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APPENDIX D - WALKABILITY, MOVEMENT AND SAFETY FOR THE CITY OF BERKELEY
CHAPTER 1
INTRODUCTION

This Pedestrian Master Plan guides the development and enhancement of the pedestrian environment within the City of Berkeley. The plan was developed with extensive input from Berkeley residents, and seeks to ensure that safe and pleasant walking facilities are available throughout the city. Throughout this Master Plan, the term “pedestrian” refers to a person moving from place to place, on foot and/or with the use of an assistive mobility device (when that person has a disability and/or medical condition). “Walking” or “to walk” are the terms used to describe this movement of a pedestrian.

Berkeley is already a tremendously walkable city, and ranks as the safest city of its size in California for walking.¹ For years the City has been at the forefront of providing improvements for disabled residents, and Berkeley was recently designated as the “Most Accessible City in the Nation” by a panel of disability advocates and experts. The City’s street grid was developed in an era in which the streetcar was the main mode of transportation, and the short, regular blocks provided excellent pedestrian access. To this day, Berkeley’s neighborhoods retain much of their distinctive character and walkability. With a busy downtown and a major university, well-defined neighborhoods and shopping districts, parks, schools, pathways, transit centers, and civic facilities, Berkeley has many vibrant areas of pedestrian activity.

The City of Berkeley is committed to an urban environment that encourages and facilitates walking, supports community health, vitality and safety. In 2004 the Berkeley City Council adopted a Pedestrian Charter that outlined the following principles:

- Accessibility
- Equity
- Health and Well-Being
- Environmental Sustainability
- Personal and Community Safety
- Community Cohesion and Vitality

Berkeley City residents, leaders, and staff are committed to ensuring that the City has a truly multi-modal transportation network, where pedestrian facilities are fully integrated and residents can walk comfortably and pleasurably between a variety of destinations. This pedestrian plan builds on Berkeley’s past planning efforts, including the General Plan and Pedestrian Charter, to enhance the pedestrian environment. Providing enhanced walking opportunities will further decrease residents’ use of the private automobile, and will help to preserve and promote Berkeley as a place where people want to live, work and visit.

What will Berkeley be like for pedestrians in the future? This Master Plan offers a vision of a future Berkeley where:

- People can conveniently walk to their destinations.
- People feel safe walking.
- Facilities are provided for people from all age groups.
- People with disabilities are more easily mobile.
- Visitors are attracted to the enhanced walking environment.
- Commercial streets are exciting places to visit.

¹ Relative walking risk of cities 60,000 or greater. Source: Safety in numbers: more walkers and bicyclists, safer walking and bicycling, Jacobsen, Injury Prevention 2003; 9: 205-209
Although many of these conditions are already in place in several areas of Berkeley, the goals, policies and strategies outlined in this Plan will enhance them and address shortcomings that are of concern. The plan includes recommendations for design guidelines that will raise the caliber of the existing pedestrian environment, enticing people to walk more for shorter trips, and enhancing the environment for people with disabilities and children walking to school, and leading to an overall increase in the number of pedestrian trips. It focuses on enhancing pedestrian safety in crosswalks and along streets, and provides an opportunity for improving residents’ quality of life by creating a more sustainable environment through the reduction of traffic, noise and energy consumption.

1.1. PLAN CONTENTS

The Berkeley Pedestrian Master Plan is organized according to the following chapters:

Chapter 1. Introduction

Chapter 2. Goals & Policies
This chapter presents the vision for Berkeley’s pedestrian network, based on the Pedestrian Charter and Goals, Policies and Actions of the Berkeley General Plan.

Chapter 3. Relationship to Other Planning and Policy Documents
This chapter presents the framework for pedestrian planning in Berkeley. It discusses the various local, regional and other planning and policy documents that relate to the implementation of pedestrian facilities in Berkeley.

Chapter 4. Existing Pedestrian Network
This chapter presents the state of overall pedestrian infrastructure in Berkeley. It discusses the results of an extensive pedestrian facilities inventory, and discusses other features of the roadway and public rights-of-way that affect pedestrian mobility.

Chapter 5. Pedestrian Travel, Demand and Safety
This chapter discusses current and future pedestrian travel and demand in Berkeley and provides an analysis of pedestrian safety based on collision and exposure data.

Chapter 6. Recommended Projects
This chapter presents capital projects to improve pedestrian accessibility and safety in Berkeley.

Chapter 7. Recommended Programs
This chapter presents non-infrastructure programs intended to educate, encourage and increase awareness of pedestrians in Berkeley.

Chapter 8. Accessibility Recommendations
This chapter outlines recommendations related to Berkeley’s compliance with the Americans with Disabilities Act.

Chapter 9. Zoning Recommendations
This chapter provides an overview of Berkeley’s existing Zoning Code and design review process as they relate to pedestrian facilities, and recommends potential changes to increase the pedestrian focus of new developments.
Chapter 10. Implementation and Funding
This chapter focuses on implementation and funding for the Pedestrian Master Plan and sets out an ambitious list of projects to be implemented over the next 20 years.

