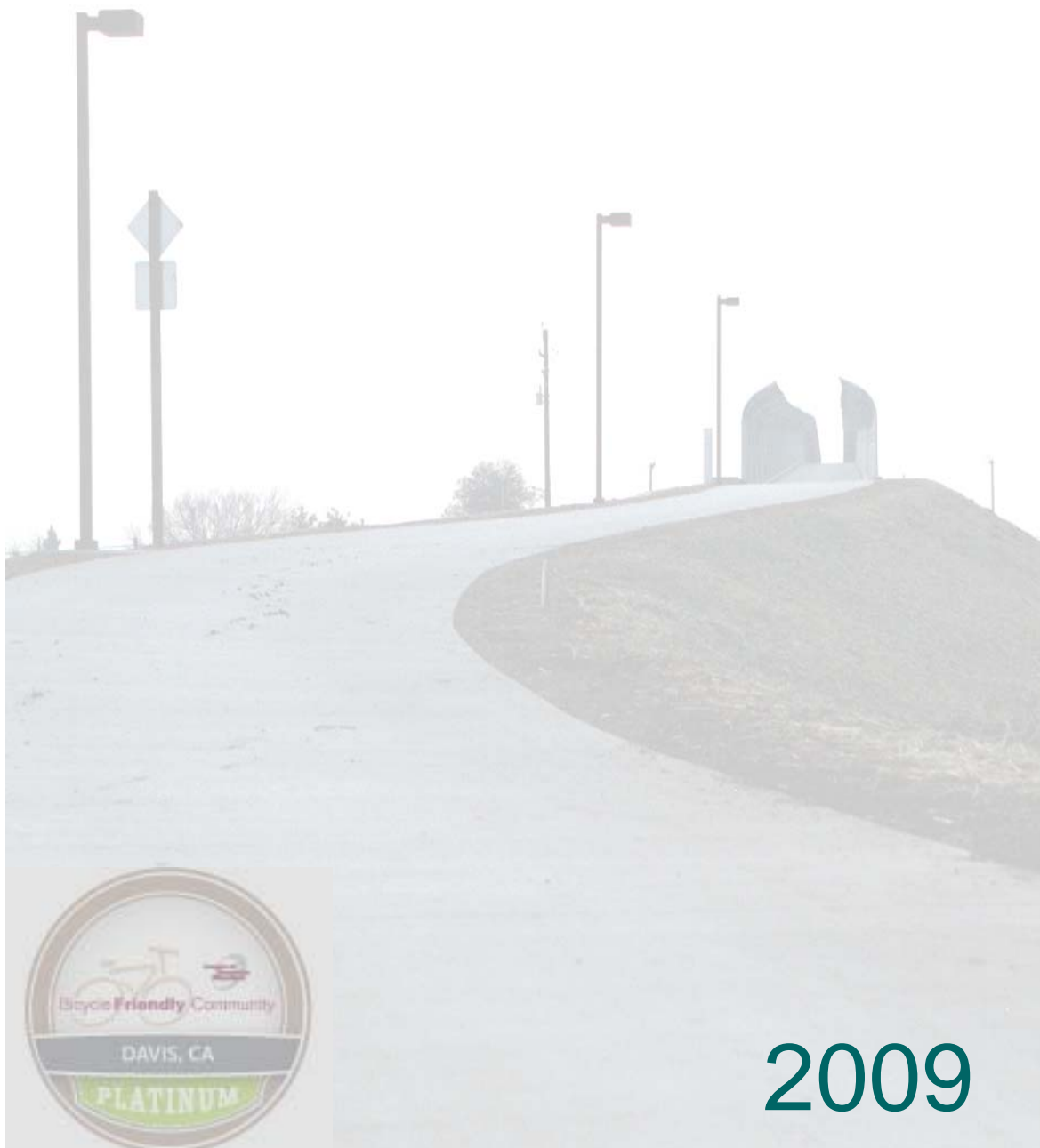


# CITY OF DAVIS BICYCLE PLAN



2009

# City of Davis

## Bicycle Advisory Commission

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*In February of 2005, the Davis City Council established the Bicycle Advisory Commission to address bicycle issues related to education, enforcement, engineering and encouragement. Membership of the Commission may include representatives from the general public, the Davis Bicycle Club, UCD Administration, and UCD students, among others.*

### 2008-2009 Bicycle Advisory Commission Members

John Berg	Chair
Jack Kenward	Vice-Chair
Earl Bossard	Commissioner
Kelli O'Neill	Commissioner
Alan Jackman	Commissioner
Virginia Matzek	Commissioner
Angel York	Commissioner
Joe Krovoza	Alternate
David Takemoto-Weerts	Ex-Officio

### 2007-2008 Bicycle Advisory Commission Members

John Berg	Chair
Jack Kenward	Vice-Chair
Earl Bossard	Commissioner
Dan Kehew	Commissioner
Anthony Palmere	Commissioner
Lise Smidth	Commissioner
Ken Gaines	Commissioner
Kelli O'Neill	Alternate
David Takemoto-Weerts	Ex-Officio

Council Liaison to the Commission  
Staff Liaison to the Commission

Sue Greenwald  
Tara Goddard

# Resolution of Adoption

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RESOLUTION NO. \_\_\_\_\_, SERIES 2009  
RESOLUTION ADOPTING  
THE CITY OF DAVIS BICYCLE PLAN

- WHEREAS, the Metropolitan Transportation Plan supports and encourages local agencies to develop comprehensive bicycle plans consistent with the regional plan; and
- WHEREAS, the City of Davis Bicycle Advisory Commission (BAC) has reviewed the Bicycle Plan and recommends its adoption; and
- WHEREAS, the proposed Bicycle Plan is consistent with the City of Davis General Plan and General Plan environmental impact report, and no additional environmental review is necessary; and
- WHEREAS, this Bicycle Plan is a document to guide future actions with specific projects and goals requiring further council approvals and funding; and
- WHEREAS, the Legislature of the State of California has established a Bicycle Transportation Account (BTA) to fund the construction of bikeway projects, and has required local agencies requesting funds from this account to have an adopted Bicycle Plan as a minimum requirement for eligibility,
- NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Davis hereby approves and adopts the 2009 City of Davis Bicycle Plan.
  
- PASSED AND ADOPTED by the Davis City Council on this \_\_\_\_\_ day of \_\_\_\_\_, 2009, by the following vote:
  
- AYES:
  
- NOES:
  
- ABSENT:
  
  
- \_\_\_\_\_  
Ruth Asmundson, Mayor
  
- ATTEST:
  
- \_\_\_\_\_  
Zoe Mirable, City Clerk

**RESOLUTION NO. 09-168, SERIES 2009**

**RESOLUTION ADOPTING  
THE CITY OF DAVIS BICYCLE PLAN**

WHEREAS, the Metropolitan Transportation Plan supports and encourages local agencies to develop comprehensive bicycle plans consistent with the regional plan; and

WHEREAS, the City of Davis Bicycle Advisory Commission (BAC) has reviewed the Bicycle Plan and recommends its adoption; and

WHEREAS, the proposed Bicycle Plan is consistent with the City of Davis General Plan and General Plan environmental impact report, and no additional environmental review is necessary; and

WHEREAS, this Bicycle Plan is a document to guide future actions with specific projects and goals requiring further council approvals and funding; and

WHEREAS, the Legislature of the State of California has established a Bicycle Transportation Account (BTA) to fund the construction of bikeway projects, and has required local agencies requesting funds from this account to have an adopted Bicycle Plan as a minimum requirement for eligibility.

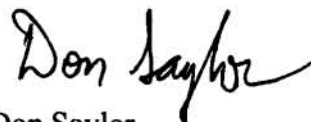
NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Davis hereby approves and adopts the 2009 City of Davis Bicycle Plan.

PASSED AND ADOPTED by the City Council of the City of Davis this 13<sup>th</sup> day of October, 2009 by the following vote:

AYES: Greenwald, Heystek, Saylor, Souza

NOES: None

ABSENT: Asmundson



Don Saylor  
Mayor Pro Tempore

ATTEST:



Zoe S. Mirabile, CMC  
City Clerk

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# Overview

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- ***Purpose***

- The purpose of this Bicycle Plan is to improve and maintain the safety, convenience, attractiveness, and inclusiveness of bicycle transportation in Davis. This is an update of the 2001 Draft Bikeway Plan in an effort to maintain a Bicycle Plan which is meaningful to the city and which meets the requirements contained in Section 891.2 of the California Streets and Highways Code.

- ***Primary Goal***

- The primary goal of the Plan is to increase the amount of bicycle trips as a percentage of all trips to 25% by 2012, a level formerly achieved in 1990.

# Overview (2)

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## ○ 1.1 Public Participation

- The City incorporated public input throughout the update process. The City held an open house on October 1, 2007 to invite the public to provide questions, comments, concerns, and suggestions on the bicycle plan and on bicycling in Davis in general. Comments from this workshop are incorporated in this document.
- In addition, all Bicycle Advisory Commission meeting agendas are noticed to the public, including the January, February, April and May 2008 meetings where Commission discussed the bicycle plan update. The City also invited and received comments over phone and email during the entire update process.

## ○ 1.2 Agency Coordination

- The City of Davis Comprehensive Bicycle Plan is consistent with the goals of the City of Davis General Plan, the Sacramento Region Blueprint, the Metropolitan Transportation Plan for the Sacramento Region, the Yolo Transportation Management Association, and the Yolo-Solano Air Quality Management District's Bicycle and Pedestrian Program.

# Caltrans Bicycle Transportation Account Required Element Matrix

	<b><u>BTA Element</u></b>	<b><u>Bicycle Plan Section</u></b>
a.	Estimated number of bicycle commuters.	Section 2.3 Current Conditions
b.	A map and description of existing and proposed land use and settlement patterns.	Appendix II
c.	A map and description of existing and proposed bikeways.	Appendix II
d.	A map and description of existing and proposed end-of-trip bicycle parking facilities.	Appendix II
e.	A map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes.	Appendix II
f.	A map and description of existing and proposed facilities for changing and storing clothes and equipment.	Appendix II
g.	A description of bicycle safety and education programs conducted, efforts by the law enforcement agency, and the resulting effect on accidents involving bicycles.	Section 2.4 Bicycle Safety and Education
h.	A description of the extent of citizen and community involvement.	Section 1.1 Public Participation
i.	A description of how the bicycle transportation plan has been coordinated and is consistent with other local or regional transportation, air quality, or energy conservation plans.	Section 1.2 Agency Coordination
j.	A description of the projects proposed in the plan and a listing of their priorities for implementation.	Appendix I
k.	A description of past expenditures for bicycle facilities and future financial needs.	Appendix I



## 2. Background and Existing Conditions

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### ○ 2.1 Setting

- The City of Davis is located in the southern part of Yolo County, a predominantly agricultural county in California's central valley. Davis is the largest urbanized area within Yolo County.
- In 1906, the University of California, Berkeley established the State Agricultural Experiment Station at Davis. The college became a general campus of the University of California System in 1959. Between 1950 and 1987, the average annual growth rate was 6.4 percent per year as the urban population grew from under 5,000 to 48,700. The 2005 in-city population of Davis was approximately 64,000. Approximately 10,000 of the 30,000 UCD students reside within the city limits and are included in the population figure.
- Yolo County temperatures are generally mild in the winter and hot in the summer. October through April is the rainy season, and accounts for approximately 90% of the area's annual precipitation.
- South Davis is separated from the rest of the City by Interstate Highway 80, which is the major freeway serving the area. West Davis is separated from the rest of the City by State Route 113, which connects I-80 in Davis with the City of Woodland and Interstate Highway 5 to the north. Bicycle- and pedestrian-only overcrossings exist over both I-80 and SR-113 to increase accessibility.
- Davis is known for bicycles, energy conservation, and a preference for slow, carefully managed growth. Its notable physical characteristics are small scale in relation to UCD, innovative neighborhood design, a traditional downtown, and an absence of large scale shopping centers. While UC Davis and the City are separate entities, their bicycle networks are intended to be complementary and cohesive.

## 2. Background and Existing Conditions (2)

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### ○ 2.2 History

- The University has always had a significant impact on the City of Davis. Historically, the population and geographic spread of the City has been driven by University enrollment. The ratio of City population to UCD enrollment has been steady at about 2:1 over the last twenty years. There is, however, a dramatic shift in demographics now occurring within the City. As the Interstate 80 corridor continues to grow between San Francisco and Sacramento, Davis has a higher percentage of long-distance commuters than it has previously.
- Significant use of bicycles in the vicinity of colleges and universities is not uncommon. Bicycles serve the transportation needs of students, faculty, and staff perhaps better than any other mode. As the university grew from about 2,200 students in 1958 to its current enrollment of approximately 30,000, the demands for adequate bicycle facilities and minimization of bicycle-motor vehicle conflicts continued to increase. By the mid-1960's it became apparent that the existing street network, designed and delineated only for motor vehicles, was inadequate to provide for both bicycle and motor vehicle volumes in the vicinity of the University. A plan to adequately provide for cyclists was needed.
- The transportation system pressures described above were finally resolved within the system and processes of municipal government. The primary issue of the April, 1966 City Council election was the provision of bikeways for commuters on the public streets. The pro-bikeway candidates were elected. A trial system of bicycle lanes was quickly installed and proved immensely popular. Rapid expansion of the system followed. Provisions for bicycle facilities were incorporated in design standards for new development. The City bikeway system has steadily and consistently expanded and matured to its present state. The City of Davis has attained national preeminence in bikeway planning and design through its experience and lessons learned during the evolution of the system.

## 2. Background and Existing Conditions (3)

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### ○ 2.3 Current Conditions

- Nearly four decades after the City began to actively promote bicycling for transportation Davis was recognized as "America's Best Cycling City" by the Bicycle Federation of America in 1995. The League of American Bicyclists designated the City of Davis as a "Bicycle Friendly Community" in May, 2000 and in October, 2005 the League awarded the City of Davis "Bicycle Friendly Community" status at the Platinum level – the highest level ever awarded to a city in the U.S. With an area just under ten square miles, Davis has approximately 50 miles of on-street bicycle lanes and 52 miles of off-street bicycle paths, some of which run through the City's extensive greenbelt system. More than 90% of all the collectors and arterial streets within the City have bicycle lanes. As of June 2008, the City has 19 grade-separated crossings.
- As a result of aggressively planning for bicycle transportation, ridership within the City is quite high. Estimates from the last census (2002) indicate that approximately 17 percent of all journey-to-work trips are made by bicycle. For most cities, 2% - 3% is considered significant. Although it is recognized that the population of the City has increased, and that the demographics have changed as well, there continues to be a dedicated population of cyclists that utilize bicycles for their primary commute mode. For example, at UC Davis, where the majority of students live off campus, approximately 15,000 students ride a bicycle or walk as their primary mode of getting to class (48%). This is in addition to the 1,800 faculty and staff members that also walk or ride their bicycles to campus (20%). Many of the university based bicycle commuters live in Davis, but others pedal from as far away as Sacramento or Woodland. Traffic data suggest that the bicycle is the dominant transportation mode for trips crossing the City-University boundary.

