



# Humboldt Regional Bicycle Plan Update 2012



Prepared By:  
Humboldt County Association of Governments

611 I Street, Suite B  
Eureka, CA 95501

(707) 444-8208

[www.hcaog.net](http://www.hcaog.net); email: [info@hcaog.net](mailto:info@hcaog.net)

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# 1 PLAN PURPOSE

## SERVING A LARGER VISION

The purpose of the *Humboldt Regional Bicycle Plan* is to support the development of fully integrated active transportation network. Some of the important benefits of building for "active travel" (bicycling, walking, skating) are: to foster safer, more livable, family-friendly communities; to promote physical activity and health; and to reduce vehicle emissions and fuel use. Bicycling is integral to active transportation, and a well-connected, user-friendly, safe bicycling network is an important component for livable communities.



The *Humboldt Regional Bicycle Plan* (Bike Plan) takes measurable steps toward the goal of improving every citizen's **quality of life**, creating a more sustainable environment, and reducing traffic congestion, vehicle exhaust emissions, noise, and energy consumption. Developing an attractive and inviting bicycle system is a key element in preserving Humboldt County as a place where people want to live, work, and visit. This is increasingly important as the County endeavors to grow its local economy, and support a growing population's demands for new housing, businesses, and roads in undeveloped areas.

Humboldt's natural beauty and rural and small town feel not only invite bicyclists to explore the county's beautiful scenery, forests, coast, and town, but—more importantly—a beautiful environment is a fundamental quality of life in Humboldt County.

## BENEFITS OF THE BIKE PLAN

There are many benefits that will stem from the Bike Plan over time:

**Save lives.** Reduce the injury and fatality rate for bicyclists through design standards and guidelines, education, and enforcement and create a bicycle transportation network that reduces public fear of travel by bicycle.

**Provide needed facilities and services.** Meet the existing demand and increase the use of bicycles as a means of travel around the county. With the federal goal of doubling bicycling by 2010, the bicycle commute share in Humboldt County would increase from 895 adult commuters (2000 Census) to 2,241 adult commuters. Factoring in the potential for children

bicycling to school, bicycle-to-transit trips, and other utilitarian trips, Humboldt County has the potential to increase the bicycle mode share to four percent.

**Improve the quality of life in Humboldt County.** Design and build people-friendly streets, paths, trails, and activity centers accessible to everyone, and support sustainable community development. Reduce traffic congestion, vehicle exhaust emissions, noise, and energy consumption by encouraging healthier and more active forms of travel. Improve public health by providing more enticing opportunities for active lifestyles. Encourage visitors to enjoy Humboldt County on a bicycle.

**Improving interagency coordination.** Improve coordination of non-motorized transportation facility development between local entities as well as with state governments, including those that are initiated by private developments. Ensure that local planners and developers have clear guidelines for system improvement needs and standards.

**Maximize funding sources for implementation.** Equip the HCAOG and its member agencies to successfully compete for State and federal funding, by meeting the requirements of the California Bicycle Transportation Act; the Safe, Accountable, Flexible, and Efficient Transportation Equity Act (SAFETEA); and future State and federal funding sources.

**New era of respect.** Build a new era of mutual respect between motorists and people on bicycle or foot in Humboldt County, and emphasize the link between this level of respect and the overall quality of life in Humboldt County for everyone. Through various outreach efforts, educate the general public on the rights of bicyclists, and on the importance of sharing the road and deferring to bicyclists when needed, as well as call on bicyclists to police themselves and spread the word on the importance of obeying rules-of-the-road.

## PLANNING HORIZON

The *Humboldt Regional Bicycle Plan* (Bike Plan) is a long-term, 20-year planning document, which is updated every five years. The projects identified as priority are for implementing in the short-term (the next five years). By developing and implementing the *Humboldt Regional Bicycle Plan*, HCAOG endeavors to

*go beyond the minimum requirements, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of all ages and abilities, and utilize universal design characteristics when appropriate. Transportation programs and facilities should accommodate people of all ages and abilities, including people too young to drive, people who cannot drive, and people who choose not to drive.*

This language comes from the US Department of Transportation.<sup>1</sup>

As part of updating the *Regional Bicycle Plan* every five years, HCAOG (staff, committees, and board) reviews the state of the regional bicycle system, and reassesses system needs, as well as opportunities for funding, partnerships, and collaboration. Active input from our local communities helps HCAOG stay informed about what is getting better, what is getting worse, and what the greater bicycle community wants done first. Proposed bicycle projects are then ranked. The top-ranked regional bicycle projects become the Bike Plan's priority projects. During the Bike Plan's five-year

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<sup>1</sup> "Policy Statement on Bicycle and Pedestrian Accommodation—Regulations and Recommendations," March 11, 2010.

planning term, those identified regional projects will have priority for State and Federal funding sources that are programmed through HCAOG.

The Bike Plan also identifies projects that the incorporated cities and unincorporated County have prioritized for their respective jurisdictions. Individual jurisdictions have the opportunity to adopt the Bike Plan and pursue financing and implementing the projects within their jurisdictions.

HCAOG member agencies will achieve the Bike Plan's goals through individual and combined actions.

## **BTA ELIGIBILITY**

Cities and counties that have adopted a bicycle transportation plan become eligible for California Bicycle Transportation Account (BTA) funds, as well as other state and federal funds for bicycle transportation projects for which Caltrans plays an oversight role. The BTA is an annual program that provides state funds for city and county projects that improve safety and convenience for bicycle commuters. To be eligible for BTA funds, a bicycle transportation plan must include information as codified and outlined in the California Streets and Highways Code Section 891.2, items (a) through (k). The following summarizes those requirements. Refer to Appendix A to read the full text of SHC §891.2(a)-(k).

### **Required Plan Elements for BTA Eligibility:**

- (a) Estimated number of existing bicycle commuters in the plan area and the estimated increase resulting from implementing the plan.
- (b) A map and description of existing and proposed land use and settlement patterns.
- (c) A map and description of existing and proposed bikeways.
- (d) Map and description of existing and proposed end-of-trip bicycle parking facilities.
- (e) Map and description of existing and proposed bicycle transport and parking facilities that connect with other transportation modes.
- (f) Existing and proposed facilities for changing and storing clothes and equipment.
- (g) Bicycle safety and education programs; efforts by law enforcement to enforce bicycle laws, and the resulting effect on accidents involving bicyclists.
- (h) Citizen and community involvement in developing the plan.
- (i) How bicycle plan is coordinated and consistent with other local or regional transportation, air quality, or energy conservation plans.
- (j) Proposed projects and their priority for implementation.
- (k) Past expenditures on and future financial needs for bicycle projects.

This Bike Plan is foremost a regional plan, intended primarily to facilitate projects that will link adjoining jurisdictions' bicycle routes and thereby build a regional bicycle network. Therefore, the *Humboldt Regional Bicycle Plan, 2012 Update* covers regional information to be eligible for BTA funding. Chapter 4, Section 4.1, outlines where each element is found within this plan.

However, HCAOG also aims to facilitate local jurisdictions to build their respective bicycle systems. In addition to the regional perspective, the Bike Plan individually covers each HCAOG member jurisdiction. The Bike Plan also covers BTA's required elements (a) through (k) for each member jurisdiction:

- The pages for elements (h) and (i) are the same as noted for the Humboldt Region (section 4.1, page 4-12).
- Elements (a) through (g), (j) and (k) are in Chapter 4 as follows:
  - County of Humboldt.....Section 4.2, starting on page 4-29
  - Karuk Tribe (HCAOG TAC member).....Section 4.3, starting on Page 4-42

Thus, the unincorporated County has the opportunity to adopt the *Humboldt Regional Bike Plan*, or portions thereof, to establish its eligibility for BTA funds, and meet other State and federal requirements for grant funds to develop the projects identified within. Local Tribes may also use the Bike Plan as relevant for bicycle planning and financing. The Bike Plan does not diminish the jurisdiction's option or ability to separately develop and approve its own bicycle plan, or to utilize a portion of this Bike Plan to do so. The unincorporated County is also free to adopt and fund local transportation projects that are not included in this Bike Plan.

## MAJOR RECOMMENDATIONS OF THE REGIONAL BICYCLE PLAN 2012

### PRIORITY BICYCLE PROJECTS/PROGRAMS

The Regional Bicycle Plan recommends projects and programs that will help build a bikeway system that makes bicycling throughout Humboldt County a safe, convenient, and practical means of transportation for all residents and visitors. The Bike Plan's recommended projects and programs have the potential to considerably increase the number of bicycle trips in Humboldt County.

The primary countywide system calls for implementing approximately 515 miles of bikeways to connect all cities and unincorporated areas in Humboldt, as well as adjacent counties. The estimated cost is approximately \$27.26 million over the Bike Plan's 20-year life (2012 to 2032). The Bike Plan Update 2012 recommends implementing six priority regional projects in the short-term (first five years, 2012-2017):

- #1: Regional Bikeway and Trails Signing Program**
- #2: Regional Bicycle Parking Program**
- #3: Regional Non-Motorized Education & Outreach Program**
- #4: Regional Bicycle Guide & Map**
- #5: Bicycle Facility Maintenance Program**
- #6: Regional Loop Detector Installation & Maintenance Program**

### DESIGN GUIDELINES

The Bike Plan also provides design standards and guidelines for developing a uniform and consistent regional bikeway system. The standards include standards set forth by the Federal Highway Administration and Caltrans, and other accepted design manuals and/or generally accepted engineering design standards. All of the Bike Plan's recommended projects will adhere to Caltrans'

*Highway Design Manual* design guidelines, as applicable, for developing on-street and off-street bicycle facilities.

On a case-by-case basis, local agencies may seek design exceptions to established State and Federal standards, based on local conditions and environmental and economic issues. All projects must be approved by the community's Public Works Department, and in some cases Caltrans.

### SUPPORTING BICYCLE PLANS & POLICIES

Throughout Humboldt County, communities have defined goals and set plans for building a stronger bicycle system and becoming more “bicycle-friendly,” both locally and regionally. Below, we summarize the plans and studies that support the Bike Plan's goals and objectives. The Bike Plan is coordinated and consistent with local and regional transportation, air quality, or energy conservation plans.

*\*Note: For a more comprehensive survey of regional and local plans that support bicycle and pedestrian trails and supporting facilities, refer to the Humboldt County Regional Trails Master Plan (HCAOG, 2010).*

### REGIONAL PLANS & STUDIES

#### *Regional Transportation Plan Update (HCAOG, 2008)*

Humboldt County Association of Governments (HCAOG) developed the 2008 *Regional Transportation Plan* (RTP), a long-range planning document to guide HCAOG in developing the regional transportation system. The RTP supports bicycle transportation through goals, objectives, and policies that advocate a balanced multi-modal transportation system, bikes on buses, education and incentive programs, and land use policies that encourage intermodal transportation connections. The RTP identifies proposed bicycle projects throughout the county for the next 25 years.

#### *Humboldt County Regional Trails Master Plan (HCAOG, 2010)*

The *Regional Trails Master Plan* takes a comprehensive approach to planning non-motorized transportation with connectivity between communities. The plan combines all “active transportation” modes that may be served by a regional trail network—bicycle, pedestrian, and equestrian travel—and considers commuting, utilitarian, and recreational trips.

The *Regional Trails Master Plan* represents priorities and perspectives from agencies, communities, and individuals of our region. HCAOG carried out a regionwide program to get community input for trail “visioning” and funding priorities. HCAOG committees lent further input. The plan recommends strategies for financing and developing trails, and trail design guidelines. Much of this plan is relevant for updating the 2012 Bike Plan.

### *Regional Pedestrian Needs Assessment Study Update (HCAOG, 2004)*

Although the study focuses on pedestrian improvements, it identifies several multi-use trails that will serve either as segments of the regional bikeway network or local routes.

### *Humboldt County General Plan Update (County of Humboldt, in process)*

The County is currently updating its General Plan. During public meetings around the county, many people said they wanted more options for bicycle, pedestrian and equestrian travel, while others approved of such improvements as long as property rights were protected and maintenance issues were addressed. Public comments recommended that the County update the **Humboldt County Trails Master Plan** from 1978, which was a sub-element of the General Plan. Almost none of that plan's identified trails have been implemented (the Hammond Trail has) and some of the plan's potentially viable trails (e.g. Redwood Creek Levee Trail in Orick) are not addressed in current planning efforts.

Three General Plan elements include policies related to bicycle transportation (the following is draft language that the Planning Commission is reviewing): The **Circulation Element** includes a policy for Balanced Transportation Opportunities, to promote “a transportation system that integrates and balances the needs of motorized vehicles, public transit, bicycles, and pedestrians” (Policy C-G2). For bicycle travel specifically, the draft Circulation Element includes policies to invest in bicycle improvements that will increase “the safety, functional efficiency, and capacity of pedestrian and bike routes: (Policy C-P24); right-of-way design standards that incorporate bicycle facilities; on-street parking in commercial areas to minimize conflicts with planned bicycle routes; protecting designated bicycle routes; and encouraging bicycle storage facilities. In addition, both the **Land Use Element** and the **Energy Element** include policies that promote bicycle transportation as one way to conserve land, energy, and preserve air quality. For example, bicycle-oriented (and transit- and pedestrian-oriented) land development can reduce motorized vehicle trips.

### *Humboldt Bay Area Bicycle Use Study (1999)*

This 1999 Bicycle Use Study was conducted as a result of an earlier Humboldt County Bicycle Facilities Planning Project in 1997. The 1997 project researched alternatives for expanding bicycle facilities within and between communities in the central coast of Humboldt County. The research found substantial demand for a Class I facility between Arcata and Eureka, as well as for improving bicycling conditions on Old Arcata Road and State Route 255. Subsequently, the *Humboldt Bay Area Bicycle Use Study* was undertaken to collect data on bicycle ridership in Eureka, Arcata, and McKinleyville. Volunteers collected 791 hours of data over the course of one year. The study found a substantial amount of bicycling in the area, including touring cyclists on the Pacific Coast Bike Route. Observations were that most cyclists rode according to the law, and that a majority of cyclists were adults. This project also included creating the Humboldt Bay Area Bike Map as one way to promote bicycling in the area.

### *Humboldt People Powered Pathways (2009)*

“Humboldt People Powered Pathways” (HP3) (Natural Resource Services Division of RCAA, 2009) is a vision to improve active transport options within and between Humboldt communities “to get more people traveling by healthy, environmentally beneficial means.” The HP3 vision was

crafted by a coalition of the County of Humboldt, cities, tribes, Caltrans, and community organizations. With the Humboldt County Department of Public Works serving as the lead agency, the HP3 coalition submitted a proposal for \$50 million in federal transport funding in 2010 to implement HP3. HP3's quantitative goal is: "By connecting pedestrian, bicycle and multi-use trail routes and establishing collaborative education and encouragement campaigns, the HP3 coalition will increase safe, efficient non-motorized transportation by the inactive public by at least 10% in seven years."

### *Particulate Matter (PM10) Attainment Plan (NCUAQMD, 1995)*

The North Coast Unified Air Quality Management District—encompassing Humboldt, Del Norte, and Trinity Counties—is classified as a non-attainment area for particulate matter under 10 microns (PM10). Under the California Clean Air Act, air quality districts must develop control measures to achieve and maintain ambient air quality standards. NCUAQMD has identified control measures such as programs to accommodate pedestrian and bicycle use and land use development practices that encourage walking to more destinations and reducing automobile use.

### *Annie & Mary Trail—Next Steps (HCAOG, 2008)*

The Annie & Mary railroad line is a 6.8-mile corridor that begins in Arcata, where it departs from the Northwestern Pacific Railroad, travels through Glendale and Blue Lake, and ends in the town of Korb. Because trains have not run on this line since 1992 and may not run for some time, the possibility of including a multiple-use trail on the corridor is being explored. The *Annie & Mary Rail-Trail Feasibility Study* (2003 HCAOG) recommended railbanking the corridor for it to be used for non-rail purposes.

The "Next Steps" study concluded that two key tasks are required next in order to be able to apply for funding. The steps are: (1) "Applicant must secure an "interest in the property"; and (2) complete environmental review to conform with CEQA/NEPA.

### *Hammond Trail Extension—Next Steps (2008)*

The Hammond Trail stretches 5.5 miles from the Hammond Bridge northward to Clam Beach County Park in McKinleyville. The trail is ADA-accessible and accommodates hiking, biking and equestrians. The trail is a segment of the Pacific Coast Bike Route and the California Coastal Trail.

The California Coastal Conservancy has funded several phases of trail planning, as well as construction. The **Hammond Coastal Trail Extension Analysis: From Trinidad to Fortuna** (2001) analyzed alternative route to extend the trail northward, including Little River Crossing options, and access from the Little River to Trinidad. The 2005 **Hammond Coastal Trail – South Implementation Strategy Report** explored how to extend the Hammond Trail through the Arcata Bottoms. The report recommended three alternatives: (1) a new trail following the abandoned railroad right-of-way south of the Hammond Bridge; (2) improving (widening) Mad River Road to accommodate a multi-use pathway; or (3) developing a trail along the Mad River south levee from a County-owned parcel and Highway 101. The 2008 *Hammond Trail Extension – Next Steps* study that further evaluated the three



alternative routes and concluded that improving Mad River Road to accommodate a multi-use pathway would be the easiest to implement.

Multi-jurisdictional coordination and support between the County of Humboldt, City of Arcata, Caltrans, HCAOG, State Coastal Conservancy, and California State Parks is critical for future Hammond Trail extensions.

### *Humboldt Bay Trails Feasibility Study (2002)*

The *Humboldt Bay Trails Feasibility Study* was developed to encourage non-motorized access to and around Humboldt Bay. The study recommended immediate and future projects and programs, such as trail signage and a water trails program. Three of its top priority projects relevant to bicycle planning are:

- Eureka's Elk River Wildlife Sanctuary Access Project
- Arcata-Eureka 101 Corridor Bicycle Path
- Waterfront Drive Pathway Project

Other projects relevant to bicycle transportation that had support but required more research were:

- Expanding the California Coastal (Hammond) Trail south of McKinleyville (building segments between the Mad River and Table Bluff);
- Developing an Arcata Bay Levee Trail from Arcata to the Mad River Slough;
- Completing a multi-use Waterfront Trail that would serve as the California Coastal Trail along Eureka's waterfront; and
- Improving bicycle and pedestrian access on the Samoa Bridge.

The City of Arcata, facilitated by funding from the California Coastal Conservancy, has moved forward on a feasibility study for part an Arcata segment of a Humboldt Bay trail. (See below.)

## COUNTY PLANS & STUDIES

### *Avenue of the Giants Community Plan (2000)*

Residents of the nine rural communities along the Avenue of the Giants (SR 254) are interested in establishing a multi-use pathway parallel to the Avenue, which is a 32-mile scenic drive along the Eel River that passes through over 50,000 acres of redwood groves, mostly in National and State Parks. Most of the pathway would be located in Humboldt Redwoods State Park with some private property also involved. The Community Plan has policies that support developing this trail and trails to and along the Eel River.

### *Redwood Pathways Implementation Strategy (2002)*

This strategy was developed to further examine two priorities that local residents identified during the update of the *Avenue of the Giants Community Plan*. Their two top priorities were to stimulate the local economy and to develop an interconnected trail network. The Implementation Strategy evaluated the feasibility of multi-use trails along the Avenue, and proposed 32 projects for enhancing non-motorized use and access along the Avenue of the Giants. The two "priority projects" are:

- The South Fork High Trail, approximately six miles in length, to stretch from Miranda to Myers Flat paralleling Highway 254 on the west side of the road, along the river.
- The Garberville-Benbow River Trail to provide bicyclists a scenic alternative to Highway 101. The strategy outlines several options for the proposed route.

***Manila Community Transportation Plan - (Manila CSD, Phase I (2003) & Phase II (2005))***

The *Manila Community Transportation Plan* recommends improving bicycle safety and access; for instance, by placing “Share the Road” signs along Highway 255 and developing a multi-use trail utilizing the NCRA rail corridor through Manila (between Pacific Avenue/Dean Street/Peninsula Drive intersection and just north of Ward Street).

***McKinleyville Community Plan (2002)***

The Circulation Plan of the *McKinleyville Community Plan* supports bicycle facilities through policies such as design standards for new roadway and intersections to incorporate bikeways; favoring funding priorities for safe pedestrian and bicycle access to schools; and encouraging more off-street pathways.

***McKinleyville Parks and Recreation Plan (McKinleyville CSD, 2008)***

The *McKinleyville Parks and Recreation Plan*, prepared by McKinleyville Community Services District, identifies existing and proposed trail facilities, for trails maintained by the MCSD as well as the County of Humboldt. The plan’s policies support non-motorized transportation facilities.

***Willow Creek Community Action Plan (2003)***

The Action Plan focuses on economic development and community improvement. Residents of Willow Creek are interested in promoting the area's recreational opportunities to increase tourism in the area. Building bicycle trails was one thing recommended to attract both visitors and residents.

***Pacific Coast Bike Route Study (HCAOG et al, 2003)***

In California, the Pacific Coast Bike Route, or PCBR, begins on Highway 101 at the California/Oregon State line, and ends 1,000 miles south, adjacent to Interstate 5 at the Mexican border. In our region, the PCBR travels along Highway 101 Humboldt County, the PCB



The *Pacific Coast Bike Route Study* was prepared by HCAOG, MCOG (Mendocino Council of Governments) and LTCO (Local Transportation Commission) to provide guidance and establish priorities for improving facilities for touring cyclists in the Caltrans District 1 US 101 corridor.

The PCBR study recommends facility improvements and route alternatives through the county regions of Del Norte, Humboldt, and Mendocino. The study addresses signage, ‘Share the Road’ educational programs, agency coordination, and cooperative management of the PCBR.

## NEIGHBORING COUNTIES

The *Del Norte County and Crescent City Bicycle Facilities Plan Update* (2007) and the *Mendocino County Regional Bikeway Plan* (2006) both identify only the Pacific Coast Bike Route on Highway 101 for connecting to Humboldt County by bicycle. The *Trinity County Bikeway Master Plan* (2004) proposed Class III bicycle routes on Highway 299, Highway 36, and Zenia Bluff Road to connect Humboldt County and Trinity County. The Trinity County plan also recommends “Share the Road” signage along these routes to increase awareness of and respect for bicyclists. The Trinity County Transportation Commission is currently updating its county bikeway plan (as of October 2010).

## FEDERAL AND STATE PLANS & POLICIES

### *US DOT Accommodating Bicycle and Pedestrian Travel (USDOT)*

In response to TEA-21, the U.S. Department of Transportation (USDOT) adopted the policy statement, “Accommodating Bicycle and Pedestrian Travel: A Recommended Approach.” USDOT encourages public agencies, professional organizations, advocacy groups, and any other groups involved in transportation issues to adopt this policy to further promote bicycling and walking as viable components of the transportation system. The four directives issued in this policy statement address measures to improve bicycle and pedestrian access, convenience, and safety in transportation projects. The policy statement notes that:

*The challenge for transportation planners, highway engineers and bicycle and pedestrian user groups, therefore, is to balance their competing interest in a limited amount of right-of-way, and to develop a transportation infrastructure that provides access for all, a real choice of modes, and safety in equal measure for each mode of travel.*

The Bike Plan’s primary goal was drawn, in part, from this statement.

### *US Bicycle Commuter Act*

The Bicycle Commuter Act was in front of Congress for seven years before Congress passed it in 2008 as part of the Renewable Energy Tax Credit. The original intent of the provision was to give to bicycle commuters the same type of reimbursements already available to workers for public transit or parking costs. On January 1, 2009, the qualified bicycle commuting reimbursement was added to the list of qualified transportation fringe (QTF) benefits covered in section 132 (f) of the Internal Revenue Service Code. On August 12, 2009, the National Indian Gaming Commission published their decision to offer the bike subsidy along with other transportation fringe benefits.

As legislated, however, the bicycle commuter reimbursement does not work like other transportation QTFs, which are funded through employee pre-tax income (up to \$120 per month for transit passes and commuter highway vehicle transportation combined, or up to \$230 per month for qualified parking). The Bicycle Commuter Act allows any employer to voluntarily reimburse an employee up to \$20 per month for reasonable expenses incurred by commuting to work by bike. Reasonable expenses include the purchase of a bicycle, bicycle improvements or repair, and bicycle storage. Employees may be reimbursed for only one type of QTF in the same month.

The total anticipated cost of the bicycle commuter provision, estimated by the Joint Committee on Taxation, is \$1 million per year, compared to an annual cost of \$4.5 billion for parking and transit benefits.

### *California Blueprint for Bicycling and Walking (2002)*

The State's "Blueprint" plan sets the goal of:

- A 50% increase in bicycling and walking trips in California by 2010;
- A 50% decrease in bicycle and pedestrian fatality rates by 2010; and
- Increased funding for bicycle and pedestrian programs.

The Blueprint calls for government agencies, elected officials, bicycle and pedestrian advocacy organizations, and the public to work cooperatively to achieve these goals. The Blueprint states that "(b)icycling and walking must be considered in land-use and community planning, all phases of transportation planning, and in all project designs."

### *Completing the California Coastal Trail (California Coastal Conservancy, 2003)*

The California Coastal Conservancy studied the opportunities and constraints for completing a multi-use trail along the entire coastline. Some of the State's Coastal Trail objectives are to:

- Provide a continuous trail as close to the ocean as possible, with vertical access connections at appropriate intervals and sufficient transportation access to encourage public use.
- Foster cooperation between State, local and federal public agencies in the planning, design, signing and implementation of the Coastal Trail.
- Create linkages to other trail systems and to units of the State Park system, and use the Coastal Trail system to increase accessibility to coastal resources from urban population centers.

### *California Transportation Plan 2025 (2006) & 2030 Addendum (2007)*

The California Transportation Plan (CTP) is the State's long-range transportation plan. The plan has a vision of California having "a safe, sustainable, world-class transportation system" that achieves The 3 E's of Sustainability: a Prosperous Economy, a Quality Environment, and Social Equity. The current CTP 2025 is now being updated for a 2035 planning horizon. The CTP 2035 "addresses transportation as a focal point for sustainability and quality of life."

### *Global Warming Solutions Act of 2006 (California Assembly Bill 32)*

AB 32 made California the first state in the nation to adopt an enforceable statewide emission target (since then at least 20 other states have passed targets and goals). AB 32 requires the California Air Resources Board (CARB) to develop regulations and market mechanisms that will ultimately reduce California's greenhouse gas emissions to 1990 levels by the year 2020 and to 20% of 1990 levels by the year 2050. Pursuant to AB 32, CARB prepared the "Climate Change Scoping Plan" (December 2008). Among other actions, the Scoping Plan recommends that the State "(Continue) to implement sound land use and transportation policies to lower VMT [vehicle miles traveled] and shift travel modes." The Scoping Plan states,

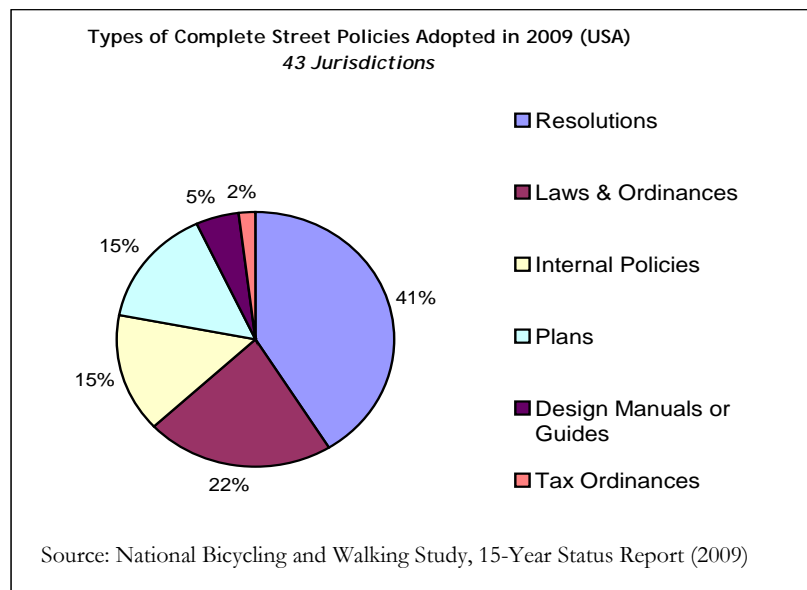
*The key to addressing the VMT challenge is providing people with more choices through diversified land use patterns, greater access to alternative forms of transportation including transit, biking and walking, and promoting development patterns where people can live, work and play without having to drive great distances.*

Improving bicycling transportation infrastructure is a key strategy to reducing the State’s greenhouse gas emissions.

***Sustainable Communities and Climate Protection Act (California Senate Bill 375, 2008)***

California led the nation by passing the first bill to link transportation and land use planning with global warming. Senate Bill 375, which is part of AB 32’s implementation strategy, aims to reduce greenhouse gas (GHG) emissions by discouraging sprawl development, fostering land use patterns that reduce the need to drive, and by promoting alternative transportation options.

In August 2008, the Senate amended the bill to apply only to federally designated metropolitan planning areas, thus eliminating some small counties. Therefore, the bill only requires California’s 18 MPOs to prepare a “sustainable communities strategy” to reduce vehicle miles traveled (VMT) in their respective regions, and to demonstrate ability to attain Air Resource Board targets.



***California Complete Streets Act of 2008 (California Assembly Bill 1358)***

Per AB 1358 (Leno), when a city or county is substantively revising the circulation element of the general plan, the respective legislative body is required to modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways, in a manner that is suitable to the rural, suburban, or urban context of the general plan. “All users” is defined as motorists, pedestrians, bicyclists, children, persons with disabilities, seniors, movers of commercial goods, and users of public transportation. By requiring new duties of local officials, this bill would impose a state-mandated local program.

***Complete Streets—Integrating the Transportation System (Caltrans, 2008)***

Caltrans revised this Deputy Directive (DD-64-R1) in October 2008. This “Complete Streets” directive addresses non-motorized transportation, energy efficiency, climate change, and Caltrans implementing its “Context Sensitive Solutions.” The revised directive reads:

*The California Department of Transportation (Department) provides for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations and maintenance activities and products on the State highway system. The Department views all transportation improvements as opportunities to improve safety, access, and mobility for all travelers in California, recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system.*

*The Department develops integrated multimodal projects in balance with community goals, plans, and values. Addressing safety and mobility needs of bicyclists, pedestrians, and transit users in all projects, regardless of funding, is implicit in these objectives. Bicycle, pedestrian, and transit travel is facilitated by creating “complete streets” beginning early in system planning and continuing through project delivery and maintenance and operations. Developing a network of “complete streets” requires collaboration among all Department functional units and stakeholders to establish effective partnerships.*

The USDOT policy encourages agencies and organizations to adopt this position, although it does not state the possible repercussions for not doing so. It is not clear how these policy directives will affect planning, designing, or funding new transportation facilities, particularly for local jurisdictions’ projects on streets that are not classified as “highways.” Nonetheless, these policies reflect public agencies’ growing commitment to design and operate the transportation system to accommodate pedestrians’ and bicyclists’ needs.

#### ***Assembly Concurrent Resolution No. 211 (2002)***

ACR 211 (Nation) relates to “integrating walking and biking into transportation infrastructure.” It became effective in August 2002, following the original passage of Caltrans DD-64 in 2001. The resolution encourages all cities and counties to implement the policies of the Caltrans DD-64 and the USDOT design guidance document when building local transportation infrastructure.

# 2. BIKE SYSTEM GOALS, OBJECTIVES & POLICIES

As the regional transportation planning agency, HCAOG wants Humboldt's transportation infrastructure to provide access for all, a real choice of modes, and safety in equal measure for each mode of travel.<sup>1</sup> Having a comprehensive regional bicycle network is one part of achieving this goal. To this end, HCAOG fully considers the needs of bicyclists in all programming, planning, and project development activities. HCAOG shall program, plan, and develop the regional transportation system consistent with these policies:

- The design and development of transportation infrastructure shall improve conditions for bicycling through: planning projects for the long-term; addressing the need for bicyclists to cross corridors as well as travel along them; getting exceptions approved and documented at a senior level, with full disclosure and timely review periods for the public.
- In all urbanized areas, bikeways shall be established in new construction and reconstruction projects unless bicyclists are prohibited by law from using the roadway or the cost of establishing bikeways would be excessively disproportionate to the need or probable use; or where sparse population or other factors evidence an absence of need.
- In rural areas, paved shoulders should be included in all new construction and reconstruction projects on roadways used by more than 1,000 vehicles per day. Paved shoulders have safety and operational advantages for all road users in addition to providing a place for bicyclists and pedestrians to operate.

*"If we are to meet the goals of doubling the current levels of bicycling and walking in the United States while decreasing by 10% the number of crash-related injuries and deaths, coordinated and committed effort must be put forth at every level of government."*

-National Bicycling and Walking Study, Federal Highway Administration 1994

HCAOG shall uphold the goals, objectives, and policies of the Regional Bicycle Plan in order to create a transportation system in which people feel safe bicycling, people bicycle within and between communities, and people consider bicycling an attractive and practical mode of travel for more trips.

## GOAL AND OBJECTIVES

### GOAL:

**Create the safest conditions for bicyclists by providing bikeways and improving roadways to eliminate barriers to bicycle travel.**

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<sup>1</sup> From US DOT Policy *"Accommodating Bicycle and Pedestrian Travel: A Recommended Approach."*

**OBJECTIVES:**

- ◆ Increase the percentage of people in Humboldt who commute by bicycle.
- ◆ Increase the annual number of non-recreational bicycle trips in Humboldt.
- ◆ Increase the number of regional bikeways that connect Humboldt communities.
- ◆ Increase the number of major destinations and public transportation stops that can be accessed directly via a designated bikeway.
- ◆ Increase the number of facilities that link bicycling with another transportation mode(s).

## **BICYCLE TRANSPORTATION POLICIES**

### **I. DEVELOP COMPREHENSIVE REGIONAL BICYCLE NETWORK**

**Policy 1.1** Encourage and support local jurisdictions and local Native American Tribes to plan, install and maintain local bikeway networks, as well as to collaborate to build a countywide comprehensive regional bicycle network. Humboldt's regional bicycle network shall have:

- regional bikeways that link communities and connect to local bicycle networks and facilities;
- local bikeways that link to major activity centers, public transportation, recreation, and other destinations;
- bicycle-friendly streets, as consistent with “Complete Streets”<sup>2</sup> policies, designed with best current practices, and innovative treatments where appropriate;
- comprehensive facilities that support bicycle travel, including, but not limited to, directional signage, bike maps, sheltered parking, and changing stations; and
- facilities integrated to access other modes of transportation (e.g. driving, carpooling, public transit).

**Policy 1.2** HCAOG recognizes the high level of public support for a dedicated bicycle and pedestrian trail in the NCRA and Caltrans corridor between Eureka and Arcata (the “Humboldt Bay Trail”), and supports multi-jurisdictional, public, and private efforts to develop it.

**Policy 1.3** HCAOG will facilitate HCAOG member entities and committees to discuss developing regional trails that are integral to the comprehensive regional bicycle network.

**Policy 1.4** HCAOG encourages transit providers to promote and accommodate bicycles on transit vehicles, and to provide secure bicycle parking facilities at transit stops and transportation centers.

**Policy 1.5** To advance Safe Routes to School initiatives, HCAOG shall support jurisdictions to establish and maintain designated bikeways (Class I, II, or III) within one mile of all public schools.

**Policy 1.6** HCAOG will coordinate local and regional bicycle signage and amenities to be consistent with a regional trails signage and amenities plan, when adopted, per Regional Trails Master Plan-Goal 4.5.

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<sup>2</sup> See Chapter 1, California Complete Streets Act of 2008 (California Assembly Bill 1358).

**Policy 1.7** HCAOG encourages local jurisdictions to adopt ordinances that require bicycle facilities in new development and redevelopment. Recommended ordinances include:

- Onsite bicycle parking and/or storage in all new public, multi-family residential, commercial, industrial, and mixed-use development and redevelopment.
- Installing and maintaining safe bicycle links to the existing bikeway network and/or to other modes.
- Shower and locker facilities for new developments and redevelopments over 15,000 square feet.
- Incentives for large-scale developments and employers to provide indoor bicycle parking for tenants and/or employees.

**Policy 1.8** HCAOG supports implementing “Complete Streets” programs and policies for the California Coastal Trail (CCT) along the shoreline of Humboldt's coastal communities.

## II. FUNDING COMMITMENTS

**Policy 2.1:** HCAOG shall fund projects and programs that plan, build, and maintain Humboldt's comprehensive regional bicycle network.

**Policy 2.2** HCAOG shall prioritize funds for transportation projects that eliminate barriers to bicycle travel, such as widening roadway shoulders, closing gaps, improving access on bridges, and designating bikeways within one mile of public schools and between transit stops and nearby public facilities.

**Policy 2.3** HCAOG shall encourage local jurisdictions to include bikeway improvements in their Capital Improvement Plans.

**Policy 2.4** HCAOG shall ensure that all regionally-funded transportation planning and development projects enhance bicycle transportation to the extent feasible, as consistent with California Complete Streets Act of 2008 (AB 1358) and Caltrans Deputy Directive 64-R1.

**Policy 2.5** HCAOG shall include in the annual Overall Work Plan staff time and funding to implement the Regional Bicycle Plan.

**Policy 2.6** HCAOG will pursue, and assist local jurisdictions applying for, multi-jurisdictional funds and alternative funding sources (e.g., grants and public-private partnerships) to finance projects and programs of the RTP Bicycle Element and the Regional Bicycle Plan.

## III. BICYCLE PLANNING & MONITORING PROGRESS

**Policy 3.1** HCAOG shall coordinate planning documents to consistently support building a

comprehensive regional bicycle network. The adopted Regional Bicycle Plan may serve as the Bicycle Element of the Regional Transportation Plan updates.

**Policy 3.2** At least annually in the years between updates, HCAOG shall review the status of implementing the Regional Bicycle Plan. HCAOG shall facilitate an ad hoc bicycle advisory committee to participate in this annual monitoring and progress report.

**Policy 3.3** HCAOG shall use the Bicycle Level of Service and Quality of Service (BLOS/BQOS) and the Bicycle Compatibility Index as tools for assessing bicycle facility needs and prioritizing projects.

#### IV. BICYCLE EDUCATION, PROMOTION, AND SAFETY

**Policy 4.1** HCAOG will collaborate with organizations countywide to develop public outreach materials that promote bicycling and its benefits. Promote bicycling as a healthy transportation choice that benefits physical and environmental health and enhances community interactions.

**Policy 4.2** HCAOG will collaborate with and help coordinate countywide efforts that teach bicycle skills and safety education to cyclists and motorists.

**Policy 4.3** HCAOG supports grassroots efforts to promote and enhance non-motorized transportation.

# 3. BICYCLE SYSTEM DESIGN FACTORS

This chapter discusses major factors to be considered when designing a bicycle system. The chapter defines standard bikeway classes (i.e., Class I, II, and III), plus two modified classes proposed in this Bike Plan (Enhanced Class III and Rural Route Class III). The chapter also discusses factors of commuter and recreational bicyclists' needs, collisions data, and opportunities and constraints for the regional system. The chapter also summarizes the public comments that helped update the Bike Plan. Public comments indicate significant demand for particular bicycle facilities.

## BIKEWAY CLASSIFICATIONS

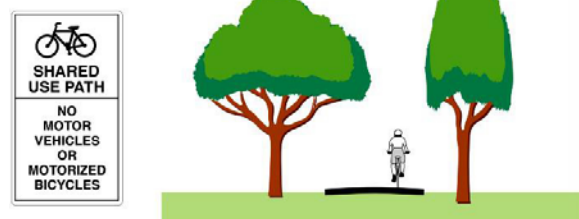
Caltrans classifies bikeways into three primary classes:

**CLASS I BIKEWAY** – Class I bikeways are typically referred to as **multi-use** or **shared use paths**. They are paved and separated from streets and highways. For a two-way path, the minimum width is 8 feet (2.4 meters) (per Caltrans design criteria). Class I bikeways are shared by bicyclists and pedestrian, and in some cases equestrians. They are popular with novice cyclists; experienced bicyclists may avoid these paths to avoid conflicts with multiple users.

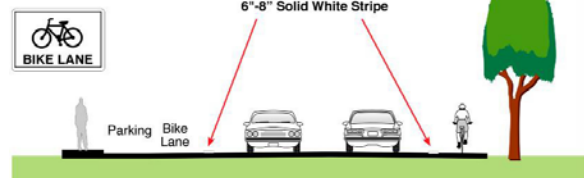
**CLASS II BIKEWAY** – Class II is often referred to as a **bike lane**. It is striped and stenciled lane for one-way travel on a street or highway. When properly designed, bike lanes make motorists more aware of bicyclists. The minimum width of a lane is 4 feet (1.2 meters), or 5 feet (1.5 meters) if the lane is next to a curb or parked cars.

**CLASS III BIKEWAY** – Generally referred to as a **bike route**, Class III bikeways are signed to indicate that bicyclists share the roadway with motor vehicles, and sometimes pedestrians (not recommended). These are recommended to connect where there are gaps in Class I or Class II bikeway.

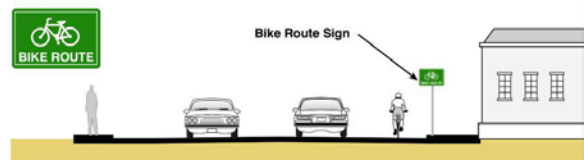
Shared Use Path



Bike Lane



Bike Route Signed Shared Roadway



In addition to Caltrans' standard Class III bikeway design, the *Regional Bike Plan* proposes two modified classifications for Class III bike routes, one "enhanced" and one "rural route."

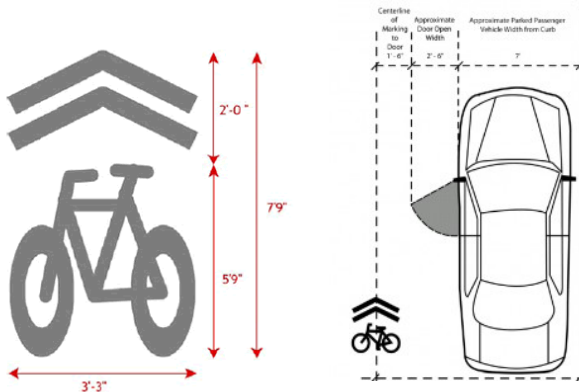
**ENHANCED CLASS III BIKEWAY** – This designation is for bike routes that add one or more design elements other than standard Class III signs. Enhanced Class III bikeways augment the bike facility with pavement markings and/or signage. Roadway space requirements are the same as for other Class III facilities.

One way to enhance the Class III design is to paint a fog line on the roadway, which visually delineates between the edge of the travel lane and the parking zone or shoulder. Fog lines also visually constrict the travel lane, which makes some drivers slow down.



Fog lines striped on 11th Street in Arcata

A Class III design can also be enhanced with “Share the Road” signs placed in tandem with “Bike Route” signs, and/or on other signposts. Another way to enhance the bike route is to paint *shared-use arrows* (commonly called “sharrows”) in the roadway.



A standard image for a shared use arrow (“sharrow”).

Sharrows are painted on the road, outside of the “door zone.”

**RURAL ROUTE CLASS III BIKEWAY** – This augmented Class III Bikeway is intended for rural, two-lane roads that cyclists frequently use, but whose width and/or sight distances make them poor candidates for a standard bike route. Identifying these roads with signs as “Bike Routes” can potentially attract more cyclists where engineering cannot improve roadway conditions to accommodate more bicycle traffic.

In these cases, “Share the Road” signs can be installed to increase motorists' awareness that cyclists are riding on the roadway. Appropriate signs include a yellow bicycle warning sign and “Share the Road” or “Share the Road with Bicyclists” placard.



**PATHS AND TRAILS** – Jurisdictions have the option to construct bike paths that do not conform to Caltrans standards. If a pathway is intended primarily for recreational use and will not be built using State or federal transportation funds, it may be constructed to meet local conditions and needs. When a path or trail project will serve *both* transportation and recreation needs, funding opportunities can be sought for both uses.

**SHOULDERS & TRAFFIC LANES** – Where there is no bikeway, bicyclists ride on the roadway’s shoulder or in the traffic lane. On streets with limited motorized traffic (often the case in residential neighborhoods), bicycling in the street can be comfortable and safe. In these instances, installing a bikeway is not necessary. In Humboldt County, often a wide shoulder on high-traffic streets or highways is the best (only) option for a bicyclist. This is the case when topography, narrow rights-of-way, or other physical features leave no room for a class I, II, or III bikeways.

See Appendix B for design guidelines for the regional bikeway system.

## **BICYCLE LEVEL OF SERVICE CONCEPT**

In the transportation field, it is common practice to evaluate roadway traffic conditions based on the “level of service” concept, or LOS. The LOS “grade” (A to F) indicates the typical delay a driver would experience on a particular roadway or intersection. Practitioners and stakeholders in the transportation field are interested in ways to evaluate a roadway’s (or bikeway’s) levels of service for bicyclists, or what might be termed “bicycle friendliness.”

The “Bicycle Compatibility Index” (BCI) is a generally established model for measuring conditions for bicyclists. The BCI methodology uses variables such as curb lane width, traffic volume, and vehicle speeds to assess the “bicycle friendliness” of a roadway. Appendix C has detailed information (excerpted from FHWA reports) on how to develop and implement the BCI model for bicycle level of service.

## **BICYCLE TRAVEL NEEDS**

To function properly, a bikeway network must connect neighborhoods and communities so that people feel safe biking from home to places they work, attend school, shop, do errands, and to recreate and socialize. Typical bikeway destinations include:

- Downtowns, commercial districts, and shopping centers
- Civic buildings, libraries, hospitals, medical offices
- Schools, universities, and colleges
- Major employment centers
- Transit hubs and transfer points for multi-modal trips
- Residential neighborhoods
- Parks, beaches, and other recreational destinations

## COMMUTER NEEDS

Commuter bicyclists include people who ride to work occasionally or daily as well as children riding to school.

Bicycle commuting requires shorter distances than motorized commuting. Viable bicycle commute distances can be problematic when land use and transportation policies support the construction of sprawling neighborhoods that are far apart from employment centers. It is also a problem for bicycle commuting when neighborhoods connect only via wide roadways that are built for large traffic volumes and high speeds. Access to public transit helps extend cyclists' commute range, but transit systems are also less effective with the increasingly dispersed live-work land patterns. For bicycle commuting to be viable and appealing, the cyclist's residence needs to be relatively close to the work place, commercial areas, other services, and recreational places.



Commuter bicyclists have obvious and straightforward needs that primarily concern safety. They require bike lanes or wider curb lanes along all arterials and collectors, traffic signals and imbedded detectors at busy arterial intersections, and maintained pavement. Commuters also need bicycle parking, and, ideally, bicycle storage and showers at their destinations. Key commuter needs are summarized below.

- **TRIP RANGE** – Most bicycle commute trips in Humboldt County are local rather than regional. Most bicycle commuters' trips are less than five miles (eight kilometers). However, many cyclists commute between Arcata and Eureka, a distance of at least six miles.
- **MULTI-MODAL COMMUTING** – Bicycle commuters can extend their trip range by combining bicycling with other travel modes including buses and carpools/vanpools. Bike-transit trips can be made more convenient and appealing when bicycles are allowed on public transit, and by providing bicycle lockers and changing facilities at transit stations. Bike-carpool trips can be encouraged by providing park-and-ride lots with bike lockers and changing facilities.



Commuting in Arcata on Car Free Day

- **PREFERRED COMMUTE ROUTES** – Commuters typically seek the most direct and fastest route available. For instance, adults who regularly commute by bicycle often prefer riding on arterials rather than side streets. Most commuting cyclists would prefer to have bike lanes or wider curb lanes on direct routes rather than be directed to side streets. Student bicycle commuters also typically take the most direct route from origin to destination.

- **PEAK TRAFFIC** – Commute periods typically coincide with peak traffic volumes and congestion, increasing a bicyclist’s exposure to potential conflicts with vehicles. For example, for students bicycling to school, one of the most hazardous places is the school drop-off zone where dozens of motorized vehicles jockey for position at the curb.
- **BICYCLE STORAGE** – A safe place to store bicycles is important to all bicycle commuters. Unfortunately, bicycle commuters are not regularly provided with secure, covered bicycle racks that are conveniently located. Showers and lockers for cyclists are even more rare. Rather than providing incentives for bicyclists, most schools and employers inadvertently discourage bicycle commuting by continuing to subsidize more expensive parking for private automobiles.
- **CONCERNS** – Common concerns of commuting cyclists are: inclement weather (rain), riding in the dark, personal safety, and bike security. Approaching and riding through unprotected intersections is a concern for all bicycle riders.
- **RIDING ON SIDEWALKS** – It is generally acceptable for children and younger students to ride on sidewalks where there are not many pedestrians and where driveways are easy to see. If parked cars, landscaping, or structures block views of cars pulling out of driveways, sidewalk riders may be at greater risk for colliding with cars. Older students who ride at speeds over 10 mph should be directed to ride on the street wherever possible.
- **SAFETY EDUCATION** – Students riding the wrong direction down the street are involved in many reported accidents, which indicates a need for effective bicycle education programs.

## RECREATIONAL NEEDS

Although recreation is a major part of the lifestyle in Humboldt County and an attraction for tourists, recreational bike trails are not a major component of the *Regional Bicycle Plan*. This is because funding is usually reserved for trails that serve a transportation function, rather than a recreational function, and this Bike Plan was developed with access to funding in mind. Nonetheless, local bike plans will benefit if they integrate recreational bicycle trails.



The following points summarize recreational needs.

- Recreational bicycling is typically categorized as exercise/recreation or touring.
- Recreational users range from mountain bikers to Sunday riders, from children to senior citizens. Each group has its own abilities, interests, and needs.
- For recreational bicycling, directness of route is typically not as important as routes with fewer traffic conflicts, greater visual interest, shade, wind protection, moderate grades.
- Bicyclists exercising or touring often prefer a loop route rather than having to backtrack.
- Mountain bikers, a fast growing segment of recreational users, prefer off-road trails. Developing long-distance trails between cities will satisfy many off-street needs.

- Self-contained bicycle touring is an emerging form of eco-tourism. It is popular on the Pacific Coast Bike Route and, increasingly, statewide. Campsites and rest stops are important amenities for touring cyclists.

Humboldt County offers several excellent recreational bicycle routes for different types of bicycle riders. For less experienced riders, there are bike paths such as the Class I Hammond Trail. For more experienced and long-distance riders, there are scenic back roads such as Westhaven Drive and Scenic Drive in the Trinidad area. For touring cyclists, there is the Pacific Coast Bicycle Route, including the Avenue of the Giants.

The region's recreational offerings for bicyclists can be expanded upon. Two apparent deficiencies are (1) the public's lack of awareness of bicycling opportunities, and (2) poor connectivity to regional recreation facilities such as parks and rest stops. Also, many roads outside of developed areas lack shoulders or sufficient width for bikeways inhibiting less adventuresome riders.

Humboldt residents have expressed their demand for additional bike paths where families, children, and others can ride close to home without having to worry about motorized traffic. To serve their needs, HCAOG member agencies have to create better local and regional connectivity and more Class I multi-use paths. Two common issues on multi-use trails are (1) conflicts between bicyclists, walkers, skaters; and (2) interfaces where the trail and roadways intersect. When a multi-use trail will exceed 200 people per hour, the trail can be designed to diminish conflicts: the trail should be at least 10 feet wide and should have unpaved shoulders for walkers, appropriate signs and adequate enforcement. Regardless of the design, many experienced cyclists choose not to use multi-use trails because of the unpredictability of other users. In fact, studies have shown that most bicycle-related accidents involve other bicyclists or pedestrians rather than automobiles. As such, multi-use trails should be designed to separate users as much as possible and the system should not depend on multi-use trails for critical connections to serve all riders.

Studies have identified tangible benefits that come to communities that provide recreational opportunities. Local access to recreation generally increases property values, often boosts tourism, increases local recreation expenditures and destinations, and can spur new business opportunities. Recreational paths also provide additional transportation choices.

## **COLLISION DATA**

The California Highway Patrol (CHP) maintains a database of collision records in its Statewide Integrated Traffic Records System (SWITRS). Collision information, including bicycle crashes, is recorded by local police and the CHP and compiled into an annual statewide report. Statistics and site-specific details on bicycle collisions in Humboldt County highlight problematic locations and the risks bicyclists face.

The *2004 Regional Transportation Bicycle Plan* presented collision data for the years of 1998-2003. There were 439 collisions involving bicyclists, including three fatalities (see Table 3.1). The majority of collisions were concentrated in the population centers of Eureka and Arcata, where relatively large numbers of people bicycle.

For the years 2005 through 2009 (five years for which full-year data was available), the Humboldt region had a total of 334 reported bicycle collisions, with 290 bicyclists injured, two bicyclists killed, and one non-bicyclist injured (see Table 3.2). Table 3.3 shows accidents reported by jurisdiction. Eureka had the highest percentage of collisions; the unincorporated County had the second highest. Arcata had the third highest percentage; however, because the City of Arcata covers a smaller area than the unincorporated County, the City may have a higher accident rate per square mile.

**Table 3.1 Reported Bicycle Collisions in Humboldt County, 1998-2003**

Jurisdiction	Property Damage	Injury	Fatality	Total
Arcata	20	84	0	104
Eureka	38	151	1	190
Ferndale	0	0	0	0
Fortuna	6	25	0	31
Rio Dell	2	7	0	9
Trinidad	0	0	0	0
Unincorporated County	9	94	2	105
<b>Total</b>	<b>75</b>	<b>361</b>	<b>3</b>	<b>439</b>

Reproduced from HCAOG's 2004 *Regional Bicycle Transportation Plan*.

**Table 3.2 Reported Collisions in Humboldt County, 2005-2009\***

	Total Collisions	Collisions Involving a Bicycle	Bicyclist Killed	Bicyclists Injured	Property Damage
<b>2005</b>	2,299	71	0	60	11
<b>2006</b>	2,266	57	0	55	3
<b>2007</b>	2,339	65	0	60‡	4
<b>2008</b>	2,002	61	1	46	14
<b>2009</b>	2,048	80	1	69	10
<b>Total</b>	<b>10,954</b>	<b>334</b>	<b>2</b>	<b>290</b>	<b>42</b>

\*Reported collisions for calendar year. ‡Plus one non-cyclist injury.  
Source: California Highway Patrol, SWITRS Reports.

**Table 3.3 Collisions Involving Bicycle by Jurisdiction, Humboldt County, 2005-2009\***

Jurisdiction	2005		2006		2007		2008		2009		Total for jurisdiction	
	#	%	#	%	#	%	#	%	#	%	#	%
Arcata	16	22.5	13	22.8	15	23.1	10	16.4	22	27.5	<b>76</b>	<b>22.8%</b>
Eureka	31	43.6	20	35.1	26	40.0	33	54.1	37	46.3	<b>147</b>	<b>44.0%</b>
Fortuna	5	7.0	5	8.8	4	6.1	6	9.8	5	6.3	<b>25</b>	<b>7.5%</b>
Unincorporated County	19	26.7	19	33.3	20	30.8	12	19.7	16	20.0	<b>86</b>	<b>25.7%</b>
<b>Regionwide Total</b>	<b>71</b>	<b>100%</b>	<b>57</b>	<b>100%</b>	<b>65</b>	<b>100%</b>	<b>61</b>	<b>100%</b>	<b>80</b>	<b>100%</b>	<b>334</b>	<b>100%</b>

\*Reported collisions for calendar year. There are no reported collisions in 2005-2009 for Ferndale, Rio Dell, or Trinidad. Source: California Highway Patrol, SWITRS Reports.

## CONSTRAINTS AND OPPORTUNITIES

There are numerous constraints that impact bicycling and bicycle planning activities in Humboldt County:

- Limited local funds for bicycle facilities
- Limited dedicated bicycle facilities/routes
- Limited inter-city routes for bicycle travel
- Limited number of suitable roadway shoulders
- Frequent roadway failures resulting from extreme weather conditions
- Mountainous terrain outside of the County's coastal zones

Despite the challenges, Humboldt County has an opportunity to increase the number of people who bicycle to work and school by taking advantage of the following:

- The increasing availability of dedicated non-motorized funding sources.
- Access to competitive source non-motorized funds.
- Collaborative efforts to plan and implement multi-jurisdictional bicycle projects.
- Active and supportive public and elected officials.
- Existing corridors in the county where off-street bicycle paths (Class I facilities) could be located. Some of the best opportunities for off-street, long-distance, multi-use trail systems are in unused railroad corridors. The Hammond Trail is a successful rail-to-trail project. Other railroad rights-of-way with potential for trail use are: the Annie & Mary rail corridor between Manila and Arcata; the rail corridor along the South Fork of the Eel River; and the North Coast Railroad Authority railroad corridor along the Humboldt Bay (between Arcata and Eureka).

Constraints and opportunities were also identified by Humboldt County residents, as described in the following section.

## PUBLIC OUTREACH & PUBLIC INPUT

Humboldt County residents are a great source for identifying existing impediments to bicycling, as well as identifying bicycle facilities that are most in demand. For the 2012 update, HCAOG garnered residents' perspectives through the public input processes conducted for both the *2010 Humboldt County Regional Trails Master Plan* (HCAOG) and for this Bike Plan update.

For the *Regional Trails Master Plan*, HCAOG and its consultants conducted a broad campaign for soliciting community input. The campaign was carried out during 2009-2010, and included public service announcements (PSAs) through local print and radio media; community workshops in Eureka, Fortuna, and McKinleyville; an ad-hoc "Southern Humboldt County focus group" meeting in Garberville; and opportunities to submit comments also via e-mail and post. Participants answered the main question: What is your vision for an active transportation system (or trails vision) for Humboldt County?

"Through a show of hands survey," the *Regional Trails Master Plan* states, "the majority of workshop participants expressed an interest in doing volunteer work to assist with the development or

maintenance of trails, and a willingness to financially support active transportation system development.” In summarizing community input the plan concludes, “Both the qualitative and quantitative comments indicate a community preference towards regional multipurpose trails that connect Humboldt County communities.”

