2	13	High
637	Sidewalk	-	Laguna Blvd	Big Horn Blvd	400 feet Westof Big Horn/Laguna Blvds intersection	0.08		$53,343	2	3	2	3	0	1	1	12	High
214	Sidewalk	-	Elk Grove Florin Rd (Elk Grove-Florin Road and Elk Grove Park Sidewalk Infill)	Valley Oak Lane	Carmel Valley Way	0.98	This project will eliminate sidewalk gaps in the sidewalk network along the east side of Elk Grove-Florin Road, as well as improve ADA access, bicycle and pedestrian crossings (Lismore Drive, Valley Oak Drive).	$673,384	2	3	2	3	0	0	2	12	High
446	Sidewalk	-	Elk Grove Florin Rd	Campbell Rd	W Camden Dr	0.15	sidewalk on east side of Elk Grove Florin Rd on either sode of RR Tracks	$101,555	2	0	2	3	0	1	2	10	High
549	Sidewalk	-	Bruceville Rd	Big Horn Blvd	Proposed Laguna Creek Trail ""T"" Spur	0.25	5'-wide pedestrian path/sidewalk along west side of Bruceville Rd to connect gaps between north and south sidewalk segments (WTL019).	$168,607	2	0	2	3	0	1	2	10	High
581	Sidewalk	-	Adams St	Elk Grove Blvd	North of Eva St	0.02	small segment of sidewalk to fill gap	$13,027	2	3	0	3	0	1	1	10	High
425	Sidewalk	-	East side of Bradshaw Rd	Bond Rd	LC Tributary 4	0.06	East Side of Bradshaw Rd	$38,204	2	3	0	3	0	0	2	10	High
564	Sidewalk	-	Bruceville Rd	Big Horn Blvd	Existing sidewalk north on Bruceville Rd	0.11	5'-wide pedestrian path/sidewalk along west side of Bruceville Rd to connect gaps between north and south sidewalk segments	$72,101	2	0	2	3	0	1	2	10	High
453	Sidewalk	-	East side of Stockton Blvd	Park Way	Elk Grove Florin Rd	0.86	East side of Stockton Blvd	$593,495	2	3	0	0	0	3	2	10	High
452	Sidewalk	-	Elk Grove Regional Park entrance across St. Joseph's Catholic Church	Elk Grove Florin Rd	Elk Grove Florin Rd	0.00	South side of EB approach to intersection, connectiing to existing paths.	$2,736	2	3	0	0	0	3	2	10	High
574	Sidewalk	-	Big Horn Blvd	Foulks Park/Big Horn Trail	Big Horn Blvd West of Mereoak Cir	0.04	Install sidewalk to fill gap between existing.	$24,088	2	3	2	0	0	1	2	10	High

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438	Sidewalk	-	West side of Lewis Stein Rd	Sheldon Rd	W Stockton Blvd	0.25	West side of Lewis Stein Rd	$171,426	2	0	0	3	0	1	2	8	High
454	Sidewalk	-	East side of Elk Grove Florin Rd	Strawberry Creek	Stoneridge at Elk Grove Entrance	0.05	East side of Elk Grove Florin Rd	$37,002	2	0	0	3	0	1	2	8	High
350	Sidewalk	-	North side of Big Horn Blvd	Lewis Stein	New Country Ct	0.18	North side of Big Horn Blvd	$124,139	2	0	0	3	0	1	2	8	High
443	Sidewalk	-	West side of W Stockton Blvd	Elk Grove Honda Entrance	Elk Grove Audi Entrance	0.05	West side of W Stockton Blvd	$32,246	2	0	0	3	0	1	2	8	High
471	Sidewalk	-	West side of Elk Grove Florin Rd	Supermarket Entrance	Brown Rd	0.03	West side of Elk Grove Florin Rd	$23,300	2	0	0	3	0	1	2	8	High
417	Sidewalk	-	East side of Bruceville Rd	Poppy Ridge Rd	Bilby Rd	0.89	East side of Bruceville Rd	$608,200	2	0	0	3	0	1	2	8	High
