

ALAMEDA COUNTYWIDE BICYCLE PLAN



“Alameda County will be a community that inspires people of all ages and abilities to bicycle for everyday transportation, recreation and health”

Adopted October 25, 2012

Prepared by the Eisen | Letunic team



www.AlamedaCTC.org

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ACKNOWLEDGEMENTS

Alameda County Transportation Commission (CTC) members

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- Director Greg Harper, AC Transit
- Director Tom Blalock, BART

Alameda CTC staff

- Art Dao, Executive Director
- Beth Walukas, Deputy Director of Planning
- Tess Lengyel, Deputy Director of Policy, Public Affairs and Legislation
- Rochelle Wheeler, Bicycle and Pedestrian Coordinator (consultant to Alameda CTC)
- Diane Stark, Senior Transportation Planner (former)

Alameda CTC Bicycle and Pedestrian Advisory Committee

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- Ann Welsh (Vice-chair)
- Mike Ansell
- Mike Bucci
- Alexander Chen
- Lucy Gigli
- Jeremy Johansen
- Preston Jordan
- Diana LaVigne
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- Sara Zimmerman
- David Boyer (former member)
- Marcy Greenhut (former member)
- Gil Johnson (former member)
- Glenn Kirby (former member)

- Anthony Salomone (former member)
- Tom Van Demark (former member)

Bicycle and Pedestrian Plans Working Group

- Wendy Alfsen, Bay Area Walkable Communities Collaborative / Walk & Roll Berkeley / California Walks
- Eric Anderson, City of Berkeley
- Aleida Andrino-Chavez, City of Albany
- Naomi Armenta, Alameda CTC, Paratransit Program
- Steve Beroldo, BART, Bicycle Planning
- Leigh Bryant, Alameda County General Services Agency
- Dave Campbell, East Bay Bicycle Coalition
- Reh-Lin Chen, City of San Leandro
- Sean Co, Metropolitan Transportation Commission
- Rene Dalton, City of Fremont
- Sean Dougan, East Bay Regional Park District
- Don Frascinella, City of Hayward
- Ina Gerhard, Caltrans, Bicycle Program
- Lee Huo, Bay Trail/ABAG
- Paul Keener, Alameda County Public Works Agency
- John Knox White, TransForm
- Nathan Landau, AC Transit
- Dale Murai, Alameda County Public Health Department
- Shaun O'Bryan, East Bay Bicycle Coalition
- Kunle Odumade, City of Fremont
- Jason Patton, City of Oakland
- Anh Phan Nguyen, Caltrans, Pedestrian Program
- Billy Riggs, UC Berkeley
- Renee Rivera, East Bay Bicycle Coalition
- Peter Schultze-Allen, City of Emeryville
- Sylvia Stadmire, Paratransit Advisory Committee (PAPCO)
- Janis Stephen, City of Pleasanton
- Laura Timothy, BART, Pedestrian Planning
- Karl Zabel, Hayward Area Recreation and Park District

Consultant Team

- Eisen|Letunic: Victoria Eisen, consulting project manager; Niko Letunic, primary author & document layout
- Fehr & Peers: Brooke Dubose, research, goal-setting, cost estimation & prioritization support; Monica Altmaier, cost estimation
- Alta Planning + Design: Lauren Ledbetter, regional and statewide research, goal-setting, cost-estimation & prioritization support
- Lohnes+Wright: Bart Wright, mapping

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See document entitled “Appendices to the Alameda Countywide Pedestrian and Bicycle Plans”

EXECUTIVE SUMMARY

Background and plan purpose

Bicycling is a key component of vibrant, livable, healthy communities, and an integral part of a complete transportation system. Alameda County's first Countywide Bicycle Plan was published in 2001 by the Alameda County Congestion Management Agency, one of the two predecessor agencies to the Alameda County Transportation Commission (Alameda CTC). It was updated in 2006, concurrent with the development of the first Alameda Countywide Pedestrian Plan, by the Alameda County Transportation Improvement Authority, the other Alameda CTC predecessor agency. From 2010 to 2012—as these two agencies merged to form Alameda CTC—both plans were updated, this time in very close coordination. Alameda CTC has updated this plan to identify and prioritize bicycle projects, programs and planning efforts of countywide significance. The plan provides the background, direction and tools needed to increase the number of cyclists and bicycling trips in Alameda County while improving bicycling safety.

Key findings

The chapters on “Existing Conditions” and “Evaluation of Plans, Policies and Practices” contain data, statistics, findings and other information about

the state of bicycling in Alameda County. Below are some of the key findings:

- In 2000 (the latest year for which such data is available), approximately 593,000 bike trips were made every week in Alameda County, or almost 85,000 trips daily. This represented 2% of all trips.
- The bike mode share in Alameda County (2%) is double that of the Bay Area (1%). The number of bike commuters in Alameda County increased by 21% from 2000 to 2006–2008 (compared to an increase of only 2% for all commuters).
- The most common purposes for bike trips in Alameda County are social/recreational (34%), work (19%) and shopping (19%).
- From 2001 to 2008, there was an annual average of 3 bicycle fatalities in Alameda County and 538 bicyclists injured seriously.
- Over the past eight years, bicyclists have made up 2.6% of all traffic fatalities in Alameda County; this is roughly consistent with the percentage of all trips that are made by bike in the county (2%).
- Since 2006, four cities have updated their bicycle or bicycle/pedestrian plan; two cities adopted their first plan, as did the County (for the unincorporated areas). Only one city remains without a bicycle plan.
- Local jurisdictions estimated the cost of their capital bicycle and pedestrian project needs to be

\$520 million; of this, \$219 million, or more than 40%, was from the county's largest city, Oakland.

- The jurisdictions' annual maintenance expenditure for bicycle and pedestrian facilities is \$6.7 million. The annual funding gap is much larger, \$17.2 million; this likely indicates substantial deferred maintenance due to insufficient funds.
- The major obstacles to improving the bicycling environment that were most commonly cited by local-agency staff were inadequate funding, shortage or absence of trained staff and implementation conflicts with other public agencies.
- Four policy areas have emerged or advanced in recent years that will likely contribute significantly to improving the policy landscape for bicycling: complete streets, climate action, smart growth and active transportation.
- A number of policies and practices exist at all levels of government that could be modified to better integrate bicycling into the transportation system.

Plan vision and goals

The plan articulates a vision statement of what bicycling in Alameda County could be like by 2040, with the investments proposed in the plan:

Alameda County is a community that inspires people of all ages and abilities to bicycle for everyday transportation, recreation and health, with an extensive network of safe, convenient and interconnected facilities linked to transit and other major destinations.

In addition, the plan establishes five goals to guide the actions and decisions of Alameda CTC in implementing the plan and a set of more than 40 specific, detailed and implementable strategies designed to attain the plan's goals. Together, the goals and strategies generally define the roles and responsibilities of Alameda CTC in implementing the Bicycle Plan. The five goals are:

1 Infrastructure and design

Create and maintain a safe, convenient, well-designed and continuous countywide bicycle network, with finer-grained connections around transit and other major activity centers.

2 Safety, education and enforcement

Improve bicycle safety through engineering, education and enforcement, with the aim of reducing the number of bicycle injuries and fatalities, even as the number of people bicycling increases.

3 Encouragement

Support programs that encourage people to bicycle for everyday transportation and health, including as a way to replace car trips, with the aim of raising the percentage of trips made by bicycling.

4 Planning

Integrate bicycling needs into transportation planning activities, and support local planning efforts to encourage and increase bicycling.

5 Funding and implementation

Maximize the capacity for implementation of bicycle projects, programs and plans.

Countywide priorities

The Countywide Bicycle Plan establishes countywide capital projects, programs and plans that are intended to implement the plan's vision and goals. They include a "vision network" of countywide bicycle facilities (see Table E.1), a set of priority programs to promote and support bicycling (see Table E.2), and the creation and updating of local bicycle master plans. Because funding is limited, the plan also creates a more constrained "priority network" of capital projects on which to focus capital funding, and proposes to stagger the implementation of the programs.

The vision network consists of 762 miles of bikeways that provide connections between jurisdictions, access to transit, access to central business districts, an inter-jurisdictional trail network and access to "communities of concern" (communities with large concentrations of low-income populations and inadequate access to transportation). Of the total mileage, approximately 394 miles (52%) have been built while 367 miles (48%) are still to be constructed.

Table E.1 | Vision network mileage

Planning area	Built	Unbuilt	Total
North	115	128	243
Central	61	69	130
South	115	49	164
East	103	121	225
Total	394	367	762

Table E.2 | Priority programs

Encouragement and promotion
1. Countywide bicycling promotion
2. Individualized travel marketing
3. Programs in community-based transportation plans
Safety, education and enforcement
4. Safe routes to schools
5. Bicycle safety education
6. Multi-modal traffic school
7. Countywide safety advertising campaign
Technical support and information sharing
8. Technical tools and assistance
9. Agency staff training and information sharing
10. Multi-agency project coordination
11. Collaborative research
Infrastructure support
12. Bike sharing

Costs and revenue

The estimated cost to implement the Countywide Bicycle Plan is approximately \$945 million (see Table E.3). This includes the costs to construct and maintain the bicycle network, to implement the bicycling programs and also to develop and update the bicycle master plans of local agencies. In the next 28 years, Alameda County jurisdictions and agencies can expect approximately \$325 million in funding for bicycle projects and programs included in this plan. The difference between estimated costs and projected revenue for projects in this plan—the funding gap—is

about \$620 million. Put another way, the projected revenue for countywide projects is only 34% of the estimated costs. Changing any of the assumptions for the estimates will change the figures somewhat but will not change the fact that the cost greatly exceeds projected revenue. To begin to address this funding gap, Alameda CTC, through its planning and funding processes, will need to prioritize projects and project types so that the most critical needs are funded first.



Compared to the 2006 Countywide Bicycle Plan vision network which was 549 miles, this 2012 network is 40% larger, which is one of the main reasons that the plan costs and funding gap are significantly higher. This considerable growth in the size of the network is mainly due to making bicycling access to transit a higher priority, which resulted in adding new bikeways to access all major transit stops and stations, and also incorporating the full mileage of the three major countywide trails. Other reasons why total plan costs have increased include using a more detailed methodology for calculating maintenance costs and a large increase in the number of programs. At the same time that the plan costs went up, revenue projections also increased three-fold, mainly due to new revenue sources, such as the Vehicle Registration Fee, and estimating revenue based on historical levels of funding from a more complete set of sources.

Table E.3 | Costs and revenue, 2012–2040

In millions; rounded to nearest \$100,000

Costs*	\$ 943.3
• Construction of capital projects	\$ 684.0
• Maintenance of capital projects	\$ 182.3
• Programs implementation	\$ 71.6
• Local master plans	\$ 5.4
Revenue	\$ 324.3
Funding gap (costs minus revenue)	\$ 619.0

* Include some shared costs with the Countywide Pedestrian Plan (see “Costs and Revenue” chapter).

Next steps

The plan’s “Next Steps” chapter describes 16 priority implementation actions that Alameda CTC will undertake in the first five years of the plan’s life (2013–2017). These actions will begin to make the plan a reality in the near term and set the stage for implementing the plan’s medium- and long-term efforts. The actions, which are listed in Table E.4, fall into three categories: funding, technical tools and assistance and countywide initiatives.

Table E.4 | Implementation actions

Funding
1. Implement the Countywide Bicycle Plan by continuing to dedicate funding and staff time to the plan priorities, and integrating the priorities into the agency’s activities
2. Fund and provide technical assistance for the development and updating of local bicycle master plans
3. Coordinate transportation funding with land use decisions that support and enhance bicycling
4. Pursue additional dedicated funding for bikeway maintenance
Technical tools and assistance
5. Develop resources to support local jurisdictions in adopting and implementing Complete Streets policies
6. Offer regular trainings and information-sharing forums for local-agency staff on best practices in bicycle infrastructure and programs

7. Develop a local best practices resource and other tools that encourage jurisdictions to use bicycle-friendly design standards

8. Offer technical assistance to local jurisdictions on complex bicycle design projects

9. Develop tools and provide technical assistance to help local jurisdictions overcome CEQA-related obstacles

Countywide initiatives

10. Develop and implement a strategy to address how to improve and grow (as feasible) four near-term priority countywide programs: Safe Routes to Schools program, Countywide bicycle safety education program, Countywide bicycle safety advertising campaign and Countywide bicycling promotion program

11. Develop and adopt an internal Complete Streets policy

12. Determine options for modifying the countywide travel demand model to make it more sensitive to bicycling and implement the best feasible option

13. Determine options for revising the Congestion Management Program to enhance bicycle safety and access, and implement the best feasible option

14. Work with the County Public Health Department to consider bicycle data and needs in the development and implementation of health and transportation programs

15. Monitor, evaluate and report on progress annually on implementation of the Countywide Bicycle Plan

16. Conduct research to inform future plan updates and countywide bicycle planning

Performance measures

Lastly, the Bicycle Plan establishes eight performance measures to be used to monitor progress toward attaining the plan goals:

1. Miles of local and countywide bicycle network built
2. Percentage of all trips and commute trips made by bicycling
3. Number of bicycle injuries and fatalities
4. Number of bicyclists in countywide bicycle counts
5. Number of local jurisdictions with up-to-date bicycle master plans
6. Dedicated countywide funds (amount or percentage) for bicycle projects and programs

7. Number of schools with Safe Routes to Schools (SR2S) programs
8. Number of community members participating in countywide promotional and/or educational programs

Plan organization

The Countywide Bicycle Plan consists of seven chapters:

Chapter 1: Introduction

Describes the plan purpose, explains the relationship of the plan to the Countywide Pedestrian Plan and the Countywide Transportation Plan, and describes in more detail each of the plan chapters.

Chapter 2: Existing conditions

Describes the current state of bicycling in Alameda County, with data and statistics on the number of bicyclists and bicycle trips. It also includes sections on bicycle safety; local planning efforts, support programs and advocacy efforts; and implementation of the 2006 plan.

Chapter 3: Evaluation of plans, policies and practices

Summarizes the key plans, policies and practices at all levels of government that affect bicycling (and walking) in Alameda County and evaluates how they promote or hinder nonmotorized transportation, with a focus on the role of Alameda CTC, as the plan's implementing agency. It also discusses practical challenges encountered by agencies in implementing their plans, policies and projects, and suggests ways to overcome those challenges.

Chapter 4: Vision and goals

Establishes a desired vision of bicycling in Alameda County in the year 2040; a set of goals, or broad statements of purpose meant to enable the vision to be realized; and under each goal, more specific and detailed strategies for attaining that goal.

Chapter 5: Countywide priorities

Establishes the bicycle capital projects, programs and plans needed to implement the plan's vision. This chapter also defines the kinds of improvements in each category that will be eligible for funding and

establishes general priorities among them. The capital projects make up a "vision" countywide network of bicycle facilities focused on the following areas: cross-county corridors, access to transit, access to central business districts, inter-jurisdictional trails and access to communities of concern.

Chapter 6: Costs and revenue

Estimates the cost to deliver the bicycle projects, programs and plans of countywide significance, and the revenue expected to be available in Alameda County for these efforts through the plan's 28-year horizon.

Chapter 7: Next steps

Describes the implementation actions that Alameda CTC will undertake in the first five years of the plan's life (2013–2017) to begin to make the plan a reality in the near term and to set the stage for implementing the plan's medium- and long-term efforts. The chapter also outlines the eight performance measures that will be used to monitor progress toward attaining the goals of the Countywide Bicycle Plan.

Plan development and adoption

The Alameda Countywide Bicycle Plan was developed by Alameda CTC in collaboration with several advisory groups, including Alameda CTC's standing Bicycle and Pedestrian Advisory Committee and an ad hoc technical committee convened for this project, the Bicycle and Pedestrian Plans Working Group. The plan was also reviewed and commented on by Alameda CTC's Alameda County Technical Advisory Committee (ACTAC) and the Paratransit Advisory and Planning Committee (PAPCO). Alameda CTC gathered public input primarily by bringing the proposed countywide priorities to local Bicycle and Pedestrian Advisory Committees in all parts of the county for input, and keeping interested people informed about the planning process.

This plan update was developed concurrently with the Alameda Countywide Pedestrian Plan update. Alameda CTC adopted both plans, incorporating them by reference into the Countywide Transportation Plan, and will use them as a guide for planning and funding bicycle and pedestrian projects throughout the county. The plan will continue to be periodically updated, every four to five years.

1 | INTRODUCTION

Why a Countywide Bicycle Plan?

Bicycling is a key component of vibrant, livable, healthy communities, and an integral part of a complete transportation system. Bicycling contributes to creating healthy communities by reducing the number of vehicles on the road—thereby improving air quality—and improving public health, by reducing the rate of obesity, which is linked to heart disease and diabetes. In combination with transit, most destinations are accessible by bicycle, reducing the need for many car trips and increasing mobility for those without a car.

Alameda County is well-suited to bicycling as it has long dry summers and is relatively flat in most of its urbanized areas. Most communities are expanding their bicycle facilities, and the number of people who bicycle is increasing rapidly. At the same time, many streets around the county are unaccommodating to bicycling, and support facilities, such as secure bicycle parking, are lacking.

Almost all Alameda County jurisdictions have local bicycle master plans, which are essential documents for identifying improvements to the bicycling environment that are needed at specific locations and for integrating the concept of bikeability into other local planning documents. By contrast, the

Countywide Bicycle Plan concentrates on identifying and prioritizing bicycle projects, programs and planning efforts of countywide significance, and integrating them into other countywide and regional plans.

Alameda County is well-suited to bicycling as it has long dry summers and is relatively flat in most of its urbanized areas. Most communities are expanding their bicycle facilities, and the number of people who bicycle is increasing rapidly.

Plan development process

The Alameda County Congestion Management Agency (ACCMA), one of the Alameda County Transportation Commission's (Alameda CTC's) two predecessor agencies, published the first Alameda Countywide Bicycle Plan in 2001. The plan was updated in 2006, concurrent with the development of the first Alameda Countywide Pedestrian Plan by the Alameda County Transportation Improvement Authority (ACTIA), the other predecessor agency to Alameda CTC. Between spring 2010 and fall 2012—during which time ACCMA and ACTIA merged to form Alameda CTC—both plans were updated, facilitating close coordination between the two updates.

The merging of ACCMA's and ACTIA's transportation planning, coordination, technical assistance and funding functions is a key development since the original Alameda Countywide Bicycle Plan was published and updated. The resulting agency, Alameda CTC, is therefore extremely well placed to promote bicycling and to assist local agencies, which are responsible for implementing most capital bicycle projects, to do the same.



In content and organization, this plan is quite different from the 2006 Countywide Bicycle Plan. The major changes that were made to the 2006 plan include:

- Updated data to reflect current conditions;
- Revised countywide priority capital projects, including further definition of bicycling access to transit;
- Stronger coordination with the Countywide Pedestrian Plan;
- Increased focus on the implementing agency – the recently merged Alameda CTC – and the role it can play in improving bicycling in the county;
- Integration of new policy areas, such as complete streets and climate protection policies; and
- Significant revision of plan layout and chapters.

The primary groups that guided the development of this plan were Alameda CTC's standing Bicycle and Pedestrian Advisory Committee and an ad hoc technical committee convened for this project, the Bicycle and Pedestrian Plans Working Group. Specific chapters and the full draft plan were also reviewed and commented on by Alameda CTC's Alameda County Technical Advisory Committee and the Paratransit Advisory and Planning Committee.

The public was also engaged in the plan process through presentations at local bicycle and pedestrian advisory committees in all parts of the county, and through a webpage with plan status information, the draft plan documents and opportunities to provide comments.

The Alameda CTC Board reviewed and adopted the Countywide Bicycle Plan in October 2012, incorporating it by reference into the Countywide Transportation Plan.

Plan purpose

The Alameda Countywide Bicycle Plan provides the background, direction and tools needed to increase bicycling throughout Alameda County, while improving its safety. This plan is intended to elevate the understanding and recognition of bicycling in Alameda County, and to guide the planning and allocation of discretionary countywide bicycle funds anticipated through 2040. It seeks to do these by:

- Describing the existing bicycle environment;
- Leveraging local, county, regional, state and federal level efforts that place increasing emphasis on bicycling, as a healthy, climate-friendly and legitimate transportation mode, in the design of transportation and land use projects and programs;
- Crafting a vision with specific goals to further bicycle improvements throughout the county;
- Identifying and prioritizing projects and programs of countywide significance;
- Estimating the cost of and revenue available to deliver these efforts; and
- Laying out a course of action to fund and implement these countywide priorities over the next 4–5 years, or until the plan's next anticipated update.

Relationship to the Countywide Pedestrian Plan

The Countywide Bicycle Plan is a companion to the Countywide Pedestrian Plan in identifying and prioritizing nonmotorized projects, programs and planning efforts of countywide significance and more generally in promoting nonmotorized transportation in Alameda County. The two plans were updated at

the same time and efforts were made to coordinate their development as much as possible. Areas where development of the two plans was coordinated closely include:

- Collection of data on existing conditions (data was collected simultaneously from the same sources, when applicable)
- Document organization (the plans contain parallel chapters, which were written at the same time, and have identical language and information where applicable)
- Evaluation of current policies and practices in nonmotorized transportation
- Development of parallel vision, goals and strategies as applicable
- Categories of projects and areas considered to be of “countywide significance”
- Mapping (maps for the two plans were developed by the same sub-consultant and reviewed concurrently)
- Estimation of costs (primarily for multi-use trails) and projected revenue for implementation
- Presentation of cost and revenue figures (in addition to stand-alone figures, the totals are shown for both plans, to allow a full picture of nonmotorized transportation costs and funding gaps)
- Project management (there was a single project manager for the two plans and the plans were developed by the same team of consultants)
- Document appearance (the two plans have the same general graphic look)

How to use this plan

The Alameda Countywide Bicycle Plan was written for practitioners, policy-makers, community members, advocates, community-based organizations, potential funders and others who have a stake in improving bicycling in Alameda County. Following this introduction are five chapters that provide the detailed information that forms the basis of the plan’s data and analysis. Below are brief descriptions of the plan’s remaining chapters:

2 Existing conditions

Sets the context for the rest of the plan by describing the current state of bicycling in Alameda County, and highlighting the trends and changes since the 2006

plan was adopted. This chapter tackles four questions that are central to understanding and planning for the needs of bicyclists in the county:

- Who is bicycling in Alameda County? (examines bicycling rates by key demographic characteristics)
- How many people are bicycling? (looks at the number of bike trips and commuters in the county)
- Why are people bicycling? (explores the purposes of trips made by bike)
- Where are people bicycling? (analyzes numbers and rates of bicycling trips in specific areas of the county)

The Alameda Countywide Bicycle Plan was written for practitioners, policy-makers, community members, advocates, community-based organizations, potential funders and others who have a stake in improving bicycling in Alameda County.

In addition, the chapter includes sections on bicycle safety; local bicycle planning efforts, support programs and advocacy efforts; and implementation of the 2006 Countywide Bicycle Plan. This chapter provides detailed information which can serve as a reference for public agency staff, advocates and others, for example, for those who want to assemble countywide or area-wide data on bicycling to support a grant application, or for those who are unfamiliar with bicycling conditions in portions of or throughout Alameda County.

3 Evaluation of plans, policies and practices

Summarizes the key plans, policies and practices at the local, county, regional, state and federal levels that affect bicycling (and walking) in Alameda County and evaluates those plans, policies and practices with an eye toward how they promote or hinder bicycling (and walking), with a focus on the role of Alameda CTC, as the plan’s implementing agency. This chapter is essentially identical in both the Bicycle and the Pedestrian Plan.

This chapter also discusses practical challenges encountered by agencies in implementing their plans, policies and projects, and suggests ways to overcome those challenges. Special attention is paid to relevant policy areas that have emerged or advanced in importance in the past five years. In addition to being

used by Alameda CTC, this chapter can be used by local elected officials, transportation and planning commissioners, planning and engineering staff at public agencies to identify obstacles to bicycling and to learn about potential solutions to such barriers.

4 Vision and goals

Establishes a desired vision of bicycling in Alameda County in the year 2040; a set of goals, or broad statements of purpose meant to enable the vision to be realized; and under each goal, more specific and detailed strategies for attaining that goal. Together, the goals and strategies generally define the roles and responsibilities of Alameda CTC with regard to bicycling and are meant to guide the actions and decisions of the agency in implementing the plan and, more generally, in supporting bicycling in the county. This chapter will also be of interest to local elected officials, transportation and planning commissioners and staff at public agencies. It can be used to link the findings of the previous two chapters to opportunities that Alameda CTC has to influence the bicycling environment in Alameda County.

5 Countywide priorities

Establishes bicycle capital projects, programs and plans needed to reach the plan’s vision. Because needs far exceed the resources to implement them, this chapter also defines the kinds of improvements in each category that will be eligible for countywide discretionary funding, and establishes certain general priorities among them. The main departure of this plan from the 2001 and 2006 versions is in the definition of the vision bicycle network. The vision network formerly included a corridor-based countywide bicycle network, rehabilitation of the existing on-street bicycling system, and projects in transit-priority zones. The vision network as defined in this plan includes the following five categories of projects and areas considered to be of countywide significance:

1. Inter-jurisdictional network
2. Access to transit
3. Access to central business districts
4. Inter-jurisdictional trails
5. Access to “communities of concern” (those with large concentrations of low-income populations and inadequate access to transportation)

This chapter will be of interest to local governments, non-profit agencies and other advocates in understanding the countywide bicycle funding priorities.

6 Costs and revenue

Estimates the cost to deliver the bicycle projects, programs and plans of countywide significance described in the previous chapter and the revenue expected to be available in Alameda County for these efforts through the plan’s 28-year horizon. These estimates help determine the funding gap for implementing the plan. The chapter has six main sections: detailed estimated costs to, (i) construct the bicycle vision network, (ii) maintain the network, (iii) implement the bicycle programs and, (iv) develop and update local bicycle master plans; (v) the revenue expected for bicycle projects and programs over the life of the plan; and, (vi) “next steps,” or the priority activities needed to begin implementing the plan. This chapter can be used by Alameda CTC to develop prioritization criteria for the funding sources it administers, so that the most critical needs are funded first, and also to bring attention to the need for additional sources of revenue to implement the plan. Finally, it can be used as a roadmap of next steps towards making the plan a reality.

7 Next steps

Describes the implementation actions that Alameda CTC will undertake in the first five years of the plan’s life (2013–2017) to begin to make the plan a reality in the near term and to set the stage for implementing the plan’s medium- and long-term efforts. The chapter also outlines the eight performance measures that will be used to monitor progress toward attaining the goals of the Countywide Bicycle Plan. This chapter may be used as a roadmap of actions for making the plan a reality.

2 | EXISTING CONDITIONS

Introduction

This chapter sets the context for the rest of the Countywide Bicycle Plan by describing the current state of bicycling in Alameda County, and highlighting changes since the Bicycle Plan was last updated, in 2006. The chapter tackles four questions that are central to understanding and planning for the needs of cyclists in the county:

- **“Who is bicycling in Alameda County?”** examines bicycling rates by key demographic characteristics.
- **“How many people are bicycling?”** looks at the number of bike trips and commuters in the county.
- **“Why are people bicycling?”** explores the purposes of trips made by bike.
- **“Where are people bicycling?”** analyzes numbers and rates of bicycling trips in specific areas of the county, including transit and multi-use pathways.

In addition, the chapter includes sections on bicyclist safety; local bicycle planning efforts, support programs and advocacy efforts; and implementation of the 2006 plan.

The chapter incorporates data from several sources: the 2006 plan; information gathered through a 2010 survey of local jurisdictions; interviews with local, countywide and regional staff, transit agency staff and bicycle advocates; and statistics available as of late

2010 (when this chapter was researched) from regional, state and federal sources. The local jurisdiction survey was administered to all 15 jurisdictions (the County and the 14 cities). It asked about many aspects of existing conditions for bicycling (and walking), including local plans and policies, infrastructure, programs, public involvement, funding availability and need, and challenges and opportunities. Not all questions were answered by every jurisdiction, and jurisdictions responded in varying levels of detail.

The main non-local sources of statistics on bicycling used for this plan were:

- The 2000 Census and 2006–2008 American Community Survey (ACS), for statistics on the number of people who bike to work. The ACS is an annual survey, also administered by the U.S. Census, that replaced the “long form” of the census. This report uses ACS data for the combined years 2006–2008 instead of for 2008 alone; the three-year data is somewhat less up-to-date than the one-year data but is much more accurate because it samples three times as many households. The 2006–2008 ACS does not provide data for unincorporated Alameda County or for jurisdictions with populations under 20,000; in Alameda County, these include Albany, Emeryville

and Piedmont. Some ACS figures regarding bicycling may not be statistically significant because of the small sample sizes involving cyclists. Data from the 2010 Census was not used, since it was not available at the time this information was collected.

- The year 2000 Bay Area Transportation Survey (BATS2000) from the Metropolitan Transportation Commission (MTC), for data on bicycle trips made for all purposes (2000 is the most recent year in which BATS was conducted). It is important to note that BATS significantly undercounts bicycling trips because it does not include trips to or from transit, some of which are made by bike.
- Station profile studies from 1998 and 2008 conducted by the Bay Area Rapid Transit District (BART) to determine, among other things, how passengers access BART stations.
- The California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS), a database of traffic collisions as reported to and collected by local police departments and other law enforcement agencies across the state.

What is "mode share"?

The term "mode share" is used frequently in this chapter. The term, also known as "mode split," refers to the percentage of trips or people using a particular form of transportation, such as bicycling, driving, transit or walking. A bike mode share (or bike share) of 10%, for example, means that 1 out of 10 trips is made by bike, or that 1 out of every 10 people travel by bike.

Key findings

This chapter contains a wealth of data and other information about the state of bicycling in Alameda County. Below are some of the key findings from the chapter:

Who is bicycling in Alameda County?

- Women make only one third of all bicycling trips, or just under half as many as men. Women's bike mode share is less than half that of men (0.9% against 2.1%).

- The bicycling rate is highest among people aged 23–29; excluding the 0–4 age group, the lowest rate is among those 65 years of age and older.
- People in the lowest income group have the highest bike mode share (1.8%) whereas those with the highest incomes bike the least.

How many people are bicycling?

- In 2000 (the latest year for which such data is available), approximately 593,000 bike trips were made every week in Alameda County, or almost 85,000 trips daily. This represented 2% of all trips.
- If biking trips to or from transit are included, the weekday number of bike trips in the county increases by almost 77,000; this includes 57,000 to AC Transit stops and 20,000 to BART stations.
- The bike mode share in Alameda County (2%) is double that of the Bay Area (1%).
- The number of bike commuters increased by 21% from 2000 to 2006–2008 (compared to an increase of only 2% for all commuters) and the bike mode share for commute trips rose from 1.2% to 1.5%.

Why are people bicycling?

- Most bike trips in Alameda County are for social/recreational purposes (34%), followed by work (19%) and shopping (19%).
- The bike mode share was highest for social/recreational trips (3%) and lowest for shopping (1%).
- Significant physical barriers to bicycling in the county include auto and rail infrastructure such as highways, interchanges and railroads. Key gaps include missing segments along multi-jurisdictional paths and trails.

Where are people bicycling?

- A full three quarters of all bicycle trips in the county are in the North planning area, well over its population share of 42%. Very few people are bicycling in Central and South county; those areas account for almost 50% of the population but only 13% of the county's bike trips.
- The North planning area has the highest bicycling mode share (3%), while the Central area has the lowest (0.5%). Berkeley has by far the highest percentage of commuters on bike (6.6%).
- The bike access share for BART stations in the county increased by almost a third from 1998 to 2008 (from 3% to 4%). In 1998, only one station had

a bike access share higher of 5% or greater; in 2008, five did: Ashby, Fruitvale, North Berkeley, MacArthur and Lake Merritt.

- The seven top stations with the highest share of bike access trips in 2008 are in the North planning area. The three stations with the lowest bike access share include 12th Street, Fremont and Union City.
- Almost 40% of all bike trips in the Bay Area are ten minutes (2 miles) or less. Three-quarters of all bike trips are 20 minutes (4 miles) or less.

Bicyclist safety

- From 2001 to 2008, there was an annual average of 3 bicycle fatalities in Alameda County and 538 bicyclists injured seriously or visibly.
- Most of the collisions occur along an arc from central Berkeley to downtown Oakland.
- Over the past eight years, bicyclists have made up 2.6% of all traffic fatalities in Alameda County; this is roughly consistent with the county's bike mode share (2%).
- The North planning area has a much lower share of the county's bike collisions than of bike trips. Central County has a much higher share, South County a somewhat higher share and East County a somewhat lower share.
- The North area has the fewest collisions per 100 bike commuters, while the South area has the most.
- Children (17 years old and under) represented one-quarter of bicyclists killed or injured; seniors represented under 5%.
- In 2004–2008, more than 40% of bicycle fatalities and injuries from collisions occurred in the afternoon and evening, a period covering only four hours (4–8 pm).

Support facilities

- Four cities have bicycle parking ordinances: Oakland, Hayward, Pleasanton and Union City. Almost all jurisdictions have installed at least some bicycle racks or lockers.
- BART provides racks at all its stations in the county; lockers at all stations except 12th Street and 19th Street in Oakland and Downtown Berkeley; and bike stations at Downtown Berkeley and Fruitvale.
- Berkeley, Emeryville and Oakland have bike-route signage programs.

Planning, programs and advocacy

- Eight jurisdictions updated their bicycle or bicycle/pedestrian plan since 2006, while Dublin and Pleasanton adopted their first plan, as did the County (for the unincorporated areas). Other than Newark, which is in the process of developing a combined bicycle/pedestrian plan, only one city—Piedmont—remains without a bicycle plan.
- In addition to jurisdictions, the University of California at Berkeley has a campus bicycle plan.
- Almost every local jurisdiction administers one or more bicycle support programs in the areas of safety, law enforcement, education and encouragement. Nine cities and the County conduct safe routes to school activities, while six cities have a traffic calming program with dedicated funding.
- One new bicycle advocacy group has been established since 2006: Walk Oakland, Bike Oakland.



Funding needs

- Almost every local jurisdiction cites lack of funding as a major barrier to making bicycle improvements. Jurisdictions have reported approximately \$145 million, combined, in funding needs.

Implementation of the 2006 plan

- Seven jurisdictions reported implementing projects on the countywide bicycle network: Albany, Fremont, Hayward, Livermore, Oakland, Pleasanton and Union City.
- Countywide support programs implemented since 2006 include the Safe Routes to Schools (SR2S) Alameda County Partnership; bicycle safety classes offered by the East Bay Bicycle Coalition and BikeAlameda; expanded Bike to Work Day

(BTWD) events and the “Ride into Life” advertising campaign in support of BTWD.

- By far, the challenges most commonly encountered by local jurisdictions in implementing the priorities in the 2006 plan are insufficient funding and staff time, and right-of-way constraints.

Who is bicycling in Alameda County?

To answer this question, it helps to examine some key demographic characteristics of bicyclists, namely gender, age group and income level. The data show, for example, that men ride bikes much more often than women, and young adults more often than other age groups.

By gender

Table 2.1 shows that in Alameda County (as in the U.S. as a whole) far fewer women ride bikes than men.

Table 2.1 | Bike mode share by gender

Source: BATS2000

	Share of the population	Share of all biking trips	Bike trips as % of all trips
Women	51%	33%	0.9%
Men	49%	67%	2.1%

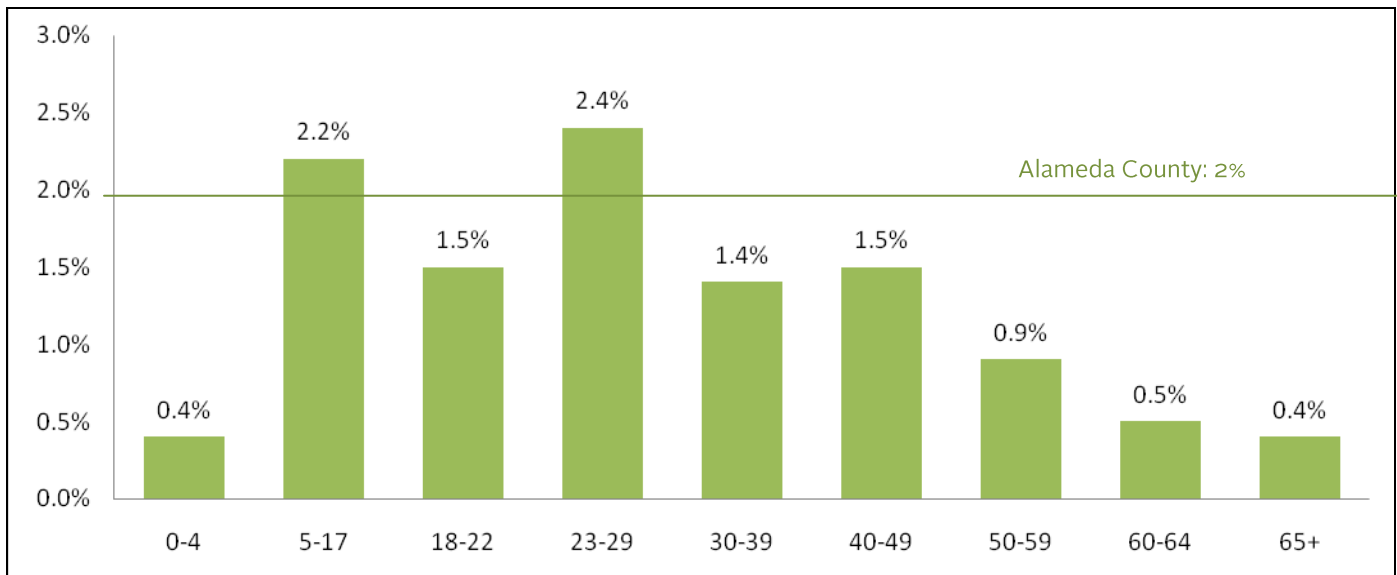
- Women make only one third of all bicycling trips, or just under half as many as men. This split is significantly different than the overall gender split in Alameda County (51% women, 49% men).
- Women’s bike “mode share” (bicycling trips as a percentage of all trips) is less than half that of men (0.9% versus 2.1%).

By age group

Bicycling rates vary greatly across age groups. Figure 2.1 below shows the bike mode share in Alameda County for all age groups.

Figure 2.1 | Bike mode share by age group

Source: BATS2000



- The bicycling rate is highest among people aged 23–29 and among school children (ages 5–17). Excluding the 0–4 age group, the rate is lowest among the oldest group, those 65 years of age and older.

