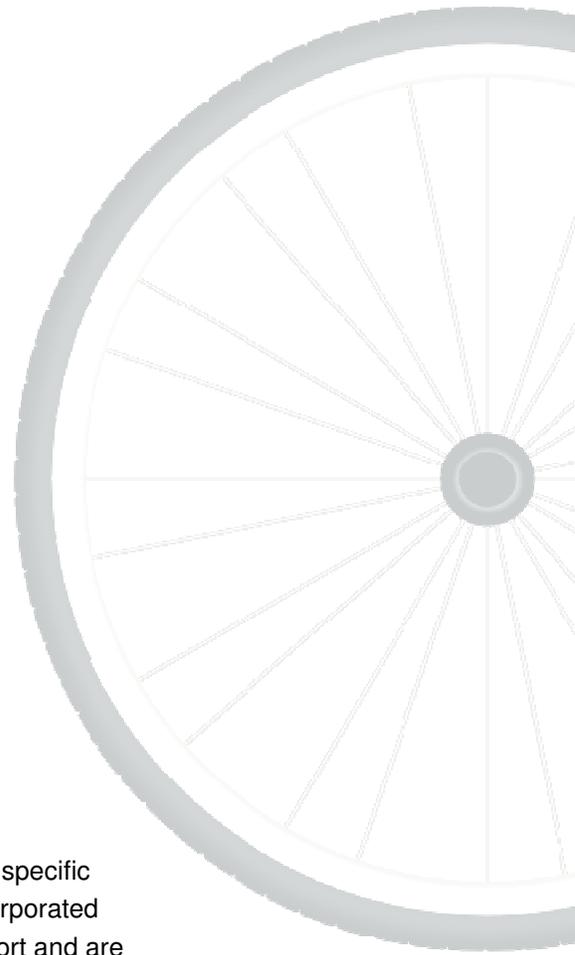




Image courtesy of [www.pedbikeimages.org](http://www.pedbikeimages.org) / Dan Burden

# 3.0 Pedestrian & Bikeway Network Plan



## 3.1 Goals and Objectives

The following Goals and Objectives, are intended to provide the County with specific direction for improving the Pedestrian and Bicycle Facilities within the unincorporated County. It should be noted that these Goals and Objectives specifically support and are consistent with the General Plan Goals related to Mobility.

For the purposes of this document the *Goals* are statements that describe a desired condition or outcome. *Objectives* state the rationale / approach for achieving a goal. It is the responsibility of the County officials and Department heads to review the Pedestrian & Bicycle Master Plan - 2011 document periodically, and direct the staff as to priority of implementation (based on feasibility to implement and available funding). It should also be noted that the goals and objectives identified in this document are not finite, or organized in any particular order of priority.

### **Goal 1: Safe and Convenient Bike and Pedestrian Access**

- Implement the proposed pedestrian & bikeway network as funding is available.
- Coordinate bike lane and bike route improvements with road pavement overlay or widening projects whenever feasible.
- Provide additional shoulder pavement on all proposed Class III Bike Routes roadways, where physically feasible, when implementing roadway improvements.
- Provide sidewalks in medium to high density residential areas and all employment developments.
- Develop a regular maintenance program to keep existing bike facilities clean and in good repair.
- Improve bicycle and pedestrian access across major highways through signalization.
- Provide bike facilities and easy access to transit services and park and ride lots to

## 3.0 Pedestrian & Bikeway Network Plan

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encourage the use of mass transit. Work with Vanpool services and other mass transit operators to provide bicycle storage area on the vehicles.

- Bicycle circulation within new developments should be addressed and additional bike paths included to assure convenient access if required. Bikeways should be developed generally in accordance with the Pedestrian / Bikeway Network Plan Exhibit, recognizing the fact that new developments may need to address additional bicycle circulation and connection with existing or proposed bike routes.
- New subdivisions should be designed to permit access to bikeways from interior residential streets (IE access ways at the ends of cul-de-sacs).
- Pedestrian and Bicycle circulation should be included as part of the development review process to assure that bikeways are included as a major component of the circulation system.
- Require bike facilities at all new major activity centers including, but not limited to, employer sites, shopping / office areas, multi-family residential, schools, and recreational facilities.
- Work with school districts to develop “Safe Routes to Schools” programs.

### **Goal 2: “Bicycle Friendly Community”**

*(The Bicycle Friendly Community Program (BFC) is a national program that provides incentives, hands-on assistance, and award recognition for communities that actively support bicycling. Application for status can be made in July and February of each year.)*