1.2. PUBLIC PARTICIPATION
This plan is a result of the Berkeley Pedestrian Charter, the Berkeley General Plan Transportation Element policies, and an extensive public participation process and vision. A broad public outreach effort played an invaluable role in understanding the needs and priorities of local residents and stakeholders. The public process included ongoing meetings of the Pedestrian Subcommittee (PSC) of the City Transportation Commission, open to members of the public, at which interim work products and progress reports were presented and made available for review. A city-wide community open house was held in March 2006 as a way of publicizing the Master Plan process, informing residents about pedestrian-related planning, design and engineering in Berkeley, and allowing them to speak out about pedestrian issues in a large forum setting. Participants discussed such issues as pedestrian crossing safety, sidewalks and other general and specific pedestrian issues in the City, and identified locations they felt had safety issues. The concerns and specific locations identified were studied in the planning process and incorporated into the needed improvements list. Detailed notes from the workshop are available through the City of Berkeley Transportation Division of the Public Works Department.

1.3. HOW CITIZENS CAN USE THIS PLAN
Community members and residents can use this Pedestrian Master Plan to ensure that pedestrian needs and conditions are adequately identified, and assist the City in keeping this Plan accurate over time as it is updated. Community members can also identify city priorities and proposals and how and when they may impact their own neighborhoods or walking routes. Perhaps most importantly, community members can use this Plan to identify the various tools and strategies that are available to improve conditions on their streets and work with the City to help fund and implement these improvements.

1.4. HOW THE CITY WILL USE THIS PLAN
This document will serve as a technical resource for the City to guide the implementation of the goals and policies outlined in Chapter 2. This document will help City staff with the following steps:

- Understand opportunities and constraints with respect to the existing pedestrian system
- Evaluate trends in pedestrian usage, demand and safety
- Identify a list of projects and programs to enhance the pedestrian environment
- Identify areas where further feasibility study is necessary to evaluate proposed improvements
- Prioritize recommended projects and develop a long-term strategy for implementation
- Identify likely funding sources for identified projects and programs
- Provide detailed guidelines, standards and policies to ensure that all projects undertaken in the City incorporate best practices for pedestrian design
CHAPTER 2
GOALS AND POLICIES

Create a model bicycle- and pedestrian-friendly city where bicycling and walking are safe, attractive, easy, and convenient forms of transportation and recreation for people of all ages and abilities.

This statement, established as Objective Six of the Berkeley General Plan Transportation Element, sets forth the City’s vision for the pedestrian1 environment in Berkeley. This Pedestrian Master Plan is intended to support and implement that objective, as well as other objectives and policies of the General Plan that relate to pedestrians.

The Pedestrian Master Plan builds off the General Plan – the objectives, policies and actions of the General Plan serve as the foundation upon which specific projects, programs, and implementation measures are identified in this Plan. The most relevant Policies and Actions from the General Plan have been carried forward into this document, and new Goals and Implementation Measures have been identified to organize and carry out the City’s efforts.

Goals set the overall agenda and direction of the plan, serving as the City’s guiding principles with regard to greater pedestrian access. In support of and below the overarching Goals come the plan’s Policies. All Policies listed here have been taken directly from the Berkeley General Plan. They are by definition more focused than the Goals and offer greater direction for the promotion of walking in Berkeley, but as policy statements, they remain essentially broad in their scope. Under Policies are the specific General Plan Actions to be carried out by the City in pursuit of the goals higher up. At the base of the four-tiered hierarchy come the Implementation Measures developed as part of the Pedestrian Master Plan process. The Implementation Measures are intended to provide further detail on how to carry out the Goals & Actions under which they are listed. Implementation Measures are not included in the General Plan, and have been developed for the Pedestrian Master Plan.

Taken as a whole, the Goals, Policies, Actions, and Implementation Measures of the Pedestrian Master Plan affect how decisions at all levels in Berkeley are made: how money is allocated, how public improvements are carried out, how programs are operated, how department priorities are determined, and how private development is approved. They lay out a vision of how to sustain and expand upon the numerous initiatives already underway intended to make Berkeley a place where walking, as the most fundamental and basic form of transportation, is welcomed and is given the high priority it deserves.

2.1. GENERAL PLAN POLICIES

The Berkeley General Plan includes eight “core” policies specific to pedestrian planning issues, policies T-48 through T-55. The purpose of the General Plan is to provide a comprehensive statement of policies for the development and preservation of the City of Berkeley, and to serve as a statement of community priorities and values to guide public decision-making. Given the importance of adopted General Plan policies as guiding principles for the community, and the extensive public outreach process

1 The term “pedestrian” refers to a person moving from place to place, on foot and/or with the use of an assistive mobility device (when that person has a disability and/or medical condition). “Walking” or “to walk” are the terms used to describe this movement of a pedestrian.
that went into adopting the General Plan, the core set of pedestrian-related General Plan policies was carried over to form the basis for the Pedestrian Master Plan. In order to maintain consistency, these policies are included as written in the General Plan, and referenced with their General Plan policy number. It should be noted that policy T-48 – “Create a Pedestrian Plan for the purpose of developing additional strategies and policies to make Berkeley safer for pedestrians and to make Berkeley a more pedestrian-friendly city” – is not included as a Pedestrian Master Plan policy because creation of the plan fulfills that policy. Policy T-48 is, however, the basis for including the Implementation Measures in this Plan.

Two other policies within the Transportation Element, but not within the core set of pedestrian policies – T-12 and T-13 – were also carried over into the Pedestrian Master Plan, as they were directly related to the goal of education, encouragement and coordination.

The Transportation Element and other elements of the Berkeley General Plan contain a number of other policies that pertain to walking, but nevertheless fall outside of the core group of Pedestrian Master Plan Policies. These policies are listed in full, following the core Policies, in Appendix C: General Plan Pedestrian Policies.