Because participants’ responses were extensive, recently solicited, and included many ideas for a regional system, they are valuable for informing the *Regional Bicycle Plan*, too. Table 3.4 lists bike-related trail projects that participants would like to see constructed in the near future.

**Table 3.4. Community-Provided Trail Candidate Projects\***

<b>Regional (multiple jurisdictions)</b>
<ul style="list-style-type: none"> <li>• Develop a Class I bike path between the cities of Eureka and Arcata, preferably railbanked on the railroad right-of-way</li> <li>• Develop trails separated from roads that connect Eureka, the College of the Redwoods, Fortuna, and Rio Dell, preferably utilizing the railroad right-of-way and with equestrian access</li> <li>• Develop a multi-use trail system that compliments the railroad (proposed excursion train around Humboldt Bay) between Scotia and Humboldt Bay</li> <li>• Develop Class I bike paths connecting the cities of Arcata, Blue Lake, Eureka, Trinidad and the community of McKinleyville</li> <li>• Develop a multi-use trail connecting Arcata and Manila, using the small existing road between Humboldt Bay and Route 255, then constructing part of it on the levee/railroad right-of-way surrounding the bay</li> <li>• Develop a Class I bike path on the Annie and Mary corridor, between the cities of Blue Lake and Arcata</li> <li>• Route the Annie and Mary Rail-Trail through Fieldbrook to connect to the Hammond Trail</li> <li>• Make improvements to North Bank Road to allow safe bicycle and pedestrian access</li> <li>• Develop a trail, separated from US 101, between Central Avenue/North Bank Road to Valley West</li> <li>• Extend the Hammond Trail north to Trinidad (Patrick's Point)</li> <li>• Extend the coastal trail across Little River, up Scenic Drive, to Stagecoach Road and Patrick's Point Drive</li> </ul>
<b>City of Eureka</b>
<ul style="list-style-type: none"> <li>• Develop Class II bike lanes on H and I Streets</li> <li>• Develop bike paths all through town</li> <li>• Develop trails connecting gulches and greenways</li> <li>• Develop a multi-use trail connecting Eureka Waterfront with Henderson Center</li> <li>• Provide access for Worthington School to Myrtle off Harris</li> <li>• Develop more signage and space for bicyclists on Walnut, Ridgewood and Elk River Road</li> </ul>
<b>City of Ferndale</b>
<ul style="list-style-type: none"> <li>• Develop a trail or sidewalk that continues along Bluff Street to Rose Avenue</li> </ul>
<b>City of Fortuna</b>
N.A. <i>[Participants identified a pedestrian trail only.]</i>
<b>City of Trinidad</b>
<ul style="list-style-type: none"> <li>• Beach access trails</li> <li>• Developed/improved trails connecting neighborhoods</li> <li>• Trail from Indian Beach up Parker Creek to Scenic Drive</li> </ul>
<i>(table continues on next page)</i>

## County of Humboldt

- Complete the Mid-Town Trail through Mill Creek Falls (McKinleyville)
- Multi-use trail from Alton to Swains Flat
- Develop a bicycle and hiking path from Honeydew to Petrolia
- Develop a multi-use trail from McKinleyville to Fieldbrook (Murray Road to Fieldbrook Road)
- Mountain biking trail in the Southern Humboldt Community Park
- Develop/Improved trails connecting southern Humboldt communities - similar to trails in Salmon Creek
- Trail along the South Fork of the Eel River
- Class I, II, III facilities on residential roadways in Garberville, Redway, Phillipsville, and Miranda
- Developed/Improved trail from lower Redway -Eel River to Upper Redway
- Trails connecting topographically adjacent communities that are not connected by roadways (e.g., Salmon Creek and Briceland)
- Multipurpose trail from Garberville to the Southern Humboldt Community Park and eventually connecting Kimtu and Benbow
- Class II bike lanes along Shelter Cove Road
- Trail on old Railroad grade in Westhaven
- Developed/improved trail separate, but adjacent to Westhaven Drive
- Remove bridge at Luffenholtz and build a bike/hike/horse bridge that isn't a barrier to salmon and trout
- Multipurpose trail from Garberville to the Southern Humboldt Community Park and eventually connecting Kimtu and Benbow
- Developed/improved trails connecting McKinleyville neighborhoods to key destinations
- Provide access for Worthington School to Myrtle off Harris
- Develop more signage and space for bicyclists on Walnut, Ridgewood and Elk River Road

## Cities of Arcata, Blue Lake, and Rio Dell

N.A. [No comments were noted for these jurisdictions.]

\*Modified from the 2010 Humboldt County Regional Trails Master Plan.

Community members also submitted written comments in addition to the visioning workshops. Several community members from Manila submitted comment which “urge(d) that Manila and the Samoa Peninsula are included in the 2010 Regional Trails Master Plan.” Their letters referenced the work their community has done through the Safe PATHS Coalition (PATHS stands for Peninsula Area-wide Trails Highways & Streets). The coalition had a visioning meeting in 2008, in which they identified these desired bike-related trail projects:

- Class II along Old Samoa Road in Arcata Bottoms.
- Class I from west end of Old Samoa Road, meeting up with S.R. 255 at north end of Manila, along levee.
- Widened Shoulders on S.R. 255 and Navy Base Road.
- Class II path entire length from Arcata to Jetty.
- Class I along S.R.255, through Manila, over Samoa Bridge:
  - Arcata Bottoms: Rail-to-Trail;
  - Through Manila: in Caltrans Right-of-Way, west of S.R. 255, connects neighborhoods on west side of S.R. 255, could be a mixed Class I and Class II path, meeting up with shoulder of S.R. 255 at points where it is necessary;
  - Going into Samoa via rails/Vance Avenue;
  - Over Samoa Bridge: cantilevered path, or squeeze vehicle lanes against bridge wall, remaining space becomes Class I path (separated from vehicles by barrier).

- Class I Bay-to-Dunes path: From Manila Ave., crossing S.R. 255, onto Lupin, out to dunes. These dunes meet up with future trails connecting to Stamps Property/ Friends of the Dunes Center, and beach access.
- Bicycle racks wanted at beach access points.
- Access from Class I path through Manila.
- Interpretive signs on paths.
- Beach access point (north of proposed Class I Bay-to-Dunes path).
- Needs a new entrance from S.R. 255—accessible by pedestrian, bike, car, etc.

See the *2010 Humboldt County Regional Trails Master Plan* ([www.hcaog.net/documents](http://www.hcaog.net/documents)) for the complete record of public comments.

As part of updating the Bike Plan, HCAOG conducted public outreach events at targeted community events during the update process. HCAOG staff spoke to people at the Garberville Town Square during the Harvest Fiesta and Farmers’ Market. HCAOG staff met residents outside of the Mad River Grange in Blue Lake during one of the Grange’s monthly pancake breakfast events. Thanks to the efforts of resident bicyclists who notified community members, HCAOG staff was able to announce the update process to the Orleans/Somes Bar area. Staff also attended local bicycle advocacy group meetings, including the Humboldt Bay Bicycle Commuters Association and Green Wheels. Organizations, such as the Humboldt Partnership for Active Living (HumpAL) and the Klamath Watershed Council, helped spread the word about the Bike Plan update process by announcing it through their respective webpages, in their newsletters, and/or with messages to their mailing lists.

HCAOG staff also attended events during bike month in May 2012 to do outreach to more stakeholders. HCAOG staff distributed flyers during both Arcata’s and Eureka’s Bike-to-Work-Day Morning Fueling Stations, at the respective Northcoast Co-ops on May 10 and 17, respectively.



HCAOG Bike Plan Review Flyer

Comments made to HCAOG staff in person:

**Garberville:**

- ❖ Get the word out/educate people about electrical bikes.
- ❖ Post 35MPH along Garberville-Redway connection to make it bike friendly.
- ❖ I want a viable alternative (to the private automobile) from Ettersberg to town.
- ❖ Put in some electric charging stations for electric bikes.
- ❖ Bicycling is hard in Briceland and Southern Humboldt because there is more car traffic, humongous pick-ups, and smoking diesel fumes.
- ❖ Install “Share the Road” signs on Redwood Drive, Briceland Road, Miller Creek Road.
- ❖ Educate drivers to know laws about passing bicyclists (change lanes to pass) and to be aware of bicyclists.

- ❖ How do I find out where it's legal to ride from Garberville to Washington?
- ❖ Make mountain bike trails in Paradise Royal-BLM-Paradise Ridge and King's Range.
- ❖ A bikeway from Shelter Cove to Garberville/Redway would be good for tourism.

**Blue Lake:**

- ❖ Improve the regional bike route through Glendale-Fieldbrook-McKinleyville to Korbel. The route through McKinleyville can be safer. Fieldbrook drivers drive close to cyclists and go fast.
- ❖ We need covered bicycle parking in apartment complexes. We need more secure parking in residential neighborhoods where houses don't have garages.
- ❖ Extend the Annie & Mary trail on the railroad north of freeway so equestrians can connect to it. {Note: This proposed connection is included in the *2010 Regional Trails Master Plan*.}
- ❖ Blue Lake Boulevard needs a bike lane on both sides. When cars park there, they take up the bike lane/shoulder and there's no room for bicycling. At least the lanes should be striped.

**Humboldt Bay Bicycle Commuters Association (HBBCA):**

- ❖ It is not clear how General Plan Circulation Elements work with HCAOG plans and policies.
- ❖ Prioritize connective routes in the region.
- ❖ Advance policies for multi-use Class I system.
- ❖ What does HCAOG want to do regionally and with prioritizing money?
- ❖ Have information about equity, sea level rise, complete streets, Health Impact Assessment, reducing collisions—everything Humboldt has done since 2004.
- ❖ Bike racks must be required. How can HBBCA get it into the code and enforced?
- ❖ Quality bike facilities in project designs can make biking more attractive, i.e. less out-of-direction travel (Eureka/Arcata corridor).
- ❖ Revise the goal to read as follows: “Create the safest conditions for bicyclists by providing bikeways; and by improving existing roadways to eliminate barriers to bicycle demand.” [*HCAOG revised the goal as suggested.*]
- ❖ Need a new policy regarding: Dedicate 2% TDA (Transportation Development Act funds) to bike facilities. Even meter it in over time – like ½%, 1%, 1½%, then 2% by 4 years. [*The HCAOG Technical Advisory Committee (TAC), at their August 9, 2012 meeting, discussed this request. The TAC recommends considering the 2% priority funding for bicycle and pedestrian projects as part of revising HCAOG's local TDA Rules & Regulations. HCAOG is currently in the process of updating these rules.*]

In addition, HCAOG received the following written comments from the public:

From: Chris Butner  
 Date: Fri, Jun 1, 2012 at 8:16 AM  
 Subject: regional bicycle plan update(comments)  
 To: siana.watts@hcaog.net

HCAOG,

I'd like to explore a new idea to help further ensure a safe road for bicycle riders. First I need to bring to your attention CA vehicle code 21211 - obstruction of bikeways or bicycle paths or trails. The code says the following highlighted in bold >

**21211. (a) No person may stop, stand, sit, or loiter upon any class I bikeway, as defined in subdivision (a) of Section 890.4 of the Streets and Highways Code, or any other public or private**

bicycle path or trail, if the stopping, standing, sitting, or loitering impedes or blocks the normal and reasonable movement of any bicyclist.

**(b) No person may place or park any bicycle, vehicle, or any other object upon any bikeway or bicycle path or trail, as specified in subdivision (a), which impedes or blocks the normal and reasonable movement of any bicyclist unless the placement or parking is necessary for safe operation or is otherwise in compliance with the law.**

**(c) This section does not apply to drivers or owners of utility or public utility vehicles, as provided in Section 22512.**

**(d) This section does not apply to owners or drivers of vehicles who make brief stops while engaged in the delivery of newspapers to customers along the person's route.**

**(e) This section does not apply to the driver or owner of a rubbish or garbage truck while actually engaged in the collection of rubbish or garbage within a business or residence district if the front turn signal lamps at each side of the vehicle are being flashed simultaneously and the rear turn signal lamps at each side of the vehicle are being flashed simultaneously.**

**(f) This section does not apply to the driver or owner of a tow vehicle while actually engaged in the towing of a vehicle if the front turn signal lamps at each side of the vehicle are being flashed simultaneously and the rear turn signal lamps at each side of the vehicle are being flashed simultaneously.**

I'd like to point out that obstruction only applies to class 1 bikeways(Hammond trail as a local example). This does not apply to class 2 bike lanes within city limits. So basically cars may park in the bicycle lanes on a daily basis if they decide unless signage says no parking allowed. Essentially the state of California says it is acceptable to block bike lanes, and push bicycle riders into vehicular traffic. I find this to be unacceptable, and dangerous commuting on my bike on a regular basis. Ca vehicle code does allow me to bike to the left in these circumstances, and I have laws to follow like signaling. Then returning far right as allows safely. This would not be needed if parking was not allowed on bike lanes.

I'm asking HCOAG to take a more local stance on protecting bicycle riders. I'd like to see us take a local stand that parking in bike lanes will not be tolerated. That in certain places where this is a problem be resolved with new street layout designs, and signage. For me I commute in Arcata most, and I can identify a few problem areas. I have no choice, but to be pushed out into traffic. My life is precious as is all of our lives. I ask county, and cities to locally fix this problem. As a bicycle rider a just want a safe infrastructure for us all to share the road. I ask you to help protect me, and other bike commuters.

Thank you for your time.  
Chris Butner – Arcata resident

*[The HCAOG Technical Advisory Committee (TAC), at their August 9, 2012 meeting, discussed Mr. Butner's comments. The City of Arcata is aware of the areas that Mr. Butner cites, and polices the areas to the full extent that resources allow. The TAC recommends to the cities and county that they consider encouraging responsible agencies to enforce "no parking in bike lane" laws. ]*

More public input was solicited directly by both the City of Arcata and the City of Eureka. The City of Arcata completed its own, separate bicycle plan in 2010, and received public input through that process. See the *Arcata Pedestrian and Bicycle Master Plan 2010* (under separate cover), for a record of associated public comments. The City of Arcata's Transportation Safety Committee also reviewed the draft *Regional Bicycle Plan Update 2012* at their regular monthly meeting (May 15, 2012). The City of Eureka's Transportation Safety Commission reviewed the draft, too, and held several meetings with the *Regional Bicycle Plan* on the agenda, including a meeting at which HCAOG staff apprised the commission on the beginning of the update process.

HCAOG Social media also played a large role in public outreach for this plan. HCAOG place multiple posts on the HCAOG Facebook page ([www.facebook.com/hcaog](http://www.facebook.com/hcaog)) and Twitter page ([www.twitter.com/hcaog](http://www.twitter.com/hcaog)) to announce the draft Bicycle Plan review and comment period.

# 4. REGIONAL & LOCAL BICYCLE TRANSPORTATION

The *Humboldt Regional Bicycle Plan* effort is two-fold. First, the Plan serves to develop a unified, regional bicycle transportation network throughout Humboldt County. Second, because HCAOG does not have the authority to implement bike facility projects, the Plan can also serve HCAOG's individual member agencies should they choose to adopt the Plan at the local level to facilitate implementing projects in their jurisdiction.

Chapter 4 is divided into subsections to accommodate this two-fold purpose. Each subsection, numbered 4.1 through 4.9, supplies information required to be eligible for Bicycle Transportation Account funding (per 891.2 of the California Streets and Highways Code).

Chapter 4 first describes the region's land use and demographics, and then the region's current bicycle programs. Subsection 4.1 then covers the Regional Bikeway System—both existing and proposed facilities. Subsections 4.2 through 4.9 separately address bicycle facilities for each city and the unincorporated County.

All recommended bicycle projects and programs serve the regional system. Local projects are valuable for coordinating with and connecting to a regional system.

## REGIONAL SETTING

The following describes Humboldt's regional land use and settlement patterns, population demographics, and bicycle commuting estimates.

### LAND USE CHARACTERISTICS

HCAOG's goal is to facilitate local jurisdictions in developing a transportation system that is accessible and efficient for all users, and seamlessly integrated into the fabric of the land. The scope of this endeavor depends largely on the existing land patterns that a community inherits, and how they choose to build from there. Those choices dictate what prospects they will have for integrating transportation choices with other land uses.

Humboldt County's historic land use patterns offer opportunities and constraints for integrating bicycling networks throughout the region (see Humboldt County Map, Page 4-2). Topography alone has determined part of Humboldt's settlement pattern, resulting in higher population densities in the low, level lands around Humboldt Bay. Consequently, population centers, urban areas, and services are concentrated in the greater Humboldt Bay Area (central coastal area). The communities clustered in this general area are: the seven cities (Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Dell, and Trinidad), and unincorporated Fieldbrook, McKinleyville, Loleta and the Table Bluff-Wiyot Reservation, Manila, and Samoa. In general, integrating bike connections in these areas will

be relatively easier due to the higher population densities, more extensive infrastructure, and flatter topography.

Unincorporated communities outside of the Humboldt Bay area extend north to Orick, northeast to Orleans-Somes Bar, east to Willow Creek, and southward to Shelter Cove on the coast and Garberville-Redway inland. These communities are more dispersed and rural, have smaller populations, and are generally situated in more rugged terrain. Inland areas also experience more seasonal weather than on the coast, commonly reaching 100° F temperatures in summertime and getting snow in the wintertime. These characteristics—distances, steep topography, inclement weather—can reduce the range of what people consider practical bicycle trips. Long regional bike trips may not seem viable to most; nevertheless, there are opportunities to build better regional bicycle facilities that can increase bicycle riding for shorter regional trips as well as local trips.

The incorporated cities account for one percent of the total 3,570 square miles in Humboldt County. A majority of the entire county is devoted to agriculture and timberland uses (60.2%). Another dominant use is open spaces and parks, which account for 25.7 percent of the unincorporated land use. National and State Parks account for a majority of the park land.

Subsections 4.2 through 4.9 give more specific information on land use patterns and population demographics for the cities and the County.

## HUMBOLDT POPULATION DEMOGRAPHICS

Humboldt County had a 2010 population of 134,353 by California Department of Finance estimates. Based on that estimate, the countywide population grew 0.7% from January 1, 2010 to January 1, 2011. Humboldt County's population is expected to reach 143,100 by 2025.

Table 4.1 Humboldt County Population Estimates with Annual Percent Change

Jurisdiction	Jan 1, 2010	Jan 1, 2011	% of Countywide Population (2011)	% Change 2010 to 2011
Arcata	17,195	17,318	12.8	0.7
Blue Lake	1,249	1,265	0.9	1.3
Eureka	27,149	27,283	20.2	0.5
Ferndale	1,369	1,375	1.0	0.4
Fortuna	11,908	11,977	8.9	0.6
Rio Dell	3,361	3,382	2.5	0.6
Trinidad	366	368	0.3	0.5
Unincorporated	71,756	72,295	53.4	0.8
<b>Countywide</b>	<b>134,353</b>	<b>135,263</b>	<b>100.0</b>	<b>0.7</b>

Source: State of California, Department of Finance, *January 2011 Tables of City Population Ranked by Size, Numeric and Percent Change*. May 2011.

Of all demographic features, average age is most directly linked to potential bicycle riding. According to a nationwide survey in 2002, bicycle ridership declines steeply as adults age. Of the

survey respondents who were 16-24 years old, nearly 40% had ridden a bicycle in the month preceding the survey; of respondents aged 45-54 years old, 26% had. Only 9% of those surveyed over the age of 65 had ridden a bicycle in the previous month. (Survey conducted by the Bureau of Transportation Statistics and the National Traffic Safety Administration in the summer of 2002. The sample size was 9,616. There has been no follow-up survey to date.)

This data suggests that a lower average age corresponds to a higher potential for bicycle riding. The U.S. Census Bureau (Census 2010) estimates that Humboldt County's population is approximately 6% under five years old; 20% under 18 years old; and 13% 65 years or older. Thus, about 67% of the population is estimated to be 18 to 64 years old (compared to 63.7% for the state overall). Humboldt County's median age is 37.1 years, which is higher than median ages for California and the nation, 35.2 and 35.3 years, respectively.

## BICYCLE COMMUTING FORECASTS

The average household in the U.S. generates about 10 vehicle trips per day. Work trips, on average, account for less than 30 percent of these trips. The average one-way commute time in Humboldt County is 18 minutes. The average for California is 27 minutes.<sup>1</sup> The table below shows how travel times in Humboldt compare to national and state averages.

Table 4.2 **Travel Time to Work**

<b>Travel Time to Work*</b>	<b>United States</b> Margin of Error +/- 0.1	<b>California</b> Margin of Error +/- 0.1	<b>Humboldt</b> Margin of Error +/- 0.4-1.4
Less than 10 minutes	14.3 %	11.6 %	27.4 %
10 to 14 minutes	14.4 %	13.7 %	20.0 %
15 to 29 minutes	36.1 %	35.7 %	34.3 %
30 to 44 minutes	19.6 %	21.2 %	10.9 %
45 to 59 minutes	7.5 %	7.9 %	3.7 %
60 or more minutes	8.0 %	10.0 %	3.7 %

\*For persons 16- years-old or more who do not work from home.

Source: U.S. Census Bureau, 2005-2009 American Community Survey 5-Year Estimates (Table S0802).

The U.S. Census Bureau collects data on commuting habits. The U.S. decennial census and the more frequent American Community Survey (ACS), however, use different survey methods for collecting transportation characteristics. For example, survey questions are sometimes different, and trips may be counted differently. Thus, the statistical results from each source can vary. Below, Table 4.3 shows how the data for bicycle commuting varies between the two. Tables 4.4 and 4.5 show more details of the commute-to-work data collected by the 2000 Census and the 2005-2009 ACS, respectively.

According to the 2000 U.S. Census, 1.7 percent of all employed County residents commute primarily (i.e., 50 percent of the time or more) by bicycle (see Table 4.3). The bicycle commute rate in the Humboldt County is above average compared to California (0.8%) and the United States (0.4%).

<sup>1</sup> U. S. Census Bureau, 2005-2009 American Community Survey 5-Year Estimates.

According to more recent estimates from the 2005-2009 American Community Survey, 2.65 percent of employed people (16 years and older, and excluding people who work from home) commute to work by bicycle. See Table 4.4.

Table 4.3 **Bicycle Commuting in Humboldt County, Census and American Community Survey Data\***

<b>Census Designated Place</b>	<b>Census 2000 Commute by Bicycle (%)<sup>1</sup></b>	<b>ACS 2005-2009 Commute by Bicycle (%)<sup>2</sup></b>
Humboldt County (countywide average)	1.7	2.6
<b><u>INCORPORATED CITIES</u></b>		
Arcata	5.2	8.7
Blue Lake	2.5	0.8
Eureka	1.7	2.5
Ferndale	0.3	0.4
Fortuna	1.2	2.4
Rio Dell	1.5	0.0
Trinidad	0.0	0.0
<b><u>UNINCORPORATED COMMUNITIES</u></b>		
Cutten	0.6	1.3
Humboldt Hill	1.7	0.0
Hydesville	0.0	0.0
McKinleyville	1.1	0.9
Myrtle town	1.3	0.0
Pine Hills	0.4	0.0
Redway–Garberville	0.0	0.0
Westhaven-Moonstone	0.7	0.0
Willow Creek	0.0	0.0
<b><u>AMERICAN INDIAN RESERVATIONS</u></b>		
Big Lagoon	n.a.	0.0
Blue Lake Rancheria	0.0	0.0
Hoop Valley Reservation	0.5	0.0
Karuk Reservation	0.0	0.0
Table Bluff Reservation	0.0	0.0
Yurok Reservation	0.0	0.0

<sup>1</sup>U.S. Census Bureau, 2000 Census

<sup>2</sup>U.S. Census Bureau, 2005-2009 American Community Survey 5-Year Estimates (Table S0801).

Table 4.4 Means of Transportation to Work (Workers 16 Years and Over), 2005-2009

Census Designated Place	Car – (Alone)	Carpool	Public Transit	Bicycle	Walk	Other	Work at Home
Humboldt County (countywide average)	71.2	11.5	1.5	2.6	5.1	1.1	7.0
<b>INCORPORATED CITIES</b>							
Arcata	57.2	11.8	2.7	8.7	13.6	0.3	5.7
Blue Lake	80.9	4.7	1.5	0.8	4.9	0.0	7.3
Eureka	70.4	13.2	1.9	2.5	4.7	2.5	4.7
Ferndale	63.6	12.4	2.1	0.4	13.6	0.5	7.2
Fortuna	69.0	10.6	3.8	2.4	5.4	1.4	7.4
Rio Dell	73.3	19.5	0	0.0	2.4	0.0	4.7
Trinidad	69.7	6.4	7.3	0.0	6.4	0	10.1
<b>UNINCORPORATED COMMUNITIES</b>							
Cutten	80.2	4.3	0.0	1.3	5.8	0.0	8.5
Humboldt Hill	69.9	6.3	4.7	0.0	0.0	1.2	17.9
Hydesville	80.5	13.5	1.5	0.0	0.0	0.0	4.6
McKinleyville	77.4	12.1	0.7	0.9	2.0	1.5	5.4
Myrtle town	82.2	9.7	1.8	0.0	3.9	0.6	1.9
Pine Hills	92.2	6.8	0.0	0.0	0.0	0.0	0.9
Redway – Garberville	84.1	0.0	0.0	0.0	0.0	0.0	15.9
Westhaven-Moonstone	72.5	23.8	0.0	0.0	3.8	0.0	0.0
Willow Creek	88.3	11.7	0.0	0.0	0.0	0.0	0.0
<b>AMERICAN INDIAN RESERVATIONS</b>							
Big Lagoon Rancheria	100.0	0.0	0.0	0.0	0.0	0.0	0.0
Blue Lake Rancheria	63.4	11.3	0.0	0.0	25.4	0.0	0.0
Hoop Valley Reservation	65.4	23.9	1.8	0.0	4.0	0.0	4.9
Karuk Reservation	63.1	12.6	1.9	0.0	16.5	0.0	5.8
Table Bluff Reservation	63.6	21.2	6.1	0.0	0.0	0.0	9.1
Yurok Reservation	61.0	20.3	0.0	0.0	15.2	0.0	3.5

Source: U.S. Census Bureau, 2005-2009 American Community Survey 5-Year Estimates (Table S0801).

The U.S. DOT and the Trail & Bikeway Center developed a formula to forecast bicycle commuting levels compared to other modes (or its “mode share”). The formula estimated that bicycle commuting in Humboldt County would grow from 1.6 percent in 2000 (per the 2000 U.S. Census) to four percent by 2010. Based on the 2005-2009 ACS data, Humboldt’s bicycle mode share increased by about one percent since 2004, rather than by 3.4% as forecasted.

Shifts from motorized transportation to bicycle transportation can mean reductions in traffic pollution and congestion, especially when the mode shift is from a single-occupancy car. Bicycle commuting can reduce congestion, roadway maintenance and construction costs, and air pollutants, which are important arguments supporting increased investment in bicycle facilities in the future.

## REGIONAL BICYCLE PROGRAMS

The Regional Bicycle Plan recommends both physical improvements—such as construction projects—and community programs. This section highlights a few of the programs already in place in various jurisdictions. It also describes programs that can be implemented regionally to support and increase bicycling around the County.

Bicycle programs can be cost-effective ways to increase ridership. Effective programs can meet one or a number of goals: engage the community; enhance safety; educate bicyclists and motorists; and improve mobility. Bicycle programs need not burden agency staff or local funding resources. Many programs can be implemented and maintained by citizenry in partnership with local advocacy groups and a sponsoring agency.

Some barriers to implementing bicycle programs exist. First, their implementation requires organizational leadership, funding, follow-through, and maintenance. Second, although the public usually supports such programs, some leaders and participants may be skeptical of their benefits, especially when budgetary issues arise. Without effective organization and leadership, programs can lack impact or fail to show visible results, and thus atrophy over time. Drawing on a variety of community resources and maintaining community support is essential to ensure that the policies, programs, and projects within the Regional Bicycle Plan are implemented over time.

## ENCOURAGEMENT PROGRAMS

There are a number of bicycle programs in place around the County. They aim to improve bicycle safety and boost ridership. Some programs are agency-funded, others are volunteer run; most are a combination of the two. Each entity should take advantage of the success of these existing programs and the benefits they provide to the community and tourists.

### *Library Bikes*



Arcata Library Bikes evolved from the “green bikes” program in the 1990s. Grants, donations, and volunteers have made the program happen. Volunteers repair and rebuild bicycles from donated parts to maintain a selection of bicycles for use. They are available for check out with a \$20 deposit for a six-month period. Bikes can be returned before the lending period expires for a refund, or be checked out again. “Promise Bikes” are bicycles of higher quality that are loaned to people who vow to give up their car for trips within Arcata or for students moving to Arcata without an automobile. The program has loaned over 400 bicycles. In addition to bike loaning, after-school programs are held to teach kids basic bicycle repair and maintenance.



### *Bike to Work Month*

Bike to Work Day has evolved to Bike to Work Month, thanks to a coalition of public and non-profit outfits and private businesses.

Bike Month events include an annual Bike to Work Day noon-time rally in Eureka and Arcata, where the Humboldt Bay Bicycle Commuters Association holds contests and gives prizes for things such as the longest bicycle commute and the fastest time for fixing a flat. There are also morning commute “energizer stations” held at the North Coast Co-op. And in 2012 the coalition held the 4<sup>th</sup> Annual Bicycle Gear Swap in Arcata.

For the past few years the coalition has included the Humboldt Bay Bicycle Commuters Association, Green Wheels, HumPAL, Big Foot Bicycling Club, Caltrans, Humboldt County Public Health Division, the City of Arcata, and the North Coast Co-op, Revolution Bicycle, and The Outdoor Store.

### **Humboldt Bay Area Bike Map**

Bicycle maps are an essential tool for reaching and educating all types and level of bicyclists. Maps inform users of designated facilities, recommended routes, trails, recreation and touring facilities, and riding tips, and other local and regional resources. To ensure their effectiveness, they need to be readily accessible and up-to-date. The Humboldt Bay Area Bike Map serves the communities in the Humboldt Bay Region.

The Natural Resources Service Division of the Redwood Community Action Agency developed the original map through funding from the North Coast Unified Air Quality Management District. The map shows designated bikeways in the area, undesignated routes that may be good route alternatives, and roadways that only skilled riders are advised to use. The backside of the map provides helpful tips for riding safely and responsibly, applicable bicycling laws, tips for preventing theft, contact information for non-motorized transportation interest groups, bike shops in the Humboldt Bay Area, and a map of the larger region. The bike maps can be purchased at bookstores, bike shops and visitors centers. The map can also be viewed on-line at <http://www.naturalresourcecesservices.org/humbikemap.html>.



Caltrans District 1 also offers a free 48-page Bicycle Touring Guide of the County’s highways complete with maps, points of interest, and elevation charts.

## **EDUCATION AND SAFETY PROGRAMS**

Safety is a major concern of both existing and potential bicyclists. For those who ride, it is typically an on-going concern or even a distraction. For those who don't ride, it is one of the most compelling reasons not to ride. In discussing bicycle safety, it is important to separate out perceived dangers versus actual safety hazards.

Bicycle riding on-street is commonly perceived as unsafe because of the exposure of a lightweight, two-wheeled vehicle to heavier and faster moving automobiles, trucks and buses. Actual accident

statistics, however, show that bicyclists face only a marginally higher degree of sustaining an injury than a motorist based on numbers of users and miles traveled. Death rates are essentially the same with bicyclists as with motorists. Bicycle-vehicle accidents are much less likely to happen than bicycle-bicycle, bicycle-pedestrian, or accidents caused by physical conditions. And, the majority of reported bicycle accidents show the bicyclist to be at fault; generally, this involves younger bicyclists riding on the wrong side of the road or being hit broadside by a vehicle at an intersection or driveway. Chapter 3 of this Bike Plan shows accident data for Humboldt County for 2005-2009, collected by the Statewide Integrated Traffic Records System (SWITRS).

The Humboldt County Sheriffs and local Police Departments in the communities of Arcata, Eureka, and Fortuna enforce all traffic laws, for bicycles and motor vehicles as part of their regular duties. They ticket violators as they see them. This includes bicyclists who break traffic laws, as well as motorists who disobey traffic laws and make the cycling environment more dangerous. The level of enforcement depends on the availability of officers. The Police Departments also respond to particular needs and problems as they arise.

### ***Bicycle Safety Programs***

In the last five years, bicycle safety and education programs in Humboldt County have grown and become more established. Various groups have put on events and programs to raise bicycle safety awareness and skills. A few examples are:

- Already established is the “Bike Smart” program available in Humboldt County courtesy of the Humboldt Bay Bicycle Commuters Association (HBBCA). For free, HBBCA provides a free two-hour bicycle safety class for youth groups and students. Qualified HBBCA members teach children about the rules of the road with a short lecture and a street training session. After completing the class, children without bike helmets can receive a free helmet courtesy of HBBCA. The “Bike Smart” program is generally offered in the summertime.
- Many places are holding free Kids’ Bicycle Rodeos, and more places are establishing bike rodeos as annual events. Bike Rodeos often include free bike helmets and helmet fittings, bike tune-ups, mini-courses for skills practice, and crowd favorites such as the Bike Blender or free BBQ lunch. Recent bike rodeos have taken place in in Arcata (sponsored by the City of Arcata), Rio Dell, Loleta, Blue Lake, and Willow Creek (sponsored by Saint Joseph Health System’s Community Resource Centers), and Eureka at Alice Birney Elementary School.
- In addition to its “Eureka Family Bike Rodeo” Alice Birney Elementary School has established a bike club and bicycle safety education program, thanks to a champion teacher and local bicycle professionals. In 2012, all 4th, 5th, and 6th graders learned on-bike safety skills training, and 45 students participated in the school’s first National Bike to School Day.
- Festejando Nuestra Salud/Celebrating Our Health” Spanish language health fair is a free event put on by the Humboldt County Department of Health and Human Services-Public Health Branch in honor of Binational Health Week. The all-day event includes bike safety lesson for kids and free bike helmets and helmet fitting.

Coordinated bicycle safety events can have a positive effect on bicycle ridership because they address and appease safety concerns of potential riders and teach good riding habits. Without these

programs, a forum does not exist to address safety concerns that are real or perceived. Recommendations for regional bicycle safety programs are detailed in project #3.

## ADVOCACY GROUPS

Local bicycle advocacy groups contribute significantly in promoting and enhancing the bicycling environment in Humboldt County. Mostly through volunteer efforts, these groups promote education, support local actions, and organize events ranging from races to elementary school education programs and free bike valet parking at community events. The organizations range from ad-hoc groups to longstanding foundations. Partnerships with these groups can help to effectively implement many of the programs described and recommended in the Bike Plan. Collaborating with them can reduce agency staff time and related labor costs, provide sustained maintenance, and expand outreach and networking. The following describes many of the existing groups.

**Bigfoot Bicycling Club** promotes road, mountain and family recreational cycling.

**Green Wheels** began as an HSU activities club (originally named the Alternative Transportation Club) and grew into a community organization. Green Wheels advocates for alternative transportation choices in Humboldt. The group sponsors bike rides and community education events—such as the Sea Level Rise Ride in 2010, advocates for transportation policy, and researches transportation habits and trends in Humboldt communities. Green Wheels' cadre of member-volunteers can often be found offering free bike valet at events.

**Humboldt Bay Bicycle Commuters Association** has the primary goal of improving and encouraging bicycle commuting. The group has six annual meetings and newsletters, sponsors annual Bike To Work events, Bike Smart training programs for youth, supports grant proposals for bicycle projects, and supports numerous bicycle transportation-friendly endeavors in the greater Humboldt Bay region.

**Humboldt State University Campus Green Wheels** was formed in the spring of 2003 on the HSU campus. This group educates the student body on the effectiveness and importance of non-motorized transportation and works to improve bicycling and walking conditions on campus and in our local communities. The group sponsors a Car Free Day on campus, coordinated with International Car Free Day (on September 22).

**Humboldt State University Mountain Bike Team** is a campus club that organizes mountain bike rides and races.

**Humboldt State University Bicycle Learning Center** is a campus club staffed by volunteers dedicated to providing bicycle repairs and maintenance training. They have a shop on campus between Nelson Hall East and the Depot.

**Humboldt Partnership for Active Living** is part of the Natural Resource Services division of RCAA. HumPAL's programs focus on healthy policy, healthy communities, safe routes, and transportation. HumPAL is a coalition with a common interest in improving Humboldt County

residents' opportunities being physically active in their daily lives. The partnership includes community organizations, professionals, advocacy groups, and community members.

**South Fork High School Mountain Bike Team** – High school students and coaches compete in state competitions and advocate for improved bicycle recreation and transportation facilities.

## **PRIORITIZING BICYCLE PROJECTS**

The 2012 Bike Plan has updated the methodology for ranking projects. The updated criteria are consistent with that used in HCAOG's *2010 Humboldt County Regional Trails Master Plan*. Project ranking criteria is defined in Table 4.5, below.

Over time changes will occur that may impact project implementation opportunities, and thus projects that were not ranked high originally could be implemented in the short term in response to opportunity, funding availability, political will, or other reasons.

Table 4.5 Criteria for Ranking Priority Projects

Criterion	Score Weights
<p><b>Lead Agency Capacity</b>                      Score based on the lead agency's capacity to design and implement the project.</p>	<p><b>3</b> = Local and/or regional agency has in place the necessary policy (clear adopted support), staff (person hours in work plan) and funding (programmed) to implement this project.</p> <hr/> <p><b>2</b> = Local and/or regional agency has in place (or can reasonably establish within 5 years) the necessary policy, staff (person hours) and funding to implement this project.</p> <hr/> <p><b>1</b> = Local and/or regional agency does not have in place (nor can reasonably establish within 5 years) the necessary policy, staff (person hours) and funding to implement this project.</p>
<p><b>Universal User</b>                      Score based on the project's capacity to serve the widest range of users:                      - Experienced Bicyclists                      - Novice/Youth Bicyclists                      - Pedestrians</p>	<p><b>3</b> = Project serves all user types, which are typically Class I facilities.</p> <hr/> <p><b>2</b> = Project serves primarily pedestrians and allows bicycle use, typically a soft surface trail at least eight feet wide.</p> <hr/> <p><b>1</b> = Project serves one user type. Project may be a narrow soft surface trail primarily for hiking or an on-street bikeway.</p>
<p><b>Land Use Connectivity</b>                      Score based on how well the project connects to origin/destination points and level of transportation benefit in a regional context.</p>	<p><b>3</b> = Project connects to <u>two</u> regional origin/destination points including population or employment centers, school facilities and high use recreational facilities, and provides an active transportation benefit.</p> <hr/> <p><b>2</b> = Project connects to a regional origin/destination point including population or employment centers, school facilities and high use recreational facilities, and provides an active transportation benefit.</p> <hr/> <p><b>1</b> = Project does not connect to regional origin/destination points including population or employment centers, school facilities and high use recreational facilities, but may provide limited active transportation benefits.</p>
<p><b>Public Support</b>                      Public support is measured using three subcriteria (one point for each):                      1. Project-specific advocacy efforts identified the project.                      2. General public identified project through regional planning outreach.                      3. An adopted agency plan identified the project.</p>	<p><b>3</b> = Meets all criteria</p> <hr/> <p><b>2</b> = Meets criterion #3 and one other criterion</p> <hr/> <p><b>1</b> = Meets one criterion</p>

## 4.1 HUMBOLDT REGION

Subsection 4.1 describes existing and proposed regional bicycle system for the Humboldt region that HCAOG directly serves (i.e. the seven incorporated cities and the unincorporated County).

The following information is required for bicycle plans that are eligible for Bicycle Transportation Act funding. The information is included under the page and/or section noted.

<b>BICYCLE TRANSPORTATION ACT REQUIREMENTS*</b>	<b>SEE PAGE or SECTION:</b>
<b>a. <i>Bicycle commuters — existing and projected levels.</i></b> Describe the estimated number of existing bicycle commuters in the plan area and the estimated increase in the number of bicycle commuters resulting from implementation of the plan.	Page 4-4
<b>b. <i>Map and description of land use and settlement – existing and proposed.</i></b>	Begins on page 4-1
<b>c. <i>Map and description of bikeways – existing and proposed.</i></b>	Bikeways Maps and Table 4.1.1
<b>d. <i>Map and description of end-of-trip bicycle parking facilities – existing and proposed.</i></b>	Bikeways Maps and “d” in sections 4.2 thru 4.10
<b>e. <i>Bicycle transport and parking facilities – existing and proposed.</i></b> Describe such facilities that support bicyclists to connect with other transportation modes.	Under “e” in sections 4.2 thru 4.10
<b>f. <i>Map and description of bicycle facilities for changing and storing gear – existing and proposed.</i></b>	Bikeways Maps and “f” in sections 4.2 thru 4.10
<b>g. <i>Bicycle safety and education programs.</i></b> Describe bicycle safety and education programs conducted in the planning area, efforts by the law enforcement agency having primary traffic law enforcement responsibility in the area to enforce provisions of the Vehicle Code pertaining to bicycle operation, and the resulting effect on accidents involving bicyclists.	Pages 4-8 to 4-10 and under “g” in sections 4.2 thru 4.10
<b>h. <i>Community involvement.</i></b> Describe the extent of citizen and community involvement in developing the plan, including, but not limited to, letters of support..	Begins on page 3-8.
<b>i. <i>Bicycle plan’s consistency with other plans.</i></b> Describe how the bicycle transportation plan has been coordinated and is consistent with other local or regional transportation, air quality, or energy conservation plans, including, but not limited to, programs that provide incentives for bicycle commuting.	Pages 1-5 to 1-12.
<b>j. <i>Proposed projects and their priority for implementation.</i></b> Describe the projects proposed in the plan and their priority.	Pages 4-15 to 4-28, Table 4.1.1
<b>k. <i>Past expenditures and future financial needs for bicycle system.</i></b> Describe past expenditures for bicycle facilities and future financial needs for projects that improve safety and convenience for bicycle commuters in the plan area.	Pages 4-15 to 4-27, 5-1, 5-2, 5-15

\*California Streets and Highways Code, Section 891.2.

a. **Bicycle commuters — existing and projected levels.**

**Humboldt County Region – Incorporated and Unincorporated Area**

DEMOGRAPHIC DETAIL	DATA	SOURCE
Population Estimates		California Department of Finance
-- DOF, with 2000 benchmark	71,567	2005-2009 American Community Survey
-- ACS, 5-Year Estimate	69,018	(ACS)
Population 5-14 years old	8,338	2005-2009 ACS
Population 16 years or older	61,698	2005-2009 ACS
Population in labor force	34,653	2005-2009 ACS
Workers (16 years and older) who commute to work	30,601	2005-2009 ACS
Bicycle-to-work commuters	428	2005-2009 ACS
Bicycle-to-work mode share	1.4%	Calculated from above
Students enrolled in grades 1 thru 12	10,362	2005-2009 ACS
Total # of bicycle commuters	1,123,526	Assumes 5% of school students and 10% of college students commute by bicycle - from national studies and estimates* (Work commuters + college commuters x 7 miles) + (1-12 grade student commuters x 1 mile) (round trips)*
Miles ridden by bicycle commuters per weekday	7,574	

**Forecasts: Estimated for fully implementing Bike Plan (20-year horizon)\***

Projected # of future daily bicycle commuters	9,548	Estimated using increase to 279% of baseline from 2000 LACMTA study by Alta
Future # miles ridden by bicycle commuters per weekday	47,389	Based on average miles per weekday by existing bicycle commuters
Reduced motor vehicle miles per weekday	30,329	(assumes 0.64 motor miles per bicycle commuter mile)
Reduced PM10 (lbs/weekday)	558	(0.0184 tons per reduced mile)
Reduced NOX (lbs/weekday)	8 1513	(0.0499 tons per reduced mile)
Reduced ROG (lbs/weekday)	1 2,201	(0.0726 tons per reduced mile)
	5,459,220 to 7,582,250	Range based on 180 days for students to 250 days for employed persons
Reduced motor vehicle miles per year		
Reduced PM10 (lbs/year)	100,450	180 days (0.0184 tons per reduced mile)
Reduced NOX (lbs/year)	272,415	180 days (0.0499 tons per reduced mile)
Reduced ROG (lbs/year)	396,340	180 days (0.0726 tons per reduced mile)

\*Calculations based on Alta Planning + Design formulas.

## REGIONAL PRIORITY PROGRAMS

The following programs are proposed to support and enhance bicyclist safety and to encourage more people to utilize the bicycle for transportation.

- #1: Regional Bikeway and Trails Signing Program
- #2: Regional Bicycle Parking Program
- #3: Regional Non-Motorized Education & Outreach Program
- #4: Regional Bicycle Guide & Map
- #5: Bicycle Facility Maintenance Program
- #6: Regional Loop Detector Installation & Maintenance Program
- #7: Humboldt Bay Trail: Arcata to Eureka segment
- #8: Priority bicycle projects for each HCAOG member jurisdiction, as listed in Chapter 4, subsections 4.2 through 4.10.

### #1. REGIONAL BIKEWAY & TRAILS SIGNING PROGRAM

<b>Responsibility:</b>	HCAOG, Member Agencies, Caltrans District 1
<b>Type:</b>	Signage
<b>Approximate Cost:</b>	\$250- \$1,000 per installation
<b>Potential Funding Sources:</b>	TEA-21, BTA, OTS, Air District Funding
<b>Required Actions/Studies:</b>	None identified.



As the regional bicycle system and level of bicycle use grows, so does the need for a route signing system. One way to achieve this in Humboldt County is to develop a signing program using ‘custom’ Caltrans approved SG45 bike route signs in conjunction with way-finding and bicycle warning signs for the Regional Bikeway System. Signing systems primarily intend to inform both potential and existing users that bike facilities exist and where. By leading residents and visitors to bikeways in the county and to neighboring destinations, effective signage can encourage more people to bicycle. Signs also promote motorist awareness by alerting them to the fact that bicyclists may be on the roadway.

Discrete or special routes may receive their own custom sign treatment, such as the Pacific Coast Bike Route, the County Bigfoot Bicycle Route SR 254, or the Trinity Bicycle Route on SR 299.

### Way-Finding Signs

In addition to the standard “Bike Lane” and “Bike Route” signage, unique regional wayfinding/directional signage would enhance the regional bikeway system. These signs should include directional arrows and distance information to connecting bicycle facilities and to major local and regional destinations. Signs should be visible and easy to read, and should fit in aesthetically with the region and local neighborhood.

HCAOG’s Regional Trails Master Plan (RTMP) recommends similar efforts to “develop a regional trail name and logo, establish distinct designs for regional trail facilities and amenities, and include strategies for promoting the trail. Trail facilities would be developed to reflect Humboldt County’s unique natural and cultural resources (RTMP Policy 4.5). The two primary tasks for developing the signage program would be:

- Compile a list of destinations and facilities to be included in the directional signage program.
- Develop a variety of signage designs for public evaluation. Approve the design with resident and cyclist input.



**Share the Road**

Why Share the Road? With varying degrees of intensity and equal blame for each user group, drivers and bicyclists have been battling each other on California’s roadways. This common practice, which includes verbal abuse and occasional reckless behavior, has not improved the on-road safety of either group. Yet it continues. To combat this psychology, Share the Road campaigns are being implemented by transportation agencies and advocacy groups nationwide. These relatively new programs have the goal of improving the knowledge of all roadway users to minimize the likelihood of a crash. The

focus of such programs is a campaign of publicity, education, and enforcement to encourage motorists and bicyclists to share the road.

The California Vehicle Code gives bicyclists the same rights and responsibilities to the road as drivers. There is one bicycling exception stated in the Code: Cyclists are required to ride as far to the right as is practicable. There are five legal exceptions to this extra "cycling" requirement (1) while passing (2) to turn left (3) when riding in a substandard width lane, (4) when traveling at the normal rate of traffic and (5) to avoid road hazards.

Unfortunately, not all drivers nor all bicyclists act within full accordance with the law, and some members of both communities routinely demonstrate discourteous, unsafe, and sometimes illegal behavior on the road. Such behavior further polarizes the two groups. Share the Road programs are developed to evolve beyond an “us against them” mentality by increasing awareness, fostering understanding, and improving safety for all.

Share the Road programs are designed to reach both drivers and bicyclists. This principle underlies the purpose of all Share the Road campaigns. There is no place on the road for any form of competition or confrontation, whether it is between cars, bicycles, or any combination of the two. An increase in the practice of courteous and cooperative roadway users will result in increased safety for all. Sharing the road is in everyone’s best interest, it is good for the community, and it is the law.

Bicyclists use many existing roads in Humboldt County, but they are not always well noticed by motorists. Good signage can improve safety and enhance the bicycling environment in a very short time at relatively low cost of implementation. “Share the Road” signs are a signal to motorists that bicycles may be on the roadway and to stay alert. Humboldt County bike route logo signs can be used in conjunction with “Share the Road” signs to further reinforce the effect. These signs should be installed at regular intervals, at the county boundaries, and at transition points between jurisdictions.

**#2: REGIONAL BICYCLE PARKING PROGRAM**

<b>Responsibility:</b>	HCAOG, Member Agencies, Caltrans District 1, local business, school districts, developers
<b>Type:</b>	Parking
<b>Approximate Cost:</b>	\$250- \$1,000 per installation
<b>Potential Funding Sources:</b>	TEA-21, BTA, OTS, Air District Funding
<b>Required Actions/Studies:</b>	A formal or informal survey could be performed to better understand localized parking needs. This could include recommendations for upgrading rack designs, transit stops, etc.

The Regional Bicycle Parking Program has been designed to meet the need for bicycle parking, enhance the overall bikeway system, and ensure the future needs of bicyclists are met. The program consists of three basic components:

- Acquiring and installing bicycle parking in public places such as city halls, libraries, parks, schools, etc.;
- Encouraging local businesses to provide bicycle parking for their customers and employees; and
- Updating ordinances or policies to ensure bicycle parking is provided in new developments.

As bicycling becomes more prevalent, there will be more demand for adequate bicycle parking. Four recommendations are presented below to build upon the parking inventory. Individual or groups of local agencies could seek funding to purchase and implement bicycle parking. The bicycle parking could be strictly on public property, or also available to private entities on an at-cost basis.

**Recommendation #1:** Each community should prepare a bicycle parking survey to identify installation sites to meet existing and future demand. Bicycle parking should be provided at all public destinations, including transit centers and bus stops, community centers, parks, schools, downtown areas, and civic buildings. All bicycle parking should be in a safe, secure, covered area (if possible), conveniently located to the main building entrance. These improvements will be incremental and as demand warrants.

**Recommendation #2:** All new commercial development or redevelopment in excess of 5,000 gross leasable square feet should be required to provide one space in an approved bicycle rack per 10 employees.

**Recommendation #3:** Bicycle parking for existing non-residential uses should be implemented through one or a combination of the following two methods. (1) Require existing non-residential uses to provide bicycle parking per the requirements described above as part of the building permit process. (2) Subsidize the cost of bicycle parking through small advertisements on the racks themselves and/or through grants from public or private sources.

**Recommendation #4:** Work with employers where employees have expressed an interest in bike lockers. Lockers could be sold to businesses at a discount with air quality or other grants making up the difference.

## **Bicycle Parking Placement - Type and Location**

**Visibility** – bicycle racks and lockers should be located in a highly visible location near building entrances so cyclists can spot them immediately. Bicyclists and motorists alike appreciate the convenience of a parking space located right in front of a destination. A visible location also discourages the theft and vandalism of bicycles. Preferably, racks will be located as close or closer than the nearest automobile parking spaces to the building entrance.

**Security** – Properly designed bicycle racks and lockers that are well anchored to the ground are the first measure to help avoid vandalism and theft. Added measures, such as lighting and/or surveillance, can sometimes be essential for the security of bicycles and bicyclists. The rack element (part of the rack that supports the bike) must keep the bike upright by supporting the frame in two places allowing one or both wheels to be secured. Inverted “U”, “A”, and post and loop racks are recommended designs.

**Weather Protection** – Covered bicycle parking should be available that protects gear from the rain and sun. Building corridors, awnings and overhangs can serve this purpose. Also, covered bike racks, weatherproof bicycle lockers or lids, and indoor storage areas provide good all-weather parking. Long-term parking should always be protected.

**Clearance** – Clearance is required between racks to allow bicycles to park side-by-side (handlebar clearance) and around racks to give bicyclists room to maneuver. Racks should not block access to and from building entrances, stairways, or fire hydrants. Empty racks must not pose a tripping hazard. Position racks out of the walkway’s clear zone (space reserved for walking).

**Convenience** – Ideally, racks are located immediately adjacent to the entrance of the building it serves, but not in a spot that may impede pedestrian flow. Racks should be as close if not closer than the nearest car parking space to give bicyclists an advantage. On streets with bike lanes, parking areas should be located on the same side of the street as the lane whenever possible.

### **Parking and Transit**

Safe bicycle parking is a concern to many bicycle-transit commuters. Both long-term bicycle parking at transit stations and work sites, and short-term parking at shopping centers and other commercial areas, support bicycling. Secure long-term parking is valuable to commuters because bicycles parked for longer periods are more exposed to weather and theft.

All RTS buses are equipped with front-loading racks. Redwood Transit System (RTS) and Blue Lake Rancheria, and A&MRTS have bike racks on buses. The Arcata Transit Center also has bicycle lockers available for rent.

### **Cost of Implementation**

The cost of bike rack and locker implementation is generally low, particularly compared to vehicle parking space costs. Rack installations run about \$250 for racks accommodating two bikes, and about \$1,000 for lockers accommodating two bikes. The cost of providing shelters for covered parking increases the cost; however these costs can be planned into new buildings or redevelopment projects.

### **Implementation Strategies**

There are a variety of strategies to implement bicycle parking. First, bicycle parking can be funded through competitive sources such as Air District Grants, the Bicycle Transportation Account, TEA-21, and TDA sources. Second, cooperative efforts can be formed. For example, in some locations, redevelopment funds have purchased the infrastructure and the public works department installed the bike facility. An annual budget of \$5,000 for installing bike racks and lockers can make a big difference in just a few years. Third, bicycle parking facilities should be included with new commercial and public developments.

### #3. REGIONAL NON-MOTORIZED EDUCATION & OUTREACH PROGRAM

<b>Responsibility:</b>	HCAOG, Member Agencies, Caltrans District 1, school districts, local bicycle organizations, community members
<b>Type:</b>	Education and encouragement
<b>Approximate Cost:</b>	\$1,000 - \$5,000 per year
<b>Potential Funding Sources:</b>	TEA-21, SR2S, BTA, TDA, OTS, private sources
<b>Required Actions/Studies:</b>	None identified.

Note: Both bicyclists and pedestrians have been included in the development of these non-motorized education and outreach programs.

Education and awareness campaigns are an important component of a successful non-motorized transportation program. These campaigns promote non-motorized travel modes, and educate travelers of all modes about safe road use. Awareness campaigns targeted to drivers often focus on raising motorists' awareness that bicycling and walking are accepted and legitimate modes of travel, and reinforce the message that drivers are responsible for operating their vehicles so as to not endanger non-motorized travelers. Awareness campaigns targeted to bicyclists and pedestrians often teach them to be aware of safety hazards, and how to safely navigate city streets, an environment that favors the automobile.

Education efforts include messages and trainings aimed at reducing the most common types of bicycle and pedestrian collisions. The most common reported bicycle incident in California involves a young person (between 8 and 16 years of age) riding on the wrong side of the road in the evening hours. Studies around California consistently show that the most incidents occur directly adjacent to elementary, middle, and high schools. Important bike skills to teach children and less-experienced adult bicyclists are how to negotiate intersections and make turns on city streets.

Although various jurisdictions in Humboldt have implemented education programs in the past, there is no coordinated effort to deliver consistent safety and education programs to children and adults. The Bike Plan recommends new programs appropriate for the region. Recommended programs will require one or more project sponsors, organizational leadership, funding, follow-through, and maintenance to get even more residents bicycling and walking more often.

The basic components of the education and outreach program are the "5 E's":

**Education** – bicyclists and drivers of all ages, but particularly elementary and middle school students, are taught safety skills.

**Encouragement** – Programs and events encourage individuals, schools, and neighborhoods to walk and bike more.

**Engineering** – infrastructure improvements to make school commute routes safer.

**Enforcement** – various techniques are employed to ensure traffic laws are obeyed.

**Evaluation** – programs and projects are measured to track impacts. Surveys, trip counts, and accident data are some measures to evaluate outcomes.

Key participants in a successful safety and education campaign include city and county departments and officials, school districts and individual schools, parent-teacher groups, public health organizations, advocacy groups, local businesses, the media, and the community at large.

## IMPLEMENTATION STRATEGIES

### Media Campaigns

Campaigns promoting non-motorized transportation aim to get people interested in bicycling and walking as means of transportation. Awareness is raised through literature and public service announcements. Examples of public service announcement slogans include, “See Humboldt County by the seat of your pants. Bike!” and “See Humboldt County on your feet. Walk!”

The print campaign could include guides, brochures, maps, bumper stickers and posters. The guide or brochures would include the following information:

- Maps highlighting routes and sites
- Rules of the road and sidewalk
- Information/hotline number
- Available bike parking and facilities (showers and lockers)
- Share the Road (message)
- Where to rent/purchase bicycles
- Bike shop information
- Bumper stickers featuring a promotional slogan

To offset the program costs, sponsors could be secured. Sponsors could have their logos added to the bottom of the promotional posters. Access to the materials would be promoted on sponsors’ web sites.

The campaign literature and media would be distributed around the County to businesses and community groups. Brochures would be provided to local law enforcement agencies to distribute to people when cited for moving violations. Brochures and posters would be distributed communitywide to reach a broad range of ages and income groups. Some possible locations are:

Schools	City Halls	Chambers of Commerce
Libraries	Tribal Centers	Visitor Bureaus
Community Centers	Retail sites	Hotels and motels
Worksites	Social services	DMV offices

### Murals

Murals have been used successfully in many communities to promote ideals and inform the community of important issues. Murals could be painted at various locations to promote bicycling and walking. The mural program would solicit help from local volunteers including schools, artists, children, seniors, and other community members. Funds could be potentially come from grants by public art foundations.

