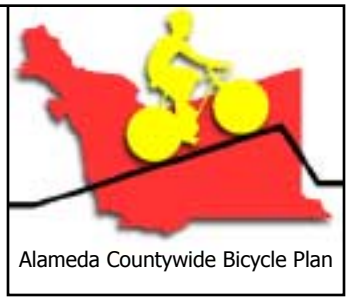
# Chapter 4: Proposed Programs




## COST ESTIMATES FOR RECOMMENDED BICYCLE PROGRAMS

This chapter describes the programs that are recommended for Alameda County that will be instrumental in improving the quality as well as the safety of bicycling and walking. These programs include Signage, Maintenance, Parking, and Education/Promotion. Each of these programs is described in more detail on the following pages.

The projected annual costs or one-time costs for the four programs described above are presented in Table 4-1 and are described in more detail in other sections of this chapter. The actual costs can vary significantly depending on the level of detail and on number of staff devoted to the program. The estimate below represents a moderate level of effort. While some agencies in California spend less, many agencies spend much more on these types of programs.

**Table 4-1**
**RECOMMENDED PROGRAMS FOR THE COUNTYWIDE BICYCLE PLAN**

| Program | Annual Cost | Total Costs Twenty Year Cycle |
|---|---|---|
| Signage Development* | One time | $150,000 |
| Maintenance | $665,000 | $13,300,000 |
| Parking | $100,000 | $2,000,000 |
| Education/Promotion | $100,000 | $2,000,000 |
| Total | | $17,450,000 |

Source: Wilbur Smith Associates, July 2001
*Does not include cost of signs; costs for actual signs is a capital project

## SIGNAGE PROGRAM

A bicycle route signage program is critical to the successful implementation of the Alameda countywide bicycle route network. The purpose of the signage program is to enable a bicyclist to arrive at the desired destination by following the route signs without having to consult a route map. A countywide signage system will be most effective if it is consistent throughout all jurisdictions in the county, the destination signs to the major attractors are well designed, and the signs are appropriately situated and placed at appropriate intervals. The route sign should include, at minimum, the identifying system logo, route name or number (if appropriate) and a directional arrow. The additional information such as route des-


tination or endpoint, intersecting routes, and distance to the destination or endpoint could be included in the sign design, but must be balanced with the attempt to not overpopulate the streets with signs.

Signing 500 miles of bikeways will be a challenging task. In order to effectively and efficiently sign the entire the countywide route system, it is recommended that a signage program and process be developed with the following goals:

- Achieve consensus on the design of the set of signs to be used including
  - The base sign which has the identifiable county logo, route number (if appropriate) and directional arrow (if needed)
  - Base sign with destination markers and mileage
  - Base sign with identification of intersecting local and regional bicycle routes
- Achieve consensus on the route name and/or number or neither to use on the route signs and future maps
- Achieve consensus on how regional trails should be identified as belonging to the Countywide Bicycle Network
- Identify, in conjunction with the local and regional agencies, the major destinations for which destination signage should be provided
- Identify, in conjunction with the local and regional agencies, the route intersections which should be signed
- Identify, in conjunction with the local and regional agencies, the appropriate locations to install each type of sign
- Consider the possibility of posting additional information in kiosks at some locations, such as: citywide maps or countywide maps that would show bike routes, locations of service facilities, and other useful information
- Address other signage issues such as the use and design of a “Share the Road” sign (see page 5-16)

Assuming the above tasks, the cost for the developing the signage plan is estimated to be $150,000, and cost for installing the signs on the entire network (labor and materials) is estimated to be $2000/mile or $1,000,000. (This averages approximately five signs per mile per direction). The cost for signing the network is included in the capital costs for each route, but if the signage program were to proceed all at once, the one-time cost for developing and implementing the signage program would be $1,000,000.

It is recognized that regional agencies may need to use certain sign styles to identify themselves as the operator of the bikeway. The following recommendations are intended to help guide the process of developing a Countywide Bicycle Route Signage Program.