- From young adulthood, people are biking less as they age. The bicycling rate peaks among the 23–29 age group and declines more or less steadily with each successive age group.

Bicycling and social equity

Low-income individuals are more likely to live in neighborhoods where jobs, medical services, grocery stores and other important everyday destinations are scarcer. People in these neighborhoods may be forced to travel elsewhere for goods and services, but they may not own cars, and their finances are more likely to be stretched by the cost of transportation. At the same time, these areas may face disproportionate risks, real and perceived, from traffic or crime; and low-income individuals may lack the time and money for activities that promote a healthy lifestyle, such as taking part in organized sports or joining a gym.

For low-income populations, bicycling may be a lifeline, since it is a particularly healthy and affordable transportation option. (As mentioned earlier, low-income individuals are slightly more reliant on biking for their trips.) For this reason, such populations have an especially urgent need for a dense network of safe bikeways, and other bicycling facilities and amenities; safe places to lock bicycles; and injury-prevention information and access to helmets and locks.

As local governments try to design bikeable communities, they will need to ensure that low-income populations (including non-English speakers) also have access to choices and opportunities for bicycling. The “Evaluation of Plans, Policies and Practices” chapter provides additional information on bicycling and social equity, in relation to the Metropolitan Transportation Commission’s communities of concern and of community-based transportation plans.

For further reading

- “Life and Death from Unnatural Causes: Health and Social Inequity in Alameda County” (Alameda County Health Department): <http://www.acphd.org/media/53628/unnatcs2008.pdf>
- “Active Living and Social Equity: Creating Healthy Communities for All Residents” (International City/County Management Association): <http://bookstore.icma.org/freedocs/Active%20Living%20and%20Social%20Equity.pdf>

By income level

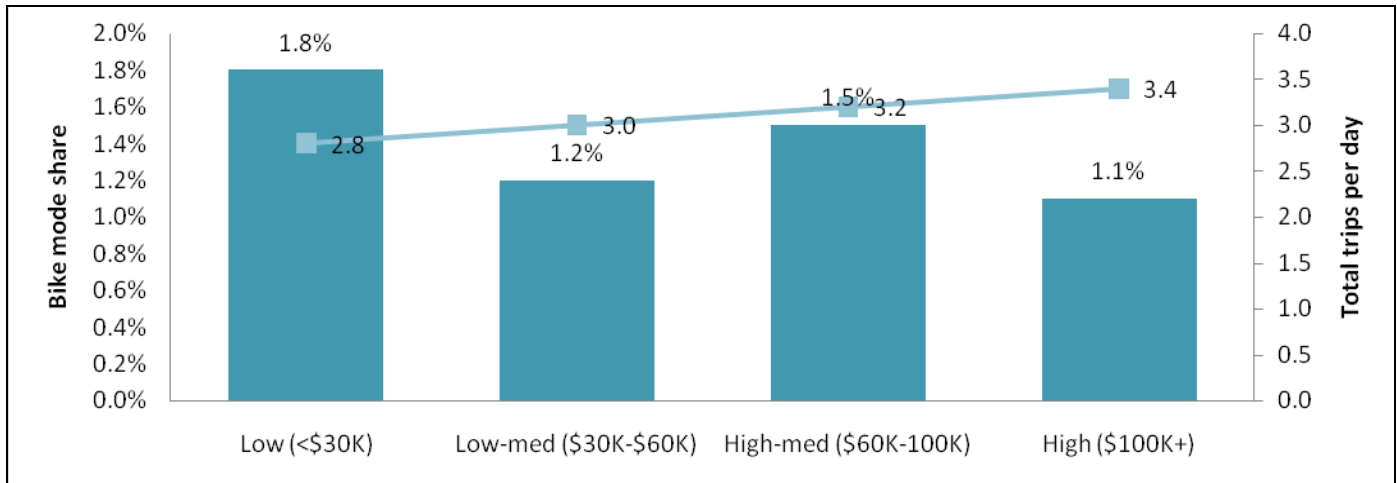
Figure 2.2 below shows the bike mode share in Alameda County by income group (left axis, with dark blue bars; on the right axis, with light blue line and points, are total trips made per person per day for all modes). It shows that as income goes up, total trips made per person per day increase steadily, while the bike mode share exhibits a general downward trend.

- Of all the income groups, people in the lowest income group have the highest bike mode share (1.8%); followed by those in the “high-med” range (1.5%). Those with the highest incomes bike the least (1.1%).
- In absolute terms, the percentage of people in the lowest-income group who bike (1.8%) is only slightly higher than in the highest-income group (1.1%, or a difference of only 0.7%). In relative terms, though, it is significant: a person in the lowest-income group is more than 60% more likely to ride a bike than a person in the highest-income group.

Figure 2.2 | Bike mode share by income level

Source: BATS2000

Dark blue bars indicate bike mode share; light blue line and points indicate total trips per day



How many people are bicycling?

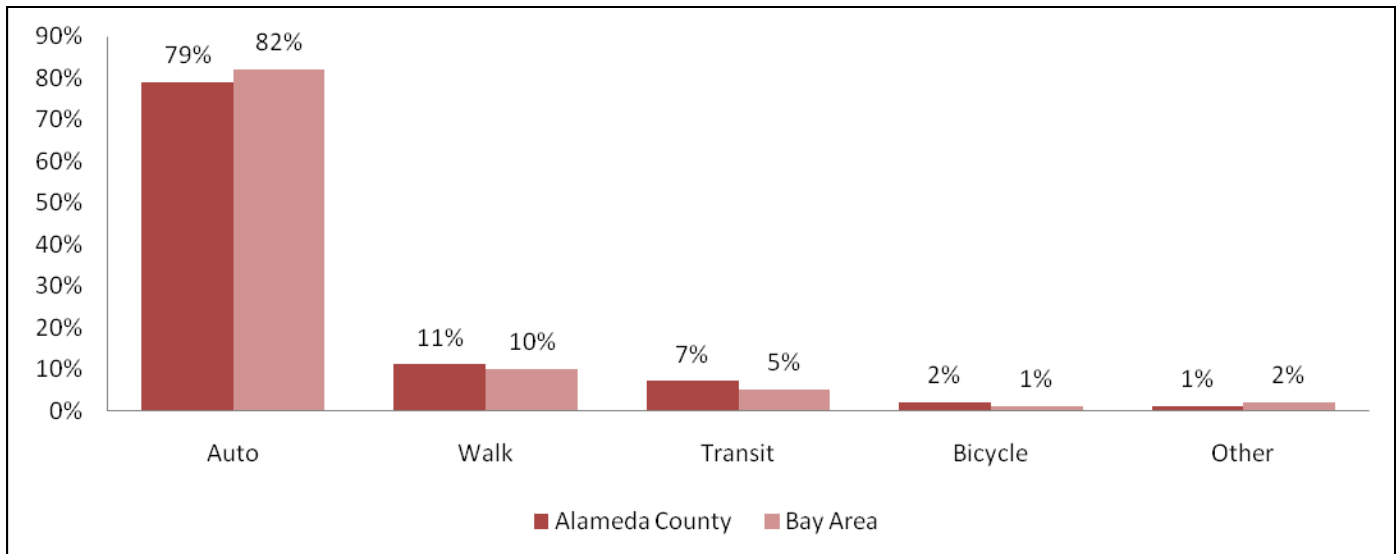
Bicycle trips

On average, Alameda County residents bicycle more than residents of the Bay Area as a whole. According

to BATS2000, approximately 593,000 biking trips were made every week in Alameda County in 2000, or almost 85,000 trips every day. This represented 2% of all trips (see Figure 2.3; see Appendix B for more detailed information, including by area of the county).

Figure 2.3 | Mode share for all trips

Source: BATS2000



It should be noted that these figures significantly undercount the number of bicycle trips. BATS does not include bicycling (or walking) trips to or from

transit, since in those cases transit is considered the primary form of travel. If bicycle trips to/from transit are included, the weekday number of bike trips in

Alameda County increases by almost 77,000, to a total of 162,000 trips per day. This data includes nearly 57,000 daily bike trips to AC Transit bus stops (according to the agency’s 2002 On-Board Transit Rider Survey) and approximately 20,000 to BART stations (2008 Station Profile Study).

- In Alameda County, as in the Bay Area as a whole, bicycling represents a small share of all trips (though growing, based on journey-to-work information from the U.S. Census Bureau; see next section).
- The bike mode share in Alameda County (2%) is double that of the Bay Area (1%).

Bicycle commuters to work

More recent U.S. Census data is available about commute trips, allowing the opportunity to see trends since 2000, albeit on a small percentage of all bike trips. Work commute trips represent only a quarter to a fifth of all trips, and of these few are made by bike. According to the Census, approximately 1.5% of work commuters in Alameda County biked to work in 2006-2008, an increase of .3% from those that biked to work in 2000 (see Table 2.2 and Figure 2.4; see Appendix C for more detailed information):

Table 2.2 | Journey-to-work mode share

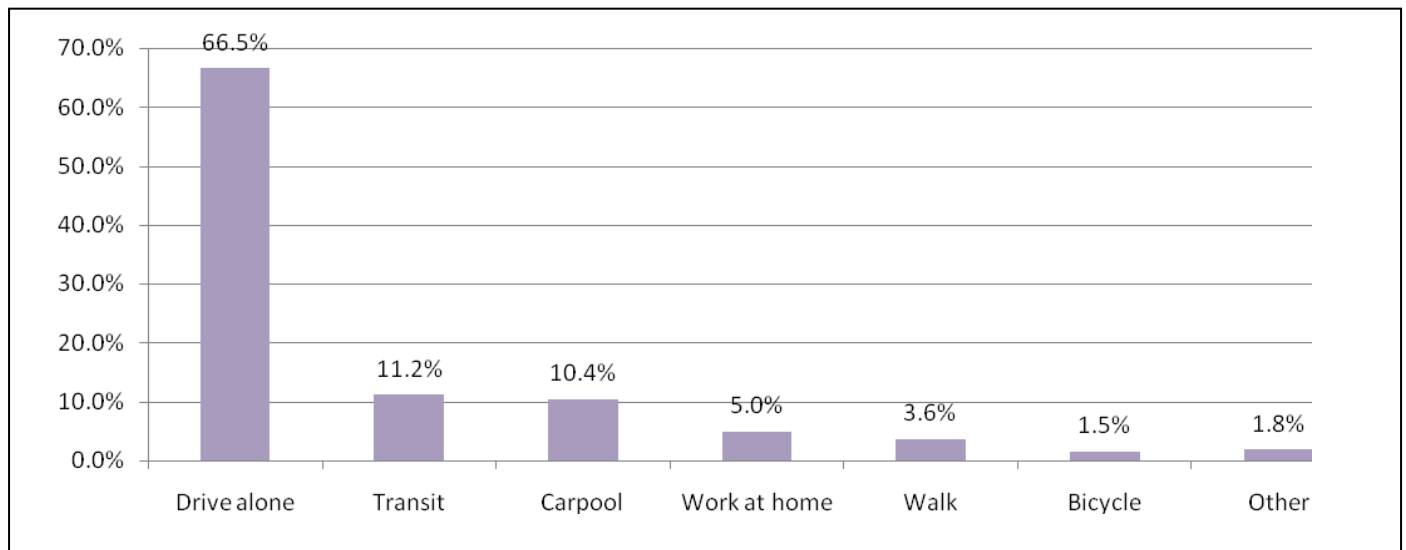
Sources: 2000 Census, 2006–2008 ACS

	<i>Alameda County 2000</i>	<i>Alameda County 2006–'08</i>	<i>Bay Area 2006–'08</i>
Drive alone	66.4%	66.5%	67.8%
Carpool	13.8%	10.4%	10.4%
Transit	10.6%	11.2%	10.0%
Work at home	3.5%	5.0%	5.3%
Walk	3.2%	3.6%	3.6%
Bicycle	1.2%	1.5%	1.3%
Other	1.2%	1.8%	1.6%

- The bike to work mode share increased from 1.2% to 1.5% from 2000 to 2006-2008. While this is a modest uptick in mode share, it represents a significant increase of 21% in the number of bicycle commuters, from 8,385 to 10,132. (By comparison, the number of all commuters countywide increased by just 2% during the same period.)
- The bike mode share in Alameda County (1.5%) is somewhat higher than for the Bay Area as a whole (1.3%).

Figure 2.4 | Journey-to-work mode share

Source: 2006-2008 ACS



Bicycle counts

Routine bicycle counts are useful in gauging changes in the number of people bicycling over time. Alameda CTC has conducted bicycle counts every two years since 2002 at a dozen intersections around the county.

In addition, UC Berkeley's Safe Transportation Research & Education Center (SafeTREC) and Alameda CTC collaborated on pedestrian and bicycle counts in 2008 and 2009 at 50 and 30 locations respectively. In 2010 and 2011, Alameda CTC and MTC counted bicyclists at a combined 63 locations throughout the county, some of which have been counted in the past, providing an opportunity to see longer-term trends. Between 2002 and 2011, bicycle counts increased by 75% at nine overlapping locations.

In the future, the annual count effort being done at a larger number of locations will allow an even more accurate assessment of countywide trends in bicycling levels. Also, continuous 24-hour automated counts are being conducted by the East Bay Regional Park District along their multi-use pathways, and along other trail facilities by Alameda CTC.

Why are people bicycling?

This section provides information primarily on the purpose of bike trips made by Alameda County residents, on bicycling to transit and on physical obstacles that prevent people from biking.

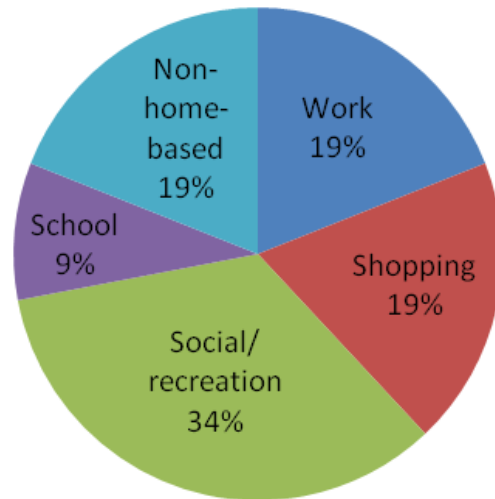
Trips by purpose

MTC's data from 2000 provides information on the purpose of bike trips made by Alameda County residents (see Appendix B for more detailed information). The survey broke down all trips into those that start or end at home (called "home-based") and those that start and end somewhere else; for example, a lunch-time errand from the office (called "non-home-based"). Home based trips were further broken down into trips to or from work, shopping,

social/recreation, or school (again, BATS does not include biking trips to or from transit).

Figure 2.5 | Bike trips by purpose

Source: BATS2000



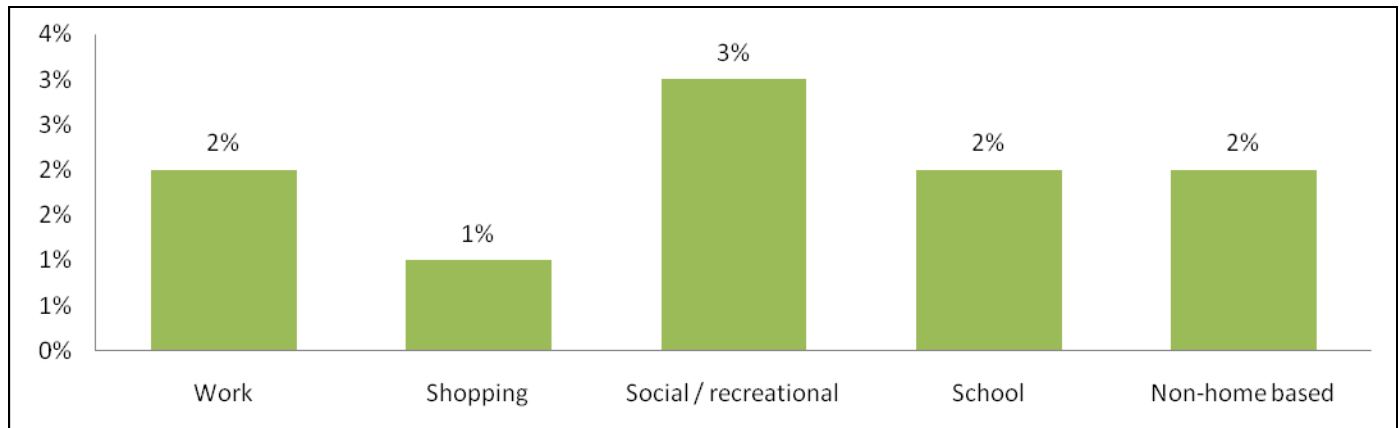
- The most common purpose of bike trips in Alameda County, by a wide margin, was social/recreational (34%; see Figure 2.5). The least common purpose was going to school (9%). Trips to work, shopping trips and non-home-based trips were all equally common (19%).
- Home-based bike trips were more than four times as common as non-home-based trips (81% against 19%).

Another way to look at the same numbers is by examining the percentage of people who rode bikes for each trip purpose (see Figure 2.6 below).

- The bike mode share was highest for social/recreational trips (3%), not surprising given the number of people who enjoy going on recreational bike rides; it was lowest for shopping trips (1%), perhaps because shopping by bike requires panniers, or other means for carrying items, which some people do not have on their bikes.
- The bike mode share was approximately the same for work, school and non-home-based trips (2%).

Figure 2.6 | Bike mode share by trip purpose

Source: BATS2000



Bicycling and transit

Transit allows bicyclists to travel beyond their typical range, enabling them to make trips that might be impractical by bike alone. The East Bay is fortunate to have relatively extensive transit service, provided by a number of agencies, or “operators,” shown in Table 2.3 below. As recently as 15 years ago, bicycle parking at transit stations and on-board bike access was still a rarity in the Bay Area. Today, however, every operator in Alameda County accommodates bikes on board their vehicles and just about every major transit station in the county has dozens of bicycle racks and lockers.

There have been several significant developments related to bicycling and transit since 2006:

- In 2009, AC Transit published a bicycle parking study identifying its bus stops that have a high latent demand for bicycle parking and including guidelines for local jurisdictions on the design and installation of secure and accessible parking at those locations.
- BART has installed a bike station (attended bicycle parking service that provides additional services and amenities for cyclists, including bike repair) at the Fruitvale station. BART and the City of Berkeley collaborated in expanding and moving the bike station at the Downtown Berkeley BART station above ground in 2010.

- BART is piloting the use of designated bike space in some of their rail cars.
- BART has also installed a significant number of new shared-use electronic lockers, or e-lockers— which are rented on an hourly basis— in Alameda County. The new lockers, which are meant to replace single-use lockers, have been installed at all BART stations in Alameda County except Downtown Berkeley.
- The City of Alameda installed electronic lockers at the Harbor Bay Ferry terminal; Berkeley installed e-lockers at the Berkeley Amtrak stop; and Oakland installed electronic lockers at the 12th Street and 19th Street BART stations.

At the same time, transit operators are struggling in the face of funding shortfalls as a result of the ongoing economic downturn. The region’s two largest operators instituted service cuts and fare increases in 2009 and 2010. AC Transit raised fares 15–25 cents in 2009 and in 2010 instituted two rounds of service cuts. In 2009, BART reduced service at night and on weekends, raised fares and began a parking charge at eight more station lots in the East Bay. Cutbacks in transit service are likely to result in fewer people taking fewer rides. Given that many bike trips are combined with transit, these cutbacks could also result in fewer daily bike trips being made in Alameda County.

Table 2.3 | Bike access on transit

<i>Operator</i>	<i>Service area</i>	<i>Stops or stations in the county</i>	<i>Daily ridership(system-wide; FY 2009–10)</i>	<i>Bicycle access on vehicles</i>
Alameda-Contra Costa Transit District (AC Transit)	Alameda County (with the exception of the Tri-Valley), Contra Costa County and San Francisco	6,500 (both counties)	236,000	<ul style="list-style-type: none"> • Bike racks on buses (including racks that hold 3-bikes) • On Transbay buses, bikes may be stored in the cargo bays • Folding bikes allowed inside at all times; other bikes, at the driver's discretion
Altamont Commuter Express (ACE)	Tri-Valley and Fremont to the San Joaquin Valley and San Jose	1	3,700	Each train has a bike car, with additional space provided on regular coach cars
Amtrak/Capitol Corridor	Berkeley, Emeryville, Oakland, Hayward, Fremont to Sacramento and San Jose	6	4,400	Bike racks on most coach cars; bikes may also be stowed in the undercarriage
Bay Area Rapid Transit (BART)	Berkeley, Oakland, San Leandro, Hayward, Union City, Fremont, Castro Valley, and Dublin/Pleasanton to San Francisco and Contra Costa and San Mateo counties	19	350,000	Bikes allowed on trains, with restrictions during peak hours on some trains and at some stations
Dumbarton Express	Union City, Fremont and Newark to San Mateo County	4	873	Bike racks on buses; bikes also permitted inside at the driver's discretion
Emery Go Round	Emeryville	25	n/a	Bike racks on buses; bikes also permitted inside at the driver's discretion
Livermore Amador Valley Transit Authority (LAVTA; Wheels)	Dublin, Pleasanton and Livermore	500	4,500	Bike racks on buses; bikes also permitted inside at the driver's discretion
Union City Transit	Union City	165	1,637	Bike racks on buses
Water Emergency Transportation Authority	Alameda (city)/Oakland to San Francisco and South San Francisco; Harbor Bay to San Francisco	3	2,125	Bike racks on board

Physical barriers and connectivity gaps

A different way to look at this section is, “Why aren’t more people bicycling?” Some of the most common reasons—including lack of facilities, concerns about traffic safety and long distances—are at least partly related to the existence of physical barriers or connectivity gaps.

Below is a list of significant physical barriers in Alameda County mentioned by local jurisdictions in the 2010 questionnaire. The majority of them are

automobile and rail infrastructure—highways, freeways, railroads and interchanges. Freeways are a widespread obstacle for bicyclists, often creating an impassable barrier stretching several miles or more, with limited crossings that are most commonly built primarily with fast auto traffic in mind. Many freeway interchanges do not include safe and convenient bicycle facilities, and retrofitting them to be more accessible is very costly.

North planning area

- Interstates 80, 580, 880 and 980
- State Routes 24 and 13; San Pablo Avenue
- Railroad tracks in Alameda, Albany, Berkeley, Emeryville and Oakland
- Freeway and railroad crossings (Albany specified the Gilman Street interchange)
- Bay Trail gaps throughout the planning area

Central planning area

- Interstates 580 and 880
- Railroad tracks
- San Leandro specified the I-880 interchanges at Davis Street, Marina Boulevard and Washington Avenue; and the Union Pacific Railroad Oakland Subdivision underpasses on Washington Avenue and San Leandro Boulevard

South planning area

- Interstates 880 and State Route 84
- Union Pacific railroad tracks
- Various creeks and canals

East planning Area

- Interstates 580 and 680

Connectivity gaps refer to missing bicycle connections or segments along bicycle routes, such as multi-use paths. Major connectivity gaps in Alameda County cited by local jurisdictions include:

North planning area

- San Francisco-Oakland Bay Bridge
- Lake Merritt channel (Oakland)
- Oakland Estuary waterfront (Oakland)

South planning area

- Bay Trail gap between south Fremont Boulevard and Dixon Landing Road (Fremont)
- A number of trail segments along creeks and canals

East planning Area

- Along the Iron Horse Trail crossing Santa Rita Road, the intersection of Stanley Boulevard at Valley and Bernal avenues (Pleasanton)
- Arroyo Mocho Creek at Stoneridge Drive (Pleasanton)
- Intersection of the Alamo Canal and Tassajara Creek trails and I-580 (Dublin)

Bicycling and health

Decades of car-oriented development in the U.S. have caused Americans to replace daily active transportation, such as bicycling and walking, with driving. In combination with busy lifestyles, finding time to re-incorporate physical activity back into daily life is a major challenge. As a result, physical activity is at an all-time low.

According to California Active Communities, “In California, physical inactivity is by a large margin the most prevalent chronic disease risk factor with more than 50% of adults reporting a sedentary lifestyle, contributing to an estimated 30,000 deaths each year.” According to the Alameda County Public Health Department, over half the county’s population (52%) is considered overweight or obese, while 22% of children are clinically obese. The California Center for Public Health Advocacy estimates that the cost in health care and lost productivity associated with overweight, obesity and physical inactivity in Alameda County in 2006 was \$2.2 billion.

Social awareness and the will to make active transportation more attractive and accessible to Americans is growing, especially in the Bay Area. Bicycling, as an enjoyable form of physical activity, promises multiple public health benefits. Physical activity helps prevent or control chronic diseases such as high blood pressure, heart disease, stroke, diabetes and certain cancers; helps maintain a healthy weight; and improves mood, lowers stress level and reduces depression. The study referenced at the end of this text box found that states and cities with higher rates of walking and cycling had a higher percentage of adults who achieved recommended levels of physical activity and a lower percentage of obese or diabetic adults.

In spite of these benefits, many communities are not conducive to bicycling. Often they have been designed primarily with motorists in mind. An important strategy for improving bikeability is to provide a safe and interconnected network of on-street bike lanes, bike boulevards, and off-

street paths and trails that connect bicyclists to jobs, schools, stores, transit and health-promoting destinations such as parks, recreation centers and health clinics. Other measures to improve bikeability include:

- Abundant and well-designed bicycle parking at destinations.
- Convenient access to transit stations and stops, as well as onto buses, trains and ferries.
- Traffic calming in residential neighborhoods and reductions in traffic speeds.
- Compact, mixed-use neighborhoods, to reduce distances for cyclists.

For further reading: "Walking and Cycling to Health: A Comparative Analysis of City, State, and International Data" (American Journal of Public Health): <http://ajph.aphapublications.org/cgi/content/abstract/100/10/1986>

Alameda County planning areas

For planning purposes, the Alameda County Transportation Commission divides the county into four planning areas, as follows (in parentheses is their approximate population in 2010):

- **North County** (600,000): Alameda (city), Albany, Berkeley, Emeryville, Oakland and Piedmont
- **Central County** (350,000): Hayward and San Leandro, and surrounding unincorporated areas of the county
- **South County** (390,000): Fremont, Newark and Union City
- **East County** (170,000): Dublin, Livermore and Pleasanton, and surrounding unincorporated areas

Where are people bicycling?

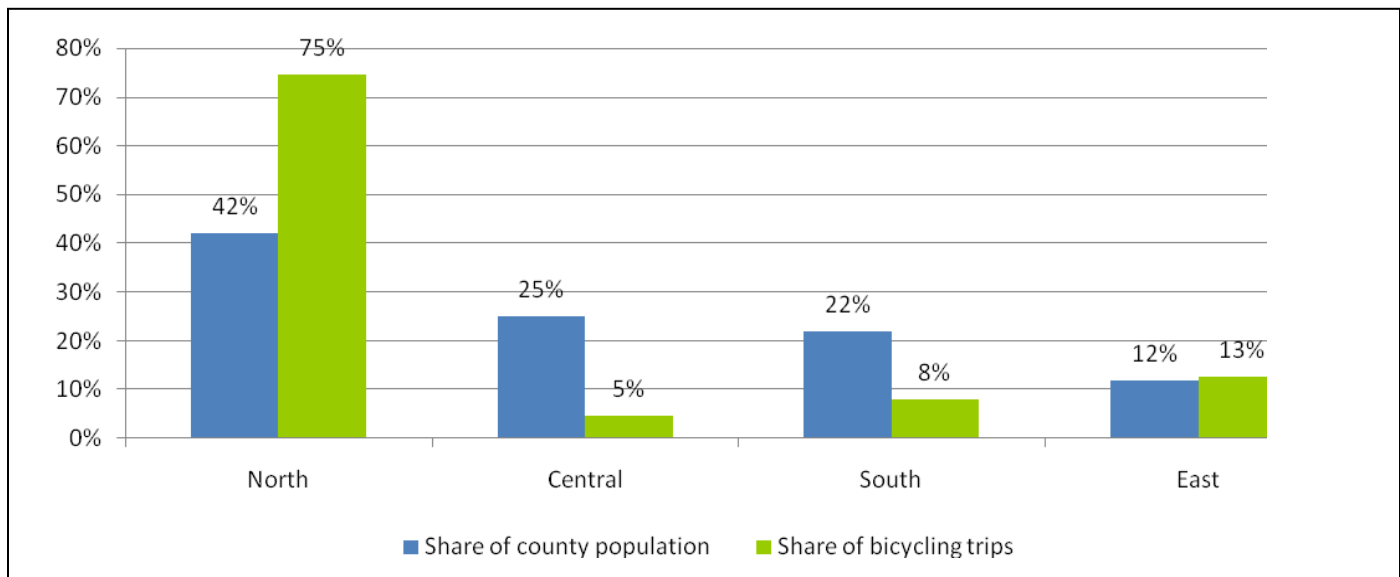
This section looks at the number of bicyclists and bike trips by specific areas of the county, including the county's four planning areas, its 15 jurisdictions and its 20 BART stations.

By planning area

Figure 2.7 below shows the percentage of bike trips that were made in each planning area. For comparison purposes, the chart also shows each planning area's share of the county's population:

Figure 2.7 | Share of county population and biking trips by planning area

Sources: 2000 Census, BATS2000



- A full three quarters of all bicycle trips in the county are in the North planning area (75%), well over its population share of 42%.
- The East planning area is the only other area with a higher share of the county’s bicycling trips than its share of the population (13% versus 12%).
- Few people are bicycling in Central and South county. While almost 50% of the county’s population lives in these two areas, only 13% of all of the county’s bicycle trips take place here.

Bicycling and the built environment

There are many factors that affect how often and how much people bicycle, from their age and health conditions to hills and the weather. In addition, many aspects of the built environment have a strong effect on people’s decision to bike. The following characteristics are

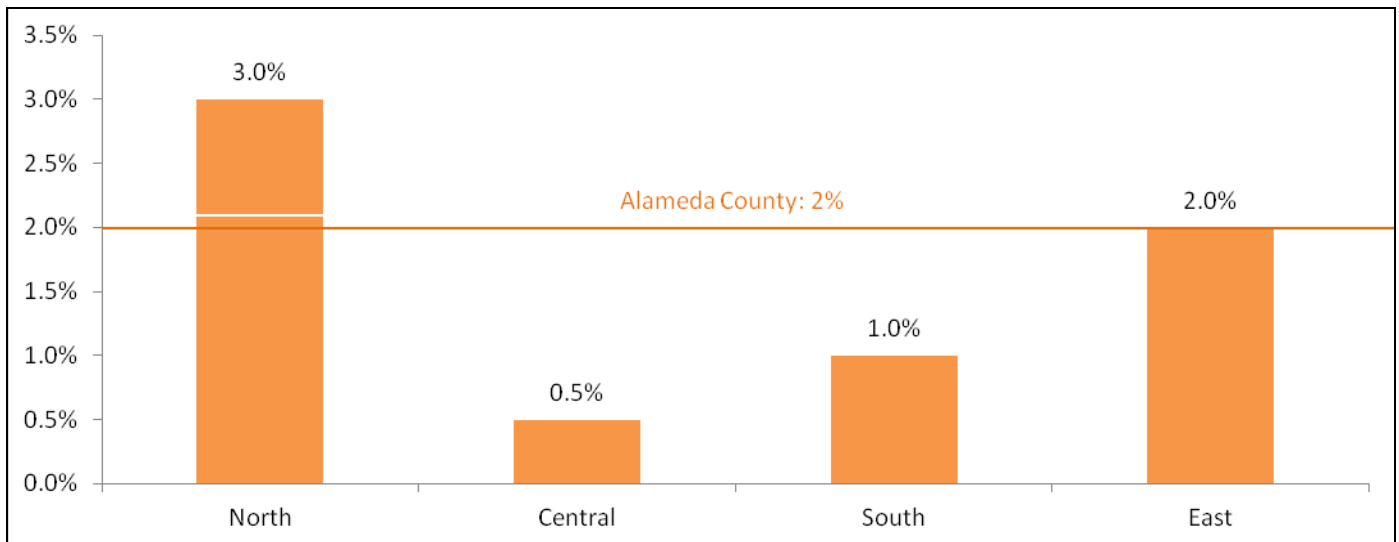
associated with higher bicycling rates and help explain some of the difference in the bicycling rates of the four county planning areas:

- Interconnected bicycle facilities such as on-street bike lanes, bike boulevards, and off-street paths and trails
- Safe parking racks at destination
- A grid street system, short blocks and narrower streets, with lower-speed traffic
- Higher-density neighborhoods, especially ones that integrate different activities (homes, jobs, shops and parks, for example); in these neighborhoods, distances between destinations are shorter

Another way of looking at the data is what percentage of people are biking in each planning area, as seen in Figure 2.8 below.

Figure 2.8 | Bike mode share by planning area

Source: BATS2000



- The North planning area has the highest bicycling mode share (3%), while the Central area has the lowest (0.5%). In absolute terms, this range is small (2.5%); however, in relative terms, it is significant: the bike mode share in the North area is six times greater than in Central county.
- The North planning area has a higher bicycling mode share than Alameda County’s as a whole, while the East planning area’s mode share is

comparable to the county’s. The mode share in the South planning area is approximately half the county’s, while that in the Central planning area is less than a quarter.

- The high rate of bicycling in the North planning area can be attributed to several factors, including more compact communities, good access to transit and a large student population at UC Berkeley.

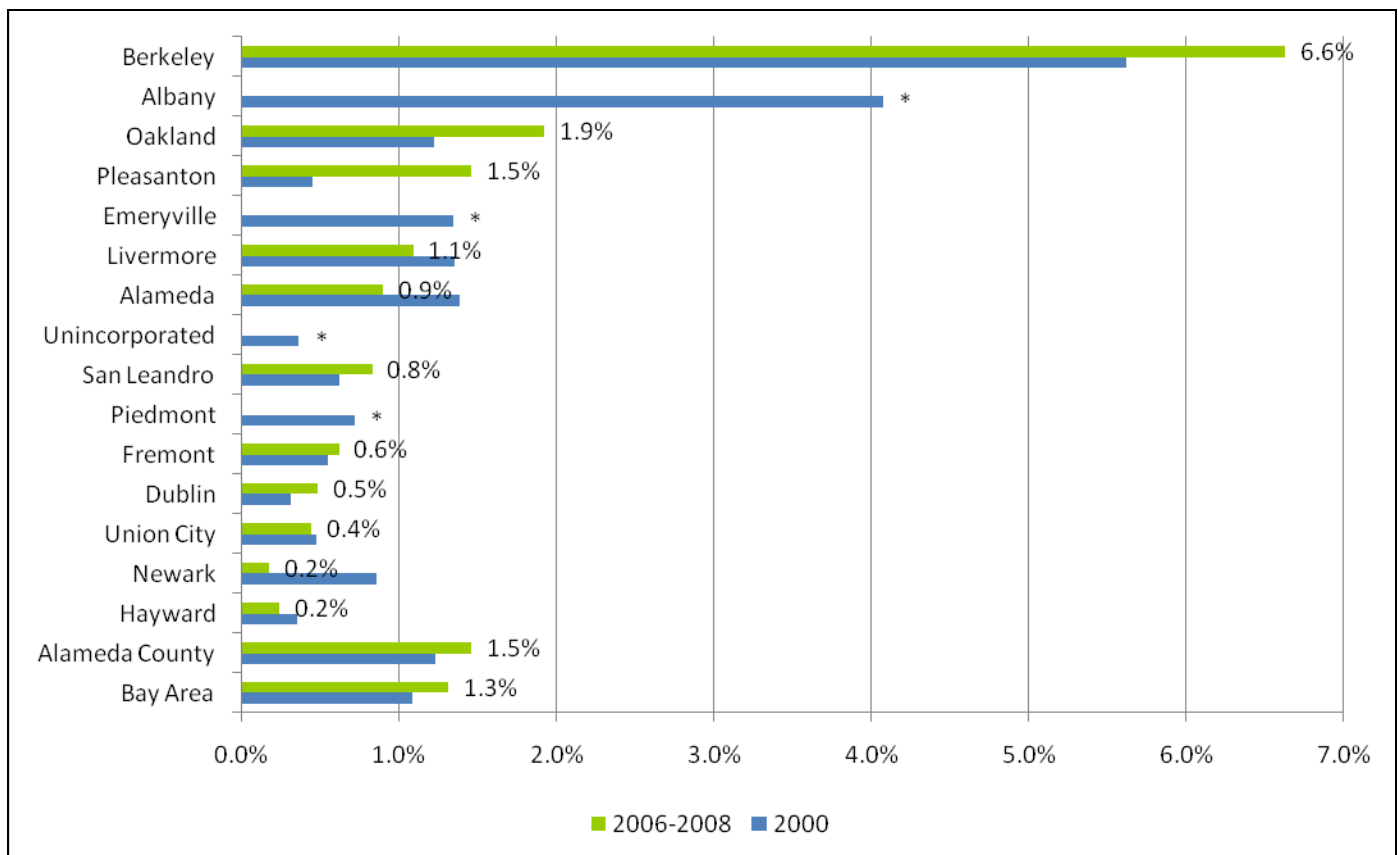
- Additional analysis is needed to determine why the rate of bicycling is so much lower in the Central planning area than in the South and especially the East. The three areas have similar weather and topography. Moreover, there are several factors to suggest that the biking rate should be higher in the Central area: it is slightly less suburban than the other two areas, for example, and has a lower median household income.

By jurisdiction

The U.S. Census provides data on the mode share of commute-to-work trips for each of the 15 local jurisdictions in the county (14 cities and the County, for the unincorporated areas). Figure 2.9 below shows the bike mode share in each jurisdiction in 2000 (blue bars) and in 2006–2008 (green bars; see Appendix E for more detailed information).

Figure 2.9 | Commute-to-work bike mode share

Sources: 2000 Census and 2006-2008 ACS



* The 2006-2008 ACS does not provide data for unincorporated Alameda County, Emeryville, Albany or Piedmont. Figures for these jurisdictions are from 2000.

- Alameda County’s bike mode share of commute-to-work trips is slightly higher than Bay Area’s as a whole (1.5% against 1.3%). While the county share increased by 0.3 percentage points from 2000 to 2006-2008, seven of the 15 jurisdictions saw no increase or a drop in the percentage of bike commuters.

- The North planning area has four of the five jurisdictions in the county with the highest bike share: Berkeley, Albany, Oakland and Emeryville.
- Berkeley has by far the highest percentage of commuters on bike (6.6%), while Hayward and Newark have the lowest (0.2%).
- The biggest increase in the bike mode share occurred in Berkeley (up by 18%, from 5.5% to 6.5%) and Pleasanton (up by 200%, from 0.5% to 1.5%).