- Establish a Pedestrian-Bicycle Advisory Committee for non-motorized mobility that will, among other duties (TBD) establish target levels of bicycle use, and provide a regular evaluation / action plan for completing the items toward the goal of “Bicycle Friendly Community”. Suggested committee members include: School district(s), bike community, citizen at-large, business community, County staff, Sheriff’s department, planning commission.
- Adopt a target level of bicycle use (IE percent of trips) and safety to be achieved within a specific timeframe, and improve data collection necessary to monitor progress.
- Provide safe and convenient bicycle access to all parts of the community through a signed network of on and off-street facilities, low-speed streets, and secure parking. Local cyclists should be involved in identifying maintenance needs and ongoing improvements.
- Establish information programs to promote bicycling for all purposes, and to communicate the many benefits of bicycling to residents and businesses (IE with bicycle maps, public relations campaigns, neighborhood rides, etc.)
- Make the County a model employer by encouraging bicycle use among its employees (IE by providing bike parking, showers and lockers).
- Ensure all County policies, plans, codes, and programs are updated and implemented to take advantage of every opportunity to create a more bicycle-friendly community. Staff in all departments should be offered training to better enable them to complete this task.
- Develop / coordinate educational programs with the Police and School district that promote safe riding techniques.
- Enforce traffic laws to improve the safety and comfort of all road users, with a particular focus on behaviors and attitudes that cause motor vehicle/bicycle crashes.

## 3.0 Pedestrian & Bikeway Network Plan

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- Develop special programs to encourage bicycle use in communities where significant segments of the population do not drive (IE through Safe Routes to Schools programs).
- Promote the beneficial aspects of bicycling through Bike Month, Spare the Air and other programs.
- Promote intermodal travel between public transport and bicycles.

### **Goal 3: Maximize Bike and Pedestrian Improvement Funding Opportunities**

- Emphasize the regional commuting and safety aspects of the improvements to increase funding chances.
- Where feasible, coordinate grant proposals with Yuba City and the City of Live Oak in order to promote the benefits of connectivity.
- Include bike facility improvements into all related roadway improvement projects associated with non-bike funding related grant proposals.
- Assure that new development projects pay their fair share of bike facility improvements associated with their development.
- Where appropriate, partner bike paths with flood control projects, utilities access, air quality improvements and open space/stream restoration projects.
- Utilize the priority list of improvements identified in this document in order to act quickly to apply for funding grants through Federal, State, and regional / local sources.

### **Goal 4: Demonstrate County Commitment to Bike and Pedestrian Improvements**

- Prepare a “Recommended Bike / Trails Route” map that can be distributed on the County’s website, to local and regional bike shops, schools and major employers.
- Coordinate between the County Health Department and private health organizations to promote walking and bicycling in Sutter County.
- Coordinate a Bike Safety and Education program with Yuba City and Live Oak.
- Identify and join national bike related promotional organizations (IE. League of American Bicyclists, USA Cycling, etc.)
- Identify and Co-sponsor private bike related events (IE. Bike Around the Buttes; May Is National Bike Month, etc.)
- Create an on-going Pedestrian-Bicycle Advisory Committee made up of citizens (bicyclists, department head staff - public works, planning, parks and recreation), and other interested parties, to “champion” efforts to implement the Pedestrian and Bicycle Master Plan and make recommendations to the Board of Supervisors regarding funding, etc.
- Prepare and distribute a yearly survey to solicit input regarding pedestrian routes, bike use, recommended improvements, etc.
- Pedestrian-Bicycle Advisory Committee to document progress results in a bi-annual report made to the Board of Supervisors.



## 3.0 Pedestrian & Bikeway Network Plan

### 3.2 Pedestrian / Bikeway Network

#### ROUTE SELECTION CRITERIA

The development of the proposed system of multi-use paths and bikeways took into account the broader goals for paths and bikeway development as described earlier in section 3.1. In particular, the plan emphasizes a comfortable, convenient, and well-connected network system that meets the commuter transportation / recreational needs of existing and future non-motorists. Factors considered during development of the proposed network include:

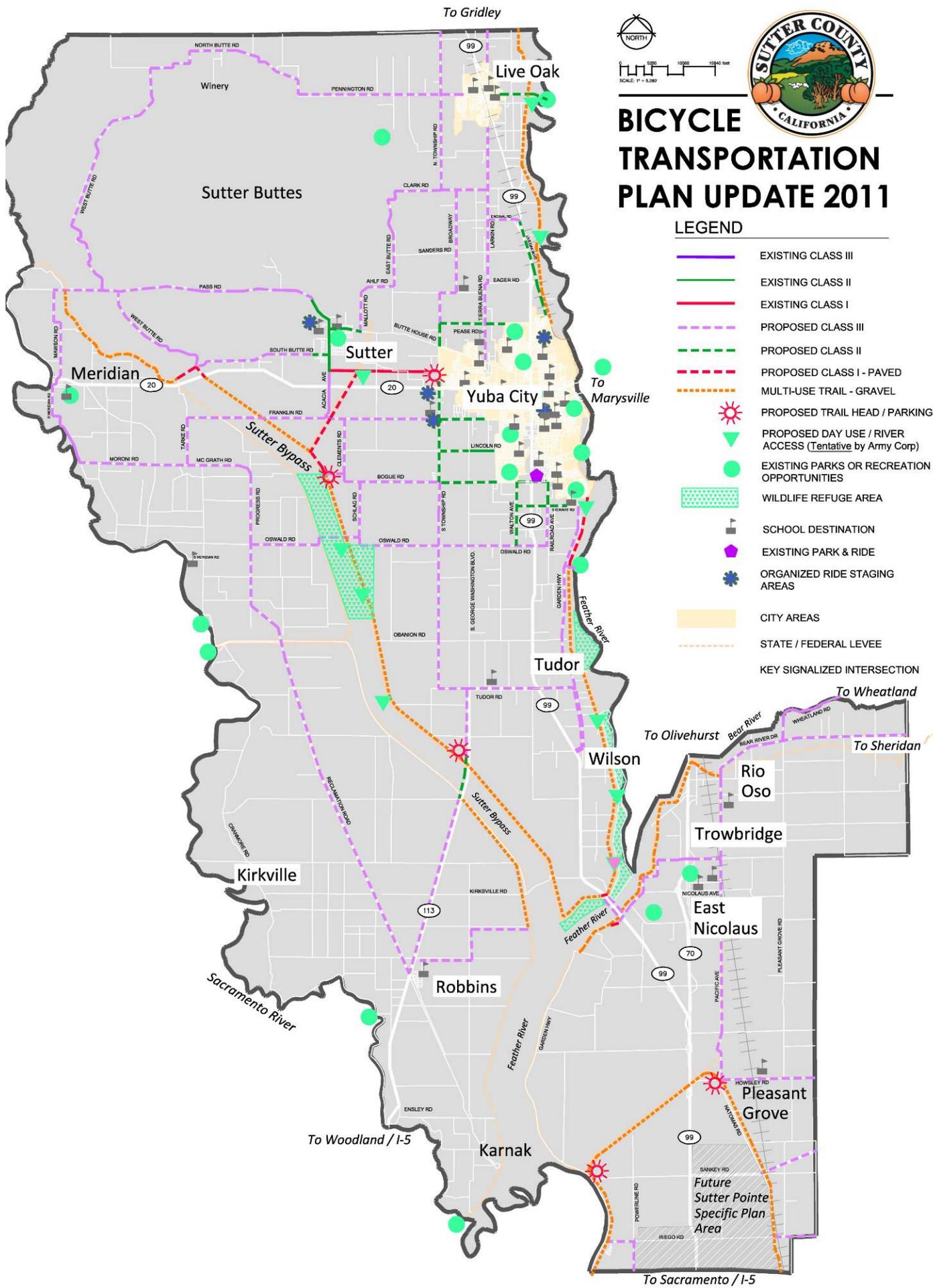
**Needs Assessment** – The needs assessment conducted by the project team

included a review of existing/ adjacent city plans and studies, a field survey of existing/ proposed bikeways, and consideration of public input. Specific parameters included access to parks, wildlife refuge areas, water access, public facilities, schools, employment centers, transit routes, residential and non-residential land uses; population and employment densities; known bike routes identified by local / regional clubs / groups; and roadway conditions, including number of lanes, capacity, and speed.

**Anticipated Utilization** – Priority bicycle and multi-use path facilities in the proposed system reflect use levels that are commensurate with the level of investment required for construction and maintenance of the facilities.

*Bike facilities should provide for all levels and ages of bike riders.*





  
**BICYCLE  
TRANSPORTATION  
PLAN UPDATE 2011**

- LEGEND**
- EXISTING CLASS III
  - EXISTING CLASS II
  - EXISTING CLASS I
  - - - PROPOSED CLASS III
  - - - PROPOSED CLASS II
  - - - PROPOSED CLASS I - PAVED
  - - - MULTI-USE TRAIL - GRAVEL
  -  PROPOSED TRAIL HEAD / PARKING
  -  PROPOSED DAY USE / RIVER ACCESS (Tentative by Army Corp)
  -  EXISTING PARKS OR RECREATION OPPORTUNITIES
  -  WILDLIFE REFUGE AREA
  -  SCHOOL DESTINATION
  -  EXISTING PARK & RIDE
  -  ORGANIZED RIDE STAGING AREAS
  - CITY AREAS
  - STATE / FEDERAL LEVEE
  -  KEY SIGNALIZED INTERSECTION

Figure 6: Bicycle Network Plan

## 3.0 Pedestrian & Bikeway Network Plan

**System Coverage** – The proposed network considers balanced access from the County’s population centers (the Yuba City, Town of Sutter, City of Live Oak triangle) for both commuting and recreational purposes.

**Connectivity** – The proposed network provides connections between existing bicycle facilities, communities, schools, parks, recreation areas, and employment centers, with an emphasis on connections to major activity centers and multimodal transfer locations in the Yuba City area.

**Connections to Adjacent Jurisdictions** – The proposed network connects the rural County areas to surrounding county communities Yuba City, Community of Sutter, and the City of Live Oak. In addition the plan provides opportunities for

connections to Butte, Sacramento, Yuba, and Placer counties.

**Projects of Regional Significance** – The open space recreational opportunities that are located all across the County are potentially regionally significant bike facilities for visitors and locals alike. This is important because a recurring theme throughout the public input process was a desire for bicyclists to access bikeways and use them for long, uninterrupted rides.

