

6.1 Bikeway Cost Estimates

Table 14 below provides conceptual cost estimates for the construction of bikeway facilities in the City of Placerville. These cost estimates are based on costs experienced in the development of past projects throughout El Dorado County and the City of Placerville, as well as costs experienced in various California communities. These cost estimates should only be used to develop generalized construction cost estimates and project prioritization. More detailed estimates should be developed after preliminary engineering.

Facility Type	Estimated Cost Per Mile
CLASS I BIKE PATH <ul style="list-style-type: none"> Cost to grade and pave an 8-foot wide surface with 2-foot graded shoulders on each side. (Does not include amenities such as landscaping, lighting, irrigation, phones etc.) 	\$400,000
CLASS II BIKE LANES <ul style="list-style-type: none"> Signing and striping only with minor shoulder improvement: Cost to install pavement striping, markings, and signs on both sides of an existing 4-foot roadside shoulder Signing and striping plus major shoulder improvement: Cost to install 4-foot strips of pavement, pavement striping, markings and signs on both sides of a roadway 	 \$25,000 \$300,000
CLASS III BIKE ROUTE <ul style="list-style-type: none"> Signing only Signing plus moderate shoulder improvement: Cost to install 2-3 foot strips of pavement, a 6-inch fog line and signs on both sides of the roadway 	 \$3,000 \$150,000

6.2 Priority Projects

Priority bikeway projects were selected based on anticipated use, type of facility, connectivity, and potential improvements for safety.

PROJECT OR ROADWAY	SEGMENT	DISTANCE/COST ESTIMATE
Mallard Lane/Green Valley Road Bike Lanes	City Limit to Green Valley Road/ Mallard Lane to Placerville Drive	.75 mile / \$100,000
Placerville Drive Bike Lanes	Ray Lawyer Drive to US 50/Forni Road	.5 mile / \$75,000
Main Street Shared Lane Striping/Signage	Broadway to Spring Street	.75 mile / \$7,500
El Dorado Trail Western Extension	Forni Road to Ray Lawyer Drive	.75 mile / \$300,000
Upper Broadway Bike Lanes	Schnell School Road to Point View Drive	1 mile / \$300,000
Lower Broadway 2 foot or more shoulder Bike Route or Bike Lanes	Main Street to Schnell School Road	.75 mile / \$75,000 - \$150,000

6.3 Bikeway System Funding Needs

Due to variations in costs of Class II Bike Lanes, the cost estimates are assumed at \$175,000 per mile. Some Class III Bike Routes proposed in this plan may require additional shoulder width, therefore costs for Class III are assumed at \$75,000.

Facility Type	Miles Proposed	Approximate Funding Need
Class I Bike Path	3	\$1.2 Million
Class II Bike Lanes	8.6	\$1.5 Million
Class III Bike Route	6.25	\$500,000

6.4 Maintenance of Bikeways

Maintenance of bikeways is an important element of an effective bicycle transportation system. Roadway debris, including gravel and glass, is typically 'swept' by passing cars onto the roadway shoulder or bike lane making them challenging for bicyclists. Without routine sweeping and maintenance, bicyclists are often forced to ride closer to the travel lane to avoid accidents and flat tires.

Under Article 3 of the Transportation Development Act (TDA), up to two percent of the Local Transportation Fund (LTF) allocation to cities and counties can be used for bicycle and pedestrian projects, and this funding source can be used to maintain bikeways. Unfortunately, there are few other regional, state and federal grants available for maintenance. Even if a grant could be used to buy capital equipment like a sweeper, many cities and counties lack the funds to perform the service.

Class I segments of trail should be maintained using standard pick-up trucks on the pathway itself. Class I bike path maintenance includes cleaning, resurfacing and re-striping the asphalt path, repairs to crossings, cleaning drainage systems, trash removal and landscaping. Underbrush and weed abatement should be performed once in the late spring and again in mid-summer.