2.2. PEDESTRIAN MASTER PLAN GOALS, POLICIES AND ACTIONS

The Goals developed for the Pedestrian Master Plan were designed to organize the General Plan Policies and Actions into three overarching categories. All of the Master Plan Policies and Actions listed below are taken directly from the City’s General Plan for consistency. The order of the policies has been reorganized so that they better fit with relevant Pedestrian Master Plan Goals. Policies and their accompanying Actions are followed by specific Implementation Measures tailored to carry out the Goals, Policies, and Actions they follow. Although some Policies overlap multiple Goals, for ease of organization each Policy has been included under the one Goal where a majority of its implementing Actions fall.

GOAL 1

Plan, Build and Maintain Pedestrian Supportive Infrastructure

This Goal includes policies, actions and implementation measures related to design standards, engineering, maintenance, funding priorities, and development review

POLICY 1.1: SIDEWALKS

Maintain and improve sidewalks in residential and commercial pedestrian areas throughout Berkeley and in the vicinity of public transportation facilities so that they are safe, accessible, clean, attractive, and appropriately lighted. (GP T-50)

ACTIONS:

A. Prioritize pedestrian-serving public improvements, such as sidewalk repair and widening, bus shelters, street trees and lighting, public art, fountains, and directional signs. (GP T-50)

Implementation Measures:

1. Routinely accommodate pedestrians in all roadway construction projects to achieve “complete streets” that serve all users, as funding allows.
2. Goals and Policies

2. Work to increase funding for sidewalk repair and widening, bus shelters, street trees, pedestrian-scale lighting, seating, fountains, public bathrooms and directional signage.

3. Work with transit providers to develop high quality and pedestrian accessible transit stops.

4. Prioritize crosswalks for pothole and pavement cracking repair and maintenance.

5. Budget funds for concrete cutting of tree pits to facilitate the City’s street tree program and prioritize the replacement of dead or missing trees at locations with tree pits.

6. Improve pedestrian wayfinding signage in Downtown Berkeley.

B. Establish safe, attractive pedestrian connections between residential areas, transit, shopping areas, and schools and other community facilities. (GP T-50)

Implementation Measures:

1. Identify the top priority corridor improvements.

2. Work with Caltrans to implement the projects identified in the Pedestrian Master Plan that enhance pedestrian safety and connectivity across the Interstate 80 corridor and Berkeley’s State Highways, including Ashby Avenue & San Pablo Avenue.

3. Pursue Safe Routes to Transit Funding.

C. Ensure that sidewalks are kept in good repair and are level, with a suitable grade for pedestrians and pedestrians using wheelchairs. Discourage, and when possible prevent, new developments from creating uncomfortably steep grades. (GP T-50)

D. Ensure adequate unobstructed sidewalk passage by appropriate placement of street furniture and amenities and prevention of obstruction of travel ways by such items as advertisement signs, merchandise, and utility boxes. (GP T-50)

POLICY 1.2: PEDESTRIAN PRIORITY

When addressing competing demands for sidewalk space, the needs of the pedestrian shall be the highest priority. (GP T-51)

Implementation Measures:

1. Maintain an accessible path of travel for all pedestrians at all times.

2. Incorporate pedestrian projects into the City’s Capital Improvement Program. (CIP)
   a. Refer to the Pedestrian Master Plan when selecting priority pedestrian projects.
   b. Monitor all pedestrian projects proposed in the Pedestrian Master Plan and update feasibility, cost, need, and other information at least every 5 years.

3. Incorporate the Pedestrian Master Plan into the discretionary permit process.
   a. Require use of the Pedestrian Design Guidelines of the Pedestrian Master Plan in reviewing and approving site plans for all proposed projects receiving discretionary review.
   b. Consider connections between streets and pedestrian pathways in land development review.
2. Goals and Policies

c. Encourage and provide incentives for development patterns and site plans that promote walking, increase connectivity between buildings and sidewalks, and allow for short trips between multiple destinations.

4. Pursue revisions to the zoning ordinance that will help implement the Plan.
   a. Incorporate proposed design and zoning changes in the design guidelines section of this plan into updates of the zoning ordinance.
   b. Develop requirements and incentives for commercial property owners to provide pedestrian features into new projects.

5. Maximize the amount of financial resources available for pedestrian projects.
   b. Apply for local, State, and Federal grants for pedestrian projects.
   c. Fund adequate staffing for planning, engineering (including Public Works engineering staff and consultants) and fundraising activities.
   d. Secure General Funds for pedestrian infrastructure.
   e. Consistent with Policy T-6 of the General Plan, institute a Transportation Services Fee for new development projects to mitigate traffic impacts and fund pedestrian improvements.

6. Explore and implement more effective mechanisms to enforce compliance with existing city ordinances dealing with sidewalk obstructions, including, but not limited to, vegetation incursion and parking on or across sidewalks.

7. Consider conversion of portions of the public right-of-way to pedestrian zones in locations with high pedestrian volumes and supporting uses. Feasibility of such conversions should include the impact on utilities, sanitary sewer, storm drains, and other infrastructure.

