# City of Chico

# Active Transportation Plan

## December 2023









CITY OF CHICO
INC. 1872

# Acknowledgements


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# Table of Contents

# Table of Figures

# Table of Tables

# Introduction

The City of Chico is well positioned to grow its reputation as a walking and bicycling friendly community, catering to the diverse transportation needs of residents, students, and visitors. The short (under 15 minutes) commute time of the majority of Chico residents offers untapped potential to shift commuting patterns to active modes such as walking, bicycling, and rolling, reducing congestion and promoting healthy lifestyles. Additionally, recent upgrades of pedestrian and bicycle facilities proximate to area schools encourage students and their families to arrive via active modes.

Building upon the backbone network of Bikeway 99, a world-class recreational trails system in Lower and Upper Bidwell Park, and a walkable downtown core, targeted investments in upgrading pedestrian and bicycle infrastructure will result in a safer, more connected network for users of all ages and abilities.

This Active Transportation Plan (ATP) is a critical tool for City staff and the broader Chico community as they shape a balanced transportation system for Chico. The ATP provides a baseline understanding of the current status and long-term vision for the active transportation network, as well as supporting policies and programs in Chico. The ATP presents a focused, achievable action plan for improvements to bicycling and walking facilities, providing both short-term priority projects and longer-term improvements.

As this ATP is a high-level document outlining pedestrian and bicycle facilities, all proposed projects will require further study and design prior to implementation. This Plan sets the stage for all future pedestrian and bicycle projects, with the ultimate goal to improve resident quality of life through providing a safe and connected pedestrian and bicycle network, improving access to area amenities and destinations, while reducing greenhouse gas emissions and promoting healthy lifestyles.

As noted in the Implementation Plan chapter, recommendations made in this Plan may change over the years as the City begins to implement, especially if other safety needs arise or the City identifies safer options along particular corridors or within certain communities.

*Multi-use paths in Lower Bidwell Park provide recreation and transportation options*


*The City of Chico was designated as a Gold Level Bicycle Friendly Community for 2016 to 2020*

## Purpose of the Plan

This Active Transportation Plan (ATP) will establish a long-term vision for improving walking and bicycling within Chico and identify a short-term action plan of implementable projects, programs, and policies.

The ATP provides a strategy to develop safe and comfortable citywide walking, bicycling, and transit connections 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 Chico. The ATP also identifies a plan to implement these projects and programs through prioritization and phasing to ensure implementation is manageable and achievable.

This ATP represents an aspirational vision for walking and bicycling in Chico, identifying potential financing for improvements while recognizing that limited funding and resources may require strategic phases of implementation over many years.

The City has established nine goals for this ATP:

1. Encourage active transportation within Chico
2. Strengthen Chico's cultural identity as a bicycle friendly city
3. Increase safety for people walking, bicycling, and rolling
4. Gain a better understanding of Vision Zero in Chico, the concept of establishing a citywide goal of zero traffic deaths or severe injuries among all road users
5. Provide a connected network of comfortable facilities for people to walk, bike, and roll
6. Enhance the spine network of Bikeway 99, including enhancement of wayfinding and crossing facilities
7. Enhance mobility throughout Chico to meet the needs of all users, including those commuting to work or school, visiting local businesses, and enjoying recreational opportunities
8. Maintain the active transportation network in a state of good repair
9. Assist in achieving Chico's greenhouse gas emissions reductions goals and target of carbon neutrality by 2045, as detailed in the Climate Action Plan


*A roundabout in Downtown Chico, which provides a safer travel environment for all roadway users, including active users*

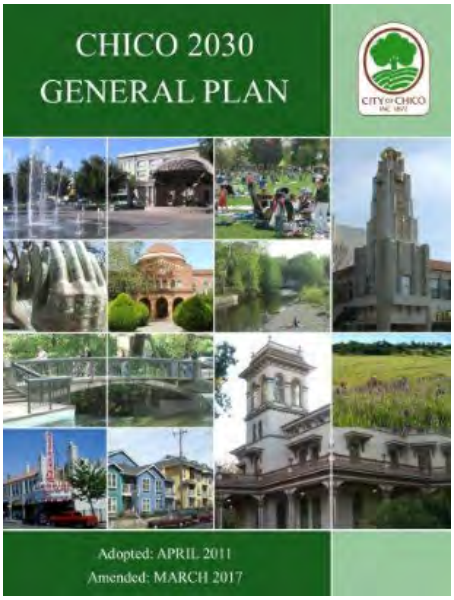
## Relationship to Other Documents

A variety of local, regional, and state documents relevant to the development and implementation of the Active Transportation Plan were reviewed. For example, these documents include local and regional planning documents which set an overall trajectory for the City and include policies and strategies the ATP must be consistent with, while others provide a foundation for the ATP and will effectively be incorporated into the ATP. Documents reviewed, and the guidance relevant to the ATP, are discussed briefly below; the Policy and Planning Context chapter will include additional detail on consistency with and potential recommended updates to relevant documents.

### *Chico*

#### 2030 GENERAL PLAN AND MUNICIPAL CODE

Chico's 2030 General Plan guides the community's vision and decision makers' implementation of priorities for future development, including growth and preservation targets.




*Chico 2030 General Plan cover*

The General Plan envisions a network of walkable "complete neighborhoods" featuring multimodal access to employment, recreation, and services. The plan fosters development that offers alternatives to the personal motor vehicle, providing efficient and safe resident access.

The ATP is a critical tool to assist the City in achieving this vision. Specific priorities in the General Plan relevant to the Active Transportation Plan are as follows:

- Provide convenient access to local items, with a focus on alternative transportation
- Prioritize a Complete Streets multimodal network to ensure safe travel for users, when feasible
- Increase travel choice, improve goods movement, and reduce vehicle miles traveled
- Bicyclists must not ride on the sidewalks within the central business district (area bounded by the northerly property line of First Street; on the south by the southerly property line of Fifth Street; on the east by the center line of Wall Street and on the west by the center line of Salem Street)

#### CHICO BICYCLE PLAN 2019 UPDATE

The City's Bicycle Plan was developed to help inform the ATP, providing a relatively recent inventory of facilities and recommendations for improvements. The ATP will consider these recommendations, make updates, and essentially serve as an update to this document.

- Design and implement a complete bikeway network that connects people with the places they want to go to and supports bicyclists of all ages, ethnicities, incomes and abilities
- Improve safety, efficiency, and comfort for bicyclists on the bikeway network
- Provide sufficient, secure bicycle parking facilities where they are needed and address ongoing bike theft concerns

- Provide and plan for bicycle facilities during land development review
- Promote bicycling as a part of the multimodal transportation system
- Improve bicycling safety through driver and bicyclist education programs
- Encourage and support both recreational and utilitarian use of the bikeway network
- Pursue and obtain optimal funding for bicycle programs and projects

*Bicycle parking example near 118 West 2nd Street, from the Chico Bicycle Plan 2019 Update*

See the Successes in Recent Years chapter for progress updates on projects proposed within the 2019 Chico Bicycle Plan.

### LOCAL ROAD SAFETY PLAN (LRSP)

The Local Road Safety Plan analyses safety data as well as characteristics of the roadway network to develop solutions to safety issues which can be implemented citywide.

- Identify safety focus areas, and recommended countermeasures and strategies across the four E's of traffic safety: engineering, enforcement, education and emergency services
- Reduce the number of fatalities and serious injuries occurring on the City of Chico roadway system for all modes of travel
- Facilitate the safe and efficient movement of people and goods while promoting walking, encouraging bicycling, and supporting a comprehensive and integrated transit system

### CHICO CLIMATE ACTION PLAN (CAP)

The City's Climate Action Plan acts as a strategy guide for Chico to meet its greenhouse gas emissions reduction targets in alignment with State goals.

The ATP supports the Climate Action Plan, as the primary purpose of the ATP is to increase bicycling and walking in Chico, reducing motor vehicle trips and related greenhouse gas emissions as a result. The following are specific CAP measures and actions that the ATP supports:

- Improve active transportation infrastructure to achieve greater than 6 percent bicycle mode share by 2030 and 12 percent bicycle mode share by 2045
- Implement Chico's Bicycle Master Plan by adding miles to the bikeway network, improving wayfinding, conducting road maintenance, etc.
- Require secure, shaded, and convenient bicycle parking in new developments
- Require major road upgrades to include bicycle infrastructure
- Perform a street and intersection study
- Complete an Active Transportation Plan
- Identify and partner with stakeholders to conduct outreach, promotion, and education
- Create a Bicycle/Pedestrian/Parking Coordinator position for the City of Chico
- Prepare for shared bicycle programs and consider launching a bicycle share pilot program in Downtown Chico

*Bicyclists ride on a Class I multi-use path*

## *Regional Plans*

### BUTTE COUNTY CLIMATE ACTION PLAN

The County's Climate Action Plan is a long-term planning document setting greenhouse gas emissions reduction goals and providing strategies for jurisdictions to reduce emissions. It includes the following goals:

- Ensure development in Butte County remains sustainable and fosters resiliency in the face of climate change
- Reduce emissions contributions from the transportation sector by targeting vehicle miles traveled (VMT) reductions
- Given that the transportation sector was accountable for 30 percent (of 2006) community emissions, lower barriers to alternative/clean-fueled vehicle adoption among area residents
- Create a county-wide Transportation Demand Management (TDM) program to reduce single occupancy vehicle commuting, including requirements for large employers and suggested actions for smaller employers

*Green in-pavement markings indicating the presence of bicyclists on sidewalks approaching a roundabout in Chico*

### BUTTE COUNTY ASSOCIATION OF GOVERNMENTS (BCAG) REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY 2020-2040

The Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) is updated every four years and provides a framework for growth and change in the transportation network for the County and jurisdictions within it.

- Provide an efficient, effective, coordinated regional transit system that increases mobility for urban and rural populations, including those located in disadvantaged areas of the region
- Work with local agencies to develop and construct bicycle and pedestrian facilities including access to transit and assist local jurisdictions in pursuing grant funding
- Increase public transit and carpooling/vanpooling and bicycling/walking
- Provide economical, long-term solutions to transportation problems by encouraging community designs which encourage walking, transit, and bicycling
- Provide a forum for participation and cooperation in transportation planning and facilitate relationships for transportation issues that transcend jurisdictional boundaries

## *California*

### TOWARD AN ACTIVE CALIFORNIA

The State's first bicycle and pedestrian plan provides policies and actions for the California Department of Transportation (Caltrans) and partner agencies to undertake to improve comfort, connectivity, safety, and feasibility of travel by walking and bicycling. This plan will be updated starting in 2024.

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

### CALTRANS ACTIVE TRANSPORTATION PLANS

One action item Caltrans identified in the *Toward an Active California* document was to create an Active Transportation Plan for each Caltrans District. This effort, known as the *Caltrans Active Transportation Plans* (or CAT Plans), identified high priority corridors and specific locations for bicycle or pedestrian needs. In District 3, Caltrans identified that State Route 32 (SR 32) has "Tier 1" priority locations located in and near downtown and "Tier 2" along the rest of SR 32 within Chico[1]. Because SR 32 is within Caltrans jurisdiction, the process to recommend and implement projects will require partnership and planning efforts outside of the scope of this Plan. Through the update of the *Toward an Active California* plan, Caltrans will identify how to further implement the CAT Plans in partnership with local agencies.

## Organization of this Plan

This ATP 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
- **Categories of Interest** identifies disadvantaged communities within the study area
- **Methods of Increasing Walking and Bicycling** outlines potential infrastructure improvements, policies, and programmatic recommendations
- **Bikeway 99** describes the history and existing conditions of the bikeway and provides improvement recommendations
- **Successes in Recent Years** discusses recent active transportation projects in Chico
- **Goals, Objectives, and Strategies** outlines goals for the City and methods for achieving them
- **Policy and Planning Context** details existing local and regional plans, policies, and programs influencing Chico
- **Stakeholder Engagement** discusses community engagement methods and results
- **Proposed Non-Infrastructure Projects** describes program options that encourage active transportation and enhance infrastructure improvements
- **Proposed Pedestrian and Bicycle Facilities** lists potential infrastructure improvements to the pedestrian and bicycle network
- **Implementation Plan** provides strategies for activating the Plan, including cost estimates, construction, funding, and potential challenges
- **Benefits** outlines benefit analysis methodology and results

In addition, several appendices provide detailed data, analysis, or documentation:

- Appendix A: Bicycle Level of Traffic Stress
- Appendix B: Outreach Documentation
- Appendix C: Recommendations
- Appendix D: Plan Benefits
- Appendix E: Prioritized Project Costs
- Appendix F: Protected Facilities
- Appendix G: Resolution of Plan Adoption

Together, these elements—the Plan and appendices—will guide the City of Chico as it works to improve bicycling and walking in the community.

[1] Caltrans Active Transportation (CAT) Plans | Caltrans

# Existing Conditions

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

## Local Context

The City of Chico is rapidly growing, with one of the highest growth rates of any city in California. The city's population increased from 86,187 residents in 2010 to 101,475 residents in 2020.

A significant reason for this increase is the recent influx of population from former residents of the City of Paradise and surrounding areas, who were forced to flee due to the devastating 2018 Camp Fire, and more recently, residents of Plumas and Butte counties impacted by the 2020 North Complex Fire.

With an increasing population comes increasing traffic, contributing to challenges for active transportation users. The City of Chico aims to improve conditions for pedestrians and bicyclists navigating the city and accessing local destinations, whether for short trips, to connect to transit, or commute to work or school. Building a strong active transportation network also allows for improved recreational offerings, leading to better health outcomes for residents and the environment.

### *Land Use and Major Destinations*

The City of Chico is approximately 33 square miles and the most populous city in Butte County, with the Chico Municipal Airport to the north, California State University (CSU) Chico to the south and extensive open space extending from CSU Chico, where Lower Bidwell Park begins, to Upper Bidwell Park in the northeast portion of the city. See Figure 1 for location context.

Chico's early development grew outwards from a centralized urban downtown core with a street grid pattern. Preserving rural and agricultural lands remains a high priority, including restricting growth at the Greenline, a 1982 boundary separating the Chico urban area from agricultural areas to the west.

Large commercial and industrial employment centers are concentrated along major arterials and State Routes (SR) 99 and 32. Schools, parks, and open space are scattered throughout

*Source: www.downtownchico.com*

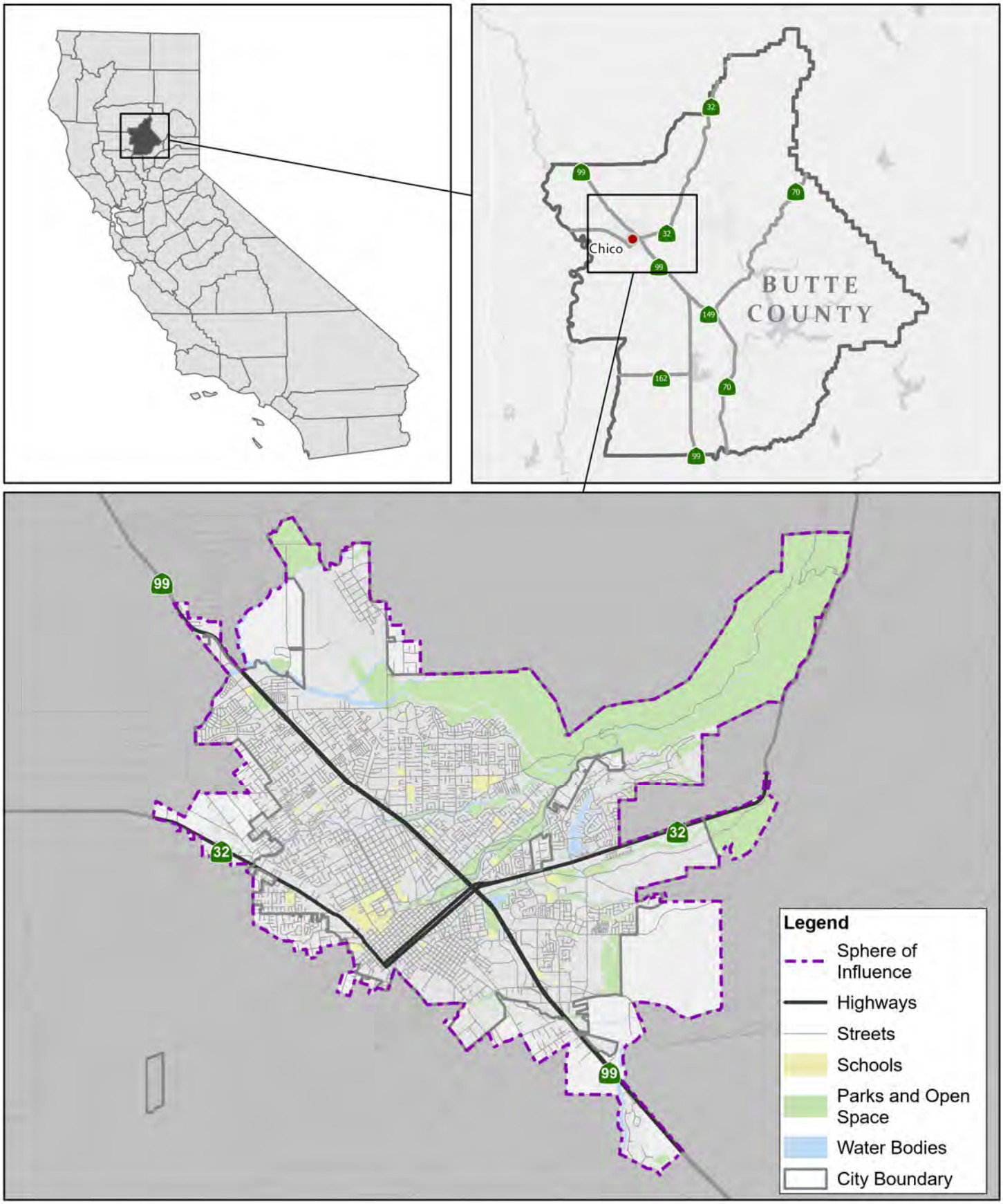
the City, within walking distance for many residents (see Figure 2).

### *Affordable Housing*

According to the City of Chico's 2014 housing element, 60 percent of area housing is single-unit structures, with another 16 percent comprised of duplexes, triplexes and fourplexes, an additional 21 percent in the form of 5+ unit structures, and the remaining 3 percent mobile home units.

Understanding the location of affordable and multi-family housing within the city is critical when considering transportation improvements, to ensure access for those residents who may most benefit from enhanced infrastructure. Lower income residents are more likely to be car-free or car-light, utilize Butte Regional Transit (B-Line) public transportation services, and walk or bicycle to reach their daily destinations and workplaces.

Figure 2 displays the location of multi-family residential and manufactured home parks, which display strong concentrations along major highways, including SR 99 and SR 32, as well as arterials such as Lassen Avenue.

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

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Revision No. **D**
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## CITY OF CHICO VICINITY OVERVIEW

## FIGURE 1

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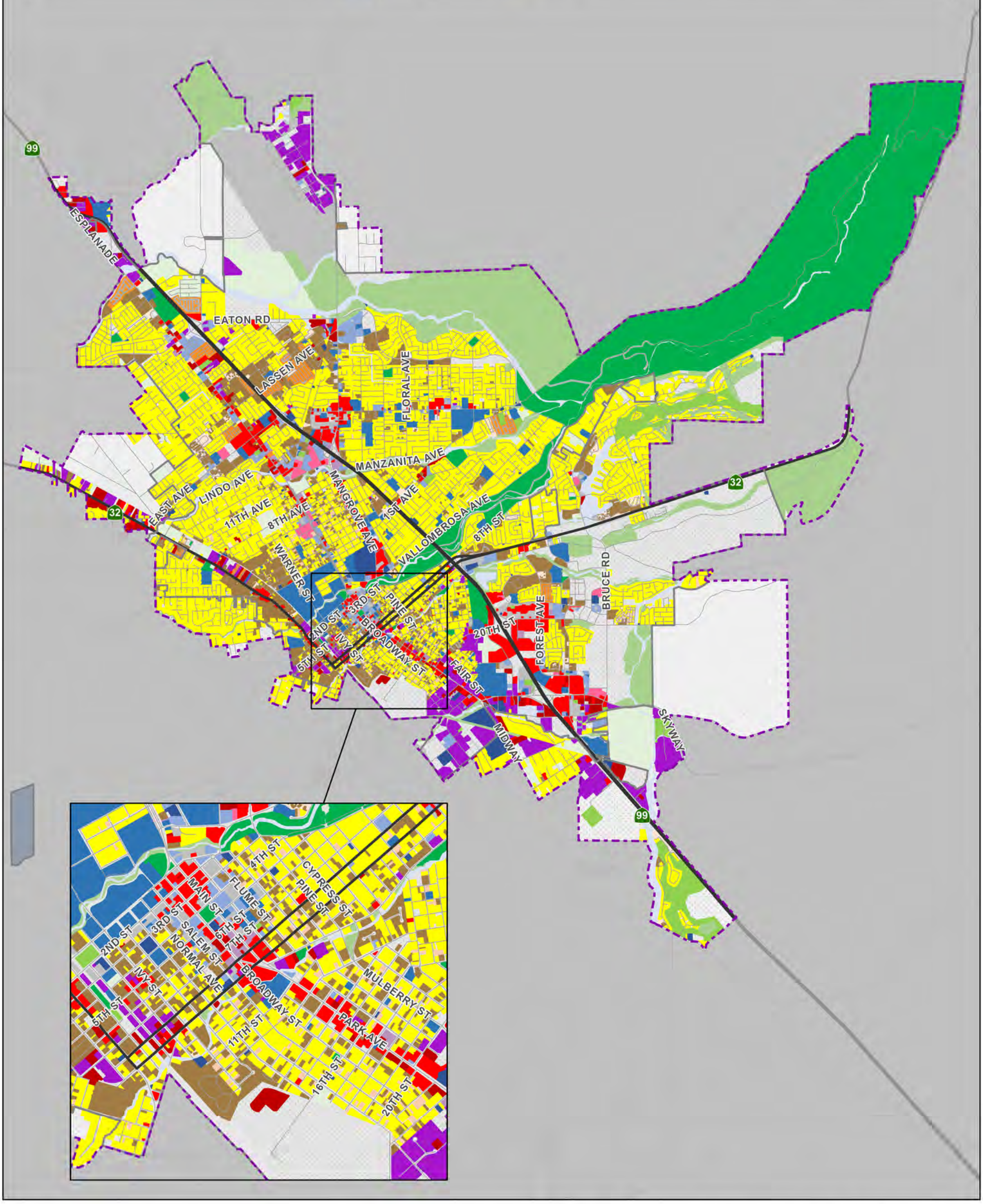
**Legend**

- Sphere of Influence
- Highways
- Streets
- City Boundary
- Agricultural
- Commercial Recreation
- Commercial Retail
- Commercial Services
- Education / Assembly
- Manufactured Home Park
- Manufacturing / Warehousing
- Medical Services
- Mixed Use
- Multi-Family Residential
- Office
- Open Space
- Parks
- Privately Owned Common Area
- Public / Quasi Public Services
- ROW - Public / Private
- Single Family Residential
- Single Family Residential w/ Second Unit
- Surface Water & Drainage
- Transitory Occupancy
- Transportation, Parking
- Vacant

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

LAND USE

Project No. 12575135
Revision No. D
Date Jul 2022

FIGURE 2

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Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA, Boundaries, Streets, Land Use: City of Chico 2021. Created by: ethompson3

## *Demographics*

All demographic data reflects 2019 5-year estimates from the American Community Survey, unless otherwise indicated.

### POPULATION

Chico is home to roughly 94,500 residents, or about 36,000 households[2]. If current growth trends continue, the city population is projected to reach 139,713 residents by 2030, according to the Chico General Plan Land Use Element.

### AGE

As shown in Table 1, residents under 18 years of age account for nearly one-fifth of Chico's population. A majority of those under 18 are unable to drive themselves in personal vehicles, signifying an increased need to walk, bicycle, or take transit to their destinations.

**Table 1: Age of Chico Residents**

| Age Group | Percent |
|---|---|
| Under 18 | 19.2% |
| 18-24 | 22.7% |
| 25-44 | 25.7% |
| 45-64 | 19.4% |
| 65 and over | 13% |

*Source: American Community Survey 2019 5-year estimates*

### INCOME

Median household income in Chico is $53,324, which is on par with the Butte County median of $52,537 but significantly below the California median of $75,235.

[2] While 2019 ACS Data were used to populate the Demographics section, Chico's population in 2020 grew to 101,475, largely due to the influx of former residents of nearby Paradise, CA who were forced to flee due to the 2018 Camp Fire as well as residents of Plumas and Butte counties impacted by the 2020 North Complex Fire.

Figure 3 presents a median household income breakdown by Census tract.

### ACCESS TO CARS

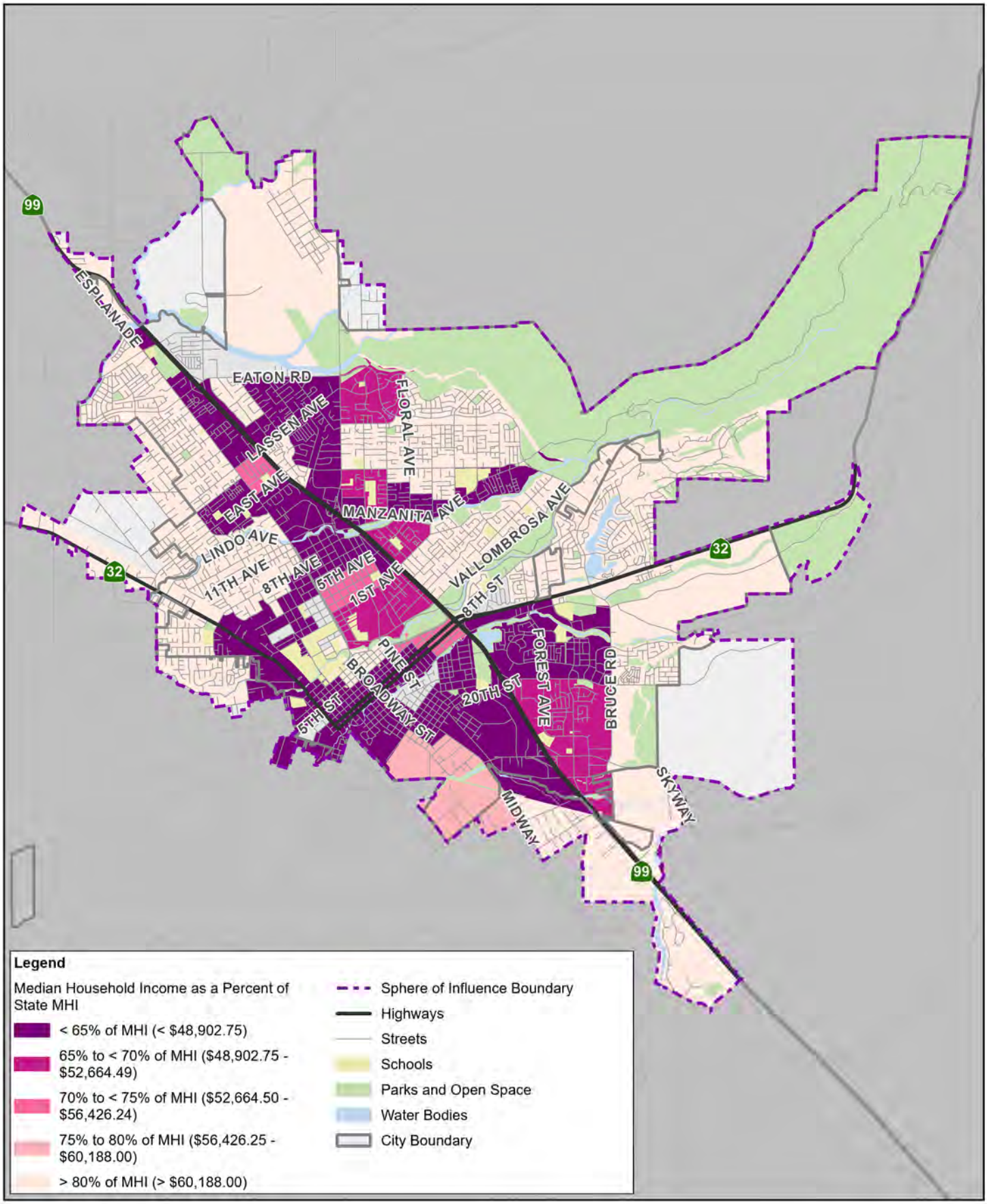
The Healthy Places Index (HPI), described in further detail in the Categories of Interest chapter, ranks the City of Chico within just the 17th percentile for automobile access[3]. Just under 3,000 Chico households, or nearly eight percent, do not have access to a car. This means approximately 6,700 people may rely on walking, bicycling, or taking transit for their daily transportation needs.

An additional 12,407 households in Chico have access to only one car, making them "car light." If these households have two or more members making trips – shopping, going to appointments, taking children to school – there may be some reliance on other modes of transportation. Combined, nearly 43 percent of households in Chico are considered car free or car light, very likely utilizing active transportation along their journeys to get where they need to go.

### DISADVANTAGED COMMUNITIES

Disadvantaged communities, including low-income communities, communities of color, people with disabilities, elderly, and communities faced with environmental or pollution burden, are often also burdened by a lack of appropriate facilities for bicycling and walking. The Categories of Interest chapter discusses disadvantaged communities in Chico and provides an analysis of transportation infrastructure in these areas.

[3] Public Health Alliance of Southern California. California Healthy Places Index. https://www.healthyplacesindex.org.

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# EQUITY ANALYSIS: 2019 MEDIAN HOUSEHOLD INCOME (MHI) BY BLOCK GROUP

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Date **Dec 2023**

**FIGURE 3**

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Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA, Boundaries, Streets: City of Chico 2021; MHI: Census Bureau

Created by: ethompson3

# Transportation Behavior

## *Existing Trips*

Analysis of existing trips is an important component of the ATP that will help form a baseline of information to help measure change in the future and inform policies and strategies to support active transportation projects and programs.

### WHAT TYPES OF TRIPS?

Data from the United States Census Bureau's 2010-2014 (2014) and 2015-2019 (2019) American Community Survey (ACS) 5-year estimates form the basis of the following discussion on "what" commute trips are being made. Importantly, based on available data, the figures used do not yet reflect the impact of trip and travel behavior changes seen since the Covid-19 Pandemic. Shifts to hybrid work and flexible schedules, and their impact on trips within the study area, represent areas for further study in the future.

Based on the ACS data, the total population in the City increased by roughly 7,012 from 87,517 in 2014 to 94,529 in 2019, approximately an eight percent increase.

As the ATP further identifies ways to support and improve active transportation modes in the City, the following sub-section will examine some recent trends and current facts concerning commute mode choice and travel characteristics.

### WHAT: COMMUTE MODE CHOICE

Table 2 shows the various means of transportation for workers 16 years and over. The number of workers show a slight increase between the two five-year estimates, growing from 39,841 to 45,567, an approximately 14 percent increase. As is the case for US cities, most of commuters drive (e.g., car, truck, or van) to work. 5,795 additional workers drove a car, truck, or van in 2019 than in 2014, an increase of nearly 18 percent. Driving alone also rose by 21 percent between the 2014 and 2019 estimates.

Important to note for the ATP are changes to public transportation, walking and bicycling. Although already not a very high mode share (less than two percent for both estimate periods) public transportation to work decreased by 21 percent from 2014 to 2019. Walking and bicycling, when combined, represent a notable mode share, slightly above nine percent in 2019. This is also higher than Butte County's nearly five and a half percent mode share estimate for combined walking and bicycling. Looking more closely at bicycling and walking in Chico as commute modes, bicycling decreased by 0.8 percentage points while walking increased by 0.4 percentage points between the two estimates.

The bar chart in Figure 4 provides a linear comparison of Chico's commute mode share. This helps to better illustrate changes across all modes when comparing the two five-year survey estimates and highlights the subtle changes in active transportation mode share, among other things. Notably, working at home showed a slight decrease but is expected to shift upward as ACS data for 2020 and later become available, due in large part to increased occupational flexibility begun during the Covid-19 Pandemic.

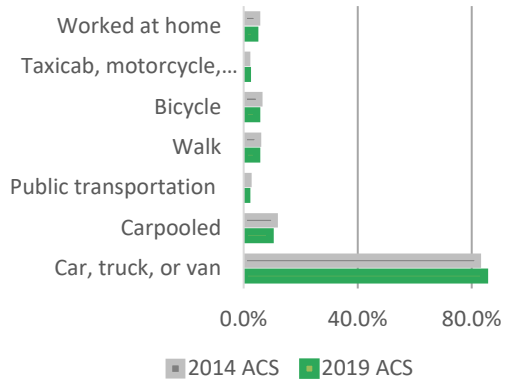
*Chico Plaza Fountain. Source: Tony Dunn adunnphotography.blogspot.com*

### Table 2: Means of Transportation to Work

| | 2014 ACS | | 2019 ACS | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| Workers 16 years and over | 39,841 | - | 45,567 | - |
| Car, truck, or van | 32,709 | 82.1% | 38,504 | 84.5% |
| Drove alone | 28,407 | 71.3% | 34,266 | 75.2% |
| Carpooled | 4,303 | 10.8% | 4,238 | 9.3% |
| Public transit | 637 | 1.6% | 501 | 1.1% |
| Walk | 1,992 | 5.0% | 2,096 | 4.6% |
| Bicycle | 2,151 | 5.4% | 2,096 | 4.6% |
| Taxicab, motorcycle, other | 478 | 1.2% | 592 | 1.3% |
| Worked at home | 1,873 | 4.7% | 1,777 | 3.9% |

*Sources: American Community Survey (ACS) 5 - year estimates from 2014 (2010 – 2014) and 2019 (2015 – 2019)*

### Figure 4: Commute Mode Share




Sources: American Community Survey (ACS) 5 – year estimates from 2014 (2010 – 2014) and 2019 (2015 – 2019)

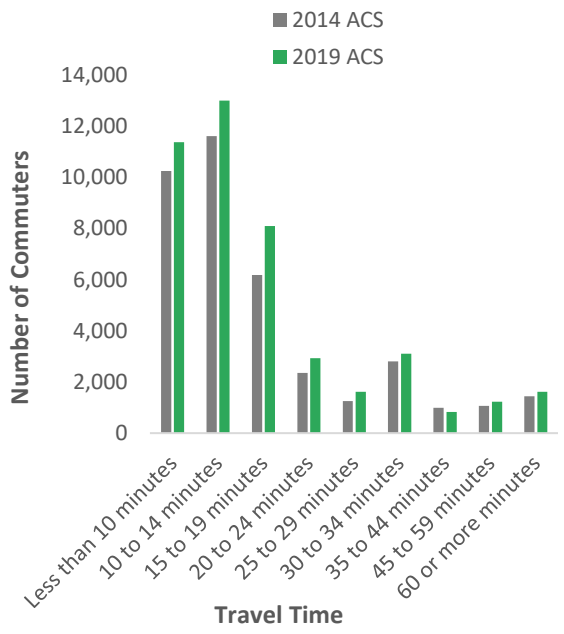
Table 3 and Figure 5 present the reported travel times from the 2014 and 2019 ACS. The average travel time to work for all workers decreased by 0.3 minutes in the 2019 ACS, a two percent decline from the 2014 ACS. In terms of absolute numbers and both survey periods, travel time is the highest in the "10 to 14 minutes" range. The next highest value is the "Less than 10 minutes," range representing a little over 25 percent of total workers for both survey periods. Takeaways from the 2019 ACS show about 80 percent of commuters spend less than 25 minutes traveling to work. Promisingly, 57 percent of commuters spend less than 15 minutes traveling to work, signifying a group that lives close enough to work to utilize active transportation to commute, provided appropriate infrastructure is in place to support it.

### Table 3: Travel Time to Work

| | 2014 ACS | | 2019 ACS | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| Workers 16 years and over | 37,958 | - | 43,790 | - |
| Less than 10 minutes | 10,249 | 27.0% | 11,385 | 26.0% |
| 10 to 14 minutes | 11,615 | 30.6% | 13,006 | 29.7% |
| 15 to 19 minutes | 6,187 | 16.3% | 8,101 | 18.5% |
| 20 to 24 minutes | 2,353 | 6.2% | 2,934 | 6.7% |
| 25 to 29 minutes | 1,253 | 3.3% | 1,620 | 3.7% |
| 30 to 34 minutes | 2,809 | 7.4% | 3,109 | 7.1% |
| 35 to 44 minutes | 987 | 2.6% | 832 | 1.9% |
| 45 to 59 minutes | 1,063 | 2.8% | 1,226 | 2.8% |
| 60 or more minutes | 1,442 | 3.8% | 1,620 | 3.7% |
| Mean travel time (minutes) | - | 17.2 | - | 16.9 |

*Sources: American Community Survey (ACS) 5 - year estimates from 2014 (2010 – 2014) and 2019 (2015 – 2019)*

**Figure 5: Travel Time to Work**




*Sources: American Community Survey (ACS) 5 - year estimates from 2014 (2010 – 2014) and 2019 (2015 – 2019)*

## *Survey Data and Outreach*

*"Chico should prioritize investments that will increase safety, safe routes to school and community places."*

*- Open House attendee feedback*

A Citizens Action Group called the Chico Bike/Pedestrian Working Group supported the City of Chico in developing the Chico Bicycle Plan 2019 Update. The Mechoopda Indian Tribe of Chico Rancheria also expressed their support for bicycle and pedestrian infrastructure improvements.

A 2015 City of Chico online survey associated with the Bicycle Plan 2019 Update asked residents to identify the most common issues and challenges impacting bicycling in Chico. The findings are displayed in Figure 6.

The Chico Bicycle Plan 2019 Update prioritized community involvement to identify the City's biggest active transportation challenges, with a focus on disadvantaged neighborhoods. Similarly, this ATP's overall goal is to advance Chico as a bicycle and pedestrian friendly community through engineering, education, encouragement, equity, and evaluation.

### ENVIRONMENTAL JUSTICE SURVEY

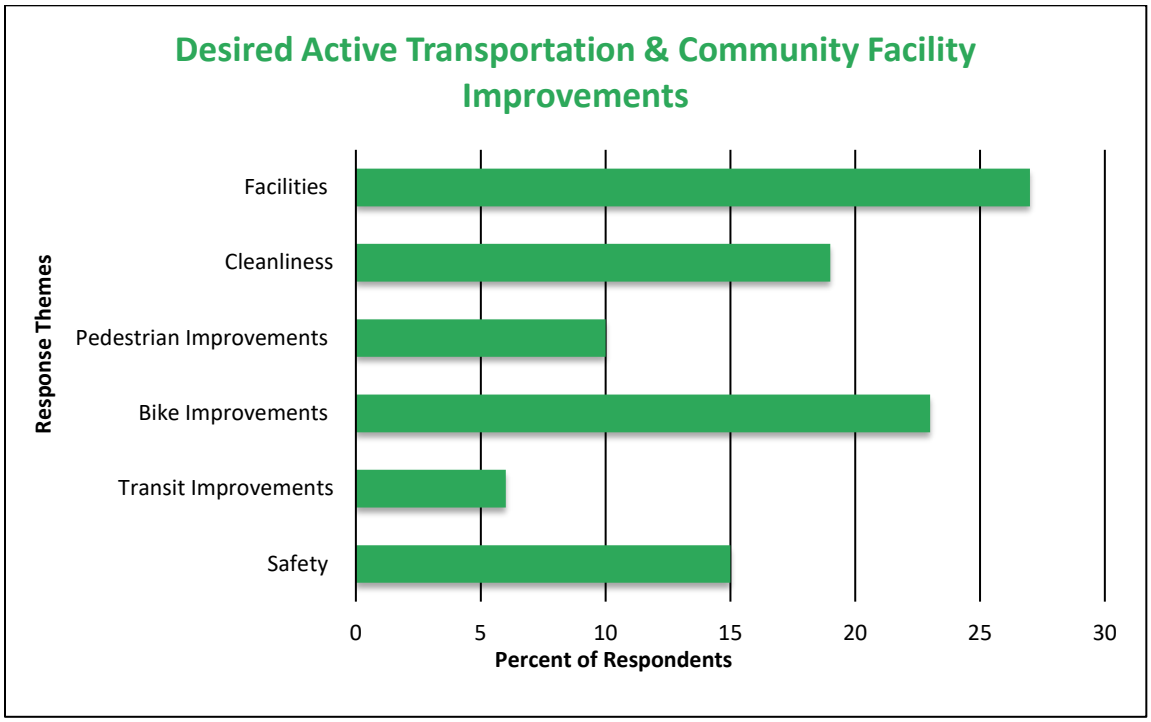
In 2022, the City of Chico conducted an online survey to gather resident input on environmental justice topics related to public facilities and physical activity to help inform the development of the City's Environmental Justice Element of the General Plan. In this survey, respondents identified their ZIP code and responded to questions about active transportation behavior choices, their experiences with active transportation infrastructure, and desired improvements. Figure 6 highlights some of these desired active transportation and community facility improvements. Overall survey responses varied but centered around a general theme of appreciation for existing active transportation facilities and a desire to see more.

*Bicyclist riding on Vallombrosa Avenue an entrance to Bikeway 99*

Specifically, many respondents wrote about a desire to walk or bike more but not being able to do so due to a lack of infrastructure or connectivity. Many respondents wrote about making transportation mode choices based on safety. Respondents wrote that they avoided walking or bicycling due to a lack of perceived safety on roadways. Arterial roadways in particular were highlighted as important for connectivity but lacking safe facilities for walking and bicycling. Similarly, respondents wrote that better access to new facilities for walking and bicycling would likely encourage them to try walking or bicycling. Desired improvements also included more lighting on existing facilities and enhanced wayfinding information. Some also expressed that they experience health benefits from walking and bicycling or desired to experience those health benefits if they could only safely participate in those activities.

Respondents wrote about maintenance of existing bicycle and pedestrian facilities. Specifically, respondents discussed debris, brush overgrowth, and pavement conditions. Pavement conditions and the presence of debris were highlighted as impediments to bicycling on roads with existing bicycle facilities. These conditions were reported at Lower Bidwell Park as well as other trails throughout the city.

**Figure 6: Online Survey Results**




*Source: 2022 Environmental Justice Survey Results, City of Chico*

# Transportation Network

## *Streets and Highways*

The majority of Chico is organized into "superblocks" separated by a large grid of major arterials, many of which feature B-Line routes. Many of these arterials are four or more 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; other neighborhoods exhibit a grid pattern.

State Route 99 runs north-south and State Route 32 runs both north-south and east-west through Chico, providing regional connections. SR 99 bisects southwest and northeast Chico and SR 32 flanks Downtown Chico, which presents connectivity and safety challenges for walking and bicycling.

## *Transit*

B-Line, operated by Butte Regional Transit, is Butte County's regional public transit system, operating 21 routes which serve the communities of Chico, Oroville, Paradise, and additional smaller locales in between. It is managed by the Butte County Association of Governments. Transit center hubs are located within the three major cities listed above, with the Chico Transit Center located downtown on West 2nd Street, near the corner with Salem Street.

B-Line also operates both an ADA paratransit service and Dial-A-Ride service to meet the needs of seniors and people with disabilities.

### 2022/2023 UNMET TRANSIT NEEDS ASSESSMENT DRAFT

As administrator for Transportation Development Act (TDA) funds for Butte County, B-Line is tasked with performing an annual Unmet Transit Needs process, which entails extensive public outreach. Unmet Transit Needs are defined as "those trips required, but currently not provided and not scheduled to be provided within Butte County, for individuals dependent on public transit to maintain a minimum standard of living."

The 2023/2024 Unmet Transit Needs Assessment reviewed the latest public testimony. Feedback touched on stops/routing, service area expansion requests, route timing, as well as miscellaneous items. BCAG's findings, adopted in February 2023, determined that there are no Unmet Transit Needs that are considered Reasonable to Meet.

## *Rail*

Chico is currently served by daily Amtrak intercity rail service along the Coast Starlight route, connecting Seattle to the north with Los Angeles to the south. Chico Station is located at 450 Orange Street, between 4th and 5th Streets.

BCAG is coordinating with San Joaquin Joint Powers Authority (SJJPA) and San Joaquin Regional Rail Commission (SJRRC) staff to initiate the North Valley Passenger Rail service beginning in 2030, extending Altamont Corridor Express (ACE) and Amtrak San Joaquins trains northward from the Sacramento Area. This is anticipated to initially include four daily roundtrips between Chico and Sacramento with stops in Gridley, Marysville-Yuba City, and Plumas Lake. Hourly service is planned for this corridor before the year 2050. Additional details can be found on the project website: www.northvalleyrail.org.

## *Bicycle Facilities*

The City of Chico has an existing network of bikeways throughout the community and is proud to have been awarded the League of

American Bicyclists Gold Level Award for 2016 to 2020.[4] The awards are valid for four years.