### 3.2.1 Class I / Multi-use Path Overview

#### **Class I and/or Gravel**

#### **Based Multi-use Path Opportunities – LEVEE ACCESS**

**Levee Paths:** The utilization of the many levee maintenance roads (primarily atop levees throughout the County) provide an

*Levee bike paths will provide for long uninterrupted rides through scenic areas.*



## 3.0 Pedestrian & Bikeway Network Plan

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extra ordinary opportunity to implement Class I or Gravel Based Multi-use Paths that can connect the County's bikeway network to Class II or Class III routes. These levee roads are typically flat, generally well maintained, and provide a base for either off-road type bike paths, walking paths, or the foundation to pave the path with asphalt. Many of the maintenance roads are continuous in nature (uninterrupted by water crossings or road crossings) providing long rides without the pressures associated with riding in traffic.

### **Connections to other Bikeway**

**Opportunities:** The levees can be accessed at many locations from existing roadways and water crossing areas. As a part of the proposed Pedestrian & Bicycle Master Plan, specific connections have been identified that provide safe and relatively good surface road connections. These connection points provide the rider an opportunity to continue on to another destination, escape the levee without having to turn around, and provide the opportunity for a shorter or longer ride depending upon desire.

**Recreation Opportunities:** In association with the multi-use paths, the levees can provide access to the rivers, wildlife refuges, and other recreational amenities. A recent study titled, "Sutter Basin Feasibility Study-Recreation Opportunities, Measures, and Sponsors", (prepared for the Army Corps of Engineers) endorses and promotes this concept for levees on the west side of the Feather River, east side of the Sutter Bypass, and along the Wadsworth Canal.

### **Levee Bicycle Facility Improvements:**

Levee roads are typically graded gravel roads approximately 16-ft. or more in width. In many cases the roads are sufficient for walking, or for use by all terrain mountain bicycles, cyclocross bikes, or the hybrid "comfort" bicycles that provide the sturdiness of a mountain bike, with the comfort of a beach cruiser.



"Comfort" Bike Example

In a few instances the roads are not as well maintained as others and consist more of graded dirt than gravel. For the purposes of this master plan the following improvements are proposed and anticipated to be implemented over a multi-year period:

- **1<sup>st</sup> Phase:** Identify a route(s) for initial improvements consisting of signage, gate / access improvements. Signage at access points should notify riders of the anticipated conditions of the path, expectations of use and links to egress points from that specific path.
- **2<sup>nd</sup> Phase:** Identify routes for paving /

## 3.0 Pedestrian & Bikeway Network Plan

striping with a hard all-weather surface.

**Levee Access Process:** The levee routes proposed in the plan are endorsed by the Army Corp of Engineers. However, the levees cross between multiple levee Maintenance Districts tasked with maintaining levees that protect adjacent private property from flooding. As such, the Districts have concerns with liability responsibility issues, and maintenance construction that may interrupt pedestrian/ bicycle access.

### **Levee Access Process**

Toward that end, the County of Sutter will need to negotiate a public access easement for the use of levee roads, and any improvements proposed, with each levee maintenance district affected, the responsible flood control agency affected, and gain final approval from the Army Corp of Engineers.

The process involves submitting an encroachment permit / associated exhibits / improvement plans to the

responsible District. The District will evaluate the permit, comment, and determine the environmental document needed (if any). The County and the District will also need to agree upon conditions of use, liability and maintenance responsibilities. Once approved by the District, the associated flood control agency will review/comment, and pass on to the Army Corp of Engineers for final review/approval.

### **Existing Class I Bikeways – MAINTENANCE ISSUES**

The Class I Bikeway running between South Township Road and Acacia Avenue in the Sutter area was identified by residents as a good way to safely connect between the Community of Sutter and Yuba City. It is also identified as a good place to ride bikes with a family. However, a reoccurring concern heard from attendees at the 1st Community Workshop is the perceived deferred maintenance of the path. Issues raised include surface in need of repair, weed abatement, lack of striping, lack of signage, trash cleanup, etc. As identified in the Goal #1, a regular facility maintenance program is recommended in order to encourage continued use of bikeways.

### **3.2.2 Class II Bikeway Overview**

Given the rural nature of the County's roadway system, the low volume of traffic on most rural roads, narrow pavement sections, and limited opportunities for pavement expansion without costly drainage improvements, the number of Bike Lanes proposed in this plan is limited to suburban areas connecting to Bike Lanes in Yuba City, and a few other opportunities in and around the Community of Sutter.



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The exception to this expectation is the Sutter Pointe Specific plan area in the southeastern part of the County. The approved specific plan document identifies a comprehensive bicycle network consisting of bike paths and bike lanes. The Pedestrian and Bicycle Master Plan endorses this network and expects the County will oversee these improvements by whoever develops the project.

