

Fresno County Regional Active Transportation Plan



Final Draft May 2024



Acknowledgments:

The Fresno Council of Governments thanks the city and county staff members and community members who contributed to the creation of this plan.



FEHR & PEERS



Statement of Protection of Data from Discovery and Admissions

Under 23 U.S. Code § 409 and 23 U.S. Code § 148, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

Front Cover: Palm-tree lined walkway in Kerman

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Biola Congregational Church



Riverdale High School



Chapter 1

INTRODUCTION

Walking, biking, and rolling (by wheelchair or scooter) are all components of active transportation. Because these modes of travel are primarily human-powered, they

- » help families get to schools, parks, work, shopping, restaurants, bus stops, and other destinations without need for a car;
- » improve physical and mental health;
- » reduce air pollution and greenhouse gas emissions; and
- » provide economical ways to travel.

However, many parts of the Fresno County region lack sidewalks, shared-use paths, and bike lanes that make walking and biking safe and comfortable for everyone. Without these facilities, Fresno County region residents are frequently cut off from the destinations they need to get to everyday, unless they have close access to frequent transit or access to a motor vehicle. This is especially true for those in disadvantaged communities, which often did not receive the historic investments made for walking and bicycling in other areas.

This active transportation plan is an important step towards fulfilling these needs. In 2019, the Fresno Council of Governments, in cooperation with its city and county members, created the first Fresno County Regional Active Transportation Plan. That plan was developed to create a comprehensive countywide vision for active transportation and to support applications for new funding to create sidewalks, shared use paths, bike lanes, better street crossings, and other improvements for walking and bicycling. The 2024 plan is an update of the 2019 plan. It reflects projects that have been newly identified, modified, or completed since the release of the first plan; updated information on disadvantaged communities and safety data; current land use and plans in each city and the county; and updates to reflect best active transportation planning practices.

This plan meets all the current requirements of the statewide Active Transportation Program guidelines (as described in Appendix A), and it will also be used by the Fresno Council of Governments to identify projects for the Fresno County Regional Transportation Plan and support the use of funds provided through the Fresno County Measure C program.

VISION AND GOALS

The Fresno County Regional Active Transportation Plan envisions a complete, safe, and comfortable network of paths, sidewalks, and bikeways that serves all residents of Fresno County. Specifically, this plan has been developed to:

- » create a network of safe and attractive, sidewalks, shared-use paths, and bikeways that connect Fresno County residents to key destinations, especially local schools, parks, and transit;
- » create a network of regional bikeways that allows bicyclists to safely ride between cities and other regional destinations;
- » create better connections to transit, especially for communities with limited access to other transportation options;
- » increase walking and bicycling trips and thus reduce vehicle miles traveled and improve air quality in the region by creating user-friendly facilities; and
- » increase safety by improving crosswalks and sidewalks and expanding the bikeway network.

STRUCTURE OF THE ACTIVE TRANSPORTATION PLAN

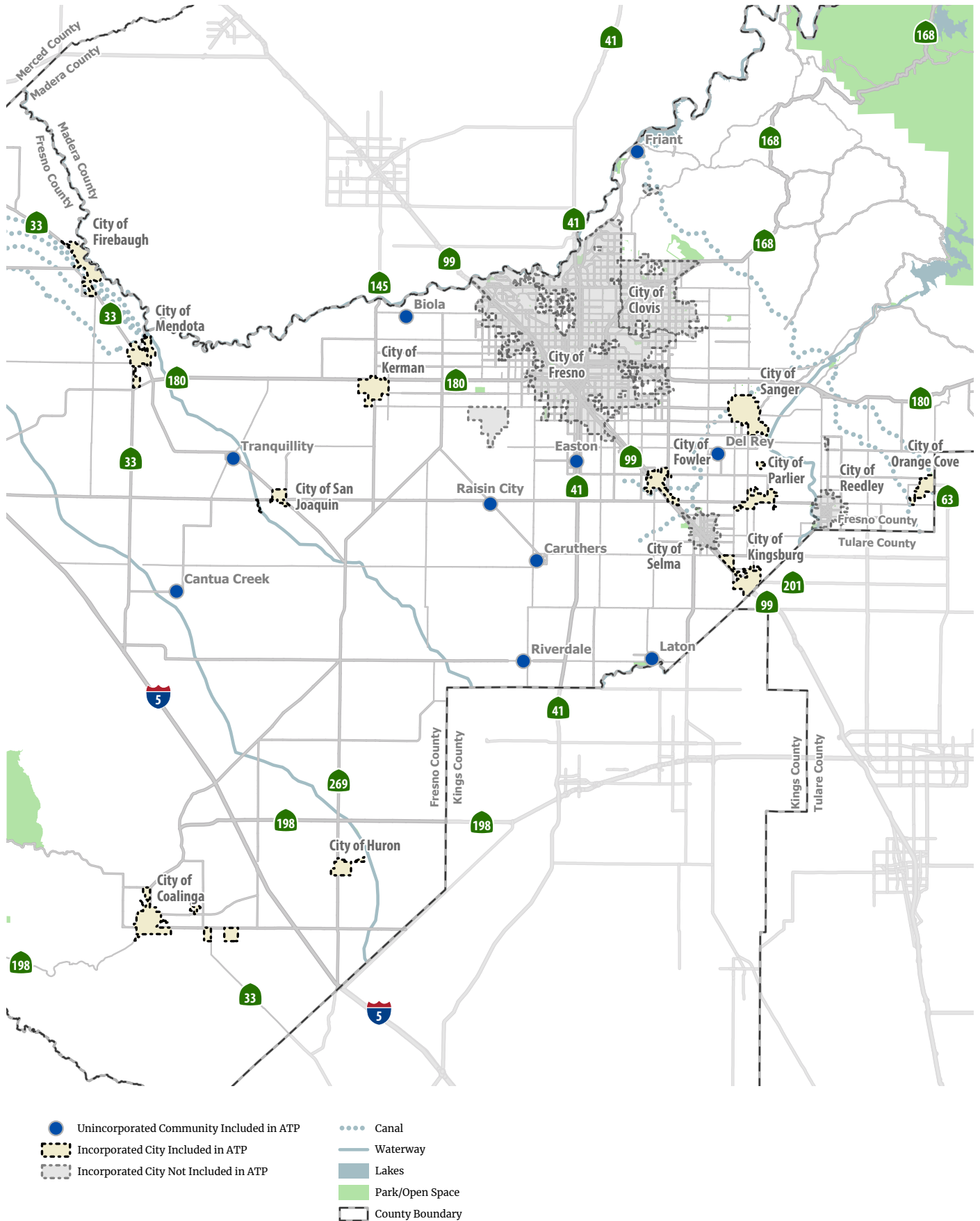
This Active Transportation Plan is a regional document covering Fresno County and incorporated cities within the county (Figure 1-1). Walking and biking recommendations are made for the jurisdictions in the region:

- » The cities of:
 - Coalinga
 - Firebaugh
 - Fowler
 - Huron
 - Kerman
 - Kingsburg
 - Mendota
 - Orange Cove
 - Parlier
 - San Joaquin
 - Sanger
- » Larger unincorporated communities within unincorporated Fresno County:
 - Biola
 - Cantua Creek
 - Caruthers
 - Del Rey
 - Easton
 - Friant
 - Laton
 - Raisin City
 - Riverdale
 - Tranquillity
 - Unincorporated county islands within the cities of Clovis and Fresno

- » Bikeways and paths connecting communities within the county and other regional destinations

Four cities in Fresno County (Clovis, Fresno, Reedley, and Selma) have recently updated or are currently updating their own active transportation plans. This plan supports connectivity to those cities as part of regional walking and biking networks.

Figure 1-1: Fresno County Communities



PUBLIC PARTICIPATION

Input from the residents of the Fresno region on issues and needs for walking and biking was an important part of the plan development process. Comments were requested and received in English and Spanish through:

- » a website with information about the plan development process, outreach events and opportunities, and project documents;
- » social media posts
- » pop-up booths at street fairs and farmers markets in each city and the county;
- » an online crowdsourced interactive map;
- » an online survey about walking and biking needs;
- » meetings with local community group leaders;
- » two online workshops to share and receive feedback on recommended walking and biking networks
- » a second online interactive map to share and receive feedback on recommended networks.

Comments were received from the public through all of these methods and opportunities. Appendix B, Public Participation, provides additional details on the public input received.



WALKING AND BICYCLING FACILITIES

Active transportation networks include several types of infrastructure. Walking facilities include sidewalks, crosswalks, and shared-use paths. Bicycling facilities, in order from lowest stress and most comfortable to highest stress and least comfortable, include shared-use paths, separated bikeways, bike lanes, and bike routes. Bike parking also supports bicycling networks.

Sidewalks

Sidewalks are paved areas immediately adjacent to the vehicular right-of-way for the use of pedestrians. Unlike shared-use paths, they are directly adjacent to the main right-of-way. Sidewalks may be used by people riding bicycles unless prohibited.

Crosswalks

Marked crosswalks feature striping and other enhancements to delineate a street crossing for pedestrians. There are two types of marked crosswalks:

- » **Controlled crosswalks** are located with stop signs or traffic signals.
- » **Uncontrolled crosswalks** are located without stop signs or traffic signals. Under California law, drivers are legally required to yield to pedestrians at uncontrolled crosswalks.





