

*City of Fort Bragg*

## **2009 Bicycle Master Plan**

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*With generous funding from the Mendocino Council of Governments*

Adopted November 9, 2009

# Acknowledgements

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*This project was funded by a grant from the Mendocino Council of Governments*

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# 1 Introduction

## 1.1 Purpose

Fort Bragg is a great place to bike. Fort Bragg has few constraints to bicycling: most of the City is flat, the weather is mild, and the City is compact with relatively short distances between residential areas, schools, parks, and commercial centers. Fifty-seven percent of bicycle trips are less than two miles in length, which works well in compact and relatively flat Fort Bragg.

Bicycling is an important transportation option that offers many benefits to the Fort Bragg community, including:

- *Efficient Transportation* – The bicycle is the most efficient form of non-motorized transportation. Bicycles are inexpensive, easy to maintain, quiet and compact. Bicycle ridership also reduces the volume of automobile traffic.
- *Sustainable Transportation* – Bicycle transportation is sustainable because no fossil fuels are required and no greenhouse gas emissions are produced, with the exception of human respiration. When used for short trips in lieu of a private automobile, the bicycle is very sustainable due to the tremendous amount of pollution generated from automobile cold starts and short-trip driving.
- *Improved Public Health* – The public health benefits of increased bicycle ridership are significant. Cycling reduces carcinogenic and lung clogging pollution generated by automobiles. Cycling provides low-impact, aerobic exercise that leads to increased fitness and reduced obesity.
- *Equity* – Bicycles provide an affordable and reliable means of transportation that is faster and more efficient than walking to low-income persons at a fraction of the cost of owning, maintaining and operating a car.
- *Improved Quality of Life* – Increased bicycle ridership improves the quality of life for city residents because of all the factors enumerated above and because of the social benefits of riding through the community at a slower pace. A slower pace provides riders with the opportunity to absorb the sights and sounds of the surroundings and the added benefit of being able to easily stop and have the informal social interactions that build community strength and personal relationships.

In order to improve the cycling environment, the City has prepared this *Fort Bragg Bicycle Master Plan* to direct the City's efforts. The Bicycle Master Plan includes:

- A review of existing conditions, opportunities and challenges;

- Bicycle goals, policies and programs;
- Summary of all planned and proposed bicycle lanes and facilities;
- Recommendations for new bikeways and bicycle parking;
- Recommendation for bicycle education and safety programs;
- Proposed standards for bikeways, parking and signage; and
- A variety of GIS Maps which illustrate existing and planned bikeways.

### **1.2 Master Plan Process**

In 2005, the City adopted a Bicycle Circulation Plan that incorporated the development of bike paths, bike lanes, and bike routes throughout the City. The City's Bicycle Master Plan builds on the existing Bicycle Circulation Plan. Starting in early 2009, City staff solicited input from three stakeholder groups, the Bicycle Master Plan Committee (BMPC), Fort Bragg High School students and Fort Bragg Middle School students.

- The BMPC consists of avid cyclists, frequent bicycle commuters, members of Mendocino Coast Cyclists, merchants, parents and educators.
- The student participants indicated a special concern for cycling safety and infrastructure and participated in their free time. The key recommendations of the BMPC and student participants are enumerated in Appendix A.

Staff held five meetings, three with the Committee and one each at the High School and Middle School respectively. The stakeholders discussed existing conditions, desired improvements, and general recommendations. A survey was used to solicit additional input from the community to identify desired improvements. Staff synthesized the input from the meetings, and the input constitutes the basis for many recommendations in this plan. Staff also held an open house to share the Draft Plan with the public in an informal setting before finalization. See Appendix A for a complete list of comments from the community.



## 2 Existing Conditions

This chapter discusses the existing conditions of Fort Bragg's bikeways and other bicycle facilities, opportunities and constraints for future improvements, the state of bicycling in Fort Bragg, transit connections, and bike collisions.

### ***2.1 Opportunities and Constraints***

Fort Bragg has many of the basic characteristics of a bicycle-friendly community. However, there are significant barriers to bicycling as a viable and everyday form of transportation. Many of these constraints can be constructively addressed through: 1) thoughtful policy, planning and design of cycling infrastructure; 2) the education and encouragement of our cycling and non-cycling citizens; and 3) the enforcement of our cycling laws.

#### **Opportunities**

- Fort Bragg's generally moderate climate, despite heavy seasonal rains, allows for year-round bicycling.
- Fort Bragg's regular street grid and flat topography provide for easy cross-town connections and choices for cyclists.
- Many of Fort Bragg's streets have sufficient width to accommodate bike lanes.
- The compact form of Fort Bragg neighborhoods and commercial districts put homes, jobs, shops, and services in close proximity to each other.
- Future redevelopment of the Mill Site allows for bicycle infrastructure to be planned from the initial stages.
- The Old Haul Road is a popular destination for recreational cyclists of all abilities, and significant planning efforts are underway to add connectivity to a coastal trail system that will make the entire coast within City limits and north into MacKerricher State Park accessible to cyclists. These efforts include planning installation of a Class I bikeway along Glass Beach Drive, the entire ocean front and throughout the Mill Site.
- Mendocino Transit Authority (MTA) provides bicycle-accessible public transportation throughout the region.
- The surrounding environs provide premier routes for experienced recreational road and off-road cyclists.
- The Pacific Coast Bike Route is an important scenic tourism amenity for touring cyclists passing through Fort Bragg.
- Fort Bragg is an important stop-over location for touring cyclists to stay and re-supply, generating tax revenue.
- The bicycling community in Fort Bragg and Mendocino supports improved bicycle facilities.

## Constraints

- Main Street (Highway One) carries heavy, high speed motor vehicle traffic volumes not conducive to comfortable cycling. This combined with minimal bicycle facilities makes the corridor, especially in the area south of Oak Street, uncomfortable for cycling.
- Narrow highway bridges with no bike or pedestrian lanes at Hare Creek and Pudding Creek are significant obstacles to bicycle travel.
- Safety concerns discourage bicycle travel where the Highway 20 corridor enters the City.
- In some areas, current roadway configurations and land uses prohibit the development of new bike paths.
- Uneven street surfaces caused by railroad tracks, utility covers, drainage grates, rough pavement, and debris are hazardous to bicyclists.
- Fear of bicycle theft and a lack of secure parking deter people from using bikes for utilitarian trips.
- Fear of gangs deters some youth from riding to school or other activities.
- MTA accommodates bicycles at the driver's discretion. Lack of certainty as to whether or not a bike may be brought on a transit vehicle is a deterrent to regular use.
- Some cyclists are unaware of their rights and responsibilities on city streets.
- Cyclists are deterred by motorists who are unwilling to share the road.

### 2.2 Fort Bragg Cyclists

Fort Bragg cyclists vary widely in age, bicycle type, and purpose. Cyclists include children just learning to ride with training wheels, middle school students commuting to school and senior citizens using bicycling as a way to maintain their vitality. People use bicycles for different reasons – some for exercise, some for environmental reasons, some save money on fuel, and some because they don't own, choose not to own, or can't afford an automobile yet need to cover moderate distances quickly.



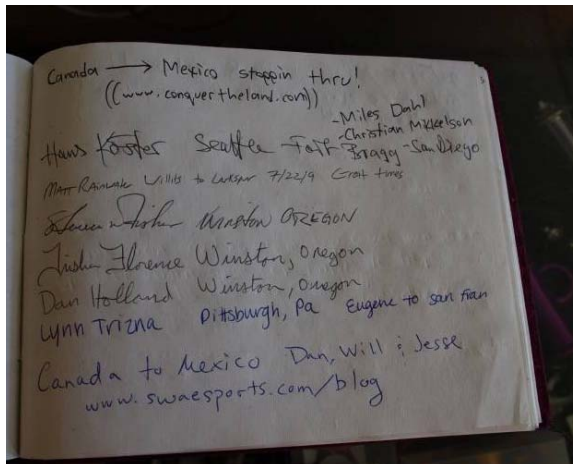
The City's 2009 Fort Bragg Income and Transportation Survey found that one out of five trips in Fort Bragg is on foot and five percent of all trips are by bicycle. Amongst cyclists, the most common cycling destinations were recreation (46%), work (25%), shopping (11%), school (8%), other (7%), and entertainment (3%).<sup>1</sup>

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<sup>1</sup> The City has recently acquired an Eco-Counter device to count bicycle and pedestrian traffic. Data from this device will provide accurate data of cycling traffic counts. The device is portable and over time rates will be collected in other strategic areas such as near schools, in the Central Business District, and along sections of the Pacific Coast Bike Route as it passes through town.



People who live close to downtown are almost twice as likely to ride a bicycle as people who live east of Harold Street.



*Recreational cyclists* – While locals are most likely to use their cycle for recreation, visitors also take advantage of the mild weather and beautiful scenery. Bicycle tourists traverse the west coast from British Columbia, Washington and Oregon to San Francisco or points south as distant as Cabo San Lucas. One group of German bicycle tourists passing through Fort Bragg started in Dubai and were traveling the world with a near term destination of Big Sur.

The guest book at the local bicycle shop shows that at least 50 bicycle tourists on significant west coast journeys passed through Fort Bragg between July 1 and August 8, 2009. The guest book shows that hundreds of bike tourists pass through Fort Bragg annually.