POLICY 1.3: PATHWAYS
Develop and improve the public pedestrian pathway system. (GP T-54)

ACTIONS:

A. Allocate resources to identify and improve pathways in disrepair. (GP T-54)

   Implementation Measures:
   1. Identify protective mechanisms and develop guidelines for optimal operational conditions including responsibility, control, access, and maintenance
   2. Develop a strategy to prevent the loss of existing pathways and identify opportunities to expand the pathways network
   3. Work with Federal, State and local agencies to identify current and future funding opportunities for pathway improvements

B. Maintain a complete and accurate inventory and database of Berkeley's Pathway Network, to include all known public paths, dedicated easements and rights-of-way. (GP T-54)

   Implementation Measures:
2. Goals and Policies

1. Identify conditions of existing pathways that are at risk of being lost, are neglected or require enhanced connectivity, access or maintenance

C. Work with residents and interest groups adjacent to pathways to prepare a "Top Priority Improvement List" for pathway restoration. Give highest priority for public investment to paths that: 1) include neighbor support and a clear title, 2) provide an evacuation route, 3) continue existing paths, and 4) improve neighborhood circulation and provide access to community services and facilities. (GP T-54)

Implementation Measures:

1. Protect, maintain and expand residential connections including easements and historically used pedestrian short cuts that reduce walking distances and encourage walking
2. Identify appropriate mechanisms to require or encourage project applicants to provide pathways within commercial and residential development proposals
3. Continue the close coordination between the Public Works Engineering Division and interest groups such as the Berkeley Path Wanderers to prioritize and complete pathway improvements.

D. Continue to make repairs and safety improvements on public paths and restore unimproved paths. (GP T-54)

POLICY 1.4 NEIGHBORHOOD PROTECTION AND TRAFFIC CALMING
Take actions to prevent traffic and parking generated by residential, commercial, industrial or institutional activities from being detrimental to residential areas. (GP T-20)

Implementation Measure:

1. Ensure General Plan Policies and Actions regarding neighborhood protection and traffic calming are implemented. Neighborhood protection and traffic calming actions can include strategies and devices to slow traffic, support for neighborhood traffic watch associations, and education and enforcement strategies.
2. Develop a formalized Traffic Calming Request procedure to evaluate and prioritize resident requests, utilizing the traffic calming guidance in Policy T-20 of the General Plan. All traffic calming improvements should be justifiable countermeasures to a demonstrable problem or issue raised by a resident or identified by City Staff.

GOAL 2

Provide Universally Safe and Equal Access
This Goal includes policies, actions and implementation measures related to American Disabilities Association (ADA), safe crossings, access to destinations, and reducing conflicts and collisions

POLICY 2.1: DISABLED ACCESS
Improve pedestrian access for the entire disabled community. (GP T-49)

ACTIONS:

A. Fund sidewalk, crosswalk, curb, signalization and signage, and talking signal improvements. (GP T-49)
2. Goals and Policies

Implementation Measures:

1. Carry out the ADA transition plan as scheduled.
2. Insure that the ADA transition plan includes the Policy & Actions of GP T-49.
3. Explore and seek funding for motion detection technology for pedestrian actuated signals.

B. Use regulation and incentives to require or encourage accessibility upgrades for private businesses. (GP T-49)

C. Encourage businesses to exceed the minimum standards set by the ADA "readily achievable barrier removal" requirement. (GP T-49)

POLICY 2.2: PEDESTRIAN SAFETY AND ACCESSIBILITY

Provide safe and convenient pedestrian crossings throughout the city. (GP T-52)

ACTIONS:

A. Seek to ensure that the distance between signal-controlled intersections, "smart crosswalks," or stop signs is never more than one-quarter mile on major and collector streets. At intersections with severe or high pedestrian/automobile collision rates and at heavily used pedestrian crossings, consider all-way stop signals that allow the free flow of pedestrians through the intersection, "smart" signals to calm traffic and improve intersection safety, and pedestrian/bicycle-activated signals that allow bikes and pedestrians to cross busy streets without inviting traffic onto cross streets. (GP T-52)

Implementation Measure:

1. Identify locations where pedestrian signals need to be re-programmed to allow for longer pedestrian phases to accommodate slower walkers.

B. Consider pedestrian crosswalk "runway" lights (in-pavement flashing crosswalk lights) in the pavement at intersections with severe or higher than average pedestrian collision rates. (GP T-52)

Implementation Measure:

1. Consider using flashing beacons in areas where in-pavement flashing crosswalk lights may be difficult to install or maintain.

C. Encourage and educate the public on the use of painted and unpainted crosswalks; enforce jaywalking regulations on main arterials. (GP T-52)

D. Encourage the creation of accessible pedestrian medians or islands in wide streets where people have to cross more than two lanes. (GP T-52)

E. Enforce pedestrian right-of-way laws. (GP T-52)
POLICY 2.3: INTERSECTIONS WITH SEVERE OR HIGH COLLISION RATES

Reduce pedestrian and bicycle collisions, injuries and fatalities. (GP T-53)

ACTION:

A. Undertake a review of intersections or street locations with a high number of collisions and/or a high percentage of fatal or permanently disabling collisions and develop programs with appropriate mix of education, enforcement and engineering changes to improve the safety of these intersections and locations. Consider:

1. Adding signage at intersections, warning the public that the intersection has been the site of several traffic collisions or fatalities. (GP T-53)
2. Moving bus stops to the far side of the intersection so that buses do not block visibility at the intersection when stopping to pick up passengers. (GP T-53)
3. Providing an all-red, pedestrian phase to especially congested intersections, giving pedestrians the ability to cross the intersection in any direction before vehicles are given a green light. (GP T-53)
4. Lighted crosswalks. (GP T-53)
5. Maintaining a minimum 50-foot red, no-parking zone adjacent to the intersection to increase visibility. (GP T-53)
6. Re-timing pedestrian crossing signals to allow more time for pedestrian crossing. (GP T-53)

