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.

FIGURE 1
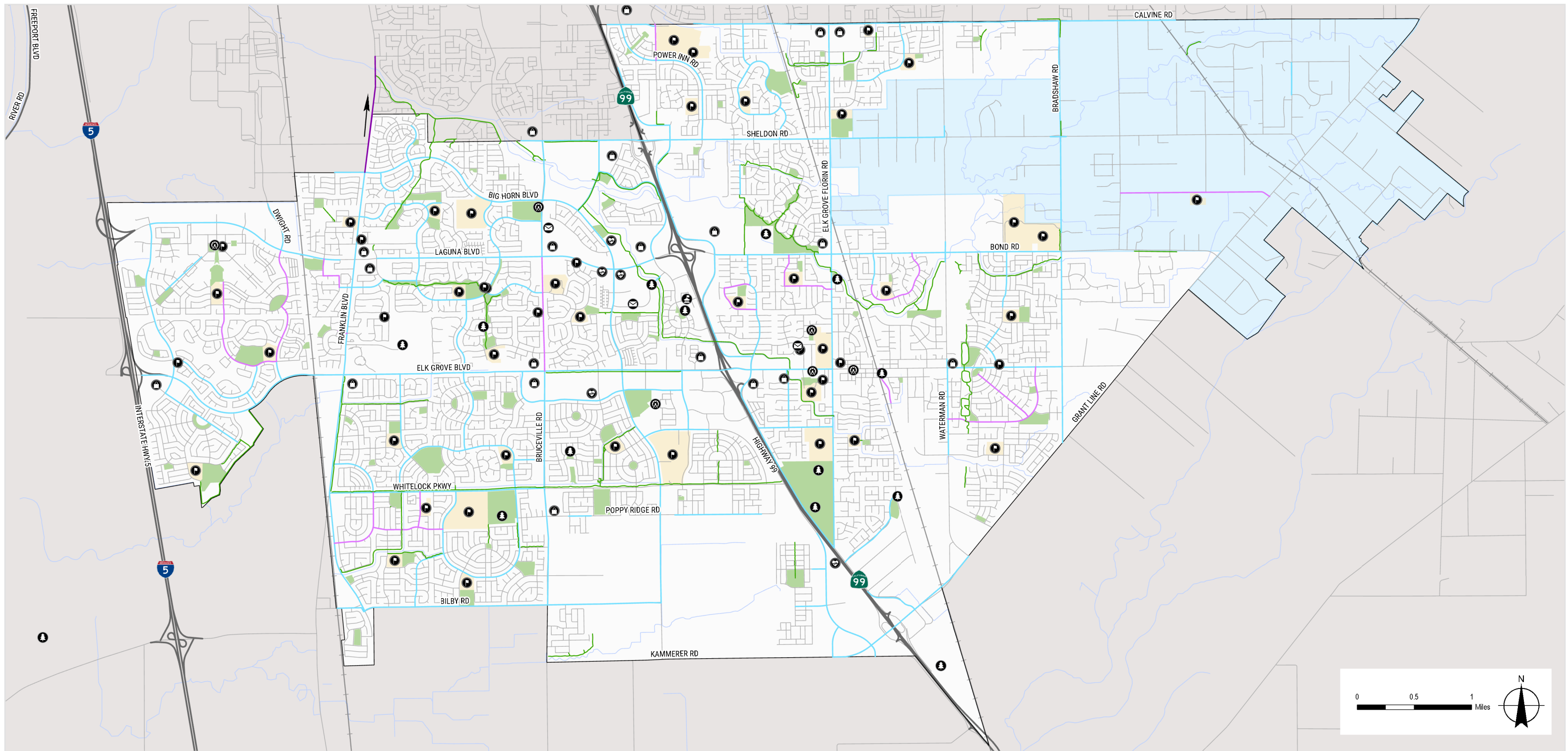
Major Destinations

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

Map labels: CALVINE RD, POWER INN RD, SHELDON RD, BRADSHAW RD, BIG HORN BLVD, LAGUNA BLVD, ELK GROVE FLORIN RD, BOND RD, DWIGHT RD, FRANKLIN BLVD, ELK GROVE BLVD, BRUCEVILLE RD, WATERMAN RD, GRANT LINE RD, WHITELOCK PKWY, POPPY RIDGE RD, HIGHWAY 99, BILBY RD, KAMMERER RD, FREEPORT BLVD, RIVER RD, INTERSTATE HWY 5

0   0.5   1   Miles

N

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.
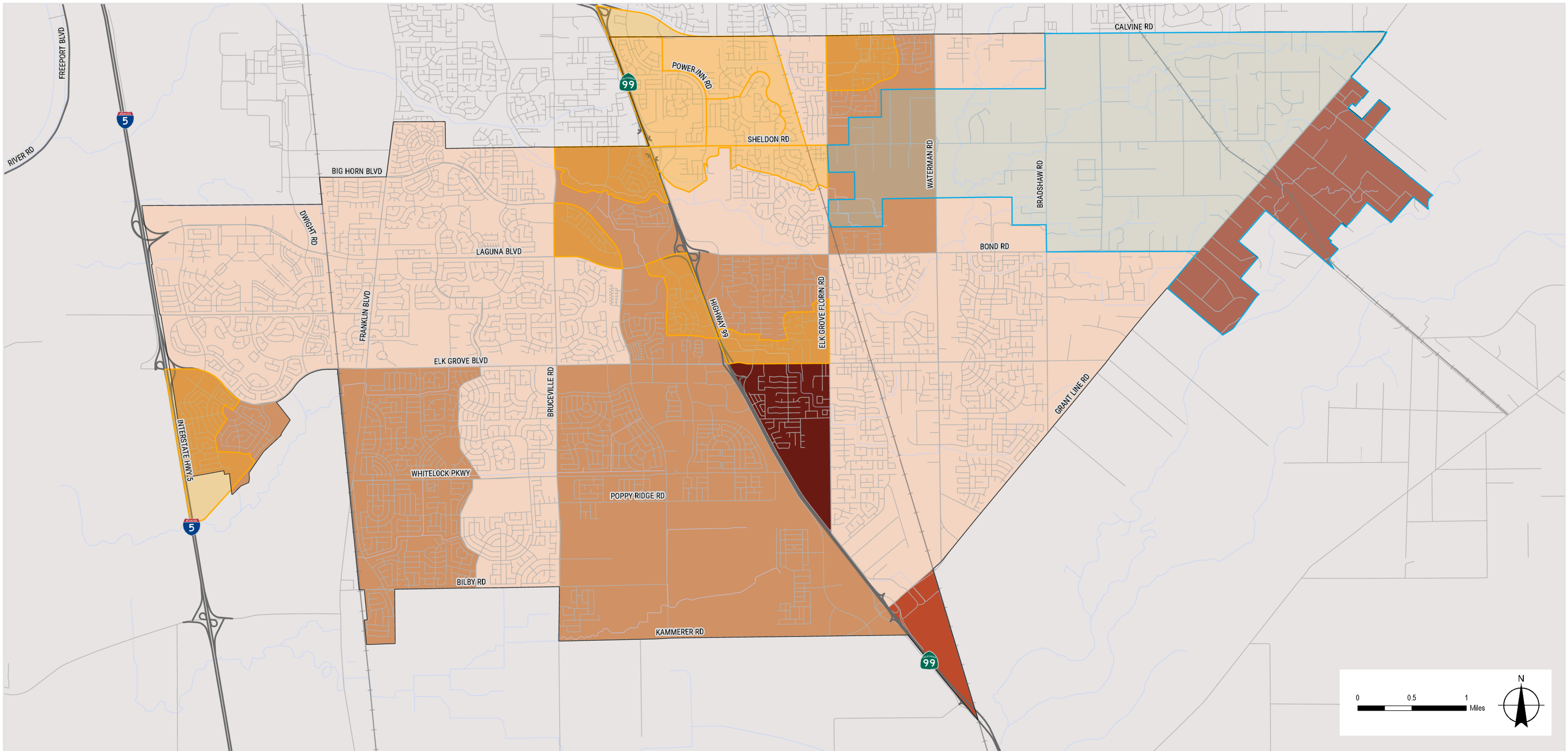
Disadvantaged Community Map

