# Gearing up for better bicycling

Bike it!

Caltrans

# Bike

## Introduction

**What has two wheels, improves mobility and air quality, reduces traffic congestion and parking demand, saves energy, and promotes healthy living through enjoyable exercise? Sound too good to be true? Planners, engineers, policymakers, and cyclists recognize these as the benefits of bicycle transportation.**

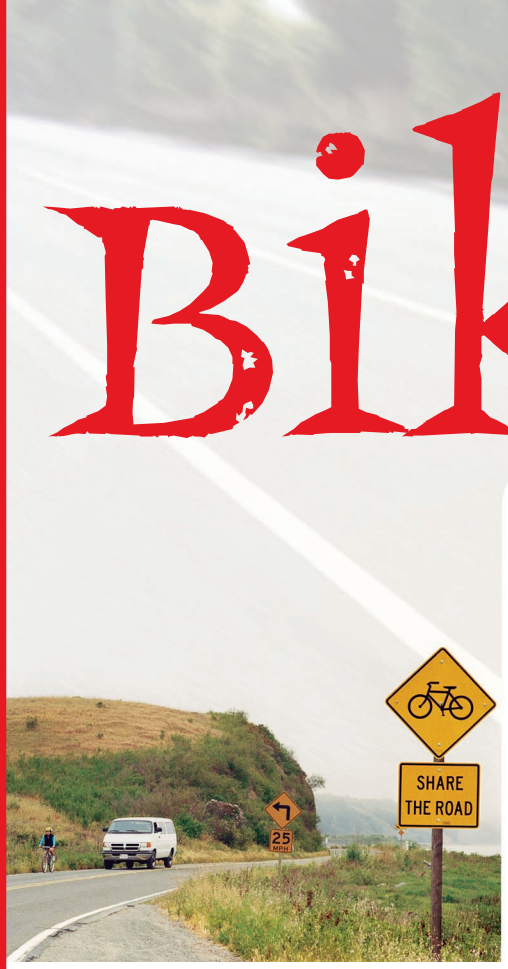
**Bicyclists come in many shapes and sizes and their facility needs are equally varied. From the beginner mastering balance and control, to the experienced rider who has logged countless miles, all cyclists appreciate well-designed and properly maintained facilities, whether for local travel or long distance touring.**

**In 2001, the California Department of Transportation (Department) approved a new policy, DD-64, that requires all Department employees involved in planning, design, construction, operation, and maintenance of the transportation system, to fully consider the needs of bicyclists, pedestrians, and persons with disabilities. In August 2002, the California Legislature approved Assembly Concurrent Resolution 211, which encourages local agencies to adopt the principles of DD-64.**

**This brochure features projects the Department and local agencies throughout California have implemented to improve safety and convenience for bicyclists. If it increases awareness of the need to accommodate bicycling in our transportation system, it will be successful.**

Bike it!

December 2002




## Share the Road

This Marin County program encourages bicyclists and motorists to share the road. The "Share the Road" sign is used in conjunction with the bicycle warning sign on narrow roads where motorists and bicyclists must share a traffic lane. The California Department of Transportation has approved the "Share the Road" sign and adopted a policy for its use.

Marin County is actively promoting a countywide "Share the Road" program. In addition to installing "Share the Road" signs, the county is promoting awareness with "Share the Road" bumper stickers, special posters, T-shirts, water bottles, and other promotional items.