Implementation Measures:

1. Review collision data from the Statewide Integrated Traffic Records System (SWITRS) annually
2. Using measures of pedestrian exposure (collisions per pedestrian; collisions per motor vehicle) in citywide collision analysis, develop a list of potential project locations for further study and prioritization

POLICY 2.4: STREET NETWORKS: INCREASING ACCESS AND MOBILITY

To ensure the effective and convenient movement of people and goods, ensure a successful integration of land use patterns and transportation systems, and encourage transitions to more environmentally sensitive modes of transportation, the Berkeley General Plan includes four network maps: the Vehicular Circulation Network map, the Transit Network map, the Bicycle Circulation Network map, and the Emergency Access and Evacuation Network map. The network maps identify the City’s transportation infrastructure and establish priorities and standards for its use and improvement. These priorities and standards shall be used in conjunction with General Plan policies to determine priorities for use and determine network modifications to facilitate certain modes of travel. In all cases, the City shall recognize that the transportation network is a shared network that requires shared use and that to effectively achieve the transportation, land use, community safety, and economic development objectives of the General Plan will require careful consideration and balancing of competing objectives and needs. The network maps are intended to facilitate these future decisions. (GP T-55)
Additional Proposed Network Map:

During the development of this Pedestrian Master Plan, a GIS-based sidewalk centerline network model was developed. The model includes sidewalk centerlines, sidewalk widths, pathway and stair centerlines, the location of audible pedestrian signals, pedestrian actuated signals and pedestrian count-downs, and the location and types of crosswalks, traffic calming devices, curb ramps, and signage. Figures 4-1 through 4-4 in Chapter Four of this plan show the model in its most simple form: as a pedestrian network map that includes sidewalks, crosswalks and pathways. However, the network model’s usefulness as a tool for organizing data on the attributes of these four basic pedestrian network features goes far beyond this map. The network model gives the City new methods of pedestrian planning, analysis and asset management. It is recommended that Berkeley amend the General Plan to officially adopt the pedestrian network model and Figures 4-1 through 4-4 as the City’s sidewalk network map.

GOAL 3

Develop Pedestrian Supportive Encouragement and Enforcement Programs

This Goal includes policies, actions and implementation measures related to education, encouragement, enforcement, and coordination with other institutions.

POLICY 3.1: EDUCATION AND ENFORCEMENT

Support, and when possible require, education and enforcement programs to encourage carpooling and alternatives to single-occupant automobile use, reduce speeding and increase pedestrian, bicyclist and automobile safety. (GP T-12)

ACTIONS:

A. Consider developing a program that rewards households, block groups or neighborhood organizations that can document their reduction in automobile use. Consider discounts on electric bicycles to reward automobile use reduction. (GP T-12)

B. Encourage hotels, motels and other visitor destinations to provide visitors with information on public transportation and bicycle services and facilities. (GP T-12)

Implementation Measures:

1. Encourage people to walk through education and awareness efforts
   a. Conduct effective pedestrian awareness campaigns
   b. Educate city residents in such a way as to enable a cultural shift that embraces the many benefits of walking
   c. Promote and conduct walk to work and walk to school days
   d. Develop an outreach campaign to educate motorists regarding pedestrian right-of-way
   e. Coordinate with the health community, schools and other organizations interested in promoting improved pedestrian access

2. Enforce laws that protect pedestrians
   a. Emphasize pedestrian right-of-way, especially in high pedestrian use zones, through a combination of signage and increased enforcement
b. Conduct targeted enforcement of pedestrian right-of-way violations (crosswalk stings) especially on multilane roadways

c. Conduct and expand targeted education and enforcement campaigns aimed at school drop-off and pick-up or school zone locations

POLICY 3.2: MAJOR PUBLIC INSTITUTIONS

Work with other agencies and institutions, such as the University of California, the Berkeley Unified School District, Lawrence Berkeley Laboratory, Vista Community College, the Alameda County Court, and neighboring cities to promote Eco-Pass and to pursue other efforts to reduce automobile trips. (GP T-13)

ACTIONS:2

A. Encourage other agencies and institutions to match or exceed the City of Berkeley's trip reduction and emission reduction programs for their employees. (GP T-13)

C. Encourage the University of California: (GP T-13)

1. To maintain and improve its facilities and programs that support and encourage pedestrians, bicyclists and transit riders.

3. To locate non student-serving offices and additional staff and student housing at or near BART stations outside Berkeley.

Implementation Measures:

1. Encourage the University of California to develop and adopt a Pedestrian Safety Action Plan and to invest in the improvement of pedestrian safety at access points to the University campus

D. Encourage the Berkeley Unified School District to establish programs and facilities to reduce automobile use among staff, faculty and students, including (GP T-13):

Implementation Measures:

1. Identify and fund programs and improvements that will make it safer and more attractive for students to walk to school:

   a. Assist in the development of a Safe Routes to School program

   b. Provide coordination between local organizations, schools, the community, parents, neighborhoods, and City departments

   c. Apply for state Safe Routes to School funding and other grants to implement educational and encouragement programs in addition to capital improvements