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

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.
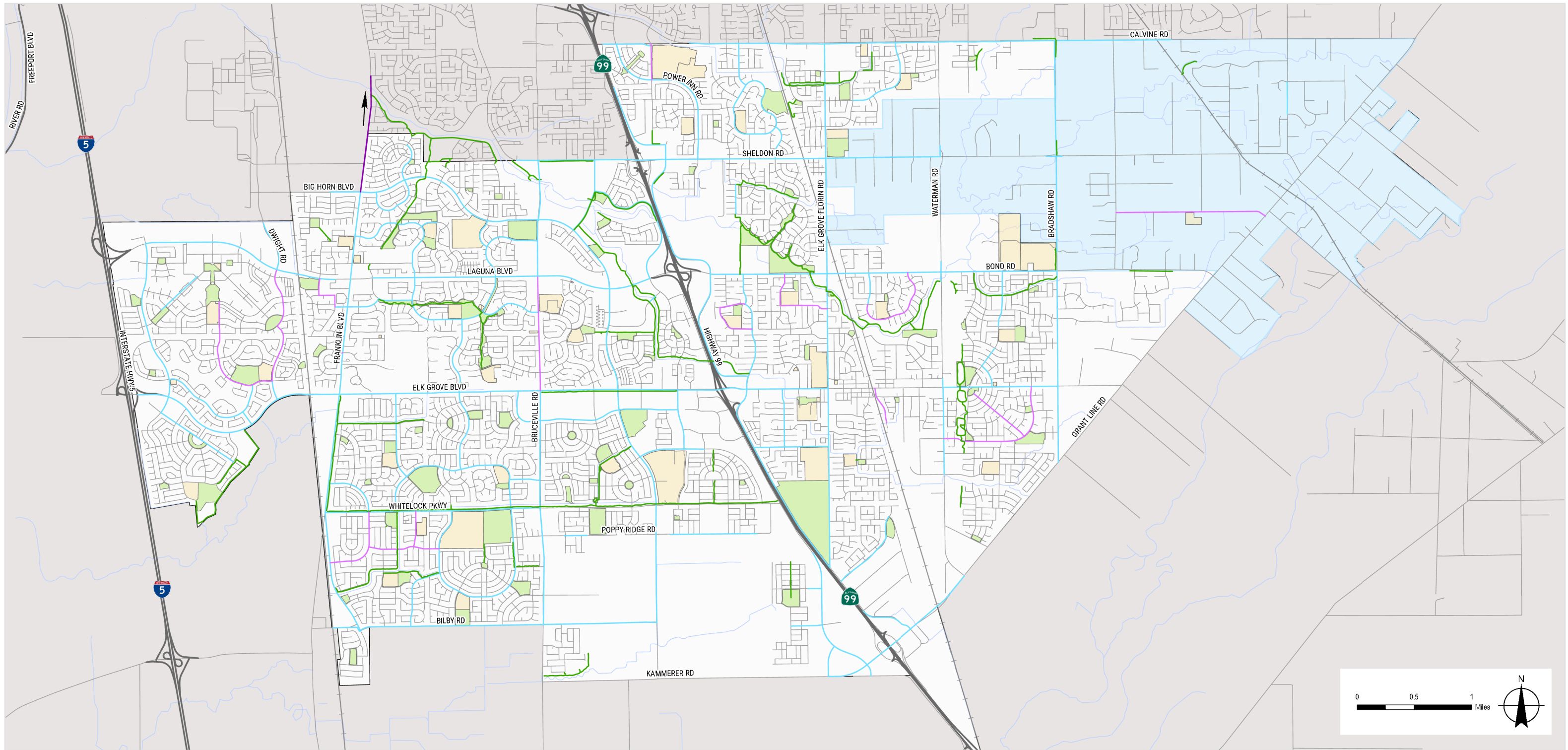
Existing Bicycle Network

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

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

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.
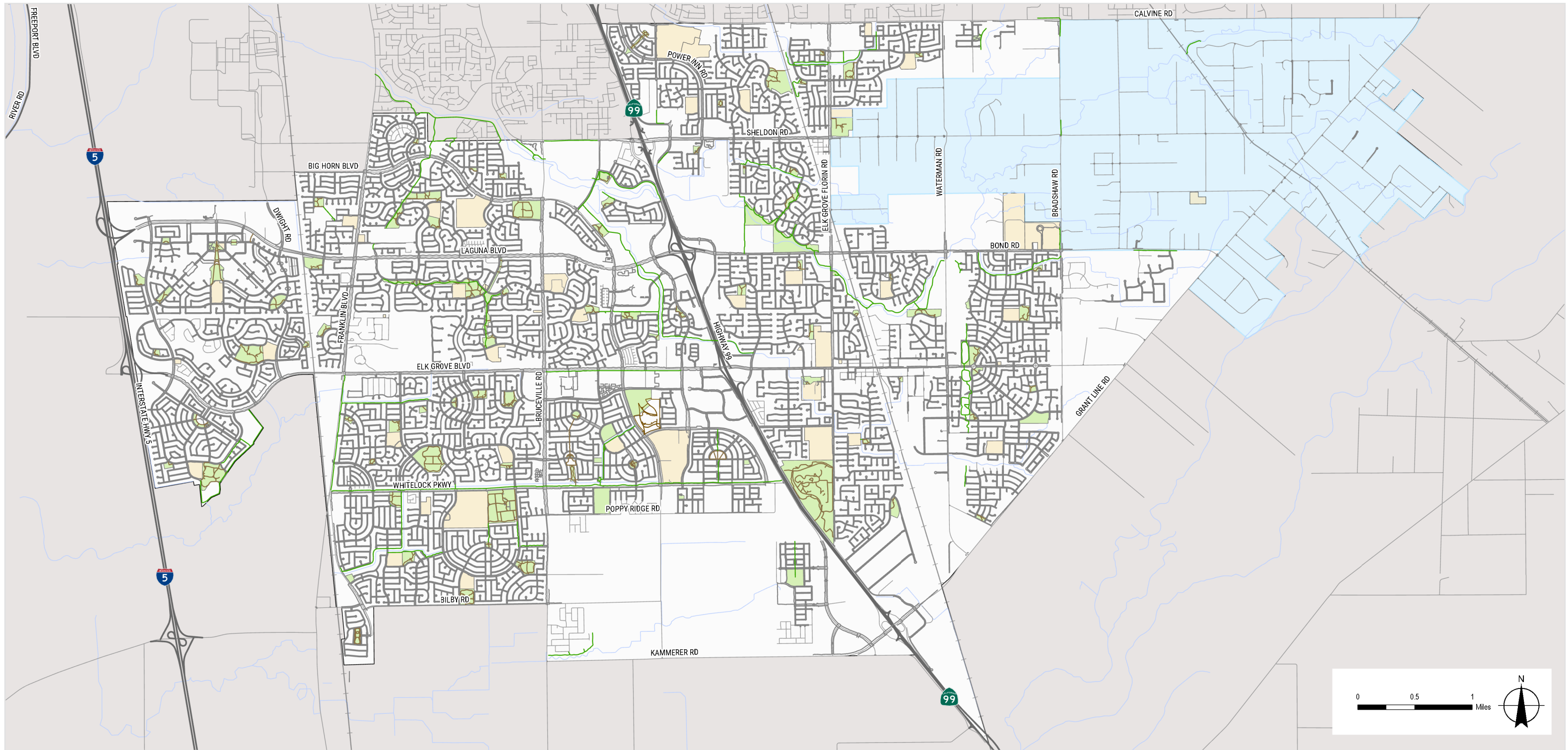
Existing Pedestrian Network