1.5%). Five jurisdictions saw declines, with the largest occurring in Newark (-0.7%). Additional analysis is necessary to determine the reason for the large changes in Pleasanton and Newark.

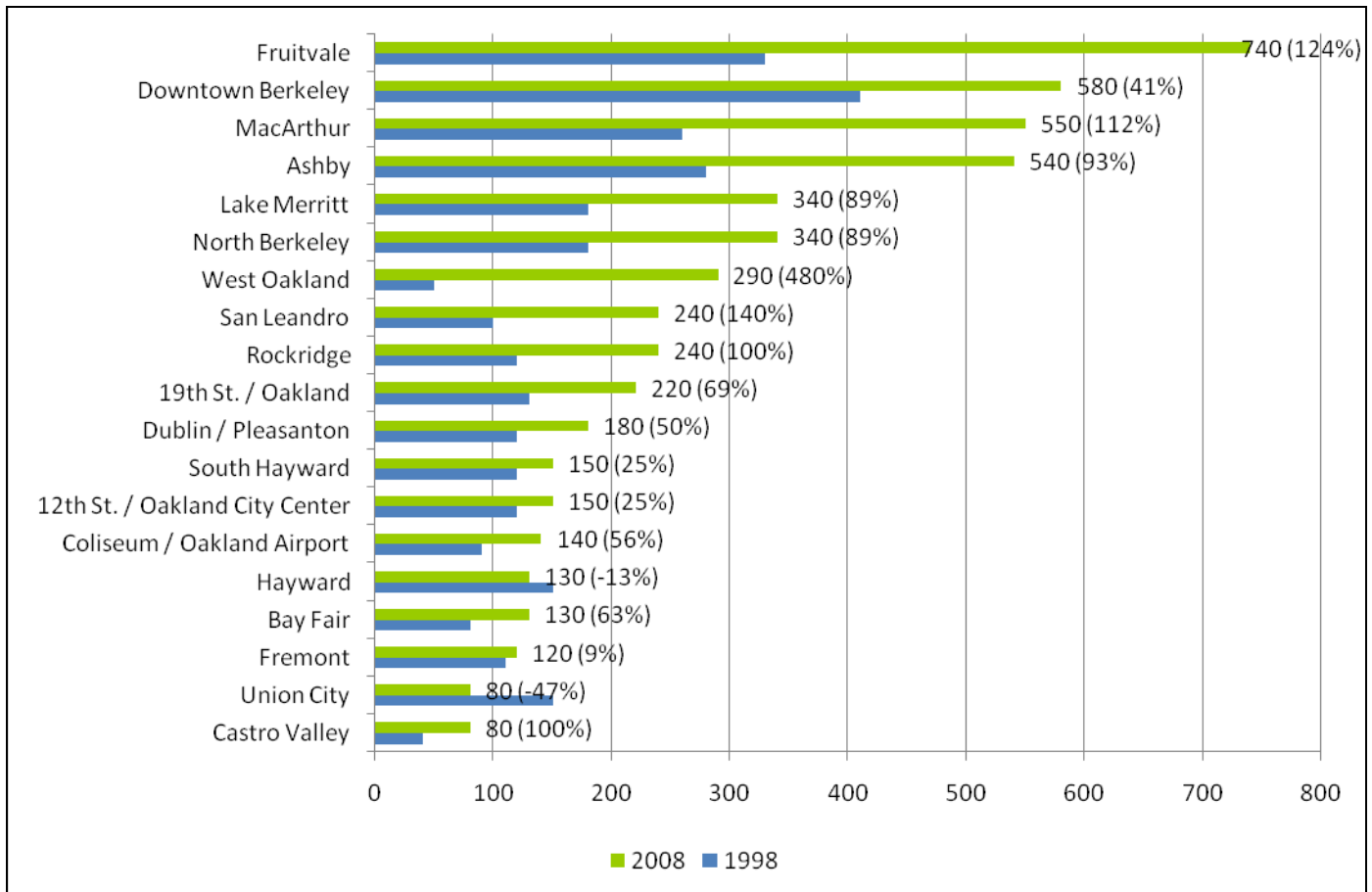
To BART stations

BART periodically conducts station profile studies to obtain information on, among other things, the way

that passengers reach its stations from home. Figure 2.10 below shows the number of daily bicycle trips to stations in Alameda County according to BART’s latest study, conducted in 2008 (see Appendix G for more detailed information; trip numbers have been rounded to the nearest 10). The information includes both home-based trips (that is, starting from home) and non-home-based trips.

Figure 2.10 | Daily bike trips to BART stations (and percent change from 1998–2008)

Source: BART’s 2008 Station Profile Study (and 1998 Study for percent change); includes both home-based and non-home-based trips

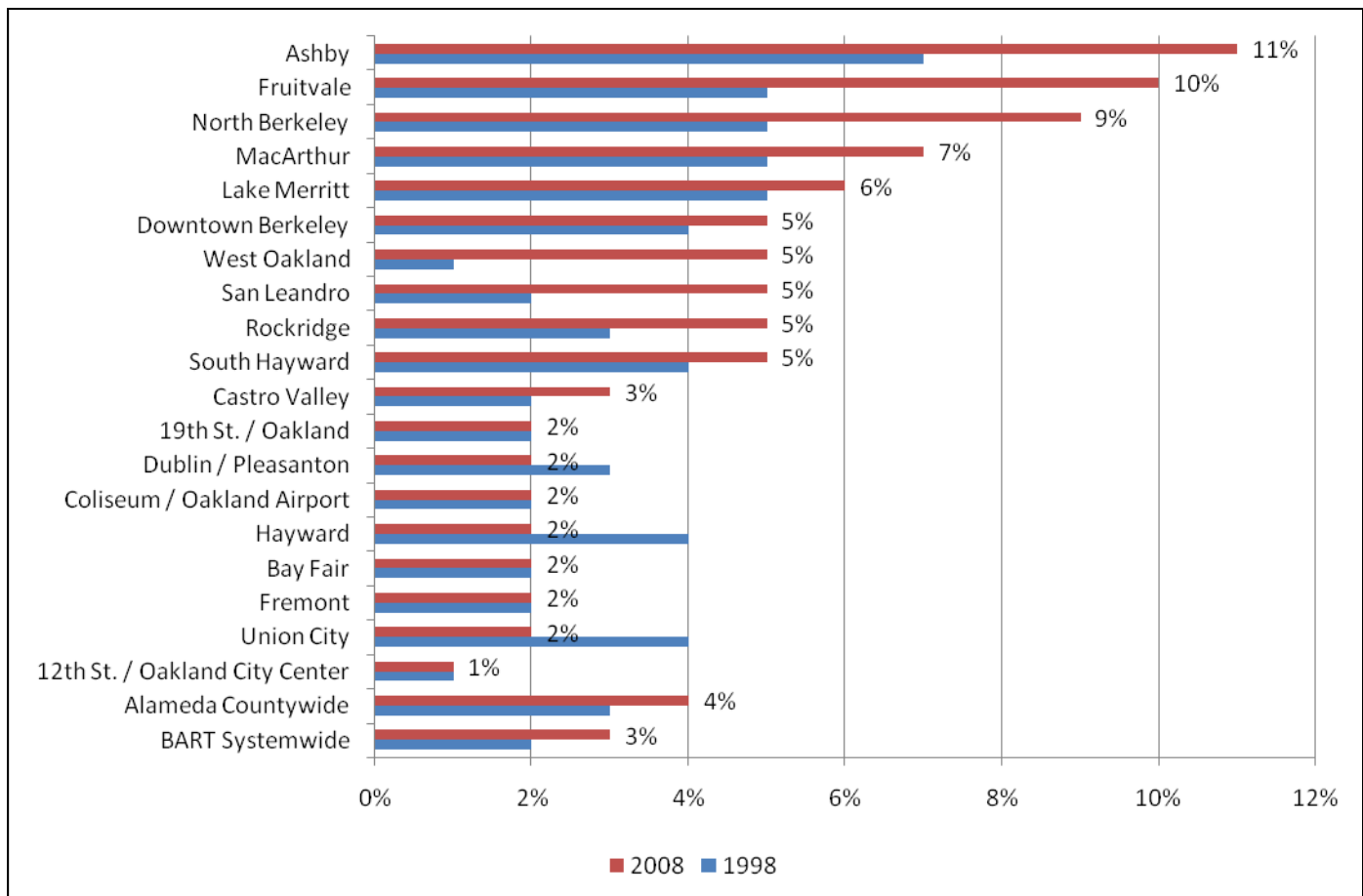


- The top seven stations with the most bike trips to BART are in the North planning area.
- The five stations with the fewest bike access trips include three out of the five stations in the Central planning area and both of the stations in the South planning area.

Figure 2.11 below looks at the bike access data in a different way. The bars show the bike access share of all trips (home-based and non-home-based) to each station.

Figure 2.11 | Bike access share to BART stations

Sources: BART's 1998 and 2008 Station Profile Study



- The bike access share for stations in Alameda County increased by almost a third from 1998 to 2008 (3% to 4%).
- In 2008 the bike access share for stations in Alameda County was a third higher than for the BART system as a whole (4% against 3%).
- The seven top stations with the highest share of bike access trips in 2008 are in the North planning area. The three stations with the lowest bike access share include 12th Street/Oakland City Center and the two stations in the South planning area (Fremont and Union City).
- In 1998, only one station (Ashby) had a bike access share greater than 5%; in 2008, five did: Ashby, Fruitvale, North Berkeley, MacArthur and Lake Merritt.
- Between 1998 and 2008, the bike access share increased in eleven of the nineteen stations, remained constant in five and decreased in three (Dublin/Pleasanton, Hayward and Union City). In terms of percentage points, the greatest increases in

- bike access share were at the Fruitvale station (up by five points), followed by the Ashby, North Berkeley and West Oakland stations (four points).
- In relative terms, the most dramatic increase in bike access share was at the West Oakland station, where it quintupled, from 1% to 5%; the biggest decrease was at the Hayward and Union City stations, where it dropped by half (2% to 1%).

Duration of bicycle trips

Bicycle trips tend to be relatively short, in terms of both time and distance (see Table 2.4 below). This data underscores the feasibility of bicycle trips for distances of under 5-10 miles, and the potential of bicycling to replace short car trips.

Table 2.4 | Duration of bicycle trips

Source: BATS2000

<i>Minutes</i>	<i>Approximate distance</i>	<i>Percent of trips</i>
0 to 10	Up to 2 miles	40%
10.1 to 20	2 to 4 miles	35%
More than 20	More than 4 miles	25%

- Almost 40% of all bike trips in the Bay Area are ten minutes or less; assuming an average biking speed of 12 miles per hour, this translates to two miles or less.
- Three-quarters of all bike trips are 20 minutes (4 miles) or less and one-quarter are over 20 minutes.

Major multi-use paths

Many bike trips, whether for recreation or transportation, take place on multi-use pathways. (Paths also serve many people on foot and in wheelchairs.) Alameda County is fortunate to have hundreds of miles of multi-use paths and trails spread throughout the county. In addition to local facilities, the county has a network of planned and existing inter-jurisdictional multi-use pathways. Of these, the most significant—in terms of length and connections across city and county borders—are the East Bay Greenway, the Iron Horse Trail and the San Francisco Bay Trail (see Table 2.5).

East Bay Greenway

This greenway was originally envisioned by Urban Ecology—a Bay Area non-profit that advocates for neighborhood revitalization and regional sustainability—as a multi-use path underneath BART’s elevated structure running southeast for 12 miles from 18th Avenue in Oakland to the Hayward BART station. However, a larger vision emerged from the East Bay Regional Park District’s most recent Master Plan update (2007), which showed the path connecting north to the Ohlone Greenway in Berkeley and Albany (and further north in Contra Costa County), and to the south along the Union Pacific Railroad right-of way in Fremont. The total length from county line to county line is estimated to be about 49 miles, with only the northern portions along the Ohlone Greenway (and parts of the former Santa Fe Railroad right-of-way/West Street in Berkeley) completed. Implementation of the original 12 mile

project is being led by the Alameda County Transportation Commission as a first phase. Many sections of the proposed greenway are still highly conceptual, such as in Oakland and Union City, and are located in built-out urban areas where the public rights-of-way are extremely limited.

Iron Horse Trail

The existing multi-use path extends between the cities of Concord, in Contra Costa County, and Dublin and includes a one-mile segment in Pleasanton, and two miles between Pleasanton and Livermore on Stanley Boulevard. The pathway follows an abandoned Southern Pacific Railroad right-of-way. When complete, it will extend from Suisun Bay (Contra Costa County) to Livermore and the San Joaquin county border, a distance of approximately 53 miles, connecting 12 cities. The alignment length through Alameda County is 25.5 miles, of which 5.8 miles is existing and 19.7 miles is proposed (see Appendix H for more detailed mileage information).



San Francisco Bay Trail

This 500-mile trail system, when complete, will ring San Francisco and San Pablo bays. The system includes 119 miles along the Alameda County shoreline and another 64 miles connecting this “spine” to other pathways, trails and points of interest. Of this ultimate 183-mile alignment, approximately 122 miles are in place, including 11 miles completed since the 2006 Countywide Bicycle Plan was adopted (see Appendix H for more detailed mileage information). Long continuous segments exist in Albany, Berkeley, Emeryville, Oakland, Alameda, San Leandro and Hayward.

Table 2.5 | Mileage of major trails

Source: Urban Ecology, East Bay Regional Park District, San Francisco Bay Trail Project; figures may not match those in the “Costs and Revenue” chapter, since they were calculated using different data sets

<i>Trail</i>	<i>Existing mileage</i>	<i>Proposed (unbuilt) mileage</i>	<i>Total mileage</i>
East Bay Greenway	1.8	34.8	36.6
Iron Horse Trail	5.8	19.7	25.5
San Francisco Bay Trail	121.8	61.4	183.2
Total	129.4	115.9	245.3

Bicyclist safety

Because they do not travel within the relative safety of a car, bus or train, bicyclists, along with pedestrians, are the most vulnerable users of the transportation system. For this reason, bicyclists make up a somewhat disproportionate percentage of traffic fatalities and injuries.

Collision numbers versus rates

When considering bicycle collisions (or fatalities), it is important to remember that absolute numbers do not tell the whole story. If over time more people biked while the number of collisions remained the same, then the rate of collisions (as measured per bicyclist or per bike trip) would decrease.

To illustrate, consider two intersections, each with one bicycle collision. If intersection A has 40 cyclists crossing while intersection B has only 10 cyclists crossing, the rate of collisions per bicyclist would be much higher at intersection B.

Data on collisions involving bicyclists can help planners and other decision-makers identify areas in which to focus improvement efforts. Bicyclist safety is impacted by a number of variables including the design of infrastructure for biking, the design of intersections and roadways (especially their design speed), law enforcement efforts and education campaigns. Also, because of the “safety in numbers”

phenomenon, bicycle safety tends to increase as the number of cyclists increase in an area. (This argues for making infrastructure improvements even in some areas where collision rates are low, since bicycle volumes might be high.)

This section presents information on the number of bicycle fatalities and serious injuries in Alameda County. The information is examined in several ways, including by planning area, location and time of day. Also, there is a brief discussion of another important component of bicycle safety: personal security from crime.

The analysis uses collision data for the nine-year period from 2001 (the earliest year available) to 2008 (the latest year available at the time this chapter was researched) for more general investigation, such as on total fatalities and injuries; for finer-grained analysis, the data used is for the latest five-calendar-year period, or 2004–2008. The data comes from the California Highway Patrol’s Statewide Integrated Traffic Records System (SWITRS), a database of collisions as reported to and collected by local police departments and other law enforcement agencies in the state. Because SWITRS consists only of reports taken by officers in the field, the incidents in the database represent only a portion of all collisions. This also means that the incidents in SWITRS are more likely to be serious, since minor collisions are less likely to be reported to a police officer. Numerous studies have shown that bicycle collisions are significantly underreported in official crash reports. For example, one 2007 study comparing emergency room visits and official crash reports in California, North Carolina and New York found that only 48% of emergency-room bicyclist cases had been reported in official crash reports¹.

Collisions, fatalities and injuries

In the eight-year period from 2001 to 2008, there was an annual average of approximately 3 bicyclists killed and almost 540 bicyclists injured seriously in traffic collisions in Alameda County (see Table 2.6 and Figure 2.12; appendices K and L provide more detailed information).

¹ “Police Reporting of Pedestrians and Bicyclists Treated in Hospital Emergency Rooms” (Transportation Research Record, Volume 1635).

Table 2.6 | Bicyclists killed or injured, 2001–2008

Source: SWRTS

	<i>Annual average</i>
Bicyclists killed	3
Bicyclists injured	538
Bicyclists killed or injured	541

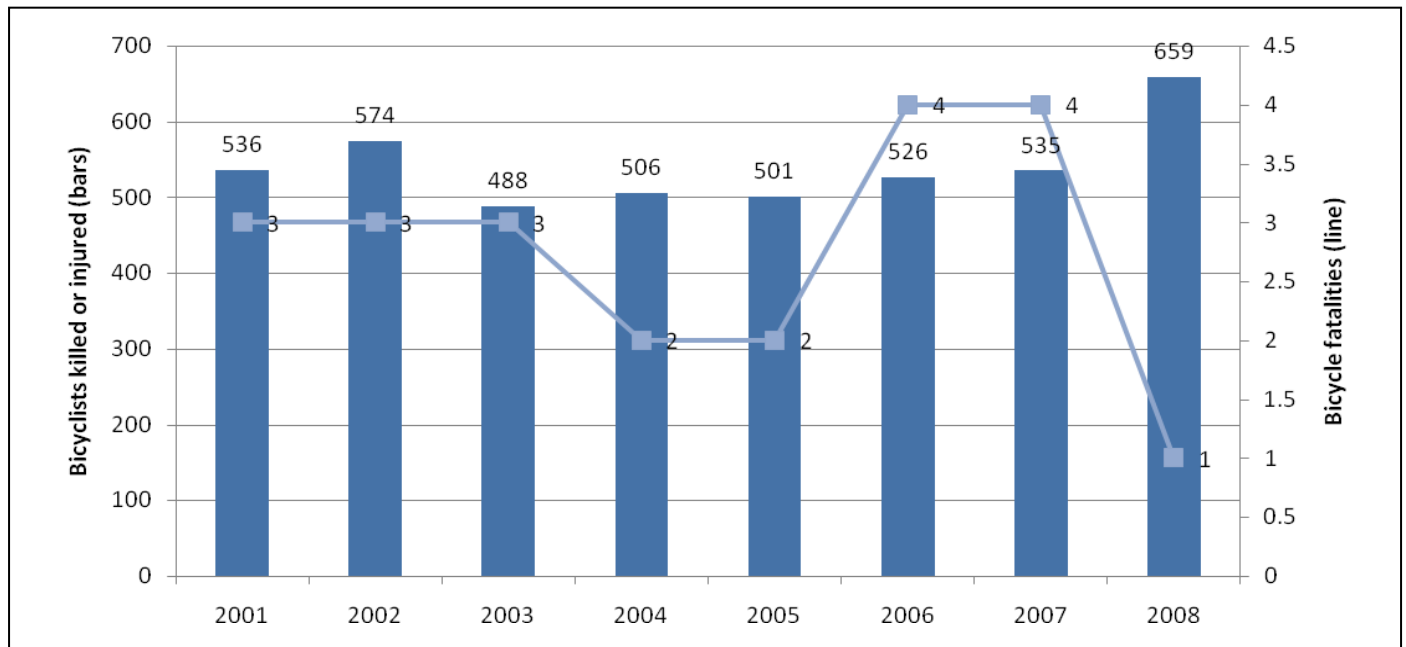
- Between 2001 and 2007, the annual number of bicyclists killed or injured was relatively stable,

fluctuating within a narrow range between 488 and 574.

- The number of bicyclists killed or injured spiked in 2008, to 659. The increase could be because high gas prices in 2008 might have prompted people, especially non-cyclists, to ride for transportation. This is supported by the fact that the number of transit riders did increase that year.
- Since 2001, between one and four people have been killed annually while bicycling in Alameda County. Unexpectedly, the lowest number came in 2008 (1 fatality), even as injuries spiked to an eight-year high.

Figure 2.12 | Bicycle fatalities and injuries, 2001–2008

Source: SWITRS



Collision hotspots

Figure 2.13 on the next page shows the location of all traffic collisions involving bicyclists in Alameda County from 2004 to 2008. As shown on the map, most of the collisions occur along an arc from central Berkeley to downtown Oakland. There are smaller concentrations of collisions in Albany, eastern Alameda (city), along International Boulevard in Oakland, and in central Fremont, Pleasanton and Livermore. In general, these are areas with relatively high numbers of bicyclists.

The information on the map is confirmed by Tables 2.7 and 2.8. Table 2.7 lists the four intersections that experienced 9 or more collisions in 2004–2008 that resulted in a bicycle fatality or injury; all are in Berkeley. Table 2.8 lists the roadway corridors that experienced 30 or more collisions from 2004–2008. Of the seven roads on the list, the four with the most collisions extend from Berkeley to Oakland.

Table 2.7 | Intersections with 9 or more bicycle collisions, 2004–2008

Source: SWITRS

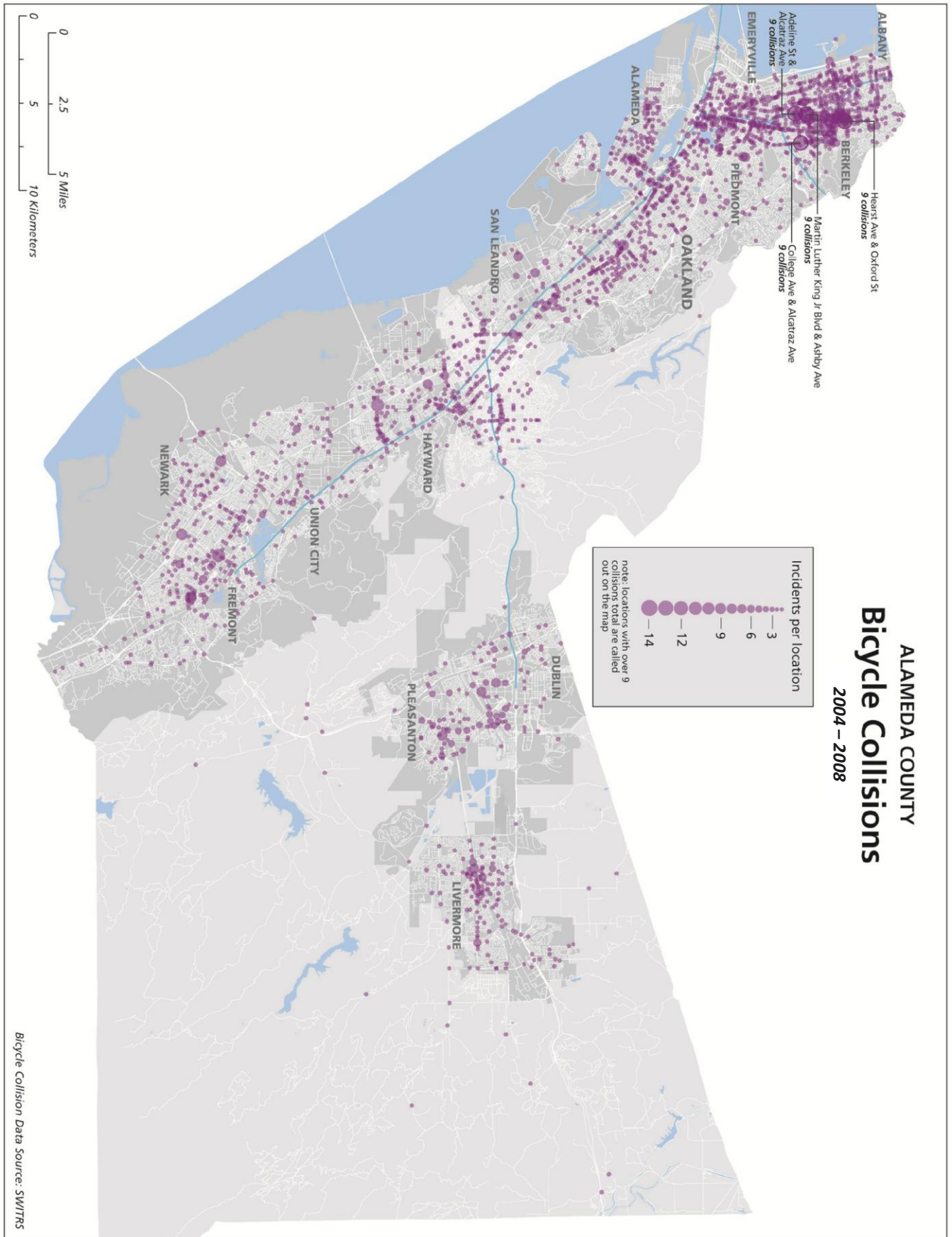
<i>Intersection</i>	<i>Jurisdiction</i>	<i>Collisions</i>
Oxford St & Hearst Ave	Berkeley	9
Martin Luther King Jr Way & Ashby Ave	Berkeley	9
College Ave & Alcatraz Ave	Berkeley	9
Adeline St & Alcatraz Ave	Berkeley	9

Table 2.8 | Bicycle collisions by primary road, 2004–2008

Source: SWITRS

<i>Road</i>	<i>Jurisdiction(s)</i>	<i>Number of collisions</i>
Telegraph Avenue	Berkeley, Oakland	59
Shattuck Avenue	Berkeley, Oakland	57
College Avenue	Berkeley, Oakland	56
Martin Luther King Jr. Way	Berkeley, Oakland	44
Fremont Boulevard	Fremont	41
International Boulevard	Oakland	38
State Route 185 (East 14 th Street)	San Leandro, Hayward, uninc. county	31

Figure 2.13 | Map of bicycle collisions, 2004–2008



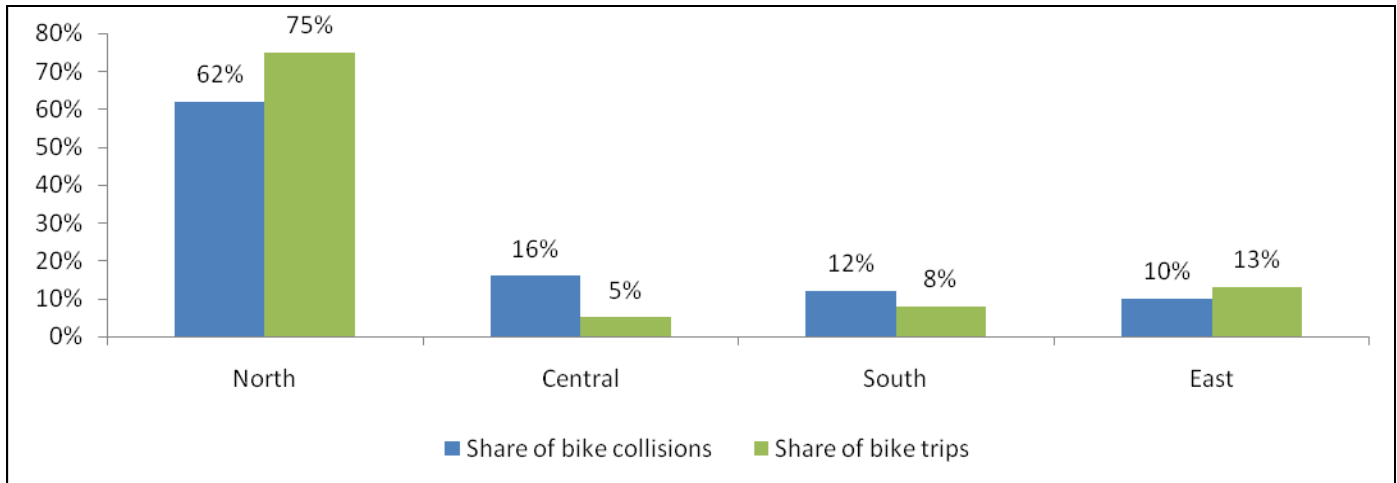
Collisions by planning area

Figure 2.14 below shows each planning area’s share of the county’s bicycle collisions from 2004 to 2008

against its share of all bike trips from the year 2000 (see Appendix K for data for each local jurisdiction).

Figure 2.14 | Share of all bicycle collisions (2004–2008) and all bike trips by planning area

Sources: SWITRS, BATS2000



- The North planning area has a much lower share of the county’s collisions than of all bike trips (62% to 75%). Central County has a much higher share, South County a somewhat higher share and East County a somewhat lower share. This could be seen as indicating that the North planning area is the safest for cyclists, and that it proves the “safety in numbers” theory – that the higher the number of bicyclists, the safer they will be (generally because motorists are expecting them on the road and know how to safely share the road).

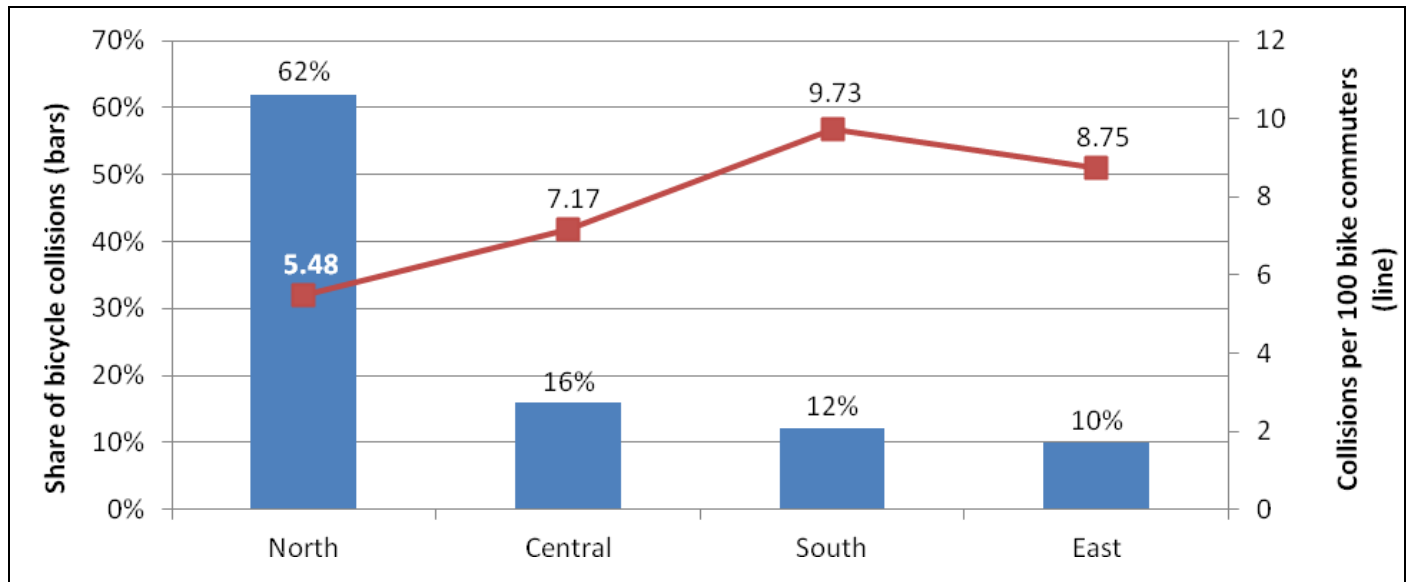
Yet another picture appears when charting collisions per 100 bike commuters against each planning area’s share of collisions (see Figure 2.15 and Appendix K; commute trips represent only a minority of trips but

there is more data about commuters than about other travelers).

- The North planning area, while having by far the highest share of bicycle collisions, also has the fewest collisions per 100 bike commuters. This indicates that from the perspective of an individual bicyclist, the area is the safest in the county, at least as far as traffic conditions.
- The South planning area has the most collisions per 100 bike commuters, and a collision rate significantly higher than in the North planning area (9.73 against 5.48).

Figure 2.15 | Share of bicycle fatalities and injuries by planning area, 2004–2008

Sources: SWITRS; 2000 Census, 2006–2008 ACS



Collisions by age group

Table 2.9 below shows the number of bicyclists who were killed or injured in Alameda County in 2004–2008 in each of several age groups. The table includes only those collisions for which the age of the victim was known.

- Children (17 years old and under) represented one-quarter of bicyclists killed or injured; seniors represented under 5%. The rest were adults ages 18–64.

Table 2.9 | Bicycle fatalities and injuries by age group, 2004–2008

Source: SWITRS

Age group	Bicyclists killed or injured	As percent of total
Children (0-17)	792	24.8%
0–4	6	0.2%
5–13	474	14.8%
14–17	312	9.8%
Adults (18–64)	2,292	71.6%
Seniors (65+)	116	3.6%
Total	3,200	

Collisions by time of day

Time of day provides another lens through which to view bicycle collisions (see Table 2.10).

- From 2004–2008, more than 40% of bicycle fatalities and injuries from collisions occurred in the afternoon and evening, a period covering only four hours (4–8 pm).
- More than one-quarter (27%) of bicycle fatalities and injuries occurred in the mid-day hours (10 am–3 pm).

Table 2.10 | Bicycle fatalities and injuries by time of day, 2004–2008

Source: SWITRS

Time of day	Bicyclists killed or injured	As percent of total
Morning (6–10 am)	537	19%
Mid-day (10 am–3 pm)	772	27%
Afternoon/eve (4–8 pm)	1,217	43%
Night (8 pm–6 am)	295	10%
Total	2,821	100%

Collisions by party at fault

Table 2.11 below breaks down driver–bicyclist collisions in Alameda County by party at fault.

Table 2.11 | Party at fault in vehicle–bicyclist collisions, 2004–2008

Source: SWITRS

Party at fault	Number of collisions	% of total
Bicyclist	1,726	53%
Motorist	822	25%
Not stated	693	22%
Other vehicle	1	0%
Pedestrian	5	0%
Total	3,247	100%

- The bicyclist was found at fault more than twice as often as the driver (53% compared to 25%).

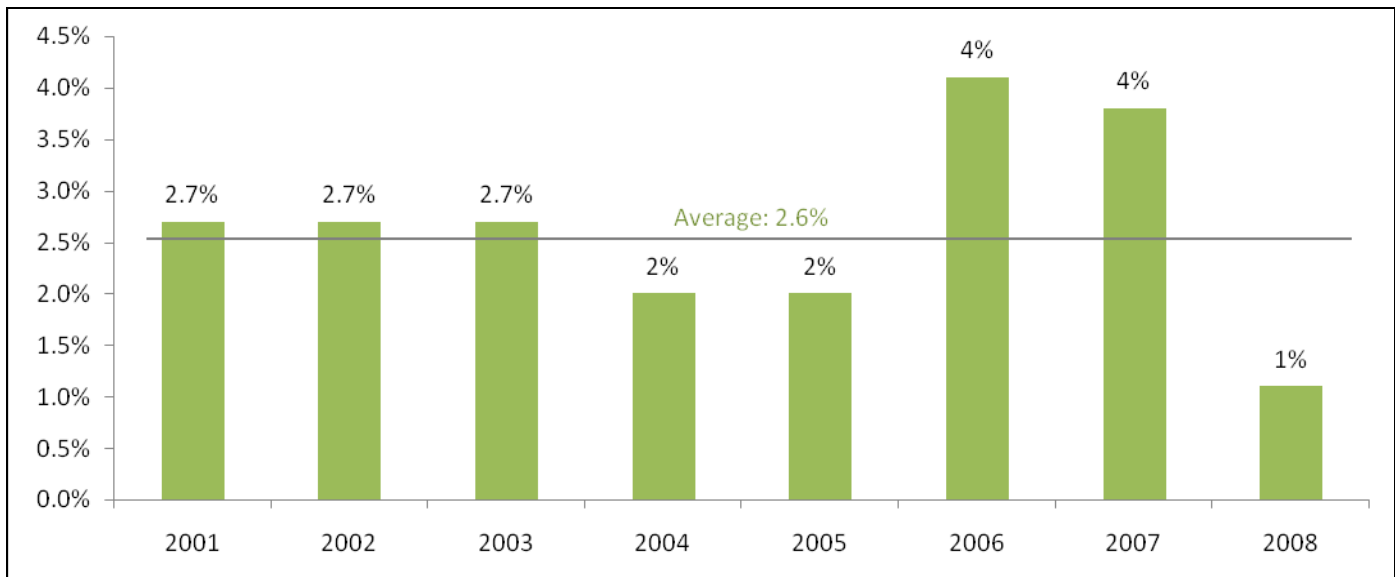
Bicyclists' share of fatalities

As mentioned earlier, bicyclists, along with pedestrians, are the most vulnerable users of the transportation system. Figure 2.16 below shows bicyclists' share of all traffic fatalities in the county (see Appendix K for more detailed information).

- Over the past eight years, bicyclists have made up 2.6% of all traffic fatalities in Alameda County; this is slightly higher than the county's bike mode share (2%).
- Between 2001 and 2008, bicyclists' share of fatalities ranged between 1% and 4%; the lowest level (1%) occurred in 2008.

Figure 2.16 | Bicyclists as percentage of all traffic fatalities, 2001–2008

Source: SWITRS



Personal security and crime

In the discussion of traffic collisions, it is easy to overlook a related issue: the effect on bicycling of real and perceived threats to personal security. Crime is a powerful deterrent against bicycling, particularly at night or in isolated areas and in areas with high crime rates. Like concerns about traffic safety, crime can lead to a vicious

cycle of fewer people riding and walking on the street making people feel less safe and resulting in even fewer people on the street. Design and maintenance solutions—including better lighting, paths and trails located near other activities and a well-maintained environment—can go a long way toward alleviating fears.

Data on crime against bicyclists is difficult to obtain and compile. Such statistics are collected by nearly 20 individual police departments in Alameda County and there is no reporting standard or central repository for this information.

Support facilities

While bikeways are the central element of a bicycle network, they are not the only component. There are several kinds of support facilities—namely bicycle parking, showers and lockers, and signage—that increase the utility of a bicycle network and promote the viability of bicycling as a transportation mode.

Bicycle parking

- Four cities have bicycle parking ordinances: Hayward, Oakland, Pleasanton and Union City. Several other jurisdictions have imposed parking conditions for certain projects as part of the development-approval process.
- Only two cities—Berkeley and Oakland—have bicycle-rack installation programs, although most other jurisdictions have installed racks in public places on a case-by-case basis. Oakland provides technical support to businesses that wish to install bicycle parking on their property.
- Almost all jurisdictions have installed at least some bicycle racks; seven have single-use bicycle lockers; Alameda, Berkeley, Fremont and Oakland have shared-use electronic lockers (eLockers); Berkeley, Emeryville, Oakland and San Leandro have secured bike-parking cages; and Emeryville has an indoor bike room.
- Oakland’s bike parking ordinance requires attended bike parking at certain large events; the City of Alameda requires it at events with over 1,000 attendees.
- BART provides racks at all its stations in Alameda County and lockers at all stations except 12th Street/Oakland City Center, 19th Street/Oakland and Downtown Berkeley. In addition, there are two bike stations in the county, one at Downtown Berkeley, with 268 spaces, and the other at Fruitvale (250 spaces).