Additional features can be added to crosswalks to increase visibility on busy streets:

- » **High-visibility crosswalk markings** add additional striping to the pavement.
- » **Warning signage** improves visibility of crosswalks and increases the likelihood that a driver will yield or stop to pedestrians.
- » **Curb extensions** decrease the pedestrian crossing distance at intersections and improve the visibility of pedestrians waiting to cross the street.
- » **Median refuge islands** allow pedestrians to cross one direction of traffic then wait in the center of the street to cross the other direction of traffic.
- » **Raised crosswalks** allow pedestrians to cross at sidewalk level or just below and act as traffic calming devices.
- » **Rectangular rapid flashing beacons (RRFBs)** allow the pedestrian to activate a flashing light when crossing.
- » **Pedestrian hybrid beacons (PHBs)** require traffic to stop for pedestrians when activated, but allow vehicles to proceed with caution after the pedestrian crossing has been completed.



The FHWA Guide for Improving Pedestrian Safety and Uncontrolled Crossing Locations contains detailed guidance for selecting appropriate treatments.

Traffic signals allow pedestrians to utilize a marked crosswalk safely and may be appropriate when warranted based on the applicable signal warrants in the California MUTCD. **Leading pedestrian intervals (LPIs)** allow pedestrians to begin crossing a signalized intersection before vehicles begin moving by providing a walk signal three to seven seconds before the corresponding vehicle signal turns green.



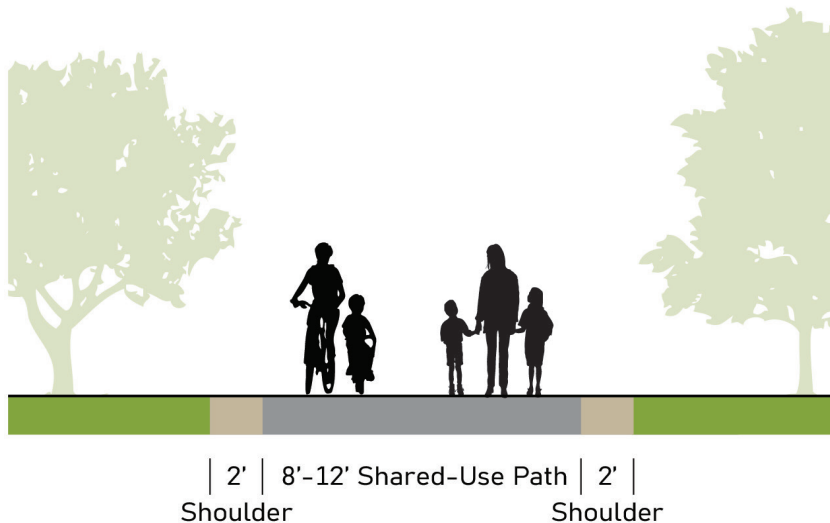
Overhead flasher in Mendota

Shared Use Paths

Shared-use paths, often referred to as Class I bike paths (as classified in Chapter 1000 of the Caltrans Highway Design Manual) or paved trails, are off-street facilities that provide exclusive use for non-motorized travel by bicyclists and pedestrians (Figure 1-2). Shared-use paths have minimal cross flow with motorists and are typically located along landscaped corridors. Shared-use paths can be utilized for both recreational and commute trips. These paths provide an important recreational amenity for bicyclists, pedestrians, dog walkers, runners, skaters, and those using other non-motorized forms of travel. They are frequently designed to offer a specific benefit to users, such as a connection not previously included in the bicycle or pedestrian network or traversing a barrier such as a freeway or river.



Figure 1-2: Shared Use Path (Class I)



Separated Bikeways

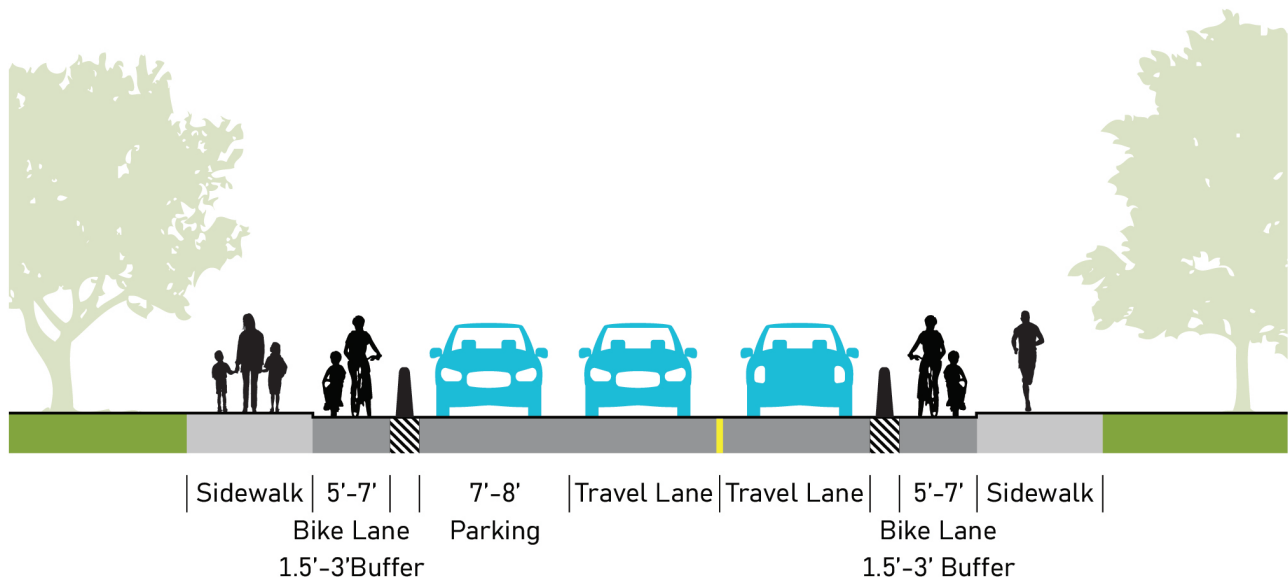
Class IV separated bikeways, also known as cycle tracks, are physically separated bicycle facilities that are distinct from the sidewalk and designed for exclusive use by bicyclists. They are located within the street right-of-way but provide bicyclists comfort similar to shared-use paths. The key feature of a separated bikeway is a vertical element that provides physical separation from motor vehicle traffic. Common vertical elements used for separation include vertical curbs, painted buffers with flexible posts, parked cars, landscaped area, large planters, or other fixed barriers. Separated bikeways may also be constructed by creating a bikeway at a height above the vehicular lanes. Separated bikeways can be either one-way or two-way, accommodating a single direction of travel or both (Figure 1-3).



Separated bikeway in Coalinga

Streets with high vehicular volumes and speeds are appropriate candidates for separated bikeways, which increase the comfort of bicyclists on these higher-stress roads. Separated bikeways require wider right-of-way than bike lanes or bike routes, and, to minimize conflicts with motor vehicles, are best placed in areas with fewer driveways. Two-way separated bikeways also require careful design at intersections. Because of these factors, separated bikeways require careful planning.

Figure 1-3: Separated Bikeways (Class IV)



Bike Lanes (Buffered and Unbuffered)

Class II bike lanes are on-street facilities that use striping, stencils, and signage to denote preferential or exclusive use by bicyclists. Bike lanes are contiguous with motor vehicle travel lanes (Figure 1-4). Bike lanes provide adequate space for comfortable riding and alert drivers about the predictable movements of bicyclists.

Buffered bike lanes are similar to bike lanes, with the addition of a painted section of pavement that provides spacing between bike and motor vehicle travel lanes.

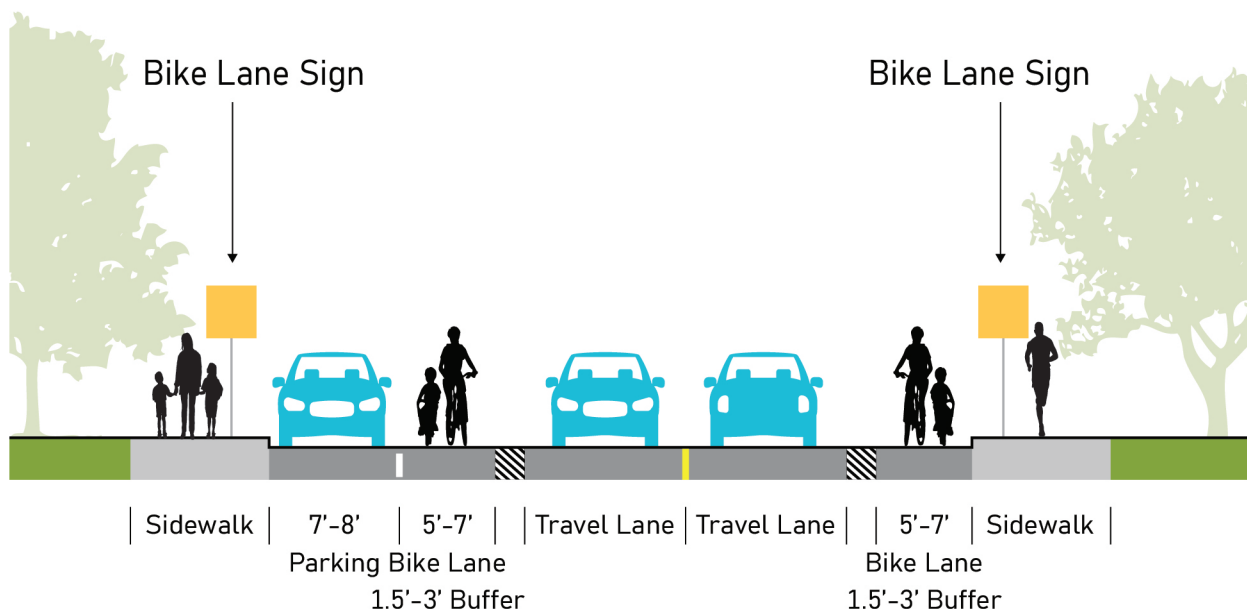
This plan does not specify locations for buffered bike lanes. As available roadway width for the bike lane increases beyond five feet, designers should consider use of painted buffers:

- » Left-side painted buffers on bike lanes improve separation between bicycles and vehicles. They are especially useful in cases with vehicle speeds that are greater than 25 miles per hour.
- » Right-side painted buffers can be added between parallel parked cars and the bike lane to create separation from the door zone, the space in which a driver may open their car door and hit a bicyclist.