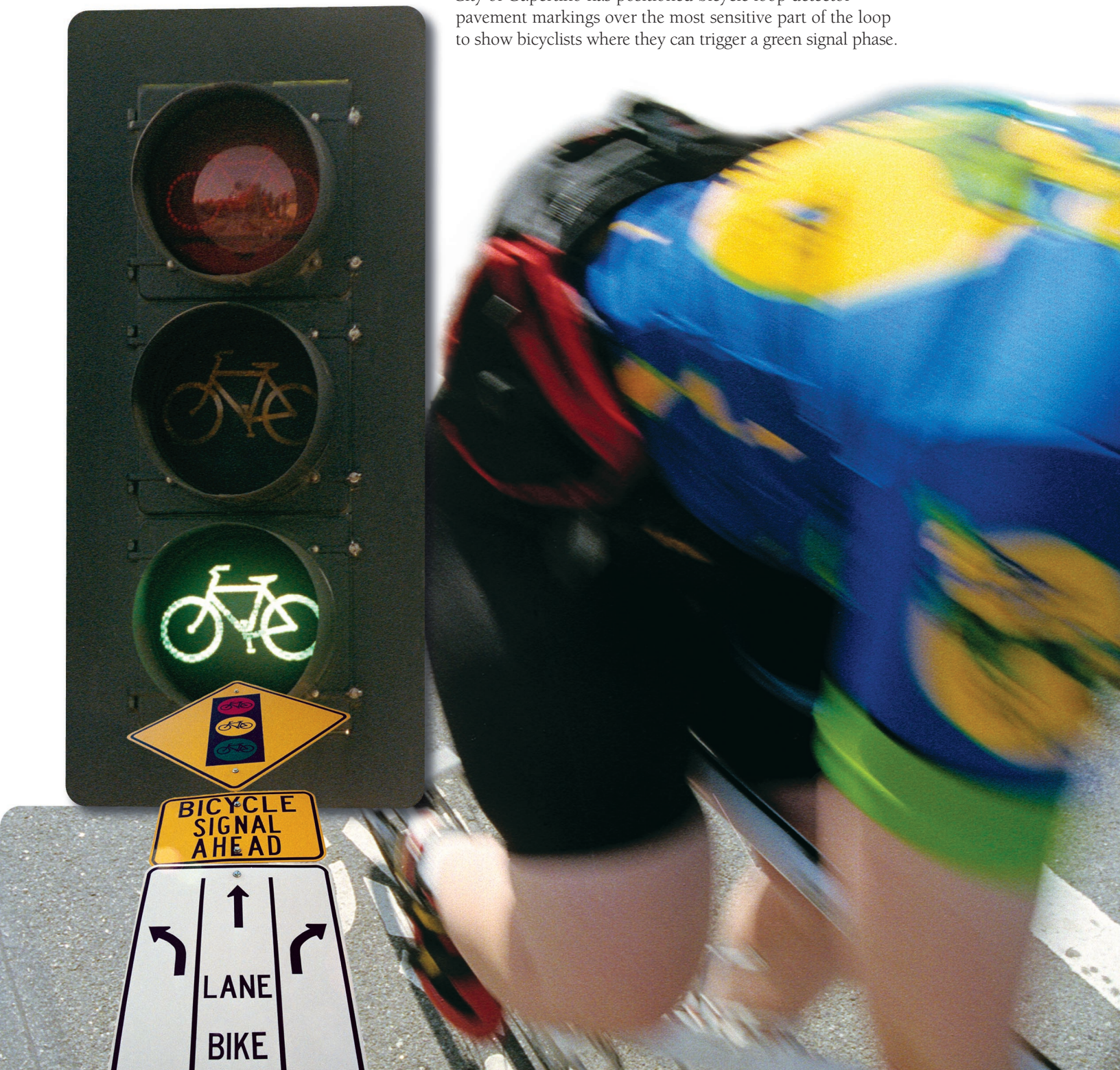
## Bicycle Traffic Signals

In Davis, at the intersection of Russell Boulevard, Sycamore Lane and a bike path, bicycle signal heads control bicycle traffic entering and exiting the path. Mounted with the standard signals that control motorized traffic and pedestrians, the bicycle signals use the conventional "red-yellow-green" pattern to facilitate the safe and efficient movement of bicycles through intersections that serve high volumes of bicycle and vehicle traffic. Traffic accidents have decreased at intersections controlled by bicycle traffic signals.

# it!

## Bike Loop detector pavement markings

Loop detectors are wires embedded in road pavement used in intersections to detect the presence of traffic. The City of Cupertino has positioned bicycle loop detector pavement markings over the most sensitive part of the loop to show bicyclists where they can trigger a green signal phase.