Showers and lockers

- Only one city—Oakland—has an ordinance requiring shower and locker facilities as part of certain new development projects. Pleasanton and San Leandro have occasionally required these facilities on a case-by-case basis, as part of the development-approval process, while UC Berkeley has a policy to include them in all new buildings beyond a certain size.

Wayfinding signage

- Berkeley and Emeryville install bicycle boulevards signage with wayfinding and mileage information, while Oakland and Emeryville also have bike-route signage programs. Several other cities are considering adopting comprehensive wayfinding signage guidelines, based on those developed by Oakland.
- Local agencies and the East Bay Regional Park District also place signage along inter-jurisdictional trails, such as the Bay Trail and Iron Horse Trail.

Local planning, programs and advocacy

Local plans

Bicycle plans at the local level are important because it is local jurisdictions that are responsible for planning, designing, constructing and maintaining bicycle facilities. As of the adoption of the 2006 Countywide Bicycle Plan, 10 of the 15 jurisdictions in the county had adopted bicycle plans. In 2012, the number rose to 14 of the 15 jurisdictions with a completed bicycle plan or one underway. Below are the main developments since 2006 in this area (see Appendix M and Table 3.3 in the “Evaluation of Plans, Policies and Practices” chapter for more information):

- Pleasanton adopted their first (combined) bicycle/pedestrian plans, while Dublin adopted a stand-alone bicycle plan.
- Nine cities updated their bicycle or bicycle/pedestrian plans.
- Other than Newark, which is in the process of developing a combined bicycle/pedestrian plan, only one city—Piedmont—remains without a bicycle plan.
- In addition to jurisdictions, the University of California at Berkeley has a campus bicycle plan.

- Related to local planning, the following jurisdictions and agencies have standing bicycle or bicycle/pedestrian advisory committees: Berkeley, Emeryville, Fremont, and Oakland.

Local support programs

The focus in bicycle planning is often on building capital projects. However, support programs are also important because they increase the safety and utility of those projects. Local jurisdictions in Alameda County administer a broad range of bicycle support programs to complement their infrastructure-building efforts. These programs are grouped under the categories of safety, law enforcement, education, promotion or encouragement, safe routes to school and traffic calming. Below is a summary of jurisdictions sponsoring various types of programs (based on responses received from the local jurisdictions). Programs that were started after the 2006 Bicycle Plan was adopted are marked as “new”:

Safety

- **Bicycle audit:** San Leandro (new)
- **Bicycle safety education campaign:** Albany (new), Dublin, Fremont, Pleasanton (new) and San Leandro

Law enforcement

- **Bicycle/pedestrian traffic safety officers:** Alameda County
- **Pedestrian/bicycle enforcement activities:** Eight jurisdictions, including San Leandro and Emeryville, where the programs are new

Education

- **Inform motorists on bicycle/pedestrian laws:** Albany, Dublin (new) and San Leandro
- **Traffic curriculum (schools, community centers):** Albany (new), Fremont, Dublin (new) and San Leandro

Promotion/encouragement

- **Bike to Work Day:** Eleven jurisdictions, including Dublin and Livermore, where the programs are new
- **Bicycle races:** Alameda County, Albany, Emeryville (new), Fremont and Pleasanton
- **Giveaways:** More than half of jurisdictions (including Oakland and Dublin since 2006) give

away bicycle-related items such as helmets, lights, reflectors and water bottles

- **Bike maps:** All except Alameda County, Newark, Piedmont and Union City. The map programs in Dublin, Livermore and Pleasanton are new since 2006.

Safe routes to school

- Every local jurisdiction except Emeryville and Piedmont participate in the countywide SR2S program through the Safe Routes to School (SR2S) Partnership (described below).

Traffic calming

- Six jurisdictions (Alameda, Berkeley, Emeryville, Newark, Pleasanton and San Leandro) have a substantial traffic-calming program, with a dedicated funding source.
- Five jurisdictions (Alameda County, Albany, Fremont, Livermore and Oakland) have a traffic-calming program but with no dedicated funding source.
- Four jurisdictions (Dublin, Hayward, Piedmont and Union City) do not have a traffic-calming program.

Multi-jurisdictional support programs

In addition to the local programs, there are three significant countywide support programs, all of which are funded in part by Alameda CTC:

- **Safe Routes to Schools (SR2S) Alameda County Partnership** (www.transformca.org/sr2s). This program promotes walking and biking to school to students at more than 85 public elementary schools in the county. It is led by Alta Planning and TransForm, with funding from Alameda CTC and MTC. Bicycle safety classes for all ages, offered on a regular basis by both the East Bay Bicycle Coalition and BikeAlameda.
- **Bike to Work Day** has grown significantly in recent years. From 2008 through 2012, it was supported by a “lifestyle” advertising campaign under the tagline, “Ride into Life.” Ads appeared at BART stations, on the back of AC Transit buses, in bus shelters, on street pole banners, and at kiosks.
- **Bicycle safety classes** for all ages, offered on a regular basis by both the East Bay Bicycle Coalition

(which is funded in large part by Alameda CTC) and BikeAlameda.

Advocacy efforts

Bicycle advocacy seeks to encourage government to improve the bicycling environment and to encourage more people to bike more often. Bicycle advocacy has surged nationwide in the past 10 years, particularly in the Bay Area.

Alameda County has five bicycle advocacy groups, including one, the East Bay Bicycle Coalition (www.ebbc.org), that works in all parts of the county. The main change in advocacy since 2006 is the formation of Walk Oakland, Bike Oakland (www.walkoaklandbikeoakland.org), a new advocacy group focused solely on the largest city in the county. In June 2010, the group organized Oaklavia (<http://oaklavia.org>), the closure to car traffic of several blocks in downtown Oakland for strolling, bicycling and other recreational activities. The event was the first example of a “ciclovía” or “Sunday Streets” event to occur in Alameda County.

Three other advocacy groups active in the county include:

- Bicycle-Friendly Berkeley Coalition (www.bfbc.org)
- BikeAlameda (www.bikealameda.org)
- Albany Strollers and Rollers (sites.google.com/site/albanystrollersandrollers)

Local funding, infrastructure and program needs

As described in the next section, on implementation of the 2006 Bicycle Plan, almost every local jurisdiction cites lack of funding as a major barrier to making bicycle improvements. In that context, funding needs for bicycle projects is an important existing condition that will help determine the countywide priorities.

As part of developing this update to the Countywide Bicycle Plan, local jurisdictions were asked to estimate their foreseeable funding need for bicycle (and pedestrian) projects. Appendix N provides their responses. The table includes the costs to complete all the capital bicycle and pedestrian projects planned in the local jurisdictions. Excluding two jurisdictions

which did not know or report a cost, this figure is roughly \$520 million; of this, \$219 million, or more than 40%, was reported by the largest city in the county, Oakland. The table also includes the costs of the jurisdictions’ top priority bicycle and pedestrian projects for the next three years (approximately \$136 million for 14 jurisdictions), and the unfunded portion of these costs (\$68 million for 13 jurisdictions).

The table in Appendix N also provides the jurisdictions’ average annual maintenance expenditure for bicycle and pedestrian facilities (\$6.7 million for 14 jurisdictions) and the annual funding gap for maintenance (\$17.2 million for 13 jurisdictions). That the maintenance funding gap is much greater than annual expenditures likely indicates substantial deferred maintenance of facilities due to insufficient funds.

In addition, the local agency questionnaire also asked local jurisdictions to select from a list their highest-priority or most pressing infrastructure needs related to bicycling. Table 2.12 below lists the answers provided by the jurisdictions.

Table 2.12 | Local jurisdictions’ infrastructure needs

<i>Need</i>	<i>Number of responses</i>
Building an on-street bicycle network	11
Improving intersection safety for pedestrians or bicyclists	11
Improving pedestrian/bicycle access to schools	9
Local road maintenance to improve pavement quality	7
Improving pedestrian/bicycle access to transit	6
Building Class I multi-use pathways	5
Maintenance of bicycle facilities	1
Improving pedestrian/bicycle access in and around commercial areas	1

The local agency questionnaire also asked local jurisdictions to choose their highest-priority or most pressing programmatic needs related to non-

motorized transportation. Table 2.13 below lists the answers provided by the jurisdictions.

Table 2.13 | Local jurisdictions' programmatic needs

<i>Need</i>	<i>Number of responses</i>
Obtaining grant funding for projects	13
Developing or updating a bicycle master plan	10
Creating safe routes to school plans	9
Launching a safe routes to school program	5
Adding or increasing pedestrian/bicycle staff	4
Creating local pedestrian/bicycle maps	3
Implementing a complete streets policy	2
Pedestrian/bicycle training for agency staff	2
Assembling a pedestrian/bicycle advisory committee	1
Developing a traffic calming program	0

Lastly, the five community-based transportation plans (CBTPs) that have been completed for areas of Alameda County propose 45 bicycle and/or pedestrian projects (see the “Evaluation of Plans, Policies and Practices” chapter for more information on the CBTPs). Appendix O lists these projects, including cost estimates and their relative priority.

Implementation of the 2006 plan

The 2006 Countywide Bicycle Plan laid out priorities, goals and near-term next steps for implementing the plan. Although progress on implementation is sometimes difficult to track, much has been accomplished since the 2006 bicycle plan was adopted.

Capital projects

The 2006 plan included a 549-mile countywide bicycle network consisting of 22 cross-county corridors. The plan provided for three nested levels of investment. These levels, from most to least ambitious and inclusive, were:

- **Vision network:** The entire countywide bicycle network, plus rehabilitation of the existing on-street countywide bicycle system and transit-priority zone projects.
- **Financially constrained network:** A subset of the countywide network consisting of essential cross-county routes and that could be implemented within the estimated revenues available over the life of the plan.
- **High-priority projects:** A set of capital projects from the financially constrained network selected by the jurisdictions for implementation over 4–5 years after adoption of the plan.

The 2006 identified 15 high-priority projects were identified. Appendix Q reports on progress achieved on these projects.

Countywide support programs

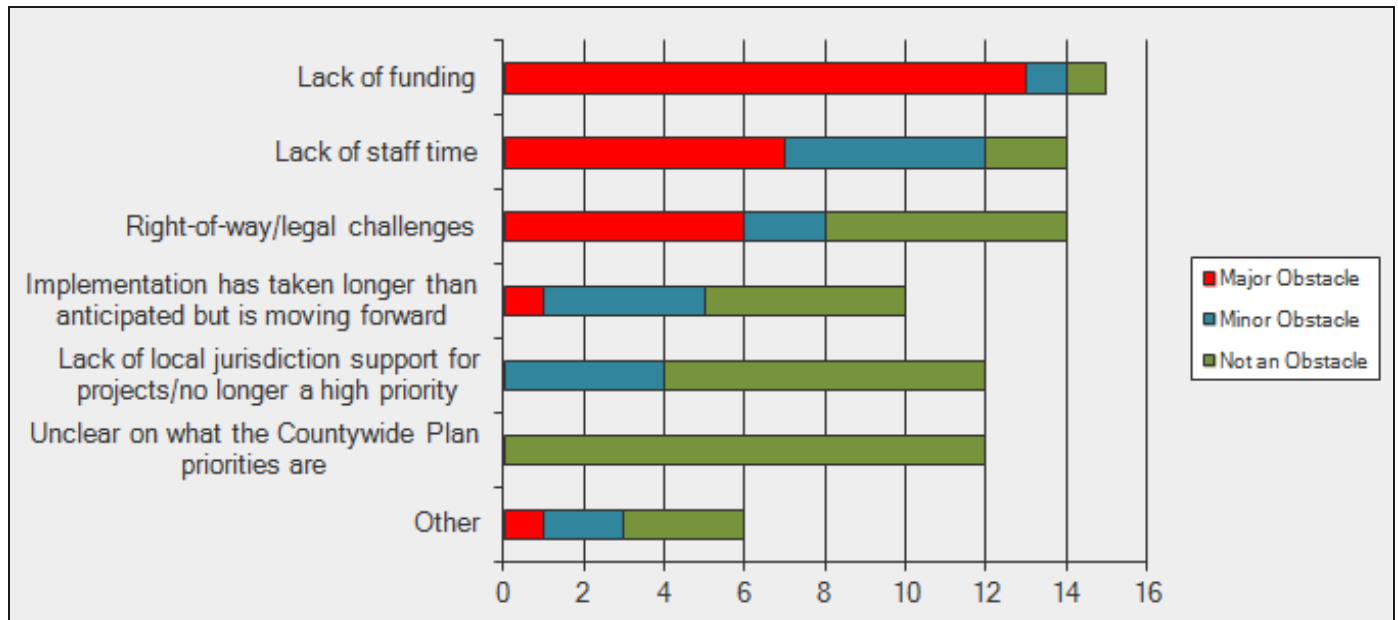
The previous section identified safety, law enforcement, education, promotion and other support programs at the local level for bicycling, and pointed out which ones have been instituted since the adoption of the 2006 Bicycle Plan. In addition, the previous section highlighted multi-jurisdictional support programs that have been put in place since 2006. These three major programs are funded in large part with Measure B funds from Alameda CTC:

- Safe Routes to Schools (SR2S) Alameda County Partnership.
- Bicycle safety classes for all ages, offered on a regular basis by both the East Bay Bicycle Coalition and BikeAlameda.
- While Bike to Work Day is not a new program, it has grown significantly in recent years.

Challenges encountered

In the 2010 local agency questionnaire (to which all 15 jurisdictions responded), local jurisdictions were asked to identify challenges they have encountered in implementing the priorities identified in the 2006 Countywide Bicycle Plan. The most commonly cited implementation challenges by far were insufficient funding, insufficient staff time and right-of-way constraints (see Figure 2.17).

Figure 2.17 | Implementation challenges encountered by local jurisdictions



- Perhaps not surprisingly, every jurisdiction (except Dublin) cited inadequate funding for projects as major challenges.
- The following five jurisdictions identified inadequate staff time, and lack of staff resources in general, as major obstacles to implementation: Oakland, San Leandro, Hayward, Newark and Pleasanton.
- Significant right-of-way challenges were reported by San Leandro, Fremont, Pleasanton and Dublin.
- Additionally, Oakland suggested the need for better coordination with resurfacing projects; Pleasanton—which is dealing with projects adjacent to waterways—mentioned lack of interagency coordination as a significant challenge; and San Leandro, Hayward and Newark cited lack of community or jurisdictional support as minor challenges.

3 | EVALUATION OF PLANS, POLICIES AND PRACTICES

Introduction

Over the past decade, transportation policy in Alameda County has become more supportive of bicycling. All jurisdictions in the county, as well as transportation agencies at the county, regional, state and federal levels, now have plans or policies that promote nonmotorized transportation. At the same time, a number of emerging policy areas—including complete streets, climate action, smart growth and active transportation—are giving further policy support to bicycling.

The purpose of this chapter is to review the key plans, policies and practices at the local, county, regional, state and federal levels that affect bicycling in Alameda County. The review covers the most relevant planning documents, policy efforts and agency practices, as well as institutional issues identified by the local jurisdictions. This chapter summarizes the plans, policies and practices, and evaluates them with an eye toward how they promote or hinder bicycling. It discusses practical challenges encountered by agencies in implementing their plans, policies and projects, and suggests ways to overcome those challenges. Because the policy context surrounding nonmotorized transportation has changed substantially since 2006—when the Bicycle Plan was last updated—special attention is paid to relevant

policy areas that have emerged or advanced in importance in the past six years.

A number of emerging policy areas—including complete streets, climate action, smart growth and active transportation—are giving further policy support to bicycling.

Ultimately, the Countywide Bicycle Plan will be adopted by Alameda CTC and implemented in collaboration with jurisdictions and other public agencies, non-profits and advocacy groups in the county. Now that Alameda CTC has merged the transportation planning, coordination, technical assistance and funding functions of the CMA and ACTIA, there are opportunities to maximize the agency’s impact on bicycling. For this reason, the suggestions in this chapter focus on how Alameda CTC can promote nonmotorized transportation and assist other agencies to do the same; emphasis is placed on assisting local jurisdictions, which are responsible for implementing most bicycle capital projects. The suggestions in this chapter were evaluated and those that are implementable in the near future were developed into specific recommendations and implementable actions in the plan’s “Next Steps” chapter.

Emerging policy areas

The policy context surrounding nonmotorized transportation has changed substantially in the few years since 2006. This section reviews four policy areas that have emerged or advanced in importance in recent years: (i) complete streets; (ii) climate action; (iii) smart growth, including Priority Development Areas (PDAs) and Growth Opportunity Areas (GOAs); and (iv) active transportation. These efforts are still new enough that they are either still in the developmental stages or have just begun being implemented, making it difficult to evaluate their impact on the ground. However, as explained below, they all will likely contribute significantly to improving the policy landscape for bicycling in coming years. Emerging state and regional policies provide opportunities to find ways to balance the county's requirements to reduce traffic congestion while making progress on bicycling improvements to create a transportation system that serves all modes.



Complete streets

“Complete streets” describes roadways that are planned, designed, operated and maintained for safe and convenient access by all users—including bicyclists, pedestrians and transit riders—and in ways that are appropriate to the function and context of the facility. “Routine accommodation” is a related concept that has similar meaning, but has been replaced by the term complete streets in most contexts. It is the practice of considering the needs of bicyclists and pedestrians habitually in the planning, design, funding and construction of transportation projects.

According to the National Complete Streets Coalition (www.completestreets.org), more than 200 cities, counties, states and federal agencies have adopted complete streets policies, almost all of them in the past five years. Because these policies are so recent, it is difficult to assess their impact or effectiveness. None of the 15 local jurisdictions in Alameda County have stand-alone policies on complete streets, though several mention the concept in their local bicycle and/or pedestrian master plans, or general plans.

California Complete Streets Act of 2008

In future years, all jurisdictions will have to incorporate complete streets into their planning. Assembly Bill 1358, the California Complete Streets Act of 2008, requires “that the legislative body of a city or county, upon any substantive revision of the circulation element of the general plan, modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs of all users [including] motorists, pedestrians, bicyclists, children, persons with disabilities, seniors, movers of commercial goods, and users of public transportation....” This provision of the law went into effect on January 1, 2011. The law also directs the Governor’s Office of Planning and Research to amend its guidelines for the development of circulation elements so as to assist cities and counties in meeting the above requirement.

“Complete streets” describes roadways that are planned, designed, operated and maintained for safe and convenient access by all users and in ways that are appropriate to the function and context of the facility.

AB 1358 can be expected to result in a new generation of circulation elements and a surge in complete streets policies and ordinances around the state as general plans are updated over time, beginning in early 2011. Fremont is the only local jurisdiction in Alameda County to have updated its circulation element since the act took effect. In addition, the general plans of some of the other jurisdictions already address complete streets, directly or indirectly, and may be compliant with the new law. MTC has recently established a deadline for all local jurisdictions in the Bay Area to be compliant with the state Complete Streets Act by late 2014, in order to be eligible for MTC funding.

MTC's Complete Streets Policy

In 2006, the Metropolitan Transportation Commission (MTC) adopted Resolution Number 3765, now referred to as the MTC Complete Streets Policy, outlining a policy that projects funded all or in part with regional funds “shall consider the accommodation of bicycle and pedestrian facilities, as described in Caltrans Deputy Directive 64” (see below) in the full project cost. The policy requires project-sponsoring agencies—including Alameda CTC and local jurisdictions—to submit a completed checklist evaluating bicycle (and pedestrian) facility needs as part of the planning and design of each transportation project submitted for funding to MTC.

The checklist “is intended for use on projects at their earliest conception or design phase so that any pedestrian or bicycle consideration can be included in the project budget.” The checklist also serves to bring the project designer’s attention to the needs of bicyclists, and to inform the public on how well projects accommodate bicycling. MTC’s funding decisions are not contingent on how the checklists are completed.

MTC’s policy also requires congestion management agencies (CMAs), such as Alameda CTC, to forward all submitted project checklists to their bicycle and pedestrian advisory committees (BPACs) for review. There are several ways in which Alameda CTC could consider improving its compliance with this requirement, as listed below.

- ▶ **MTC complete streets policy and checklist:**
www.mtc.ca.gov/planning/bicyclespedestrians/routine_accommodations.htm

Suggestions

- Encourage local agencies to submit completed checklists as much in advance of project decisions as possible; submitting checklists to the BPACs with ample time to allow for more thorough review and comment, and for project sponsors to respond adequately.
- Investigate feasibility of tracking checklists and projects on line to streamline time and efficiency.
- Conduct field reviews to confirm that bicycle and pedestrian accommodations were constructed as indicated in the project checklists.

In May 2012, MTC established the OneBayArea Grant (OBAG) with Resolution Number 4035, which includes a requirement that all local jurisdictions adopt a complete streets policy resolution by January 31, 2013, or have a general plan that complies with the state Complete Streets Act of 2008, in order to receive state and federal funds in the next funding cycle. For future funding cycles, local jurisdictions must also comply with the state’s complete streets general plan requirement by October 2014, to be eligible for funds.

Alameda CTC Complete Streets Policy

In 2006, Alameda CTC adopted MTC’s Routine Accommodation policy (Resolution 3765; see below) when it adopted the previous Countywide Bicycle Plan, which incorporated the resolution. The policy was also adopted into the agency’s Congestion Management Program (CMP). Alameda CTC currently considers cyclists when it develops a transportation project that could impact bicycling negatively. However, this approach may not be consistent for all projects. Additionally, even recommended accommodations may not appear in a final project for several reasons, including limited funding and conflicts with the facility design standards of Caltrans or local agencies.

Alameda CTC intends to pursue the adoption of a comprehensive internal agency complete streets policy, which would integrate the idea of complete streets into agency practices. In early 2012, Alameda CTC updated all of its agreements with local agencies for their local sales tax pass-through and vehicle registration fee funding, and included a requirement for local jurisdictions to adopt a complete streets policy by June 30, 2013. The agency is working to support local jurisdictions in their development and implementation of complete streets policies that meet its, and MTC’s new, requirements.

Caltrans' Complete Streets Policy

In 2001, the California Department of Transportation (Caltrans) adopted Deputy Directive 64 (DD-64), Accommodating Nonmotorized Travel, which established a routine accommodation policy for the department. A revised directive adopted in 2008 as DD-64-R1, entitled Complete Streets—Integrating the Transportation System, significantly strengthened the policy beyond just “considering” the needs of bicyclists and pedestrians. Among the responsibilities

that Caltrans assigned to itself under the revised directive are:

- Ensure bicycle, pedestrian, and transit interests are appropriately represented on interdisciplinary planning and project delivery development teams.
- Ensure bicycle, pedestrian, and transit user needs are addressed and deficiencies identified during system and corridor planning, project initiation, scoping, and programming.
- Ensure incorporation of bicycle, pedestrian, and transit travel elements in all plans and studies.
- Promote land uses that encourage bicycle, pedestrian, and transit travel.
- Research, develop, and implement multimodal performance measures.

After adoption of this policy, it was noted that more guidance was needed on which roadway projects to review for impacts on bicyclists and pedestrians, how to review them, at what stage of project development and, most importantly, how to provide for bicyclists and pedestrians, especially if local or countywide plans do not identify nonmotorized transportation priorities in the area. Caltrans' design guidance documents—for example, its Highway Design Manual—did not universally coincide with the department's complete streets policy.

In part to address these issues, Caltrans adopted the Complete Streets Implementation Action Plan in 2010. The plan sets forth actions under seven categories to be completed by various Caltrans districts and divisions within certain timelines to institutionalize complete streets concepts and considerations within the department. The action categories include updating departmental plans, policies and manuals; raising awareness; increasing opportunities for training; conducting research projects; and actions related to funding and project selection. As one of its implementation actions, Caltrans updated the Highway Design Manual in large part to incorporate multi-modal design standards.

► **Deputy Directive 64-R1:**

http://www.dot.ca.gov/hq/tpp/offices/ocp/complete_streets_files/dd_64_r1_signed.pdf

► **Caltrans' Complete Streets Implementation Action Plan:**

http://www.dot.ca.gov/hq/tpp/offices/ocp/complete_streets_files/CompleteStreets_IP03-10-10.pdf

Suggestions

- Educate local jurisdictions on the relevance of Caltrans' Complete Streets Implementation Action Plan to local streets and roads, and on its relationship to the Highway Design Manual (discussed in a later section).
- Alameda CTC could work with local jurisdictions to develop a list of Caltrans highway overcrossings, undercrossings and at-grade crossings that might benefit from improvements for bicyclists. This could help Caltrans identify opportunities to accommodate nonmotorized transportation.

Climate action

The past five years has seen an expansion of legislative and planning efforts in California to reduce emissions of greenhouse gases (GHGs) in order to mitigate climate change. Assembly Bill 32, the California Global Warming Solutions Act of 2006, aims to reduce the state's GHG emissions to 1990 levels by 2020 and to 80 percent below 1990 levels by 2050. Meanwhile, Senate Bill 375, passed into law in 2008, is the first in the nation that will attempt to control GHG emissions by directly linking land use to transportation. The law required the state's Air Resources Board (ARB) to develop regional targets for reductions in GHG emissions from passenger vehicles for 2020 and 2035 as a way of supporting the targets in AB32.

Every jurisdiction in Alameda County has adopted or is in the process of adopting a climate action plan or similar document.

The GHG emission reduction targets adopted in 2010 by ARB for the Bay Area are 7% per capita by 2020 and 15% per capita for 2035, relative to 2005 levels. Each of the 18 metropolitan planning organizations in California—including the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG)—have prepared a sustainable communities strategy (SCS) for meeting the emission reduction targets in its region through transportation and land use actions that reduce the number of vehicle miles traveled. In the Bay Area, this strategy is called the "Jobs-Housing Connection Strategy." It is expected to take several years before AB 32 and SB 375 begin to transform Alameda County's transportation or land use patterns. The main way in which these laws are

expected to support bicycling is through implementation of the Bay Area's long-term Regional Transportation Plan (RTP), a 28-year planning document. As a part of the broader SCS, the RTP (and therefore the Countywide Transportation Plan, CWTP) were designed to meet the GHG emission

reduction targets. The RTP and CWTP are discussed later in this chapter.

- **Website for the Bay Area's SCS:**
<http://www.onebayarea.org>

Table 3.1 | Local climate action plans

<i>Jurisdiction</i>	<i>Year of adoption</i>	<i>Webpage</i>
North Planning Area		
Alameda (city)	2008	http://www.cityofalamedaca.gov/getdoc.cfm?id=24
Albany	2010	http://www.albanyca.org/index.aspx?page=256
Berkeley	2009	http://www.cityofberkeley.info/climate
Emeryville	2008	http://www.ci.emeryville.ca.us/index.aspx?nid=338
Oakland	In progress	http://www2.oaklandnet.com/Government/o/PWA/s/SO/OAKo25294
Piedmont	2010	http://www.ci.piedmont.ca.us/climate.shtml
Central Planning Area		
Alameda County (uninc.)	In progress	http://www.acgov.org/sustain/next/plan.htm
Hayward	2009	http://www.ci.hayward.ca.us/green-hayward/climate-action-plan
San Leandro	2009	http://www.sanleandro.org/depts/cd/plan/default.asp
South Planning Area		
Fremont	In progress	http://www.fremont.gov/index.aspx?NID=432
Newark	2010	http://www.newark.org/residents/going-green
Union City	2010	http://www.union-city.ca.us/green_city/Climate%20Action%20Plan.html
East Planning Area		
Dublin	2010	http://www.ci.dublin.ca.us/index.aspx?NID=665
Livermore	2010	http://www.cityoflivermore.net/citygov/cd/planning/cap/default.asp
Pleasanton	2012	http://www.ci.pleasanton.ca.us/pdf/FinalCAP2-1-12.pdf

At the local level, every jurisdiction in Alameda County has adopted or is in the process of adopting a climate action plan or similar document (see Table 3.1). Also, many jurisdictions have established a climate action program to implement their plan. All of the plans that are available in final or draft form propose bicycle facilities and programs among their strategies to meet their climate action goals. Due to the recent adoption of the plans (the first one was adopted in February 2008), it is too early to evaluate their impact or effectiveness to date. The extent to which

local climate action plans will result in the implementation of bicycle projects depends on many factors, including funding availability, political will and the GHG reduction potential of nonmotorized transportation projects compared to that of other projects. A major potential roadblock is the need for additional research on the GHG reduction benefits of bicycling, including cost-benefit analyses, the relative cost-effectiveness of different nonmotorized transportation strategies, and comparisons of such strategies against other types of projects.

Suggestion

- Provide technical assistance to help local jurisdictions implement their climate action plans and evaluate their effectiveness.

Priority Development Areas and Growth Opportunity Areas

Priority Development Areas (PDAs) are areas within existing communities that have been identified by local jurisdictions and approved by ABAG as most appropriate for infill development. The objective of PDAs is to create more housing, jobs, retail and services in pedestrian-friendly environments served by transit. According to ABAG, PDAs could accommodate as much as half of the Bay Area's projected housing growth through the year 2035. For these reasons, PDAs could result in a significant increase in the number of walking trips in Alameda County. To the extent that compact, transit- and pedestrian-friendly developments are favored also by cyclists, PDAs also could increase the number of bicycling trips.

PDAs are eligible for extra regional and state funding for planning and capital projects if they create more housing, jobs, retail and services in pedestrian- and bicycle-friendly environments served by transit. A total of 42 PDAs have been designated in 14 of the 15 jurisdictions in Alameda County; they are listed below. Approximately two fifths of the PDAs contain bus hubs, and all BART stations in the county, except North Berkeley, are located in a PDA.

► Priority Development Area Showcase (FOCUS):

<http://www.bayareavisoin.org/pda>

Growth opportunity areas (GOAs) are areas where local jurisdictions expect new growth to occur. Development in PDAs is either dependent on or more likely to occur with funding and other support from regional agencies such as MTC and ABAG. Development in GOAs, on the other hand, is expected to occur regardless of regional policies and resources.

Table 3.2 | PDAs and GOAs in Alameda County

All are PDAs unless indicated otherwise in parentheses

Alameda County (unincorporated): Urban Unincorporated Area, Castro Valley BART, East 14th Street and Mission Boulevard Mixed Use Corridor, Hesperian Boulevard, Meekland Avenue Corridor

Alameda (city): Alameda Naval Air Station, Northern Waterfront

Albany: San Pablo Avenue/Solano Avenue Mixed Use Neighborhood

Berkeley: Downtown, San Pablo Avenue, South Shattuck, University Avenue, Adeline Street, Telegraph Avenue

Dublin: Downtown Specific Plan Area, Town Center, Transit Center/Dublin Crossing

Emeryville: Mixed Use Core

Fremont: Centerville, City Center, Irvington, Ardenwood Business Park (GOA), Fremont Boulevard & Warm Springs Boulevard Corridor (GOA), Fremont Boulevard Decoto Road Crossing (GOA), Warm Springs (GOA)

Hayward: The Cannery, Downtown, South Hayward BART Station, Carlos Bee Quarry (GOA), Mission Boulevard Corridor

Livermore: Downtown, East Side PDA, Isabel Avenue/BART Station Planning Area

Newark: Dumbarton Transit Area, Old Town, Cedar Boulevard Transit (GOA), Civic Center Re-Use Transit (GOA)

Oakland: Coliseum BART Station Area, Downtown and Jack London Square, Eastmont Town Center, Fruitvale/Dimond Areas, MacArthur Transit Village, West Oakland, TOD Corridors

Pleasanton: Hacienda

San Leandro: Downtown, East 14th Street, Bay Fair BART Transit Village

Union City: Intermodal Station District, Mission Boulevard (GOA), Old Alvarado (GOA)

In 2004, ACCMA (one of Alameda CTC's predecessors), approved goals to encourage the connection between transportation and land use in Alameda County. These goals, which were included in a set of "goals and characteristics" of Transit-Oriented

Development, are to: (i) promote infill transit-oriented and walkable communities and compact development, as appropriate, and support the development of multi-family housing, mixed-use development and alternative transportation adjacent to transit centers; (ii) strengthen transit use and alternative modes of transportation, and increase connectivity between them; and, (iii) improve and maintain existing infrastructure and support future investments that promote smart growth, including access improvements to transit. In support of these goals, Alameda CTC administers a Transit-Oriented Development Technical Assistance Program (TOD TAP), which helps project sponsors overcome barriers to TOD implementation.

Suggestions

- Alameda CTC could strengthen its smart growth efforts by providing technical assistance, design guidelines, and resources to local jurisdictions on the planning and design of bicycle-friendly developments (reduced travel speeds, for example, should be considered in areas where bicycling is especially encouraged).
- More ambitiously, Alameda CTC could condition some of the funding it provides to local jurisdictions on the achievement of land use-related objectives. As an example of this, Contra Costa's Measure J, the county's half-cent sales tax for transportation, requires that local jurisdictions comply with the county's Growth Management Program (GMP) to be eligible for funding under two of Measure J's programs. Among the requirements of the GMP is that each jurisdiction "incorporate policies and standards into its development approval process that support transit, bicycle and pedestrian access in new developments." To help local jurisdictions comply with this requirement, the Contra Costa Countywide Bicycle and Pedestrian Plan references and provides links to a number of design guidelines and similar resources.
- Encourage infill-appropriate areas not located within PDAs to build compact, bicycle-friendly developments.
- Encourage local jurisdictions to promote the U.S. Green Building Council's "LEED for Neighborhood Development" certification among developers.

Active transportation

"Active transportation" is a relatively new term encompassing bicycling, walking and access to transit, which places emphasis on the health, environmental and other benefits of these forms of travel, while also stressing that bicycling and walking serve utilitarian, not just recreational, purposes. The concept has been advanced by the growing recognition that multi-use trails serve in part as transportation facilities. Important regional trail and open space plans such as the Bay Trail Plan, the East Bay Regional Park District's Master Plan and the San Francisco Bay Conservation and Development Commission's Bay Plan acknowledge and support the dual recreation/transportation function of multi-use trails throughout the Bay Area.

Alameda CTC administers a number of projects and programs in support of its active transportation effort and is seeking funding for others. Two examples of current efforts are a countywide safe routes to schools program and an initiative to build the East Bay Greenway and complete other countywide trails. As well, Alameda CTC was a partner in the national Active Transportation Campaign, created to support a program to provide large investments in bicycling and walking that would shift people from driving to biking, walking and transit.



As a result of this campaign, in 2010 the Active Community Transportation Act was introduced in the House of Representatives to create a \$2 billion program as part of the next federal transportation bill. The program was intended to provide grants of \$25 million to \$75 million to dozens of communities nationwide for projects and programs that would increase bicycling and walking. To position itself to

compete for funding, Alameda County developed an Active Transportation Plan detailing how a possible \$50 million in new funding could make a substantial impact on bicycling and walking in the county. The plan established three priorities: promote access to transit; connect communities with urban greenways; and develop promotional and educational campaigns to encourage bicycling and walking. The goals from the Active Transportation Plan were incorporated into this plan's goals (see "Vision and Goals" chapter). After a new Congress was elected in the fall 2010, the Active Community Transportation Act was not re-introduced, making it very unlikely that this program will be included in the next federal transportation bill.

Suggestion

- Alameda CTC could develop guidelines for conducting "health impact assessments" of its large-scale transportation plans and projects. These assessments, analogous to environmental impact assessments, would evaluate impacts on conditions related to public health and to bicycling such as injuries and fatalities, air pollutant exposure and premature mortality, greenhouse gas emissions, and traffic-related noise and stress.

Transportation plans

Local bicycle and pedestrian master plans

Because they have authority over most land within their boundaries, local jurisdictions plan, design and construct the majority of bicycle capital projects. In Alameda County, these jurisdictions include 14 cities and the County, which administers the unincorporated areas. All 15 jurisdictions support nonmotorized transportation through the goals and policies of the circulation element of their general plan. In addition, most of the jurisdictions have prepared bicycle master plans to provide more specificity to the information in their circulation element related to nonmotorized transportation. Some of the jurisdictions have stand-alone bicycle plans while others have combined bicycle/pedestrian plans.

Table 3.3 below summarizes the local bicycle (and/or pedestrian) plans in Alameda County, as indicated by

the year in which the plan was, or is expected to be, adopted. All jurisdictions except Piedmont have an adopted or in-progress bicycle plan (either stand-alone or combined). The final section of this chapter, further below, outlines the most common challenges encountered by local jurisdictions in implementing their bicycle plans and, more generally, in improving the environment for users of nonmotorized transportation.

Alameda Countywide Transportation Plan and Transportation Expenditure Plan

The Countywide Transportation Plan (CWTP) is a long-range policy document that guides decisions and articulates the vision for the County's transportation system. It sets policies, guides decision-making and, perhaps most importantly, establishes priorities for capital projects and programs, and strategic initiatives. The CWTP was last updated in 2012, slightly ahead of the Countywide Bicycle Plan update; this latest CWTP has a horizon year of 2040.

The updated CWTP provided the foundation for a Transportation Expenditure Plan (TEP) outlining nearly \$7.8 billion in transportation projects that would be implemented over the next 30 years if the County's existing half-cent sales tax for transportation is augmented and extended in November 2012 by the voters. Under the TEP, over 8% of net revenue from the sales tax would be dedicated to bicycle and pedestrian projects and programs. The TEP would fund, or contribute towards funding:

- Completion and maintenance of the three major trails in Alameda County—the Iron Horse Trail, Bay Trail and East Bay Greenway—and of local connectors and access routes.
- Direct, "pass-through" funding to the local jurisdictions, based on their share of population, for bicycle and pedestrian projects and programs. Emphasis will be on completing high-priority projects in local bicycle and pedestrian master plans but the jurisdictions will be expected to also implement projects from the Countywide Bicycle and Pedestrian Plans.