*Chico Bicycle Friendly Community Award*

However, high-stress routes and crossings as well as network gaps remain. One of the Bicycle Friendly Community metrics is "Key Outcomes," which calculates the percentage of daily bicyclists and crashes per 10,000 daily bicyclists. The average Platinum level community rankings (the highest award level) are displayed in comparison to Chico's rankings in Table 4, demonstrating a significant safety gap.

**Table 4: Bicycle Friendly Community Rankings**

| Key Outcomes | Average Platinum | Chico |
|---|---|---|
| Ridership<br>Percentage of daily bicyclists | 13.6% | 5.4% |
| Crashes<br>Crashes per 10,000 daily bicyclists | 100 | 308 |
| Fatalities<br>Fatalities per 10,000 daily bicyclists | 0.4 | 2 |

*Source: The League of American Bicyclists Fall 2016 Rankings*

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 described below. Existing bikeways in Chico, by class, are summarized in Table 5 and illustrated in Figure 7A and 7B.

**Table 5: Existing Bikeway Miles**

| Bikeway Class | Existing Miles |
|---|---|
| Class I Shared Use Path | 35.3 miles |
| Class II Bicycle Lanes | 40.1 miles |
| Class III Bicycle Routes | 22.7 miles |
| Class IV Separated Bikeways | 0.5 miles |

*Source: City of Chico*

### CLASS I SHARED USE PATHS

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

*Peterson Memorial Way – Class I Multi-Use Path*

[4] League of American Bicyclists. Bicycle Friendly Community. Fall 2016. https://chico.ca.us/sites/main/files/file-attachments/bfc_fall_2016_reportcard_chico_ca.pdf?1574914953.

### 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.

*East 8th Street – Class II 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."


*East 7th Street – Class III Bicycle Route, indicated by green sign*

### 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.

*Example of Class IV Separated Bikeway*

## *Additional Bicycle Facilities*

### CONNECTORS

BCAG defines a further bicycle facility type on its city bike map as a "connector."[5] Connectors provide "links between paths, routes and lanes." However, connectors aren't marked or officially designated as routes and don't necessarily provide enough space for automobiles, bicyclists, and pedestrians to all safety navigate. Paved connectors are designated as a red

[5] Butte County Association of Governments. Bike Map. 2014. http://www.bcag.org/documents/transit/bike_maps/bcag_bike_map_front_web.pdf.

dashed line and unpaved as a purple dotted line (see Figure 8).

### FEATURED ROUTE: BIKEWAY 99

The Bikeway 99 Route, which roughly parallels SR 99, is a popular designated bicycle route linking riders to important destinations. The route also presents safety challenges. Bikeway 99 begins in the north as a Class III bicycle route on Silverbell Road and ends as a Class II bicycle lane on Notre Dame Boulevard, just south of Morrow Lane. The route features several bike bridges connecting beneath SR 99 and over Little Chico Creek (see Figure 8).


*Class I facility along Bikeway 99*

Bikeway 99 offers riders the opportunity to directly access or connect to dedicated facilities that link to critical amenities, including educational institutions like Fairview High School, Neal Dow Elementary School, Parkview Elementary School, CSU Chico, and Butte College Chico Campus; shopping and places of employment like North Valley Plaza and Chico Marketplace; access to healthy food, such as grocery stores and farmers markets; and recreational offerings like Lower Bidwell Park and Community Park.

Throughout the network, Bikeway 99 transitions a dozen times between bikeway classes, including Class I, Class II, and Class III, and also contains gaps where no dedicated facility is present, such as just north of East 20th Street. Please see the Bikeway 99 chapter for additional information and recommendations for improvement.

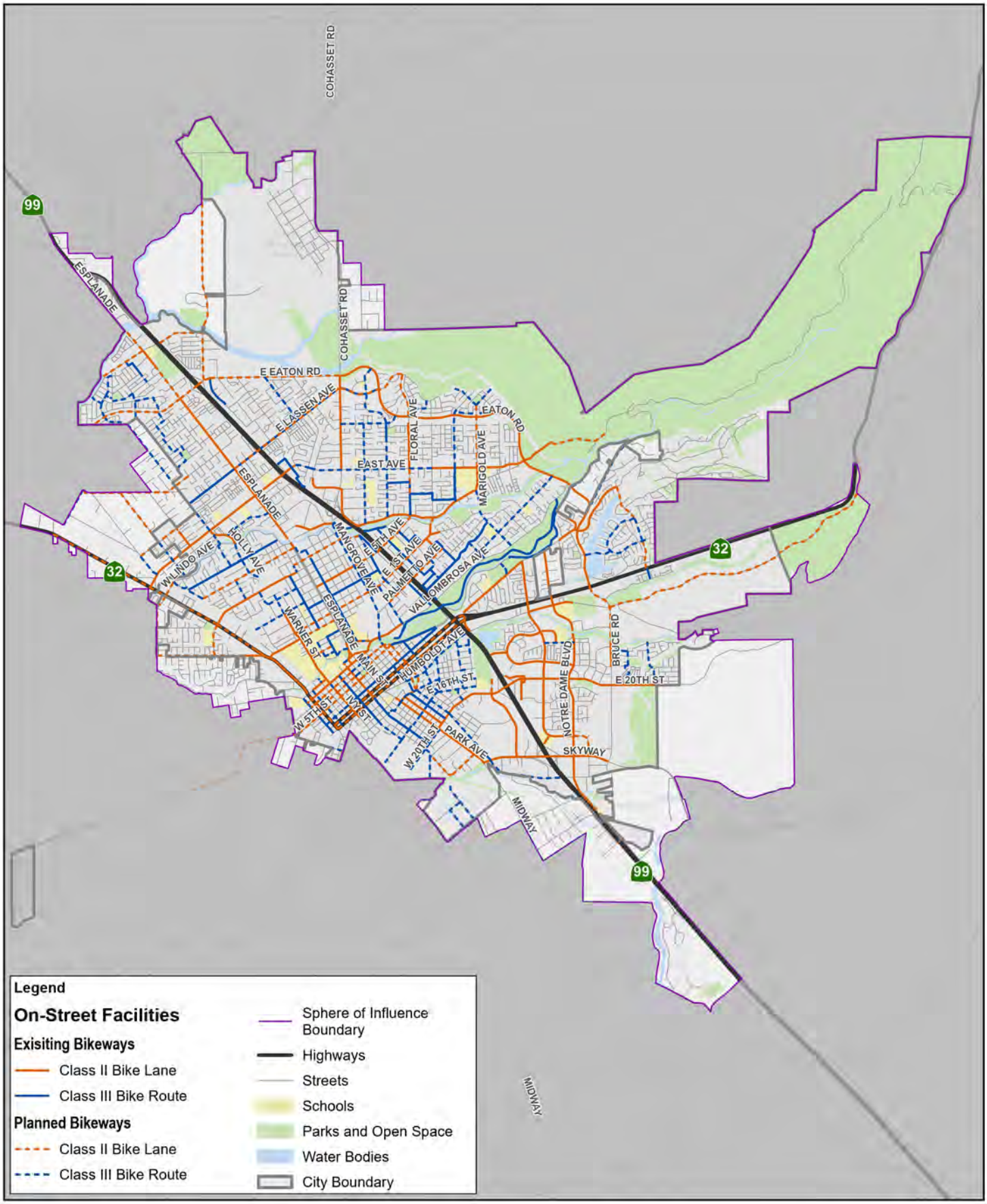
### BIDWELL PARK TRAILS & CHICO AREA REGIONAL RIDES

The City of Chico features an extensive and popular trail system extending through Lower and Upper Bidwell Park, including Class I – IV bicycle facilities, minor trails, and pedestrian-only facilities. Peterson Memorial Way, which begins at the Lower Bidwell parking lot and extends nearly to Manzanita Way is signed for one-way (north to south) bike and car traffic only. Bike access is restricted near Sycamore Pool.

Though bicycle infrastructure connecting Chico to neighboring cities is limited, for the adventurous bicyclist there are regional routes, as featured in Figure 9, available to access destinations in nearby towns such as Durham, Dayton, and Nord.

*Trail in Bidwell Park*

*Chico Velo Cycling Club – Childflower Ride*

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

# EXISTING & PLANNED BIKEWAY NETWORK: ON-STREET FACILITIES

Project No. 12575135
Revision No. D
Date Dec 2023

# FIGURE 7A

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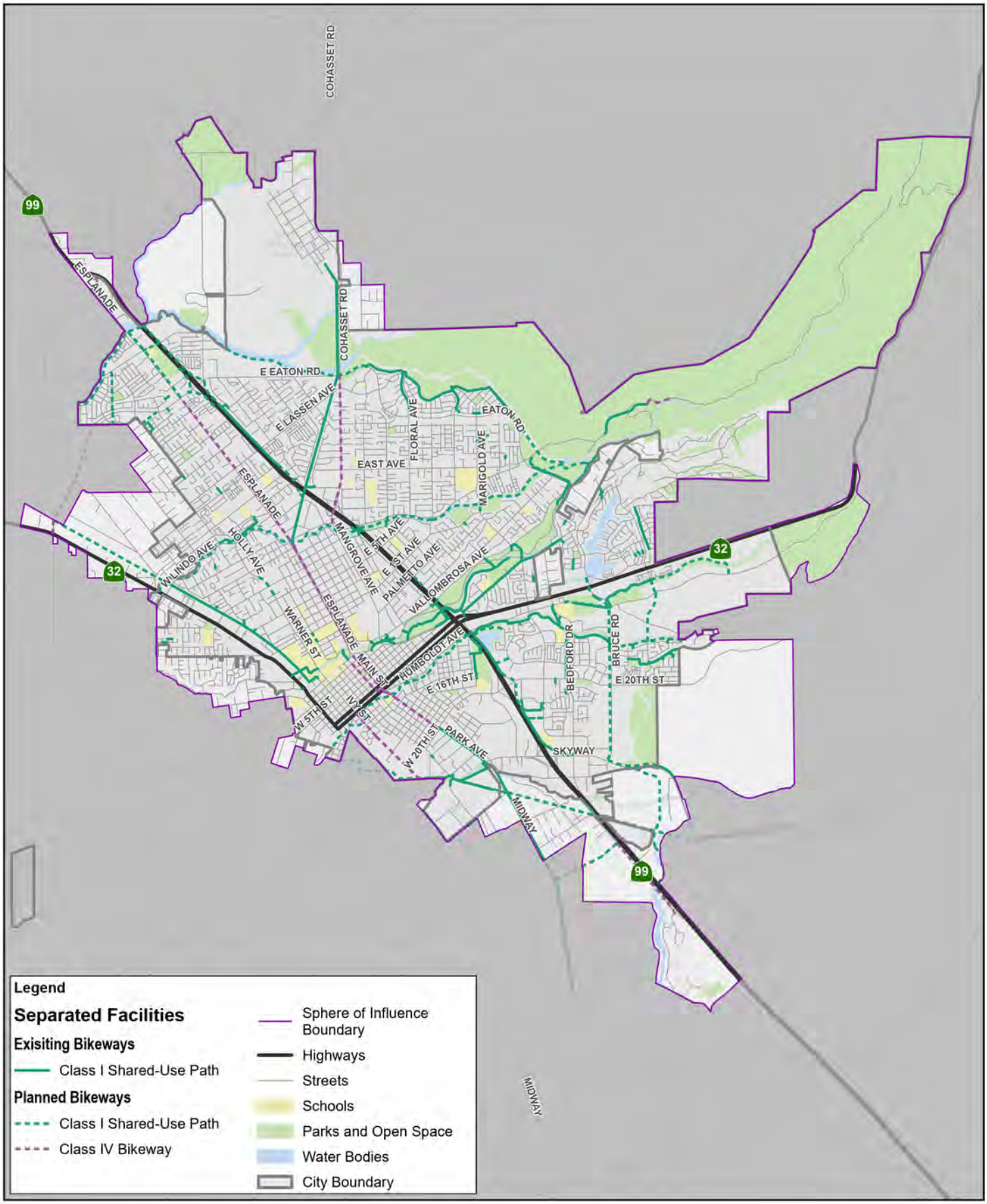
Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, USGS, EPA, NPS, Boundaries, Streets, Bikeways: City of Chico 2021. Created by: ethompson3

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

# EXISTING & PLANNED BIKEWAY NETWORK: SEPARATED FACILITIES

Project No. 12575135
Revision No. D
Date Dec 2023

**FIGURE 7B**

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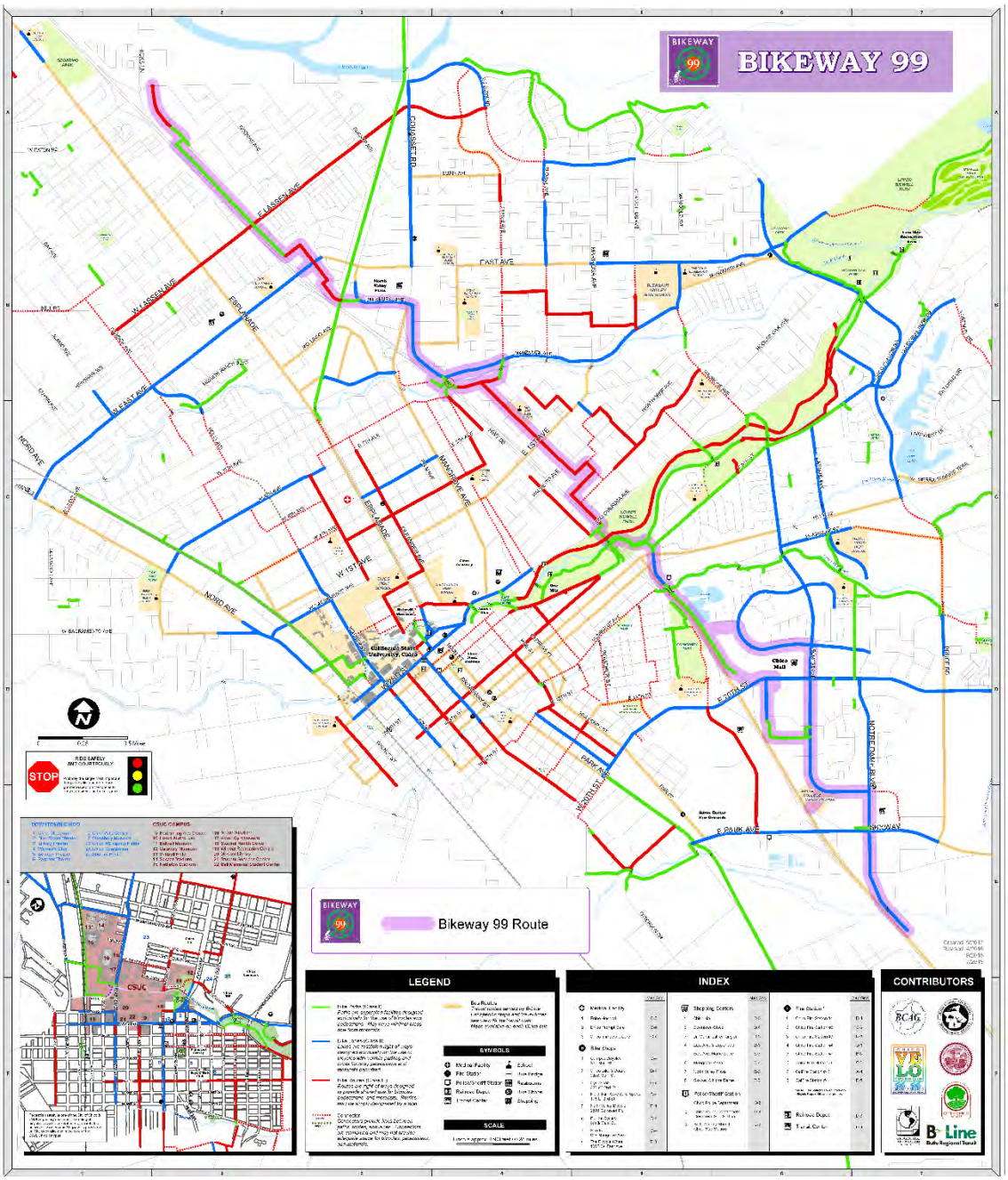
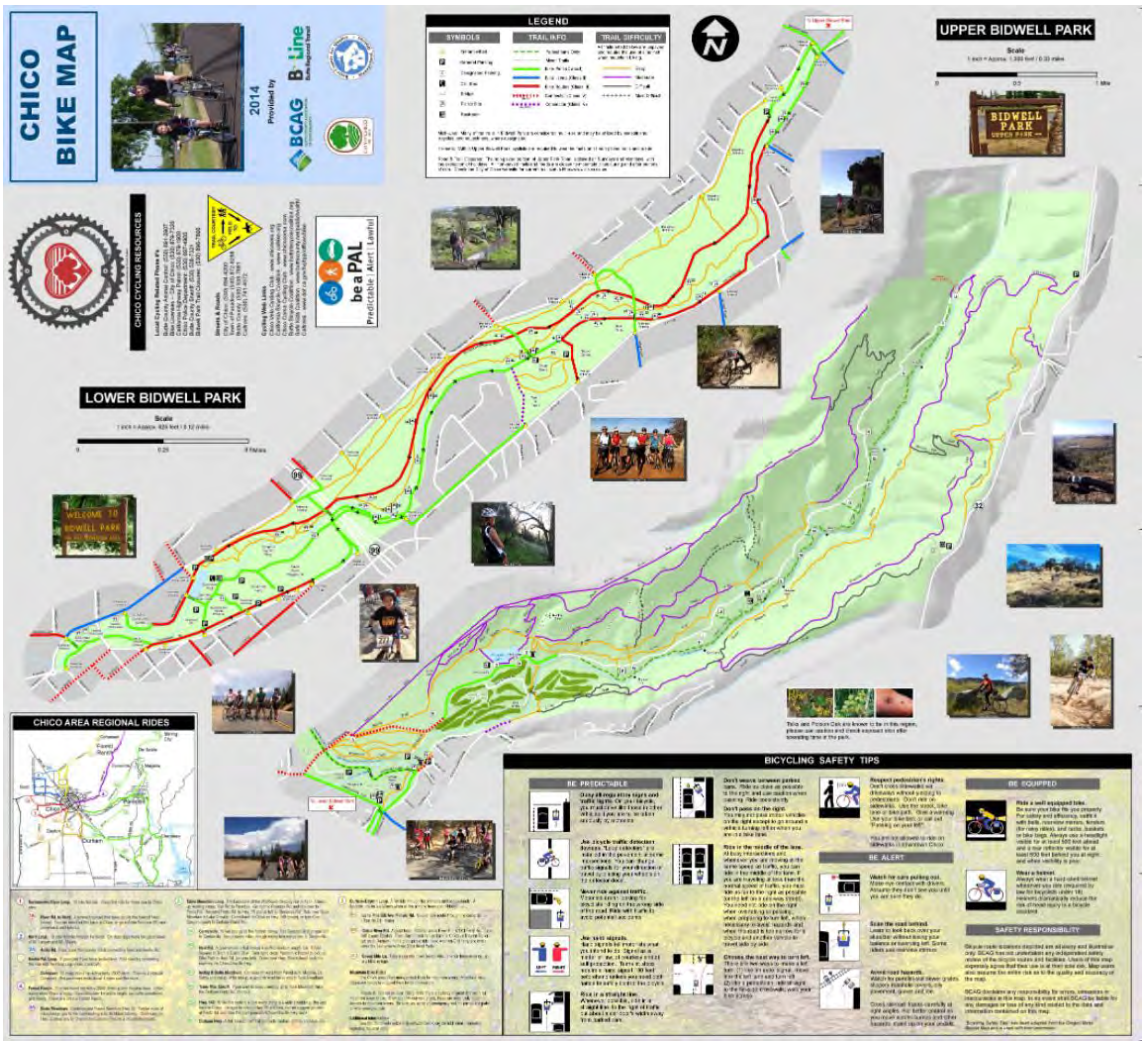
Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA, Boundaries, Streets, Bikeways: City of Chico 2021. Created by: ethompson3

## Figure 8: Bikeway 99 Route




*This map is available at https://chico.ca.us/sites/main/files/file-attachments/bikeway99map2018.pdf?1575593111*

## Figure 9: Chico Area Regional Rides




*This map is available at http://www.bcag.org/Planning/Bicycle/index.html*

## *Support Facilities*

In addition to a network of bikeways, support facilities are also needed to attract and maintain dedicated 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.

*Example of bicycle lockers*

The Chico Bicycle Plan 2019 Update featured a bicycle parking inventory, including bicycle lockers, within the Chico urban area, noting parking locations at area schools, parks, shopping centers, community services, government offices, and intermodal facilities. CSU Chico alone features 5,500 bicycle parking spaces.

The Bicycle Plan 2019 Update also included a participant mapping exercise to identify popular bike destinations, a helpful first step to ensure the adequacy of bike parking facilities. Community input identified a lack of secure bike parking as a major deterrent to residents regularly completing utilitarian trips by bike.

The Chico Municipal Code requires bicycle parking to be provided for all residential uses, except for single family residences that are detached and/or do not share common open space areas, as well as all commercial, service, manufacturing, and industrial uses. These include structures owned by the City and used for governmental purposes. The minimum number of bicycle spaces required is determined by the Parking Requirements Table 5-4 in the municipal code.

In addition to permanent parking, Chico Velo, a local bicycle advocacy organization, offers bike valet parking for special events in Chico, including the Farmers Markets, concerts, and other community events. This specialized service encourages residents to ride to area activities, knowing their bicycles will be safe and secured throughout the duration of the event.

### 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 municipal code currently allows developers to reduce a project's vehicle parking requirements by five percent if they provide facilities or programs that reduce vehicle parking demand, including showers, locker rooms, or additional secure bicycle parking beyond the

minimum. Requirements associated with the provision of showers and lockers by land use type and for specified building floor area are detailed within the code.

These facilities are typically provided by private developers or business owners for their tenants or employees. Educational facilities, including CSU Chico and area junior and senior high schools have shower, locker, and restroom facilities for students, faculty, and staff use. Most major employers provide showers and lockers as well.

### BIKE REPAIR STATIONS

There are several bike repair kiosks, including bike pumps and tools, installed at Chico businesses. Chico Velo has also sponsored bike repair stations at local schools.

*Person fixing their bike at a bicycle repair station.*

### TRANSIT INTEGRATION

All fixed route buses within B-Line's transit fleet feature front-loading service for up to three bicycles, which assists with regional connectivity and first- and last-mile connections that transit riders may need to make between their homes and/or workplaces.

Though the available amount is sparce, there are bike racks present at area intermodal facilities, including the Amtrak/Greyhound Station (7 spaces), Chico Municipal Airport (6 spaces), the Downtown Chico Transit Center (10 spaces) and the Park-and-Ride lot at SR 32 and Fir Street. Though B-Line buses provide bicycle loading space, only a handful of bus stops feature bicycle parking, notably those at Butte College.

*Transit rider securing a bicycle to a front-loading bike rack*

## *Pedestrian Facilities*

### SIDEWALK

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

Sidewalks are present throughout the downtown core and in historic downtown neighborhoods. However, obstructions such as light poles and utility boxes, inaccessible driveway ramps, and outstanding repair needs prove challenging for accessibility. Sidewalks are incomplete or non-existent in industrial areas, such as those in South Chico. Where narrow sidewalks are present immediately adjacent to high-speed arterials, it can be challenging for pedestrians to comfortably navigate.

### 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. Uncontrolled locations are those 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.

*New RRFB crossing on Fair Street in South Chico*

### ACCESSIBILITY INVENTORY

As part of the City’s ADA Transition Plan, the City of Chico completed a 2009 Phase 1 evaluation of pedestrian facilities, including sidewalks, crosswalks, curb ramps and parking facilities, to determine accessibility issues. This phase resulted in the notation of over 1,500 upgrades which were assigned a priority ranking from low to high. These existing conditions data helped to inform this Plan.

- For crosswalks, the inventory noted those that were missing, crosswalk surfaces in need of upgrading or restriping, and clear space upgrades at signal call buttons.
- For sidewalks, the inventory noted necessary repairs, maintenance concerns, path of travel upgrades, cross slopes at driveways not meeting ADA standards, and other hazards such as drop-offs.
- For curb ramps, the inventory noted missing ramps, running slopes, flared sides, and ramp transitions to the street not meeting ADA standards, as well as needed grooved borders and bottom/top landing upgrades.
- For parking areas, the inventory noted access aisles in need of “No Parking” signage for disabled parking spots, path of travel upgrades, and tow away signage. The ADA Committee brought the recommended list of projects to City Council as an amendment to the existing ADA Transition Plan to include them in the City’s Capital Projects budget.

## *Barriers*

Both natural and human-made barriers may present challenges to safe travel for bicyclists and pedestrians in Chico. The presence of both SR 99 and SR 32, with high traffic volumes and speeds, increase stress for users attempting to cross these facilities. Caltrans District 3’s 2021 Active Transportation Plan conducted surveys where community members identified major bicycle and pedestrian needs along state

highways.[6] SR 32 received the second most comments of any in the district, with two Chico needs identified:

- More crossing opportunities connecting apartments across Nord Avenue.
- Signal upgrades at Deer Creek Highway and Notre Dame Boulevard.

Additionally, on high-speed arterials like Walnut Street and 20th Street, faded crosswalks and limited crossing times presented challenges.

Several rail lines pass through the City, including an Amtrak route through Downtown Chico, which creates interruptions in safe and efficient travel in various locations. Other barriers to walking and bicycling may be context or site specific, including features like drainage facilities, large parking lots, and inadequate lighting or sightlines along trails. Bicycle theft is also a notable concern within Chico and may deter riders, particularly when bicycle parking availability is limited or inadequate at their destination.

## Site Visit

The project team conducted a series of walk audits on May 17, 2022. These audits evaluated safety and access conditions near schools during arrival and dismissal, visited intersections with the highest incidence of pedestrian and bicyclist involved collisions in the past ten years, evaluated corridors identified as safety concerns by the Chico Active Transportation Technical Advisory Committee (CATTAC), traveled busy downtown corridors, and visited Lower Bidwell Park.

### *School Audits*

The school audits took place at two elementary schools (arrival at Rosedale and dismissal at Hooker Oak) and both Chico Junior High School and Chico High School during dismissal.

*Student bicycles parked behind Chico High School*

The elementary schools featured one-way pull-through areas and moderate to severe traffic congestion during peak times, with cars idling and double parking in loading zones. At Rosedale, a school attendant assisted children at a designated crosswalk. At Hooker Oak, poor neighborhood pavement conditions and a lack of curb ramps impacted access. A small handful of parents/guardians were observed walking or bicycling with students to both schools.

*Arbutus Avenue and East 3rd Street pavement and crossing conditions*

At Chico Junior High groups of students crossed Memorial Way to meet guardians in the shopping center lot and student bicyclists travelled toward Vallombrosa Avenue on the

[6] Caltrans. District 3 Active Transportation Plan: Draft Summary Report. https://www.catplan.org/files/managed/Document/1203/2022-03-03%20D3%20working%20draft.pdf.

north-side sidewalk or south-side in-lane. A school representative with a walkie talkie stood at the corner of Camellia Way and Memorial Way to encourage safe crossing.

At Chico High School there was vehicle congestion in the loading zone, which impacted students accessing the stop sign and pedestrian button for the RRFB at Esplanade. This congestion also blocked the transit stop in front of the school. The RRFB was highly utilized, but vehicles became impatient over time. Two student bicycle parking cages were moderately full.


*Crossing on West Sacramento Avenue at Esplanade RRFB*

## *High Collision Intersection Audits*

The project team also visited intersections with a high incidence of pedestrian/bicyclist collisions, such as Walnut Street and West 1st Street, Walnut Street and West 3rd Street, East Avenue and Pillsbury Road, and Esplanade / Broadway Street / West 1st Street. There were commonalities between many of these, including faded crosswalk markings, a lack of ADA compliant curb ramps, sidewalk and bicyclist infrastructure adjacent to high-speed traffic, tree grates and other obstructions further limiting accessibility, and short pedestrian crossing times.


*Crossing conditions at Walnut Street and West 3rd Street*

## *CATTAC-Identified Corridors*

The project team walked several corridors identified by the CATTAC where safety issues were present, including East 20th Street from Fair Street to Dr. Martin Luther King Jr. Parkway, Fair Street from 20th Street to Park Avenue and East 1st Avenue near the on- and off-ramps with SR 99.

Where sidewalk and bicycle facilities were present on these corridors, they were narrow and lacked a buffer between fast moving vehicles. Bicycle lanes often lacked in-pavement symbols to indicate they were not simply a shoulder lane. At major intersections, such as Dr. Martin Luther King Jr. Parkway, there was a lack of conflict markings for bicyclists. On Fair Street, sidewalk connectivity was poor, with numerous gaps present.

## *Downtown Chico*

Dedicated bicycle facilities are uncommon on the main downtown corridors, yet bicycle racks are numerous and wide sidewalks are present with corner bulb-outs providing additional pedestrian waiting space.

Though a major route for through traffic entering or leaving downtown, the Esplanade/Main Street intersection proves challenging for pedestrians and bicyclists to navigate, given the Class I bike path on the west side is fenced to restrict pedestrian entrance. Pathways through Bidwell

Mansion State Historic Park do, however, provide excellent connections to the CSU Chico campus.

### *Lower Bidwell Park*

Lower Bidwell Park offers generous space for pedestrians, bicyclists, residents, and visitors alike, to recreate or use the park's paths as comfortable routes to reach nearby destinations.

Main pathways, such as Peterson Memorial Way, featured well maintained trailside amenities such as benches, trash cans, and bike racks. Side trails were unpaved and less formally signed. One-way bicyclist travel was encouraged via signage on Peterson Memorial Way, where cars were allowed, yet not frequently observed.

## Safety

Collision data involving people walking and bicycling in Chico was queried from UC Berkeley's Transportation Injury Mapping System (TIMS). Eleven years of data was evaluated, from January 1, 2010 to December 31, 2020. At the time of this analysis, 2020 data was still considered provisional and subject to change. Findings related to bicycling and walking collisions are highlighted in the following sections.

A total of 3,036 collisions were reported in Chico during this period, 17.7 percent of which involved people bicycling and 9.8 percent of which involved people walking.

### *Bicycle-Related Collisions*

During the reviewed time period, 536 reported collisions involved a bicyclist. Of these, four were fatal and 41 resulted in severe injuries.

Overall collision severity of both bicycle and pedestrian collisions are mapped in Figure 10, with overall collision density mapped in Figure 11. Bicycle-only collisions are mapped by severity in Figure 12 and by collision density in Figure 13.

#### AGE

Among collisions where the age of the bicyclist was reported, 22 percent were under 18 years old. Children under 18 make up 19 percent of the Chico population, suggesting youths are slightly overrepresented among collision victims.

#### PRIMARY COLLISION FACTORS

Overall, the two most common collision factors were bicyclists or motor vehicle drivers traveling on the wrong side of the road and automobile right of way. One-third of collisions (33 percent) were attributed to each of those two factors. The second-most common collision factor (at 12.5 percent) was improper turning. Another four percent of collisions were attributed to each of the following behaviors: unsafe lane changes, pedestrian violations, traffic signals and signs, and lights.

Bicyclists were determined to be at fault in 63 percent of collisions (15 collisions). Motor vehicle drivers were determined to be at fault in 17 percent of collisions (4 collisions). Fault was not assigned in the remaining five collisions.

Among collisions where the bicyclist was determined to be at fault, about half (8 out of 15 collisions) were attributed to bicyclists traveling on the wrong side of the road. In many cases, people will ride their bicycle on the wrong side of the road facing traffic in the absence of comfortable facilities for bicycling, feeling that being able to see oncoming vehicles makes them safer.

Among collisions where the motor vehicle driver was determined to be at fault, half were attributed to automobile right of way violations.

#### TIME OF DAY

Most bicycle collisions occurred in daylight and almost all occurred with some sort of illumination:

- 71 percent (17 collisions) occurred in the daylight.

- 25 percent (six collisions) occurred during darkness, but with the roadway illuminated by streetlights.
- One collision occurred during darkness without illumination from streetlights.

Of all bicycle collisions, a plurality occurred in the afternoon, between noon and 6 p.m.

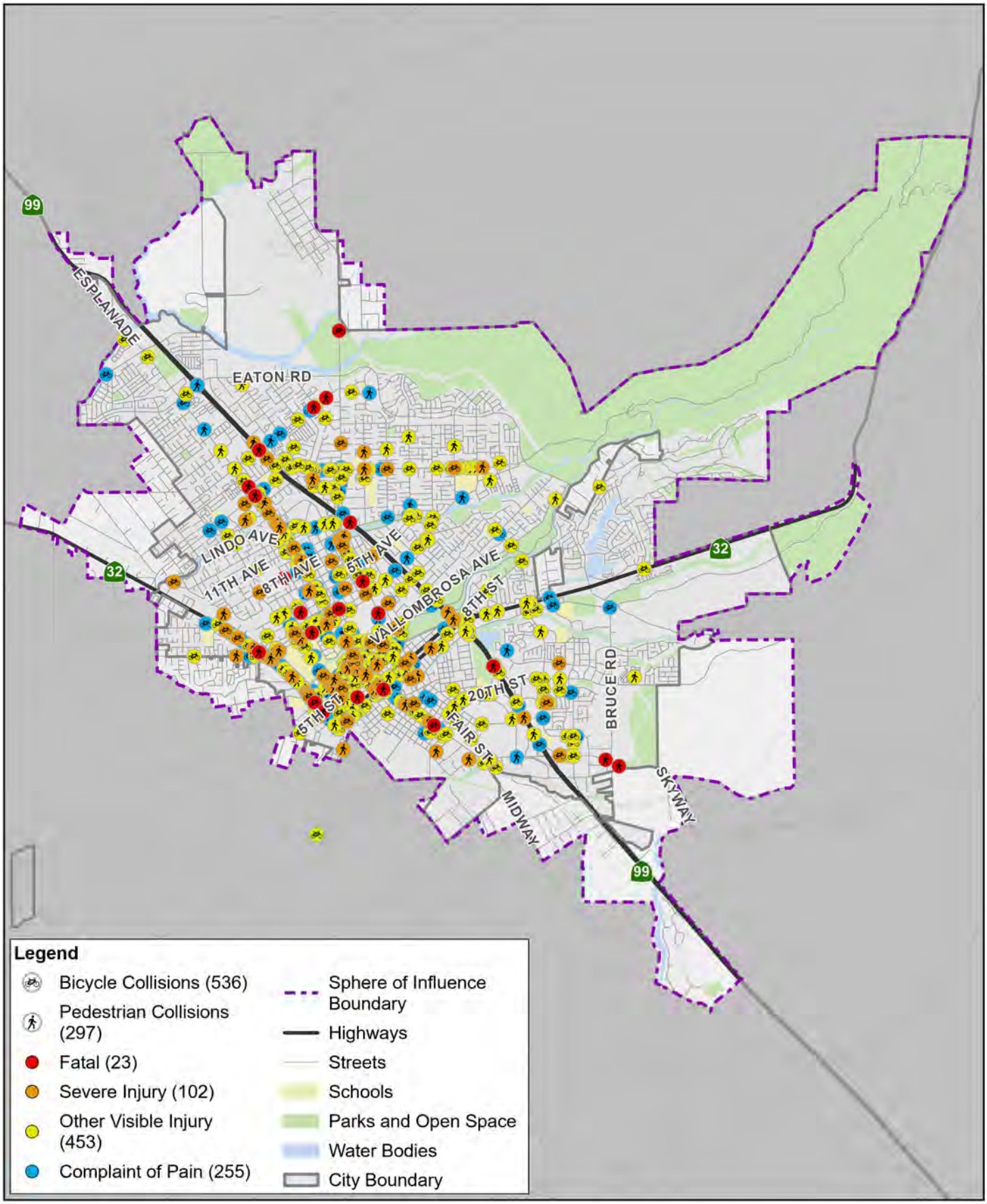
- Eight percent (two collisions) occurred in the early morning, between midnight and 6 a.m.
- Another 25 percent (six collisions) occurred in the morning, between 6 a.m. and noon.
- 42 percent (10 collisions) occurred in the afternoon, between noon and 6 p.m.
- A further 25 percent (six collisions) occurred in the evening, between 6 p.m. and midnight.

### ADDITIONAL FINDINGS

One-third of all bicycle collisions occurred within hotspots for collisions involving bicycles.

Most collisions (54 percent or 13 collisions) occurred on a state highway. Typically, state highways that serve as part of the local roadway network lack comfortable facilities for bicycling given the higher traffic speeds and volumes typically observed on these roadways.


*West 8th Street is a state highway (SR 32) and serves as a local roadway without bicycle lane*

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Map Projection: Lambert Conformal Conic
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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

# BICYCLE & PEDESTRIAN COLLISIONS BY SEVERITY (2010 - 2020)

Project No. 12575135
Revision No. C
Date Dec 2023

# FIGURE 10

\\ghdnetghd\US\Sacramento - 2200 21st\Projects\561\12575135\GIS\Maps\Deliverables\12575135_ExistingConditions\12575135_ExistingConditions.aprx - 12575135_10_Chico_Collision_Severity_RevC
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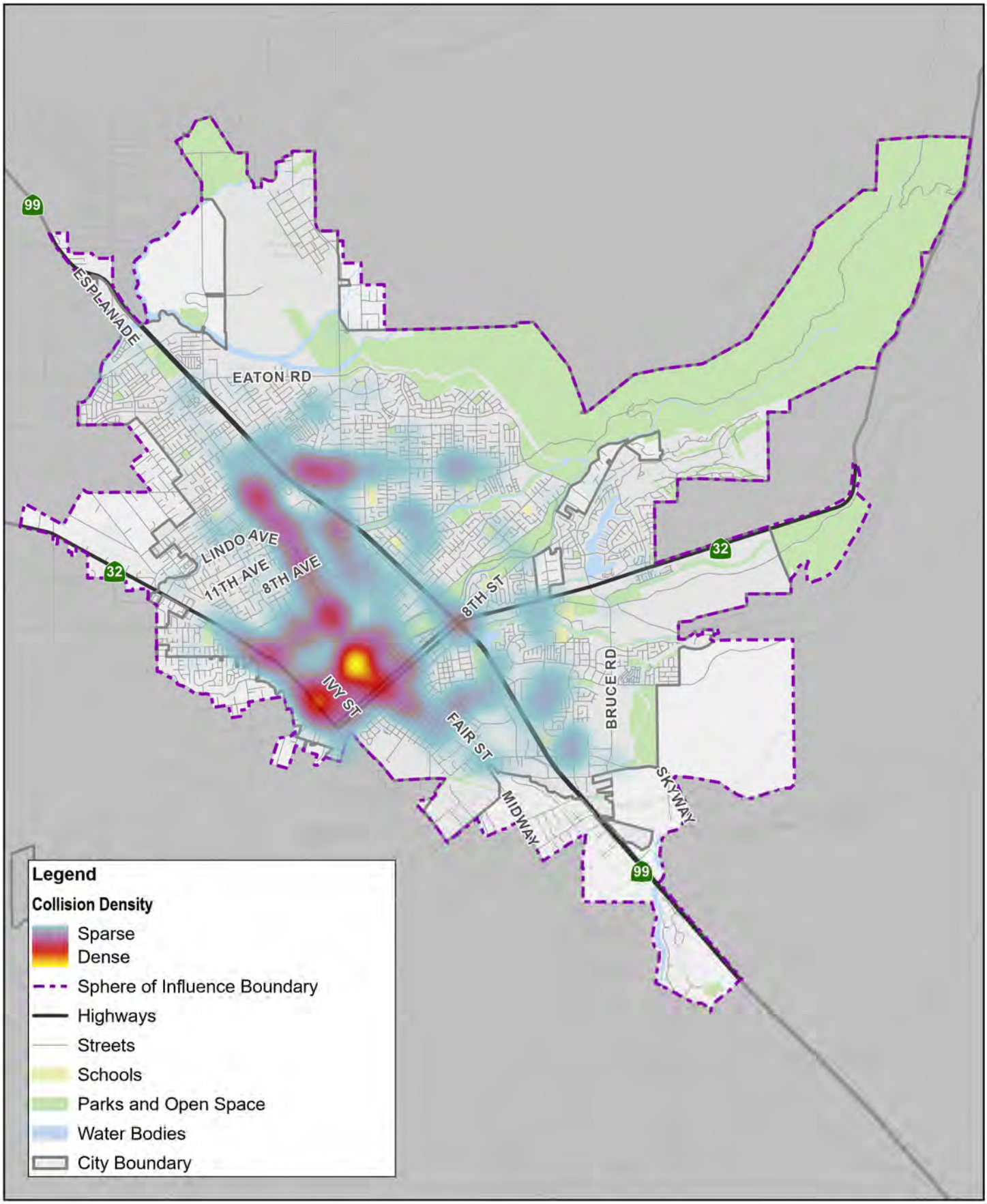


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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

# BICYCLE & PEDESTRIAN COLLISIONS BY DENSITY (2010 - 2020)

Project No. 12575135
Revision No. C
Date Dec 2023

# FIGURE 11

\\ghdnetghd\US\Sacramento - 2200 21st\Projects\561\12575135\GIS\Maps\Deliverables\12575135_ExistingConditions\12575135_ExistingConditions.aprx - 12575135_11_Chico_Collision_Density_RevC
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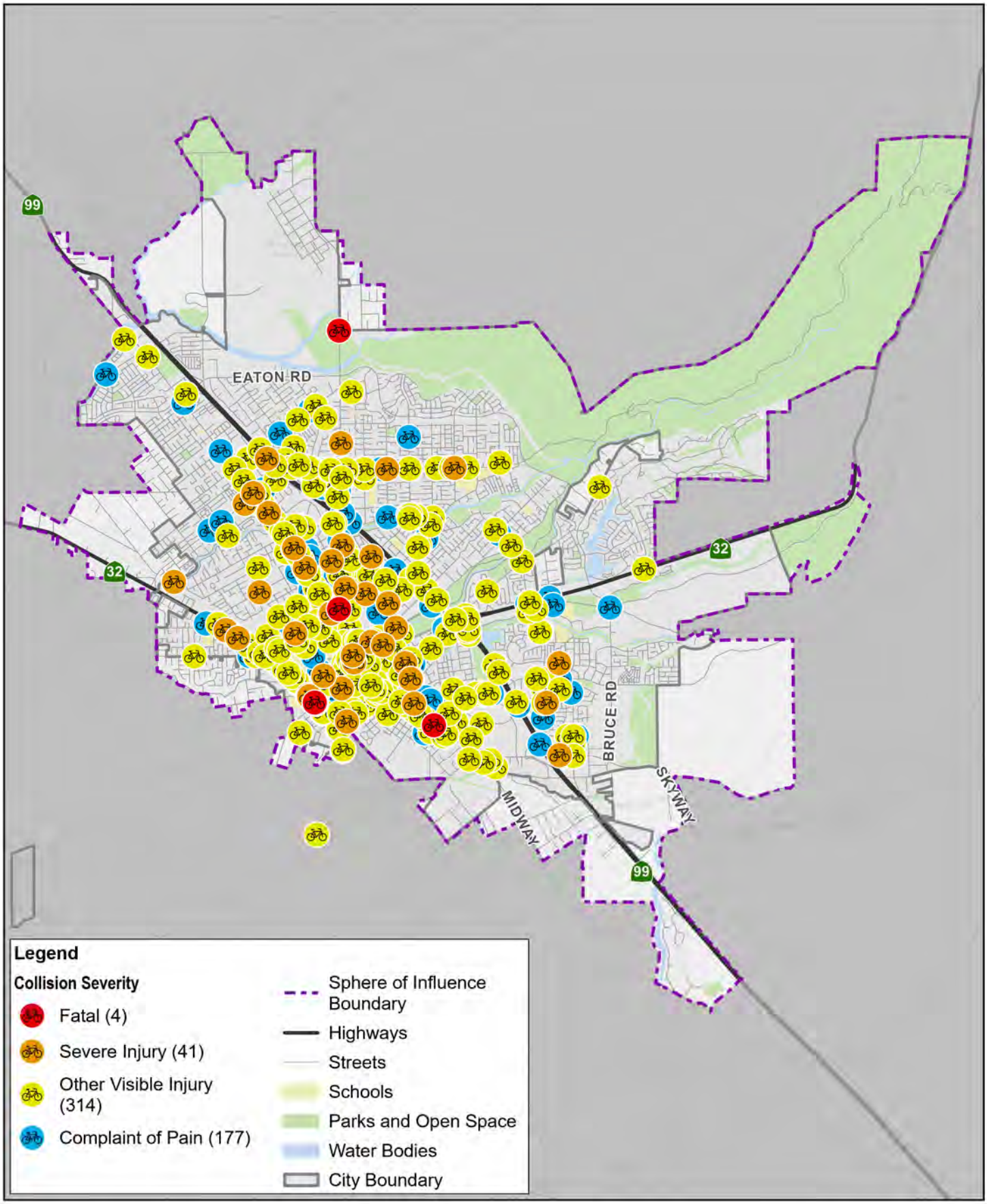


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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

# BICYCLE COLLISIONS BY SEVERITY (2010 - 2020)

Project No. 12575135
Revision No. C
Date Dec 2023

# FIGURE 12

\\ghdnetghd\US\Sacramento - 2200 21st\Projects\56\12575135\GIS\Maps\Deliverables\12575135_ExistingConditions\12575135_ExistingConditions.aprx - 12575135_12_Chico_Bicycle_Collision_Severity_RevC
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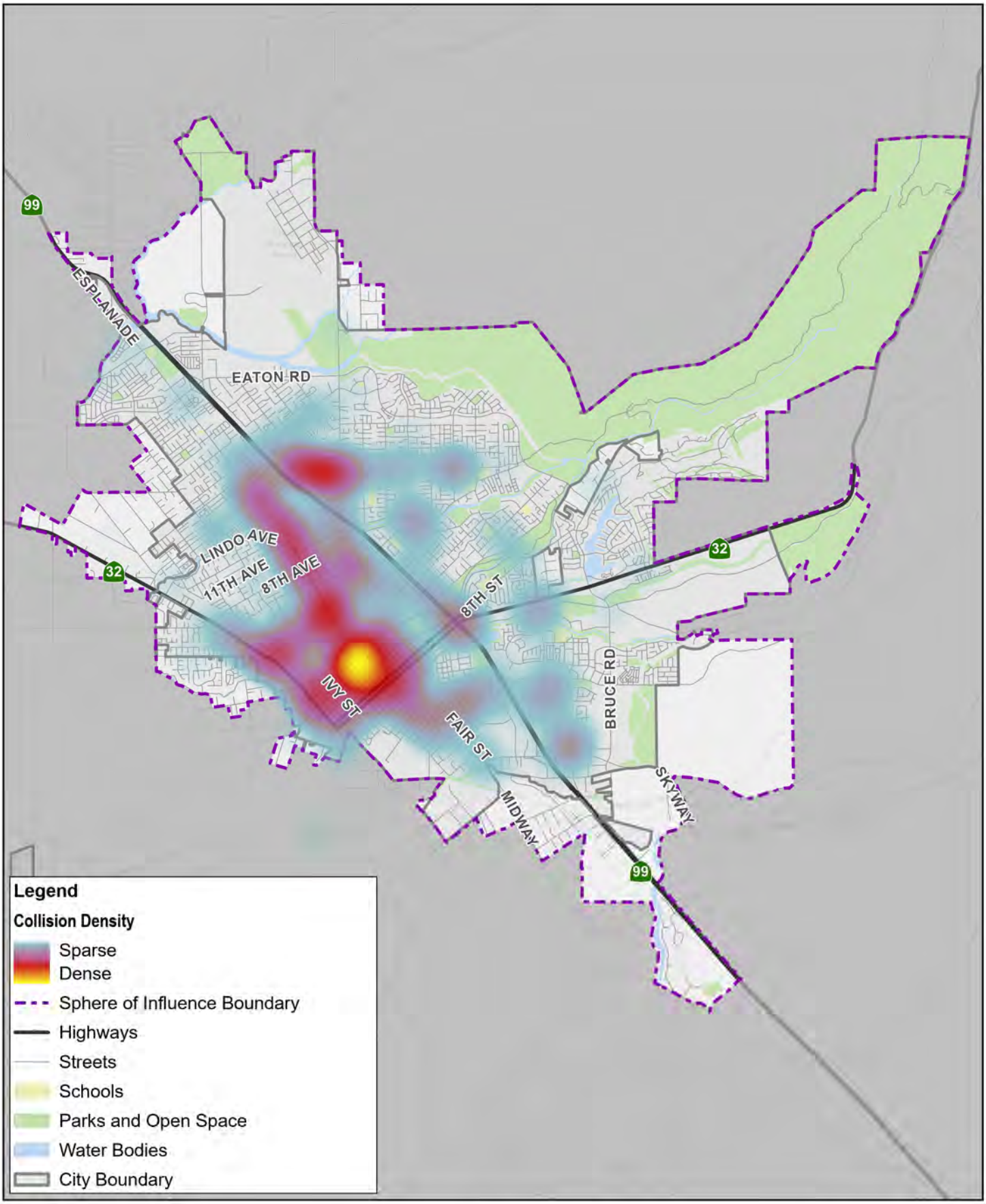


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Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

# BICYCLE COLLISIONS BY DENSITY (2010 - 2020)

Project No. 12575135
Revision No. D
Date Dec 2023

# FIGURE 13

\\ghdnetghd\US\Sacramento - 220021s\Projects\56\12575135\GIS\Maps\Deliverables\12575135_ExistingConditions\12575135_ExistingConditions.aprx - 12575135_13_Chico_Bicycle_Collision_Density_RevD
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Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA; Boundaries, Streets: City of Chico 2021; Collision Data: Berkley TIMS. Created by: ethompson3

## *Pedestrian-Related Collisions*

During the period reviewed, 297 reported collisions involved a pedestrian. Of these, 19 were fatal and 61 resulted in severe injuries.