### Bike Route Sign Design

It is recommended that the Alameda Countywide Bicycle Signage program make use of the new custom G93 Bicycle Route signs (now SG-45). The benefit of the SG-45 sign is the ability to change the identifying logo and thereby customize the sign for each local agency. These signs are widely used in the City and County of San Francisco, and the City of Oakland has installed them in several locations and plans to add more as their route system is further implemented.


**County Route Sign**

### Example Bicycle Guide Signs

Bike route guide signs for the Alameda countywide bicycle route network are illustrated here. As an example, the identifying logo is taken from the logo designed for the Alameda County Congestion Management Agency's web page earlier in this study. If this logo or something similar is used, the county silhouette should be in a color that will contrast with the green of the sign. The bicyclist and hill line should be in black or the green of the sign. As mentioned above, at a minimum, the signs should include the identifying logo, route number, and directional arrow. Since the countywide routes are long and traverse many jurisdictions, it is highly recommended that the signs also include a route destination or the route endpoint (with appropriate directional arrows) and the distance to that destination in tenths-of-miles. The route destination or endpoint can be included on a small sign attached below the main sign or can be included as part of the main sign. The design of the sign should be readable to a bicyclist sufficiently in advance of the decision point.


**Sign at Spur Crossing**

### Route Numbering System

The route numbering system should follow a logical and informative pattern so that the route number itself will provide the user with some basic knowledge of where the route is and where it is going. The proposed numbering system illustrated on Figure 3-1 is for planning purposes only and the route identification systems will be considered in the signage program. The numbering system used on Figure 3-1 is patterned after the established federal highway system, using a system of odd number routes ending in '5' running north-south and even number routes ending in '0' running east-west. Route numbers have been assigned in ascending order from one compass point to the other, i.e. from north to south and from west to east.


**Sign at Route Crossing**

### Spur Routes

A spur route is defined as a relatively short segment leading from a countywide route to a specific destination. The spur route can also serve as a connection between two countywide routes. Spur routes are very useful in the design of a bicycle route network; they can provide bicycle access to a multitude of nearby destinations while the main routes provide continuous travel along a major corridor.

Signage for the spur routes should consist of the same SG-45 signs as recommended for the main routes. It is important to include destination markers on the main route at the point of intersection with the spur route.

A simple system for route numbering for the spur routes is recommended which does not limit the number of spurs available to each route. A spur route of Route 35 would simply be called Route 35 Spur. The bicyclist traveling from Lake Merritt in Oakland to California State University at Hayward would ride south on Route 35 and then turn left onto Route 35 Spur with the destination marker of CSU Hayward. Signs along the spur route would include the spur designation to lessen confusion with the main route. Color can also be used to help differentiate spur route signs from the main routes.

### Accommodating Local and Other Regional Routes

Most of the proposed Alameda countywide bicycle route network is located on streets already designated as bicycle facilities in the city bicycle plans. Some of these routes are existing facilities; the majority are proposed. In addition, several cities have adopted and begun to implement their own route numbering systems. For the countywide and citywide signage and route numbering programs to be effective, they must be adopted consistently throughout the county. Therefore, the following recommendations are made:

**Use both city and county signage and numbering programs on countywide bicycle routes** - By using both the city and county signage and numbering system, the integrity of both are maintained. The city and county signs can be located together on the same poles or placed alternately along the route. Adjacent cities must coordinate their numbering systems to accommodate the routes that cross city boundaries as was done by Albany, Emeryville and Berkeley in their Regional Bike Route Signing Study in 1998.The cities that are not using the SG-45 signs or have no route numbering program may wish to include the responsibility of countywide route signage to implementation of the Countywide Bicycle Plan.

**Creating city spur routes to the county routes** - Many of the city bicycle routes serve as spur routes to county routes. To alert the user that these

routes will lead to a county route, it may be desirable to number these routes with the naming convention for spur routes discussed above.