Table 3.3 | Local bicycle and pedestrian plans (with year of adoption)

<i>Jurisdiction</i>	<i>Bicycle plan</i>	<i>Pedestrian plan</i>
North planning area		
Alameda (city)	2010	2009
Albany	2012*	
Berkeley	2005	2010
Emeryville	2012*	
Oakland	2007	2002
Piedmont	--	--
Central planning area		
Alameda County (uninc. areas)	2012*	
Hayward	2007	--
San Leandro	2010*	
South planning area		
Fremont	2012	2007
Newark	Expected in 2012*	
Union City	2006*	
East planning area		
Dublin	2007	--
Livermore	2001	--
Pleasanton	2010*	
Total (adopted + underway)	13 + 1	10 + 1

* Combined bicycle and pedestrian plan

- Competitive grants to local jurisdictions and other eligible agencies for such purposes as implementing projects in the Countywide Bicycle and Pedestrian plans and in community-based transportation plans; bicycling education and training; trail maintenance; and projects that improve bicycling and walking access to schools. The funds will also be used to hire a countywide bicycle and pedestrian coordinator.
 - In addition, bicycle projects would be funded through two other TEP programs: local streets and roads, and sustainable transportation and land use linkages.
- **Alameda Countywide Transportation Plan:**
http://www.alamedactc.org/app_pages/view/795

Regional Bicycle Plan

In 2009, MTC, the regional transportation planning agency for the Bay Area, updated its Regional Bicycle Plan for the San Francisco Bay Area. Among other things, the plan updated the regional bikeway network, one of the purposes of which is to focus MTC's spending on high-priority bicycle facilities that serve regional trips. All the congestion management agencies in the Bay Area, including Alameda CTC, were surveyed to determine needed updates to each county's portion of the regional bikeway network. The regional bikeway network—both existing and proposed segments—extends approximately 2,140 miles. That figure includes 348 miles in Alameda County, which is for the most part the “financially

constrained” subset of the “vision” bicycle network outlined in the 2006 Countywide Bicycle Plan. At the time of the Regional Bicycle Plan update, a total of 161 miles, or 46% of the Alameda County total, had been built or was fully funded and awaiting development within the county. The updated plan estimated the cost to complete the regional bikeway network in Alameda County at \$166 million.

- ▶ **Regional Bicycle Plan for the San Francisco Bay Area:**
www.mtc.ca.gov/planning/bicyclespedestrians/MTC_Regional_Bicycle_Plan_Update_FINAL.pdf

Regional Transportation Plan

Just as the Countywide Transportation Plan incorporates the priorities of local jurisdictions, the Regional Transportation Plan (RTP) incorporates priority projects and programs from the nine counties that make up the Bay Area, and establishes the funding priorities for the region. MTC is in the process of updating the RTP, which will have a horizon year of 2040. The updated RTP will be different from previous versions in that the new plan will incorporate a Sustainable Communities Strategy (SCS) for the Bay Area. The SCS is a state-mandated effort to meet GHG emission reduction targets through transportation and land use actions that reduce the number of vehicle miles traveled.

The SCS/RTP adopted 15 performance targets against which to evaluate various long-range transportation and land use scenarios. Three of these targets especially concern bicycling. They are: (i) Reduce by 50% the number of injuries and fatalities from all collisions; (ii) Increase the average daily time biking per person for transportation by 70%; and (iii) Increase the non-auto mode share by 26%. The preferred scenario was approved in May 2012, and the final SCS/RTP is due for adoption in April 2013.

- ▶ **Website for the Bay Area’s SCS:**
<http://www.onebayarea.org>

Community-based transportation plans

In 2002, MTC launched its Community-Based Transportation Planning program. The goal of the program is to engage low-income Bay Area communities in identifying barriers to mobility, and

evaluating options and setting priorities to overcome these barriers. Community-based transportation plans (CBTPs) are developed through a collaborative planning process that involves residents, community- and faith-based organizations, local agencies, transit operators, county CMAs and MTC. A CBTP contains a demographic analysis of the area; a list of prioritized transportation gaps and barriers; strategies or solutions to address identified gaps; and a list of potential funding sources for implementation. Five CBTPs have been completed in Alameda County: West Alameda (city), Central and East Oakland, South and West Berkeley, Central Alameda and West Oakland.

Given the broad goal of CBTPs to improve mobility for low-income, senior, youth and disabled populations, transit and paratransit have been a strong emphasis of these plans. In addition, each of the Alameda County CBTPs contains recommended nonmotorized transportation projects and programs. These plans are typically focused on access to transit and key community facilities. As for all transportation projects, implementation of the CBTPs contends with limited funding. Furthermore, implementing these projects also requires coordination among several parties, such as jurisdictions and transit operators, which creates additional challenges to completing projects.

- ▶ **MTC’s Community-Based Transportation Planning program:** <http://www.mtc.ca.gov/planning/cbtp>

Suggestion

- Alameda CTC should support implementation of the bicycle projects in the CBTPs by incorporating them into the priorities of this plan.

Other policies and practices

Congestion Management Program, deficiency plans and countywide transportation model

State law requires that congestion management agencies develop and update a Congestion Management Program (CMP) for monitoring and improving the designated transportation network. In

Alameda County, Alameda CTC prepares the CMP for a network of 232 miles of freeways, highways and arterials. The CMP legislation requires a certain minimum level-of-service on all CMP routes.

In addition to monitoring and guiding improvements for the countywide roadway network, the Alameda County CMP encourages the use of travel demand management (TDM) strategies (including bicycle-related programs). TDM strategies are intended to support mobility, improve air quality and meet land use and economic objectives in the CMP. Local jurisdictions are responsible for adopting site design guidelines that will improve bicycle, pedestrian and transit access, and for implementing capital improvements to reduce traffic congestion and vehicle emissions. Alameda CTC monitors their compliance with these requirements.

Five “community-based transportation plans” have been completed in Alameda County: West Alameda (city), Central and East Oakland, South and West Berkeley, Central Alameda and West Oakland.

CTC requires local jurisdictions to prepare deficiency plans for segments of the CMP roadway network that do not meet adopted level-of-service (LOS) standards. Deficiency plans provide an opportunity to analyze the causes of congestion and identify alternative solutions to restore LOS. As part of the deficiency plans, local governments may include and prioritize system-wide and non-capital strategies for relieving congestion, including public transit and nonmotorized transportation improvements, and travel demand management measures.

Despite this flexibility, meeting the CMP LOS requirements can be challenging as the need to reduce traffic congestion may not always easily accommodate other transportation modes (where the right-of-way is constrained) and mitigation measures designed for drivers can degrade conditions for bicyclists when only localized improvements are made.

In this context, a new option was added to the 2011 CMP update to allow local jurisdictions to develop area-wide deficiency plans. The goal is to allow an analysis of, and improvements to, system-wide LOS involving all modes, for a larger geographic area. This

will provide added flexibility to address all modes in the LOS performance.

Suggestions

- Investigate developing and applying a multi-modal approach to measuring or addressing LOS that meets consistent objectives, and could be tailored to apply to different areas of the county.
- Encourage and support improved long-term coordination between transportation and land use decisions by local jurisdictions along CMP routes.
- Review and develop options for harmonizing policies for infill development areas, or Priority Development Areas, and the CMP requirements.
- Overlay the CMP network on the vision bicycle network to determine overlapping segments where TDM strategies, transit and bicycle projects, and system-wide and non-capital strategies could be prioritized for maintaining LOS standards.

Alameda CTC maintains a countywide transportation demand model to determine future demand for transportation facilities and services. The model is used to analyze the impacts of development projects on the transportation system. The model inputs are based on socio-demographic data supplied by ABAG at the census tract level, which are then disaggregated to the finer “traffic analysis zones” by Alameda CTC with review by local jurisdictions. In addition to vehicle trips, Alameda CTC’s model can estimate total bicycle and pedestrian trips in a given area. Recently, MTC has developed a more comprehensive travel demand model that estimates multi-modal trips, including bicycle (and pedestrian) trips.

Suggestions

- When the Alameda Countywide travel demand model is next updated, it could be modified to enhance the prediction of future bicycle trips. This feature would help identify and prioritize areas and corridors where nonmotorized transportation improvements are most needed.
- As an alternative, Alameda CTC could consider developing a simple and less expensive spreadsheet sketch model of bicycle demand forecasting.
- As an approach to developing a better internal understanding of the countywide travel demand model’s and LOS standard’s impacts on bicycle projects, Alameda CTC could lead, in collaboration

with a local jurisdiction, a road diet study, or other study, possibly along a CMP network segment. The goal would be to develop specific recommendations to improve the model and LOS standards.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that project-sponsoring public agencies evaluate and disclose the potential environmental impacts of their development projects. Due to requirements to mitigate traffic congestion and address air quality, CEQA sometimes results in the degradation of conditions for bicyclists when roadway changes are made to improve automobile level of service (LOS). An example of a mitigation measure to reduce auto traffic impacts could be to widen intersections or add traffic lanes. These measures could reduce traffic congestion while making streets less bicycle-friendly. With its focus on reducing traffic congestion by preserving capacity for cars, CEQA can also make it hard to implement higher-density, infill and other types of smart growth developments, as well as removal of car travel lanes to allow room for bike facilities, such as bike lanes and traffic calming measures.



To resolve some of the LOS-related issues, a number of jurisdictions have adopted flexible automobile LOS standards. San Jose and Yuba City, for example, accept a lower LOS in their downtown; the City of Chico allows a lower LOS in built-out areas served by transit; and Sacramento County allows lower LOS inside its “urban services boundary.” For its residential streets, Pleasanton uses a “quality of life LOS,” which considers the amount of cut-through

auto traffic, traffic speeds, peak-hour and average daily traffic volumes, ease of crossing the street and the ease of exiting driveways.

The Governor’s Office of Planning and Research, in 2009, revised the CEQA guidelines in several ways that lessen, though they do not eliminate, the law’s bias toward reducing traffic congestion:

- The old guidelines asked if the project caused an increase in auto traffic compared to existing traffic; the new guidelines ask if the project conflicts with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the entire circulation system.
- Instead of asking if the project exceeds a LOS established by the county congestion management agency, the new guidelines ask if the project conflicts with an “applicable congestion management program, including but not limited to LOS and travel demand measures, or other standards.”
- The new guidelines no longer consider inadequate parking capacity as a potential impact.

Lastly, the process to obtain CEQA clearance can be lengthy and expensive, which adds to the cost of a proposed project. Implementation of San Francisco’s bicycle plan, for example, was frozen for four years, until mid-2010, when opponents sued over the project’s CEQA review. The result has been uncertainty among local jurisdictions about the level of environmental clearance needed for bicycle plans. This uncertainty might discourage some jurisdictions from pursuing robust or controversial bicycle projects so as to avoid a burdensome CEQA scenario.

Suggestions

- Alameda CTC could help local jurisdictions overcome CEQA-related obstacles to the implementation of bicycle projects by providing technical assistance and/or countywide best practices on:
 - The level of environmental review recommended for different types of bicycle plans and projects.
 - Alternatives to automobile LOS thresholds.
 - Trip-generation methodologies appropriate for smart growth development projects.

- Ways to streamline the CEQA review process or even to exempt some projects outright.
- Thresholds of significance for bicycle projects.
- Although most CEQA-related policies would need to be adopted by local jurisdictions, by developing these tools, best practices and guidelines, Alameda CTC can assist local jurisdictions with defining how CEQA can be implemented without degrading, and possibly even improving, the bicycle environment.

Highway Design Manual

The Highway Design Manual (HDM), developed by Caltrans, establishes both mandatory and advisory standards for the design of state highways in California. The manual's many sections address all aspects of roadway design, including geometries, intersections and interchanges, pavement, drainage and noise abatement. Chapter 1000 covers the planning and design of all bikeway facilities except for Class II bicycle lanes, for which guidance is distributed throughout the manual.

Because the manual is concerned with state routes—which primarily serve drivers—it overlooks many issues related to the design of bicycle facilities and of complete streets. As a result, its standards and guidelines are not always appropriate for local streets and roads, especially those where bicycling is encouraged. Nevertheless, many local jurisdictions follow the HDM when designing their roadways. This could be because local-agency staff do not realize that they may deviate from the HDM (except for the bikeway and trail design guidance in Chapter 1000) or are not familiar with alternative roadway design manuals.

- ▶ **Highway Design Manual:**
<http://www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm>

Suggestions

- Alameda CTC could develop design guidance for local streets and roads or promote existing alternative design standards and guidelines.
- Work with Caltrans to educate local-agency staff on opportunities to deviate from the HDM for the design of local roadways.
- Educate local jurisdictions on the relevance of the HDM to local streets and roads and on its

relationship to Caltrans' Complete Streets Implementation Action Plan (discussed in an earlier section).

California Manual on Uniform Traffic Control Devices

The Manual on Uniform Traffic Control Devices (MUTCD) is a document published by the Federal Highway Administration specifying standards for the design, installation and use of traffic signs, signals and road-surface markings. The MUTCD was last updated in December 2009. California uses its own version of the manual, which conforms substantially to the federal MUTCD. Caltrans updated the California MUTCD to incorporate the 2009 federal MUTCD in January 2012.

The new California MUTCD incorporated a number of improvements related to bicycle signage and markings. Some of the more significant changes to the manual are listed below.

- Required warning school signs to be fluorescent yellow-green
 - No longer mandated signing along bike lanes
 - Included new "Bikes May Use Full Lane" sign
 - Included new shared-lane marking to denote the recommend location for cyclists in a traffic lane
 - Included a new combined bicycle/pedestrian warning sign
- ▶ **Federal Manual on Uniform Traffic Control Devices:**
http://mutcd.fhwa.dot.gov/pdfs/2009/pdf_index.htm
 - ▶ **California Manual on Uniform Traffic Control Devices:**
http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/ca_mutcd2012.htm

Suggestion

- Alameda CTC could work with the local jurisdictions to promote the development of new infrastructure designs not included in the California MUTCD, by supporting local experimentation with new devices and infrastructure, modeled on the federal program. This could include financial incentives and technical assistance. Alameda CTC could begin the process by identifying, and focusing on, the types of issues that are not being addressed well with current infrastructure options.

Issues identified by local jurisdictions

As mentioned earlier, most bicycle capital projects in Alameda County, and many support programs, are implemented by the 15 local jurisdictions (the County and 14 cities). With this in mind, the questionnaire administered to local agencies as part of the data-gathering effort to update the Countywide Bicycle and Pedestrian Plans asked staff to identify the challenges they most commonly encounter in implementing projects and, more generally, in improving the environment for users of nonmotorized transportation. The three implementation challenges most commonly cited as a “major obstacle” were: (i) inadequate funding (mentioned as a major obstacle by eight jurisdictions); (ii) shortage or absence of trained staff (mentioned by five); and, (iii) conflicts with other public agencies (also mentioned by five). At the October 2010 meeting of the Alameda County Bicycle and Pedestrian Plans Working Group, attended by representatives from agencies throughout the county, members were asked to elaborate on each of the three obstacles. Below is a summary of this discussion and some suggested ways to address the obstacles.

The three challenges most commonly cited as a “major obstacle” to the implementation of bicycle facilities were inadequate funding, shortage or absence of trained staff, and conflicts with other public agencies.

Inadequate funding

A lack of funding for staffing and for implementation of capital projects and programs is inhibiting the development of bicycling and walking improvements. Funding is especially limited now due to budgetary cutbacks at public agencies. Many projects for nonmotorized transportation in capital improvement programs are unfunded or only partially funded. Jurisdictions with dedicated bicycle or pedestrian planners need funding for engineering staff to design funded projects (in other words, to make them “construction ready”). Jurisdictions that do not have dedicated staff also tend to lack funding for capital projects because they do not have the staff resources to apply for grant funds. All jurisdictions lack adequate funding to maintain their bicycle and pedestrian

facilities. This has a ripple effect, discouraging agencies from constructing new facilities so as not to add to their maintenance burden.

As a funding agency, Alameda CTC is committed to helping local jurisdictions obtain funds for bicycle projects. Key reasons why Alameda CTC developed this plan include advocating for increased funding, prioritizing projects so as to invest its funds more effectively and positioning projects to compete more strongly for other sources of funding.

Suggestion

- Create a countywide fund for local maintenance needs for nonmotorized transportation facilities, as has been done in Marin County.

Shortage or absence of trained staff

Only two jurisdictions represented in the discussion—Berkeley and Oakland—have full-time bicycle or pedestrian staff. In all other jurisdictions, these duties are assumed by planners or engineers with many other responsibilities, some of which might be a higher priority. In jurisdictions where the bicycle or pedestrian coordinator is a planner, design and project management staff is in short supply; where the coordinator duties are held by an engineer, long-range planning and grant-writing can be bottlenecks. Some grant opportunities require extensive staff time to prepare applications; this is onerous for all jurisdictions but makes it especially difficult for smaller agencies to compete for funding.

Often there are insufficient staff resources to deliver funded projects. Project grants above approximately \$1 million tend to justify the hiring of staff for implementation but smaller grants generally do not. Even when funds are available, many local jurisdictions are unable to hire staff or even interns, due to hiring freezes or budget concerns. At the same time, hiring and managing consultants is time-consuming for staff.

Suggestions

- Identify flexible funding that may be used for staffing rather than for projects.
- Provide training and other technical assistance on nonmotorized transportation to engineering staff

as a way to compensate for the shortage of dedicated bicycle planners.

- For large-scale, multi-jurisdictional projects, Alameda CTC could be the project lead, as it has done for some capital highway and corridor projects and for the East Bay Greenway.

Conflicts with other public agencies

In some areas, a jurisdiction's best opportunities for new bicycle facilities are on rights-of-way—such as canals, creeks, highways and railroad corridors—controlled by other agencies. However, such projects tend to be much more challenging to implement than projects on property owned or controlled by the jurisdiction. This is usually because of limited staff resources to deal with multiple responsible agencies (which reinforces the previously mentioned concern of a shortage or absence of trained staff). As a result, some good project opportunities tend not to be prioritized or even pursued. In particular, projects that need federal environmental clearance require specially trained staff, which many agencies do not have, or consultants; either way, the requirements increase a project's complexity and costs.

Suggestions

- Provide training or other technical assistance to local-agency staff on inter-agency coordination.
- In addition to being the project lead for large-scale multi-jurisdictional projects (mentioned above), Alameda CTC could serve as an inter-agency facilitator or moderator for smaller-scale projects.
- Work with local Caltrans staff to pro-actively improve bicycling (walking) conditions along Caltrans at-grade highways.

4 | VISION AND GOALS

Bicycling in Alameda County in 2040

Alameda County will be a community that inspires people of all ages and abilities to bicycle for everyday transportation, recreation and health, with an extensive network of safe, convenient and interconnected facilities linked to transit and other major destinations.

The vision for 2040

The vision statement (above) is an ambitious yet achievable description of what bicycling in Alameda County could be like by 2040, roughly 30 years after adoption of this plan. The vision statement for the 2006 Plan, while brief, incorporated the concept of bicycling as a safe and viable form of transportation integrated with other modes and the importance of multi-jurisdictional coordination in implementing bicycle projects. The updated vision statement retains most of these concepts, while also simplifying the statement and making it more parallel to the Pedestrian Plan vision statement. Attaining the vision will require a strong and sustained commitment of finances and resources by not only Alameda CTC but

also other agencies, advocates and local jurisdictions in the county.

Goals and strategies

This chapter also defines a set of five goals and more than 40 strategies to guide the actions and decisions of Alameda CTC in implementing the plan and, more generally, in supporting bicycling in the county. The goals are broad statements of purpose meant to support realization of the vision. They provide guidance to Alameda CTC and set the overall directions on the general areas in which the agency should concentrate its efforts related to bicycling.

Under each goal is a set of more specific and detailed strategies—42 in total—that should enable Alameda CTC, and the county, to attain that goal. The strategies serve as the basis for countywide funding priorities and specific actions, or “next steps,” developed later, in the chapters on countywide priorities and implementation; as such, they are the bridge between the general goals and implementable actions.

Together, the goals and strategies generally define the roles and responsibilities of Alameda CTC—and, to a lesser extent, of other agencies and organizations—in implementing the Bicycle Plan. This plan also

establishes eight performance measures that will be used to monitor progress toward attaining the plan goals. These performance measures are discussed in the “Next Steps” chapter.

This plan acknowledges the goals and strategies from the 2006 Countywide Bicycle Plan as its starting point, rather than starting from scratch (the strategies were called “objectives” in the 2006 plan). The 2006 plan established a vision and five goals to guide the actions and decisions of Alameda CTC’s predecessor agency to support bicycling in the county. In summary, the goals were to, (1) establish a countywide bicycle network; (2) integrate bicycling in transportation plans and projects; (3) encourage bicycling for transportation; (4) improve bicycling safety; and, (5) maximize the use of resources toward implementation of the plan. In general, the agency’s bicycle-related decisions and priorities since 2006 have been guided by these broad, overarching goals.

This chapter also defines a set of five goals and more than 40 strategies to guide the actions and decisions of Alameda CTC in implementing the plan and, more generally, in supporting bicycling in the county.

This plan updates the policy framework from the 2006 plan to reflect data and insights gathered from the “Existing Conditions” and “Evaluation of Plans, Policies and Practices” chapters. The plan generally reaffirms the original policy framework but refines it in two main ways. First, the goals have been reorganized in ways that parallel those in the updated Countywide Pedestrian Plan, to stress the complementarity and synergies between the two plans. Second, the goals and strategies were updated to reflect recent policy changes affecting the practice of bicycle planning (these policy changes include recent efforts to promote active transportation and public health, and to address climate change).

Together, the goals and strategies define Alameda CTC’s role and responsibilities in implementing the Bicycle Plan. Alameda CTC influences bicycling in the county in many ways: through funding decisions for all transportation projects, by allocating funds for bicycle projects, via policy decisions, by providing technical assistance and also by coordinating the efforts of local jurisdictions. Nevertheless, Alameda

CTC relies heavily on the cooperation of other agencies—especially Caltrans, the County, the cities, various special districts, and bicycling advocates—to accomplish the goals and strategies outlined here. It is these agencies and entities, rather than Alameda CTC, that are primarily responsible for planning, designing and constructing bicycle facilities and for carrying out support programs. For this reason, the goals and strategies in the Bicycle Plan are meant to support those adopted by other relevant agencies and are not limited to areas over which Alameda CTC has jurisdiction. This approach recognizes that other agencies play a critical role in implementing the Bicycle Plan and achieving the plan’s vision.

The goals, listed below, are organized into five thematic areas. The goals mirror those in the updated Countywide Pedestrian Plan, as appropriate, as a way to stress the complementarity and synergies between the two plans.

Goal areas

- ❶ Infrastructure and design
- ❷ Safety, education and enforcement
- ❸ Encouragement and promotion
- ❹ Planning
- ❺ Funding and implementation

❶ Infrastructure and design

Create and maintain a safe, convenient, well-designed and continuous countywide bicycle network, with finer-grained connections around transit and other major activity centers.

1.1 Designate a countywide network of appropriate bicycle facilities on routes and important corridors that serve transit stations and stops, employment and commercial centers, colleges and universities, regional parks and other key destinations, and that connect cities within the county and to neighboring counties.

1.2 Support the design and construction of bicycle facilities that serve a broad range of travel purposes, income levels, abilities and experience levels, including school-aged

children, families, seniors, recreational riders and commuters.

1.3 Provide funding and technical assistance to local jurisdictions for the implementation of bicycle projects of countywide significance that create continuous facilities and eliminate major physical barriers or impediments.

1.4 Collaborate with and promote coordination among Caltrans and local agencies to implement facilities on the countywide bicycle network.

1.5 Promote a network of multi-use urban pathways by supporting construction of the East Bay Greenway and completion of the San Francisco Bay Trail, the Iron Horse Trail and other paved inter-jurisdictional trails that connect and serve populated areas.

1.6 Encourage and support the construction of “complete streets” throughout Alameda County that incorporate best practices in bicycle design and minimize conflicts between bicyclists and other travel modes.

1.7 Encourage local jurisdictions to adopt policies, guidelines, standards and regulations that result in bicycle-friendly communities, and, where applicable, transit-oriented land use development, and provide them with technical assistance and resources to do so.

1.8 Encourage and fund transit operators to improve bikeways to stations and stops in collaboration with local jurisdictions, to meet current and future demand for bicycle parking at stations and to maximize opportunities for on-board bicycle access.

1.9 Support improving the state of the practice of bicycle infrastructure design so that all transportation facilities are well-designed and standardized, as appropriate, including by encouraging local agencies to develop and follow bicycle design guidelines and amend local ordinances as appropriate to reflect them.

1.10 Provide technical assistance to local jurisdictions on bicycle parking best practices; and encourage them to install parking to meet current and future demand, and to require it as part of new developments.

1.11 Support and encourage the development of effective, coordinated bicycle wayfinding signage systems that are seamless across jurisdictional boundaries.

1.12 Support local jurisdictions in testing and installing innovative design treatments that tackle bicycling safety and convenience issues not addressed in standard guidelines.

1.13 Continue to provide training programs, resources and technical tools for city and county staff on bicycle planning and engineering best practices.



2 Safety, education and enforcement

Improve bicycle safety through engineering, education and enforcement, with the aim of reducing the number of bicycle injuries and fatalities, even as the number of people bicycling increases.

2.1 Collect and analyze data on traffic collisions involving bicyclists to determine trends, rates, hot spots and impacted communities, and use this information to guide planning and funding decisions to focus on areas and communities with the greatest need.

2.2 Provide funding for bicycle projects that address safety deficiencies in those areas with the highest collision rates.

2.3 Provide technical assistance and other tools to local jurisdictions for selecting priority areas for bicycle safety and security improvements, and planning and designing safer streets and facilities.

2.4 Support and encourage efforts by state, County and local agencies to adopt and enforce laws that aim to protect bicyclists from collisions with motor vehicles.

2.5 Continue to support the delivery of effective bicycle safety education programs throughout the county for a variety of audiences, including youth, drivers and pedestrians.

2.6 Support the expansion of the countywide Safe Routes to Schools program to every elementary and middle school in the county and to high schools, and encourage local school districts and jurisdictions to implement projects, activities and events that promote bicycling to school among both students and staff.

③ Encouragement and promotion

Support programs that encourage people to bicycle for everyday transportation and health, including as a way to replace car trips, with the aim of raising the percentage of trips made by bicycling.

3.1 Work with all levels of public agencies, non-profits and advocacy groups to implement effective encouragement programs, such as Bike to Work Day, that promote bicycling as a safe and convenient form of transportation among a broad range of potential users, including children, people with disabilities and seniors.

3.2 Enhance public awareness of bicycling as a physically active form of transportation that improves individual and public health, and also as an environmentally sustainable

transportation option that can help Alameda County and its jurisdictions meet their greenhouse gas reduction goals.

3.3 Promote the integration of bicycling into broader countywide transportation demand management programs and serve as a resource to employers on promotional information and resources related to biking to work.

3.4 Support efforts to establish bicycle-sharing programs in Alameda County, building on the experience of Bay Area and national programs.



④ Planning

Integrate bicycling needs into transportation planning activities, and support local planning efforts to encourage and increase bicycling.

4.1 Ensure that all local jurisdictions have a current bicycle master plan by providing adequate countywide funding.

4.2 Incorporate bicycling needs into Alameda CTC plans, studies and projects, as appropriate, and move toward using transportation models that are sensitive to bicycling demand and to the supply of bicycle infrastructure and programs.

4.3 Adopt and implement a Complete Streets policy, and encourage and support local jurisdictions to do so as well.

4.4 Educate elected and appointed officials about the importance and benefits of creating

bikeable communities, and the opportunities and constraints for doing so.

-
- 4.5 Encourage all local jurisdictions to designate a bicycle coordinator or primary contact, and to establish a bicycle advisory committee or provide other meaningful opportunities for public input on bicycling issues.
-
- 4.6 Continue to serve as a forum for local agencies and other stakeholders—including through the Pedestrian and Bicycle Working Group—to plan multi-jurisdictional projects and countywide programs and to share information about bicycle-related issues of mutual concern.
-
- 4.7 Support and fund research into bicycle planning, and project and program implementation when it has a direct benefit for Alameda County.
-
- 4.8 Continue to collect and analyze data on bicycle trips and travel behavior, and encourage other public agencies, special districts and transit agencies to do so as well.
-
- 4.9 Provide technical assistance to help local jurisdictions address impacts of construction projects on bicycle facilities, including planning for detours.
-
- 4.10 Advocate for state and federal legislation that would improve and support bicycling in Alameda County.
-
- 4.11 Update this plan approximately every four years to ensure that current bicycle priorities are incorporated into the Countywide and Regional Transportation Plans.
-
- 4.12 Between plan updates, make technical amendments to the plan as needed to incorporate revisions to the countywide bicycle network, and to capital project and program priorities.

5 Funding and implementation

Maximize the capacity for implementation of bicycle projects, programs and plans.

- 5.1 Continue to work on securing maximum funding for bicycle projects and programs from countywide, regional, state and federal sources, and also on attracting funding from private and non-traditional sources.
-
- 5.2 Provide timely information to local jurisdictions on funding opportunities for bicycle projects and provide assistance to these jurisdictions, as appropriate, in submitting applications for project funding.
-
- 5.3 Identify and secure additional sustainable funding streams for the maintenance of bicycle infrastructure, including by collaborating with local agencies and others, and by using countywide funds, as feasible.
-
- 5.4 Develop and maintain a prioritized list of diverse bicycle projects and programs throughout the county to position Alameda County to maximize funding opportunities as they arise.
-
- 5.5 Support, encourage and advocate for sufficient funding and staffing to implement this plan.
-
- 5.6 Consider the priorities of this plan when making funding decisions for all funds that come through Alameda CTC.

5 | COUNTYWIDE PRIORITIES

Introduction

The previous chapters evaluated existing conditions and the key plans, policies and practices at all levels of government that affect bicycling in Alameda County, and set out a vision and goals for the Countywide Bicycle Plan. Based on this analysis and vision-setting, this chapter defines three types of bicycle improvements that will help Alameda CTC implement the plan’s vision and goals. These three types are: (i) capital projects, (ii) programs and (iii) plans.

Since Alameda CTC is a countywide agency, the focus of this chapter is on projects and programs considered to be of countywide importance.

When it comes to transportation improvements—including for bicyclists—needs typically far exceed the financial, staffing and other resources to implement them. This requires that needs be considered carefully and that improvements be prioritized thoughtfully. This chapter defines a “vision network” of capital projects, unconstrained by potentially available resources, but also outlines a subset “priority network” for prioritizing Alameda CTC’s limited funds for bicycle improvements. Lastly, this chapter establishes priorities among bicycle-oriented programs and plans.

Since Alameda CTC is a countywide agency, the focus is on bicycle projects and programs (and plans, to a lesser extent) considered to be of countywide importance. Also, since this is a plan adopted by Alameda CTC, the focus is on those actions and decisions that the agency can take to advance bicycling. Given its primary role as a funding agency, Alameda CTC can support the development and delivery of bicycle projects, programs and plans mainly through funding. It can also do so through staffing support, technical assistance and related planning, coordination and implementation efforts.

Capital projects

Capital projects, or infrastructure, form the physical framework that enables and encourages people to get around by bike. Infrastructure for bicyclists includes, perhaps most obviously, paved multi-use paths and bike lanes, but also signed routes, traffic calming devices, bicycle parking and undercrossings and overcrossings of roads, waterways and rail tracks, among other facilities. To be usable and safe, this infrastructure must also be well-maintained.

The 2006 plan included a countywide bicycle network consisting of 22 cross-county corridors. That network provided for three nested levels of investment. In

descending order, from most ambitious and inclusive, they were: a vision network, a financially constrained network and a set of high-priority projects.

This plan update simplifies this framework into a vision network and a priority network. The framework significantly expands the scope and size of the 2006 vision network by retaining the cross-county corridors while adding new areas, routes and projects with countywide significance. The vision network, if built in conjunction with local bicycle projects, would achieve the plan’s vision and goals. The infrastructure projects that make up the vision network are, as the network’s name implies, unconstrained by potentially available funds.



The priority network, on the other hand, is a subset of areas, corridors and projects from the vision network that are most significant from a countywide perspective and that are anticipated to be most effective at achieving the goals of this plan. The priority network is meant to help guide and focus Alameda CTC’s limited funds for bicycle improvements expected over the 28-year life of the plan.

Vision network

The vision network from the 2006 plan included a countywide bicycle network (originally established in 2001) plus two additional components: rehabilitation of the existing on-street bicycling system and projects improving access to and at transit hubs (called “transit-priority zones”).

This updated plan incorporates much of the earlier network, but employs a different and more

comprehensive approach, based on new policies (see “Evaluation of Plans, Policies and Practices” chapter), input from stakeholders and feedback on the 2006 plan. This revised vision focuses on meeting the plan goals to reduce greenhouse gas emissions, improve access to transit and major activity centers, and make our transportation system more equitable.

The five categories of countywide significance are the inter-jurisdictional network, access to transit, access to central business districts, inter-jurisdictional trails and access to communities of concern.

The vision network consists of five categories of areas, corridors and projects for improvement. The first is the inter-jurisdictional network; this was retained, with some updates described below, from the 2006 plan. The other four categories were added to address some deficiencies of this cross-county approach. They are: access to transit, access to central business districts, inter-jurisdictional trails and communities of concern. The network was developed to reflect and connect to bikeways identified in local bicycle master plans; except for a few short connecting routes to transit and central business districts, the bikeways in the vision network are also found in the local plans.

Maintenance of bicycle facilities under all categories is considered part of the vision network. Well-maintained facilities are more likely to encourage people to bike and they protect the public’s investment in infrastructure. Maintenance includes such varied activities as sealing, overlays and replacement of bikeway surfaces; repairs to signs, signals, gates and fences; repainting of striping and stencils; graffiti removal and trash pick-up; and public-safety patrols.

The updated vision network consists of 762 miles of bikeway facilities, of which approximately 394 miles (52%) has been built and 367 miles (48%) is still to be constructed (see Tables 5.1 and 5.2 below; all numbers are rounded to the nearest mile and may not add up due to rounding). In terms of Caltrans’ classification system for bikeways (see sidebar below), 286 miles (38%) is Class I facilities, 279 miles (37%) is Class II, 165 miles (22%) is Class III and 32 miles (4%) is unclassified.

Table 5.1 | Vision network mileage

Numbers are rounded to the nearest mile and may not add up due to rounding; “unb.”= unbuilt.

Planning area	Class I			Class II			Class III			Unclassified			Total		
	Built	Unb.	Total	Built	Unb.	Total	Built	Unb.	Total	N/A	Unb.	Total	Built	Unb.	Total
North	48	31	79	36	41	77	31	50	82		6	6	115	128	243
Central	18	21	39	24	14	38	19	19	38		15	15	61	69	130
South	42	27	69	66	17	83	8	3	11		2	2	115	49	164
East	45	54	99	57	24	82	1	33	34		10	10	103	121	225
Total	153	133	286	183	97	279	59	106	165		32	32	394	367	762

Caltrans bikeway classifications

Class I (bike path): Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow by motorists minimized.

Class II (bike lane): Provides a striped lane for one-way bike travel on a street or highway.

Class III (bike route): Provides for shared use with pedestrian or motor vehicle traffic.

The vision network appears to provide access to a large majority of Priority Development Areas (PDAs) or Growth Opportunity Areas (GOAs; see “Evaluation of Plans, Policies and Practices” chapter) in Alameda County. From a simple “eyeballing” of the maps, it appears that the approximate percentage of PDA/GOA areas covered by the vision system is 75% in North County (most areas not covered are in East Oakland); two-thirds in Central County (most areas not covered are in Hayward); 95% in South County; and 100% in East County.

Table 5.2 | Vision network mileage by jurisdiction

Numbers are rounded to the nearest mile and may not add up due to rounding

	Built	Unbuilt	Total
North County	115	128	243
Alameda County (uninc.)	0	9	9
Alameda (city)	22	11	33
Albany	4	5	9
Berkeley	10	32	41
Emeryville	8	2	10
Oakland	72	67	139
Piedmont	0	2	2
Central County	61	69	130
Alameda County (uninc.)	10	33	43
Hayward	31	22	53
San Leandro	20	14	34
South County	115	49	164
Fremont	90	27	117
Newark	12	7	19
Union City	13	15	28
East County	103	121	225
Alameda County (uninc.)	20	74	93
Dublin	12	8	21
Livermore	34	20	54
Pleasanton	37	20	57
Total	394	367	762

The vision network is shown in Figures 5.1–5.4. The bikeway alignments are consistent with local plans, except for a few short connecting routes to transit and central business districts, and were developed with input from local-agency staff. The Bay Trail alignments shown on the map were either adopted by the Bay Trail Project or the agency has the intention to adopt the alignment in the near future, except in one case noted on the map.

Nevertheless, it is understood that, as this plan is implemented over time, specific alignments may need to be adjusted to reflect local plans and changing conditions more closely. In particular the alignments of the unbuilt sections of the Bay Trail and East Bay Greenway may change, due to available right-of-way constraints. Any changes to the network alignments should be done while keeping roughly the same number of miles as currently mapped, so as not to further expand the vision network.

The maps show the inter-jurisdictional network, key transit stations and lines, central business districts, inter-jurisdictional trails and MTC’s communities of concern. The maps do not reflect certain projects that are otherwise eligible for funding, including maintenance, bicycle parking, wayfinding signage and on-board transit access. It should be noted that, while the maps are a primary guide for determining funding eligibility, some deviations from the map are allowable, assuming that the project meets the definition of countywide significance as described in this chapter and other funding criteria.

The sections below provide background on the categories and define the elements, components and envisioned improvements that make up each category.

1. Inter-jurisdictional network

This is a network of interconnected countywide corridors designed to link major activity centers, including transit stations, schools, parks, and employment and shopping centers, as well as to provide routes that serve major transportation corridors and connect to neighboring counties. This inter-jurisdictional network is based on the bicycle vision network established in the 2001 and 2006 plans, which also took a cross-county corridor approach. The selection of the specific route alignments, originally done in 2001, was based on three primary screening

criteria—connectivity, safety and feasibility—which are further defined in Appendix V. The inter-jurisdictional network updates the 2006 bicycle vision network to reflect segments that have been constructed since 2006; to better conform to local bicycle plans (a number of which have been developed or updated since 2006); to add or expand connections to major destinations; and to better connect all jurisdictions within the county.

Definition

The category includes all segments of the inter-jurisdictional bikeway network. It also includes the major non-bikeway capital projects, such as interchange improvements, that are along the network, and which are shown on the vision network maps and listed in Appendix X, Table X.2. The focus is on improving those segments of bikeway through construction, repaving, painting, maintenance, signage and similar other improvements.