Many visitors to the coast load their bikes on their vehicles to enjoy the scenery and pleasant biking opportunities. Additionally, Jackson State Demonstration Forest and other State and private forest areas provide excellent off-road bicycling routes used by visitors and locals alike.

### **2.3 Transit Connections**

Mendocino Transit Authority (MTA) operates small buses that generally accommodate only two bicycles on racks or inside. If MTA consistently allows bicycles inside and on transit vehicles it will increase the range of destinations accessible by bicycle and help overcome barriers including long distances, bad weather, hilly terrain, traveling at night, and riding through geographically intimidating areas.

### **2.4 Bicycle Collisions**

Fortunately bicycle collisions are rare, but they do occur in Fort Bragg. Locations of collisions from Fort Bragg Police Department incident logs are shown on Table 1 and Map 1 on pages 6 and 7, respectively. Bicycle collisions in Fort Bragg occur on the busiest streets, especially Franklin Street.

**Table 1 - Bike Accidents from Fort Bragg Police Department  
Records 2007 - to date<sup>2</sup>**

Date	Location	Time	Description
01-26-2007	Franklin and Cypress Streets	1355 hrs	A bicycle ran the stop sign and hit the side of a vehicle in the intersection. Cyclist went to the hospital with minor injuries
01-26-2007	100 block of East Laurel Street	1835 hrs	Bicycle was hit by a vehicle as he crossed the alley. Bicyclist was not injured, just shaken up
03-15-2007	Whipple and Chestnut Streets	1910 hrs	After stopping at the stop sign, the driver of the vehicle waved at a friend he saw and hit a bicycle that was passing through the intersection. The bicyclist said he did not need an ambulance but had a friend take him to the hospital
09-27-2008	1100 block of North Main Street	1730 hrs	Bicycle was hit by a vehicle as he traveled in the same direction as the vehicle. Witnesses saw the vehicle make an unsafe movement and hit the bicycle. Bicyclist was taken to the hospital

These data undercount actual collisions as they include only reported collisions that are field investigated. Non-injury collisions, especially those involving a bicyclist and a stationary object or poor pavement conditions, are the least likely to be reported.

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<sup>2</sup> Fort Bragg Police Department incident logs. Unless noted otherwise, all analyses are based on data from 2005 to 2007.

Insert Map 1 – *Bike Accidents* here as page 7

## **2.5 Existing Community Outreach, Education, and Enforcement Programs**

The City of Fort Bragg already fosters community involvement through education and outreach programs that encourage safe and knowledgeable ridership. Building upon this foundation will enhance the rider's experience and safety and increase the frequency of bicycle use for day to day transportation. Ideally it will reduce the necessity for law enforcement contact with riders. Current activities include:

Earth Day and International Bike Day/Week/Month – The City of Fort Bragg, through its Safe Routes to School Program, sponsored a bicycling awareness booth at the Earth Day Festival held at Fort Bragg High School and attended by over 1,500 persons including many youth. Bicycle safety was promoted and helmets were raffled in exchange for a pledge to ride bicycles more for transportation. Commuting by bicycle was generally encouraged, through promotional days or weeks (see pledge below).



Police Activities League (PAL) Bike Rodeo – Every year State, County, and local law enforcement agencies sponsor the PAL Bike Rodeo at which youth are encouraged to bring their bicycles for inspection and repair. After their bicycles are examined and put into safe operating condition, helmets are donated to those without, and a monitored bicycle skills and obstacle course is set up for the youth to traverse. The lighthearted and encouraging atmosphere promotes safe bicycling and bike maintenance habits. PAL also accumulates unclaimed, stolen bicycles which are refurbished and given away or sold on a sliding price scale.

Incentives from Employers – At least two Fort Bragg employers give their employees bicycles to ride to work in exchange for a pledge to ride 30

percent of the year's work days. The City promotes Bike to Work Week to encourage ridership and camaraderie.

## **2.6 Enforcement and Safety**

The Fort Bragg Police Department enforces bicycle helmet use (required by law of all riders under the age of 18) and the use of headlights. Their enforcement tactic is fair but firm with an emphasis on safety. They will provide headlights and helmets as a courtesy to encourage operating bicycles within the law. The Fort Bragg Municipal Code chapter applicable to bicycles is included as *Appendix D*. The majority of this code section has to do with definitions, registration, licensing, accidents, etc. Outside of the regulations in the Fort Bragg Municipal Code, bicycles in the City are regulated by the California Vehicle Code Section 21200.

Increased bicycle ridership actually increases safety as it reduces the number of bicycle collisions. The reduction in collisions is due to heightened awareness of cyclists by motorists, both because of the increase in numbers and because more motorists ride bicycles and therefore are more likely to be cognizant of other riders.

## **2.7 Existing Policies and Plans**

The City has a long history of supporting bicycle use as evidenced by the following plans, codes and regulations that encourage the development of safe and effective bicycle routes.

The General Plan is considered the community's "constitution" for land use, development, and conservation. The General Plan is a comprehensive and long-term guidebook for the City's physical development. The City's Circulation Element, which is part of the General Plan, establishes goals, policies, and programs regarding bikeways and bicycle planning. One of the City's overarching objectives of the Circulation Element includes providing alternatives to the automobiles and more specifically:

- Better public transit;
- **Expansion of bicycle routes;**
- Provision of safe sidewalks throughout the City; and
- Land use designations which reduce the need to drive from home to work, schools, and/or commercial outlets.



The *Bikeways* section of the **Circulation Element** of the *Fort Bragg General Plan* is contained in Appendix C. The City's numerous programs help establish a safe, comprehensive bicycle system throughout the community. To date, the City has achieved some success in implementing these policies. The implementation of this Bicycle Master Plan will further this undertaking.

## **2006 Regional Bikeway Plan**

The Mendocino Council of Governments (MCOG)<sup>3</sup> is responsible for developing Mendocino County's Regional Bikeway Plan. The 2006 Regional Bikeway Plan incorporates all the bikeway improvements, specifically commuter routes, proposed within all jurisdictions of Mendocino County into one document. In order to get funding through the Caltrans Bicycle Transportation Account a city's projects must be listed in the Regional Bikeway Plan. As one of the four incorporated cities within Mendocino County, the City of Fort Bragg is included in the 2006 Regional Bikeway Plan. The bike improvements associated with this plan are described in Chapter 4.

## **Pacific Coast Bike Route Study**

Developed in 1976, the Pacific Coast Bike Route (PCBR) begins at the California/Oregon state border on Highway 101 and terminates at Interstate 5 at the Mexican border. The 2003 Pacific Coast Bike Route Study<sup>4</sup> prioritizes potential improvements and identifies options for alternate routes Mendocino County and the City of Fort Bragg. The study identifies the PCBR alignment through Fort Bragg as follows: on the Old Haul Road, over the reconstructed Pudding Creek Trestle, along Glass Beach Drive to Elm Street and then to SR 1. The Trestle Bridge, a key element for the safe passage of cyclists through Fort Bragg and a monumental feat of interagency cooperation, opened in November 2007.



Over the long term, the Pacific Coast Bike Route will be realigned onto the redeveloped Mill Site. Indeed the Specific Plan for the Mill Site and the City's Coastal Trail Master Plan contain provisions for Class I and II bikeways and a multi-use trails. The Coastal Trail plan provides for a multi-use recreational trail along the entire Mill Site coastline within an approximately 110 foot wide public open space corridor. The Mill Site Vision Plan includes a Class I bike path along the western edge of the westernmost road as well as Class II lanes throughout the development.

## **Fort Bragg Residential Streets Safety Plan**

Developed in 2005, the basic purpose of the plan is to ensure safe travel within the residential neighborhoods of Fort Bragg. The Plan identifies, evaluates and

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<sup>3</sup> MCOG is the regional transportation agency for the County of Mendocino and is charged with "programming and allocating various types of State and Federal transportation funds to Caltrans, the County of Mendocino, and the four incorporated Cities of Ukiah, Fort Bragg, Willits, and Point Arena. In addition to projects on State highways and within its five member jurisdictions, MCOG helps support transportation activities of Mendocino Transit Authority, North Coast Rail Authority, local airports, and others. Projects involve planning, capital improvements, rehabilitation and maintenance, fleet replacement, and intermodal transit centers."

<sup>4</sup> Prepared by the Redwood Community Action Agency (RCAA) for the Humboldt County Association of Governments (HCAOG).

prioritizes locations with traffic and safety concerns. It identifies mitigation measures to address the safety hazards at the top five locations of safety concern. The Plan will be updated in the 2009-2010 fiscal year with an MCOG grant. The Safe Routes to School Program provides funding for the current implementation projects around Redwood Elementary School, Dana Gray Elementary School, Fort Bragg High School and the Fort Bragg Middle School.

### **Main Street Merge Project**

This project consists of proposed Main Street improvements that relocate the existing merge lane on Main Street to improve and calm traffic flow through Fort Bragg's downtown. The project will create a right turn trap lane onto Alder Street for north bound traffic (which will need to address the needs of cyclists), widen sidewalks where possible, install center median strip on Main Street for pedestrian safety and traffic calming, create a left turn pocket at Alder Street for south bound traffic and install bicycle lanes on both sides of Main Street and new striping to improve safety.