Through bike lanes at intersection reduce conflicts by allowing bicyclists to follow the preferred travel path, ideally a straight connection from the preceding bike lane. Traveling at intersections can be particularly challenging if the bike lane ends prior to the intersection forcing a merge with vehicle traffic. Continuing the bicycle lane to the intersection approach provides bicyclists the opportunity to avoid conflicts with turning vehicles. Through bike lanes should be placed to the left of the right-turn only lane. Dotted lines are used to signify the merge area that motorists traverse to get to the right-turn lane.

Green-colored pavement can be used to enhance bike lanes in high volume intersections and busy driveway locations. Skipped green marking should be used in weaving areas or conflict zones. Green color may be installed with either paint or thermoplastic. Although not yet incorporated into the California MUTCD, the FHWA MUTCD provides guidance on its use.

Figure 1-4: Bike Lanes (Class II)





Bike Lane in Fowler

Bike Routes

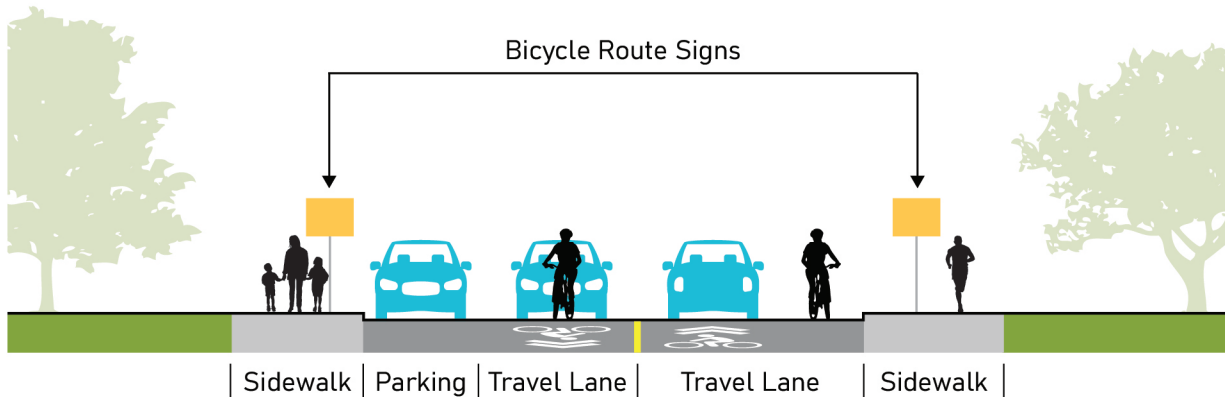
Class III bike routes are streets with signage and optional pavement markings where bicyclists travel on the shoulder or share a lane with motor vehicles (Figure 1-5). Bike routes are utilized on low-speed and low-volume streets to connect bike lanes or paths along corridors that do not provide enough space for dedicated lanes. Shoulders are preferable but not required on streets with bike routes. In addition to alerting motorists to the presence of bicyclists, bike routes help bike riders find their way to other bikeways or regional destinations like schools and parks.

Shared-lane markings, or sharrows, are a common bike route pavement marking that alerts drivers that bicyclists are sharing the road and facilitate wayfinding through neighborhoods. They are best used on streets with less than a 3,000 average daily traffic (ADT) count. The chevrons in sharrow markings should be painted near the center of the travel lane, out of the parked vehicle door zone.

Bicycle boulevards are enhanced bike routes that are intentionally located on low-volume, low-speed local streets and include other features designed to make a low-stress, comfortable, attractive bikeway that prioritizes bicycle travel. These features include shared lane markings, wayfinding signs, and traffic calming features, including at crossings with higher volume arterials. Physical and non-physical measures such as signs, pavement markings, speed humps, and low or reduced vehicle speeds are utilized to discourage through trips by motor vehicles and create safe, convenient bicycle access.



Figure 1-5: Bike Route (Class III)



Bike Routes with Multi-Use Shoulders

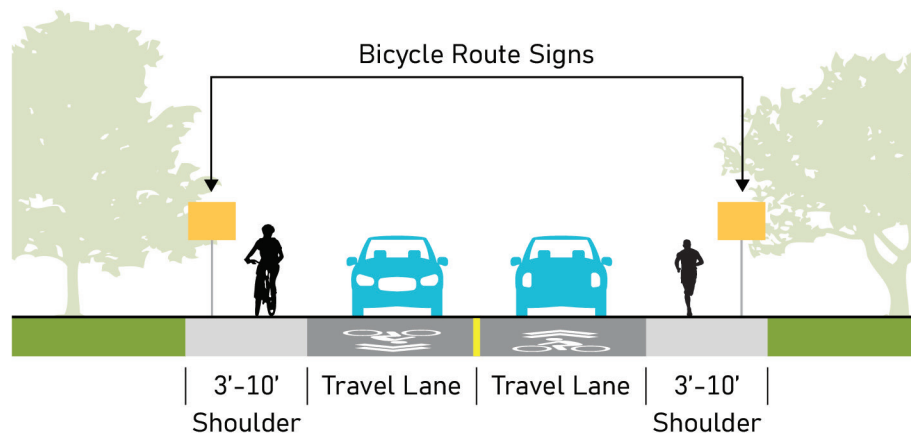
Class III bike routes with multi-use shoulders include the features of Class III bike routes with the addition of a striped shoulder of variable width (Figure 1-6). This facility is used most frequently in rural areas when jurisdictions wish to maximize road space for bicycles but lack sufficient right-of-way to meet minimum requirements for bike lanes. This facility also accommodates pedestrians, but at a much lower level of comfort than a shared-use path or sidewalk.

Shoulder widths should be

- » At least 3 feet on open-section roadways with no vertical obstructions immediately adjacent to the roadway and no rumble strips.
- » At least 5 feet is recommended from the face of a guardrail, curb, or other roadside barrier to provide additional operating width, as bicyclists generally shy away from a vertical face.

The FHWA Small and Rural Multi-Modal Networks Guide provides application guidance, including options for use of rumble strips and painted shoulders. Benchmarking Bike Networks (League of American Bicyclists) provides guidance for preferred shoulder width when retrofitting shoulders. For new construction, follow recommended shoulder widths in the AASHTO Green Book.

Figure 1-6: Bike Route (Class III) with Multi-Use Shoulder



Yield Roadways

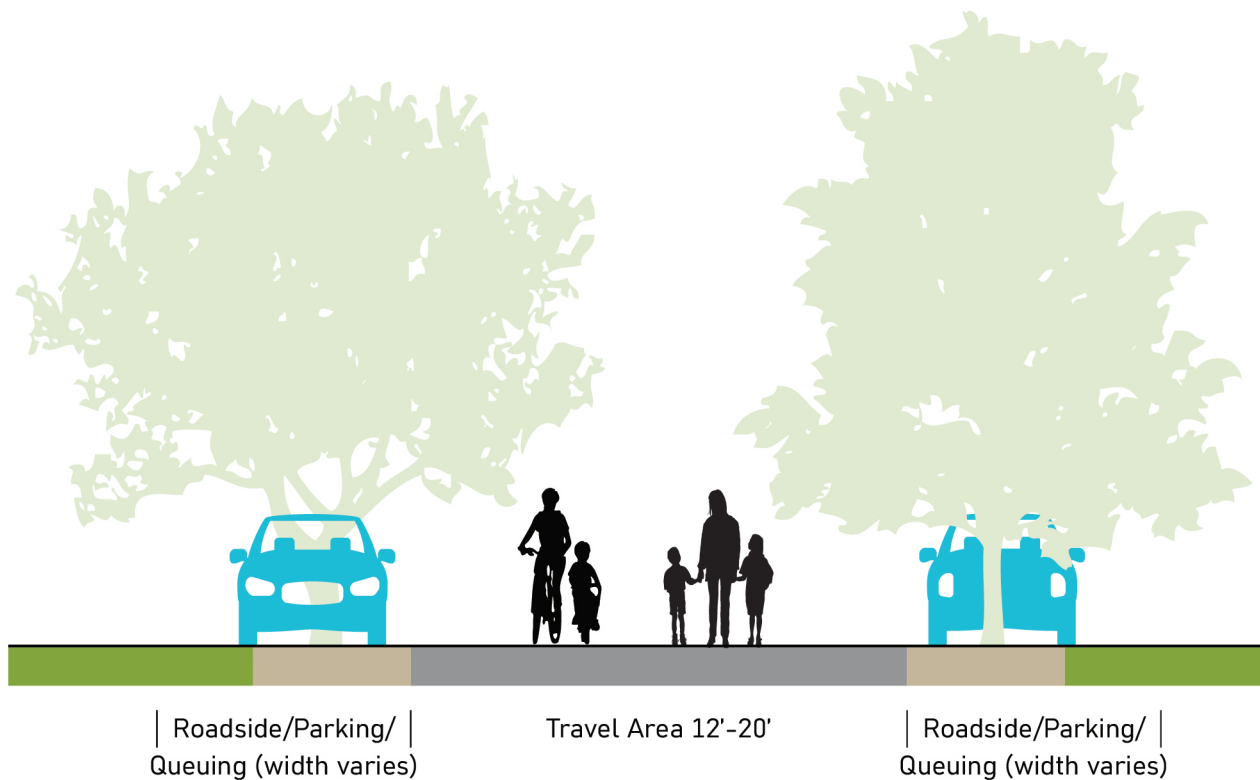
A yield roadway is designed to serve pedestrians, bicyclists, and slow-speed low-volume motor vehicle traffic in the same travel area. Yield roadways serve bidirectional motor vehicle traffic without lane markings (Figure 1-7).