2. Develop and maintain maps that identify the most appropriate routes for children to access school.

   a. Obtain input and buy-in by individual school principals for the walking route maps

   b. Provide maps to City schools for distribution

   c. Review maps every five years and update when appropriate

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2 This is not a complete listing of the Actions found under Policy T-13 in the General Plan. Only those actions most directly relevant to promoting walking have been included.
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CHAPTER 3
RELATIONSHIP TO OTHER PLANNING AND POLICY DOCUMENTS

Where the previous chapter established specific Goals, Policies, Actions, and Implementing Measures for the Pedestrian Master Plan, this chapter provides a summary of the relevant planning, policy and regulatory documents that comprise the broad framework for pedestrian planning within the City of Berkeley. The City and other local and regional agencies are aware of the importance of enhancing the pedestrian environment, as shown in the numerous recommendations in these planning documents that relate to improving land uses, transit, sidewalks, intersections, and streetscapes to make them more pedestrian-friendly. City documents such as the General Plan, specific area plans and transportation plans, along with county and regional plans, and state and federal policies, are discussed as they relate to the planning and development of pedestrian facilities and programs in Berkeley.

3.1. BERKELEY PEDESTRIAN CHARTER

The City of Berkeley Pedestrian Charter was adopted by Council Resolution no. 62,452 on April 27, 2004. This document, although not legally binding, symbolically represents the desire of the City to support development of institutional changes that will encourage the future development of legally binding standards for providing pedestrian facilities.

The City of Berkeley:

1. Upholds the right of pedestrians of all ages and abilities to safe, convenient, direct and comfortable walking conditions;
2. Provides a walking environment within the public right-of-way and in public parks that encourages people to walk for travel, exercise, and recreation;
3. Supports and encourages the planning, design, and development of a walking environment in public and private spaces (both exterior and interior) that meets the travel needs of pedestrians;
4. Provides and maintains infrastructure that gives pedestrians safe and convenient passage while walking along and crossing streets;
5. Maximizes residents’ access to basic community amenities and services by walking;
6. Sets policies that reduce the conflict between pedestrians and other users of the public right-of-way;
7. Creates walkable communities by giving high planning priority to compact, human-scale and mixed land use;

* The term “pedestrian” refers to a person moving from place to place, on foot and/or with the use of an assistive mobility device (when that person has a disability and/or medical condition). “Walking” or “to walk” are the terms used to describe this movement of a pedestrian.
8. Ensures that pedestrian amenities provide equal access by all persons with disabilities and medical conditions;
9. Encourages research and education on the social, economic, environmental, and health benefits of walking as a form of travel, exercise and recreation;
10. Promotes laws and regulations that respect pedestrians’ particular needs;
11. Advocates for improving the governmental regulatory and funding frameworks that affect the City’s ability to improve the pedestrian environment; and
12. Works with individual citizens, community groups and agencies, businesses, and other levels of government to achieve these goals.

3.2. BERKELEY GENERAL PLAN POLICIES T-48 THROUGH T-55

The Berkeley General Plan sets the framework for the physical development of the City. The General Plan identifies seven major goals, two of which relate directly to pedestrians and the pedestrian environment:

**Goal #1: Preserve Berkeley’s unique character and quality of life.**

As one of the older East Bay cities that developed around the streetcar routes, Berkeley has several pedestrian-oriented commercial areas as well as walkways and stairways that provide access and connections. Reducing traffic and encouraging transit and alternative modes would preserve the quality of life and improve pedestrian and bicycle safety.

**Goal #7: Maintain Berkeley’s infrastructure, including streets, sidewalks, buildings, and facilities; storm drains and sanitary sewers; and open space, parks, pathways, and recreation facilities.**

Maintenance of sidewalks and pathways would preserve the character and livability of the City.

The General Plan is divided into nine elements. Policies related to pedestrians are found throughout the various elements of the General Plan, although a “core” set of pedestrian policies are found in the Transportation Element in policies T-48 through T-55. These core policies, along with three additional Transportation Element policies related to education, encouragement and coordination, and engineering served as the foundation for the Pedestrian Master Plan Goals, Policies, Actions and Implementation Measures discussed in Chapter Two.

**POLICY T-48 PEDESTRIAN PLAN**

Create a Pedestrian Plan for the purpose of developing additional strategies and policies to make Berkeley safer for pedestrians and to make Berkeley a more pedestrian-friendly city.

**POLICY T-49 DISABLED ACCESS**

Improve pedestrian access for the entire disabled community.
3. Relationship to Other Planning and Policy Documents

POLICY T-50 SIDEWALKS
Maintain and improve sidewalks in residential and commercial pedestrian areas throughout Berkeley and near public transportation facilities so that they are safe, accessible, clean, attractive, and appropriately lighted.

POLICY T-51 PEDESTRIAN PRIORITY
When addressing competing demands for sidewalk space, the needs of the pedestrian shall be the highest priority.

POLICY T-52 PEDESTRIAN SAFETY AND ACCESSIBILITY
Provide safe and convenient pedestrian crossings throughout the city.

POLICY T-53 INTERSECTIONS WITH SEVERE OR HIGH COLLISION RATES
Reduce pedestrian and bicycle collisions, injuries, and fatalities.

POLICY T-54 PATHWAYS
Develop and improve the public pedestrian pathway system.