# safety

## Numbered Bike Routes

The City and County of San Francisco established the first network of numbered bicycle routes in California. The route signs feature graphics of a bicycle and the Golden Gate Bridge over a layer of San Francisco fog, as well as a route number, destination, and directional arrow. The signs guide cyclists to the most direct and least hilly routes between major destinations and remind motorists to share the road. The system includes cross-town and neighborhood routes. Based on federal highway numbering methodology, north-south routes are odd numbers while east-west routes are even. Loops and spurs have three-digit designations and no route number duplicates a state highway number within the city. San Francisco originally proposed the system of numbered routes to the California Bicycle Advisory Committee, which assisted the city and county in its effort to gain approval from the California Traffic Control Devices Committee and the California Department of Transportation. The numbered routes are included in the San Francisco Bike Map and Walking Guide and in the blue-colored Local Area Pages of the Pacific Bell Yellow Pages Directory for San Francisco.

# Safety & Convenience

## Bicycle Pavement Logo

The City and County of San Francisco has implemented a demonstration project using pavement logos in the right hand lane of bike routes, where bicyclists must share the traffic lane with motor vehicles. The pavement markings guide bicyclists away from the "door zone", where they face the risk of colliding with an opening car door. They also alert motorists to the presence of bicyclists in the traffic lane. The California Traffic Control Devices Committee approved the demonstration project, as recommended by the California Bicycle Advisory Committee, and could recommend California Department of Transportation approval of the pavement markings as an official traffic control device if they are effective in improving traffic safety.

## Hazel-Folsom Bike Overcrossing

Freeway interchanges are designed to move high volumes of traffic on and off the freeway system; as a result, they can be challenging to cyclists traversing the local street through the interchange.

When a recent project modified the Hazel Avenue interchange – east of Sacramento on Highway 50 – to add multiple on-ramps, Sacramento area bicyclists and local agencies pursued construction of a separate bicycle/pedestrian overcrossing. The Hazel Avenue – Folsom Boulevard bicycle/pedestrian overcrossing structure is a $1.2 million bridge with connecting bike paths linking the American River Bicycle Trail with Folsom Boulevard. The project serves bicyclists and pedestrians who must cross the freeway to reach their destinations.

# travelling

## iron horse trail

The Iron Horse Trail is a regional bicycle/pedestrian facility that will ultimately connect 12 cities from Pleasanton in Alameda County to Suisun Bay in Contra Costa County. The rail-trail alignment is along 33 miles of the Southern Pacific Railroad right-of-way established in 1891 and abandoned in 1977. Constructed by a partnership of state, regional and local agencies, the trail serves commuter and recreational cyclists. In addition to connecting residential areas, shopping, schools, and employment centers, the trail links to the Bay Area Rapid Transit System, County Connection Bus service, and express bus service to Solano County.

*photo courtesy of Marsha Mason*

## gilman drive at i-5 restriping

Access to southbound Interstate 5 from eastbound Gilman Drive in San Diego is through a busy intersection with substantial volumes of motor vehicle and bicycle traffic. The previous intersection design included dual right-turn lanes from Gilman to the freeway on-ramp, with the bike lane adjacent to the right hand curb. The restriping eliminated one of the right-turn lanes and moved the bike lane to the left of the remaining right-turn only lane to reduce conflicts between bicyclists and right turning motor vehicles. Signing supplements the restriping to improve traffic flow in the intersection.