Figure 5.1 | Bicycle vision network—North planning area

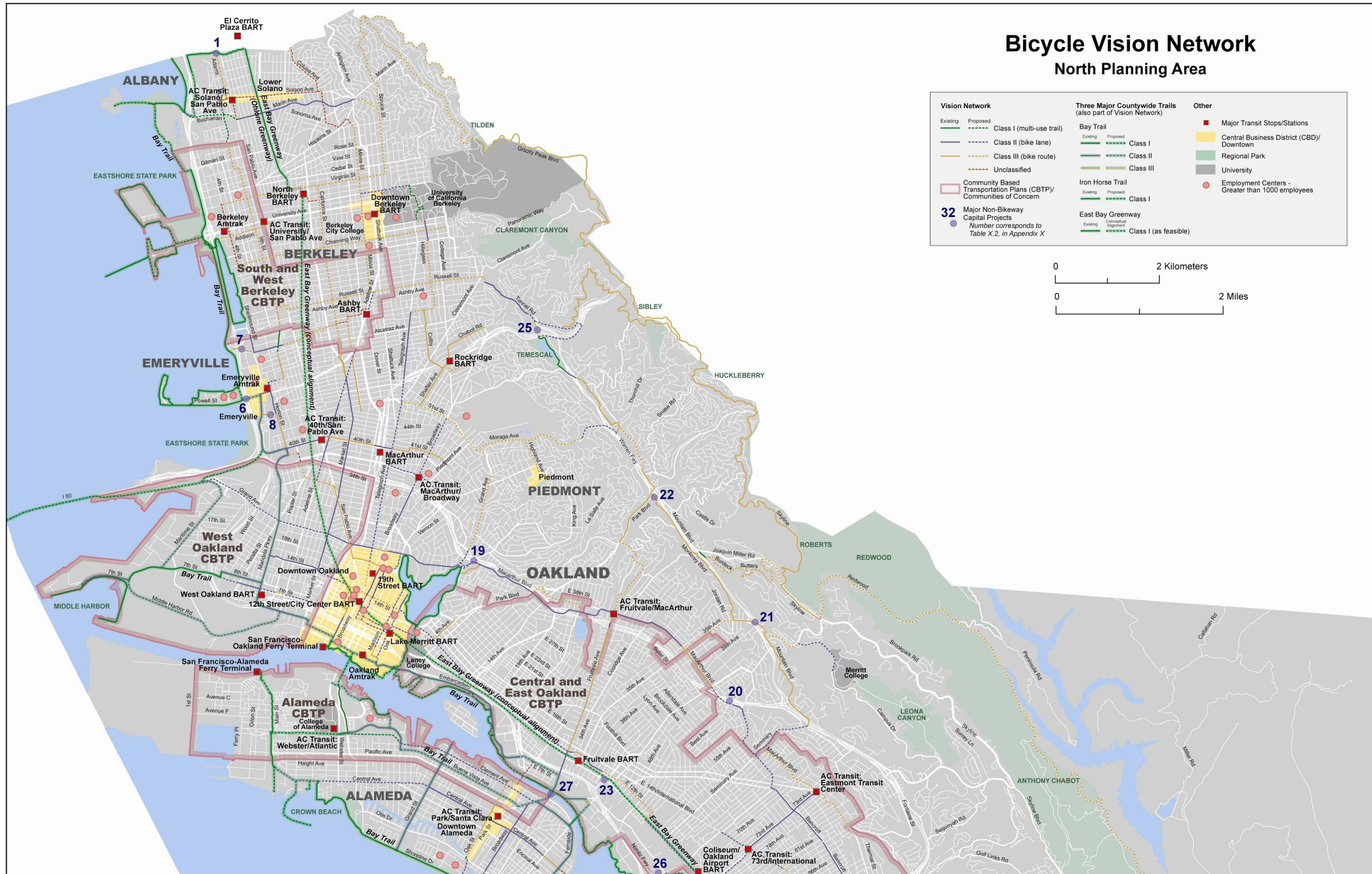


Figure 5.2 | Bicycle vision network—Central planning area

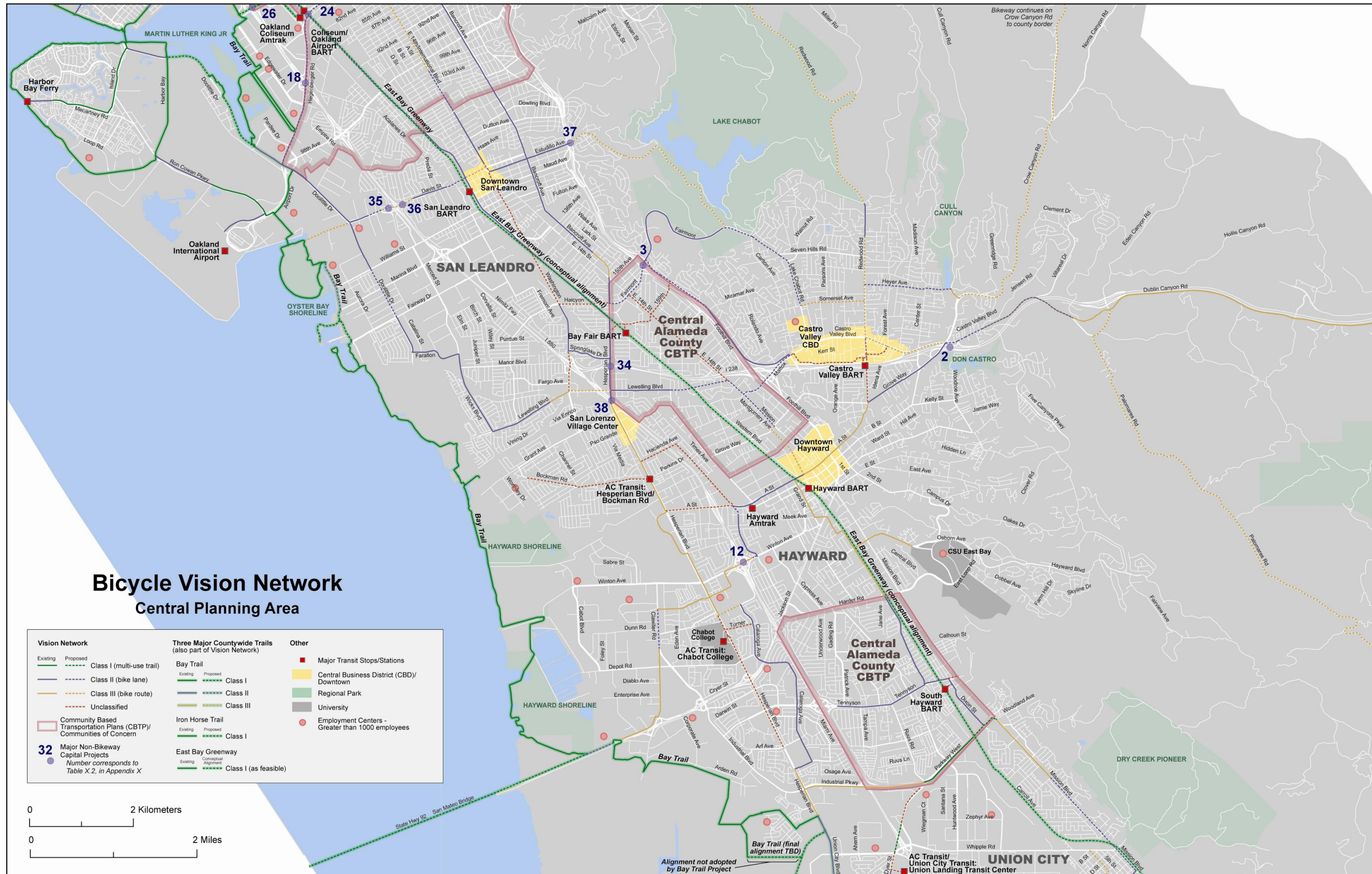


Figure 5.3 | Bicycle vision network—South planning area

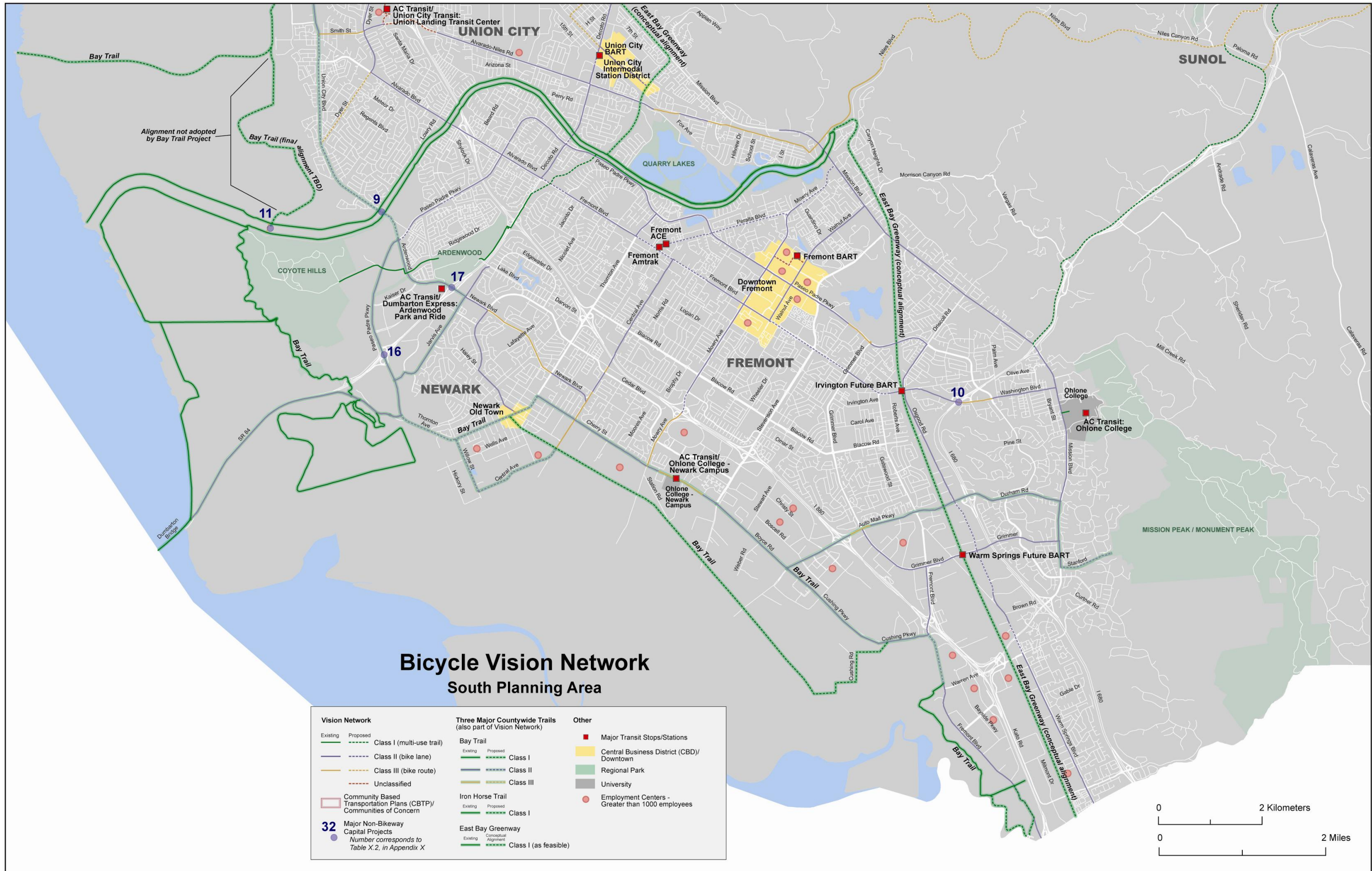
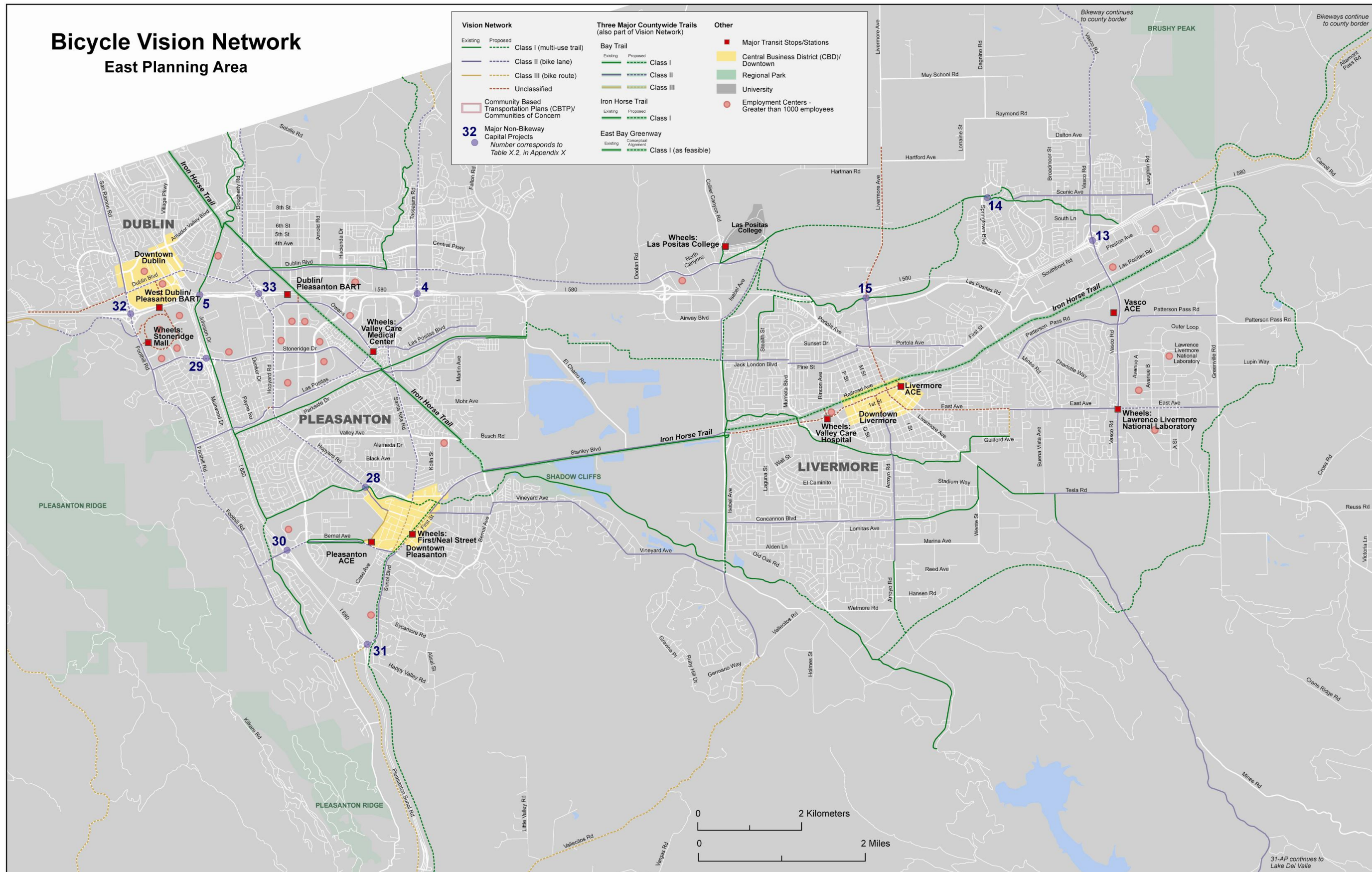


Figure 5.4 | Bicycle vision network—East planning area



2. Access to transit

This category aims to improve bicycle access to and at rail stations, ferry terminals and major bus transfer points throughout Alameda County. Providing safe and convenient bicycle access to transit enables people, many of whom might not be willing to ride more than two or three miles, to take longer trips without a car. Moreover, public transit is a fundamental part of the county’s multi-modal transportation network, and is therefore a funding priority for the county, as well as the region. Improving bike access to transit can reinforce these investments by increasing transit ridership.



This category replaces and expands on the “transit priority zones” identified as part of the 2006 network. While public transit connections were included in the original (2001) countywide vision network, these connections were secondary, since many were made via spurs off the cross county corridors. In the 2006 plan, the new category of “transit priority zones” (TPZs) was added to the network to elevate the importance of improving access to and at stations. The TPZs identified transit stations and stops, and general categories of improvements were listed; however specific projects were not identified. This new category addresses the recommendation in the 2006 plan to further develop the TPZs in future plan updates.

Table 5.3 | Transit stations and terminals, and major bus transfer stops

BART	20
AC Transit	15
Altamont Commuter Express	4
Amtrak/Capitol Corridor	6
Dumbarton Express	1
Ferry	3
LAVTA	7
Union City Transit	1
Total	57

Definition

The focus of this category is on improving bikeways that connect to major transit hubs in Alameda County; and on projects that improve bike access at transit stations (such as bike parking) and aboard transit vehicles. The category encompasses bikeways radiating out from each of the 34 major transit stops and stations in Alameda County in roughly the four cardinal directions (see Appendix R for lists of these transit facilities). Where possible, these routes also connect to major employment centers.

The lengths of the access-to-transit bikeways vary throughout the county and are based on the average distances traveled by bicyclists to BART stations². They are: 1 mile in the North planning area, 1.5 miles in the Central planning area, and 2 miles in the South and East planning areas. The ultimate length of the mapped access-to-transit bikeways may vary slightly to provide for meaningful connections to other bikeways and key destinations. In the case of transit hubs located in or near central business districts, bicycle access routes generally overlap with those under category 3, below.

3. Access to central business districts

Central business districts (CBDs) have countywide significance because they are often destinations for people from a variety of cities in the county and beyond. CBDs concentrate a range of functions, including retail, commercial and sometime residential.

² 2008 BART Station Profile Study.

By enhancing safe bicycle access to CBDs, more people are likely to bike to these major destinations as opposed to driving. In this plan, CBDs are defined as either the downtown or the key commercial district of each jurisdiction. Often they are located within or are themselves a Priority Development Area (PDA; see “Existing Conditions” and “Evaluation of Plans, Policies and Practices” chapters).

Definition

This category focuses on bikeways and access improvements to the following 16 CBDs:

- The downtowns of the nine cities that have such areas, as defined by a general plan or other local plan. These cities are Alameda, Berkeley, Dublin, Fremont, Hayward, Livermore, Pleasanton, Oakland and San Leandro.
- One key commercial district, or “downtown equivalent,” in each of the county’s five other cities and two in the unincorporated areas. These districts are: Lower Solano (Albany); Emeryville’s “core” area (as defined by the City General Plan); Newark’s Old Town PDA; central Piedmont, near City Hall; Union City’s Intermodal Station District PDA; the Castro Valley CBD; and San Lorenzo Village Center.

The access to the CBDs is made up of bikeways radiating out approximately three miles in roughly the four cardinal directions. This distance was selected since it is close to the average bicycle trip length in the county. The ultimate length of the mapped access-to-CBD bikeways may vary slightly to provide for meaningful connections to other bikeways and key destinations. In the case of CBDs containing or located near transit, bicycle access routes generally overlap with those under category 2, above.

4. Inter-jurisdictional trails

Trails enable and encourage people to bike for transportation, as well as health and recreation. The purpose of this category is to ensure that Alameda County has a system of major trails that connects jurisdictions to each other and to neighboring counties, and that also provides access to major destinations and to attractions, such as the bayfront.

Definition

The vision system includes the three major trails in the county and other inter-jurisdictional trails that link populated areas, as summarized below:

- The East Bay Greenway, a new proposed trail broadly envisioned to extend from Albany to Fremont, roughly following the BART line and the Union Pacific Railroad right of way. This encompasses the existing Ohlone Greenway in Albany and Berkeley, and the former Santa Fe Railroad right-of-way/West Street in Berkeley.
- The entire Bay Trail system, including the spine, connector and spur alignments (which connect the spine to the waterfront), as adopted by the Bay Trail Project.
- The Iron Horse Trail, from the Dublin/Contra Costa County to Livermore’s eastern city limit at Greenville Road
- Other East Bay Regional Park District and local trails that link populated areas and provide connections to major destinations or attractions; these include the Emeryville Greenway (connecting Berkeley and Emeryville) and the Jack London/Arroyo Mocho trail (connecting Livermore and Pleasanton)
- Connectors between major trails that are inter-jurisdictional, and that were developed through a local planning process (these are not mapped or listed because they are still schematic)

A list of the trails that are part of the vision network is included in Appendix T.

5. Access to communities of concern

To help serve the transportation needs of low-income communities, MTC has identified several “communities of concern” throughout the Bay Area, including in Alameda County (see “Existing Conditions” and “Evaluation of Plans, Policies and Practices” chapters). These communities have large concentrations of low-income populations with inadequate access to transportation.

Alameda CTC has developed community-based transportation plans (CBTPs) for all five communities of concern identified in Alameda County. These are West and South Berkeley; City of Alameda (including Alameda Point and central and eastern Alameda); West Oakland; Central and East Oakland; and Central

Alameda County, which includes Ashland/Cherryland and South Hayward. While the CBTPs document the need for numerous transportation improvements including bicycle connections, they generally do not identify specific routes or areas in need of improvement. This category has been included in the vision network to address that deficiency and, more generally, to improve bicycling options in the communities of concern.

Definition

This category encompasses projects that improve bicycle access within the five communities of concern on those bikeways that serve the closest major transit hubs and central business districts. Many of the bikeways identified to provide access to transit and CBDs (see categories 2 and 3 above) already connect to communities of concern. However, to improve these connections, the mapped access-to-transit and CBD bikeways may be lengthened, and new bikeway connections may be added, provided they are not duplicative of nearby routes.

Alameda CTC has developed community-based transportation plans for all five communities of concern identified in Alameda County.

The CBTPs are scheduled to be updated pending the availability of funding and access to 2010 Census data. The vision network will be amended to account for updated areas and boundaries of the communities of concern, as these become available; this may impact the alignment of bikeways serving the communities of concern.

Priority network

The priority network consists of a subset of links in the vision network that, for reasons described below, are considered more important for purposes of encouraging bicycling and improving safety. The purpose of the priority network is to focus Alameda CTC's funding efforts over the next several years—until the Bicycle Plan is updated again—on those improvements that are anticipated to be most effective at accomplishing the goals of the plan.



The five categories in the priority network are the same as those in the vision network but are more focused. Below is the definition of each category and the rationale for its inclusion in the priority network. (Due to its qualitative nature, the priority network has not been mapped, nor have mileages been calculated.) For several categories, there is also a description for how projects will broadly be prioritized for discretionary countywide funds. The prioritization of specific capital projects will take place during each grant funding cycle, using evaluation criteria to be adopted for that funding cycle, consistent with the priorities established in this plan. Those criteria will provide further detail to the definitions below, as needed, and will include additional criteria such as safety and demand. Non-priority projects that are on the vision network will still be eligible for countywide discretionary funding but will not rank as highly.

1. Inter-jurisdictional network

Definition

The priority network includes the subset of inter-jurisdictional bikeways from the vision network that connect two jurisdictions and that are identified through a multi-jurisdictional planning effort. This might include a crossing directly at the jurisdictional border, or along a bikeway that leads to this crossing and is integral to creating a cross-jurisdictional bikeway. Higher priority will be given to projects at or very near the jurisdictional border that are creating continuous access.

Rationale

While connecting the jurisdictions of Alameda County is one of the plan's goals, often there are impediments, such as freeways or poorly connected streets, at jurisdictional boundaries. Projects to overcome these barriers can be complex to design and expensive to

build, and may not receive priority at the local level over projects within a jurisdiction. This category seeks to provide countywide funding to move forward these critical, complex and sometimes expensive connector projects.

2. Access to transit

Definition

This category includes access-to-transit bikeways from the vision network that facilitate continuous bicycle access to the transit station or stop. Projects closer, and providing a continuous connection, to the transit station/stop will be given higher priority than those farther out. Projects that provide discontinuous access must be part of a broader plan to fill gaps in access. Non-bikeway projects that facilitate access to transit—such as bicycle parking and on-board transit access—are considered part of the priority network, but will not be ranked against bikeway projects.

Rationale

More continuous and closer-in bikeways to transit have been prioritized for several reasons: such bikeways are more likely to be located in a PDA; continuous access is much more valuable to cyclists than disjointed facilities; bicycling to transit becomes concentrated near the transit hub; and it is often more cumbersome for cyclists to bypass (by detouring or using alternate routes, for example) network gaps that are closer to the transit hub.

3. Access to central business districts

Definition

The priority network includes those access-to-CBD bikeways from the vision network that facilitate continuous bicycle access to the CBD. Projects closer, and providing a continuous connection, to the CBD will be given higher priority. Projects that provide discontinuous access must be part of a broader plan to fill remaining gaps in access.

Rationale

The reasons more continuous and closer-in bikeways to the CBDs have been prioritized are similar to those given above for access-to-transit bikeways: such bikeways are more likely to be located in PDAs, which are a focus of countywide and regional planning; continuous access is much more valuable to cyclists than disjointed facilities; bicycling becomes more concentrated near the CBD; and it is often more

cumbersome for cyclists to bypass network gaps that are nearer the CBD.

4. Inter-jurisdictional trails

Definition

The priority network includes the portions of the three major countywide trails that are within the populated areas of the county. This includes the entire East Bay Greenway; the full Iron Horse Trail, east to Greenville Road; and for the Bay Trail, the complete spine and the connectors, but not the spurs.

Rationale

The three trails mentioned above have been prioritized for several reasons: they provide (or will provide, when complete) transportation, recreation and health benefits; they are inter-county or even regional in scope; and they serve, or will serve, large numbers of people in the county and different types of users.

5. Access to communities of concern

Definition

This includes all the bikeways under the communities of concern category in the vision network. Projects along those portions of bikeways falling within communities of concern may not provide full continuous access to the closest major transit hubs and CBDs, but there should be a plan in place to improve any unimproved portions of these routes outside the community.

Rationale

All bikeways serving MTC's communities of concern have been prioritized because these areas have large concentrations of low-income and historically underserved people, who tend to have low rates of car ownership, inadequate access to transportation services and facilities (including bikeways) and lagging health and social indicators.

Programs

While capital projects are critical for increasing bicycling, creating a thriving bicycle culture in Alameda County will require initiatives that promote bicycling, teach safety skills and provide other programmatic support for biking. The 2006 Countywide Bicycle Plan included four program

categories: signage, maintenance, bicycle parking, and education and promotion. The last category included 12 specific education and promotion programs, of which 10 have been implemented in some form, and many of which are included in this plan. Signage, maintenance and bicycle parking are now more appropriately addressed under “Capital Projects” (see previous section).



The current plan includes 12 priority programs, grouped into four categories: (i) encouragement and promotion;(ii) safety, education and enforcement; (iii) technical support and information sharing; and, (iv) infrastructure and design (see table below). The programs were drawn from the 2006 Countywide Bicycle Plan, from programs that are currently supported or being implemented by Alameda CTC and from programs that have proved especially successful elsewhere. All programs are countywide in nature or provide a model transferrable throughout Alameda County.

Potential programs for inclusion were assessed for their consistency with the plan’s goals (see the “Vision and Goals chapter), especially for their potential to increase the number of bicycling trips and reduce bicycle collisions. When available, empirical data was reviewed for existing or similar programs; however, for a number of programs only very limited or no data was available. Using professional judgment, programs were given a relative rating—in comparison to other programs—of high, medium or low. The priority programs included in this plan consist of those that were found to have a high or medium effectiveness as well as programs for which no effectiveness data was available but which directly address important plan goals and strategies.

While capital projects are critical for increasing bicycling, creating a thriving bicycle culture in Alameda County will require initiatives that promote bicycling, teach safety skills and provide other programmatic support for biking.

The programs are focused on those for which Alameda CTC could have a role—either through grant funding, implementing the program directly, or managing it using consultants—and therefore the project descriptions that follow are focused on what Alameda CTC could do. At the same time, many programs will be implemented in partnership with other organizations, agencies, and groups. Additionally, locally implemented programs will also contribute toward the goals of this plan, but are not listed here. It should be noted that Alameda CTC has considered developing a broad transportation-demand management (TDM) program³, which could incorporate some of the programs included in this plan.

Below is a table summarizing the priority bicycle programs (the order in which they are listed is not an indication of priority among programs). The summary table is followed by a list of the plan strategies from the “Vision and Goals” chapter that are addressed by the recommended programs, and by a detailed description of each program. The summary table includes the following information for each program:

- Whether or not the program was included in the 2006 Countywide Bicycle Plan
- Whether or not the program has been implemented or is underway (some programs that are shown to be implemented or underway have been only partly developed, and will require additional effort to meet the objective of the program)
- The relative effectiveness—medium or high—of each program (the program descriptions provide effectiveness information if available; some programs for which effectiveness data is not available have been included because they address important plan goals and strategies)
- The program’s timeframe (near-term programs will start in 2012 or are continuing efforts; medium-

³ TDM programs use a variety of policies and strategies to reduce solo driving.

term programs are planned to start in 2016; most programs are scheduled to last through 2040)

- The role(s) that Alameda CTC will play in program implementation; the agency will play one or more of three roles: provide funding, primarily through competitive grants; use its staff to implement the

program; or provide technical or logistical support but hire a consultant to implement the program

- The plan strategy or strategies that the program addresses or supports
- Whether or not the program is also included in the updated Countywide Pedestrian Plan

Table 5.4 | Priority programs (order of listing does not indicate priority)

	<i>In 2006 Countywide Bicycle Plan</i>	<i>Implemented or underway</i>	<i>Effectiveness (H=high; M=medium; n/a=not available)</i>	<i>Timeframe (N=near; M=medium)</i>	<i>Alameda CTC role (F=funding; S=staffing; M=manage consultants)</i>	<i>Strategy(ies) addressed</i>	<i>Also in 2012 Countywide Pedestrian Plan</i>
Encouragement and promotion							
1. Countywide bicycling promotion	✓	✓	H	N	F, S, M	3.1, 3.3	
2. Individualized travel marketing		✓	M/H	N	F	3.1	✓
3. Programs in community-based transportation plans		✓	n/a	N	F	2.5, 3.1	✓
Safety, education and enforcement							
4. Safe routes to schools	✓	✓	H	N	F, M	2.6	✓
5. Bicycle safety education	✓	✓	n/a	N	F, M	2.5	
6. Multi-modal traffic school	✓	✓	M/H	N	F, S	2.4, 2.5	✓
7. Countywide safety advertising campaign	✓		n/a	N	S, M	2.5	✓
Technical support and information sharing							
8. Technical tools and assistance		✓	n/a	N	S, M	1.7	✓
9. Agency staff training and information sharing	✓	✓	n/a	N	S	2.3,4.6	✓
10. Multi-agency project coordination		✓	n/a	M	F, S, M	1.4	✓
11. Collaborative research		✓	n/a	M	F, S	4.7	✓
Infrastructure support							
12. Bike sharing			H	M	F, S	1.2, 3.4	

Table 5.5 | Strategies addressed by the priority programs

Infrastructure and design	
1.2	Support the design and construction of bicycle facilities that serve a broad range of travel purposes, income levels, abilities and experience levels, including school-aged children, families, seniors, recreational riders and commuters.
1.4	Collaborate with and promote coordination among Caltrans and local agencies to implement facilities on the countywide bicycle network.
1.7	Encourage local jurisdictions to adopt policies, guidelines, standards and regulations that result in bicycle-friendly communities, and, where applicable, transit-oriented land use development, and provide them with technical assistance and resources to do so.
Safety, education and enforcement	
2.3	Provide technical assistance and other tools to local jurisdictions for selecting priority areas for bicycle safety and security improvements, and planning and designing safer streets and facilities.
2.4	Support and encourage efforts by state, County and local agencies to adopt and enforce laws that aim to protect bicyclists from collisions with motor vehicles.
2.5	Continue to support the delivery of effective bicycle safety education programs throughout the county for a variety of audiences, including youth, drivers and pedestrians.
2.6	Support the expansion of the countywide Safe Routes to Schools program to every elementary and middle school in the county and to high schools, and encourage local school districts and jurisdictions to implement projects, activities and events that promote bicycling to school among both students and staff.
Encouragement and promotion	
3.1	Work with all levels of public agencies, non-profits and advocacy groups to implement effective encouragement programs, such as Bike to Work Day, that promote bicycling as a safe and convenient form of transportation among a broad range of potential users, including children, people with disabilities and seniors.
3.3	Promote the integration of bicycling into broader countywide transportation demand management programs and serve as a resource to employers on promotional information and resources related to biking to work.
3.4	Support efforts to establish bicycle-sharing programs in Alameda County, building on the experience of Bay Area and national programs.
Planning	
4.6	Continue to serve as a forum for local agencies and other stakeholders—including through the Pedestrian and Bicycle Working Group—to plan multi-jurisdictional projects and countywide programs and to share information about bicycle-related issues of mutual concern.
4.7	Support and fund research into bicycle planning, project and program implementation when it has a direct benefit for Alameda County.

Encouragement and promotion

1. Countywide bicycling promotion

Bicycling promotion campaigns encourage people to bicycle for health, recreation and transportation, help raise community awareness, and legitimize safe and legal street bicycling. Alameda CTC has supported a

number of promotional bicycling programs such as Bike to Work Day, the "Ride into Life!" (formerly called "Get Rolling") advertising campaign, the Alameda County Safe Routes to School Partnership, and International Walk and Bike to School Day. Such programs are considered highly effective: 12% more Alameda residents participated in Bike to Work Day

2011 than in 2010⁴. Fifteen percent of participants in Bike to Work events have been shown to be new riders⁵.

Open Streets, also known as “Sunday Streets,” are festivals that temporarily close streets to car traffic so people can use the entire roadway for bicycling, walking, skating and similar activities. These events build community, provide recreational opportunities, build greater awareness of bicycling, remind residents that streets are for everyone and can boost local economies by bringing in more foot traffic. A local example is Oaklavia, which took place in downtown Oakland in June 2010.

Alameda CTC will continue to support such events and consider integrating them into any future TDM program established by the agency, as appropriate. Also, this program could include grants to agencies and groups that organize promotional events in multiple jurisdictions; common branding and publicity for events happening around the county; a bike-to-transit promotional program; mini-grants and technical assistance for the development of multi-city bicycling maps; and new web-based resources to support bicycling in the county.

2. Individualized travel marketing

Individualized travel marketing offers residents targeted information about alternatives to driving alone. A local example is TravelChoice, a program funded in part by Alameda CTC, which conducted tailored, neighborhood-specific marketing campaigns in the cities of Oakland, Alameda and Berkeley. This type of program is thought to have medium to high effectiveness, as long it is maintained over the long term: a study of the original TravelChoice program (launched in the City of Alameda in 2006) revealed drastic changes in participants’ travel choices,

⁴ Record Breaking 10,000 People Biked to Work in Alameda County Today; <http://sf.streetsblog.org/2011/05/12/record-breaking-10000-people-biked-to-work-in-alameda-county-today/>

⁵ Bike to Work Week: A Case Study in Successful Behavior Change; Bicyclinginfo.org.

including 34 percent, 1 percent and 183% increases in transit, walking and bicycling respectively⁶.

Bicycling promotion campaigns encourage people to bicycle for health, recreation and transportation, help raise community awareness, and legitimize safe and legal street bicycling.

A newer program called TravelChoice New Residents was launched in 2011, also with some Alameda CTC funding, to target residents as they move into communities near public transit. Individualized travel marketing will continue to be eligible for Alameda CTC grant funding in the short term, to pilot these types of programs, assuming they are shown to be effective in the long run. Due to the high cost of implementing the programs comprehensively throughout the county, the long term goal is for the programs to be funded by developers or other entities.

3. Programs in community-based transportation plans

The purpose of Community Based Transportation Plans (CBTPs) is to identify and address the mobility and access gaps of low-income communities. CBTPs have been developed for five communities in Alameda County: West and South Berkeley, City of Alameda (including Alameda Point and central and eastern Alameda), West Oakland, Central and East Oakland, and Central Alameda County, which includes Ashland/Cherryland and South Hayward. The plans propose a number of nonmotorized transportation strategies and solutions, including expansion of the county’s Safe Routes to School program; earn-a-bike programs and bicycle maintenance and repair classes, to increase access to bicycles for youth and low-income residents; and bicycle training and education.

Many of these efforts are already included as a recommended program or program element in this plan. This program is meant to address those strategies not included elsewhere, or those that are added to future updates to the CBTPs. The main mechanism for Alameda CTC to implement these programs is likely to be grant funding. Also, as a way to further address the transportation inequities of

⁶<http://transformca.org/files/travelchoice-alameda-presentation.pdf>

these communities, other countywide bicycling programs included in this plan should be inclusive of communities covered by the CBTPs.

Safety, education and enforcement

4. Safe routes to schools

Safe Routes to Schools (SR2S) refers to a variety of strategies aimed at promoting bicycling and walking to school, and improving traffic safety around schools through education, encouragement, enforcement, engineering for capital projects. SR2S establishes healthy habits among school children and improves the safety of this vulnerable population. Because a unified countywide program is more effective and efficient than a multitude of uncoordinated local programs, Alameda CTC has allocated funding since 2007 for an Alameda County SR2S Partnership, targeting elementary and middle schools countywide.

The program is thought to be highly effective, as it increased bicycling and travel by non-single-family vehicles such as carpools to school by 10% countywide during the 2008-09 school year⁷. The program is now established in 100 schools and is being expanded to high schools. Alameda CTC will continue supporting the countywide SR2S program, with the long term goal of expanding it to all schools in the county that wish to participate. Other program elements may include continuing to provide funding for capital projects (which Alameda CTC began to do in 2011), establishing a crossing-guard funding program for local jurisdictions (similar to the successful program in Marin County) and providing technical assistance to help local jurisdictions prioritize their SR2S capital projects, such as by creating maps that show the areas of greatest need.

5. Bicycle safety education

Safety education and training for bicyclists may encompass in-classroom and on-bike instruction for adults and children, and address topics from basic bicycle handling to riding with traffic, to commute and transit tips. In contrast to the school-based Safe Routes to Schools programs (see above) which targets children, the bicycle safety education program is

focused on adults and teenagers, but also includes classes for families with younger children. Since 2007, Alameda CTC has provided grant funding for regularly offered adult bicycle safety courses, family cycling clinics and other classes throughout the county. Some of these offerings are being expanded to be taught in Spanish and Mandarin. Alameda CTC will continue to support a comprehensive countywide bicycle safety program, with classes for adults, teenagers and families, that addresses the diversity of the county's population. Future programs could include instruction on bicycle maintenance and repair, as well.



6. Multi-modal traffic school

Traffic school classes are a key venue for disseminating information on bicycle safety and traffic laws to a large audience, many of whom may not be aware of the importance of safe bicycling and driving or of bicyclists' and motorists' rights and responsibilities under the California Vehicle Code. To address bicyclists' safety and education, the East Bay Bicycle Coalition, through a grant provided by Alameda CTC, has been working with Alameda County police departments to set up citation diversion programs, which will offer cyclists who receive a traffic ticket the option of taking a bike safety class as a substitute for paying the ticket.