Overall collision severity of both bicycle and pedestrian collisions are mapped in Figure 10, with overall collision density mapped in Figure 11. Pedestrian-only collisions are mapped by severity in Figure 14 and by collision density in Figure 15.

### AGE

Among collisions where the age of the pedestrian was reported, 15 percent of pedestrians were under 18 years old. Children under 18 make up 19 percent of the Chico population, suggesting youths are underrepresented among collision victims.

### FAULT DETERMINATIONS

Of the 25 analyzed collisions:

- 40 percent (10 collisions) were determined to be the fault of the pedestrian.
- 32 percent (eight collisions) were determined to be the fault of the motor vehicle driver.
- No fault determination was made in the remaining 28 percent (seven collisions) of reported collisions.

Additionally, 40 percent (ten collisions) of all pedestrian collisions occurred within hotspots for pedestrian collisions.

### PRIMARY COLLISION FACTORS

In collisions where the pedestrian was determined to be at fault, the most common Primary Collision Factor (PCF) violations were pedestrian violations at 80 percent. In many cases, pedestrian fault can be attributed to lack of adequate pedestrian infrastructure, lack of knowledge of vehicle code provisions relating to pedestrian rights and responsibilities, or both. This can include pedestrians walking on the roadway, which often occurs due to lack of sidewalk or sidewalk obstructions; pedestrians crossing at an unmarked crosswalk being recorded as crossing outside of a crosswalk; and "jaywalking," or crossing outside of a crosswalk, without considering the distance to the nearest available safe crossing. Additionally, one collision each was recorded as a pedestrian being on the wrong side of the road (though there is no actual "wrong side of the road" for pedestrian travel), or another improper action violation.

*Floral Avenue is a residential street near a high collision density area. The lack of sidewalks increases risk for pedestrians.*

Among collisions where drivers were determined to be at fault, the most reported collision factor (four out of eight such collisions) was a violation of pedestrian right-of-way. This could include failure to yield right-of-way to pedestrians at a marked or unmarked crosswalk. Additionally, one collision each was recorded as drivers under the influence of alcohol or drug, improper turning, violating traffic signals or signs, and unsafe starting or backing.

Notably, 32 percent of collisions (eight collisions) occurred on a state highway. Like the discussion of bicycle-involved collisions, state highways that serve as part of the local roadway network often lack appropriate pedestrian facilities, such as connected sidewalks, marked crossings, and other important measures such as pedestrian signal heads.

*Manzanita Court is a road near SR 99 near an area with pedestrian collisions. It has no sidewalks on one side and limited crosswalks, increasing risk for pedestrians.*

*Mangrove Avenue is a State Route where the sidewalk abruptly ends after the bridge. There are also few pedestrian crossings on this segment, increasing pedestrian risk.*

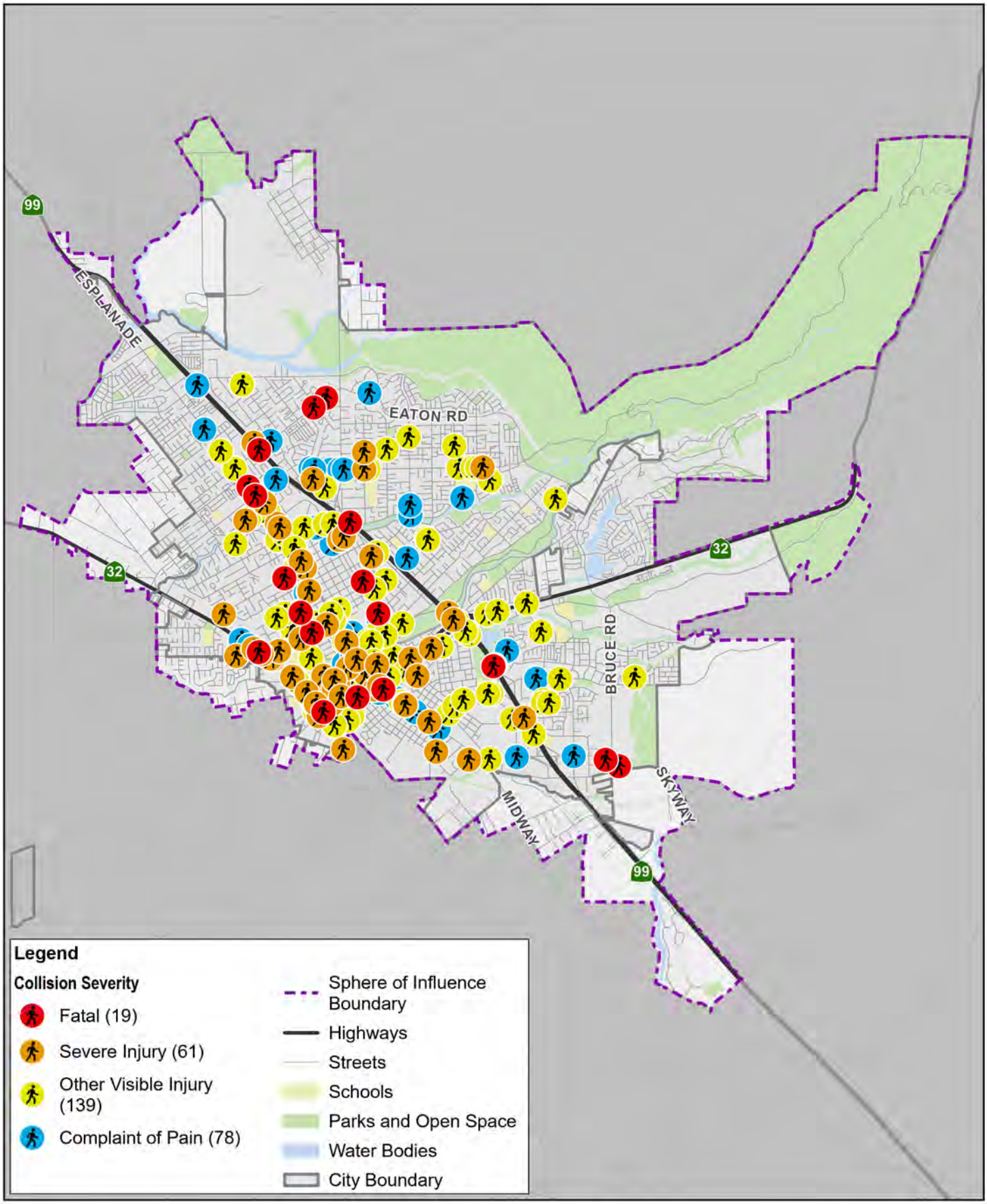
## TIME OF DAY

Most pedestrian collisions occurred in daylight, and nearly all occurred with some sort of illumination.

- 60 percent (15 collisions) occurred in the daylight.
- 24 percent (six collisions) occurred during darkness, but with the roadway illuminated by streetlights.
- 16 percent (four collisions) occurred during darkness, and without illumination from streetlights.

Of all pedestrian collisions, a plurality occurred in the afternoon, between noon and 6 p.m., or in the evening, between 6 p.m. and midnight.

- Four percent (one collision) occurred in the early morning, between midnight and 6 a.m.
- 16 percent (four collisions) occurred in the morning, between 6 a.m. and noon.
- 40 percent (10 collisions) occurred in the afternoon, between noon and 6 p.m.
- Another 40 percent (10 collisions) occurred in the evening, between 6 p.m. and midnight.

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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

# PEDESTRIAN COLLISIONS BY SEVERITY (2010 - 2020)

Project No. 12575135
Revision No. D
Date Dec 2023

**FIGURE 14**

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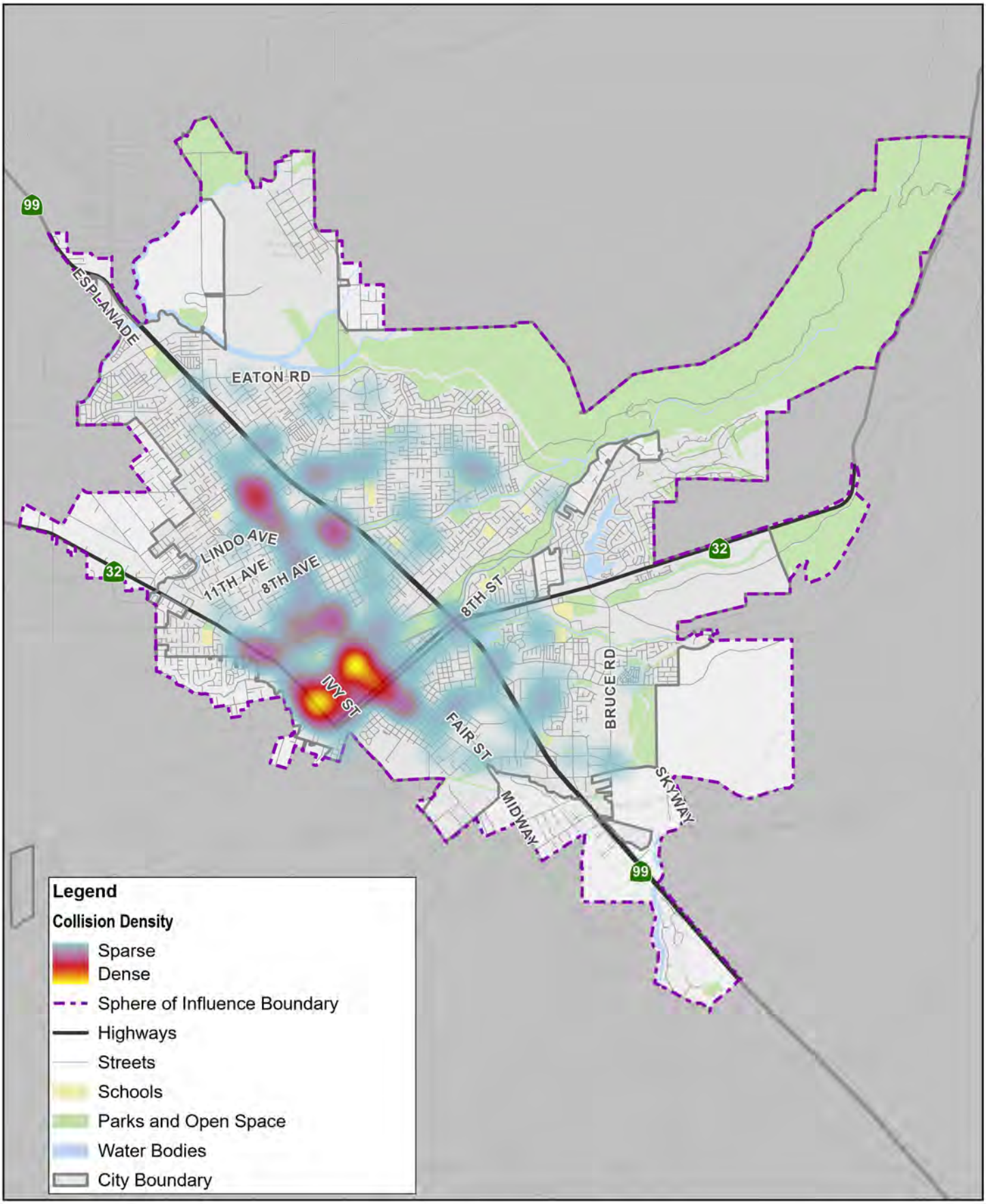
Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, USGS, EPA, NPS; Boundaries, Streets: City of Chico 2021; Collision Data: Berkley TIMS. Created by: ethompson3

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Map Projection: Lambert Conformal Conic
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Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

# PEDESTRIAN COLLISIONS BY DENSITY (2010 - 2020)

Project No. 12575135
Revision No. D
Date Dec 2023

**FIGURE 15**

\\ghdnetghd\US\Sacramento - 2200 21st\Projects\561\12575135\GIS\Maps\Deliverables\12575135_ExistingConditions\12575135_ExistingConditions.aprx - 12575135_15_Chico_Pedestrian_Collision_Density_RevD
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Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA, Boundaries, Streets: City of Chico 2021; Collision Data: Berkley TIMS. Created by: ethompson3

## *Level of Traffic Stress*

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

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.[7] 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.

*Class IV separated bikeways shield bicyclists from vehicular traffic, increasing safety and comfort for "interested but concerned" riders.*

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 Chico. 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 Plan chapter.

## *Types of Bicyclists*

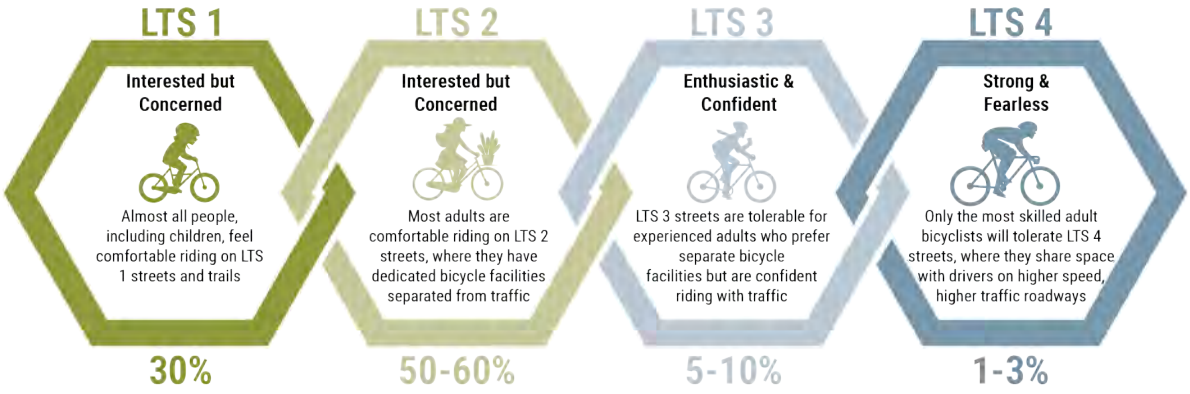
Research conducted by the Portland, Oregon Bureau of Transportation indicates the majority of people in the United States would bicycle if dedicated bicycle facilities were provided. Based on their skill level and confidence, most people self-identify as one of the four "types of bicyclists" shown in a later graphic.[8] Only a small percentage of Americans are willing to ride if no facilities are provided—the so-called "Strong and Fearless" bicyclists.

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.

*"Interested but Concerned" riders require lower-stress bikeways to feel comfortable riding.*

7 Mekuria, M. C., Furth, P. G., & Nixon, H. (2012). Low-stress bicycling and network connectivity.

8 Dill, J., & McNeil, N. (2013). Four types of cyclists? Examination of typology for better understanding of bicycling behavior and potential. Transportation Research Record, 2387(1), 129-138.




*Source: GHD using PBOT data*

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

Detailed methodology and results are provided in Appendix A.

### SEGMENTS

Figure 16 shows segment LTS scores. For this analysis, roadway segments are defined as a portion of a roadway from one intersection to the next, or to the end of the roadway if no intersections are present. Across all City roadway segments, scores were as follows:

- 77 percent scored LTS 1
- 5 percent scored LTS 2
- 11 percent scored LTS 3
- 7 percent scored LTS 4

Bicycling is prohibited on freeways (SR 99), including on- and off-ramps, so those were excluded from this calculation.

These scores illustrate low-stress bicycle connections and gaps as they exist in Chico today. Much of the network in the City scored LTS 1, with about 77 percent of facilities scoring LTS 1. However, these facilities are primarily minor local roads, residential streets, or off-street paths. In many parts of the City, low-stress islands are surrounded by high-stress arterial roadways, where most average adults would not feel comfortable riding a bicycle.

Arterial roadways serve as the direct connection to many destinations. When only arterial roadways are examined, 47 percent are LTS 3. A further 46 percent are LTS 4. This indicates that many residents may not feel comfortable bicycling on arterial roadways, even if a bicycle lane is present. Thus, many City residents may only feel comfortable bicycling in their immediate

neighborhood, on low-stress local streets, and may not be able to reach major destinations from residential areas.

### APPROACHES

Approach LTS scores, shown in Figure 17, illustrate LTS at intersection approaches (with signals). Across all City intersection approaches, scores were as follows:

- 0 percent scored LTS 1
- 1 percent scored LTS 2
- 15 percent scored LTS 3
- 83 percent scored LTS 4

These data reflect high-stress experiences at almost all intersections evaluated. The configuration of right-turn lanes for motor vehicles, and the design of bicycle lanes, at intersections can create high-stress experiences. Many of these intersections are locations where right-turn lanes for motor vehicles interfere with bicycle lanes or cause them to shift abruptly. Furthermore, at some intersections, bicycle lanes end abruptly, creating a stressful environment when bicyclists must mix with motor vehicle 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.

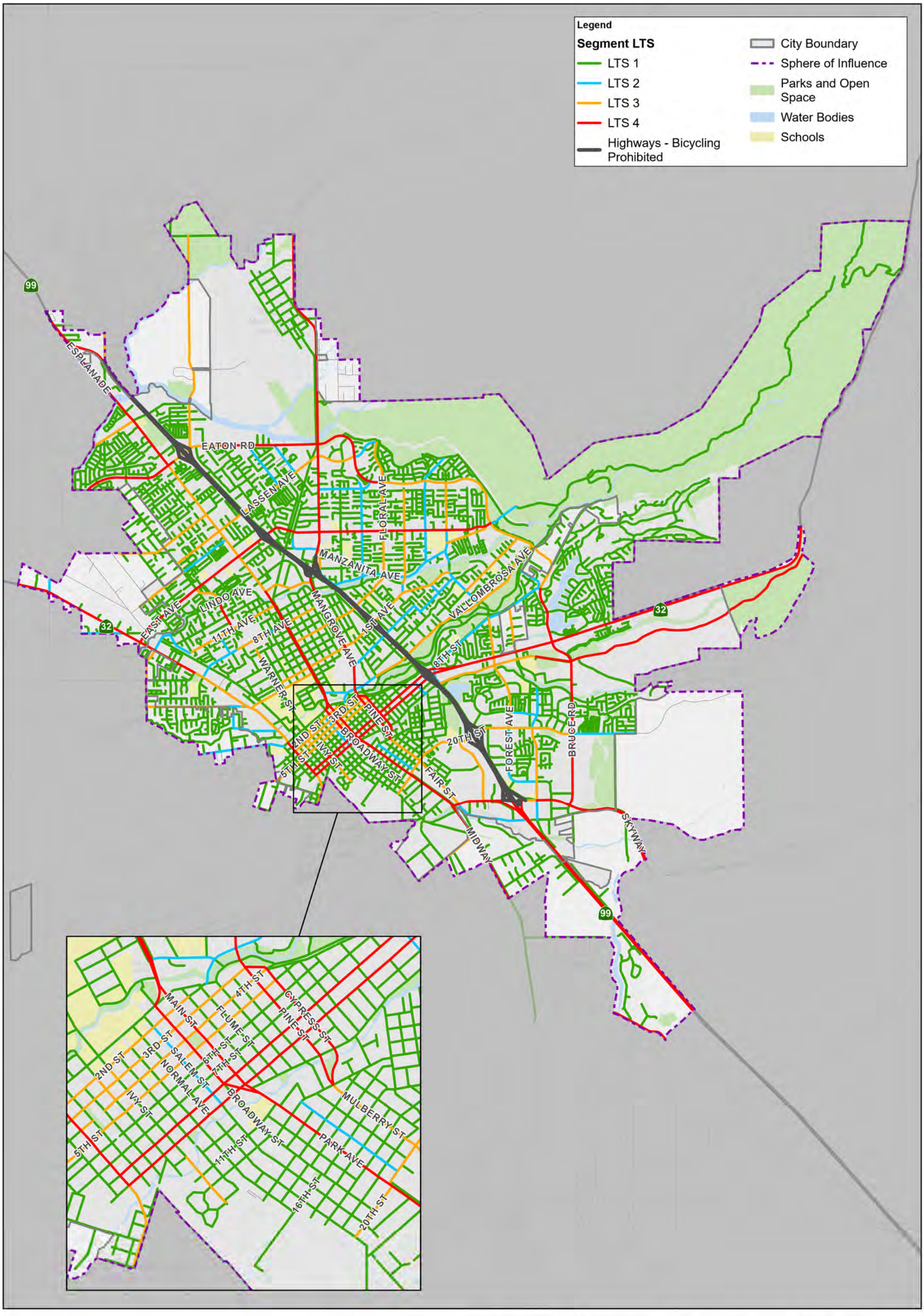
### CROSSINGS

Crossing LTS scores, shown in Figure 18, illustrate LTS at unsignalized crossings. Across all City roadway crossings, scores were as follows:

- 77 percent scored LTS 1
- 7 percent scored LTS 2
- 9 percent scored LTS 3
- 7 percent scored LTS 4

These data reflect that unsignalized crossings were typically found to be low stress. These crossings were mostly found to be intersections of two local or residential streets. These are likely to be easy for most adults and children on bicycles to navigate.

Some moderately stressful LTS 3 crossings, and high-stress LTS 4 crossings were identified as well. These are primarily along collector and arterial roadways, especially at locations where local or residential streets intersect with larger roadways. These contribute to the perception of larger streets as barriers to low-stress connectivity. A stressful crossing can discourage a potential bicyclist, even if the roadways along the route are otherwise low stress.

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Map Projection: Lambert Conformal Conic
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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

SEGMENT LTS

Project No. 12575135
Revision No. B
Date Jul 2022

FIGURE 16

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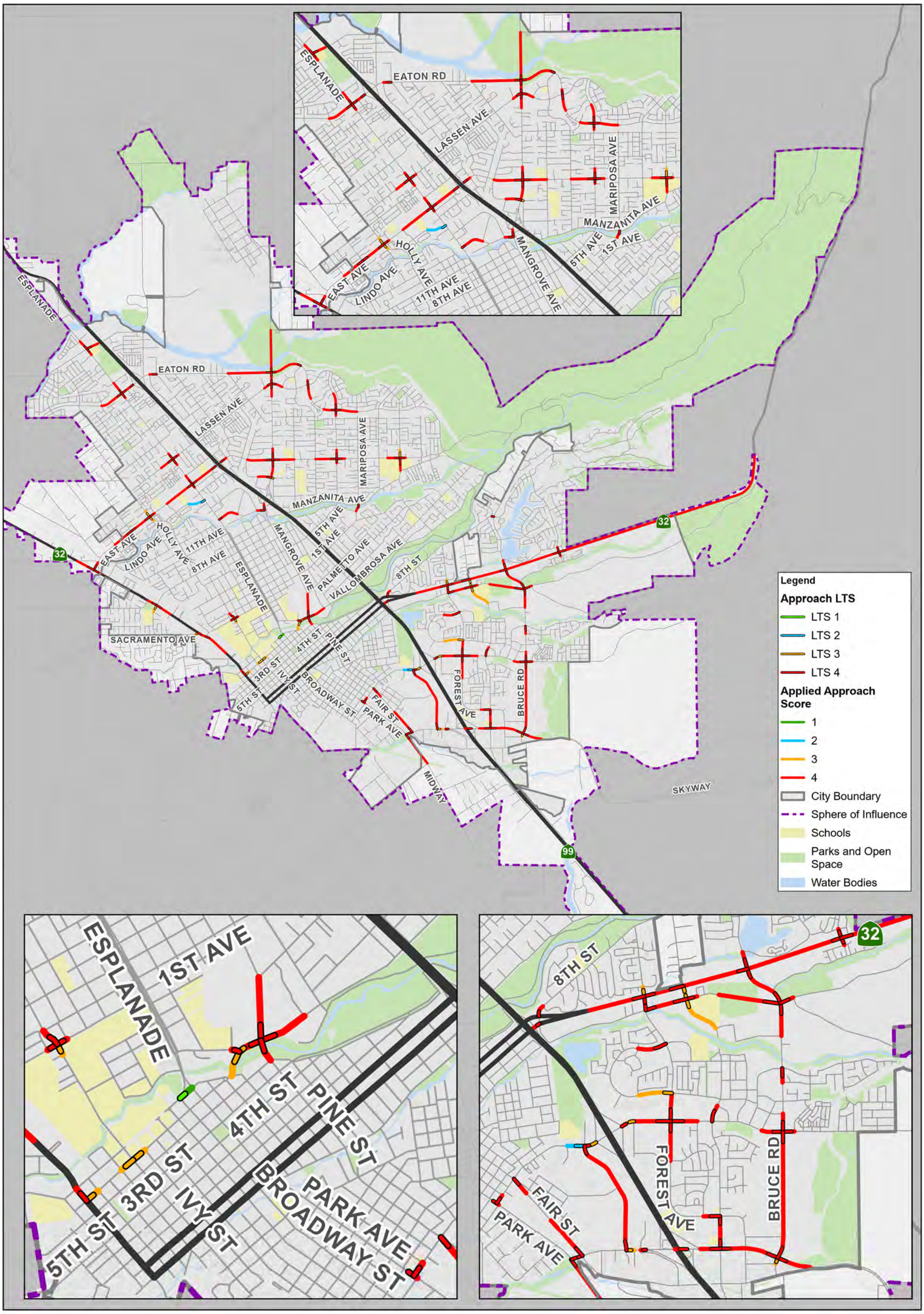


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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

Project No. 12575135
Revision No. C
Date Dec 2022

APPROACH LTS

FIGURE 17

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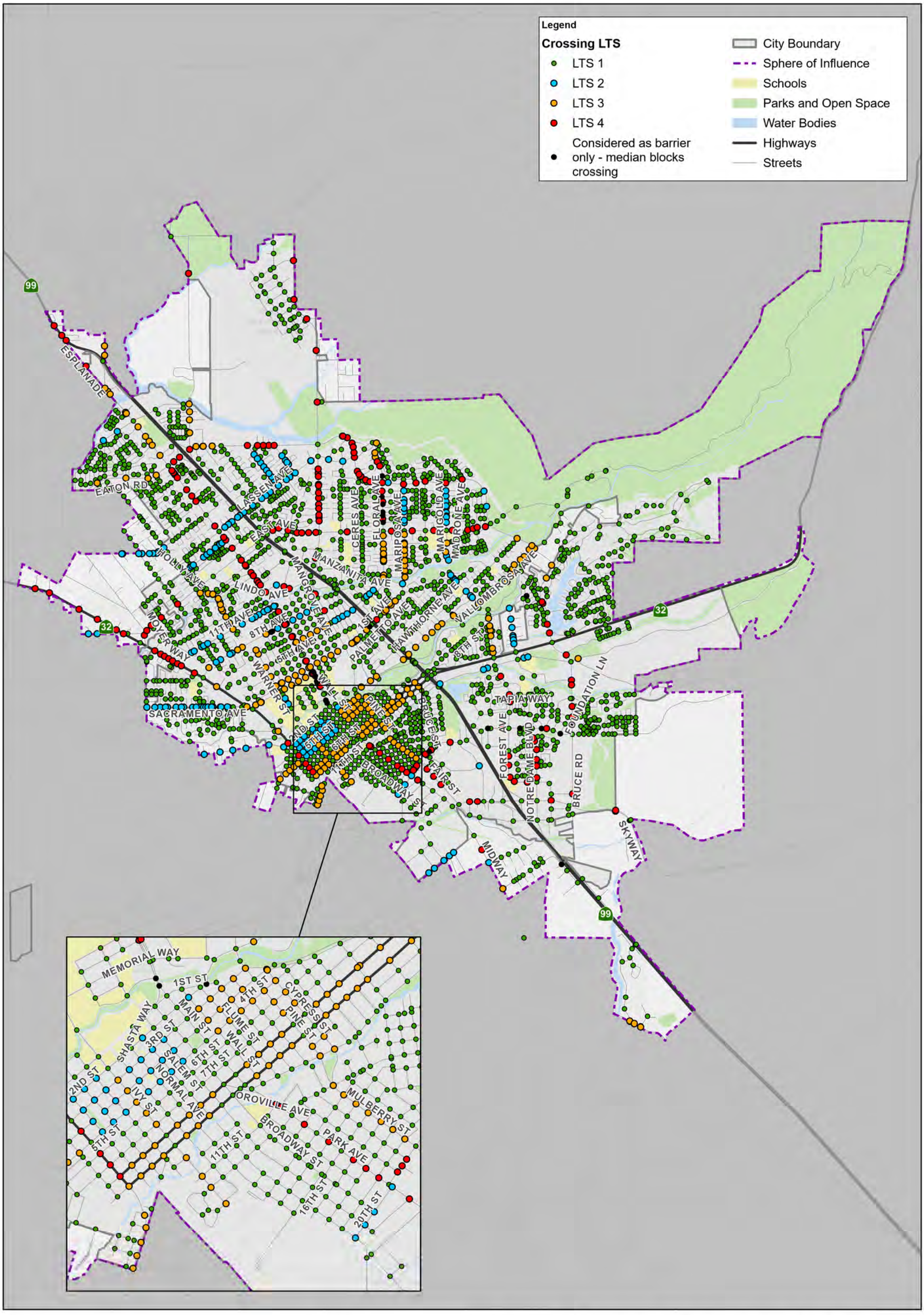


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Map Projection: Lambert Conformal Conic
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Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

Project No. 12575135
Revision No. B
Date Dec 2023

CROSSING LTS

FIGURE 18

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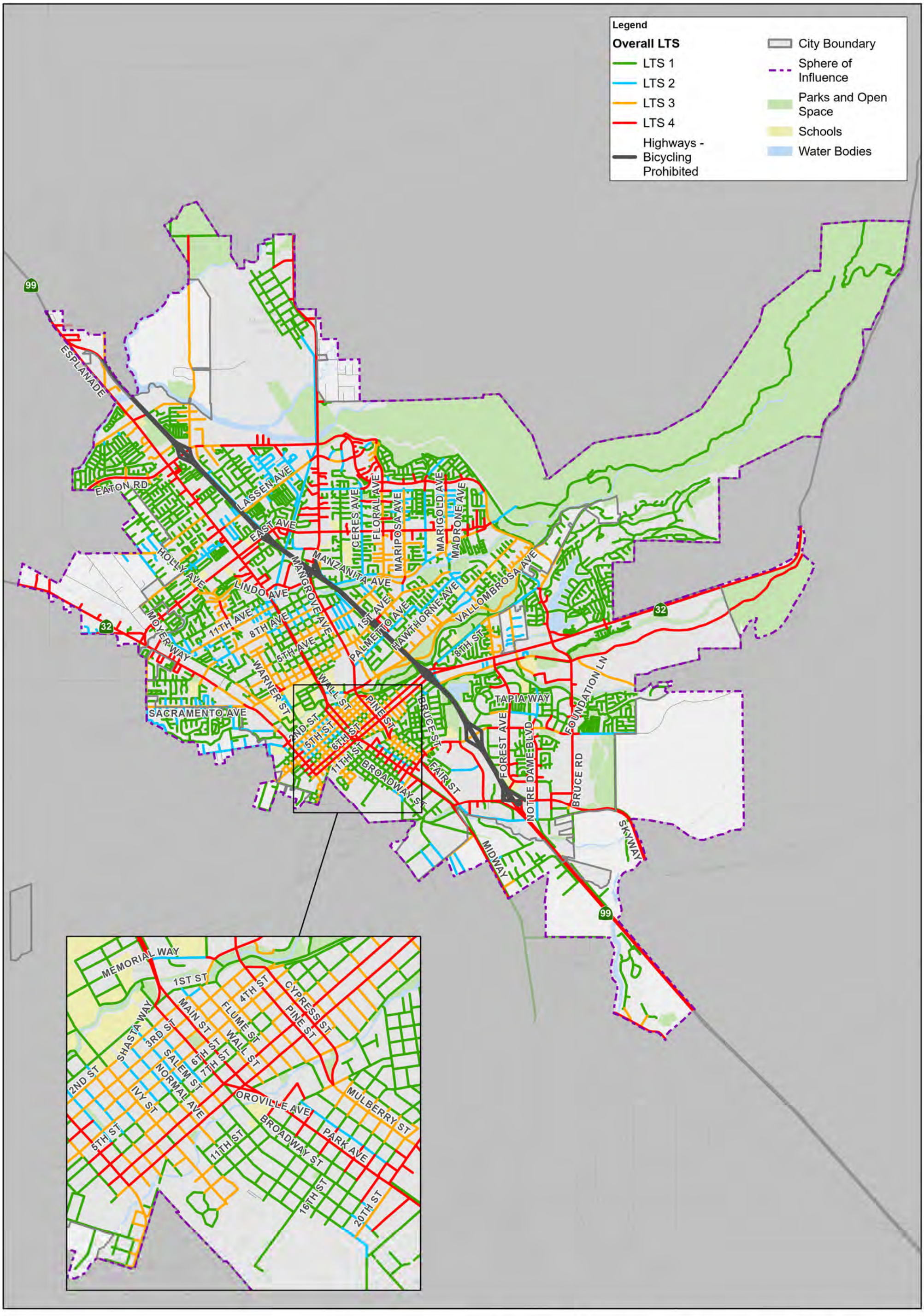
Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA; World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, USGS, EPA, NPS; Boundaries, Streets: City of Chico 2021. Created by: ethompson3

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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

Project No. 12575135
Revision No. B
Date Dec 2023

OVERALL LTS

FIGURE 19

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Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA, Boundaries: Streets: City of Chico 2021. Created by: ethompson7

## Local Road Safety Plan Project Recommendations

The *2021 City of Chico Local Road Safety Plan* (LRSP) establishes a framework for identifying, evaluating, and prioritizing transportation safety improvements on local streets within the City. The City LRSP supports safety related efforts such as the Citywide Systemic Safety Project (CSSP) as well as location-specific reconstruction projects.

The LRSP provides the foundation for agencies to target safety countermeasures and apply for grant funding to implement improvements. One of the main funding mechanisms for roadway safety enhancements is the Highway Safety Improvement Program (HSIP). As of 2020, agencies must have an LRSP on file to be eligible for HSIP funding, which is allocated via state departments of transportation.

The Federal Highway Administration (FHWA) provides best practices for implementing LRSPs, including guidance on risk factors to assess when evaluating both intersections and roadway segments for safety improvements. Risk factors include roadway characteristics which may have contributed to past crashes and/or increase the incidence of future ones. The LRSP development team determined the risk factors most pertinent to crashes within the city, then evaluated site-specific incidences in order to determine appropriate targeted HSIP countermeasures.

The LRSP conducted an in-depth analysis of 2014-2019 crash data to determine focus areas for improvements, developing a list of both location specific and systemic projects (see

Figure 20).

The top intersection and roadway segment projects from the LRSP, many of which are also locations highlighted within the pedestrian and bicyclist collision analysis section above, are further detailed below.

### *Esplanade & East Avenue (intersection project)*

*On Esplanade looking north toward East Ave. Source: Google Earth*

#### COLLISION DATA

This intersection is within the Top 5 for number of bicycle and pedestrian involved collisions at or proximate to it in the last 10 years for which TIMS map-based data is available (2010-2020). Both a hit-and-run pedestrian fatality and a pedestrian suspected serious injury occurred at this intersection

#### FHWA RISK FACTORS

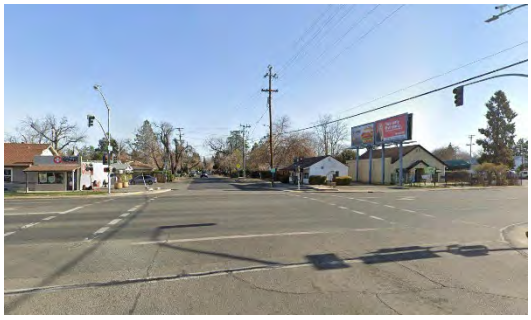
- Pavement condition and friction
- Number of signal heads vs. number of lanes
- Pedestrian crosswalk presence, crossing distance, signal head type

**Table 6: Potential HSIP Countermeasures at Esplanade & East Avenue Intersection**

| Type | Countermeasure |
|---|---|
| Signal Modification | Improve signal hardware: lenses, back plates with retroreflective borders, mounting, size, and number |
| Signal Modification | Improve signal timing (coordination, phases, red, yellow, or operation) |
| Signal Modification | Install Emergency Pre-emption systems |
| Operation/ Warning | Install raised pavement markers and striping (through intersection) |

*Source: City of Chico – Local Road Safety Plan (2021)*

### *East 3rd Avenue & Mangrove Avenue (intersection project)*



*On East 3rd Avenue looking east toward Mangrove Avenue. Source: Google Earth*

*On East 3rd Avenue looking west toward Mangrove Avenue. Source: Google Earth*

#### COLLISION DATA

This intersection is the site of a 2018 suspected serious injury involving a bicyclist.

FHWA RISK FACTORS

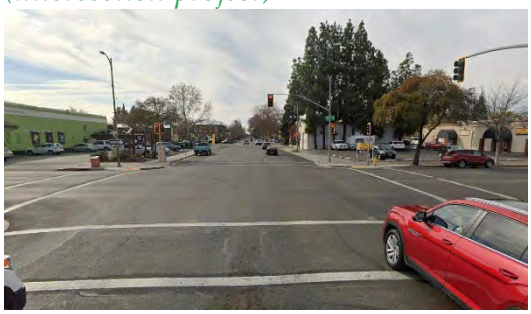
- Lack of lighting
- Number of signal heads vs. number of lanes
- Presence of backplates
- Pedestrian crosswalk presence, crossing distance, signal head type
- Pavement condition and friction
- Driveway presence, design, and density

**Table 7: Potential HSIP Countermeasures at East 3rd Avenue & Mangrove Avenue Intersection**

| Type | Countermeasure |
|---|---|
| Lighting | Add intersection lighting |
| Signal Modification | Improve signal hardware: lenses, back plates with retroreflective borders, mounting, size, and number |
| Signal Modification | Improve signal timing (coordination, phases, red, yellow, or operation) |
| Signal Modification | Install Emergency Pre-emption systems |
| Signal Modification | Convert signal to mast-arm (from pedestal-mounted) |
| Operation/ Warning | Install raised pavement markers and striping (through intersection) |
| Ped and Bike | Modify signal phasing to implement a Leading Pedestrian Interval (LPI) |

*Source: City of Chico – Local Road Safety Plan (2021)*

## *8th Street & Main Street (intersection project)*



*On East 8th Street., looking west toward Main Street. Source: Google Earth*

COLLISION DATA

This intersection is within the Top 5 for number of bicycle and pedestrian involved collisions at or proximate to it in the last 10 years for which TIMS map-based data is available (2010-2020). This intersection is the site of a 2019 suspected serious injury involving a bicyclist.

FHWA RISK FACTORS

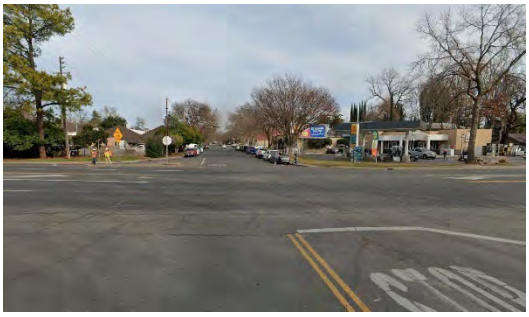
- Lack of lighting
- Pedestrian crosswalk presence, crossing distance, signal head type
- Number of signal heads vs. number of lanes
- Pavement condition and friction

**Table 8: Potential HSIP Countermeasures at East 8th Street & Main Street Intersection**

| Type | Countermeasure |
|---|---|
| Lighting | Add intersection lighting |
| Signal Modification | Improve signal timing (coordination, phases, red, yellow, or operation) |
| Signal Modification | Install Emergency Pre-emption systems |
| Ped and Bike | Install pedestrian countdown signal heads |
| Ped and Bike | Modify signal phasing to implement a Leading Pedestrian Interval (LPI) |

*Source: City of Chico – Local Road Safety Plan (2021)*

## *Nord Avenue: West 1st Street to West Lindo Avenue*



*On West 1st. Street, looking east toward Nord Avenue. Source: Google Earth*

*On West Lindo Avenue, looking east toward Nord Avenue. Source: Google Earth*

COLLISION DATA

The Nord & W. 1st Street intersection is within the Top 10 for number of bicycle and pedestrian involved collisions at or proximate to it in the last 10 years for which TIMS map-based data is available (2010-2020). This intersection is the site of three suspected serious injuries, two involving pedestrians and one involving a bicyclist. West of the 1st Street intersection, there are an additional seven suspected serious injuries and two fatalities along this corridor involving bicyclists and pedestrians.