**Signage at route crossings** - At each intersection with a county or city designated bicycle facility, the county route signs should include the directional signing identifying the route by destination and if applicable, by route number. It may be necessary for clarity to the user to identify crossing routes as city routes, especially if city routes are also numbered.

### Sign Placement Guidelines

The purpose of the signing system is to guide bicyclists along the route; therefore, they are only needed when the route makes a turn. On the other hand, it is imperative that there be a sign whenever the route changes course. Along a long straight stretch of roadway, route signs should be installed about once every mile or so. It may be desirable to install them at city limits also.

It is recommended that a signage program be implemented that is managed by a single entity to ensure that there is consistency across the county and the member agencies. Ideally, the entire route would be signed at the same time. This program would address at a minimum the following issues: countywide logo design; the exact sign placement along the routes, which destinations to include as supplementary plaques, distances to these routes, lettering size for the supplementary plaques, other useful information, and spur route signing.

## MAINTENANCE PROGRAM

Maintenance is necessary to keep the bikeway network effective. It is recommended that there be a maintenance program as part of the Countywide network to help member agencies fund the maintenance of the countywide bikeway network. This would include such issues as: replacing signs as they wear out or are vandalized, sweeping bike lanes and edges of roadways, and detector maintenance.

Formal trails require maintenance similar to roadways and include a variety of features that can result in maintenance costs averaging $18,000 per mile per year. Trail managers are responsible for maintaining trail surfaces within a trail easement (asphalt pavement, gravel), signs, mileage markers, gates, fences, bollards, garbage cans, trees/shrubs, weed abatement, culverts, benches, bridges, information panels, retaining walls, tunnels, drinking fountains and graffiti removal. As an asphalt trail has a life expectancy similar to a roadway, it may need a complete overlay after 30 years. Costs for this overlay can vary from $134,000/mile if the base has failed to $118,000/mile if the base has not failed. Repair of the minimum four-

foot gravel shoulders can add a fee of $4,500 per mile. Interim asphalt trail surface maintenance includes slurry sealing every five years and chip sealing every 20 years.

Funds for roadway maintenance are provided by gas taxes, Measure B local streets and roads program or from a member agency's general fund. The maintenance of bikeway signing and striping is usually a local responsibility or in some cases there are special agencies, such as the EBRPD which maintains some trails. In other cases there are funding programs, such as pavement management, to support county maintenance. There is a need for ongoing funding opportunities for recurring maintenance costs including trail resurfacing since the latter is usually not included in a city's road resurfacing program. The main areas that the maintenance program would address and the approximate costs are presented in Table 4-2.

**Table 4-2**
**PROJECTED MAINTENANCE NEEDS**

| Issues | Unit | Unit Cost | Timing | Quantity | Annual Budget needs |
|---|---|---|---|---|---|
| 1. Signal detector sensitivity fine-tuning | One detector | $200 | As needed | 100 | $20,000 |
| 2. Replace signs | Each sign | $50 | As needed | 100 | $5,000 |
| 3. Repaint stripes and legends | | | As needed | | $50,000 |
| 4. Shrubbery encroachment | Mile | Varies- $500 | As needed | | $50,000 |
| 5. Roadway and Trail sweeping | Mile | $100 | monthly | 450 | $540,000 |
| Annual Total | | | | | $665,000 |
| Source: Wilbur Smith Associates, July 2001 | | | | | |

## BICYCLE PARKING PROGRAM

It is recommended that there be a countywide bicycle parking program to assist member agencies with the funding of bike parking. Since $100,000 is recommended on an annual basis, it is recommended that funds be programmed in five-year cycles. In this way every five years a jurisdiction would receive a proportionate share of the funds. Parking facilities funded out of the County bicycle parking program should meet the design guidelines contained in Chapter 6 for appropriate bike rack designs and placement and quantity. The data in Appendix B-6 and B-7 will help in defining the needs and priorities of the bicycle program.) The parking program should also provide assistance on the following issues:

- model bike parking ordinances
- bike rack vendors
- prioritizing locations for bike racks
- matching the types of parking with land-use (For example, all schools should have fenced areas for bicycle racks that can be locked. Transit stations are better served by bike lockers or bikestations.