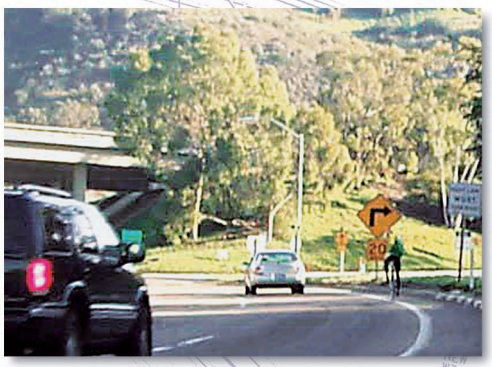


*photo courtesy of Daniel Gallagher*

before & after

## Bizz Johnson Rail Trail

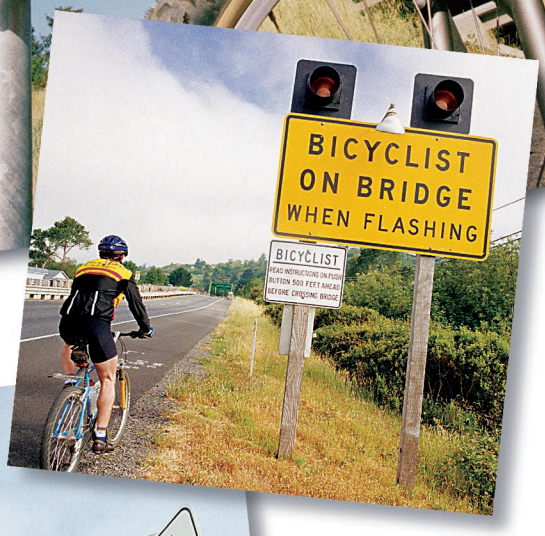
The Bizz Johnson Trail in Lassen County connects the City of Susanville with the town of Westwood. From the Susanville Railroad Station, the 25.4 mile trail follows the abandoned Fernley & Lassen Branch of the Southern Pacific Railroad to the Mason Station Trailhead in Westwood. Seven bridges cross the Susan River and two tunnels carry the trail through mountains along the route. The trail is named in honor of Congressman Harold T. "Bizz" Johnson who served in the United States House of Representatives from 1958 to 1980.

The Trail is a cooperative effort between the Bureau of Land Management's Eagle Field Office, the United States Forest Service Lassen National Forest Eagle Lake District Office and the California Department of Transportation. Constructed by the Bureau of Land Management with Transportation Enhancement Activity funds, it is jointly maintained by the Bureau and the forest service as a recreational facility supporting more than 68,000 users annually in the remote rural area.

The California Department of Transportation and the Bureau worked together to allow access from State Route 36 to the trailhead at Devils Corral, eliminating the need for three miles of access road to reach the same trailhead. Federal funds administered through the California Department of Transportation District 2 Local Assistance Office, and State Highway Account funds approved by District 2, replaced decks and rails on the seven bridges along the trail to improve safety for trail users. An additional $300,000 in Transportation Enhancement Activity funds will construct a visitor information center at the Westwood end of the trail.

# California's Bikeways

# Bicycle




## Putah Creek Undercrossing

The Putah Creek Undercrossing in Davis links residential areas south of Interstate 80, with downtown and the University of California, Davis campus north of the freeway. With an open and airy design, the project provides an alternative to the nearby Richards Boulevard Overcrossing, where bicyclists contend with through traffic and vehicles entering and exiting the freeway. The new undercrossing also improves access to the bicycle/pedestrian tunnel under the Union Pacific Railroad near downtown. Call boxes are available along the path segments near the undercrossing. State and local sources provided $4.2 million to fund the project.

## Collier Tunnel & Mad River Bridge

With no practical alternate route available, bicyclists must use the narrow lanes and minimal shoulders in the Collier Tunnel and on the Mad River Bridge. The Collier Tunnel is on State Route 199 in Del Norte County, just south of the Oregon border and the Mad River Bridge is on State Route 101 north of Arcata. In 1986, the California Department of Transportation installed a warning sign with flashing beacons near the tunnel entrance and the bridge approach to alert motorists to the possible presence of bicyclists in the tunnel and on the bridge. In 1992, bicyclist-activated flashing beacons replaced the blinking signs. Nominated for an Excellence in Transportation award in 1988, these inexpensive projects call attention to an unusual roadway condition and significantly improve traffic safety. The original cost of the blinking signs was $28,300. The cost to replace the blinking signs with bicycle-activated flashing beacons was $22,772.

## Bike Station

The Bike Station brings new meaning to "intermodal transportation," providing a full-service bike/transit center to promote bicycling and public transportation. Modeled after transit systems in Europe and Japan, the Bike Station provides indoor valet bicycle parking, bicycle rental, tune-ups, repairs, assorted accessories, and maps. Secure bicycle parking and services near transit centers allow commuters to use alternate modes of transportation, reducing congestion and parking demand while promoting a healthier lifestyle. Bike Stations are currently operating in Long Beach, Palo Alto and Berkeley and there are plans to build two more, in San Francisco and Oakland.