### ***Education and Encouragement Programs for Children and Adults***

**Bike Fairs** can offer a safe place for inexperienced bicyclists to get information and improve their bicycling skills. Bike clinics would discuss the rights and responsibilities of bicyclists, the laws governing bicyclists, bicycling conditions and facilities in Humboldt County. Practical training would occur on an obstacle course. Once participants have mastered the basic skills, they would ride on the street with a qualified instructor. Fair booths would also showcase bike gear.

**Bicycle Races.** The County is well positioned to capitalize on the growing interest in on-road and off-road bicycle races and criteriums. Events would need to be sponsored by local businesses, and involve some promotion, insurance, and development of adequate circuits for all levels of riders. It is not unusual for these events to draw up to 1,000 riders and more spectators, who bring additional “tourist dollars” into the local economy. Local agencies can co-sponsor, possibly underwriting some of the expense, such as traffic control, street closures, or police time.

Local agencies should encourage these events to have events for less experienced cyclist. For example, in exchange for underwriting part of the costs of a race the local agency could require the event promoters to hold a bicycle repair and maintenance workshop; short, fun races for kids and families; and/or a bike tour for novice riders.

**Bicycle Rodeos.** Community-based rodeos can be conducted for families of school-aged children. Bike rodeos usually include: a safety skills course, a spectator area, helmet-fitting lessons, biking instruction, games. These community-based rodeos could be held annually in concert with major community events, such as the County Fair or Bike to Work Month. Members of local law enforcement agencies and volunteer community members—including parents, senior citizens, bike enthusiasts—could staff the rodeo. There are Kids Bike Rodeos held annually in the City of Arcata and Rio Dell.

**Safe Routes to School.** The purpose of Safe Routes to School (SR2S) programs is to identify and improve school commute routes to increase the number of students who walk and bicycle to school. Identifying and improving routes for children to walk and bicycle to school is one of the most cost effective means of reducing school-related traffic congestion.

School commute projects are usually developed in a traditional planning process that includes (a) school administrators and teachers, (b) local PTA's and other groups, (c) neighborhood groups and the public, (d) police departments, and (e) local public agencies staff such as planning, engineering, and public works departments. The planning process can be accomplished by these groups using the step-by-step process outlined below, or by enlisting professional services.

**Education Curriculum.** Curricula should be implemented in pre-schools, elementary schools, and middle schools throughout the County. Each grade-level program would include basic information, demonstrations, activities, and printed material.

The basics of a model curriculum for children include the following lessons:

**Pre-school, kindergarten, 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> grades:** Stopping before crossing the street; recognizing physical barriers; model street crossing and visual barriers; neighborhood walks.

**4th, 5th, and 6th grades:** Benefits of bicycling as a viable mode of transportation; recognizing and avoiding common bicycle collisions; understanding motorists' behaviors, rights, and responsibilities; knowing the California Vehicle Code governing bicyclists; choosing and fitting bicycle helmets; bicycle maintenance, and repair; physical, social, and economic consequences of bicycle collisions; traffic knowledge assessment and skills.

**Middle School & High School:** Topics outlined above, plus: benefits of bicycling as a mode of transportation and environmental, social, and economic benefits; how to safely share the road as a bicyclist, pedestrian, and motorist.

**Adult/Driver Education:** Laws for bicyclists, pedestrians and motorists; bicycle guides.

**Potential Funding.** Funding programs can come from a number of sources, including Office of Traffic Safety Grants, school safety grants, public health partnerships, private grants, and the general fund.

**Program Implementation.** Program implementation usually falls under the purview of a public agency, local non-profit organization, or in some cases a school. The best results are achieved when multiple organizations partner together, resulting in wider promotion, interest, and patronage. Although the cost of implementation for programs is relatively inexpensive, finding outside funding can be challenging. Many capital grant programs for construction projects allow a portion of expenditures on educational and promotional materials. Agencies such as the American Automobile Association, the League of American Bicyclists, and the Federal Highway Administration can assist with planning and marketing resources.

**Measuring Effectiveness.** The effectiveness of community safety and education programs can be measured by monitoring citywide bicycle and pedestrian collision data and mode split numbers for adult and school commuters. Jurisdictions around the state and nation have detected significant reductions in the number of bicycle and pedestrian accidents after the successful implementation of safety and education campaigns. Pre- and post-project surveys can also help identify target populations and responses to education campaigns.

#### #4: REGIONAL BICYCLE GUIDE & MAP

<b>Responsibility:</b>	HCAOG, Member Agencies, Caltrans District 1
<b>Type:</b>	Education and encouragement
<b>Approximate Cost:</b>	\$5,000 - \$15,000 for map update and reprints as needed.
<b>Potential Funding Sources:</b>	TEA-21, BTA, TDA, OTS, Air Quality District, private sources
<b>Required Actions/Studies:</b>	None identified.

A valuable tool for promoting bicycling in Humboldt County is the existing bicycle guide and map that enables cyclists to readily identify existing and recommended bikeways, recreational routes, points of interest, services, and other features of the regional system. Maps can persuade first-time riders to give bicycling a try, helping them plan routes compatible with their riding level and trip purpose, as well as offering safety tips and rules of the road. Maps encourage visitors to try bicycling as an alternate way to experience the beauty of Humboldt County.

*Humboldt Bay Area Bike Map* is the region's most comprehensive guide to cycling routes and related safety information. The bike map has been re-released in a new 2012 edition. The Natural Resources Services Division of RCAA has taken the lead role in releasing and distributing the map. The map is available for sale at local shops and from RCAA-NRS ([bikemaps@nrsrcaa.org](mailto:bikemaps@nrsrcaa.org) or 269-2061), and can be downloaded from [www.naturalresourceservices.org/humbikemap.html](http://www.naturalresourceservices.org/humbikemap.html).

The map highlights:

- The region from McKinleyville–Arcata, to Eureka–Manila, Fortuna, and the HSU and CR campuses.
- The Pacific Coast Bike Route throughout Humboldt County.
- Routes clearly indicating bicycle paths, bicycle lanes, level of difficulty, and appropriateness for family bicycling.
- Services and points of interest (e.g., bus stops, bike shops, coastal access, wildlife viewing, public lands, etc.).
- Bike safety tips and rules of the road.
- Event and resource information, visitor information.

The 2012 edition was reprinted with funds from: the California Bicycle Transportation Account, Humboldt Area Foundation, PG&E, Humboldt County Public Works Department, City of Arcata, City of Eureka, Humboldt State University, St. Joseph Hospital System, Humboldt Bay Bicycle Commuters Association, Green Wheels, Pacific Outfitters and individual donations.

Keeping the *Humboldt Bay Area Bike Map* readily accessible and up-to-date are keys to maximizing its effectiveness. The map should be promoted regularly and continuously, and distributed countywide. Map marketing efforts could also be expanded. It should be regularly available at local bike shops, bookstores, markets and other businesses, civic centers, visitor centers, and schools. The map could be posted at kiosks in public places and at transit facilities.

**#5: BICYCLE FACILITY MAINTENANCE PROGRAM**

<b>Responsibility:</b>	HCAOG Member Agencies, Caltrans,
<b>Type:</b>	Maintenance
<b>Approximate Cost:</b>	\$5,000 - \$15,000 for map update and reprints as needed.
<b>Potential Funding Sources:</b>	General Funds
<b>Required Actions/Studies:</b>	None identified.

Regular maintenance of the regional bikeway system will help to protect the investment of public funds in bikeways, so they can continue to be used safely over time. Due to the intimate nature of bicycling, bicyclists are extremely sensitive to the quality of bicycle facilities. As such, facilities that are inadequately maintained will over time become unusable bicyclists, and may become a legal liability. Cyclists who continue to use such facilities may risk equipment damage and injury. Others will likely choose not to use the facilities at all.

Because bicycles ride on narrow high-pressure tires, what may appear to be an adequate roadway surface for automobiles (with four wide, low-pressure tires) can be treacherous for bicyclists. Small rocks can deflect or puncture a bicycle wheel, minor surface irregularities can lead to a loss of control, pot-holes can bend rims, gravel which is naturally swept by vehicles from the travel lanes into bike lanes and the roadway shoulder accumulates in the area where bicyclists are riding, and wet leaves are slippery, all of which can cause a bicyclist to fall. Thus, it is important to properly maintain existing facilities.

Bikeways will always be subject to debris accumulation and surface deterioration. An adequate maintenance program can help to ensure these impacts are mitigated. This type of maintenance is especially important in Humboldt County where inclement weather can exacerbate pavement breakdown. Developing a dedicated maintenance request/response program can help to address low-cost small-scale maintenance issues such as debris sweeping, filling pot holes, vegetation removal, etc. The premise of the program would be to simply identify a staff member who could act as a clearinghouse and report to the TAC so that requests could be routed to the appropriate department. A mechanism such as a maintenance request card, or on-line form would need to be developed. Then bicyclists could make a request in various ways, either by:

- By sending in a request card - cards would be made available at civic buildings, local public works departments, area bike shops, and through bicycle groups.
- By calling the designated point of contact (707)-XXX-XXX, or by email request.
- Staff would then catalogue all requests and route them to the appropriate public works department.
- Requests for work that are outside the scope of the program would be considered for Capital Improvement Program (CIP) or other funding sources. The person making the request would be contacted either by letter or telephone once action is taken.

**#6: REGIONAL LOOP DETECTOR INSTALLATION & MAINTENANCE PROGRAM**

<b>Responsibility:</b>	Caltrans, Humboldt County, Eureka
<b>Type:</b>	Bicycle facilities at intersections
<b>Approximate Cost:</b>	\$2,500-3,000 per detector
<b>Potential Funding Sources:</b>	TEA-21, BTA, TDA, OTS, Air District Funding
<b>Required Actions/Studies:</b>	None identified.

To enable safe bicycle travel through signalized intersections, bicycles should be detected in the traffic light timing loop. Vehicles and bicycles are detected at intersections either with inductive loops (in-pavement metal detectors carrying a radio-frequency signal) or video (overhead cameras). The state standard bicycle detection marking appears on Caltrans Standard Plan A24C.

**Installation**

HCAOG and its member agencies should work together to ensure that all traffic signals in the region are equipped with bicycle sensitive signal loop detectors. Primary responsibility, however, lies with Caltrans, because most traffic lights in Humboldt are on State Route 101, in Caltrans jurisdiction. This project would not impact each jurisdiction, but would greatly benefit the regional system, especially in the Humboldt Bay Area.

Bicycle-sensitive loop detectors can be funded through competitive sources such as Air District Grants, the Bicycle Transportation Account, TEA-21, and TDA sources. Cooperative efforts can also be formed. For example, the TAC could set aside \$5,000 of TDA funds a year to purchase and install signal detectors. Bicycle sensitive loop detectors should be a component of all new signal installations.

**Maintenance**

Bicycle loops should be tested annually and recalibrated as necessary. Standard bicycle detection markings should be applied in the center of the appropriate lane for all loop locations to show cyclists the best place to wait. (For inductive detection this implies that the loop must sense bicycles in its center). As part of the loop detector testing program, markings must be placed above the detector.

**#7: HUMBOLDT BAY TRAIL: ARCATA TO EUREKA SEGMENT**

<b>Responsibility:</b>	HCAOG, City of Arcata, City of Eureka, County of Humboldt, Caltrans District 1
<b>Type:</b>	Class I facility
<b>Approximate Cost:</b>	\$ 31 million
<b>Potential Funding Sources:</b>	TEA-21, BTA, OTS, Air District Funding
<b>Required Actions/Studies:</b>	Development plans, regulatory permits (see below)

The Humboldt Bay Trail: Arcata to Eureka segment (“Bay Trail”) is a proposed 6.25-mile Class I trail connecting the Cities of Arcata and Eureka. It would follow the existing North Coast Railroad Authority’s railroad right-of-way and the California Department of Transportation’s (Caltrans) US Highway 101 corridor on the east side of Humboldt Bay. The proposed Bay Trail would connect to the proposed Arcata Rail with Trail to the north and to Eureka’s Waterfront Trail and Promenade to the south. The Bay Trail would also be a significant segment of the California Coastal Trail.

The Bay Trail corridor runs through the jurisdictions of the County of Humboldt, and Cities of Arcata and Eureka. These three jurisdictions will have to review the project to ensure it is consistent with their General Plans and Local Coastal Plans. Several state and federal regulatory agencies will need to permit and oversee how the Bay Trail is planned, constructed, and/or maintained. First, the Public Utilities Commission will need to review and approve: (1) setbacks from the centerline of the railroad to the trail edge; (2) any proposed at-grade crossings; and (3) methods of separation or barrier between the railroad and multi-use trail. Next, the Coastal Commission will need to review and approve: (1) that the project is consistent with the Local Coastal Program; (2) development within the Coastal Zone, and (3) filling of any wetland areas to be consistent with State Public Resource Code 30233. The U.S. Army Core of Engineers, and U.S. Fish and Wildlife Service will need to regulate project components that would potentially impact wetlands and rare and endangered species.

Multi-jurisdictional support is critical to develop a long-term management and financing structure for the Bay Trail. To proceed with planning, engineering, environmental review, and construction phases of the project, a “lead agency” will be required. A multi-jurisdictional management agreement between agencies with jurisdictional relationship to the project corridor could be brokered.

## OTHER POTENTIAL PROGRAMS

### **Adopt-A-Trail**

Although there are few Class I paths in Humboldt County presently, the desire to build more is high. Once a trail is in place, maintaining the trail is essential to uphold the integrity of the investment. On-going trail maintenance can be a significant expense for local agencies as weed abatement, sweeping, trash removal, and other minor repairs can cost more than \$4,000 per mile annually. One innovative method to reduce routine maintenance is to establish an “Adopt-a-Trail” program. Such programs have local businesses and organizations “adopt” a trail similar to the adoption of segments of the highway system. Small signs located along the pathway would identify supporters, acknowledging their contribution. Parks, Community Services, local employers, or other groups may administer this program. Support would be in the form of a commitment to perform some of the maintenance duties (weed abatement, trash removal) or pay for upkeep activities. The National Parks and the U.S. Forest Service routinely employ adopt-a-trail programs with great success.

## PROPOSED REGIONAL BICYCLE FACILITY PROJECTS

This section updates the regional bikeway system inventory. It includes regional routes that have been identified in previous planning efforts that remain un-constructed, as well as new routes identified through this Plan update. All bikeways will be developed in compliance with standards adopted by Caltrans and as required by Sections 2375 and 2376 of the Streets and Highways Code.

Building and maintaining the desired regional bicycle system over the next 20 years (the Bicycle Plan's planning horizon) calls for adding or redesigning approximately 515 miles of bikeways connecting all of the member agencies' jurisdictions. The estimated cost is approximately \$18.5 million. Building and maintaining the 5-year priority projects calls for adding or redesigning approximately 37.5 miles, with an estimated cost of approximately \$4.9 million.

The primary projects identified for implementing in the short-term (next five years) are outlined below.

### **Responsibility: CITY OF ARCATA**

5-Year Priority Projects:	Class:	Length (miles):	Cost Estimate (2012 \$s):	Required Studies:
<b>11th Street Corridor</b> from Janes Road to Bayview Street	II/III	1.5	22,500	Public input
<b>Foster Avenue Extension</b> Sunset Avenue to Alliance Avenue	I and II	0.5	290,000 (not including acquisition cost)	ROW acquisition, Final engineering design
<b>F Street</b> 7 <sup>th</sup> Street to 14th Street	I / II	0.4	7,000	Feasibility/impact analysis
<b>Sunset Avenue (east)</b> from LK Wood Blvd to Jay Street	I	0.25	137,500	Feasibility analysis
<b>Samoa Boulevard</b> from Union Street to Crescent Way	II	0.25	7,500	N/A

### **Responsibility: CITY OF BLUE LAKE**

5-Year Priority Projects:	Class:	Length (miles):	Cost Estimate (2012 \$s):	Required Studies:
<b>Greenwood Road</b> from Blue Lake Blvd to Railroad Avenue	III*	0.3	625	N/A
<b>Annie and Mary Rail Trail</b> Pathway from Chartin to Hatchery Road	I	1.2	337,500	CEQA Clearance, design, trail crossing design, engineering

**Responsibility: CITY OF EUREKA**

5-Year Priority Projects:	Class:	Length (miles):	Cost Estimate (2012 \$):	Required Studies:
<b>H Street/Campton Road</b> from Harris Street to City Limits	II	0.6	46,425	N/A
<b>C Street</b> from Henderson Street to Waterfront Drive	III*	1.5	120,000	N/A

**Responsibility: CITY OF FERNDALE**

5-Year Priority Projects:	Class:	Length (miles):	Cost Estimate (2012 \$):	Required Studies:
<b>5th Street</b> from Arlington Avenue to Ocean	III*	0.6	8,300	N/A
<b>Arlington Avenue</b> from Main Street to 5 <sup>th</sup> Street	III*	0.3	4,970	N/A

**Responsibility: CITY OF FORTUNA**

5-Year Priority Projects:	Class:	Length (miles):	Cost Estimate (2012 \$):	Required Studies:
<b>Main Street</b> from US 101 to Rohnerville Road	II	1.2	\$61,553	N/A
<b>Rohnerville Road</b> from Main Street to South City Limits	II	3.3	\$165,720	

**Responsibility: CITY OF RIO DELL**

5-Year Priority Projects:	Class:	Length (miles):	Cost Estimate (2012 \$):	Required Studies:
<b>Center Street</b> Wildwood Ave. to Ireland Ave.	II	0.3	\$5,840	Feasibility analysis
<b>School Access Trail</b> Pathway from back of school to Davis Street	I	0.2		Feasibility analysis, ROW, design, engineering, CEQA review

**Responsibility: TRINIDAD**

5-Year Priority Projects:	Class:	Length (miles):	Cost Estimate (2012 \$):	Required Studies:

<b>Main Street/West Haven Drive</b>				
East city limit to Trinity Street	III*	0.2	\$1,100	N/A
<b>Trinity Street</b>				
From Main Street to Edwards	III*	0.2	\$1,100 (construction)	Feasibility analysis, ROW, design, engineering, CEQA review

**Responsibility: COUNTY OF HUMBOLDT**

5-Year Priority Projects:	Class:	Length (miles):	Cost Estimate (2012 \$):	Required Studies:
<b>Annie and Mary Rail Trail</b>				
Arcata City Limits to Blue Lake City Limits	I	3.4	\$903,000	CEQA clearance, design, engineering
<b>Eureka–Arcata Corridor (Humboldt Bay Trail East)</b>				
Waterfront Drive (Eureka) to Arcata Marsh	I	6.4	\$3,520,000 (construction)	Feasibility analysis, ROW, design, engineering, CEQA review
<b>Hoopa Path (SR 96)</b>	I	5.4	\$75,000	Design Study
<b>Central Avenue (McKinleyville)</b>				
US 101 to Railroad Avenue	II	4.1	\$310,125	Feasibility analysis
<b>Garberville – Redway Multi-Use Path Study</b>				
	I	5.4	\$20,000	

## 4.2 CITY OF ARCATA

This section separately describes Arcata's bicycle system setting, per Bicycle Transportation Act requirements.<sup>2</sup> Land use and existing and proposed facilities are shown on the Arcata Bikeways Map. The City of Arcata also adopts its own bike plan, which the Arcata City Council last updated and adopted in April, 2010. To view the *Pedestrian and Bicycle Master Plan 2010*, contact the City of Arcata's Public Works Department (707)822-5957, or [www.cityofarcata.org](http://www.cityofarcata.org).

### a. Bicycle commuters — *existing and projected levels.*

#### City of Arcata

DEMOGRAPHIC DETAIL	DATA	SOURCE
Population Estimates:		
-- DOF, with 2000 benchmark	17,608	California Dept. of Finance, May 2010
-- ACS, 5-Year Estimates	17,014	2005-2009 American Community Survey (ACS)
Population 5-14 years old	987	2005-2009 ACS
Population 16 years or older	15,197	2005-2009 ACS
Workers (16 years and older) who commute to work	7,769	2005-2009 ACS
Bicycle-to-work commuters	676	*Margin of error $\pm 265$ ; 2005-2009 ACS
Bicycle-to-work mode share	8.7%	Calculated from above
# students enrolled in grades 1 thru 12	1,232	
# of students enrolled in college	4,285	
# of daily bike-transit users		Local transit agency
Total # of bicycle commuters	1,327	Assumes 5% of school students and 10% of college students commute by bicycle - from national studies and estimates
# miles bicycle commuters ride per weekday		Work commuters (including bike-transit) x 7 miles + college and school students x 1 mile (round trip)
<b>Forecasts: Estimated for fully implementing Bike Plan (20-year horizon)</b>		
# of future daily bicycle commuters	3,449	Estimated using increase to 279% of baseline from 2000 LACMTA study by Alta
Future # miles ridden by bicycle commuters per weekday	10,464	

<sup>2</sup> See Appendix A for full description of BTA requirements, per Section 891.2 of the California Streets and Highways Code.

## Humboldt REGIONAL BICYCLE PLAN - Update 2012

Reduced vehicle miles per weekday	6,713	
Reduced PM10 (lbs/weekday)	123	(0.0184 tons per reduced mile)
Reduced NOX (lbs/weekday)	334	(0.0499 tons per reduced mile)
Reduced ROG (lbs/weekday)	487	(0.0726 tons per reduced mile)
Reduced Vehicle Miles per Year	1,607,400	180 days for students; 256 days for employed persons
Reduced PM10 (lbs/year)	29,576	(0.0184 tons per reduced mile)
Reduced NOX (lbs/year)	80,177	(0.0499 tons per reduced mile)
Reduced ROG (lbs/year)	116,697	(0.0726 tons per reduced mile)

**b. A map and description land use and settlement — *existing and proposed.***

The City of Arcata has a population of approximately 16,700 people. Arcata has a traditional grid street network and town center with outlying neighborhoods developed in a more contemporary suburban style. Humboldt State University is a significant non- motorized trip generator with the city. Significant challenges to cyclists within the city limits include navigating US 101 over-crossings and access from outlying neighborhoods such as Sunny Brae and Valley West.

Major destinations include:

**Downtown Area:**

Plaza  
 Uniontown Shopping Center  
 Northtown Shopping Area (H and G between 15th and 18<sup>th</sup>)

**Civic Buildings & Community Centers:**

City Hall  
 Library  
 Arcata Community Center  
 Bayside Grange  
 D Street Neighborhood Center  
 Portuguese Hall

**Schools:**

Humboldt State University  
 Three High Schools (all at Arcata High School campus)  
 Two Middle Schools  
 Four Elementary or K-8 Schools

**Parks & Recreation:**

Arcata Community Forest  
 Redwood Park  
 Sunny Brae Park  
 Shay Park  
 Arcata Marsh and Interpretive Center  
 Arcata Skate Park  
 Baseball Field

**c. A map and description of bikeways— *existing and proposed.***

**Arcata's Existing Bikeways (2012)**

<b>Bikeway Class</b>	<b>Street Name</b>	<b>From</b>	<b>To</b>	<b>Length (miles)</b>
I (multi-use path)	<b>101 Overpass, 17<sup>th</sup> Street</b>	G Street	L.K. Wood Blvd.	0.1
II (bike lane)	<b>D Street</b>	8 <sup>th</sup> Street	7 <sup>th</sup> Street	0.05
II	<b>14<sup>th</sup> Street</b>	F Street	L.K. Wood Blvd.	0.1
II	<b>7<sup>th</sup> Street</b>	L Street	Union Street	0.7
II	<b>Alliance Road</b>	Spear Avenue	11th Street	1.3
II	<b>Bayside Road</b>	Union Street	Buttermilk Lane	0.7
II	<b>Eastern Avenue (NB only)</b>	Sunset Avenue	Foster Avenue	0.1
II	<b>G Street</b>	Sunset Avenue	Front Street	1.3
II	<b>Giuntoli Lane</b>	Heindon Road	West End Road	0.8
II	<b>H Street</b>	Sunset Avenue	Samoa Blvd	1.0
II	<b>Janes Road</b>	Giuntoli Lane	Spear Avenue	1.0
II	<b>L. K. Wood Blvd.</b>	Redwood Avenue	14th Street	1.2
II	<b>Old Arcata Road</b>	Buttermilk Lane	Hyland Street	0.8
II	<b>Samoa Blvd.</b>	Union Street	Buttermilk Lane	0.4
II	<b>Spear Avenue</b>	Janes Road	St. Louis Road	0.7
II	<b>St. Louis Road</b>	Spear Avenue	L. K. Wood Blvd	0.2
II	<b>Sunset Avenue</b>	H Street	L. K. Wood Blvd	0.2
II	<b>Valley East Boulevard</b>	Giuntoli Lane	Valley West Blvd	0.4
II	<b>Valley West Boulevard</b>	Giuntoli Lane	Valley East Blvd	0.3
III (bike route)	<b>West End Road</b>	Giuntoli Lane	Spear Avenue	1.2
III	<b>11<sup>th</sup> Street</b>	Janes Road	Redwood Park	1.6
III	<b>11<sup>th</sup> Street</b>	K Street	Samoa Boulevard	0.4

See Arcata Bikeways Map for existing and proposed bikeways. Table 4.2.1 describes proposed facilities. All bikeways will be developed in compliance with standards adopted by Caltrans and as required by Sections 2375 and 2376 of the Streets and Highways Code.

**d. See County Bikeway Maps at end of Chapter 4.**

Arcata Bicycle Parking Locations	Existing	Proposed (new or additional)
City Hall and Library	×	
Inter-nodal Transit Facility (bike racks and lockers)	×	
Arcata Plaza & downtown area – sidewalk & street locations	×	
Northtown commercial area - various sidewalk locations	×	
Uniontown Plaza (shopping center)	×	×
Sunny Brae Center	×	×
Valley West Shopping Center	×	×
Arcata Community Center and Sports Complex	×	
D Street Neighborhood Center (sidewalk location)	×	
Arcata Marsh Interpretive Center and Wildlife Sanctuary	×	
Arcata Community Pool	×	
Humboldt State University Campus	×	
Grade Schools	×	
Bayside Post Office		×
Westwood Shopping Center		×
California Welcome Center, Chamber of Commerce		×
Alder Grove Industrial Park		×
Bus stops	×	×
City Parks	×	×

**e. Map and description of existing and proposed bicycle transport and parking facilities (for connections with and use of other transportation modes).**

The Intermodal Transit Facility in Arcata is located downtown, just two blocks from the Plaza, on F Street between 9<sup>th</sup> and 10<sup>th</sup> Streets. Referred to commonly as the transit center, it provides connections for people traveling by bus and by bike (as well as by car/motorcycle and on foot). Local, regional and interregional bus lines stop at the transit center, as do some local shuttle buses (for example, Blue Lake Rancheria shuttles). The transit center has bike racks that are partially covered and bike lockers. Bicyclists may load their bikes on front-load bike racks on Redwood Transit System, Blue Lake Rancheria Transit, and Redwood Coast Transit buses. No new facilities are proposed as a part of the *2012 Regional Bicycle Plan*.

**f. Map and description of bicycle facilities for changing and storing gear — *existing and proposed*.**

The Arcata Intermodal Transit Facility has bicycle lockers that can be rented by the month. There is a bathroom inside the Facility, but there are no changing facilities specifically for bicyclists. Bicyclists can also change in the public restrooms at City Hall and the Arcata

Community Center. The Arcata Community Pool has showers; there is a fee for entry. No new storage or changing facilities are proposed as a part of the *2012 Regional Bicycle Plan*.

**g. Bicycle Safety and Education Programs**

The Arcata Police and Humboldt County Sheriff's Departments enforce all traffic laws as part of their regular duties. They ticket violators as they see them. This includes bicyclists who break traffic laws, as well as motorists who disobey traffic laws and make the cycling environment more dangerous. The level of enforcement depends on the availability of officers. The Police Departments also responds to particular needs and problems as they arise.

The City of Arcata puts on an annual, summertime Kids Bike Rodeo on the Arcata Plaza. The rodeo is free and offers a skills course, helmet fitting, bicycle inspection, and teaches kids hand signals for turning and stopping. When they complete the rodeo, kids earn a smoothie—if they blend it themselves on the human-powered bicycle blender.

There is also free bicycle safety instruction available in Humboldt County courtesy of the Humboldt Bay Bicycle Commuters Association. Their "Bike Smart" program provides a free two-hour bicycle safety class for students and youth groups. Qualified HBBCA members teach children about the rules of the road with a short lecture and a street training session. After completing the class, children without bike helmets can receive a free helmet courtesy of the Association. In addition, various groups have put on education exercises and other similar events in the past to raise awareness for bicycle safety.

Regional bicycle safety and education programs are recommended in this Bike Plan, as described in Regional Program #3.

**h. Community Involvement**

Described in Chapter 3, beginning on page 3-8.

**i. Bicycle plan's consistency with other plans.**

Described in Chapter 1, beginning on page 1-5.

**j. Proposed projects and their priority for implementation.**

See Table 4.1.1

**k. Past expenditures and future financial needs for bicycle system.**

For approximately the last 10 years, the City of Arcata has invested approximately \$100,000 dollars annually on non-motorized transportation improvements. Future financial needs are shown below in Table 4.2.1.

TABLE 4.2.1 CITY OF ARCATA – PROPOSED BIKEWAY PROJECTS

								Project Score (12 max) <sup>2</sup>				
Proposed Project Corridor/Street	From	To	Proposed Bikeway Class <sup>1</sup>	Length (miles)	Estimated Cost (2012 dollars)	Project included from 2004 Plan	Local (L) Regional (R)	Agency Capacity	Universal User Connectivity	Public Support	Total score	
Annie & Mary Rail-Trail (A)	Alder Grove Industrial Park (West End Road)	Arcata Skate Park	I	3.5	\$1,760,000	×	R	1	3	3	3	10
Annie & Mary Rail-Trail (B)	Aldergrove Industrial Park	Water Dist. Park I	I	1.0	\$550,000	×	R					10
Humboldt Bay Trail-Arcata Segment	Arcata Skate Park	Bracut Marsh	I/II	2.5	\$700,000		R	2	2	3	3	10
Sunset Avenue (East)			I	0.25	\$137,500		L					
11th Street	Q Street	Janes Road	II	0.3	\$22,727	×	R					9
Alliance Road	Spear Avenue	14th Street	II	1.2	\$89,489	×	R					9
Bayside Road	Buttermilk Ln.	Union Street	II	0.7	\$51,136	×	R					9
Janes Road/Giuntoli Lane	U.S. 101	Spear Avenue	II	0.8	\$62,500	×	R					9
F Street	4th Street	7th Street	II	0.2	\$12,675	×	R					9
F Street	7th Street	14th Street	II and/or III	0.4	\$10,000		L					
Western Avenue	Sunset	Foster	II	0.1	\$6,300	×	R					9
Spear Avenue	Janes Road	West End Rd.	II	0.7	\$53,977	×	R					9
Samoa Boulevard	West City Limit	K Street	III*	0.8	\$4,000	×	R					8
Samoa Boulevard	K Street	Buttermilk Ln.	II	1.1	\$85,940	×	R					
Samoa Boulevard	Union Street	Crescent Way	II	0.25	\$7,500		R					
10th Street Bike Boulevard	Q Street	L Street	III (B)	0.3	\$1,500	×	L					
11th Street corridor (incl. Park Avenue, Fickle Hill Road)	Q Street	East City Limit	III*	0.6	\$1,800	×	R					
14th Street	K Street	Union Street	III*	0.6	\$3,000	×	R					
16th Street	M Street	G Street	III	0.3	\$1,500	×	L					

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Proposed Project Corridor/Street	From	To	Proposed Bikeway Class <sup>1</sup>	Length (miles)	Estimated Cost (2012 dollars)	Project included from 2004 Plan	Local (L) Regional (R)	Agency Capacity	Universa l User Conne- tivity Public Support	Total score
Baldwin Street	Cahill Park	Sunset Avenue	III	0.2	\$1,100	×	L			
Buttermilk Lane	Samoa Blvd.	East City Limit	III*	0.7	\$1,728	×	L			
D Street	11th Street	Ped trail south of 9 <sup>th</sup> Street	III	0.2	\$3,500	×	L			
Foster Avenue	Janes Road	Alliance Road	III	0.4	\$2,000	×	R			
G Street	H Street	Front Street	II	1.3	\$100,568	×	R			
South G Street	Front Street	US 101	III	1.0	\$5,000	×	R			
<b>I Street Bike Boulevard</b>	Samoa Blvd.	17th Street	III (B)	0.7	3,500	×	R			
South I Street	Samoa Blvd.	Arcata Marsh	III*	1.0	\$5,000	×	R			
K Street	4th Street	13th Street	III	0.7	3,500	×	R			
L Street Bike Boulevard	11th Street	7th Street	III (B)	0.2	\$1,000	×	L			
Old Arcata Road	Buttermilk Lane	South City Limit	III*	1.1	\$6,050	×	R			
SR 299 –Trinity River Bike Route	U.S. 101	North City Limit	III	1.6	\$8,000	×	R			
Stromberg/Maple	Janes Creek Linear Trail	Alliance Road	III	0.3	\$1,500	×	R			
Union Street	E. 17th Street	Samoa Blvd.	III*	0.9	\$4,500	×	R			
<b>Westside Corridor</b> (includes Janes Road, Vaissade Road, V Street)	Foster Avenue	Samoa Blvd.	III	1.9	\$9,500	×	R			
<b>CITY OF ARCATA TOTAL</b>				<b>27.8</b>	<b>3,717,990</b>					

III\* = Enhanced Class III

III (B) = Bicycle Boulevard

*New projects are shaded*

<sup>1</sup> Bikeway classifications are defined on pages 4-1 to 4-3.

<sup>2</sup> See Table 4.5 for the scoring criteria.

### 4.3 CITY OF BLUE LAKE

Section 4.3 separately describes Blue Lake's bicycle system setting, per Bicycle Transportation Act requirements (a)-(k).<sup>3</sup> Land use and existing and proposed facilities are shown on the Blue Lake Bikeways Map.

#### a. Bicycle commuters — existing and projected levels.

DEMOGRAPHIC DETAIL	DATA	SOURCE
<b>Blue Lake</b>		
Population Estimate (with 2000 benchmark)	1,168	California Department of Finance
# of Employed Persons	556	2000 US Census
# Bicycle-to-Work Commuters	14	1990 US Census extrapolated consistent with population growth
Bicycle-to-Work Mode Share	2.52%	calculated from above
Population: Ages 6-14 years	275	2000 US Census
# of College Students	56	2000 US Census e
# of Daily Bike-Transit Users		local transit agency
Total # of Bicycle Commuters	33	assumes 5% of school students and 10% of college students commute by bicycle - from national studies and estimates
# Miles Ridden by Bicycle Commuters per Weekday	117	work commuters (including bike-transit users) x 7 miles + college and school students x 1 mile (round trip)
<b>Forecasts: Estimated for fully implementing Bike Plan (20-year horizon)</b>		
# of Future Daily Bicycle Commuters	93	estimated using increase to 279% of baseline from 2000 LACMTA study by Alta
Future # Miles Ridden by Bicycle Commuters per Weekday	327	
Reduced Vehicle Miles per Weekday	210	
Reduced PM10 (lbs/weekday)	3	(0.0184 tons per reduced mile)
Reduced NOX (lbs/weekday)	10	(0.0499 tons per reduced mile)
Reduced ROG (lbs/weekday)	15	(0.0726 tons per reduced mile)
Reduced Vehicle Miles per Year	51,142	180 days for students, and 256 days for employed persons
Reduced PM10 (lbs/year)	941	(0.0184 tons per reduced mile)
Reduced NOX (lbs/year)	2,550	(0.0499 tons per reduced mile)
Reduced ROG (lbs/year)	3712	(0.0726 tons per reduced mile)

#### b. A map and description land use and settlement — *existing and proposed*.

<sup>3</sup> See Appendix A for full description of BTA requirements, per Section 891.2 of the California Streets and Highways Code.

Blue Lake is a small, primarily residential community with around 1,200 residents. Most of the downtown core was constructed in the late 19th and the 20th centuries; small residential subdivisions built more recently surround the town center. There is one public school in town. Residents travel by bicycle both within the city and to neighboring communities for work, school and services.

Major destinations in Blue Lake include:

**Civic Buildings & Community Centers:**

- \*Blue Lake City Hall
- \*Library
- \*Post Office
- \*Mad River Grange

**Health & Social Service Centers:**

- \*Blue Lake Elementary School
- \*Dell'Arte School of Physical Theatre
- Blue Lake Family Resource Center
- \*Chumayo Spa

**Arts & Leisure Centers:**

- \*Blue Lake Museum
- Blue Lake Casino & Hotel
- \*Dell'Arte Theatre

**Restaurants & Shops:**

- Mad River Brewing Co.
- \*Stardoughs Café

**Parks & Other Recreation Areas:**

- Gymkhana Field
- \*Perigot Park & Prasch Hall Roller Rink
- Mad River Fish Hatchery
- Mad River
- Tot Lot (I Street)

**Employment Centers (not listed above):**

- Blue Lake Industrial Park

\* = destinations in the downtown area

c. A map and description of bikeways— *existing and proposed*.

**Existing Bikeways in Blue Lake**

Street	From	To	Class	Length
Chartin Road	Blue Lake Blvd	Casino	II (bike land)	0.2

Blue Lake has no Class I or III bikeway facilities.

See the Blue Lake Bikeways Map and Table 4.3.1, below, for proposed facilities.

d. See County Bikeway Maps at end of Chapter 4.

**Bicycle Parking in Blue Lake**

Location	Existing	Proposed
Blue Lake School	×	
Perigot Park	×	
City Hall	×	
Dell'Arte Theatre & School	×	
Post Office	×	

- e. **A map and description of bicycle transport and parking facilities — *existing and proposed* (for connections with and use of other transportation modes).**

Blue Lake has no facilities connecting bicycle uses to public transit or other transportation modes. No new multimodal facilities are proposed for this Bike Plan update.

- f. **Map and description of bicycle facilities for changing and storing gear — *existing and proposed*.**

Blue Lake has no changing or storage facilities for bicyclists. No new facilities are proposed for the Bike Plan update.

- g. **Bicycle safety and education programs.**

The Humboldt County Sheriff's Department enforces all traffic laws, for bicycles and motor vehicles as part of their regular duties. They ticket violators as they see them. This includes bicyclists who break traffic laws, as well as motorists who disobey traffic laws and make the cycling environment more dangerous. The level of enforcement depends on the availability of officers. The Sheriff's Department also responds to needs and problems as they arise.

According to available data, there are no regularly scheduled bicycle safety or education programs taught in Eureka. There is free bicycle safety instruction available in Humboldt County courtesy of the Humboldt Bay Bicycle Commuters Association. Their "Bike Smart" program provides a free two-hour bicycle safety class for students and youth groups. Qualified HBBCA members teach children about the rules of the road with a short lecture and a street training session. After completing the class, children without bike helmets can receive a free helmet courtesy of the Association. In addition, various groups have put on education exercises and other similar events in the past to raise awareness for bicycle safety.

This Bike Plan Regional recommends bicycle safety and education programs in Regional Program #3.

- h. **Community Involvement**

Described in Chapter 3, beginning on page 3-8.

- i. **Bicycle plan's consistency with other plans.**

Described in Chapter 1, beginning on page 1-5.

- j. **Proposed projects and their priority for implementation.**

See Table 4.3.1

**k. Past expenditures and future financial needs for bicycle system.**

Blue Lake has invested limited funds on bicycle transportation projects in recent years. The development of this Bike Plan will equip Blue Lake to invest in bicycle projects. Table 4.3.1 below shows proposed projects and corresponding financial needs.

TABLE 4.3.1 CITY OF BLUE LAKE – PROPOSED BIKEWAY PROJECTS

Proposed Project Corridor/Street	From	To	Proposed Bikeway Class <sup>1</sup>	Length (miles)	Estimated Cost (2012 dollars)	Project included from 2004 Plan	Local (L) Regional (R)	Project Score (12 max) <sup>2</sup>					Total score
								Agency Capacity	Universal User	Connectivity	Public Support		
<b>Annie &amp; Mary Rail-Trail</b> (within City limits)	Chartin Road	Hatchery Road	I	1.2	\$410,000	×	R	1	3	3	3	<b>10</b>	
<b>Blue Lake Boulevard</b>	West city limit	Southeast city limit	III*	1.4	\$4,300	×	R	2	1	3	2	<b>8</b>	
<b>Greenwood Road</b>	Blue Lake Boulevard	Railroad Avenue	III*	0.3	\$875	×	R	2	1	3	2	<b>8</b>	
<b>Railroad Avenue</b>	Greenwood Road	City limit	III*	0.8	\$2,500	×	R	2	1	3	2	<b>8</b>	
<b>CITY OF BLUE LAKE TOTAL</b>				<b>3.7</b>	<b>\$417,675</b>								

III\* = Enhanced Class III

<sup>1</sup> Bikeway classifications are defined on pages 4-1 to 4-3.

<sup>2</sup> See Table 4.5 for the scoring criteria.

## 4.4 CITY OF EUREKA

This section separately describes Eureka's bicycle system setting, per BTA requirements.<sup>4</sup> Land use and existing and proposed facilities are shown on the Eureka Bikeways Map.

### a. Bicycle commuters — existing and projected levels.

DEMOGRAPHIC DETAIL	DATA	SOURCE
<b>City of Eureka</b>		
Population Estimate (with 2000 benchmark)	25,994	California Department of Finance
# of Employed Persons	10,426	2000 US Census
# Bicycle-to-Work Commuters	174	1990 US Census extrapolated consistent with population growth
Bicycle-to-Work Mode Share	1.65%	calculated from above
Population: Ages 6-14 years	6,153	2000 US Census
# of College Students	1,050	2000 US Census
# of Daily Bike-Transit Users		Local transit agency
Total # of Bicycle Commuters	585	Assumes 5% of school students and 10% of college students commute by bicycle - from national studies and estimates
<b>Forecasts: Estimated for fully implementing Bike Plan (20-year horizon)</b>		
# Miles Ridden by Bicycle Commuters per Weekday	1630	Work commuters (including bike-transit users) x 7 miles + college and school students x 1 mile (round trip)
# of Future Daily Bicycle Commuters	1,635	Estimated using increase to 279% of baseline from 2000 LACMTA study by Alta
Future # Miles Ridden by Bicycle Commuters per Weekday	4,550	
Reduced Vehicle Miles per Weekday	2,920	
Reduced PM10 (lbs/weekday)	53	(0.0184 tons per reduced mile)
Reduced NOX (lbs/weekday)	145	(0.0499 tons per reduced mile)
Reduced ROG (lbs/weekday)	210	(0.0726 tons per reduced mile)
Reduced Vehicle Miles per Year	691,090	180 days for students, and 256 days for employed persons
Reduced PM10 (lbs/year)	12,715	(0.0184 tons per reduced mile)
Reduced NOX (lbs/year)	34,470	(0.0499 tons per reduced mile)
Reduced ROG (lbs/year)	50,175	(0.0726 tons per reduced mile)

### b. Land use and settlement patterns — *existing and proposed*.

<sup>4</sup> See Appendix A for full description of BTA requirements, per Section 891.2 of the California Streets and Highways Code.

Eureka is the seat of Humboldt County and the primary population center on the North Coast. The population is approximately 26,100 persons. The City is surrounded by rapidly growing unincorporated communities adding to traffic congestion and the need for bicycle facilities. The city is characterized by large residential neighborhoods, multiple small to moderately sized shopping districts, four large parks and large waterfront area along the north and west side of the City. The Eureka Bikeways Map shows land development patterns and some of the city's destinations, such as schools, parks, and shopping centers.

Major destinations include:

**Commercial Districts & Shopping Centers:**

Costco  
 \*Downtown, Old Town  
 Waterfront, Boardwalk  
 Henderson Center  
 Harrison Street commercial district  
 Eureka Mall  
 Burre Shopping Center  
 Bayshore Mall

**Civic Buildings & Community Centers:**

\*Eureka City Hall  
 \*Downtown Post Office  
 \*County Courthouse  
 \*Main Library  
 Adorni Center  
 Eureka Municipal Auditorium  
 Humboldt Bay Aquatic Center  
 Senior Center  
 Veterans Hall  
 Wharfinger Building  
 Boys & Girls Club and Teen Center  
 County of Humboldt Clark Complex offices

**Schools:**

Three elementary schools, one middle school, one high school, and one continuation school.

**Parks & Other Recreation Areas:**

20-30 Park  
 Carson Park  
 Cooper Gulch Park  
 Elk River Wildlife Area  
 Eureka Boat Basin  
 Eureka (Palco) Marsh  
 Fort Humboldt  
 Halvorson Park  
 Hammond Park  
 Ross Park  
 Sequoia Park & Zoo  
 Hartman & Kennedy Ball Fields

**Arts & Leisure Centers:**

Ink People Gallery  
 \*Eureka Theater  
 \*Morris Graves Museum  
 Broadway Theater

**Medical & Social Service Centers:**

Food Stamp Distribution Center  
 St. Joseph's Hospital  
 Mental Health Services-Humboldt  
 Human Services Office  
 Multiple Assistance Center  
 \*Rescue Mission

\* = destinations in the downtown and Old Town area.

**c. Map and description of bikeways — *existing and proposed.***

The City of Eureka's existing bikeways are listed below and are shown on the Eureka Bikeways Map.

**Existing Eureka Bicycle Facilities**

<b>Bikeway Class</b>	<b>Trail or Street Name</b>	<b>From</b>	<b>To</b>	<b>Length (miles)</b>
I (multi-use path)	Eureka Waterfront Trail	Pound Road	Hilfiker Lane	0.6
I	Eureka Waterfront Trail	Del Norte Street	Vigo Street	0.3
I	Eureka Waterfront Trail	L Street	T Street	0.5
I	Eureka Waterfront Trail	1 <sup>st</sup> Street	4 <sup>th</sup> Street	0.1
I	McFarlan Trail	Hillside Drive	Zane Middle School	0.3
I	McFarlan Trail	Hillside Drive	23 <sup>rd</sup> Street	0.2
I	Sequoia Park Trail	O Street	W Street	0.4
I	Sequoia Park Trail	Glatt Street	W Street	0.3
I	Cooper Gulch Trail	13 <sup>th</sup> Street	10 <sup>th</sup> Street	0.2
I	Cooper Gulch Trail	P Street	R Street	0.1
II (bike lane)	6 <sup>th</sup> Street	Commercial	Myrtle Avenue	1.1
II	7 <sup>th</sup> Street	Broadway	Myrtle Avenue	1.2
II	Fairway Drive	Herrick Road	F Street	0.9
II	Harris Street	Fairfield Street	R Street	1.8
II	Henderson Street	J Street	Fairfield Street	0.6
II	J Street	6 <sup>th</sup> Street	Harris Street	1.5
II	Myrtle Avenue	4 <sup>th</sup> Street	Harrison Avenue	2.2
II	Wabash Avenue	Railroad Avenue	C Street	0.9
III (bike route)	6 <sup>th</sup> Street	Myrtle Avenue	West Avenue	0.2
III	California Street	Harris Street	6 <sup>th</sup> Street	1.3
III	F Street	Harris Street	Oak Street	0.6
III	Harris Street	R Street	Harrison Avenue	0.6

The City of Eureka's proposed bikeway facilities are illustrated on the Eureka Bikeways Map and described in Table 4.4.1 below. All bikeways will be developed in compliance with standards adopted by Caltrans and as required by Sections 2375 and 2376 of the Streets and Highways Code.

**d. See County Bikeway Maps at end of Chapter 4.**

Eureka's bike parking is also shown on the Eureka Bikeways Map.

**Existing Eureka Bicycle Parking**

Location	Rack Type	Number of Racks
1 <sup>st</sup> & F St – Boardwalk	Inverted “U”	4
2 <sup>nd</sup> & F Street – Old Town Gazebo	Inverted “U”	2
2 <sup>nd</sup> Street at Romano Gabriel	Inverted “U”	2
2 <sup>nd</sup> & H Street – State Building	Double	2
3 <sup>rd</sup> Street, D St to G St – Old Town	Pole Mount	12
3 <sup>rd</sup> Street & N St – County Library	Wave, Cora	2, 1
4 <sup>th</sup> Street, A St to I St - Downtown	Pole Mount	12
4 <sup>th</sup> Street and B Street – Co-op	Inverted “U”	3
4 <sup>th</sup> & I Street – County Courthouse	Cora	1
5 <sup>th</sup> Street, A St to I St - Downtown	Pole Mount	36
5 <sup>th</sup> Street and D Street – Bus stop	Cora Upright, Covered	1
5 <sup>th</sup> Street near U Street – Bus stop	Cora Upright, Covered	1
5 <sup>th</sup> Street, K St to L St – Bus stop	Inverted “U”	2
5 <sup>th</sup> & I Street – County Courthouse	Cora	1
5 <sup>th</sup> Street, F St to G St – Downtown	Double	1
6 <sup>th</sup> & K Street – City Hall	Cora	1
6 <sup>th</sup> & L Street – Newspaper	Inverted “U”	2
11 <sup>th</sup> Street at M Street – Market	Inverted “U”	2
12 <sup>th</sup> & F St – Municipal Auditorium	Cora	1
Broadway and McCullens – Bus Stop	Inverted “U”	2
Broadway at Bayshore Mall – 5 entrances	Wave, Comb	3, 2
Carson Street at H Street – Carson Park	Cora	1
Carson Street at I Street – Carson Park	Cora	1
D Street, 5 <sup>th</sup> to 6 <sup>th</sup> St - Downtown	Pole Mount	3
Dolbeer Street – Kennedy Ball Field	Cora	1
E Street, 6 <sup>th</sup> to 7 <sup>th</sup> St - Downtown	Pole Mount	3
E Street, 14 <sup>th</sup> St to 15 <sup>th</sup> St – Hammond Park	Double	2
E Street at Henderson Street – Henderson Center	Double	1
E Street, Harris St to Grotto St – Henderson Cntr	Double	1
F Street, 3 <sup>rd</sup> St to 7 <sup>th</sup> St – Old Town	Pole Mount	30
F Street at Grotto Street – Henderson Center	Double	1
F Street at Russ Street – Henderson Center	Double	1
F Street and 14 <sup>th</sup> St – Basketball Courts	Cora	1
G Street, 2 <sup>nd</sup> to 3 <sup>rd</sup> St – Old Town	Double	1
Glen Street at Highland Street – Highland Park	Inverted “U”	4
H Street (between 3 <sup>rd</sup> and 4 <sup>th</sup> Streets)	Inverted “U”	2
H Street, 5 <sup>th</sup> St to 6 <sup>th</sup> St - Downtown	Pole Mount	6
Harris Street, E St to H St – Henderson Center	Double	1
Harris Street at Eureka Mall	Double	1
Harris Street at K St – Boys & Girls Club	Cora	1
Harris Street at Union - Market	Inverted “U”	2
Harrison Avenue at Harris St – Bus Stop	Inverted “U”	2

*list continues on next page*

*continued from previous page*

Location	Rack Type	Number of Racks
Harrison Avenue at Hospital	Inverted “U”	2
Highland Street at Glen – Highland Park	Cora	2
I Street, 5 <sup>th</sup> St to 6 <sup>th</sup> St - Downtown	Pole Mount	3
Myrtle Avenue at Office of Education	Comb	1
R Street at 10 <sup>th</sup> St– Cooper Gulch	Cora	1
Russell at Dolbeer – Washington School	Inverted “U”	2
W Street – Hartman Ball Field	Cora	1
W Street – Sequoia Park Zoo	Cora	2
W Street – Washington School	Inverted “U”	4
Wabash Street and B St - Market	Inverted “U”	2
Waterfront and L St - Adorni Center	Wave	2
Waterfront Drive at Marina	Cora, Inverted “U”	3, 4



No new facilities are proposed as part of this Plan; however, the City of Eureka reviews requests and installs parking racks as funds are available. In addition, when reviewing building plans, the City recommends including bicycle parking in new construction.

This photo shows a rack, similar to the ones the City of Eureka has installed in downtown and Old Town.

**e. Bicycle transport and parking facilities — existing and proposed (for connections with other transportation modes)**

Eureka has bicycle facilities that support connections to bus transit. Bike racks are at the transit center on H Street (two Inverted “U”s between 3<sup>rd</sup> and 4<sup>th</sup> Streets). The Humboldt Transit Authority has also installed covered bicycle parking along the RTS north-south bus line, which is a regional route. The HTA installed new bike racks at two bus stops along 5<sup>th</sup> Street: one at D Street, and one near U Street, and plans to install one on the southern end (southbound) of the RTS bus line, probably near the Bayshore Mall. These new bike racks are under the bus shelter and each holds up to six bikes upright. The Eureka Bikeways Map shows bike parking in Eureka.

No new facilities are proposed as a part of the *2012 Regional Bicycle Plan*.

**f. Map and description of bicycle facilities for changing and storing gear — *existing and proposed*.**

The City of Eureka maintains a public restroom in Old Town. Cyclists can use the facility for changing; however, there are no facilities for storing bicycle gear or other personal belongings. See Eureka Bikeways map for location of existing facility. No new facilities are proposed as part of the *2012 Regional Bicycle Plan*.

**g. Bicycle safety and education programs.**

The Eureka Police and Humboldt County Sheriff's Department enforce all traffic laws, for bicycles and motor vehicles as part of their regular duties. They ticket violators as they see them and respond to other needs and problems as they arise. The police cite bicyclists who break traffic laws, as well as motorists who disobey traffic laws and make the cycling environment unsafe. The level of enforcement depends on the availability of officers.

According to available data, there are no regularly scheduled bicycle safety or education programs taught in Eureka. There is free bicycle safety instruction available in Humboldt County courtesy of the Humboldt Bay Bicycle Commuters Association. Their "Bike Smart" program provides a free two-hour bicycle safety class for students and youth groups. Qualified HBBCA members teach children about the rules of the road with a short lecture and a street training session. After completing the class, children without bike helmets can receive a free helmet courtesy of the Association. In addition, various groups have put on education exercises and other similar events in the past to raise awareness for bicycle safety.

Regional bicycle safety and education programs are recommended in this Bike Plan, as described in Regional Program #3.

**h. Community involvement.**

Described in Chapter 3, beginning on page 3-8.

**i. Bicycle plan's consistency with other plans.**

Described in Chapter 1, beginning on page 1-5.

**j. Proposed projects and their priority for implementation.**

See Table 4.4.1

**k. Past expenditures and future financial needs for bicycle system.**

The City of Eureka has historically invested approximately \$75,000 dollars annually over the last 10 years on non-motorized transportation improvements.

Table 4.4.1, below, shows future financial needs.

**TABLE 4.4.1 CITY OF EUREKA – PROPOSED BIKEWAY PROJECTS**

								Project Score (12 max) <sup>2</sup>				
Proposed Project Corridor/Street	From	To	Proposed Bikeway Class <sup>1</sup>	Length (miles)	Estimated Cost (2012 dollars)	Project included from 2004 Plan	Local (L) Regional (R)	Agency Capacity	Universal User	Conne-ctivity	Public Support	Total score
<b>Eureka Waterfront Trail</b>	Pound Road	State Hwy 101	I	5.3	\$1,872,200	×	R	2	3	3	3	<b>11</b>
<b>Harrison Ave.</b>	Harris Street	Myrtle Avenue	II	1.1	\$1,500,000	×	R	2	2	3	3	<b>10</b>
<b>H Street/ Campton Road</b>	Harris Street	City limit	II	0.6	\$46,425	×	R	2	2	2	3	<b>9</b>
<b>Dolbeer</b>	Harris Street	Hemlock	II	0.5	\$350,000	×	R	1	2	3	3	<b>9</b>
<b>E Street</b>	Harris Street	Waterfront Drive	III	1.7	\$2,576	×	R	2	1	3	3	<b>9</b>
<b>Hemlock St.</b>	W Street	Walnut Ave.	III	0.2	\$400	×	R	1	2	3	3	<b>9</b>
<b>S St./West Ave./V St.</b>	Hodgson Street	First Street	III	2	\$2,983	×	R	2	1	3	3	<b>9</b>
<b>W Street</b>	Hodgson Street	Hemlock Street	III	0.4	\$800	×	R	2	1	3	3	<b>9</b>
<b>Waterfront/ First Street</b>	L Street	Commercial	III	0.7	\$1,870	×	L	2	1	3	3	<b>9</b>
<b>Buhne St.</b>	Fairfield St.	Harrison St.	III	1.6	\$4,088	×	R	2	1	2	3	<b>8</b>
<b>Fairfield St.</b>	Harris Street	Wabash Ave.	III	0.8	\$2,035	×	R	2	1	2	3	<b>8</b>
<b>G Street</b>	Harris Street	6 <sup>th</sup> Street	III	1.5	\$2,200	×	R	2	1	2	3	<b>8</b>
<b>Glen Street</b>	Harris Street	Allard Ave.	III	0.5	\$1,243	×	L	2	1	2	3	<b>8</b>
<b>Henderson St.</b>	S Street	J Street	III	0.6	\$1,445	×	R	2	1	2	3	<b>8</b>
<b>Hodgson St.</b>	F Street	W Street	III	1	\$1,509	×	L	2	1	2	3	<b>8</b>
<b>State Route 255</b>	Northwest city limit	5th Street	III	1.5	\$2,250	×	R	2	1	2	3	<b>8</b>
<b>Wabash Avenue</b>	C Street	H Street	III	0.4	\$800	×	L	2	1	2	3	<b>8</b>
<b>Washington Street</b>	Waterfront	C Street	III	0.6	\$938	×	L	2	1	2	3	<b>8</b>
<b>14<sup>th</sup> Street</b>	Waterfront	West Ave.	III	1.2	\$1,809	×	R	2	1	1	3	<b>7</b>

Humboldt REGIONAL BICYCLE PLAN - Update 2012

Proposed Project Corridor/Street	From	To	Proposed Bikeway Class <sup>1</sup>	Length (miles)	Estimated Cost (2012 dollars)	Project included from 2004 Plan	Local (L) Regional (R)	Agency Capacity	Universal User	Conne-ctivity	Public Support	Total score
Allard Avenue	Glen Street	Silva Ave.	III	0.1	\$145	×	R	2	1	1	3	7
Union Street	Silva Avenue	Harris Street	III	0.4	\$800	×	R	2	1	2	1	6
C Street	Waterfront	Henderson Street	III*	1.5	\$120,000	×	R	1	1	2	1	5
Del Norte	O Street	P Street	III	0.1	\$200		L	2	1	1	1	5
O Street	Harris Street	Del Norte	III	0.7	\$1,400		L	2	1	1	1	5
P Street	Del Norte	14 <sup>th</sup> Street	III	0.4	\$800		L	2	1	1	1	5
Searles Street	West Avenue	Hill Street	III	0.1	\$200		L	1	1	2	1	5
Tydd Street	West Avenue	End	III	0.1	\$200		L	1	1	2	1	5
III* = Enhanced Class III			<b>CITY OF EUREKA TOTAL</b>	<b>26.7</b>	<b>4,689,316</b>			<i>New projects are shaded</i>				

<sup>1</sup>Bikeway classifications are defined on pages 4-1 to 4-3.