## 3 Vision, Goals, Policies & Programs

### 3.1 Plan Vision

The following vision is defined for bicycle use in Fort Bragg:

*Fort Bragg, as part of its effort to be a sustainable and healthy community, shall be a city where cycling for transit or pleasure is a natural choice because it is safe, enjoyable, and convenient.*

In order to realize this vision, the cycling community would like the City to strive to become a **Bicycle Friendly Community** by 2011, as recognized by the League of American Bicyclists. The Bicycle Friendly Community Campaign is a national program to evaluate and award municipalities for actively promoting bicycling. The evaluation, based on a holistic consideration of a city's accomplishments and unmet needs, follows a five E's approach of engineering, education, encouragement, evaluation and planning, and enforcement.<sup>5</sup>

To develop Fort Bragg as a Bicycle-Friendly Community, the stakeholders identified following key goals:

- **Goal 1 – Develop Effective Bicycle Facilities and Infrastructure:** Develop the physical accommodations, including a network of bikeways and support facilities, to provide for safe and convenient access by bicycle.
- **Goal 2 – Education and Encouragement:** Improve the safety of bicyclists and promote bicycling skills through education, encouragement, and community outreach.
- **Goal 3 – Coordination:** Provide a policy framework and implementation plan for the routine accommodation of bicyclists in Fort Bragg's projects and programs.

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<sup>5</sup> Applications are reviewed by an independent committee that makes award decisions and provides constructive feedback on how municipalities can better achieve their bicycle-friendly goals.



### **3.2 Goals, Policies and Programs**

**Goal 1 – Develop Effective Bicycle Facilities and Infrastructure: Develop the physical accommodations, including a network of bikeways and support facilities, to provide for safe and convenient access by bicycle.**

**Policy 1.1** - Improve and expand bicycle facilities and infrastructure according to Regional Bike Plan, General Plan, and Residential Streets Safety Plan recommendations.

**Program 1.1.1** - Adopt and implement the improvement projects enumerated in this Bicycle Master Plan with the first priority being projects relating to schools.

**Program 1.1.2** – Implement recommended improvements to address safety issues raised by the Residential Streets Safety Plan.

**Program 1.1.3** - Review the Citywide Design Guidelines and update the bicycle parking guidelines. Consider providing and/or requiring larger “vehicle prints” for bike parking and bikeways that accommodate bike trailers for carrying children, dogs, parcels, groceries, freight, etc.

**Policy 1.2** - Integrate and coordinate bicycle facility development through interagency cooperation.

**Program 1.2.1** - Develop or enhance relationships with County, regional, and State bicycle transportation coordinators through regular meetings or teleconferences.

**Policy 1.3** - Detect and eliminate/mitigate infrastructural issues creating safety hazards for cyclists.

**Program 1.3.1** – Train field personnel such as planners and Public Works crew members to identify hazards to bicyclists and develop a protocol for reporting and prioritizing the rectification of hazards.

**Policy 1.4** - Increase signage alerting motorists to be aware of the need to coexist with cyclists.

**Program 1.4.1** – Work with State and regional transportation planners to identify types of signs and installation locations.

**Policy 1.5** - Make Fort Bragg a city where people want to ride for pleasure and utility.

**Program 1.5.1** - Obtain designation as a *Bicycle Friendly Community* from the League of American Bicyclists by 2011.

**Goal 2 – Education and Encouragement: Improve the safety of bicyclists and promote bicycling skills through education, encouragement, and community outreach.**

**Policy 2.1** - Promote bicycling as a method to reduce the City's impact on climate change.

**Program 2.1.1** – Consider sponsoring an Earth Day booth and a Farmers' Market promotional program to provide information about the beneficial effects of cycling.

**Policy 2.2** - Promote bicycle safety and education for riders and drivers.

**Program 2.2.1** – Consider expanding and formalizing bicycle safety instruction, e.g. the importance of proper equipment, etiquette, awareness, and laws and rights relating to bicyclists.

**Goal 3 – Coordination: Routinely accommodate bicyclists in Fort Bragg projects and programs.**

**Policy 3.1** – Require new development, redevelopment and significant renovation projects to provide superior bicycle/bicyclist support infrastructure.

**Program 3.1.1** – Consider revising the Land Use and Development Codes to reduce the parking requirement (or provide another planning incentive) for projects that accommodate bicycles and bicyclists and encourage employee/customer bicycle use beyond the current requirements of the code (e.g. the project provides indoor or covered bike storage, lockers for personal belongings, changing rooms and showers, provides bicycles for employee use, etc.).

**Policy 3.2** - Improve continuity and connections between the City's bike facilities and those of the County and State.

**Program 3.3.1** – Produce and distribute a map illustrating all local and regional bicycle routes, facilities and important destinations.

**Program 3.3.2** - Work with Mendocino Transit Authority to accommodate more bicycles on transit buses.

**Program 3.3.2** - Participate in meetings of local, regional and state bicycle program operators to discuss and coordinate bicycle facility and outreach activities.

## 4 Bikeways and Bike Parking

This chapter discusses existing and proposed bikeways, bike parking, and route and bicycle safety signage.

### 4.1 Existing and Pending Bikeways

Existing bikeways in Fort Bragg create a good network of connections throughout the City. From downtown, Class II and III bikeways radiate eastward into the residential neighborhoods toward schools and parks, and southward along the commercial and mixed use corridors of Main and Franklin Streets. Harrison and Harold Streets provide north-south Class II bikeways allowing cyclists to traverse the City on a bikeway without riding to Main or Franklin Streets. Fort Bragg's bikeway network is relatively robust, but has many opportunities for improvement.

Existing bikeways include:

- Glass Beach Drive – Class III - Trestle to Elm
- Elm Street – Class III - CBD to N. Franklin
- N. Franklin Street – Class III - Manzanita to Oak
- N./S. Franklin Street – Class II - Oak to North Harbor Dr.
- Upgrade westbound Walnut Street – Class II - S. Franklin to Whipple Street
- Harrison Street – Class II - Walnut to Fir
- Maple Street – Class II - S. Franklin to Lincoln
- S. Lincoln Street – Class II - Willow to Chestnut
- Harold Street – Class II - Maple to Fir
- Fir Street – Class II - Main to Harold
- Main Street – Class II/ III with sharrows<sup>6</sup> - Elm to Ocean View Dr.
- South Street – Main to S. Franklin
- Pomo Bluff Park Trail – end of Cliff Way to Harbor Avenue



Recently completed bicycle improvements include the following:

- New bike lanes on Franklin Street from Walnut Street to Oak Street
- New striping for existing bike lanes on Franklin Street from Oak Street to South Street
- New bike lanes on Oak Street from Main Street to Harrison Street
- New bike route signage on Oak Street from Harrison Street to Harold Street
- Re-construction of the Trestle Bridge spanning Pudding Creek

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<sup>6</sup> A sharrow is a bike symbol that is applied to the road way and designates that the autos should share the road with cyclists (see page 34 for sharrow illustration).

- Installation of bike racks at City Hall
- Bike lane width increase and six-inch striping on Main Street and sharrows where traditional bike lanes are not possible

A number of additional bikeways and enhancement of existing bikeways are slated to take place in the near future, including:

- Sanderson – Dana Street bikeway development
- Oak – Cedar Street bikeway development
- Pomo Bluffs Park trail extension project will join Main Street to the eastern reach of Pomo Bluffs Park
- Striping and signing of bikeway on Franklin Street from Pine to Manzanita Street
- Striping and/or signing of bikeway on Oak Street from Harrison to Dana Street
- Easement connecting Pomo Bluffs Park to the Noyo River Bridge

These existing and pending bike routes are illustrated in Maps 2 and 3 on pages 17 and 20, respectively.



Insert Map 2 – *Existing Bikeways here as page 17*

## 4.2 Planned and Proposed Bikeways

A number of important bicycle improvements were identified for the City of Fort Bragg through the Mendocino County Regional Bikeway Plan (RBP) and through the City's 2005 Bicycle Circulation Plan (CBCP). These improvements are enumerated in Table 2 below and illustrated in Map 3.