## Bike Racks on Transit

Substantial distances separate many of the population centers in Kings County in California's Central Valley. Bicycle racks on Kings County Area Public Transit Agency buses help cyclists access the cities of Avenal, Corcoran, Hanford, Lemoore, and other communities in the vicinity. At each end of the bus trip, bikes are available for local travel. The racks also provide an alternative to bicycling the entire trip in inclement weather. Funding for the bicycle racks came from the Bicycle Transportation Account, a state funding source. Loading a bicycle on a rack takes just a few seconds, minimizing delays in bus operations. The bus bike racks are a visible reminder of the potential for intermodal travel in Kings County.

# commuting

# Working

## Bike Lanes

Bike lanes provide a striped lane for one-way bike travel on a street or highway, improving safety for bicycles and motor vehicles by delineating the spaces assigned to each. A bike lane project might include a reduction in traffic lanes or on-street parking. Bike lane signs (R81), bike route signs (G93), a wider edge strip, and pavement markings inform bicyclists and motorists that a street is designated for bicycle travel. Bike lanes should be swept regularly and the pavement should be maintained to provide a suitable riding surface.

## Shoulders and Wide Outside Lanes

Bicycling on a road that requires sharing space with motor vehicles can be challenging. Wide outside traffic lanes or paved shoulders are fundamental to improving safety and convenience for bicyclists. Providing adequate space in the initial design and construction is more cost effective than a retrofit project to widen the road.

photo courtesy of Daniel Moody

## Bike Racks

Bicycle racks provide secure parking in Eureka's business district, parks, and recreation areas. Exposed to the California north coast marine environment since 1983, the existing racks were due for repair or replacement. State funds enabled the city to replace the old racks with over 100 U-shaped bike racks and multi-bike parking racks constructed of cast steel and designed for years of maintenance-free service.

## Networking Builds Bridges

This could be you … enjoying a ribbon-cutting ceremony in your own community, celebrating the excitement of a new bicycle/pedestrian project.

On June 28, 2001, the California Department of Parks & Recreation sponsored a community celebration to dedicate the new Alder Creek Bridge in the Folsom Lake State Recreation Area. After the dedication ceremony, attendees participated in a bike ride and walk across the new bridge.

Nicknamed the "Missing Link", the Alder Creek Bridge completes the 11.8 mile loop around Lake Natoma, just below Folsom Lake on the American River. The trail provides access from neighboring communities to the American River Bicycle Trail network. Funding came from the California Department of Transportation, the Sacramento Area Council of Governments (SACOG), the United States Bureau of Reclamation, the City of Folsom, Sacramento County, and the California Department of Parks and Recreation.

Whether commuting or enjoying a leisurely ride, bicyclists appreciate the wooded serenity of the trail surrounded by the hustle and bustle of suburbia.