## 2. Background and Existing Conditions (4)

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- The bicycle mode share is also quite high among the rest of Davis residents. There are no public school busses provided by the Davis Joint Unified School District. Some school-aged children walk or ride their bicycles to school. Many of the younger children whose parents commute to work on bicycles will transport them in bicycle trailers, and drop them off on their way to work. Out of a population of 64,000 residents, it is estimated there are over 60,000 bicycles in the City of Davis.
- Although a 17% mode share for bicycles is considered substantial, the share has decreased from where it was 10 – 15 years ago. The 1990 census indicated that the percentage of all journey-to-work trips being made by bicycles was hovering around 20 – 25%. By implementing this Plan, the City goal is to increase the percentage of trips made by bicycle to 25%.

### ○ 2.4 Bicycle Safety and Education

- The City of Davis Police Department is integral to the success and safety of bicycling in Davis. In 2007, the Police Department reinstated the Bicycle Officer program, with a part-time officer on bicycle focusing on the downtown and near-campus areas. The officer addresses a variety of bicycle infractions, most commonly stop-sign running, red-light running, and lack of bicycle lights at night. In an effort to promote education of cyclists, the officer gives warning tickets, where appropriate, to educate bicyclists on traffic laws and etiquette, without penalizing new or inexperienced riders. Where warranted, the officer does ticket violators. Tickets for missing bicycle lights can be used for a 10% discount on a light at a local bicycle shop.

# 3.1 Policy Overview

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## ○ Goals and Objectives

- It is the goal of the City of Davis to maintain the current integrated system of bicycle facilities and create future linkages and improvements in the system. This system facilitates safe, convenient travel for bicyclists throughout the City. The City recognizes the need to encourage bicycle travel for both transportation and recreation. Bicycle use conserves energy, contributes to cleaner air, reduces motorized vehicle traffic, reduces the need for automobile parking, and improves personal fitness.
- The city's General Plan Update, completed in 2001, refers to bicycles in various elements contained in the plan. Chapter IV-2, the Mobility element, contains many of the goals and policies relating to bicycle and pedestrian circulation.

## ○ General Plan Update Bicycle-related Policies

- Guiding Policies
  - Assure safe and convenient bicycle access to all areas of the city.
  - Promote use of bicycles as a viable and attractive alternative to cars.
- Implementing Policies
  - Provide bicycle lanes along all collector and arterial streets.
  - Consider bicycle-operating characteristics in the design of intersections and traffic control systems.
  - Develop and implement bicycle parking standards.
  - Expand and maintain an education program to promote bicycle use and safety.
  - Require compliance with bikeway policies and standards for new development including bikeways within greenbelts. Ensure interconnection of new facilities with the existing bikeway system.

## 3.1 Policy Overview (2)

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- Bicycle Plan Goals and Objectives
  - The Bicycle Advisory Commission, the City, members of local agencies, advocacy groups, and the community developed the following Goals and Objectives to provide greater detail than the General Plan Goals and Policies they support. These Goals and Objectives provide specific guidance to the city for further development of bicycle programs. The Bicycle Plan's guiding policy is to promote bicycle use as a viable, attractive, healthy, non-polluting form of transportation and to assure safe and convenient access to all areas of the city. The Plan uses six "E's:" Equity, Education, Encouragement, Engineering, Enforcement and Evaluation, all of which contribute to enhanced bicycle use.

## 3.2 Education

---

- **Goal: Increase the safety and attractiveness of bicycling by providing educational programs, tools, and resources.**
  - *Objective: Enhance educational programs to teach children and adults safe bicycling techniques.*
  - *Objective: Increase and enhance automobile driver education about bicycle laws, behavior, and rights.*
  - *Objective: Provide literature and current bicycle route maps for public use.*

## 3.2 Education (2)

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- *Objective: Establish a Bicycle Museum and Resource Center in partnership with UC Davis and the California Bicycle Museum.*
- *Objective: Provide bicycling information in local media.*
- *Objective: Participate in publicity campaigns on air quality, global warming, environmental protection, and public health.*





## 3.3 Encouragement

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- **Goal: Increase and enhance activities to encourage bicycling as a viable mode for all forms of local travel and to help reach goal of 25% bicycle share for all trips.**
  - *Objective: Establish a centralized program for interaction with and education of the public.*
  - *Objective: Increase local coverage of bicycle events and present accurate information about bicycle safety and activities.*
  - *Objective: Celebrate bicycling in Davis.*

## 3.3 Encouragement (2)

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- *Objective: Provide opportunities for all residents to own bicycles.*
- *Objective: Encourage bicycle commuting.*
- *Objective: Encourage students, faculty and staff to bicycle to area schools.*
- *Objective: Share information and resources with UC Davis regarding bicycle activities.*



## 3.4 Enforcement

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- **Goal: Increase and enhance the safety of bicycles, pedestrians, automobile drivers, and all other modes with enforcement that emphasizes education and compliance.**
  - *Objective: Continue the enforcement of bicycle rules and regulations to reduce violations and crashes.*
  - *Objective: Reduce bicycle theft and increase recovery of stolen bicycles.*

## 3.4 Enforcement (2)

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- *Objective: Enhance education programs with emphasis on bicycle safety laws relating to bicycle use.*
- *Objective: Improve abandoned bicycle program.*
- *Objective: Coordinate with UC Davis on enforcement issues.*



## 3.5 Engineering

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- **Goal: Provide complete, safe, and attractive accessibility for bicyclists using sound engineering and planning, interagency coordination, and public involvement.**
  - *Objective: Ensure that bicycle facilities are an integral part of street design so that lanes and pathways form an integrated network.*
  - *Objective: Provide a complete and safe bicycle network.*
  - *Objective: Build on Davis' cycling past by experimenting or piloting new technology or programs for bicycles.*

## 3.5 Engineering (2)

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- *Objective: Improve routine maintenance and improvements.*
- *Objective: Plan for bicycles in all new development*
- *Objective: Plan for bicycles in all roadway construction and rehabilitation.*



## 3.6 Equity

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- **Goal: Ensure the viability of bicycles as a transportation mode with equal treatment.**
  - *Objective: Consider bicycles in all transportation projects and treat as an equal roadway user in planning, engineering, policy or funding.*
  - *Objective: Ensure that bicycling as a viable transportation mode is available to all sectors of the community, and that bicycling is integrated into the local and regional transit network.*

## 3.7 Evaluation

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- **Goal: Continuously improve the bicycle program through monitoring and evaluation of programs, projects, and procedures.**
  - *Objective: Expand and formalize data collection program in the Public Works and Police departments.*
  - *Objective: Prioritize funding and other resources based on monitoring and evaluation program.*
  - *Objective: Maintain updated project list.*



# Appendix I. Implementation Plan

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# City of Davis Bicycle Plan

## Appendix I: Implementation

The City of Davis Bicycle Plan Implementation (“Implementation Plan”) contains the specific programs, projects, activities and actions needed to implement the Bicycle Plan (“Bike Plan”). This document is dynamic, and staff will review it each year, with input from the Bicycle Advisory Commission (“Commission”) and the community.

The Implementation Plan reflects the work of staff, input from the community including advocacy groups, direction from the Commission, and review by University of California, Davis staff. The Implementation Plan is divided into the same sections as the Bike Plan policy: Education, Encouragement, Enforcement, Engineering, Equity and Evaluation. The goals, and their sub-goals, from the Bike Plan are replicated here, followed by the programs, projects, activities or actions required to implement the goals.

Items like cost, deadline and priority are moving targets, and thus will not be adopted into the Plan. They will be decided by City Council, with input from staff, the Commission and the community.

Each year, along with the review and update of the Implementation Plan, staff will generate an Annual Report. The Annual Report is also organized like the Bike Plan and the Implementation Plan, and will reflect progress on each item.

---

Tara Goddard  
Bicycle and Pedestrian Coordinator  
City of Davis

1. \_\_\_\_\_ Adoption Date
2. \_\_\_\_\_ Update
3. \_\_\_\_\_ Update

## **CITY BICYCLE PLAN PROJECT LIST**

The following is a list of bicycle facility projects to be constructed in the City of Davis. These are not listed in order of priority.

1. Fifth Street – Bicycle/Pedestrian Safety Improvements: “Road Diet”
2. Fourth and Eighth Street Railroad Crossings – Bicycle/Pedestrian Improvements
3. Drummond Bikeway Grade-Separated Crossing
4. US40 Connections to Dave Pelz Overcrossing or Pole Line Road Overcrossing
5. First and B Street Intersection Improvements
6. Citywide bikeway wayfinding and signage program.
7. Construct a bikeway/alternative transportation corridor between Woodland and Davis.
8. Complete the Putah Creek Parkway on the western end.
9. Identify and mark new “bike loops.”
10. Improved and increased bicycle parking, including, where appropriate, innovative parking solutions, including double-decker bicycle parking, on-street bicycle parking, and movable racks.
11. Reconfigure the Russell Boulevard and Arlington Road intersection to increase bicycle safety and accessibility.
12. Study the Russell Boulevard corridor from Highway 113 to the western City limits, and develop a plan for improved bicycle and pedestrian accessibility.
13. Reconstruct the H Street Tunnel to improve sightlines, increase lighting, reduce the encroachment of debris and plants, and increase space to accommodate the high number of bicyclists and pedestrians through the tunnel.
14. Increase lighting along the path from the H Street Tunnel to Community Park.
15. Reconstruct Eighth Street near G Street, where the bicycle lane sub-grade is failing, and bicycle lane is narrow.
16. Expand bike lane double-striping citywide, where appropriate.
17. Construct a crossing from Olive Drive to downtown Davis.
18. Reconfigure the bicycle access to and through the Mace Boulevard interchange.
19. Improve the north end of B Street transition onto path alongside the Veteran’s Memorial Center.
20. Pilot reverse-diagonal automobile parking somewhere downtown.
21. Install gravel shoulders along the Putah Creek Path from the I-80 undercrossing to the UP Railroad undercrossing.
22. Develop an online bicycle route-finder and interactive bike map.
23. Establish the US Bicycling Hall of Fame and bicycle museum.
24. Improve the access from the Dave Pelz overcrossing to Cowell Boulevard.
25. Improve the transition from Poleline Road to Fifth Street.

26. Covell Boulevard/Mace Boulevard Path rehabilitation.
27. Improve street lighting on Oak Street.
28. Establish a "Bike Station."
29. Parking Improvements at Little League Field.
30. Re-configure the Eighth Street/J Street/Pennsylvania Lane intersection.
31. H Street Pavement rehabilitation (Class III Corridor).
32. Olive Drive Pavement rehabilitation (Class II Corridor).
33. Complete a Covell Boulevard/SR-113 Interchange Improvement Study.
34. B Street Corridor Improvements - First to Fifth Streets.
35. Construct a grade-separated crossing at F Street near Anderson Road.
36. Construct a grade-separated crossing of the California Northern Tracks near Anderson Road.
37. Richards Boulevard Corridor Improvements (CIP Project ID A21)
38. Complete path along Mace Boulevard south of Covell Boulevard.
39. Improve Poleline Road from Covell Boulevard to the northern City limits, adding lighted and landscaped median and bicycle lanes (CIP Project ID A32).
40. Intersection improvements at First/B, Fifth/D, Second/F, First/F and Second/B Streets (CIP Project ID A47-52).
41. Construct a grade-separated overcrossing of SR-113 at the northern City limits (CIP Project ID A59).
42. Construct a grade-separated crossing of Poleline Road at Donner Avenue.

## **BIKE PROGRAM FINANCING**

Bikeways in Davis may be funded from the full range of financial resources available to the city. These resources include the General Fund, Construction Tax, development impact fees, redevelopment monies, Mello-Roos Bonds, and cost participation by other entities. The appropriate funding is applied to the specific project according to the program or programs to which the project belongs.

Additionally, bikeway projects may be eligible for State or Federal funding when a bikeway project meets the appropriate program criteria. These funding sources include the newly enacted "Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users", or SAFTEA-LU for short, a Federal program that makes funding available for bicycle projects.

The State of California has also established dedicated funding for bicycle projects as well. For many years, the California Bicycle Lane Account (BLA) had provided only about \$360,000 per year, statewide, for bike projects. As a direct result of lobbying by the California Bicycle Coalition (CBC), this amount was increased to approximately \$1,000,000 per year in FY 1999/2000, with a sliding scale that brought it up to \$5,000,000 per year by 2004, and annually thereafter. It was actually up to 7.2 million last fiscal year, but despite aggressive lobbying by CBC to keep it at this amount, it appears that it will be going back down to 5 million for the 2006/2007 fiscal year. To be eligible for BTA funds, a local agency must have a current bike plan (as defined in the schedule for each annual application cycle). These plans must address the elements described in Section 891.2 of the Streets and Highways Code. The account is administered by Caltrans and a local match is required.

In addition to BTA Funds, another significant funding source for bicycle and pedestrian projects are the "Safe Routes to School" (SR2S and SRTS) programs, which is administered by Caltrans with funding from state and federal sources.

### **VARIABLES IN PROJECT FINANCING AND SCHEDULING**

Prioritizing bikeway projects in the City of Davis involves a number of variables that include, but are not limited to the following:

1. Bikeway projects are accomplished from a variety of funding sources and combinations of funding sources. Every bikeway project does not compete for funding with all other bikeway projects.
2. Many bikeway projects are undertaken concurrent with a larger project such as a street reconstruction or widening. The priority of the more significant project often determines when a bikeway project will be accomplished.

3. Many identified bikeway projects are closely linked to, or a result of development. These projects are often not needed until development actually occurs, and construction of such projects is dependent upon funding provided by the new development. It is difficult to predict accurately the timing for these projects due to the many uncertainties inherent to the development process.

4. Occasionally, the identification, and subsequent accomplishment of a project occurs so quickly (e.g. due to safety concerns, etc), that programming the project is impractical.

#### EXAMPLE PROJECTS

The Putah Creek bicycle undercrossing, in the planning stages for almost a decade, was completed in 2003. This latter project had a cost of approximately 7.2 million dollars. Additionally, a bicycle overcrossing of Interstate 80, immediately west of Mace Boulevard, was completed in 2002. This was named the "Dave Pelz Bicycle Overcrossing" after the long-time Davis Public Works Director of the same name. In May 2008, the City opened the undercrossing of Covell Boulevard near Harper Junior High, with a total project cost of approximately 2 million dollars.