FHWA RISK FACTORS

- Pavement condition and friction
- Roadside or edge hazard rating (potentially including side slope design)
- Driveway presence, design, and density
- Presence of shoulder/centerline rumble strips

**Table 9: Potential HSIP Countermeasures at Nord Avenue: West 1st Street to West Lindo Avenue**

| Type | Countermeasure |
|---|---|
| Lighting | Add segment lighting |
| Remove / Shield Obstacles | Remove or relocate fixed objects outside of Clear Recovery Zone |
| Operation / Warning | Install dynamic/variable speed warning signs |
| Operation / Warning | Install delineators, reflectors, and/or object markers |

| | |
|---|---|
| Operation / Warning | Install edge-lines and centerlines |
| Ped and Bike | Install bike lanes |
| Ped and Bike | Install sidewalk / pathway (to avoid walking along roadway) |

*Source: City of Chico – Local Road Safety Plan (2021)*

## *20th Street: Franklin Street to Huntington Drive*

*On Franklin Street, looking northwest toward 20th Street. Source: Google Earth*


*On Huntington Drive looking north toward 20th Street. Source: Google Earth*

COLLISION DATA

The 20th Street & Forest Avenue intersection within this segment is the site of one suspected serious injury involving a pedestrian.

FHWA RISK FACTORS

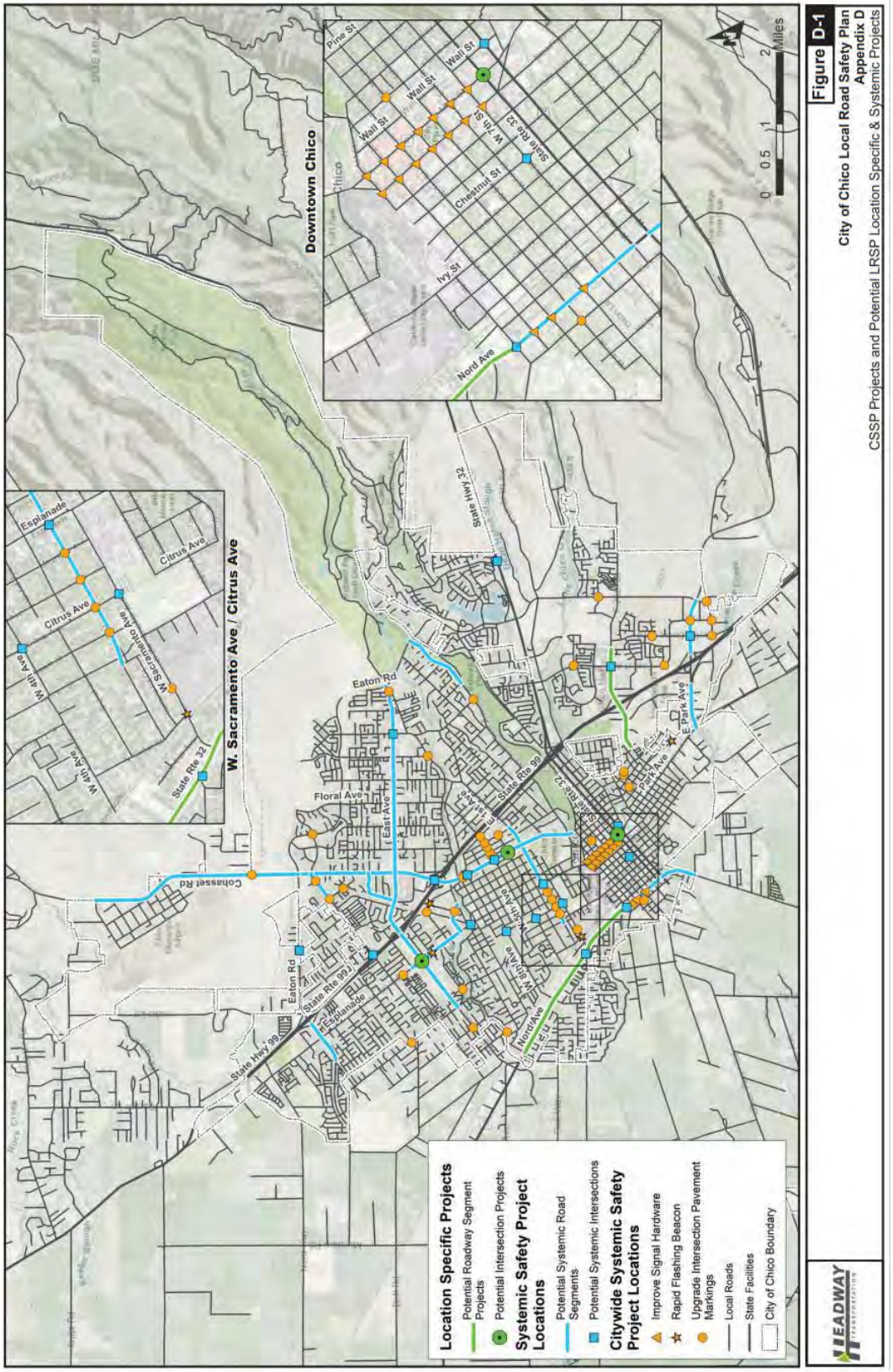
- Horizontal curve density
- Roadside or edge hazard rating (potentially including side slope design)
- Driveway presence, design, and density

**Table 10: Potential HSIP Countermeasures at 20th Street: Franklin Street to Huntington Drive**

| Type | Countermeasure |
|---|---|
| Remove / Shield Obstacles | Remove or relocate fixed objects outside of Clear Recovery Zone |
| Operation / Warning | Install chevron signs on horizontal curves |
| Operation / Warning | Install curve advance warning signs |
| Operation / Warning | Install delineators, reflectors, and/or object markers |
| Operation / Warning | Install edge-lines and centerlines |

*Source: City of Chico – Local Road Safety Plan (2021)*

## Figure 20: CSSP Projects and Potential LRSP Location Specific & Systemic Projects



# 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*

A May is Bike Month campaign runs annually and include popular events such as Bike Movie Night, the Chico Bike Music Festival, night-light rides, and the vintage "Seersucker Ride."


*Poster for the 2022 Chico Bicycle Music Festival*

## *National Bike Challenge*

Running from May 1 through September 30, the National Bike Challenge offers a fun way for bicyclists to log their mileage and compete against their family and friends. The Strava integration makes tracking easier. The local non-profit Chico Velo sponsors both the Butte and Glenn County Local Challenges.

## *Adopt-A-Path*

The Adopt-A-Path program is administered by Chico Velo in partnership with the City of Chico. There are eight key bikeways that have been adopted by local businesses and other organizations. Adopters perform regular clean-ups along adopted bikeways and report needed repairs to help provide safe and convenient active transportation facilities.


*Adopt-A-Path sign*


*Bicycle safety class taught at school.*

## *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.

Butte County Public Health (BCPH) works with schools across the county to help students build important skills for safe commuting. BCPH operates the SRTS program within Chico, providing bicycle education and encouragement to area youth. BCPH also works with the California Highway Patrol (CHP) to distribute helmets and provide bicycle and pedestrian safety education at school and community events.

Butte County Public Health's SRTS program includes several activities:

- **Walk to School Day** is celebrated each October and Bike to School Day is celebrated each May. Both activities provide incentives and encourage students to walk to school. Students who participate receive free goodies and are eligible for larger raffle prizes.
- **Bike Rodeos** sponsored by BCPH offer hands-on training, assisting students with navigating a technical course. With the help of safety educators, students learn how to properly wear a helmet, navigate obstacles, use hand signals, and be predictable bicyclists.
- **In Class Lessons** include lessons on both safe walking and cycling to school. Health educators share lessons in dynamic formats, including games, experiments, and videos. Teachers are given pedestrian and bicycle resource manuals with further lesson plans to extend learning opportunities.

## *Community Education & Encouragement*

A number of local entities contribute to educational and encouragement campaigns targeting Chico residents and employees, such as BCPH, large employers (including the City of Chico), Ability First Sports, and Chico Velo.

- **Community Classes** led and sponsored by BCPH and Chico Velo feature both youth and adult bicycle safety lessons, including the League of American Bicyclists Traffic Skills curriculum, bike maintenance trainings at area bike shops, advanced bike skills clinics led by local racing teams, bicycle transportation planning design classes tailored to engineers and planners, and bicycle safe driver courses.
- **Adaptive Bicycling Education** and equipment is offered by Chico-based Ability First Sports, a group committed to supplying adaptive equipment and instruction to ensure access for all. Ability First Sports also organizes free events, utilizing decades of knowledge and expertise in adapted sports coaching to educate and encourage an active lifestyle for individuals with physical disabilities.
- **Bike Safety Campaigns** are featured in local media outlets, sponsored by BCPH and Chico Velo and provide safety tips and other relevant information.
- **Bicycle Commute Incentives** are sponsored by large employers, including the City of Chico, and provide vouchers to employees who choose to ride to work. Vouchers can be redeemed at area bike shops.

# Categories of Interest

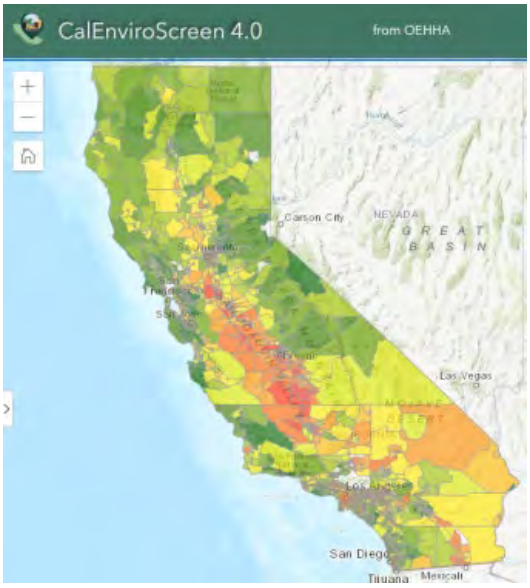
Disadvantaged communities, including low-income communities, communities of color, people with disabilities, older adults, unhoused individuals, and communities faced with environmental or pollution burden, are often also burdened by lack of appropriate facilities for bicycling and walking. It is important to identify disadvantaged communities and to analyze the infrastructure that is provided in these communities. Disadvantaged communities often have a history disinvestment in infrastructure. The California Air Resources Board cites that historical practices often limited access to public services and public funding for communities based on race or ethnicity.[9] People living in disadvantaged communities often face difficulty accessing transportation and are more likely to be reliant on walking, bicycling, or public transit.

Jurisdictions throughout the United States are working to address these historical inequities in infrastructure and transportation access. This includes the investigation of deficiencies that exist in existing infrastructure and prioritizing new investment in these areas. The federal government has created an initiative to further these goals, titled Justice40. The U.S. Department of Transportation has indicated that this initiative is designed to address the lack of investment in disadvantaged communities. The Department has set a goal to allocate at least 40 percent of the benefits from federal investments to disadvantaged communities.[10]

This Categories of Interest chapter discusses disadvantaged communities in Chico and provides an analysis of transportation infrastructure in these areas.

## Community Identification

The presence of disadvantaged communities, those with lower income or increased exposure to environmental or other hazards, can be measured in several ways.




*CalEnviroScreen 4.0 tool*

The California EnviroScreen 4.0 tool from the State Office of Environmental Health Hazard Assessment is one such tool. The California Environmental Protection Agency (CalEPA)'s October 2021 Proposed SB 535 Disadvantaged Communities map identifies the highest scoring 25 percent of census tracts from CalEnviroScreen 4.0.

[9] https://ww2.arb.ca.gov/resources/documents/opportunities-address-past-inequity-sustainable-communities

[10] https://www.transportation.gov/equity-Justice40

There is one Chico Census Tract within the CalEnviroScreen 4.0 tool's Top 25 percent. Tract 6007001300 has a population of 3,689 and percentile of 76.8. This tract's Pollution Burden Percentile is notably high, at 87. The highest exposure areas are listed in Table 11.

**Table 11: Census Tract 6007001300 Indicators**

| Environmental Effects/Exposures | Percentile |
|---|---|
| Cleanup Sites | 98 |
| Groundwater Threats | 93 |
| Hazardous Waste | 63 |
| Solid Waste | 89 |
| Diesel Particulate Matter | 72 |
| Pesticides | 73 |
| Lead from Housing | 76 |

*Source: American Community Survey 2019 estimates*

The Proposed SB 535 Disadvantaged Communities map also identifies one Tribal Area within the City of Chico – the Mechoopda Indian Tribe of Chico Rancheria, which is located less than 4 miles south of Downtown Chico.

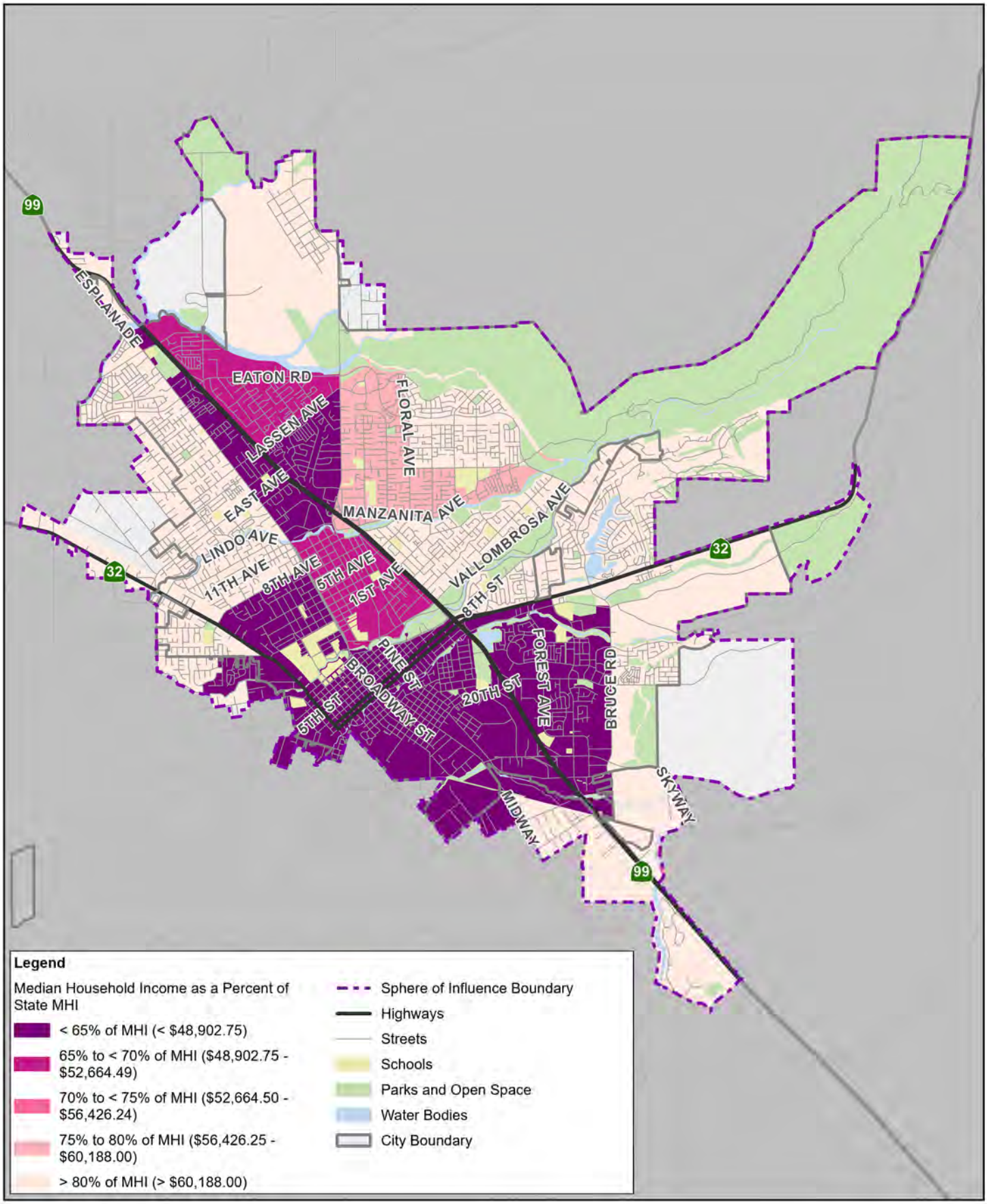
*Mechoopda Indian Tribe of Chico Rancheria seal*

According to 2019 ACS data, there are 3,141 residents in the Mechoopda Tribal Designated Statistical Area (TDSA), 25 percent of which speak a language other than English. The median income of those 15 and older within the TDSA is $22,223 with 22 percent of residents below 100 percent of the poverty level. Figure 22 provides a map of Cal EnviroScreen 4.0 results by Census tract.

A second metric helpful for evaluating a community's vulnerability is the Healthy Places Index (HPI) from the Public Health Alliance of Southern California, which explores various conditions impacting life expectancy. The HPI combines 25 community characteristics, including healthcare access, housing, education, and more, into a single indexed score. The healthier a community is, the higher the HPI score.

The City of Chico's HPI score is 53.7. For the "above poverty" metric, which measures the percent of people earning more than 200 percent of federal poverty level, Chico is healthier economically than only 20 percent of other California cities. Within the HPI housing category, Chico is within the 40$^{th}$ percentile due to low homeownership (15$^{th}$ percentile for homeownership at only 45 percent) and a low-income homeowner severe housing cost burden (in the 12$^{th}$ percentile). See Figure 23 for an overall HPI index percentile map by Census tract.

A third metric that is helpful for better understanding a community is the percent of students in grades K through 12 who are eligible for free or reduced-price meals (FRPM). Student eligibility at Chico schools is mapped in Figure 24, including six schools where more than 75 percent of students qualify for FRPM.

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Map Projection: Lambert Conformal Conic
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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

# EQUITY ANALYSIS: 2019 MEDIAN HOUSEHOLD INCOME (MHI) BY CENSUS TRACT

Project No. 12575135
Revision No. C
Date Dec 2023

# FIGURE 21

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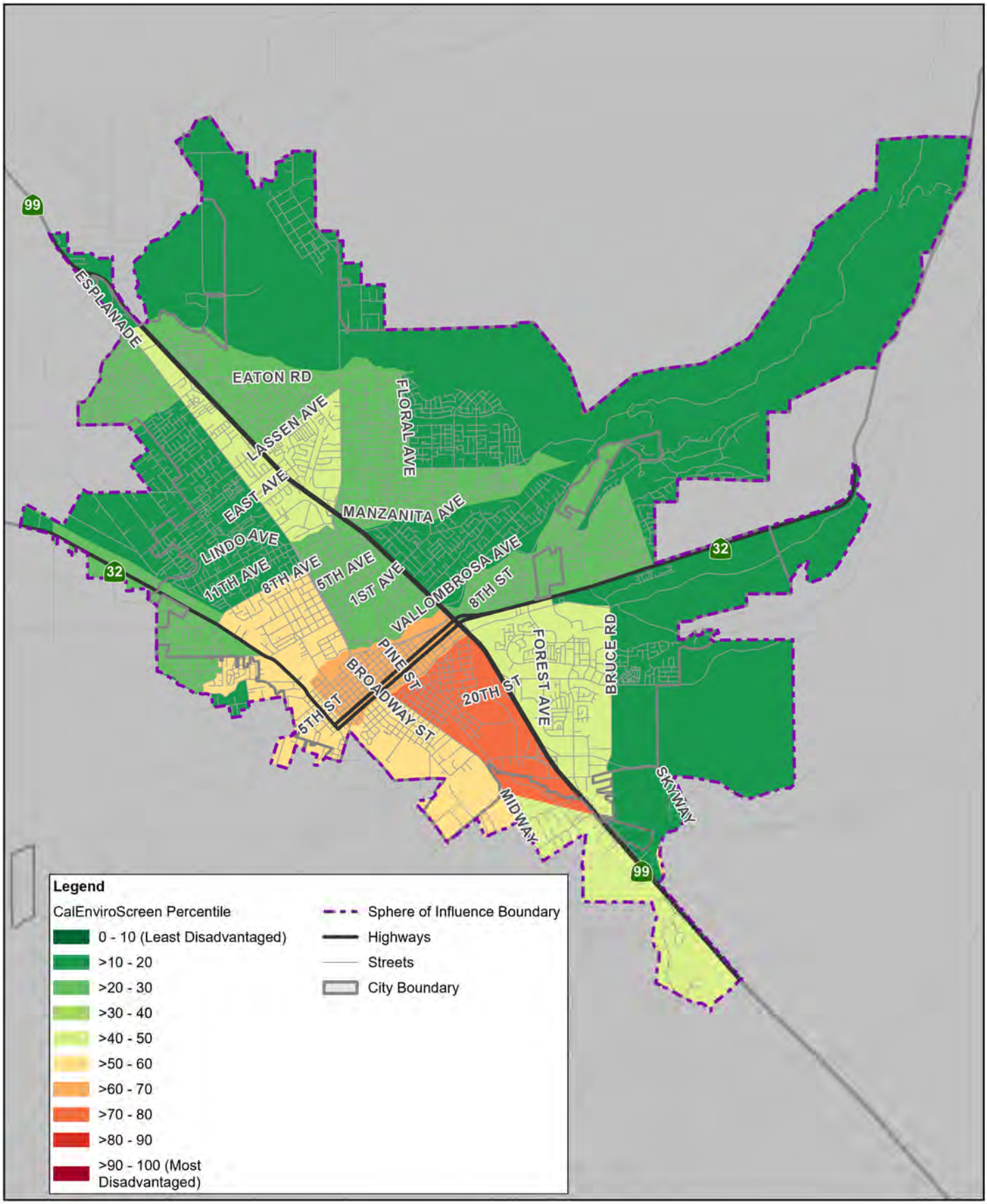
Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, USGS, EPA, NPS; Boundaries, Streets: City of Chico 2021; MHI: Census Bureau. Created by: ethompson3

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

# EQUITY ANALYSIS: CALENVIROSCREEN 4.0 RESULTS BY CENSUS TRACT

Project No. 12575135
Revision No. C
Date Dec 2023

**FIGURE 22**

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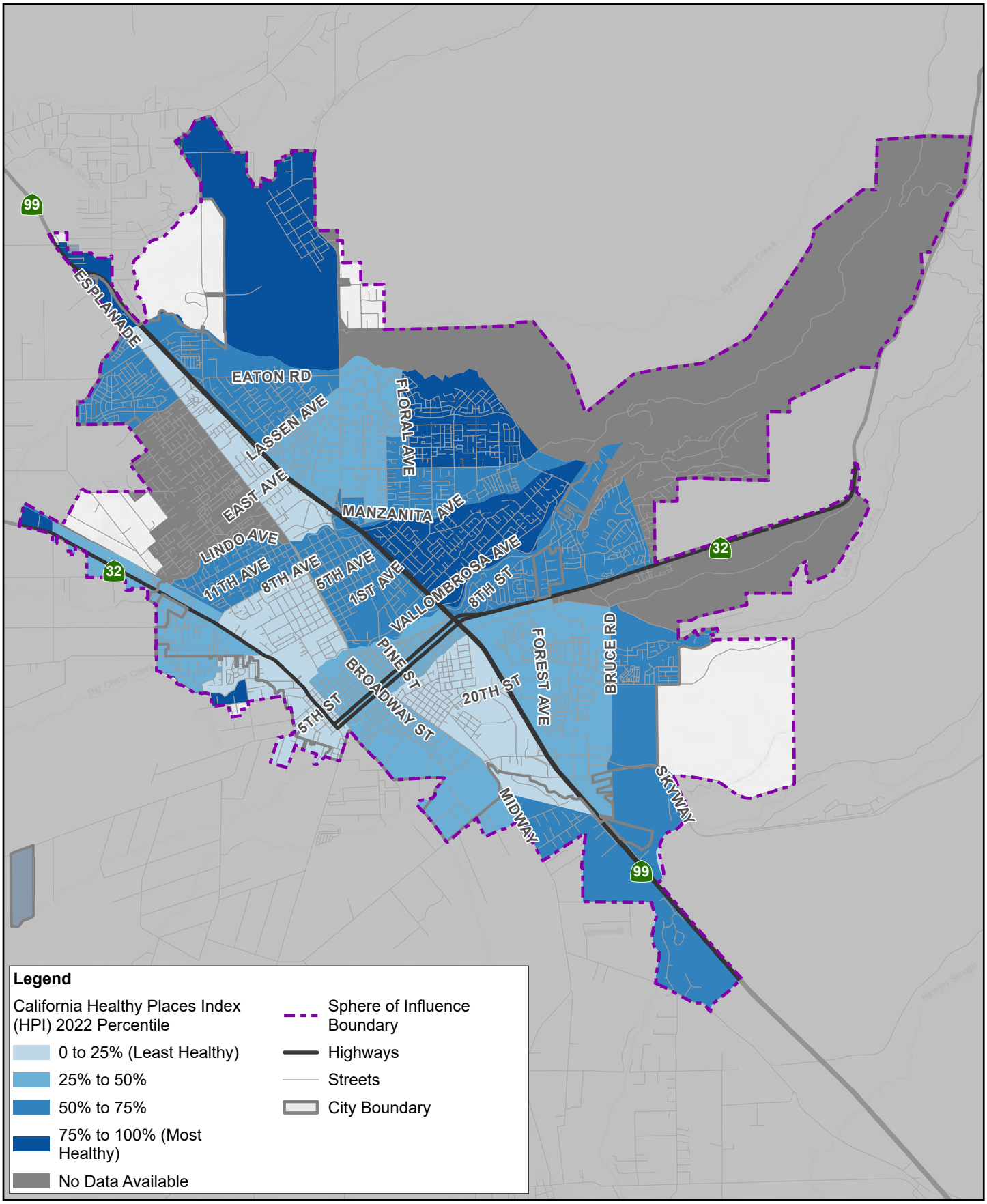
Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, USGS, EPA, NPS; Boundaries, Streets: City of Chico 2021, CalEnviroScreen: OEHHA 2022

Created by: ethompson3

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Map Projection: Lambert Conformal Conic
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Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

# EQUITY ANALYSIS: CALIFORNIA HEALTHY PLACES INDEX BY CENSUS TRACT

Project No. **12575135**
Revision No. **B**
Date **Dec 2023**

**FIGURE 23**

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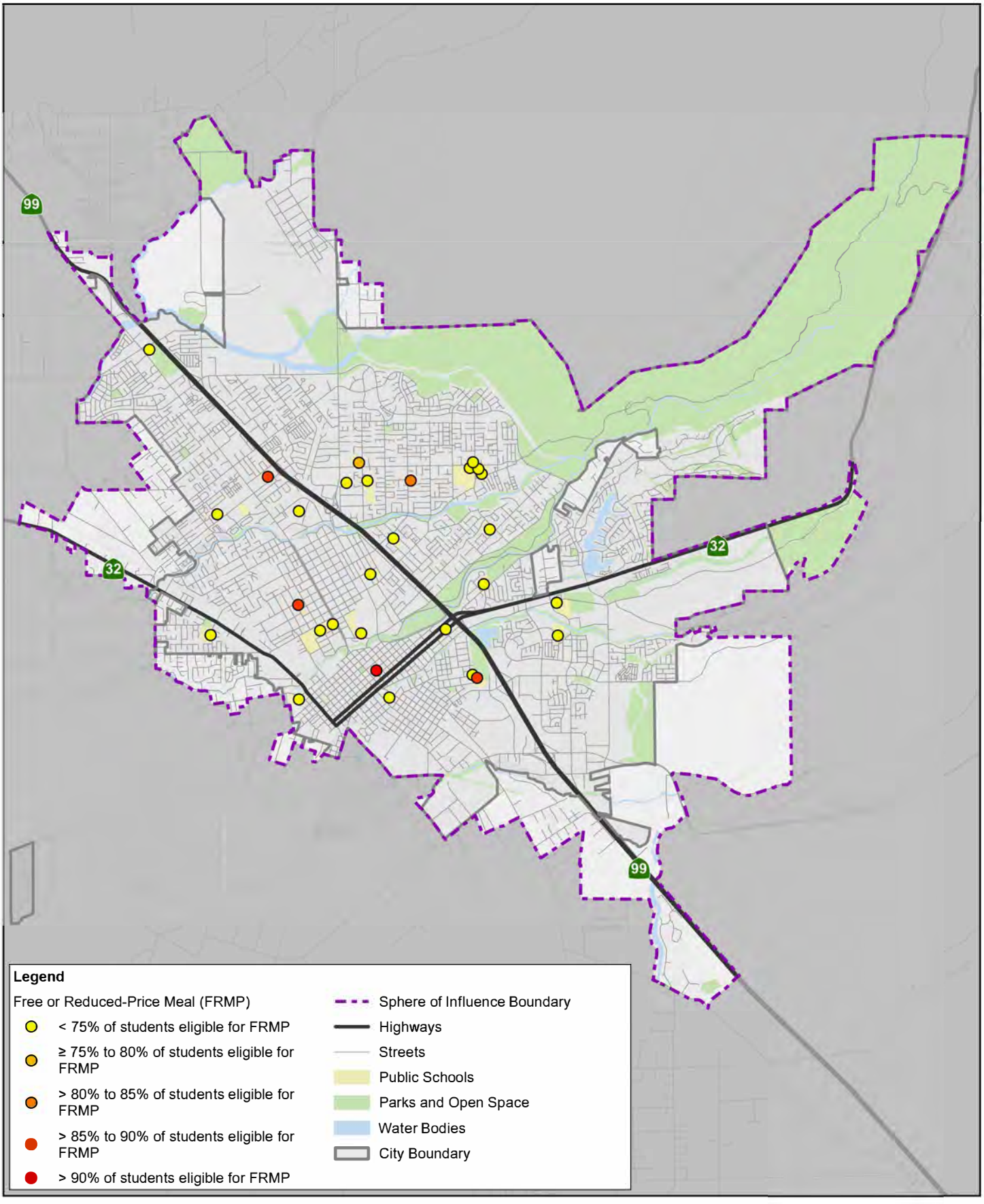
Print date: 21 Dec 2023 - 16:29

Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA; Boundaries, Streets: City of Chico 2021; Census Tracts: TIGER 2021; HPI: Public Health Alliance 2022. Created by: ppeel

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Map Projection: Lambert Conformal Conic
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Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

# EQUITY ANALYSIS: FREE OR REDUCED-PRICE MEAL ELIGIBILITY (2019-2020)

Project No. **12575135**
Revision No. **C**
Date **Dec 2023**

**FIGURE 24**

\\ghdnetghd\US\Sacramento - 2200 21st\Projects\561\12575135\GIS\Maps\Deliverables\12575135_ExistingConditions\12575135_ExistingConditions.aprx - 12575135_23_Chico_FRPM_RevC

Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, USGS, EPA, NPS; Boundaries, Streets: City of Chico 2021; FRPM: CA Department Education
Created by: ethompson3

# Methods of Increasing Walking and Bicycling

This chapter includes infrastructure, programmatic, and policy methods to support and encourage the goal of increasing walking and bicycling in the City of Chico and describes the approach toward implementing these methods.

Infrastructure Improvements are physical changes to the City's bicycle and pedestrian network, including construction of on- and off-street facilities like bicycle lanes, sidewalks, multi-use paths, 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.

Policy Updates include changes to the municipal code, operating procedures, and other policies that will support development and maintenance of a more accessible and comfortable bicycle and pedestrian network in Chico.

Programmatic Strategies include recommended education, encouragement, engagement, equity, and evaluation programs to be pursued by the City and partner organizations to support a culture of bicycling and walking.

## Infrastructure Improvements

Infrastructure improvements are physical changes to the roadway network which facilitate a connected, comfortable, and safe bicycle and pedestrian network.

Infrastructure improvement types for bicycling and walking facilities are described separately in the following sections, except for Class I Multi-Use Paths and Class I Multi-Use Path crossings. These facilities are included in both network categories because these facilities benefit bicyclists and pedestrians equally.

Crossing improvements are categorized by bicycle-specific approach/crossing improvements, pedestrian-specific crossing improvements, other crossing improvements, and Class I Multi-Use Path crossings, including at-grade and grade-separated Class I Multi-Use Path crossings. Some crossing improvements address both bicycle and pedestrian needs and are included in both sets of network options while others address only one mode of transportation and are only included in the proposed network type that benefits from the crossing improvement.

### *Bikeway Project Options*

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 options 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 type 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 and the Goals, Objectives, and Strategies chapter.

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 include 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 lane 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 facilities, bikeway networks can include 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 bicyclists 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

## *Pedestrian Network Project Options*

Pedestrian network improvement options available to the City include Class I Multi-Use Paths, also discussed in the previous section, along with sidewalks and spot improvements such as crossings and curb ramps. Pedestrian improvements 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 Chico with sidewalk or pedestrian paths, but the network is incomplete in some areas.

While not every street without existing sidewalk necessarily needs sidewalk added, the goal is to provide a comprehensive network of pedestrian facilities by providing a balanced menu of sidewalk and muti-use path that align with identified community concerns and neighborhood context.

### 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.

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

*Pedestrian waiting to cross at a high visibility crosswalk*

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.

*Example of a unsignalized midblock crossing*

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.

*Example of a curb extension created with paint*

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.

## Policy Updates

### *Vision Zero*

One option that the city could consider as part of this ATP is the adoption of a Vision Zero policy. 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 consideration of technologies such as electric bicycles (e-bikes) and bicycle parking with ample room and configuration for larger bicycles such as cargo 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 Chico. To maintain the beauty and safety of the trail system, the City has the option of managing pet waste 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. Pet waste stations could be placed at convenient intervals and emptied regularly. Maintenance of pet waste stations could 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 trails, bikeways, and the pedestrian network 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.

### *Repeal Bicycle License and Registration Requirement Ordinances*

Bicycle license and registration requirements have historically been underutilized for their original purpose of tracking and returning lost or stolen bicycles, while instead used as

opportunities for harassment of bicyclists. With the passage of the "OmniBike Bill," AB 1909, California now prohibits jurisdictions from requiring any bicycle operated within its jurisdiction to be licensed. Repealing the City's bicycle license and registration ordinances (10.40.010 – 10.40.080), and recommending bicyclists instead register with a national online database, like www.bikeindex.org, will reduce the amount of City resources needed for such a program, remove an opportunity for bicyclist harassment, unburden bicyclists from unnecessary hurdles in bicycle usage, and improve outcomes for recovery of stolen bicycles.

### *Bicycle Fleets for Government*

This ATP recommends the City lead by example and empower its staff to utilize active transportation for short-distance work travel by considering procuring and providing a fleet of bicycles for City employee use in conducting official business when possible, as well as personal errands during breaks, as bicycles are available. Additional trips by bicycle may reduce fuel costs and greenhouse gas emissions, promote healthy lifestyle choices, and encourage City employees to get outside and experience firsthand the City's active transportation network – the good, the bad, and the ugly – for themselves.

### *Lower Speed Limit in School Zones*

AB 321 took effect in 2008, allowing local government to lower the speed limit at certain schools to 15 mph and extend the school zone to 1,000 ft each way from the school property. To qualify, a school must be located in a residential district on a two-lane road with an existing speed limit of 30 mph or less. For such schools, the City may, by resolution, establish the 15-mph speed limit in the area up to 500 ft from the school when children are present and erect the appropriate signs. In the extended school zone, up to 1,000 ft away, the speed limit would be 25 mph.

Lowering traffic speeds near neighborhood schools will enable more children to walk or bike to school safely. Small increases in impact speed have a significant effect on crash severity. Risk of severe injury to vulnerable road users increased from 10 percent at an impact speed of 16 mph to 90 percent at 46 mph. Similarly, risk of death to vulnerable road users increased from 10 percent at an impact speed of 23 mph to 90 percent at 58 mph.[11] Decreasing traffic speeds around schools to appropriate neighborhood speeds will prioritize safety and create an environment that supports active transportation near schools.


*School zone – 15 mph speed limit*

### *Bicycle Parking*

Creating a well-connected bicycle network includes careful consideration of not just the roadway network, but also how bicyclists navigate the end-point – parking. Parking options should be adequate in quantity, quality,

[11] https://aaafoundation.org/impact-speed-pedestrians-risk-severe-injury-death/

and placement for bicyclists. Key considerations are described below.

### UNCOUPLE BICYCLE PARKING REQUIREMENTS FROM VEHICLE PARKING

The City's existing bicycle parking space requirements, as part of the City's Parking and Loading Standards, found in Table 5-4 of Section 19.70.040, 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

*Bike parking on a commercial street*

People have different bicycle parking needs depending on their destination and length of their stay. An employee arriving at work for an eight-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.


*Chico Velo Bike Valet sign*

### EXPAND PARKING AT EVENTS SUCH AS FESTIVALS AND FARMERS MARKETS

This Plan recommends the City assess the need for bicycle parking at large events and consider providing additional support for or requiring secure, attended bicycle parking if large crowds are expected. Currently Chico Velo provides bicycle valet service for bicyclists at several local events including Farmers Markets, concerts, and other community events. Updating City policy to further expand secure, attended bicycle parking at small and large events could encourage additional mode shift to bicycles for special events.

The Bicycle Parking Guidelines Handbook, developed by the Association of Pedestrian and Bicycle Professionals, may be a useful resource as bicycle parking in Chico 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.[12]

## Programmatic Strategies

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

Recommended programs are organized in three E's:

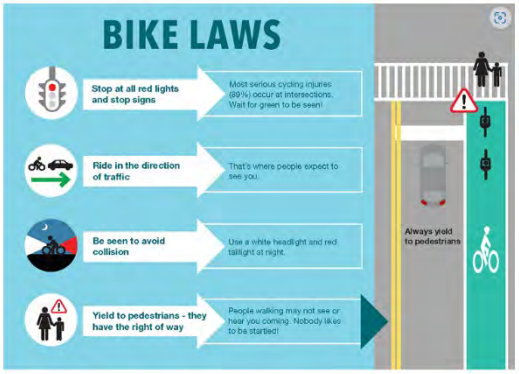
- **Education** programs are designed to improve safety and awareness. They can include programs that teach students how to safely cross the street or teach drivers where to anticipate bicyclists and pedestrians and how to share the road safely.
- **Encouragement** programs provide incentives and support 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 ATP and identify adjustments that may be necessary.

There are two additional E's commonly included in discussions of active transportation: **Engineering** and **Equity**. Engineering is reflected by the infrastructure improvement types discussed 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 Limited English Proficiency analysis as needed to serve the diverse Chico 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




*Example bicycle safety campaign graphic from the New York Department of Transportation*

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 Chico. Through the outreach process of this ATP, the community identified some behaviors that create challenges for bicyclists and pedestrians walking and biking in Chico. 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 Beacons and Rapid Rectangular Flashing Beacons
- Bicycling with traffic

12 https://www.apbp.org/Publications

- Educational needs of youth bicyclists and pedestrians

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

### BICYCLE SAFETY EDUCATION FOR ADULTS

In the past, Chico Velo has offered periodic Bike Safety Skills Classes and has partnered with schools, businesses, and other organizations to prepare training programs. 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. Although a similar program does not currently exist, Chico Velo or the Chico State Bell Memorial Union Adventure Outings Program's Bike Cart might serve as a collaborator or resource for additional information. Additional 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.

*Bicycle repair program*

## *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. The State of California Active Transportation Resource Center (ATRC) offers an automated counter equipment loan program and services like StreetLight Data and Remix use anonymized mobile phone data to provide information on walking and bicycling.

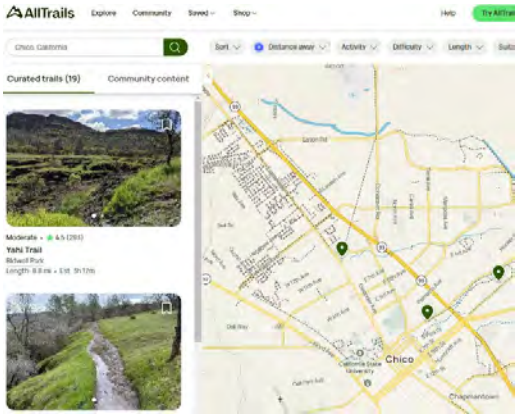
If funding is not available to create a new position, the City may consider an interim measure, including adding this as a program element of an existing position, hiring as a part time position, or dedicating lower-cost internship resources to work on bicycle and pedestrian projects until a full-time 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 Chico 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 BIKEWAY MAP

Currently, the map of City bikeways is made available to the public as a PDF on the City website and is outdated. An up-to-date, mobile-friendly Bikeway Map could provide a current and comprehensive wayfinding resource for people walking and bicycling in Chico. The Map could be hosted on the City website. The City could also consider providing a link on its website to an open source bikeway and 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 Chico bikeways and 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.




*AllTrails Chico map*

### WALKING & BICYCLING AMBASSADORS

The Guadalupe River Park Conservancy in San José, California 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.

*Guadalupe River Park Conservancy trail ambassador*

An ambassador program in Chico could recruit volunteers to act as eyes on key trails or bikeways – like Bikeway 99 or those in Bidwell Park – report maintenance needs, share educational materials and maps, and provide a friendly presence on the trail and bikeway 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 Chico consider a pilot ambassador program in partnership with Chico Velo and/or other community based or neighborhood organizations.

### BIKE RACK PROGRAM

*City of Sacramento "branded" bicycle racks*

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 further develop customized bicycle racks. These racks can help support the Chico "brand," highlighting the identity of Chico as a bicycle-friendly community and can double as art features.


*Los Angeles Department of Transportation "branded" bicycle rack*

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 help 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, Chico 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 Bicycle Friendly Businesses could be to locate their names on future print and digital maps of Chico bikeways and trails. To note, the League of American Bicyclists does have a Bicycle Friendly Business program, while 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 ATP, 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 includes an option for the City to work with the Climate Action Commission and/or the CATTAC to develop an Annual Report Card that tracks progress toward implementing this ATP and incorporates annual collision data, program participation data, and other relevant metrics to highlight successes and challenges of improving bicycling and walking each year. Specific performance measures identified by the City and the community should be included in this report 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 periodic/annual reports on the General Plan to the City Council.

### ANNUAL RIDE-ALONG

An Annual Ride-Along could include City staff, Climate Action Commission members, CATTAC 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. The Ride-Along would also provide on-the-ground insight into the needs of people who bicycle in Chico. Findings from the Annual Ride-Along could be included in the Annual Report Card.

# Bikeway 99

This chapter describes Bikeway 99, a popular bicycle and pedestrian pathway and route in Chico, which links people to important destinations. This chapter outlines the history of the bikeway, the existing conditions, potential gaps in the network, and opportunities for future improvements.

## Background

The State Route 99 Corridor Bikeway, referred to as Bikeway 99, is an approximately seven-mile-long bicycle corridor located in the City of Chico. The Bikeway primarily runs along SR 99 and serves as the "spine" of the bicycling network within Chico. Bikeway 99 holds significant importance in the active transportation network of Chico, as it serves to link popular destinations across the City, including educational and employment centers.

*Bikeway 99 Class I multi-use path entrance along Vallombrosa Avenue*

## History

Bikeway 99 began as a series of separate bicycle facilities, brought together as a system to provide a more extensive connection and "spine" of bicycle facilities across the City. Much like SR 99 provides significant north-south connectivity for motor vehicles traveling across Chico, Bikeway 99 provides that connectivity for people who bike. The development of Bikeway 99 began in 2010 and has continued to today with additional improvements.

### *Projects*

The original Bikeway 99 network was formally described in the 2012 *Chico Urban Area Bicycle Plan*. The Bikeway consisted of four separate segments of Class I multi-use paths, six separate segments of Class II bicycle lanes, three segments of Class III bicycle routes, and a portion of the network with no designated bicycle facilities.

Projects to enhance the connectivity and continuity of Bikeway 99 have been completed or planned since its inception in 2010. The Bikeway was developed in phases, with Phases 1 through 3 occurring from 2010 to 2015. Phase 4 included planning and design work from 2017 to 2019, with construction completed in 2020. This phase featured the development of a 0.8-mile Class I segment of Bikeway 99, upgrading an existing Class II/Class III facility.

Phase 5 of the Bikeway 99 project includes the planning and design of a 0.6-mile Class I facility to both close the gap in an existing segment of the Bikeway without any designated bicycle facility and to upgrade an existing Class III bike route in another segment. Phase 5 includes a planned eight- to ten-foot-wide paved Class I

multi-use path running for a portion of the Bikeway parallel to SR 99 as well as a major bicycle/pedestrian bridge to facilitate a seamless connection across East 20th Street. This new overcrossing will provide a grade-separated facility for people bicycling and walking to cross East 20th Street, rather than crossing at street level or at intersections nearby, all of which are considered high stress. This new facility will help provide access to many nearby businesses and employment opportunities, including the Chico Marketplace as well as businesses located in or adjacent to the Village Center commercial zone. Construction for Phase 5 will begin in 2023, with completion expected in 2024.

### *Funding*

The Bikeway 99 facilities have been funded in part through state and federal grants. Phase 1 through 3 of the Bikeway were funded from 2010-2015 using funding from the American Recovery and Reinvestment Act, and Congestion Mitigation Air Quality program (CMAQ) from the U.S. Department of Transportation. Phase 3 also received state funding from the Environmental Enhancement and Mitigation Grant Program from the California Natural Resources Agency. Phase 4 received funding from CMAQ and state Active Transportation Program (ATP) funding. The design and implementation of Phase 5 also received funding from CMAQ and ATP.