Yield roadways are appropriate on narrow roads with very low volumes and low vehicle speeds within built-up areas, particularly near residential land uses where most traffic is familiar with prevailing road conditions. They are useful on roads that do not have curb and gutter.

The paved two-way travel lane should be narrow (12–20 feet) to encourage slow travel speeds and require courtesy yielding when vehicles traveling in opposite directions meet. If desired, parking may be located on the paved roadway surface or on gravel or soil shoulders outside of the paved roadway. The parking lane may also serve as a pull-out area while yielding. When possible, the parking lane should be constructed with a contrasting material (such as bituminous, crushed stone, or turf) to differentiate the lane from the travel area.

The US DOT Small Town and Rural Multimodal Networks report and AASHTO Guidelines for Geometric Design of Low-Volume Roads (2nd edition, 2019) provide extensive guidance on these facilities.

Figure 1-7: Yield Roadway



Bicycle Parking

Bicycle parking encourages ridership by supporting the final stage of a bicycle trip. Locations with high ridership, including civic, residential, commercial, and office spaces, are excellent candidates for bicycle parking. At these locations, both short-term and long-term parking should be accommodated.

Short-term bicycle parking is temporary bicycle parking intended for visitors, typically used for less than two hours. Bicycle racks are a common form of short-term parking. Installing bicycle racks near main entrances also helps bicyclists feel welcome and encourages them to ride their bicycle again on a return trip. Bike parking should be located in well-lit areas to discourage theft. Bicycle racks that allow at least two points of contact, such as the wheel and frame, provide the most protection against theft and accidental damage.



Long-term bicycle parking is intended for employees, students, commuters, and residents to protect bicycles for extended periods. Long-term facilities are more secure than short-term bicycle parking and should fully protect bicycles from theft and weather. Long-term bicycle parking includes bike lockers, bike cages, and bike rooms:

- » Bike lockers are outdoor enclosures that accommodate one or two bicycles and are usually leased on a monthly basis or paid short-term use.
- » Bike cages are fully enclosed, roofed shelters that house racks of bicycle parking, typically found at schools.
- » Bicycle rooms are commonly found inside office or residential buildings, and provide secure indoor parking. Bicycle rooms may feature amenities such as bike pumps and quick-fix tools for employees and residents.

The Association of Pedestrian and Bicycle Professionals (APBP) Essentials of Bicycle Parking: Selecting and Installing Bicycle Parking That Work guide is a comprehensive resource for bicycle parking.

Additional Resources

The following documents are general resources for designing and implementing walking and biking facilities:

- » NACTO Urban Bikeway Guide, 2nd Edition (2014)
- » NACTO Urban Streets Design Guide (2013)
- » NACTO Transit Street Design Guide (2016)
- » FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations (2018)
- » FHWA Small and Rural Multi-Modal Networks Guide (2016)
- » FHWA Separated Bicycle Lane Planning and Design Guide (2015)
- » FHWA Bikeway Selection Guide (2019)
- » AASHTO Guide for the Development of Bicycle Facilities, 4th Edition (2012)
- » Caltrans Highway Design Manual (2020)
- » Caltrans Design Information Bulletin (DIB) 94 Complete Streets: Contextual Design Guidance (2024)
- » Caltrans Class IV Bikeway Guidance (DIB 89-02) (2022)
- » League of American Bicyclists Benchmarking Bike Networks (2022)
- » Design Manual for Bicycle Traffic (CROW Manual) (2017)
- » ITE Recommended Practices on Accommodating Pedestrian and Bicyclists at Interchanges (2016)
- » APBP Essentials of Bicycle Parking: Selecting and Installing Bicycle Parking That Works (2015)



Non-Infrastructure and Supporting Programs

Beyond improving physical infrastructure for biking and walking supporting programs can expand the comfort, safety, and use of active transportation.

Education and Encouragement

Bicycle educational programs help both children and adults learn to ride bicycles safely. These programs can be made a regular part of the curriculum at the elementary school and middle school level and offered to adults through community education programs. Safe walking programs can also be included at the elementary level.

Schools, recreation programs, and community groups can encourage biking and walking through bike rodeos, helmet giveaways, fun runs, walkathons, and walk to school events. Programs such as walking school buses and biking school buses (also known as bike trains), programs in which kids and families walk or bike to school in groups, are other good opportunities for neighborhood schools to encourage walking. Local running, walking, hiking, and biking events encourage active engagement for adults. Bike-to-work events can be used as a way to increase bicycle commuting.

Enforcement

In many areas, local law enforcement partners with local schools to step up enforcement of good driver behaviors around pedestrians and bicyclists at the beginning of the school year. Similar enforcement efforts at other locations frequented by pedestrians and bicyclists can further help pedestrians and bicyclists. Periodic enforcement actions along shared-use paths can also help alleviate concerns about personal safety along them.

Evaluation

Counters, both automated and manual, can be used to count bicyclists and pedestrians using on-street facilities as well as shared-use paths. This data to track walking and biking in the community, support future grant applications and direct future improvement efforts. Bicycle and pedestrian counts, frequently included as part of traffic counts that are often performed when developing roadway improvements, can be collected centrally.



Maintenance

Many areas have informal maintenance policies for walking and biking facilities and often rely on citizen reports for issues. While this is acceptable for some maintenance issues, such as pedestrian signals and other facilities that need infrequent maintenance, more formal policies help assure that regular maintenance is used to keep facilities accessible and safe. Formal maintenance policy that addresses both incidental and periodic maintenance for bicycle and pedestrian facilities systematize good practices, ensuring that they carry forward, and address other ongoing or periodic maintenance issues.

Maintenance should include regular shoulder or bike lane sweeping on corridors frequently used by bicyclists or other users, especially where there are no sidewalks, and incidental sweeping policies to address debris that may accumulate. A regular program of vegetation maintenance reduces incidences of overgrown vegetation restricting or obstructing bikeways, sidewalks, and shared-use paths.

Sidewalk maintenance is frequently the responsibility of the property owner. Adding or increasing financial assistance or advisory programs for sidewalk and vegetation maintenance can help improve pedestrian conditions.



Bench and bus shelter in Huron

Traffic Calming

Traffic calming devices include a wide range of design treatments capable of reducing vehicle speeds and thus improving the safety and comfort of the transportation network for all users. Reducing vehicle speeds makes travel safer for both bicycles and pedestrians.

Vertical deflection devices cause drivers to experience a physical response that is aggravated when traveling at high speeds. Many existing streets can be retrofitted with vertical measures.

Horizontal deflection devices are used to deflect vehicles from traveling at high speeds. Horizontal deflection measures require drivers to navigate laterally and consequentially reduce speed.

Narrowing traffic calming devices are a sub-category of horizontal deflection traffic calming devices. Wider roads are associated with greater crash rates and higher impact speeds. Narrowing roadways often leads to decreased vehicle speeds and improves safety.

Restriping narrower travel lanes for vehicle traffic via centerline and edgeline striping can reduce motor vehicle speed. Cross-hatch pavement marking applied to outer edge of a roadway to create a shoulder and reduce lane widths if the space is not used for a bike lane or parking. In many locations, interior traffic lanes can be narrowed to 10 feet or less to encourage lower speeds. Narrow lanes can make room in the roadway right of way for painted medians, center turn lanes, bicycle lanes, or parking.

Road Diets

Road diets reduce the number of travel lanes. This is typically done by converting a four lane road into a three lane road with a two-way-left-turn lane and bike lanes. The space created by removing lanes can also be used for painted medians or parking.

Wayfinding

Wayfinding signage can be used on both bicycle and pedestrian facilities to direct users to connecting facilities and key destinations. Good wayfinding signs can also encourage pedestrians and bicyclists to visit local business. These signs provide the most value at path junctions and at intersections of key bicycling and walking routes. Chapter 9B of the California MUTCD provides guidance on sign design and installation. These standard signs may also be augmented by signs depicting distances in miles to encourage walking and bicycling. Cities such as Kingsburg and neighborhoods or regions with distinctive branding can also include this branding in these signs.