<sup>2</sup>See Table 4.5 for the scoring criteria.

## 4.5 CITY OF FERNDALE

Ferndale is home to two of Humboldt County's largest annual bicycle events - the Tour of the Unknown Coast and the finish of the Kinetic Sculpture Race. The primary projects suggested for Ferndale are related to creating safer routes to the two schools and improving bicycle access in and out of the city.

The following section describes Ferndale's information required by Bicycle Transportation Act requirements.<sup>5</sup> Land use and all existing and proposed facilities are shown on the Ferndale bikeways map.

### a. Bicycle commuters — existing and projected levels.

DEMOGRAPHIC DETAIL	DATA	SOURCE
<b>Ferndale</b>		
Population Estimate (with 2000 benchmark)	1,442	California Department of Finance
# of Employed Persons	668	2000 US Census
# Bicycle-to-Work Commuters	2	1990 US Census extrapolated consistent with population growth
Bicycle-to-Work Mode Share	0.30%	calculated from above
Population: Ages 6-14 years	277	2000 US Census
# of College Students	32	2000 US Census e
# of Daily Bike-Transit Users		local transit agency
Total # of Bicycle Commuters	19	assumes 5% of school students and 10% of college students commute by bicycle - from national studies and estimates
# Miles Ridden by Bicycle Commuters per Weekday	31	work commuters (including bike-transit users) x 7 miles + college and school students x 1 mile (round trip)
<b>Forecasts: Estimated for fully implementing Bike Plan (20-year horizon)</b>		
# of Future Daily Bicycle Commuters	53	estimated using increase to 279% of baseline from 2000 LACMTA study by Alta
Future # Miles Ridden by Bicycle Commuters per Weekday	87	
Reduced Vehicle Miles per Weekday	56	
Reduced PM10 (lbs/weekday)	1	(.0184 tons per reduced mile)
Reduced NOX (lbs/weekday)	3	(.0499 tons per reduced mile)
Reduced ROG (lbs/weekday)	4	(.0726 tons per reduced mile)
Reduced Vehicle Miles per Year	11,909	180 days for students, and 256 days for employed persons

<sup>5</sup> See Appendix A for full description of BTA requirements, per Section 891.2 of the California Streets and Highways Code.

Reduced PM10 (lbs/year)	219	(0.0184 tons per reduced mile)
Reduced NOX (lbs/year)	594	(0.0499 tons per reduced mile)
Reduced ROG (lbs/year)	864	(0.0726 tons per reduced mile)

**b. Map and description of land use and settlement — *existing and proposed.***

Ferndale is a small city well known for its Main Street's Victorian architecture. Downtown Ferndale, with its Historic Main Street, is a popular tourist destination. The primary access to town is via SR 211 over Fernbridge - a very narrow historic bridge with no shoulders or other bicycle facilities. Major destinations in Ferndale include (\*=destinations in the downtown area):

- |                                    |  |
|------------------------------------|--|
| <b>Commercial Districts:</b>       | <b>Civic Buildings &amp; Community Centers</b> |
| *Main Street                       | *City Hall                                     |
| *Downtown Business Zone            | *Library                                       |
|                                    | *Ferndale Fairgrounds                          |
| <b>Arts &amp; Leisure Centers</b>  | <b>Schools:</b>                                |
| *Ferndale Museum                   | Elementary School                              |
| *Ferndale Kinetic Sculpture Museum | High School                                    |
| *Ferndale Repertory Theatre        |  |
|                                    | <b>Parks &amp; Other Recreation Areas:</b>     |
|                                    | Centerville Beach                              |
|                                    | *Fireman's Park and Bocce Courts               |
|                                    | Russ Park                                      |
|                                    | Ferndale Cemetery                              |

**c. A map and description of existing and proposed bikeways.**

There are currently no designated bikeways in Ferndale. See Ferndale Bikeways Map and the proposed projects in Table 4.5.1 for a description of proposed bikeways. All bikeways will be developed in compliance with standards adopted by Caltrans and as required by Sections 2375 and 2376 of the Streets and Highways Code.

**d. See County Bikeway Maps at end of Chapter 4.**

The Ferndale Bikeways Map and the list below show bicycle parking in Ferndale.

**Bicycle Parking in Ferndale**

<b>Location</b>	<b>Existing</b>	<b>Proposed</b>
High School	×	
Elementary School	×	
Scout Hall - Firemen's Park	×	
City Hall		×
Library		×
County Fairgrounds		×
Main Street Public Parking Lot		×

**e. A map and description of bicycle transport and parking facilities — *existing and proposed* (for connections with and use of other transportation modes).**

Ferndale has no facilities that support or connect bicycle users with public transit or other transportation modes. No new multimodal facilities are proposed for this Bike Plan update.

**f. Map and description of bicycle facilities for changing and storing gear — *existing and proposed*.**

A public restroom is located on Main Street in the center of town; cyclists can use the facility for changing. There are no bicycle storage facilities available. No new facilities are proposed as a part of the Bike Plan update.

**g. Bicycle safety and education programs.**

The Humboldt County Sheriff's Department enforces all traffic laws for bicycles and motor vehicles as part of their regular duties. They ticket violators as they see them. This includes bicyclists who break traffic laws, and motorists who disobey traffic laws and make the cycling environment more dangerous. The level of enforcement depends on the availability of officers. The Sheriff's Department also responds to needs and problems as they arise.

According to available data, there are no regularly scheduled bicycle safety or education programs taught in Ferndale. There is free bicycle safety instruction available in Humboldt County courtesy of the Humboldt Bay Bicycle Commuters Association. Their "Bike Smart" program provides a free two-hour bicycle safety class for students and youth groups. Qualified HBBCA members teach children about the rules of the road with a short lecture and a street training session. After completing the class, children without bike helmets can receive a free helmet courtesy of the Association. In addition, various groups have put on education exercises and other similar events in the past to raise awareness for bicycle safety.

Regional bicycle safety and education programs are recommended in this Bike Plan, as described in Regional Program #3.

**h. Community Involvement**

Described in Chapter 3, beginning on page 3-8.

**i. Bicycle plan's consistency with other plans.**

Described in Chapter 1, beginning on page 1-5.

**j. Proposed projects and their priority for implementation.**

See Table 4.5.1

**k. Past expenditures and future financial needs for bicycle system.**

Ferndale has historically invested limited funds for bicycle facilities in recent years. Adopting this Bicycle Plan can facilitate Ferndale to invest in bicycle projects. Table 4.5.1, below, shows a breakdown of future financial needs.

TABLE 4.5.1 CITY OF FERDALE – PROPOSED BIKEWAY PROJECTS

								Project Score (12 max) <sup>2</sup>					
Proposed Project Corridor/Street	From	To	Proposed Bikeway Class <sup>1</sup>	Length (miles)	Estimated Cost (2011 dollars)	Project included from 2004 Plan	Local (L) Regional (R)	Agency Capacity	Universal User	Connectivity	Public Support	Total score	
5 <sup>th</sup> Street	Arlington Avenue	Ocean Drive	II	0.6	\$40,000	×	L	2	3	2	2	9	
Arlington Avenue	Main Street	5th Street	II	0.3	\$20,000	×	L	2	3	2	2	9	
Grizzly Bluff Road	Craig Street	East city limit	II or III	0.5	\$33,000	×	L	2	3	2	2	9	
Main Street (SR 211)	Market Street	Ocean Drive	III*	0.5	\$5,500	×	R	2	3	2	2	9	
Ocean Avenue	Shaw Avenue	Craig Street	II & III	0.2	\$13,200	×	L	2	3	2	2	9	
Shaw Avenue	Ocean Avenue	Berding Street	III	0.5	\$5,500	×	L	2	3	2	2	9	
Herbert Street	Main Street	Rose Street	II	0.3	\$112,000		L	2	3	2	2	9	
Rose Avenue	Herbert Street	Grizzly Bluff Rd	II	0.9	\$30,400		L, R	3	3	2	2	10	
Wildcat Avenue	Ocean Drive	City Limits	II	0.2	\$72,000		R	1	1	2	2	6	
Ferndale Circuit Trail (loop through town) <sup>‡</sup>	Port Kenyon Road	Ocean Avenue and Bluff Road	II	1.63	\$652,000		L	2	2	2	2	8	
Bluff Creek Trail Improvements <sup>‡</sup> (footpath)	?	?	n.a.	?	?		L	1	2	2	2	7	
Ferndale to Rio Dell <sup>‡</sup>	Grizzly Bluff Road	Blueslide Road	III*	10.7	\$58,900		R	1	2	2	2	7	
Centerville Road Trail <sup>‡</sup>	Centerville Road	Centerville Beach, south to Guthrie Creek Land	III*	7.5	\$41,000		R	1	2	1	2	6	
<b>CITY OF FERDALE TOTAL</b>								<b>23.8+</b>		<b>\$1,083,500+</b>		<i>New projects are shaded</i>	

III\* = Enhanced Class III

<sup>1</sup>Bikeway classifications are defined on pages 4-1 to 4-3.

<sup>2</sup>See Table 4.5 for the scoring criteria.

<sup>‡</sup>Project also listed in the *Regional Trails Master Plan* (HCAOG, 2008).

## 4.6 CITY OF FORTUNA

The following sections (a)-(k) fulfill Bicycle Transportation Act requirements for the City of Fortuna individually.<sup>6</sup> Land use and all existing and proposed facilities are shown on the Fortuna Bikeways Map.

### a. Bicycle commuters – existing and projected levels.

DEMOGRAPHIC DETAIL	DATA	SOURCE
<b>Fortuna</b>		
Population Estimate (with 2000 benchmark)	11,345	California Department of Finance
# of Employed Persons	4,259	2000 US Census
# Bicycle-to-Work Commuters	50	1990 US Census extrapolated consistent with population growth
Bicycle-to-Work Mode Share	1.17%	calculated from above
Population: Ages 6-14 years	2,531	2000 US Census
# of College Students	218	2000 US Census e
# of Daily Bike-Transit Users		local transit agency
Total # of Bicycle Commuters	198	assumes 5% of school students and 10% of college students commute by bicycle - from national studies and estimates work commuters (including bike-transit users) x 7 miles + college and school students x 1 mile (round trip)
# Miles Ridden by Bicycle Commuters per Weekday	498	
<b>Forecasts: Estimated for fully implementing Bike Plan (20-year horizon)</b>		
# of Future Daily Bicycle Commuters	553	estimated using increase to 279% of baseline from 2000 LACMTA study by Alta
Future # Miles Ridden by Bicycle Commuters per Weekday	1,390	
Reduced Vehicle Miles per Weekday	892	
Reduced PM10 (lbs/weekday)	16.41	(0.0184 tons per reduced mile)
Reduced NOX (lbs/weekday)	45	(0.0499 tons per reduced mile)
Reduced ROG (lbs/weekday)	65	(0.0726 tons per reduced mile)
Reduced Vehicle Miles per Year	208,182	180 days for students, and 256 days for employed persons
Reduced PM10 (lbs/year)	3,831	(0.0184 tons per reduced mile)
Reduced NOX (lbs/year)	10,384	(0.0499 tons per reduced mile)
Reduced ROG (lbs/year)	15,114	(0.0726 tons per reduced mile)

### b. A map and description of land use and settlement — *existing and proposed*.

<sup>6</sup> See Appendix A for full description of BTA requirements, per Section 891.2 of the California Streets and Highways Code.

Fortuna is the third largest incorporated city in Humboldt County with approximately 10,500 residents. It has a traditional town center surrounded by suburban residential neighborhoods and mid-sized shopping districts. Bicycle access over and under US 101 has been noted as an issue. Many students from outlying areas travel to Fortuna for school and there are consequently a significant number of schools for a town it's size: three elementary schools a middle school and a high school - as well as a number of small private schools.

Major destinations in Fortuna include:

<b>Commercial/Business Centers:</b>	<b>Civic Building &amp; Community Centers</b>
Main Street from 7 <sup>th</sup> to 14 <sup>th</sup>	City Hall
Redwood Shopping Mall	Library
Riverwalk Drive	River Lodge
<b>Schools:</b>	<b>Parks &amp; Recreation Areas:</b>
High School on 12 <sup>th</sup> Street	Newburg Park
South Fortuna Elementary	Rohner Park
Ambrosini Elementary	River Trail
	<b>Other:</b>
	California Conservation Corps Housing
	Redwood Memorial Hospital

**c. Map and description of bikeways — *existing and proposed.***

Class II bike lanes have been striped on Main Street and Rohnerville Road, however, the facilities are intermittent, need to be re-striped, and appear to not meet Caltrans minimum standards for Class II bikeways. This Bike Plan identifies those bikeways for upgrading. There are no Class I or III bikeway within the city.

See Fortuna Bikeways Map and Table 4.5.1 for proposed bikeways in the City of Fortuna. All bikeways will be developed in compliance with standards adopted by Caltrans and as required by Sections 2375 and 2376 of the Streets and Highways Code.

**d. See County Bikeway Maps at end of Chapter 4.**

**Bike Parking**

Location	Existing	Proposed
Toddy Thomas Elementary	×	
Ambrosini Elementary	×	
South Fortuna Elementary	×	
Rohner Park	×	
'Safeway' shopping area		×
Main Street shopping area		×
Riverlodge		×
Redwood Mall shopping area		×
Park and Ride		×

**e. Bicycle transport and parking facilities — *existing and proposed* (for connections with other transportation modes).**

A Caltrans park and ride lot is located along US 101 in Fortuna; however, bicycle parking is not provided. No new facilities are proposed as a part of the 2012 Bike Plan update.

**f. Map and description of bicycle facilities for changing and storing gear — *existing and proposed*.**

There are no changing or storage facilities for bicyclists in Fortuna. No new facilities are proposed as a part of the Bike Plan update.

**g. Bicycle Safety and Education Programs**

The Fortuna Police and Humboldt County Sheriffs Departments enforce all traffic laws, for bicycles and motor vehicles as part of their regular duties. They ticket violators as they see them. This includes bicyclists who break traffic laws, as well as motorists who disobey traffic laws and make the cycling environment more dangerous. The level of enforcement depends on the availability of officers. The Sheriffs Department also responds to particular needs and problems as they arise.

According to available data, there are no regularly scheduled bicycle safety or education programs taught in Fortuna. There is free bicycle safety instruction available in Humboldt County courtesy of the Humboldt Bay Bicycle Commuters Association. Their “Bike Smart” program provides a free two-hour bicycle safety class for students and youth groups. Qualified HBBCA members teach children about the rules of the road with a short lecture and a street training session. After completing the class, children without bike helmets can receive a free helmet courtesy of the Association. In addition, various groups have put on education exercises and other similar events in the past to raise awareness for bicycle safety.

Regional bicycle safety and education programs are recommended in this Bike Plan, as described in Regional Program #3.

**h. Community Involvement**

Described in Chapter 3, beginning on page 3-8.

**i. Bicycle plan’s consistency with other plans.**

Described in Chapter 1, beginning on page 1-5.

**j. Proposed projects and their priority for implementation.**

See Table 4.6.1

**k. Past expenditures and future financial needs for bicycle system.**

Fortuna has invested limited funds on bicycle transportation projects in recent years. The development of this Bike Plan will facilitate Fortuna's efforts to invest in bicycle projects. Table 4.6.1 gives estimated future financial needs for Fortuna's proposed bicycle projects.

TABLE 4.6.1 CITY OF FORTUNA – PROPOSED BIKEWAY PROJECTS

Proposed Project Corridor/Street	From	To	Proposed Bikeway Class <sup>1</sup>	Length (miles)	Estimated Cost (2012 dollars)	Project included from 2004 Plan	Local (L) Regional (R)	Project Score (12 max) <sup>2</sup>				
								Agency Capacity	Universal User	Connectivity	Public Support	Total score
12 <sup>th</sup> Street	Main Street	Newburg Rd.	II	0.4	\$32,667	×	R	3	2	3	1	9
Fortuna Boulevard	Main Street	Kenmar Rd.	II	1.3	\$122,200	×	R	3	2	3	1	9
Kenmar/ Kenwood	Riverwalk Drive	Rohnerville Road	II	0.6	\$51,000	×	R	3	2	2	1	8
Main Street	US 101	Rohnerville Road	II	1.2	\$74,500	×	R	3	2	3	2	10
Rohnerville Road	Main Street	School Street	II	2.9	\$1,160,000	×	R	2	2	2	1	7
Riverwalk Drive	Sandy Prairie Court	Kenmar Road	II	1.1	\$100,000	×	R	3	2	2	1	8
Ross Hill Road	School Street	Kenmar Road	II	0.1	\$65,000	×	R	3	2	2	2	9
School Street	Rohnerville Road	Ross Hill	II	0.7	\$60,000	×	R	2	2	2	1	7
Redwood Way	Fortuna Boulevard	Rohnerville Road	II	1.1	\$90,000	×	L	3	2	2	1	8
Newburg Road	12 <sup>th</sup> Street	Rohnerville Road	III*	1.0	\$25,000	×	L	2	2	3	2	9
Riverwalk Drive	Newberg Road	Sandy Prairie Ct	III*	0.8	\$75,050	×	L	2	2	2	1	7
John C. Campbell Memorial Parkway	River Lodge (trace south bank of Strongs Creek)	Eastern City Limit	I	4.3	\$3,314,115		R	2	3	3	2	10
III* = Enhanced Class III				<b>CITY OF FORTUNA TOTAL</b>	<b>15.5</b>	<b>\$5,169,532</b>		<i>New projects are shaded</i>				

<sup>1</sup>Bikeway classifications are defined on pages 4-1 to 4-3.

<sup>2</sup>See Table 4.5 for the scoring criteria.

## 4.7 CITY OF RIO DELL

Section 4.7 (a) through (k) describes Rio Dell's bicycle system setting, per Bicycle Transportation Act requirements.<sup>7</sup> Land use and existing and proposed facilities are shown on the Rio Dell Bikeways Map.

### a. Bicycle commuters - *existing and project levels.*

#### Rio Dell

DEMOGRAPHIC DETAIL	DATA	SOURCE
Population Estimate (with 2000 benchmark)	3,279	California Department of Finance
# of Employed Persons	1,177	2000 US Census
# Bicycle-to-Work Commuters	18	1990 US Census extrapolated consistent with population growth
Bicycle-to-Work Mode Share	1.53%	calculated from above
Population: Ages 6-14 years	734	2000 US Census
# of College Students	40	2000 US Census e
# of Daily Bike-Transit Users		local transit agency
Total # of Bicycle Commuters	58	assumes 5% of school students and 10% of college students commute by bicycle - from national studies and estimates
# Miles Ridden by Bicycle Commuters per Weekday	166.7	work commuters (including bike-transit users) x 7 miles + college and school students x 1 mile (round trip)
<b># of Future Daily Bicycle Commuters</b>	163	estimated using increase to 279% of baseline from 2000 LACMTA study by Alta
Future # Miles Ridden by Bicycle Commuters per Weekday	465	
Reduced Vehicle Miles per Weekday	298	
Reduced PM10 (lbs/weekday)	5.49	(0.0184 tons per reduced mile)
Reduced NOX (lbs/weekday)	15	(0.0499 tons per reduced mile)
Reduced ROG (lbs/weekday)	22	(0.0726 tons per reduced mile)
Reduced Vehicle Miles per Year	70,852	180 days for students, and 256 days for employed persons
Reduced PM10 (lbs/year)	1304	(0.0184 tons per reduced mile)
Reduced NOX (lbs/year)	3534	(0.0499 tons per reduced mile)
Reduced ROG (lbs/year)	5144	(0.0726 tons per reduced mile)

### b. A map and description of land use and settlement — *existing and proposed.*

Rio Dell is located along the west bank of the Eel River, south of Fortuna and one mile north of Scotia. The city covers two square miles, and its population is approximately 3,280 residents. The former US 101 route is now the main street (Wildwood Avenue) in the center of town. Rio Dell is primarily a residential community. There are two schools, a fire department, library, and

<sup>7</sup> See Appendix A for full description of BTA requirements, per Section 891.2 of the California Streets and Highways Code.

some commercial businesses. There is currently one bike lane in Rio Dell; it is in front of the schools. A current city redevelopment project will add additional lanes.

Major destinations in Rio Dell include:

- |  |   |
|--|---|
| <p><b>Commercial/Business Areas:</b><br/>Wildwood Avenue</p> <p><b>Parks &amp; Recreation:</b><br/>Fireman's Park &amp; Picnic Area<br/>Blue Star Memorial By-Way Park<br/>(Triangle Park)<br/>Redwood Mini Golf<br/>Tennis and bocce courts</p> | <p><b>Civic Buildings &amp; Community Centers:</b><br/>City Hall<br/>Post Office<br/>Library</p> <p><b>Schools:</b><br/>Elementary School on Center Street<br/>Middle School on Center Street</p> |
|--|---|

**c. Map and description of bikeways — *existing and proposed*.**

The City of Rio Dell has one Class II bikeway (and no Class I or III bikeways):

	Street	From	To	Length
Class II (bike lane)	Center Street (south side only)	Wildwood Avenue	Ireland Avenue	0.3 miles

See the Rio Dell Bikeways Map for existing and proposed bikeways. Table 4.7.1 describes the proposed bikeway projects. All bikeways will be developed in compliance with standards adopted by Caltrans and as required by Sections 2375 and 2376 of the Streets and Highways Code.

**d. See County Bikeway Maps at end of Chapter 4.**

Rio Dell Bicycle Parking Locations	Existing	Proposed
Elementary and Middle Schools	×	
City Hall		×
Wildwood Ave: throughout main shopping area		×
Library		×
Fireman's Park		×
Community Park and Tennis Courts		×
Market on Wildwood		×

The Rio Dell Bikeways Map shows locations for existing and proposed bike parking in Rio Dell.

**e. Bicycle transport and parking facilities — *existing and proposed* (for connections with other transportation modes).**

Rio Dell has no facilities for supporting or connecting bicycle users with public transit or other transportation modes. No new multimodal facilities are proposed for this Bike Plan update.

**f. Map and description of bicycle facilities for changing and storing gear — *existing and proposed.***

Rio Dell has no changing or storage facilities for bicyclists. No new facilities are proposed as a part of the *2012 Regional Bicycle Plan* update.

**g. Bicycle safety and education programs.**

The Humboldt County Sheriffs Department enforces all traffic laws, for bicycles and motor vehicles as part of their regular duties. They ticket violators as they see them. This includes bicyclists who break traffic laws, as well as motorists who disobey traffic laws and make the cycling environment more dangerous. The level of enforcement depends on the availability of officers. The Sheriffs Department also responds to particular needs and problems as they arise.

For at least the past three years, Rio Dell has had a Kids Bike Rodeo (and Community BBQ) held at the Rio Dell Volunteer Fire Department's parking lot (West Central & Wildwood Ave.). The even has been coordinated by the Rio Dell Community Resource Center, which is part of the St. Joseph Health System.

According to available information, there are no other ongoing bicycle safety or education programs taught in Rio Dell. There is free bicycle safety instruction available in Humboldt County courtesy of the Humboldt Bay Bicycle Commuters Association. Their "Bike Smart" program provides a free two-hour bicycle safety class for students and youth groups. Qualified HBBCA members teach children about the rules of the road with a short lecture and a street training session. After completing the class, children without bike helmets can receive a free helmet courtesy of the Association. In addition, various groups have put on education exercises and other similar events in the past to raise awareness for bicycle safety.

Regional bicycle safety and education programs are recommended in this Bike Plan, as described in Regional Program #3.

**h. Community involvement.**

Described in Chapter 3, beginning on page 3-8.

**i. Bicycle plan's consistency with other plans.**

Described in Chapter 1, beginning on page 1-5.

**j. Proposed projects and their priority for implementation.**

See Table 4.7.1

**k. Past expenditures and future financial needs for bicycle system.**

Rio Dell has invested limited funds on bicycle transportation projects in recent years. The development of the Bike Plan Update will equip Rio Dell to invest in bicycle projects. Table 4.7.1 below shows a breakdown of future financial needs for Rio Dell's priority bicycle projects.

TABLE 4.7.1 CITY OF RIO DELL – PROPOSED BIKEWAY PROJECTS

Proposed Project Corridor/Street	From	To	Proposed Bikeway Class <sup>1</sup>	Length (miles)	Estimated Cost (2012 dollars)	Project included from 2004 Plan	Local (L) Regional (R)	Project Score (12 max) <sup>2</sup>					
								Agency Capacity	Universal User	Connectivity	Public Support	Total score	
Davis Street	Wildwood Avenue	Rigby Avenue	II	0.5	\$ 12,000	×	R						
Painter Street	Wildwood Avenue	Rigby Avenue	II	0.5	\$ 10,560	×	L						
Bellevue St.	Main St.	West City Limit	III*	1.3	\$ 44,600	×	R						
Ireland Street	Center St.	Davis St.	III*	0.2	\$ 8,500	×	L						
Rigby Avenue	Davis Street	Painter St.	III*	0.3	\$ 5,500	×	L						
Wildwood Ave.	US 101/ Eeloa Ave	Davis Street	III*	0.6	\$ 12,700	×	R						
Wildwood Ave.	Davis Street	South City Limit	III*	0.7	\$ 22,700	×	R						
<b>CITY OF RIO DELL TOTAL</b>				<b>4.1</b>	<b>\$ 116,560</b>								

III\* = Enhanced Class III

<sup>1</sup>Bikeway classifications are defined on pages 4-1 to 4-3.

<sup>2</sup>See Table 4.5 for the scoring criteria.

## 4.8. CITY OF TRINIDAD

Section 4.8 separately describes the City of Trinidad's bicycle system setting, per Bicycle Transportation Act requirements.<sup>8</sup> Land use and existing and proposed facilities are shown on the Trinidad Bikeways Map.

### a. Bicycle commuters – existing and projected level.

City of Trinidad	Data	Source
Population Estimate (with 2000 benchmark)	310	California Department of Finance
# of Employed Persons	164	2000 US Census
# Bicycle-to-Work Commuters	0	1990 US Census extrapolated consistent with population growth
Bicycle-to-Work Mode Share	0.00%	calculated from above
Population: Ages 6-14 years	54	2000 US Census
# of College Students	12	2000 US Census e
# of Daily Bike-Transit Users		local transit agency
Total # of Bicycle Commuters	4	assumes 5% of school students and 10% of college students commute by bicycle - from national studies and estimates work commuters (including bike-transit users) x 7 miles + college and school students x 1 mile (round trip)
# Miles Ridden by Bicycle Commuters per Weekday	3.9	estimated using increase to 279% of baseline from 2000 LACMTA study by
<b># of Future Daily Bicycle Commuters</b>	10	Alta
Future # Miles Ridden by Bicycle Commuters per Weekday	11	
Reduced Vehicle Miles per Weekday	7	
Reduced PM10 (lbs/weekday)	0.13	(0.0184 tons per reduced mile)
Reduced NOX (lbs/weekday)	0.4	(0.0499 tons per reduced mile)
Reduced ROG (lbs/weekday)	0.5	(0.0726 tons per reduced mile)
Reduced Vehicle Miles per Year	1,257	180 days for students, and 256 days for employed persons
Reduced PM10 (lbs/year)	23	(0.0184 tons per reduced mile)
Reduced NOX (lbs/year)	63	(0.0499 tons per reduced mile)
Reduced ROG (lbs/year)	91	(0.0726 tons per reduced mile)

### b. A map and description of land use and settlement — *existing and proposed*.

Trinidad is a seaside town on the Pacific Ocean coastline, approximately 15 miles north of Humboldt Bay, and situated directly above its own North Coast harbor. Trinidad is California's smallest incorporated city with a population just above 300 persons. The Trinidad area provides

<sup>8</sup> See Appendix A for full description of BTA requirements, per Section 891.2 of the California Streets and Highways Code.

access to ten public beaches and offshore rocks. The rocks are part of the California Coastal National Monument of which Trinidad is a Gateway City.

Trinidad's very scenic coastal setting, public beaches and small town atmosphere attract a good number of tourists - many of them on bicycles. Touring bicyclists on the Pacific Coast Bike Route and local residents often stop in Trinidad for recreation, to rest, or to utilize the local services. Traffic speeds within the town are generally slow.

Major destinations include:

**Commercial/Business Areas:**

- Main Street, Trinity Street
- Patrick's Point Drive

**Civic Buildings & Community Centers:**

- Trinidad Town Hall
- Post Office
- Library

**Schools & Museums:**

- Trinidad Elementary School
- Humboldt State University–Fred Telonicher Marine Laboratory

**Beaches, Parks, & Recreation:**

- Azalea Glen RV Park & Campground
- College Cove, Houda Point, Indian (Old Home), Luffenholz, and Moonstone Beaches
- Patrick's Point State Park
- Trinidad Pier
- Trinidad State Beach Park
- Trinidad Head Light, Trinidad Memorial Lighthouse
- Cher Ae Heights Casino

**c. A map and description of bikeways — *existing and proposed*.**

There are no designated bikeways within the City of Trinidad. See the Trinidad Bikeways Map and Table 4.8.1 for the City's proposed bikeway facilities. All bikeways will be developed in compliance with standards adopted by Caltrans and as required by Sections 2375 and 2376 of the Streets and Highways Code.

**d. See County Bikeway Maps at end of Chapter 4.**

Trinidad Bicycle Parking Locations	Existing	Proposed
Trinidad Park and Ride – US 101 & Main	×	
Murphys Market – Trinity Street near Edwards		×
City Hall		×
School and Library		×
Pier, Trinidad Head, Beach Access		×

**e. Bicycle transport and parking facilities — existing and proposed (for connections with other transportation modes)**

The Trinidad Park and Ride lot on Main Street (just west of Scenic Drive) has bicycle lockers. It is a fixed bus stop for the Redwood Transit System bus line, which is a regional bus route. No new facilities are proposed as a part of the *2012 Regional Bicycle Plan* update.

**f. A map and description of existing and proposed facilities for changing and storing clothes and equipment.**

There are no changing or storage facilities for bicyclists in Trinidad. No new facilities are proposed as a part of this Plan.

**g. Bicycle safety and education programs.**

The Humboldt County Sheriffs Department enforces all traffic laws, for bicycles and motor vehicles as part of their regular duties. They ticket violators as they see them. This includes bicyclists who break traffic laws, as well as motorists who disobey traffic laws and make the cycling environment more dangerous. The level of enforcement depends on the availability of officers. The Sheriffs Department also responds to particular needs and problems as they arise.

According to available data, there are no regularly scheduled bicycle safety or education programs taught in Trinidad. There is free bicycle safety instruction available in Humboldt County courtesy of the Humboldt Bay Bicycle Commuters Association. Their “Bike Smart” program provides a free two-hour bicycle safety class for students and youth groups. Qualified HBBCA members teach children about the rules of the road with a short lecture and a street training session. After completing the class, children without bike helmets can receive a free helmet courtesy of the Association. In addition, various groups have put on education exercises and other similar events in the past to raise awareness for bicycle safety.

Regional bicycle safety and education programs are recommended in this Bike Plan, as described in Regional Program #3.

**h. Community involvement.**

Described in Chapter 3, beginning on page 3-8.

**i. Bicycle plan’s consistency with other plans.**

Described in Chapter 1, beginning on page 1-5.

**j. Proposed projects and their priority for implementation.**

See Table 4.8.1

**k. Past expenditures and future financial needs for bicycle system.**

Trinidad has invested limited funds on bicycle transportation projects in recent years. The development of this Bike Plan will equip Trinidad to invest in future improvements. Table 4.8.1, below, shows what the City of Trinidad estimates they will need for funding the priority bicycle projects.

**TABLE 4.8.1 CITY OF TRINIDAD – PROPOSED BIKEWAY PROJECTS**

Proposed Project Corridor/Street	From	To	Proposed Bikeway Class <sup>1</sup>	Length (miles)	Estimated Construction Cost (2012 dollars)	Project included from 2004 Plan	Local (L) Regional (R)	Project Score (12 max) <sup>2</sup>				
								Agency Capacity	Universal User	Connectivity	Public Support	Total score
Edwards Street	Trinity Street	Bay Street	III*	0.2	\$1,100	×	R	2	1	3	X	X
Main Street/ Weshaven Drive	East City Limits	Trinity Street	III*	0.2	\$1,100	×	R	2	1	3	X	X
Scenic Drive	Main Street	City Limits	III	0.2	\$1,100	×	R	2	1	2	X	X
Patrick's Point Drive	Main Street	City Limits	III	0.2	\$1,100	×	R	2	1	2	X	X
Trinity Street	Main Street	Edwards Street	III	0.2	\$1,100	×	R	2	1	3	X	X
Westhaven Drive	Main Street	City Limits	III*	3.2	\$17,600	×	R	1	X	3	X	X
<b>CITY OF TRINIDAD TOTAL</b>				<b>4.2</b>	<b>\$ 23,100</b>			<b>X = city did not score</b>				

III\* = Enhanced Class III

<sup>1</sup>Bikeway classifications are defined on pages 4-1 to 4-3.

<sup>2</sup>See Table 4.5 for the scoring criteria.

## 4.9. COUNTY OF HUMBOLDT

This section describes separately the unincorporated County of Humboldt's bicycle system setting, per Bicycle Transportation Act requirements.<sup>9</sup> Land use and existing and proposed facilities are shown on the series of Humboldt County Bikeways Maps.

### a. Bicycle commuters – existing and projected level.

#### County of Humboldt – Unincorporated Area

DEMOGRAPHIC DETAIL	DATA	SOURCE
Population Estimates		California Department of Finance
-- DOF, with 2000 benchmark	71,567	2005-2009 American Community Survey
-- ACS, 5-Year Estimate	69,018	(ACS)
Population 5-14 years old	8,338	2005-2009 ACS
Population 16 years or older	61,698	2005-2009 ACS
Population in labor force	34,653	2005-2009 ACS
Workers (16 years and older) who commute to work	30,601	2005-2009 ACS
Bicycle-to-work commuters	428	2005-2009 ACS
Bicycle-to-work mode share	1.4%	Calculated from above
Students enrolled in grades 1 thru 12	10,362	2005-2009 ACS
Students in college	5,799	2000 US Census
# of daily bike-transit users		Local transit agency Assumes 5% of school students and 10% of college students commute by bicycle -
Total # of bicycle commuters	1,123	from national studies and estimates Work commuters (including bike-transit users) x 7 miles + college and school students x 1 mile (round trip)
Miles ridden by bicycle commuters per weekday	4,094	
<b>Forecasts: Estimated for fully implementing Bike Plan (20-year horizon)</b>		
Projected # of future daily bicycle commuters	9,548	Estimated using increase to 279% of baseline from 2000 LACMTA study by Alta
Future # miles ridden by bicycle commuters per weekday	24,531	
Reduced Vehicle Miles per Weekday	15,738	
Reduced PM10 (lbs/weekday)	289.58	(0.0184 tons per reduced mile)
Reduced NOX (lbs/weekday)	785	(0.0499 tons per reduced mile)
Reduced ROG (lbs/weekday)	1,142	(0.0726 tons per reduced mile)
Reduced Vehicle Miles per Year	3,685,170	180 days for students, and 256 days for employed persons
Reduced PM10 (lbs/year)	67,807	(0.0184 tons per reduced mile)
Reduced NOX (lbs/year)	183,816	(0.0499 tons per reduced mile)
Reduced ROG (lbs/year)	267,543	(0.0726 tons per reduced mile)

<sup>9</sup> See Appendix A for full description of BTA requirements, per Section 891.2 of the California Streets and Highways Code.

**b. A map and description of land use and settlement — *existing and proposed.***

Humboldt County, located on California’s North Coast, encompasses approximately 3,600 square miles (nearly 2.3 million acres), 80 percent of which is forestlands, protected redwoods, and recreation areas. The county is bound by Del Norte County on the north, the Pacific Ocean on the west, Siskiyou and Trinity Counties on the east, and by Mendocino County on the south. The whole county, geographically, has a population of approximately 135,260 persons; the County’s jurisdiction of unincorporated areas has an estimated population of 72,295 (State of California, Department of Finance, 2011)

US 101, which runs north/south, is the county’s major transportation corridor. State Route 299, which runs east/west, links the county to Interstate 5 to the east. The study area includes all of unincorporated Humboldt County; however, it focuses on areas with the highest density of bicycle activity.

Major destinations in the County’s unincorporated areas include:

**GARBERVILLE & REDWAY**

- Community Park
- Garberville downtown
- Healy Senior Center
- Redway Downtown
- Redway Elementary School
- Rodeo Grounds
- Southern Humboldt Community School

**ORICK**

- Prairie Creek State Park
- Redwood National and State Parks
- Rodeo Grounds

**SAMOA**

- Samoa Cookhouse
- Peninsula Union School
- Samoa Dunes Recreation Area
- Samoa Womens’ Club

**MANILA**

- Manila Community Center
- Manila Park Campgrounds
- Manila Dunes

**MCKINLEYVILLE**

**Commercial/Job Centers:**

- Central Avenue shopping area

**Schools:**

- Morris Elementary School
- Junior High
- High School

**Civic Centers:**

- Public Library
- Azalea Hall

**Parks & recreation areas:**

- Hiller Park
- Hammond Trail
- Midtown Trail

**OTHER COMMUNITIES & DESTINATIONS:**

- |                     |                                |                            |
|---------------------|--------------------------------|----------------------------|
| Fernbridge          | Shelter Cove                   | Avenue of the Giants       |
| Fieldbrook          | Stafford, Pepperwood, Shively, | Redwood National and State |
| Hoopla              | Holmes, Larabee,               | Parks                      |
| Loleta              | Redcrest, Weott, Myers Flat,   | Big Lagoon State Park      |
| Orleans-Somes Bar   | Miranda, Phillipsville         |                            |
| <b>Willow Creek</b> | <b>Westhaven</b>               |                            |

**c. A map and description of bikeways — *existing and proposed.***

The County of Humboldt’s existing bikeways (in the unincorporated areas) are listed below and shown on the County Bikeway Maps, Pages 4-88 through 4-104.

**Existing Humboldt County Bikeways in the Unincorporated Areas**

<b>Class</b>	<b>Corridor/Street Name</b>	<b>From</b>	<b>To</b>	<b>Length</b>
I (bike path)	Hammond Trail	Letz Avenue	Strawberry Creek	2.0
I (bike path)	Hammond Trail	School Road	Fischer Road	0.7
I (bike path)	Mid Town Trail Maintained by MCSD, not County of Humboldt	Bates Road	Washington	1.2
I (bike path)	School Road Trail Maintained by MCSD, not County of Humboldt	Ocean Drive	Fischer Road	0.3
II (bike lane)	Central Avenue	School Road	Railroad Avenue	0.9
II (bike lane)	Harris Street	Harrison Avenue	Hall Avenue	0.8
II (bike lane)	McKinleyville Avenue	Murray Road	Washington Avenue	1.3
II (bike lane)	Murray Road	US 101	Central Avenue	0.8
II (bike lane)	Myrtle Avenue	West/Eureka City limits	Hall Avenue	0.2
II (bike lane)	Myrtle Avenue/Old Arcata Road	Mitchell Heights Drive	Three Corners Market (Myrtle Ave)	2.1
II (bike lane)	School Road	Bugenig Road	Central Avenue	0.7
II (bike lane)	Highway 299 (in Willow Creek)	Willow Road	Willow Way	0.3
II (bike lane)	Freshwater Road	Myrtle Avenue	Boy Scout Road (east end of Freshwater Park)	3.02
III (bike route)	Fischer Road- Hammond Trail	School Road	Hammond/Mad River Bridge	0.7
III (bike route)	Sutter Road	Central Avenue	Azalea	1.07
III (bike route)	School Road	Betty Court (Mill Creek Cinema)	Verwer Court (to end/coast)	1.2

The County's proposed bikeways are described in Table 4.9.1 below, and illustrated on the County Bikeway Maps following this section. All bikeways will be developed in compliance with standards adopted by Caltrans and as required by Sections 2375 and 2376 of the Streets and Highways Code.

d. See County Bikeway Maps at end of Chapter 4.

e. **Bicycle transport and parking facilities — *existing and proposed*** (for connections with other transportation modes).

The County does not have bicycle facilities to support multi-modal trips, such as amenities for bicyclists connecting to public transit, or park and ride carpools. However, Redwood Transit,

which has regional bus routes, does have bike racks on their buses. The County is not proposing new facilities as part of the Bike Plan Update.

**f. A map and description of existing and proposed facilities for changing and storing clothes and equipment.**

The County does not own or maintain such bicycle facilities in the unincorporated areas. The County is not proposing new facilities as a part of the Bike Plan update.

**g. Bicycle safety and education programs.**

The California Highway Patrol (CHP) enforces all traffic laws, for bicycles and motor vehicles as part of their regular duties. They ticket violators as they see them. This includes bicyclists who break traffic laws, as well as motorists who disobey traffic laws and make the cycling environment more dangerous. The level of enforcement depends on the availability of officers. The CHP also responds to particular needs and problems as they arise.

The County of Humboldt does not have a regular, scheduled bicycle safety and education program for communities in the unincorporated area.. There is, however, free bicycle safety instruction available in Humboldt County courtesy of the Humboldt Bay Bicycle Commuters Association. Their “Bike Smart” program provides a free two-hour bicycle safety class for students and youth groups. Qualified HBBCA members teach children about the rules of the road with a short lecture and a street training session. After completing the class, children without bike helmets can receive a free helmet courtesy of the Association. In addition, various groups have put on education exercises and other similar events in the past to raise awareness for bicycle safety.

Regional bicycle safety and education programs are recommended in this Bike Plan, as described in Regional Program #3.

**h. Community involvement.**

Described in Chapter 3, beginning on page 3-8.

**i. Bicycle plan’s consistency with other plans.**

Described in Chapter 1, beginning on page 1-5.

**j. Proposed projects and their priority for implementation.**

See Table 4.9.1.

**k. Past expenditures and future financial needs for bicycle system.**

In addition to capital improvements, the County of Humboldt has invested an average of \$150,000 dollars annually on non-motorized transportation improvements over the last 10 years. Table 4.9.1 shows what the County estimates is needed to fund the priority bike projects.

TABLE 4.9.1 COUNTY OF HUMBOLDT – PROPOSED BIKEWAY PROJECTS (FOR THE UNINCORPORATED AREA)

**NORTHERN HUMBOLDT COUNTY**

County Location	Proposed Project Corridor/ Street	From	To	Proposed Bikeway Class <sup>1</sup>	Length (miles)	Estimated Cost (2012 dollars)	Project included from 2004 Plan	Local (L) Regional (R)	Agency Capacity	Universal User	Connectivity	Public Support	Total score
Arcata–Blue Lake	<b>Annie &amp; Mary Rail-Trail</b>	Water District Park 1 (or Arcata city limits)	Blue Lake City Limits	I	3.4	\$903,000	×	R	1	3	3	3	10
Arcata Bottom	<b>Hammond Trail</b>	Mad River Bridge	Arcata City Limits	Class I Implementation Strategy	2.9	\$797,500	×	R	3	3	0	3	9
Arcata–Eureka	<b>Humboldt Bay Trail-East Bay</b>	Arcata Marsh & Wildlife Sanctuary	Eureka Waterfront Trail/Drive	Class I Implementation Strategy	6.4	\$3,520,000		R	3	3	0	3	9
Arcata–Samoa	<b>Humboldt Bay Trail-West Bay</b>	Arcata City Limits	Samoa-potential extension to Fairhaven	Class I Implementation Strategy	7.2	\$1,980,000		R	3	3	3	3	12
Fortuna West	<b>Riverwalk Trail</b>	Fortuna City Limits	Sandy Prairie Road	I	2	\$550,000		R	3	3	3	1	10
Hoopa	<b>SR 96: Hoopa</b>	Mill Creek Road	Shoemaker Road	Class I Implementation Strategy	5.4	\$75,000		R	Not maintained by County; Caltrans' jurisdiction.				
Willow Creek	<b>SR 96: Willow Creek</b>	SR 299	Elementary School	Class I Implementation Strategy	0.9	\$332,050		L	Not maintained by County; Caltrans' jurisdiction.				
South Eureka	<b>Campton Road</b>	Eureka city limit	Walnut Drive	II	1.6	\$117,614	×	L	1	1	2	2	6
South Eureka	<b>Herrick Road</b>	US 101	Fairway Drive	II	0.9	\$67,500	×	R	3	1	3	1	8
South Eureka	<b>Ridgewood Drive</b>	Elk River Road	Walnut Drive	II	1.3	\$97,500	×	R	1	1	1	2	5
South Eureka	<b>Walnut Drive</b>	Hemlock Street	Ridgewood Drive	II	3	\$225,000	×	R	3	1	3	1	8
South Eureka	<b>F Street</b>	Fairway Drive	Oak Street	II	0.4	\$28,409	×	R	1	1	1	2	5
South Eureka	<b>Elk River Road</b>	Ridgewood	Headwaters Trailhead	III (R)	6.4	\$9,617	×	R	2	1	1	2	6
South Eureka	<b>Hall Avenue</b>	Harris Street	Myrtle Avenue	III*	0.1	\$308	×	R	2	1	2	2	7
South Eureka	<b>Humboldt Hill Road</b>	US 101	Donna Drive	III*	2.0	\$5,066	×	L	2	1	1	2	6

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Myrtle town	<b>Park Street</b>	Myrtle Ave.	Quaker St.	II	0.5	\$39,773	×	L	1	1	3	2	7
Eureka-Arcata	<b>Myrtle Avenue/Old Arcata Road</b>	Hall Avenue	Bayside Cutoff	III*	6.8	\$96,894	×	R	3	3	3	3	12
Myrtle town	<b>Quaker St.</b>	Park Street	Trinity Street	III*	0.5	\$1,278	×	L	2	1	1	2	6
Myrtle town	<b>Trinity St.</b>	Quaker St.	Myrtle Ave.	III*	0.3	\$663	×	L	2	1	1	2	6
Arcata Bottom	<b>Mad River Rd/Upper Bay/Miller Lane/ Heindon Rd</b>	Mad River Beach	Arcata City Limits	III*	2.6	\$6,439	×	R	2	1	3	2	8
Arcata–Eureka	<b>SR 255</b>	US 101	US 101	III	8.9	\$13,307	×		Not maintained by County; Caltrans' jurisdiction.				
Blue Lake	<b>Glendale Drive</b>	SR 299	Blue Lake Boulevard	III*	2.3	\$5,824	×	R	2	1	1	2	6
Blue Lake North	<b>Blue Lake Boulevard</b>	Glendale Drive	Blue Lake City Limit	III	0.2	\$241	×	R	2	1	1	2	6
Blue Lake–Korbel	<b>Blue Lake Boulevard</b>	Southeast Blue Lake city limit	Maple Creek Road	III	0.2	\$256	×	R	2	1	1	2	6
Blue Lake–Arcata	<b>West End Road</b>	Giuntoli Lane	Hatchery Road	III ( R )	3.6	\$5,378	×	R	2	1	1	2	6
Blue Lake South	<b>Hatchery Road</b>	Mad River Bridge	Fish Hatchery	III*	0.6	\$1,539	×	R	2	1	1	2	6
Ferndale	<b>Grizzly Bluff/Blue Slide Roads</b>	Ferndale City Limit	Rio Dell City Limit	III ( R )	12.4	\$18,568	×	R	2	1	1	2	6
Ferndale	<b>SR 211</b>	Fernbridge Drive	Ferndale City Limit	III*	3.7	\$9,250	×	R	Not maintained by County; Caltrans' jurisdiction.				
Fortuna–Hydesville	<b>Rohnerville Road</b>	Fortuna City Limit	SR 36	III*	6.6	\$16,420	×	R	3	1	3	1	8
Fortuna–Southwest	<b>Sandy Prairie Road</b>	Fortuna City Limit	US 101	III*	1.2	\$2,936	×	R	2	1	1	2	6
Korbel	<b>Maple Creek Road</b>	Blue Lake Boulevard	Korbel Road	III	1.6	\$2,472	×	R	2	1	1	2	6
Scotia	<b>Main Street</b>	Rio Dell City Limit	US 101	III*	1.5	\$3,646	×	R	2	1	1	2	6
Trinidad	<b>Patrick's Point Drive</b>	Trinidad City Limit	Patrick's Point - US 101	III*	5.5	\$13,750	×	R	2	1	1	2	6

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Trinidad– Westhaven	<b>Westhaven Drive</b>	Trinidad City Limit	US 101	III ( R )	3.2	\$4,800	×	R	2	1	1	2	6
Trinidad– Westhaven	<b>Scenic Drive</b>	Trinidad City Limit	US 101	III(R)	2.5	\$3,750	×	R	2	1	2	2	7
Inter-County Connection	<b>SR 299</b>	US 101	Trinity County	III	42.1	\$63,150	×	R	Not maintained by County; Caltrans' jurisdiction.				
Inter-County Connection	<b>SR 36</b>	US 101	Trinity County	III	45.7	\$68,550	×	R	Not maintained by County; Caltrans' jurisdiction.				
Inter-County Connection	<b>SR 96</b>	SR 299	Siskyou County	III	44.7	\$67,050	×	R	Not maintained by County; Caltrans' jurisdiction.				
PCBR Redwood National Park	<b>US 101 (PCBR)</b>	Newton B. Drury Scenic Parkway	V Street	III	49.5	\$74,250	×	R	Not maintained by County; Caltrans' jurisdiction.				
Pacific Coast Bike Route	<b>US 101 (PCBR)</b>	Henderson Street, Eureka	Mendocino County	III	77.7	\$116,550	×	R	2	1	3	2	8
III*=Enhanced Class III					<b>368.3</b>								
III(R) = Rural Route Identification					<b>HUMBOLDT SUBTOTAL</b>				<i>New projects are shaded</i>				

**MCKINLEYVILLE**

McKinleyville	<b>Mid Town Trail</b>	Railroad Avenue	Washington Street	I	1.6	\$440,000	×	L	1	3	3	2	9
McKinleyville	<b>Airport Road</b>	Letz Avenue	Central Avenue	II	1.0	\$76,350	×	R	1	1	1	2	5
McKinleyville	<b>Central Avenue</b>	US 101	Anna Sparks Way	II	4.1	\$310,125	×	R	2	1	2	2	7
McKinleyville	<b>Hiller Road</b>	Ocean Avenue	Central Avenue	II	1.4	\$101,550	×	L	3	3	3	3	12
McKinleyville	<b>Letz Avenue</b>	Hammond Trail	Hammond Trail	I	0.7	\$500,000	×	R	3	3	3	3	12
McKinleyville	<b>McKinleyville Ave.</b>	Washington Street	School Road	II	0.2	\$18,466	×	R	3	3	3	3	12
McKinleyville	<b>School Road</b>	Fischer Ave	Central Avenue	II	0.6	\$47,175	×	R	2	1	2	2	7
McKinleyville	<b>Washington Avenue</b>	McKinleyville Avenue	School Road	II	0.5	\$37,642	×	R	1	1	2	2	6
McKinleyville	<b>Azalea Avenue</b>	SR 200	Sutter Road	III(R)	1.6	\$2,330	×	R	2	1	1	2	6
McKinleyville	<b>Dows Prairie</b>	Grange Road	Norton Road	III*	1.0	\$1,563	×	L	2	1	1	2	6
McKinleyville	<b>Grange Road</b>	Central Avenue	Downs Prairie Road	III	0.2	\$369	×	L	2	1	1	2	6
McKinleyville	<b>Halfway Avenue/ Gassoway Road</b>	Airport Road	Murray Road	III(R)	0.7	\$998	×	L	2	1	1	2	6

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McKinleyville	<b>Norton Road</b>	Dow's Prarie Road	Central Avenue	III	0.3	\$377	×	L	2	1	1	2	6
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III\* = Enhanced Class III, III(R) = Rural Route Identification *New projects are shaded*

County Location	Proposed Project Corridor/ Street	From	To	Proposed Bikeway Class <sup>1</sup>	Length (miles)	Estimated Cost (2012 dollars)	Project included from 2004 Plan	Local (L) Regional (R)	Project Score (12 max) <sup>2</sup>				Total score
									Agency Capacity	Universal User	Connec-tivity	Public Support	
<b>SOUTHERN HUMBOLDT COUNTY</b>													
Garberville–Redway	<b>Garberville-Redway</b>	Garberville	Redway	Class I, Feasibility Study	----	\$20,000	×	R	3	3		0	
Miranda–Meyers Flat	<b>South Fork High Trail</b>	Miranda	Meyer's Flat	I	6.0	\$800,000	×	R	1	3		2	
Shively–Phillipsville	<b>Avenue of the Giants (SR 254)</b>	US 101	US 101	III*	14.0	\$34,935	×	R	Not maintained by County; Caltrans' jurisdiction.				
Redway	<b>Briceland Road</b>	Redwood Drive	Eel River Road	III*	0.9	\$2,250	×	L	2	1		3	
Garberville–Redway	<b>Redwood Drive</b>	Manzanita	Maple Lane	III	0.8	\$1,200	×	R	2	1		3	
Garberville	<b>Sprowel Creek Road</b>	Redwood Drive	Community Park	III	1.0	\$1,500	×	L	2	1		2	
<b>COUNTY OF HUMBOLDT TOTAL</b>					<b>403.5</b>	<b>\$13,352,380</b>							

× = Recommended for Pacific Coast Bike Route  
 III\* = Enhanced Class III

<sup>1</sup>Bikeway classifications are defined on pages 4-1 to 4-3.

<sup>2</sup>See Table 4.5 for the scoring criteria.

The County of Humboldt has also identified, in the *Humboldt County Regional Trails Master Plan 2010*, potential trail projects that include bike facilities. Those projects are listed in Table 4.9.2, below. The projects are at the conceptual level; as such, the County of Humboldt has not chosen or determined exact locations, designs, specifications, or costs for them.

**TABLE 4.9.2 COUNTY OF HUMBOLDT – POTENTIAL TRAIL PROJECTS WITH BIKE FACILITIES (UNINCORPORATED AREA)<sup>1</sup>**

Proposed Bikeway Class	Bike Trail Location (Conceptual)	Project Score <sup>2</sup>					Total score	Project Number in HCRTMP 2010*
		Agency Capacity	Universal User	Connectivity	Public Support			
I	Hammond Trail - Bridge replacement	1	3	3	3	<b>11</b>	18	
II	Redwood Drive (Garberville to Redway to US 101)	2	1	3	3	<b>11</b>	19	
I	Riverwalk Trail (Fortuna City Limits to Sandy Prairie Road)	1	3	2	2	<b>11</b>	20	
II	Blue Lake Boulevard	2	1	3	2	<b>10</b>	26	
II	Loleta Drive (Main Street to Franklin Ave)	2	1	3	1	<b>9</b>	43	
II	Newton Road (Sewell Road to School Road)	2	1	3	1	<b>9</b>	46	
III*	King Salmon Drive (Buhne Drive to Loma Avenue/South Bay Union School) – widen shoulder	2	1	3	1	<b>8</b>	50	
III*	Sprowel Creek Road – widen shoulder	2	1	3	1	<b>8</b>	51	
III*	Railroad Drive – widen shoulder, north side	2	1	3	1	<b>8</b>	52	
III*	Centerville Road (Ferndale City Limit to beach) – widen shoulder	2	1	3	1	<b>8</b>	53	
II	Washington Avenue (McKinleyville Avenue to School Road)	1	1	2	2	<b>8</b>	58	
I and II	Manila: Peninsula Drive (Dean Ave to Sandy Road) (Class I along NWP railway)	2	1	2	1	<b>8</b>	60	
II	Railroad Avenue (Central Avenue to Thiel Avenue)	2	1	2	1	<b>8</b>	61	
II or III	McKinleyville Avenue (Murray Road to Gassaway Road)	2	1	2	1	<b>8</b>	62	
III*	Union Street – widen shoulder	2	1	2	1	<b>7</b>	72	
III*	Hookton Road - widen shoulder	2	1	2	1	<b>7</b>	73	
III*	Tompkins Hill Road - widen shoulder	2	1	2	1	<b>7</b>	74	
III*	Eel River Drive - widen shoulder	2	1	2	1	<b>7</b>	75	
II	Franklin Ave (Park Street to Loleta Drive)	2	1	1	1	<b>7</b>	98	

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Proposed Bikeway Class	Bike Trail Location (Conceptual)	Project Score <sup>2</sup>				Total score	Project Number in HCRTMP 2010*
		Agency Capacity	Universal User	Connectivity	Public Support		
II	Park Street (Loleta Drive to Franklin Ave)	2	1	1	1	7	99
II	School Road (Bugenig Ave to Highway 101)	2	1	1	1	7	100
II	School Road (Highway 101 to Fisher Road)	2	1	1	1	7	101
II and III	Gassaway Road (McKinleyville Ave. to Halfway Ave.)	2	1	1	1	7	103
III*	Westhaven Road - widen shoulder	2	1	1	1	6	110
III*	Glendale - widen shoulder	2	1	1	1	6	111
III*	West End Road - widen shoulder	2	1	1	1	6	112
III*	Bald Hills Road - widen shoulder	2	1	1	1	6	113
III*	Maple Creek Road - widen shoulder	2	1	1	1	6	114
III*	Briceland/Thorne Road - widen shoulder	2	1	1	1	6	115
III*	Shelter Cove Road - widen shoulder	2	1	1	1	6	116
III*	Cannibal Island Road - widen shoulder	2	1	1	1	6	117
III*	Red Cap Road - widen shoulder	2	1	1	1	6	118
III*	Blue Lake Boulevard – widen shoulder (4")	2	1	1	1	6	119
III	V Street (Arcata City Limits to SR 255)	2	1	1	1	6	120

<sup>1</sup> These projects are reproduced from the *Humboldt County Regional Trails Master Plan 2010* (HCAOG).