**Table 2 - Proposed Bikeway Improvement Projects**

Name – Route No.	Termini		Class *	Need	Report **
	From	To			
Bainbridge Park	N Harrison	N Whipple	III	H	RBP
Bainbridge Park	N Harrison	Redwood	III	H	RBP
Cedar St	N Harold	Monsen Way	III	H	RBP
Chestnut St	Dana	S Harrison	III	H	RBP
Cypress St	GP Rd	Kemppe Way	III	M	RBP CBCP
Dana St	Cedar	Chestnut	III	H	CBCP
Dana St	Chestnut	Oak	III		CBCP
Elm Street	Franklin	Glass Beach Dr	III		CBCP
Fir St	Franklin	Harold St	II	H	RBP
Fir St	Main	Harold St	III	H	CBCP
Franklin St	N Harbor	Elm	III		CBCP
Franklin St	South	Walnut St	III	H	RBP
GP Haul Rd	N City Limits	W Elm	III	H	RBP
Harold St	Maple	Fir Ave	II	H	CBCP RBP
Harrison St	Walnut	Fir St	II	H	RBP
Kemppe Wy/River Rd	Cypress	River	III	M	RBP
Laurel St	N Harold	Otis Johnson Park	III	H	RBP
Madrone St	Hwy 1	Harold St	II	H	RBP
Main St	Oak	Hare Creek Bridge	II		CBCP
Main St (SR 1)	Southern City Limits	Northern City Limits	II/III	H	RBP
Main Street	Elm	N City Limits	II		CBCP
Main Street	Oak	Elm	III		CBCP
Maple Street	Main St	Lincoln St	II	H	RBP CBCP
N Franklin St	Pine St	Manzanita	II	H	RBP
N Harbor Dr	Woodward	Noyo Jetty	III	H	RBP
N Sanderson Wy	Cedar	Willow	III	M	RBP

Name – Route No.	Termini		Class *	Need	Report **
	From	To			
Oak St	Main	City Limits	II	M	RBP CBCP
OJ Park/Dana Street	OJ Park	Chestnut	III	H	RBP
Pudding Creek Trestle – OJ Park	GP Haul Rd at Pudding Creek	OJ Park	I/II/III	H	RBP
Railroad/GP Log Rd	Railroad ROW/E Bush	GP Log Rd/Cypress	III	M	RBP
S Lincoln St	Willow	Chestnut	II	H	CBCP RBP
Sanderson St	Chestnut	Oak	III		CBCP
South St	Main	Franklin St	III	H	RBP
South St	Main	East end	III		CBCP
W Elm St	GP Haul Rd	N Franklin	III	H	RBP
W Ocean View Dr	Hwy 1	Cliff Way	III	M	RBP
Walnut St	Franklin	Harrison St	III	H	RBP
Willow St	S Lincoln	Dana	III	H	RBP CBCP
Woodward St	South	N Harbor	III	H	RBP

**Note\*:** The California Street and Highway Code has established three categories of bicycle trails based on the physical conditions of the right-of-way.

- **Class 1 Bikeway** - Bike Path or Bike Trail: These facilities are constructed on a separate right-of-way, are completely separated from street traffic, and have minimal cross flows of automobile traffic. The State standard for minimum paved width of a two-way bike trail is eight feet.
- **Class 2 Bikeway** - Bike Lane: A restricted right-of-way for the exclusive use of bicycles with vehicle parking and cross flow by pedestrians and motorists permitted. Bike lanes are normally striped within paved areas of highways and are one-directional with a minimum standard width of five feet.
- **Class 3 Bikeway** - Bike Route: A route for bicyclists designated by signs or other markings and shared with pedestrians and motorists. Bike routes are typically designated to provide linkages to the bikeway system where Class 1 or 2 Bikeways cannot be provided.

**Note \*\*:** RBP= Mendocino County Regional Bikeway Plan, CBCP = City's 2005 Bicycle Circulation Plan

The City of Fort Bragg has identified a few additional bicycle improvements since the 2006 Regional Bicycle Plan was completed, including new routes on: the Mill Site, the south Fort Bragg area, Pomo Bluffs Park, Safe Routes to School projects, etc. Proposed bike improvements are described below and illustrated in Maps 3 and 4.

Insert Map 3 - *Pending & Proposed Bikeways* here as page 20



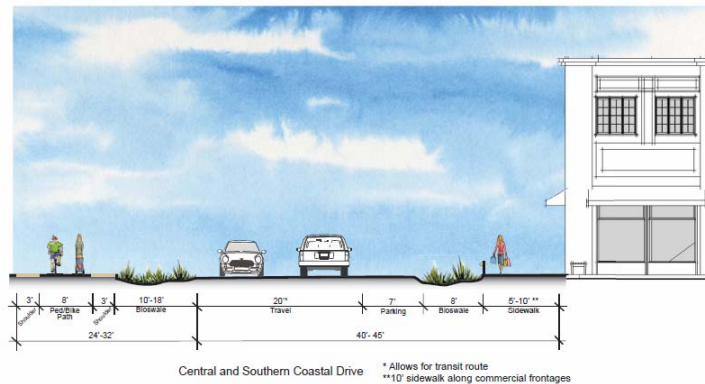
Insert Map 4 – Proposed Bikeways by Type here as page 21

Mill Site Bike Trails – The Mill Site Specific Plan process has identified some consensus among those who participated for:

- 1) A Class 1 bikeway that runs along the entire length of the Mill Site coast parallel and to the west of the proposed Ocean Bluff Drive (see proposed cross section below). Upon development this would become the new Pacific Coast Bike Route (PCBR) through Fort Bragg.

Mill Site Specific Plan - CONCEPTUAL STREET SECTIONS

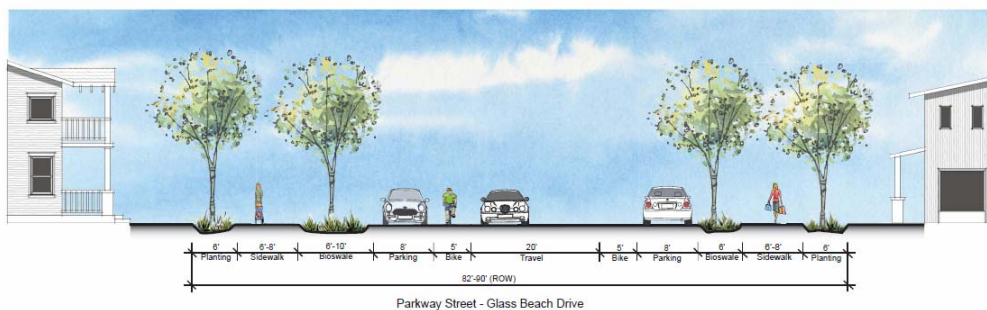
May 28, 2009



- 2) A system of Class II bikeways on the main thoroughfares of the development, as illustrated in the proposed cross section below and in Map 4.

Mill Site Specific Plan - CONCEPTUAL STREET SECTIONS

May 28, 2009



Glass Beach Drive – As part of the Coastal Trail project, the City plans to install a ten foot wide multi-use trail (eight feet of asphalt and four feet NaturalPAVE®) in the approximately 18 feet of right of way along the western edge of Glass Beach Drive. This trail will join the Old Haul Road/Pudding Creek Trestle multi-use trail with the bikeway system on the Mill Site.

Southern Fort Bragg Area – The South Fort Bragg Pedestrian and Bicycle Access Plan will develop solutions for cyclists in the problematic and stark Main Street/Highway 1 corridor, south of Oak Street. Some bicycle system deficiencies that will be addressed as part of this planning process include:

- Clearly identified bikeways between the Noyo Bridge and roadway immediately north and south of the Noyo Bridge.
- Signalized cross walks and bicycle instigated light changes at the Main Street intersections with Ocean View Drive and Highway 20.
- Class II bicycle paths that connect Pomo Bluffs Park and the College of the Redwoods to Highway 1 via Ocean View Drive and the frontage road.



Safe Routes to School – The following improvements have been identified to improve safe cycling routes to school:

- 1) A new bikeway between Sanderson and Dana Street along a City-owned easement will formalize a long-existing shortcut and create a nice amenity for cyclists and pedestrians in this busy area near schools, a community center (Safe Passage), and sports facilities.
- 2) A bikeway connecting Cedar and Oak Streets at Dana Street (funded by Safe Routes to School) will provide an important bicycle/pedestrian only connection.



Create a bikeway that circumvents the busy section of Franklin Street between Chestnut and Cypress Street – This significant undertaking would require: a ten foot easement across the property at the end of Dubois Lane owned by Baxman, an easement to cross the Campbell-Hawthorne Haul Road and APN 018-080-77 and construction of a bike path with switch backs to span the gap over the Haul Road.

Create better bike access to College of the Redwoods – As part of the improvements of the public alley at Ocean View Drive and Monterey Drive, the

City should create or require a bike-pedestrian path/spur entering the College of the Redwoods campus when new development occurs on the campus.

Create new bicycle connection for cyclists entering Fort Bragg from Highway 20. This project would include: creation of a Class III bikeway marked with sharrows on Boatyard Drive that would connect Highway 20 with a bicycle easement through the parcel located east of the Main Street where McDonald's, the A-Frame coffee drive-through, Petersen Law Offices and the Fish and Chips restaurant are located<sup>7</sup> and feed onto Main Street near the Noyo Bridge.

Examine the possibility of reconstructing the bridge that once spanned Pudding Creek at Harold Street's northern terminus. This complicated, inter-jurisdictional project would create an excellent link with neighborhoods north of incorporated Fort Bragg and Harold Street providing excellent access to schools, primarily, and secondarily to Downtown Fort Bragg.

Through this planning process, the following sub-standard bicycle lanes that should be improved were identified.

- 1) The Walnut Street "Class II" bikeway is located in the on-street parking area of Walnut Street. It should be relocated with its own lane of travel as it is a high priority bikeway intended to meet the Class III standard.
- 2) The Class II bike lanes on Oak Street from Harrison west are of substandard width.

#### **4.3 Comprehensive Bicycle Network**

The existing, pending and proposed bikeways form a very comprehensive network, which is illustrated by Map 5 on page 27.