## EDUCATION AND PROMOTION PROGRAM

Education is an important component to make a bicycle-friendly community. Adult bicyclists, child bicyclists, motorists and police officers need education about bicyclists' rights and responsibilities, bicyclists need tips on safe bicycling techniques, and motorists need to know defensive driving techniques to avoid collision with bicyclists and pedestrians. Appendix D-1 presents a discussion of outreach strategies for pedestrians and Appendix D-2 contains more detail on Bicycle Education.

The recommendations for bicycle safety education and promotion are limited to those that are appropriate at the county level. Other excellent options are available for city-level or school district programs, but are more appropriate for city bicycle plans.

### 1. Provide Mechanisms for Cities to Share Best Practices

Potential Implementing Agency: Countywide Bicycle Committee

The survey of individual city Police Departments and School Districts identified several active and innovative programs (see Appendix D-2). Providing ways for local agencies to share their knowledge and answer each other's questions would be a valuable way to help initiate local programs. Possibilities include:

- A county-level Bicycle Safety Education resource web page listing all local staff involved in bicycle safety education within Alameda County and other Bay Area counties, plus resources such as print materials, videos, and web links.
- A "Bicycle Safety Network" group that meets quarterly to share information and plan joint events. This might be something that a county public health agency would see as being within its purview.
- A county-level coordination of "Bike-to-Work" week activities

### 2. Incorporate Bicycle Safety in the County's Public Health Program

Potential Implementing Agency: County Public Health Department

Public health programs have historically focused on traditional injury prevention strategies such as seat belts, car seats, and bicycle helmet promotion. Health agencies are beginning to recognize that bicycle driver education prevents injuries - perhaps more than helmets. Operating at the county level, the public health system can provide resources to individual cities.

### 3. Establish County-Level Standards for Age-Stratified Bicycle and Pedestrian Safety Education

Potential Implementing Agency: County Office of Education

The Alameda County Office of Education should consider establishing countywide standards for bicycle safety education programs. These should include skill and practice objectives for each age range, along with a suggested number of hours of on-bike instruction to achieve these competence goals. Bicycle operator education should begin in grades K-2 with "pre-driving" (basic handling, control, and alertness), continue in grades 3-5 with elementary-school commutes on neighborhood streets, and expand to crosstown trips at middle-school age. Older teens can "graduate" to learn job-related commute skills, including how to use bicycles with Alameda County bus and rail transit.

### 4. Establish a County-Level Policy for School Bicycle Commutes

Potential Implementing Agency: Board of Supervisors, Office of Education

With the passage of funding legislation such as the Safe Routes To School bill, more resources are becoming available to improve the safety of human-powered school commutes, including bicycle trips. Many local agencies throughout California already prepare formal "Recommended Walking and Bicycling Route" maps for each school, and define detailed routes for school pedestrian and bicycle commute trips made based on the conditions of their street network. The county can help to make this practice universal by setting a goal for every school to have "Recommended Route" maps for bicycling and walking, and to update these maps based on street and traffic control conditions as needed.

### 5. Explore Subregional Sharing of Bicycle Safety Training Equipment

Potential Implementing Agency: County Bicycle Coordinator, Sheriffs Office

The Dublin Police Department has purchased a trailer to store and transport children's bicycles and helmets to bicycle training sites. Agency-provided bicycles and helmets ensure that children can participate in safety education events even if they do not currently own a working bicycle or a helmet. A county-level effort to assist city police departments and local school districts in equipping and sharing such training equipment trailers could enable more agencies to provide all-important onbike training by sharing costs. These resources could be shared on a subregional or planning area basis.