<sup>2</sup> Projects were scored by the County of Humboldt Public Works Department.

## 4.10 KARUK TRIBE (HCAOG TAC MEMBER)

Section 4.10 (a)-(k) separately describes the Karuk Tribe’s bicycle system setting, in accordance with Bicycle Transportation Act requirements.<sup>10</sup> Existing and proposed land use and settlement patterns; as well as, proposed bikeways and bicycle parking facilities, are shown on the attached Bikeway Projects Map.

### a. Bicycle Commuters – existing and projected level.

#### Humboldt County – Community of Orleans (95556)

DEMOGRAPHIC DETAIL	DATA	SOURCE
Total population	569	Census 2000
Population 5-14 years old	88	Census 2000
Population 16 years or older	420	Census 2000
Population in labor force	250	Census 2000
Workers (16 years and older) who commute to work	228	Census 2000
Bicycle-to-work commuters	0	Census 2000
Bicycle-to-work mode share	0	calculated from above
# students enrolled in grades 1 thru 12	143	Census 2000
# of students enrolled in college	8	Census 2000
		Assumes 5% of school students and 10% of college students commute by bicycle - from national studies and estimates
Total # of bicycle commuters	8	
Estimated # miles bicycle commuters ride per weekday	12.6	(Work commuters x 7 miles) + (college and school students x 1 mile) (round trip)

#### Forecasts: Estimated for fully implementing Bike Plan (20-year horizon)

Estimated # of future daily bicycle commuters	x	Estimated using increase to 279% of baseline from 2000 LACMTA study by Alta
Future # miles ridden by bicycle commuters per weekday	x	
Reduced vehicle miles per weekday	x	
Reduced PM10 (lbs/weekday)	x	(0.0184 tons per reduced mile)
Reduced NOX (lbs/weekday)	x	(0.0499 tons per reduced mile)
Reduced ROG (lbs/weekday)	x	(0.0726 tons per reduced mile)
		180 days for students, and 256 days for employed persons
Reduced Vehicle Miles per Year	x	
Reduced PM10 (lbs/year)	x	(0.0184 tons per reduced mile)
Reduced NOX (lbs/year)	x	(0.0499 tons per reduced mile)
Reduced ROG (lbs/year)	x	(0.0726 tons per reduced mile)

<sup>10</sup> See Appendix A for full description of BTA requirements, per Section 891.2 of the California Streets and Highways Code.

**b. Map and description of land use and settlement – *existing and proposed***

See attached Bikeway Projects Map.

The small rural community of Orleans is the most northeasterly community in Humboldt County. It is located within the Middle Klamath River sub-basin. Orleans is between 78 and 98 miles from Eureka, depending on what highway route you take. The community of Orleans has a land area of approximately 192 square miles, and 0.06 square miles of water area. It has a population of 569 residents, 308 housing units, and an estimated average density of 2.97 people per square foot of land (US Census 2000).

Residential and agricultural (farming) developments are spread along several roads that connect to Orleans downtown area. The downtown has a grocery store, post office, restaurant, gas station, elementary school, plus the Karuk Tribal Community medical clinic, and Tribal Administrative Offices and Community Centers. California State Highway 96 (SR96) bisects the downtown area. A large, scenic bridge on SR96 spans the Klamath River and delineates the northern end of the downtown area.

Major destinations in the community of Orleans include:

**Restaurants & Grocery**

Orleans Market  
Orleans Mining Café & Bar

**Arts & Leisure Centers**

River Artisans  
Panamnik Building

**Civic Buildings & Community Centers**

Community Room, Department of Natural Resources, Karuk Tribe  
Panamnik Building (post office, Mid Klamath River Watershed Council, community room, offices)

**Health Centers & Social Services**

Karuk Tribal Community Health Clinic  
Karuk Tribal Social Service Center  
Panamnik Center – Elders Program

**Parks & Recreation**

Klamath Riverside RV Park  
Perch Creek Camp Ground  
Riverside RV Park  
Sandy Bar Ranch

**Employment Centers**

Karuk Tribe Dept. of Natural Resources  
Karuk Tribe Administrative Office (Happy Camp)  
US Forest Service Ranger Station  
Caltrans Maintenance Station

**Schools & Educational Resources**

Orleans Elementary  
Orleans Computer Center

**c. Map and Description of bikeways – existing and proposed.**

There are no existing bikeways in Orleans. The proposed bikeways are:

Class	Corridor/Street	From	To	Length (miles)
I and/or II (multi-use; bike lane)	Red Cap Road	Residential District	School/Business District	1.57
I (multi-use)	State Route 96	Camp Creek Road	Business District	2.40

Each of the proposed projects will serve a large concentrated area of single-family residences, including several Karuk Tribal single-family housing units. No bikeways exist within the perimeters of either proposed project

**Red Cap Road Bikeway:** This proposed project begins east of the Orleans business district. Community residents have noted safety concerns for cyclist (and pedestrian) due to restricted sight distance and vegetation that grows into the roads along this route. This proposed bicycle lane would give residents more opportunity to use active transportation as a viable alternative to conventional motorized vehicle travel along Red Cap Road. Additionally, area residents would have direct access to local and regional public transit.

**Tishawnik Hill Bikeway & Trail:** This proposed Class I bikeway project begins west of the Orleans business district. The section of State Route 96 between Lower Camp Creek Road and Eyesee Road, has no highway shoulders, restricted sight distances, and high traffic speeds (55 mph and faster); additionally, many drivers are not aware that they are entering a populated area. The community has expressed a desire for a multi-use paved trail (Class I bikeway); therefore, the Tribe has included a design for a multi-use trail through Karuk Tribal Land to ensure a safe, unobstructed active transportation route. To make this project feasible, the Karuk Tribe has pledged public easement through this corridor

See attached Bikeway Projects Map for proposed bikeways.

**d. See County Bikeway Maps at end of Chapter 4.**

There are no existing, formal, bicycling parking facilities in Orleans. The following locations are proposed for bicycle parking:

Location	Rack Type	Quantity
Red Cap Road	6-unit upright, covered	1
Orleans Market	4-unit	1
Post Office	4-unit	1

(See attached Bikeway Projects Map for these locations.)

**e. Bicycle transport and parking facilities – *existing and proposed* (for connections with other transportation modes).**

Orleans currently has no facilities connecting bicycle users to public transit or other transportation modes. The proposed bikeways, however, would connect bike users with access routes to existing public transit stops. Additionally, the proposed bicycle parking is near existing public transit stops.

**f. A map and description of existing and proposed facilities for changing and storing clothes and equipment.**

Orleans currently has no changing or storage facilities for bicyclists. No new facilities are proposed for this Bike Plan Update.

**g. Bicycle safety and education programs.**

The Humboldt County Sheriff's Department and/or the CHP enforce traffic laws for bicycles and motor vehicles as part of their regular duties. They ticket violators as they see them. This includes bicyclist who break traffic laws, as well as motorists who disobey traffic laws and make the cycling environment more dangerous. The level of enforcement depends on the availability of officers. The Sheriffs Department also responds to particular needs as they arise.

According to available data, there are no regularly scheduled bicycle safety or education programs taught in Orleans. There is free bicycle safety instruction available in Humboldt County courtesy of the Humboldt Bay Bicycle Commuters Association. Their "Bike Smart" program provides a free two-hour bicycle safety class for students and youth groups. HBBCA generally offers this program in the Eureka area. Qualified HBBCA members teach children about the rules of the road with a short lecture and a street training session. After completing the class, children without bike helmets can receive a free helmet courtesy of the Association. In addition, various groups have put on education exercises and other similar events in the past to raise awareness of bicycle safety.

Regional bicycle safety and education programs are recommended in this Bike Plan, as described under Regional Programs.

**h. Community involvement.**

Described in Chapter 3, beginning on page 3-8.

**i. Bicycle plan's consistency with other plans.**

Described in Chapter 1, beginning on page 1-5

**j. Proposed projects and their priority for implementation**

See Table 4.10.1

**k. Past expenditure and future financial need for bicycle system.**

The Karuk Tribe has invested only limited funds on bicycle transportation projects in the recent past. The inclusion of the Tribe's proposed bikeways in this Plan Update will facilitate opportunities for the Tribe to invest in future bikeway projects. Future financial needs are described in Table 4.10.1, below.

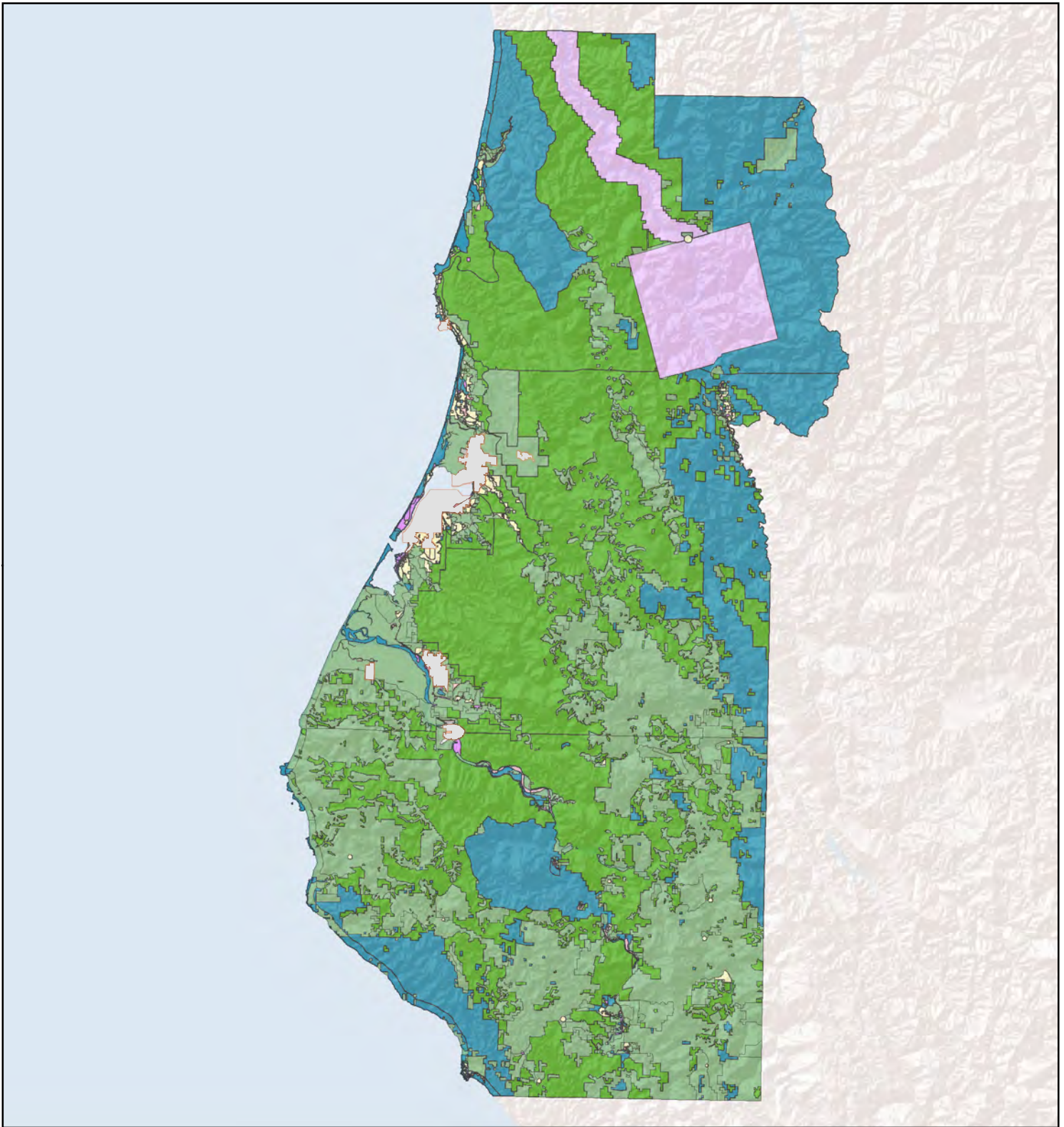
TABLE 4.10.1 KARUK TRIBE – PROPOSED BIKEWAY PROJECTS










Humboldt County Community of Orleans								Project Score (12 max) <sup>2</sup>				
Proposed Project Corridor/Street	From	To	Proposed Bikeway Class <sup>1</sup>	Length (miles)	Estimated Cost (2011 dollars)	Project included from 2004 Plan	Local (L) Regional (R)	Agency Capacity	Universal User	Connectivity	Public Support	Total score
<b>Red Cap Bikeway</b>	Red Cap Road	School/Business Districts	I and/or II	1.57	\$573,000	n/a	L	1	3	1	2	7
<b>Tishawnik Hill Bike Route &amp; Trail</b>	State Route 96 at Camp Creek Road	Business Districts	I	2.40	\$983,000	n/a	L	1	3	1	2	7
<b>TOTAL</b>				<b>3.97</b>	<b>\$1,556,000</b>			<i>New projects are shaded</i>				

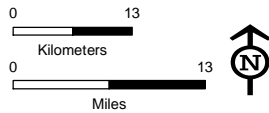
<sup>1</sup>Bikeway classifications are defined on pages 4-1 to 4-3.

<sup>2</sup>See Table 4.5 for the scoring criteria.

Project Source: P:\11905\_HumCoAssocGovernments\11905-12-001\_HumCo Bike Plan GIS Mapping 2012\08-GISMaps\Figures\F1\_LandUse.mxd



-  Incorporated City
-  Agriculture
-  Tribal
-  Commercial
-  Industrial
-  Public Lands/ Recreation
-  Residential
-  Timber
-  Humboldt County



**This map is not a Bicycle Route Guide**  
 This map is for illustrative and general planning purposes only, and though care has been taken to ensure that the data is accurate, maps and data are provided without warranty of any kind.  
 Data source: HCAOG; Humboldt County GIS; ESRI.  
 Map created by:GDavison

Figure 1  
**General Land Use  
 Humboldt County**

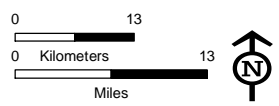


Date: 4/24/2012

Project Source: P:\11905\_HumCoAssocGovernments\11905-12-001\_HumCo Bike Plan GIS Mapping 2012\08-GISMaps\Figures\F2-MajorDestinations.mxd



- |  |                              |  |                 |
|--|------------------------------|--|-----------------|
|  | Elementary School            |  | Bike Shop       |
|  | Middle School                |  | Open Space/Park |
|  | High School                  |  | Humboldt County |
|  | College/University           |  | City/Town       |
|  | Incorporated City            |  |                 |
|  | Tribal Reservation/Rancheria |  |                 |



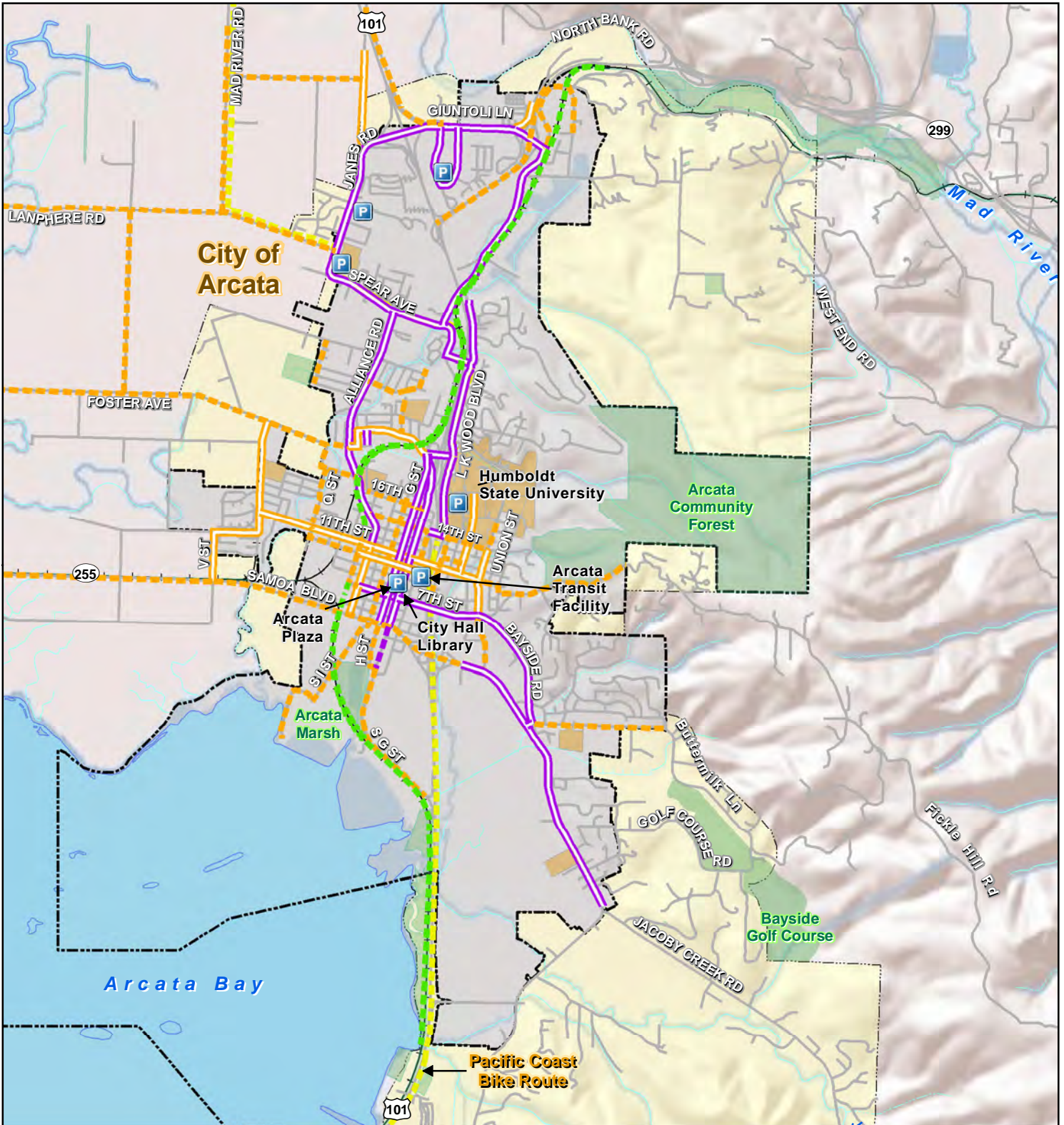
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Figure 2  
**Major Destinations in Humboldt county**

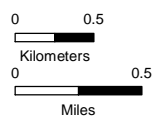
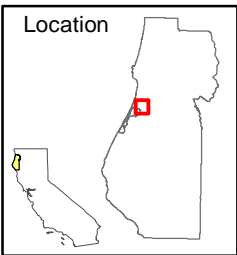


Date: 4/27/2012

Project Source: N:\US\Eureka\Projects\11905-HumCoAssoGov\mappings\11905-12-001-HumCoBikePlan-GIS-Mapping-201208-GIS-Maps\Figures\F3\_Arcata.mxd



- Existing Class I
- Existing Class II
- Existing Class III
- - - Proposed Class I
- - - Proposed Class II
- - - Proposed Class III
- - - Existing Class III with Proposed Class II
- Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools



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 Data source: HCAOG; Humboldt County GIS; ESRI.  
 Map created by: gldavidson

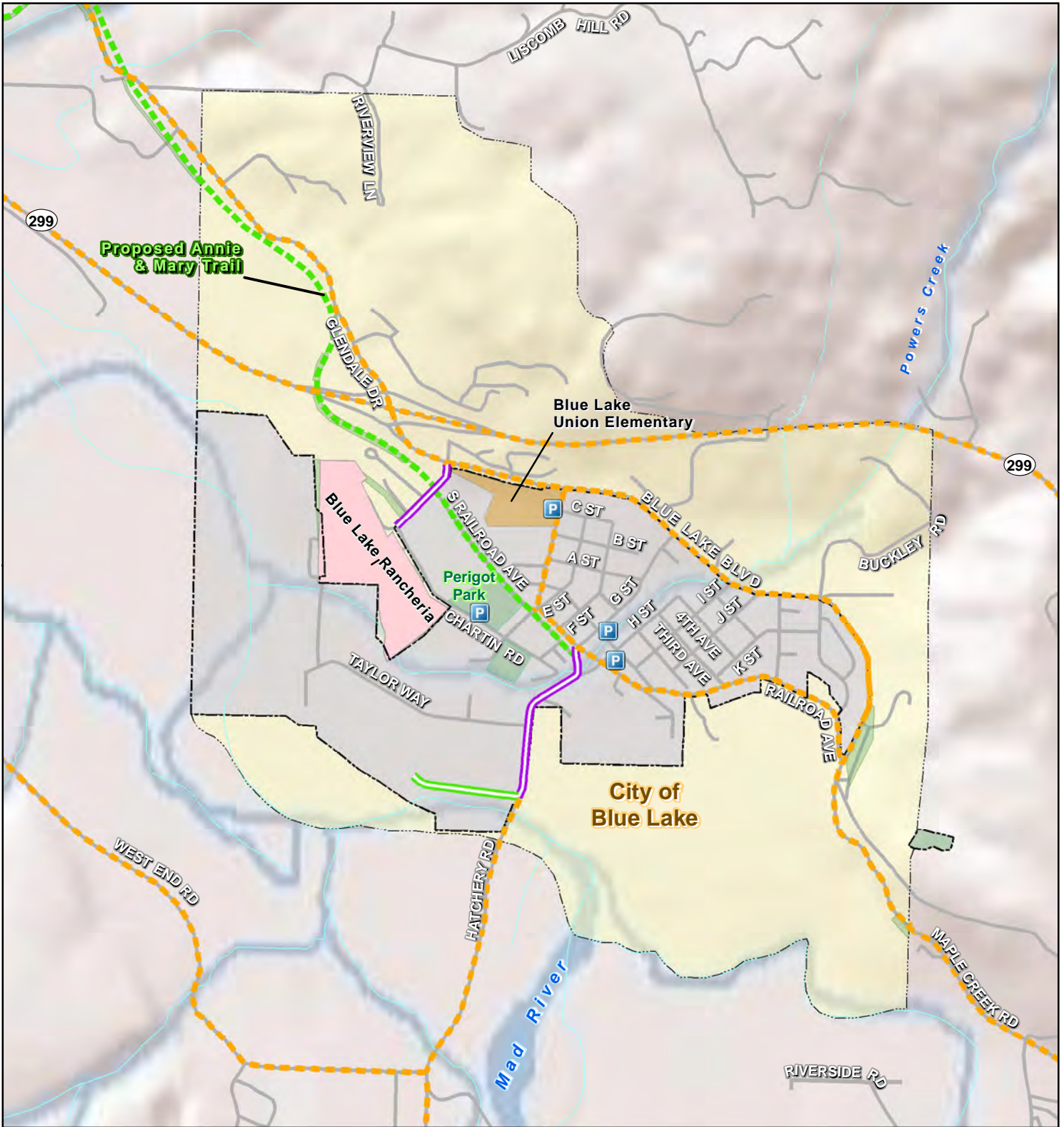
Figure 3

**City of Arcata  
 Proposed Bicycle Facilities**

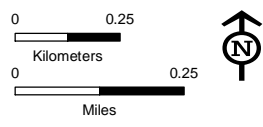


Date: 8/8/2012

Project Source: G:\11905 HumCoAssocGovernments\11905-12-001 HumCo Bike Plan GIS Mapping 201208-GIS\Maps\Figures\F4\_BlueLake.mxd



- Existing Class I
- Existing Class II
- - - Existing Class III
- - - Existing Class III with Proposed Class II
- P Existing Bicycle Parking Facility
- City Limits
- City Sphere of Influence
- Proposed Class I
- - - Proposed Class II
- - - Proposed Class III
- Open Space/Parks
- Schools



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 Data source: HCAOG; Humboldt County GIS; ESRI.  
 Map created by: gldavidson

Figure 4

**City of Blue Lake  
Proposed Bicycle Facilities**

Date: 7/17/2012

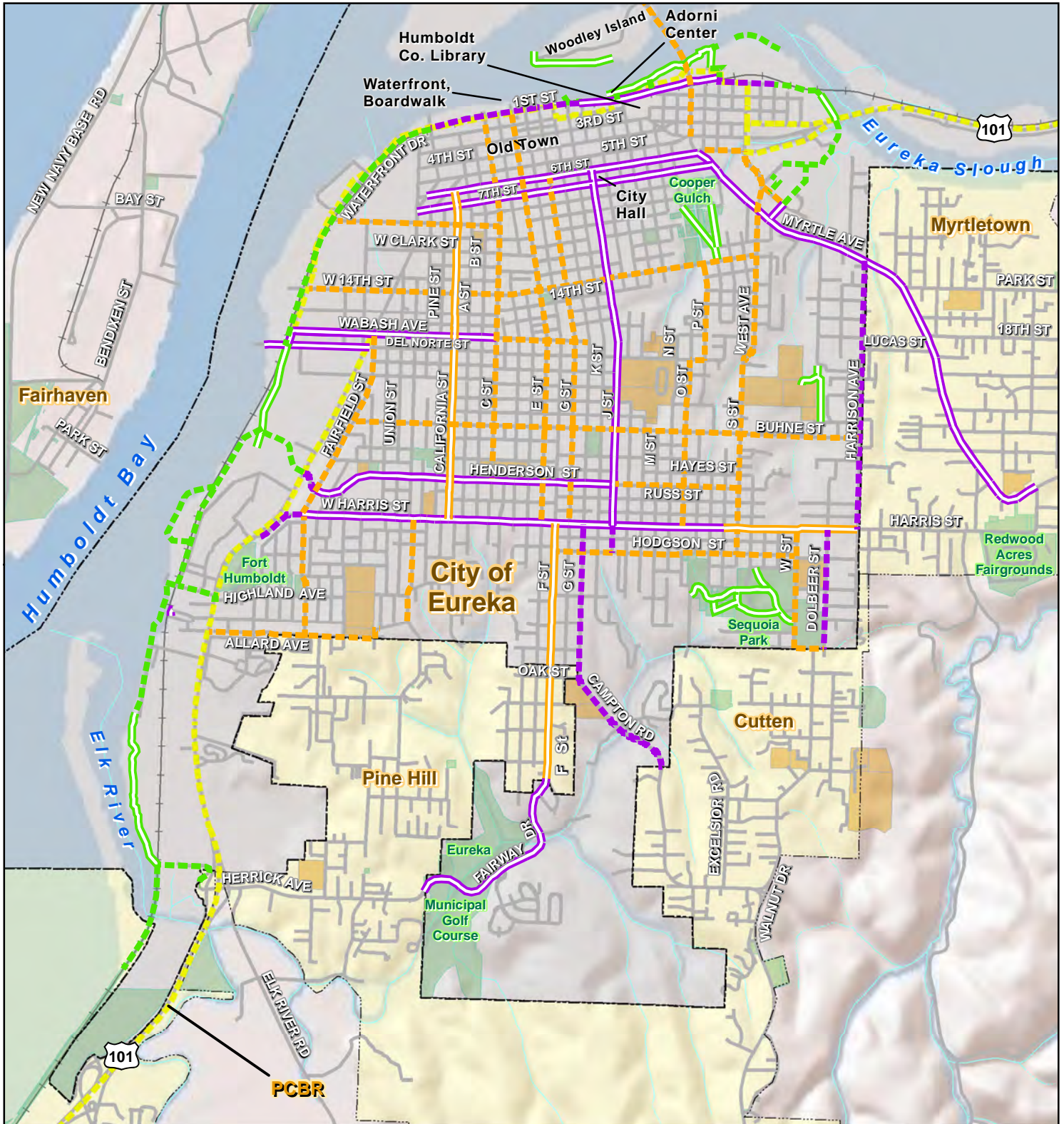
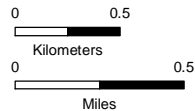
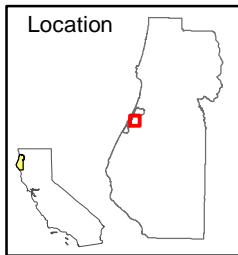


Figure 5

- Existing Class I
- - - Proposed Class I
- Existing Class II
- - - Proposed Class II
- - - Existing Class III
- - - Proposed Class III
- Existing Class III with Proposed Class II
- - - Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools



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Data source: HCAOG; Humboldt County GIS; ESRI.  
Map created by: gldavidson



Date: 8/8/2012

Project Source: N:\US\Eureka\Projects\11905 HumCoAsso\Government\11905-12-001 HumCo Bike Plan GIS Mapping 2012\08-GIS\Maps\Figures\F6\_Ferndale.mxd

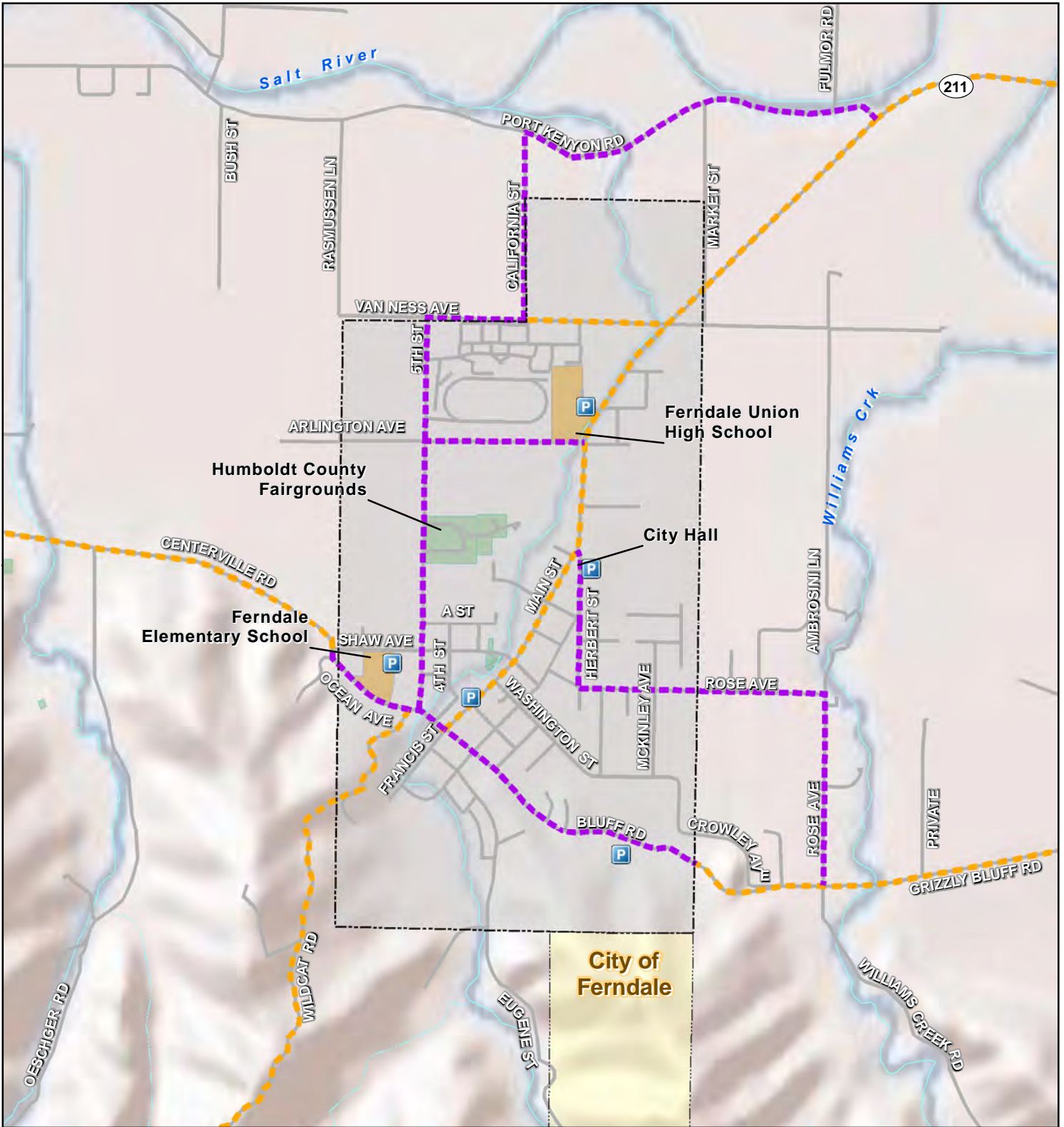
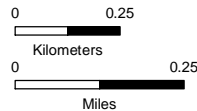
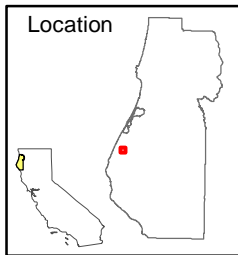


Figure 6

- Existing Class I
- Existing Class II
- - - Existing Class III
- - - Existing Class III with Proposed Class II
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools
- - - Proposed Class I
- - - Proposed Class II
- - - Proposed Class III



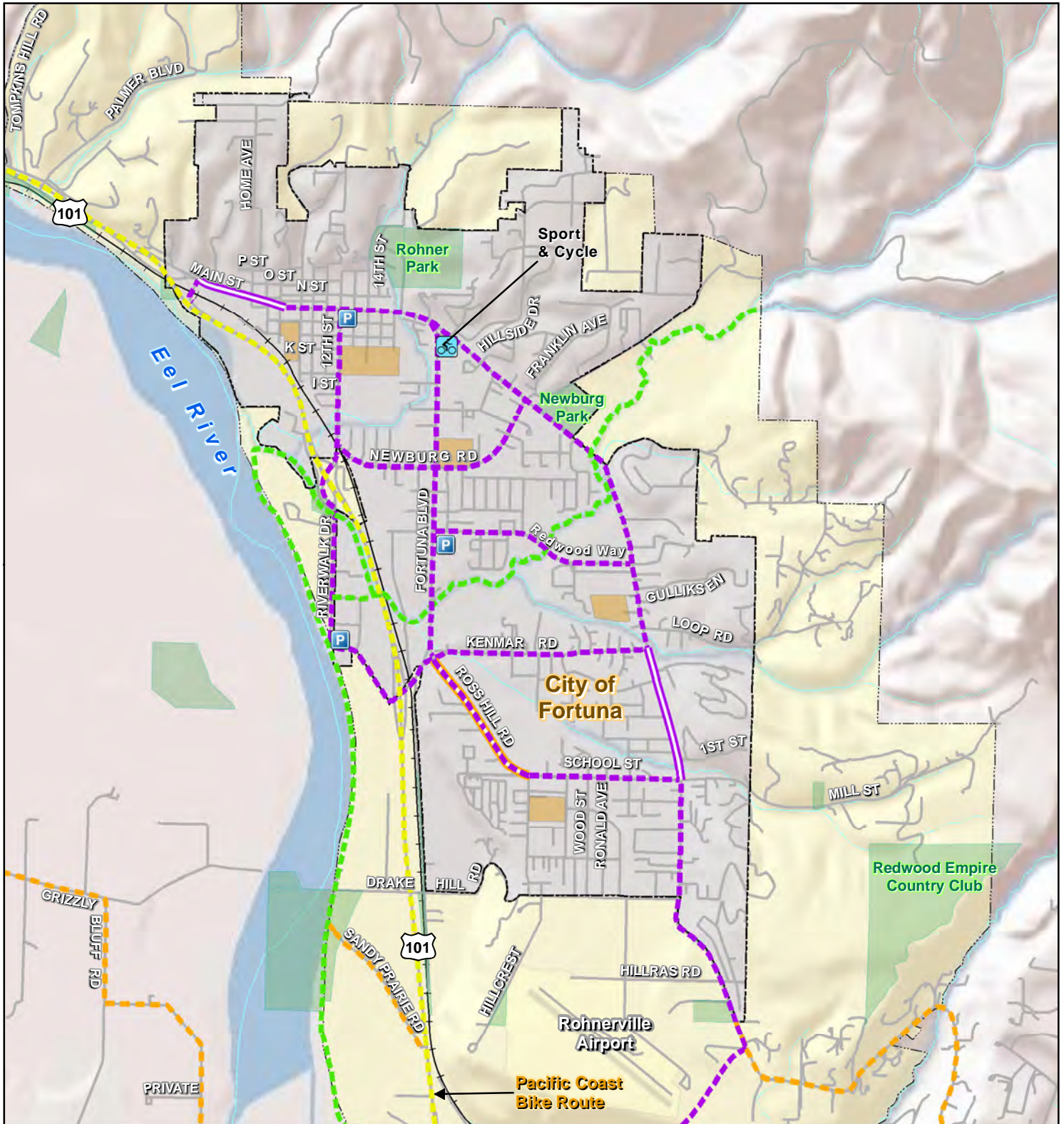
**This map is not a Bicycle Route Guide**  
 This map is for illustrative and general planning purposes only, and though care has been taken to ensure that the data is accurate, maps and data are provided without warranty of any kind. Data source: HCAOG; Humboldt County GIS; ESRI. Map created by: gldavidson

**City of Ferndale  
 Proposed Bicycle Facilities**

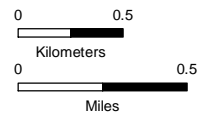
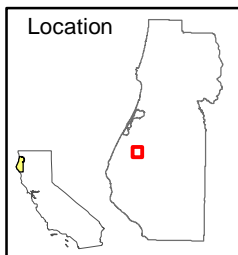


Date: 8/8/2012

Project Source: N:\US\Eureka\Projects\11905-HumCoAssoGov\11905-12-001-HumCo Bike Plan GIS Mapping 201208-GIS\Maps\Figures\F7\_Fortuna.mxd



- Existing Class I
- Existing Class II
- Existing Class III
- - - Proposed Class I
- - - Proposed Class II
- - - Proposed Class III
- - - Existing Class III with Proposed Class II
- - - Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- City Sphere of Influence
- Open Space/Parks
- Schools



**This map is not a Bicycle Route Guide**  
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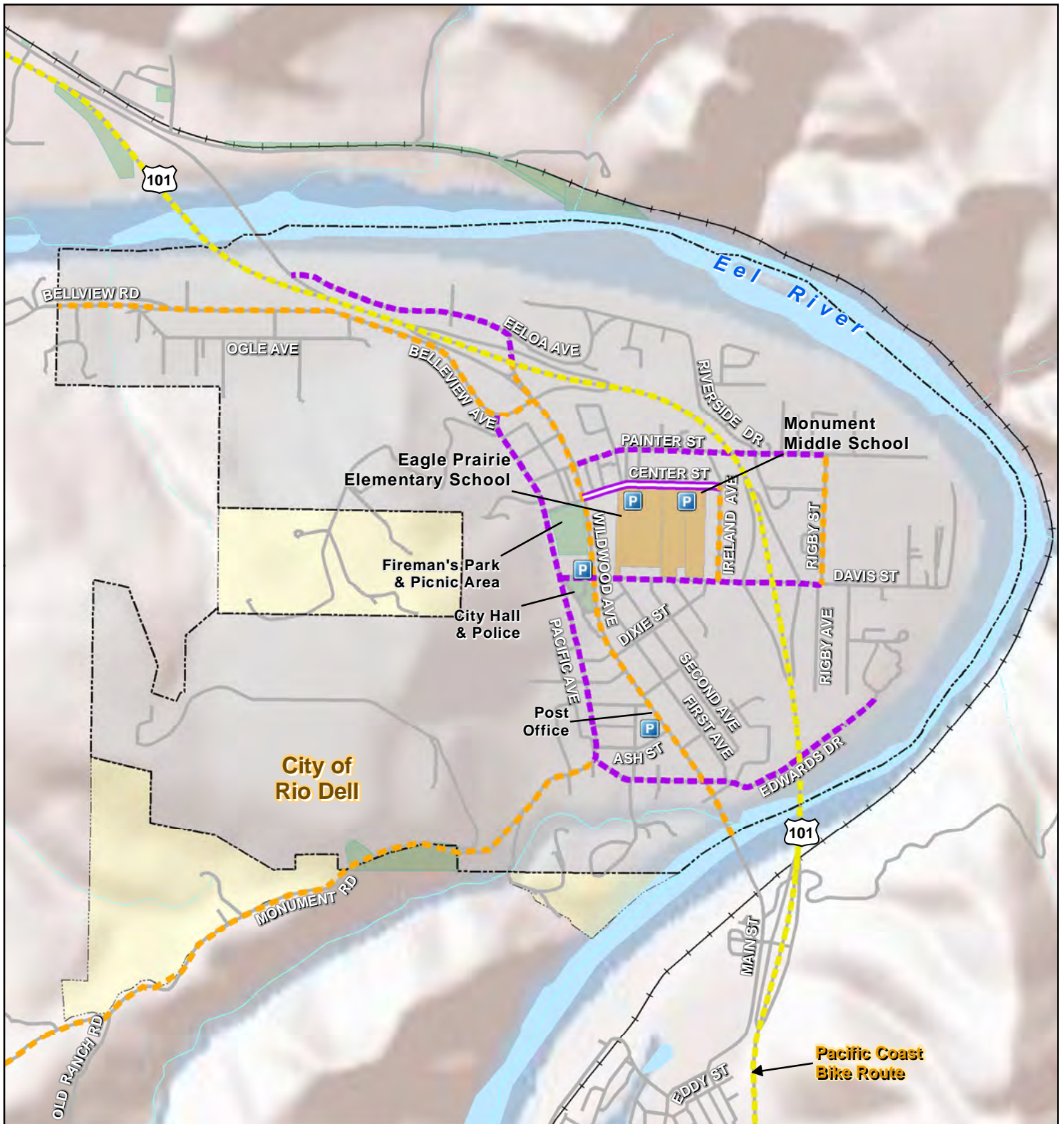
### City of Fortuna Proposed Bicycle Facilities



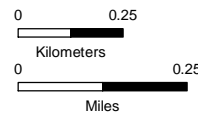
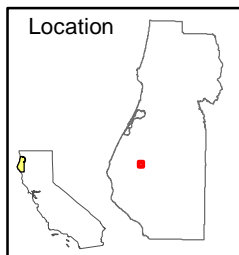
Date: 8/8/2012

Figure 7

Project Source: N:\US\Eureka\Projects\11905-HumCoAssoGov\Government\11905-12-001-HumCo Bike Plan GIS Mapping 2012\08-GIS\Maps\Figures\F8\_RioDell.mxd



- Existing Class I
- Existing Class II
- Existing Class III
- - - Proposed Class I
- - - Proposed Class II
- - - Proposed Class III
- - - Existing Class III with Proposed Class II
- Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools



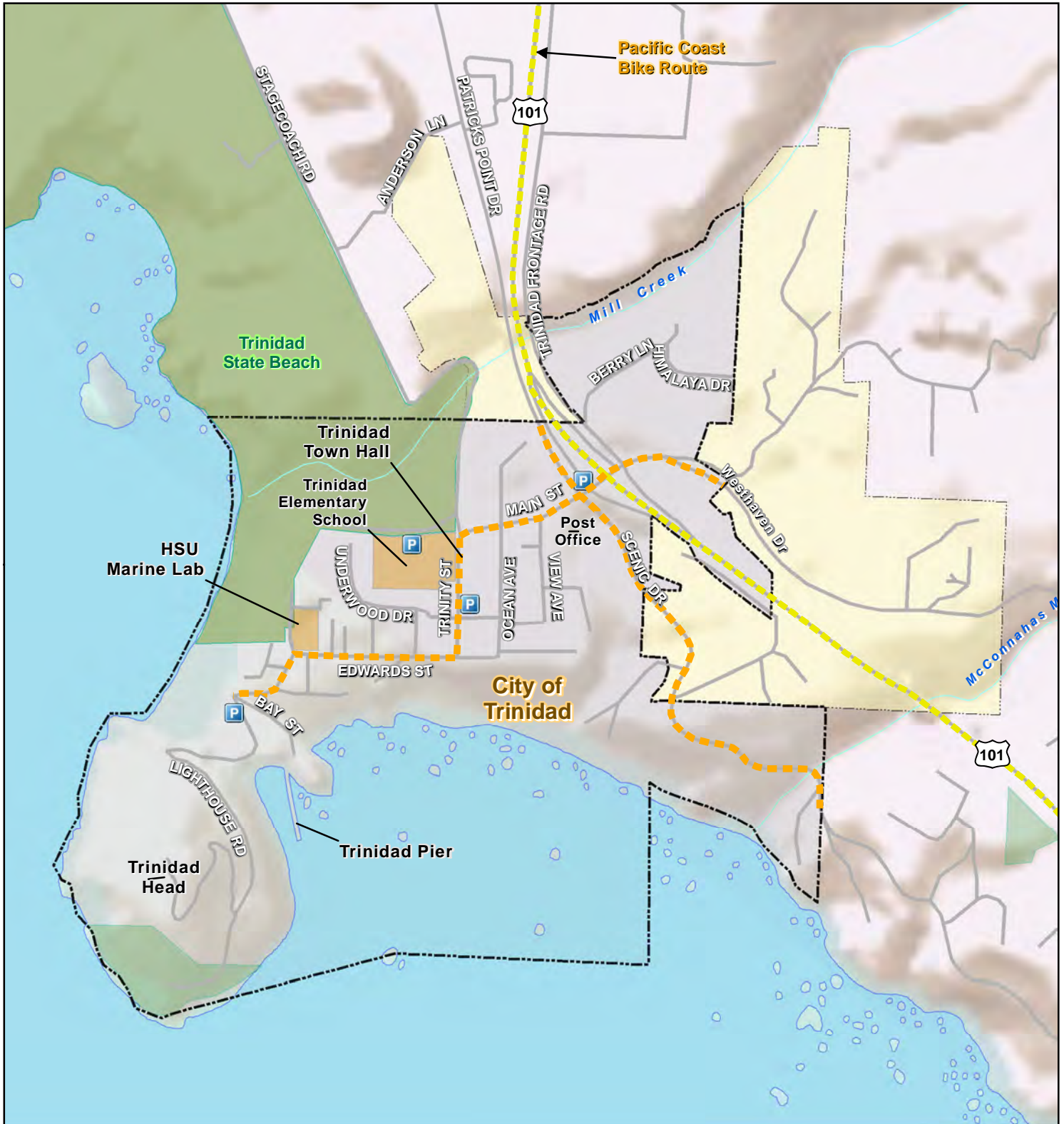
**This map is not a Bicycle Route Guide**  
 This map is for illustrative and general planning purposes only, and though care has been taken to ensure that the data is accurate, maps and data are provided without warranty of any kind.  
 Data source: HCAOG; Humboldt County GIS; ESRI.  
 Map created by: gldavidson

Figure 8

**City of Rio Dell  
 Proposed Bicycle Facilities**

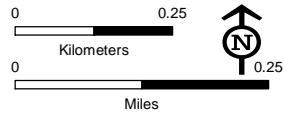
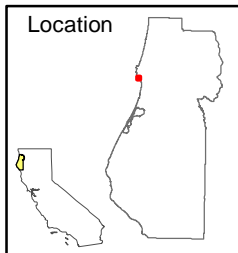


Date: 7/19/2012



Project Source: N:\US\Eureka\Projects\11905 Humboldt County GIS Mapping 2012\GIS\Maps\Figures\F9\_Trinidad.mxd

- Existing Class I
- Existing Class II
- Existing Class III
- Existing Class III with Proposed Class II
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools
- - - Proposed Class I
- - - Proposed Class II
- - - Proposed Class III



**This map is not a Bicycle Route Guide**  
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**City of Trinidad  
 Proposed Bicycle Facilities**



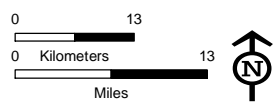
Date: 7/19/2012

Figure 9

Project Source: P:\11905\_HumCoAssocGovernments\11905-12-001\_HumCo Bike Plan GIS Mapping 2012\08-GISMaps\Figures\F10-Countywide\Multiregion\Facilities.mxd



- - - Proposed Class III Bicycle Facility
- Tribal Reservation/Rancheria
- Incorporated City
- Humboldt County



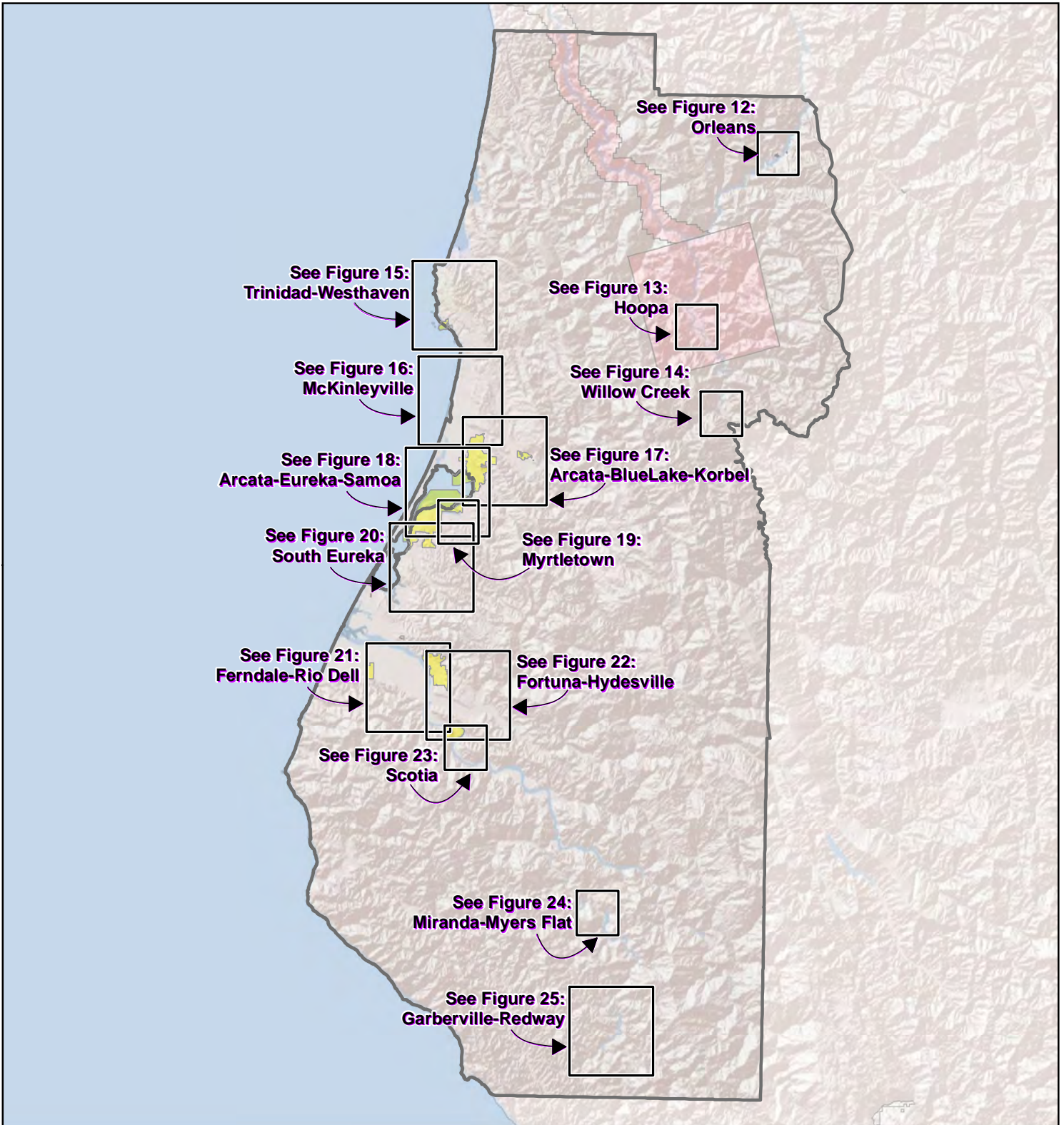
**Proposed Class III Bike Facilities Spanning Multiple Subregions of Unincorporated Humboldt County**

**This map is not a Bicycle Route Guide**  
 This map is for illustrative and general planning purposes only, and though care has been taken to ensure that the data is accurate, maps and data are provided without warranty of any kind. Data source: HCAOG; Humboldt County GIS; ESRI. Map created by: GDavidson

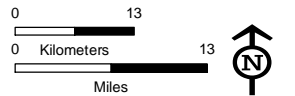


Figure 10

Project Source: P:\11905\_HumCoAssocGovernments\11905-12-001\_HumCoBikePlan\_GIS\_Mapping\_2012\08-GISMaps\Figures\F11-ExtentsOfUnincorpFigureSet.mxd



- Extents of Map Figure
- Tribal Reservation/Rancheria
- Incorporated City
- Humboldt County



**This map is not a Bicycle Route Guide**  
 This map is for illustrative and general planning purposes only, and though care has been taken to ensure that the data is accurate, maps and data are provided without warranty of any kind. Data source: HCAOG; Humboldt County GIS; ESRI. Map created by:GDavidson

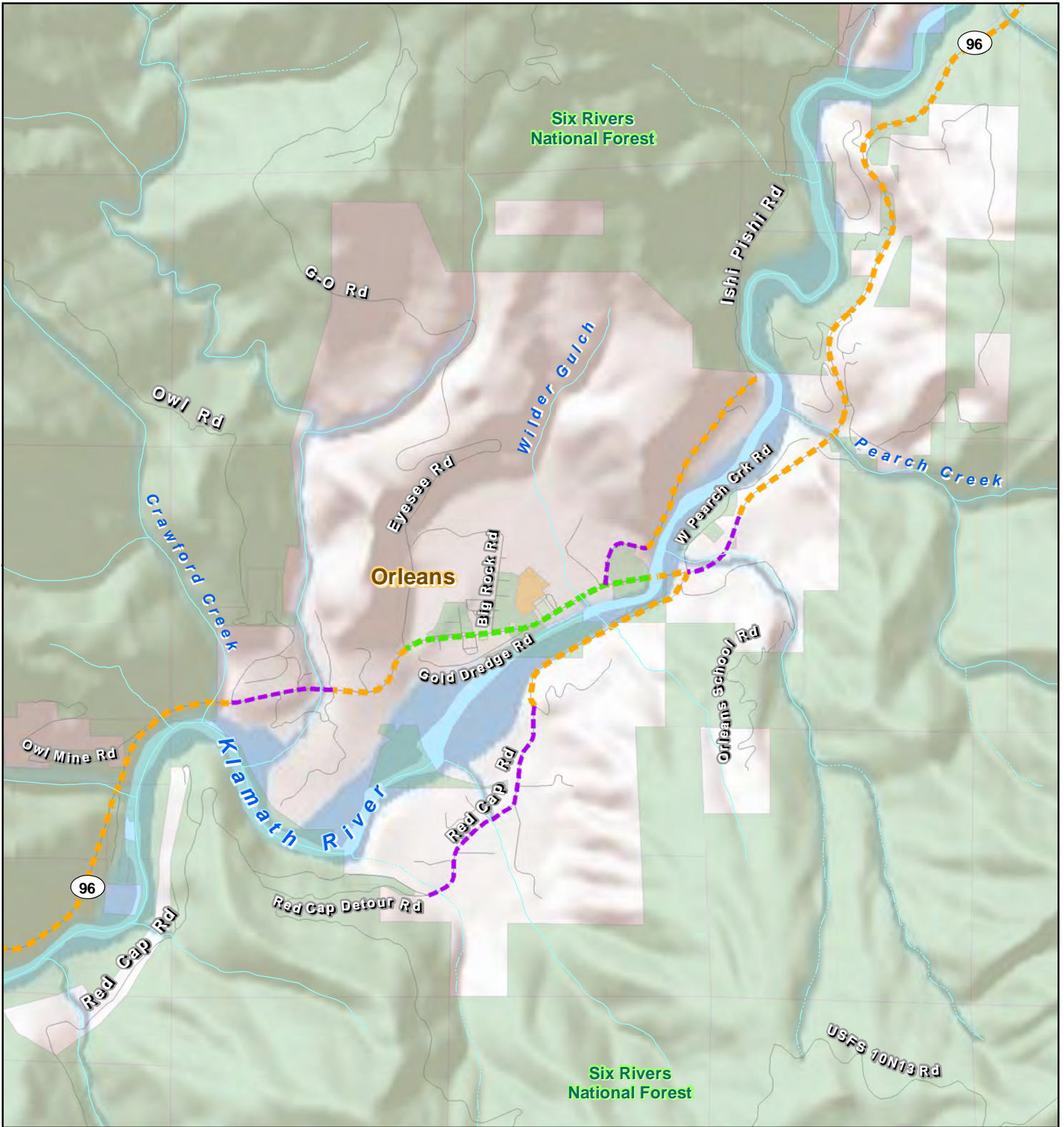


Figure 11

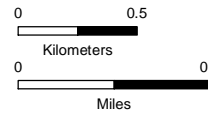
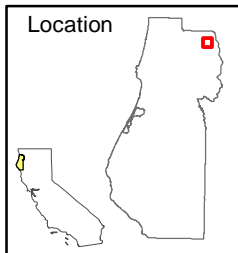
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 Unincorporated Humboldt County  
 Proposed Bicycle Facilities**

Date: 4/26/2012

Project Source: N:\US\Eureka\Projects\11905-HumCoAssoGov\11905-12-001-HumCo Bike Plan GIS Mapping 2012\08-GIS\Maps\Figures\FB\_half\_mile\_HC.mxd