Recommendation: *Develop a bikeway maintenance reporting and response system, including a telephone number listed on available maps and other documents, that assures that reported maintenance problems are responded to within 48 hours.*

Recommendation: *Ensure that bike lanes and shoulder areas of roadways are swept as part of routine street sweeping operations.*

Maintenance of bike lanes and roadway shoulders during construction periods is often identified as a particular concern of bicyclists. Roadway shoulders are often cluttered with dirt and gravel, and right of way on the shoulders are frequently obstructed by pylons and vehicular warning signage associated with construction projects. Shoulders and bike lanes need to be both maintained as a through right-of-way and kept clean from debris. The following recommendation is provided for maintaining roadway shoulders and bike lanes during construction periods:

Recommendation: *Ensure that all construction projects adjacent to a roadway maintain both a clean swept shoulder and a through right-of-way for bicycles.*

Recommendation: *Require all new construction projects to pay for street sweeping in the immediate vicinity as needed to keep streets and shoulders free of debris.*

6.5 Funding Sources

Implementation of the proposed bikeway system will require funding from local, State and federal sources and coordination with other agencies and entities. In some cases, portions of the proposed system will be completed as part of future development, road widening and construction projects. For those portions that will rely on other funding mechanisms, the following discussion provides descriptions of the most common funding sources for bikeway projects.

6.5.1 Federal Sources

Federal transportation funds are distributed through the Federal Transportation Act for the 21st Century. The programs are distributed over a six-year period and are historically known as ISTEA, TEA-21 and now TEA-3 or SAFETEA. Re-authorization for TEA-3 or SAFETEA may occur in early 2005. As of January 2001, all TEA-21 funds for EDCTC have been programmed. For the City of Placerville, applicable federal programs include the following:

- Regional Surface Transportation Program (RSTP)

- Congestion Mitigation and Air Quality (CMAQ)
- Transportation Enhancement Activities (TEA)
- Safe Routes to School
- Section 402 (Safety) Funds
- Scenic Byways Funds
- Public Lands Highway Funds

Federal funding is administered through the State and regional transportation planning agencies in this case, the El Dorado County Transportation Commission (EDCTC). Most of the funding programs are transportation oriented with an emphasis on reducing auto trips and providing a multi-modal connection. Funding criteria includes completion and adoption of a Bicycle Transportation Plan, costs and benefits of the implemented system (in some cases quantification of reduced vehicle trips and reduction in air pollution), public support for the project, California Environmental Quality Act (CEQA) compliance, and commitment of local resources. In most cases, federal funding will provide matching grants of 80 to 90 percent.

Of the above listed programs, RSTP, TEA and CMAQ are formula-based and received with each authorization of federal transportation funding. RSTP is distributed based on a road mileage formula, and CMAQ is distributed as a 'fair and equitable share' via Sacramento Area Council of Governments. In fiscal year 2003/04 EDCTC received \$639,255 in RSTP funds and no TEA funds. In fiscal year 2002/03 EDCTC received \$199,215 in TEA funds and \$784,841 in RSTP. The other sources listed above are competitive, grant programs for which projects are selected based on the criteria of the program.

Other federal funding sources include the following:

- National Recreational Trails Fund
- Land and Water Conservation Fund Program (administered locally by the California Department of Parks and Recreation, Local Assistance)
- Recreation and Public Purposes Act (Bureau of Land Management)
- Schools and Road Grants to States (United States Forest Service)

6.5.2 State Sources

The following sources provide funding that is applicable to bikeway facilities. Such facilities also benefit and are used by other non-motorized user groups.

Bicycle Transportation Account – The State Bicycle Transportation Account (BTA) is an annual program for bicycle projects. Available as competitive-based grants to jurisdictions, the emphasis is on projects that benefit bicycling for commute purposes. The BTA provides State funding for projects that improve safety and convenience for bicycle commuters. Streets and Highways Code Section 893 describes the types of projects eligible for BTA funds. The Bicycle Facilities Unit in the Office of Local Programs administers the BTA program in cooperation with the office of Local Assistance in each Caltrans District. Cities and Counties are eligible to apply for BTA funds and may apply on behalf of an agency that is not a city or county for construction of a bicycle project that benefits commute bicycling.

To be eligible for BTA funds, cities and counties must have the following:

1. A Bicycle Transportation Plan (BTP) that includes items (a) through (k) in Section 891.2 of the Streets and Highways Code.
2. The city or county local agency governing board must adopt the BTP or certify that it has been updated and complies with Section 891.2 and the regional transportation plan. The BTP must have been adopted no earlier than four years prior to July 1 of the fiscal year in which BTA funds are granted (i.e. local agencies applying for 2004/05 BTA funds must have a BTP adopted July 1, 2000 or later).
3. The local agency must submit the BTP to the appropriate Metropolitan Planning Organization (MPO) or Regional Transportation Planning Agency (RTPA) for review and certification that it complies with Section 891.2 of the Streets and Highways Code and the regional transportation plan (RTP).
4. Following regional approval, the local agency must submit the BTP to Caltrans Bicycle Facilities Unit (BFU) for review and approval.