As noted previously, bike route designations and signage can also be used to assist with wayfinding on roadways without other marked bike facilities.

Lighting

Good lighting in areas with walking and biking deters crime, increases safety and perceptions of safety for all users and thus can also increase walking and biking outside of daylight hours.



Crime Prevention Through Environmental Design

Crime prevention through environmental design (CPTED) can also be used to reduce the fear and incidence of crime and improve the quality of life by creating attractive, livable, and safe places. CPTED relies on four main strategies that can be employed in the development of active transportation facilities:

- » **Natural surveillance:** The placement of physical features (windows, lighting, landscaping), activities (waiting for transit, sitting on a bench, walking), and people in a way that maximizes visibility of buildings, people, parking areas, and entrances. Natural surveillance can increase the number of eyes on the street and create visual connections between the street, sidewalk, and nearby land uses.
- » **Natural access control:** Directing the flow of people by controlling access to and through a site to decrease the opportunity for crime by design elements (walkways, lighting, signage, landscaping, and physical barriers) can direct users to public routes and areas and discourage access to private areas.
- » **Territorial reinforcement:** Use of physical attributes (fences, landscaping, sidewalks, and signage) to express ownership, distinguish between private and public space and define property lines.
- » **Maintenance:** Continued use of a space for its intended purpose. Proper maintenance can serve as an additional expression of ownership and can help maximize public safety and visibility of a space, while deterioration and debris can indicate lack of concern and control and encourage unintended uses.



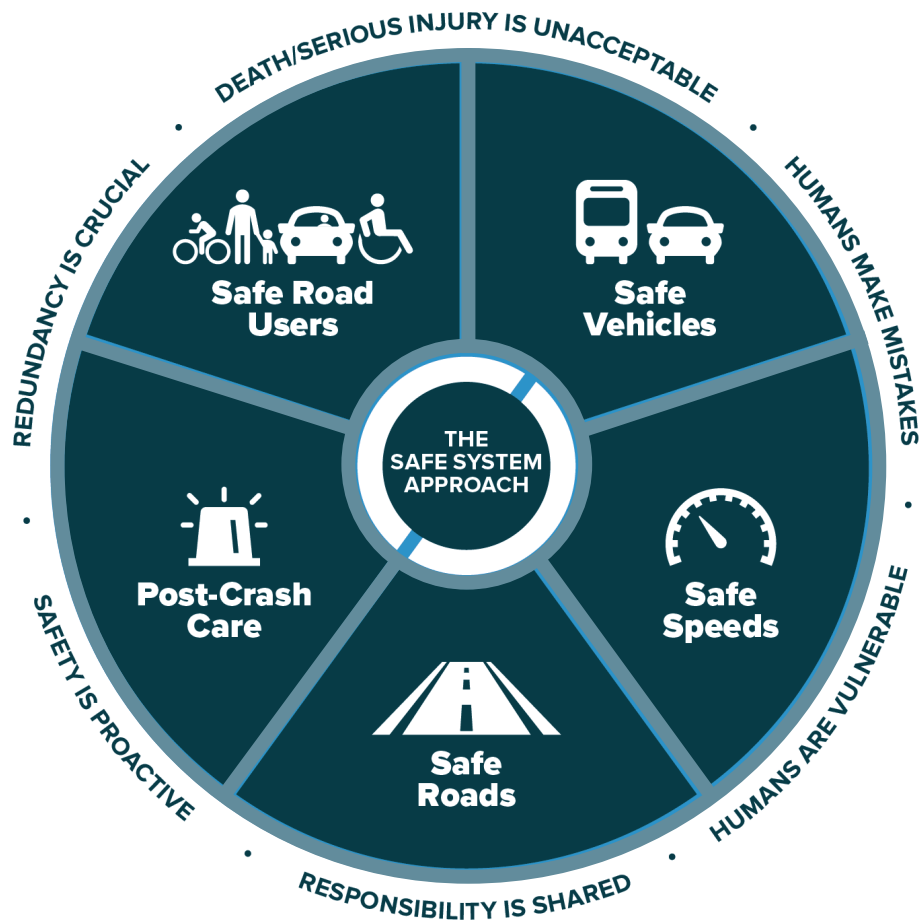
Safety

The overall goals and strategies for this plan are based upon the Safe System approach. The Safe System approach acknowledges that humans make mistakes but seeks to ensure that those mistakes do not result in serious injuries for any road user. Knowing that the human body is vulnerable, it seeks to limit the kinetic energy transferred in a crash to a level a body can withstand when designing and operating a transportation network.

The Safe System approach incorporates five elements of a safe transportation system – safe road users, safe vehicles, safe speeds, safe roads, and post-crash care. This approach means that responsibility for road safety is not born solely by road users. While road users are responsible for their own behavior and abiding by laws and regulations and exhibiting due care and proper behavior on the transportation system, safety is a shared responsibility with those who design, operate, and maintain the transportation network, including the automotive industry, law enforcement, elected officials, and government bodies.

In a Safe System, roadway system designers provide safe roadways by using engineering standards, guidance from organizations such as Caltrans and the American Association of State Highway and Transportation Officials (AASHTO), and engineering judgment to create context-sensitive safety solutions.

To evaluate walking and biking safety, injury collisions from 2016 to 2021 involving people walking or biking were reviewed. Further details of this analysis is provided for each city and the unincorporated county in Chapter 5 to 16.



Electric Mobility Devices

Electric bicycles (e-bikes) and other electric mobility devices such as electric scooters are a rapidly growing new transportation alternative in cities and other areas in California. These devices provide a potential option to cover longer travel distances and steeper grades. Bike share companies that include electric bikes and electric scooter rentals are common in many cities. By improving personal mobility without requiring use of a car, these devices may also be an appealing option to aging but active populations.

E-Bikes

The definition of an e-bike per CVC 312.5 is “an electric bike is a bicycle with fully operable pedals and an electric motor of less than 750 watts.” California designates three classes of e-bikes (CVC Section 312.5):

- » **Class 1** – low-speed pedal-assisted electric bicycle: Bicycle equipped with a motor that provides assistance only when the rider is pedaling and that ceases to provide assistance when the e-bike reaches 20 mph.
- » **Class 2** – low-speed throttle-assisted electric bicycle: Bicycle equipped with a throttle-actuated motor that ceases to provide assistance when the e-bike reaches 20 mph.
- » **Class 3** – speed pedal-assisted electric bicycle: Bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the e-bike reaches 28 mph.

Class 1 and 2 e-bikes are generally treated similarly to regular bicycles:

- » There is no minimum age to ride.
- » Helmets are required for ages 17 and under.
- » Allowed on all classes of bikeways, unless prohibited by the local jurisdiction (CVC Section 21207.5).

Class 3 e-bikes have more limitations on their use:

- » Riders must be 16 years of age or older.
- » A helmet is required for all riders.
- » They are allowed on Class II bike lanes or Class III bike routes, but not allowed on Class I shared-use paths or Class IV separated bikeways (CVC Section 21207.5).

Electric Scooters

California Vehicle Code defines an electric scooter as a “motorized scooter”: any two-wheeled device that has handlebars, has a floorboard that is designed to be stood upon when riding, and is powered by an electric motor. This device may also have a driver seat that does not interfere with the ability of the rider to stand and ride and may also be designed to be powered by human propulsion (California Vehicle Code Section 407.5). Limitations on their use include:

- » Riders must use Class II bike lanes when they are present (CVC Section 21229).
- » Motorized scooters are not allowed on roads with a speed limit in excess of 35 miles per hour, unless in a Class II bike lane or Class IV separated bikeway (CVC section 21235). This prohibition includes street designated as Class III bicycle routes. A local authority may, by ordinance or resolution, authorize the operation of a motorized scooter outside of a Class II or Class IV bikeway on a highway with a speed limit of up to 35 miles per hour.
- » Motorized scooters are allowed on all other classes of bikeways unless prohibited by the local jurisdiction (CVC Section 21230).
- » Riders are prohibited from using sidewalks, except when entering or leaving adjacent property.
- » A helmet is required for all riders under 18 years of age.
- » A valid driver’s license or instruction permit is required.
- » Speeds are limited to 15 miles per hour,
- » Leaving a scooter on its side on a sidewalk, or otherwise parking one so that there was not an adequate path for pedestrians, is prohibited.

Electrically Motorized Boards

According to California Vehicle Code, the term “electrically motorized board” is any wheeled device that has a floorboard designed to be stood upon when riding with a maximum speed of 20 miles per hour. The device may be designed to also be powered by human propulsion (CVC Section 313.5).

- » Use is restricted to roads with speed limits of 35 miles per hour or less, unless operated in a Class II or Class IV bikeway. On other bikeways, speed is limited to 15 miles per hour (CVC Section 21294).
- » Riders must be 16 years of age or older.
- » A helmet is required for all riders.

Electric Personal Assistive Mobility Devices

According to California Vehicle Code, the term “electric personal assistive mobility device” (EPAMD) means a self-balancing, non-tandem two-wheeled device that can turn in place, with a maximum speed of 12.5 miles per hour (CVC Section 313). The most common example is the Segway. “Pedestrian” includes use of EPAMDs (CVC Section 467). EPAMDs can operate on bikeways and sidewalks unless prohibited by the local jurisdiction, but must yield to pedestrians (CVC Sections 21281.5 and 21282).