### 3.2.3 Class III Bikeway Overview

The predominant bike facility promoted in this master plan is the Class III Bikeway. As mentioned earlier, the rural nature of the roadway system throughout the County reflects narrow lanes with little or no paved shoulder. Paved shoulders provide relative safety for bicyclists sharing the road with motor vehicles. Currently, there are many soft shoulders that immediately transition into drainage ditches. This situation can be hazardous to a bicyclist who has no margin for safety if forced off the road. The surface

conditions of the roads also vary throughout the County, but, in general the conditions are sufficient for road bike riders to “Share the Road”.

There are also many roadways that are lightly traveled by autos and trucks that parallel direct routes between destinations. In identifying roads for identification as Class III bikeways the Consultant considered the following factors:

- Connectivity between communities
- Surface condition
- Volume / speed of traffic
- Lane width / shoulder opportunities
- Access opportunities to other bike network facilities in the County and cities

Specific Class III Bikeway improvements are typically identified as roads that share the travel lane between cars and bicycles. It is a design preference that there be a minimum of 14-ft. of paved surface in one travel lane in each direction and a relatively level recovery area along the paved edge. However, the County roadway system consists of very narrow paved travel lanes (10' to 12' paved lanes in many cases) with very little opportunity to expand paved areas without costly drainage improvements. Fortunately, most of the identified routes are considered low volume traffic allowing for auto/truck traffic to safely pass across the center line in order to give bicyclists a safe buffer. In general, Class III Bikeway improvements should include the following:

- Add a paved shoulder, where possible, to allow more space between autos and bikes

*As a result of the rural nature of the roadway system, Class III Bike Routes are the primary bikeway facilities promoted by this plan.*



# 3.0 Pedestrian & Bikeway Network Plan

- Perform pavement maintenance on surfaces in need of repair
- Install “Share the Road” Bike Route Signs (see CAMUTCD for more detail) on all routes with minimal travel lane surface / shoulders
- Install directional wayfinding signs along routes to identify where the route leads, opportunities for connectivity to other facilities, and distances between key locations

The County should pursue the implementation of proposed bicycle facilities whenever roadway overlay projects occur. Installing bicycle facilities (pavement, striping/markings, and/or signage) as a part of a roadway overlay project is a fiscally effective way of implementing bicycle facility.

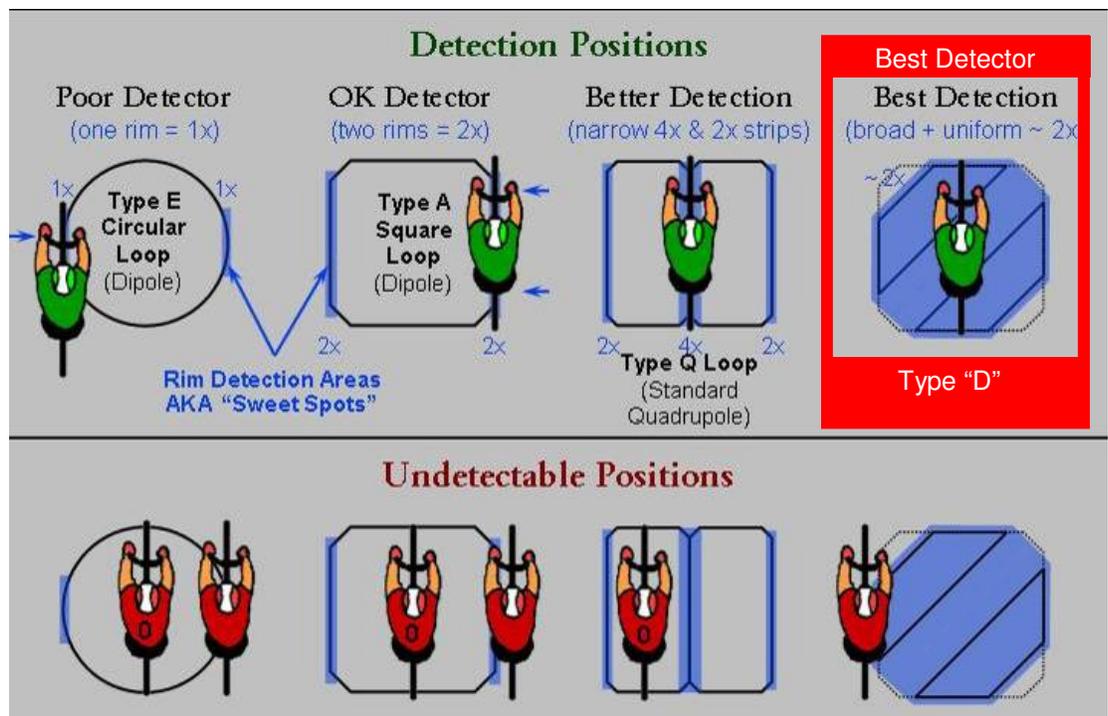
## 3.3 Bicycle Detection

In 2009, Caltrans issued a Policy Directive (see Appendix D) requiring that bicycle and motorcycle detection be provided on all new and modified approaches to actuated traffic signals in California. According to the directive, each lane of an intersection should be provided with a limit line detection zone either when a new intersection is constructed or when more than 50-percent of the limit line detectors need to be replaced at an existing intersection. Additionally, the directive requires minimum green times to accommodate bicyclists.