421	Sidewalk	-	South side of Quail Run Ln	Bruceville Rd	Wexted Way	0.15	South side of Quail Run Ln	$99,719	2	0	0	3	0	0	2	7	High
375	Sidewalk	-	North side of Elk Grove Blvd	Porto Rosa Dr	Webb St	0.04	North side of Elk Grove Blvd	$28,477	2	0	0	3	0	0	2	7	High
487	Sidewalk	-	Big Horn Blvd	Monetta Dr	Sutter Medical Center entrance on Big Horn (where existing sidewalk/path ends)	0.09	Install sidewalk to fill gaps between existing sidewalk to the north and south of proposed segment on east side.	$59,503	2	0	2	0	0	1	2	7	High
442	Sidewalk	-	East side of 2nd Ave	Elk Grove Blvd	Polhemus Dr	0.02	East side of 2nd Ave	$13,327	2	3	0	0	0	0	2	7	High
384	Sidewalk	-	West side of Webb St	Elk Grove Blvd	Meadow Grove Dr	0.11	West side of Webb St	$78,284	2	0	0	3	0	0	2	7	High
393	Sidewalk	-	East side of Webb St	Elk Grove Blvd	Meadow Grove Dr	0.04	Fill sidewalk gaps on the east side of Webb St	$25,393	2	0	0	3	0	0	2	7	High
352	Sidewalk	-	East side of School Street	Summit St	Locust St	0.07	East side of School St	$45,893	2	0	0	3	0	0	2	7	High
449	Sidewalk	-	North side of Tegan Rd	Brienne Way	Laguna Park Dr	0.38	North side of Tegan Rd	$259,348	2	3	0	0	0	0	2	7	High
459	Sidewalk	-	West side of Waterman Rd	Rancho Dr	Laguna Creek	0.69	West side of Waterman Rd	$472,259	2	0	0	3	0	0	2	7	High
460	Sidewalk	-	South side of Bond Rd	Waterman Rd	Laguna Creek	0.04	South side of Bond Rd	$26,561	2	0	0	3	0	0	2	7	High
387	Sidewalk	-	Grove St	Railroad St	Kent St	0.09	Fill gaps to the east and west of existing sidewalk on the south side of Grove St	$60,292	2	0	0	3	0	0	2	7	High
423	Sidewalk	-	East side of Bradshaw Rd	Elk Grove Blvd	Kapalua Ln	0.50	East side of Bradshaw Rd	$341,852	2	0	0	3	0	0	2	7	High
377	Sidewalk	-	West side of Bradshaw Rd	Elk Grove Blvd	Kapalua Ln	0.29	West side of Bradshaw Rd	$200,881	2	0	0	3	0	0	2	7	High
467	Sidewalk	-	East side of Bradshaw Rd	Elk Grove Blvd	Kapalua Ln	0.08	East side of Bradshaw Rd	$53,954	2	0	0	3	0	0	2	7	High
360	Sidewalk	-	East side of Railroad St	Elk Grove Blvd	Grove St	0.07	East side of Railroad St	$47,884	2	0	0	3	0	0	2	7	High
358	Sidewalk	-	West side of Kent St	Elk Grove Blvd	Grove St	0.07	West side of Kent St	$45,078	2	0	0	3	0	0	2	7	High
390	Sidewalk	-	East side of Kent St	South of Elk Grove Blvd	Grove St	0.04	East side of Kent St	$24,249	2	0	0	3	0	0	2	7	High
465	Sidewalk	-	West side of Bradshaw Rd	Grant Line Rd	Existing sidewalk southeast of Ametrine Ct	0.15	West side of Bradshaw Rd	$100,004	2	0	0	3	0	0	2	7	High

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466	Sidewalk	-	West side of Bradshaw Rd	Elk Grove Blvd	existing sidewalk northeast of Nordman Ct	0.18	west side of street	$125,574	2	0	0	3	0	0	2	7	High
344	Sidewalk		West side of Bruceville Rd	Bella Vista at Elk Grove Apartments Enterance	Existing sidewalk at Quick Quack	0.05	Small segment to complete the sidewalk	$32,080	2	0	0	3	0	0	2	7	High
380	Sidewalk	-	East side of Bradshaw Rd	Grant Line Rd	Elk Grove Blvd	0.63	East side of Bradshaw Rd	$431,645	2	0	0	3	0	0	2	7	High