#### PROJECT PRIORITIES

Aside from the factors referenced above, the following section details the priorities that are considered when making project approval and funding decisions on bike projects:

1. Bicycle facility projects with significant safety concerns are accomplished expeditiously, and placed ahead of system expansion. Projects of this nature are typically submitted to the Safety and Parking Advisory Commission and Bicycle Advisory Commission for review.
2. Projects that will close gaps or improve the operation of the existing bikeway system are given high priority.
3. Projects that expand the bicycle facilities network, including connections to the existing system, are analyzed annually as part of the normal budget process. Projects needed to integrate bicycle facilities provided by development are scheduled and funded during this annual review process.
4. Bikeway projects that enhance the existing system or bring substandard facilities up to standard are balanced according to their importance against other competing projects. The city has an annual program for maintenance and repair of existing bicycle facilities.

## **EDUCATION**

***Goal: Increase the safety and attractiveness of bicycling by providing educational programs, tools, and resources.***

*Objective: Enhance educational programs to teach children and adults safe bicycling techniques.*

**Enhance existing programs and support local groups that promote safe bicycling techniques and make the information available through schools, work sites and general publicity efforts.**

- Continue to distribute A to Z Guide and Ride Right coloring books at City events.
- Support schools on their use of the Amgen Tour of California cycling guide.
- Provide support to local PTAs, church groups, cycling advocacy groups, and any other groups that disseminate bicycle safety information or hold cycling events for their members.

**Expand and support a citywide helmet and bicycle light promotion program.**

- Create a program modeled on the City's Compost Bin program, and give away bicycle lights to people who take a bicycle safety class.
- Continue to promote helmet use through bicycle safety poster contest and bicycle rodeos.
- Work with Davis Bicycle Club helmet giveaways to provide additional helmets as needed in town.
- Develop a plan to increase light use in town, achieving a 50% reduction in bicycle light warning tickets or citations.
- Prepare an information flyer about bicycle helmets and lights for all bicycle shops to hand out with all bicycle purchases, and with all bicycle repairs when owner does not have a helmet or light.

**Work with UC Davis, DJUSD and other area schools to implement bicycle education programs.**

**Investigate other safety programs that should be taught to school-aged children, university students, and the public.**

**Investigate development and promotion of "riding tips" clinics aimed at new riders.**

- Hold pilot two new rider clinics during May 2009.
- Provide information on website for new adult riders.

**Establish programs to educate bicycle users and other non-auto modes on appropriate and safe interaction, on shared facilities (e.g. greenbelt paths). Include signage, online education, and online quizzes as possible options.**

- Publish an article in the Davis Enterprise and the UCD Aggie on proper use of shared use paths.
- Publish an article with visuals in the annual Enterprise "Welcome Students" issue.
- Publish on website information about etiquette on shared use paths.
- Pilot installation of multi-use signs on greenbelts.

**Create a "Bicycle Education" course for the City website that can be used for anyone requiring bicycle safety education. Work with UCD to create a similar website for students and staff.**



*Objective: Increase and enhance automobile driver education about bicycle laws, behavior, and rights.*

**Work with local schools and private driving schools to include bicycle information into Driver's Education curriculum.**

- Coordinate with the Green Schools initiative, and work with the Transportation sub-committees on curriculum issues.

**Support, and expand where appropriate, the work of the Street Smarts program.**

- Continue on-going coordination and cost-sharing.

*Objective: Provide literature and current bicycle route maps for public use.*

**Update the UCD/City of Davis bicycle route map in a timely fashion to reflect the current bicycle system. Ensure that the bicycle map on the City's website will be updated as changes are made. Distribute the paper map, free of charge, to employers, bicycle shops, public buildings and schools.**

- Include prominent links to the map on the City of Davis and UC Davis websites.

**Reference or develop literature explaining bicycle laws, safety tips, bicycle commuting suggestions, etc., for dissemination to the general public.**

- Create a handout for bicycle point-of-sale.

**Develop interactive online bicycle route map.**

- Work with SACOG on the regional online bicycle trip-finder.

*Objective: Establish a Bicycle Museum and Resource Center in partnership with UC Davis and the California Bicycle Museum.*

**Provide public access to the University's antique bicycle collection, and expand the collection over time as possible.**

- Identify a short-term location for the California Bicycle Museum.
- Work with the CBM and UC Davis to find a long term home for the CBM and a Bicycling Innovation and Resource Center

**Provide a space for bicycling clubs, advocacy groups, and other related interest groups to meet and hold classes and workshops.**

- Continue to support local groups by assisting with meeting space.
- Ensure that a future home of the Bicycling Museum has space for local bicycle groups.

**Develop a museum and resource center with a flexible structure so that it can grow and change over time to meet public and agency needs and wants.**

*Objective: Provide bicycling information in local media.*

**Develop Public Service Announcements (PSAs) on cycling for use on KDVS and other local radio, as well as local television and movie theaters.**

- Create a bicycle helmet PSA, a bicycle light PSA, a shared use path PSA and a commute by bicycle PSA for use through May 2009.

**Consider establishing a regular feature or column on bicycling in the Davis Enterprise and local radio and cable channels.**

- Contribute to the new bicycle-related column in the Enterprise

**Engage local bicycling and planning experts and increase their contributions to continuous education in the media.**

- Hold a public panel discussion bicycling during May is Bike Month.

*Objective: Participate in publicity campaigns on air quality, global warming, environmental protection, and public health.*

**Support the City's sustainability work and ensure that bicycling is recognized as one of the most effective tools for lowering the local carbon footprint, improving air quality, and benefiting public health, including the reduction of childhood obesity.**

## **ENCOURAGEMENT**

***Goal: Increase and enhance activities to encourage bicycling as a viable mode for all forms of local travel and to help reach goal of 25% bicycle share for all trips.***

*Objective: Establish methodology for determining bicycle mode share for all trips.*

*Objective: Establish a centralized program for interaction with and education of the public.*

**Hold an annual forum to educate the public on the facets and benefits of the bicycle program, and solicit input on possible improvements to the bicycle program.**

- Plan forum in conjunction with May is Bike Month activities.

**Maintain an interactive and up-to-date website on the bicycle program.**

- Develop new website format.
- Work with IS to implement new website.
- Develop searchable bicycle map, complete with layers for various amenities or destinations.
- Develop ability to solicit and educate volunteers for the City bicycle program.

*Objective: Increase local coverage of bicycle events and present accurate information about bicycle safety and activities.*

**Engage the local media for local bicycle events.**

- Invite media partners to all bicycle events.
- Develop PSAs for Davis Media Access (DCTV).

**Include articles on bicycle issues in the City's newsletter and distribute to local newspapers.**

- Produce a quarterly column on bicycle issues for the Enterprise.

**Place advertisements in the local newspapers that promote bicycling.**

**Place advertisements on Unitrans busses that promote bicycling.**

- Develop campaign to encourage bus riders to use their bicycles. Include on-bus PSAs about etiquette, safety, etc.

*Objective: Celebrate bicycling in Davis.*

**Hold ceremonies and “ribbon-cuttings” to celebrate bicycle program and infrastructure accomplishments.**

- Install a few historic signs: "Welcome to Davis, CA: Home of 80,000 Bicycles!"
- Develop new “Bicycle Loops” and hold inaugural rides.
- Purchase "2007-2011" stickers to update Platinum signs around town.

**Create a Bicycle Advisory Commission award program that recognizes local champions of cycling.**

- Develop award program.

**Develop themed loops or rides celebrating facets of Davis life.**

- Possible ride themes include: museums, art galleries, open spaces/wildlife areas, educational destinations (e.g. Explorit), parks, sustainable facilities (e.g. Village Homes, PVUSA), sports facilities/fields/courses, and more.
- Hold a public workshop to gather input from the community on themed rides or permanent loops.
- Prepare three new loops and five themed rides. Provide information on each on the City website, and when money is available, paint the permanent loops.

**Building upon the foundation of previous Cyclebrations, develop a California Cycling Festival.**

- Support local advocacy groups for spring Cycling Festival.
- Determine cost/benefit for a California Cycling Festival.

*Objective: Provide opportunities for all residents to own bicycles.*

**Reestablish bicycle sale or bicycle auction for local residents.**

- Determine cost/benefit for doing twice-yearly bicycle auction.
- Determine cost/benefit for facilitating a city "bike swap."

**Create bicycles and bicycle parts donation program for charities.**

- Support work of advocacy groups in this effort.

**Consider no-interest loan programs for bicycles.**

- Maintain City employee no-interest loan program.
- Encourage other large employers to implement a similar program.

*Objective: Encourage bicycle use for work and non-work trips.*

**Work with businesses and organizations to encourage employees to commute by bicycle.**

- Encourage other large employers to implement a no-interest bike loan program.

**Establish standards for employee bicycle parking, and encourage the inclusion of other bicycle commute necessities, such as showers or storage space.**

- Include employee bicycle parking standards and guidelines in a City Bicycle Parking ordinance.

**Work with neighboring jurisdictions, including UC Davis, to facilitate seamless commutes for cross-jurisdictional routes.**

- Complete a Davis-Woodland Bikeway feasibility study.
- Explore continuing the Russell bicycle path all the way to Winters.
- Improve Mace and Richard Interchanges to safely accommodate bicycles.

**Encourage shopping by bicycle**

- Work with the Farmer's Market to do a monthly "Bike to Market" event with incentives.
- Inventory bicycle parking downtown and at all commercial centers, and develop plan to improve or enhance bicycle parking.

**Encourage citizens to travel to City events by bicycle**

- Provide bicycle valet parking at all City events with expected attendance greater than 1,000 people.
- Provide, where possible, incentives for residents to arrive at City events by bicycle.
- Offer incentives for people who attend City meetings (e.g. Council) by bicycle.

*Objective: Encourage students, faculty and staff to bicycle to area schools.*

**Improve public perception regarding safety of routes.**

- Collect and publish crime statistics.
- Collect and publish crash statistics.

**Explore "bicycle caravan" programs similar to "walking school bus" programs.**

- Use a school survey to gauge interest in rolling school bus program, including parents willing to volunteer.
- Pilot a rolling school bus during May is Bike Month.

**Encourage Parent Teacher Associations (PTAs) to form bicycling/walking sub-committees that focus on safety and encouragement.**

- Speak at each PTA meeting and provide support for PTA sub-committees that form.

**Ensure secure and convenient connectivity to all local schools.**

- Update Suggested Routes to Schools maps as needed.
- Identify network gaps and "problem areas."
- Develop a 3-year plan for addressing gaps and other issues.
- Implement wayfinding which includes signage to schools.

**Work with schools to provide sufficient and secure bicycle parking for students.**

- Use a school survey and school bicycle rack use counts to determine parking needs at each school.
- Offer technical support and data to DJUSD for improving bicycle parking.

- Engage students in bicycle planning.

**Focus on encouraging high school students to continue bicycling even after they have reached driving age.**

- Do a school survey to determine high school-specific needs and issues.
- Develop yearly incentive program to get high schoolers bicycling more.
- Explore restriction and design changes to high school parking lots.

**Implement “train the trainer” programs, so high school kids can become bicycling instructors in the community.**

- Set up train-the-trainer program.

**Consider working with schools to establish incentives or awards for youth who commute by bicycle to school (similar to attendance awards).**

- Meet with DJUSD to pursue.

*Objective: Share information and resources with UC Davis regarding bicycle activities.*

**Continue liaison with UCD’s Committee on Bicycle Programs.**

- Ensure continuity among City and UCD bicycle planning and engineering, where appropriate.

**Continue/expand annual events with joint City and UCD participation to promote bicycling.**

- Promote bicycling to Picnic Day and Whole Earth Festival by suggesting routes and leading escorted rides from around town.

**Investigate public/private partnerships for joint sponsorship of special bicycling events.**

**Continue dialogue with the academic community. Explore opportunities for shared research and data collection.**

- Hold a meeting regarding research needs and opportunities.

## **ENFORCEMENT**

***Goal: Increase and enhance the safety of bicycles, pedestrians, automobile drivers, and all other modes with enforcement that emphasizes education and compliance.***

***Objective: Continue the enforcement of bicycle rules and regulations to reduce violations and crashes.***

**The Police Department should seek out effective training that will enable officers to become more cognizant of bicycle issues and laws related to bicycle enforcement.**

- Identify training used in other cities.
- Consider a yearly bicycle-related workshop for police officers.

**Use the Bicycle Officer Program to provide a comprehensive level of coverage.**

- Identify five areas for improved bicycle enforcement and, if necessary, seek funding to expand program appropriately.

**Work with local schools to implement bicycle education programs.**

- Coordinate with the Green Schools initiative, and work with the Transportation sub-committees on curriculum issues.

**Continue the Bicycle Officer Program's emphasis on education over punishment.**

**Based on bicycle/auto crash records, develop a focused enforcement effort with the goal of reducing bicycle/auto crashes by 20% from average levels measured between 1990 and 2000 levels.**

- Develop five-point plan for focused enforcement and implement first phase.

**Increase enforcement of helmet law for underage youth.**

- Do additional summertime enforcement to establish continuity.
- Explore a graduated fine for multiple infractions.

**Enforce law prohibiting illegal use of headphones.**



*Objective: Enhance education programs with emphasis on bicycle safety laws relating to bicycle use.*

**Support the new County traffic court for bicycle law infractions.**

- Provide input and materials as requested.

**Consider development of an online traffic school for bicycle law infractions.**

- Provide input and materials as requested to develop the school.

**Work with agency partners to strengthen emphasis of bicycle laws in automobile traffic court, in-person traffic school and online traffic school.**

**Continue bicycle light discount program for offenders.**

**Encourage shops to sell lights with each new bicycle sold.**

**Seek changes in county court procedures to allow court appearances in Davis for bicycle rider traffic law violations.**

**Consider adopting local cell phone ordinance for bicycles that mirrors new state law regarding phone use while operating an automobile.**

**Establish regular Police Department interaction with the Bicycle Advisory Commission.**

*Objective: Reduce bicycle theft and increase recovery of stolen bicycles.*

**Promote bicycle licensing.**

- Encourage bicycle shops to keep licenses on hand year-round.

**Develop an online bicycle registration system.**

**Develop informative material for use with schools, neighborhood groups, Davis Community Network (DCN), and cable TV on incidents of bicycle theft from private property.**

*Objective: Improve abandoned bicycle program.*

**Implement a system for identifying and removing abandoned bicycles from public property in a timely and efficient manner.**

*Objective: Coordinate with UC Davis on enforcement issues.*

**Continue enforcement practices with periodic joint enforcement efforts.**

## **ENGINEERING**

***Goal: Provide complete, safe, and attractive accessibility for bicyclists using sound engineering and planning, interagency coordination, and public involvement.***

*Objective: Ensure that bicycle facilities are an integral part of street design so that lanes and pathways form an integrated network.*

**Maintain an updated inventory of bikeway facilities in the City and extending from its borders.**

- Map bikeway facilities: lanes, paths, racks, lockers, air stations, cut-throughs, wayfinding.
- Convert inventory to searchable online map.

**Identify weak links and discontinuities in the network, and develop a prioritization and funding plan to address these deficiencies.**

- Determine top ten percent of the most urgent infrastructure gaps each year and address.