Detection for vehicles and bicycles is usually provided via metal-detecting “loop detectors,” which trigger a green light when they sense a change in their magnetic field because of metal nearby.

The following recommendations expand typical loop detector efforts to include bicycles along designated routes and at

*Bicycle detection at intersections can provide a substantial safety improvement for bicyclists and motorists.*



## 3.0 Pedestrian & Bikeway Network Plan

key intersections by providing improvements such as calibration of existing detectors and installation of stencils. In addition, these recommendations should be incorporated into new development requirements where signalized intersections are proposed.

### *Type of Detector*

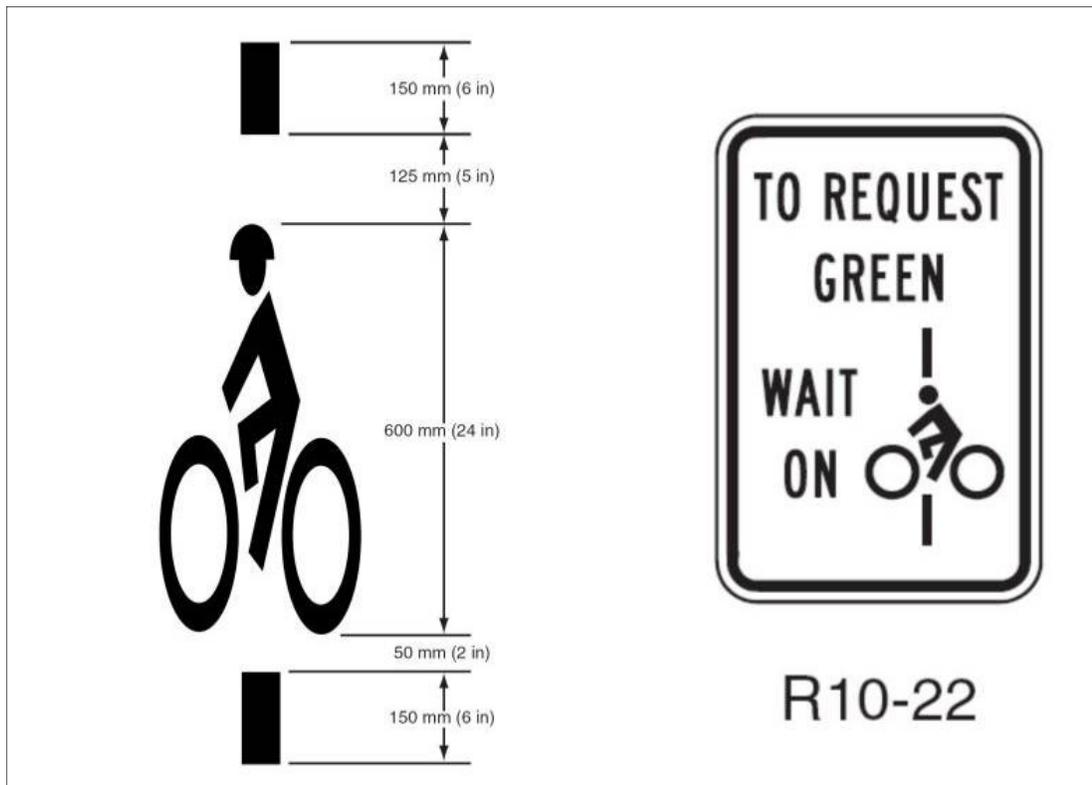
Not all traffic signal detector loops are equally capable of detecting bicycles. Research has indicated that the Type D detector is most effective for detecting bicycles. These detectors are especially sensitive in their center (compared to other detector types that are most sensitive at their edges), so bicyclists can be detected while positioned in the middle of the detection zone. The County should update its design standards to designate the Type D detector as the default detector of choice for limit line locations.

### *Push Button Options*

As an alternative, specific bicycle push buttons can be used at intersections where the bicyclist can push the button without leaving the bicycle lane; placement of bicycle push buttons should never require bicyclists cross a turn lane to activate them. Video and radar detection systems can also be used to detect bicycles.

### *Apply Pavement Stenciling Above All Bicycle Loop Detectors*

Since most bicyclists, as well as motorists, do not know how loop detectors work, a pavement stencil that shows bicyclists where to stop to activate a loop should mark all detectors expected to be used by bicyclists. The image below illustrates the Caltrans Standard Plan 24C bicycle detection marking.



*Typical bike detector pavement marking and signage.*

## 3.0 Pedestrian & Bikeway Network Plan

### 3.4 Trail Heads and Bike Parking

#### ***Trailhead / Parking Lots***

Regular and convenient points of access are necessary for Class I Bikeways. In this Plan, locations for enhanced trailheads are associated with the proposed levee bike paths, and the existing Class I Bikeways.