370	Sidewalk	-	East side of Railroad St - end at cul-de-sac	Locust St	Elk Grove Blvd	0.07	West side of Deer St	$45,479	2	0	0	3	0	0	2	7	High
373	Sidewalk	-	West side of Porto Rosa Dr	Pacer Ct	Elk Grove Blvd	0.05	West side of Porto Rosa Dr	$37,417	2	0	0	3	0	0	2	7	High
374	Sidewalk	-	East side of Porto Rosa Dr	Pacer Ct	Elk Grove Blvd	0.05	East side of Porto Rosa Dr	$32,625	2	0	0	3	0	0	2	7	High
396	Sidewalk	-	South side of Elk Grove Blvd	Waterman Rd	Elk Grove Blvd	0.04	South side of Elk Grove Blvd	$28,936	2	0	0	3	0	0	2	7	High
470	Sidewalk	-	North side of Elk Grove Blvd	Kent St	Elk Grove Blvd	0.03	North side of Elk Grove Blvd	$20,115	2	0	0	3	0	0	2	7	High
378	Sidewalk	-	North side of Elk Grove Blvd	Bradshaw Rd	East of Mainline Dr	0.10	Install new sidewalk on north side of Elk Grove Blvd	$71,763	2	0	0	3	0	0	2	7	High
376	Sidewalk	-	South side of Locust St	School St	Derr St	0.06	South side of Locust St	$41,850	2	0	0	3	0	0	2	7	High
353	Sidewalk	-	North side of Locust St	School St	Derr St	0.03	North side of Locust St	$19,467	2	0	0	3	0	0	2	7	High
422	Sidewalk	-	North side of Elk Grove Blvd	Grant Line Rd	Bradshaw Rd	0.54	North side of Elk Grove Blvd	$369,654	2	0	0	3	0	0	2	7	High
383	Sidewalk	-	North side of Charolais Way	Waterman Rd	Black Swan Dr	0.09	Install sidewalks along the north side of Charolais Way	$62,790	2	3	0	0	0	0	2	7	High
351	Sidewalk	-	Calvine Rd	Short Rd	400 feet to the west	0.08	South side of Calvine Rd	$52,699	2	3	0	0	0	0	2	7	High
464	Sidewalk	-	Waterman Rd	Brinkman Ct	Waterman Ct	0.54	West side of Waterman Rd	$368,769	2	0	2	0	0	0	2	6	High
424	Sidewalk	-	East side of Bradshaw Rd	Kapalua Ln	Silvertrail Ln	0.04	East side of Bradshaw Rd	$25,703	2	0	2	0	0	0	2	6	High
382	Sidewalk	-	West side of Bradshaw Rd	Kapalua Ln	Silvergate Ln	0.16	West side of Bradshaw Rd	$112,547	2	0	2	0	0	0	2	6	High
456	Sidewalk	-	East side of Elk Grove Florin Rd	Castle Park Dr	Park Trail Dr	0.08	East side of Elk Grove Florin Rd	$53,235	2	0	2	0	0	0	2	6	High
457	Sidewalk	-	East side of Elk Grove Florin Rd	Park Trail Dr	Park Trail Dr	0.03	East side of Elk Grove Florin Rd	$21,483	2	0	2	0	0	0	2	6	High
499	Sidewalk	-	Calvine Rd	East of Corley Cove Ln	Laguna Creek	0.10	Construct sidewalk on south side of street to connect gap in existing facilities on either side of this segment.	$69,025	2	0	2	0	0	0	2	6	High
455	Sidewalk	-	Elk Grove Florin Rd	Hampton Oak Dr	Elk Grove Florin Dr South of Carmel Valley Way	0.19	East side of E Stockton Blvd	$130,588	2	0	2	0	0	0	2	6	High
575	Sidewalk	-	Waterman Rd	South of Muffy Ct	Driveway 150 ft South	0.02	Fill small segment of sidewalk gap	$16,095	2	0	2	0	0	0	2	6	High

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448	Sidewalk	-	West side of Elk Grove Florin Rd	Sheldon Rd	Campbell Rd	0.48	West side of Elk Grove Florin Rd	$331,033	2	0	2	0	0	0	2	6	High