Legend

Existing Pedestrian Facilities

— Class I Multi-Use Path

— Park Trails

— Sidewalk

— Roads

— Highways

+ Railroads

— Creeks

Boundaries

Park

Schools

Rural Policy Area

City Boundary

CITY OF
ELK GROVE

FIGURE 4

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
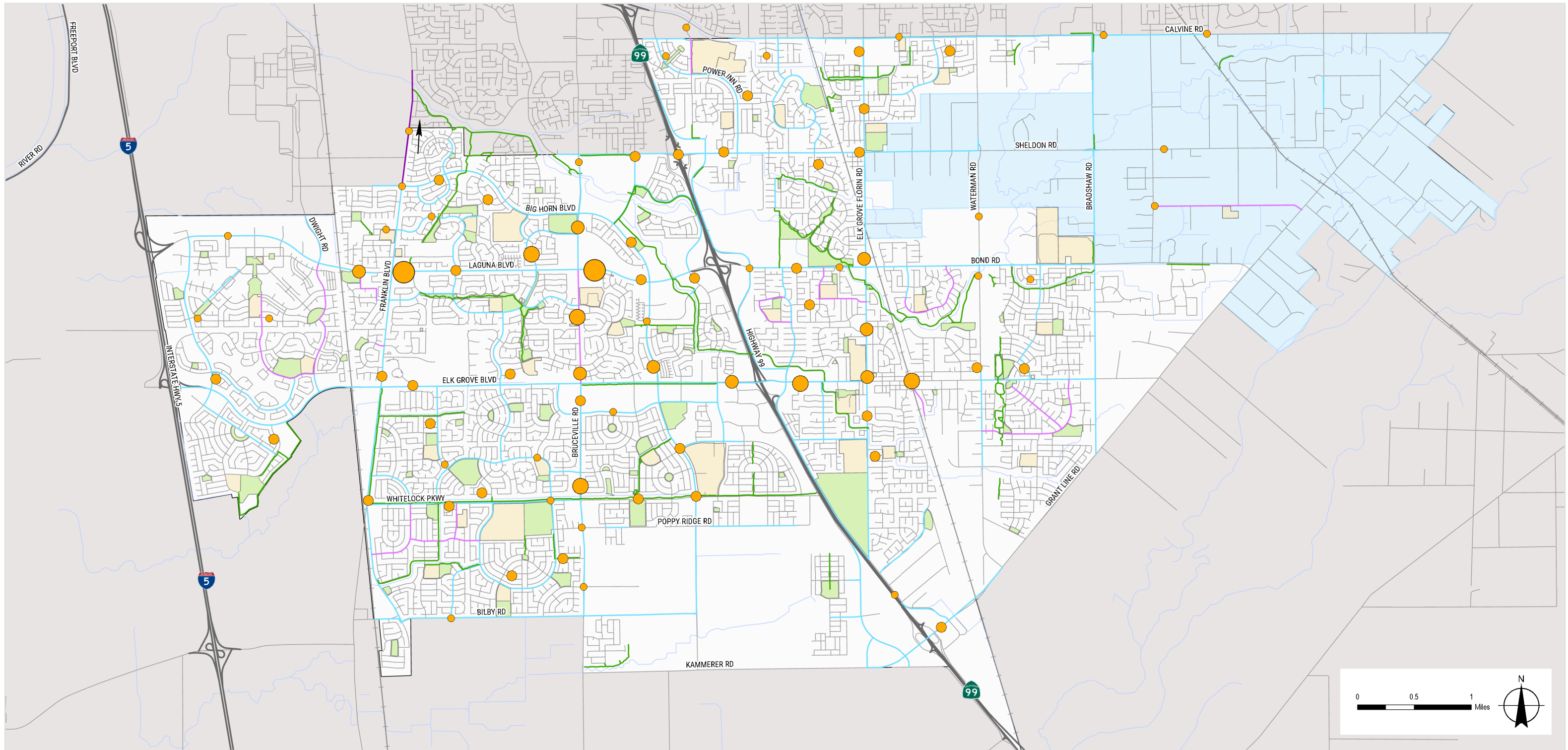
Bicycle Collisions
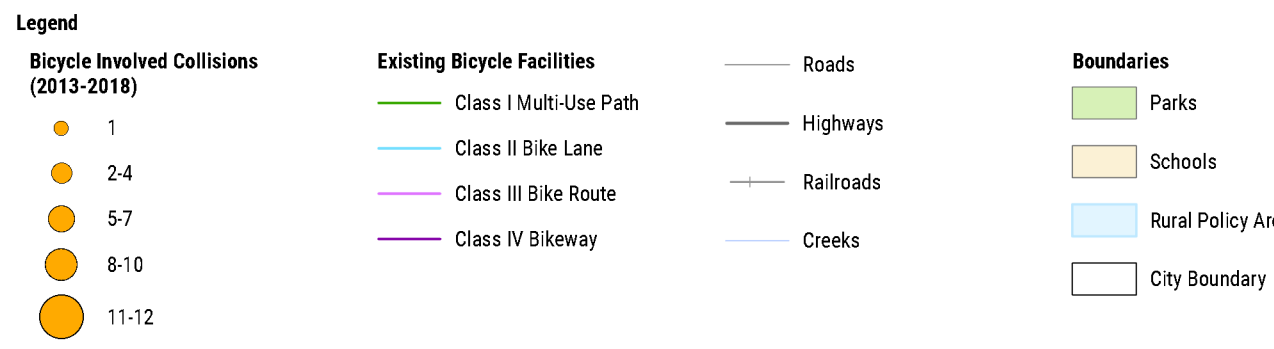
Legend

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
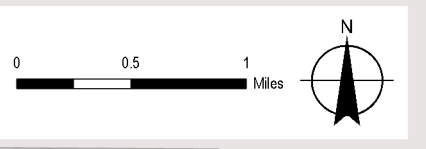
BIKEWAY PRESENCE