## Existing Conditions

The existing Bikeway 99 is approximately seven miles long and consists of a mix of facility types. The network is primarily made up of Class I multi-use paths and Class II bicycle lanes. However, segments of Class III bicycle routes also exist to connect the Class I and Class II facilities. Throughout the route, Bikeway 99 transitions between facility types approximately a dozen times.

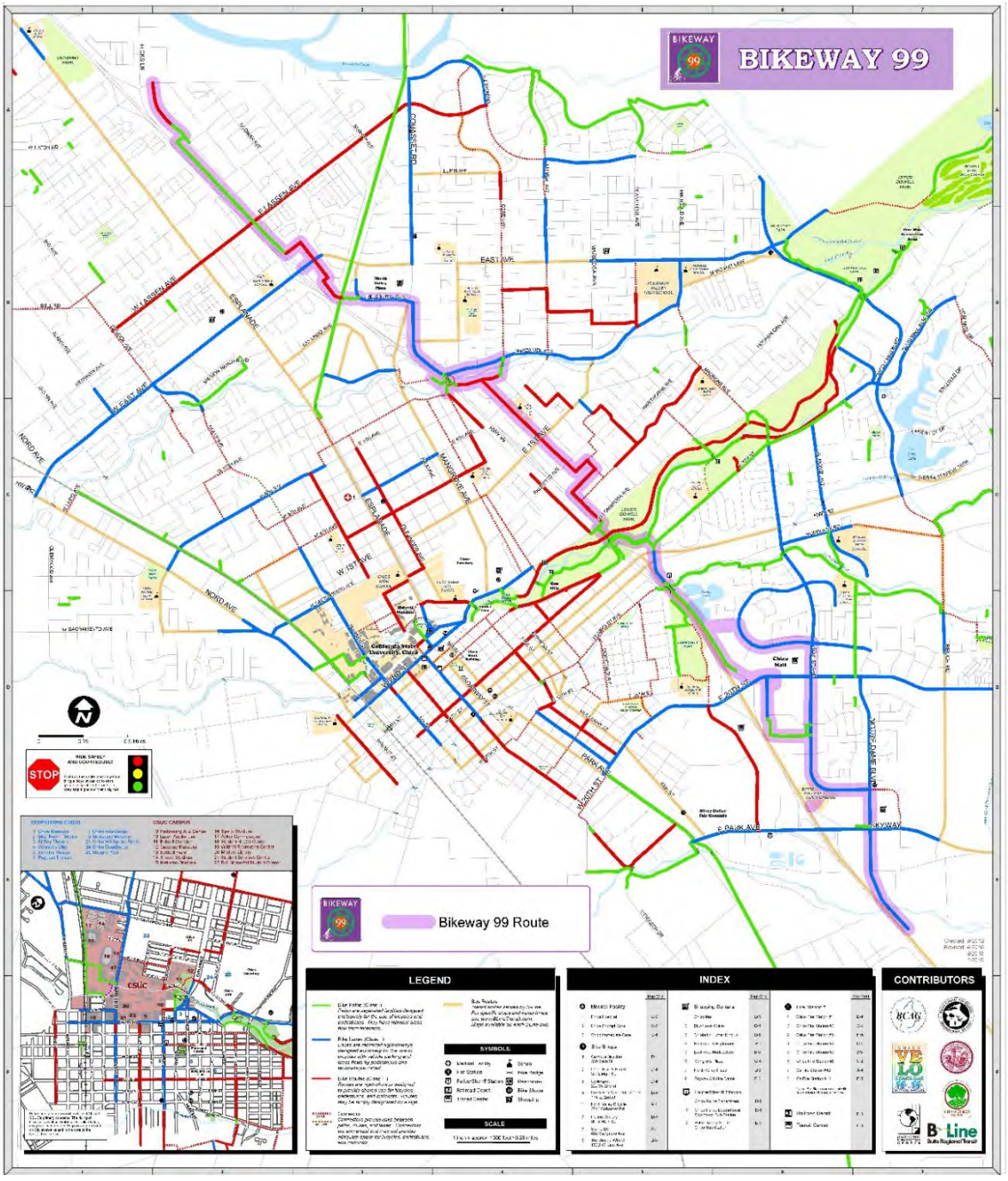
The routing of Bikeway 99 begins in the north of the City as a Class III bicycle route starting on Silverbell Road. The bikeway ends in the south of the City as a Class II bicycle lane on Notre Dame Boulevard, near the intersection with Morrow Lane. The route also features bridges and undercrossings carrying Bikeway 99 as a Class I multi-use path underneath SR 99 and over Little Chico Creek. Figure 25 depicts a full map of the bikeway and other local bicycle facilities.

Bikeway 99 serves as a bicycle trunk route in the City and as a link between areas of the City without bicycle facilities. The Bikeway serves to connect residents with educational institutions, shopping, employment, and recreation. Fairview High School, Neal Dow Elementary School, Parkview Elementary School, CSU Chico, and Butte College (Chico) are all located adjacent to Bikeway 99 or to another facility connected to it. Lower Bidwell Park, Chico Community Park, Chico MarketPlace, and North Valley Plaza are all also located adjacent to the bikeway.

Neighborhoods in Chico located near Bikeway 99 provide a greater opportunity for residents to choose to bicycle, possibly encouraging nearby Chico residents to choose to bike over another transportation mode.


*Bikeway 99. Source: Google Maps*

**Figure 25: Bikeway 99 Map**



### *Wayfinding*

The Bikeway 99 facility offers significant wayfinding resources to users. For example, many portions of the Bikeway, especially along the Class I multi-use path segments, contain high-quality wayfinding and informational signage at key points. The image below illustrates an example of a wayfinding sign on Bikeway 99. The sign contains a map of the entire network, highlighting key destinations along the Bikeway as well as other bicycle connections in the City. Additionally, the sign uses Bikeway 99 branding, along with decorative elements, to help enhance the placemaking effect of the bikeway and highlight it as a dedicated and memorable facility for community benefit.


*Modern gateway map and wayfinding sign along Bikeway 99*

Despite the high-quality signage present in many areas of the Bikeway, some older portions do not contain adequate wayfinding signage. This is especially prevalent in areas of the Bikeway with Class III bicycle routes, on streets with mixed traffic. Signage on these segments is often only a “Bike Route” sign, lacking route name, as well as upcoming destinations, distance, or time to destinations. This presents an opportunity for more high-quality wayfinding and informational signage throughout the bikeway.


*Bicycle route signage without wayfinding on an older portion of Bikeway 99*

## Current Gaps and Maintenance Needs

### *Gaps*

Closing gaps along the Bikeway 99 corridor will improve bicyclist and pedestrian comfort and reduce the level of traffic stress for vulnerable road users. By strategically upgrading the least comfortable segments on the route – the gaps, which are the stretches of roadway that are currently Class III bicycle routes or those without any bikeway designation at all – the City will significantly improve the overall convenience and utility of the Bikeway as a spine connecting countless other active transportation facilities citywide. To note, Phase 5 of the Bikeway 99 project will close the last significant bikeway facility gap along the route. Upgrades to increase bikeway comfort for all ages as well as gap closures in connections to Bikeway 99, particularly from neighborhoods to the east of SR 99, will remain important goals.

Specific gap closure recommendations are included in the Proposed Pedestrian and Bicycle Facilities chapter.

### *Maintenance Needs*

Trail and bikeway surface quality has been a frequent concern of Chico residents and visitors,

particularly those that utilize Bikeway 99. For an active transportation network spine like the Bikeway, pavement and surface condition should be regularly assessed and problem areas prioritized and addressed to maintain the expected good condition, enhancing safety and comfort along the corridor.

## Improvement Recommendations

Several important improvements are proposed for the facilities that make up Bikeway 99. These include improvements to pavement condition, signage, and the closure of gaps that currently exist in the network. These improvements are designed to enhance connectivity for bicycle users and improve the condition of existing facilities along the route.

### CONNECTIVITY & ACCESS

- Improved connectivity between the northern end of Bikeway 99 and Eaton Road
- Improved connectivity between Bikeway 99 and East Lassen Avenue
- Improved connectivity between Bikeway 99 and East Avenue
- Improved connectivity between Bikeway 99 and the North Valley Plaza shopping mall
- Improved connectivity between Bikeway 99 and Bidwell Junior High School, through lower-stress facilities in residential areas
- Improved connectivity between Bikeway 99 and Ceres Avenue
- Improved access to Bikeway 99 from the north side of Lower Bidwell Park, including improvements to Bikeway connections with Vallombrosa Avenue
- Improved access to Bikeway 99 from East 20th Street
- Improved access to Bikeway 99 from East Park Avenue

### FACILITY IMPROVEMENTS

- Improved bicycling conditions for portions of the Bikeway running on Class III bicycle facilities in mixed traffic
- Reduced level of traffic stress for portions of Bikeway 99 running through residential neighborhoods near Neal Dow Elementary School
- Pavement condition and quality improvements in Lower Bidwell Park, to improve the bicycle riding experience on existing facilities in the park
- Crossing improvements at the intersections of Bikeway 99 and East 8th Street and East 9th Street
- Crossing improvements at Forest Avenue & Notre Dame Boulevard, to improve access to the Bikeway 99 segment that begins there

A complete description of improvement recommendations is available in the Proposed Pedestrian and Bicycle Facilities chapter.

*Class III bicycle route passing Neal Dow Elementary School*

# Successes in Recent Years

The City of Chico has made key strides implementing active transportation projects in recent years. The City successfully applied and was granted funding from the Coronavirus Response and Relief Supplemental Appropriations Act (CRRSAA) 2021 to complete the Chico ATP. The foresight to develop the Chico ATP prepares the City to be successful in pursuit of competitive grant funding, especially from grantors that prioritize and emphasize active transportation. In addition, the ATP will be a guiding document for the City to enable policies that support and leverage existing capital improvement programs to implement active transportation projects sooner and more efficiently.

This chapter discusses active transportation infrastructure projects which the City completed since the adoption of the Chico Bicycle Plan 2019.

## Recent Projects

The City has completed, or will soon complete, six projects implementing active transportation infrastructure improvements:

- Comanche Creek Greenway
- Park Avenue and 12th Street Road Rehabilitation
- Humboldt Road/20th Street Bike/Ped Bridge
- Airport Bike Path Bridge
- Cohasset Road Widening
- Esplanade Corridor Safety and Accessibility Improvement Project

### COMANCHE CREEK GREENWAY

The project location is in the southwest area of the City of Chico, south of Myers Street and north of Otterson Drive, between Midway and Estes Road. The project extends the Comanche Creek Greenway network, improves access to existing bicycle facilities in Southwest Chico, and supports transportation and recreation. The project includes a Class I multi-use path, a bicycle and pedestrian bridge over Comanche Creek, bike racks, wayfinding signs, kiosks, and other greenway amenities. Most of the Comanche Creek Greenway is complete between Midway Road and Meyers Street (approximately 0.65 miles), while a segment from Meyers Street to Estes Road (approximately 0.25 miles) remains to be developed. In 2016, the City received a $1.0 million US Department of Housing and Urban Development (HUD) Community Development Block Grant for Phase 1, and in 2018, $1.5 million was awarded to the City from the California Natural Resources Agency Urban Greening Grant. These two funding sources significantly contributed to the construction of the recent extension of the Comanche Creek Greenway.

*Entrance of the Comanche Creek Greenway Sterling Junction access point near the intersection of Midway Road and Hegan Lane. Source: Google Street View*

### PARK AVENUE AND 12TH STREET ROAD REHABILITATION

The City of Chico included Park Avenue and 12th Street Road improvements as part of the 2021

Annual Street Maintenance Project. The limits for Park Avenue include 9th Street to East Park Avenue for approximately 1.4 miles, and on 12th Street from Park Avenue to Mulberry Street for approximately 0.2 miles. The project leverages planned road improvements, allowing the City to include the addition of bikeways and pedestrian improvements as part of their annually scheduled maintenance programs. This approach is an example of "low-hanging fruit," and quickly accomplishes complete street results without requiring outside funding. Active transportation elements include Class II bicycle lanes, enhanced crosswalks, and ADA-compliant curb ramps.


*Park Avenue and recent improvements between 9th Street and East Park Avenue. Source: Google Street View*

### HUMBOLDT ROAD/20TH STREET BIKE/PED BRIDGE

The project, completed in 2022, includes a new bicycle and pedestrian bridge over Little Chico Creek and creates a connection between Humboldt Avenue and the Bikeway 99 undercrossing under SR 99. The project also added a new Class I multi-use path section including lighting that connect to the existing Class I multi-use path adjacent to Community Park at East 20th Street and Martin Luther King Jr. Parkway, as well as Chapman Elementary School. The bridge and path improve active transportation connectivity in Chico's neighborhoods towards the south part of the City and to major bikeways including Bikeway 99 and the Chico Bike Path.

### ESPLANADE CORRIDOR SAFETY AND ACCESSIBILITY IMPROVEMENT PROJECT

Anticipated to begin construction in 2024, the Esplanade Corridor Safety and Accessibility Improvement Project includes several complete streets improvements along the Esplanade corridor between Memorial Way and 11th Avenue, as well as on Oleander Avenue from Memorial Way to 10th Avenue. The project leverages Caltrans Active Transportation Program funds and seeks to "enhance mobility, connectivity, safety, and accessibility for roadway users of all ages and abilities," creating a Class I multi-use path along Esplanade, providing critical connections to downtown, CSU Chico, Chico Junior School, Chico High School,

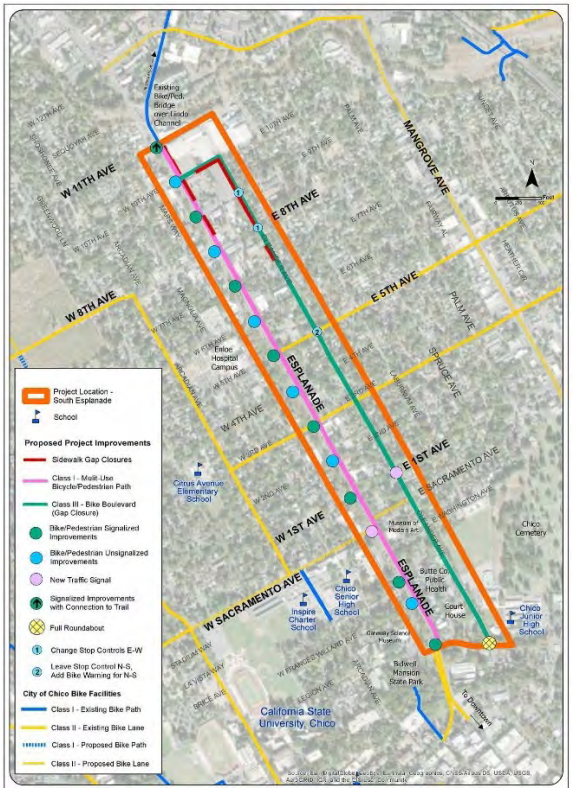
### AIRPORT BIKE PATH BRIDGE

This project was completed in early 2022 and replaces an existing bridge along the Airport Bike Path that was previously damaged. The location of the new bridge runs along the Airport Bike Path, a former railroad line, between East Lassen Avenue and Burnap Avenue over the Pleasant Valley Ditch. The new bridge is 31 feet long and 14 feet wide. The bridge replacement project was a high-priority City effort to re-establish access on the well-travelled active transportation route.

### COHASSET ROAD WIDENING

Completed in late 2022, The Cohasset Road Widening project includes repaving and enhancements to an existing Class I multi-use path on the west side of Cohasset Road that extends north from Eaton Road to the Chico Municipal Airport for approximately two miles. The path is separated by a shallow drainage ditch and landscaping, including shade trees and shrubs, enhancing the overall benefit of the dedicated bicycle facility. Improvements were completed as part of Phase Three of the Cohasset Road Widening Project that received grant funding from the US Economic Development Administration.

a regional hospital, adjacent neighborhoods, and existing active transportation facilities, like the Class I Airport Multi-Use Path at 11th Avenue.




*Esplanade Corridor Safety and Accessibility Improvement Project map*

# Goals, Objectives, and Strategies

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

The goals, objectives, and strategies included in the ATP reflect needs and priorities expressed by members of the community through public outreach activities, as well as City priorities and policies. 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 the ATP.

## *Goal 1: Encourage active transportation within Chico*

### OBJECTIVE

Increase the mode share of people walking to work from 4.1 percent to 6 percent by 2030 and to 12 percent by 2045 and that of people bicycling to work from 5.6 percent to 6 percent by 2030 and to 12 percent by 2045,[13] in alignment with the Chico Climate Action Plan[14] as well as the Caltrans 2020-24 Strategic Plan[15], using operational strategies and incentives to reduce vehicle miles traveled by encouraging active transportation

### STRATEGIES

- Expand bicycle safety education to be a routine part of education for students of all ages
- Encourage California State University, Chico to expand opportunities for safe bicycle access to and through the main campus area, building upon the success of the University's now-permanent Campus Bike Path running east-west along the north side of Big Chico Creek[16]

## *Goal 2: Strengthen Chico's cultural identity as a bicycle friendly city*

### OBJECTIVE

Improve from Gold to Platinum Bicycle Friendly Community status on the League of American Bicyclists Bicycle Friendly Communities list

### STRATEGIES

- Look for opportunities to partner with local advocacy groups to host or sponsor one additional bicycle-friendly city or neighborhood event quarterly to bi-annually
- Install signs at all roadway entrances to the City that identify Chico as a bicycle friendly community and encourage safe driving

[13] U.S. Census Bureau. "B08101: Means of Transportation to Work by Age." *2015-2020 American Community Survey.* [4.1% Walked, 5.6% Bicycle+]

[14] https://chico.ca.us/post/climate-action-plan-update

[15] https://dot.ca.gov/-/media/dot-media/programs/risk-strategic-management/documents/sp-2020-2p-web-a11y.pdf

[16] https://www.csuchico.edu/sustainability/ride/bikes.shtml

*Bicycle Friendly Community sign, Lower Bidwell Park*

### *Goal 3: Increase safety for people walking, bicycling, and rolling*

OBJECTIVE

Reduce the percent of roadways and bikeways that are Level of Traffic Stress (LTS) 4 from 18.9 percent to 10 percent or less by 2035

STRATEGIES

- Align City roadway planning and implementation priorities with the recommendations outlined in this plan
- For newly developed active transportation facilities, ensure the City follows bicycle facility selection criteria that increase separation and protection of bicyclists based on levels of motor vehicle speed and volume, where feasible

### *Goal 4: Gain a better understanding of Vision Zero in Chico, the concept of establishing a citywide goal of zero traffic deaths or severe injuries among all road users*

OBJECTIVE

Commission a Vision Zero study, report, or memorandum to better understand the need or impact of such a plan and/or program

STRATEGIES

- Initiate the development of a Vision Zero study, report, or memorandum with context-specific documentation to inform future decisions regarding a Vision Zero program in the City, including the development of a Vision Zero Action Plan (VZAP)

### *Goal 5: Provide a connected network of comfortable facilities for people to walk, bike, and roll*

OBJECTIVE

Close 100 active transportation network gaps by 2035

STRATEGIES

- Complete studies identified in this plan by 2035
- Construct 50 additional miles of bicycle or pedestrian facilities by 2035

### *Goal 6: Enhance the spine network of Bikeway 99, including enhancement of wayfinding and crossing facilities*

OBJECTIVE

Improve the user experience of Bikeway 99

STRATEGIES

- Implement Bikeway 99 bicycle crossing improvements identified in this plan by 2035
- Ensure Bikeway 99 wayfinding signage is designed to incorporate the latest best practices and is installed at all key route entrances and decision points
- Conduct annual bicycle counts along Bikeway 99 to measure usage improvements

### *Goal 7: Enhance mobility throughout Chico to meet the needs of all users, including those commuting to work or school, visiting local businesses, and enjoying recreational opportunities*

OBJECTIVE

Reduce existing barriers to bicyclist and pedestrian comfort and convenience

STRATEGIES

- Implement new short-term (e.g., curbside bicycle racks) and long-term (e.g., bicycle

lockers) bicycle parking locations as identified, either through direct request or as part of a parking needs assessment, within six months to one year of identification, as funding allows

- Work with local League of American Bicyclists League Cycling Instructors to offer Bicycle Friendly Driver training to motorists in Chico, specifically to professional drivers and fleet operators, such as bus operators for B-Line/Butte Regional Transit[17]
- Develop and enforce work zone/construction detour policy which provides appropriate signage and accommodation for people walking and bicycling through areas of roadway and sidewalk work to maintain a connected and safe network

*Bicycle Friendly Driver Training*

## *Goal 8: Maintain the active transportation network in a good state of repair*

### OBJECTIVE

Increase the percentage of on-road and off-road (Class I) bicycle facilities with a pavement conditions index[18] class of "Good" from initial assessment by the City

### STRATEGIES

- Incorporate bikeway pavement inspection into the City's existing pavement management program to assess and record the pavement condition of the City's bikeways, including on- and off-road (Class I) facilities, when feasible.
- Establish a pavement condition improvement target percentage of bikeway lane miles annually based on inspection program assessment
- Create a bikeway repaving strategy within the City's Capital Improvement Program (CIP) that is informed by the City's new bikeway inspection initiative by the start of the next CIP process following Plan adoption
- Establish an easy way for Chico residents and stakeholders to report active transportation network issues or request repairs, either through the City's "Report" portal on the City website[19] or through a 311 program. *Note: this crowdsourced reporting may also temporarily fill the gap in bikeway pavement condition inspection prior to full incorporation of that process into the City's existing pavement management program.*
- In collaboration with City Maintenance, and upon Plan adoption, incorporate a bikeway sweeping strategy for separated bicycle facilities and debris-heavy bicycle routes as part of the City's regular street sweeping program

[17] https://bikeleague.org/content/leagues-bicycle-friendly-driver-training

[18] Pavement Conditions Index (PCI) measures pavement structure integrity and surface operational conditions and is calculated by measuring pavement distress types, severities, and densities obtained during pavement inspection. More information can be found in "Development of a Pavement Condition Index for Roads and Streets" by Shin, Darter, and Kohn: https://trid.trb.org/view/76266

[19] https://chico.ca.us/report

*Goal 9: Assist in achieving Chico's greenhouse gas emissions reductions goals and target of carbon neutrality by 2045, as detailed in the Climate Action Plan*

OBJECTIVE

Reduce the number single occupancy vehicle trips that are a walkable or bikeable distance, replacing them with climate-friendly active transportation trips.

STRATEGIES

- Implement this Active Transportation Plan by adding miles to the bikeway network, improving wayfinding, conducting road maintenance, etc.
- Encourage secure, shaded, and convenient bicycle parking in new developments
- Pair major road upgrades with active transportation infrastructure
- Continue to identify and partner with stakeholders to conduct outreach, promotion, and education

# Policy and Planning Context

The City of Chico has been making strides to incorporate policies and programs that support active transportation as a viable alternative to motor vehicle travel. Directed by regional and local goals, like policy priorities found in the Butte County Association of Governments Sustainable Communities Strategy, complete streets policies in the City's General Plan Circulation Element, and strategies in the City's Climate Action Plan, the City has, over time, adopted policies and ordinances that position it for success in support of active transportation. Policies already empowering the City to support active transportation include:

### Complete Streets

General Plan 2030, Circulation Element

- Goal CIRC-2: Enhance and maintain mobility with a complete streets network for all modes of travel.
- Policy CIRC-2.1 (Complete Streets) – This policy encourages the development of a street network that provides space for all roadway users (bicycles, pedestrians, motor vehicles, etc.), with particular attention to combating air pollution and greenhouse gas emissions. It also highlights city streets as public spaces uniting Chico.
- Action CIRC-2.1.1 (Complete Street Standards) – This action tells the City to design new streets to provide space for all travel modes, including bicyclists and pedestrians.
- Action CIRC-2.1.2 (Retrofitting Existing Streets) – This action tells the City to update already-built roadways to streets designed to provide space for all travel modes, particularly to improve pedestrian and bicyclist safety and enhance active transportation connectivity, as funding allows and when feasible.
- Action CIRC-2.1.3 (Multimodal Connections) – This action tells the City to make it easier for bicyclists, pedestrians, and motor vehicles to travel between and within new and existing neighborhoods.

### Policy to ensure that trails, parks, and open spaces have secure bicycle parking facilities

Design Guidelines Manual, Chapter 5, Community Facility Project Types

- DG 5.1.23 - Cover bicycle parking with architecturally compatible design features and locate them close to main entrances.

### Pedestrian-scale lighting

Design Guidelines Manual, Chapter 1 Community Design

- DG 1.3.55 - Construct new street lighting to be pedestrian-oriented without harsh glare, operate on a low wattage system, and be consistent with existing traditional styles.
- DG 1.5.16 – Use pedestrian scale lighting along pedestrian walkways to avoid glare.

### Street fronting entrances to commercial businesses

Design Guidelines Manual, Chapter 1 Community Design

- DG 1.1.15 - Place buildings close to streets to reinforce a pedestrian-friendly environment depending on the size and traffic capacity of the adjacent streets. For instance, the quieter the street, the closer the buildings may come to the street and public sidewalk. Conversely, buildings may be placed further away from busier streets.
- DG 1.3.13 - Maintain and enhance a strong pedestrian scale and orientation.

To build on this progress, this chapter describes additional recommendations of supportive policies at the local level across the five E's: Equity, Diversity, & Inclusion (EDI); Engineering; Education; Encouragement; and Evaluation & Planning, which are consistent with General Plan policies and advance active transportation facilities.

## Equity, Diversity, & Inclusion (EDI)

### *Bicycle Licenses and Registration*

With the passage of AB 1909, California amended Section 39002 of the State Vehicle Code, prohibiting a jurisdiction from requiring any bicycle operated within its jurisdiction to be licensed[20]. This Plan recommends that the City consider repealing its bicycle license and registration ordinances (10.40.010 – 10.40.80), in compliance with this State law, removing a barrier to bicycling in the community by eliminating an opportunity for harassment of bicyclists, particularly bicyclists of color and of lower socioeconomic status. This Plan also recommends the City consider recommending bicyclists register with a free national online database, like www.bikeindex.org, to continue the original purpose of tracking and returning lost or stolen bicycles while freeing up City resources from the management of the bicycle license and registration program.

*Bike Index logo*

### *Law Enforcement Training*

Ensuring fairness and safety for people riding bicycles for transportation in Chico begins with ensuring that those charged with enforcing existing laws are fully up to speed with bicycle operation and legal nuance. Regular training for law enforcement ensures that the officers of the Chico Police Department are trained on safe bicycling practices and are updated on bicycle-related laws. This Plan recommends that the City work with law enforcement, where applicable and when feasible, to administer existing trainings for law enforcement. Law enforcement should stay abreast of current bicycle and pedestrian related laws and best practices.

## Engineering

### *Slower Speeds in School Zones*

Slower traffic speeds near neighborhood schools empowers more children to walk and bike to school safely. AB 321 took effect in 2008 and allows local government to lower the speed limit at schools located in residential districts on two-lane roads with existing speed limits of 30 mph or less to 15 mph and extend the school

[20] https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=VEH&sectionNum=39002.

zone to 1,000 feet from the school property. This Plan recommends the City study the feasibility of lowering speed limits in appropriate school zones. The survey may result in the City establishing 15 mph speed limits in the area up to 500 feet from applicable Chico schools, when children are present. The survey could also investigate the feasibility of setting the speed limit to 25 mph in the 1,000 feet extended school zone. Surveys may result in designating speed limits of 15-25 mph, as appropriate, near school zones.

### *Implement Traffic Calming Measures Near and Within Parks*

Slower traffic speeds near and within parks and other nature-focused destinations encourage safer access to these destinations for all, but especially for vulnerable road users like pedestrians and bicyclists. This Plan encourages the City to take any available opportunities to calm traffic along streets adjacent to, at access points for, and within parks and other park-like facilities. Slowing motor vehicle speeds through traffic calming techniques, like speed humps or lane narrowing, reduces the risk of severe injury for vulnerable road users. Visitors often choose to travel to and through these spaces and facilities without the use of motor vehicles. And, when residents and visitors choose to visit such spaces, they may be seeking an opportunity to spend quiet time in nature as a departure from the hurried pace of more urbanized areas of the City. Slowing motor vehicles to reduce serious injuries for active transportation users and improving the enjoyment of the City's beautiful, natural spaces is recommended.

## Education

### *"Bicycles May Use Full Lane" Signs*

In a scientific study[21], "Bicycles May Use Full Lane" (R4-11) signs were more consistently comprehended for communicating the message that bicyclists may occupy the travel lane than "Share the Road" signage and increased perceptions of safety. This Plan recommends that the City consider replacing any "Share the Road" signage with "Bicycles May Use Full Lane", both for permanent signs and temporary construction signs.

### *Bicycle Detection Areas*

Bicycle detection is not always intuitive or well known to bicyclists. Implementing bicycle detector pavement markings (MUTCD 9C-7[22]) will help inform bicyclists about proper positioning of bicycles to trigger green lights at signalized intersections. This Plan recommends that the City consider applying pavement

markings to indicate bicycle detection areas at traffic signals along designated bikeways.

*Example of bicycle detection markings in Portland, Oregon from NACTO*

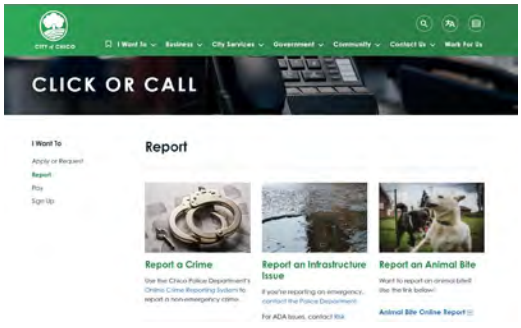
[21] https://pubmed.ncbi.nlm.nih.gov/26317355/

[22] Chapter 9C - MUTCD 2009 Edition - FHWA (dot.gov)

# Encouragement

## *Online Bicycle Hazard Reporting*

This Plan recommends that the City consider making it easier for bicyclists and pedestrians to report hazards, potholes, or other active transportation issues, including bicycle parking needs, online through the City's existing Report Portal[23], and ensuring requests are addressed in a timely manner. The City could consider updating the Report Portal to include reporting pathways and dropdown menus specific to reporting bicycle issues and concerns. This Plan also recommends that the City consider publicizing the Report Portal tool with media releases, encouraging its use as a powerful feedback tool for the state of Chico's growing active transportation network.




*Existing City of Chico Report Portal*

# Evaluation & Planning

## *Bicycle Collision Reporting*

Accurate collision data is important for decision makers seeking to reduce injuries and fatalities, as it helps to inform prioritization of impactful projects and programs. This Plan recommends that the City work with the Chico Police Department to improve reporting and analysis of bicycle collisions in order to collect and maintain the most accurate data possible.

## *Bicycle Parking*

### INDOOR BICYCLE PARKING

This Plan recommends the City consider incentivizing indoor bicycle parking in commercial buildings as part of new developments to encourage bicycle commuting in return for reduction in vehicle parking requirements. Available long-term bicycle parking that is safe and secure indoors allows employees to ride to work with a significantly reduced risk of theft.

### END OF TRIP FACILITIES

Like secure long-term bicycle parking, convenient end of trip facilities, such as showers and changing rooms, encourage people to commute to their destinations by bicycle. This Plan recommends that the City consider incentivizing the provision of safe and secure end of trip facilities at key destinations, particularly places of employment.

### BICYCLE PARKING MINIMUMS

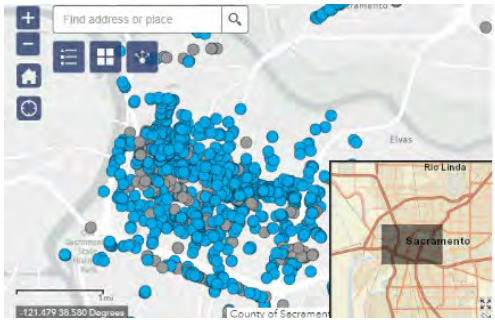
This Plan recommends that the City consider updating bicycle parking requirements, as part of the City's Parking and Loading Standards (Table 5-4 of Section 19.70.040 of the Chico Municipal Code). Bicycle parking considerations should be based on expected need and use, not just as a proportion of the number of required vehicle parking spaces. The City should model its update based on regional leaders, like the City of Sacramento, where parking space minimums are based on land use and location within specific parking district types (e.g., Central Business and Arts and Entertainment, Urban, Traditional, and Suburban).

### BICYCLE PARKING NEEDS ASSESSMENT

Paired with the consideration of the policy to update bicycle parking minimums based on expected need and use, this Plan recommends that the City consider regularly surveying and

[23] https://chico.ca.us/report

assessing bicycle parking needs at key destinations. The City should work with those destinations and install additional bicycle parking based on identified need. From libraries and civic buildings to retail stores and restaurants, ensuring there is accurate data on the adequacy of parking based upon new bicycle parking minimums will ensure the City accurately maps the locations of existing bicycle parking and informs bicyclists of their availability, ultimately encouraging additional bicycle ridership.




*Example of a bicycle parking map, created by the City of Sacramento, located on the city website*

## BICYCLE PARKING MAP

This Plan recommends that the City consider mapping public bicycle parking locations in the City, beginning with Downtown, key destinations, and public parks. This data will help inform the City's plans to install additional bicycle parking where it is most needed and can be made available to the public, through digital and print formats, to provide the most accurate accounting of the availability of short- and long-term bicycle parking.

# Stakeholder Engagement

This Plan and its recommendations were shaped according to public feedback throughout the Plan process. This chapter describes an overview of the stakeholder engagement process and an overview of each activity conducted. Additional details and documentation of engagement efforts are available in Appendix B

The public was engaged with the project using multiple methods:

- A well-attended, in-person community workshop during the existing conditions analysis phase at Chico City Hall, with 97 people signing in
- An online interactive mapping tool, which received over 900 public comments
- The CATTAC, an existing committee of community members that supports Chico's active transportation community
- A public comment form on the project website, where community members could provide specific comments about active transportation in Chico
- Coverage of the project by local news media
- A series of presentations to stakeholders

## Community Workshop

AUGUST 31, 2022

The first community engagement event, an in-person community workshop, was held on August 31, 2022, at Chico City Hall from 5:00 to 7:00PM. The purpose of this workshop was to introduce the project and collect feedback from the attendees on challenges, barriers, and needs related to the transportation network. This workshop also provided project background and objectives, an overview of initial findings relating to existing conditions, and education around active transportation planning concepts.

*Attendees reviewing the engagement boards and maps provided at the workshop.*

During the workshop, the project team provided an overview of the Chico Active Transportation Plan project and goals and gave instructions for providing feedback as participants arrived to the drop-in style meeting. Feedback from the event was added to the data analyzed as part of the Existing Conditions chapter and used to establish a baseline for developing and analyzing improvement options for the Active Transportation Plan.

The workshop provided an opportunity to comment on six outreach boards or provide general comments on index cards. The six outreach boards formed the primary basis of the engagement. Two boards displayed images of different types of bicycle or pedestrian facilities. The following bicycle facilities and intersection treatments were displayed:

- Class I (Multi-Use Path)
- Class II (Bike Lane)
- Buffered Class II (Buffered Bike Lane)
- Class IV (Protected Bikeway)
- Bike boxes
- Conflict markings
- Green painted bike lanes
- Bicycle detection

The following pedestrian facilities and intersection treatments were displayed on a second board:

- Curb extensions
- Median refuge island
- High-visibility crosswalk
- Pedestrian hybrid beacon
- Yield to pedestrians sign
- Leading pedestrian interval
- Advanced stop bar
- Rectangular rapid flashing beacons


*Bicycle facilities and intersection treatment board used at the workshop. Full size images are available in Appendix B*

Workshop participants had the opportunity to place small dot stickers to note which types of facilities they preferred on each board. This feedback was used to understand which types of bicycle or pedestrian facilities and intersection treatments were preferred by the community members at the workshop.

Four additional boards were displayed, each with a detailed map of a different area of Chico, with the following focus areas:

- Downtown Chico and Western Chico
- Southern Chico
- Northern Chico
- Eastern Chico and Upper Bidwell Park

For these boards, workshop participants had the opportunity to place "sticky notes" or write directly on the boards as a means of providing input. These comments were generally location-specific and related to walking and bicycling in Chico. Over 150 such comments were received. Project staff later compiled and digitized these comments.

*Board depicting Downtown Chico used at the workshop. Full size images are available in Appendix B*

Workshop participants could also provide general (non-location specific) written comments on index cards to submit to project staff.

Feedback from both engagement methods at the workshop centered around the following themes:

- Bicycle infrastructure and connectivity
- Pedestrian infrastructure and connectivity
- Pavement quality of existing bicycle or pedestrian facilities
- Safety or perceived safety of walking and bicycling

Engagement with the outreach boards was geographically diverse, but Downtown Chico and western portions of the city received the most comments. Overall, comments throughout Chico highlighted a desire for increased connectivity of the bicycle and pedestrian network. Respondents highlighted areas where they observed portions of the existing bicycle and pedestrian network ending but had a desire for these facilities to be extended. This included gaps in the Bikeway 99 network as well as places where existing Class II facilities transitioned to Class III or ended altogether. Responses about the pedestrian network

followed a similar theme. Respondents especially highlighted the need for more visible pedestrian crossings throughout Chico.

Many respondents highlighted concerns with perceived safety while walking and bicycling. These concerns about safety were especially focused on K-12 schools. Similarly, many respondents highlighted concerns about conflicts between motor vehicle traffic and people walking or bicycling. Concerns about these conflicts were most concentrated in the following areas:

- Traveling to or from California State University, Chico
- Students going to or from Chico High School and other area schools
- People walking or bicycling from the west side of Chico to the east (crossing SR 99)
- People walking or bicycling on/across SR 32

Additional responses expressed concerns about the quality of existing facilities. Many respondents expressed dissatisfaction with the quality of pavement on bicycle and pedestrian facilities in Lower and Upper Bidwell Park. Similarly, some responses also expressed dissatisfaction with the quality of pavement on Class II bicycle facilities throughout Chico.

A more detailed summary of the workshop and feedback provided is available in Appendix B.

DECEMBER 7, 2022

The second community workshop was held on December 7, 2022, at Chico City Hall from 5:00 to 7:00 PM. The purpose of this workshop was to garner feedback from the community on the proposed bicycle and pedestrian facility recommendations. At the workshop, four quadrant maps representing four parts of the City of Chico were provided on tables, each with a detailed map of a different area of Chico with the following focus areas:

- Downtown Chico and Western Chico
- Southern Chico
- Northern Chico
- Eastern Chico and Upper Bidwell Park

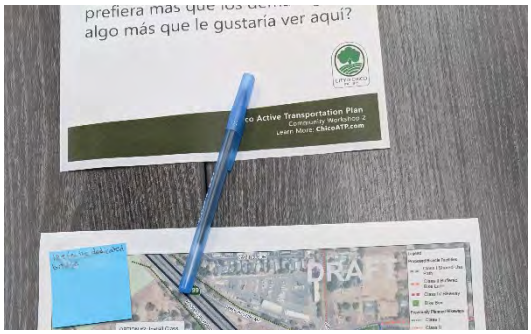
Workshop attendees were able to provide input on the proposed recommendations with "sticky notes," pens, and markers. Additional boards were placed around the room to describe the types of improvements that could be seen on the quadrant maps. These boards were consistent with the boards shared at the first workshop.

*Comment board depicting the Avenues neighborhood*

A map of existing and planned facilities and maps that specifically showed the entire city with both pedestrian and bicycle facility recommendations broken out were displayed on the walls. Flyers with workshop information and a QR code to access the online version of the interactive mapping tool were available around the room. Tables set up with a coloring activity for children were placed in the back of the room, though no children were present at this meeting. Instructions were placed on each table that asked the following questions:

- What do you think of these recommended improvements?
- What types of pedestrian and/or bicycle facilities do you prefer? (Refer to facility board for information)
- Is there anything you would like to see changed or added?

All prompts and informational boards were provided in both English and Spanish.




*Small board showing alternative bikeway Option #2 for Eaton Road across SR 99 with Spanish language prompt*

*Participants engaging with workshop materials*

Workshop attendees were geographically diverse. People from all four quadrants of the City attended the workshop and comments were provided on every map placed throughout the room. Project staff fielded many questions and received feedback on the recommendations.

Over 170 public comments were left in the form of handwritten "sticky notes" placed on workshop maps and boards as well as those submitted via an online map.

Feedback from both engagement methods centered around the following themes:

- Bicycle infrastructure improvements and accessibility
- Pedestrian infrastructure improvements and accessibility
- Maintenance concerns, including pavement condition of existing bicycle and pedestrian infrastructure
- Traffic calming and crossings, including safe routes to nearby schools and the university
- Personal safety concerns while walking and bicycling

Additional responses expressed concerns about existing bikeway design, including disapproval of existing bicycle lane widths that include gutter pans, as currently experienced by bicyclists riding in Class II bicycle lanes along East Avenue, noting they can feel too narrow and dangerous.

Several respondents commented where they agreed with bicycle and pedestrian infrastructure recommendations. One recommendation that received several comments in agreement was a proposed Class IV two-way protected bikeway along the Eaton Road overcrossing of SR 99, with many acknowledging that providing physical separation between bicyclists and motor vehicles would be a significant improvement. Some also noted that this alternative made sense financially.

Others noted where they may not agree with recommendations based on their experiences navigating specific neighborhoods and corridors, including siting of neighborhood traffic circles or selection of certain bicycle facility classifications along a particular roadway.

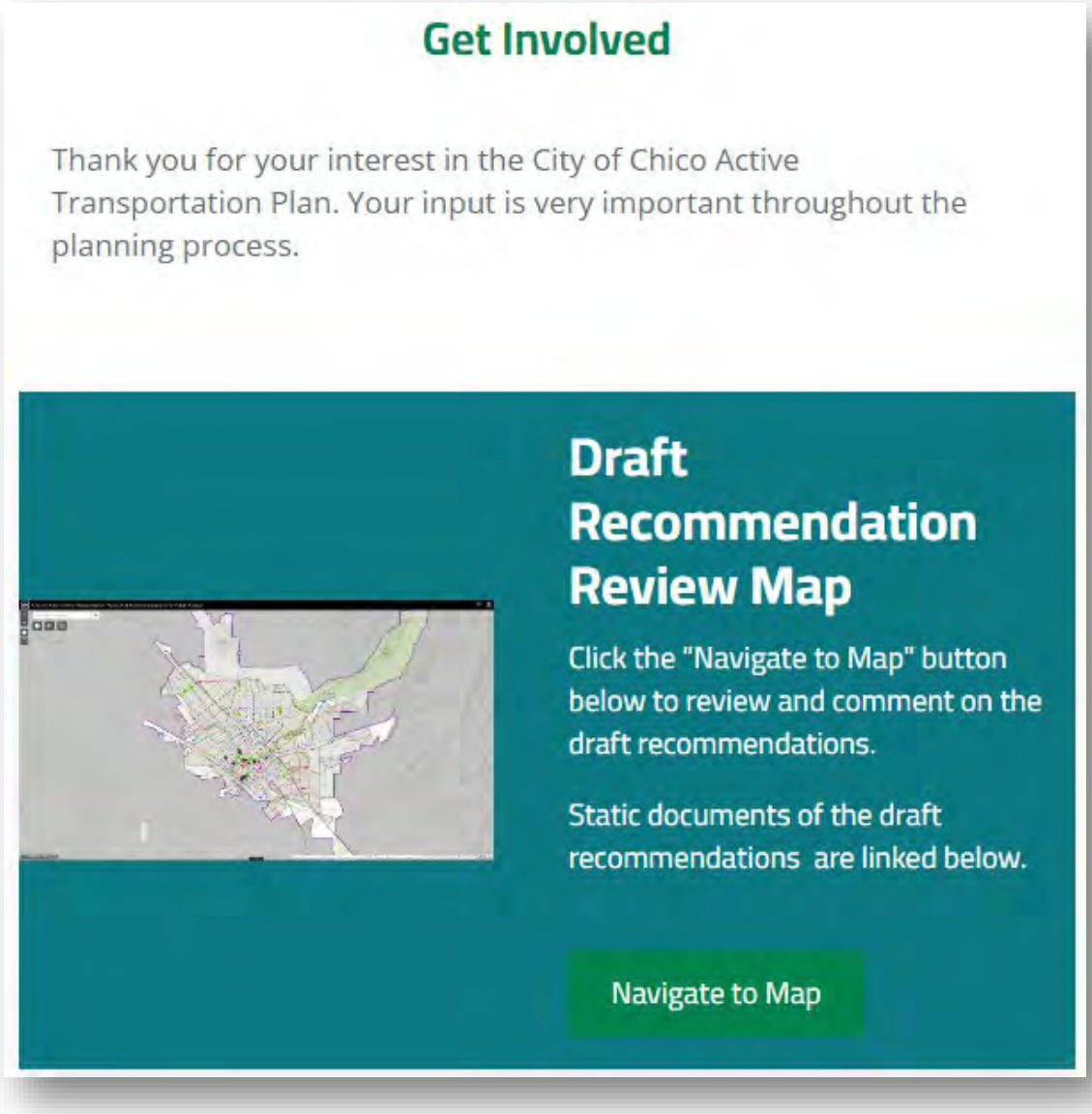
### OCTOBER 19, 2023

The third and final workshop was held at City Hall from 5:00 to 7:00 PM and received comments on the Public Draft Plan. The final recommendations maps were placed around the room with printed copies of the Plan for people to review. Comments were generally supportive of the document with some making additional recommendations that were outside the scope of the Plan or could be implemented at a later time alongside other improvements.