- Existing Class I
- Existing Class II
- - - Existing Class III
- - - Existing Class III with Proposed Class II
- - - Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools
- - - Proposed Class I
- - - Proposed Class II
- - - Proposed Class III



**Unincorporated Humboldt County:  
Orleans  
Proposed Bicycle Facilities**

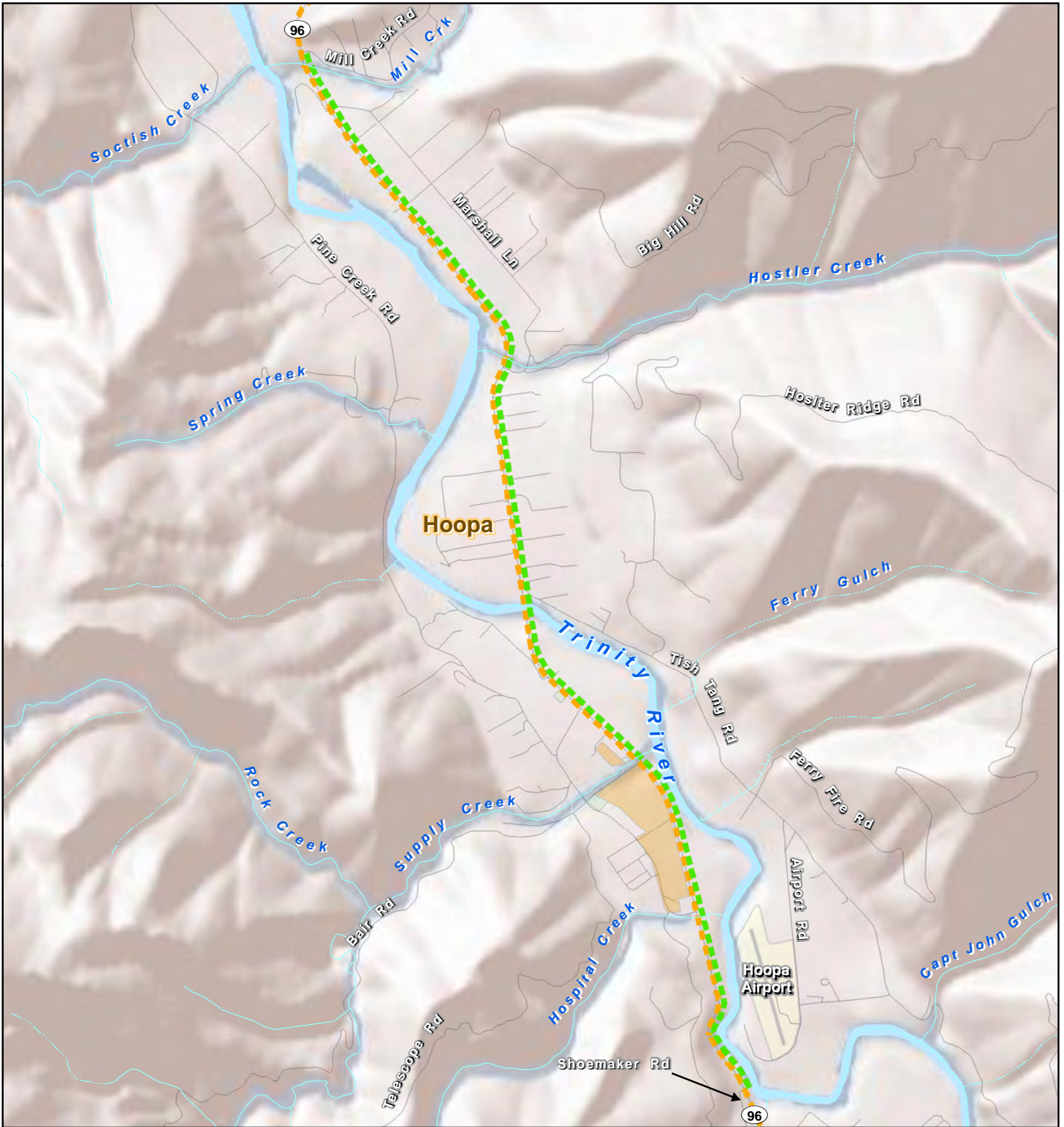
Figure 12

**This map is not a Bicycle Route Guide**  
 This map is for illustrative and general planning purposes only, and though care has been taken to ensure that the data is accurate, maps and data are provided without warranty of any kind.  
 Data source: HCAOG; Humboldt County GIS; ESRI.  
 Map created by: gldavidson

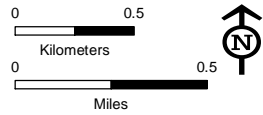
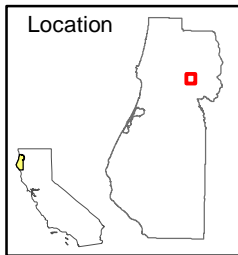


Date: 7/19/2012

Project Source: N:\US\Eureka\Projects\1905 Humboldt County GIS Mapping\201208-GIS\Maps\Figures\Figures\MB\_half\_mile\_HC.mxd



- Existing Class I
- Existing Class II
- Existing Class III
- Existing Class III with Proposed Class II
- Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools
- - - Proposed Class I
- - - Proposed Class II
- - - Proposed Class III

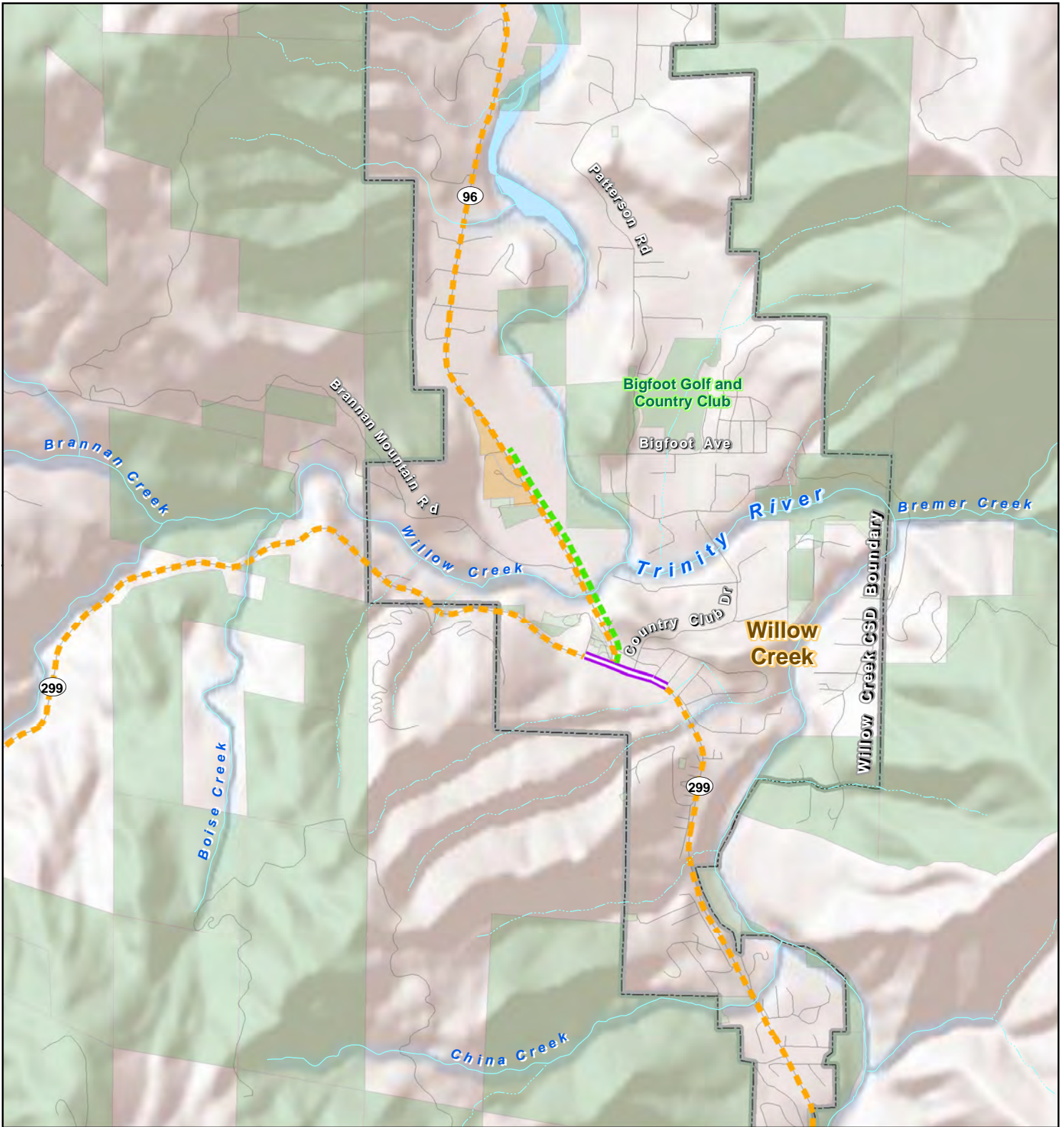


**This map is not a Bicycle Route Guide**  
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 Data source: HCAOG; Humboldt County GIS; ESRI.  
 Map created by: gldavidson

Figure 13  
**Unincorporated Humboldt County:  
 Hoopa  
 Proposed Bicycle Facilities**



Project Source: N:\US\Eureka\Projects\1905 Humboldt\GIS\Maping 2012\08-GIS\Maps\Figures\MB\_half\_mile\_HC.mxd



- Existing Class I
- Existing Class II
- Existing Class III
- - - Proposed Class II
- - - Proposed Class III
- - - Existing Class III with Proposed Class II
- - - Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools

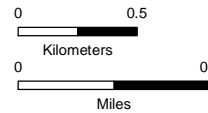
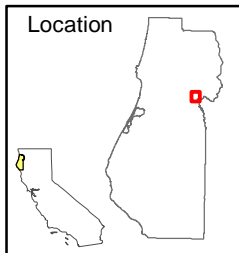


Figure 14  
**Unincorporated Humboldt County:  
 Willow Creek  
 Proposed Bicycle Facilities**

**This map is not a Bicycle Route Guide**  
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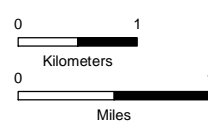


Date: 8/8/2012

Project Source: N:\US\Eureka\Projects\11905 HumbCoAssoGoverments\11905-12-001 HumCo Bike Plan GIS Mapping 201208-GIS\Maps\Figures\Figures\_MB\_one\_mile\_HC.mxd



- Existing Class I
- Existing Class II
- Existing Class III
- Existing Class III with Proposed Class II
- - - Pacific Coast Bike Route (PCBR)
- Existing Bicycle Parking Facility
- City Limits
- City Sphere of Influence
- Open Space/Parks
- Schools



**Unincorporated Humboldt County:  
Trinidad-Westhaven  
Proposed Bicycle Facilities**

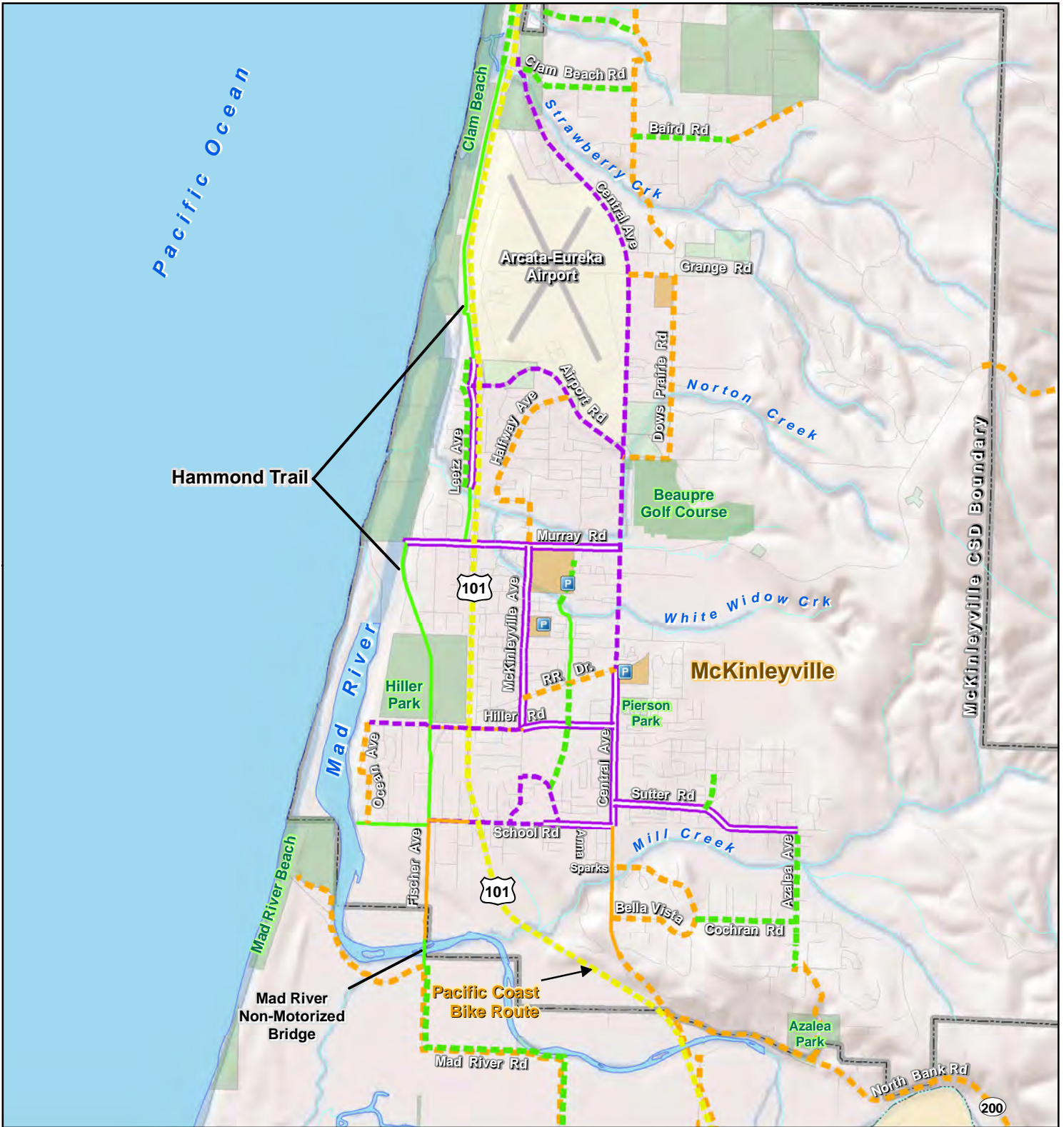
Figure 15

**This map is not a Bicycle Route Guide**  
 This map is for illustrative and general planning purposes only, and though care has been taken to ensure that the data is accurate, maps and data are provided without warranty of any kind.  
 Data source: HCAOG; Humboldt County GIS; ESRI.  
 Map created by: gldavidson

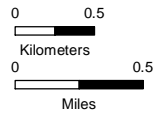
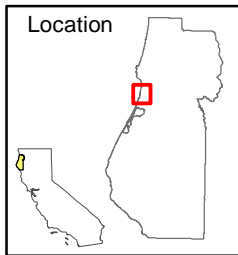


Date: 7/19/2012

Project Source: N:\US\Eureka\Projects\11905 Humboldt County GIS Mapping 2012\08-GIS\Maps\Figures\MB\_3quarter\_mile\_HC.mxd



- Existing Class I
- Existing Class II
- Existing Class III
- - - Proposed Class I
- - - Proposed Class II
- - - Proposed Class III
- - - Existing Class III with Proposed Class II
- - - Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools



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 Data source: HCAOG; Humboldt County GIS; ESRI.  
 Map created by: gldavidson

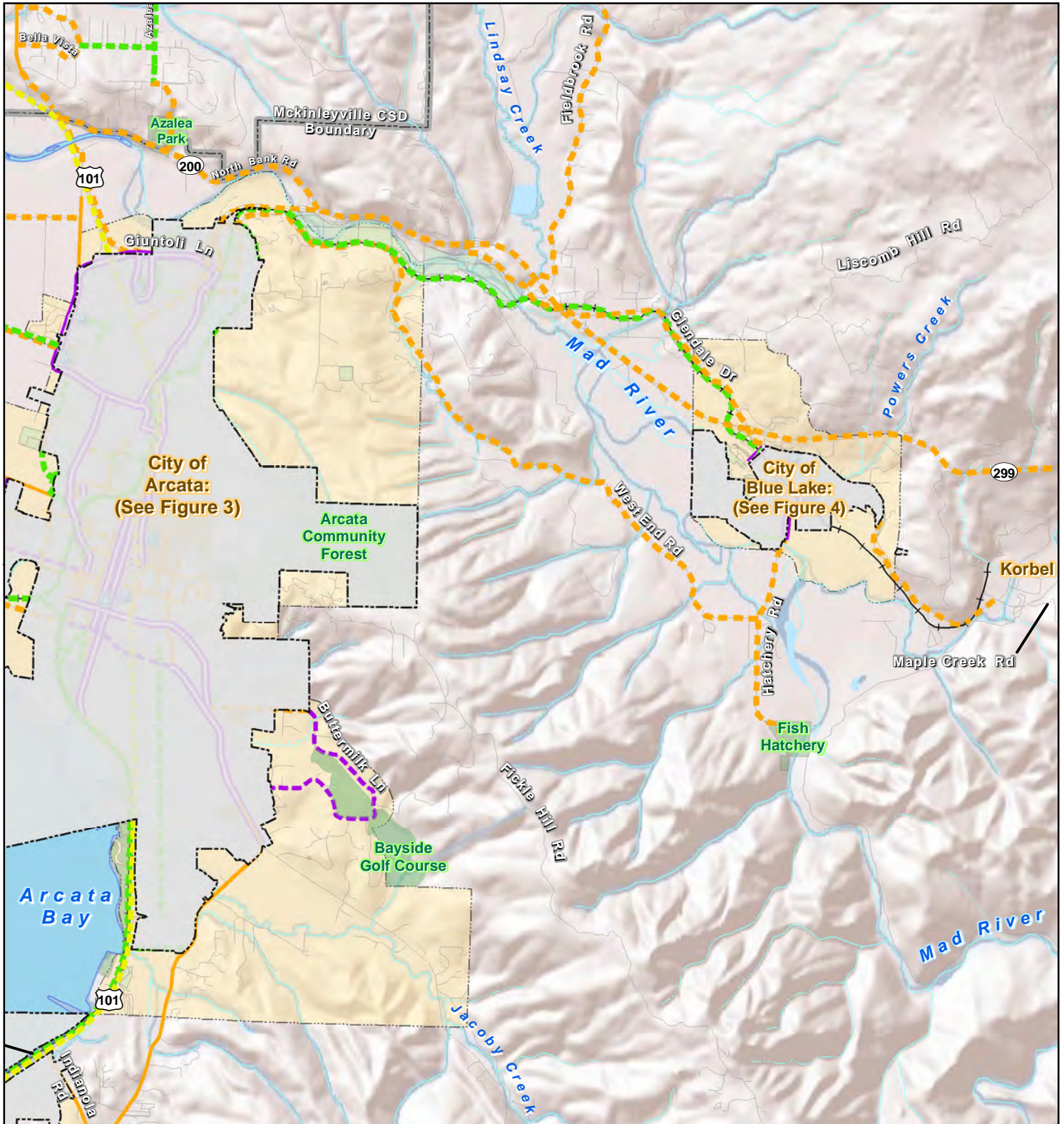
Figure 16

**Unincorporated Humboldt County:  
 McKinleyville  
 Proposed Bicycle Facilities**



Date: 7/19/2012

Project Source: N:\US\Eureka\Projects\1905-HumCoAssoGov\1905-12-001-HumCoBikePlan\GIS\Maping\201208-GIS\Maps\Figures\FiguresMB\_one\_mile\_HC.mxd



- Existing Class I
- Existing Class II
- Existing Class III
- - - Proposed Class I
- - - Proposed Class II
- - - Proposed Class III
- - - Existing Class III with Proposed Class II
- - - Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools



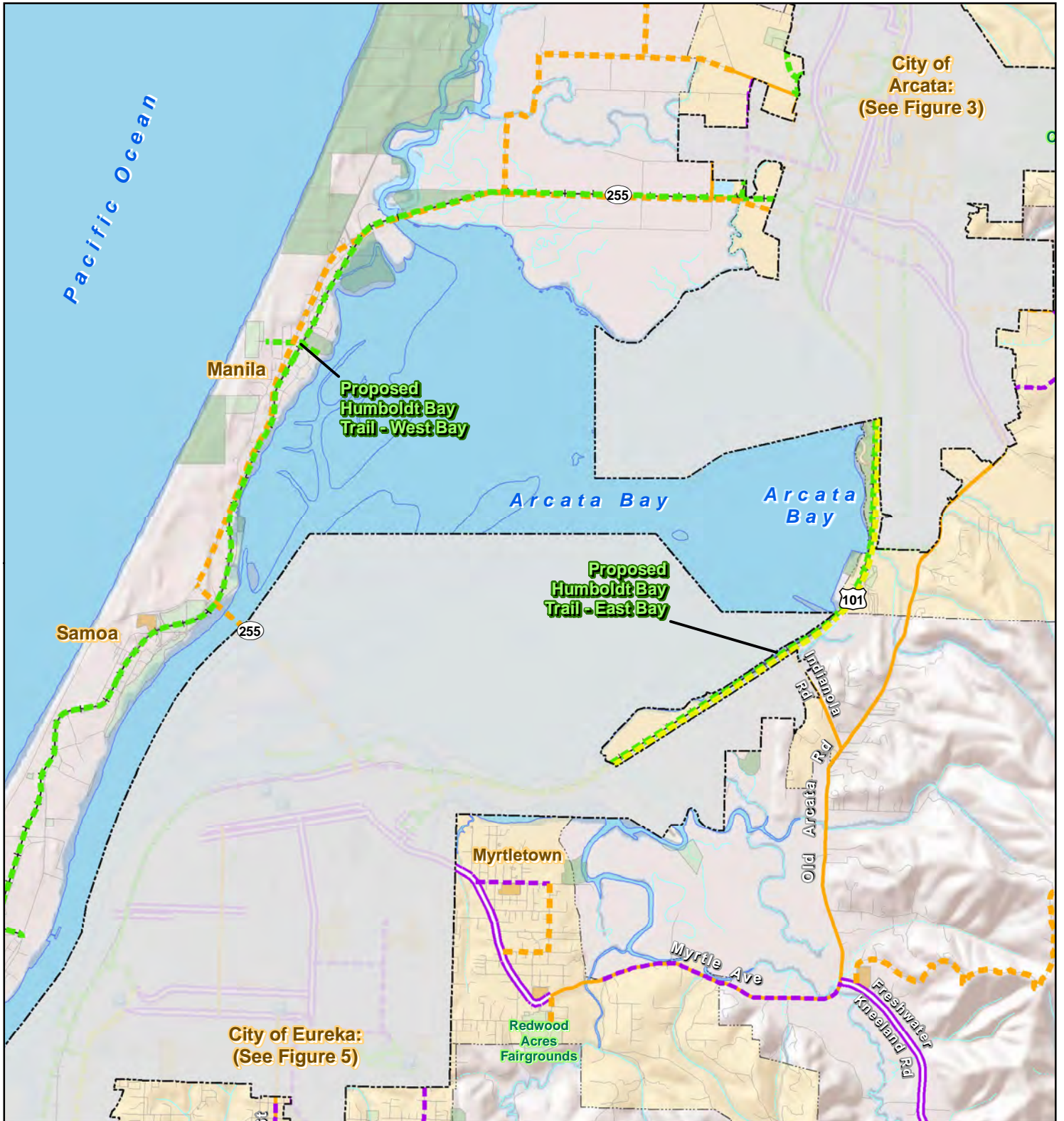
Figure 17  
**Unincorporated Humboldt County:  
Arcata-BlueLake-Korbel  
Proposed Bicycle Facilities**

**This map is not a Bicycle Route Guide**  
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Date: 7/19/2012

Project Source: N:\US\Eureka\Projects\1905-HumCoAssoGov\1905-12-001-HumCo Bike Plan GIS Mapping 201208-GIS\Maps\Figures\FiguresMB\_one\_mile\_HC.mxd



- Existing Class I
- Existing Class II
- Existing Class III
- Proposed Class II
- Proposed Class III
- Existing Class III with Proposed Class II
- Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools

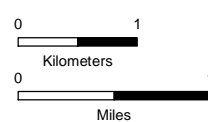


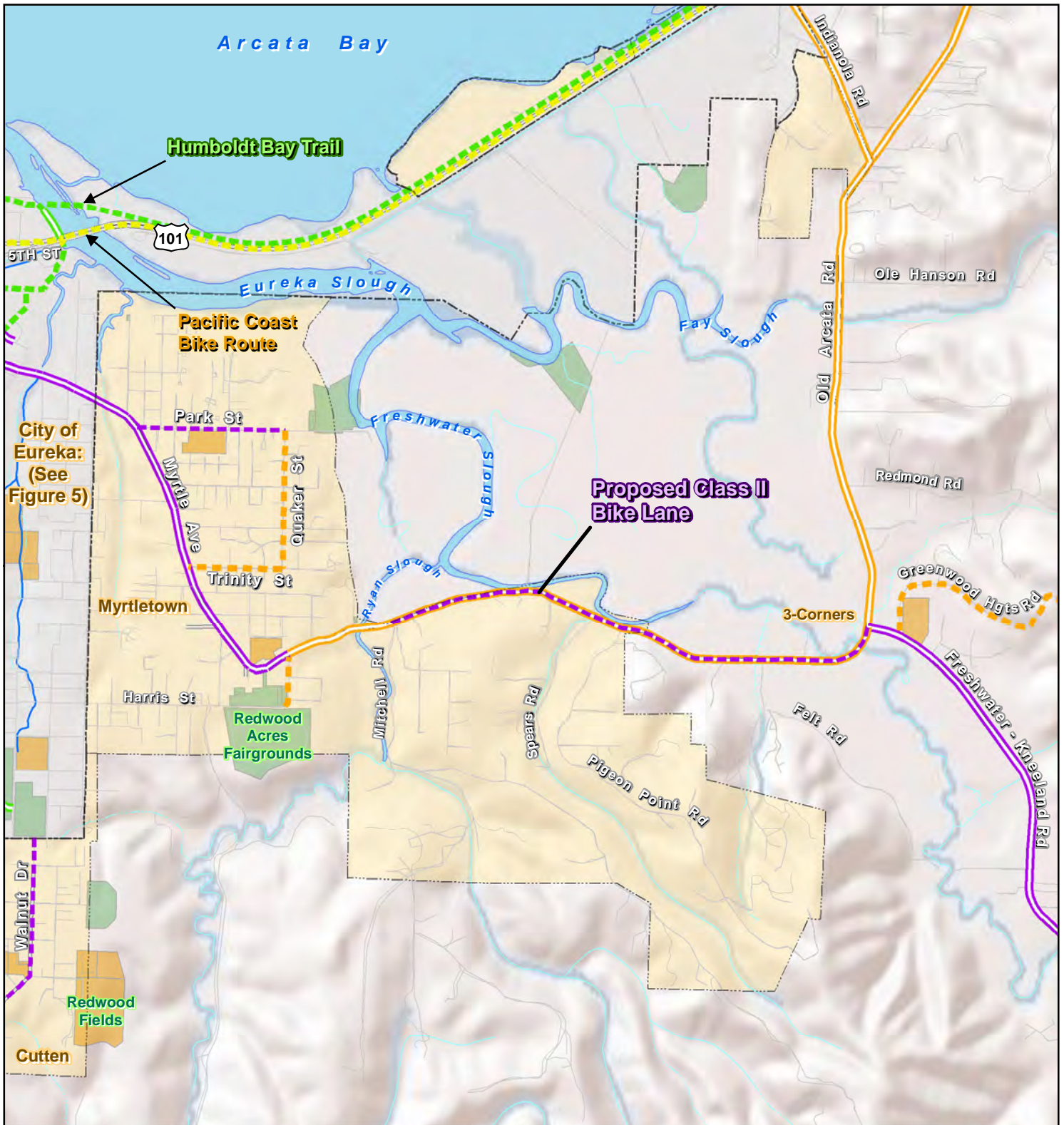
Figure 18  
**Unincorporated Humboldt County:  
Arcata-Eureka-Samoa  
Proposed Bicycle Facilities**

**This map is not a Bicycle Route Guide**  
This map is for illustrative and general planning purposes only, and though care has been taken to ensure that the data is accurate, maps and data are provided without warranty of any kind.  
Data source: HCAOG; Humboldt County GIS; ESRI.  
Map created by: gldavidson



Date: 7/19/2012

Project Source: N:\US\Eureka\Projects\11905-12-001 HumCo Bike Plan GIS Mapping 201208-GIS\Maps\Figures\Fig\_19\_Myrtleown.mxd



- Existing Class I
- Existing Class II
- Existing Class III
- Proposed Class II
- Proposed Class III
- Existing Class III with Proposed Class II
- Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools

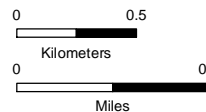
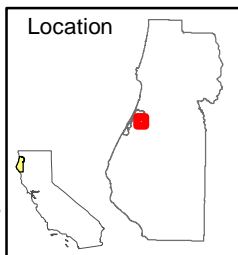


Figure 19  
**Unincorporated Humboldt County:  
 Myrtleown  
 Proposed Bicycle Facilities**

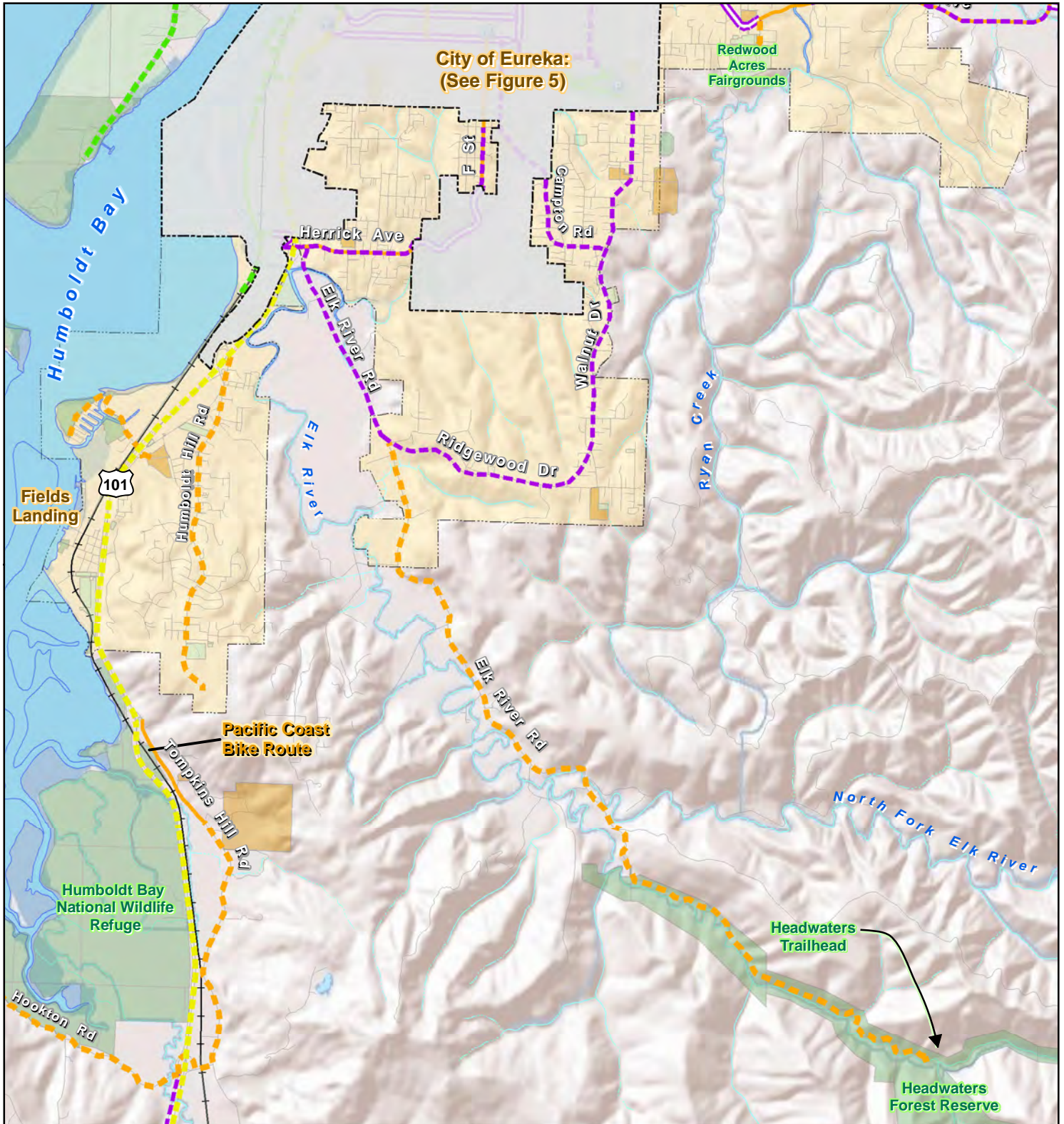
**This map is not a Bicycle Route Guide**  
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 Data source: HCAOG; Humboldt County GIS; ESRI.  
 Map created by: gldavidson



Date: 8/8/2012



Project Source: N:\US\Eureka\Projects\11905-12-001 HumCo Bike Plan GIS Mapping 201208-GIS\Maps\Figures\FiguresMB\_one\_mile\_HC.mxd



- Existing Class I
- - - Proposed Class I
- Existing Class II
- - - Proposed Class II
- Existing Class III
- - - Proposed Class III
- - - Existing Class III with Proposed Class II
- - - Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools



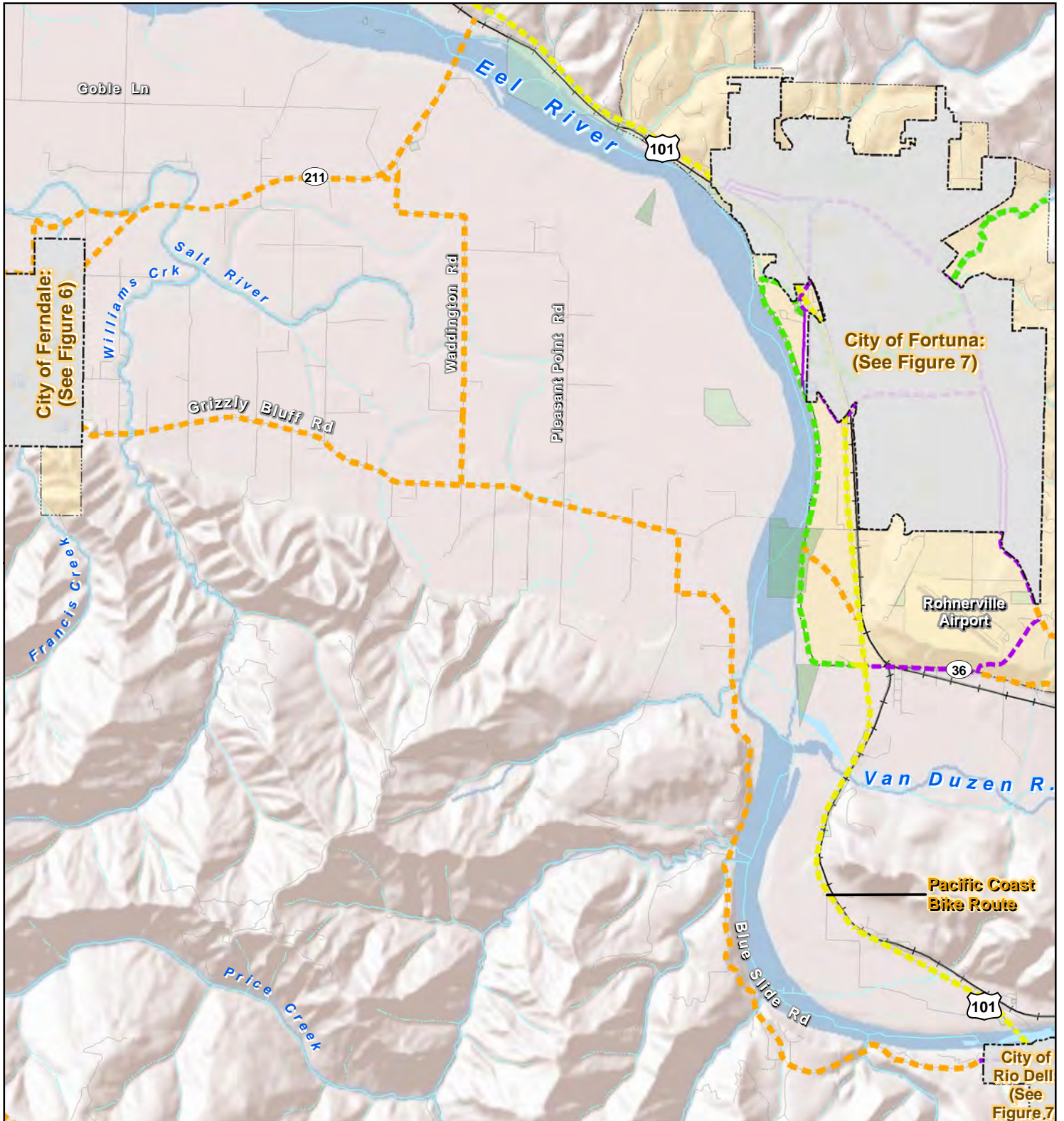
Figure 20  
**Unincorporated Humboldt County:  
South Eureka  
Proposed Bicycle Facilities**

**This map is not a Bicycle Route Guide**  
This map is for illustrative and general planning purposes only, and though care has been taken to ensure that the data is accurate, maps and data are provided without warranty of any kind.  
Data source: HCAOG; Humboldt County GIS; ESRI.  
Map created by: gldavidson



Date: 7/19/2012

Project Source: N:\US\Eureka\Projects\11905-HumCoAssoGov\11905-12-001-HumCo Bike Plan GIS Mapping 2012\GIS\Maps\Figures\Figure 21\_01\_mile\_HC.mxd



- Existing Class I
- Existing Class II
- Existing Class III
- - - Proposed Class I
- - - Proposed Class II
- - - Proposed Class III
- - - Existing Class III with Proposed Class II
- - - Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools



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 Data source: HCAOG; Humboldt County GIS; ESRI.  
 Map created by: gldavidson

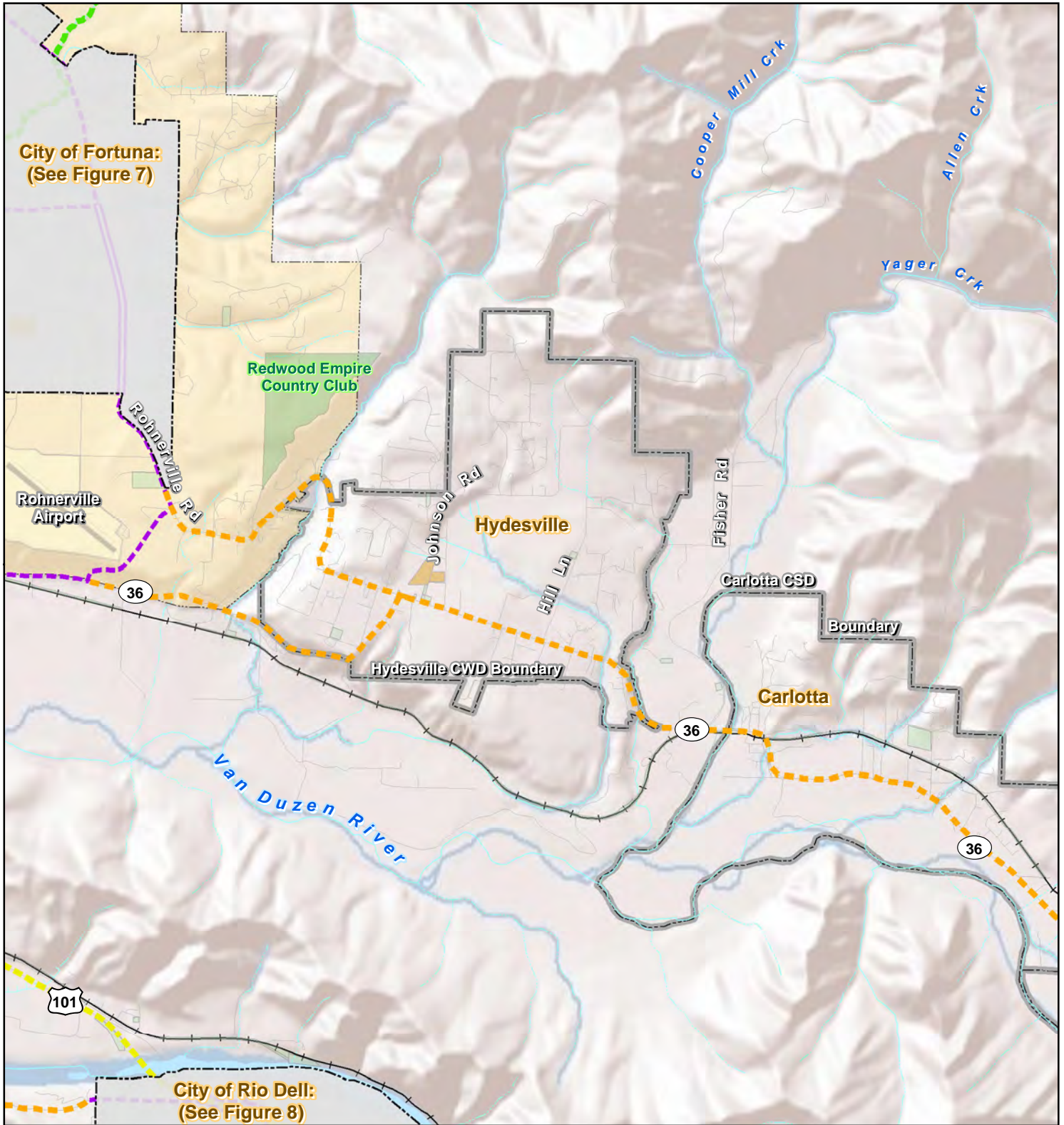


Date: 7/19/2012

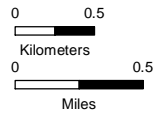
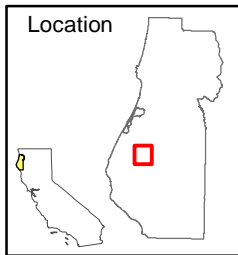
Figure 21

**Unincorporated Humboldt County:  
 Ferndale-Rio Dell  
 Proposed Bicycle Facilities**

Project Source: N:\US\Eureka\Projects\11905-12-001 HumCo Bike Plan GIS Mapping 201208-GIS\Maps\Figures\MB\_3quarter\_mile\_HC.mxd



- Existing Class I
- Existing Class II
- Existing Class III
- Proposed Class I
- - - Proposed Class II
- - - Proposed Class III
- - - Existing Class III with Proposed Class II
- Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools



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 Data source: HCAOG; Humboldt County GIS; ESRI.  
 Map created by: gldavidson

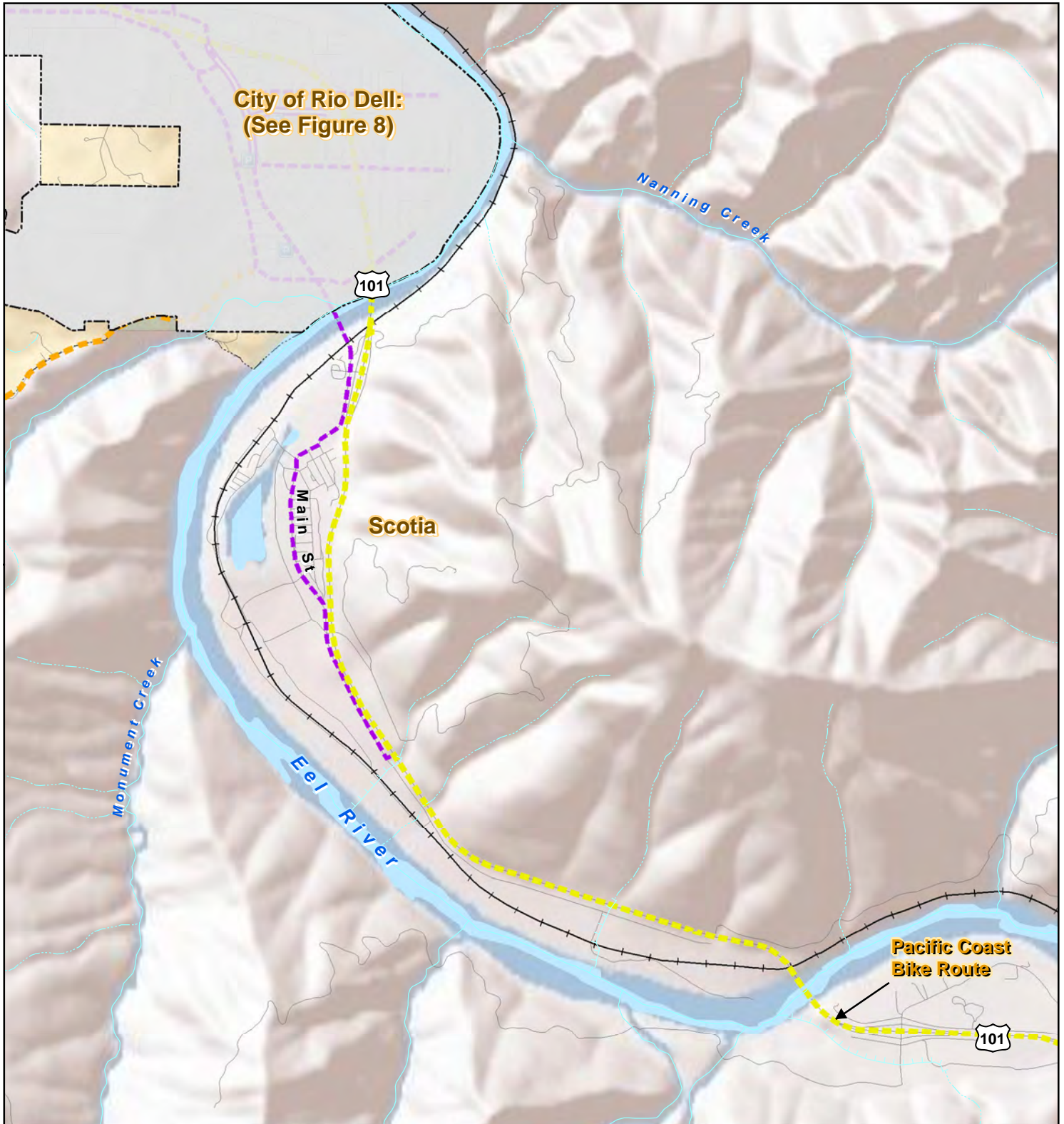


Figure 22

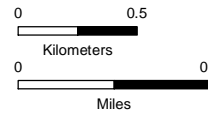
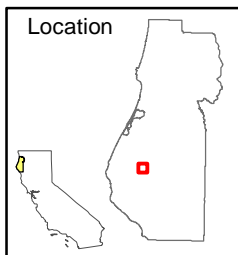
**Unincorporated Humboldt County:  
 Fortuna-Hydesville  
 Proposed Bicycle Facilities**

Date: 7/19/2012

Project Source: N:\US\Eureka\Projects\11905-HumCoAssoGov\11905-12-001-HumCo Bike Plan GIS Mapping 201208-GIS\Maps\Figures\FB\_half\_mile\_HC.mxd



- Existing Class I
- Existing Class II
- Existing Class III
- Existing Class III with Proposed Class II
- Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- City Sphere of Influence
- Open Space/Parks
- Schools



**Unincorporated Humboldt County:  
Scotia  
Proposed Bicycle Facilities**

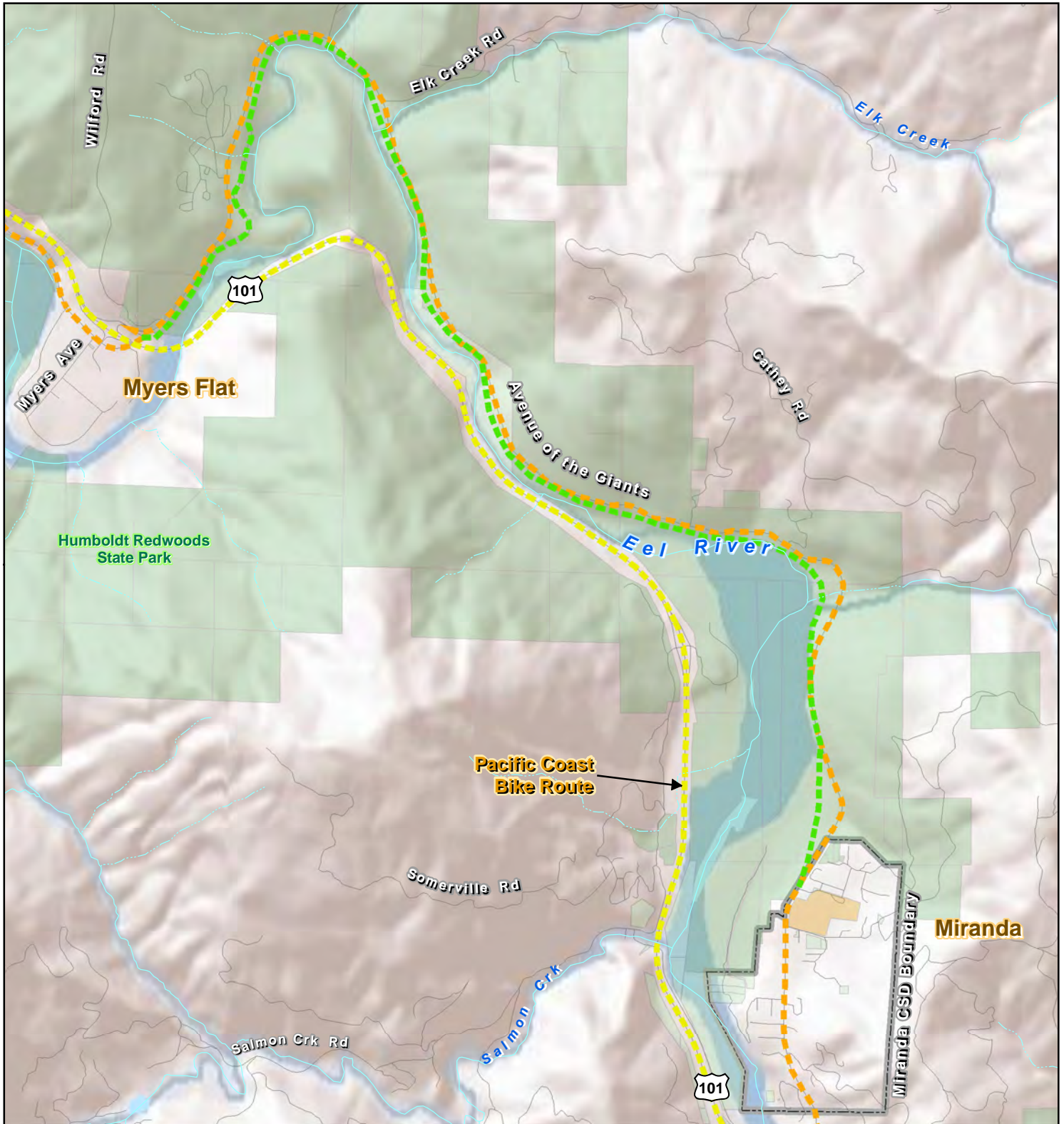
**This map is not a Bicycle Route Guide**  
 This map is for illustrative and general planning purposes only, and though care has been taken to ensure that the data is accurate, maps and data are provided without warranty of any kind.  
 Data source: HCAOG; Humboldt County GIS; ESRI.  
 Map created by: gldavidson



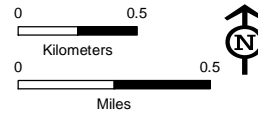
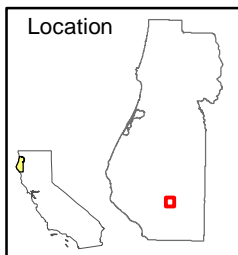
Date: 7/19/2012

Figure 23

Project Source: N:\US\Eureka\Projects\1905\1905-HumCoAssoGov\1905-12-001-HumCo Bike Plan GIS Mapping 201208-GIS\Maps\Figures\MB\_half\_mile\_HC.mxd



- Existing Class I
- Existing Class II
- Existing Class III
- Existing Class III with Proposed Class II
- Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools
- - - Proposed Class I
- - - Proposed Class II
- - - Proposed Class III



**Unincorporated Humboldt County:  
Miranda-Myers Flat  
Proposed Bicycle Facilities**

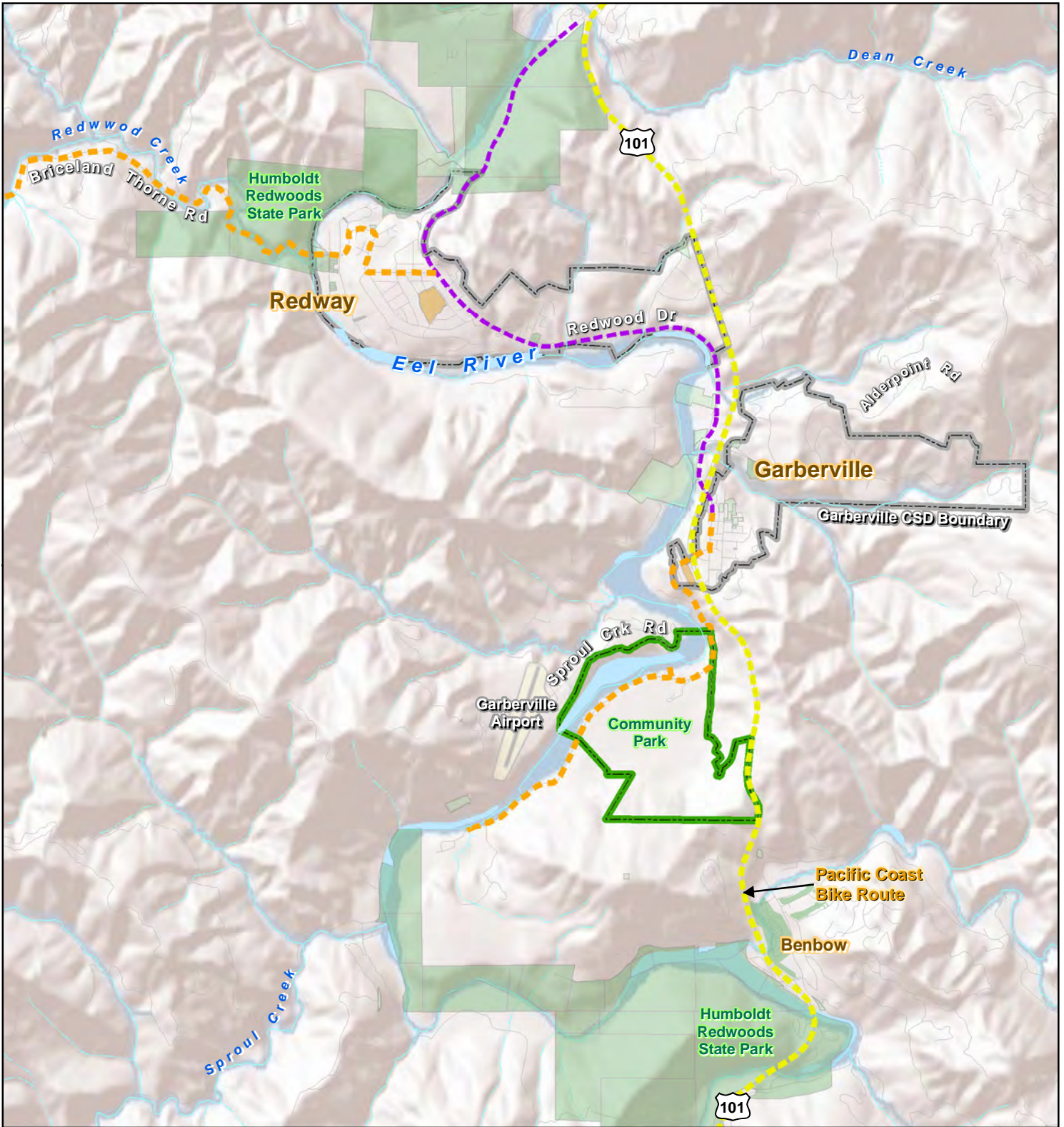
Figure 24

**This map is not a Bicycle Route Guide**  
 This map is for illustrative and general planning purposes only, and though care has been taken to ensure that the data is accurate, maps and data are provided without warranty of any kind.  
 Data source: HCAOG; Humboldt County GIS; ESRI.  
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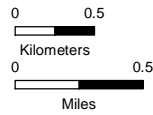
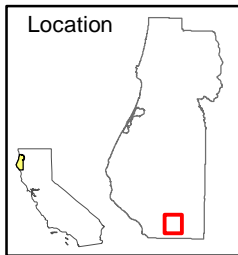


Date: 7/19/2012

Project Source: N:\US\Eureka\Projects\11905 Humboldt County GIS Mapping 2012\GIS\Maps\Figures\MB\_3quarter\_mile\_HC.mxd



- Existing Class I
- Existing Class II
- Existing Class III
- - - Proposed Class I
- - - Proposed Class II
- - - Proposed Class III
- - - Existing Class III with Proposed Class II
- - - Pacific Coast Bike Route (PCBR)
- P Existing Bicycle Parking Facility
- City Limits
- Open Space/Parks
- City Sphere of Influence
- Schools



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 Data source: HCAOG; Humboldt County GIS; ESRI.  
 Map created by: gldavidson



Figure 25

**Unincorporated Humboldt County:  
 Garberville-Redway  
 Proposed Bicycle Facilities**

# 5 COSTS & IMPLEMENTATION STRATEGY

This section presents costs for the proposed bicycle improvements and discusses strategies and funding sources.