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.
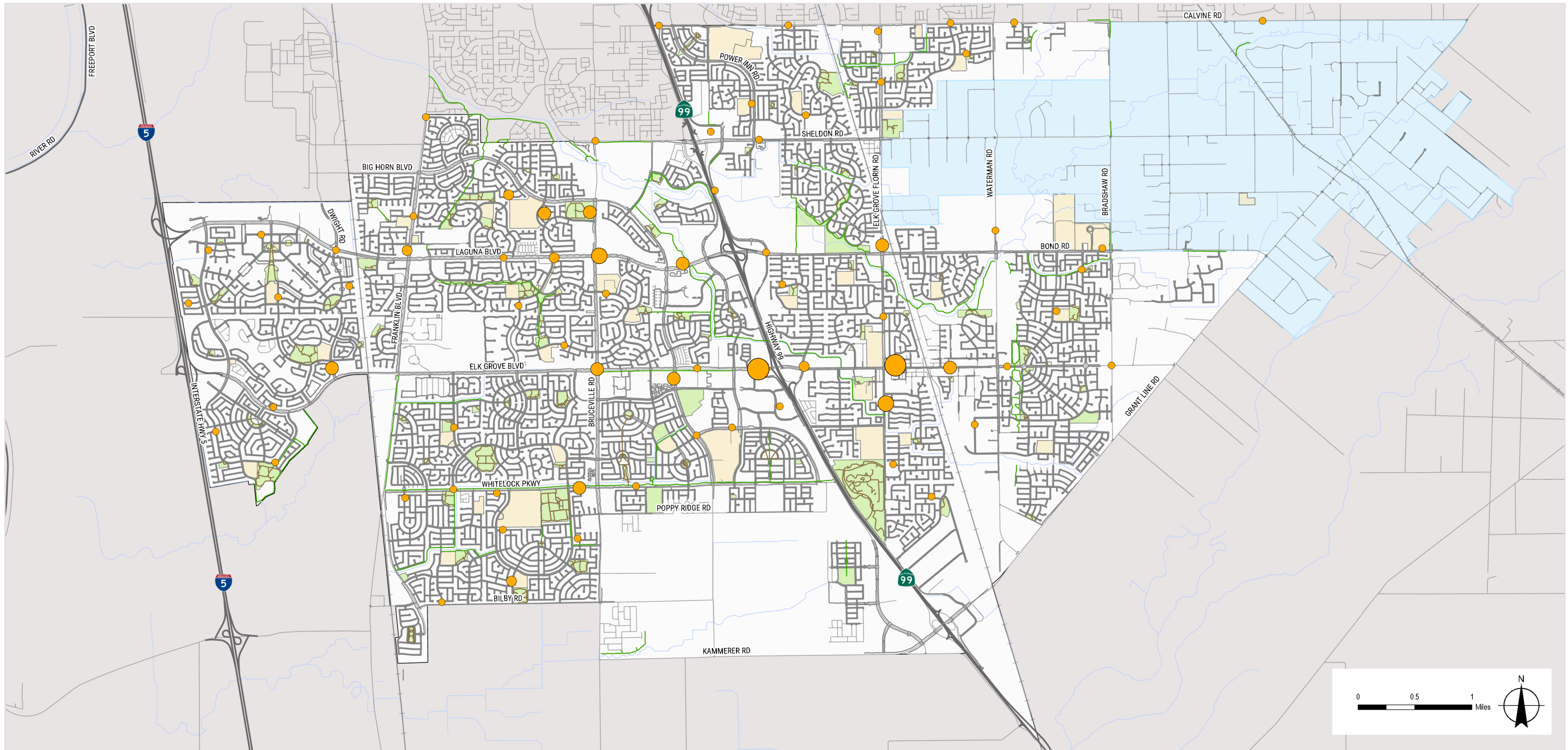
Pedestrian Collisions

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

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.

LTS 1

Interested but Concerned

Almost all people, including children, feel comfortable riding on LTS 1 streets and trails

30%

LTS 2

Interested but Concerned

Most adults are comfortable riding on LTS 2 streets, where they have dedicated bicycle facilities separated from traffic

50-60%

LTS 3

Enthusiastic & Confident

LTS 3 streets are tolerable for experienced adults who prefer separate bicycle facilities but are confident riding with traffic

5-10%

LTS 4

Strong & Fearless

Only the most skilled adult bicyclists will tolerate LTS 4 streets, where they share space with drivers on higher speed, higher traffic roadways
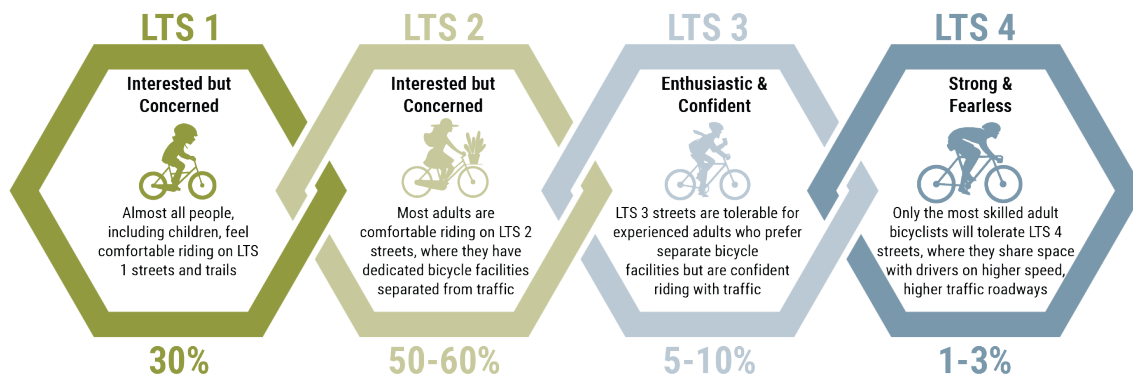
1-3%

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.
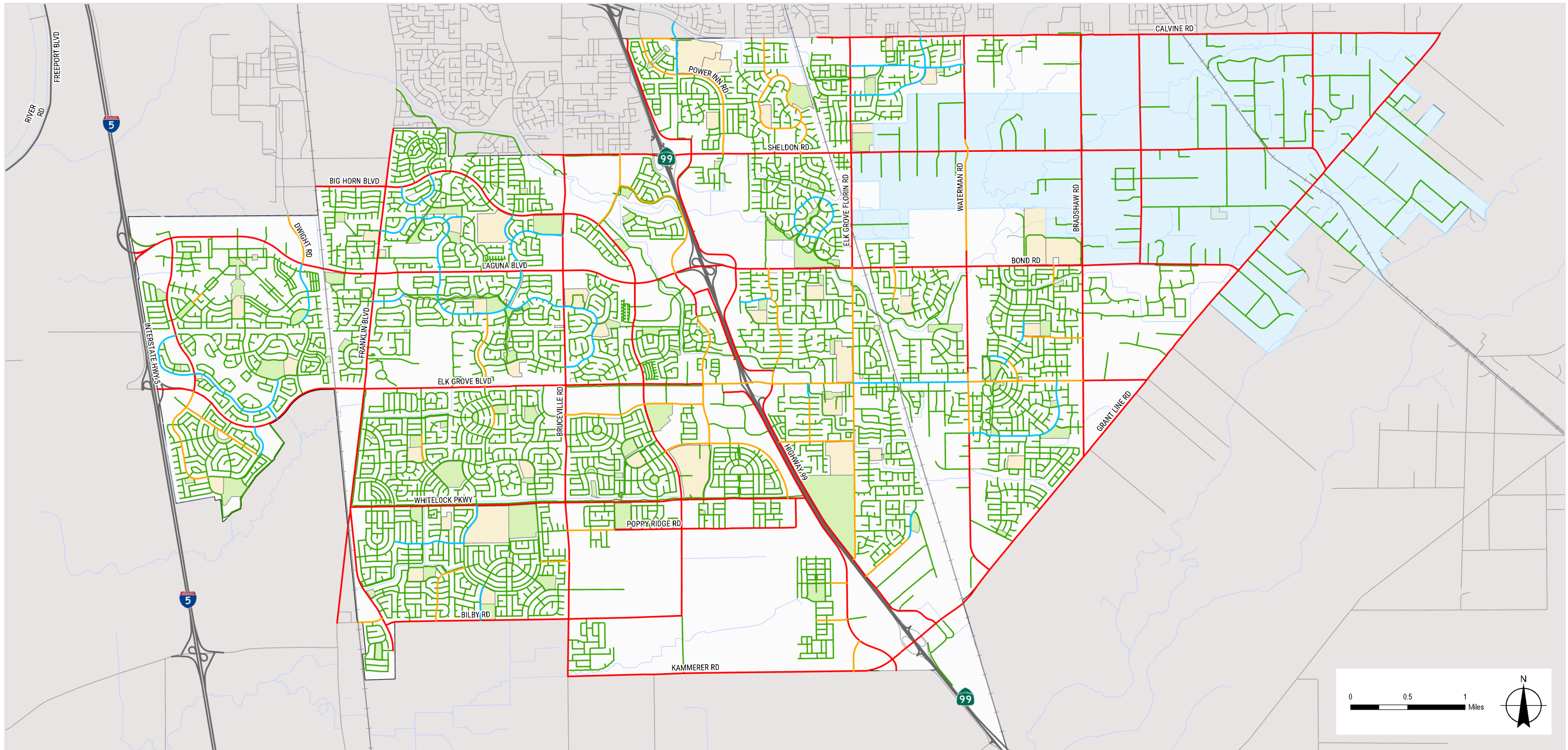
Bicycle Level of Traffic Stress (LTS) - Segments