This recommended program includes lobbying to have the California Department of Motor Vehicles (DMV) incorporate bicycle (and pedestrian) topics in all traffic school programs for motorist violators and driver education classes (lobbying efforts will need to be conducted at the state level since the course curriculum and content for traffic school and driver education is established by the DMV). The program

⁷ TransForm, Safe Routes to School Partnership Evaluation Report, School year 2008-09.

also includes supporting research and efforts to improve the effectiveness of traffic school in imparting knowledge and changing driver attitudes; and supporting diversion programs for bicyclists. The need for safety education among both bicyclists and drivers is supported by the fact that bicyclists were considered at fault in 53% of bicycle-related collisions in Alameda County between 2003 and 2008 and drivers in 25% of such collisions⁸.

7. Countywide safety advertising campaign

Bicycle (and pedestrian) safety campaigns use a variety of advertising media to deliver messages that encourage safe and legal walking, bicycling and driving. Campaign messages are typically tailored to address specific, documented safety issues, often at the local level. More than a dozen agencies in the Bay Area have implemented comprehensive bicycle and pedestrian safety campaigns, often using the “Street Smarts” program, consisting of billboards, brochures, press releases, radio spots and other channels to teach people of all ages to become safer bicyclists and pedestrians and to increase motorists’ awareness of bicyclists and pedestrians. This recommended program is to establish a countywide safety campaign aimed at promoting road safety among motorists, bicyclists, pedestrians and bus drivers. The campaign could start in one jurisdiction or planning area and expand to others over time; also, it could work with local police departments and advocacy organizations to provide direct intervention—such as random checkpoints on roads and multi-use paths—to provide safety information to all users.

Technical support and information sharing

8. Technical tools and assistance

Technical tools such as guidelines, best practices, analytics and online resources can help public agencies develop and implement well-designed, effective bicycle (and pedestrian) infrastructure and programs. Alameda CTC will develop, and disseminate among local jurisdictions, technical tools and technical assistance that support local jurisdictions in improving bicycling in the county. Local jurisdiction planning and engineering staff must also have time to dedicate to putting these tools into action,

Alameda CTC will work with local jurisdictions on finding ways that staff can be trained on the new resources, perhaps by using technical assistance.

Tools could include design guidelines and best practices based on local examples; a model Complete Streets policy; a how-to-guide for developing and delivering promotional events; a multi-modal level of service model; a model bike parking ordinance; best practices on and guidelines for bicycle wayfinding signage and bike parking request programs; mapping applications; and a standardized method for reporting hazards. In terms of technical assistance, Alameda CTC could help local jurisdictions prepare grant applications; provide specialized design assistance for capital projects and traffic-engineering solutions; assist with implementing Complete Streets policies; design and support installation of wayfinding signs across jurisdictional lines to major destinations; assist with developing a local bicycle wayfinding signage program or bike parking ordinances; and assist local jurisdictions with testing innovative facility designs including through the state and federal experimentation programs.

9. Agency staff training and information sharing

Training sessions on bicycle (and pedestrian) planning—in the form of webinars, short conferences, on-site classes and speaker series—help educate staff at local agencies about standards, best practices and innovations. In this realm, Alameda CTC has provided free access to a monthly webinar presented by the Association of Pedestrian and Bicycle Professionals; hosted a half-day bicycle and pedestrian conference featuring presentations from the 2008 Pro Walk/Pro Bike conference; and in 2007 started the Pedestrian Bicycle Working Group (PBWG), a group of local agency and advocacy staff that meets up to four times a year to share information and give input to Alameda CTC on its programs and projects. Alameda CTC should continue these efforts and continue to fund a bicycle/pedestrian coordinator to implement the program. This program could also include establishing a new speaker series featuring bicycle and pedestrian experts to address timely topics such as the implementation of Complete Streets, liability concerns and innovative treatments.

⁸ Statewide Integrated Traffic Records System (SWITRS).

10. Multi-agency project coordination

Many bicycle (and pedestrian) capital improvements require the cooperation or permission of multiple agencies. These include projects that cross or fall within Caltrans', park districts' or water agencies' rights-of-way, and projects that run through several jurisdictions. This added step in the process of realizing planned facilities takes valuable local staff time, compared to projects on purely local rights-of-way, and an ability to negotiate often unfamiliar bureaucracies. For multi-jurisdictional projects, there may be no clear lead agency. These barriers can keep such projects from moving to the top of local priority lists, regardless of their value or relative importance.

Alameda CTC has, on a case-by-case, brought in consultant services to collaborate with Caltrans or local agencies to manage the development of a project. The decision to manage a project is typically related to whether Alameda CTC has an allocated funding source for the project, a direct mandate to implement the project, or management that can improve project delivery. For example, Alameda CTC is leading implementation of the East Bay Greenway project, which will extend across multiple jurisdictions. Alameda CTC should continue to coordinate or help coordinate multi-agency capital bicycle (and pedestrian) projects on a limited basis, taking on new projects as feasible. Possible projects include coordination for implementing inter-jurisdictional countywide bikeways, and establishing a countywide program to install bicycle parking, in collaboration with local agencies.

11. Collaborative research

Alameda County's colleges and universities present opportunities for collaborating on bicycle (and pedestrian) research relevant to the goals of this plan. Alameda CTC partnered with the UC Berkeley Traffic Safety Center (SafeTREC), for example, on the development of a model to predict pedestrian volumes at intersections. Alameda CTC should continue to devote staff time and provide grant funding to local institutions to support locally relevant bicycle research, as feasible. This program can help address gaps in research, particularly relating to collision rates and risk, mode choice, and demand and volume modeling.

Alameda County's colleges and universities present opportunities for collaborating on bicycle (and pedestrian) research relevant to the goals of this plan.

Infrastructure support

12. Bike sharing

Bike sharing is an innovative approach to urban mobility that makes public bicycles available on demand, mostly for short-term rental, to registered program customers through a network of unattended kiosks. These programs are considered to be highly effective: Capital BikeShare in Washington D.C. currently has over 10,000 active annual subscribers, and each bike in their fleet gets an average of five rides per day⁹. MTC has funded a pilot bike share program—to launch in 2012 and consisting of approximately 1,000 bikes—in San Francisco and at certain Caltrain stations in the Peninsula; the Santa Clara Valley Transportation Authority (VTA) is planning a companion program in San Jose. The first step toward implementing bike sharing in Alameda County is to investigate its feasibility in the county, building on experiences from the MTC and VTA programs. Based on the MTC pilot project, Alameda CTC could conduct a feasibility study of expanding the regional program to all or portions of Alameda County, with implementation details (including whether or not a program would be feasible in this county) determined at that point.



⁹ Email communication from Capital BikeShare Project Manager; May 18, 2011.

Plans

Bicycle master plans are important tools in helping local jurisdictions prioritize efforts to improve bicycling conditions. Long-range planning can ensure that critical, and feasible, improvements are implemented sooner; this is especially useful with regard to capital projects, which can be costly and both technically and politically complex. At the countywide level, local master plans are significant because the identification and implementation of local bicycle projects is critical to meeting the vision of this countywide plan, and also the information they include feeds into a well-informed and effective countywide bicycle plan. For these reasons, Strategy 4.3 is included in the “Vision and Goals” chapter: “Ensure that all local jurisdictions have a current bicycle master plan by providing adequate countywide funding.”

In 2006, 11 of 15 local jurisdictions in Alameda County had adopted a bicycle or combined bicycle/pedestrian plan or were in the process of preparing one. Five years later, in 2011, every local jurisdiction in the county except for one had, or was soon expected to have, an adopted bicycle plan (see Table 3.3 in the previous chapter).

Apart from local jurisdictions, other public agencies in Alameda County have developed bicycle plans or conducted planning efforts with substantial bicycling components. Such initiatives include BART’s Bicycle Plan; and numerous local and countywide trail plans.

Alameda CTC considers the following two types of bicycle planning efforts to be priorities for countywide funding:

- Bicycle master plans or combined bicycle/pedestrian master plans developed by any of the 15 local jurisdictions in the county.
- Plans developed by other agencies or public institutions that feature bicycling for transportation as a key, central component and that will generate bicycle-oriented policies, prioritized project lists and program recommendations.

6 | COSTS AND REVENUE

Overview

The “Countywide Priorities” chapter describes the vision and priority networks of bicycle facilities and the cycling-related programs that are needed to meet the Plan vision and goals. This chapter focuses on what it will cost to implement these countywide priorities and what resources are available. It has five main sections:

- Detailed estimated costs to construct the bicycle vision network
- Estimated costs to maintain the network
- Estimated costs to implement the bicycling programs
- Estimated costs to develop and update the local bicycle master plans of local agencies
- Expected revenue for bicycle projects and programs over the life of the plan

As detailed in the pages that follow (and summarized in Table 6.1 below), the estimated cost to build and maintain the bicycle vision network, to deliver the plan’s programs and to prepare local master plans is approximately \$945 million.

Table 6.1 | Summary of costs and revenue, 2012–2040

In millions; rounded to nearest \$100,000

Costs*	\$ 943.3
• Construction of capital projects	\$ 684.0
• Maintenance of capital projects	\$ 182.3
• Programs implementation	\$ 71.6
• Local master plans	\$ 5.4
Revenue	\$ 324.3
Funding gap between costs and revenue	\$ 619.0

* Includes some shared costs with the Countywide Pedestrian Plan, as shown in Table 6.2.

In the next 28 years, Alameda County jurisdictions and agencies can expect approximately \$325 million to implement these projects, programs and plans of countywide significance.

A key purpose of estimating costs and revenue is to determine the funding gap for implementing the plan. The difference between estimated costs and projected revenue for projects in the Bicycle Plan—the funding gap—is approximately \$620 million. Put another way, the projected revenue for countywide projects is only 34% of the estimated costs. Changing any of the

assumptions that form the basis of the cost and revenue calculations will change the figures somewhat. However, it will not change the fact that the cost to deliver the bicycle projects, programs and plans of countywide significance greatly exceeds projected revenue.



To begin to address this funding gap, the “Countywide Priorities” chapter identifies the priority bicycle network, which further focused the vision categories and project types for funding in the next four years, before this plan is again updated. Alameda CTC, through its planning and funding processes, will also need to prioritize potential projects and programs through future grant funding cycles, using the grant evaluation criteria, so that the most critical needs are funded first. Besides administering the existing countywide funding sources, it is equally important for Alameda CTC and local agencies to seek additional sources of revenue to address the funding gap in order for this plan to be fully implemented. By highlighting the gap between costs and revenues for bicycle improvements and programs, this document can serve as a valuable advocacy tool for bringing much-needed attention and resources to the state of bicycling in Alameda County.

The difference between estimated costs and projected revenue for projects in the Bicycle Plan—the funding gap—is approximately \$620 million.

All costs and revenues are given in 2012 dollars. In cases where the available costs and revenue amounts were from earlier years, they have been escalated to 2012 using the Bureau of Labor Statistics’ inflation

index for the Bay Area¹⁰. Note that the costs and revenues in this chapter are not directly comparable to those in the Countywide Transportation Plan, which were estimated in 2013 escalated dollars.

Comparison to 2006 Bicycle Plan

The total cost to implement this plan is three and a half times higher than the cost reported in the 2006 Bicycle Plan, while the projected revenue is about three times larger. (An explanation of the difference in revenue amounts is included in the revenue section.) As for the increase in costs, inflation and the expansion of the plan life from 25 to 28 years are in small part responsible, but the more significant reasons are the following:

- For construction costs, which almost tripled, the expansion of the vision network from 549 miles to 762 miles is the main reason for this increase. A significant part of this mileage increase was due to adding more routes to connect to transit. Also, the multi-use trail network increased with the addition of the East Bay Greenway and the inclusion of the full Bay Trail.
- The maintenance costs, which were very roughly estimated to be only \$20 million in the 2006 Plan, increased by a factor of nine due to more thorough estimates that were completed for this plan, and the increase in the overall size of the network.
- Program costs increased by a factor of almost 11, with the addition of many more programs and the inclusion of the full program costs (including setup and ongoing), especially for large programs like Safe Routes to Schools.
- Costs for the local master plans were not included in the 2006 plan, but are recommended here.

Shared Countywide Bicycle and Pedestrian Plan costs

Because the Bicycle and Pedestrian Plans were updated in tandem, the cost and revenue estimates for both plans were developed at the same time using

¹⁰ At the time this chapter’s figures were estimated, the inflation index provided values up to 2010; the index value for 2011 and for 2012 was assumed to be the same as for 2010.

consistent assumptions. While most of the estimates were calculated as plan-specific figures, both plans include some of the same multi-use trails (including the East Bay Greenway, Bay Trail and Iron Horse Trail), and the full construction and maintenance costs of approximately \$633 million for these trails was included in each individual plan. Table 6.2 below shows how these costs can be split evenly between the

two plans, for a total non-duplicating cost of roughly \$2.7 billion to implement both plans. When viewed together, the combined revenue expected to be available to implement the Bicycle and Pedestrian Plans is \$820 million. The funding gap for both plans is therefore roughly \$1.9 billion; the combined projected revenue is estimated to cover 30% of the estimated total combined costs.

Table 6.2 | Combined Bicycle and Pedestrian Plans' non-duplicating costs and revenue, 2012–2040

In millions; rounded to nearest \$100,000

	<i>Bicycle Plan</i>	<i>Pedestrian Plan</i>	<i>Total (non-duplicating) costs</i>
Costs	\$ 626.7	\$ 2,081.3	\$ 2,708.0
Construction of capital projects	\$ 424.9	\$ 1,459.3	\$ 1,884.2
• Shared costs for multi-use trails	\$ 259.1	\$ 259.1	\$ 518.2
• Remaining Plan construction costs	\$ 165.8	\$ 1,200.2	\$ 1,366.0
Maintenance of capital projects	\$ 124.8	\$ 540.6	\$ 665.5
• Shared costs for multi-use trails	\$ 57.4	\$ 57.4	\$ 114.9
• Remaining Plan maintenance costs	\$ 67.4	\$ 483.2	\$ 550.6
Programs implementation	\$ 71.6	\$ 75.9	\$ 147.5
Local master plans	\$ 5.4	\$ 5.4	\$ 10.8
Revenue	\$ 324.3	\$ 495.7	\$ 820.0
Funding gap between costs and revenue	\$ 302.4	\$ 1,585.6	\$ 1,888.0

Costs: Construction of capital projects

This section provides estimates of the cost to complete the bicycle vision network. In general, the objective was to develop standard average per mile (or per facility) costs, rather than individual cost estimates for specific projects and bikeway segments, as was done in the 2006 Plan. This new approach was used given that the goal of the estimation process is to develop a single countywide cost, and not to develop segment-level project costs, and given that all local bicycle plans throughout Alameda County employ an average per-mile cost to calculate the total cost of facilities throughout the applicable jurisdiction.

The total estimated cost to construct 367 miles of new bikeways plus the other non-bikeway facilities in the vision network is approximately \$684 million over 28 years, or approximately \$24 million annually (see Table 6.3 below). The cost is broken down into six facility types. These six facility types encompass the range of improvements that will be made under the five categories in the bicycle vision network: inter-jurisdictional network, access to transit, access to CBDs, inter-jurisdictional trails, and communities of concern.

Although this plan includes the capital (and maintenance) costs for bicycle projects as stand-alone projects, many of these projects could also be built into overall roadway maintenance costs or combined with other new capital projects, per a complete streets policy approach.

Table 6.3 | Construction costs*

2012 dollars, in millions; rounded to nearest \$100,000

<i>New facilities by type</i>	<i>Unbuilt mileage</i>	<i>Cost</i>	<i>% of total cost</i>
Class I (multi-use path)**	132.9	\$ 570.0	83%
• Major countywide trails	81.5	\$ 508.3	
• All other trails	51.4	\$ 61.7	
Class II (bicycle lane)	96.5	\$ 7.4	1%
Class III (bicycle route)	106.1	\$ 11.4	2%
Unclassified (class unknown)	31.7	\$ 3.4	0.5%
Major (non-bikeway) capital projects	n/a	\$ 78.8	12%
Bicycle/transit interface projects	n/a	\$ 13.1	2%
Total	367.2	\$ 684.0	100%

* Numbers may not add up due to rounding.

** Some of these costs can be shared with the Countywide Pedestrian Plan (see Table 6.2).

Shared construction costs with Countywide Pedestrian Plan

Some duplication exists between the Countywide Bicycle Plan capital costs and those included in the Countywide Pedestrian Plan, namely for constructing

the multi-use trails. Table 6.4 below identifies that there is \$518.2 million in shared capital costs for multi-use trails: \$508.3 million for the three major countywide trails and \$9.9 million for the other trails that are in both plans. When combining the costs of the two plans, these shared costs should be split equally between the plans, as shown.

Table 6.4 | Combined Bicycle and Pedestrian Plans construction costs

2012 dollars, in millions; rounded to nearest \$100,000*

	<i>Bicycle Plan</i>	<i>Pedestrian Plan</i>	<i>Total (non-duplicating) costs</i>
Class I (multi-use path)	\$ 310.9	\$ 259.1	\$ 570.0
• Major countywide trails (81.5 miles)	\$ 254.2	\$ 254.2	\$ 508.3
• Other trails in both plans (8.2 miles)	\$ 4.9	\$ 4.9	\$ 9.9
• Trails only in Bicycle Plan (43.1 miles)	\$ 51.8	\$ --	\$ 51.8
Remaining Plan construction costs	\$ 114.0	\$ 1,200.2	\$ 1,314.2
Total non-duplicating Bicycle and Ped Plans costs	\$ 424.9	\$ 1,459.3	\$ 1,884.2

* Numbers may not add up due to rounding.

Facility types

Below, and in Appendix X, are detailed cost estimates for the six facility types and the assumptions used to arrive at the estimates. For each of the six types, the

costs generally include feasibility, design, construction, inspection, administration and contingency costs, as applicable. The estimates serve as a "ballpark" guide to expected costs. This level of cost information is useful as a sketch-level planning

tool for comparing the cost of improvements across facility types, and for estimating the total costs to implement the capital projects in the plan. It should not, however, be used to make decisions about specific project costs, since these are broad-brush approximations that, in most cases, do not account for actual project conditions. More specific project costs will be developed by the local agencies, when projects are submitted for funding.

Class I (multi-use path) facilities

Also known as trails or grade-separated paths, these facilities are used by both bicyclists and pedestrians. Table 6.5 below shows the capital costs of these facilities (more detail is included in Appendix X). For costing purposes, the 133 miles of planned trails in the bicycle vision network are divided into two types

(under the vision category of inter-jurisdictional trails):

- **Major countywide trails:** This includes completing the three major trails in the county (the East Bay Greenway, Bay Trail and Iron Horse Trail) by building the remaining 81.5 miles of the 186.7 mile network, and selected bridges and connectors along these trails.
- **All other trails:** This includes all other major East Bay Regional Park District and local trails from the vision network.

Note that a subset of these multi-use trail facilities are also included in the Countywide Pedestrian Plan capital cost calculations, since these trails also serve pedestrians (see Table 6.4).

Table 6.5 | Class I capital costs

	<i>Unbuilt mileage</i>	<i>Cost per mile (in millions)</i>	<i>Total cost (in millions)</i>
Major Countywide Trails: East Bay Greenway, Bay Trail, Iron Horse Trail	81.5	N/A*	\$ 508.3
All other trails	51.4	\$ 1.2	\$ 61.7
Total	132.9		\$ 570.0

* Facility-specific cost estimates were available, so per mile cost assumptions were not made.

Class II (bicycle lane) facilities

A survey of local bicycle plans in Alameda County revealed two types of bicycle lane facilities, with distinct cost profiles: lower-cost facilities, requiring only striping a bicycle lane and adding signage; and higher-cost facilities, requiring a travel lane reduction (to accommodate the bicycle lanes) and restriping. It is unknown what percentage of the planned bicycle lanes in the vision network make up each of these two facility types. Therefore, for costing purposes, it has

been assumed that the lower-cost projects make up one-third of the 97 miles of Class II facilities under the vision network (under the assumption that significantly more of the lower-cost projects have already been installed) and that the higher-cost projects make up the remaining two-thirds of the mileage. Table 6.6 below shows the capital costs for the Class II facilities. The per mile costs for the two facility types are based on the average of the cost estimates of bicycle lane projects in local bicycle plans in Alameda County (see Appendix X).

Table 6.6 | Class II capital costs

	<i>Cost per mile</i>	<i>Percentage of total miles</i>	<i>Miles</i>	<i>Total cost</i>
Lane reduction and restriping	\$ 100,000	67%	65	\$ 6,467,000
Striping and signing	\$ 30,000	33%	32	\$ 956,000
Total		100%	97	\$ 7,423,000

Class III (bicycle route) facilities

Based on a review of local plans, the state of the practice for bicycle route design, and the bicycle route types described in the 2006 plan, it is assumed that the vision network will include a mix of these five types of Class III facilities:

- **Signage-only routes:** Routes with bicycle route signage but no other specialized designs or treatments for bicycling.
- **Signed routes with “sharrows:”** Routes with bicycle route signage and sharrows, which are stencils indicating where bicyclists should ride in a travel lane shared with motor vehicles.
- **Routes with wide curb lanes:** Routes on arterials that, in addition to signage, include a wide outside travel lane and, possibly, sharrows.
- **Routes with wide shoulders:** Routes with shoulders that, while wide, are narrower than a standard bicycle lane; these are generally found on rural roads.

- **Bicycle boulevards:** Low-speed streets that have been designed to prioritize bicycle traffic and discourage cut-through auto traffic; their design often includes bulb-outs, high-visibility crosswalks, pavement markings such as sharrows, and other specialized treatments for bicycling.

As with Class II bicycle lanes, it is unknown what percentage of the planned bicycle routes in the vision network make up each of these distinct facility types. Therefore, for costing purposes, it has been assumed that the 106 miles of Class III facilities is divided into four equal parts, as noted in Table 6.7 below. (Two of the facility types—routes with wide shoulders and bicycle boulevards—were grouped together because they are similar in cost, and it was assumed that there would be relatively fewer of these types of facilities than the other three bicycle route types.) Combined, the average cost per mile for all Class III bicycle routes in the plan is approximately \$107,000. The details for arriving at the per mile costs noted in the table are included in Appendix X.

Table 6.7 | Class III capital costs

	<i>Cost per mile</i>	<i>Percentage of total miles</i>	<i>Miles</i>	<i>Total cost</i>
Signage only	\$ 10,000	25%	26.5	\$ 265,000
Sharrows	\$ 57,000	25%	26.5	\$ 1,512,000
Wide curb lanes	\$ 142,000	25%	26.5	\$ 3,766,000
Bike boulevards and wide shoulders	\$ 220,000	25%	26.5	\$ 5,834,000
Total		100%	106.1	\$ 11,377,000

Unclassified facilities

A small subset of the bikeways included in the vision network either does not yet have a facility type determined by the applicable local agency or the

facility type was not provided by the local agency. Many of these facilities are newly added access to transit routes and access to CBD routes that are not currently in local bicycle plans. (Although these routes

are not in local plans, they have been reviewed by local agencies as a part of this countywide plan update.) For cost estimating purposes, it is assumed that these facilities will be some type of Class III bicycle route. The cost per mile is therefore assumed to be the average of the per mile costs of the four Class III facility types listed above, which is \$107,000. Building the 32 miles of unclassified facilities will total \$3.4 million.



Major (non-bikeway) capital projects

Beyond the bikeways described above, major infrastructure projects such as improved freeway overcrossings, new bicycle/pedestrian bridges and freeway/roadway interchange improvements are needed to complete the vision network and create a high-quality bicycling environment throughout Alameda County. This plan's vision network includes 38 major non-bikeway capital projects, as summarized in Table 6.8 below and listed by project in Appendix X. These projects were taken from the 2006 Bicycle Plan and include the unbuilt non-bikeway portions of the 2006 bikeway network projects. The estimated combined cost for the major, non-bikeway, capital projects is \$78.8 million, based on the costs given for these projects in the 2006 plan, or current local estimates, if available. The costs were escalated and are shown in 2012 dollars. The estimate does not include major infrastructure projects needed along the recently-added transit- and CBD-access routes, since these needs have not yet been identified. It also does not include the costs for those bridges and other connectors that are already included in the estimated costs for completing the three major trails (addressed earlier under Class I facilities).

Table 6.8 | Major non-bikeway capital projects

<i>Improvement type</i>	<i>Number of projects</i>
Improve interchange	24
New bicycle/ped bridge or overcrossing	9
New or improved undercrossing	3
Improved overcrossing	1
Bridge improvements	1
Total	38

Bicycle/transit interface projects

In order to create the high-quality bicycle access to transit envisioned in the access to transit vision category, more than just bikeways leading to stations and stops are needed. This category of costs includes projects that will improve the bicycle/transit interface, including access directly to the station entrance, bicycle parking at stations and stops, and access on-board the transit vehicles. Cost estimates include improvements to and at rail stations, ferry terminals, and major bus stops, as described further below and in Appendix X. Table 6.9 below shows the costs for these improvements.

- **In-station access improvements:** Includes stair channels, new station pathways/entrances for bicyclists, and wayfinding signage.
- **Bike parking at stations/stops:** Includes bicycle racks, keyed lockers, electronic lockers, bicycle cages, attended and self-serve bicycle parking facilities.
- **On-board access:** Includes rail car upgrades, bicycle racks on buses, interior bicycle racks or storage on buses, and planning for improved on-board access.

Table 6.9 | Bicycle/transit interface project costs

<i>Transit operator</i>		<i>Total capital costs</i>
Rail/Ferry	Number of stations/terminals	\$ 9,684,000
BART	20	\$ 7,366,000
Amtrak/Capitol Corridor	6	\$ 1,108,000
ACE	4	\$ 830,000
WETA	3	\$ 380,000
Bus	Number of buses in fleet	\$ 3,400,000
AC Transit/Dumbarton Express	556	Costs calculated based on total fleet size in Alameda County, not by operator
WHEELS	92	
Union City Transit	16	
Emery-Go-Round	10	
Total		\$ 13,084,000

Costs: Maintenance of capital projects

This section provides estimates of the cost to maintain the bicycle facilities included in the vision network, as described in the previous section. Maintenance of bicycle facilities is essential to fostering increased bicycling. Over time, it can also keep total jurisdictional costs lower, since delaying, or not performing, maintenance can result in the need to completely reconstruct facilities and also in more legal claims to local jurisdictions. The total estimated maintenance cost for bicycle facilities over the 28-year life of the plan is approximately \$182 million, or \$6.5 million annually, as shown in Table 6.10 below.

Table 6.10 | Maintenance costs, 2012–2040

In millions; rounded to nearest \$100,000*

<i>Facility type</i>	<i>Built</i>		<i>Unbuilt</i>		<i>Total maintenance cost</i>	<i>Percent of total cost</i>
	<i>mileage</i>	<i>cost</i>	<i>mileage</i>	<i>cost</i>		
Class I (multi-use path)	153.2	\$ 109.4	132.9	\$ 42.4	\$ 151.7	83%
Class II (bicycle lane)	182.6	\$ 8.2	96.5	\$ 1.9	\$ 10.1	6%
Class III (bicycle route)	58.6	\$ 1.6	106.1	\$ 1.3	\$ 3.0	2%
Unclassified (class unknown)	n/a	n/a	31.7	\$ 0.4	\$ 0.4	0.2%
Bike/transit interface projects**	n/a	n/a	n/a	n/a	\$ 17.1	9%
Total	394.3	\$ 119.2	367.2	\$ 46.0	\$ 182.3	100%

* Numbers do not add up due to rounding.

** Includes operations for attended bicycle parking facilities at BART stations.

Although essential for creating a safe and comfortable bicycling environment, the cost of maintaining roadway pavement is not included in this plan, in part because the data needed to determine repaving needs specifically on the bicycle vision network is not readily available across the county. In addition, just like for constructing capital projects, the maintenance of bicycle facilities need not be stand-alone projects; it can be built into overall roadway maintenance costs, per a complete streets policy approach.

Additionally, the maintenance costs for major (non-bikeway) capital projects are not included in this cost estimate, as there is no comprehensive list of all such built projects. This will be considered for a future plan update.

Shared maintenance costs with the Countywide Pedestrian Plan

Like for the construction costs, some of the maintenance costs are shared with those included in the Countywide Pedestrian Plan. Table 6.11 below identifies that there is approximately \$115 million in

shared maintenance costs for multi-use trails: \$101.1 million for the three major countywide trails and \$13.8 million for the other trails that are in both plans. When combining the costs of the two plans, these overlapping costs should be split equally between the two plans.

Table 6.11 | Combined Bicycle and Pedestrian Plans maintenance costs

2012 dollars, in millions; rounded to nearest \$100,000*

	<i>Bicycle Plan</i>	<i>Pedestrian Plan</i>	<i>Total (non-duplicating) costs</i>
Class I (multi-use path)	\$ 94.3	\$ 57.4	\$ 151.7
• Major countywide trails (186.7 miles)	\$ 50.5	\$ 50.5	\$ 101.1
• Other trails in both plans (23.9 miles)	\$ 6.9	\$ 6.9	\$ 13.8
• Trails only in Bicycle Plan (75.5 miles)	\$ 36.9	\$ --	\$ 36.9
Remaining Plan maintenance costs	\$ 30.5	\$ 483.2	\$ 513.7
Total non-duplicating Bicycle and Ped Plan costs	\$ 124.8	\$ 540.6	\$ 665.5

* Numbers do not add up due to rounding.

Facility costs

This Countywide Bicycle Plan used a more rigorous and comprehensive methodology to estimate maintenance costs than previous versions of the Bicycle Plan. (The 2006 plan included a total of only \$20 million for maintenance costs.) To calculate the total maintenance cost, estimates were made for both the built and unbuilt portions of the network, using the per mile costs listed in Table 6.12 below. The bikeway per mile costs are generally based on cost assumptions used by local and regional agencies. For the bike/transit interface projects, the costs include maintenance of bicycle parking facilities and operation of attended bicycle parking facilities. Detailed cost assumptions are provided in Appendix Z.

Table 6.12 | Bikeway maintenance per mile costs*

<i>Facility type</i>	<i>Per mile cost (thousands)</i>	<i>Annual cost (millions)</i>
Class I (multi-use path)	\$ 25,500	\$ 5.42
Class II (bicycle lane)	\$ 1,600	\$ 0.36
Class III (bicycle route)	\$ 1,000	\$ 0.11
Unclassified (class unknown)	\$ 1,000	\$ 0.01
Bike/transit interface projects	n/a	\$ 0.61
Total		\$ 6.51

* See Appendix Z for assumptions

Costs: Programs

The “Countywide Priorities” chapter describes 12 bicycle-related programs that will support implementation of the Bicycle Plan goals and Alameda CTC’s role for each program, either through monetary contributions (in the form of grants to local jurisdictions and organizations or by hiring consultants) or by dedicating Alameda CTC staff time. The total estimated cost to implement the programs

through the year 2040 is approximately \$71.6 million (see Table 6.13 below). Of this total amount, Alameda CTC will likely contribute some funding through its discretionary grant programs, but other funding sources will also be necessary to fully implement the programs. For programs that are also included in the Pedestrian Plan, half the cost has been assigned to that plan and half to the Bicycle Plan with two exceptions (the multi-modal traffic school program and the community-based transportation plans), as described in detail in Appendix AA. The combined (non-duplicating) total cost to implement the programs in both the Countywide Bicycle and Pedestrian Plans is \$147.5 million.

The program costs presented here have three components: (i) start-up costs, for new programs or program elements, (ii) annual operating costs and (iii) costs to operate programs over their lifetime (typically 28 years but shorter for certain programs and program elements, depending on the implementation timeframe identified for each program in the

“Countywide Priorities” chapter). Detailed cost estimates are based on past costs of ongoing programs, costs of similar programs elsewhere in the country and other estimates and assumptions described in detail for each program in Appendix AA.

In addition to direct costs, implementation of the programs will require the time of Alameda CTC staff and in-house consultants to develop and implement the programs. These costs have not been included in the program cost estimates. Since 2003, Alameda CTC has had a countywide bicycle and pedestrian coordinator, as required in the 2000 transportation sales tax measure. The agency’s current overall bicycle and pedestrian staffing level is approximately one full-time equivalent (FTE) (an FTE consists of 2,080 work hours in a year, or 40 hours a week for 52 weeks). Implementing the additional programs recommended in this plan (and the Pedestrian Plan) will require additional staff resources, the level of which will need to be determined as the programs are further scoped and initiated.

Table 6.13 | Program costs*, 2012-2040

2012 dollars; rounded to nearest \$1,000

	<i>Start-up</i>	<i>Operating, annually</i>	<i>Yrs**</i>	<i>Operating, life-time</i>	<i>Total cost (including walking portion of program)</i>	<i>Bicycle Plan (only) costs</i>
Promotion						
1. Countywide bicycling promotion	\$ 5,000	\$ 53,000	28	\$ 1,484,000	\$ 1,489,000	\$ 1,489,000
2. Individualized travel marketing	\$ 480,000	\$ 300,000	3	\$ 900,000	\$ 1,380,000	\$ 690,000***
3. Programs in community-based transportation plans (CBTPs) ^	\$ --	Varies	Var.	\$ 2,126,000	\$ 2,126,000	\$ 2,126,000
Safety						
4. Safe routes to schools	\$ 110,000	\$ 4,301,000	24/ 28	\$ 116,744,000	\$ 116,854,000	\$ 58,427,000***
5. Bicycle safety education	\$ --	\$ 198,000	28	\$ 5,544,000	\$ 5,544,000	\$ 5,544,000
6. Multi-modal traffic school	\$ 80,000	\$ 16,000	24	\$ 384,000	\$ 464,000	\$ 464,000
7. Countywide safety campaign	\$ 100,000	\$ 150,000	24	\$ 3,600,000	\$ 3,700,000	\$ 1,850,000***
Technical support & info sharing						
8. Technical tools and assistance	\$ --	\$ 55,000	28	\$ 1,540,000	\$ 1,540,000	\$ 770,000***
9. Staff training and information sharing	\$ --	\$ --	28	\$ --	\$ --	\$ --^^
10. Multi-agency project coordination	\$ --	\$ --	24	\$ --	\$ --	\$ --^^
11. Collaborative research	\$ --	\$ 7,000	24	\$ 168,000	\$ 168,000	\$ 84,000***
Infrastructure support						
12. Bike sharing	\$ 155,000	\$ --	n/a	\$ --	\$ 155,000	\$ 155,000
Total for Bicycle Plan	\$ 930,000	\$ 5,080,000				\$ 71,599,000

* The order of this list of programs does not denote any priority. Also, the costs do not include costs for Alameda CTC staff or in-house consultants.

** The number of years shown reflects the timeframe for each program, as described in the "Countywide Priorities" chapter.

*** Costs split equally with the Pedestrian Plan.

^ The CBTPs include a wide variety of programs, many of which are included under other program categories (e.g. Safe Routes to Schools). The figure listed in this table includes the programs described in Appendix AA.

^^ Costs to implement this program are primarily for Alameda CTC staffing, which is not included in overall program costs.

Costs: Plans

One of the goals of the Bicycle Plan is to ensure that all jurisdictions in Alameda County have an adopted, up-to-date local bicycle master plan. In 2012, 14 out of the 15 jurisdictions had an adopted stand-alone bicycle plan or combined bicycle/pedestrian plan, or were in the process of developing one (see “Countywide Priorities” chapter). The estimated cost of preparing and updating local bicycle master plans through 2040 is approximately \$5.4 million, as shown in Table 6.14.

Table 6.14 | Plan development and update costs, 2012–2040

2012 dollars; rounded to nearest \$1,000

Type of plan	Costs
Small jurisdictions (under 50,000 population)	\$ 770,000
Medium-size jurisdictions (50,000 to 100,000 population)	\$ 1,062,500
Large jurisdictions (100,000 to 250,000 population)	\$ 1,937,500
Very large jurisdictions (over 250,000 population)	\$ 1,250,000
Other non-local agencies (to be determined)	\$ 350,000
Total	\$ 5,370,000

- **“Small” jurisdictions** in Alameda County are Albany, Dublin, Emeryville, Newark and Piedmont
- **“Medium” jurisdictions** are Alameda (city), Livermore, Pleasanton, San Leandro and Union City
- **“Large” jurisdictions** are Alameda County (for the unincorporated areas), Berkeley, Fremont and Hayward
- Oakland is the only **“very large” jurisdiction** in Alameda County
- **Other non-local agencies** will be determined, but could include BART and UC Berkeley

In arriving at these estimated costs, the assumption was made that plans would be updated every five years (to comply with Measure B local pass-through funding requirements). For local jurisdictions with combined bicycle/pedestrian plans, half of the cost of

the new plan or plan update was included in this estimate; the other half is included in the Countywide Pedestrian Plan cost estimates. Additional assumptions, and costs by local jurisdiction, are listed in Appendix BB.

Revenue

Through 2040, an estimated \$324.3 million in revenue is expected to be available to implement the bicycle projects and programs contained in this plan for Alameda County (see Table 6.15 below and Appendix CC). This estimate considers potential revenue from the most likely funding sources at federal, state and regional agencies and Alameda CTC. The funding sources are divided into two broad categories: (i) those with funds dedicated to bicycle (and pedestrian) projects in Alameda County and, (ii) sources under which bicycle projects in Alameda County would have to compete for grants against similar projects elsewhere or against non-bicycle projects. The revenue estimate assumes that existing funding sources will continue through the life of the Bicycle Plan. This is a reasonable assumption because funding sources tend to continue once they are established and proven, and because when sources do cease to exist, new ones serving similar purposes often appear to take their place.

The estimate does not include local funding sources (for example, general funds, traffic impact fees, or developer contributions) or non-traditional sources (such as public health agencies) because these are difficult to project and would be much less reliable for planning purposes than the conventional sources included here. The estimate also does not include one-time, special-purpose infusions of funds like the federal government’s stimulus act of 2009. Some level of funding from unanticipated sources is likely during the life of the Bicycle Plan but is impossible to estimate.

