

Chapter 4

PLANNED NETWORKS AND PROGRAMS

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

BICYCLE AND PEDESTRIAN 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 6 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; and
- public comment.

CROSSING AND INTERSECTION IMPROVEMENTS

Several crossing improvement projects are also proposed in Chapters 6 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 judgement, engineering study, and/or other necessary considerations as appropriate for each individual case. Some of these considerations include

- Pedestrian travel demand, typically 20 pedestrians/hour or more.
- Service of a facility or use that generates higher pedestrian travel or serves a vulnerable population (e.g., 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 less demand 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 Caltrans' *Highway Design Manual*.
- Delay to pedestrian movements.



Public meeting held in Kerman to discuss potential improvements to bicycle and pedestrian networks.

- Distance to nearest crossing.
- Guidance of the California Manual on Uniform Traffic Control Devices (MUTCD).

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. If a location is suitable for a marked crosswalk, Table 4-1 outlines the appropriate level of enhancement that may be necessary based on the number of travel lanes, average daily traffic, and posted speed limit (assuming speed limits are set at the 85th percentile speed). Three levels of enhancement are identified in Table 4-2 ranging from Level A to Level C.



Crosswalk with in-pavement flashers in the unincorporated community of Riverdale.

Table 4-1: Recommended Level of Enhancement at Crosswalks

Roadway Type	Vehicle ADT ≤9,000			Vehicle ADT >9,000 To 12,000			Vehicle ADT >12,000 To 15,000			Vehicle ADT ≥15,000		
	≤30 mph	35 mph	40 mph	≤30 mph	35 mph	40 mph	≤30 mph	35 mph	40 mph	≤30 mph	35 mph	40 mph
Residential	R	-	-	-	-	-	-	-	-	-	-	-
2 Lanes		A	B	A	A	B	A	A	C	A	B	C
3 Lanes	A	A	B	A	B	B	B	B	C	B	C	C
4 Lanes with Raised Median	A	A	C	A	B	C	B	B	C	C	C	C
4 Lanes without Raised Median	A	B	C	B	B	C	C	C	C	C	C	C

Source: Fehr & Peers, 2017

Table 4-2: Recommended Crosswalk Treatments and Enhancements

Level	Recommended Treatment Or Enhancement
R	High visibility crosswalk
A	<p>All of the following:</p> <ul style="list-style-type: none"> • High visibility crosswalk • Signs • Pavement word markings
B	<p>All of the following:</p> <ul style="list-style-type: none"> • Rectangular Rapid Flashing Beacons • High visibility crosswalk • Signs • Pavement word markings
C	<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, 2017

HIGH VOLUME REGIONAL CONNECTING ROADS

As discussed in Chapter 3, 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, 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. 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

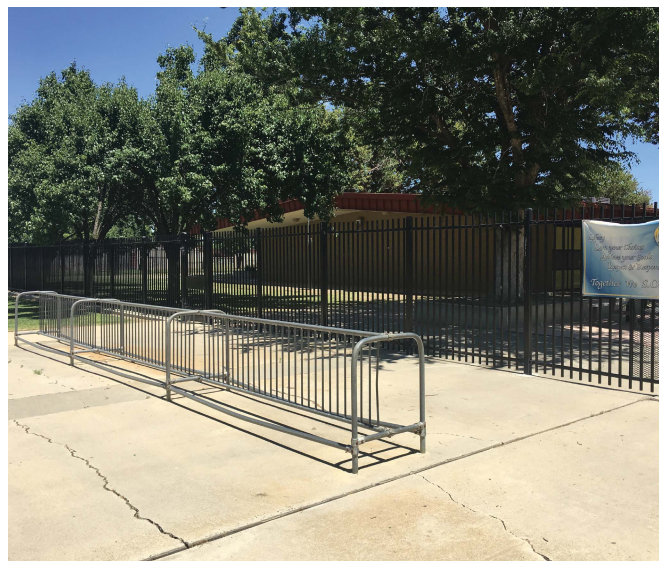
- addition of traffic calming features to reduce vehicle speeds;
- reducing vehicle lane widths;
- using road diets to allocate space to bicyclists and other uses;
- pedestrian refuge islands and curb extensions or bulb-outs; and
- modifying intersections to better serve pedestrians and bicyclists, including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



Pedestrian crosses Derrick Avenue (SR 33) at unmarked location in Mendota.

BICYCLE PARKING

Current bicycle parking and recommended additions to bicycle parking are presented for each jurisdiction in Chapters 6 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.



Bike rack located in Huron Community Park adjacent to Huron Elementary School.

SUPPORTING PROGRAMS

Several improvements to other supporting programs are also recommended for the jurisdictions covered by this plan.

Five E's

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.

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.

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.

Available Resources

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

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 trail junctions and at intersections of key bicycling and walking routes. Chapter 9B of the 2014 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 with distinctive branding can also include this branding in these signs.



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. Maintenance policies should include

- prompt response to reported hazards;
- periodic and regular inspection to address safety issues

such as broken or raised pavement and malfunctioning signals or warning lights;

- clearing trails, sidewalks, and bike lanes of debris or overgrown vegetation; and
- repainting of crosswalk and bike lane markings.

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 2.2% bicycling mode share and a 3.3% walking mode share. Some cities already have mode shares that are close to (within 80%) 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 bicycle mode share of 5.6% and a walking mode share of 10.0%. 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 as shown in Table 4-3. As discussed in Chapter 3, 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 4-3: Mode Share Comparison

Jurisdiction	Current Mode Share		Current Trips		Potential Future Trips	
	Bicycling	Walking	Bicycling	Walking	Bicycling	Walking
Fresno County	0.9%	1.9%	3,182	6,704	7,930	10,670
Firebaugh	0.0%	0.1%	0	2	70	100
Fowler	0.0%	3.3%	0	76	50	220
Huron	0.0%	4.4%	0	85	40	170
Kerman	0.0%	0.8%	0	37	100	150
Kingsburg	3.9%	1.6%	180	71	260	140
Mendota	0.0%	2.4%	0	83	80	110
Orange Cove	0.0%	3.0%	0	80	60	240
Parlier	0.0%	2.5%	0	126	110	150
Reedley	1.2%	1.5%	116	142	210	290
San Joaquin	0.0%	1.6%	0	10	10	20
Sanger	0.8%	2.3%	71	212	210	290

Source: US Census American Community Survey 2010-2015, Fehr & Peers 2017