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

FIGURE 7
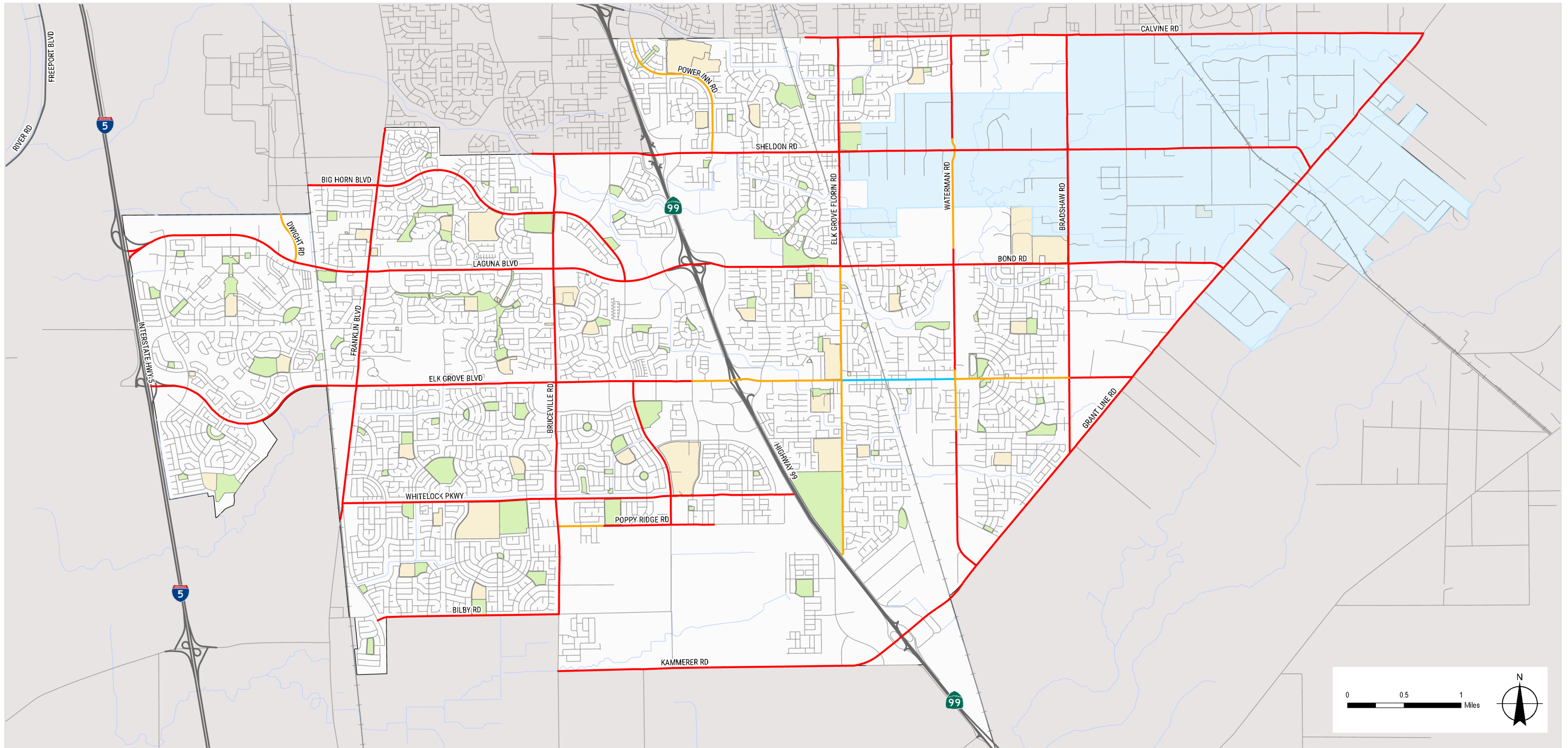
Bicycle Level of Traffic Stress (LTS) - Arterial Segments