POLICY T-55 STREET NETWORKS: INCREASING ACCESS AND MOBILITY
To ensure the effective and convenient movement of people and goods, ensure a successful integration of land use patterns and transportation systems, and encourage transitions to more environmentally sensitive modes of transportation, the Berkeley General Plan includes four network maps: the Vehicular Circulation Network map, the Transit Network map, the Bicycle Circulation Network map, and the Emergency Access and Evacuation Network map. The network maps identify the City’s transportation infrastructure and establish priorities and standards for its use and improvement. These priorities and standards shall be used in conjunction with General Plan policies to determine priorities for use and determine network modifications to facilitate certain modes of travel. In all cases, the City shall recognize that the transportation network is a shared network that requires shared use and that to achieve the transportation, land use, community safety, and economic development objectives of the General Plan will require careful consideration and balancing of competing objectives and needs. The network maps are intended to facilitate these future decisions.

POLICY T-12 EDUCATION AND ENFORCEMENT
Support, and when possible require, education and enforcement programs to encourage carpooling and alternatives to single-occupant automobile use, reduce speeding, and increase pedestrian, bicyclist and automobile safety.

POLICY T-13 MAJOR PUBLIC INSTITUTIONS
Work with other agencies and institutions, such as the University of California, the Berkeley Unified School District, Lawrence Berkeley Laboratory, Vista Community College, the Alameda County Court, and neighboring cities to promote Eco-Pass and to pursue other efforts to reduce automobile trips.
3. Relationship to Other Planning and Policy Documents

POLICY T-20 TRAFFIC CALMING

General Plan Polity T-20 is a neighborhood protection and traffic calming policy. The policy includes policy actions designed to encourage traffic calming strategies.

City staff has developed the following procedure to implement this policy. There are two ways Berkeley identifies traffic calming opportunities, when a street is reconstructed or repaved and upon an individual’s request. At the time of reconstruction, City engineers evaluate the project to identify any needed signs and markings. Berkeley will act on traffic calming requests that come from individuals or via petition. Once a request is received, the city conducts a preliminary review of traffic speed and volumes, collision history and roadway geometry to see if the road is eligible for traffic calming. A street must meet the following requirements to be eligible for traffic calming measures:

i) It must be a residential street, AND

ii) the project must mitigate a documented bike/ped collision pattern AND/OR

iii) where 85th percentile speed profile is greater than 5 MPH over posted speed, AND

iv) where there is a documented problem of a significant or inappropriate number of "through" motor vehicles on the street or in the neighborhood; AND

v) in the case of "physical" traffic calming measures, where 50% +1 of households, within one block of the proposal, who have expressed their opinion in a City-sponsored poll, such as a questionnaire, support the proposal.

Once a street is deemed eligible, staff conducts a traffic study and makes recommendations for traffic calming solutions. The study uses a ranking system to evaluate the criteria below. Each criterion allots points to rank and prioritize projects.

- Traffic speeds
- Safety
- Crosswalks and sidewalks
- Proximity to traffic control devices
- Bus stops
- Bike facility
- Trail of less-restrictive, non-physical, traffic calming measures
- Driveways
- Traffic volume
- Proximity to destinations
- Proximity to physical traffic calming measures

In addition to the “core” Transportation Element pedestrian policies listed above, there are a number of other policies in the General Plan that make reference to pedestrian improvements or are otherwise relevant to the pedestrian environment. These additional policies are summarized in Appendix C.

3.3. BERKELEY AREA PLANS

Berkeley’s General Plan works in concert with the City’s more detailed Area Plans. The goals and policies of the General Plan and Area Plans are internally consistent and each must be considered when making decisions. Most of the City’s previously adopted Area Plans were incorporated into the most
recent General Plan, which was last updated in 2003. Since that time, three new Area Plans have been developed: the Draft Southside Area Plan, the Marina Master Plan and an updated Draft Downtown Area Plan. A list of Berkeley Area Plans and adoption dates is included below in Table 3-1. Figure 3-1 shows the geographic areas covered by the City’s area plans. The Area plans are organized in a format similar to the General Plan with sections on Transportation, Economic Development, Community Character, Land Use and Housing, Public Safety, and Design Guidelines. Most of these also include specific improvements that were used to inform recommended projects within this plan.

Table 3-1
Berkeley Area Plans

<table>
<thead>
<tr>
<th>Area Plans</th>
<th>Date</th>
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</thead>
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<tr>
<td>Southside Area Plan (Draft)</td>
<td>Jul 23</td>
</tr>
<tr>
<td>Berkeley Marina Master Plan &amp; Environmental Documents</td>
<td>Jul 8</td>
</tr>
<tr>
<td>San Pablo Avenue Public Improvement Plan</td>
<td>Oct 15</td>
</tr>
<tr>
<td>South Shattuck Strategic Plan</td>
<td>Jun 9</td>
</tr>
<tr>
<td>University Avenue Strategic Plan</td>
<td>Nov 12</td>
</tr>
<tr>
<td>West Berkeley Plan</td>
<td>Dec 14</td>
</tr>
<tr>
<td>Berkeley Downtown Plan</td>
<td>Nov 27</td>
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<td>South Berkeley Area Plan</td>
<td>Jun 1990</td>
</tr>
<tr>
<td>Berkeley Waterfront Plan</td>
<td>Oct 7</td>
</tr>
</tbody>
</table>

3.3.1. DRAFT SOUTHSIDE AREA PLAN, 2003

The Draft Southside Area Plan, published in July 2003, covers the area of Berkeley immediately south of the UC Berkeley campus, roughly bounded by Bancroft Way, Prospect Street, Dwight Way, and Fulton Street. Key pedestrian activity areas in this area include Telegraph Avenue, Bancroft Way, and College Avenue. Telegraph Avenue is a major retail and transit corridor lined with restaurants, shops, sidewalk vendors, and some housing. Bancroft Way, located along the southern boundary of UC Berkeley’s campus, is also a key transit corridor lined with some retail and event halls on campus such as Zellerbach Hall, Haas Sports Pavilion and Pacific Film Archive. Most activity on Bancroft is located between Dana Street and College Avenue. A heavily utilized bus route and a significant concentration of student housing is found on and along College Avenue, which runs through the Elmwood district.