Improvements can include parking, signs, benches, trash receptacles, staging areas for large groups of bikes, and other amenities. Ideally, trailheads are provided in conjunction with other public uses, such as parks, where maintenance and other resources can be shared. In some instances standalone trailhead parking lots may be needed. In the Army Corp of Engineers, "Sutter Basin Feasibility Study – Recreation Opportunities, Measures, and Sponsors, January 2010", the study

identifies multiple areas for potential recreation access and use, including the recommendation for multi-use paths along certain levees. (See Figure 6, Bicycle Network Plan).

#### ***Bike Parking***

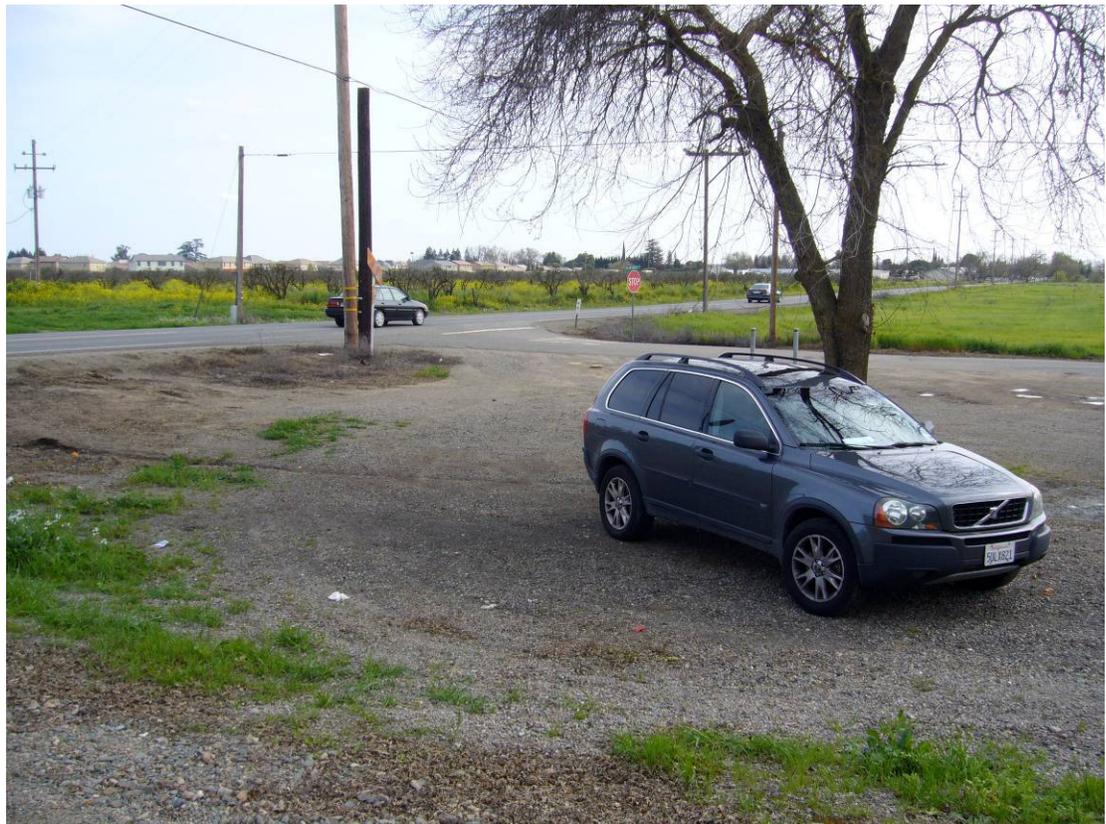
Secure and convenient bike parking is critical in the effort to encourage bicycling to employment centers and destination points where riders would leave their bikes.

As a part of the development process, bike racks should be provided at new commercial, employment sites, and multi-family residential projects. Bicycle parking can be broadly defined as either short-term or long-term:

#### ***Short-term Bicycle Parking***

Meant to accommodate visitors, customers, messengers, and others

*Enhancement to the makeshift parking area located where the existing Bike Path crosses Township Road could include, map/informational kiosk, picnic facilities, porous paving, and an area for staging group rides.*



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*Bike parking should be incorporated at all new employment based projects, commercial / office projects, parks, civic projects, and multi-family residential projects.*

expected to depart within two hours; requires approved standard rack and appropriate location and placement.

### Long-term Bicycle Parking

Meant to accommodate employees, students, residents, commuters, and others expected to park more than two hours. This parking should be provided in a secure, weather-protected manner and location.

### **Reference Guidelines**

When developing the trailhead/parking facility a review of the Pedestrian and Bicycle Professionals Bike Parking Guidelines, 2nd Edition, is a useful reference guide. [www.apbp.org/?page=Publications](http://www.apbp.org/?page=Publications)

## 3.5 Wayfinding

One consistent issue identified on all the routes being considered as a part of the

network plan was a lack of understanding of where the route might go, and how far to the next connection route or destination. With this factor in mind, one of the primary improvements for all facilities (including bike routes) is the implementation of a Wayfinding Sign System to inform and provide guidance to the rider.