Access

Laws for each electric device are different. E-bikes generally have more options for locations to ride, as summarized in Table 1-1. When determining access for electric bicycles and other electric devices, the following issues should be considered:

- » Electric mobility devices provide increased mobility for users who are less able to use regular bicycles due to age or disability.
- » Terrain with frequent elevation changes may discourage some people from walking or bicycling as transportation. Electric mobility devices may encourage more people to reduce use of motor vehicles.
- » Higher-speed electric mobility devices may generally be faster than most bicycles and pedestrians.
- » Some non-electric bike users and pedestrians may consider e-bikes and other powered to detract from their experience on bikeways and trails.
- » Consideration should be given to regulating parking and storage of devices so that they do not impede pedestrian or other traffic, in particular through the use of corrals.
- » The data that bike and scooter share companies collect can be valuable to a jurisdiction seeking to understand the movement of people and planning for them.

Table 1-1: Permitted Access of Electric Mobility Devices on Bikeways in California Vehicle Code

Device*	Class I Shared-Use Path	Class II Bike Lane	Class III Bike Route	Class IV Separated Bikeway
Class 1 E-Bike	Allowed	Allowed	Allowed	Allowed
Class 2 E-Bike	Allowed	Allowed	Allowed	Allowed
Class 3 E-Bike	Prohibited	Allowed	Allowed	Prohibited
Motorized Scooter**	Allowed	Allowed	Allowed (speed limit ≤ 35 mph)	Allowed
Electrically Motorized Board	Allowed	Allowed	Allowed	Allowed
Electric Personal Assistive Mobility Device	Allowed	Allowed	Allowed	Allowed

Notes: *Local jurisdictions may enact further restrictions.

**Outside of bikeways, not allowed on roads with speed limits in excess of 25 or 35 miles per hour (see discussion)

Source: California Vehicle Code 2023, Fehr & Peers, 2023

Policy Options

Electric scooters have spread rapidly into different cities, but some concerns have attended their spread. A large concern with scooters has been their mixing with much slower pedestrian traffic. Some cities have responded by prohibiting sidewalk use, but on streets with fast vehicles and heavy traffic without bike lanes, they may be forced to mix with vehicular traffic, which may be less comfortable or safe and reduce overall use. Speed limits for scooters are another option, but enforcement may be challenging.

Jurisdictions have several policy options for e-bikes and other electric mobility devices. Different policies may be enacted for each device. Access options include:

- » Continue with existing access as allowed by state law.
 - This option provides the most mobility and accessibility for those who use these transportation options.
- » Prohibit access to sidewalks and Class I shared-use paths, where pedestrians are also present, but continue access to other bikeways.
 - This option separates the slowest and some of the fastest users of the path, but will not eliminate all fast riders, as regular bicycles may travel as fast as or faster than e-devices.
 - This option would result in more e-devices mixing with motor vehicle traffic.
 - In some locations, there may be no access for electric scooters, which are prohibited from roads with speed limits greater than 35 mph unless a bike lane or separated bikeway is available.
- » For Class 3 e-bikes, prohibit access to all bikeways except Class III bike routes.
 - This option provides the greatest restriction and separation.
 - This option would force e-devices to mix with vehicular traffic, which may be less comfortable or safe and reduce overall use of e-devices, and under some conditions may be prohibited by state law.

Jurisdictions may also develop policies concerning parking and storage of these devices, especially sharing systems, to minimize impacts on flows of pedestrians and other vehicles. These policies may require use of corrals, prohibit blocking of entrances, or other aspects.

RELATIONSHIP TO OTHER PLANS AND POLICIES

Many local, regional, state, and federal plans and other documents were reviewed in development of this ATP. These plans and documents contain goals and policies and specific programs and requirements related to active transportation. Each of these documents is summarized in Appendix C.

LOCAL JURISDICTIONS

Each jurisdiction has its own policies and requirements related to bicycling and walking. The documents containing these policies and requirements include

- » existing bicycle and pedestrian plans,
- » general plans,
- » standard drawings,
- » municipal codes, and
- » specific plans and other plans.

Specific local plans and documents for each jurisdiction are discussed in Appendix C .

REGIONAL

The following regional plans were reviewed in the development of the ATP:

- » Fresno Council of Governments Regional Transportation Plan and Sustainable Communities Strategy
- » Fresno County Transportation Authority Measure C
- » Fresno Council of Governments Transportation Needs Assessment
- » Fresno Council of Governments Regional Safety Plan
- » Golden State Corridor Design Plans
- » Caltrans Bicycle Guide for District 6
- » Caltrans District 6 Active Transportation Plan

STATE AND FEDERAL

Several state and federal plans and other documents contain goals, policies, and requirements relevant to the ATP.

- » California State Bicycle and Pedestrian Plan
- » California Green Building Code
- » California Assembly Bill 32
- » California Senate Bill 375
- » California Assembly Bill 1358
- » California Assembly Bill 743
- » US DOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations
- » US Americans with Disabilities Act

Chapter 2

EXISTING CONDITIONS

This chapter describes current conditions for walking and biking in the Fresno County region. The existing networks are presented along with a description of the socioeconomic and land use context of walking and biking. Specific maps and descriptions for each city and the county are presented in Chapters 5 to 17.

CLIMATE

Although much of Fresno County is flat and the relatively dry climate is conducive to bicycling and walking, other local environmental conditions make active transportation more challenging. The land is more hilly toward the eastern side of the county. Summers are hot, with average high temperatures exceeding 95 degrees Fahrenheit and daily high temperatures frequently exceeding 100 degrees Fahrenheit. Air quality in the region frequently reaches the unhealthy range or higher due to both ground-level ozone and particulate matter.

RAILROADS AND HISTORICAL DEVELOPMENT PATTERNS

Much of the Fresno region was originally settled adjacent to railroads. Railroads historically served the packing industry and continue to serve businesses in the region today. Amtrak also serves passengers in the region with a station in the city of Fresno. Many communities were developed with streets parallel and perpendicular to the railroads. Because the railroads generally traverse the Central Valley in a northwest/southeast orientation, the first streets in these communities were developed at a similar orientation. Later street development in these cities often occurred in a north/south or east/west orientation. Intersections formed where these developments meet are often at angles which make crossing more difficult for pedestrians and bicyclists.

In cities where the railroad still exists, railroad crossings also frequently create barriers due to poor pavement or sidewalk gaps.



HIGH VOLUME REGIONAL ROADS

Communities in Fresno County are connected by many roads that serve large volumes of traffic, often at high speeds. Some of these roads are state routes controlled by Caltrans, while other roads are controlled by Fresno County. Limited access freeways often have few points at which pedestrians and bicyclist can cross. Other regional roads often have motor vehicles traveling at high speeds, making travel uncomfortable and stressful for pedestrians and bicyclist. Speeds may be lower when these roads pass through cities and unincorporated communities, but may still be higher than on local roads. Motor vehicle volumes are frequently still high, especially compared to local roads, making them more stressful for pedestrians and bicyclists.

In addition to serving as connectors across the county, these roads sometimes serve as main streets in cities and unincorporated communities. There these roads serve pedestrians, bicyclists, and local vehicle traffic as well as traffic moving between communities. Careful design is especially important in these locations to ensure that these roads serve all users, are safe for all users, and do not serve as a barrier to pedestrians and bicyclists.

Manning Avenue is an example of one of these high volume regional connecting roads. Manning Avenue is an east-west road spanning Fresno County, passing through the cities of San Joaquin, Parlier, and Reedley and the unincorporated community of Raisin City. In Parlier, the road is the location of many local businesses and local apartments and is the expected location of much future development. Similar conditions exist in the other communities along Manning Avenue and other regional high volume roads.

OTHER FACTORS

Several other local conditions affect walking and bicycling in the Fresno County region:

- » **Gaps in active transportation networks:** Walking and bicycling networks have developed unevenly resulting in gaps. A sidewalk may serve one block or a few houses along a block but then be interrupted by another block or stretch of houses without sidewalks. Such conditions force pedestrians to walk along the road shoulder or in the street. Marked, improved crossings may not exist at busy intersections even if sidewalks are present. Similarly, gaps in bicycling networks may force bicyclists to mix with motor vehicles on busy, fast roads.
- » **Lack of related infrastructure:** Some neighborhoods lack curb and gutter and storm drainage. Sidewalks and paths can be difficult to construct and maintain if this infrastructure is not present. Adding this infrastructure dramatically increases the cost of developing active transportation facilities.
- » **Lighting:** Some streets, especially in unincorporated communities, do not have streetlights or have streetlights that are widely spaced. Several public comments requested improved lighting to increase safety and perceptions of safety, which will increase walking and bicycling.
- » **Loose dogs:** Several public comments also noted that loose dogs are a deterrent to walking and bicycling in several cities and unincorporated communities.