#### **4.4 Proposed Bicycle Parking**

Bicycling parking is a critical component of effective bicycle infrastructure. The City should continue to install bicycle parking to meet the ongoing need in the Central Business District, neighborhood-serving businesses, at employment centers, and other activity centers. The City should also encourage the business community and public agencies to install bicycle racks that serve their buildings. Table 3 shows the location, rack type and funding sources of proposed bike parking.

**Table 3 – Proposed Bicycle Parking**

<b>Location</b>	<b>Rack Type</b>	<b>Funding Source</b>
Recreation Center, 300 S. Lincoln St.	10 Chicago Racks	MCOG
Cotton Auditorium, Fir & Harold Streets	2 x5-Bike Peak Rack	MCOG
Tennis Courts & Ball Fields – FBMS	2x 8-Bike Peak Rack	MCOG
200 block Laurel St., (north of Sears window)	Chicago Rack	MCOG/BTA

<sup>7</sup> This easement would need to be purchased or conditioned with new development.

Location	Rack Type	Funding Source
La Tre, 363 N. Franklin (immediately north of street light)	Chicago Rack	MCOG
Fiddles & Cameras, (south of street tree, Laurel and between tree & light post, Main Street)	Chicago Rack	MCOG/BTA
Depot Mall bulb-out, Laurel (between tree and light)	Chicago Rack	MCOG/BTA
Town Hall bulb-out, (on both sides of tree)	2 Chicago Racks	MCOG/BTA
Company Store, (parallel red curb near Redwood crosswalk)	Chicago Rack	MCOG/BTA
Outdoor Store, (covered parking, south of entrance)	Chicago Rack	MCOG
Piaci Pizzeria, (on Redwood west of 2hr parking sign)	Chicago Rack	MCOG
FB Cyclery, 220 N. Main	Chicago Rack	MCOG/BTA
Bank of America (near ATM and entrance)	Chicago Rack	MCOG
Cowlick's (in front of window on Main Street)	Chicago Rack	MCOG/BTA
La Bamba, (front of store window)	Chicago Rack	MCOG
Cheshire Bookstore	Chicago Rack	MCOG/BTA
Mendo Litho	2-bike Peak Rack	MCOG
Down Home Foods	Chicago Rack	MCOG
North of City Hall adjacent to parking lot	6-bike capacity rack	BTA

Where bike racks proposed from the MCOG list and the Caltrans BTA list are redundant, new locations will be sought, subject to approval by the funding agencies. Ideally some covered bicycle parking can be developed, especially at schools, where protection of bikes from the elements would encourage students to ride, even in inclement weather.

Additional bicycle parking locations have been suggested by the BMP Committee, students and other members of the public as follows: Colombi's Market (at Oak and Harold) and the Food Bank (near Franklin and Elm).

#### ***4.5 Proposed MTA Improvements***

MTA should consider accommodating a greater number of bicycles on their buses so cyclists have greater assurance that if they ride their bike to transit stops they will be able to bring the bike on the bus as many riders need to resume riding after disembarking from a bus. City staff or the Bicycle Master Plan Committee should coordinate bike/bus compatibility issues with MTA.

#### ***4.6 Proposed Programs for Education, Enforcement & Encouragement***

##### **Education**

1. *Youth:* Continue and expand on- and off-road bicycle safety education for youth through the Mendocino Coast Recreation and Park District, Fort Bragg Unified School District, and community-based organizations.
2. *Adults:* Provide bicycle education classes for adults two times per year through College of the Redwoods or the Rec District using the League of American Bicyclists' "Road I" course curriculum.

3. *Adults*: Initiate a program to educate drivers to share the road and understand the rights of cyclists as part of driver's education in the High school.
4. *All riders*: The FBPD should continue in the educational efforts such as the annual Bicycle Rodeo sponsored through the Police Activities League (PAL) and the complimentary bicycle helmets to those in need. An agency annual report will generate statistical data involving bicycle activities where police involvement occurs.

## Encouragement

1. *Bike to Work Day*: Continue and expand Bike to Work Day as Fort Bragg's primary event to promote bicycling. Evolve the program to be Bike to Work Week. Involve the School District in a parallel effort.
2. *Youth Encouragement*: Work with stakeholder organizations to enhance events and develop new events to encourage youth to bicycle.
3. *Walk and Bike to School Day*: Educators in the Fort Bragg Unified School District are interested in promoting bicycling and walking to school and annually organize a Walk and Bike to School event.
4. Create a *Bike and Walk Fort Bragg Map & Guide* to provide current and complete information on bicycling and walking in Fort Bragg.

## Enforcement

1. *Signage*<sup>8</sup>: Enforcement signage indicating that all applicable codes enforced for bicyclists should be considered.
2. *Bicycle Patrols*<sup>9</sup>: The FBPD should increase the number of bicycle trained officers and additional bicycle patrol enforcement hours. This enhances the safety and education components as well by the frequency of these patrols and interactions.
3. *Bicycle Traffic School*: Develop a diversion program whereby individuals may reduce the penalty of their bicycle citations by completing a course on bicyclist safety.

The City of Fort Bragg should continue to work with and support related programs offered by community-based organizations.

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<sup>8</sup> Enforcement of laws and the safety of bicyclists can be enhanced with signage such as bicycle lane designations and "share the road" signage. Instructional signage "stay on paths," especially in areas such the Mill Site where environmental concerns will exist. In remote sites, consider solar powered path lighting to improve path identification for after hours of daylight if allowed.

<sup>9</sup> Bike patrols provide a greater sense of community as officers on bikes seem less distant, similar to foot patrol interactions. Children seem to identify with officers on bicycles enhancing the positive image of police and assisting with all three of the components mentioned above.

Insert Map 5 – Existing and Proposed Bikeways here as page 27

## 5 Bikeway Design Guidelines & Standards

The proposed bikeway standards are based on generally accepted standards from State and Federal manuals that have been put into use by other jurisdictions.<sup>10</sup>

### 5.1 Bikeway Standards

These **bikeway standards** reflect minimum requirements established by State and Federal agencies.<sup>11</sup> The following descriptions include the basic parameters that the City should address when developing projects with designated bikeways. These standards may change over time to reflect changes in various sources for standardized specifications for bicycle facilities. Caltrans, the Institute of Transportation Engineers, major cities and other sources have developed useful reference documents for establishing or adapting standards for bicycle facilities<sup>12</sup>.



All traffic modifications in the public right-of-way are subject to review by the Public Works Department. Where feasible, all bikeway pavement markings should be constructed using thermoplastic paint or thermoplastic tape to maximize visibility and minimize long-term maintenance costs.

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<sup>10</sup> The guidelines are adapted from the *Oakland 2007 Bicycle Master Plan*.

<sup>11</sup> • California Department of Transportation (Caltrans). *Highway Design Manual, Chapter 1000: Bikeway Planning and Design*.

• Federal Highway Administration (FHWA). *Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD).

• California Department of Transportation (Caltrans). *California Manual of Uniform Traffic Control Devices for Streets and Highways*.

In particular, Section 891 of the California Streets and Highways Code specifies that local agencies must comply with the minimum design criteria provided by Chapter 1000 in the current Highway Design Manual.

<sup>12</sup> Useful references include:

- American Association of State Highway and Transportation Officials (AASHTO). 1999. *Guide for the Development of Bicycle Facilities*.
- California Department of Transportation (Caltrans). 2005. *Pedestrian and Bicycle Facilities in California*.
- Institute of Transportation Engineers (ITE). 2002. *Innovative Bicycle Treatments*.
- San Francisco, City of. 2003. *Bicycle Plan Update: Supplemental Design Guidelines*.
- San Francisco Bay Trail Project. *Bay Trail Design Guidelines*.
- Santa Clara Valley Transportation Authority (VTA). 1999. *VTA Bicycle Technical Guidelines*.



**Bicycle Paths (Class 1)** provide for bicycle travel on a paved right-of-way that is completely separated from the street.

- *Width:* Paths shall be at least 8' in width and include 2' graded shoulders on either side. All obstructions (including poles, benches, and architectural elements) should be at least 2' from the edge of pavement.
- *Lateral Separation:* When a path parallels a roadway, there must be at least 5' of lateral separation between the edge of the paved path and the edge of the roadway (typically the face of curb). A path's graded shoulder may be counted as part of this lateral separation.
- *Design Speed and Curve Radius:* Class 1 Bicycle Paths require a minimum design speed of 25mph and a minimum curve radius of 155'.
- *Striping:* Bicycle paths should include yellow center lines to separate directions of travel. White edge lines may also be used if the path's paving is contiguous with a fixed object of extended length (like a retaining wall).
- *Cross Streets and Driveways:* Paths should cross as few streets and driveways as possible to reduce conflicts between cyclists and drivers. Where such street crossings are necessary, significant attention should be given to maximizing sight lines for both drivers and cyclists. Driveways should be designed to maximize sight lines and minimize driver speeds.
- *Bollards:* Minimize the use of bollards to avoid creating obstacles for bicyclists. Design the path entry and use signage to alert drivers that motor vehicles are prohibited. Where a bollard is deemed essential for restricting motor vehicle access, it should be located in the center of the path such that bicycle traffic in either direction stays to the right of the bollard. The bollard should be marked with reflectors or reflective tape and include a diamond-shaped envelope striped around its base. Where removable bollards are used, the mount point should be flush with the path's surface so as not to create a hazard when the bollard is not in place.