## FINANCIAL STRATEGY

Proposed improvements and programs to be developed over the next ten years in Humboldt County have been analyzed to determine the annual financing requirements, and to allow the respective agency to budget their resources and target funding applications.

The majority of funding for bicycle projects is expected to come from Federal sources authorized and apportioned by SAFETEA-LU and/or its successor legislation. Federal funding sources tend to be the most competitive and tend to have the most requirements for spending money and administering projects. Getting federal funds requires a combination of sound applications, local support, and lobbying at the regional and state level.

## COST ESTIMATES

The cost estimates for the Bike Plan Update's proposed projects are based on proposed segment length, proposed bikeway class, corridor condition, and other relevant case-by-case information. Segment costs were evaluated according to an estimated cost-per-mile and estimated costs for on-going maintenance and operation, based on comparable experiences. The HCAOG Technical Advisory Committee (TAC) reviewed unit costs for accuracy.

Table 5.1 **Bicycle Facility Construction Cost Estimates (2012 dollars)**

<b>CLASS I</b>	
Rehabilitate or upgrade existing path.....	\$100,000/mile
Construct asphalt path on existing level embankment or right of way, install signing and striping.....	\$190,000/mile
Construct asphalt path on graded right of way, install drainage and new sub-base .....	\$300,000/mile
Construct asphalt path with ungraded corridor, retaining wall required .....	\$550,000/mile
<b>CLASS II</b>	
Signing and striping.....	\$16,000/mile
Signing and striping, minor surface repair .....	\$27,000/mile
Signing and striping, surface repair .....	\$60,000/mile
Signing and striping, road widening.....	\$82,000/mile
<b>CLASS III</b>	
Signing.....	\$ 2,000/mile
<b>SUPPORT FACILITIES</b>	
Loop detectors (at grade crossing, four front detectors).....	\$3,000/intersection
Signing and striping intersections (four signs, four legs to stripe 250') .....	\$3,000/intersection
Traffic signals:	
New traffic signal with bike features on a city street (simple) .....	\$175,000/intersection
New traffic signal with bike features on a state highway (complex) .....	\$300,000/intersection

Table 5.2 **Bikeway System Cost Estimate Summary**

Jurisdiction	Total # of projects	Miles of Class I	Miles of Class II	Miles of Class III	Total Length	Estimated Cost (2012 dollars)
City of Arcata	34	13.5	7.25	7.1	27.8	\$3,717,990
City of Blue Lake	4	1.2	0	2.5	3.7	\$417,675
City of Eureka	28	5.3	3.3	18.1	26.7	\$4,689,316
City of Ferndale	13	0.0	4.6	19.2	23.8	\$1,083,500
City of Fortuna	12	4.3	10.3	1.8	16.4	\$3,916,417
City of Rio Dell	7	0.0	1.0	3.1	4.1	\$116,560
City of Trinidad	6	0.0	0.0	4.2	4.2	\$23,100
County of Humboldt	78	36.5	15.5	352.9	404.9	\$58,742,128
Karuk Tribe, Orleans	2	3.97	0	0	3.97	\$1,556,000
<b>Total System</b>	<b>184</b>	<b>64.77</b>	<b>41.95</b>	<b>408.85</b>	<b>515.57</b>	<b>\$27,262,686</b>

## FUNDING SOURCES

Non-motorized transportation is gaining reputability across the nation. Accordingly, policy support and additional funding have recently been made available for bicycle transportation improvements. This has been true on the local and state level thanks to the 1994 California Bicycle Transportation Act. This has also been the case on the federal level through 1990 Clean Air Act, and the series of federal transportation funding acts: 1991 Inter-Modal Surface Transportation Efficiency Act (ISTEA); 1998 Transportation Equity Act for the 21st Century (TEA21); and, the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy For Users (SAFETEA-LU) of 2005. These laws have called for increased spending on bicycle travel.

These laws have also given communities more flexibility to spend highway funding on non-motorized transportation, i.e., bicycling, walking, and transit. These laws have funded over a billion dollars of bicycle and pedestrian projects nationwide, creating thousands of miles in new bicycle lanes, sidewalks, and multi-use trails.

Additionally, non-motorized transportation has a broader coalition of advocates. From institutions to individuals, more people are promoting “active transportation.” The increasing interest in bicycling has created more funding sources, such as public health, the medical profession, local and national bicycle membership groups, environmental groups (e.g., those working for solutions to climate change), and land use professions and policy-makers.

The Humboldt region has historically invested approximately \$150,000 annually for bicycle facilities spread among the jurisdictions. Most of the money has come from SAFETEA-LU (and its predecessors’) programs, the Bicycle Transportation Account (BTA), impact fees, and sales tax revenue. The bikeway investments have included roadway overlays (repaving) and re-striping, bike parking, and bike signs.

*Also see the HCAOG’s Regional Master Trails Plan (2010) for more information on funding sources for trail projects.*

## FEDERAL SOURCES

There are dozens of federal programs that directly or indirectly fund bicycle projects, yet a small number of them provide the majority of funding. The major programs that fund bicycle projects are summarized below.



### SAFETEA-LU

The Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy For Users,

is the current authorizing legislation for federal funding for highway, transit and safety programs. SAFETEA-LU succeeded TEA-21, enacted in 1998, and ISTEA, enacted in 1991. Congress first passed SAFETEA-LU in 2005; its last extension expired on September 30, 2009 and it has been operating on short-term



extensions since. At the time of this update, Congress had yet to pass a multi-year reauthorization bill.

SAFETEA-LU funding is administered through the state (Caltrans or Resources Agency) and regional governments (Authority). Funding criteria often includes having an adopted bicycle and/or pedestrian master plan. SAFETEA-LU’s major programs that fund non-motorized transportation projects are:

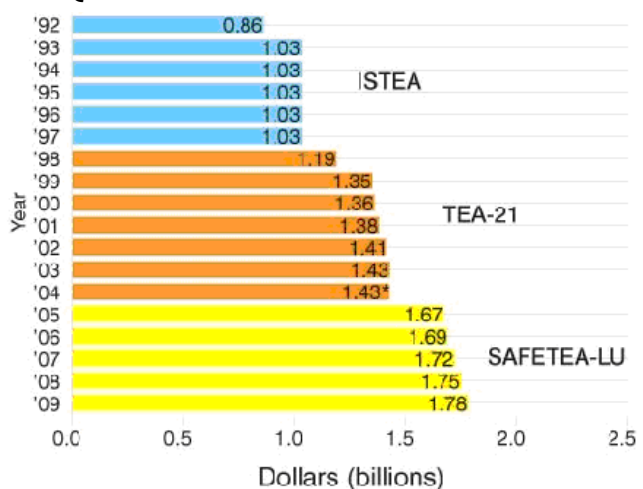
- Transportation Enhancements (TE) Activities – Three of the twelve eligible activities within the program are directly related to bicycling. They are: 1) pedestrian and bicycle facilities, which include: bike lane striping, wide paved shoulders, bike parking and bus racks, off-road trails; bike and pedestrian bridges and underpasses, and sidewalks, walkways, and curb ramps; 2) pedestrian and bicycle safety and educational activities; and 3) converting abandoned railway corridors to trails.

Trails and pedestrian/bicycle facilities have historically accounted for about half of TE funding (\$300 million/year). The TE is a federal reimbursement program; funds can only be used for project construction.

- Safe Routes to Schools (SRTS): The Federal SRTS program works to encourage children to walk and bicycle to school. SRTS grants can fund “infrastructure” projects, such as sidewalk and crossing improvements, traffic calming, and bicycle parking, and “non-infrastructure” projects such as public outreach campaigns, traffic education and enforcement, bicycling classes and SRTS coordinator positions. Under SAFETEA-LU only schools K-8 are eligible for SRTS funding. Caltrans administers this federal program through its state Safe Routes to School (SR2) Coordinator.

- Congestion Mitigation & Air Quality Improvement Program (CMAQ): The CMAQ program enables “non-attainment” areas under the Clean Air Act to fund certain types of transportation programs to improve air quality. Construction and non-construction activities are eligible, such as: bicycle facilities (planning, engineering and construction), bicycle racks on buses, bicycle parking, trails, bicycle route maps, bicycle-activated traffic lights, bicycle safety and education programs and bicycle promotional programs. The projects must be tied to a plan adopted by the State and RTPA.

CMAQ Authorization Levels 1992-2009



\*In 2004, the CMAQ Program authorization was extended at the same level as 2003.

Source: fhwa.dot.gov

- Recreational Trails Program (RTP): The RTP provides funds annually for recreational trails and trail-related projects. The RTP

is administered at the State level by the California Department of Parks and Recreation. The RTP is a reimbursement program; funds can be applied to maintaining and restoring existing trails, rehabilitating trailside facilities, constructing trails, and acquiring property or easement acquisition for new trails.

- Non-motorized Transportation Pilot Program (NTPP): The NTPP is a four-year demonstration program to encourage active transportation in urban settings and to study what types of infrastructure investments encourage the use of different modes of transportation. The pilot program allocated \$25 million each to four communities nationwide, one of which is Marin County, California. The FHWA reported on the program's accomplishments as of April 2011, stating that the program was still being implemented. Read the FHWA's "Fiscal Year 2011 Update on the Nonmotorized Transportation Pilot Program" at [www.fhwa.dot.gov/environment/bikeped/ntpp.htm](http://www.fhwa.dot.gov/environment/bikeped/ntpp.htm).

### ***National Highway System***

National Highway System funds are for improvements to the National Highway System (NHS), which consists of an interconnected system of principal arterial routes that serve major population centers, international border crossings, airports, public transportation facilities, and other intermodal transportation facilities as well as other major travel destinations. These funds can be used to provide pedestrian and bicycle facilities constructed on NHS routes.

### ***Federal Lands Highway Funds***

Federal Lands Highway funds may be used to build bicycle and pedestrian facilities in conjunction with roads and parkways at the discretion of the department charged with administration of the funds on Federal Lands. The projects must be transportation-related and tied to a plan adopted by the State and RTPA.

## **STATE SOURCES**

Most of California's bicycle transportation programs (and funds) are administered by Caltrans. The major state programs that fund bicycle projects are:

### ***Bicycle Transportation Account***

The state Bicycle Transportation Account (BTA) is an annual statewide discretionary program that emphasizes projects benefiting bicycle commuting. Eligible infrastructure expenditures include new bikeways; bicycle parking; bicycle-carrying facilities on public transit vehicles; installing traffic control devices; eliminating hazardous conditions on existing bikeways; and improving bikeways maintenance. The BTA also funds project planning, engineering and right of way acquisition. Available as grants to local jurisdictions.



### ***Safe Routes to School (SR2S)***



The Safe Routes to School program uses federal transportation funds to improve school commute routes through constructing bicycle and pedestrian safety and traffic calming projects. Programs or activities related to education, enforcement, or encouragement may be eligible for reimbursement if they are related to the construction improvement. It does not fund planning grants.

### ***Office of Traffic Safety***



The California Office of Traffic Safety's mission is to reduce deaths, injuries and economic losses resulting from traffic related collisions in California. OTS grants fund bicycle education and enforcement programs. OTS funds originate from the National Highway Transportation Safety Agency and have stringent reporting, invoicing, and timely-use-of-funds requirements. Grant funding cannot replace existing program expenditures, or be used for program maintenance, research, rehabilitation, or construction. Eligible activities include programs to increase safety awareness and skills among pedestrians and bicyclists, such as enforcement, traffic safety and bicycle rodeos, helmet distribution, and court diversion programs for safety helmet violators.

### ***Environmental Enhancement and Mitigation Program***

Environmental Enhancement and Mitigation Program (EEMP) Funds are allocated to projects that offset environmental impacts of modified or new public transportation facilities including streets, mass transit guideways, park-n-ride facilities, transit stations, tree planting to equalize the effects of vehicular emissions, and the acquisition or development of roadside recreational facilities, such as trails. State gasoline tax monies fund the EEMP. This program represents an outstanding opportunity to fund improvements in the Eureka-Arcata corridor as mitigation to the ongoing work on US 101.

### ***Community Based Transportation Planning and Environmental Justice Grants***

The CBTP and EJ grant programs are designed to promote more inclusive planning processes for transportation projects throughout California. CBTP and EJ products are expected to help foster sustainable economies, increase available affordable housing, improve housing/jobs balance, encourage transit oriented and mixed use development, expand transportation choices, and reflect community values. These grants can fund a number of bicycle-related project activities, such as complete street studies or plans; pedestrian/bicycle/transit linkage studies or plans; and "green" transportation infrastructure planning. The grants are subject to the annual State budget process and funding levels fluctuate.

### ***State Coastal Conservancy***

The SCC provides grant funds for coastal trails, access, and habitat restoration projects. Funds are available to local government and non-profits. The Conservancy has provided significant funds for studying and implementing coastal public access and resource conservation in the Humboldt Bay region. The SCC is a potential funding source for bicycle facilities that improve access to and around the Bay and other coastal areas in county.



### ***Regional Transportation Improvement Program (RTIP)***

These funds are a portion of the State Transportation Improvement Program. HCAOG, as the RTPA in the area, is responsible for allocating Humboldt County's share of RTIP funding. Funds can be used for bicycle transportation projects.

## **REGIONAL SOURCES**

### ***TDA Article III (SB 821)***

Transportation Development Act (TDA) Article III funds are awarded annually to local jurisdictions for bicycle and pedestrian projects in California. These funds originate from the state gasoline tax and are distributed annually to local jurisdictions according to population.

### ***Air Quality Management District (AB 2766)***

The North Coast Unified Air Quality Management District (NCUAQMD) has two vehicular pollution prevention programs that could be applied to development of bicycle facilities or programs. The Air Quality Partnership (AQP) program is intended to protect public health in Humboldt, Del Norte and Trinity Counties. The program seeks to improve air quality in partnership with local public, private and non-profit entities by supporting small scale projects aimed at reducing emissions from motor vehicles. With two funding cycles per year, project funding is limited to \$3,000 and each proposing entity is limited to one funded project per six-month period.

Larger grants from the NCUAQMD are available annually through the AB 2766 program. Funding preference is given to projects that result in reduction of particulate matter from heavy duty diesel motor vehicles, rideshare and/or transit programs implemented by or under direct contract to local government entities, and the installation of physical devices or facilities that directly or indirectly reduce motor vehicle emissions.

## **LOCAL SOURCES**

### ***Direct Local Jurisdiction Funding***

Local jurisdictions can fund bicycle and pedestrian projects from various sources. A city's general funds are often earmarked for non-motorized transportation projects, especially sidewalk and ADA improvements. Future road widening and construction projects are another means of installing bike lanes and sidewalks.

Another potential local source of funding is developer impact fees, typically tied to trip generation rates and traffic impacts produced by a proposed project. A developer may reduce the number of trips (and hence impacts and cost) by paying for on- and off-site pedestrian and bikeway improvements, which will encourage residents to walk and bicycle rather than drive. In-lieu parking fees may be used to help construct new or improved bicycle parking. Impact fees must connect to and be based upon the project's impacts.

### ***Special Taxing Districts***

Special taxing districts, such as redevelopment districts, can be good instruments to finance new infrastructure within the specified district. Landowners petition local government to establish a district. An established district can operate independently from the local government and some are established for single purposes, such as roadway construction.

New facilities, such as multi-use trails and sidewalks, are then funded by assessments placed on those who directly benefit from the improvements. In a “tax increment financing” (TIF) district, taxes are collected on property value increases above the base year assessed property value. This money can be utilized for capital improvements within the district. TIF’s can especially benefit downtown redevelopment districts.

### ***Other Local and Community Sources***

Here is a list of other potential funding sources: Local sales taxes, fees, and permits may be implemented, requiring a local election. Parking meter revenues may be used according to local ordinance. Volunteer programs may substantially reduce the cost of implementing some of the proposed pathways. Use of groups such as the California Conservation Corp (who offer low-cost assistance) can reduce project costs. Local schools or community groups may use the bikeway or pedestrian project as a project for the year, possibly working with a local designer or engineer. Work parties may be formed to help clear the right of way. A local construction company may donate or discount services. A challenge grant program with local businesses may be a good source of local funding, where corporations “adopt” a bikeway and help construct and maintain the facility. Other opportunities for implementation will appear over time, which may be used to implement the system.

On the following pages, Table 5.3 lists funding sources for bicycle projects. Most of these sources also fund pedestrian projects.

**Table 5.3 Bicycle Funding Sources**

Funding Programs	Administering Agency	Funding Source or Authorization	Trip Types (Transportation, Recreation)	Project Types (Construction, Non-construction)	Required Matching Funds	Contact /Website
<b>FEDERAL FUNDING</b>						
Transportation Enhancement Activities (TEA)	FHWA	SAFETEA-LU: STP apportionment	Transportation	Construction	11.47%	<a href="http://www.fhwa.dot.gov/environment/te/guidance.htm">www.fhwa.dot.gov/environment/te/guidance.htm</a>
Regional Surface Transportation Program (RSTP)	FHWA		Transportation	Both	20% for bike and pad projects	<a href="http://www.dot.ca.gov/hq/transprog/federal/rstp/Official_RSTP_Web_Page.htm">www.dot.ca.gov/hq/transprog/federal/rstp/Official_RSTP_Web_Page.htm</a>
Congestion Mitigation & Air Quality Improvement Program (CMAQ)	FHWA and FTA	SAFETEA-LU \$9 billion.	Transportation	Both	11.47%	<a href="http://www.fhwa.dot.gov/environment/air_quality/cmaq">www.fhwa.dot.gov/environment/air_quality/cmaq</a>
National Highway System (NHS) Program	FHWA	SAFETEA-LU \$6.3 billion in 2009	Transportation	Both	20%	<a href="http://www.fhwa.dot.gov/tea21/factsheets/nhs.htm">www.fhwa.dot.gov/tea21/factsheets/nhs.htm</a>
Federal Lands Highways Program (FLHP)	FHWA	SAFETEA-LU \$4.5 billion thru 2009	Transportation	Planning, research, engineering, and construction	None	<a href="http://flh.fhwa.dot.gov/policy/safetea-lu/flhp.htm">http://flh.fhwa.dot.gov/policy/safetea-lu/flhp.htm</a>
Federal Safe Routes to Schools (SRTS)	Caltrans	SAFETEA-LU, FTIP projects.	Transportation	Construction	10%	<a href="http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/sr2s.htm">www.dot.ca.gov/hq/LocalPrograms/saferoutes/sr2s.htm</a>
High Risk Rural Roads and Railway -Highway Crossings Programs	FHWA	SAFETEA-LU, HSIP	Both	Construction	up to 10%	<a href="http://safety.fhwa.dot.gov/hsip/">http://safety.fhwa.dot.gov/hsip/</a>
Highway Bridge Replacement and Rehabilitation Program (HBRRP)		TEA-21, FSTIP. Averages \$160 million annually	Transportation	Construction		
Recreational Trails Program	California State Parks (varies by state)	Federal Highway Trust Fund	Both	Both	20%	<a href="http://www.fhwa.dot.gov/environment/rectrails/rtbroch.htm">www.fhwa.dot.gov/environment/rectrails/rtbroch.htm</a>

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Funding Programs	Administering Agency	Funding Source or Authorization	Trip Types (Transportation, Recreation)	Project Types (Construction, Non-construction)	Required Matching Funds	Contact /Website
<b>STATE FUNDING</b>						
State Transportation Improvement Program (STIP)	Caltrans	Transportation Investment Fund and other sources	Transportation	Construction	none	<a href="http://www.dot.ca.gov/hq/LocalPrograms/STIP.htm">www.dot.ca.gov/hq/LocalPrograms/STIP.htm</a>
Bicycle Transportation Account	Caltrans	State funds. \$7.2 million annually.	Transportation	Construction	10%	<a href="http://www.dot.ca.gov/hq/LocalPrograms/bta/btawebPage.htm">www.dot.ca.gov/hq/LocalPrograms/bta/btawebPage.htm</a>
Local Highway Bridge Program (HPB)	Caltrans	TEA-21. \$240 million annually	Transportation	Construction	11.47%	<a href="http://www.dot.ca.gov/hq/LocalPrograms/hbrr99/hbrr99a.htm">www.dot.ca.gov/hq/LocalPrograms/hbrr99/hbrr99a.htm</a>
Safe Routes to Schools (SR2S)	Caltrans	State funds. \$24.25 million in 2010/11 State Budget Act.	Transportation	Construction	10%	<a href="http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/sr2s.htm">www.dot.ca.gov/hq/LocalPrograms/saferoutes/sr2s.htm</a>
Environmental Enhancement and Mitigation Program (EEMP)	Natural Resources Agency and Caltrans	\$10 million annually. Grants usually limited to \$350,000 each.	Transportation	Construction	20%	<a href="http://www.resources.ca.gov/eem">www.resources.ca.gov/eem</a> . <a href="http://www.dot.ca.gov/hq/LocalPrograms/EEM/homepage.htm">www.dot.ca.gov/hq/LocalPrograms/EEM/homepage.htm</a>
Petroleum Violation Escrow Account (PVEA)	Caltrans		Transportation	Construction	None	Caltrans Federal Resources Office, Budgets Program (916) 654-7287
Habitat Conservation Fund Grant Program	California State Parks		Both	Construction	50%	<a href="http://www.parks.ca.gov/grants">www.parks.ca.gov/grants</a>
Land and Water conservation Fund	California State Parks		Both	Property acquired or developed for public-use trails	50%	<a href="http://www.parks.ca.gov/default.asp?Page_id=21360">www.parks.ca.gov/default.asp?Page_id=21360</a>
Mello-Roost Community Facilities Districts	Local government agencies	Voter-approved special taxes	Both	Both	None	
California Conservation Corps	CCC	State funds	Both	Construction	None	<a href="http://www.ccc.ca.gov">www.ccc.ca.gov</a>
Community-Based Transportation & Environmental Justice Planning Grants	Caltrans, Office of Community Planning	State Highway Account (local assistance funds). \$6 million annually	Both	Transportation planning.	20%	<a href="http://www.dot.ca.gov/hq/tpp/offices/ocp/cbtp.html">www.dot.ca.gov/hq/tpp/offices/ocp/cbtp.html</a>
Highway-Railroad Grade Separation Program	Caltrans	Highway Safety, Traffic Reduction, Air Quality,	Both	Construction	20%	Caltrans Railroad Agreements Branch (916)

Humboldt REGIONAL BICYCLE PLAN - Update 2012

Funding Programs	Administering Agency	Funding Source or Authorization	Trip Types (Transportation, Recreation)	Project Types (Construction, Non-construction)	Required Matching Funds	Contact /Website
		and Port Security Bond Act of 2006				227-5203
California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002		\$2.6 billion in general obligation bonds	Recreation	Parks/recreation lands and facilities.		
State and Community Highway Safety Grant Program	FHWA		Transportation	Non-construction	11.47%	<a href="http://safety.fhwa.dot.gov/policy/section402/">http://safety.fhwa.dot.gov/policy/section402/</a>
Pedestrian and Bicycle Safety Grants	California Office of Traffic Safety	Apportioned under National Highway Safety Act and SAFETEA-LU	Transportation	Both	N/A	<a href="http://ots.ca.gov/Grants/Apply/default.asp">http://ots.ca.gov/Grants/Apply/default.asp</a>
<b>INNOVATIVE FINANCING</b>						
Grant Anticipation Revenue Vehicle Bonds (GARVEE)	CTC, Caltrans	Bonds authorized by NHSDA and TEA-21.	Transportation	Both	11.47%	<a href="http://www.dot.ca.gov/hq/innovation/garveebond.htm">www.dot.ca.gov/hq/innovation/garveebond.htm</a>
State Highway Account Loan Program (Short Term Loans)	CTC, Caltrans	Short-term loans from unallocated funds in the State Highway Account . Maximum loan \$100M.	Transportation	Both	11.47%	<a href="http://www.dot.ca.gov/hq/innovation/sha.htm">www.dot.ca.gov/hq/innovation/sha.htm</a>
Transportation Finance Bank (TBF) Revolving Loan Program	CTC, Caltrans	\$3 million	Transportation	Both	11.47%	<a href="http://www.dot.ca.gov/hq/innovation/t_f.htm">www.dot.ca.gov/hq/innovation/t_f.htm</a>
<b>REGIONAL FUNDING</b>						
Local Air District Projects	Local Air Districts	Vehicle Registration Fees	Both	Both	Varies by jurisdiction	Contact your local air district
Transportation Development Act	Both		Both	Both	None	Local MPO/RTPA
<b>PRIVATE FUNDING</b>						
Bikes Belong Coalition	Bikes Belong	Up to \$10,000; will fund up to 49% of total project cost.	Both	Bike advocacy and facility projects.	N/A	<a href="http://www.bikesbelong.org">www.bikesbelong.org</a>
Kodak American Greenways Awards Program	Conservation Fund		Both	Both. "Seed" grants for trails, greenways, and blue ways.	N/A	<a href="http://www.conservationfund.org/">www.conservationfund.org/</a>

# # #

## IMPLEMENTATION PROCESS

The *Regional Bicycle Plan* identifies bike projects on a conceptual level. Projects and programs have not yet been designed, engineered, or developed in any detail. The priority projects identified herein do reflect input from the community and agencies, but many discussions must still follow.

Getting from project concept to implementation can happen in more than one way; typically, however, the steps are:

1. Local agency adopts the Bicycle Transportation Plan.
2. Agency prepares a Feasibility Study for an individual project. Study includes a conceptual design (and should consider alternatives and environmental issues) and cost estimate as needed.
3. Agency secures, as necessary, outside funding and any applicable environmental approvals.
4. Local agency approves project through the respective City Council or Board of Supervisors and/or Planning Commission. Local jurisdiction commits to securing/providing unfunded portions of project costs.
5. Agency completes final plans, specifications and estimates, advertising for bids, receipt of bids and award of contract(s).
6. Project construction. This phase may be done by the local agency and/or subcontractors.

The actual steps that each project follows will vary from project to project, and jurisdiction to jurisdiction.

Once a bikeway system has been identified, the greatest challenge is to identify the top projects that will offer the greatest benefit to bicyclists in the next five years. Aside from the criteria used to conceptualize and develop the overall network system, high priority projects are generally selected based on cost and construction.

## MAINTENANCE, SECURITY, AND MONITORING

### MAINTENANCE STANDARDS

Regional bicycle facilities should be included in ongoing street maintenance. Bikeway maintenance includes keeping bicycle surfaces in good repair by resurfacing, restriping, pavement repairs, and cleaning drainage systems. It includes regular maintenance such as removing trash and graffiti, landscaping, and sign upkeep. Maintaining the regional bikeway system should include regular activities as outlined in Table 5.4. See Appendix B for details of “Design and Maintenance Standards.”

Table 5.4 **Bikeway Maintenance Checklist**

<b>Item</b>	<b>Frequency</b>
Sign replacement/repair	1-3 years
Pavement marking replacement	1-3 years
Tree, Shrub, & grass trimming/fertilization	5 months- 1 year
Pavement sealing/potholes	5-15 years
Clean drainage system	1 year
Pavement sweeping	Monthly - annually as needed
Shoulder and grass mowing	as needed
Trash disposal	as needed
Lighting replacement/repair	1 year
Graffiti removal	Weekly - monthly as needed
Maintain furniture	1 year
Fountain/restroom cleaning/repair	Weekly - monthly as needed
Pruning	1-4 years
Bridge/tunnel inspection	1 year
Remove fallen trees	As needed
Weed control	Monthly - as needed
Maintain emergency telephones, CCTV	1 year
Maintain irrigation lines/replace sprinklers	1 year
Irrigate/water plants	Weekly - monthly as needed

Bicycle facility maintenance costs are based on per mile estimates, which cover labor, supplies, amortized equipment costs for weekly trash removal, monthly sweeping, and bi-annual resurfacing and repair patrols. Other Maintenance costs include bike lane line installation and crosswalk re-striping, sweeping debris, and tuning signals for bicycle pedestrian sensitivity. Tables 5.5 and 5.6 below provide a breakdown of bicycle facility cost estimates by facility classification and estimated 10-year costs.

Table 5.5. **Bicycle Facility Maintenance Cost Estimates**

<b>Facility Classification</b>	<b>Estimated Annual Cost Per Mile</b>	<b>Notes</b>
Class I	\$8,500	Assumes maintenance associated with the items included in Table 5.1
Class II	\$2,000	Assumes regular/periodic lane sweeping, sign and stripe/stencil maintenance, and minor surface repairs
Class III	\$1,000	Assumes sweeping and minor surface repairs

Table 5.6 Ten-Year Operations and Maintenance Cost Estimates for Recommended Network

Facility/Program	Unit Cost	Unit	Units	Cost	Notes
Class I Maintenance	\$8,500	Miles/Year	65	\$552,500	Lighting; removing debris and vegetation overgrowth.
Class II Maintenance	\$2,000	Miles/Year	42	\$ 84,000	Repainting lane stripes and stencils; replacing signs
Class III Maintenance	\$1,000	Miles/Year	409	\$ 409,000	Replacement signs and pavement stencils (e.g. shared use arrows)
			<b>10-Year Cost</b>	<b>\$1,045,500</b>	
			<b>Avg. Cost/Year</b>	<b>\$ 104,550</b>	

## SECURITY

Providing a safe environment for bicycling requires law enforcement to ensure motorists and bicyclists are adhering to the State Vehicle Code. It is important to protect the rights of bicyclists and pedestrians, as well as enforce that bicyclists and pedestrians behave safely in the public right-of-way. Regular police and maintenance patrols help maximize security and safety on bicycle facilities.

Local police should issue warnings to bicyclists as a method of educating violators. Violations to enforce include riding in the wrong direction, riding on sidewalks where prohibited, not wearing helmets, riding without lights at night, and failing to stop at stop signs and signals. Police should enforce proper motorist behavior with citations for not yielding to pedestrians in crosswalks, driving too close to bicyclists, harassing bicyclists and pedestrians, and other discourteous behavior. Enforcement of vehicle statutes relating to bicycle operation will be enforced on Class II and Class III bikeways as part of the department's normal operations. No additional staff time or equipment is anticipated for Class II or III segments of the bikeway network.

Security may be an issue along the Class I portions of the regional bikeway system. Having law enforcement present on trails can help improve the sense of trail security. The following actions are recommended to maintain a sense of safety and security for trail users.

1. Local jurisdictions' police departments should enforce applicable laws on the bike path, using both bicycles and vehicles. Vehicle statutes relating to bicycle operation should be enforced on Class II and Class III bikeways as part of the department's normal operations. Generally, no additional manpower or equipment is necessary to police Class II or III segments.
2. Maximum 5-minute response times by local police and fire departments are desired to all points on a path.
3. Volunteer safety patrols should be established where possible.
4. Normal bike path hours of operation should be 6am to 9pm, unless otherwise specified.
5. Bike paths should be accessible by police, fire, and maintenance vehicles to ensure adequate security.
6. Mile post markers should be located along pathways and shown on maps for emergency purposes.
7. Cellular call boxes may be located at regular intervals and at all undercrossing.

8. Landscaping should be clear of the path.
9. Undercrossing and bridges should be designed with no place to hide or sit: of materials that resist graffiti: and visible for the entire length prior to users entering the facility.

## **MONITORING**

A key component to minimizing on-road liability exposure will be to create (or continue) a system for monitoring and responding to reported roadway or bikeway safety deficiencies, so that they can be immediately addressed. Currently there are no formal monitoring programs enacted in Humboldt County. See the Bicycle Facility Maintenance Project (in this Plan) which addresses maintenance monitoring of the regional bikeway system.

Liability concerns are raised when a bicycle facility, such as bike lanes or routes, are not built or maintained to accepted or required standards. Liability concerns for Class I bike paths and multi-use paths include potential complaints from adjacent landowners who claim that the trail or bikeway impacts their safety and security, or exposes them to potential lawsuits on the basis of being an “attractive nuisance.” Other liability concerns are related to maintenance programs and claims to safety made by the County or cities regarding any improvements.

Another liability issue to address is whether any bikeway designation, such as route signs, pavement markings, etc., adds maintenance responsibility for the County or cities. The experience around California has been that bikeways maintenance is the same as roadways maintenance: both systems should have adopted maintenance standards and procedures (the bikeways standards being developed in this Plan), but that actual maintenance is subject, in most cases, to the financial abilities of the responsible jurisdiction.

## APPENDIX A

### BICYCLE TRANSPORTATION ACCOUNT (BTA) REQUIREMENTS (A) - (K)

#### California Codes, Streets and Highways, Code Section 891.2

- (a) The estimated number of existing bicycle commuters in the plan area and the estimated increase in the number of bicycle commuters resulting from implementation of the plan.
- (b) A map and description of existing and proposed land use and settlement patterns which shall include, but not be limited to, locations of residential neighborhoods, schools, shopping centers, public buildings, and major employment centers.
- (c) A map and description of existing and proposed bikeways.
- (d) A map and description of existing and proposed end-of-trip bicycle parking facilities. These shall include, but not be limited to, parking at schools, shopping centers, public buildings, and major employment centers.
- (e) A map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes. These shall include, but not be limited to, parking facilities at transit stops, rail and transit terminals, ferry docks and landings, park and ride lots, and provisions for transporting bicyclists and bicycles on transit or rail vehicles or ferry vessels.
- (f) A map and description of existing and proposed facilities for changing and storing clothes and equipment. These shall include, but not be limited to, locker, restroom, and shower facilities near bicycle parking facilities.
- (g) A description of bicycle safety and education programs conducted in the area included within the plan, efforts by the law enforcement agency having primary traffic law enforcement responsibility in the area to enforce provisions of the Vehicle Code pertaining to bicycle operation, and the resulting effect on accidents involving bicyclists.
- (h) A description of the extent of citizen and community involvement in development of the plan, including, but not limited to, letters of support.
- (i) A description of how the bicycle transportation plan has been coordinated and is consistent with other local or regional transportation, air quality, or energy conservation plans, including, but not limited to, programs that provide incentives for bicycle commuting.
- (j) A description of the projects proposed in the plan and a listing of their priorities for implementation.
- (k) A description of past expenditures for bicycle facilities and future financial needs for projects that improve safety and convenience for bicycle commuters in the plan area.

## APPENDIX B

### DESIGN & MAINTENANCE STANDARDS

This section provides basic bikeway design and maintenance standards for the development of bicycle facilities. Consistent use of these standards for the development and maintenance of the regional bikeway system will ensure uniformity of the regional system between jurisdictions and for all system users.

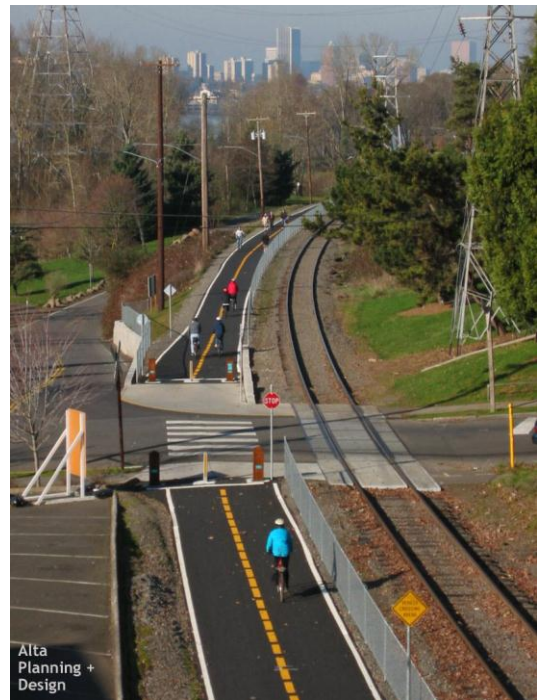
#### BIKEWAY CLASSIFICATION DESCRIPTIONS

According to Caltrans, the term “bikeway” encompasses all facilities that provide primarily for bicycle travel. Caltrans has defined three types of bikeways in Chapter 1000 of the Highway Design Manual: Class I, Class II, and Class III. Descriptions and general design guidelines are presented below. The sources used for these design recommendations were Caltrans’ Highway Design Manual and AASTHTO’s Guide for the Development of Bicycle Facilities. **Figure A-1** provides an illustration of the three types of bicycle facilities.

##### CLASS I BIKEWAY

Typically called a “bike path” or “shared use path,” a Class I bikeway provides bicycle travel on a paved right-of-way completely separated from any street or highway. The recommended width of a shared use path is dependent upon anticipated usage:

- 8’ (2.4 m) is the minimum width for Class I facilities
- 8’ (2.4 m) may be used for short neighborhood connector paths (generally less than one mile in length) due to low anticipated volumes of use
- 10’ (3.0 m) is the recommended minimum width for a typical two-way bicycle path
- 12’ (3.6 m) is the preferred minimum width if more than 300 users per peak hour are anticipated, and/or if there is heavy mixed bicycle and pedestrian use



A minimum 2’ (0.6 m) wide graded area must be provided adjacent to the path to provide clearance from trees, poles, walls, guardrails, etc. On facilities with expected heavy use, a yellow centerline stripe is recommended to separate travel in opposite directions. **Figure A-2** illustrates a typical cross-section of a Class I multi-use path.

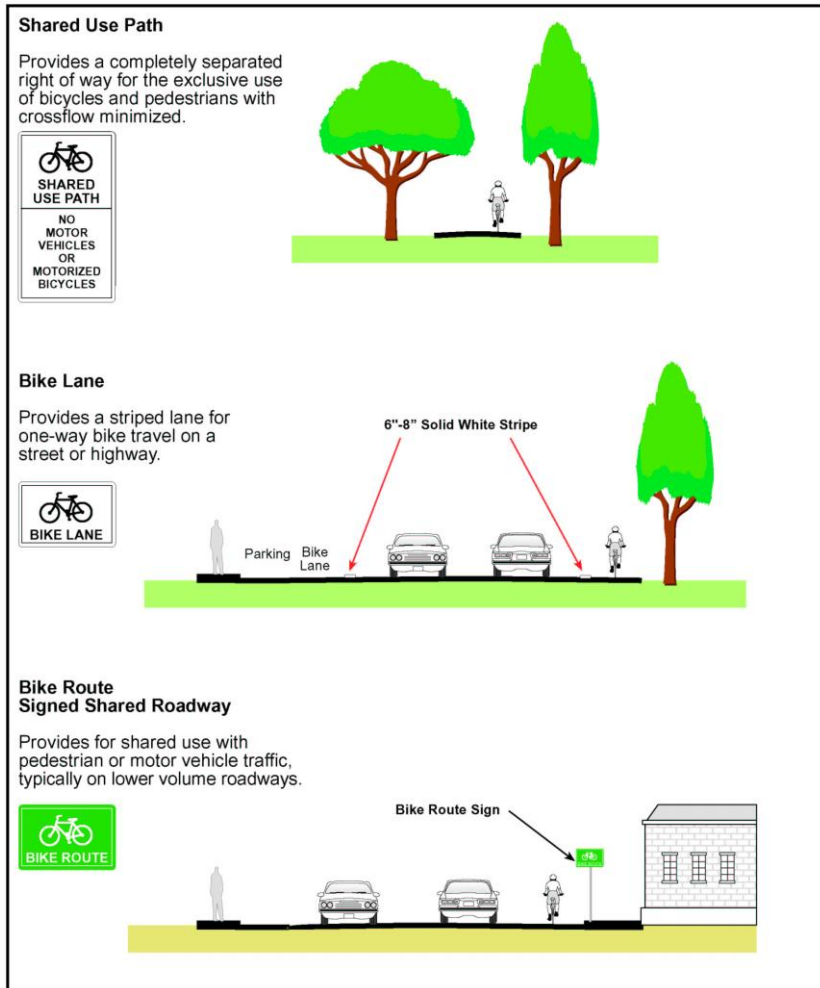


FIGURE A-1 Bicycle Facility Types

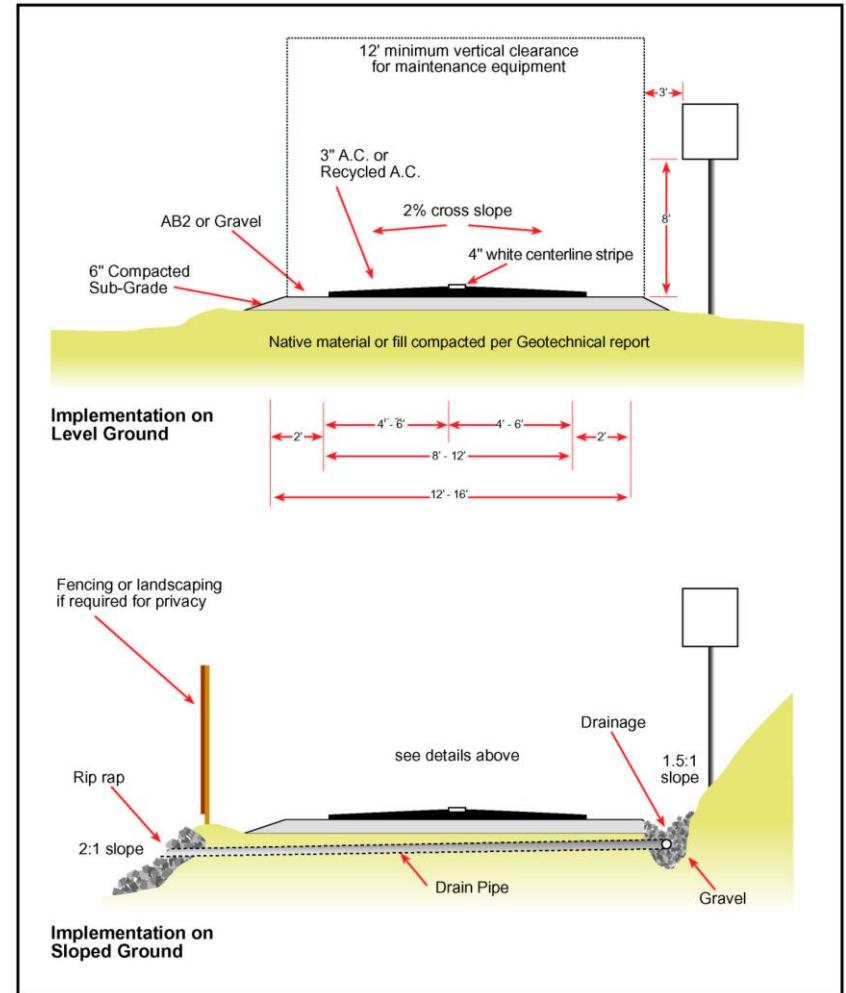


FIGURE A-2 Class I Facility Cross-Section

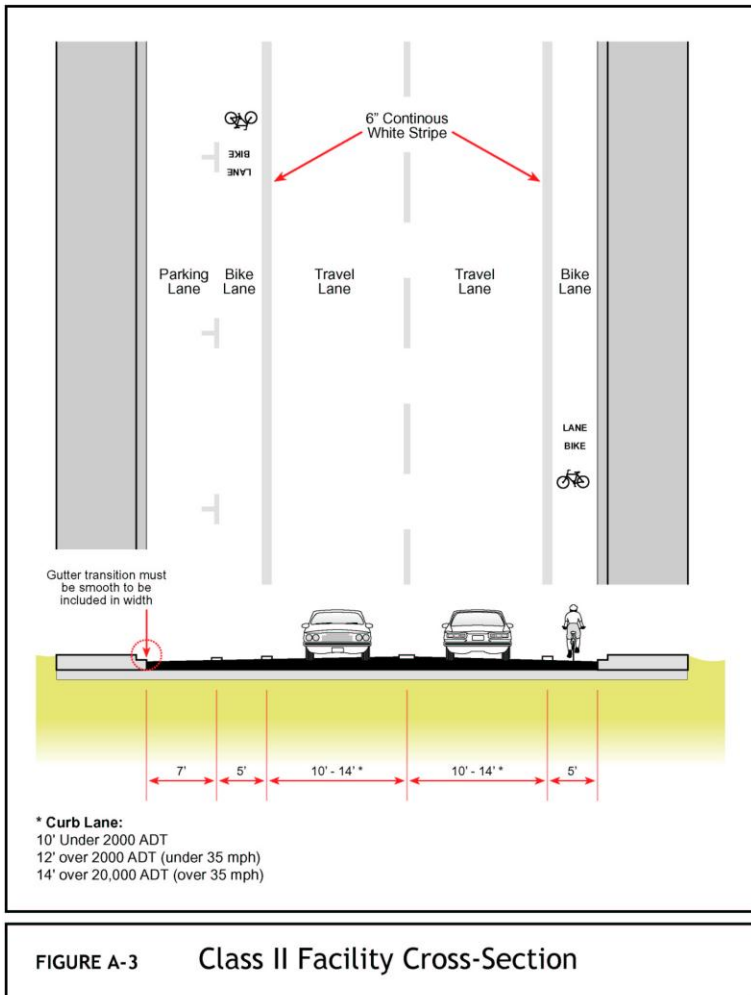
### **ADDITIONAL DESIGN RECOMMENDATIONS:**

1. Shared use trails and unpaved facilities that serve primarily a recreation rather than a transportation function and will not be funded with federal transportation dollars may not need to be designed to Caltrans standards. However, state and national guidelines have been created with user safety in mind and should be followed as appropriate. Wherever any trail facility intersects with a street, roadway, or railway, standard traffic controls should always be used.
2. Class I bike path crossings of roadways require preliminary design review. Generally speaking, bike paths that cross roadways with average daily trips (ADTs) over 20,000 vehicles will require signalization or grade separation.
3. Landscaping should generally be low water consuming native vegetation and should have the least amount of debris.
4. Lighting should be provided where commuters will use the bike path in the evenings.
5. Barriers at pathway entrances should be clearly marked with reflectors and be ADA accessible (minimum five feet clearance).
6. Bike path construction should take into account impacts of maintenance and emergency vehicles on shoulders and vertical and structural requirements. Paths should be constructed with adequate sub grade compaction to minimize cracking and sinking.
7. All structures should be designed to accommodate appropriate loadings. The width of structures should be the same as the approaching trail width, plus minimum two-foot wide clear areas.
8. Where feasible, provide two-foot wide unpaved shoulders for pedestrians/runners, or a separate tread way.
9. Direct pedestrians to the right side of pathway with signing and/or stenciling.
10. Provide adequate trailhead parking and other facilities such as restrooms and drinking fountains at appropriate locations.

### **CLASS II BIKEWAY**

Often referred to as a “bike lane,” a Class II bikeway provides a striped and stenciled lane for one-way travel on either side of a street or highway. **Figure A-3** shows a typical Class II cross-section. To provide bike lanes along corridors where insufficient space is currently available, extra room can be provided by removing a traffic lane, narrowing traffic lanes, or prohibiting parking. The width of the bike lanes vary according to parking and street conditions:

- 4' (1.2 m) minimum if no gutter exists, measured from edge of pavement
- 5' (1.5 m) minimum with normal gutter, measured from curb face; or 3' (0.9 m) measured from the gutter pan seam
- 5' (1.5 m) minimum when parking stalls are marked
- 11' (3.3 m) minimum for a shared bike/parking lane where parking is permitted but not marked on streets without curbs; or 12' (3.6 m) for a shared lane adjacent to a curb face



**ADDITIONAL DESIGN RECOMMENDATIONS:**

1. Whenever possible, the Department of Public Works should recommend that wider bike lanes beyond the minimum standard be installed to accommodate bicyclists.
2. Intersection and interchange treatment – Caltrans provides recommended intersection treatments in Chapter 1000 including bike lane “pockets” and signal loop detectors. The Department of Public Works should develop a protocol for the application of these recommendations, so that improvements can be funded and made as part of regular improvement projects.
3. Signal loop detectors, which sense bicycles, should be considered for all arterial/arterial, arterial/collector, and

collector/collector intersections. A stencil of a bicycle and the words “Bicycle Loop” should identify the location of the detectors.

4. When loop detectors are installed, traffic signalization should be set to accommodate bicycle speeds.
5. Bicycle-sensitive loop detectors are preferred over a signalized button specifically designed for bicyclists (see discussion of loop detectors, below).
6. Bike lane pockets (min. 4’ wide) between right turn lanes and through lanes should be provided wherever available width allows, and right turn volumes exceed 150 motor vehicles/hour.
7. Where bottlenecks preclude continuous bike lanes, they should be linked with Class III route treatments.
8. A bike lane should be delineated from motor vehicle travel lanes with a solid 6" white line, per MUTCD. An 8" line width may be used for added distinction.

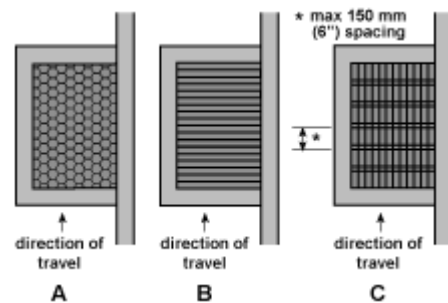


*This drainage gate, located within a bike lane, forces cyclists to veer into the travel lane to avoid it.*

- Word and symbol pavement stencils should be used to identify bicycle lanes, as per Caltrans and MUTCD specifications.

Installing bike lanes may require more attention to continuous maintenance issues. Bike lanes tend to collect debris as vehicles disperse gravel, trash, and glass fragments from traffic lanes to the edges of the roadway. Striping and stenciling will need periodic replacing.

Poorly designed or placed drainage grates can create a serious hazard for bicyclists. Drainage grates with large slits can catch bicycle tires. Poorly placed drainage grates may also be hazardous, and can cause bicyclists to veer into the auto travel lane. For example, the photo to the right shows a drainage grate, in a bike lane which represents a hazard to bicyclists.



*Examples of bicycle friendly drainage grates.*

### CLASS III BIKEWAY

Generally referred to as a “bike route,” a Class III bikeway provides routes through areas not served by Class I or II facilities or to connect discontinuous segments of a bikeway.

Class III facilities can be shared with either motorists on roadways or pedestrians on a sidewalk (not advisable) and is identified only by signing. There are no recommended minimum widths for Class III facilities, but when encouraging bicyclists to travel along selected routes, traffic speed and volume, parking, traffic control devices, and surface quality should be acceptable for bicycle travel. A wide outside traffic lane (14') is preferable to enable cars to safely pass bicyclists without crossing the centerline.

### ENHANCED CLASS III (HUMBOLDT COUNTY REGIONAL BICYCLE SYSTEM)

Currently, there are only a few existing Class III routes in the county. In many cases the perception exists that Class III bike routes – simply posting signs – may not be worth the effort, presents a maintenance burden, or that designating roads that are perceived to be dangerous for bicycles as a bike route is a liability. These perceptions need to be dispelled. Often rural roadways, which may be perceived as dangerous routes for bicycles, represent the only viable connection to a destination. An argument can be made that it’s not actually the roadway that’s dangerous, but the manner in which people drive and interact with cyclists on those roadways that presents the danger. An effective

bicycle signing campaign on those roadways that are not feasible candidates for bike lanes should be pursued to alert motorists that bicyclists may be present. There are a number of simple bicycle-friendly augmentations that can provide more bicycle support than a Class III sign alone, but that require less space and/or are less costly than Class II lanes. Ample fog line stripes that provide space between edge of pavement or parked cars



Shared Use Arrow

and the travel lane are especially helpful to bicyclists in these situations as they delineate the travel lane from the shoulder – this technique can also help visually constrict the roadway and slow traffic speeds. Other options include additional ‘share the road’ signage (which can be placed on existing sign posts or in conjunction with bike route signing) and shared use arrows to delineate bicycle routes. These optional treatments may be appropriate for specific segments of the regional bikeway system to further augment some proposed Class III routes.

## INTERSECTION CONSIDERATIONS

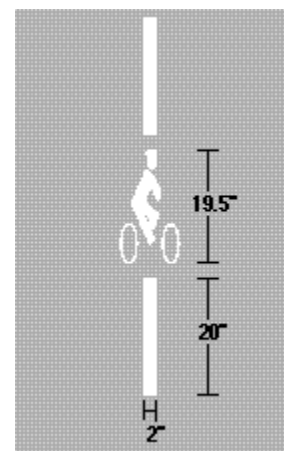
Intersections represent one of the primary collision points for bicyclists. Generally, the larger the intersection, the more difficult it is for bicyclists to cross. Oncoming vehicles from multiple directions and increased turning movements make it difficult for motorists to see non-motorized travelers.

Most intersections do not provide a designated place for bicyclists. Bike lanes and pavement markings often end before intersections, causing confusion for bicyclists. Loop and other detectors, such as video, often do not detect bicycles.

Bicyclists wanting to make left turns can face quite a challenge. Bicyclists must either choose to behave like motorists by crossing travel lanes and seeking refuge in a left-turn lane, or they act as pedestrians and dismount their bikes, push the pedestrian walk button located on the sidewalk, and then cross the street in the crosswalk. Bicyclists traveling straight also have difficulty maneuvering from the far right lane, across a right turn lane, to a through lane of travel. Furthermore, motorists often do not know which bicyclist movement to expect.

Changing how intersections operate also can help make them more “friendly” to bicyclists. Improved signal timings for bicyclists, bicycle-activated loop detectors, and camera detection make it easier and safer for cyclists to cross intersections.

**Figure A-4** is an example of an intersection that provides bike lanes at critical locations at intersections.



*This bicycle loop detector stencil shows bicyclists where to position their bicycle to activate the signal*

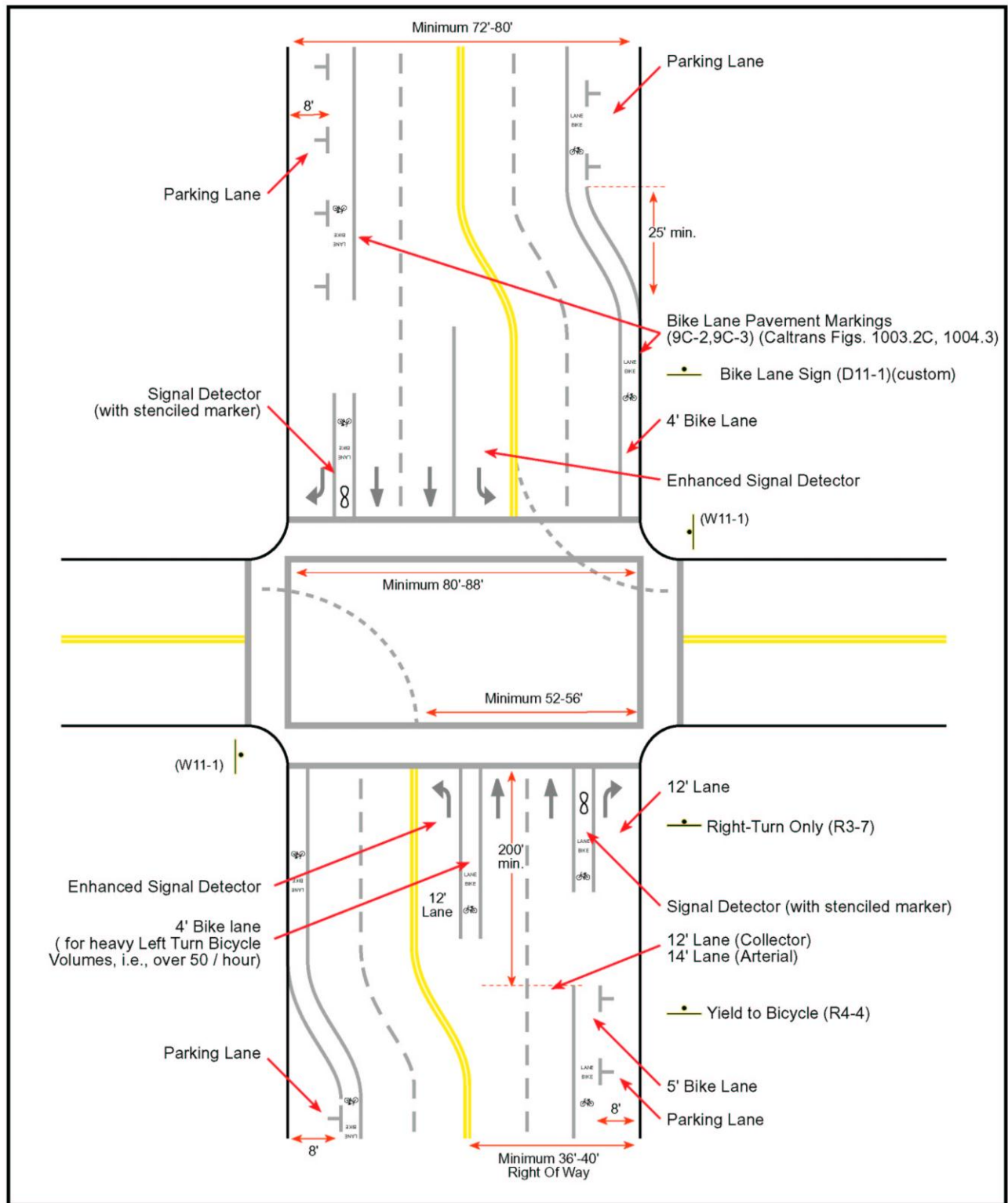


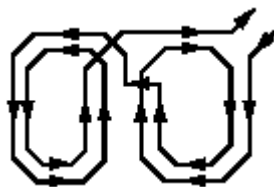
FIGURE A-4

Bike Lanes at Intersection

## BICYCLE LOOP DETECTORS

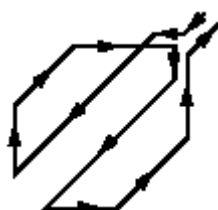
The purpose of bicycle loops is to detect bicyclists waiting at intersections, and to give cyclists extra green time (e.g. five seconds) before the light turns yellow to make it through the light. Current and future loops that are sensitive enough to detect bicycles should have pavement markings to instruct cyclists how to trip them. Common loop detector types are shown in **Figure A-5** below:

**Figure A-5**  
Common Loop Detector Types



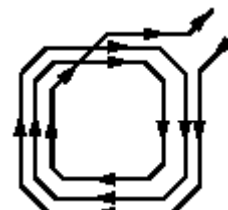
### Quadrupole Loop

Detects most strongly in center  
Sharp cut-off sensitivity  
Used in bike lanes



### Diagonal Quadrupole Loop

Sensitive over whole area  
Sharp cut-off sensitivity  
Used in shared lanes



### Standard Loop

Detects most strongly over wires  
Gradual cut-off  
Used for advanced detection

*From: Implementing Bicycle Improvements at the Local Level, FHWA, 1998, page 70.*

## BIKE BOX

A bike box is a relatively new innovation to improve turning movements for bicyclists without requiring cyclists to merge into traffic to reach the turn lane or use crosswalks as a pedestrian. The bike box is formed by pulling the stop line for vehicles back from the intersection, and adding a stop line for bicyclists immediately behind the crosswalk. When a traffic signal is red, a bicyclist can move into this “box” ahead of the cars to make himself more visible, or to move into a more comfortable position to make a turn. Bike boxes have been used in Cambridge, MA; Eugene, OR; and European cities.