437	Sidewalk	-	South side of Dunisch	Dunisch Rd	W Stockton Blvd	0.29	South side of Dunisch	$197,476	2	0	0	0	0	1	2	5	High
444	Sidewalk	-	Laguna Grove Ct	Laguna Grove Dr	Laguna Grove Cul-de-sac	0.02	Around end of cul-de-sac	$10,468	2	0	0	0	0	1	2	5	High
436	Sidewalk	-	West side of W Stockton Blvd	Dunisch Rd	Home Depot Entrance	0.11	West side of W Stockton Blvd	$72,492	2	0	0	0	0	1	2	5	High
403	Sidewalk	-	Radical Tire Entrance	Entrance	Waterman Rd	0.05	North side of Entrance	$36,617	2	0	0	0	0	0	2	4	High
404	Sidewalk	-	Radical Tire Entrance	Entrance	Waterman Rd	0.04	South side of Entrance	$29,572	2	0	0	0	0	0	2	4	High
369	Sidewalk	-	East side of Walnut St	Grove St	Railroad St	0.28	East side of Railroad St - end at cul-de-sac	$195,615	2	0	0	0	0	0	2	4	High
371	Sidewalk	-	East side of Batey Ave on either side of Windsor Care & Rehabilitation Center	Rancho Dr	Locust St	0.12	East side of Batey Ave on either side of Windsor Care & Rehabilitation Center	$82,702	2	0	0	0	0	0	2	4	High
472	Sidewalk	-	East side of Batey Ave	Rancho Dr	Locust St	0.02	East side of Batey Ave	$13,655	2	0	0	0	0	0	2	4	High
450	Sidewalk	-	South side of Tegan Rd	Laguna Park Dr	Laguna Park Dr	0.07	South side of Tegan Rd	$49,578	2	0	0	0	0	0	2	4	High
462	Sidewalk	-	West side of Dwight Rd	Horizon Charter School Entrance	Horizon Charter School Entrance	0.05	West side of Dwight Rd	$37,374	2	0	0	0	0	0	2	4	High
407	Sidewalk	-	Waterman Ct	Waterman Rd	Grant Line Rd	0.46	Install sidewalk along the east side of Waterman Rd	$315,497	0	0	2	0	0	0	2	4	High
408	Sidewalk	-	Mosher Rd	Waterman Rd	Grant Line Rd	0.40	Install sidewalks along the south side of Mosher Rd	$274,253	2	0	0	0	0	0	2	4	High
410	Sidewalk	-	Mosher Rd	Waterman Rd	Grant Line Rd	0.17	sidewalk on north side of Mosher Rd	$116,621	2	0	0	0	0	0	2	4	High
411	Sidewalk	-	South side of Calvine Rd	Strawberry Creek Trail	Calvine Rd	0.08	South side of Calvine Rd	$58,069	2	0	0	0	0	0	2	4	High
412	Sidewalk	-	South side of Calvine Rd	Vintage Park Dr	Calvine Rd	0.06	South side of Calvine Rd	$39,747	2	0	0	0	0	0	2	4	High
215	Sidewalk	-	Tegan Rd	100' West of Laguna Park Dr		0.07	This project will remove a barrier to accessibility by constructing approximately 300 feet of concrete sidewalk, curb and gutter, minor pavement widening and utility relocations.	$48,908	2	0	0	0	0	0	2	4	High
420	Sidewalk	-	Promenade Parkway south of Grant Line Rd	Kammerer Rd	W Stockton	0.19	sidewalk on both sides of street south of Kammerer Rd; features joined so length reflects both sides.	$127,990	0	0	0	0	0	1	2	3	High
405	Sidewalk	-	Fastenal Entrance	Bendel Pl	Waterman Rd	0.09	South side of Bendel Pl	$61,746	0	0	0	0	0	0	2	2	High
406	Sidewalk	-	Waterman Ct	Waterman Ct	Grant Line Rd	0.04	west side of Waterman Ct approaching Grant Line Rd	$27,972	0	0	0	0	0	0	2	2	High