# together

# preserve & improve

## maintenance and construction

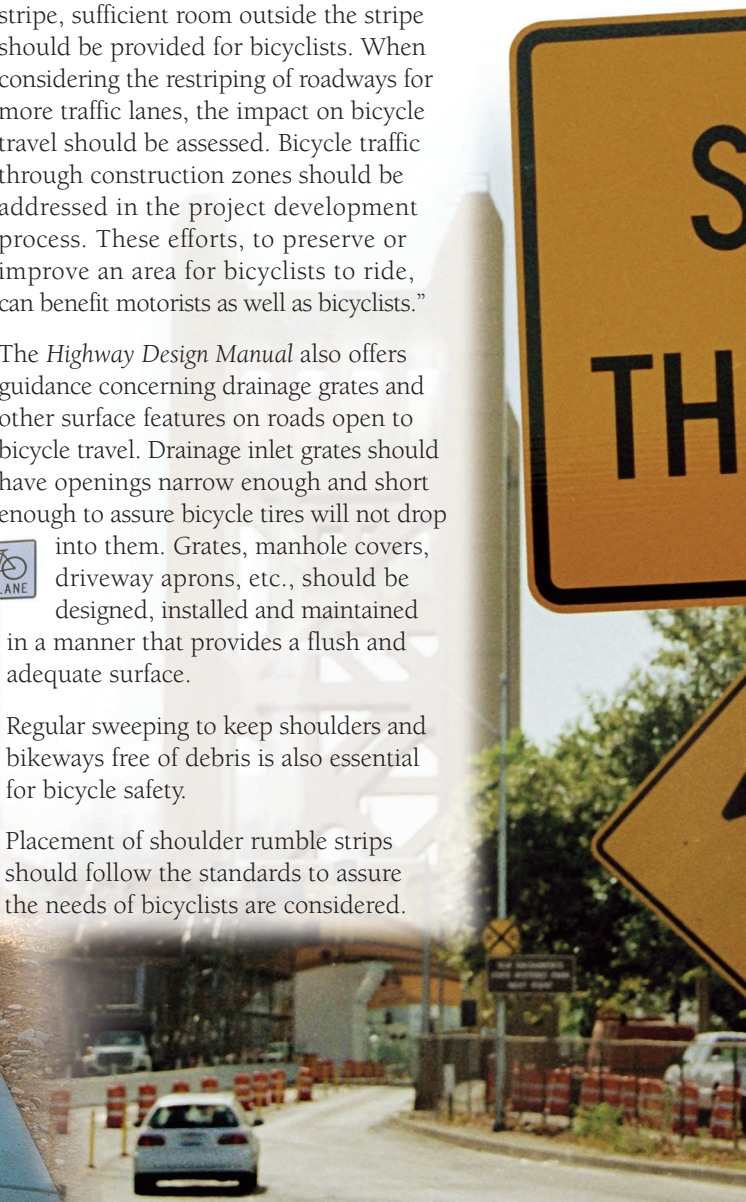
Chapter 1000 of the California Department of Transportation's *Highway Design Manual* offers the following summary of maintenance and construction practices that can benefit bicyclists:

"Bicycle travel can be enhanced by improved maintenance and by upgrading existing roads used regularly by bicyclists, regardless of whether or not bikeways are designated. This effort requires increased attention to the right-hand portion of roadways where bicyclists are expected to ride. On new construction and major reconstruction projects, adequate width should be provided to permit shared use by motorists and bicyclists. On shoulder resurfacing projects, the entire paved shoulder and traveled way shall be resurfaced. When adding lanes or turn pockets, a minimum 1.2 m shoulder shall be provided. When feasible, a wider shoulder should be considered. When placing a roadway edge stripe, sufficient room outside the stripe should be provided for bicyclists. When considering the restriping of roadways for more traffic lanes, the impact on bicycle travel should be assessed. Bicycle traffic through construction zones should be addressed in the project development process. These efforts, to preserve or improve an area for bicyclists to ride, can benefit motorists as well as bicyclists."

The *Highway Design Manual* also offers guidance concerning drainage grates and other surface features on roads open to bicycle travel. Drainage inlet grates should have openings narrow enough and short enough to assure bicycle tires will not drop into them. Grates, manhole covers, driveway aprons, etc., should be designed, installed and maintained in a manner that provides a flush and adequate surface.

Regular sweeping to keep shoulders and bikeways free of debris is also essential for bicycle safety.

Placement of shoulder rumble strips should follow the standards to assure the needs of bicyclists are considered.



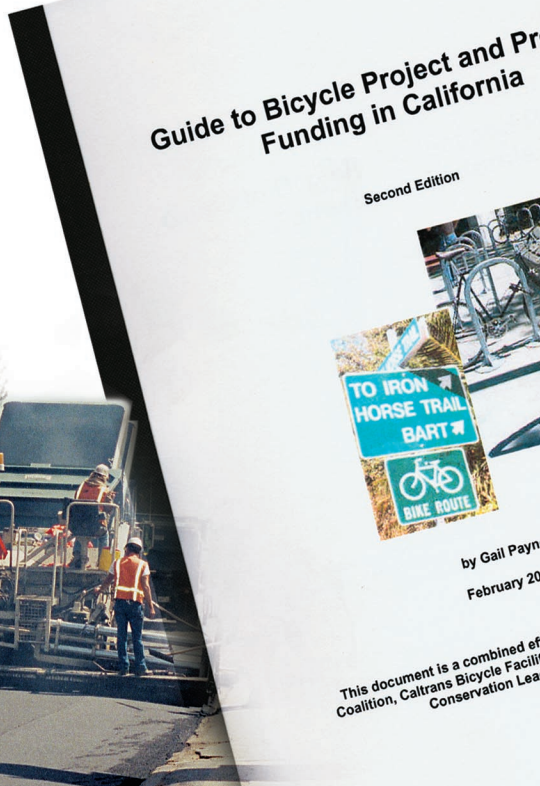
# funding

Bicycle project funding is available from numerous sources, including, but not limited to the following:

- Bicycle Transportation Account
- Environmental Enhancement and Mitigation Program
- Safe Routes to School Program
- Transportation Enhancement Activities Program
- Congestion Mitigation/ Air Quality Improvement
- Local Transportation Funds
- Special Taxing Authorities

For additional information about these and other programs, please refer to the *Transportation Funding Opportunities Guidebook: State and Federal Funds Available for Local Agency Projects,* available on the Division of Local Assistance web site at ***http://www.dot.ca.gov/hq/LocalPrograms/***. This guide provides an overview of State and Federal programs and procedures for financing local public transportation projects.

The California Bicycle Coalition (CBC) publication *Guide to Bicycle Project and Program Funding in California,* describes funding sources for federal, state, regional, and local programs. For additional information about this publication please visit the CBC web site at ***http://www.calbike.org/news/guide1.htm***.



# California

EXECUTIVE DEPARTMENT

STATE OF CALIFORNIA

**PROCLAMATION**
**by the**
**Governor of the State of California**

**WHEREAS,** bicycle transportation is an integral part of the "multi-modal" transportation system planned by federal, state, regional and local transportation agencies; and

**WHEREAS,** increasing numbers of businesses have installed bicycle parking and other bike commute facilities to help customers and employees commute by bicycle; and

**WHEREAS,** bicycle commuting is an effective means of reducing air pollution and conserving energy; and

**WHEREAS,** the month of May has been declared National Bike Month to promote the bicycle as a means of transportation and recreation; and

**WHEREAS,** the California Bicycle Coalition, the American Lung Association of California, the United States Postal Service and many public and private groups throughout California have worked together to promote a week of bicycle commuting;

**NOW, THEREFORE, I, GRAY DAVIS,** Governor of the State of California, do hereby proclaim May 14-19, 2000 as "Bike Commute Week."

**IN WITNESS WHEREOF** I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this 9th day of May 2000.

Gray Davis
Governor of California

**ATTEST:**

Bill Jones
Secretary of State

# Bike commute

## special events

Increasing bicycling is consistent with strategies to reduce traffic congestion and air pollution, conserve energy, and improve health and fitness. Special events such as Bike-to-Work Day, transportation fairs, and organized rides, encourage people to try bicycling for commuting or recreation.

In 1995, the California Bicycle Coalition combined regional Bike-to-Work Day events into one statewide event – California Bike Commute. Since then, each California Bike Commute has generated increased bicycle commuter participation.

Transportation fairs promote bicycling with displays of bicycle maps, equipment, and other resources. Representatives from local agencies, bicycling organizations, and vendors are available to answer questions and offer encouragement about trying various transportation options, including bicycling.

Special events can also promote awareness of bicyclists' needs. On a brisk, foggy morning, California Department of Transportation Director Jeff Morales led a group of Department executives and the Executive Director of the California Bicycle Coalition on a ride from Sacramento to Stockton for the monthly District Directors meeting. The ride built teamwork and offered the managers an opportunity to experience conditions that bicyclists encounter on public roads throughout California.

## FOR MORE INFORMATION


**CALIFORNIA DEPARTMENT OF TRANSPORTATION**

BICYCLE FACILITIES UNIT, MS 1
CA DEPT. OF TRANSPORTATION
P.O. BOX 94274
SACRAMENTO CA 94274-0001

http://www.dot.ca.gov/hq/tpp/offices/bike/Bike_Brochure.pdf


For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please write to the above address, or call (916) 653-0036 or CRS - 711.


PHOTOGRAPHY BY JON HIRTZ, CALTRANS PHOTOGRAPHY, UNLESS OTHERWISE NOTED | DESIGN BY KAREN BREWSTER, CALTRANS GRAPHIC SERVICES