Table 6.15 | Projected revenue for countywide projects, programs and plans

2012 dollars in millions; rounded to nearest \$100,000

Dedicated bicycle/pedestrian sources in Alameda County	
Measure B/TEP - Bicycle/pedestrian safety; local pass-through	\$ 19.5
Measure B/TEP - Bicycle/pedestrian safety; countywide discretionary	\$ 54.6
Measure B/TEP - Bicycle/pedestrian safety; major regional trails	\$ 83.1
Measure B/TEP - Local streets & roads pass-through	\$ 13.9
MTC - Safe Routes to School	\$ 7.5
Transportation Development Act (TDA) Article 3	\$ 6.4
Vehicle Registration Fee - Bicycle/pedestrian grants	\$ 7.1
Competitive sources	
OneBayArea Grant program	\$ 66.9
MTC – Climate change initiatives	\$ 4.2
MTC – PDA planning grants	\$ 1.8
Safe Routes to Transit (SR2T)	\$ 12.8
Safe Routes to School (SRTS) – Federal	\$ 1.3
Safe Routes to School (SR2S) – State	\$ 0.9
TFCA – Regional Fund	\$ 2.5
TFCA – County Program Manager Fund	\$ 5.3
Lifeline Transportation Program	\$ 2.5
Transportation Planning grant program	\$ 1.2
Bay Trail Grant Program	\$ 3.1
Bicycle Transportation Account	\$ 4.3
Recreational Trails Program (RTP) – non-motorized	\$ 3.7
Office of Traffic Safety	\$ 3.9
STIP/Transportation Enhancements (TE)	\$ 15.3
Highway Safety Improvement Program	\$ 2.3
Total projected revenue for Bicycle Plan	\$ 324.3

While the plan costs are broken down by capital projects, maintenance, programs, and master plans, there is no way to know how much revenue will be available for each of these categories. Some funding sources, including Measure B, are extremely flexible and can be used for many types of activities, but others are more limited. Therefore, some project categories may receive relatively more funding than others.

The revenue estimates summarized in Table 6.15 and Appendix CC are based for the most part on historic levels of actual funds received for bicycle projects from ongoing programs and on a number of other estimates and assumptions described in detail for each funding source in Appendix DD.



All revenue estimates are in 2012 dollars, and have not been escalated. (This is in contrast to the estimates in the Countywide Transportation Plan and the Transportation Expenditure Plan, which are in year-of-expenditure and 2042 escalated dollars, respectively.) It should be remembered that the revenue estimates given here are best guesses. Actual revenue will likely differ from the projections for a number of reasons. These include the eventual funding availability from the federal and state governments, grant applications submitted by Alameda County jurisdictions, and the success rate under competitive funding sources of these applications.

As with costs, the development of estimated revenue was coordinated with the estimate for the Pedestrian Plan; this was done to prevent double-counting of projected revenue and to allow the revenue projections in the two plans to be summed to arrive at the total projected revenue for non-motorized

transportation (see Appendix CC for a table showing anticipated revenue for both plans). For sources that can fund both bicycle and pedestrian projects, professional judgment and/or historical information was used to determine the percentage of funds that would be assigned to the Bicycle Plan or the Pedestrian Plan, depending on the purpose of the project. The main area of overlap for the two plans is for funding for multi-use pathways. As explained in the detailed revenue estimates in Appendix DD, half of projected revenue for multi-use pathways has been assigned to the Bicycle Plan and half to the Pedestrian Plan. The assumption is that, in general, multi-use pathways are of equal benefit to walkers and bicyclists.

Revenue projections were calculated first for all bicycle projects (both local and countywide) in Alameda County. The total estimated revenue amount through 2040 for all bicycle projects and programs (both local and countywide) is \$397 million, or \$14.2 million annually (see Appendix CC for details by funding source). The amounts were then separated into those that are only locally-serving (applicants for grant funding are typically local jurisdictions, so funds are often used for projects of local, and not necessarily countywide, importance), and for countywide bicycle projects included in this plan's vision network. This means that of the sources analyzed, it is assumed that \$72.7 million would be spent on projects that are solely local and \$324.3 would be spent on countywide projects.

Comparison to 2006 Plan

The 2006 Countywide Bicycle Plan projected that approximately \$86–111 million (in 2012 dollars) would be available for implementing the bicycle projects included in the Countywide Plan in the 25 years through 2030, or \$3.5–4.4 million annually. This plan overhauled the revenue projection methodology used in the 2006 plan, and estimates that approximately \$11.6 million will be available annually. There are several reasons for this substantial increase in estimated annual revenue, of which the most significant are:

- This plan projects much higher revenue from Measure B (see the following section for descriptions of funding sources), since it assumes a

one cent sales tax would begin to be collected in 2013, and continue through 2040, unlike the 2006 Plan which assumed the current half-cent sales tax would end in 2022.

- The 2006 plan did not include any revenue from the local streets and roads pass-through funding under Measure B for bicycle projects.
- The 2006 plan included a relatively small amount for a broad “Miscellaneous” category meant to cover many unpredictable competitive sources, while this plan estimates amounts for each of these sources based on historical levels of funding.
- This plan includes several sources that did not exist in 2006, including the Vehicle Registration Fee and the federal Safe Routes to School grant program.

Moreover, the 2006 plan did not include the total revenue available for *all* bicycle projects in Alameda County (both local and countywide priorities) in the 25 years to 2030. Comparing revenue projections from the 2006 plan with actual revenue received for bicycle projects is therefore not possible. Although totals for revenue received from all sources is not readily available, it is instructive to note that in the five-year period from 2006 to 2010, Alameda County jurisdictions and public agencies received approximately \$5.8 million annually for bicycle projects. For comparison, this plan projects \$14.2 million in annual revenue for all bicycle projects (local and countywide combined), an amount over double the annual average received over the previous five years.

Potential funding sources

Below are brief descriptions of the 23 potential funding sources considered in this plan (listed previously in Table 6.15). Appendix DD contains detailed estimates of the projected revenue from each of these sources, including the assumptions used to arrive at the estimates.

Dedicated bicycle/pedestrian sources in Alameda County

Measure B/Transportation Expenditure Plan—Bicycle/pedestrian safety category

The 2000 Measure B reauthorized Alameda County's half-cent transportation sales tax through 2022, and dedicated 5% of tax revenues to be spent on bicycle

and pedestrian improvements. This plan makes the same assumption as the 2012 Alameda Countywide Transportation Plan (CWTP), namely that the sales tax will be reauthorized in November 2012 at a higher one-cent level and that the tax will not expire, generating a total of \$5,540 million in revenue through 2040. (Note that this revenue amount does not match those in the proposed Transportation Expenditure Plan (TEP) or the CWTP, since those amounts are given in 2042 and 2013 escalated dollars, respectively, while the totals in this plan are in 2012 dollars.)

The TEP, which guides the sales tax expenditures, assigns 8% of the net tax revenue to bicycle and pedestrian improvements. This is divided as follows:

- **Local pass-through:** 3% will be returned to the local jurisdictions, based on population, for spending on local priorities
- **Countywide discretionary:** 2% will be allocated to Alameda CTC for projects and programs of a countywide nature
- **Major regional trails:** 3% will be dedicated to implementing the three major regional trails

Measure B/Transportation Expenditure Plan – Local streets and roads pass-through

Under the TEP (described above), 20% of net revenues are passed through to Alameda County's local jurisdictions to fund local streets and roads priorities. The TEP requires that a minimum of 15% of these funds must be spent on project elements directly benefitting bicyclists and pedestrians, which is 3% of the total sales tax revenue.

MTC – Safe Routes to School (SR2S)

For both capital projects and programs that facilitate reduction in vehicular travel to and from schools. Each county in the Bay Area is allocated a specific amount based on student population.

Transportation Development Act (TDA) Article 3

California's Transportation Development Act (TDA) imposes a quarter-cent tax on retail sales for transportation purposes. Tax revenues are returned to the county of origin and distributed to the cities and the county government on a population basis. Under Article 3 of the act, 2% of each entity's TDA allocation is set aside for bicycle and pedestrian facilities, safety programs and planning.

Vehicle Registration Fee – Bicycle/pedestrian grants

Fee approved by Alameda County voters as part of Measure F in November 2010, with collections begun in May 2011. The fee is anticipated to generate about \$10.2 million per year in net revenue. Under the measure, 5% of the net fee revenue is required to be spent on bicycle and pedestrian improvements, as a competitive grant program.

Competitive sources

OneBayArea Grant program

Through its proposed OneBayArea Grant program, MTC intends to better integrate the region's transportation investments with its land use and housing policies. During the program's initial four years (2013–2016), 40% of the federal surface-transportation funds for the Bay Area, or \$320 million, will be distributed to the county congestion management agencies (CMAs, including Alameda CTC) as "block grants." These grants give the CMAs broad discretion to spend funds in ways that address their transportation priorities, including Transportation for Livable Communities, local streets and roads preservation, bicycle and pedestrian improvements, transportation planning and outreach, and Safe Routes to Schools. However, for all counties except those in the North Bay, at least 70% of funds are required to be spent on projects in, or connecting to, Priority Development Areas. Of the \$320 million total, approximately \$63 million will be distributed to Alameda County in the first four year funding cycle.

MTC– Climate change initiatives

This regional program, administered by MTC, is intended for projects that support the implementation of strategies identified in Plan Bay Area to achieve the required CO2 emissions reductions per SB375 and federal criteria pollutant reductions. These could include projects to encourage bicycling.

MTC – Priority Development Area (PDA) Planning Grants

This regional program, administered by MTC, is part of the overall "PDA Activities" funding category. It will support local jurisdictions in planning for PDAs in areas such as promoting alternative modes of travel to the single occupancy vehicle (such as bicycling), parking management, and providing housing, jobs, intensified land use.

Safe Routes to Transit (SR2T)

Program administered by TransForm and the East Bay Bicycle Coalition that provides grant funds to local jurisdictions and special districts for planning and capital projects that improve bicycling and walking access to regional transit stations



Safe Routes to School (SRTS) – Federal

One of two separate Safe Routes to School grant programs administered by Caltrans (see also below). It provides funding for grants to state, local and regional agencies among others for projects and programs that improve bicycling and walking access within two miles of a grade school or middle school.

Safe Routes to School (SR2S) – State

One of two separate Safe Routes to School grant programs administered by Caltrans (see also above). It provides funding grants to cities and counties for capital projects that improve bicycling and walking access near schools serving children in grades K–12.

Transportation Fund for Clean Air (TFCA)

The TFCA is a grant program of the Bay Area Air Quality Management District that funds projects to reduce air pollution from motor vehicles. It consists of two sub-programs: the Regional Fund and the County Program Manager Fund. The Regional Fund receives about 60% of TFCA revenues and is administered directly by the Air District. The remaining 40% is returned through the County Program Manager Fund to the CMAAs for allocation. The TFCA funds a wide range of bicycle facilities, including bicycle paths, lanes and routes, bicycle parking lockers and racks, and bicycle racks on transit vehicles.

Lifeline Transportation Program

Alameda CTC administered program, using MTC funding, for transportation projects and programs—including for walking and bicycling—that address the mobility and access needs of low-income communities throughout the Bay Area.

Transportation Planning grant program

Caltrans-administered program to fund a variety of transportation planning activities, including community-based transportation plans, transit plans, and projects and programs that address environmental justice concerns. The total amount, and even the availability, of grants vary from year to year.

Bay Trail Grant Program

The San Francisco Bay Trail Project—a non-profit organization administered by ABAG—provides funding grants to local governments, special districts and nonprofit organizations to plan, design, construct and improve segments of the Bay Trail alignment. The amount, and even the availability, of grants vary from year to year, depending on whether the Bay Trail Project has secured a source of funds for the program.

Bicycle Transportation Account

Caltrans-administered program that provides funding to cities and counties for projects that improve the safety and convenience of bicycle commuting. Eligible projects include secure bike parking; bike-carrying facilities on transit vehicles; installation of traffic-control devices that facilitate bicycling; planning, design, construction and maintenance of bikeways that serve major transportation corridors; and elimination of hazards to bicycle commuters.

Recreational Trails Program – Non-motorized

Grant program administered by the California Department of Parks and Recreation to fund recreational trails and trails-related projects.

Office of Traffic Safety

For traffic safety education, awareness and enforcement programs aimed at drivers, bicyclists and pedestrians of all ages.

STIP/Transportation Enhancements (TE)

Federal funds provided by the state as grants, and programmed by Alameda CTC for projects that enhance the compatibility of transportation facilities

with their surroundings, including for bicycle and pedestrian facilities and safety and educational activities.

Highway Safety Improvement Program

Caltrans-administered grant program for infrastructure projects that reduce traffic fatalities and serious injuries, including those that enhance safety for bicyclists and pedestrians.

7 | NEXT STEPS

Overview

The “Countywide Priorities” chapter identifies the capital projects, programs and planning efforts needed through the year 2040 to make bicycling in Alameda County safer, more convenient and more enjoyable. As a funding and planning agency, with responsibility for allocating several dedicated bicycle (and pedestrian) funding sources, Alameda CTC can play a key role in making the vision and goals of this plan a reality.

This chapter describes the implementation actions that Alameda CTC will undertake in the first five years of the plan’s life (2013–2017) to begin to make the plan a reality in the near term and to set the stage for implementing the plan’s medium- and long-term efforts. The focus is on a five year timeframe because this plan will be updated within the next four to five years, allowing these action steps to be re-evaluated and adjusted, as needed. The chapter concludes by outlining the eight performance measures that will be used to monitor progress toward attaining the goals of the Countywide Bicycle Plan.

Alameda CTC will have primary responsibility for implementing the actions, some of which are already underway. For many of the actions, Alameda CTC will need to partner with local jurisdictions, other public agencies, and/or organizations to accomplish them.

These partners, who are listed after each implementation action, are key to successfully achieving not just the actions, but the full vision of the plan itself. Ultimately, implementation of the actions is dependent on identifying and securing funding that will support the projects and programs recommended here.

The Bicycle Plan contains 16 implementation actions, summarized in Table 7.1. They fall into three categories:

- **Funding**, through which Alameda CTC will either provide funds, in the form of grants, to local agencies to help them implement portions of the priority bicycle network, or will expend funds itself at the countywide level to implement the countywide priorities.
- **Technical tools and assistance**, through which Alameda CTC will facilitate implementation of the Bicycle Plan by providing technical tools and assistance to local agencies.
- **Countywide initiatives**, which will be new or a continuation of ongoing Alameda CTC efforts with an intended impact not only at the local level but also countywide.

Table 7.1 | Implementation actions

Time period is plan adoption to next plan update.

See text for complete description of each action and a list of sub-actions; note that implementation of most actions is dependent on funding and resource availability.

Shading indicates when the action takes place.

For actions with multiple phases, darker shading indicates when feasibility studies or strategic planning would take place.

For the four countywide programs (implementation action #10), darker shading indicates when the strategic planning would be conducted, and lighter shading indicates continuation of programs, most of which are already underway.

O = Ongoing; FC = coordinated with a funding cycle.

	2013	2014	2015	2016	2017
Funding					
1. Implement the Countywide Bicycle Plan by continuing to dedicate funding and staff time to the plan priorities, and integrating the priorities into the agency's activities	O/ FC	O	O/ FC	O	O/ FC
2. Fund and provide technical assistance for the development and updating of local bicycle master plans	FC		FC		FC
3. Coordinate transportation funding with land use decisions that support and enhance bicycling			O	O	O
4. Pursue additional dedicated funding for bikeway maintenance	O/ FC	O	O/ FC	O	O/ FC
Technical tools and assistance					
5. Develop resources to support local jurisdictions in adopting and implementing Complete Streets policies		O	O	O	O
6. Offer regular trainings and information-sharing forums for local-agency staff on best practices in bicycle infrastructure and programs	O	O	O	O	O
7. Develop a local best practices resource and other tools that encourage jurisdictions to use bicycle-friendly design standards	O	O	O	O	O
8. Offer technical assistance to local jurisdictions on complex bicycle design projects			O	O	O
9. Develop tools and provide technical assistance to help local jurisdictions overcome CEQA-related obstacles	O	O	O	O	O
Countywide initiatives					
10. Develop and implement a strategy to address how to improve and grow (as feasible) each of the following four near-term priority countywide programs					
• Safe Routes to Schools program		O	O	O	O
• Countywide bicycle safety education program		O	O	O	O
• Countywide bicycle safety advertising campaign			O	O	O
• Countywide bicycling promotion program	O	O		O	O
11. Develop and adopt an internal Complete Streets policy					
12. Determine options for modifying the countywide travel demand model to make it more sensitive to bicycling and implement the best feasible option					
13. Determine options for revising the Congestion Management Program to enhance bicycle safety and access, and implement the best feasible option					
14. Work with the County Public Health Department to consider bicycle data and needs in the development and implementation of health and transportation programs		O	O	O	O

	2013	2014	2015	2016	2017
15. Monitor, evaluate and report on progress annually on implementation of the Countywide Bicycle Plan	/	○	○	○	○
16. Conduct research to inform future plan updates and countywide bicycle planning					

Below is a description of the 16 implementation actions, and 63 sub-actions, needed to advance the Bicycle Plan over the next five years. In many cases, a year or multiple years are listed for when the specific actions will take place; in cases where they are not listed, the action is ongoing.

Funding

1. Implement the Countywide Bicycle Plan by continuing to dedicate funding and staff time to the plan priorities, and integrating the priorities into the agency’s activities

Implementation of the Bicycle Plan will require adequate funding and staff time to achieve the project, program and planning priorities outlined in the “Countywide Priorities” chapter. Specific actions include:

- 1.1 Use this plan to guide the agency’s bicycle program and funding priorities.
- 1.2 In each funding cycle for all of the funding sources administered by the agency, consider funding the plan priorities (as applicable), using this plan as a guide.
- 1.3 Continue to have a countywide bicycle and pedestrian coordinator and/or team.
- 1.4 Advocate for additional and/or new funding to support the plan priorities at the county, regional, state and federal levels.
- 1.5 Annually review the plan’s implementation actions to ensure that they are incorporated into the agency’s work plan and to monitor progress made. [2013–2016]
- 1.6 Implement grant funding cycles for bicycle (and pedestrian) projects and programs every two years, or as discretionary funding is available. [2013, 2015 and 2017]

Partners: N/A

2. Fund and provide technical assistance for the development and updating of local bicycle master plans

Since 2006, transportation sales tax funds have helped fund bicycle master plans, or plan updates, for the cities of Alameda, Albany, Newark and Pleasanton. Specific actions include:

- 2.1 Continue to fund local master plans so that jurisdictions without an adopted plan can develop one, and the 14 local jurisdictions and also other public agencies (such as BART and UC Berkeley) with plans can keep them up to date. [Grant funding cycles are anticipated in 2013, 2015 and 2017.]
- 2.2 Develop a toolkit of technical resources to assist agencies in developing and updating their plans, such as best practices, to ensure that plans are effective, and, to the extent feasible, comparable to each other. [2013–2014]

Partners: Local jurisdictions



3. Coordinate transportation funding with land use decisions that support and enhance bicycling

Alameda CTC will pursue steps that link the transportation funding it allocates to land use decisions that support bicycling. Specific actions include:

- 3.1 Develop and implement a Priority Development Area (PDA) Investment and Growth Strategy and PDA Strategic Plan that identifies “ready” PDAs and transportation projects within them, including developing cost estimates, incorporating complete communities and streets concepts and policies, and developing Transit-Oriented Design Guidelines. [2013–2014]
- 3.2 Develop a countywide Community-Based Transportation Program, including updating the existing Community-Based Transportation Plans (CBTPs), incorporating new Communities of Concern areas as defined by MTC, identifying high priority projects (including bicycle projects) and cost estimates, and an implementation strategy. [2013–2014]
- 3.3 Conduct a feasibility study to design a program that integrates land use and transportation supported by financial incentives, similar to Santa Clara Valley Transportation Authority’s “Community Design & Transportation” program, and identify a tracking method. [2014]
- 3.4 Investigate other ways to maximize the coordination of transportation funding with land use decisions to support and enhance bicycling. [2015–2016]

Partners: Local jurisdictions and transit agencies

4. Pursue additional dedicated funding for bikeway maintenance

Streets, roads and paths in poor condition deter people from bicycling and expose cyclists to a higher risk of crashes and collisions. With additional maintenance funds, local agencies could greatly improve their ability to maintain bicycle facilities. While Measure B grant funds can be used for bikeway maintenance, such projects have not historically competed well for funding. For this reason, and given the importance of keeping facilities in good repair, Alameda CTC will take these specific actions:

- 4.1 Consider setting aside a portion of discretionary funding for maintenance of facilities on the countywide network. [2013, 2015, 2017]
- 4.2 Advocate for dedicated funding for bikeway maintenance, particularly for trails, at the regional, state and federal levels.

Partners: Local jurisdictions

Technical tools and assistance

5. Develop resources to support local jurisdictions in adopting and implementing Complete Streets policies

Alameda CTC will support the implementation of Complete Streets in the county by providing resources to local jurisdictions to develop, adopt and implement successful local Complete Streets policies that are compliant with both the Alameda CTC and MTC requirements. These policies will encourage local jurisdictions to incorporate non-motorized (and transit) users’ needs into their broader transportation projects. (Concurrently, Alameda CTC will develop an internal Complete Streets policy; see implementation action #11.)

- 5.1 Develop a package of recommended technical assistance and resources that support complete streets in the county. [2012–2013]
- 5.2 Implement the recommended complete streets resources. [2012–2017]
- 5.3 Assist local jurisdictions with updating the circulation element of their general plans in compliance with Assembly Bill 1358, the “California Complete Streets Act of 2008,” by 2014, to be in compliance with the MTC policy requirement. [2013–2014]

Partners: Local jurisdictions, transit agencies, freight interests, business groups, non-profits, and all other roadway stakeholders and users

6. Offer regular trainings and information-sharing forums for local-agency staff on best practices in bicycle infrastructure and programs

Training sessions on bicycle (and pedestrian) planning and engineering, and opportunities to share information between agencies, will help to spread best practices throughout the county. Specific actions include:

- 6.1 Continue to provide free access to a monthly webinar presented by the Association of Pedestrian and Bicycle Professionals, and consider expanding the reach of this program to those not located near the Alameda CTC offices.
- 6.2 Host additional webinars on topics of interest, as they are made available.

- 6.3 Host half-day educational forums on best practices in bicycle and pedestrian infrastructure and programs, at least every other year. [2013, 2015, 2017]
- 6.4 Re-convene the Pedestrian Bicycle Working Group (PBWG), a group of local agency and advocacy staff that meets up to four times a year to share information, learn about best practices, and give input to Alameda CTC on its programs and projects.
- 6.5 Establish a quarterly speaker series featuring bicycle and pedestrian experts to address timely topics such as the implementation of Complete Streets, liability concerns, innovative infrastructure treatments, and CEQA-related obstacles.

Partners: Local jurisdictions, transit agencies, park districts, public health department, advocacy groups, consultants, and non-profits

7. Develop a local best practices resource and other tools that encourage jurisdictions to use bicycle-friendly design standards

Alameda CTC will provide technical tools and resources to local jurisdictions on the planning and design of bicycle (and pedestrian) facilities. Specific actions include:

- 7.1 Develop a local best practices resource that includes engineering-level detail for both basic and innovative infrastructure in use in Alameda County, as a way to share and spread best practices throughout the county, and to reduce the need for local agencies to re-invent the wheel. Information about programs, such as signage or enforcement, could also be included. The resource will be developed with input from local agencies, and could be print or web-based. [2013–2014]
- 7.2 Disseminate information about best practices and innovative design guidelines, such as the NACTO Urban Bikeway Design Guide, as they become available, and work with local jurisdictions to determine which are the most useful and should be highlighted.
- 7.3 Determine if a Bicycle Design Guidelines and Best Practices document would be useful to local jurisdictions as a resource for designing bicycle projects in Alameda County, including those

funded by Alameda CTC, and if so, develop the document. [2014]

- 7.4 Once the above tools have been established, select a new tool to develop each year, via input from local jurisdictions (see list of possible tools in the “Countywide Priorities” chapter under “Technical Tools and Assistance” program). [2015–2017]
- 7.5 Support local jurisdictions in testing and implementing innovative infrastructure, as feasible.
- 7.6 Via information-sharing forums, such as the PBWG, develop a better countywide understanding of the limitations of the Highway Design Manual being used for the design of local streets, and the alternative design standards available for facilities.

Partners: Local jurisdictions

8. Offer technical assistance to local jurisdictions on complex bicycle design projects

Many local jurisdictions lack staff that are skilled, or have time to acquire skills, in the latest best practices for bicycle design. To address this need, Alameda CTC will provide technical assistance to local jurisdictions on the design of challenging bicycle (and pedestrian) facilities. Specific action includes:

- 8.1 Research and develop the best method of offering technical assistance that is simple for local jurisdictions to use and feasible for Alameda CTC to operate. This could be done by expanding Alameda CTC’s current Transit-Oriented Development Technical Assistance program (TOD TAP) to include bicycle (and pedestrian) projects. [2013–2014]

Partners: Local jurisdictions

9. Develop tools and provide technical assistance to help local jurisdictions overcome CEQA-related obstacles

“Environmental clearance” of projects under the California Environmental Quality Act (CEQA) often creates conflicts with the implementation of bicycle (and pedestrian) facilities and of bicycle- and pedestrian-friendly developments, and can result in the degradation of the environment for non-motorized users. An example is the widening of intersections to

mitigate impacts to the intersection's level-of-service (LOS), which can result in improvements to auto travel, but have negative impacts on other modes. Specific actions include:

- 9.1 Provide technical assistance to local jurisdictions to develop alternative CEQA policies, guidelines and standards to overcome, or at least lessen, some of the obstacles noted above. This may be done by developing a CEQA mitigation toolkit based on the best practices and resources developed in previous implementation actions. [2013–2016]
- 9.2 Provide trainings and speaker sessions (via implementation action #6 above) for local jurisdictions that address relevant topics, such as expanding LOS standards to include multi-modal measures; the appropriate level of environmental review for different types of bicycle (and pedestrian) plans and projects; trip-generation methodologies appropriate for smart growth developments; and significance thresholds for transportation impacts.

Partners: Local jurisdictions

Countywide initiatives

10. Develop and implement a strategy to address how to improve and grow (as feasible) four near-term priority countywide programs

In addition to continuing to implement, or starting, the nine “near-term” bicycle programs identified in the “Countywide Priorities” chapter, Alameda CTC will focus on four of the larger-scale promotional and safety programs identified in that chapter. In order to realize the full long-term vision of each of these programs, as identified in the “Vision and Goals” and “Countywide Priorities” chapters, each program will be evaluated and a strategy will be created for ways to improve and expand (as feasible) the programs over the short and long term. In order to manage this task, the timeframe for strategy development (as shown in brackets after each program) is staggered and, as appropriate, matched to upcoming opportunities for funding.

- 10.1 **Safe routes to schools (SR2S) program.**
Approximately 100 schools had established SR2S

programs in 2012. This plan's long-term goal is to have a program in every school in the county (see Strategy 2.6 in the “Vision and Goals” chapter). [2013]

- 10.2 **Countywide bicycle safety education program.** Safety classes are offered around the county in a variety of languages. The goal is to further expand the program to broaden its reach (see Strategy 2.5 in the “Vision and Goals” chapter). [2013]
- 10.3 **Countywide bicycle safety advertising campaign.** This is a new program that will create a countywide safety campaign aimed at promoting road safety among motorists, pedestrians, bicyclists and bus drivers. [2014]
- 10.4 **Countywide bicycling promotion program.** The current “Ride into Life!” advertising campaign, which is coordinated with Bike to Work Day each year, was evaluated in 2010/2011. The agency will re-examine this program, and other possible new efforts, to determine possible improvements. [2015]

Additional specific actions include:

- 10.5 Work with local jurisdictions to grow the above programs even further by developing and offering an easy-to-administer option for jurisdictions to contribute local funding toward countywide programs to expand the programs in their jurisdiction. [2013–2014]

Partners: Local jurisdictions, non-profits, public health department, school administrations and parent volunteers, and law enforcement

11. Develop and adopt an internal Complete Streets policy

In addition to supporting the development of Complete Streets by local jurisdictions (see implementation action #5), Alameda CTC will develop its own internal policy.

- 11.1 Alameda CTC will develop an internal Complete Streets policy that addresses the wide variety of activities that the agency performs, including capital projects development, fund programming, and countywide planning, tools and resources. This will ensure that capital projects implemented and/or funded by the agency provide safe and convenient access to all

users, including bicyclists, as appropriate and feasible for each project. [2013]

Partners: Local jurisdictions and transit agencies

12. Determine options for modifying the countywide travel demand model to make it more sensitive to bicycling, and implement the best feasible option

In 2012, Alameda CTC will begin to update its countywide travel demand model, allowing the opportunity to enhance its ability to forecast bicycle (and pedestrian) trips and to increase its sensitivity to bicycling. The bicycle network could be coded into the model which would help in creating a more reliable estimation of bicycle trips by corridor through assignment of the trips on the network. This change would help to identify and prioritize areas and corridors where non-motorized transportation improvements are most needed. Recent bicycle counts could be used to validate the bicycle model. Specific actions include:

- 12.1 As part of the model update—which will, among other things, align the model with the 2010 Census, update the model years to 2010 and 2040, and incorporate the Sustainable Communities Strategy—evaluate options for modifying the model to make it more sensitive to bicycling trips, and select the best feasible option. Implement the selected option. [2012–2015]
- 12.2 Consider leading a study, in collaboration with a local jurisdiction, of a road diet (possibly along a CMP network segment) to better understand the impacts to non-motorized transportation of using the model. Based on such a study, further recommendations could be developed to improve the model and the application of LOS standards. [2013–2015]

Partners: Local jurisdictions

13. Determine options for revising the Congestion Management Program to enhance bicycle safety and access, and implement the best feasible option

Alameda CTC develops the county's Congestion Management Program (CMP), which aims to monitor and maintain LOS standards on the designated CMP network and identify the impacts to the regionally

significant roadways (the Metropolitan Transportation System). The next update to the CMP, anticipated to begin in 2012, will include integrating the 2010 Highway Capacity Model (HCM), which includes determining how to incorporate the new HCM bicycling and walking LOS into the CMP. It will also incorporate the new HCM into the CMP LOS and Land Use element. Specific actions include:

- 13.1 During the update to the CMP, explore the options for revising the CMP to improve bicycle safety and access, and implement the best feasible option. As one option, consider using minimum safety and access standards for bicyclists (and pedestrians), rather than multi-modal LOS, which may not provide direct guidance on future improvements. [2012–2013]
- 13.2 Update the CMP guidelines to better define how to develop Areawide Deficiency Plans to address deficiencies on the CMP network, which will allow bicycling (and walking) improvements to more easily be incorporated into projects, or at a minimum, not pit the implementation of bicycle (and pedestrian) projects against auto projects to improve LOS. [2013–2016]
- 13.3 Conduct a feasibility study to explore implementing an impact analysis measure that supports alternative modes, such as San Francisco's Automobile Trip Generated (ATG) measure, instead of using LOS methodologies that primarily address auto impacts. [2012–2015]
- 13.4 Create maps of the areas of overlap between the CMP and the countywide bicycle vision network. This analysis will reveal the areas and routes on which to focus efforts to improve the CMP process from a bicycle (and pedestrian) safety and access perspective. [2013]

Partners: Local jurisdictions and transit agencies

14. Work with the County Public Health Department to consider bicycle data and needs in the development and implementation of health and transportation programs

The 2006 Bicycle Plan called for Alameda CTC to work to incorporate bicycle safety education into countywide public health programs. Linking efforts that encourage bicycling for transportation with those that support bicycling for health broadens the audience of each type of program and expands the

potential funding resources available for each. Specific actions include:

- 14.1 Identify specific bicycle (and pedestrian) data and social marketing efforts on which to partner with the Alameda County Public Health Department (PHD) to further the goals of this plan. [2013]
- 14.2 Continue to work collaboratively with the PHD on the intersection of public health and bicycling.

Partners: Public health departments

15. Monitor, evaluate and report on progress annually on implementation of the Countywide Bicycle Plan

Alameda CTC will monitor implementation of the Bicycle Plan annually. Specific actions include:

- 15.1 Monitor the status of the plan's eight performance measures included in this chapter, and report on them in the Alameda CTC's annual Performance Report. In future years, the results of these and all other performance measures, as reflected in the Performance Report, will be used by Alameda CTC to set priorities in the agency's Capital Improvement Program.
- 15.2 Annually review the plan's implementation actions to ensure that they are incorporated into the agency's work plan and to monitor progress made (this action is also reported under implementation action #1). Create a public report with this data, to be posted on the agency's website. [2013–2016]
- 15.3 Create and update a Geographic Information System (GIS) database to include all countywide, and also local, planned and built bicycle facilities. Work with local jurisdictions to update this database annually. [2013 and onward]
- 15.4 Continue the annual bicycle (and pedestrian) count program, as a way to gauge the effectiveness of new facilities and programs at encouraging bicycling.
- 15.5 Update the Bicycle Plan every four to five years, coordinating with the updates of the Countywide Transportation Plan and of the Countywide Pedestrian Plan. [2016]

Partners: Local jurisdictions

16. Conduct research to inform future plan updates and countywide bicycle planning

There are several research efforts that were beyond the scope of this Bicycle Plan update but that would be useful to conduct either in advance of, or during, the next plan update. To inform the future plan update and to improve countywide planning, Alameda CTC will conduct the following research and studies, pending the availability of funds:

Before next plan update [2013–2016]

- 16.1 **Performance targets:** Work with local jurisdictions and other stakeholders to research and, as feasible and appropriate to a countywide agency, develop comprehensive and meaningful quantitative targets for bicycling in Alameda County. Also, consider establishing a future vehicle miles traveled target and using the countywide travel demand model to determine what actions are needed today to achieve the goal. [2013–2014]
- 16.2 **Data collection:** Assess the benefits and disadvantages of Alameda CTC collecting its own bicycling data, rather than relying on outside sources of data, in order to have more timely information for reporting on performance measures, and possibly targets, and for use in the next plan update. [2013–2014]
- 16.3 **Collision analysis:** Conduct a detailed countywide collision analysis, which can help guide future plan and funding priorities, as well as the direction and focus of the countywide bicycle safety advertising campaign. [2013–2014]
- 16.4 **Caltrans-owned facilities:** Work with local jurisdictions, Caltrans and other agencies, as appropriate, to develop a list of interchanges, overcrossings, undercrossings and at-grade crossings of Caltrans highways and roadways on which bicycle (and pedestrian) access could be improved, and consider prioritizing the list and working with Caltrans to identify funding for the highest priority projects. (This work would build upon the list of major non-bikeway capital projects already included in Appendix X.) This list would be shared with Caltrans, and other agencies, as appropriate, to help them identify opportunities to better accommodate non-motorized users. [2014–2015]
- 16.5 **Typical project costs:** Work with local agencies to refine typical construction and maintenance

costs for bicycle capital projects. These cost assumptions could be used for estimating project costs not only in the Countywide Bicycle Plan update but also in local master plans. [2015–2016]

- 16.6 **Countywide and local BPACs:** Evaluate the staffing, funding, administration, composition and performance of the countywide and local BPACs for strengths, weaknesses and opportunities to improve their effectiveness. [2015–2016]

During next plan update [2017]

The following tasks were specifically identified during the development of this plan update, but were not able to be resolved. This list is not meant to include everything that should be addressed in the next plan update, but rather is meant to ensure that those tasks that were raised during the plan development process are not lost.

- 16.7 **Bicycling rates:** Develop case studies of how other cities and counties around the nation have managed to increase bicycling rates, and develop best practices and recommended policies both for internal use and for local jurisdictions.
- 16.8 **Central business districts:** Review and standardize the definition of central business districts (CBDs), as used in the “Countywide Priorities” chapter, and determine their distribution throughout the county for planning purposes under the updated Bicycle Plan.
- 16.9 **Major bus transfer points:** Re-evaluate the purpose and definition of major bus transfer points, included in the “Countywide Priorities” chapter.
- 16.10 **Types of Bikeways:** Differentiate bicycle boulevards from other Class III bicycle routes in the vision network, since the cost and usage of these facilities are very different.
- 16.11 **Major (non-bikeway) capital projects:** Identify those additional major capital projects (such as over- and under-crossings, and bicycle/pedestrian bridges) in the bicycle vision network that are along access to transit and access to CBD routes. This will assist in estimating the full costs of the Bicycle Plan and prioritizing projects.
- 16.12 **Facilities needing major repair and/or upgrades:** Work with local jurisdictions to

develop an inventory of countywide bicycle facilities in the vision network that are considered “built” but still are in need of repair or upgrades in order to be considered “completed,” and also the estimated costs to improve them.

- 16.13 **Re-paving needs:** Refine the cost to improve and maintain pavement along all bikeways in the bicycle vision network.

Performance measures

In addition to undertaking the implementation actions described above, Alameda CTC will monitor progress on implementing the Bicycle Plan. The plan establishes eight performance measures that will be used to gauge progress toward attaining the goals outlined in the “Vision and Goals” chapter. The performance measures—and the sources of information to be used for each—are:

- 1. Miles of local and countywide bicycle network built**
Source(s): Alameda CTC and local jurisdictions
- 2. Percentage of all trips and commute trips made by bicycling**
Source(s): The Metropolitan Transportation Commission’s Bay Area Travel Survey, the U.S. Census Bureau’s American Community Survey and BART’s Station Profile Studies
- 3. Number of bicycle injuries and fatalities**
Source(s): The California Highway Patrol’s Statewide Integrated Traffic Records System, or SWITRS
- 4. Number of bicyclists in countywide bicycle counts**
Source(s): Bicycle counts conducted by Alameda CTC, and also by MTC as part of a regional count program, and by local jurisdictions
- 5. Number of local jurisdictions with up-to-date bicycle master plans**
Source(s): Local jurisdictions

6. Dedicated countywide funds (amount or percentage) for bicycle projects and programs

Source(s): Alameda CTC bicycle/pedestrian funding sources

7. Number of schools with Safe Routes to Schools (SR2S) programs

Source(s): Alameda CTC and SR2S consultant

8. Number of community members participating in countywide promotional and/or educational programs

Source(s): Alameda CTC and program administrators

As new data sources are developed, or become readily available, additional performance measures will be considered. These could include the percentage of all Alameda CTC funding dedicated to bicycle projects and programs; all bicycle funding received from federal, state and regional sources in the county; and the amount of bicycle parking at major transit stations. Furthermore, this chapter outlines a future action to explore developing performance targets (see implementation action 16.1), at which point additional performance measures will be considered.

In addition, the following bicycle-related performance measures are included in the Countywide Transportation Plan, and will also be reported on annually:

- **Alternative modes:** Percentage of trips made by non-automobile modes
- **Safety:** Annual projected injury and fatality crashes
- **Physical activity:** Total daily hours spent biking or walking