Section 893.6 of the Streets and Highways Code specifies that no agency may receive more than 25 percent of the total funds transferred into the BTA in a single fiscal year. Section 891.4(b) requires local agencies to fund at least ten percent of the total project cost. Applications should be submitted only for projects where the right-of-way will be clear prior to award of contract and where cooperative agreements with other groups such as railroads, utility districts, flood control districts, coastal commissions etc., will be completed prior to award of contract.

Applications must include a description of the project and an estimate of project costs including preliminary and construction engineering, right-of-way, and construction. The estimate should include only those items for which the local agency intends to claim reimbursement. A detailed estimate is not necessary, but the Bicycle Facilities Unit needs enough information to ensure that the proposed project is consistent with the program guidelines. *Under state law, BTA projects must conform to the minimum design standards for bikeways in Chapter 1000 of the Highway Design Manual.*

Local Transportation Fund (LTF) – Under Article 3 of the Transportation Development Act (TDA), up to two percent of the LTF allocation to cities and counties can be used for bicycle and pedestrian projects. Revenues to the LTF program are derived from ¼ cent of the statewide sales tax. These funds are distributed through the El Dorado County Transportation Commission (EDCTC) to the local jurisdictions. Historically, EDCTC has apportioned between \$50,000 and \$60,000 annually in TDA LTF Article 3 funds since 2002. TDA Article 3 funds can be used to maintain bicycle facilities.

AB 2766 – Motor vehicle registration surcharge fees are available for bicycle and pedestrian projects that can improve air quality. The El Dorado County Air Pollution Control District allocates these funds for El Dorado County.

Environmental Enhancement and Mitigation Program (EEM) – Bicycle projects can qualify for EEM funds if they meet the program's requirements. Any non-profit organization can sponsor projects, which are submitted to the State Resources Agency for evaluation in June/July of each year.

Flexible Congestion Relief Program (FCR) – Bicycle projects are eligible to compete for FCR funds. Projects must provide congestion relief and they must be included in an approved

Regional Transportation Improvement Program (RTIP). Local agencies must submit projects for FCR funding to EDCTC.

6.5.3 Local Sources

A variety of local sources are available for funding bikeway facilities, however, their use is often dependent on political support.

New Construction – Future road widening and construction projects are one means of developing on-street and separated bikeways. To ensure that roadway construction projects provide these facilities when needed, roadway design standards should include minimum cross-sections that have sufficient pavement for on-street bikeways and the review process for new development should include input pertaining to consistency with the proposed bikeway system. Future development in the City of Placerville will contribute to the implementation of new bikeway facilities if discretionary development projects are conditioned and roadway project designs are specifically required to include bikeway facilities.

Traffic Impact Mitigation Fees – Another potential local source of funding is developer impact fees, which are typically tied to trip generation rates and traffic impacts produced by the proposed development. Road right-of-way amenities that are bicycle friendly can be constructed incidental to other road improvements which accommodate increased vehicle traffic. Additionally, a developer may reduce the number of trips (and hence impacts and cost) by paying for on and off-street bikeway improvements which will encourage residents to bicycle rather than drive.

Assessment Districts – Different types of assessment districts can be used to fund the construction and maintenance of bikeway facilities. Examples include Mello-Roos Community Facility Districts, Infrastructure Financing Districts (SB 308), Open Space Districts, or Lighting and Landscaping Districts. These types of districts have specific requirements relating to their establishment and use of funds.

Other Sources – Local sales taxes, developer or public agency land dedications, private donations, service clubs, and fund-raising events are other local options to generate funding for bikeway projects. Creation of these potential sources usually requires substantial local support.

6.6 Bikeway Design Standards

The most commonly used bikeway design standards are contained in the Caltrans Highway Design Manual, Chapter 1000 – Bikeway Planning and Design, dated February 1, 2001. The Caltrans standards are based largely on standards developed by the American Association of State Highway and Transportation Officials (AASHTO). The Manual of Uniform Traffic Control Devices, Federal Highway Administration, 1988, contains standards for bikeway signing. Detailed descriptions of the four types of bikeways identified in the Caltrans design standards are listed below, followed by a typical cross section of the three primary bikeways.

Recommendation: *All bicycle facilities should conform to Caltrans Highway Design Manual Chapter 1000, and the Manual of Uniform Traffic Control Devices for Streets and Highways published by the Federal Highway Administration.*

All Class II Bike Lanes should conform to the design recommendations in Chapter 1000 of the Caltrans Highway Design Manual. Caltrans provides recommended intersection treatments in Chapter 1000 including bike lane turn 'pockets' and signal loop detectors. The City's Public Works Department should develop a protocol for application of these recommendations, so that improvements can be funded and made part of regular improvement projects (see figures in Appendix D).