Appendix B contains a full overview of comments received at the workshops via the online map.

## Website

A project website was developed, containing information about the planning process, active transportation topics, and engagement opportunities. The website included an interactive map for visitors to leave location-specific comments, described below, as well as a project survey. The Draft Plan and recommendations were also shared on the project website. The website additionally contained a public comment form, where community members could provide general or specific comments related to their experiences with active transportation in Chico or the Draft Plan.

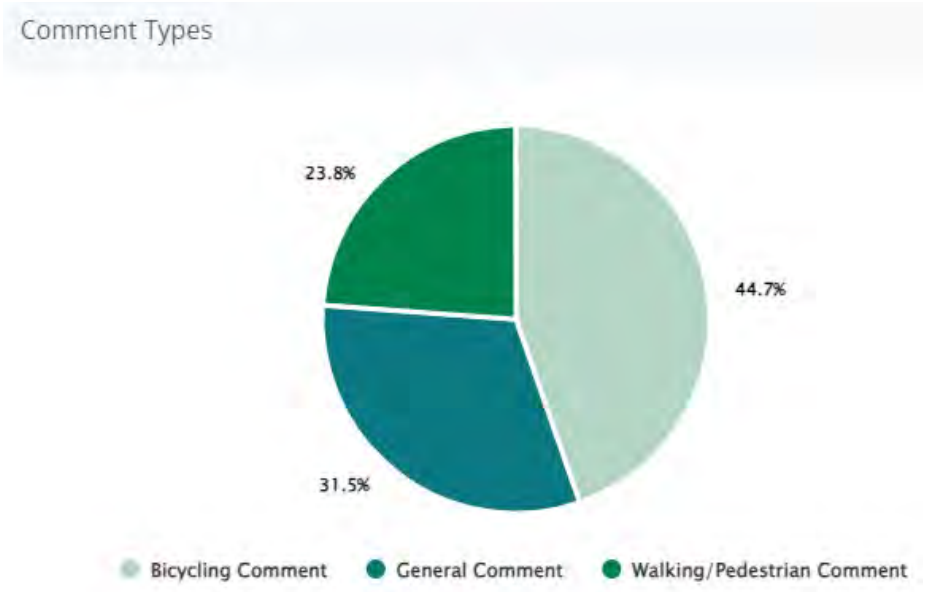



*Screenshot from the "Get Involved" page on the project website where users were able to review draft recommendations on an interactive map*

## Online Mapping Tool

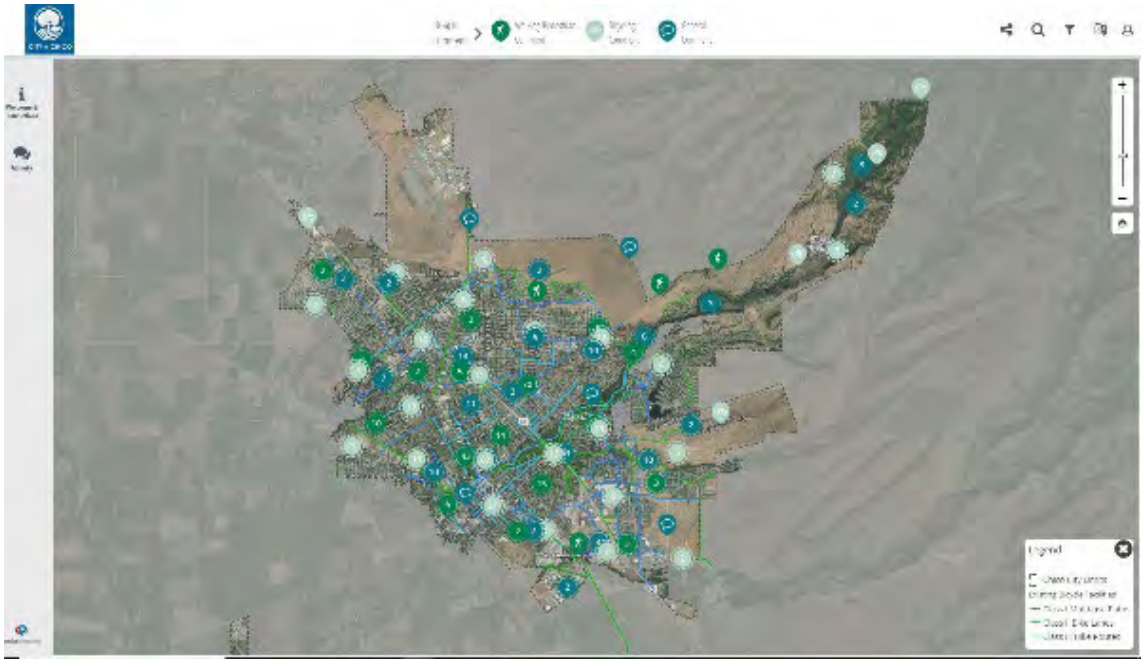
An interactive mapping tool was posted on the project website. This tool contained an interactive map of Chico and a tool to leave feedback on active transportation in specific areas of the City. The tool accepted input from July 2022 through September 2022.

Community members were encouraged to place digital 'pins' on the map in specific locations to add concerns. These 'pins' could be categorized as bicycle-related, pedestrian-related, or general comments. Respondents could also view and respond to pins by others. This included the ability to leave comments on pins added by others, respond to other comments, and vote on pins through a "like" or "dislike" feature.

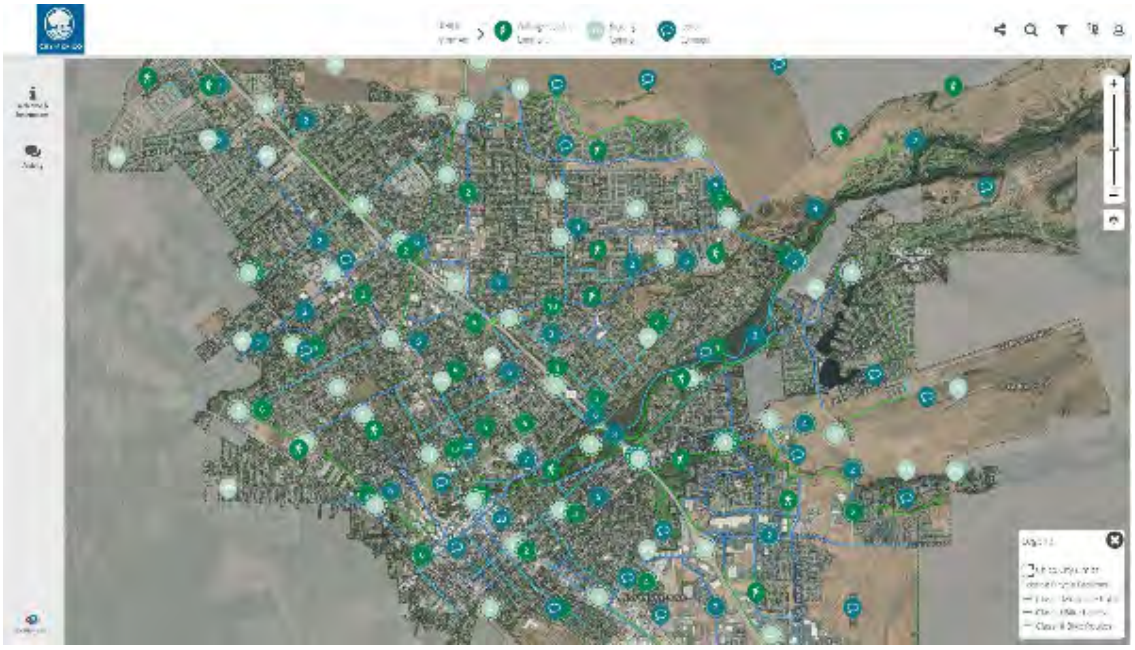



*Comments from engagment by category*

**Figure 26: Online Mapping Tool**



## Figure 27: Online Mapping Tool Zoomed In



*More precise locations of map comments as users zoomed in*

## Figure 28: Online Mapping Tool Comment

*A bicycle-related pin with comments and likes*

More than 1,000 comments were entered on the map by the community. Appendix B contains a full overview of responses received via the online interactive mapping tool.

All comments were reviewed during the recommendations development process to assist in developing responsive recommendations. Figure 29: Distribution of Comments Received depicts a distribution of comments received in the online tool. Comments included the following themes:

TRAILS

- Desire for additional parking at trailheads to protect nature by reducing motor vehicle access to Upper Bidwell Park
- Desire to continue Guardian Trail to Forest Ranch

AMENITIES & LANDSCAPING

- Interest in slowing speeding motor vehicle traffic with landscaped medians and art
- Need for additional safe, secure bicycle parking in Downtown
- Desire for speed feedback signs to deter speeding by motorists
- Ensuring that as few trees as possible are removed as part of infrastructure projects

BICYCLE CONNECTIONS & SEPARATION

- Concerns about narrow widths of existing bicycle facilities
- Desire for new connections between the existing bicycle facilities along the creek and the rail trail
- Request for bike lanes that connect to all schools, particularly Chico High School

CROSSING & INTERSECTIONS

- Difficulty crossing East 1st Avenue at Esplanade on foot or by bicycle due to high motor vehicle speeds
- Interest in new, safe east-west pedestrian connection(s) across SR-99
- Request for high visibility pedestrian crosswalks at numerous locations

MAINTENANCE

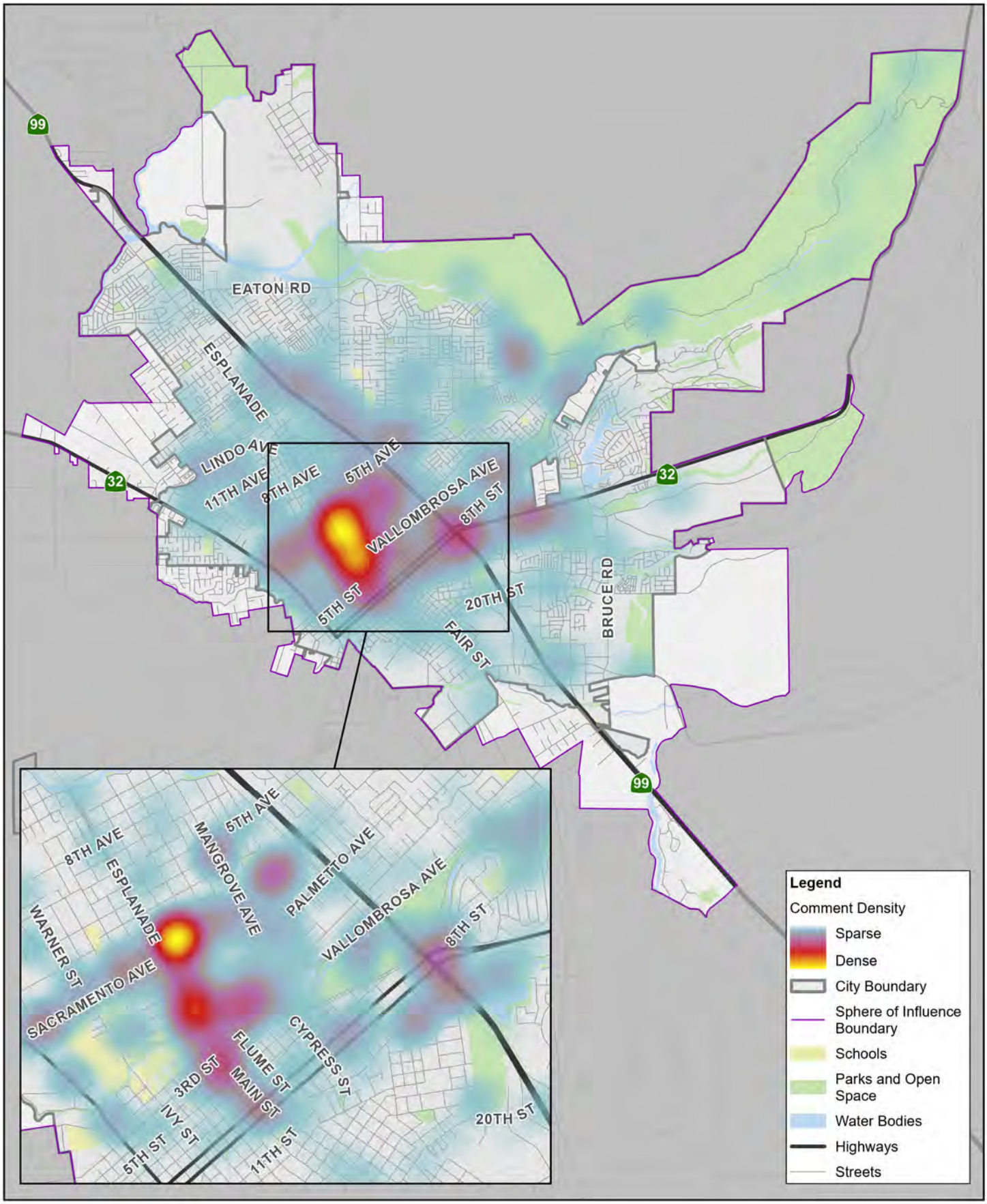
- Concerns about pavement condition of bicycle facilities
- Request for fresh striping on existing bicycle facilities where lines have faded over time
- Calls for maintenance of overgrown vegetation and collection of trash from public areas, like parks and trails

PEDESTRIAN CONNECTIONS

- Making Downtown more inviting to pedestrians by rerouting cut-through traffic
- Completing pedestrian network where today sidewalk abruptly ends
- Desire to reduce conflict between pedestrians and bicyclists on sidewalks

SAFE ROUTES TO SCHOOLS

- Desire for longer pedestrian crossing times at traffic signals adjacent to schools
- Not enough crosswalks near schools to allow for safe access
- Request to properly map/document existence of Chico State Bicycle Path

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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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GHD

CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

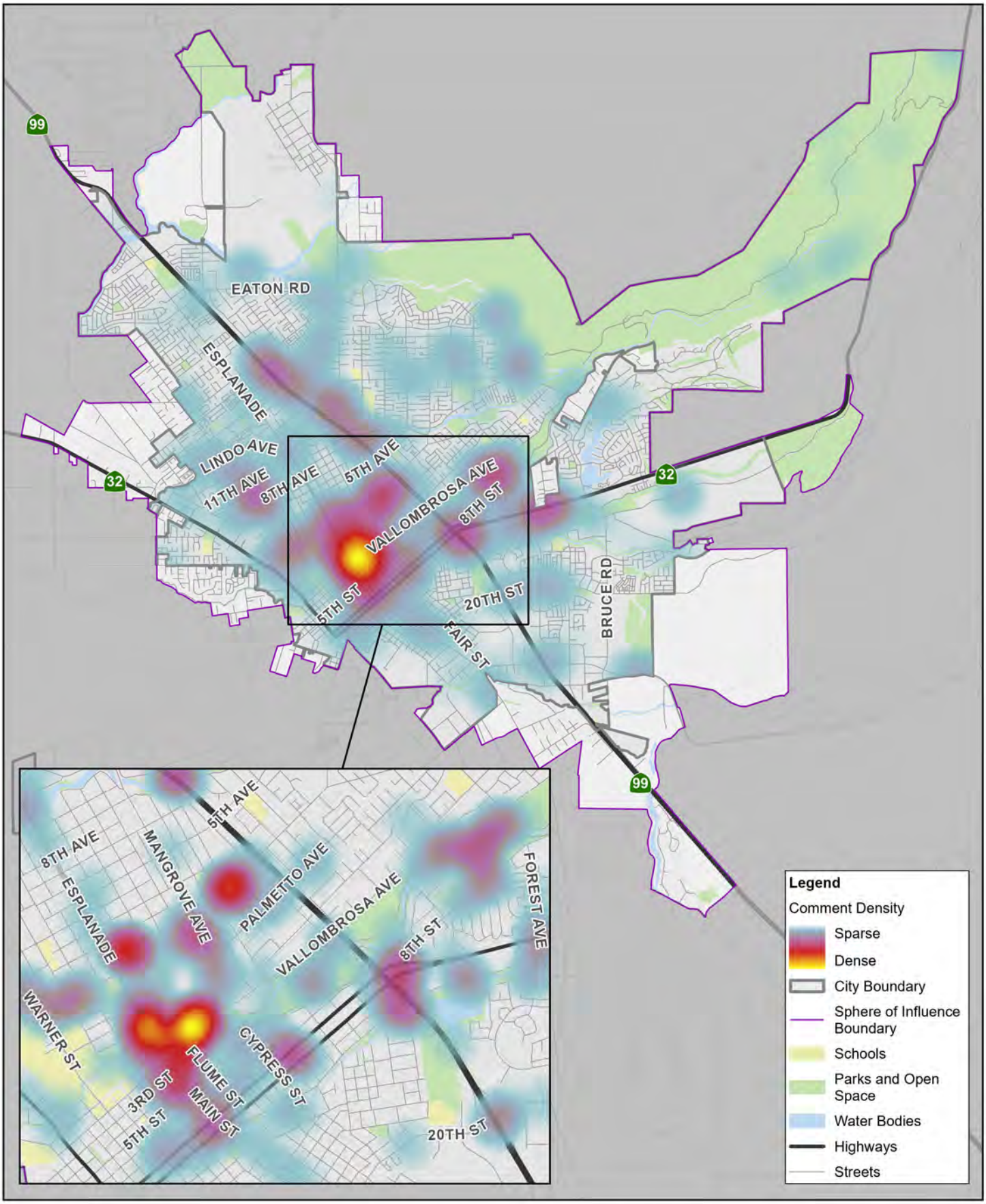
# DENSITY OF INTERACTIVE PROJECT MAP COMMENTS - ALL COMMENT CATEGORIES

Project No. **12575135**
Revision No. **A**
Date **Dec 2023**

**FIGURE 29**

\\ghdnetghd\US\Sacramento - 2200 21st\Projects\561\12575135\GIS\Maps\Deliverables\12575135_ExistingConditions\12575135_ExistingConditions.aprx - 12575135_29_Chico_Comments_RevA
Print date: 05 Dec 2023 - 15:06

Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc , USGS, EPA; World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, USGS, EPA, NPS; Boundaries, Streets: City of Chico 2021. Created by: ethompson3

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

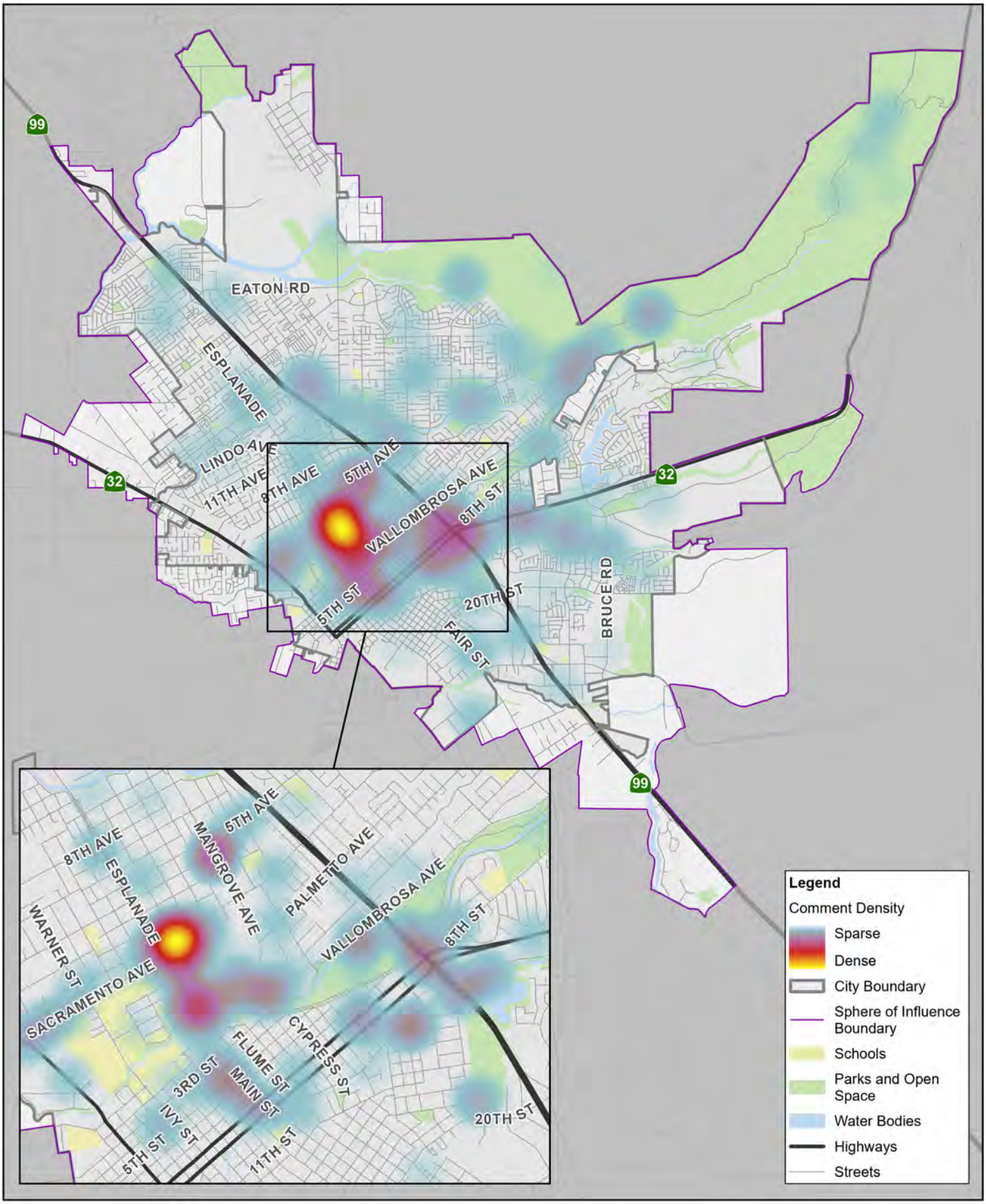
# DENSITY OF INTERACTIVE PROJECT MAP COMMENTS - BICYCLE COMMENTS

Project No. **12575135**
Revision No. **A**
Date **Dec 2023**

**FIGURE 30**

\\ghdnetghd\US\Sacramento - 220021s\Projects\561\12575135\GIS\Maps\Deliverables\12575135_ExistingConditions\12575135_ExistingConditions.aprx - 12575135_30_Chico_Bike_Comments_RevA
Print date: 05 Dec 2023 - 15:08

Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA, Boundaries, Streets: City of Chico 2021. Created by: ethompson3

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

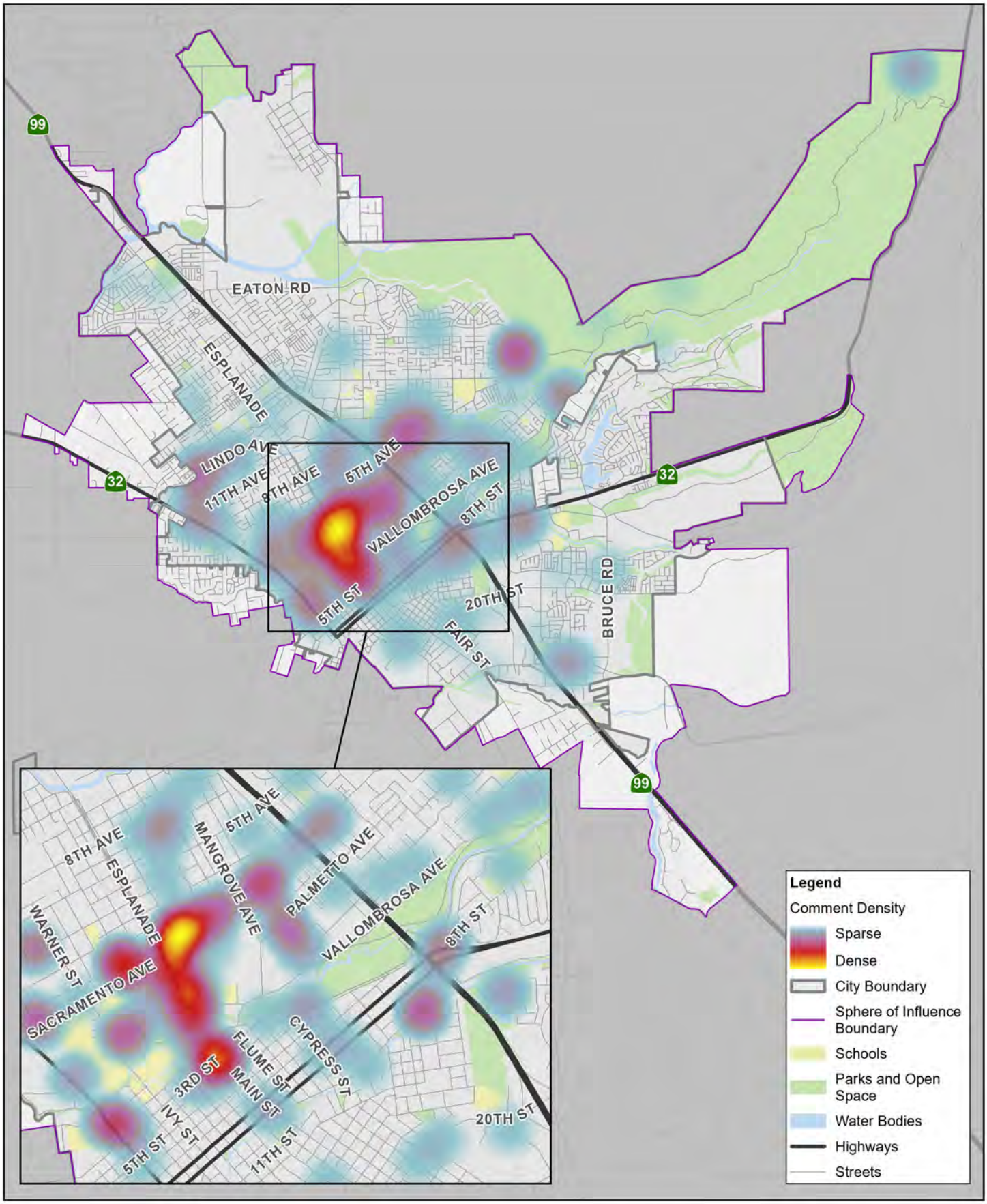
# DENSITY OF INTERACTIVE PROJECT MAP COMMENTS - GENERAL COMMENTS

Project No. **12575135**
Revision No. **A**
Date **Dec 2023**

**FIGURE 31**

\\ghdnetghd\US\Sacramento - 2200 21st\Projects\561\12575135\GIS\Maps\Deliverables\12575135_ExistingConditions\12575135_ExistingConditions.aprx - 12575135_31_Chico_Comments_General_RevA
Print date: 05 Dec 2023 - 15:10

Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc , USGS, EPA, World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, USGS, EPA, NPS; Boundaries, Streets: City of Chico 2021. Created by: ethompson3

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

# DENSITY OF INTERACTIVE PROJECT MAP COMMENTS - WALKING/PEDESTRIAN COMMENTS

Project No. **12575135**
Revision No. **A**
Date **Dec 2023**

**FIGURE 32**

\\ghdnetghd\US\Sacramento - 2200 21st\Projects\561\12575135\GIS\Maps\Deliverables\12575135_ExistingConditions\12575135_ExistingConditions.aprx - 12575135_32_Chico_Comments_Walking-Ped_RevA
Print date: 05 Dec 2023 - 15:12

Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA, Boundaries, Streets: City of Chico 2021. Created by: ethompson3

## Online Survey

To gather community feedback for the Chico Active Transportation Plan, an online survey was posted on the Project website to understand the community's perspective about the current state of walking and bicycling in the City of Chico. The City circulated information about the survey on the City website and via social media, and the project team sent information on the survey to identified stakeholders on the project contact list via email. The survey was available from August 5 to September 9, 2022.

A total of 152 responses were received. Survey results included the following themes:

### RESPONDENTS VALUE CHICO AMENITIES

Survey respondents cited most frequently Bidwell Park, Downtown, trees, parks, and community as their favorite things about living in Chico.

### MOST BICYCLISTS DO NOT FEEL COMFORTABLE

While nearly 80 percent of respondents reported currently riding a bicycle in Chico, only 1/3 of those respondents reported feeling comfortable while doing so.

Looking at non-bicyclists, over half of respondents who do not currently ride a bicycle in Chico cited motorists driving too fast and a lack of dedicated bicycle lanes as their reasons for not bicycling.

### DRIVERS DO NOT STOP FOR PEDESTRIANS

Most survey respondents did not agree that drivers stop and allow pedestrians to cross the street in Chico. Just under 27 percent of respondents agreed or strongly agreed that drivers *do* stop.

### CAREGIVERS ARE NOT COMFORTABLE WHEN THEIR CHILDREN BICYCLE

While 37.5 percent of respondents had children in their care who ride bicycles, of that group, nearly 75 percent did not feel comfortable when children in their care rode bicycles.

Of the respondents with children in their care who did not ride bicycles in Chico, the most frequently cited reasons were a lack of dedicated bicycle lanes, motorists driving too fast, as well as a lack of interest from the child(ren).

*Children bicycling to school*

### OVERGROWN VEGETATION CREATES MOBILITY CHALLENGES

Over 53 percent of respondents agreed or strongly agreed that overgrown vegetation creates challenges for people walking or bicycling in Chico.

### UNMET DEMAND TO WALK TO PARKS, BICYCLE TO DOWNTOWN

When asked which destinations they would walk to if they felt more comfortable walking or crossing the street in Chico, nearly 78 percent of respondents chose parks, the most-selected choice. When asked which destinations they would bicycle to if they felt more comfortable riding their bicycle in Chico, nearly 86 percent of respondents chose Downtown, the most-selected choice.

### PRIORITIZE ENHANCED CROSSWALKS, IMPROVED BICYCLE FACILITIES ON STRESSFUL ROADS

When asked to prioritize pedestrian network improvements, respondents most frequently chose to address challenging crossings by implementing enhanced crosswalks. Respondents were also asked to prioritize improvements to the bicycle network and most frequently chose to improve and/or add bicycle facilities on roads that are stressful to bicyclists.

HIGH VISIBILITY MARKINGS, BICYCLE PATHS

When shown photo examples of roadway features and enhancements designed to improve safety and comfort, nearly 62 percent of respondents stated they would feel more comfortable crossing the street at challenging intersections if those intersections had high visibility markings. Similarly, when bicycling, 91 percent of respondents would feel most comfortable riding on a path that is completely separate from motor vehicle traffic.

IMPROVE BIKEWAY 99 FROM VALLOMBROSA AVENUE TO MANZANITA AVENUE

When given a list of options for how and where to improve Bikeway 99, a plurality of survey respondents wanted to improve the bikeway between Vallombrosa Avenue and Manzanita Avenue.

RESPONDENTS ARE MOSTLY WHITE, 30-64 YEARS OLD, WITHOUT YOUNG CHILDREN, WITH 10+ YEARS IN CHICO

Demographic questions were also collected to provide detail on who may have been reached by the survey and who chose to respond; the results can also indicate where gaps may exist in outreach and/or willingness to respond. Nearly 60 percent of respondents were between 30 and 64 years old with the largest group of respondents identifying as women and nearly 87 percent of respondents identifying as white. Just over nine percent selected 'prefer not to answer' while eight percent identified as Latino or Hispanic. Nearly 43 percent of respondents have lived in Chico for longer than 25 years, with almost 73 percent of respondents living in Chico ten years or more. About 62 percent of respondents have no children living at home while 77 percent have no older adults (over 65 years old) living at their home.

## CATTAC

The City of Chico has an existing committee of local community members, known as the Chico Active Transportation Technical Advisory Committee. The CATTAC consists of local community members and staff from the City and makes recommendations to the City's Public Works Engineering Director. The mission of the CATTAC is as "an action-oriented committee that supports Chico's active transportation community. The intent of the CATTAC is to help guide the City's efforts in providing safe, effective, and accessible transportation options for citizens and visitors of the City of Chico."

The CATTAC were consulted and engaged throughout the project.

## Stakeholder Engagement

Through early 2023, several presentations were provided to interested stakeholders. Amongst those groups were Enloe Medical Center, BCAG, and CUSD. All provided comments on the Plan.

## Media Coverage

Several local news providers in Chico shared information with the community regarding the project. This coverage included written articles, television news segments, and radio segments. Coverage included the following, with further details in Appendix B:

- Television news segment of an interview with City staff, aired on KRCR on August 17, 2022
- Written article in the Chico Enterprise-Record on August 24, 2022, which shared community input opportunities and information about Community Workshop 1
- Television news segment regarding community input on the project, aired on KNVN Action News Now on August 31, 2022.

# Non-Infrastructure Projects

Non-infrastructure projects are guided by the 5 E's of Education, Encouragement, Engineering, Evaluation, and Equity. From Safe Routes to School Programs to Transportation Demand Management strategies, non-infrastructure projects address the "how" of getting more members of the Chico community out of their single occupancy vehicles and onto the growing active transportation network.

This chapter includes a menu of non-infrastructure projects that can be submitted as components of future grant funding applications. Non-infrastructure projects help to strengthen grant applications, with tactics recommended below utilized as planning and engagement strategies in funding opportunities, such as the Active Transportation Program.

Projects in this chapter serve as recommendations and may be pursued based upon staff availability and funding.


*Example of a safe routes to school bicycle safety class*

### *COVID-19 Acknowledgement*

Over the course of the global COVID-19 pandemic, many aspects of everyday life have been impacted or altered. From the pausing of public events and in-person activities to the pivot to virtual and online for school and work, planning for and engaging with the Chico community looks different today than it did in the recent past. While the future state of the world is unpredictable, this chapter acknowledges the impact of the COVID-19 pandemic on projects, planning, and public engagement activities and contains flexibility in its strategies for implementation.

## Safe Routes to School

Chico's Safe Routes to School Program is managed by Butte County Public Health. The SRTS Program educates students on pedestrian safety and encourages them to safely commute to school, whether by bicycle, scooter, walking, or riding the school bus.

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.

BCPH's SRTS program offers existing program descriptions on its website, encouraging active transportation and safe school commuting through events like Walk to School Day, Bike Rodeos, and in class lessons.

This section provides recommendations for expanding and/or reconfiguring 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*

Neither Butte County Public Health, the City, nor Chico Unified School District (CUSD) staffs a dedicated Safe Routes to School coordinator. Instead, SRTS relies on various agencies and departments to collaborate as necessary with parents, school officials, and students. A SRTS Coordinator would help to design and implement SRTS programming in Chico. SRTS in Chico would benefit from the focused attention of a dedicated SRTS Coordinator position.

This Plan encourages the City, CUSD, or BCPH to create and fill a SRTS Coordinator position, where appropriate. This new position would organize and facilitate existing events like Walk or Bike to School Days and elevate the SRTS Program as a priority for Chico'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 increase walking and bicycling to school through additional project and program recommendations. This Plan recommends the City collaborate with CUSD and BCPH to develop a Safe Routes to School Plan, which includes a map of preferred walking and bicycling routes to each school. The SRTS Plan should be made available to parents and students via digital or print media and should be updated to illustrate changes to routes as this Plan is implemented. This Plan also recommends that the City and California State University, Chico work together to develop a Safe Routes to School Plan for students, faculty, and staff navigating to, from, and between the main university campus at the heart of the City, as well as other university facilities. Typical SRTS plans include the 5 E's of encouragement, education, engineering, evaluation, and equity and may feature, but not be limited to, some or all of the following components:

- Mapping of preferred walking and bicycling routes to each school
- Infrastructure recommendations (up to 30 percent design)
- Programming priorities
- Evaluation criteria
- Time schedule

Additional ideas for SRTS plans, including guides, toolkits, and curricula can be found on the Active Transportation Resource Center website[24] or the Safe Routes National Partnership[25].

### *Walk and Bike Audits*

Conducting walk and bike audits as part of the SRTS program can help to identify challenges and strategies to improve walking and biking near schools and along student routes. An audit is simply a data collection method that can be

[24] https://caatpresources.org/resources_ni_srts.html

[25] https://www.saferoutespartnership.org/

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 lead to improving 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 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 near one another in neighborhoods to walk and bike together to and from school. Walking and biking as a group improves community connections, increases visibility, and can encourage wider adoption of active transportation.

Butte County Public Health has organized walking school buses in the past. This Plan recommends further collaboration between BCPH, CUSD, school parent organizations, and the City, as needed, to implement regular walking school buses and/or bike train programming, with route and schedule information added to the CUSD website(s). A dedicated SRTS coordinator could also 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 5 Es of SRTS: Engineering, Education, Encouragement, Evaluation, and Equity
- Separate buses and vehicles from pedestrians and bicyclists and reduce conflict points and areas between motorized and non-motorized modes
- Clearly demarcate and enforce the appropriate channels for vehicles, bicyclists and pedestrians with signs, pavement markings, and educational materials and events

The Safe Routes National Partnership published an info brief 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.


*A walking school bus from the Step by Step: How to Start a Walking School Bus at Your School SRTS National Partnership toolkit*

## Transportation Demand Management

Transportation Demand Management (TDM) is defined as policies and strategies intended to reduce travel demand, especially from single occupancy vehicles, or to shift demand to off-peak times. Successful TDM programs decrease motor vehicle trips and increase trips on alternative modes, like carpooling, bicycling, walking, or transit. Non-Infrastructure TDM strategies include:

- Promoting alternatives to driving alone, like walking, bicycling, or taking transit through encouragement campaigns and initiatives (see Encouragement Campaigns below)
- Promote telecommuting or alternative work schedules
- Encourage employer-sponsored vanpool/shuttle programs
- Increase awareness of car sharing and rideshare programs
- Create and distribute bicycling maps to highlight the best routes to key destinations (see Mobile Friendly Bikeway Map below)

## Behavior Change Strategies and Educational Programs

### "STREET SMARTS" CAMPAIGN

This Plan previously mentioned Street Smarts campaigns in the Methods of Increasing Walking and Bicycling chapter. These effective educational programs use print and digital media, radio, and television to educate the community about safe driving, bicycling, and walking behavior to encourage the adoption of new attitudes and behaviors that will make streets safer for all road users.

This Plan recommends initiating a Street Smarts campaign targeting community-identified behaviors that create challenges for people walking and biking in Chico, such as speeding, how to properly position trash cans so they don't obstruct bicycle facilities, or how to stop at Pedestrian Hybrid Beacons and Rectangular Rapid Flashing Beacons.

For successful implementation of a new Street Smarts campaign, begin by:

- Determining the implementing agency or organization to run the campaign
- Selecting community-identified behaviors as campaign focus areas
- Creating messages that target these specific behaviors
- Selecting "hot spot" locations where these behaviors frequently occur
- Investing in campaign materials that make sense for Chico, like ads on the back of B-Line buses or street pole banners in Downtown

Past and present examples of successful Street Smarts campaigns can be found on websites for the City of Davis[26] and Street Smarts Marin[27].

[26] https://www.cityofdavis.org/city-hall/public-works-engineering-and-transportation/bike-pedestrian-program/street-smarts/outreach-campaigns

[27] https://streetsmartsmarin.org/index.html

### BICYCLE SAFETY EDUCATION FOR ADULTS

As noted in an earlier chapter, this Plan recommends that the City supports Chico Velo's continued Bike Safety Skills Classes that focus on safe bicyclist behavior with advertising and by providing meeting space or other in-kind support.

### BICYCLE REPAIR PROGRAM

This Plan recommends the City support the establishment of a bicycle repair program by a sanctioned group that offers courses on bicycle repair and proper bicycle maintenance. Similar programs have been supported by various organizations and agencies in the past, including at or by Chico State, the Chico Police Department, and Chico Velo. The City could provide meeting space, in-kind support, or collaboration with this program, encouraging a new source of community input on existing and future bicycle infrastructure throughout the City, helping to make the City more responsive to the needs of active transportation users.

A new bicycle repair program would benefit from collaborative partnership with an organization like Chico Velo, the Chico State Bell Memorial Union Adventure Outings Program's Bike Cart, or another community organization, growing the network of citizen leaders while allowing City staff to take on other priorities.

### BIKESHARE PILOT PROGRAM AND FEASIBILITY STUDY

Bicycle sharing systems, also known as bikeshare programs, are one potential solution for micromobility and connecting people to their destination by closing the gaps between their first and last mile. Bicycles used in a bikeshare program could be electric or human powered and with or without a docking station. These programs are meant to make bicycles available to rent at a low-cost and to be easily accessible through a mobile application. Throughout the process of community engagement, several stakeholders voiced their desire for a bikeshare program within Chico. The following are recommendations that could be considered to potentially implement a bikeshare program long term in the City.


*Bikeshare station in Truckee, California*

The City, in partnership with other local agencies, may consider establishing a short-term bikeshare pilot program that gauges the feasibility of bikeshare within the community. Some options for launching a program like this could be:

- In a location where the infrastructure is more bicycle friendly, and vehicles move slower
- Recreationally, such as at the entrance of Lower Bidwell Park
- In partnership with local employers

This type of program may encourage people to get out of their vehicles and ride bicycles more frequently. It could also be beneficial in collecting valuable feedback from the community on the prospect of a long-term bikeshare program. To better serve the Chico community, this Plan also recommends pairing this program with a helmet safety education program.

When including a bikeshare program as a part of a grant application, considerations should include maintenance, upkeep, and longevity of the program (including how the program could be funded beyond the expiration of funds) and whether the program would serve residents within a disadvantaged community.

## Encouragement Campaigns

### WALK AND BIKE CHALLENGES

Chico's calendar of popular bicycling events includes the Wildflower Century ride and WildFest every April[28] as well as the Chico Tweed Ride every fall[29]. To expand upon this success, the City should encourage walking and bicycling to non-bicycle-focused events through walk and bike challenges, reducing VMT and shifting trips to active travel modes. This Plan recommends piloting a walk and bike challenge program where a specific day or event annually/quarterly/monthly can be chosen to promote walking and/or bicycling to a specific destination. The Downtown Chico Business Association hosts signature events[30] in Downtown, from the *Art & Wine Walk* to *Slice of Chico*, and may be an appropriate collaboration partner for establishing a walk and bike challenge to an existing or new event.

### NATIONAL BIKE TO WORK DAY

Butte County Public Health encourages the annual participation in both National Walk to School Day in October and National Bike to School Day in May[31]. This Plan recommends that the City and BCPH, along with community groups like Chico Velo, expand this campaign to also encourage participation in National Bike to Work Day[32] as a part of National Bike Month each May.

*Bike to Work Day participants stopping at a recharge station along their ride to work*

[28] https://www.wildflowercentury.org/

[29] https://www.chicoer.com/2022/11/21/fall-leaves-greet-tweed-bikers-in-bidwell-park/

[30] https://www.downtownchico.com/signature-events.htm

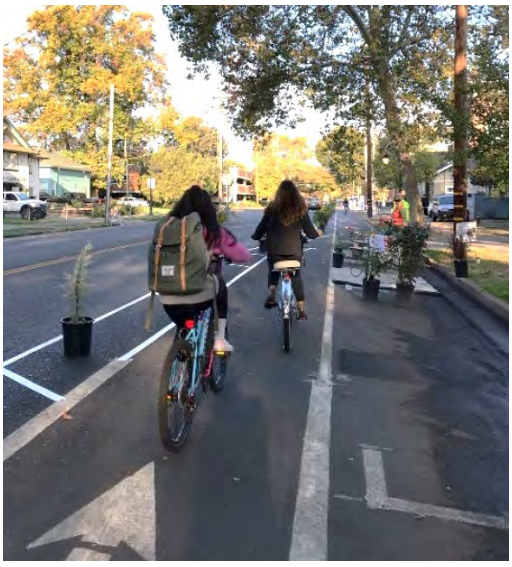
[31] https://www.buttecounty.net/publichealth/SRTS

[32] https://bikeleague.org/content/bike-month-dates-events-0

## DEMONSTRATION PROJECTS

Demonstration projects are short-term, temporary "pop-up" projects that provide an opportunity for the community to test out potential bicycle and pedestrian infrastructure in the roadway. Examples of facilities that can be demonstrated for the community include, but are not limited to, temporary crosswalks; curb extensions; neighborhood traffic circles or roundabouts; different classifications of bikeway infrastructure, including separated bikeways; median refuge islands; or parklets. These types of projects not only indicate a safer and more inviting roadway for pedestrians and bicyclists, but also encourage people to test out the changes and provide valuable feedback before greater financial investments are made.