A well-planned and attractive system of way finding signs, route maps, and markers can greatly enhance bikeway facilities by signaling their presence and location to both motorists, bicyclists, pedestrians and other users. By leading people to on/off street bikeways, and the safe and efficient transportation they offer, effective signage can encourage more people to bicycle. These signs can also aid in emergency response along Class I paths.

Signs are typically placed at decision points along bicycle routes – typically at

# 3.0 Pedestrian & Bikeway Network Plan

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the intersection of two or more bikeways and at other key locations leading to and along bicycle routes.

## Types of Signs

There are three general types of wayfinding signs:

### 1. Confirmation Signs

*Purpose:* Indicate to bicyclists that they are on a designated bikeway. Make motorists aware of the bicycle route.

*Information:* Can include destinations and distance/time. Do not include arrows.

*Placement:* Every ¼ to ½ mile on off-street facilities, and every 2 to 3 blocks along bicycle facilities, unless another type of sign is used (e.g., within 150-ft. of a turn or decision sign). Should be placed soon after turns to confirm destination(s). Pavement markings can also act as confirmation that a bicyclist is on a preferred route.

*Example:* Recommend creating “Butte Loop” signs using the M1-8a guide sign. This sign allows for a unique pictograph (Sutter Buttes image) and/or words to be used with a numbered bike route sign. Different Sutter Butte loop variations could have different route numbers.

### 2. Turn Signs

*Purpose:* Indicate where a bikeway turns from one street onto another street. Can be used with pavement markings.

*Information:* Include destinations and arrows.

*Placement:* Near-side of intersections where bike routes turn (e.g., where the street ceases to be a bicycle route or does not go through).

### 3. Decision Signs

*Purpose:* Mark the junction of two or more bikeways. Inform bicyclists of the designated bike route to access key destinations.

*Information:* Destinations and arrows, distances, and travel times are optional but recommended.

*Placement:* Near-side of intersections in advance of a junction with another bicycle route. Along a route to indicate a nearby destination.

## Sign Implementation

The *California Manual on Uniform Traffic Control Devices* (CA MUTCD) provides minimum standards related to wayfinding signage. Signage using these standards include the bike route sign (D11-1), bicycle guide sign (D1-1b), and street name sign (D1-1c).

Prior to developing the wayfinding signage, a classification list of destinations should be prepared (based on the relative importance to users throughout the area) for inclusion on the signs. A particular destination’s ranking in the hierarchy can be used to determine the physical distance from which the locations are signed.

**Final design of any bikeway facility or signage should be conducted by a licensed professional using sound engineering judgment and applicable standards and guidelines.**

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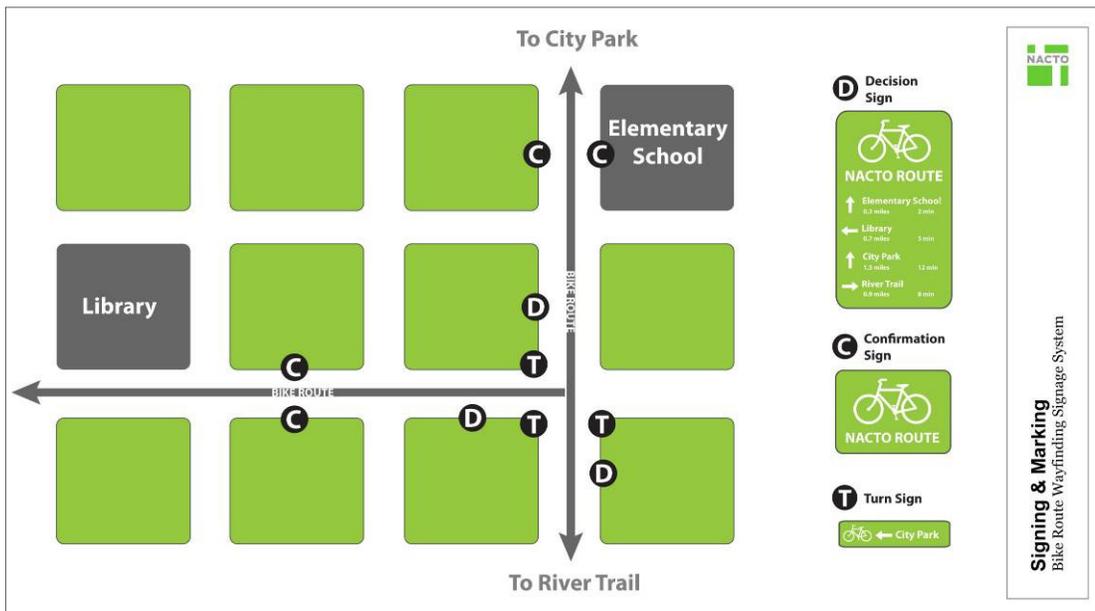
Example Confirmation Signs



Example Turn Signs



Example Decision Signs



Wayfinding is instrumental in providing a bikeway system that everyone can be comfortable using without fear of getting lost.