**Consider operations unique to bicycles when designing bikeways, intersections and traffic control systems.**

**Develop standards for signal timing to facilitate movement of bicycles at signalized intersections.**

**Implement traffic calming measures in a way that does not impede bicycle travel.**

**Include bicycles in the circulation analysis of environmental assessments for roadway projects.**

**Develop a checklist for bicycle-related facilities or programs, including exploration of developing a bicycling "Level of Service."**

*Objective: Provide a complete and safe bicycle network.*

**Control or eliminate yard waste in bicycle lanes.**

- Evaluate success of double striping program that aims to address yard waste in bicycle lanes.
- Identify streets outside the initial pilot area on which to double-stripe bicycle lanes.

**Rehabilitate bicycle facilities in the downtown core area.**

- Replace all undesirable or damaged bicycle racks.
- Identify bicycle facilities downtown needing pavement repair or re-striping.

**Improve the primary campus-to-City corridors.**

- Coordinate with the Community Development Department on the 3<sup>rd</sup> Street Improvements Project.
- Coordinate with the UC Davis Bikeway and Transit Network Study (BTNS).
- Use the BTNS to develop a Gateways Study that addresses any campus-to-City gateways not addressed in the BTNS.

**Improve direct routes N-S and E-W through town.**

- Reconfigure the Russell Boulevard and Arlington Road intersection to increase bicycle accessibility and safety.
- Develop a specific plan for bicycles on 3<sup>rd</sup>, 5<sup>th</sup> and 8<sup>th</sup> Streets.
- Reconstruct the H Street Tunnel to improve sightlines, increase lighting, reduce the encroachment of debris and plants, and increase space to accommodate the high number of commuters.
- Increase lighting along the path from the H Street Tunnel to Community Park.
- Reconstruct 8<sup>th</sup> Street near G Street, where the bicycle lane has collapsed and is narrow.
- Install concrete and/or rubber around the railroad tracks at the 4<sup>th</sup>, 5<sup>th</sup> and 8<sup>th</sup> Street crossings.
- Identify any new grade-separated crossings that would greatly improve routes across town.

**Work with neighboring jurisdictions to provide seamless linkages to city and county bikeways.**

- Complete the Alternative Transportation Corridor Study.
- Develop plan to extend Russell bicycle path to Winters.
- Apply for grant(s) to improve linkages to major Davis-to-Sacramento commute routes.
- Evaluate connection from Davis to Dixon.

**Plan bikeways to provide attractive, shaded linkages between destinations, including exploring alternative street cross-sections for collectors and arterials to increase shaded bicycle lanes.**

- Update bikeway design standards.

**Consider the development of a comprehensive bicycle circulation plan.**

*Objective: Build on Davis' cycling past by experimenting or piloting new technology or programs for bicycles.*

**Incorporate state-of-the-art practices in transportation design.**

- Pilot on-street bicycle parking.
- Pilot reverse diagonal parking.
- Stay up-to-date with webinars, professional meetings and conferences as appropriate.
- Learn from the examples of other cities, and arrange on-site visits when possible.

**Encourage local innovation and entrepreneurship, in partnership with UC Davis, the Chamber of Commerce, the Downtown Davis Business Association, and others.**

- Create a contest for bicycle innovation (parking, wayfinding, etc).

*Objective: Improve routine maintenance and improvements.*

**Establish a routine inspection and maintenance program for all Class I facilities.**

**Develop a list of priorities for pathway overlay and reconstruction to be considered during budget preparation.**

- Develop a rubric that includes, in a to-be-determined order, proximate land use, problem type and severity, traffic counts, cost, and feasibility.
- Develop an interim list of highest ten percent urgent fixes.

**Develop a procedure for routine inspection and maintenance of bicycle parking, including parking installations in parks, on greenbelts and at City facilities.**

- Update inventory every two years.
- Develop a rubric for maintenance and replacement that includes type, condition, occupancy rate, and proximate land use.

**Design bicycle facilities to minimize maintenance costs by specifying quality materials and standard products.**

- Use concrete where appropriate.
- Investigate the use of permeable surfaces.

**Develop a program for cleaning and repair of bicycle paths and lanes on a regular basis.**

- Work with parks to reduce tree root problems, and to encourage use of low-water plants near paths.
- Identify damaged bollards and unsafe bollard postholes and repair or remove.

**Construct bicycle paths out of Portland cement concrete and program funds each year to maintain or replace existing asphalt bicycle paths.**

**Minimize use of maintenance and construction vehicles on the bicycle paths, where possible, to avoid faster deterioration of the paths. Encourage use of small, electric vehicles where possible.**

- Adopt an executive order that determines appropriate use of maintenance vehicles on paths.
- Meet with utility partners to discuss ways to minimize impact on paths.

**Reduce use of bicycle paths by all vehicles except emergency vehicles as much as possible.**

**Eliminate (over)watering practices near bicycle paths that result in path deterioration.**

- Encourage the use of native, low-water plants along bicycle paths.

*Objective: Plan for bicycles in all new development.*

**Coordinate with City staff and appropriate Commissions on sound bicycle planning and engineering in all new development and redevelopment projects.**

- Update bikeway design standards.
- Adopt a bicycle parking ordinance.

**Work with public and private development to provide linkages to the existing bicycle systems, and provide bicycle parking and necessities.**

- Update bikeway design standards.
- Adopt a bicycle parking ordinance.

**Aid private developments, where possible, in retrofitting to current bicycle standards.**

- Inventory major private shopping centers for parking and connectivity.

*Objective: Plan for bicycles in all roadway construction and rehabilitation.*

**Provide bicycle lanes along all arterial and collector streets.**

- Identify arterials and collectors without bicycle lanes.
- Identify arterials and collectors where bicycle lanes are infeasible, and develop program to install bicycle lanes where they are feasible.

**Provide separated bicycle paths adjacent to arterial and collector streets only where justified, and if justified, mitigate any potential safety issues to the extent possible.**

**Look for opportunities during routine maintenance of roadways for improving bicycle travel (e.g. during overlay projects), such as adding or improving bicycle lanes, or retrofitting traffic calming measures.**



## **EQUITY**

***Goal: Ensure the viability of bicycles as a transportation mode with equal treatment.***

*Objective: Consider bicycles in all transportation projects and treat as an equal roadway user in planning, engineering, policy or funding.*

**Consider route directness and expediency for bicycles when - establishing bicycle facilities.**

- Educate City engineers and planners on the effects of California's Complete Streets legislation.

**Ensure the consideration of cyclist equity throughout all City planning and engineering documents.**

- Create a staff-level intracity committee on Transportation Planning, or Bicycle Planning.
- Implement new California Complete Streets legislation.
- Update bicyclist-related policy documents and ensure continuity.

**Develop methodology to ensure fair-share funding of bicycle - programs and projects.**

**Develop bicycle parking and facility standards for public and private development, and adopt ordinances that make these standards mandatory.**

- Develop Bicycle Parking Ordinance.

**Develop bicycle facility maintenance plans and practices similar to existing practices for automobile facilities.**

**Ensure that practices and standards adhere to the Complete Streets model, which provides for all transportation modes in an equitable fashion**

**Implement route-finding and other signage, recognizing their importance for bicycle transportation.**

- Develop phase I of a city-wide wayfinding program.
- Implement phase I of wayfinding program.

*Objective: Ensure that bicycling as a viable transportation mode is available to all sectors of the community, and that bicycling is integrated into the local and regional transit network.*

**Work with community partners to develop a program to help low-income residents own and operate a road-ready bicycle.**

**Work with local and regional transit agencies to improve accessibility to transit for bicyclists.**

**Develop funding methods that ensure that all areas of the City get equitable attention for bicycling needs.**

## **EVALUATION**

<p><b><i>Goal: Ensure the viability of bicycles as a transportation mode with equal treatment.</i></b></p>
<p><i>Objective: Consider bicycles in all transportation projects and treat as an equal roadway user in planning, engineering, policy or funding.</i></p>
<p><b>Consider route directness and expediency for bicycles when - establishing bicycle facilities.</b></p> <ul style="list-style-type: none"><li>• Educate City engineers and planners on the effects of California's Complete Streets legislation.</li></ul>
<p><b>Ensure the consideration of cyclist equity throughout all City planning and engineering documents.</b></p> <ul style="list-style-type: none"><li>• Create a staff-level intracity committee on Transportation Planning, or Bicycle Planning.</li><li>• Implement new California Complete Streets legislation.</li><li>• Update bicyclist-related policy documents and ensure continuity.</li></ul>
<p><b>Develop methodology to ensure fair-share funding of bicycle - programs and projects.</b></p>
<p><b>Develop bicycle parking and facility standards for public and private development, and adopt ordinances that make these standards mandatory.</b></p> <ul style="list-style-type: none"><li>• Develop Bicycle Parking Ordinance.</li></ul>
<p><b>Develop bicycle facility maintenance plans and practices similar to existing practices for automobile facilities.</b></p>
<p><b>Ensure that practices and standards adhere to the Complete Streets model, which provides for all transportation modes in an equitable fashion</b></p>
<p><b>Implement route-finding and other signage, recognizing their importance for bicycle transportation.</b></p> <ul style="list-style-type: none"><li>• Develop phase I of a city-wide wayfinding program.</li><li>• Implement phase I of wayfinding program.</li></ul>

# Appendix II. Maps

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**BICYCLING IN DAVIS**

Davis has earned its reputation as “Bicycle Capital of the U.S.” because of its high volume of bicycle use, its renowned system of bikeways and cyclist-friendly facilities, and supportive City and University programs. In order to promote a safe and efficient environment for bicycling, the following information is important to all bicyclists.

**Same Roads, Same Rights, Same Rules**

Bicycling can be a hazardous activity if not done properly. While a bike helmet can prevent some serious or fatal head injuries, the most effective means of avoiding crashes and physical harm is to learn to ride with competence, knowledge and skill. Reading the following material will provide some basic information, but developing real proficiency can best be achieved by taking a Bike Ed or Street Skills course such as those taught by cycling instructors certified by the League of American Bicyclists. For information on classes in this area call 752-BIKE. The fundamental principle taught in these courses, as originally formulated by cycling advocate John Forester, is that bicyclists fare best when they act and are treated as drivers of vehicles. Cycling tips based on this principle may be found throughout this publication.

**Use Your Head...Wear a Helmet!**

If, despite your best efforts to “cycle effectively”, you find yourself hurtling toward the pavement or other hard surface, a good bike helmet properly worn becomes a necessity. You don’t have to pay a lot of money for an adequate helmet. Do make sure it is certified. Look for a current (since 1999) CPSC sticker inside the helmet. Be sure that it is the right size for your head and that the straps are adjusted to keep the helmet on your head and properly positioned, i.e. level with the ground when you’re standing upright. Too many cyclists wear helmets pushed way back exposing the forehead to injury. The straps should be snug enough that you can’t remove the helmet without releasing the buckle. Helmets should be replaced after they take the impact of a crash or after five years of normal use. Keep helmets away from heat and sunlight when not in use.

**RULES & REGULATIONS**

In order to maintain a safe and orderly cycling environment, all local and state laws pertaining to bicyclists are strictly enforced in Davis. Both the City and University employ bike officers and other personnel who enforce ordinances regulating bicycle operation, parking and equipment. See the “Cycling Tips” section for additional information regarding these rules.



**Parking**

Bicycle parking is strictly regulated in Davis, especially at the University. The best rule of thumb whenever you’re unsure of what is a legal bike parking area is to lock your bike at a bike rack or other specific bike parking device. State law prohibits parking bikes on sidewalks where they obstruct pedestrian traffic.

**In the City:**

Don’t park anywhere where signs prohibiting such parking are posted or where parked bikes will block sidewalks.

**At the University:**

- Park only in places where bike parking devices are located or where “Bicycle Parking Area” signs are posted.
- Bikes may only be locked to bike parking devices. These do not include trees, poles, railings, fences, signs, etc.
- Bikes may not be parked in buildings, except for assigned residence hall rooms or assigned, departmentally-approved workplaces such as offices or labs.
- Illegally parked bikes may be impounded or cited and their owners subjected to fines and any required storage or licensing fees.

**Bike Operation**

Bicycling on sidewalks is discouraged for all but small children in residential areas. It is prohibited by ordinance in the downtown Davis central traffic district and on the University except in those few areas where no parallel roadway or bike path exists. Bikes at UC Davis may not be operated on any landscaped areas, pedestrian corridor, pedestrian ramp, or anywhere signs are posted prohibiting bike riding.

Bicyclists must obey all posted speed limits. Additionally, no cyclist may travel at a speed greater than is reasonable and prudent under existing conditions. At the University, the speed limit in the campus core area and all other bike paths is 15 mph and in parking lots its 10 mph.

Operating a bike while under the influence of alcohol or drugs is punishable by fines, jail time and/or loss of driving privileges.

It is also illegal for two persons to ride on a bike meant for one or have earphones covering both ears while cycling.

**Bike Buying Tip**

Avoid “department store” bikes. Always buy a new bike from a specialty bicycle retailer. You get what you pay for. “Big Box” brand bikes are poor quality, heavy, inefficient, may be improperly assembled, and will not last long. Repairs often cost more than the original price of the bike! When buying a used bike, look for reputable brands originally sold through bike shops. Have it checked out by a competent mechanic before you ride.



**CYCLING SERVICES & OPPORTUNITIES**

**BikeWise:** BikeWise, the UC Davis TAPS bicycle safety education program, provides classes, programs and materials for the campus and community. The BikeWise goal is to increase everyone’s bike IQ and promote safe, efficient and intelligent cycling in Davis. For more information, call 752-BIKE.



**Bike Auctions:** UC Davis holds two bike auctions each year, usually in October and May. Hundreds of abandoned and unclaimed bikes are sold to the highest bidders. Bicycles may also be available through on-line auctions. For more information, call 752-BIKE.

**Classes:** Bicycle repair and maintenance courses open to everyone are taught at the Bike Barn through the ASUCD Experimental College. Call 752-2568 for information. Classes in cycling skills and technique are occasionally offered in Davis. For information on current or forthcoming classes, call 752-BIKE.

**Bike Traffic School:** TAPS and the University Police offer a bike traffic school for cyclists cited for moving violations.\* Completing the class eliminates the traffic fine. A fee is charged for the class, but participants realize a significant cost savings. Call 752-7015 for more information.  
\* Some restrictions apply.

**Bike Rental:** Bicycles are available to rent at the ASUCD Bike Barn, B&L Bike Shop, and Ken’s Bike and Ski. Helmet rentals may also be available at these locations. For addresses and phone numbers, see the shop listings on the bike map.

**Summer Bike Storage:** Bikes may be stored over the summer months at TAPS. For current fees and other information, call TAPS at 752-BIKE.