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138	Sidewalk Improvement	Barrier Removal; Curb Rambs	Sidewalk connection between Locust Ct and Pacer Ct	-	-	-	Redesign existing bike/pedestrian gateway connecting Locust Ct and Pacer Ct, which presents an unnecessary barrier for ADA, bikes and wheelchairs. Rounded curbs also pose a barrier to access.	Varies	2	0	2	3	0	0	2	9	High
86	Signage Improvement	No Parking Signage	Bond Rd between Trout Way and existing trail termini west of Elk grove Florin Rd	-	-	-	Install no stopping/parking sign because cars stop here and block the lane	$600	2	3	2	3	0	0	0	10	Low
135	Signage Improvement	No Parking Signage	E Stockton Blvd between Laguna Blvd and Elk Grove Park	-	-	-	Install no parking signage and enforce no parking in bicycle lanes, as parking (specifically construction vehicles) is commonplace in this location.	$600	2	3	2	0	0	1	0	8	Low
498	Speed Enforcement/Management	Speed Enforcement; Traffic Calming	Black Kite Dr	Boysenberry Way	Elk Grove Florin Rd	0.63	Implement traffic calming measures such speed humps, pavement markings, etc. to address issue of speeding through neighborhood	Varies	2	3	2	3	0	1	0	11	Low
481	Speed Enforcement/Management	Speed Enforcement; Traffic Calming	Harbour Point Dr	Laguna Blvd	Elk Grove Blvd	1.39	Consider Speed Management Program, increase speed enforcement, traffic calming, etc. along this segment.	Varies	2	3	2	3	0	1	0	11	Low
500	Speed Enforcement/Management	Speed Enforcement; Traffic Calming	E Stockton Blvd	Elk Grove Blvd	Valley Oak Ln	0.57	Enforce speeds on this stressful roadway; limited ROW on E Stockton Blvd does not allow for upgraded facility.	Varies	2	0	2	3	0	3	0	10	Low
130	Speed Enforcement/Management	Speed Feedback Sign	W Stockton Blvd/near Elk Grove Park	-	-	-	Enforce excessive speeding along West Stockton Blvd. Consider Speed feedback sign coupled with enforcement, and potential traffic calming measures if feasible for existing ROW and context	Varies	2	0	2	0	0	3	0	7	High
514	Trail Improvement	Pave Trail	Elk Grove Creek Trail	Elk Grove Blvd	Emerald Vista Dr	0.39	Pave existing unpaved trail	Varies	2	3	2	3	2	1	2	15	High
640	Trail Improvement	Pave Trail	Elk Grove Creek Trail	Elk Grove Blvd	Elk Grove Florin Road	0.73	Pave existing unpaved trail	Varies	2	3	2	3	0	3	2	15	High
479	Trail Improvement	Trail Widening	Betschart Park Trail	Existing trail to the west	Trail terminus at Bambridge Way/Old Creek Dr	0.32	Widen existing trail to Class I standards. Public comments stated trail is too narrow to accomodate multiple types of non-motorized users.	Varies	2	3	2	3	1	0	2	13	High
475	Trail Improvement	Trail Widening	Camden Park Trail	Trail terminus near Allister Way/Kingslynn Ct	Bond Rd	1.23	Widen trail, as existing is too narrow. Also consider alternative material such as decomposed granite or rubber for joggers.	Varies	2	3	2	3	0	0	2	12	High

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220	Trail Improvement	Trail Maintenance - Flooding, Trail Etiquette Sigange/Markings; Wayfinding Sigange; Stray Animal removal	Laguna Creek Trail	Elk Grove Florin Rd	Fall Brook Trail (del Meyer to Waterman)	0.56	Address flodding issues, add signage/markings for passing etiquette, install wayfinding sigange, stray animal removal	Varies	2	3	2	3	1	1	0	12	High