**Bicycle Lanes (Class 2)** are on-street, striped lanes for specific use by bicyclists. They are the recommended bikeway type, where feasible, for arterial and collector streets on Fort Bragg's bikeway network. Bicycle lanes are recommended over wide curb lanes because they discourage sidewalk and wrong-way riding while reducing bicyclist/pedestrian conflicts. Compared to wide curb lanes, bicycle lanes also decrease the frequency of drivers encroaching into the adjoining travel lane when passing bicyclists (Hunter et al. 1999).

- *Width:* With parallel parking, the bicycle lane must be at least 5' wide and the parking lane at least 7' wide. Without parallel parking, a minimum 4'

bicycle lane is allowed if at least 3' is clear of the gutter pan. On roadways without curb and gutter, a minimum 4' bicycle lane is allowed.

*Recommended Practice:* Where feasible, use 8' parking lanes adjacent to 5' bicycle lanes to reduce the risk associated with the door zone. The design of bicycle lanes should follow current research and best practices for addressing the door zone.

- *Hills: (Pertaining to North Harbor Drive)* Bicycle lanes should be avoided if the steepness and length of a downhill grade will allow a typical cyclist to travel at the prevailing traffic speed. In such cases, the shared roadway bicycle marking (sharrow) should be provided to encourage cyclists to use the full travel lane, thereby reducing conflicts with vehicles entering traffic from cross streets, driveways, and parking spaces.

- *Signage:* Bicycle lanes require the following regulatory signage. R81 (Bike Lane) signs shall be placed at the beginning of each bicycle lane and at all major directional changes. The signs should be placed at every arterial street and at one-half mile intervals along each bike lane. The R81-A (Begin) and R81-B (End) supplemental signs are recommended, respectively, in conjunction with the R81 at the beginning and end of the bicycle lane. See also the explanation of guide signage below.  
*Recommended Practice:* Always use the R81-B to alert road users where bicycle lanes end.



Above – Standardized bike route signage form the MTUCD – California Supplement.

- *Stencils:* The bicycle symbol and arrow stencil shall be placed in the bicycle lane on the far side of each intersection. *Recommended Practice:* The City should use the bicycle symbol rather than the “bike lane” stencil because the symbol is more intuitive and does not require familiarity with the English words.

*Recommended Practice:* Encourage cyclists to ride outside of the door zone by locating the bicycle symbol to the left side of the bicycle lane (leaving 4” from the symbol edge to bicycle lane stripe).

*Recommended Practice:* To minimize maintenance, locate the bicycle symbol and arrow stencil approximately 15' beyond the curb return of the intersection and thereby outside the path of turning vehicles.

- *Intersection Approaches:* Bicycle lanes should be continuous from one intersection to the next. In some cases, it is necessary to drop the bicycle lane at an intersection approach in order to accommodate additional travel lanes for motor vehicle queuing. To the extent feasible, this design should be avoided in favor of continuous bikeways.

**Bicycle Routes (Class 3)** are preferred streets for bicycle travel using lanes shared with motor vehicles. The only requirement for bicycle routes is that they be marked with guide signs. However, the Highway Design Manual (1000-24) specifies that "bike routes should offer a higher degree of service than alternative streets" and that service may be achieved through traffic control devices that prioritize bicyclists, higher maintenance standards, and the like.

### **Additional Guidelines**

*Construction Zones:* Bicyclist safety and access shall be considered in the staging of construction zones that encroach on the public right-of-way or require detours. Special consideration should be given to construction zones that affect designated bikeways. Detour plans should avoid directing cyclists onto arterial or collector streets with narrow travel lanes (less than 14'). For on-street bikeways, temporary bicycle lanes may be delineated by cones so long as the clear width is at least 5'. If a bicycle lane is closed, additional signage should be considered including the "Bicycles May Use Full Lane" sign described below.

*Diagonal Parking:* The common form of diagonal parking (head-in/back-out) is incompatible with bicycle lanes and a general source of conflict with bicyclists. When backing out, drivers have limited views of oncoming traffic and bicyclists riding on the right side of the travel lane have little time to react. *Recommended Practice:* Avoid head-in/back-out diagonal parking adjacent to bicycle lanes and minimize its use on designated bikeways.

*Parallel Parking:* Parking space markings (often called parking T's) are typically used to delineate curbside parallel parking spaces in areas with parking meters or consolidated pay stations. *Recommended Practice:* On designated bikeways with metered parking, use elongated parking T's such that the perpendicular line extends 2' into the travel lane. These design considerations help cyclists identify and ride clear of the door zone.

*Guide Signage:* In general, all guide signage should comply with MUTCD standards regarding placement, size, symbols, colors, and fonts.

*Railroad Crossings:* Bicyclist safety at railroad crossings involves the pavement surface, flangeway gap, and crossing angle. The pavement should be level with the top of the rails and concrete pads are the preferred crossing material because of their longevity. The gap between the flangeway and the roadway should be as narrow as possible to provide a smooth travel surface and to reduce instances where a bicycle wheel gets caught by the gap. Where railroad tracks cross bikeways at skewed angles, the bikeway should be designed to allow and encourage bicyclists to cross at a right angle to the rails. (See Figure 1003.6A in the Caltrans Highway Design Manual.) Where bicycle paths parallel active railroad lines, fencing and buffering should be included between the path and the rails to improve the safety and comfort of path users.

*Speed Humps:* Speed humps on bikeways should be designed to slow motor vehicles while minimizing the disruption to bicyclists. Bicyclists feel the lip of the hump—the edge of the paving where the hump meets the street—as an abrupt jolt. Bicycle-friendly speed humps eliminate this lip by providing a smooth transition from street to hump and thus provide a smooth ride. Such humps still have the intended effect of slowing motor vehicles because the height of the hump remains the same. More specifically, bicycle-friendly speed humps have a sinusoidal profile whereas the abrupt lip is created by speed humps with parabolic profiles.

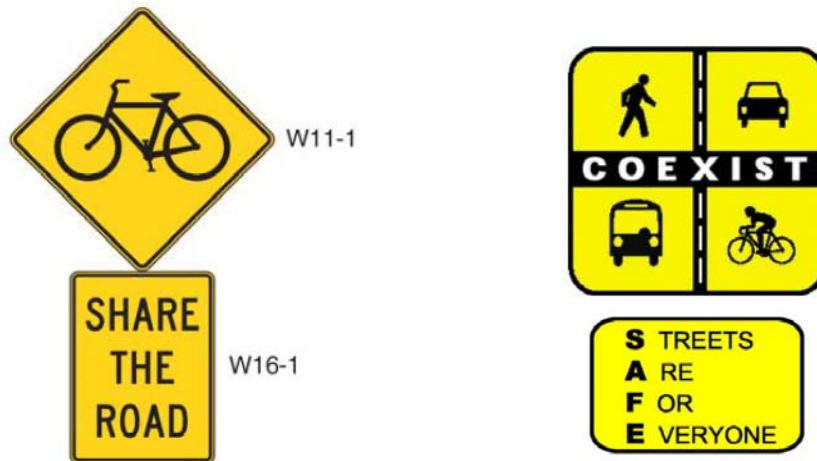
## **Turn Lanes**

*Green/Blue Bike Lanes:* This treatment marks the conflict area created by turning vehicles merging across a bicycle lane (typically associated with slip turns). Such turning movements create difficult situations for bicyclists because of the high vehicle speeds and poor visibility associated with these merges. By making the bicycle lane markings green or blue in such locations, bicyclists and drivers are alerted to the specific conflict area. This treatment is used successfully in Portland, Oregon based on its more extensive use in European cities.

*Combined Bicycle Lane/Right-Turn Lanes:* This design applies to intersection approaches where a dedicated right turn lane is deemed necessary, and there is not adequate right-of way to continue the bicycle lane along the left side of the right turn lane. In such cases, the bicycle lane often ends before the intersection to accommodate the turn lane. This approach creates difficult situations for cyclists who must either merge left into the adjoining travel lane or proceed straight through the turn lane and thus violate the law. In contrast, the combined bicycle lane/right-turn lane allows bicyclists to legally proceed straight by delineating these overlapping movements with specific striping and signage.

## 5.2 Signage Standards

Signage is an important element of bikeways. Each type of bikeway is recommended to have specific signage and a standardized form. The “Coexist” sign<sup>13</sup> should be posted at points where motorists enter Fort Bragg on the State Highways 1 and 20, and in the Central Business District and around schools.”<sup>14</sup> In State right of way, Caltrans may only allow installation of the “Share the Road” sign combination as it meets the standard of the CA-MUTCD requirements and the coexist sign has yet to be accepted by Caltrans.



*“Bicycles May Use Full Lane” Signs:* The California Vehicle Code 21202 allows bicyclists to ride in the center of a travel lane when that lane is too narrow to safely share with passing motor vehicles. The proposed “Bicycles May Use Full Lane” Sign is intended to alert road users to this law and encourage bicyclists to ride outside of the door zone on streets with narrow lanes. Consider using this sign at regular intervals on arterial bicycle routes (Class 3A) where the curb lane plus parking is less than 21’ in width. This signage should only be used on bikeway segments where the curb-to-curb right-of-way cannot accommodate a bicycle lane or an outer travel lane of at least 14’ in width.