**Do-it-yourself Bike Repair and Maintenance:** The ASUCD Bike Barn provides a tool-loan service, friendly advice, and a space for UC Davis students who wish to do their own work on the premises. Call 752-2575. The Davis Bike Church also provides self-service bike repair and repair instruction. Located at the UC Davis Sustainable Research Area near Baggins End (“the Domes) on Orchard Park Circle, see [http://daviswiki.org/Bike\\_Church](http://daviswiki.org/Bike_Church) for more information.

**Bike Lockers:** Bike storage lockers are available on campus for rent by intercity UC Davis bike commuters. Call 752-BIKE for information on fees and availability. The city of Davis also has bike lockers available for rent. Phone 757-5686.

**Bike Commuter Showers:** UC Davis students, staff and faculty intercity bike commuters may obtain free privilege cards allowing use of a shower, locker and towel at the ARC upon arrival for work or classes. Call 752-BIKE.

**Bike Clubs:** The *Davis Bike Club* promotes the safe, fun and healthy use of bikes for recreation, fitness, competition and commuting. *DBC* sponsors the Davis Double Century, Foxy’s Fall Century, the July 4th Criterion races, and numerous weekend and weekly rides as well as long-distance tours. The club’s members are active in improving the Davis cycling environment. Stop in at the *DBC* headquarters at 610 Third St., call 756-0186, or visit <http://davisbikeclub.org>.

UC Davis students interested in becoming involved in intercollegiate road and mountain bike racing may join *Cal Aggie Cycling*. Phone 752-2027 or visit <http://sportsclubs.ucdavis.edu/cycling/>.

**CALIFORNIA BICYCLE LICENSES — THE \$8 SECURITY SYSTEM**

**Six Reasons Why You Should License Your Bike:**

- 1. Theft Prevention & Recovery**
  - Sends a warning to would-be thieves: This bike is registered with law enforcement agencies.
  - Enters your bike into a statewide system of identification, recovery and notification.
  - Increases the likelihood of your stolen bike being found and returned.
- 2. Accident Victim Identification**

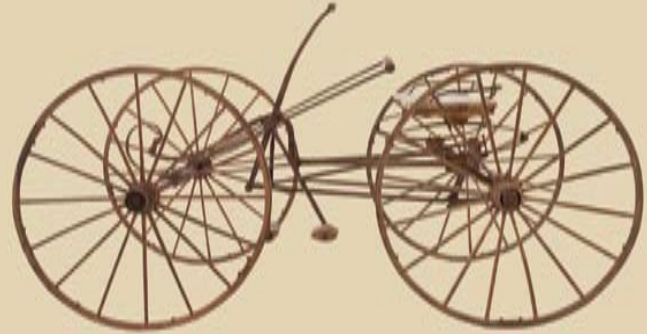
Provides a means of identifying accident victims — especially children, who typically carry no form of identification.
- 3. Money for Bike Programs**

License revenue supports UC Davis bike programs which directly benefit local cyclists.
- 4. It’s Inexpensive**

New licenses costs \$8, renewals are \$4. Both are valid statewide for up to three years.
- 5. It’s Easy—Licenses Available At:**

Bring your bike to the UC Davis TAPS office on the Dairy Road Bike Path just south of the ARC and north of the West Entry Parking Structure between 8 am – 5 pm, M-E For other licensing locations, including local bike shops, call 752-BIKE.
- 6. It’s the Law**
  - All bikes operated on the UC Davis campus must be registered with a current California bike license.
  - Unlicensed bikes on campus are subject to impoundment and/or citation.

**For more information, call 752-BIKE.**



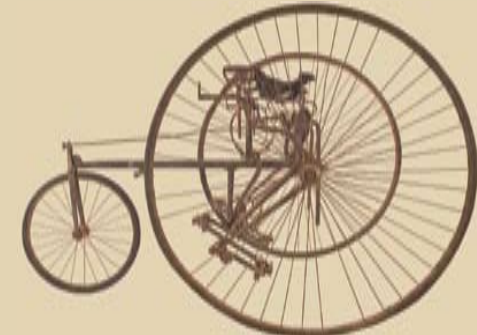
**BIKE THEFT PREVENTION**

Hundreds of bikes are reported stolen in Davis each year. However, most thefts could be prevented. Here’s how:

- Always lock your bike, even if you’re leaving it for “just a minute”.
- Whenever possible, always lock your bike to a legal, fixed device such as a bike rack or bike “pod” (concrete block with wheel slot).
- Lock your bike in a highly visible, well-lighted location.



- U-shaped high security locks are among the most theft-resistant locks available. Be aware, however, that they are easily defeated by knowledgeable thieves. Accessories are available which reduce the effectiveness of leveraging devices used by thieves to defeat U-locks.
- Heavy duty chains with case-hardened, 5/16” thick links are more secure than cables. All cables are relatively easy to defeat. Padlocks also should have case-hardened 5/16” shackles.
- Quick-release wheels and seats can be secured with a cable, chain, or other security devices available at bike shops.
- Use a less valuable or older bike for running errands and commuting in Davis.



**BICYCLING RESOURCES:**

**Organizations and Programs**

Caltrans Office of Bicycle Facilities, P.O. Box 942874, Sacramento CA 94274, (916) 653-2750. [http://www.dot.ca.gov/hq/tpp/offices/bike/bicycle\\_prgrm.htm](http://www.dot.ca.gov/hq/tpp/offices/bike/bicycle_prgrm.htm)

City of Davis Bicycle/Pedestrian Program, 23 Russell Boulevard, Davis, CA 95616, (530) 757-5686. E-mail: [bikeczar@cityofdavis.org](mailto:bikeczar@cityofdavis.org) <http://www.city.davis.ca.us/topic/bicycles.cfm>

Davis Bicycles! City bicycle advocacy group. <http://www.davisbicycles.org>

Davis Bike Club, 610 Third Street, Davis CA 95616, (530) 756-0186. <http://davisbikeclub.org/>

UC Davis Bicycle Users Group (BUG), Campus bicycle advocacy group. [http://daviswiki.org/bicycle\\_users\\_group](http://daviswiki.org/bicycle_users_group)

UC Davis Transportation and Parking Services (TAPS) Bicycle Program, UC Davis 95616, (530) 752-BIKE. e-mail: [dltakemotoweerts@ucdavis.edu](mailto:dltakemotoweerts@ucdavis.edu) <http://www.taps.ucdavis.edu/BICYCLES.HTM>

**Important Phone Numbers**

Emergencies: 911  
By cell phone at UC Davis: 752-1230  
By cell phone in city of Davis: 756-0800

To report bike theft:  
In City – 747-5400 or on-line at <https://www2.ci.davis.ca.us/police/crimereporting/>  
At UC Davis – 752-1230  
In County – 666-8282

To report hazardous road/bike path conditions:  
In City – 757-5686  
At UC Davis – 752-1655  
In County – 666-8032

To report bike accidents:  
In City – 747-5400  
At UC Davis – 752-1230  
In County – 666-8920

To request bicycle safety presentations to groups:  
At UC Davis – 752-BIKE  
In City – 757-5686

This 5<sup>th</sup> edition of the Davis Bike Map was published in June, 2007

**CYCLING TIPS**

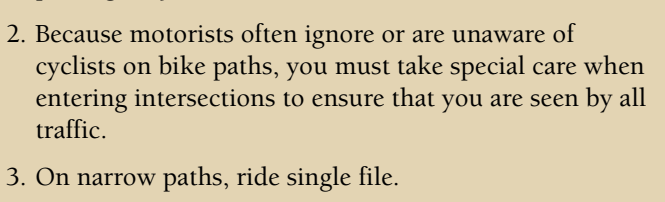
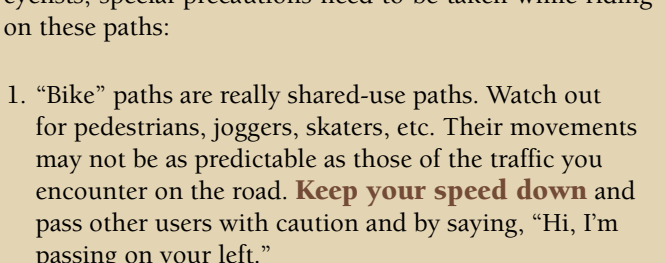
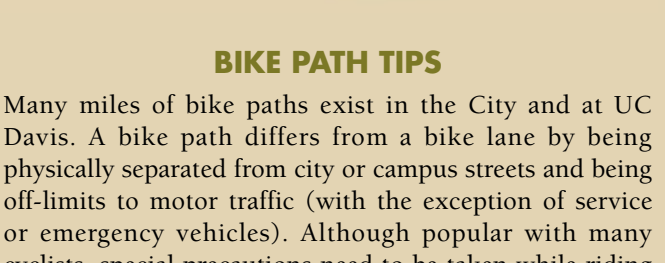
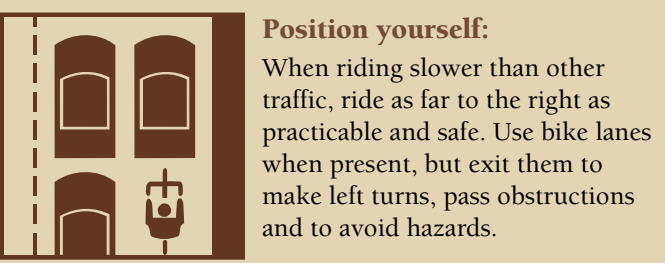
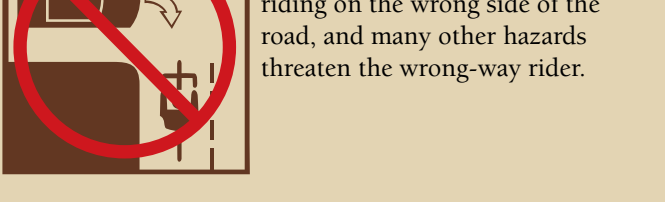
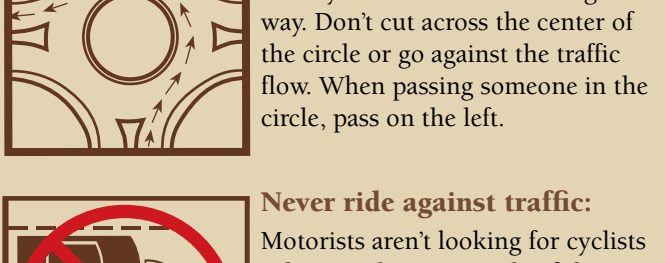
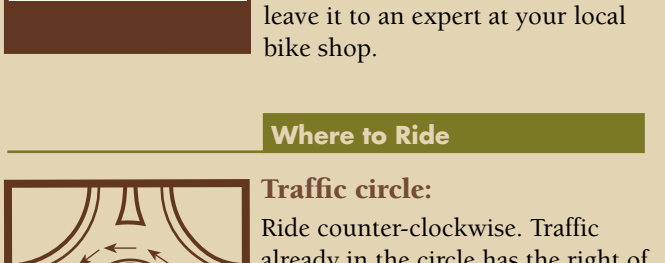
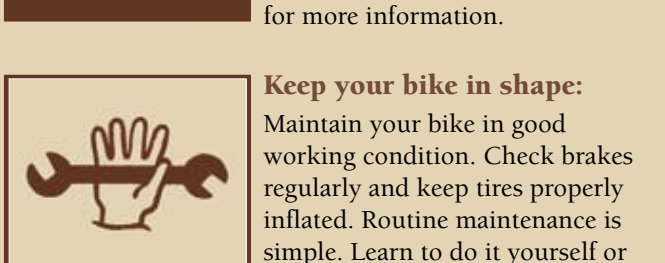
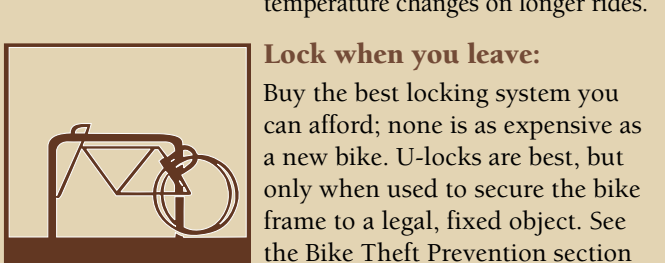
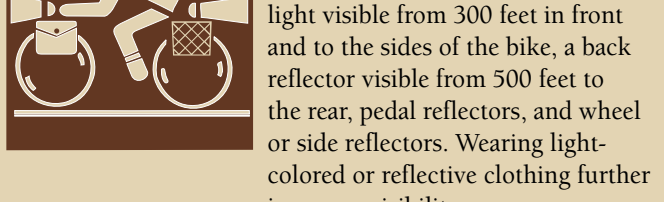
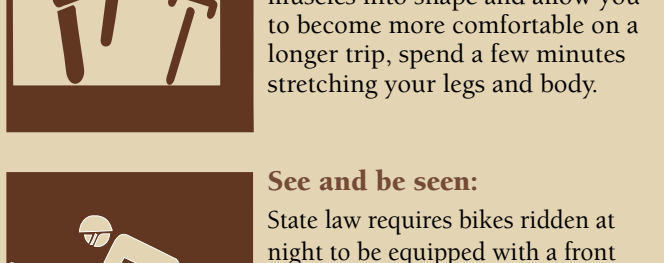
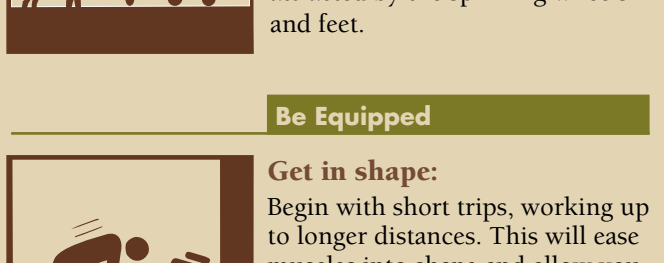
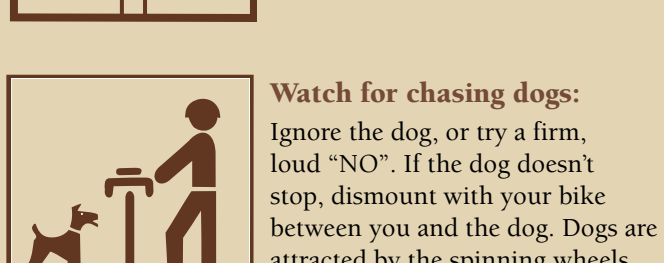
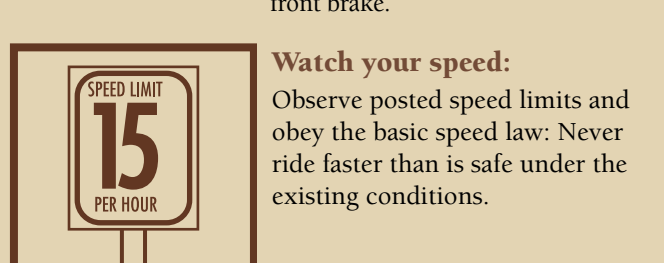
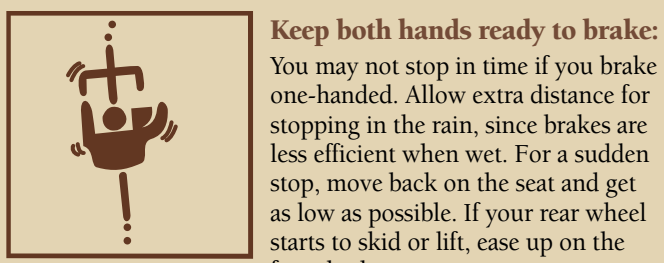
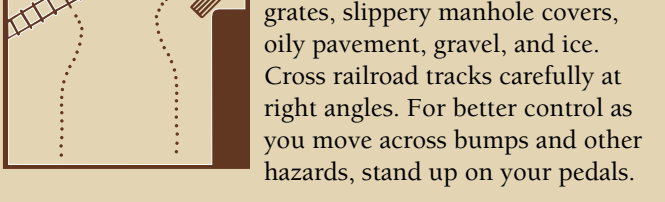
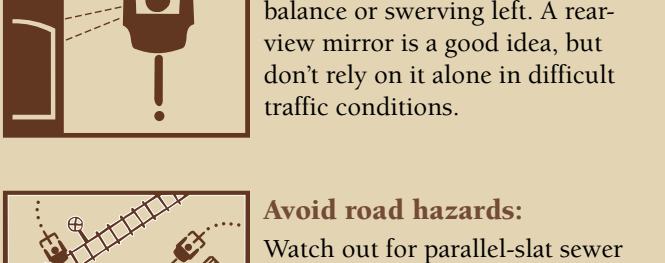
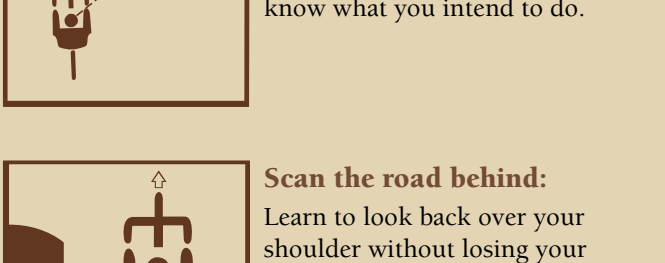
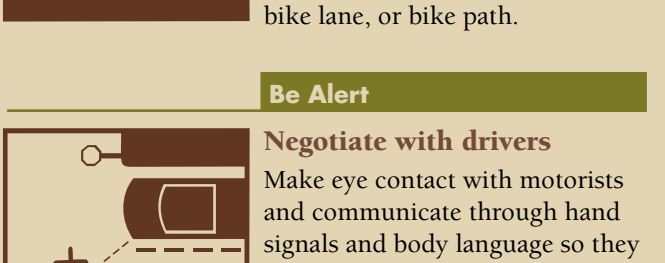
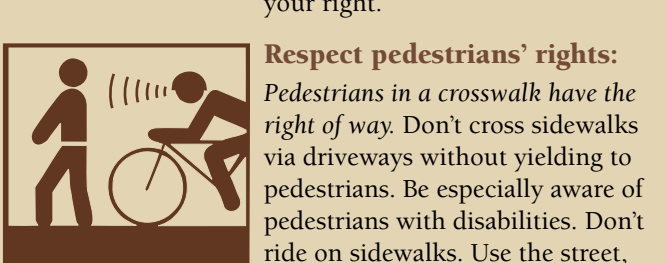
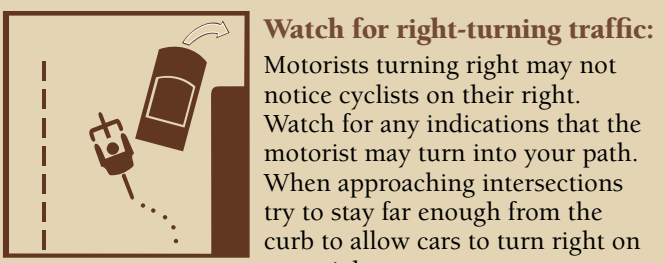
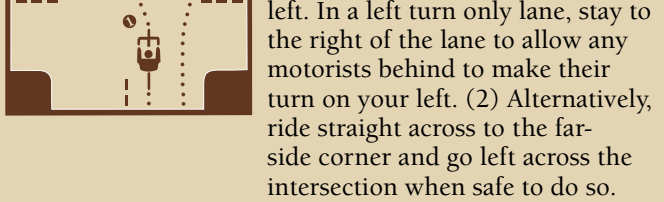
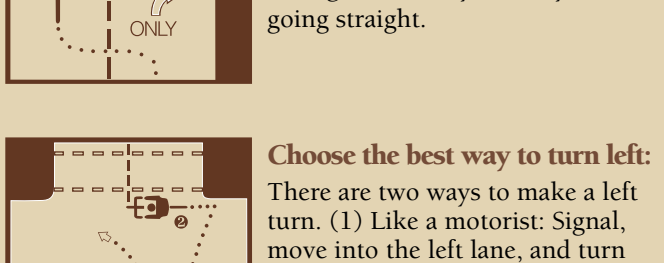
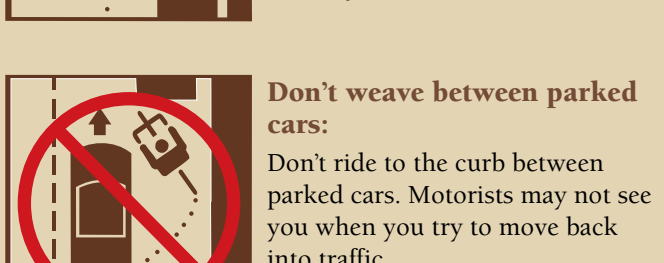
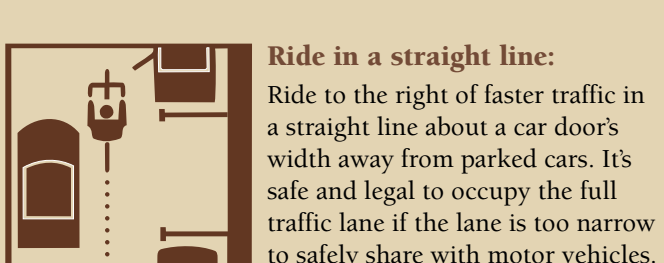
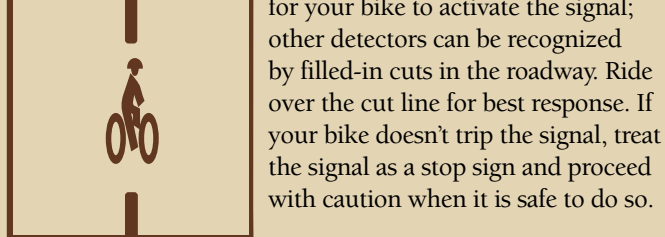
The following recommendations are based on state law, local ordinances, good cycling practice and common sense. When in doubt as to the correct or legal action or maneuver to make in any given bicycling situation, remember that in California every bicyclist riding on a street or highway has all the rights and is subject to all the duties applicable to the driver of a vehicle. Furthermore, experienced bicyclists know that they fare best when they act and are treated as drivers of vehicles.