*Curb extension in Portsmouth, NH using colorful surface treatments, cones, and plants*



*Class IV Protected Bikeway demonstration in Chico using planters as barriers from vehicular traffic*

This Plan recommends that the City consider pairing demonstration projects alongside community engagement efforts, like at existing events, festivals, during National Bike Month, or other local events, and as a part of a non-infrastructure project to collect feedback and provide the opportunity for the community to test out potential roadway features prior to them being built.

## OPEN STREETS EVENTS

Open Streets events are temporary street closures that provide connected roadway segments of car-free streets for people to walk, jog, bicycle, skate, and socialize. Open Streets events encourage sustainable, active transportation as well as community connections, exploration, and play. This Plan recommends that the City pilot an annual Open Streets event to encourage active transportation in lower-stress environments and to help foster connections between communities.

## HIRE A BICYCLE AND PEDESTRIAN COORDINATOR

As mentioned in an earlier chapter, this Plan recommends that the City dedicate or hire a staff position to focus on bicycle and pedestrian projects and program coordination on a full-time basis. This position would assist with Planning, Public Works, and transportation projects in accounting for bicyclists and pedestrians. The position would prepare grant applications to fund projects and programs and support coordination with the public and neighboring jurisdictions.

Contingent on funding availability, the City may instead consider an alternate solution, like adding bicycle and pedestrian coordination as a program element of an existing City staff position, hiring as a part-time position, dedicating internship resources to work on bicycle and pedestrian projects until a full-time position can be funded, or retaining external consultancy services.

### SOCIAL WALKS/RIDES

This Plan recommends the City support and encourage regular social walks and bicycle rides in Chico in order to provide an encouraging space for people who are uncomfortable walking or bicycling alone, or who are unfamiliar with the best routes to use. Including links and listings on City websites, calendars, and newsletters can help spread the word about these events and entice more members of the community to try walking or bicycling.

### MOBILE-FRIENDLY BIKEWAY MAP

This Plan recommends the City create a mobile-friendly Bikeway Map that provides a current and comprehensive wayfinding resource for people walking and bicycling in Chico. It also encourages the City to link to, utilize, or partner with a third-party and/or open source website like AllTrails or Google Maps to take advantage of mobile-friendly features and benefits already in use by community members.

### WALKING & BICYCLING AMBASSADORS

A volunteer walking and bicycling ambassador program in Chico could encourage community members to act as eyes on key trails and bikeways, reporting maintenance needs, sharing educational materials and maps, and providing a friendly presence throughout the active transportation network.

As mentioned in the Methods of Increasing Walking and Bicycling chapter, this Plan recommends the City launch a pilot ambassador program, in partnership with a community organization, like Chico Velo, to:

- Establish a volunteer organization that improves overall community feelings of comfort and safety along the bikeway network
- Build on best practices and innovative community ideas
- Coordinate volunteer training sessions
- Seek grant funding to use as ambassador or coordinator stipends or for program needs

Alternatively, Chico Velo's existing Adopt-A-Path program could be expanded, in collaboration with the City, to incorporate walking and bicycling ambassadors.

### BICYCLE RACK PROGRAM

This Plan recommends the creation or continuation of a bicycle rack program in Chico to coordinate and streamline bicycle rack installation. Managed by a City staff member who works collaboratively with both staff and business owners to install bicycle racks and corrals citywide, this new program will ensure bicycle racks are properly installed to avoid blocking sidewalks and are in convenient and accessible locations. And to encourage employees throughout Chico to bicycle instead of drive, this program should also coordinate with local businesses to provide long-term bicycle parking, such as bicycle lockers, for employees and visitors.

This Plan also recommends that the City continue to develop customized and/or branded bicycle racks, highlighting the identity of Chico as a bicycle-friendly community and doubling as public art and placemaking features.

# Proposed Pedestrian and Bicycle Facilities

This chapter includes the following sections:

- Infrastructure Improvement Types describes the various physical changes available to build a connected, comfortable, and safe roadway network for bicyclists and pedestrians.
- Amenities presents a menu of options to improve multimodal comfort and connections as well as "best practices" for their implementation.
- Wayfinding defines the system of navigational signs and markings that inform and guide users along the best route to their destinations and presents a menu of wayfinding options to improve navigation for people walking, bicycling, rolling, and taking transit.
- 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, 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.

## Infrastructure Improvement Types

Infrastructure improvements are physical changes to the roadway network which facilitate a connected, comfortable, and safe bicycle and pedestrian network.

Infrastructure improvement types for bicycling and walking facilities are described separately in the following sections, except for Class I Multi-Use Paths and Class I Multi-Use Path crossings. These facilities are included in both network categories because these facilities benefit bicyclists and pedestrians equally.

Crossing improvements are categorized by bicycle-specific approach/crossing improvements, pedestrian-specific crossing improvements, other crossing improvements, and Class I Multi-Use Path crossings, including at-grade and grade-separated Class I Multi-Use Path crossings. Some crossing improvements address both bicycle and pedestrian needs and are included in both sets of network options while others address only one mode of transportation and are only included in the proposed network type that benefits from the crossing improvement.

### *Bikeway Network Infrastructure Types*

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

A visual guide to bicycle network infrastructure types has been included below. For a full description of bikeway facility types, including the four classifications and sub-classifications recognized by Caltrans, please see the Existing Conditions and the Methods of Increasing Walking and Bicycling chapters.

### CLASS I MULTI-USE PATHS

*Source: www.pedbikeimages.org / Dan Burden*

Class I multi-use paths are exclusive walking and bicycling facilities where motor vehicles are prohibited. The minimum paved width of a two-way Class I facility is 8 feet, with 10 feet preferred with a minimum of 2 feet of shoulder width on either side (3 feet preferred).

### CLASS II BICYCLE LANES

*Source: www.pedbikeimages.org / Dan Burden*

Class II bicycle lanes are striped lanes for bicyclists.

### CLASS II BICYCLE LANES WITH GREEN-COLORED PAVEMENT

*Source: www.pedbikeimages.org / Tiffany Robinson*

Class II bicycle lanes with green-colored pavement are striped lanes for bicyclists that are enhanced with green pavement, either along the entire bikeway corridor or in conflict areas, like driveways and turn lanes.

### CLASS II BUFFERED BICYCLE LANES

*Source: www.pedbikeimages.org / Lyubov Zuyeva*

Class II buffered bicycle lanes are striped lanes for bicyclists that include a painted "buffer" area between the bicycle lane and the travel lane or between the bicycle lane and the parking lane.

### CLASS III BICYCLE ROUTES


*Source: www.pedbikeimages.org / Brandon Whyte*

Class III bicycle routes are signed routes for bicyclists on low-speed, low volume streets. Bicyclists share the roadway with motorists.

### CLASS III BICYCLE BOULEVARDS


*Source: www.pedbikeimages.org / Russ Roca*

Class III bicycle boulevards are Class III bicycle routes that have been enhanced with traffic calming treatments that prioritize the travel and comfort of people traveling by bicycle.

### CLASS IV SEPARATED BIKEWAYS

*Source: www.pedbikeimages.org / Megan Kanagy*

Class IV separated bikeways are on-street bicycle facilities with a physical barrier, like the parking lane or bollards, between the bikeway and motor vehicle lanes.

### AT-GRADE CLASS I BIKEWAY CROSSINGS


*Source: www.pedbikeimages.org / Dan Burden*

At-grade Class I bikeway crossings are intersections where a Class I bikeway meets a roadway where bicyclists and motorists share the road.

### GRADE-SEPARATED CLASS I BIKEWAY CROSSINGS

*Source: www.pedbikeimages.org / Dan Burden*

Grade-separated Class I bikeway crossings are intersections where a Class I bikeway meets a roadway or railroad, and bicyclists are physically separated from other modes by an overcrossing or undercrossing structure.

## TRAFFIC CALMING

*Source: Arleta Neighborhood Council*

Traffic calming measures reduce motor vehicle speeds to increase safety and improve comfort for nearby pedestrians and bicyclists. Traffic calming measures include speed limit reductions, vertical deflection (speed humps or speed tables), and horizontal deflection (curb extensions, neighborhood traffic circles, chicanes, pinchpoints, or narrowings).

## NEIGHBORHOOD TRAFFIC CIRCLES

*Source: www.pedbikeimages.org / Carl Sundstrom*

Neighborhood traffic circles are raised islands in residential intersections that help slow traffic on local and collector streets. Neighborhood traffic circles can help make crossings safer for pedestrians, encourage smoother and safer bicycle travel, and clarify right-of-way for all road users along Class III bicycle boulevards.

## SPEED FEEDBACK SIGN


*Source: Seattle Department of Transportation*

Speed feedback signs use radar to detect and display the speed of passing cars and are typically sited on arterials with significant speeding concerns.

## CONFLICT MARKINGS

*Source: www.troutdaleoregon.gov*

Conflict markings are dashed bicycle facility markings where turning motorists cross the bicycle lane. They are most often located near intersections, driveways, and onramps.

## BIKE BOXES


*Source: City of Long Beach*

Bike boxes designate an area for bicyclists to wait in front of stopped motor vehicles during a red signal phase.

BIKE RAMPS

*Source: www.pedbikeimages.org / Dan Burden*

Bike ramps are ramps that allow for smooth bicycle travel between a roadway and an off-street bicycle facility.

BICYCLE SIGNALS/LEADING BICYCLE INTERVAL

*Source: www.pedbikeimages.org / Adam Coppola Photography*

Bicycle signals are traffic signal heads that provide a designated period for bicycles to enter the intersection ahead of motor vehicles.

INTERSECTION APPROACH IMPROVEMENTS

*Source: www.pedbikeimages.org / Toole Design Group*

Intersection approach improvements are dedicated bicycle facilities that continue through an intersection completely.

BICYCLE LOOP AND VIDEO DETECTION

*Source: LADOT Bike Blog*

Bicycle loop and video detection are methods of signal actuation at a bicycle crossing that detect the presence of bicyclists and initiate a green signal phase.

**Over 154 miles of new bikeways are proposed in this Plan. A summary of existing and proposed bicycle network improvements is provided in**

Table 12 and mapped in Figure 33.

**Table 12: Proposed Bikeway Miles**

| Bikeway Type | Existing Miles | Proposed Miles | # of Projects | Total Existing + Proposed Miles | Percent Increase |
|---|---|---|---|---|---|
| Class I Shared Use Path | 35.3 | 40.4 | 57 | 75.7 | 114.5% |
| Class II Bicycle Lanes (Buffered and Regular) | 40.1 | 52.6 | 70 | 110.1 | 174.6% |
| Class III | 22.7 | 37 | 105 | 59.7 | 162.9% |
| Class IV Bikeways | 0.5 | 25.1 | 30 | 25.6 | 5020% |

*Source: City of Chico and Recommendations*

Legend

**Proposed Bicycle Facilities**
- Class I Shared-Use Path
- Class II Bike Lane
- Class II Buffered Bike Lane
- Class II Buffered Bike Lane with Green Paint
- Class III Bike Route
- Class III Bike Boulevard
- Class IV Bikeway
- Class IV Parking Buffered Bikeway
- Pedestrian-Scale Lighting
- Traffic Calming
- Feasibility Study
- Maintenance
- Crossing Improvements
- Bike Box
- Bicycle Detection
- Signs and Pavement Markings
- Speed Feedback Sign
- Roundabout/ Neighborhood Traffic Circle

**Existing Bikeways**
- Class I
- Class II
- Class III
- Highways
- Streets
- City Boundary
- Sphere of Influence Boundary
- Parks and Open Space
- Schools
- Water Bodies

Paper Size ANSI C

0 1,750 3,500

US Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

N

GHD

**CITY OF CHICO**
**ACTIVE TRANSPORTATION PLAN**

# BIKEWAY NETWORK INFRASTRUCTURE PROJECTS

Project No. **12575135**
Revision No. **A**
Date **Dec 2023**

# FIGURE 33

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Print date: 05 Dec 2023 - 15:21

Data source: Boundaries, Streets: Chico, 2021. Created by: ethompson3

## *Pedestrian Network Infrastructure Types*

The proposed pedestrian network includes Class I Multi-Use Paths 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 more enjoyable for users of all ages and abilities.

A visual guide to pedestrian infrastructure types has been included below. For a full description of pedestrian infrastructure types, from sidewalks and paths to crossing improvements, please refer to the Methods of Increasing Walking and Bicycling chapter.

### SIDEWALKS AND PATHS

*Source: www.pedbikeimages.org / Dan Burden*

Sidewalks are paved facilities that provide comfortable walking space separate from the roadway. They are a fundamental element of Americans with Disabilities Act (ADA) compliance.

### STANDARD OR TRANSVERSE MARKINGS CROSSWALK

*Source: www.pedbikeimages.org / Dan Burden*

Standard or transverse markings crosswalks are two parallel lines indicating the crossing area.

### LADDER CROSSWALK


*Source: www.pedbikeimages.org / Mike Cynecki*

Ladder crosswalks include bold white bars that run perpendicular to the pedestrian path of travel.

### ADVANCE STOP BAR OR YIELD MARKINGS

*Source: www.pedbikeimages.org / Dan Burden*

Advance stop bar or yield markings include a bold white bar or triangular “shark’s teeth” markings 6 to 8 feet in advance of a crosswalk. Controlled intersections utilize the stop bar while uncontrolled intersections utilize the yield markings.

### RECTANGULAR RAPID FLASHING BEACON (RRFB)

*Source: City of Long Beach*

A RRFB utilizes human-activated flashing lights to provide additional visibility to pedestrian crosswalk signs at unsignalized intersections and midblock crossings, where traffic volumes do not warrant a signal or stop.

SIGNALIZED MIDBLOCK CROSSING

*Source: NACTO*

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.

AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANT CURB RAMP

*Source: Van Midde Concrete*

Curb ramps are used 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, per ADA guidelines.

CURB EXTENSIONS

*Source: www.pedbikeimages.org / Lara Justine*

Curb extensions are traffic calming measures that widen the sidewalk at roadway intersections into the parking lane, shortening the street width at crossings.

LEADING PEDESTRIAN INTERVALS


*Source: City of Long Beach*

Leading pedestrian intervals are signalized intersections with a walk phase that precedes the green phase for motorists by a few seconds, allowing pedestrians to get a head start crossing the street.

## Amenities

This section of amenities acts as an à la carte menu of potential infrastructure add-ons and specialty items that can be included throughout Chico's multimodal network, as desired. Each amenity presents an opportunity for improved comfort and convenience for people walking, bicycling, rolling, and taking transit.

The intent of the amenities presented is to have a unified look and feel throughout the Chico transportation network, emphasizing connectivity. Each pedestrian, bicycle, trail, and transit amenity item below includes an example photo of the amenity as well as a description of its general recommended

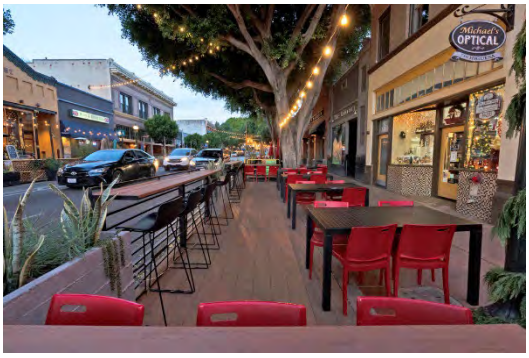
use and best practices. These recommendations are overarching for the entire network and not for any one segment. These amenities should be considered as the network is developed in new segments and for future upgrades to existing segments.

## *Pedestrian Amenity Options*

### STREET TREES

Street trees provide numerous pedestrian amenities including cleaner air, enhanced beauty, improved mental health, and strengthened community identity. In cities like Chico with hot, dry summers, street trees provide pedestrians with essential shade protection from the sun. Street trees can also improve traffic safety, with studies showing that individual driving speeds are significantly reduced along tree-lined streets in suburban settings[33].

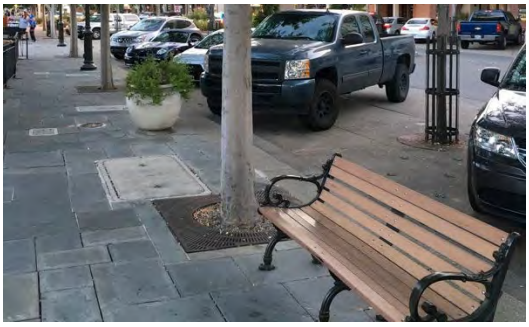
### PARKLETS




Pedestrians benefit from places to sit or linger as they travel to and from their destinations. Parklets are a way for the city to partner with nearby local businesses to create additional public space for community use. By converting curbside parking spaces into well designed, landscaped miniature community spaces, cities like Chico can incorporate additional greenery, seating, and (optional) bicycle racks into their urban fabric.

Parklets can be managed through a competitive application process by a city's public works department. Parklets should be a minimum of 6 feet wide, take up at least 1 parallel parking space, have vertical elements to help make them visible to motor vehicle traffic, and have a level transition at the sidewalk/curb to maintain accessibility. Drainage and stormwater runoff should also be considered when siting.

### SEATING



Successful public spaces incorporate seating, providing a welcoming, comfortable environment that encourages pedestrians to rest, read, eat, or socialize. From formal seating, like benches and café tables and chairs, to informal seating, like low walls and planter edges, seating provides a place for residents and visitors alike to spend additional time in the public realm.

Seating should be arranged to create social spaces, encourage sitting, and discourage lying down. Seating should be sited beneath trees or other shade structures, where possible, to improve comfort. Benches parallel to the curb should be oriented toward buildings (and away from traffic) when located in the sidewalk zone nearest to the curb; they should be oriented away from buildings when up against building frontage. Benches also act as transit

[33] https://www.researchgate.net/publication/292767085_The_street_tree_effect_and_driver_safety

amenities and are further described in that context in a later section.

Seating should be made of high-quality, durable materials that can withstand human interaction, vandalism, and the elements.

### PEDESTRIAN SCALE LIGHTING

According to the National Highway Traffic Safety Administration (NHTSA), 76 percent of all pedestrian related fatalities occurred during periods of darkness[34]. To help address this, pedestrian scale lighting provides supplemental illumination for the travel and activities of people, including children, walking, skating, and rolling at night. While pedestrian scale lighting is recommended in all areas where pedestrian activity is prioritized, like sidewalks, pathways, intersections, crossings, and plazas, there are suggested minimum average luminance on these facilities for visibility of pedestrians to drivers and for pedestrians' visibility of their walking, as outlined in the FHWA research report *Street Lighting for Pedestrian Safety*[35]. Pedestrian scale lighting supplements typical roadway streetlights by adding or adjusting the source of outdoor illumination closer to pedestrians, improving visibility of those walking along and across the street and enhancing safety for all road users.

### STREETSCAPE SIGNAGE AND WAYFINDING


Streetscape signage and wayfinding provide directional information to key destinations nearby, including parks, transit stops, civic buildings, and other neighborhoods. They also can be used to create a sense of place within the neighborhood, providing historical information and marking points of interest.

Wayfinding signage is explained in greater detail in a later section.

### TRASH RECEPTACLES


Trash and recycling receptacles reduce litter by providing a convenient place for waste disposal. Depending on style and functionality they can be moderately inexpensive and require only a small area that is clear and level. They should be placed to provide for easy maintenance, regular emptying, as well as high visibility to reduce the risk of vandalism. Newer trash compactor trash receptacles can increase the capacity of regular-sized bins, reducing

[34] https://safety.fhwa.dot.gov/roadway_dept/night_visib/docs/Pedestrian_Lighting_Primer_Final.pdf

[35] https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-09/StreetLightingPedestrianSafety.pdf

the required frequency of emptying and preventing unwanted scavenging.

## *Bicycle Amenity Options*

### BICYCLE PARKING

Bicycle racks at convenient locations provide secure places to park and lock bicycles on a short-term basis. Bicycle parking should be sited at level locations that are highly visible to avoid bicycle theft, as well as complementary to other amenities, like end of trip facilities. Special care should be taken to comply with accessibility requirements and avoid conflicts with motor vehicles, pedestrians, and mobility devices. Providing sanctioned bike parking in the right locations can help avoid bikes locked to objects such as trees, fences, railings, gutters, light poles, signs, and benches, which may cause maintenance or accessibility issues.

Most bicycle racks are designed to be durable, and the chosen style of rack should support the bicycle upright by its frame in two places, prevent the wheel of the bicycle from tipping over, enable the frame and one or both wheels to be secured, support bicycles without a diamond-shaped frame with a horizontal top tube, and allow front-in parking. A U-lock should be able to lock the front wheel and the down tube of an upright bicycle, and allow back-in parking, and a U-lock should be able to lock the rear wheel and seat tube of the bicycle.

Wheel-bending schoolyard bicycle racks, which can damage bicycles, and “wave” style bicycle racks, which are space inefficient, are outdated rack styles that are not recommended. Additional guidance on bicycle parking and bicycle rack selection may be found in the Association of Pedestrian and Bicycle Professionals Bicycle Parking Guidelines.

### END OF TRIP FACILITIES

Longer distance bicycle commuters may wish to freshen up upon arrival, prior to beginning the day. To further encourage people to bicycle more often, additional amenities should be provided including showers, locker rooms, and bicycle wash stations. These amenities are frequently provided for bicycle commuters through workplace or school facilities.

### BICYCLE REPAIR STATIONS

From flat tires to adjusting brakes and derailleurs, bicycle riders of all abilities sometimes need to make quick adjustments while out on the road or trail. Bicycle repair stations include all the necessary tools and equipment for basic bicycle repairs and maintenance. Bicycle repair stations act as a ruggedized bicycle tool “library,” designed to withstand both vandalism and the elements, with securely attached tools, stand and often a bicycle pump. Care should be taken when placing bicycle repair stations to avoid areas where vandalism is more likely, and instead placing them in highly visible, well-lit, and accessible locations where bicyclists may easily pull off the trail to make repairs.

BICYCLE LEANING RAILS

Bicycle leaning rails allow bicyclists to rest an arm and foot when waiting at signalized intersections along designated bikeways. These amenities encourage more people to bicycle by providing something to hold onto for balance while waiting for the traffic signal. Bicycle leaning rails also encourage proper bicyclist positioning and alignment along multi-use trail crossings, reducing conflict between bicyclists and pedestrians. Bicycle leaning rails are produced by multiple manufacturers and come in a variety of lengths (typically 4' and 8'), finish options, and colors.

## *Trail Amenity Options*

GATEWAY MONUMENTS

Gateway monuments are placed at main entrance points, trailheads, and prominent intersections of trails, creating a sense of place for the trail network and its users.

TRAIL MAP / GATEWAY SIGNS


A well-planned and attractive system of destination signs and trail maps can greatly enhance trail networks by orienting users to their location within the community and providing navigational assistance to nearby routes or points of interest. By highlighting connections to other trails or modes of transportation, gateway and trail map signs can encourage more people to walk and bicycle for more trips.

These signs can be implemented as a standalone feature at trail entrances or paired with wayfinding signs (described in a later section) along the trail to offer more comprehensive navigational assistance.

INTERPRETIVE SIGNS

Interpretive signs orient trail users to adjacent natural features, waterways, and local wildlife, building a deeper sense of awareness. Because many of the existing and planned trails follow creeks and natural areas, the City's trail network presents numerous opportunities for interpretive signage.

BENCHES

Providing seating along trails improves accessibility and comfort for all trail users, and can be especially helpful for children, older adults, and those with mobility challenges. Simple benches can be installed at a moderate cost and require a firm and level area. Many also include an adjacent accessible area where a person in a wheelchair or other mobility device may safely pull off the trail. Paving the area surrounding the bench is common, but not required.

SHADED BENCHES

Where trees do not provide sufficient shade cover, or where protection from weather is also desired, benches can be installed in conjunction with shade structures. The structure adds significant cost and requires more substantial footings, but typically does not dramatically increase the footprint of the trailside seating area.

PICNIC TABLES

Like benches, picnic tables provide seating along trails, improving accessibility and comfort for all trail users, and can be especially helpful for children, older adults, and those with mobility challenges. Picnic tables expand the number of uses that can be accommodated along the trail network, like outdoor gatherings, dining, and other activities. Simple picnic tables can be installed at a moderate cost and require a firm and level area. Many are designed to accessibility standards; placement of accessible tables will need to be in an area where a person in a wheelchair or other mobility device may safely pull off the trail.

TRASH RECEPTACLES

Large trash and/or recycling receptacles reduce litter on trails by providing a convenient place for waste disposal. They are moderately inexpensive and require only a small area that is clear and level (while concrete pads are common, they are not necessary).

When used in conjunction with dog waste stations (which include small trash receptacles), trash receptacles can be placed slightly further apart on trails. They should also be located to provide for easy maintenance and regular emptying.

### DOG WASTE STATIONS

Dog waste stations provide bags and trash receptacles, making it convenient for people walking dogs on the trail to clean up after their pets. They are inexpensive, are typically pole-mounted, and can be placed frequently along the trail to encourage use. Care should be taken that waste stations are placed in locations where they can be maintained regularly.

### DRINKING FOUNTAINS

Drinking fountains can improve the quality of experience for trail users on long trips, in hot weather, or where tree cover is sparse. While drinking fountains themselves are relatively small and only moderately expensive, providing an accessible area off the trail to access the fountain increases the required footprint.

Drinking fountains require potable water meters, which may not exist along the trail. Meters for drinking water are different from meters used for irrigation of landscaping. If a new water meter is required, significant additional costs are incurred.

### PUBLIC RESTROOMS

Public restrooms offer improved comfort and accessibility of trails and can support cleaner trails. Due to their size, accessibility requirements, need for plumbing and sewer connections, and cost, public restrooms should be installed strategically where they will have the greatest benefit for trail users and other members of the community. Restrooms could be modular units such as the Portland Loo[36], or more robust buildings that include drinking fountains and other features. Where possible, wayfinding signage directing users to public restrooms in park facilities proximate to the trail can be utilized to increase knowledge of these existing amenities.

36 https://portlandloo.com/

BICYCLE PARKING

Bicycle racks at convenient locations provide secure places to park and lock bicycles on a short-term basis. Bicycle parking should be sited at level locations along the trail that are highly visible to avoid bicycle theft, as well as complementary to other amenities, like public restrooms or motor vehicle parking areas. Special care should be taken to comply with accessibility requirements and avoid conflicts with motor vehicles, pedestrians, mobility devices, and other trail users. Providing sanctioned bike parking in the right locations can help avoid bikes locked to objects such as trees, fences, railings, gutters, light poles, signs, and benches, which may cause maintenance or accessibility issues.

PUBLIC ART

Public art has the power to elevate a multimodal trail or shared-use path from useful infrastructure only into a treasured space in the community. Public art near trails can be used to tell the story of the trail or share the identity of the community through which it runs and establish an enhanced sense of place.

There are many types of public art on trails including sculptures, murals, painted trail surfaces, gardens, lighting, gates, and fences, as well as interactive art. Materials used can vary widely by region and budget but are regularly wood, stone, fiberglass, plastic, bronze, or copper. Temporary or "pop-up" art can also be a more affordable option for public art along trails but may require additional program management and curation efforts. Community members, including youth, can be great participants in selecting and creating art to foster a sense of community pride and ownership in the trail. Funding for public art can come from public, private, or philanthropic sources.

Special care should be taken to ensure the chosen public art can safely withstand human interaction and vandalism as well as the elements. Siting should place the public art so that it does not disrupt or block the trail when viewed or interacted with by trail users. Maintenance should be institutionalized through the Chico Public Works Department and the art should be insured, typically through the municipal insurance policy.

ADDITIONAL CONSIDERATIONS / MAINTENANCE

Maintaining each segment as well as the amenities is important to the overall usability and accessibility of the trail. A consideration for the safety of trail users would be to maintain the trail surface for ease of use and to design trails with root barriers to prevent roots from uplifting the paths.

## *Transit Amenity Options*

Each transit amenity item below includes an example photo of the amenity as well as a description of its general recommended use and best practices. These recommendations are overarching for the public transit network and not for any particular location or service. These amenities should be considered in collaboration with B-Line and developed alongside any short- and long-range transit service planning.

SHELTER


Transit shelters improve passenger comfort by providing essential coverage from the elements, a place to rest, as well as transit service information.

Transit shelters should be provided at transit stops with a moderate amount of boardings, at transfer points, at transit stops in particularly weather-exposed locations, and locations with higher use by seniors and passengers with children.[37]

BENCHES


Benches provide a place to rest, not only for passengers waiting for transit connections, but also for people walking, jogging, and other active modes of travel. Benches can be sited with or without shelters, dependent on demand and spatial constraints. There are numerous bench designs to accommodate most transit stop locations, from very compact designs, like the one shown in the image above, to larger models that include armrests and/or seatbacks.

Transit stops with a moderate to high number of boardings should be prioritized to receive benches.[38] Benches at transit stops should be selected for comfort based on expected wait time and demand.

TRANSIT INFORMATION KIOSK


Transit stops must provide clear, legible information about routes served at that stop. Transit information kiosks provide passengers with additional information including some or all of the following: transit maps, schedules, real-time arrivals information, service alerts, fare information, announcements, and rider rules.

Prioritize any electronic or interactive transit information kiosks for high volume transit hubs or stations or other high activity areas due to cost, where applicable. Additional wayfinding information can be found in the Transit Wayfinding subsection below.

[37] https://nacto.org/publication/transit-street-design-guide/station-stop-elements/stop-elements/small-transit-shelter/

[38] https://nacto.org/publication/transit-street-design-guide/station-stop-elements/stop-elements/seating/

### TRASH RECEPTACLES

Trash and/or recycling receptacles reduce litter at transit stops, on transit vehicles, and along the nearby pedestrian network by providing for waste disposal. Food and drink are not typically allowed on transit and placing receptacles at transit stops allows passengers to dispose of any unwanted items before boarding.

Trash receptacles can be paired with or mounted to transit shelters or can be standalone amenities, like those along trails. Standalone receptacles are moderately inexpensive and require only a small area that is clear and level (while concrete pads are common, they are not necessary). They should also be located to provide for easy maintenance and regular emptying.

### LIGHTING

Lighting installed at transit stops and shelters helps to ensure safety and security for passengers waiting for their transit connection at night. Appropriate lighting allows waiting passengers to observe approaches to the transit area as well as other passengers within the facility.[39]

Lighting installation should be prioritized for the highest risk transit stops, as determined by a systemwide risk assessment in collaboration with B-Line and any other relevant transit operators.

### BICYCLE PARKING

Like bicycle parking along bikeways and trails, bicycle racks at transit stops can provide secure places to park and lock bicycles. Bicycle parking allows multimodal passengers to ride to a nearby stop and transfer to transit. Bicycle racks near transit stops help to reduce the number of bicycles taken onboard buses, freeing up space for others.

Bicycle parking near transit differs by transit service type. Transit hubs with longer-distance or regional service may also consider long term bicycle parking and storage, like bicycle lockers. Transit stops with shorter-distance or local service may consider short term bicycle parking, like bicycle rack styles illustrated earlier.

Bicycle parking near transit should be located in a clear zone that does not impede traffic, pedestrians, or the operation of transit doors. Short-term bicycle racks should be sited 3 feet apart, within 50 feet of a transit stop, positioned in a visible, well-lit area.[40]

[39] https://www.apta.com/wp-content/uploads/Standards_Documents/APTA-SS-SIS-RP-001-10.pdf

[40] https://nacto.org/publication/transit-street-design-guide/station-stop-elements/stop-elements/bike-parking/

PUBLIC ART

In addition to an active transportation network amenity, public art can be creatively woven into the transit network. When done well, public art can tell the story of a community, foster civic pride, and bring beauty to ordinary city infrastructure.

There are many types of public art for transit networks including sculptures, murals, pavement markings, lighting, and interactive art. Materials used, community involvement, funding, siting, and maintenance of public art for transit are all very similar to those discussed in the earlier Trail Amenity Options section.

GREEN INFRASTRUCTURE


Green infrastructure in the form of shaded tree canopy or landscape design – sidewalks, parkways, medians, bioswales, flow-through planters – can improve the aesthetic appearance, passenger comfort, and ecological performance of a transit station or stop.[41] Green infrastructure can also support the livability of a community through traffic calming and can create opportunities for safer pedestrian crossings, including landscaped curb extensions and bus bulbs.

Best practices for green infrastructure near transit include selecting the appropriate vegetation by climate, prioritizing native and drought-tolerant plantings to reduce water use.

## Wayfinding

Wayfinding signage is a system of navigational signs and markings that inform active transportation users of their surroundings, showing helpful information at key points to guide them along the best route to their destinations.

### *Trail Wayfinding*


Wayfinding signs are small, pole-mounted signs placed along trails and bikeways at intersections or other “decision points” as well as along network

[41] https://nacto.org/publication/transit-street-design-guide/station-stop-elements/stop-elements/green-infrastructure/

segments to confirm time or distance information for active transportation users.

Signs typically display destination and directional information, at a minimum, but may also include distance, travel time, and the name of the bikeway, trail, or neighborhood, as appropriate.

## *Bicycle Wayfinding*

There are three types of bicycle wayfinding signs:

DECISION SIGNS


Oakland, CA


Concept

Decision Signs should be placed at the intersection of two or more bikeways to help inform bicyclists of the possible routes connecting to key destinations, like commercial centers, parks, or other bikeways.

TURN SIGNS


Chicago, IL


MUTCD

Turn Signs signal when a bikeway turns from the current roadway onto another roadway.

CONFIRMATION SIGNS


Chicago, IL


Oakland, CA

Confirmation Signs let bicyclists and other active users know that they are on a designated bikeway. They can also help bring awareness of the bicycle route for motorists.

## *Pedestrian Wayfinding*

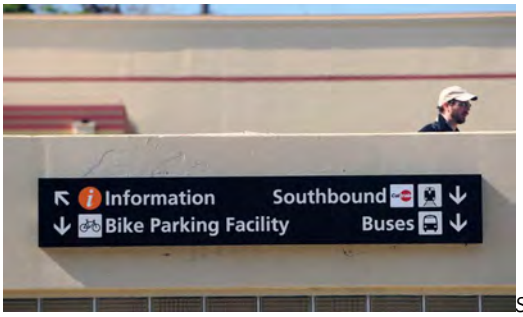
*Source: Bret Yourstone*

Pedestrian wayfinding systems are designed to be informative, providing accurate and understandable information that helps people walking or rolling assess their physical environment and efficiently navigate to their desired destinations. Pedestrian wayfinding systems help people get around a city or neighborhood without their cars, encouraging more people to walk.

Best practices for pedestrian wayfinding include:

- Wayfinding signage should have clear information, consistent visuals, and conspicuous placement.
- Wayfinding signage should be free of visual clutter with up-to-date information.
- Do not place more signs than are necessary to provide the right information at the right time.
- Make wayfinding signage and markings delightful, inspiring residents and visitors.

## *Transit Wayfinding*




*Source:*

*Source: Association of Bay Area Governments*

Transit wayfinding should be designed in collaboration with local transit service providers, primarily B-Line. Transit wayfinding is a system of

branded navigational aids used to guide riders to and between transit stops and hubs. The system should contain clear branding, predictable placement, and legibly display routes as well as key transit service information to facilitate ease of use and to build and maintain trust with passengers.

Transit wayfinding best practices include:

- Name transit stops, hubs, stations, and destinations to reinforce brand and place recognition.
- Place wayfinding materials at regularly spaced intervals, in confusing areas, and at decision points. Use decision, turn, and confirmation signs, as with other types of wayfinding signage.
- Wayfinding signage should be located at eye-level or overhead and be highly visible.
- Use consistent agency branding, logos, colors, and fonts on all wayfinding signage and materials to reinforce visibility and brand identity, avoiding rider confusion.
- For station-area destinations, indicate direction and travel times in easily understood units, like block or walking time.
- Provide audible and tactile cues to assist with navigation, where possible.


*Source: ChicoER.com*

# Infrastructure Recommendations

This section presents infrastructure 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 Bicycle Plan 2019 Update. 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 (see the earlier Existing Conditions chapter), as well as concerns expressed during the community engagement process, an updated list of recommended projects was developed.

The recommendations are intended to provide Chico residents and visitors with accessible, connected, and safe options for bicycle and pedestrian 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 in Chico and provide a framework for the City to successfully implement these projects.

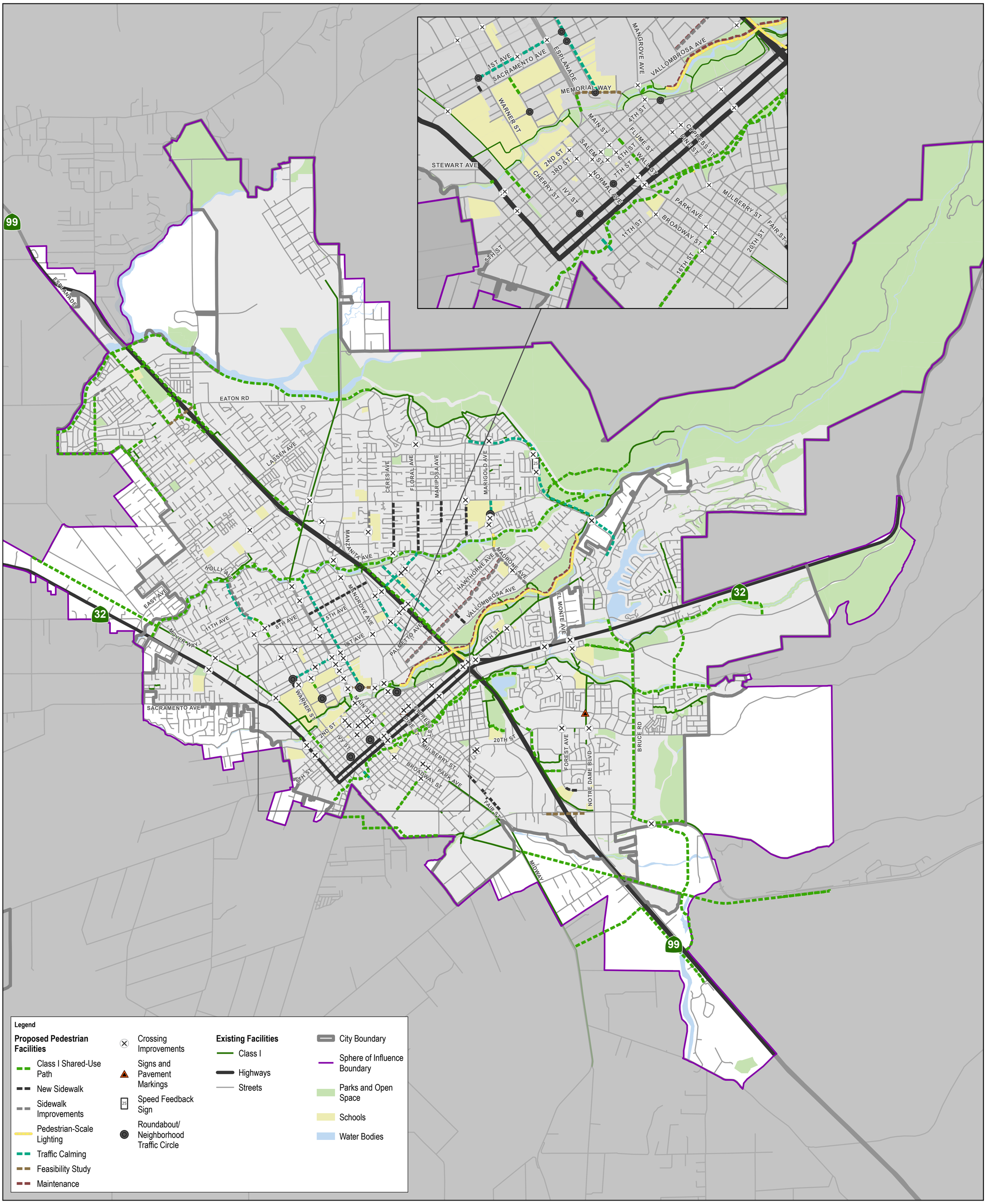
While the proposed improvements are the result of a comprehensive examination of the City's needs, all recommendations have been developed within a planning-level analysis framework. For a project to advance, additional analyses may be required prior to implementation, design, or construction. These 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 Chico. Proposed minor adjustments would need to be approved by the Director of Public Works or their designee and would need to adhere to any established 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.

For a table of the full list of infrastructure and study recommendations, see Appendix C. For an additional map highlighting only protected facilities, see Appendix F.

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**CITY OF CHICO**
**ACTIVE TRANSPORTATION PLAN**

# PEDESTRIAN NETWORK PROJECTS

Project No. **12575135**
Revision No. **-**
Date **12/21/2023**

# FIGURE 34

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# Implementation Plan

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

This chapter provides a strategy for implementation of the infrastructure projects, including analysis of the cost of the projects proposed in this Plan, an evaluation framework to help prioritize investment of limited resources, and a summary of funding programs for bicycle and pedestrian projects.

## Cost Estimates

### *Unit Cost Assumptions*

Table 13 presents planning level unit cost assumptions used to develop project construction cost estimates. The unit cost is multiplied, as appropriate, for each improvement to develop a planning-level project cost estimate.

Estimates are based on recent, similar projects and 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 20 percent contingency.

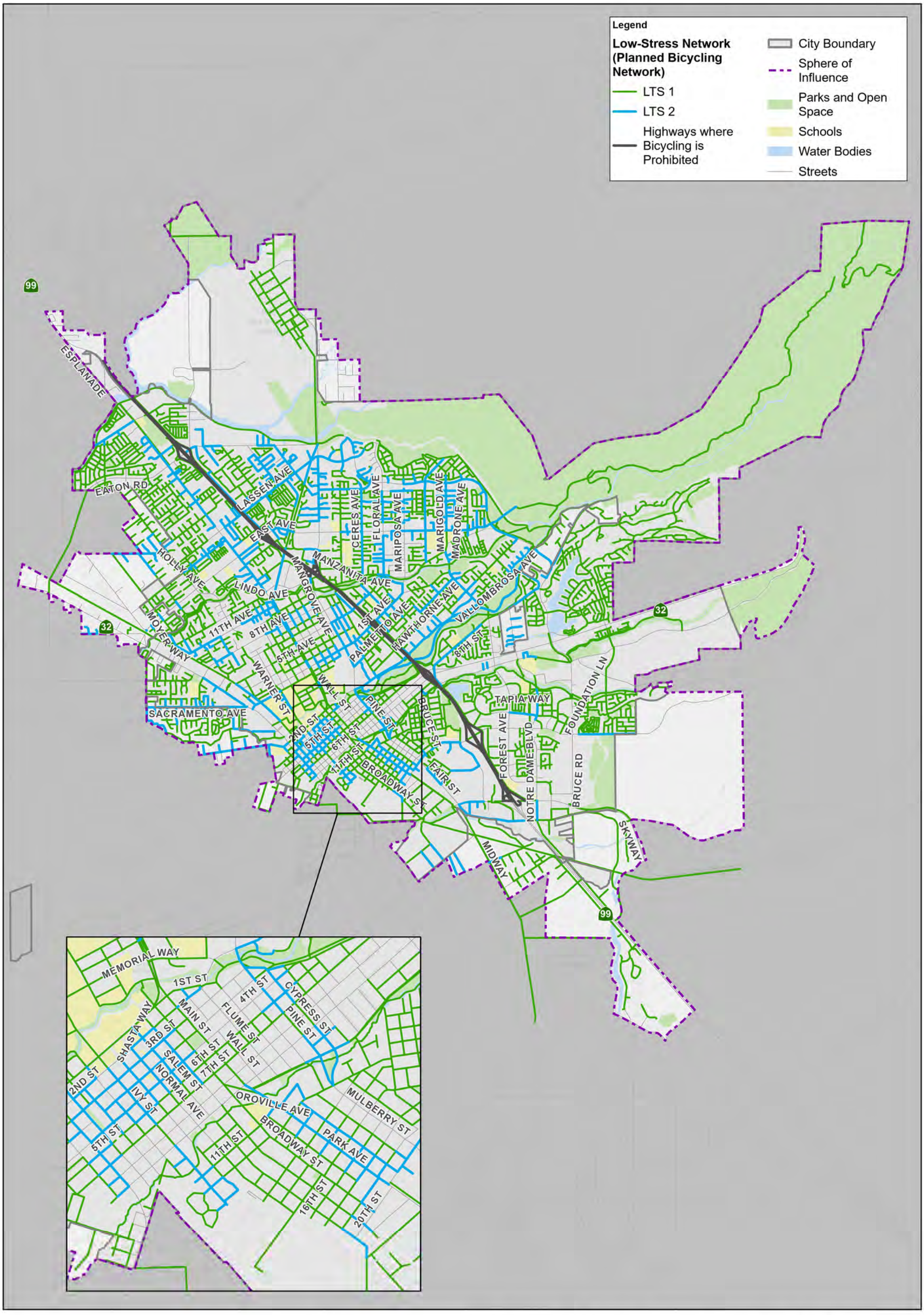
At the planning level, cost assumptions do not consider project-specific or location-specific factors that may affect actual costs, including acquisition of right-of-way or road widening, additional infrastructure, or equipment.

Planning level cost estimates were developed for list of selected prioritized projects, which can be found in Appendix E.