DISADVANTAGED COMMUNITIES

Service to disadvantaged communities is a key metric in applications to many grant funding programs including California's Active Transportation Program. This plan presents seven different indicators of disadvantaged communities, sometimes referred to as environmental justice communities:

- » **Household median income** – census tracts with median households under 80% of the statewide median.
- » **CalEnviroScreen 4.0 score percentile** – a measure of environmental health by census tract. Inputs include socioeconomic factors, population characteristics, pollution factors, and environmental factors. Tracts with higher percentiles are more disadvantaged. The worst scoring 25% are identified.
- » **Free or reduced price meal eligibility** – the share of students at a school who are eligible for subsidized meals. Schools with more than 75% eligible are most disadvantaged.
- » **California Healthy Places Index** – A measure of the community conditions shaping health outcomes. Factors include economics, education, transportation, social, neighborhood, housing, clean environment, and healthcare access. Census tracts in the worst scoring 25% are considered disadvantaged by the ATP guidelines.
- » **Federal Climate and Economic Justice Screening Tool (CEJST)** – Launched by the White House Council on Environmental Quality. Federal agencies are implementing the Justice40 Initiative, which seeks to deliver 40 percent of the overall benefits of Federal climate, clean energy, affordable and sustainable housing, clean water, and other investments to disadvantaged communities that are marginalized, underserved, and overburdened by pollution. Communities are considered disadvantaged if they are in a census tract that meets the threshold for at least one of the tool's eight categories of burden and corresponding economic indicator.
- » **US DOT Equitable Transportation Community (ETC) Explorer Tool** – A measure of the cumulative burden communities experience, as a result of underinvestment in transportation, in the following five components: Transportation Insecurity, Climate and Disaster Risk Burden, Environmental Burden, Health Vulnerability, and Social Vulnerability. It is designed to complement the CEJST by providing users deeper insight into the transportation disadvantage component of CEJST. Census tracts scoring in the worst 25 percent are considered to be disadvantaged by the Active Transportation Program.
- » **FCOG Environmental Justice Areas** – The FCOG Environmental Justice Subcommittee defined the environmental justice area as the travel demand model travel analysis zones (TAZs) within Fresno County with a concentration of minority and/or low-income population equal to or greater than the Fresno County average. This methodology has been implemented by several other major metropolitan planning organizations in California in assessing equity in their regions.

Specific descriptions for each jurisdiction are presented in Chapters 5 to 17. Many areas covered by this plan have one or more indicators of disadvantaged community status.

CONNECTIONS WITH TRANSIT

The primary transit provider in the jurisdictions covered by this plan is the Fresno County Rural Transit Agency, which has extensive routes across Fresno County. Other transit providers serving Fresno County destinations include

- » **Fresno Area Express**, serving the City of Fresno and adjacent communities;
- » **Clovis Transit**, serving Clovis and adjacent communities;
- » **Kings Area Rural Transit**, connecting Hanford to the Fresno–Clovis Metropolitan Area with stops in Laton and Selma; and
- » **The Dinuba Connection**, with service to Reedley.

These agencies provide fixed route and demand-responsive transit service. Buses are provided with bike racks by each of these agencies. Transit stops are shown on the key destinations maps for each jurisdiction presented in Chapters 5 to 17.



This Rural Transit bus serves the City of Huron and nearby communities..

Chapter 3

PLANNED NETWORKS AND PROGRAMS

This chapter discusses the planned walking networks, biking networks, and supporting facilities and programs for the Fresno County region.

Walking and Biking Networks

The build-out pedestrian and bicycle networks are the long-term vision of the active transportation facilities for the region. The networks include shared-use paths, bike lanes and routes, sidewalks, and crosswalk improvements. The proposed networks are designed to connect to neighborhoods in each community, to provide access to key destinations, and to serve as recreational assets. Details of each jurisdiction's networks are presented in Chapters 5 to 17.

The networks were developed with the following primary considerations:

- » connectivity to key destinations, especially schools, parks, and civic buildings;
- » collision history;
- » previous plans;
- » connections to adjacent jurisdictions' networks;
- » discussions with jurisdiction staff, school district staff, and law enforcement; and
- » public comment.



CROSSING AND INTERSECTION IMPROVEMENTS

Several crossing improvement projects are also proposed in Chapters 5 to 17 to improve pedestrian comfort and safety. The decision to install a marked crosswalk or other crosswalk enhancement should take into account good engineering judgment, engineering study, and/or other necessary considerations as appropriate for each individual location. Some of these considerations include

- » Pedestrian travel demand. Demand should include both existing demand and latent demand, the increase in pedestrians that would result from the improvement.
- » Service of a facility or use that generates higher pedestrian travel or serves a vulnerable population (for example, children, elderly, persons with disabilities). This may include schools, hospitals, senior centers, recreation/community centers, libraries, parks, or trails. Service of such facilities can justify pedestrian improvements to areas of demand less than 20 pedestrians/hour.
- » Sight distance requirements, using appropriate stopping sight distance guidance from AASHTO’s A Policy on Geometric Design for Highways and Streets or the Caltrans Highway Design Manual.
- » Delay to pedestrian movements.
- » Distance to nearest crossing.
- » Guidance of the California Manual on Uniform Traffic Control Devices (MUTCD) and FHWA’s Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations

Depending on the characteristics of a specific location, a marked crosswalk alone may not be sufficient to ensure efficient function for all users and maintain pedestrian safety. FHWA’s Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations provides information on how to select the most appropriate treatment for a specific location. That guide and other resources should be used as appropriate by the designer when the recommendations of this plan are implemented. With consideration of this guide, this plan uses three levels of crosswalk treatments for its planning purpose as shown in Table 3-1.

Table 3-1: Recommended Crosswalk Treatments and Enhancements

Level	Recommended Treatment Or Enhancement
Low	<p>All of the following:</p> <ul style="list-style-type: none"> » High visibility crosswalk » Signs » Pavement word markings
Medium	<p>All of the following:</p> <ul style="list-style-type: none"> » Rectangular Rapid Flashing Beacons » High visibility crosswalk » Signs » Pavement word markings
High	<p>All of the following:</p> <ul style="list-style-type: none"> » Pedestrian Hybrid Beacon or Pedestrian Signal » High visibility crosswalk » Signs » Pavement word markings

Source: Fehr & Peers, 2023



HIGH VOLUME REGIONAL CONNECTING ROADS

As discussed in Chapter 2, Existing Conditions, the region is connected by many roads that serve large volumes of traffic, often at high speeds. Where these roads pass through cities or unincorporated communities, speeds are generally slower, but traffic volumes are frequently still high, and the roads must serve pedestrians, bicyclists, and local vehicle traffic as well as traffic moving between communities. Careful design is required to ensure that these roads are safe for all users, and do not serve as a barrier to bicyclists and pedestrians.

To serve the needs of all of these different users, Caltrans developed *Main Street, California: A Guide for Improving Community and Transportation Vitality*, most recently updated in 2013. This document provides guidance to create streets that are multimodal, livable, and sustainable. It provided good guidance for use when regional roads pass through cities. Principles described in this document include

- » flexibility in design, taking the context of the project location into consideration;
- » partnerships between agencies, communities, and stakeholders to develop collaborative options for funding, maintaining, and operating these streets;
- » developing main streets for all, providing people the freedom to choose their preferred modes of travel;
- » creating livable main streets, which improve a community's quality of life and unique sense of place; and
- » creating sustainable main streets, supporting stewardship of natural resources, economic resources, and social resources.

Many strategies are available to fulfill these principles on streets in cities and communities in Fresno County. These strategies include

- » addition of traffic calming features to reduce vehicle speeds;
- » reducing vehicle lane widths;
- » using road diets to allocate space to bicyclists and other uses;
- » pedestrian refuge islands and curb extensions or bulb-outs; and
- » modifying intersections to better serve pedestrians and bicyclists, including use of
 - pedestrian countdown timers,
 - leading pedestrian intervals, and
 - bicycle detection.

In rural areas outside of cities and unincorporated communities, bike lanes, separated bikeways, or shared-used paths should be used to support walking and biking.

BICYCLE PARKING

Current bicycle parking and recommended additions to bicycle parking are presented for each jurisdiction in Chapters 5 to 17. However, data was not available from all jurisdictions to determine where bicycle parking exists and where it should be added. To support these recommendations, this plan recommends developing a countywide project to survey schools, parks, and public buildings to identify places where bicycle parking should be installed or improved. The project should then implement new bicycle parking meeting the standards discussed in Chapter 1, Introduction, at the recommended locations. Business owners should be encouraged to work with local jurisdictions to provide bicycle parking in visible areas in commercial districts to entice riders to stop and frequent local businesses.

SUPPORTING PROGRAMS

Several improvements to other supporting programs are also recommended for the jurisdictions covered by this plan. General information about these programs is provided in Chapter 1. Specific recommendations are provided here.

Education and Encouragement

Many of the jurisdictions within the region have few education and encouragement programs. Collaborating with other organizations provides a good opportunity to engage the community. In the region, groups such as Cultiva La Salud and Leadership Counsel for Justice and Accountability have hosted successful events that encourage active transportation and other healthy activities in disadvantaged communities. Hosting events with these organizations will allow jurisdiction staff to reach local children and other residents more effectively.

The California Office of Traffic Safety also provides grants for education, encouragement, and enforcement efforts aimed at improving pedestrian and bicyclist safety. Appendix E, Funding Sources, provides more details on these programs.

Personal Safety and Lighting

Local jurisdictions should also consider other improvements to the community environment that will enhance residents' safety and perceptions of safety. Adding lighting improvements can deter crime and increase walking and bicycling outside of daylight hours. Enforcing leash laws and otherwise deterring loose dogs will also diminish another deterrent to walking and bicycling frequently noted in Fresno County.