**Bicycle Traffic Signals**  
Because the University and City of Davis have so many bicycles, certain traffic control devices have been developed to help facilitate safe and convenient travel through intersections. One such device is the bicycle traffic signal illustrated here. The main difference is that bicycle icons are used instead of round lenses. Where bike signals are present, cyclists must follow them rather than conventional traffic signals.

**Be Predictable**

**Obey traffic signs and signals:** Cyclists must drive like motorists if they want to be taken seriously. Doing so is also the safest behavior. When approaching a stop sign or red light, you are required to come to a complete stop (cease forward motion) and proceed only when safe to do so.

**Use vehicle detectors:** Many Davis traffic lights will only be triggered by traffic passing over buried induction “loop” detectors or being in the right position to activate video detectors. Some intersections have special symbols (below left) which indicate the optimal position for your bike to activate the signal; other detectors can be recognized by filled-in cuts in the roadway. Ride over the cut line for best response. If your bike doesn’t trip the signal, treat the signal as a stop sign and proceed with caution when it is safe to do so.



This map was prepared by the University of California and the City of Davis. Any and all facilities, features and information on this map are subject to change without notice. A bicyclist should use these facilities only if he or she has the adequate skill level as a bicyclist and the bicyclist must make that determination.

The vintage bicycles depicted here are examples from the Pierce Miller antique bicycle collection owned by UC Davis. The bicycles are part of a growing assortment representing the evolution of cycling from the 1820s to the modern day. They will be the nucleus of a bicycle museum to be established in Davis, “City of Bicycles”. For more information, call 530-752-2453.



**ACKNOWLEDGEMENTS:**

Produced as a joint effort of UC Davis Transportation and Parking Services and the City of Davis Department of Public Works. Additional start-up funding was provided by grant #SE 9201 of the California Office of Traffic Safety awarded to the UC Davis Cowell Student Health Center. Special thanks to Stephanie Chu of UC Davis Reprographics, Tim Bustos, Bob Clarke and Heidi Mikelic of Davis Public Works, and David Takemoto-Weerts of UC Davis Transportation and Parking Services. “Cycling Tips” adapted from the City of Portland (Oregon) bicycle map and used with permission.

**MORE COPIES OF MAP**

For additional copies, contact Transportation and Parking Services, UC Davis, Davis CA 95616, (530) 752-BIKE or City of Davis Department of Public Works, 1717 Fifth St., Davis CA 95616, (530) 757-5669.



Many miles of bike paths exist in the City and at UC Davis. A bike path differs from a bike lane by being physically separated from city or campus streets and being off-limits to motor traffic (with the exception of service or emergency vehicles). Although popular with many cyclists, special precautions need to be taken while riding on these paths:

1. “Bike” paths are really shared-use paths. Watch out for pedestrians, joggers, skaters, etc. Their movements may not be as predictable as those of the traffic you encounter on the road. Keep your speed down and pass other users with caution and by saying, “Hi, I’m passing on your left.”
2. Because motorists often ignore or are unaware of cyclists on bike paths, you must take special care when entering intersections to ensure that you are seen by all traffic.
3. On narrow paths, ride single file.





# APPENDIX II

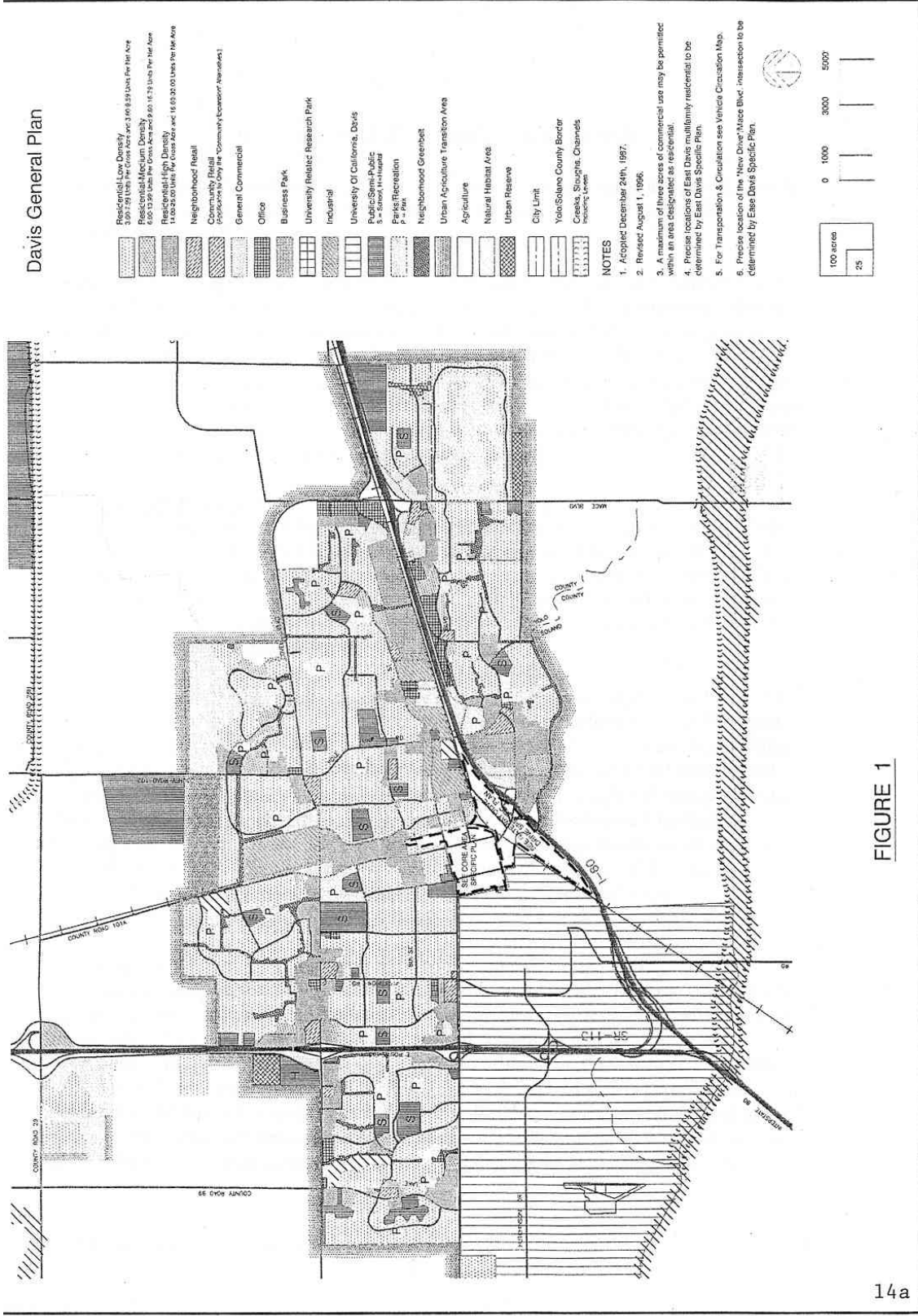
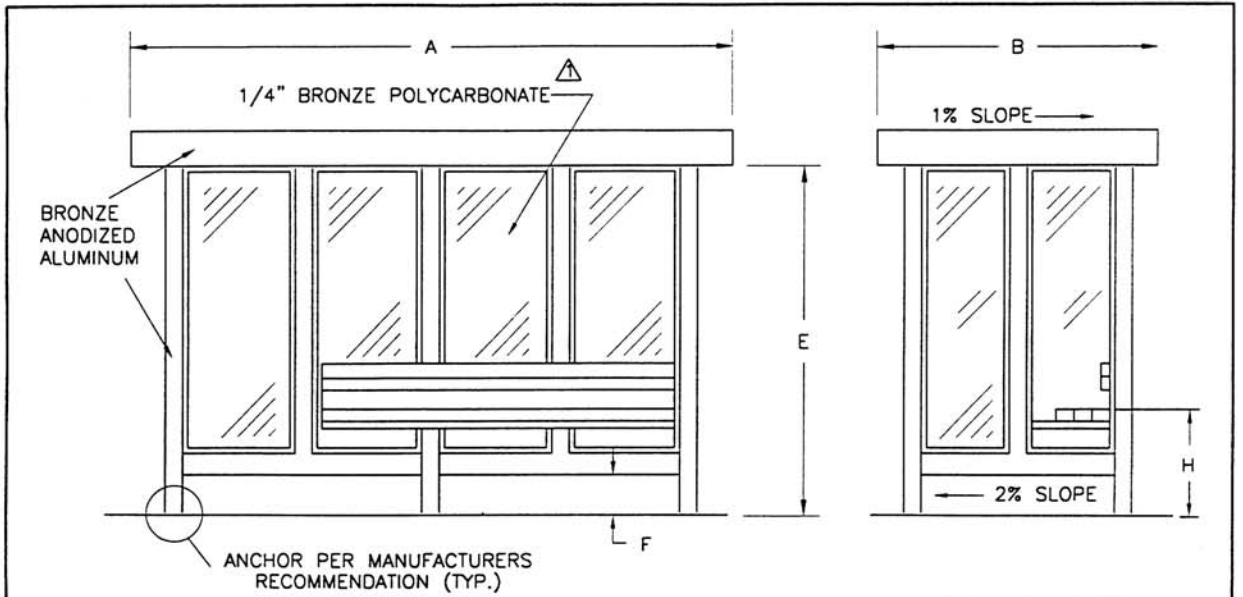