**6. Equip Police Departments with Improved Handouts**

Potential Implementing Agency: Bicycle Coordinator, Agency TBD

The educational value of police contact with youth and adult cyclists can be maximized if traffic and patrol officers have well-written handouts addressing most common bicycle violations (wrong-way, ignoring traffic controls, riding at night without lights). The handouts should address one behavior or set of related behaviors. Handouts should be available in each language needed to reach Alameda County cyclists: for example, English, Spanish, Vietnamese, and Tagalog.

**7. Capitalize on Existing Annual Promotions**

Potential Implementing Agency: Bicycle Coordinator, Agency TBD

County-level promotion of National Bike Month, Bike To Work Day, Bike To School Day, and Walk Our Children To School Day can help to raise community awareness and further legitimize safe and legal street cycling.

**8. Explore Ways to Offer Bicycle Driver Education Materials at DMV Offices**

Potential Implementing Agency: Bicycle Coordinator, Agency TBD

Although the Department of Motor Vehicles is a state agency, the county may have some success in urging local DMV offices to offer bicycle driver education and legal-requirements information on bicyclist rights and responsibilities at its offices within Alameda County. DMV queues provide a captive audience of motorists who are hard to reach through other channels. Providing posters and flyers would be valuable, recommended formats include FAQ (frequently asked questions) or a multiple choice or true-false quiz.

**9. Traffic School for Motorists**

Potential Implementing Agency: Sheriff's Office/Local Police Departments

Traffic school classes for motorist violators are often coordinated at a countywide level. These could incorporate a short session on safe bicycling, walking and driving; cyclist, pedestrian and motorist rights and responsibilities under the Vehicle Code; and, common cyclist, pedestrian and motorist errors to avoid.

**10. Traffic School for Bicyclists (also known as Bicycle Diversion Training)**

Potential Implementing Agency: Sheriff's Office/Local Police Departments

In lieu of traffic tickets for bicycle infractions, bicyclists should have the options as do motorists to go to traffic school. The focus of the traffic school should be on safe bicycling practices and defensive bicycling. These can be particularly effective for youth cyclists in conjunction with school programs.

**11. Explore Ways To Provide Bicycle Driver Education Messages Aboard AC Transit And BART Vehicles**

Potential Implementing Agency: Sheriff's Office/Local Police Departments

Transit offers an opportunity to increase bicycle use as follows:

- On-board advertising space can be used to deliver informational messages about safe and legal bicycle operation, as well as tips on practical utility cycling and bicycle equipment.
- Post simple flyers explaining how to use the bike racks on AC Transit buses.
- Install a demonstration bus-bike rack at the Transbay Terminal and other high volume areas so that passengers can practice becoming comfortable using the rack before using it for the first time.

**12. Use of non-profits**

Use of non-profit organizations and volunteers can help bring programs to the target audiences cost-effectively.

## SUMMARY OF RECOMMENDED BICYCLE PROGRAMS

Four programs are recommended to complement and enhance bicycle transportation in Alameda County: Signage, Maintenance, Parking, and Education/Promotion.

The Signage Program is estimated to cost $150,000 to design the signage program and $1,000,000 for labor and materials to install the route and directional signs on the 500-mile Countywide bicycle route network.

The Maintenance Program will help member agencies keep roadways and trails at their optimum for bicycle transportation. These item that would be funded include:

- Signal detector adjustment
- Replacement of bike route signs
- Repainting of bike lane stripes and legends
- Trimming of shrubbery encroaching on bike lanes or trails
- Roadway and trail sweeping

This program is estimated to cost $665,000 annually and $13.3 million for the twenty year horizon.

A Bicycle Parking Program would help local agencies fund parking facilities. A total of $2 million is recommended, which would be $100,000 per year for twenty years. The parking funded under this program should conform to the guidelines in Chapter 6.

The Bicycle Education and Promotion Program at the County level would provide assistance and organizational help to local agencies. It is estimated to cost $100,000 per year, mostly in staff time and printed materials.