478	Trail Improvement	Pavement Rehabilitation	Wackman Park and Betschart Park Trail	Big Horn Blvd	Trail terminus SE of Misty Meadow Way	0.78	Maintain trail pavement as existing paving is failing according to public comment.	Varies	2	3	2	3	0	0	0	10	High
221	Trail Improvement	Trash Cans; Pet Waste Stations; Vegetation Removal; Landscaping Improvements	Bond Ridge (Rainbow Creek Trib Point Development) Trail - Adjacent to LC Tributary 4	Bond Road	Stonebrook Dr	0.42	Provide trash cans, pet waste stations, and maintain vegetation/ landscaping	Varies	2	3	2	3	0	0	0	10	Low
88	Trail Improvement	Trail Etiquette Signage	Trail N/O Bond Rd, between Terra Linda Dr and Elk Grove Florin Rd	-	-	-	Signage or education about proper trail etiquette	$1,200	2	3	2	3	0	0	0	10	Low
96	Trail Improvement	Barrier Removal; Trail Realignment; Crosswalk	Laguna Creek Trail termininear Salmon Creek Dr and Winding Brook Way	-	-	-	Remove bollards where entrance ramps are narrow and they present an obstacle to accessing the trail; realign trail access points for easier access; install crosswalk	Varies	2	3	2	3	0	0	0	10	High
97	Trail Improvement	Pet Waste Station	Trail east of Salmon Creek Dr and Winding Brook Way	-	-	-	Pet waste station needed	Varies	2	3	2	3	0	0	0	10	Low
119	Trail Improvement	Trail Etiquette Signage; Vegetation Removal	Trail north of Elk Grove Blvd - between west of Baypoint Dr and north of Elk Grove Blvd	-	-	-	Install trail etiquette signage and/or markings and maintain vegetation (tall bushes obscur sightlines around corner in this location).	Varies	2	3	2	3	0	0	0	10	Low
121	Trail Improvement	Vegetation Removal	Trail west of Black Swan Dr between Heather Gate Way and Elk grove Blvd	-	-	-	Maintain tall vegetation/bushes around bend that obscur sightlines in this location.	Varies	2	3	2	3	0	0	0	10	Low
180	Trail Improvement	Pet Waste Station	Trail entrance from Amber Waves Way	-	-	-	Install pet waste station	Varies	2	3	2	3	0	0	0	10	Low
181	Trail Improvement	Pet Waste Station	Trail entrance from Majesties Ct	-	-	-	Install pet waste station	Varies	2	3	2	3	0	0	0	10	Low
211	Trail Improvement	Stone Lake Preserve Trail Improvements; Existing Trail Maintenance	Stone Lake Preserve Trail	Stone Lake Preserve Trail terminus	Elk Grove Blvd	1.51	Stone Lake Preserve Trail Improvements (no 2014 BPTMP description of improvement), but maintenance identified by public outreach.	Varies	2	3	0	3	1	1	0	10	High
109	Trail Improvement	Trail Widening	Paths around Foulks Ranch Elementary	-	-	-	Widen existing paths surrounding Foulks Ranch Elementray School - too narrow for	Varies	2	3	2	0	0	0	2	9	High

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							walkers, bikers and strollers, and not to Class I standards.										