Pedestrian and Bicyclist Counts

Most jurisdictions have not completed bicycle or pedestrian counts to evaluate use of existing facilities. Fresno COG has bicycle and pedestrian counters available that can be used to measure use of facilities. Bicycle and pedestrian counts can also be included as part of traffic counts that are often performed when developing roadway improvements.

Wayfinding

Most jurisdictions do not have wayfinding signage. Good wayfinding signs can direct users to connecting facilities and key destinations also encourage pedestrians and bicyclists to visit local business. These signs are recommended at trail junctions and at intersections of key bicycling and walking routes.

Maintenance

Many jurisdictions do not have maintenance policies for bicycle and pedestrian facilities. Although funds for maintenance are limited in many jurisdictions, clear maintenance policies can make best use of existing funding to make biking and walking safer and encourage more biking and walking.

Expenditure Tracking

Many jurisdictions do not have the ability to summarize historical expenditures on bicycle and pedestrian improvements and maintenance. Adding the ability to summarize such expenditures will allow easier tracking of investments in these facilities and support future grant applications.



POTENTIAL OUTCOMES

Following implementation of the planned networks and supporting programs, substantial improvements may be achieved in active transportation use and safety of pedestrians and bicyclists.

By increasing the facilities available to users, mode share may increase to levels seen in other comparable cities. As the network continues to expand towards build-out, usage may be expected to be similar to cities with comparable characteristics. Sacramento is a city in the Central Valley with a comparable climate to that of the Fresno County region. Sacramento currently has a 3.0% walking mode share and a 1.5% bicycling mode share. Some cities already have mode shares that are close to or exceed those of Sacramento. A good comparison for those cities is Palo Alto, a California city with more developed infrastructure. Palo Alto has a walking mode share of 4.2% and a bicycling mode share of 7.6%. Though no single city is exactly comparable, these comparisons provide reasonable targets to achieve by implementing the ATP. Achieving comparable mode shares in Fresno County jurisdictions would result in large trip increases in most areas, as shown in Table 3-1. As discussed in Chapter 2, Existing Conditions, because these numbers are based on commute trips and do not include shopping, school, or recreational trips, or commuters who only walk or bike to work part time, the actual number of future trips is likely to be higher than these estimates.

By implementing this plan, pedestrian and bicyclist safety will also be improved and the number of collisions involving pedestrians and bicyclists will also be reduced. A 50% or greater reduction in injuries and fatalities is a reasonable expectation if all aspects of this plan, including supporting programs, are implemented. In addition to these direct health improvements due to collision reduction, implementation will also support increased physical activity by region residents, improving community health by reducing incidence of heart disease, high blood pressure, Type 2 diabetes, mental illness, and obesity.

Table 3-1: Trips to Work by Walking and Bicycling

Jurisdiction	Walking				Bicycling			
	Current Estimate	Current Share	Future Estimate	Future Share	Current Estimate	Current Share	Future Estimate	Future Share
Coalinga	131	2.4%	229	4.2%	0	0.0%	82	1.5%
Firebaugh	4	0.2%	62	3.0%	0	0.0%	31	1.5%
Fowler	0	0.0%	76	3.0%	8	0.3%	38	1.5%
Huron	0	0.0%	71	3.0%	0	0.0%	35	1.5%
Kerman	117	2.0%	176	3.0%	41	0.7%	88	1.5%
Kingsburg	94	1.9%	149	3.0%	74	1.5%	223	4.5%
Mendota	34	0.9%	115	3.0%	0	0.0%	57	1.5%
Orange Cove	64	2.0%	96	3.0%	0	0.0%	48	1.5%
Parlier	31	0.5%	185	3.0%	0	0.0%	93	1.5%
Sanger	280	2.5%	471	4.2%	0	0.0%	168	1.5%
San Joaquin	9	0.9%	29	3.0%	0	0.0%	14	1.5%
Fresno County	6,173	1.5%	12,345	3.0%	1,646	0.4%	6,173	1.5%

*Note: Workers aged 16 years and older, excludes percentage of employees that work from home.
Sources: U.S. Census 2017 -2022 American Community Survey, 2023; Fehr & Peers, 2023*

Chapter 4

IMPLEMENTATION

Implementation of the planned walking and biking networks is anticipated to occur in multiple ways:

- » through active transportation projects pursued to implement this plan;
- » in conjunction with adjacent land development projects as each jurisdiction requires those projects to construct roadway and sidewalk frontage improvements in accordance with jurisdiction standards and the planned facilities identified in this plan; and
- » in conjunction with maintenance and capacity enhancement projects, such as slurry seals, pavement reconstruction, roadway widening, or sidewalk rehabilitation projects.

Active transportation projects will be implemented based upon the priorities identified in the next section. Implementation will require many years to complete; implementation of priority projects will be targeted for completion in the next five to ten years. Implementation of each project is dependent upon availability and acquisition of funding. Projects requiring land acquisition or utility relocation will require extra time to implement. Improvements associated with work on adjacent roadways or development of adjacent land uses will provide opportunities for implementation relatively easily or at lower cost than if implemented separately. In these cases, lower priority improvements may be implemented before higher-priority improvements, depending on the location of these land development and roadway projects. Implementation of each project is also dependent on detailed feasibility and design studies based on local conditions.

Completion of projects in this plan should be reported by jurisdiction staff to the city councils and board of supervisors and on each city's website. Fresno COG will update this plan periodically to reflect changing conditions and needs and progress toward completion.

PRIORITIZATION

The elements of these networks were prioritized as “High Priority” or “Other” (not high priority) for all jurisdictions based on several criteria:

- » proximity to key destinations, including schools, parks, bus stops, and activity centers;
- » collision locations;
- » disadvantaged community indicators;
- » senior and youth populations;
- » public comment; and
- » judgment of local jurisdiction staff.

Lists of projects with priorities are provided in Appendix D, Projects, Priorities, and Cost Estimates.

COSTS

The estimated costs to implement each type of facility are provided in Appendix D and summarized in Table 4-1. Summarized costs for each jurisdiction are provided in Chapters 5 to 17. On-street bike routes and bike lanes are the least expensive to construct per mile, while separated bikeways, sidewalks, and shared-use paths are most expensive to construct. If roads must be widened, utilities relocated, or land acquired to implement any of these facilities, costs will increase. However, many of these facilities may be implemented during development of adjacent land uses or in conjunction with other projects. Therefore, some of these costs will not be directly borne by the jurisdiction.

Project cost estimates are based on local unit cost estimates. These estimates were developed based on relevant project experience in the area. Assumptions for each bikeway type and details of these estimates are described in Appendix D. Note that these are high-level cost estimates, therefore more detailed study and design of individual project will be required to refine them.

Table 4-1: Project Cost Estimates

Facility Type	Cost Per Mile	High Priority	Total
Sidewalk	\$369,600	\$10,733,800	\$28,709,100
Shared-Use Path (Class I)	\$955,700	\$74,745,297	\$262,569,018
Bike Lane (Class II)*	\$401,400	\$63,332,892	\$193,442,688
Bike Route (Class III)*	\$16,000	\$874,400	\$4,206,240
Separated Bikeway (Class IV)*	\$633,600	\$13,185,216	\$19,698,624
Intersection Improvements		\$5,566,900	\$10,761,500
Overcrossing		\$630,000	\$630,000
Total		\$169,068,505	\$519,450,170

**Distance measured by centerline*

Source: Fehr & Peers, 2023, Mark Thomas & Company, 2023

Unit costs for other equipment, including installation are presented in Table 5-2.

Table 4-2: Unit Costs for Other Equipment

Equipment Type	Cost
Bike Rack (each)	\$2,900
Wayfinding Signage (each)	\$790
Lighting (single street light)	\$15,000

Source: Fehr & Peers, 2023, Mark Thomas & Company, 2023

FUNDING

Regional, state, and federal funding is available for walking and biking projects and programs. Appendix E, Funding Sources, summarizes these funding sources including their applicability to projects, planning efforts, and programs proposed in this plan.

The following funding sources are recommended as the most applicable for the projects in this plan:

Regional

- » Fresno County Transportation Authority Measure C
- » SJVAPCD Bikeway Incentive Program

State

- » Active Transportation Program
- » Highway Safety Improvement Program
- » California Department of Parks & Recreation Recreational Trails Program

Federal

- » Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grant Program
- » Congestion Mitigation and Air Quality (CMAQ) Improvement Program
- » Surface Transportation Block Grant (STBG) Program
- » Rural Surface Transportation Grant Program
- » Reconnecting Communities: Highways to Boulevards
- » Strengthening Mobility and Revolutionizing Transportation (SMART) Grant Programs
- » Safe Streets and Roads for All (SS4A) Grant Program
- » Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Grant Program

In addition to these funding programs, two other funding sources may be considered:

Local Developer Fees: Local fees from land development projects can provide match funding or full implementation of projects where there is a nexus to the project.

Federal and State Earmarks: Opportunities to secure funding through federal and state legislation via earmarks has occurred at both the federal and state levels. There may be an opportunity to highlight the need for a project with Congressional Representatives and State Assembly members and Senators. Given the often short time frames for consideration, consider proactively developing a fact sheet with funding needs and benefits for potential projects in advance of a request.