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

FIGURE 8

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

FIGURE 9
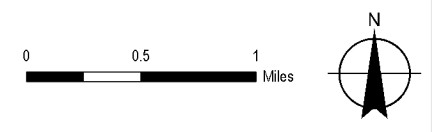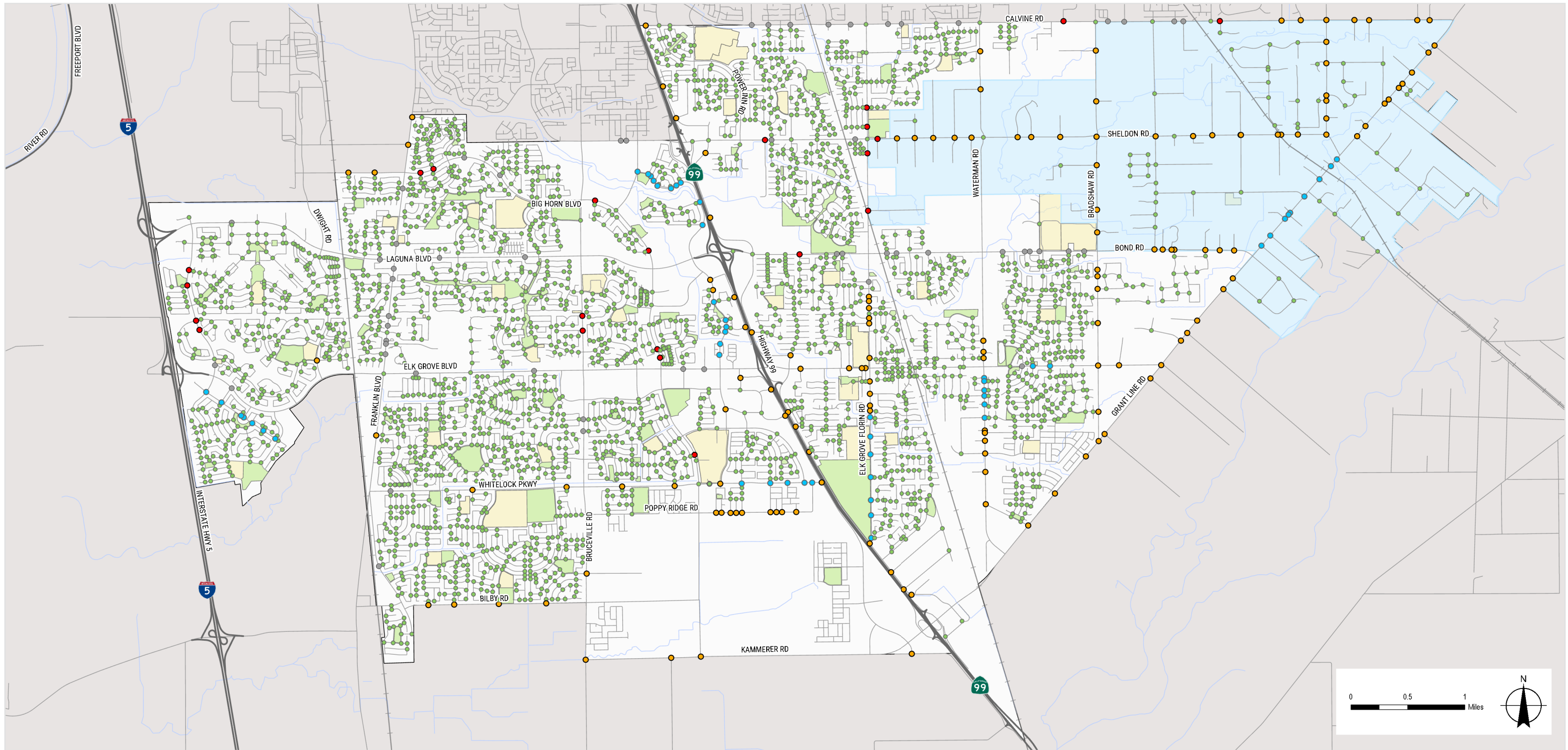
Bicycle Level of Traffic Stress (LTS) - Crossings

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

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.
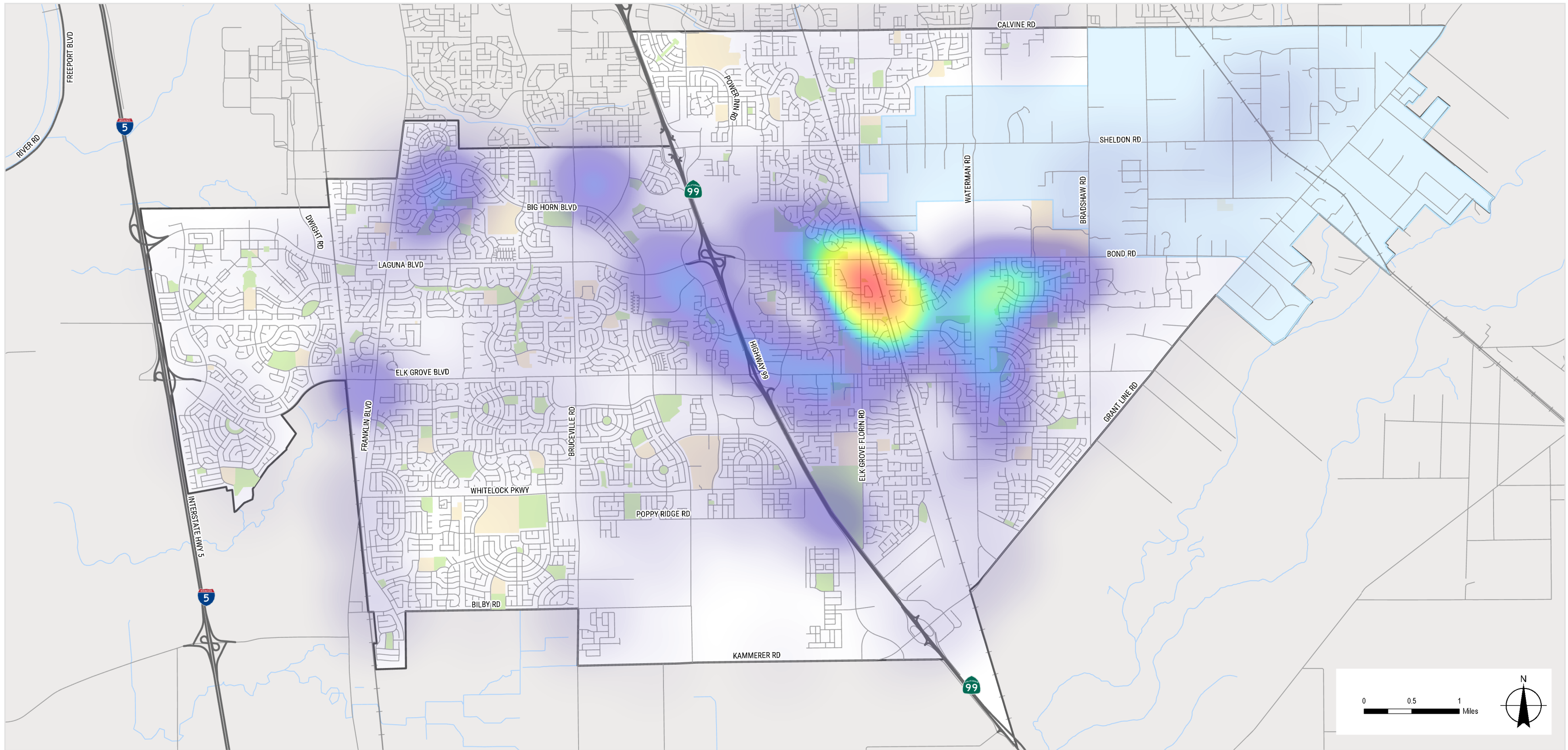
Distribution of Comments Received