484	Trail Improvement	Pavement Rehabilitation; Landscaping Improvement; Debris Removal	Franklin Blvd	Spring Flower Dr	Summer Glen Way	0.76	Maintain existing trail with pavement repair, landscaping, debris and thorn removal, etc.	Varies	2	0	2	3	0	1	0	8	High
124	Trail Improvement	Pet Waste Station	Cape Verde Drive/Whitelock Pkwy	-	-	-	Install Pet Waste Station and Signage	Varies	2	3	2	0	0	1	0	8	Low
591	Trail Improvement	Trail Realignment and Curb Redesign	Whitelock Pkwy/Bellaterra Dr	-	-	-	Realign paths and redesign curb cuts per Trail Committee Project WP1	Varies	2	3	0	3	0	0	0	8	High
476	Trail Improvement	Vegetation Removal	Trail adjacent to Stonebrook Dr	Stonebrook Dr/Hollow Creek Way	Stonebrook Dr/Stone Springs Dr	0.12	Maintain vegetation along existing trail segment	Varies	2	3	2	0	0	0	0	7	High
90	Trail Improvement	Curb Ramp; Vegetation Removal	Trail terminus at Dever Circle	-	-	-	Trail maintenance to keep bushes from covering sidwalk, ADA accessible ramp needed for ADA as well as Bicyclist access to trail.	Varies	2	3	2	0	0	0	0	7	High
98	Trail Improvement	Pet Waste Station	Trail S/O Crystal Water Way and Winding River Way	-	-	-	Pet waste station needed	Varies	2	3	2	0	0	0	0	7	Low
143	Trail Improvement	Trail Widening; Trail Etiquette Signage; Landscaping Maintenance	Trails in Elk Grove Regional Park	-	-	-	Landscape and trail maintenance needed. Consider restrictions for bicylist speed and trail etiquette signage as trail is narrow and results in unsafe conditions for slower bicyclits and/or pedestrians, widen trail, or make the trail a pedestrian-only pat	Varies	2	0	2	0	0	3	0	7	High
178	Trail Improvement	Pet Waste Station	Trail entrance from Rocky Falls Ct	-	-	-	Install Pet Waste Station	Varies	2	3	2	0	0	0	0	7	Low
552	Trail Improvement	Barrier Removal	Castle Park Dr/WestPark Dr	-	-	-	Widen and level path at bicycle and pedestrian gate located at Castle Park Dr and Westpark Dr. Existing gate is narrow and located over rounded curb, creating access barrier; also include wayfinding signage to direct users through low stress neighborhood	Varies	2	0	2	0	0	0	2	6	High
590	Trail Improvement	Trail Drain Pan	Stephensen Park/Bolo Ct	-	-	-	Extend ramps back into the trail to lessen incude and address issue of safety when crossing over the drain pan.	Varies	2	3	0	0	0	1	0	6	High
281	Trail Improvement	Pedestrian/Jogging Trail	Shed A drainage channel/ Ehrhardl Channel	Elk Grove Blvd	Spring Flower Dr	0.22	This project will install a pedestrian and jogging trail	Project In Progress	2	0	0	0	0	1	2	5	High

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113	Trail Improvement	Pavement Rehabilitation	Trail adjacent to Big Horn Blvd between Lewis Stein Rd and Laguna Blvd	-	-	-	Trail maintenance needed to address pot holes and cracks in paving in this location	Varies	2	0	2	0	0	1	0	5	High
115	Trail Improvement	Trail Identification Signage	Trail South of Shopping Center at corner of Laguna Blvd and Laguna Springs Dr	-	-	-	Install trail signage like """"Elk Grove Creek Trail"""" (or Elk Grove Creek West) for public to identify the trail name.	$600	2	0	2	0	0	1	0	5	Low