<sup>13</sup> The Coexist sign shows a quadrant with pedestrian, bicycle, bus and car symbols delineated by the word, “Coexist”. This awareness sign was developed in Chapel Hill, North Carolina

<sup>14</sup> *The Share the Road Sign*, Wayne Pein, 2006

Technical drawing of a bicycle frame showing dimensions in mm and inches. The frame includes a head tube, top tube, down tube, seat tube, and chain stays. Dimensions are provided for various parts, including the head tube (102 mm), top tube (203 mm), down tube (229 mm), seat tube (178 mm), and chain stays (185 mm). The overall dimensions are 2619 mm (111 in) for the total length, 1735 mm (69 in) for the main frame length, and 843 mm (33 in) for the seat tube length. The drawing also shows the bottom bracket (102 mm), chain stays (185 mm), and the overall width (25 mm). The frame is made of 152 mm x 152 mm grid (6 in x 6 in).

Dimensions (mm / inches):

- Overall length: 2619 mm (111 in)
- Main frame length: 1735 mm (69 in)
- Seat tube length: 843 mm (33 in)
- Head tube: 102 mm (4 in)
- Top tube: 203 mm (8 in)
- Down tube: 229 mm (9 in)
- Seat tube: 178 mm (7 in)
- Chain stays: 185 mm (7.5 in)
- Bottom bracket: 102 mm (4 in)
- Overall width: 25 mm (1 in)
- Chain stays (inner): 185 mm (7.5 in)
- Chain stays (outer): 204 mm (8 in)
- Bottom bracket (inner): 102 mm (4 in)
- Bottom bracket (outer): 110 mm (4.3 in)
- Bottom bracket (width): 216 mm (8.5 in)
- Overall width (bottom): 381 mm (15 in)

All rounded corners  
25 mm (1 in) radius

152 mm x 152 mm grid  
(6 in x 6 in)

NO SCALE

### 5.3 Parking Standards

**Bicycle Racks (Class 2 Parking)** should be located within 50 feet (and no more than 120 feet) of the destination they serve. They should be placed in a visible area with significant foot traffic and, if possible, under an awning to provide protection from the elements.

- *Rack Type:* Inverted “U” racks are strongly recommended because they provide two points of contact with the bicycle and allow the frame and both wheels to be locked to the rack. Inverted “U” racks may include multiple loops fastened to a single “footer.” This design is required for racks mounted on a surface other than concrete (including asphalt, brick, and pavers). Racks that only support one wheel (including comb, toast, and school-yard types) are not acceptable. Wave racks are strongly discouraged because they do not provide two points of contact and the middle spaces can be difficult to access. Any non-standard rack or installation shall be approved by the City Engineer or designee prior to installation.

- *Rack Clearance:* Racks should be located with at least 30 inches of clearance in all directions from all vertical obstructions, including other racks and landscaping.

- *Pedestrian Right-of-way:* When parked at a rack, a bicycle occupies a footprint that is 6’ long and 2.5’ wide. Rack installations on sidewalks should maintain a minimum of 5.5’ of unobstructed pedestrian right-of-way outside of this footprint. For sidewalks with heavy pedestrian traffic, at least 7’ of unobstructed right-of-way is required.



Bike Racks are proposed for this popular Central Business District location



### Measurements

Footprint: 6' long x 2.5' wide (the area occupied by a bicycle when parked at the rack)

Rack: 36" tall x 21" wide

### Location Details

- Commercial District
- On a flat concrete sidewalk
- On public property
- Sidewalk must be free from cracks or other damage

### Clearance

There should be a minimum of 5.5' clear for pedestrian right-of-way outside of the footprint; 7' in areas of heavy pedestrian traffic. Rack should be located a minimum of:

5' from:	Fire Hydrant		
4' from:	AC Transit Red Zone	Blue Zone (disabled parking)	Crosswalk
	Loading Zone	Curb Ramps	BART Entrance
3' from:	Newspaper Racks	Bus Shelter	Standpipes
	US Mailbox	Driveway	Bus Benches
	Light Pole	Surface Hardware (utilities)	Trash Cans
	Sign Pole	Street Furniture	Other sidewalk obstructions
18" from:	The Curb		

*Placement Standards for Bicycle Racks.* (Based on City of Oakland, Public Works Agency, Bicycle Parking Guidelines, October 2004.)

**Bicycle Corrals (Class 1 Parking)** are appropriate for school grounds. They should be located near entrances in visible locations, especially when included in parking lots.



## 6 Implementation

The goals of the *Bicycle Master Plan* will be achieved through careful coordination of staff efforts with available funding and public input.

### 6.1 *Funding*

Funding for implementation of this plan's goals, policy and programs can be obtained from numerous competitive grant sources. Current and future funding sources include: Safe Routes to School programs (both Federal and State), Community Development Block Grants, Caltrans Bicycle Transportation Account grants, Caltrans Environmental Justice grants, Regional Surface Transportation Program (RSTP) grants, State Transportation Improvement Program (STIP) grants, Regional Transportation Agency (MCOG) grants, State Coastal Conservancy grants (for bikeways associated with public coastal access), American Recovery and Reinvestment Act (ARRA) grants, and Transportation Enhancement (TE) grants. Available TE grants include RSTP-TE, STIP-TE and ARRA-TE.

### 6.2 *Staffing and Public Participation*

Staffing for the Bicycle Master Plan implementation will be an interdepartmental effort with Public Works, Police and Community Development Department's staff coordinating and managing funded projects cooperatively and seeking additional funding to meet the goals of this plan.

This plan was developed with the public input of the Bicycle Master Plan Committee and high school and middle school students. It has been reviewed by the Committee and approved for implementation at a publicly noticed meeting of the Fort Bragg City Council after a public review period.



## Appendices

### ***Appendix A – BMP Committee, Public and Student Recommendations for Improvements***

- Coordinate with MTA for maximizing bike accommodations on buses
- Oak Street is not ideal for a bike lane
- Dedicate a street such as Whipple or Corry to be a “bike boulevard”
- Chestnut is too narrow to be a safe bikeway
- Connectivity to the Trestle from Main Street needs to be improved through better signage
- Signs at Cypress/Main – perhaps at N. Harbor – should be posted to draw cyclists to Franklin Street
- Exploit Alley behind Norvell’s as a bikeway to circumvent uncomfortable Cypress – Franklin intersection (see below)
- 4-way intersection at Cypress and Franklin is unsafe due to motorists cutting over lanes while turning
- Too many diversions from routes are not beneficial
- More bikes on the road equates to less accidents as motorists become more aware – encourage ridership
- Education for drivers (and cyclists) would promote awareness and increase safety for riders
- “Watch for Cyclists” entry signage would increase awareness of riders
- Without the bike lane (section of Franklin between Oak and Fir) the right of cyclists to be in the carriage way is more clear
- More radar activated flashing speed signs along bikeways should be installed
- Along bikeways, traffic calming measures should be used more – speed bumps, tables, bike boulevards, Bots dots, chicanes, etc.
- Institute a central, indoor “bike check” program
- Institute a bike sharing program
- Sharrows should be painted on Franklin Street where it is narrow
- More bike parking should be installed at Figueredo’s, Safeway and Coast Cinema
- Bike racks should be installed near Family Hands, Paul Bunyan, Surf Shack, Colombi’s, Taqueria Ricarda, and Harvest Market
- Create a bike parking directory
- Promote more cycling events
- Construct pedestrian and bicycle bridge over Pudding Creek at Harold Street
- Construct multi use trail behind Guesthouse Museum linking Redwood and Laurel Streets.
- Construct a bikeway through the southern portion of the Mill Site.

## **Appendix B – Federal and State Policies**

### **U.S. Department of Transportation (US DOT)**

*US DOT Policy Statement on Integrating Bicycling and Walking into Transportation Infrastructure:*

*Design Guidance* (2001): In response to Section 1202(b) of the Transportation Equity Act for the 21st Century (TEA-21), this document is “a policy statement that bicycling and walking facilities will be incorporated into all transportation projects unless exceptional circumstances exist.”

*United States Code, Title 23, §109(m), Protection of Non-motorized Transportation Traffic.* – The Secretary shall not approve any project or take any regulatory action under this title that will result in the severance of an existing major route or have significant adverse impact on the safety for non-motorized transportation traffic and light motorcycles, unless such project or regulatory action provides for a reasonable alternate route or such a route exists.

*United States Code, Title 23, §130(j), Railway-Highway Crossings, Bicycle Safety.* – In carrying out projects under this section, a State shall take into account bicycle safety.

*United States Code, Title 23, §217, Bicycle Transportation and Pedestrian Walkways: (e) Bridges.* – In any case where a highway bridge deck being replaced or rehabilitated with Federal financial participation is located on a highway on which bicycles are permitted to operate at each end of such bridge, and the Secretary determines that the safe accommodation of bicycles can be provided at reasonable cost as part of such replacement or rehabilitation, then such bridge shall be so replaced or rehabilitated as to provide such safe accommodations.