## Table 13: Unit Cost Assumptions

| Improvement | Unit | Estimated Unit Cost | Notes |
|---|---|---|---|
| Class I Shared Use Path | MI | $2,000,000 | Assumes 10' wide path and minor grading |
| Class II Bicycle Lanes | MI | $50,000 | Both sides of street |
| Class II Buffered Bicycle Lanes | MI | $75,000 | Both sides of street |
| Green Painted Class II Bicycle Lane | MI | $150,000 | Assume 6' wide |
| Class III Bicycle Route | MI | $10,000 | Includes signage and pavement markings |
| Class III Bicycle Boulevard | MI | $100,000 | Assumes speed tables, sharrows, and curb extensions in addition to signing |
| Class IV Separated Bikeway | MI | $400,000 | Includes signing and striping for a one- or two-way facility with small curb separation, no roadway widening |
| Class IV Parking Buffered Bikeway | MI | $200,000 | Includes signing and striping for a one- or two-way facility with delineators, no roadway widening |
| Sidewalk | LF | $100 | Assumes 6' wide sidewalk with curb and gutter |
| Transverse Marked Crosswalk | EA | $500 | White or yellow |
| High Visibility Marked Crosswalk | EA | $1,000 | White or yellow |
| Advance Stop or Yield Line | EA | $750 | Includes sign and pavement marking |
| Curb Ramp | EA | $15,000 | |
| Curb Extension | EA | $5,000 | Includes each side of crosswalk |
| Pedestrian Refuge Island | EA | $5,000 | Assume two 6' by 4' islands |
| Rectangular Rapid Flashing Beacon (RRFB) | EA | $50,000 | Solar assembly, two units |
| Pedestrian Hybrid Beacon | EA | $250,000 | Solar assembly, two units |
| Pedestrian-Scale Lighting | EA | $15,000 | Includes one light |
| Pedestrian Countdown Signal heads (single crossing location) | EA | $50,000 | Includes countdown signal head hardware at one crossing location |
| Pedestrian Countdown Signal heads (entire intersection location) | EA | $150,000 | Includes countdown signal head hardware all crossings at intersection location |
| Signs and Pavement Markings | EA | $600 | |
| Green Conflict Markings | EA | $3,000 | Assume 6' by 50', including a white edge line |
| Traffic Signal | EA | $500,000 | |
| Leading Pedestrian Interval | EA | $50,000 | Per intersection |
| Bicycle Detection | EA | $20,000 | Per intersection approach |
| Bike Box | EA | $1,500 | Assume 10' deep by 11' wide |
| Speed Feedback Signs | EA | $20,000 | Solar assembly |
| Roundabout | EA | Varies | Dependent on complexity of approaches and number of lanes |

*Key – EA: Each; MI: Mile; LF: Lineal Foot*

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

# LOW STRESS NETWORK (PLANNED BICYCLING NETWORK)

Project No. 12575135
Revision No. A
Date Dec 2023

**FIGURE 35**

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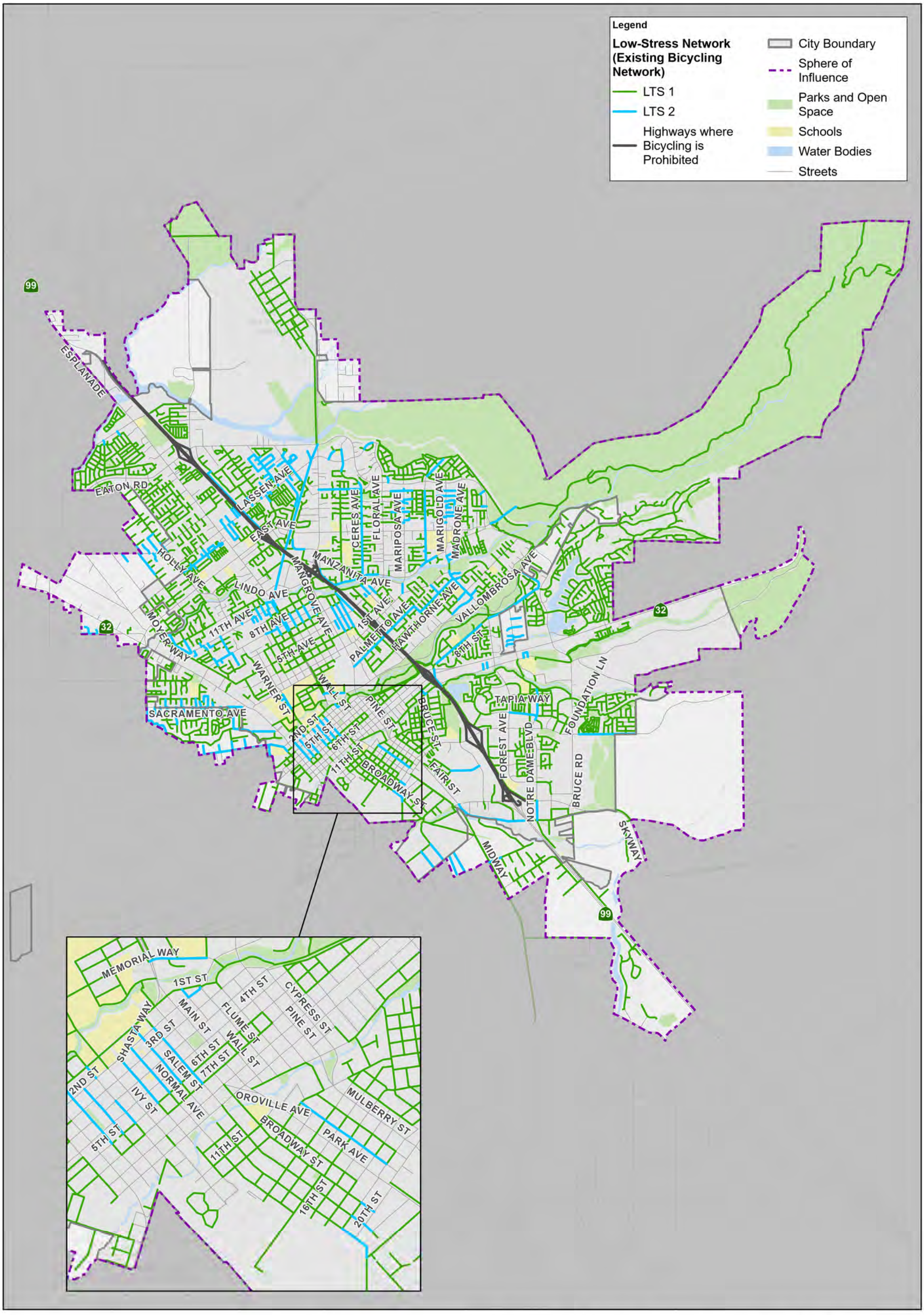
Data source: World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA; World Light Gray Canvas Base: Butte County, Bureau of Land Management, Esri, HERE, Garmin, USGS, EPA, NPS; Boundaries, Streets: City of Chico 2021. Created by: ethompson3

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CITY OF CHICO
ACTIVE TRANSPORTATION PLAN

LOW STRESS NETWORK (EXISTING BICYCLING NETWORK)

Project No. 12575135
Revision No. A
Date Dec 2023

FIGURE 36

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## *Environmental Justice and Social Equity*

California's Global Warming Solution Act of 2006 established the Greenhouse Gas Reduction Fund to support projects and programs that reduce greenhouse gas emissions throughout the State. SB 535 and AB 1550 attempt to ensure that the benefits of California's climate change policies are distributed to areas designated as disadvantaged and/or low-income communities. Underserved and disadvantaged community designations are identified as part of the Categories of Interest chapter. All the improvements identified in this ATP address citywide active transportation network needs. Given that the prioritized project list serves a significant number of disadvantaged populations – identified as categories of interest or communities of concern – the proposed improvements promote a social equity perspective.

### CONNECTIONS TO COMMUNITIES OF CONCERN

Access to transportation helps people get to key destinations, like workplaces, schools, shopping, healthcare facilities, and more. Historically, not all communities have had equal access to affordable transportation options. Communities of color, people with disabilities, older adults, people with lower socioeconomic status, and people with limited English language proficiency have all had greater difficulty accessing affordable transportation than non-disadvantaged peer groups. These communities also spend a greater percentage of their overall income on transportation, and they experience greater environmental harms due to past inequitable transportation and land use planning decisions (e.g., urban freeway routes and industrial manufacturing facilities in lower income communities of color).

To begin to counteract the environmental injustices of the past, government regulations have been put into place to provide additional attention to these communities of concern as part of the planning process. Metropolitan Planning Organizations (MPOs) must create a plan to identify communities of concern using guidance found in Title VI of the 1964 Civil Rights Act and Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." Chico's MPO, Butte County Association of Governments (BCAG), defines and identifies[42] Title VI and Environmental Justice Communities as follows:

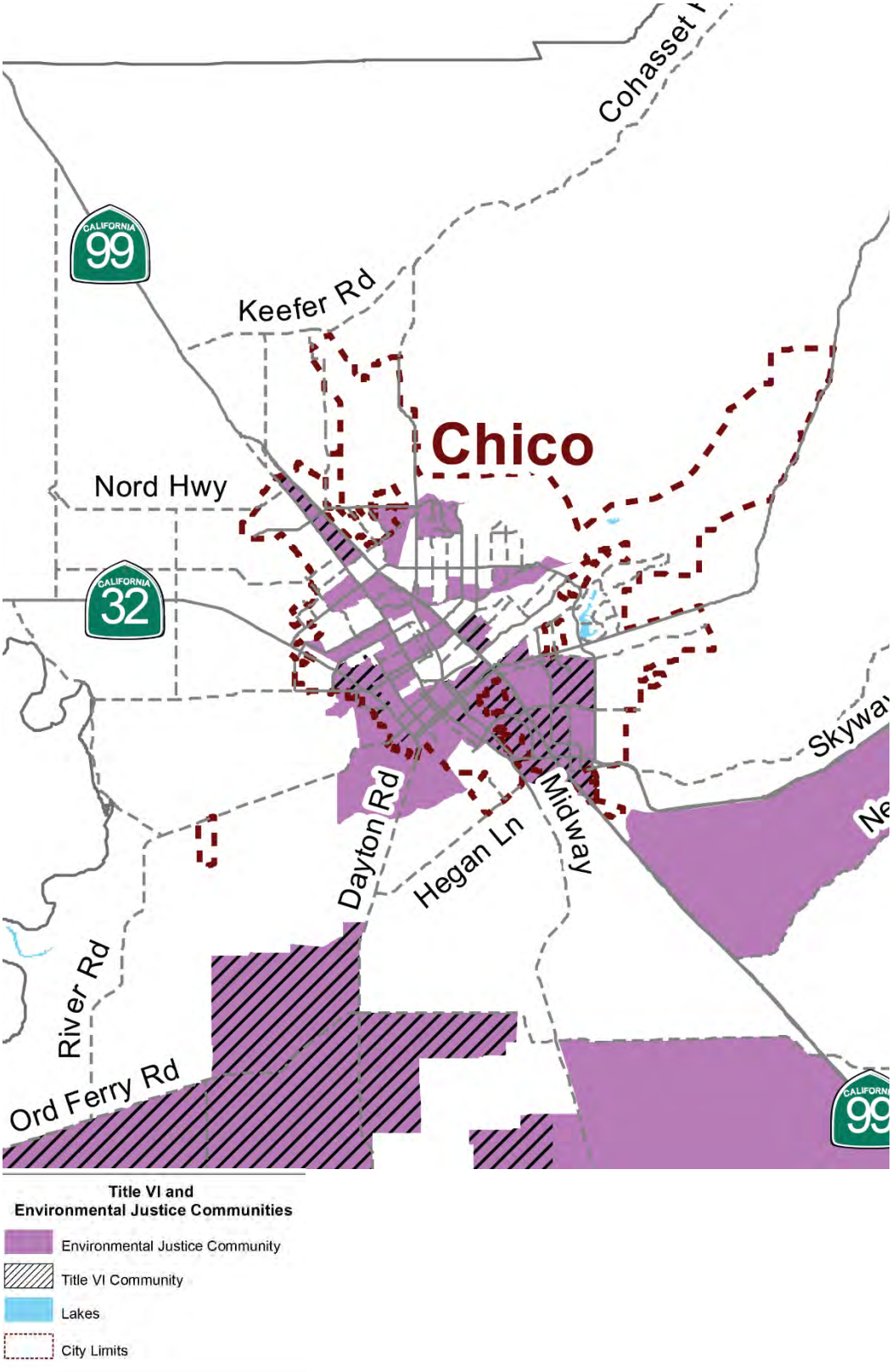
- Minority: Census Block Groups where 40 percent or more of the population is Asian Pacific Islander, African American, Hispanic, Native American, or other Non-White ethnic group, based on 2012-2017 ACS data.
- Low-Income: Census Block Groups where 45 percent or more of the population lives at 200 percent or less of the federal poverty level, based on 2012-2017 ACS data.
- Disadvantaged: Census Tracts identified using CalEnviroScreen 3.0 with a score of 81-100 percent.

BCAG's communities of concern are shown in Figure 37.

As part of this Plan's attention to communities of concern within Chico city limits, 70 percent of bicycle and pedestrian improvement projects are located adjacent to, within, or through neighborhoods and communities identified as communities of concern, improving connectivity between those communities and the active transportation network, furthering the equitable transportation access goals of Title VI and Executive Order 12898.

[42] 2020 RTP/SCS – Appendix 9: Title VI and Environmental Justice Communities

**Figure 37: Title VI and Environmental Justice Communities (BCAG)**




*Source:* BCAG 2020 RTP/SCS – Appendix 9

# Implementation Strategy

This section presents a strategy to implement the improvement concept and recommended projects outlined in the Proposed Pedestrian and Bicycle Facilities chapter. It includes a discussion of implementation methods, potential challenges, a description of the evaluation criteria and scoring process, as well as the federal, state, regional, and local programs that may fund implementation efforts.

The goal of evaluating projects is to build flexibility into the improvement implementation guide as compatible opportunities arise. Over time, as projects are developed or funding sources issue calls for projects, the flexible matrix included in this chapter can be used to evaluate remaining improvement projects and continue to pursue full buildout of Chico's active transportation network.

## *Implementation Methods*

Not all active transportation infrastructure is implemented in the same way. This section covers usual methods and techniques that the City can use to build out the active transportation network in Chico. While recommendations in this Plan were developed based on local roadway features, the specific details for how each bicycle and pedestrian project will be implemented is determined by the City and relevant partners. Additional analysis (e.g., community engagement, traffic studies) may be necessary before implementation of any project recommended in this Plan and recommendations may be subject to change.

### RESURFACING AND RESTRIPING

Implementing new on-street bikeway projects as part of planned roadway resurfacing is a common way that cities and jurisdictions grow their active transportation networks. Once a roadway is resurfaced – an existing street section is paved, either completely or partially – new bicycle facilities can be added through striping or restriping. To clarify, restriping removes and replaces existing striping to reconfigure the roadway to accommodate new or upgraded bicycle facilities. Upgrading would entail replacing an existing Class II bicycle lane with a facility type that improves Bicycle LTS for that segment, either a Class II buffered bicycle lane or Class IV bikeway. Common roadway reconfiguration tactics to allow for new or upgraded on-street bicycle facilities include:

- Narrowing travel lanes
- Reallocating travel lanes
- Reallocating parking lanes
- Reallocating turn lanes

### RECONSTRUCTION

Pertaining to much more substantial maintenance issues at a greater roadway depth than resurfacing, reconstruction projects are also frequently paired with active transportation facility implementation. During roadway reconstruction, in addition to the reconfiguration tactics listed above, more significant changes to allow for new bikeways or traffic calming treatments can take place, including:

- Adding/moving curbs
- Curb extensions
- Tighter curb radii
- Speed humps/cushions
- Raised crosswalks

Many on-street active transportation projects recommended in this Plan do not require the acquisition of additional right-of-way, but where it is required would be considered reconstruction, instead of resurfacing and restriping.

### CONSTRUCTION

Construction refers to individual projects outside of the roadway, including new Class I Multi-Use Paths, bridges, and underpasses. New construction, if minor, may also include roadway widening to allow for bicycle lanes or shoulders, either along the full length of the bicycle facility

or at select locations to better support safe travel for non-motorized users.

## *Methods for Certain Facility Types*

### CLASS III BICYCLE BOULEVARDS

Class III Bicycle Boulevards are streets with low motor vehicle traffic volumes and speeds that are designed to prioritize bicycle travel. Bicycle boulevards recommended in this Plan are intended to be comfortable places for people of all ages and abilities to ride a bicycle, scooter, or other mobility device.

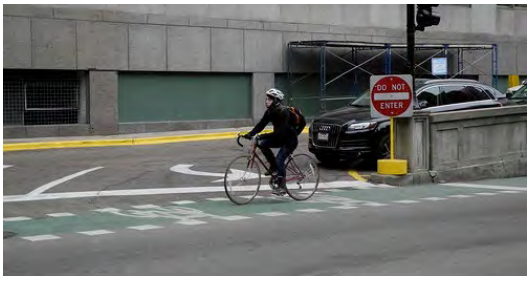

*Class III Bicycle Boulevard in Berkeley, California*

Class III Bicycle Boulevards should incorporate specific design elements to make the roadways safe and comfortable for non-motorized users. Routes should be well planned, ideally with direct access to key destinations. Signs and pavement markings should be installed to make each bicycle boulevard easy to find and follow. To make the roadway comfortable for all, motor vehicle travel should be slowed (reduced speed limits, speed humps, curb extensions) and reduced in volume (motorized traffic diverters). Minor street crossings should prioritize bicyclists using the bicycle boulevard to minimize their delay. Major street crossings should be designed to be safe and convenient. Offset crossings should have clear and safe navigation. Green infrastructure, like landscaped neighborhood traffic circles or curb extensions with bioswale treatments, should be included, where feasible.

Implementation of Class III Bicycle Boulevards should focus initially on unsignalized intersections/crossings of major roadways. Difficult crossings may dissuade all but a small percentage of strong and fearless bicyclists from utilizing the bicycle boulevard, maintaining a barrier to safe and comfortable active transportation. Adding crossing improvements, like those recommended in this Plan, to major roadway crossings will help encourage greater usage of the bicycle boulevard. Crossing improvements can include advance warning signs, RRFBs, hybrid beacons, curb extensions, or median refuge islands.

### UPGRADING EXISTING CLASS II BICYCLE LANES

There are many existing bicycle lanes in Chico that this Plan recommends be upgraded with treatments that better consider active transportation safety and comfort concerns. When streets that contain existing bicycle lanes are resurfaced, the City should consider incorporating treatments that include appropriate placement of bicycle lanes with respect to turn lanes, adding green paint to mark conflict areas, and extending bicycle lanes through intersections to clearly indicate the path of travel for bicyclists.




*Example of Conflict Markings*

## *Potential Challenges*

### RIGHT-OF-WAY

On-street and off-street active transportation facility projects that cannot be realized without acquisition of additional rights-of-way have greater complexity and longer completion times

than projects entirely within existing rights-of-way.

Acquisition and/or condemnation to acquire the property rights required to construct and maintain the active transportation network may be required prior to the funding and construction (or reconstruction) of specific projects. Right-of-way acquisition, including any financial negotiation or legal proceedings, may be necessary to complete pedestrian or bicycle projects and close active transportation network gaps, however it may also impact the overall project timeline and budget significantly. Most project recommendations in this Plan do not require or recommend acquisition or condemnation.

#### FUNDING

While many funding opportunities are available at all levels of governance and beyond to improve our connectivity, some typical transportation project funding challenges remain, including:

- Grant funding cycles
- Application writing
- Funding availability and capacity
- Competitiveness of grant applicant pool
- Project eligibility and planning preparation
- Performance tracking and measurement
- Competing local priorities

Specific funding details can be found in the Funding section below.

#### ACCESS FOR ALL ROADWAY USERS

Another potential challenge the City should carefully consider is the provision of access for all roadway users to the proposed facilities. Prioritizing the quicker implementation of bikeways through cost effective methods (like restriping lane configurations during planned resurfacing) should not come at the expense of ensuring access to or across those new facilities via new ADA accessible curb ramps.

Not all bikeway users are "bicyclists." Providing an active transportation network in Chico that is comfortable and accessible for people of all ages and abilities must ensure that new and upgraded facilities consider the needs of all people using that infrastructure, including those using mobility devices such as:

- Wheelchairs
- Scooters
- Skateboards
- Tricycles
- Hand bikes
- Recumbent bikes
- Cargo bikes
- Electric bikes
- Other mobility devices

#### ENVIRONMENTAL REQUIREMENTS

The City must consider and prepare for the project approval and environmental document phase (PA&ED) for any active transportation infrastructure project for which state or federal grant funding is desired, including from the Active Transportation Program (ATP). This requirement of environmental clearance of a given project includes completed environmental documents and filed notices by the lead agency, pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), if required.

Typical grant funding bodies will not allocate funding for any planning, design, right-of-way acquisition, or construction work for an infrastructure project without prior documentation of environmental clearance through CEQA (and NEPA for federally funded projects).

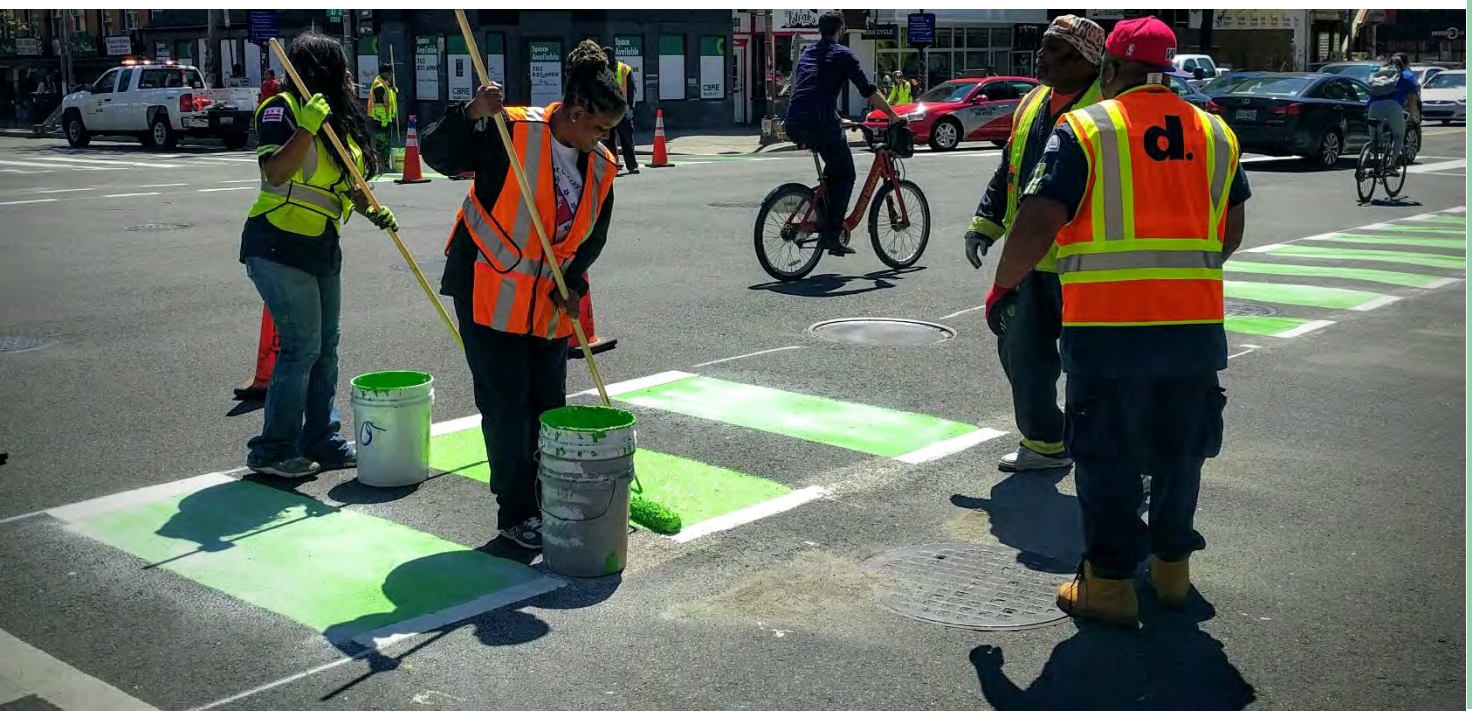
### *Performance Monitoring and Evaluation Framework*

To track implementation success, this Plan provides the following Performance Metrics table

as a framework to illustrate how progress toward project, policy, and program implementation should be monitored and evaluated over time. The symbols ▲ (increase) and ▼ (decrease) represent flexible, directional placeholders for specific performance targets that can be updated regularly, in partnership with relevant stakeholders and community members, with new countable, actionable figures to match each performance goal and performance measure over time.

**Table 14: Performance Metrics**

| Performance Goal | Performance Measure | Performance Target |
|---|---|---|
| Access | Number of bicycle and pedestrian projects/programs/policies supporting all ages and abilities | ▲ |
| Equity | Number of bicycle and pedestrian projects/programs/policies supporting communities of concern | ▲ |
| Health and Safety | Frequency and severity of collisions involving bicyclists and pedestrians | ▼ |
| Quality of Life | Count of bicyclists and pedestrians using active transportation facilities over time (daily/monthly/yearly) | ▲ |
| Environmental Stewardship | Citywide vehicle miles traveled (VMT) | ▼ |
| Collaboration | Community/city/regional partnerships established to enhance active transportation | ▲ |
| Invest in Our Values | Amount of funding identified for or invested in active transportation projects/programs/policies | ▲ |



## Project Priority

Infrastructure projects were prioritized based on the criteria listed in Table 15 below. The full points listed were assigned if the criterion was met; no partial scores were awarded.

Project recommendations in this Plan are prioritized based on an evaluation methodology to help the City identify which projects should be selected and targeted for implementation first. Project selection methodology is based upon typical grant criteria and modified to fit the context of Chico and has been vetted by City staff, the CATTAC and other stakeholders. Other considerations such as available funding and grant program criteria may result in projects being implemented in a modified order from that suggested by the prioritization. Projects may also shift in priority based on safety or operations and upon future studies, especially if other safety issues are identified.

**Table 15: Project Priority Evaluation Criteria**

| Criteria | Description | Points Possible |
|---|---|---|
| Activity Generator | Projects located within ½ mile of an activity generator such as parks, civic facilities (library, community center, City Hall), access to groceries, or medical services | 4 |
| Safe Routes to School | Projects located within ¼ mile of a K-12 school or higher education | 5 |
| Gap Closure | Projects that close a gap between existing bicycle or pedestrian facilities | 5 |
| Transit Mobility | Projects located within ¼ mile of transit stops | 1 |
| Community Input | Projects that address a challenge or include an improvement identified by the community during public engagement activities for this Plan | 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 Median Household Income, Free or Reduced Meal Program (projects within a ¼ mile of schools), Healthy Places Index, or CalEnviroScreen | 3 |
| Low Stress Network | Bicycle projects that reduce LTS score to LTS 1 or 2, and sidewalk projects | 2 |
| Total | | 25 |

### *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.

LOW 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.

HIGH 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.

**Figure 38: Project Prioritization Rubric**

| PROJECT PRIORITY | LOWER | HIGHER |
|---|---|---|
| HIGHER | SHORT-TERM<br>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<br>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<br>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<br>Projects that score lower on prioritization and are more complex are part of the long-term vision for active transportation in Chico, but the challenges to implement these projects likely outweigh the benefit they would currently offer. These projects would likely not be undertaken for at least 10 years. |

PROJECT COMPLEXITY

## Priority Recommendations

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

A list of 10 priority recommendations were selected using the project evaluation methodology described above. Table 16 shows all projects that scored the highest. Table 17 and Table 18 show top ten priority projects that have been divided into High Complexity and Low Complexity. As noted in each table, projects highlighted in green are Downtown Chico projects that have been grouped together and are considered one project for planning purposes. The full recommendations table may be found in Appendix C, which shows project complexity and priority evaluation scores for every project.

Project recommendations, both *point* (e.g., a stop sign or curb ramp) and *linear* (e.g., a bicycle lane or sidewalk gap closure along a corridor) were evaluated based on the same methodology. Though no point recommendations appear in the Priority Recommendations tables below, that is not reflective of their value or importance, nor does it indicate that they should not also be prioritized. These projects can and should be combined with other projects, where possible, when seeking funding. Point projects may also be combined with each other to create standalone projects.

City staff will use these recommendations when reviewing development applications and updating the City's Capital Improvement Program (CIP). The City also reserves the right to select other projects outside of the priority list and implement them on an as-needed basis.

Recommendations may change over the years as the City begins to implement, especially if other safety needs arise or the City identifies safer options along particular corridors or within certain communities. Given the various funding sources needed to fund these types of projects, 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 16: Priority Recommendations - All Projects**

| ID | Facility | Location | Start | End |
|---|---|---|---|---|
| L109* | Class II Buffered Bike Lane | W 4th St | Orange St | Main St |
| L110* | Class II Buffered Bike Lane | W 3rd St | Main St | Walnut St |
| L111* | Class II Buffered Bike Lane | E 3rd St | Pine St | Main St |
| L113* | Class II Buffered Bike Lane | E 4th St | Main St | Cypress St |
| L120 | Class IV Bikeway | Vallombrosa Ave | Manzanita Ave | Camellia Way |
| L139 | Class II Bike Lane | W 5th St | Chico River Rd | Broadway St |
| L184 | Class I Shared-Use Path | Lindo Channel | Nord Ave | SR 99 |
| L230 | Class I Shared-Use Path | Little Chico Creek | Pomona Ave | SR 99 |
| L326 | Class I Shared-Use Path | SR 99 | Vallombrosa Ave | Manzanita Ave |
| L45 | Class II Buffered Bike Lane | Mangrove Ave | Pine Street/Cypress St | Cohasset Rd |

| | | | | |
|---|---|---|---|---|
| L48 | Class II Buffered Bike Lane with Green Paint | East 1st Ave - Longfellow Ave - East Ave | Esplanade Ave | Manzanita Ave |
| L61 | Class IV Parking Buffered Bikeway | Main St | E 9th St | E 1st St |
| L151 | Class IV Bikeway | Main St | E 1st St | Main St end |
| L164 | Class IV Bikeway | Cohasset Rd | Manzanita Ct | Eaton Rd |

**The City may alternatively consider the Class IV Bikeway facility type for these corridors in the future, pending feasibility review.*
*Note: Projects highlighted in green are Downtown Chico projects that have been grouped together and are considered one project for planning purposes. Also note, all recommended projects may be upgraded or changed based on future studies or safety/operational needs.*

### Table 17: Priority Recommendations - High Complexity

| ID | Facility | Location | Start | End |
|---|---|---|---|---|
| L120 | Class IV Bikeway | Vallombrosa Ave | Manzanita Ave | Camellia Way |
| L184 | Class I Shared-Use Path | Lindo Channel | Nord Ave | SR 99 |
| L230 | Class I Shared-Use Path | Little Chico Creek | Pomona Ave | SR 99 |
| L326 | Class I Shared-Use Path | SR 99 | Vallombrosa Ave | Manzanita Ave |
| L61 | Class IV Parking Buffered Bikeway | Main St | E 9th St | E 1st St |
| L151 | Class IV Bikeway | Main St | E 1st St | Main St end |
| L164 | Class IV Bikeway | Cohasset Rd | Manzanita Ct | Eaton Rd |
| L173 | Class I Shared-Use Path | Annie's Glen Bike Path Access Point Connector | South of Vallombrosa Ave | Mangrove Ave/Annie's Glen Bike Path |
| L114 | Class IV Bikeway | Nord Ave | W Sacramento Ave | W 8th Ave |
| L119 | Pedestrian-Scale Lighting | Peterson Memorial Drive | Peterson Memorial Drive end near CARD Community Center | Vallombrosa Ave |
| L144 | Class I Shared-Use Path | Wall St | E 4th St | E 5th St |

*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. Also note, projects highlighted in green are Downtown Chico projects that have been grouped together and are considered one project for planning purposes. Also note, all recommended projects may be upgraded or changed based on future studies or safety/operational needs. Additionally, all projects may be upgraded or changed based on future studies or safety/operational needs.*

### Table 18: Priority Recommendations - Low Complexity

| ID | Type | Location | Start | End |
|---|---|---|---|---|
| L109* | Class II Buffered Bike Lane | W 4th St | Orange St | Main St |
| L110* | Class II Buffered Bike Lane | W 3rd St | Main St | Walnut St |
| L111* | Class II Buffered Bike Lane | E 3rd St | Pine St | Main St |
| L113* | Class II Buffered Bike Lane | E 4th St | Main St | Cypress St |
| L139 | Class II Bike Lane | W 5th St | Chico River Rd | Broadway St |
| L45 | Class II Buffered Bike Lane | Mangrove Ave | Pine Street/Cypress St | Cohasset Rd |
| L48 | Class II Buffered Bike Lane with Green Paint | E 1st Ave - Longfellow Ave – Manzanita Ave – Marigold Ave | Esplanade | East Ave |
| L44 | Class III Bike Boulevard | Neal Dow Ave | Hillview Way | E Lindo Ave |

| | | | | |
|---|---|---|---|---|
| L12 | Class II Buffered Bike Lane with Green Paint | W Sacramento Ave | Warner St | Esplanade |
| L146 | Class III Bike Boulevard | Wall St | E 8th St | E 7th St |
| L147 | Class III Bike Boulevard | Wall St | E 6th St | E 5th St |
| L148 | Class III Bike Boulevard | Wall St | E 1st St | E 4th St |
| L214 | Class III Bike Boulevard | North Ave | Lupin Ave | Manzanita Ave |
| L291 | Class III Bike Boulevard | Salem St | W 20th St | W 9th St |
| L4 | Class III Bike Route | Ceanothus Ave | East Ave | Connect to existing Class I Facility |

**The City may alternatively consider the Class IV Bikeway facility type for these corridors in the future, pending feasibility review.*
*Note: Projects highlighted in green are Downtown Chico projects that have been grouped together and are considered one project per grouping for planning purposes. Also note, all recommended projects may be upgraded or changed based on future studies or safety/operational needs.*

# 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*

### LOCAL TRANSPORTATION FUNDS – BICYCLES AND PEDESTRIANS

Chico 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 Butte 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.

### 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.

## *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 BCAG.

### 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. SB1 also created the Local Partnership Program (LPP), which continuously appropriates $200 million annually from the Road maintenance and Rehabilitation Account to local and regional transportation agencies that have sought and received voter approval of taxes or that have imposed fees, which taxes or fees are dedicated solely for transportation improvements, to improve active transportation, aging infrastructure, road conditions, and other benefits.

### 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 HIGHWAY BRIDGE PROGRAM

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.

### SUSTAINABLE 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 eligible to be used towards the match.

### REBUILDING AMERICAN INFRASTRUCTURE WITH SUSTAINABILITY AND EQUITY (RAISE) GRANTS

RAISE Grants are awarded on a competitive basis by the US Department of Transportation (USDOT) for investments in surface transportation infrastructure that will have a significant local or regional impact. RAISE Grant Funds were authorized under the Local and Regional Assistance Program in the Infrastructure Investment and Jobs Act, known as the Bipartisan Infrastructure Law (BIL). Eligible grantees include public or government agencies or authorities, units of local government, special purpose districts, transit agencies, federally recognized Indian Tribes, and multi-state or multijurisdictional groups of entities. The Federal share grant may fund up to 80 percent of the costs of projects located in an urban area and up to 100 percent of the costs of a project located in a rural area, a historically disadvantaged community, or an area of persistent poverty.

### CONGESTION MANAGEMENT AND AIR QUALITY IMPROVEMENT PROGRAM

The Congestion Management and Air-Quality Improvement Program (CMAQ), with funding through the BIL, provides a flexible funding source to State and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and

improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas) and for former nonattainment areas that are now in compliance (maintenance areas).

### CARBON REDUCTION PROGRAM

The Carbon Reduction Program (CRP), established by the BIL, provides federal funding for projects designed to reduce transportation emissions, defined as carbon dioxide (CO2) emissions from on-road highway sources. CRP funds may be used for transportation alternative projects including, but not limited to, the construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other nonmotorized forms of transportation. CRP funding is apportioned to regions and local agencies based on population, using the 2020 U.S. Census. California's share of the CRP is $106,704,653.

### SAFE STREETS AND ROADS FOR ALL (SS4A) GRANTS

The SS4A funding program was established following passage of BIL in 2021, with the first competitive application cycle commencing in 2022. Local government agencies may directly apply to the program, with funding being provided in three categories: Action Plans, Supplemental Planning, and Implementation Grants. Applications for all three categories must be focused on implementing complete streets which will ultimately reduce serious injuries and fatalities for roadway users. Action Plan grants fund development of a qualifying Plan to support complete streets and reduction of roadway fatalities/serious injuries. Supplemental Planning activities include follow-up efforts to further the existing Action Plans. Implementation Grants, which implement activities from existing action plans, including constructing roadway safety treatments, including systemic safety fixes, constructing complete streets facilities such as walking and bicycling facilities, and non-infrastructure program activities to support the infrastructure investments.

### RECONNECTING COMMUNITIES PILOT PROGRAM (RCP) – PLANNING GRANTS AND CAPITAL CONSTRUCTION GRANTS

The BIL established the new Reconnecting Communities Pilot Program (RCP) discretionary grant program, funded with $1 billion over the next five years. This Federal program is dedicated to reconnecting communities that were previously cut off from economic opportunities by transportation infrastructure. Funding supports planning grants and capital construction grants, as well as technical assistance, to restore community connectivity through the removal, retrofit, mitigation, or replacement of eligible transportation infrastructure facilities, including active transportation improvements.

### PROMOTING RESILIENT OPERATIONS FOR TRANSFORMATIVE, EFFICIENT, AND COST-SAVING TRANSPORTATION (PROTECT) GRANTS

The BIL included $8.7 billion to create the PROTECT discretionary grant program with the purpose of helping local agencies improve the resiliency of their on-system transportation infrastructure. The program provides Federal funding to projects to help communities address vulnerabilities due to weather, natural disasters, and climate change. The program also provides funds to plan transportation improvements and emergency response strategies to address those vulnerabilities. Vulnerabilities the program addresses include, but are not limited to, current and future weather events, increasing frequency and magnitude of natural disasters, and changing climate conditions, including sea level rise. PROTECT grants include resilience improvement grants, community resilience and evacuation route grants, and at-risk coastal infrastructure grants.

The PROTECT program funds are distributed Federally and by formula and competitive grants.

# Benefits

Investing in Chico's active transportation network with new bicycle and pedestrian projects, programs, and policies recommended in this Plan should provide both qualitative and quantitative benefits for residents and visitors alike.

This section provides the methodological approach and results of the various benefit analyses conducted to assess the expected benefits associated with the implementation of the projects proposed as part of this Active Transportation Plan. The evaluated benefits include:

- Safety Benefits: collision reduction benefits, particularly at locations with a history of fatal and severe collisions.
- Induced Demand/Mode Shift Benefits: mobility, health, recreation, and reduced auto use benefits associated with implementation of new bicycle facilities.
- Multimodal Connectivity Benefits: improved connectivity benefits to the active transportation network associated with proposed projects.

Each of the sections below describe the methodology used and results of the analysis of the benefit types listed above. Monetized benefits are also included, where applicable.

## Safety Countermeasures

Jurisdictions should take a safe systems approach when implementing infrastructure improvements intended to improve safety on their roadways. A safe systems approach to roadway design focuses on minimizing the risk of fatality or injury for all road users, considering the possibility and likelihood of human error that often cause collisions, examining likely collision types and severity, and emphasizing the importance of considering the safety of vulnerable road users. A component of this approach is to anticipate future safety challenges before they occur based on evaluation of recent historical collision data and known safety countermeasures proven to reduce the likelihood of future collisions. This type of forward thinking about improving safety is vital to ensuring

jurisdictions have the best chance at proactively managing future crashes.

### *Methodology*

Safety benefits were approximated by calculating the expected crash reduction for each project proposed in the Plan at locations with higher-than-average collisions involving bicycles and pedestrians. Projects with the highest calculated collision reductions were grouped into the following categories:

- Top 15 hot spot intersection locations
- Top 10 hot spot roadway segment locations

### *Collision Reduction*

The safety countermeasures proposed at the top 15 intersection collision locations are expected to result in a reduction of:

- 3 collisions resulting in fatalities
- 9 severe injury collisions
- 21 non-severe injury collisions, 3 PDO collisions

The safety countermeasures proposed at the top 10 segment collision locations are expected to result in a reduction of:

- 5 collisions resulting in fatalities
- 6 severe injury collisions
- 21 non-severe injury collisions
- 1 PDO collision

### *Monetized Safety Benefits*

The monetized safety benefits reflect the cost benefit provided by the estimated reduction in collisions associated with safety countermeasures at intersections and roadway segment collision hotspot locations, over a five-year period. The monetized benefit from all intersection locations is upwards of $44 million, while the benefit for all roadway segments is almost $74 million.

## Induced Demand & Bicycle Mode Shift

Based on the research cited in National Cooperative Highway Research Program (NCHRP) Report 552, Guidelines for Analysis of Investment in Bicycle Facilities,[43] some bicycle facilities proposed in the Plan may result in induced bicycling demand for the new facilities among both existing and new bicyclists. The methodology describes an approach for estimating the induced demand associated with a given bicycle facility improvement and translates the projected increase in demand to monetized benefits related to mobility, health, recreation, and decreased auto use.

### *Methodology*

The NCHRP 552 methodology is centered on three assumptions:

1. Existing bicyclists near a new facility will shift from the existing nearby facility to the new facility.
2. The new facility will result in induced number of bicyclists as a function of the number of existing bicyclists, relative to the attractiveness of the proposed facility (i.e., Class I shared-use path vs. Class II bicycle lanes).
3. People are more likely to ride a bicycle if they live within 1.5 miles of a facility than if they live outside that distance.

[43] Methodology utilized here in based on National Cooperative Highway Research Program (NCHRP) Report 552, Guidelines for Analysis of Investments in Bicycle Facilities, Transportation Research Board of the National Academies (2006), as well as the supplemental White Paper titled "Translating Demand and Benefits Research into Guidelines," available here, which was adapted from the demands and benefits outlined in the original NCHRP 552 report. The methodology described in the White Paper was used in the development of an online tool (no longer supported) created by the NCHRP 552 research authors.

### *Monetized Bicycle Mode Shift Benefits*

The benefit cost analysis for bicycle facility investments influenced by the NCHRP 552 methodology includes the annual monetized benefits associated with mobility, health, recreation, and decreased auto use.

#### MOBILITY BENEFITS

Mobility benefits represent the time cost associated with the shift to a given bicycle facility type for the total number of commute trips over a commute year for new and existing bicyclist commuters.

The estimated mobility benefits associated with the top 10 benefits-producing bicycle projects proposed in the Plan are reported separately for separated and on-street facilities in Appendix D.

#### HEALTH BENEFITS

Health benefits represent the cost savings from physical activity benefits associated with induced demand anticipated to result from the proposed bicycle facilities. The annual health benefit is calculated by multiplying the annual per capita cost savings of $128 by the total number of new bicyclists anticipated with the proposed bicycle facilities.

Annual health benefits for the top 10 benefits-producing projects are presented in Appendix D.

#### RECREATION BENEFITS

Recreation benefits represent the cost savings related to recreational activity for new bicyclists induced by the new bicycle facilities. To calculate annualized recreation benefits, the number of new commuters is subtracted from the number of new bicyclists, then multiplied by the typical recreation day cost of $10 for 1 hour of recreation activity.

Anticipated recreation benefits associated with induced demand resulting from the top 10 benefits-producing bicycle projects are shown in Appendix D.

#### DECREASED AUTO USE BENEFITS

Decreased auto use benefits include the benefits associated with user cost savings, reduced congestion, and reduced air pollution.

These benefits, as well as the total monetized benefits anticipated to be associated with the proposed bicycle projects, are presented in Appendix D.

## Multimodal Connectivity

The bicycle and pedestrian improvement projects recommended in this Plan are intended to facilitate an active transportation network that is low stress, making it comfortable for people of all ages and abilities. Constructing new sidewalks, implementing safe crossings, as well as providing new and upgraded off- and on-street facilities, like Class I Multi-Use Paths and Class II Buffered Bicycle Lanes respectively, will enhance user comfort throughout the active transportation network, further encouraging its use.

Qualitative benefits of bicycle and pedestrian improvements can be analyzed by examining improvements to multimodal connectivity throughout the corridor. Connectivity benefits associated with the improvements recommended in this plan are assessed through the lens of Bicycle Level of Traffic Stress (LTS), which considers separation from vehicular traffic, street width, prevailing speed limit, bike lane blockage, and presence of different lane types, including bike lanes and turn lanes, to determine how stressful it is to ride a bicycle on a given roadway.

For a detailed description of the Bicycle LTS methodology as well as a presentation of the improved LTS scores for the planned bicycling network, differentiated by segments, approaches, crossings, and overall, see Appendix D.