*Bike box in Eugene, OR. (Photo: Evaluation of an Innovative Application of the Bike Box, FHWA, 2000.)*

## UNDERCROSSINGS

There are no proposed bikeway undercrossings recommended for the regional system at this time. **Figure A-6** illustrates basic design standards for undercrossings.

Some design considerations with undercrossings:

- Must have adequate lighting and sight distance for safety
- Must have adequate overhead clearance of at least 3.1 m (10 ft)
- Tunnels should be a minimum 4.3 m (14 ft) for several users to pass one another safely; a 3.0 m x 6.0 m (10 ft x 20 ft) arch is the recommended standard
- “Channeling” with fences and walls into the tunnel should be avoided for safety reasons
- May require drainage if the sag point is lower than the surrounding terrain

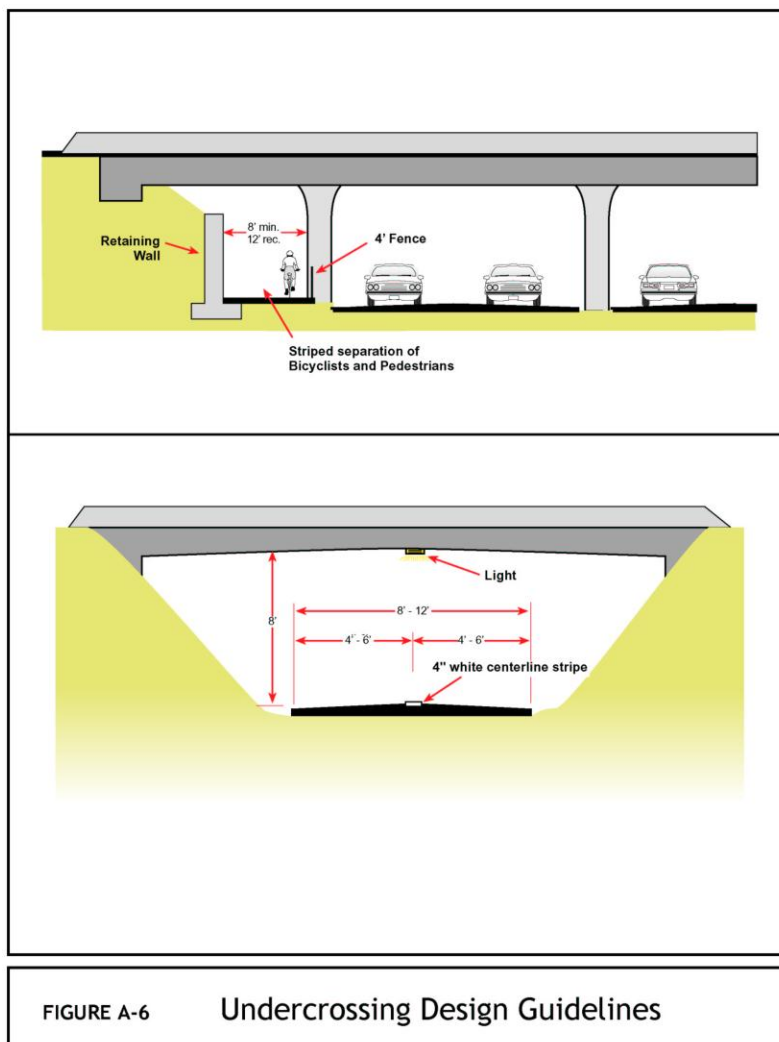


FIGURE A-6 Undercrossing Design Guidelines



*This undercrossing provides ample vertical and horizontal clearance and a clear sight line through the structure, improving the feeling of safety.*

## SIGNAGE

Implementing a well-planned and attractive system of signing can greatly enhance bikeway facilities by signaling their presence and location to both motorists and existing and potential bicycle users. By leading people to city bikeways and the safe and efficient transportation they offer to local residents and visitors to the county, effective signage can encourage more people to bicycle.

### STANDARD SIGNAGE

All bikeway signing should conform to the signing identified in the Caltrans Traffic Manual and/or the Manual on Uniform Traffic Control Devices (MUTCD). These documents give specific information on the type and location of signing for the primary bike system. A list of bikeway signs from Caltrans and the MUTCD is shown in **Table A-1**. **Figures A-7, A-8, A-9, and A-10** illustrate a number of examples of bikeway signage.

In general, the sizes of signs used on bicycle paths are smaller than those used on roadways. Table 9B-1 of the MUTCD lists minimum sign sizes for both path and roadway bicycle facilities. If the sign applies to drivers and bicyclists, then the larger size used for conventional roads shall apply.

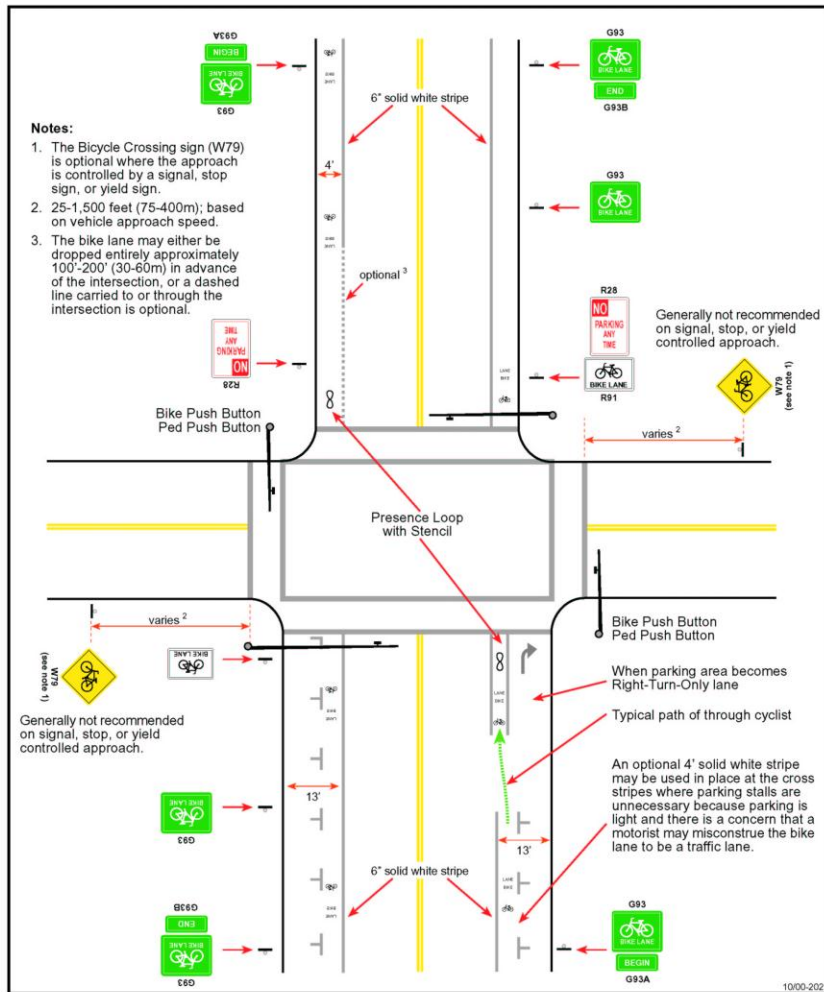
Table A-1. **Recommended Signing and Marking**

Item	Location	Color	Caltrans Designation	MUTCD Designation
No Motor Vehicles	Entrances to trail	B on W	R44A	R5-3
Use Ped Signal / Yield to Peds	At crosswalks; where sidewalks are being used	B on W	N/A	R9-5, R9-6
Bike Lane Ahead: Right Lane Bikes Only	At beginning of bike lanes	B on W	N/A	R3-16, R3-17
STOP, YIELD	At trail intersections with roads	W on R	R1-2	R1-1, R1-2
Bicycle Crossing	For motorists at trail crossings	B on Y	W79	W11-1
Bike Lane	At the far side of all arterial intersections	B on W	R81	D11-1
Hazardous Condition	Slippery or rough pavement	B on Y	W42	W8-10
Turns and Curves	At turns and curves which exceed 20- mph design specifications	B on Y	W1, 2, 3, 4, 5, 6, 14, 56, 57	W1-1, W1-2, W1-4, W1-5, W1-6
Trail Intersections	At trail intersections where no STOP or YIELD required, or sight lines limited	B on Y	W7, 8, 9	W2-1, W2-2, W2-3, W2-4, W2-5
STOP Ahead	Where STOP sign is obscured	B, R on Y	W17	W3-1
Signal Ahead	Where signal is obscured	B, R, G	W41	W3-3
Bikeway Narrows	Where bikeway width narrows or is below 8'	B on Y	W15	W5-4

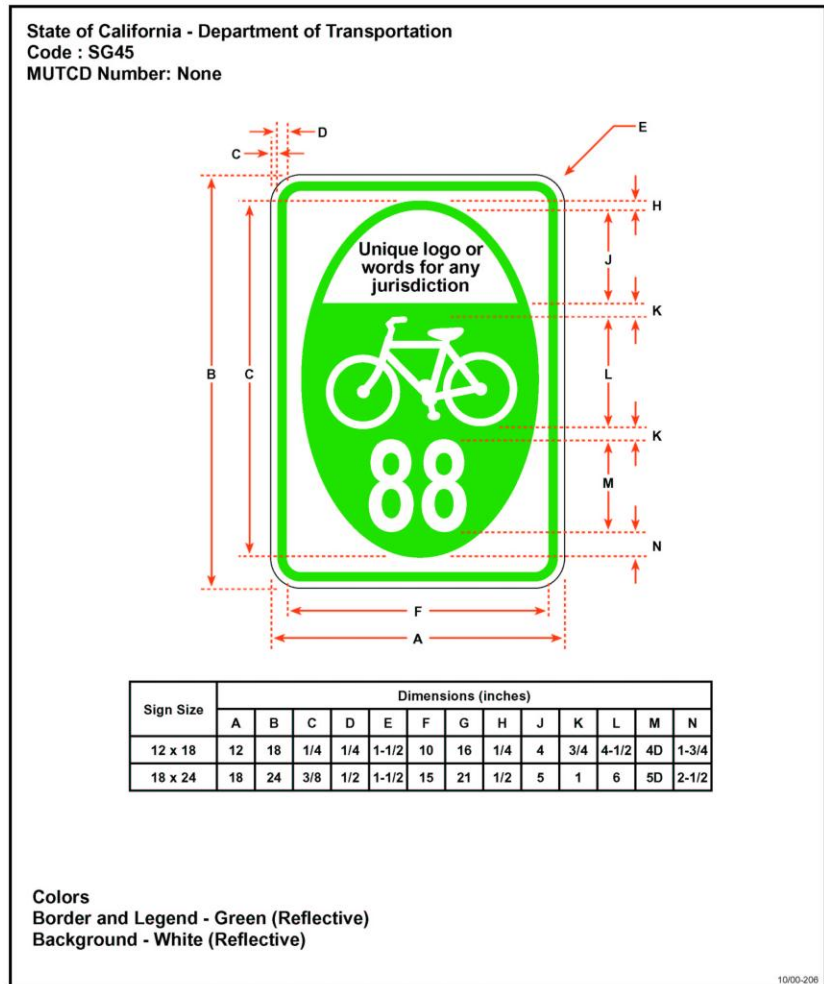
## Humboldt REGIONAL BICYCLE PLAN - Update 2012

<b>Item</b>	<b>Location</b>	<b>Color</b>	<b>Caltrans Designation</b>	<b>MUTCD Designation</b>
Downgrade	Where sustained bikeway gradient is above 5%	B on Y	W29	W7-5
Pedestrian Crossing	Where pedestrian walkway crosses trail	B on Y	W54	W11A-2
Restricted Vertical Clearance	Where vertical clearance is less than 8'6"	B on Y	W47	W11A-2
Railroad Crossing	Where trail crosses railway tracks at grade	B on Y	W47	W10-1
Directional Signs	At intersections where access to major destinations is available	W on G	G7, G8	D1-1b(r/l), D1-1-c
Right Lane Must Turn Right; Begin Right Turn Here; Yield to Bikes	Where bike lanes end before intersection	B on W	R18	R3-7, R4-4

# Humboldt REGIONAL BICYCLE PLAN - Update 2012



**FIGURE A-7** Typical Signing At a Signalized Intersection



**FIGURE A-8** Caltrans Customized Bikeway Signs

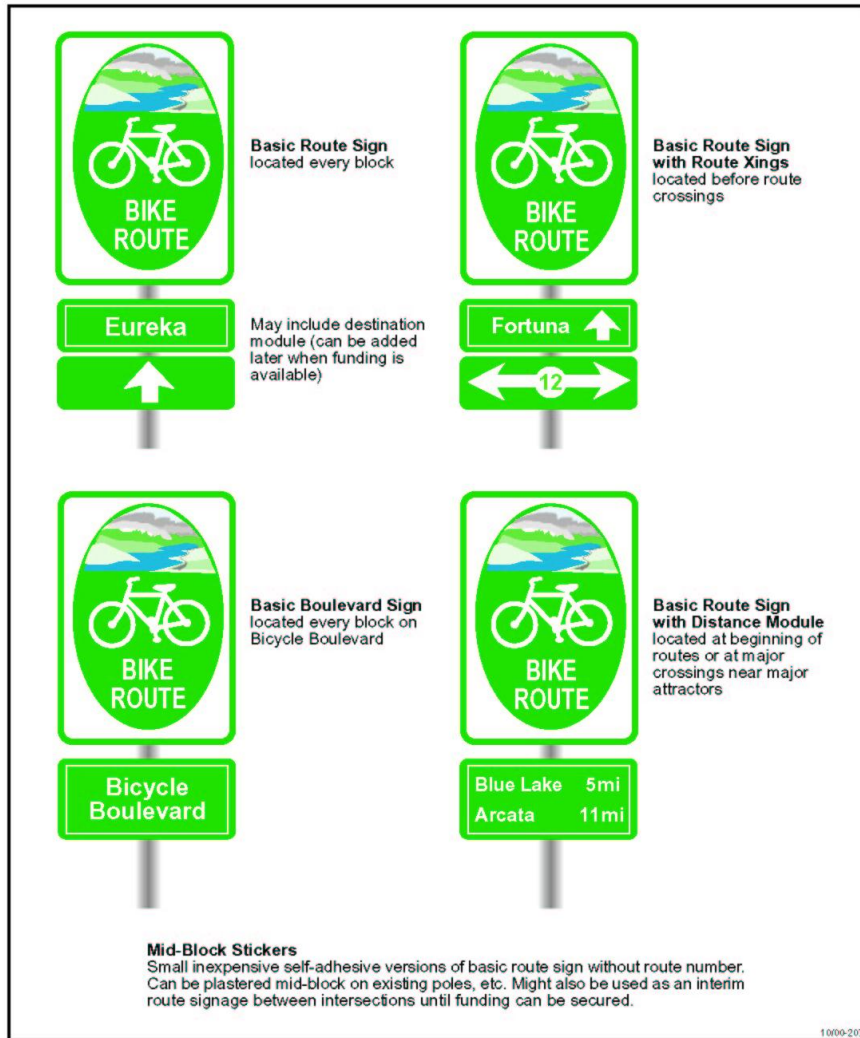


FIGURE A-9 Various Bikeway Informational Signs

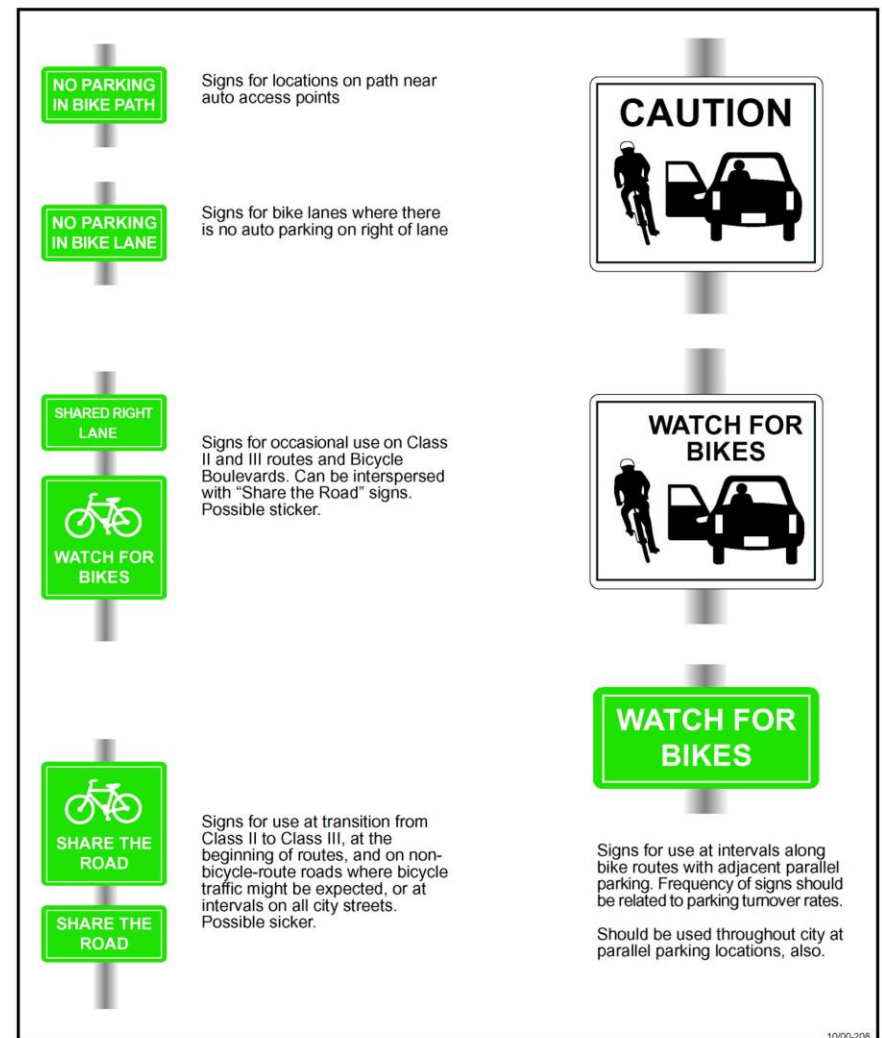


FIGURE A-10 Various On-Street Bikeway Warning Signs

## OTHER SIGNAGE

Innovative signing is often developed to increase bicycle awareness and improve visibility. Signs to be installed on public roadways in California must be approved by Caltrans' California Traffic Control Devices Committee. New designs can be utilized on an experimental basis with Caltrans approval.

San Francisco was the first city in California to use the approved customized bike route logo sign. Jurisdictions may choose a graphic of their choice for the upper third portion of the sign and a numbering system, similar to the highway numbering system, can be used in the lower third. Some considerations for the use of directional signage:

- Use signs sparingly, primarily at intersections and junctions with other bicycle routes
- A consistent and recognizable logo, arrows and a destination should be on the sign to clearly direct bicyclists
- Bicycle route signs should be accompanied with destination and direction plaques

The new "Share the Road" sign, adopted by the California Traffic Control Devices Committee in 1999, is designed to advise motorists that bicyclists need to share narrow roadways with motor vehicles. This sign has been installed throughout Marin County.

Interest has been generated over the "Bikes Allowed Use of Full Lane" sign. These words, taken directly from the California Vehicle Code (CVC 21202), remind motorists of the rights of bicyclists on the roadway, Cities may consider using this sign as an experiment as it has not yet been approved by the California Traffic Control Devices Committee.

## PAVEMENT MARKINGS

The Manual on Uniform Traffic Control Devices (MUTCD) provides guidance for lane delineation, intersection treatments, and general application of pavement wording and symbols for on-road bicycle facilities and off-road paths. In addition to those presented in the MUTCD, the following experimental pavement markings may be considered.

### SHARED USE STENCIL

Recently, shared-use pavement stencils, an additional treatment for Class III facilities, have been introduced on city roadways. San Francisco is testing a bicycle stencil for use on Class III facilities where lanes are too narrow for sharing. The stencil can serve a number of purposes, such as making motorists aware of bicycles potentially in their lane, showing bicyclists the direction of travel, and, with proper placement, reminding bicyclists to bike further from parked cars to prevent "dooring" collisions. The City of Denver has effectively used this treatment for several years and the City of San Francisco has recently begun a study of its effectiveness. The two common stencil designs are shown below in **Figure A-11**, and **Figure A-12** illustrates the correct on-street Shared-Use pavement stencil installation.



Figure A-11. Shared-Use Pavement Stencils

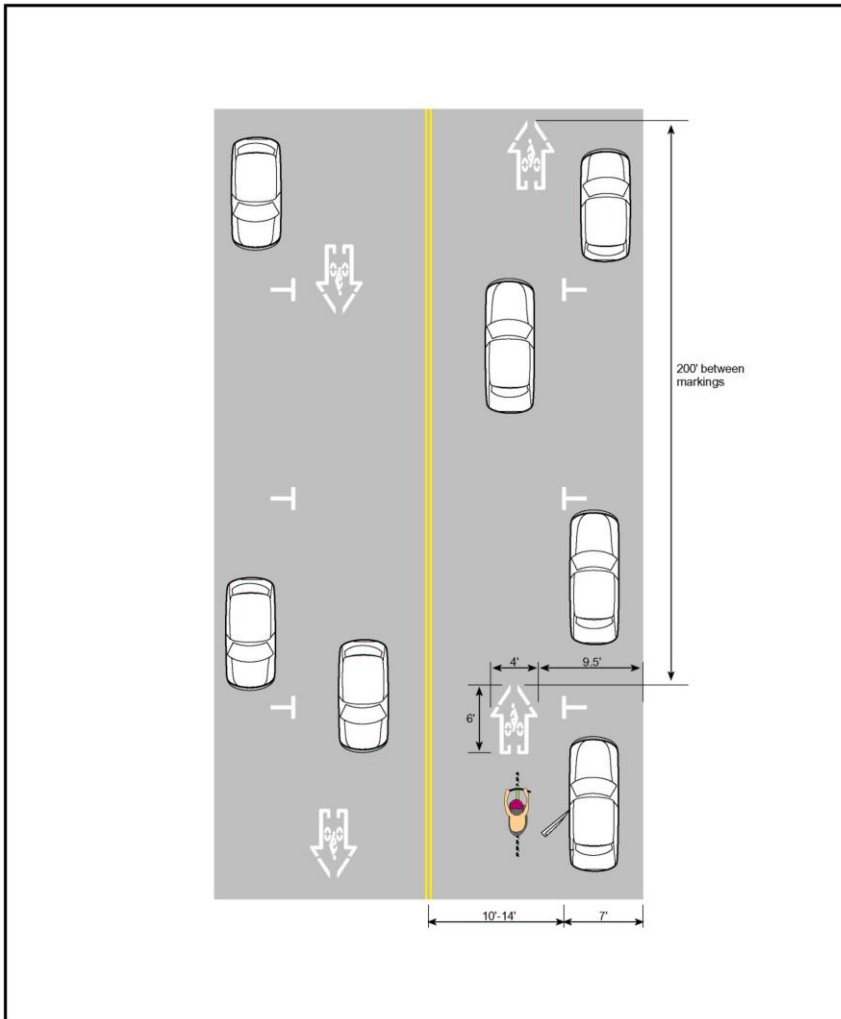
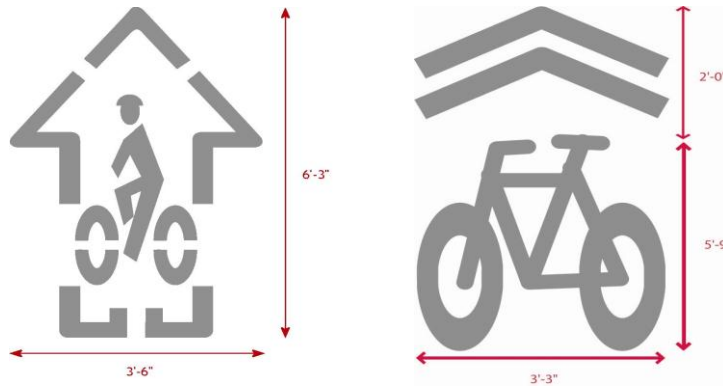


FIGURE A-12 Shared-Use Pavement Stencil Installation

Some considerations with Shared Use pavement arrows:

- Pavement markings should be installed with its centerline 3.7 m (12 ft) from the face of the curb where parking is permitted
- For curb lanes with no room for parking or bicycle lanes, the pavement marking should be placed with the logo's centerline at least 0.9 m (3 ft) from the edge of the rideable surface
- Install logo every 30.5 m – 60.9 m (100 ft - 200 ft)

## COMBINED BICYCLE/RIGHT TURN LANE

In this innovative treatment, a standard-width bicycle lane is installed on the left side of the dedicated right-turn lane. A dashed stripe provides the bicycle portion and the right-turn portion of the lane. This installation should be used on roadways where there is not enough room to provide a standard-width bicycle lane and a standard-width dedicated right-turn lane. These facilities are currently used in Eugene, Oregon.

Some considerations for the implementation of combined bicycle/right turn lanes:

- Average vehicle speeds < 48 km/h (30 mi/h)
- Install a sign to instruct motorists and bicyclists how to use the facility
- Stripe and sign bicycle lane pavement markings in the turn lane to position and guide bicyclists in the right-turn lane



*The photos above show the operation of a combined bicycle/right turn lane, along with the signage instructing motorists and bicyclists how to properly use the facility.*

## BICYCLE PARKING

As more bikeways are constructed and bicycle usage grows, the need for bike parking will climb. Long-term bicycle parking at transit stations and work sites, as well as short-term parking at shopping centers and similar sites, both can support bicycling. Bicyclists have a significant need for secure long-term parking because bicycles parked for longer periods are more exposed to weather and theft, although adequate long-term parking rarely meets demand.

## BICYCLE RACKS

When choosing bike racks, there are a number of things to keep in mind:

- The rack element (part of the rack that supports the bike) should keep the bike upright by supporting the frame in two places without the bicycle frame touching the rack. The rack should allow one or both wheels to be secured.
- Position racks so there is enough room between adjacent parked bicycles. If it becomes too difficult for a bicyclist to easily lock their bicycle, they may park it elsewhere and the bicycle capacity is lowered. A row of inverted “U” racks should be situated on 30” minimum centers.
- Empty racks should not pose a tripping hazard for visually impaired pedestrians. Position racks out of the walkway’s clear zone.

- When possible, racks should be in a lighted, high visibility, covered area protected from the elements. Long-term parking should always be protected

**Table A-2** provides basic guidelines on the ideal locations for parking at several key activity centers as well as an optimum number of parking spaces.

Sample bicycle parking ordinance language is provided in **Appendix E** of this Plan, which outlines minimum bicycle parking standards for various land uses. This language can serve as a template for the jurisdictions in Humboldt County who would like to create a bicycle parking ordinance for inclusion in their zoning code.

Table A-2. **Recommended Guidelines for Bicycle Parking Locations and Quantities**

<b>Land Use or Location</b>	<b>Physical Location</b>	<b>Bicycle Capacity</b>
City Park	Adjacent to restrooms, picnic areas, fields, and other attractions	8 bicycles per acre
City Schools	Near office entrance with good visibility	8 bicycles per 40 students
Public Facilities (city hall, libraries, community centers)	Near main entrance with good visibility	8 bicycles per location
Commercial, retail and industrial developments over 10,000 gross square feet	Near main entrance with good visibility	1 bicycle per 15 employees or 8 bicycles per 10,000 gross square feet
Shopping Centers over 10,000 gross square feet	Near main entrance with good visibility	8 bicycles per 10,000 gross square feet
Commercial Districts	Near main entrance with good visibility; not to obstruct auto or pedestrian movement	2 bicycles every 200 feet
Transit Stations	Near platform or security guard	1 bicycle per 30 parking spaces

## ATTENDED BICYCLE PARKING FACILITIES

Attended bike parking is analogous to a coat check – your bike is securely stored until you need it in a supervised location. An organization called The Bikestation® Coalition is promoting enhanced attended parking at transit stations.

The Bikestation® concept is now in use in Palo Alto and Berkeley in the Bay Area. Bikestations® offer secured valet bicycle parking near transit centers. What makes Bikestations® distinctive are the other amenities that may be offered at the location – bicycle repair, cafes, showers and changing facilities, bicycle rentals, licensing, etc. Bikestations® become a virtual one-stop-shop for bicycle commuters.

Attended bicycle parking can be offered at some special events. For example, the Marin County Bicycle Coalition sponsors valet parking at many festivals in the county, the Sonoma County Bicycle Coalition sponsors valley parking at the downtown Santa Rosa Farmer’s Market, and secured bicycle parking is offered at Pac Bell Park in San Francisco.

## APPENDIX C

### BICYCLE COMPATIBILITY INDEX AND LEVEL OF SERVICE

In the transportation field, including transportation planning, practitioners rate roadway traffic conditions by using the “level of service” concept, or LOS. A roadway gets an LOS “grade” (A to F) based on its traffic flow conditions, such as motor vehicle speeds, volumes, and delays. The LOS concept was originally developed to gauge congestion on highways. As the field has started to expand from a car-dominant perspective to a multi-modal perspective, people have advocated for measuring the LOS not just for motorists, but for public transit users, pedestrians, and bicyclists as well.

The “Bicycle Compatibility Index” (BCI) is a generally established model for measuring conditions for bicyclists. Below we explain the BCI by reprinting excerpts from “Developing the Bicycle Compatibility Index: A Level of Service Concept, Final Report” and its companion, “The Bicycle Compatibility Index: A Level of Service Concept, Implementation Manual.” The Federal Highway Administration (FHWA) published these in 1998.

In addition, the latest edition of the “Highway Capacity Manual” (HCM2010)<sup>1</sup> recommends LOS methodologies for motorists, pedestrians, bicyclists, transit users, as well as multi-modal LOS analysis. Because the HCM2010 is a standard reference for virtually all public works/transportation departments, it is likely that these LOS models will be tried and applied most in the field, at least for the near future. The HCM2010’s new LOS methods were reported first in “NCHRP Report 616: Multimodal Level of Service Analysis for Urban Streets” (2008). In section III, we have reprinted the bicycle LOS models from the NCHRP “Report 616.”

#### I. EXCERPTS FROM FHWA’S “FINAL REPORT”

##### ■ ABSTRACT

Presently, there is no methodology *widely accepted* by engineers, planners, or bicycle coordinators that will allow them to determine how compatible a roadway is for allowing efficient operation of both bicycles and motor vehicles. Determining how existing traffic operations and geometric conditions impact a bicyclist’s decision to use or not use a specific roadway is the first step in determining the bicycle compatibility of the roadway. ... The BCI methodology was developed for urban and suburban roadway segments (i.e., midblock locations that are exclusive of major intersections) and incorporated those variables which bicyclists typically use to assess the “bicycle friendliness” of a roadway (e.g., curb lane width, traffic volume, and vehicle speeds). The developed tool will allow practitioners to evaluate existing facilities to determine what improvements may be required as well as to determine the geometric and operational requirements for new facilities.

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<sup>1</sup> “Highway Capacity Manual,” 5th edition. Transportation Research Board. 2010.

## □ Bicycle Level of Service

The Highway Capacity Manual defines levels of service (LOS) as "...qualitative measures that characterize operational conditions within a traffic stream and their perception by motorists and passengers" (*Highway Capacity Manual*, Special Report 209, Transportation Research Board, Washington, DC, 1994). The terms used in describing each LOS (designated as A through F, with LOS A being the most desirable) include speed and travel time, freedom to maneuver, comfort/convenience, and traffic interruptions. ...For bicycles, LOS criteria are not defined in the Highway Capacity Manual.

In the current study, the bicycle compatibility index (BCI) reflects the comfort levels of bicyclists on the basis of observed geometric and operational conditions on a variety of roadways. (The FHWA's) development of the BCI model allows the user to determine bicycle LOS for roadway segments by incorporating these geometric and operational characteristics into the model.

## ■ SUMMARY OF RESULTS

The approach used in developing the BCI was to obtain the perspectives of bicyclists by having them view numerous roadway segments captured on videotape and rate those segments with respect to how comfortable they would be riding there under the geometric and operational conditions shown. The reliability of the results obtained using this video technique of data collection -- with respect to reflecting on-street comfort levels -- was validated in a pilot study.<sup>2</sup> The procedure used offered several advantages over other forms of data collection, including minimizing the risk to bicyclists, maximizing the range of roadway conditions to which the bicyclists could be exposed, and controlling the variables evaluated by the bicyclists.

Using the perspectives of over 200 study participants in three locations (Olympia, WA; Austin, TX; and Chapel Hill, NC), the BCI model was developed for all bicyclists. This model predicts the overall comfort level rating of a bicyclist using the eight significant (at  $p \leq 0.01$ ) variables (described below and shown in Table 1) and an adjustment factor (AF) to account for three additional operational characteristics. The basic model (excluding the adjustment factor) has an  $R^2$ -value of 0.89, indicating that 89 percent of the variance in the index or comfort level of the bicyclist is explained by the eight variables included in the model. In other words, the model is a reliable predictor of the expected comfort level of bicyclists on the basis of these eight variables describing the geometric and operational conditions of the roadway.

The variable with the largest effect on the index is the presence or absence of a bicycle lane or paved shoulder that is at least 0.9 m wide (BL); the presence of a bicycle lane (paved shoulder) reduces the index by almost a full point, indicating an increased level of comfort for the bicyclist. Increasing the width of the bicycle lane or paved shoulder (BLW) or the curb lane (CLW) also

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<sup>2</sup> Chapter 2 of the FHWA "Final Report" describes the pilot study.

reduces the index as does the presence of residential development along the roadside (AREA). On the other hand, an increase in traffic volume (CLV and OLV) or motor vehicle speeds (SPD)

**Table 1. Bicycle Compatibility Index (BCI) Model for Midblock Street Segments**

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$$\text{BCI} = 3.67 - 0.966\text{BL} - 0.410\text{BLW} - 0.498\text{CLW} + 0.002\text{CLV} + 0.0004\text{OLV} + 0.022\text{SPD} + 0.506\text{PKG} - 0.264\text{AREA} + \text{AF}$$


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<p><i>8 primary variables:</i></p> <p>BL = presence of a bicycle lane or paved shoulder ≥ 0.9m.          BLW = bicycle lane (or paved shoulder) width          CLW = curb lane width          CLV = curb lane volume          OLV = other lane(s) volume – same direction          SPD = 85th-percentile speed of traffic          PKG = presence of a parking lane with more than 30% occupancy          AREA = type of roadside development present</p>	<p><i>3 additional variables (AF):</i></p> <p>1) Large truck volume (ft)          2) Parking time limits (fp)          3) Right-turn volumes (ft)</p>
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increases the index, indicating a lower level of comfort for the bicyclist. The presence of on-street parking (PKG) also increases the index.

In addition to the primary variables included in the BCI model, three additional variables defining specific operating conditions were also examined. These supplemental variables were identified during the pilot phase of the study as having a potential impact on the comfort level of bicyclists and included the presence of: 1) large trucks or buses, 2) vehicles turning right into driveways or minor intersections, or 3) vehicles pulling into or out of on-street parking spaces. An analysis of the overall comfort level ratings made when viewing video clips illustrating these conditions showed all three of these variables to significantly increase the comfort level rating, thus indicating a lower level of comfort when these conditions were present...

...Another issue addressed was that of possible regional differences in the perception of bicyclists. If bicyclists in different geographical regions of the country perceive comfort levels differently, then separate models would need to be developed to reflect these differences. An analysis of the comfort level ratings across subjects in the three survey cities showed no differences in the mean comfort levels for the four variables rated (speed, volume, width, and overall). This lack of differences indicates that the perceptions of individuals with respect to bicycle compatibility are the same in the three regions where the survey was conducted, and that the BCI model should be applicable across all regions of the country.

...Overall, the results of this limited effort for intersections was positive and showed that the video methodology used to obtain bicyclists' perspectives can be a reliable means for producing a compatibility index for intersections. However, future research needs to be conducted in which the scope of the study is expanded to include the full range of possible intersection maneuvers by bicyclists and the full range of geometric and operational conditions that can be expected in urban/suburban settings.

## II. EXCERPTS FROM FHWA'S IMPLEMENTATION MANUAL

*The following describes how to calculate the BCI-BLOS of a roadway. BCI modeling requires data for the first nine variables; it is valuable to have data for the tenth variable. Then, Figures 1, 2, and 3 reproduce the worksheets that calculate the BCI; the "Implementation Manual" on-line provides these worksheets in Microsoft Excel format [<http://safety.fhwa.dot.gov/tools/docs/bci.pdf>].*

### ■ BCI MODEL

(1) **Lane Configuration (BL)** - *number of through motor vehicle lanes in one direction and the presence or absence of a bicycle lane or paved shoulder.* The number of lanes is used in the workbook to determine lane volumes from the average annual daily traffic (AADT).

(2) **Curb lane width (CLW)** - *width of the motor vehicle travel lane closest to the curb, measured to the nearest tenth of a meter. (See the Implementation Manual for directions on how to measure curb lane width.)*

(3) **Bicycle lane width (BLW)** - *width of bicycle lane or paved shoulder (if present), measured to the nearest tenth of a meter. Note that a paved shoulder is treated the same as a bicycle lane in the BCI model since recent research has shown that these two types of facilities result in virtually identical operational behaviors by motorists and bicyclists (D.L. Harkey and J.R. Stewart, "Evaluation of Shared-Use Facilities for Bicycles and Motor Vehicles," *Transportation Research Record 1578*, Transportation Research Board, Washington, DC, 1997). (See the "Implementation Manual" for directions on how to measure bicycle lane and paved shoulder width.)*

(4) **Motor vehicle speed (SPD)** - *85th percentile speed of traffic, in km/h. This value can be obtained from manual or automated speed data collection efforts. When the data are unavailable, FHWA recommends adding 15 km/h to the posted speed limit to estimate the 85th percentile speed.*

(5) **Traffic volume (PHV, CLV and OHV)** - *hourly traffic volume by lane in one direction of travel. While hourly counts may be available in some locations, it is more likely that AADT counts (collected for continuous 24-hour periods) will be the source of traffic volume information. Converting these data into hourly counts requires knowing the percentage of daily traffic traveling on the roadway during the hour of interest. In most cases, the hour of interest will be the peak hour.*

This formula is used to derive hourly vehicle volumes (peak-hour volume, PHV) from AADT volumes.

$$\text{PHV} = \text{AADT} \times \text{K} \times \text{D}$$

where:

**AADT** = average annual daily traffic (vehicles per day)

**K** = peak-hour factor (the proportion of vehicles traveling during the peak hour, expressed as a decimal), and

**D** = directional split factor (the proportion of vehicles traveling in the peak direction during the peak hour, expressed as a decimal).

The K- and D-factors are usually determined on the basis of regional or route-specific characteristics. Generally, the K-factor ranges from 0.07 to 0.15 while the D-factor ranges from 0.50 to 0.65 in urban and suburban areas (W.R. McShane and R.P. Roess, Traffic Engineering, Prentice Hall, Englewood Cliffs, NJ, 1990). If these factors are unknown or cannot be easily determined, a default K-factor of 10 percent may be assumed, and a default D-factor of 55 percent may be used. Note also that for one-way streets, the D-factor becomes 1.0 since 100 percent of the traffic is traveling in the same direction.

Once the (peak) directional hourly volume of traffic is determined using the above formula, it is necessary to assign traffic volumes to the curb lane and other travel lanes if it is a multi-lane facility. If counts are available by lane, the percentage of vehicles traveling in each lane can be easily determined. If counts by lane are not available, the CLV formula distributes hourly volume equally across all lanes, using the following equations:

$$\text{CLV} = \text{PHV}/\text{N} \qquad \text{OLV} = \text{PHV} - \text{CLV}$$

where:

**OLV** = hourly volume in all through lanes except the curb lane,

**PHV** = peak-hour directional volume, and

**N** = number of through lanes in one direction.

(6) **Presence and density of on-street parking (PKG)** - *presence of an on-street parking lane and percentage of spaces occupied.* The simple presence of an on-street parking lane may not adversely impact the comfort level of the bicyclist. During the development of the BCI model, it was shown that at least 30 percent of the spaces had to be occupied before the parking lane impacted the bicyclists' comfort level. Thus, it is necessary to collect occupancy data for the hour being evaluated to determine if this 30 percent occupancy threshold is being met.

(7) **Type of development (Area)** - *type of development or land use adjacent to the roadway.* For purposes of the model, only two classifications are required, "residential" and "other." The residential development type proved to be significantly different from all other types of development and was shown to positively impact the comfort level of bicyclists.

(8) **Large truck volume (CLTV)** - *hourly large truck volume in the curb lane.* For purposes of the BCI model, large trucks are simply defined as all vehicles having six or more tires. This definition captures most single unit trucks and all combination unit trucks and buses. Most

vehicle counters used today provide vehicle classification; thus the percentage of trucks in the traffic stream is readily available if traffic count data are available. The volume of large trucks in the curb lane can then be determined as follows:

$$\text{CLTV} = \text{PHV} \times \text{HV} \times \text{T}$$

where:

**CLTV** = curb lane truck volume,

**PHV** = peak-hour directional volume (all vehicles),

**HV** = the proportion of all vehicles in the traffic stream that can be defined as large trucks (expressed as a decimal), and

**T** = curb lane truck factor (proportion of large trucks traveling in the curb lane, expressed as a decimal).

On a two-lane roadway (one lane of travel in each direction), the T-factor, or proportion of large trucks traveling in the curb lane, is 1.0 since 100 percent of the trucks will be traveling in the curb lane. On a multi-lane roadway, however, the T-factor must be calculated or assumed. If traffic counts are collected by lane of travel, the T-factor can be directly determined. If such data are not available, FHWA recommends a default value of 0.80 for this factor on multi-lane roadways, indicating that 80 percent of the large trucks on the roadway are traveling in the curb lane. This value is based on collected data for freeways showing that up to 89 percent of the trucks travel in the curb lane (*Highway Capacity Manual*, Special Report 209, Transportation Research Board, Washington, DC, 1994). While comparable statistics were not available for arterials and other types of surface streets, the distribution of large trucks by lane of travel is believed to be similar.

If classification counts are not available, the user will have to input a truck percentage value (HV) believed to be appropriate for the type of roadway. ...On the basis of (previous) analysis,<sup>3</sup> FHWA recommends that the practitioner use the truck percentages shown in Table 4 for the various functional classifications when he/she does not have the appropriate data and is not able to adequately determine the actual truck percentage.

(9) **Parking time limits** - *parking time limits for on-street spaces*. Vehicles pulling into or out of on-street parking spaces were shown to adversely impact the comfort level of bicyclists. Thus, as the parking turnover increases along a street, bicyclists feel less comfortable. Since most locations will not have parking turnover data, FHWA recommends using a surrogate measure of parking time limit. It should be noted, however, that there may be cases where the time limit does not adequately reflect the level of parking turnover. For example, a street in front of a local post office may have 60-minute parking stalls, but the people using these spaces may generally be there no more than 15 minutes at a time. In that case, the value for a 15-minute limit parking stall may be more appropriate.

(10) **Right-turn volumes (RTV)** - *hourly volume of vehicles turning right into all driveways and intersecting streets along the midblock segment being evaluated*. For the BCI model, the

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<sup>3</sup> *Highway Safety Information System*, Internal Project Memorandum, Federal Highway Administration, Washington, DC, February 1998.

adjustment factor is only applied when the hourly number of right turns is 270 or more. Knowing this information will help account for high-volume driveways or minor streets.

Knowledge of the proportion of vehicles turning right into driveways and minor intersection streets along a segment of roadway often may not exist. Because the adjustment factor in the BCI model and the relative impact on the overall bicycle LOS are small, it does not warrant spending resources to obtain this information. Instead, FHWA recommends that the practitioner use his/her judgment as to whether a specific midblock segment contains a high volume of right-turning traffic during the hour being evaluated. Right-turn volumes may be a factor during the peak hour, for example, at business and industrial entrances and minor streets used to cut through neighborhoods.

## ■ BCI WORKSHEETS

The “Implementation Manual” includes three separate worksheets that are linked together to calculate the BCI and LOS results. These worksheets are depicted here in the following:

**Figure 1. *Data Entry Worksheet*** for the user to enter location information (road geometry, traffic, parking conditions);

**Figure 2. *Intermediate Calculations Worksheet***, which converts the AADT into hourly volumes and calculates the three adjustments factors contained in the BCI model; and

**Figure 3. *BCI and LOS Computations Worksheet*** makes the final calculations. No user inputs are required here. This last worksheet computes the BCI and LOS from the data in the Data Entry worksheet and the Intermediate Calculations worksheet.

Figures 1, 2, and 3 follow the tables on the next page.

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Tables 2, 3, and 4, below, are reproduced from the FHWA “Implementation Manual.”

**Table 2. Bicycle Compatibility Index (BCI) Model, Variable Definitions, and Adjustment Factors**

$BCI = 3.67 - 0.966BL - 0.410BLW - 0.498CLW + 0.002CLV + 0.0004OLV + 0.022SPD + 0.506PKG - 0.264AREA + AF$	
BL = presence of a bicycle lane or paved shoulder $\geq 0.9m$ . no = 0 yes = 1	OLV = other lane(s) volume – same direction vph
BLW = bicycle lane [or pave shoulder] width m (to nearest tenth)	SPD = 85th percentile speed of traffic km/h
CLW = curb lane width m (to nearest tenth)	PKG = presence of a parking lane with more than 30% occupancy no = 0 yes = 1
CLV = curb lane volume vph in one direction	AREA = type of roadside development present Residential = 1 other type = 0
<b>Adjustment Factor Formula</b> $AF = ft + fp + frt$ where:	<b>Adjustment Factors</b>
ft = adjustment factor for truck volumes	Hourly curb-lane large truck volume <sup>1</sup>
fp = adjustment factor for parking turnover	Parking time limit (min)
frt = adjustment factor for right-turn volumes	Hourly right-turn volume <sup>2</sup>
	ft
	fp
	frt
	$\geq 120$ 0.5
	60-119 0.4
	60-59 0.3
	20-29 0.2
	10-19 0.1
	< 10 0.0
	$\leq 15$ 0.6
	16-30 0.5
	31-60 0.4
	61-120 0.3
	121-240 0.2
	241-480 0.1
	> 480 0
	$\geq 270$ 0.1
	< 270 0.0
	1. Large trucks are defined as vehicles with 6 or more tires.
	2. Includes total number of right turns into driveways or minor intersections along a roadway segment.

**Table 3. BCI Ranges Associated with LOS and Compatibility Level Qualifiers\***

LOS	BCI Range	Compatibility Level
A	$\leq 1.50$	Extremely high
B	1.51 – 2.30	Very high
C	2.31 – 3.40	Moderately high
D	3.41 – 4.40	Moderately low
E	4.41 – 5.30	Very low
F	> 5.30	Extremely low

\*Qualifiers for compatibility level pertain to the average adult bicyclist.

**Table 4. Recommended Truck Percentages Where Such Information Is Not Available**

Type of Street	Recommended Truck Percentage (HV)
Principal arterial (non-freeway)	3.5
Minor arterial	2.0
Collector street	1.5
Local street	0.0

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Figures 1, 2, and 3 are reproduced from the FHWA “Implementation Manual.” Worksheets are available in Microsoft Excel format, online at <http://safety.fhwa.dot.gov/tools/docs/bci.pdf> [website link as of April 2012].

Figure 1. Data Entry Worksheet

Location	Geometric & Roadside Data					Traffic Operations Data					Parking Data		
Mid-block Identifier (Route/Intersecting Streets, Segment No., Link No., etc.)	No. of Lanes (one direction) (N)	Curb Lane Width (m) (CLW)	Bicycle Lane Width (m) (BLW)	Paved Shoulder Width (m) (BLW-alt)	Residential Development (y/n)	Speed Limit (km/h)	85 <sup>th</sup> %tile Speed (km/h)	AADT	Large Truck % (HV)	Right Turn % (R)	Parking Lane (y/n)	Occupancy (%)	Time Limit (mins)
1st Ave-5th/6th Sts	2	3.6	1.2		y	30	37	10000	0.02	0.10	y	0.30	120

Figure 2. Intermediate Calculations Worksheet

Location	Peak-Hour Volume Computations							Adjustment Factors				
Mid-block Identifier	Peak-Hour Factor (K-factor) <sup>1</sup>	Directional Split (D-factor) <sup>2</sup>	Curb Lane % <sup>3</sup>	Curb Lane Truck % (T-factor) <sup>4</sup>	Peak Hour Volume (PHV)	Peak Hr Curb Lane Volume (CLV)	Peak Hr Other Lane(s) Vol (OLV)	Peak Hr Curb Lane Truck Vol (CLTV)	Large Truck Adjustmt Factor (Ft)	Peak Hr Right Turn Volume	Right Turn Adjustmt Factor (Frt)	Parking Adjustmt Factor (Fp)
	User-defined value (default to 0.10 if unknown)	User-defined value (= 1.0 on 1-way streets; default 0.55 on 2-way streets if directional distrib'n unknown)	= 1/no. of lanes (can be user-defined if lane distribution is known)	User-defined value (=1.0 on 2-lane streets; default to 0.80 on multi-lane streets if lane distribution is unknown) <sup>5</sup>	= AADT * D-factor i.e., AADT*K*D	= Peak Hour Volume * Curb Lane % i.e., PHV / N	= Peak Hour Volume - Peak Hour Curb Lane Volume i.e., PHV-CLV	= Peak Hour Large Truck % * T-factor i.e., PHV*HV*T	Calculated based on Peak Hour Curb Lane Truck Volume using the volume parameters shown in Table 1.	= Peak Hour Right Turn Volume * Right Turn %	Calculated based on Peak Hour Curb Lane Volume using the volume parameters shown in Table 1.	Calc'd based on Parking Occupancy and Parking Time Limit parameter shown in Table 1.

1. Peak-hour factor (K factor) – % vehicles traveling in peak hour. Generally ranges from 0.07 to 0.15
2. Directional split (D factor) – proportion of vehicles traveling in peak direction during peak hour. Generally ranges from 0.50 to 0.65 in urban and suburban areas. For one-way streets, the D factor is 1.0 because 100% of traffic travels in the same direction.
3. Curb lane % – % of all vehicles traveling in curb lane.
4. Curb lane truck % (T factor) – % of large trucks traveling in curb lanes (expressed as a decimal).
5. When data is not available, FHWA also recommends using these truck percentages shown in Table 4 (above).

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Figure 3. Bicycle Compatibility Index and Level of Service Computations

Location Mid-block Idntfr	BCI Model Variables									Results		
	BL	BLW	CLW	CLV	OLV	SPD	PKG	AREA	AF	BCI	LOS	BCI
First Avenue - 5th/6th Streets	1	0.2	0.1	0	0	E	0	0	0	4.00	D	Moderately Low
	= 1 if <b>Bicycle Lane Width</b> or <b>Paved Shoulder Width</b> is ≥0.9m; otherwise value is 0.	= <b>Bicycle Lane Width</b> or <b>Paved Shoulder Width</b>	= <b>Curb Lane Width</b>	= <b>Peak Hour Curb Lane Volume</b>	= <b>Peak Hour Other Lane(s) Volume</b>	= 85th%e speed if provided or speed limit + 15 km/h if not (user can change default value of 15 km/h)	= 1 if <b>Parking Lane</b> is present ("y") and <b>Occu- pancy</b> ≥ 0.30; other- wise, the value is 0.	= 1 if <b>Residen- tial Develop- ment</b> is present ("y") and 0 if not ("n").	= <b>Large Truck Adj Factor</b> + <b>Right Turn Adj Factor</b> + <b>Parking Adj Factor</b>	= 3.67- (0.966*BL) - (0.410*BLW) - (0.498*CLW) + (0.002*CLV) + (0.0004*OLV) + (0.022*SPD) + (0.506*PKG) - (0.264*AREA) + AF	Deter- mined based on <b>BCI</b> ranges shown in table 2.	Deter- mined based on <b>LOS</b> (and correspond ing BCI) shown in table 2.

### III. EXCERPT FROM NCHRP REPORT 616

*Below we have reprinted the bicycle LOS model from NCHRP's "Report 616," which was developed specifically for the "Highway Capacity Manual" 2010 update. The entire report is published on-line at [http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp\\_rpt\\_616.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_616.pdf).*

#### ■ Recommended Bicycle LOS Model

The recommended bicycle LOS model is a weighted combination of the bicyclists' experiences at intersections and on street segments in between the intersections. Two models of the same form were evaluated, but with different parameters:

##### Bicycle LOS Model 1

$$\text{Bicycle LOS \#1} = 0.160*(\text{ABSeg}) + 0.011*(\exp(\text{ABInt})) + 0.035*(\text{Cflt}) + 2.85 \text{ (Eq. 29)}$$

##### Bicycle LOS Model 2

$$\text{Bicycle LOS \#2} = 0.20*(\text{ABSeg}) + 0.03*(\exp(\text{ABInt})) + 0.05*(\text{Cflt}) + 1.40 \text{ (Eq. 30)}$$

Where

ABSeg = The length weighted average segment bicycle score  
Exp = The exponential function, where e is the base of natural logarithms.

ABInt = Average intersection bicycle score

Cflt = Number of unsignalized conflicts per mile, i.e., the sum of the number of unsignalized intersections per mile and the number of driveways per mile

The output of either model is a numerical value, which must be translated to a LOS letter grade. Exhibit 91 provides the numerical ranges that coincide with each LOS letter grade.

#### **Exhibit 91. Bicycle LOS Numerical Equivalents.**

LOS	Numerical Score
A	≥ 2.00
B	>2.00 and ≥ 2.75
C	>2.75 and ≥ 3.50
D	>3.50 and ≥ 4.25
E	>4.25 and ≥ 5.00
F	> 5.00

The first model provides a better fit with the numerical scores given by the video lab participants to the video clips. This model was derived based on a statistical fitting process to the video clip data. However, this first model does not predict LOS A or B for the video clips. Consequently the second model was developed. The second model has an inferior numerical fit with the video lab data (measured in terms of squared error) but produces the full range, LOS A through F, for the video clips. The second model was derived from the first model by reducing the constant so that the second model would predict LOS A for video clips #328 and #330. The other parameters in the model were then manually adjusted until the second model could produce LOS F for one or more of video clips #314, 317, 323, and 324 (which were rated LOS F by the video lab participants). Both models use the same bicycle segment and bicycle intersection submodels.

#### **Bicycle Segment LOS**

The segment bicycle LOS is calculated according to the following equation:

$$\text{BSeg} = 0.507 \text{ Ln} (V/(4*\text{PHF}*L)) + 0.199\text{Fs}*(1 + 10.38\text{HV})_2 + 7.066(1/\text{PC})^2 - 0.005(\text{We})_2 + 0.760 \text{ (Eq. 31)}$$

Where

BSeg = Bicycle score for directional segment of street.

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- Ln = Natural log  
PHF = Peak Hour Factor (see Chapter 10 for default values)  
L = Total number of directional through lanes  
V = Directional motorized vehicle volume (vph). (Note:  $V > 4 * PHF * L$ )  
Fs = Effective speed factor =  $1.1199 \ln(S - 20) + 0.8103$   
S = Average running speed of motorized vehicles (mph) (Note:  $S \geq 21$ )  
HV = Proportion of heavy vehicles in motorized vehicle volume. Note: if the auto volume is  $< 200$  vph, the %HV used in this equation must be  $\leq 50\%$  to avoid unrealistically poor LOS results for low volume and high percent HV conditions.  
PC = FHWA's five point pavement surface condition rating (5=Excellent, 1=Poor) (A default of 3 may be used for good to excellent pavement)  
We = Average effective width of outside through lane (ft)  
=  $W_v - (10ft \cdot \%OSP)$  (ft) \*\* If  $W_1 < 4$   
=  $W_v + W_1 - 2(10 \cdot \%OSP)$  (ft) \*\* Otherwise %OSP = Percentage of segment with occupied on-street parking  
W1 = width of paving between the outside lane stripe and the edge of pavement (ft)  
Wv = Effective width as a function of traffic volume (ft)  
=  $W_t$  (ft) \*\* If  $V > 160$  vph or street is divided  
=  $W_t * (2 - (0.005 \cdot V))$  (ft) \*\* Otherwise  
Wt = Width of outside through lane plus paved shoulder (including bike lane where present) (ft) Note: parking lane can be counted as shoulder only if 0% occupied.

### Bicycle Intersection LOS

The intersection bicycle LOS is calculated according to the following equation:

$$\text{IntBLOS} = -0.2144W_t + 0.0153CD + 0.0066 (\text{Vol15}/L) + 4.1324 \text{ (Eq. 32)}$$

Where

- IntBLOS = perceived hazard of shared-roadway environment through the intersection  
Wt = total width of outside through lane and bike lane (if present)  
CD = crossing distance, the width of the side street (including auxiliary lanes and median)  
Vol15 = volume of directional traffic during a 15-minute period  
L = total number of through lanes on the approach to the intersection

## IV. REFERENCES

- “Development of the Bicycle Compatibility Index: A Level of Service Concept, Final Report.” Federal Highway Administration. December 1998. Publication No. FHWA-RD-98-072. Online at <http://safety.fhwa.dot.gov/tools/docs/bcifinalrpt.pdf> [as of April 2012].
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