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%
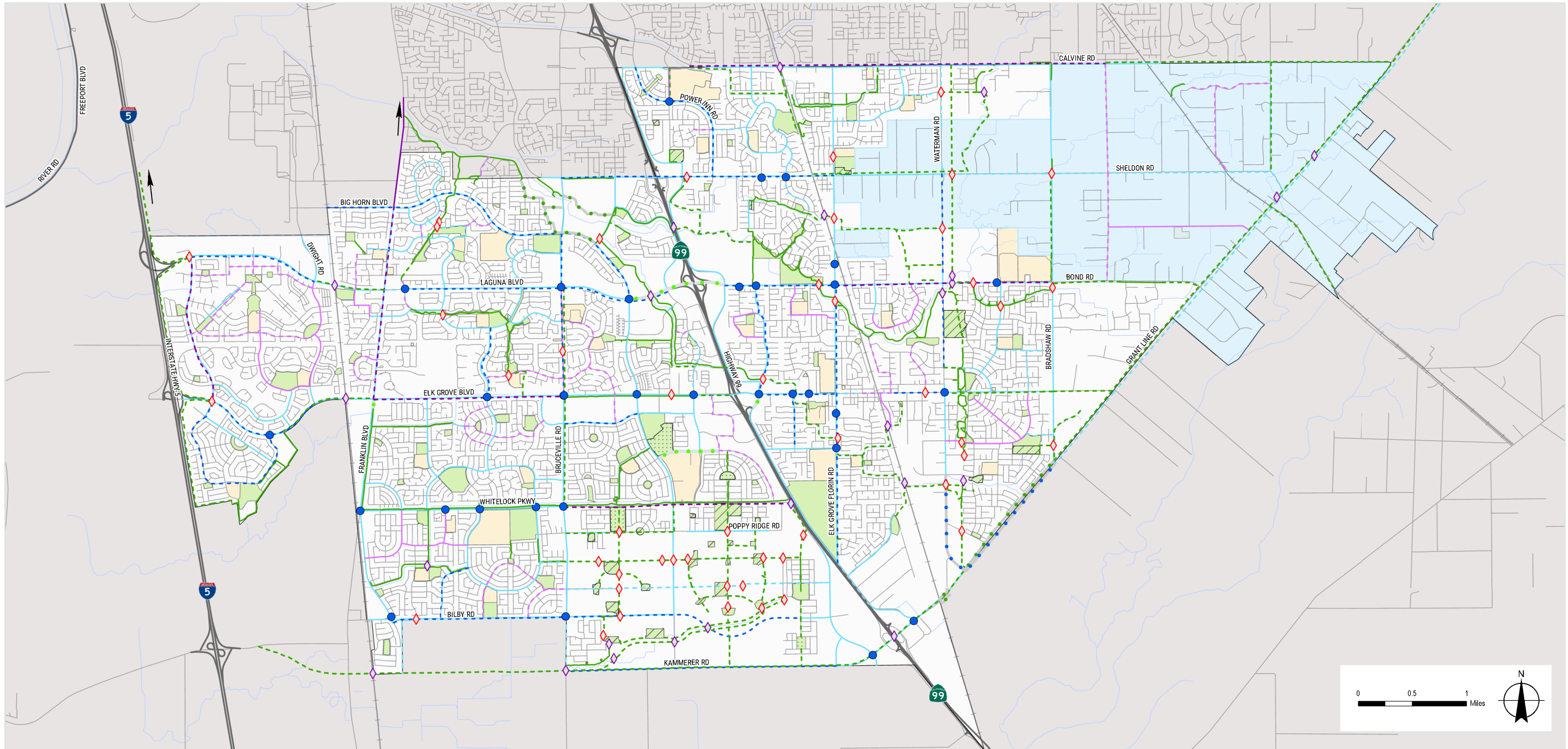
Existing and Proposed Bicycle Network
Legend

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

\\ghdnet\ghd\US\Roseville\Projects\561\11207445\GIS\Maps\Deliverables\Elk_Grove_BPTMP\Elk_Grove_BPTMP.aprx
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Data source: Created by: bwhite3

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.
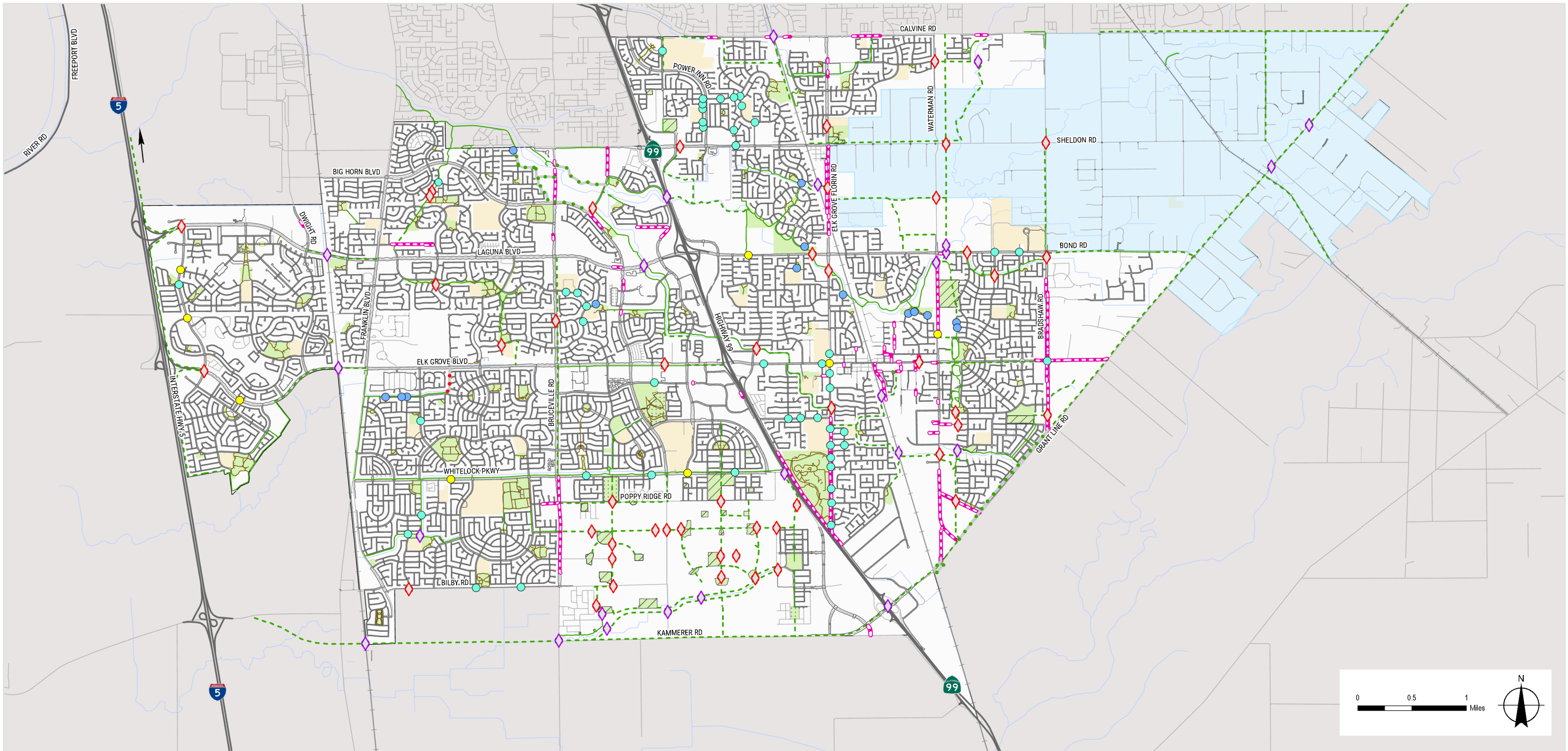
Existing and Proposed Pedestrian Network