*United States Code, Title 23, §217, Bicycle Transportation and Pedestrian Walkways: (g) Planning and Design.* – In General. – Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation facilities, except where bicycle and pedestrian use are not permitted.

### **State of California**

*California Department of Transportation (Caltrans), Deputy Directive 64-R1, Complete Streets – Integrating the Transportation System*, (2008): “The intent of this directive is to ensure that travelers of all ages and abilities can move safely and efficiently along and across an network of ‘complete streets.’”

*Assembly Concurrent Resolution No. 211* (2002): “That in order to improve the ability of all Californians who choose to walk or bicycle to do so safely and efficiently, the Legislature of the State of California hereby encourages all cities

and counties to implement the policies of the California Department of Transportation Deputy Directive 64 and the United States Department of Transportation's design guidance document on integrating bicycling and walking when building their transportation infrastructure."

*California Bicycle Transportation Act, Streets and Highways Code 890-894.2:* "It is the intent of the Legislature, in enacting this article, to establish a bicycle transportation system. It is the further intent of the Legislature that this transportation system shall be designed and developed to achieve the functional commuting needs of the employee, student, business person, and shopper as the foremost consideration in route selection, to have the physical safety of the bicyclist and bicyclist's property as a major planning component, and to have the capacity to accommodate bicyclists of all ages and skills."

*Congestion Management Programs, Government Code 65089(b)(1)(B)(5) :* "It is the intent of the Legislature that, when roadway projects are identified in the program, consideration be given for maintaining bicycle access and safety at a level comparable to that which existed prior to the improvement or alteration."

## ***Appendix C – Fort Bragg General Plan, Circulation Element -Section 11***

With better facilities and trails, bicycling can become a more significant part of the transportation system and an alternative to automobile use. Fort Bragg has few constraints to bicycling: most of the City is flat, the weather is mild, and the City is compact with relatively short distances between residential areas, schools, parks, and commercial centers.

The California Street and Highway Code has established three categories of bicycle trails based on the physical conditions of the right-of-way.

Class 1 Bikeway - Bike Path or Bike Trail: These facilities are constructed on a separate right-of-way, are completely separated from street traffic, and have minimal cross flows of automobile traffic. The State standard for minimum paved width of a two-way bike trail is eight feet.

Class 2 Bikeway - Bike Lane: A restricted right-of-way for the exclusive use of bicycles with vehicle parking and cross flow by pedestrians and motorists permitted. Bike lanes are normally striped within paved areas of highways and are one-directional with a minimum standard width of five feet.

Class 3 Bikeway - Bike Route: A route for bicyclists designated by signs or other markings and shared with pedestrians and motorists. Bike routes are typically designated to provide linkages to the bikeway system where Class 1 or 2 Bikeways cannot be provided.

The following local bikeway projects are identified as high priority by Mendocino County's 2000 Regional Bikeway Plan. A full description of recommended improvements is included in that Plan.

- The Pudding Creek Trestle to Otis Johnson Park Bikeway would provide a link between a park in northeast Fort Bragg and the beach at the mouth of Pudding Creek. It would also connect with the Old Haul Road, which travels north through MacKerricher State Park. As indicated on Map C-2, this path would serve Fort Bragg Middle School and neighborhoods in the northwest area of the City through a combination of Class 2 and 3 Bikeways. New Class 3 segments would be required from the Pudding Creek Trestle to Elm Street. Class 3 improvements would be constructed on Elm Street, Franklin Street, and Laurel Street.
- The Otis Johnson Park/Dana Street Bikeway would provide a north-south link within central Fort Bragg. This bicycle route would connect Fort Bragg Middle School and Fort Bragg High School. The proposed bike route would use existing bikeways and a section of the proposed bikeway improvement listed

above for Laurel Street. It would consist of Class 3 Bikeway improvements on Oak Street and Class 1 Bikeway improvements on Dana Street.

- The Dana Gray School to Maple Street Bikeway would provide east-west access between Dana Gray School and an existing bikeway on Maple Street. Class 3 Bikeways would be constructed on S. Sanderson Way, Willow Street, and Lincoln Street.

**Goal C-11     Make it easier and safer for people to travel by bicycle.**

Policy C-11.1 Comprehensive Bikeway System: Establish a comprehensive and safe system of bikeways connecting all parts of Fort Bragg.

Program C-11.1.1: Complete the bikeway system as indicated in Map C-2: Bicycle Paths. Make the completion of the following bike paths a high priority:

- a. Pudding Creek Trestle/Glass Beach to Otis Johnson Park;
- b. Fort Bragg Middle School to Dana Gray School;
- c. Dana Gray School to Maple Street; and
- d. A bicycle path on Oak Street and Sherwood Road providing access to areas east of Fort Bragg and connecting with the proposed future ball field complex and trail linkages in east Fort Bragg, when they are constructed.

Program C-11.1.2: Incorporate bicycle and pedestrian facilities into the design and construction of all road improvements as feasible.

Program C-11.1.3: Continue to participate in MCOG's *Regional Bikeway Plan* to qualify for State Bicycle Lane Account funds.

Program C-11.1.4: Utilize park-in-lieu funds, dedications, grant funding, traffic impact fees, and other means, as appropriate, to acquire rights-of-way needed for a comprehensive bikeway system as indicated in Map C-2.

Program C-11.1.5: Maintain bikeways to ensure that they are free of debris and other obstacles. Consider increasing the number of trash receptacles, solar-powered emergency telephones, and increased lighting along bicycle trails.

Program C-11.1.6: Require new development to provide on-site connections to existing and proposed bikeways, as appropriate.

Program C-11.1.7: Require that streets linking residential areas with school facilities be designed to include bikeways.

Program C-11.1.8: Consider bicycle operating characteristics in the design of intersections and traffic control systems.

Policy C-11.2Bicycle Parking: Provide adequate and secure bicycle parking at public transit facilities, park and ride lots, schools, the library, parks, City offices, and commercial areas.

Program C-11.2.1: Revise Zoning Ordinance parking standards to require larger commercial and multi-family residential projects, public buildings, and transit facilities to provide secure bicycle parking.

Program C-11.2.2: Continue the bicycle safety program conducted by the Police Department.

## ***Appendix D – Excerpts from Fort Bragg Municipal Code Chapter 10.58***

### **CHAPTER 10.58 - BICYCLES**

- 10.58.010 Definitions of words and phrases.
- 10.58.020 Bicycle registration coordinator.
- 10.58.030 Bicycle safety officer.
- 10.58.040 Coordination of activities.
- 10.58.050 Bicycle licensing.
- 10.58.060 Bicycle registration certificate - Bicycle License - Insurance.
- 10.58.070 Sale or transfer of bicycle.
- 10.58.080 Lost or stolen license receipt - Bicycle plate - Report - Replacement.
- 10.58.090 Fees.
- 10.58.100 Tampering with registration certificate - Bicycle license - Serial number prohibited.
- 10.58.110 Bicycle dealers - Weekly bicycle sales reports required.
- 10.58.120 Bicycle fund.
- 10.58.130 Police authorized to number bicycle frames.
- 10.58.140 Annual bicycle safety report.
- 10.58.150 Report of bicycle accident.
- 10.58.160 Operation upon sidewalks.
- 10.58.170 Restrictions on the use of skateboards.
- 10.58.180 Bicycles on pedestrian bridge.

#### ***10.58.160 Operation upon sidewalks.***

No person shall ride a bicycle upon a sidewalk within the central business district, as described by this chapter, nor shall any person ride upon any such sidewalk within this city which has been posted with signs prohibiting such riding. Violation of this section is an infraction. (Ord. 530 §4(A), 1980.)

#### ***10.58.180 Bicycles on pedestrian bridge.***

No person shall ride a bicycle upon any pedestrian bridge within this city which has been posted with signs prohibiting such riding. (Ord. 530 §4(C), 1980.)



## References

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American Association of State Highway and Transportation Officials (AASHTO) – *Guide for the Development of Bicycle Facilities* – 1999

Caltrans – *Caltrans Highway Design Manual* – 2006/2009

Caltrans – *Pedestrian and Bicycle Facilities in California* – 2005

Federal Highway Administration – *Manual on Uniform Traffic Control Devices* – 2003

Fort Bragg, City of *City of Fort Bragg Residential Streets Safety Plan* – 2005

Institute of Transportation Engineers (ITE) – *Innovative Bicycle Treatments* – 2002

Mendocino Council of Governments – *Regional Bikeways Plan* – 2007

Morgan Hill, City of – *Bikeways Master Plan* – 2000

Oakland, City of – *Oakland Bicycle Master Plan* – 2007

Pein, Wayne – *The “Share the Road” Sign* (Bicycling Matters) – 2006

Windsor, Town of – *Townwide Trails and Bikeways Master Plan* – 2002

San Francisco Bay Trail Project – *Bay Trail Design Guidelines*

San Francisco, City of – *Bicycle Plan Update: Supplemental Design Guidelines* – 2003

Santa Clara Valley Transportation Authority (VTA) – *VTA Bicycle Technical Guidelines* – 1999



*The Fort Bragg Bicycle Master Plan is dedicated to all bicycle riders, young and old . . .*