FIGURE 1

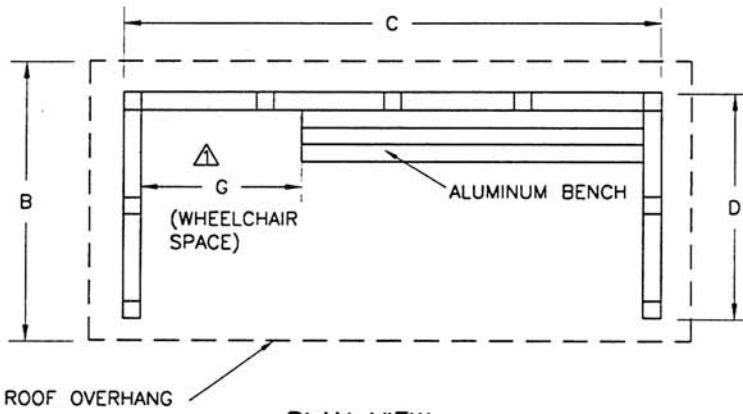


# APPENDIX II



FRONT ELEVATION

SIDE ELEVATION



PLAN VIEW

MINIMUM DIMENSIONS	
A	= 10'-3 3/4"
B	= 5'-1 3/4"
C	= 10'-0"
D	= 4'-10"
E	= 7'-0"
F	= 0'-6"
G	= 2'-6" (MINIMUM)
H	= 1'- 6"

APPROVED MODELS:

MANUFACTURER	MODEL
COLUMBIA EQUIPMENT	"TYPE A-FOR YOLO COUNTY"
ACE ALUMINUM CO.	4X25-W

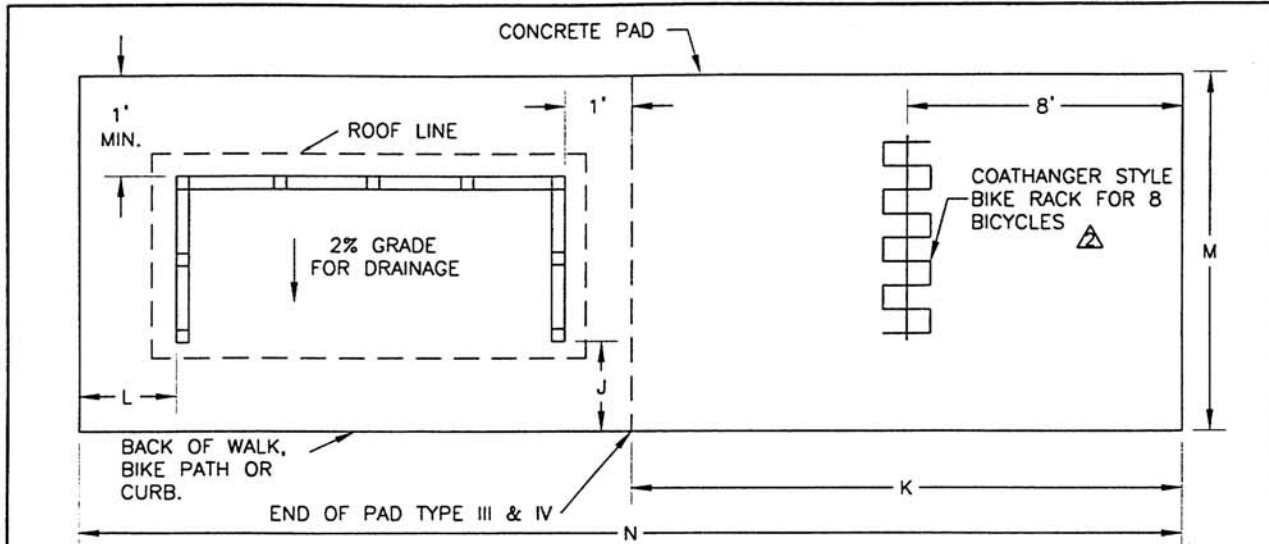
OR APPROVED EQUAL.

△	BIKE RACK & PAD CHANGES	9/95			
X	PREVIOUS REVISION	1/92	△	ADA MODIFICATIONS	1/93
Rev.	Description	Date	Rev.	Description	Date

## CITY OF DAVIS STANDARD PLAN

<p>APPROVED <u>2/9</u> 19<u>96</u></p> <p style="text-align: center;"><i>[Signature]</i></p> <p>DIRECTOR OF PUBLIC WORKS</p> <p>R.C.E. No. C-14208</p>	<h3 style="margin: 0;">BUS STOP SHELTER WALL AND ROOF DIMENSIONS</h3>
SHEET <u>1</u> OF <u>2</u>	301-17

# APPENDIX II



PAD TYPE	DESCRIPTION	△ DIMENSION (NOMINAL)				
		J	K	L	M	N
I	WALK/PATH @ FRONT, WITH BIKE RACK (ACCESS FROM FRONT)	4'	16'	4'	12'	28'
II	WALK/PATH @ BACK, WITH BIKE RACK (ACCESS FROM REAR)	1.5'	16'	1'	SEE NOTE #5	31'
III	WALK/PATH @ FRONT, WITHOUT BIKE RACK (ACCESS FROM FRONT)	4'	0'	4'	10'	12'
IV	WALK/PATH @ BACK, WITHOUT BIKE RACK (ACCESS FROM REAR)	1.5'	0'	1'	SEE NOTE #5	15'

**NOTES:**

1. CONCRETE PAD TO 4" THICK REINFORCED WITH #4 REBAR 18" O.C. EACH WAY
2. ALL SHELTERS TO BE HANDICAP ACCESSIBLE (INCLUDING CURB RAMPS)
3. SHOP DRAWING APPROVAL REQUIRED
4. LOCATION NEAR CITY STANDARD STREETLIGHT IS REQUIRED
5. WHEN WALK/PATH ACCESS IS AT THE REAR DIMENSION "M" MAY VARY (TO BE DETERMINED BY CITY ENGINEER)

△	BIKE RACK & PAD CHANGES	9/95			
X	PREVIOUS EDITION	1/92	△	ADA MODIFICATIONS	1/93
Rev.	Description	Date	Rev.	Description	Date

## CITY OF DAVIS STANDARD PLAN

APPROVED <u>3/9</u> 19 <u>96</u>  DIRECTOR OF PUBLIC WORKS R.C.E. No. <u>C-14208</u>	<b>BUS STOP SHELTER CONCRETE PAD DESIGN</b>
SHEET <u>2</u> OF <u>2</u>	301-17

# Appendix III. Bicycle Facilities Design Guidelines

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# **BICYCLE FACILITY GUIDELINES**

The City of Davis has been developing bikeways for nearly 40 years. During this period, bicycle use as a primary mode of transportation has steadily continued to increase. The most recent census figures indicate that approximately 17 percent of all trips in Davis are made by bicycle.

As the cycling population continued to grow, the bicycle transportation network continued to grow and evolve as well. The development of the city's bicycle transportation system over the years, and the lessons learned during that time, have helped to evolve a set of bicycle facility planning principles that have served the city well. Additionally, the standards that have been developed have benefited other jurisdictions within the state as well as other parts of the country. In order to ensure these systems are functioning as safely and as efficiently as possible, procedures to effectively resolve bicycle circulation and safety issues have been institutionalized so that these issues are dealt with routinely.

## **CYCLIST POPULATION**

The bicycling population in Davis is comprised of wide and diverse segments with differing skills and abilities, as well as differing motivations for cycling in the first place. The type, location, and characteristics of bicycle facilities must necessarily take into account these segments of drivers if they are to be served adequately. A given set of bicycle facilities and routes will not be suitable for the entire cycling population. The following list is one attempt to classify this population into identifiable categories:

1. Avid cyclists. Considers the bicycle as the primary transportation mode for most trips. The availability of direct, high speed routes that are relatively unfettered by traffic lights and stop signs is important. The avid cyclist will often choose to ride in the motor vehicle travel lane, and along major routes without separate bicycle facilities. This group of experienced cyclists will typically shun separated bike paths, particularly in neighborhood greenbelts. Avid cyclists are highly attuned to bicycle safety, so they are sensitized to potential hazards, and they continually anticipate and avoids compromising situations while riding. This group, although typically the most visible and

vocal component of the bicycling community, is actually a relatively small segment of the cycling population.

2. Regular bicycle riders. This group of cyclists will typically utilize a bicycle as a preferred transportation mode, provided that the destination is reasonably close and a good bicycle route exists. The individuals in this group are usually working adults, UCD students, or mature high school students. This group also includes parents with child seats/carts. They appreciate the relative speed and convenience of the bicycle as compared to the car. These cyclists desire safe and efficient bicycle facilities and routes. They are willing to accept some out of direction travel to avoid perceived hazardous locations. Some cyclists in this group feel uncomfortable riding along high speed arterial streets even when bike lanes are provided. They are usually attuned to potential hazards such as opening car doors, and cars exiting or entering driveways. The regular bicycle rider wants to maintain momentum but usually obeys traffic controls. This type of cyclist comprises a large segment of the cycling population in Davis

3. Young regular bicycle riders. This is usually a child of junior high or high school age who routinely rides to and from school. Other trip purposes include riding to visit friends, to the park, to shop, and for other after school activities. This group of cyclists tends to have less experience negotiating traffic, so they are not always aware of potential hazards. They may choose routes unsuitable to their ability, and they often disobey traffic laws and traffic control devices. This group of cyclists tends to prefer the shortest route possible, because minimal pedaling effort seems more important than speed, and they tend to prefer bike lanes and bike paths. In Davis, this is a large segment of the cycling population.

4. Beginning bicycle rider. These are school age children up to about the fourth grade level. They ride bikes to and from school only if a route exists consisting of bike paths and bike lanes on streets with relatively low traffic volumes. Beginning bike riders will typically only pedal to destinations in their neighborhood, and they seldom ride bikes across town. They are not "little adults" as some people seem to think, but individuals within the bicycling community that have very real experiential and physiological limitations. Cycling skills are not fully developed in this age group, and most of them have relatively limited experience riding a bike in traffic. Developmentally, this age

group has physical limitations as well. Up to about age nine or ten, most children do not have well developed peripheral vision, and they have difficulty with concepts such as closure speed (e.g. approaching motor vehicles). Younger bicycle riders typically have difficulty following a straight track, and they frequently weave from side to side when riding. Beginning bike riders are a relatively smaller segment of the cycling population.

There are other ways that cyclists can be categorized, such as by trip purpose. The descriptions detailed above only serve to represent the major categories of cyclists in Davis, but they do not imply that the categories are exclusive, or the descriptions absolute.

## **ROUTE SELECTION**

Route selection factors commonly used by bicycle facility planners include factors such as:

Rider Safety - Routes are chosen considering various safety factors, including traffic volumes, motor vehicle speeds, shoulder width, and the presence of parked cars.

Rider Convenience - Convenience factors usually considered include most destination points, fewest stop signs, most side streets with stop signs, and least debris on shoulders.

Rider Volume - Emphasis placed on limiting the number of bikeways designated in order to concentrate on bikeways with the highest bicycle volumes.

Selection criteria such as the above would result in too limited a bikeway system to adequately provide for the cycling population in Davis. In order to increase the already high use of bicycles, it is necessary to provide adequate routes for all segments of the cycling population. These routes must serve all combinations of origins and destinations across the city. This cannot be done by designating and developing a skeleton of high priority bike routes.

The existing and future street and bicycle networks are planned to safely and adequately provide for bicycle circulation. Bike lanes exist or are planned along all arterial and collector streets. In addition, Class I bicycle facilities are provided in neighborhood greenbelts and along high demand bicycle corridors. A more austere circulation system would not meet the goal of providing safe and convenient bicycle access to all areas of the city.

### **ROUTES SELECTED**

The bikeway system is shown on the City Bikeway Map (please see Appendix 7). Both existing and planned facilities are shown. The planned facilities serve to augment the existing system, correct specific deficiencies, and extend the network to newly developing areas. Several features of the System are worthy of note:

- Bike lanes are shown along all arterial and collector streets (with the exception of Fifth Street west of Pole Line Road).
- Grade separated facilities are provided to facilitate crossing of busy streets and highways.
- Class I facilities (bike paths) are provided within neighborhood greenbelts.
- Class I facilities are shown to provide alternative facilities to using on street bike lanes along high traffic routes.
- Continuity of the system is important and wherever possible, all facilities are joined in a network providing continuous service for cyclists.

Since this bikeway system extends throughout the City, it accommodates the commuting needs of employees, shoppers, faculty and students regardless of the trip origin or destination. These

facilities are included as part of the normal street design and construction process. Land use adjacent to bikeways includes all the land uses within the city. Since the policies contained in this plan require integrated bikeways throughout the city, all land uses and combinations of bicycle trips are accommodated. Land use designations in the City of Davis are contained within the General Plan and the various other plans and maps maintained for that purpose. See Figure 1 (page 13a) for a general picture of land uses. For specific land use designations adjacent to bikeways, reference is made to those documents.



# **ENGINEERING STANDARDS & GUIDELINES**

## **STATE DESIGN STANDARDS**

Chapter 1000 of the CALTRANS Highway Design Manual is the guiding reference for planning and design of bikeways. The cases where City of Davis guidelines are more stringent are identified below. It must be emphasized that a careful evaluation of conditions for a specific bikeway may justify an easing of some requirement or necessitate a more stringent requirement, as the case may be, for the appropriate reasons. Therefore, these guidelines are not absolute standards but rather a guide to be used as a point of beginning when planning new facilities or improving performance of existing facilities.