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.
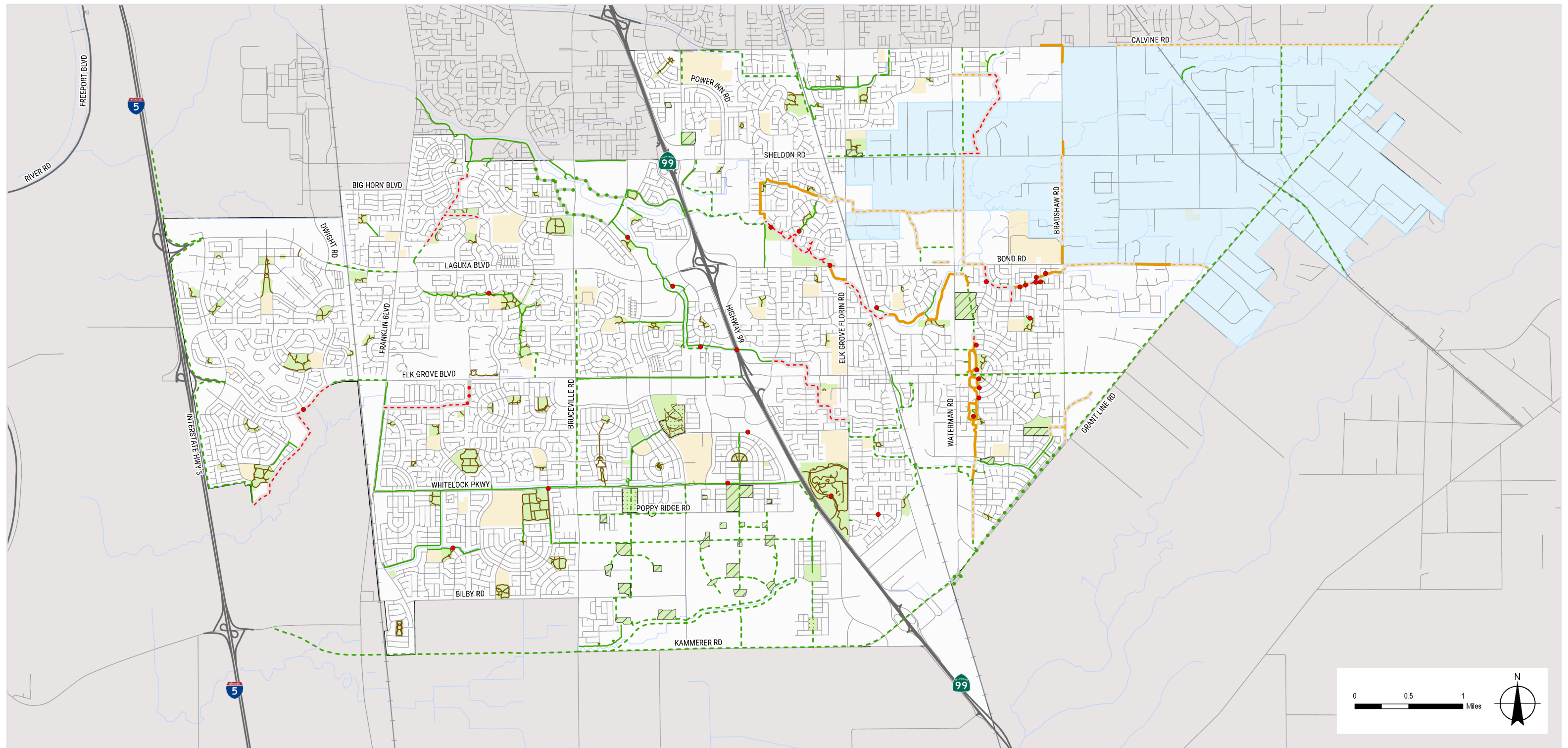
Existing and Proposed Trail Network

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
- —— 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.

CITY OF ELK GROVE

FIGURE 14

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.
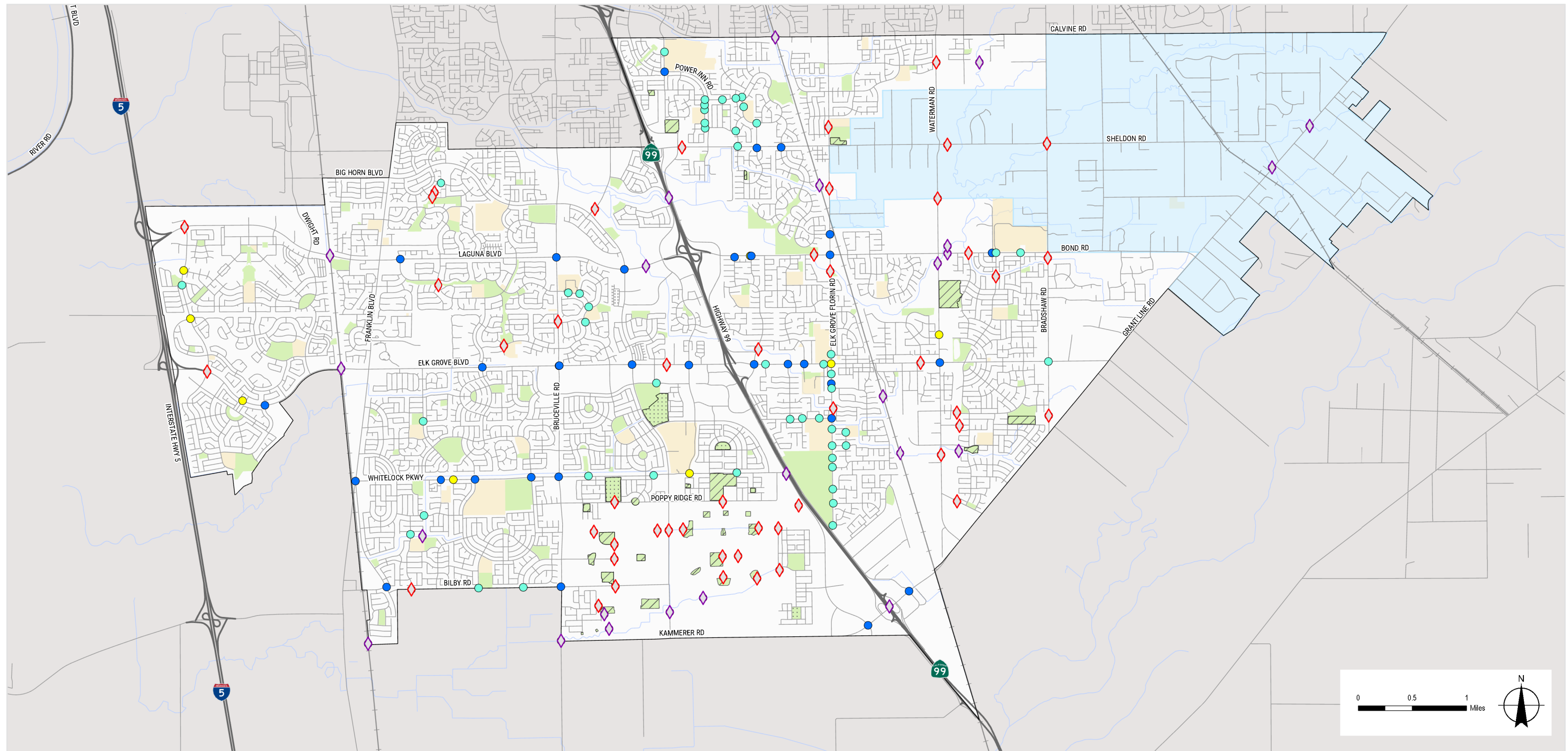
Proposed Crossing Improvements

Legend

Proposed Crossing Improvements

- ● Pedestrian-Specific Crossing Improvement (yellow)
- ● Bicycle-Specific Approach/ Crossing Improvement (blue)
- ● Other Crossing Improvement (teal)
- ◇ Proposed At-Grade Class I Bikeway Crossing (red)
- ◇ Proposed Grade-Separated Class I Bikeway Crossing (purple)

Boundaries

- Park (green)
- Proposed Park (hatched green)
- In Progress Park (dotted green)
- Schools (tan)
- Rural Policy Area (light blue)
- City Boundary (white)

- 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.

CITY OF ELK GROVE

FIGURE 15

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.

		LOWER	**HIGHER**
PROJECT PRIORITY	**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.
		LOWER	**HIGHER**

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.

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[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.