Recommendation: *Bike lane pockets (minimum 4' wide) between right turn lanes and through lanes should be provided wherever available width allows, and right turn volumes exceed 150 motor vehicles/hour.*

The following is the description of the four classifications of bikeways as included in the Caltrans Highway Design Manual:

Shared Roadway (No Bikeway Designation)

Most bicycle travel in the State now occurs on streets and highways without bikeway designations. This probably will be true in the future as well. In some instances, entire street systems may be fully adequate for safe and efficient bicycle travel, and signing and striping for bicycle use may be unnecessary. In other cases, routes may be unsuitable for bicycle travel, and it would be inappropriate to encourage additional bicycle travel by designating the routes as bikeways. Finally, routes may not be along high bicycle demand corridors, and it would be inappropriate to designate bikeways regardless of roadway conditions (e.g., on minor residential streets).

Many rural highways are used by touring bicyclists for intercity and recreational travel. In most cases, it would be inappropriate to designate the highways as bikeways because of the limited use and the lack of continuity with other bike routes. However, the development and maintenance of 1.2 meter paved roadway shoulders with a standard 100-millimeter edge stripe can significantly improve the safety and convenience for bicyclists and motorists along such routes.

Class I Bikeway (Bike Path)

Generally, bike paths should be used to serve corridors not served by streets and highways or where wide right of way exists, permitting such facilities to be constructed away from the influence of parallel streets. Bike paths should offer opportunities not provided by the road system. They can either provide a recreational opportunity or, in some instances, serve as direct high-speed commute routes if cross flow by motor vehicles and pedestrian conflicts can be minimized. The most common applications are along rivers, ocean fronts, canals, utility right of way, abandoned railroad right of way, within college campuses, or within and between parks. There may also be situations where such facilities can be provided as part of planned developments. Another common application of Class I facilities is to close gaps to bicycle travel caused by construction of freeways or because of the existence of natural barriers (rivers, mountains, etc.).

Class II Bikeway (Bike Lane)

Bike lanes are established along streets in corridors where there is significant bicycle demand and where there are distinct needs that can be served by them. The purpose should be to improve conditions for bicyclists in the corridors. Bike lanes are intended to delineate the right of way assigned to bicyclists and motorists and to provide for more predictable movements by each. An even more important reason for constructing bike lanes is to better accommodate bicyclists through corridors where insufficient room exists for safe bicycling on existing streets. This can be accomplished by reducing the number of roadway lanes or prohibiting parking on given streets in order to delineate bike lanes. In addition, other things can be done on bike lane streets to improve the situation for bicyclists that might not be possible on all streets (e.g., improvements to the surface, augmented sweeping programs, special signal facilities, etc.). Generally, striping alone will not measurably enhance bicycling.

Class III Bikeway (Bike Route)

Bike routes are shared facilities which serve either to:

- (a) Provide continuity to other bicycle facilities (usually Class II bikeways); or
- (b) Designate preferred routes through high demand corridors.

As with bike lanes, designation of bike routes should indicate to bicyclists that there are particular advantages to using these routes as compared with alternative route alignments. This means that responsible agencies have taken actions to assure that these routes are suitable as shared routes and will be maintained in a manner consistent with the needs of bicyclists. Normally, bike routes are shared with motor vehicles. The use of sidewalks as Class III bikeways is strongly discouraged.

Selection of Bicycle Facilities

It is emphasized that the designation of bikeways as Class I, II and III should not be construed as a hierarchy of bikeways or that one is better than the other. Each class of bikeway has its appropriate application. In selecting the proper facility, an overriding concern is to assure that the proposed facility will not encourage or require bicyclists or motorists to operate in a manner that is inconsistent with the rules of the road.

An important consideration in selecting the type of facility is continuity. Alternating segments of Class I and Class II (or Class III) bikeways along a route are generally incompatible, as street crossings by bicyclists are required when the route changes character. Also, wrong-way bicycle travel will occur on the street beyond the ends of bike paths because of the inconvenience of having to cross the street.

Appendix D includes design diagrams from the *Caltrans Highway Design Manual, Chapter 1000, Bikeway Planning and Design* and the *Manual of Uniform Traffic Control Devices (MUTCD), Part 9, Traffic Controls for Bicycle Facilities*. Both of these documents are available online, the Highway Design Manual at <http://www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm> and the MUTCD at <http://mutcd.fhwa.dot.gov/>.