## **BICYCLE FACILITIES DESIGN**

### A. Design speed

The selected design speed of a bikeway facility is the single criterion that dictates facility geometry to result in safe bikeways. Therefore, the selected design speed for a bikeway segment should be the uppermost speed expected for the bulk of riders using the facility. The design speed for bikeways within the City of Davis is 20 MPH. For downhill grades exceeding 4 percent, the design speed is increased to 30 MPH.

### B. Grades

For most facilities, sustained grades should not exceed two percent if a wide range of riders is to be accommodated. However, undercrossings and overcrossings cannot be limited to this grade criterion however, due to the vertical rise that such structures typically require. Fortunately, the city landscape is nearly flat in most areas, thereby eliminating grade limits as a significant design parameter except for grade-separated crossings. The safety of a given grade is based on criteria for stopping sight distance, which, in turn, is dependent upon grade and design speed.

Much of the literature suggests that grades should be kept to 5 percent or less where possible. The reasons for this are that cyclists may avoid facilities with steeper grades, or that some cyclists may be unable to negotiate the grade due to physical limitations. Aside from the practical aspects of minimizing grades whenever possible, the Americans with Disabilities Act (ADA) prohibits the construction of facilities steeper than 5 percent to ensure access to individuals with disabilities.

There are two primary safety issues with steep grades. If overcrossing grades are too steep, cyclists may seek an alternative at-grade crossing at an unsafe location to avoid the effort of using the overcrossing. For

undercrossings or bike tunnels, if the grades are too steep, cyclists may choose to attain unsafe speeds while descending in order to gain momentum to negotiate the ascending grade. Other than these two situations, steeper grades do not create safety problems while ascending or descending, provided adequate stopping sight distance is maintained. Of course, factors such as debris on the roadway, weather, and the mechanical condition of the bike also have an effect on stopping distance.

Another factor to consider about grades is the distance that a given grade persists. The acceptability of a relatively steep grade depends on the length of the grade. Steep grades are tolerable for relatively short distances and are preferable as an alternative to much lesser grades that last long distances.

### C. Grade Separated Crossings

This plan provides for some grade separations where separated bike paths cross arterial streets and highways. Such crossings are planned to provide for relatively unimpeded bicycle routes interconnecting all areas of the city and the University. Additionally, grade separated crossings afford continuity along neighborhood greenbelt bike paths by eliminating the need to cross arterial streets at grade.

#### 1. Undercrossings

The preferred grade separation is the undercrossing because it allows shorter and flatter approaches than an overcrossing. However, close attention to the design is needed because of the bicyclist's tendency towards excessive speed in an effort to contend with the adverse ascending grade. Therefore, approaches should be kept to no more than 5 percent grade. In addition, the roadway should be raised so that the upper portion of the bicycle tunnel is above the elevation of the surrounding terrain. This design approach usually allows relatively short approaches of modest grade thus moderating the tendency to excessive speed in the tunnel. In addition, this design feature may allow drainage to be accomplished by gravity. Undercrossings shall be fully lighted for safety. Finally, visibility into and through a raised tunnel enhances the sense of safety compared to a deeper structure with less visibility.

## 2. Overcrossings

Overcrossings are generally needed where roadway curb-to-curb width exceeds about 90 feet due to concerns of personal safety. Steep grades should be moderated as much as possible so that ridership is not unduly discouraged. Grades exceeding 4 percent for downhill travel do not, by themselves, create a safety problem, provided that safety criteria derived from the 30 MPH design speed are followed. For ascending cyclists, a combination of length and grade should be selected that carefully balances the two as necessitated by the total climb required. Short, steep grades are preferable to modest grades of 2-4 percent, if those modest grades must persist for distances significantly in excess of 500 feet.

### D. Typical Cross Sections

Lesser widths may be considered for low volume streets/paths, existing roadways narrower than city standards, or where other circumstances warrant. State bikeway standards shall be considered the absolute minimum.

### E. Intersection Considerations

Intersections are the problematic locations where many bicycle/auto conflicts occur. Skilled cyclists usually have little problem making the appropriate transitions when using on-street lanes. Lesser skilled bike riders may have difficulty performing weaving maneuvers near intersections safely. These bicycle drivers need alternate, less demanding routes as an alternative to using the on-street bike lanes. When using such alternate routes, the cyclist will still need to cross busy arterial streets, usually at signalized intersections. Special loop detectors, which can detect bicycles, as well as bicycle oriented signal call buttons can all facilitate the crossing. Bicycle routes typically used by younger children need to provide protected signalization for crossing major streets, both at intersections and at other locations where crossings are needed. Grade separated crossings are an alternative to protected at-grade crossings. Such crossings tend to be very expensive, which limits where they can be considered to only a few high priority locations. Neither bike overpasses nor underpasses work well near intersections. The crossing length is longer and there is not the opportunity to adjust the road grade to shorten the slopes of the crossing. Also, the transitions between on-street lanes and the separate crossing path create the possibility of unsafe movements. Underpasses can prompt personal safety concerns if their required length is too great and/or visibility through the underpass is limited.

Research has shown that the majority of bicycle/motor vehicle crashes occur at intersections. Therefore, special consideration must be given to bicycle and vehicle movements at intersections. Bicycle lanes enhance visibility between bicycles and motor vehicles and provide the best opportunity for a safe interaction between vehicles. Note that a weaving section of sufficient length, considering prevailing vehicle speeds, is essential for the left turn and through bicycle lanes to be effective.

Where a Class I facility interacts with an intersection, the bike path may or may not continue beyond the intersection. The advantage of this intersection design is that it places the bicyclist in a predictable location and minimizes the distance to cross opposing vehicle lanes during the prescribed signal phase.

A continuous center left turn lane combined with on-street bike lanes creates a bicycle friendly route by making it easier and safer to cross the street compared to a four-lane road. The traffic islands for bicycles at arterial intersections make it easier for bicyclists to approach the intersection, make a convenient and safe crossing, and then continue along on available routes in any direction.

#### F. Roundabout Design and Operation

Within recent years, the City of Davis has begun using roundabouts as traffic control devices, where appropriate. Roundabouts also tend to provide a measure of "traffic calming". Although the use of roundabouts has been common in a number of countries for many years, particularly in Europe and Australia, their potential for reducing conflicts between motor vehicles, bicycle riders and pedestrians has contributed to their design and construction in Davis. Roundabouts improve safety for all road users by simplifying conflicts, reducing motor vehicle speeds, and providing a clearer indication of right-of-way relative to other types of intersection controls.

Although navigation through a roundabout may appear daunting for cyclists and pedestrians the first time one is encountered, their operation is actually quite simple. For cyclists, the first thing to remember is that the bike lane is dropped prior to entering the roundabout, just as it is at more conventional intersections. This is done so that a through cyclist is not "cut off" by a right turning motorist. The cyclist merely "takes the lane", which is made easier by the fact that motorist's speed is reduced by the design of the roundabout due to "deflection". Within the circulating roadway, the speed of motorists and bicyclists speed are more closely matched, which makes the process of merging into the circulating roadway easier. As the cyclist approaches the roundabout, they must yield to any other bicycles or motor vehicles already in the roundabout, and proceed through in a counter clock-wise direction, and then turning right as they approach their intended direction.

The design concepts of roundabouts also makes it safer for pedestrians. Crosswalks run through the middle of the "splitter islands" that create the deflection for bicyclists and motor vehicles. These islands provide a refuge for pedestrians between traffic lanes, so that they only need to be concerned with one conflicting movement of traffic as they cross the street.

#### G. Bike Lanes

Bike lanes provide a significant benefit to safe and efficient bicycle circulation. Conflicts between bikes and autos are dramatically reduced when on-street lanes are installed. Having separate identifiable areas on the street for bikes and autos places the travelers in predictable locations.

Generally, bicycle lanes are provided or planned for all collector and arterial streets. The city's guideline width for on-street bike lanes is 8 feet when adjacent to the curb where no parking is permitted and 7 feet where parking is allowed. Where parking is allowed, the total width from the curb to the bike lane line is 15 feet. There is a consensus among bicycle planning and

safety experts that bike lanes constructed to the Davis guidelines are appropriate.

Bike lanes may be unsuitable for bicycle riders that lack the necessary skills to safely use them when traffic volumes are heavy and/or vehicle speeds are high. These individuals should consider the use of alternate routes. There are cyclists who have the desire and skill to use on-street lanes, such as bike commuters, so these facilities are still very much needed.

Width criteria for bike lanes takes into account that occasional obstructions, such as leaf piles and yard debris, may exist in the bike lanes that would require bicyclists to steer around them. While automobiles do sometimes stray into the bike lane and cyclists sometimes stray into the vehicle lane, these incursions seldom result in crashes. Mid-block crashes between bikes and cars are rare where bike lanes exist. More common are bike/bike accidents and bikes running into fixed objects such as parked cars. The majority of bike/car crashes occur at intersections rather than at mid-block locations.

## H. Bike Paths

Bike paths, when properly designed and constructed, provide good routes for bicycle circulation separated from vehicles. Separate bike paths are not always a good choice to replace on-street lanes when they are along high volume, relatively high-speed arterials. In these circumstances, retrofitting within the existing right of way to add paths can prove difficult or impractical. In addition, the presence of numerous driveways, which for the cyclist, function as unsignalized intersections, can be problematic. Paths within neighborhood greenbelts provide a good alternative to on-street facilities for large numbers of young and beginning bicycle drivers. These are being provided throughout newly developing areas.

## I. Alternative Routes

Good bicycle circulation can best be achieved with the appropriate mix of bicycle facilities for the respective segments of the cycling population. Such facilities will provide reasonably direct and convenient bicycle access throughout the city. Because the cycling population is segmented, the infrastructure must provide alternative routes and types of facilities for the respective segments. While on-street bike lanes along a high-demand route may serve large numbers of cyclists well, alternatives to bike lanes may be necessary for less skilled drivers.

As an example, the design of the Pole Line Road Overcrossing took into account the varying needs of cyclists. The route includes on-street lanes because these lanes are needed for a large segment of the cycling population. A separate path is included on the west side of the structure to serve those cyclists that feel uncomfortable using the bike lanes or do not have the skills necessary to use them safely.

## **BICYCLE PARKING GUIDELINES**

Bicycle parking facilities are provided throughout the downtown area, the Amtrak station site, the Mace Boulevard Park and Ride lot, and at many Unitrans/Yolobus shelter locations. In addition, standard conditions are placed on development projects to incorporate bicycle parking facilities when constructing, redeveloping or expanding commercial and multi-family projects within the city.

The requirement to provide adequate bicycle parking for the various land uses within the city is contained in the city's zoning ordinance. It is the function of the Design Review Process to assess the bicycle parking plan of developers and project applicants to ensure that adequate facilities are provided. The following features shall be considered.

1. The quantity of parking shall adequately consider the nature of the land use, its proximity to bike routes, and other factors that may affect bicycle parking.
2. Bicycle parking shall be located on the project to promote its use. Bike racks should be visible and as close as possible to the main entrance or doorway of the cyclist's destination.
3. The bicycle circulation within the project shall be adequately considered to minimize conflicts and hazards with motor vehicles.
4. Bicycle racks must be conducive for use with the most common locking devices:  
"u-locks."
5. Bicycle parking must be illuminated at night.
6. Bicycle parking should be sheltered, if possible.
7. Bicycle parking shall be at least as convenient as the planned motor vehicle parking.
8. In order to prevent damage to bicycles, racks must support them with at least two contact points (e.g. inverted "U" racks). Therefore, some rack types formerly used by the city (e.g. "ribbon racks") are no longer considered acceptable.

The amount of bicycle parking needed for a particular project depends upon a variety of factors such as the type of occupancy, the location and proximity to streets with heavy bicycle traffic, and the relationship of the project to adjacent and nearby businesses, etc. The following are suggested amounts of bicycle parking for several types of land use. These amounts can be adjusted up or down for a particular project as circumstances suggest.

1. For multi-family residential, two bicycle parking spaces per dwelling unit.
2. Commercial, all zones, bicycle spaces numbering 30 percent of motor vehicle spaces otherwise required.
3. Provide one bicycle space for every two employees during the heaviest work shift in addition to bicycle parking otherwise required for visitors/patrons. This parking may be located separately from the public parking but shall be at least as convenient as employee motor vehicle parking.



4. For public facilities (such as municipal offices, parks, swimming pools, museums, parks, auditoriums, churches and similar uses), provide bicycle spaces numbering 30 percent of the motor vehicle parking normally required or immediately available to the facility.
5. Public and private schools K-12, provide bicycle spaces numbering 85 percent of peak enrollment. For post-secondary, provide spaces at least 50 percent of peak enrollment.

Experience has shown that modest amounts of bicycle parking at many dispersed locations is preferable to a few high capacity facilities. Cyclists tend to avoid bike parking facilities unless they are very close to their destination. The best way to determine the need and amount of bicycle parking is to identify those locations where parked bikes exceed the available parking, and to find those locations where bikes are parked and no parking is provided. In this manner, parking can be provided to meet the need. The relocation of unused parking facilities to higher demand locations can help make available resources go farther.

### **REST FACILITIES**

The city's bike map shows rest facilities (generally day use areas with rest room facilities) that may be used by bicyclists. Also shown are bike shops and a few points of interest. Since Davis is an urban area, commercial establishments that provide air, water, shopping, food, telephones, etc. are readily available either along the bicycle routes or in close proximity to them.

There are no public facilities for changing and storing clothes and equipment. The only public showering facilities available are at the four public swimming pool complexes. City employees have access to shower facilities at the Corporation Yard and the Parks and Community Services Operations office on 5<sup>th</sup> Street. Storage of clothes and equipment is limited to 32 bicycle storage lockers that are available on a monthly rental basis. These lockers are currently located at the Mace Blvd. Park & Ride lot, the Capital Corridor Train Depot, City Hall and the Corporation Yard. Facilities available for changing clothing is limited to public restrooms associated with public buildings, parks and sports complexes. With the exception of the bicycle storage lockers available for individual rent, none of the other facilities noted above allow 24-hour access for the general public.

### **COORDINATION WITH OTHER TRANSPORTATION MODES**

Unitrans, Yolobus, Citylink and Bay Link provide bus service in Davis. The bus routes used by these systems are directly served by bicycle facilities. The city's intermodal rail facility brings together rail, bus, bicycle, and motor

vehicle modes at one location. The city provides for the installation of bicycle parking at bus stops to facilitate bus/bike trips. Additionally, YoloBus and Citylink have both added bike racks to their buses, and the Amtrak "Capitol Corridor" train has installed bike racks on their passenger cars as well. Unitrans has determined that adding racks to their fleet is not feasible.