116	Trail Improvement	Sprinkler System Maintenance	Trail South of Briar Bush Way - Briar Bush Way to the north, Laguna Springs Drive to the east	-	-	-	Maintain sprinlkler system coordination so sprinkler system is timed correctly and does not douse cyclists and pedestrians, as well as prematurely degrade the trail facility.	Varies	2	0	2	0	0	1	0	5	Low
117	Trail Improvement	Materials Upgrade	Elk Grove Creek Trail Overcrossing/Highway 99	-	-	-	Upgrade existing metal expansion plate on overcrossing to heavy duty rubber stripping under the plate to help dampen noise.	Varies	2	0	2	0	0	1	0	5	High
179	Trail Improvement	Pet Waste Station	Trail Entrance at Rocky Falls Ct	-	-	-	Install pet waste station	Varies	2	3	0	0	0	0	0	5	Low
219	Trail Improvement	Trail Maintenance - Broken Glass	Strong Park-Est Park Dr north toward Wright Park Trail	Hambley Cir	Hambley Cir	0.04	Address broken glass by more frequent trail maintenance		2	0	2	0	0	0	0	4	Low
82	Trail Improvement	Fence Relocation	Trail SE of Allister Way	-	-	-	Trail maintenance to relocate fence where large trees are growing into it	Varies	2	0	2	0	0	0	0	4	Low
83	Trail Improvement	ADA Compliant Trail	Trail NE of West Camden Dr between Allister Way and South Camden Dr	-	-	-	Fix ADA non-compliant cross-slope here.	Varies	2	0	2	0	0	0	0	4	High
94	Trail Improvement	Barrier Removal; Curb Ramp Improvement	Trail terminus at Rising Creek Way/Sierra River Dr	-	-	-	Remove the bollard that creates an obstacle at this sharp turn in the trail, and redesign curb cut	Varies	2	0	2	0	0	0	0	4	High
120	Trail Improvement	Vegetation Removal	Trail west of Black Swan Dr between Flame Tokay Way and Heather Gate Way	-	-	-	Maintain tall vegetation around bend that is obscurring sight lines in this location.	Varies	2	0	2	0	0	0	0	4	Low
139	Trail Improvement	Trail Realignment; Curb Ramp	Trail termini at Apple Mill Dr	-	-	-	Realign trail termini on either side of Apple Mill Dr to address sharp turns on trail near sidewalk connections ; redesign curb ramp for easier access.	Varies	2	0	2	0	0	0	0	4	High
140	Trail Improvement	Vegetation Removal	Trail segments NW of Black Swan Dr/Mainline Dr	-	-	-	Maintain trail vegetation along trail segment	Varies	2	0	2	0	0	0	0	4	Low
187	Trail Improvement	Trail Access Improvement: ADA Curb Ramp; No Parking Sigange/Markings	Brenton Ct/ Trail Access Point West of Sierra River Dr	-	-	-	Install ADA curb ramp where rolled curb is currently located, and install no parking zone in front of trail terminus.	$10,600	2	0	2	0	0	0	0	4	High

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118	Trail Improvement	Pet Waste Station	Trail South of Niello BMW Elk Grove - between Laguna Grove Dr to the north and Auto City Dr	-	-	-	Install Pet Waste Station and signage along path.	Varies	0	0	2	0	0	1	0	3	Low
559	Trail Improvement	Trail Connection/Realignment; Curb Ramp; Trail Access Improvement	Stone Lakes Trail at Elk Grove Blvd and Shorelake Dr	-	-	-	Connect trail to crossing at Shorelake Dr/ Elk Grove Blvd	Varies	2	0	0	0	0	1	0	3	High