The Southside Plan includes the following elements: Transportation, Economic Development, Community Character, Land Use and Housing, Public Safety, and Design Guidelines. Policies from the Southside Plan include specific improvements or projects as well as area-wide improvement programs and design guidelines.
The specific improvements or projects in the Southside Plan are repairing damaged sidewalks on Telegraph Avenue, improving safety at the major pedestrian intersections of Dana/Bancroft, College/Bancroft and Ellsworth/Bancroft with traffic controls, and eliminating fast vehicle right-turns at Bancroft/Oxford. The other safety improvements in the Plan are redesigning and improving “High Hazard” intersections for pedestrian safety at Durant/Telegraph, Bancroft/Telegraph, Dwight/Telegraph, Bancroft/Bowditch, Bancroft/Dana, and Bancroft/College. The actions also include streetscape improvements as well as preservation of existing north-south mid-block passageways between Bancroft and Channing west of Telegraph.

Specific programs outlined in the Berkeley Southside Plan are enforcement of traffic laws, especially as they apply to pedestrians and illegal parking. Under Community Character, Policy E4, Action B calls for developing a pedestrian safety plan to identify which streets are most heavily used by pedestrians and should be prioritized for improvements to lighting, emergency telephones, signage, street tree maintenance, outreach for property owners about pruning, and preserving mid-block pedestrian pathways. Other polices and actions under Transportation and Community Character address streetscape design guidelines, such as street furniture, trees and plantings, zebra-striped crosswalks, bulbouts, pedestrian-level lighting, gateways, and signage.
3. Relationship to Other Planning and Policy Documents

3.3.2. BERKELEY MARINA MASTER PLAN, 2003

The Berkeley Marina Master Plan planning area is located west of Eastshore Park and includes the Berkeley Marina, Marina Drive, Spinnaker Way, and Seawall Drive. The Marina Plan provides a framework for facility improvements and enhancements in this area as well as maintaining the public’s use of the Marina and neighboring parks.

The Plan suggests enhancing the Marina area’s pedestrian accessibility by linking the Marina’s existing pedestrian paths and sidewalks paths to the I-80 bike/pedestrian overcrossing. The Marina Master Plan also sets a policy to improve the area’s pedestrian amenities with new signage, increasing landscaping, and enhancing public areas with public art. The Marina Master Plan recommends upgrading all pathways to meet ADA compliance as a capital improvement project.

3.3.3. DOWNTOWN AREA PLAN

As of 2008, The City of Berkeley is approximately two years into the planning process for creating a new Downtown Area Plan in partnership with the University of California. The City’s existing plan was adopted in 1990, based on analysis conducted in the mid-1980s, which the City has determined is out of date with the current economic and development situation faced by the downtown area today. Goals from the previous Downtown Plan such as creating an Arts District have been accomplished and the City is now ready to embark on a new plan that will rely on coordinating closely with the University of California’s Long Range Development Plan. A key measure of success for any attempt to create or maintain a dynamic and vibrant downtown is the level of pedestrian activity. Downtown is currently the hub of most pedestrian activity in Berkeley and this plan will address the needs of pedestrians in this high volume traffic area.

3.3.4. UNIVERSITY AVENUE STRATEGIC PLAN, 1996

The University Avenue Strategic Plan, adopted in 1996, covers University Avenue and is roughly bounded by I-80, Delaware Street, Hearst Avenue, the U.C. Berkeley Campus, and Allston Way. The University Avenue Strategic Plan provides a framework for safety improvements, pedestrian oriented development, and pedestrian access.

Action items in the Plan include improved design and transportation elements of the area. The University Avenue Strategic Plan sets to improve pedestrian amenities with new festival lighting, trees, and street furniture. The Plan also includes recommendations to reduce the number of mid-block curb cuts along University Avenue and implementing a signal system to reduce traffic speeds.

3.3.5. DRAFT NORTH SHATTUCK URBAN DESIGN & CIRCULATION REPORT

The Draft North Shattuck Urban Design & Circulation Report planning area is the Shattuck Avenue corridor from Hearst to Rose streets with emphasis on the block between Vine and Rose Streets. The Report is designed to provide guidance for aesthetic and pedestrian improvements. The report proposes several alternative concepts and designs. One suggested improvement includes a midblock crosswalk between Safeway and Longs Drugs to better serve pedestrians. Other proposed improvements include the creation of a plaza by narrowing the entrance to the service road parallel to Shattuck Avenue as well as widening the sidewalk on the service road.
3.4. OTHER CITY OF BERKELEY PLANS

3.4.1. AQUATIC PARK MASTER PLAN, 1990

The Aquatic Park Master Plan seeks to protect the park’s natural resources while enhancing recreational use. Its goals are mitigating noise and negative visual impacts; improving circulation within the park, especially for pedestrians, bicyclists and wheelchair users; improving park habitat for wildlife; increasing the number of recreational uses and users while protecting habitat for wildlife; and improving park safety and security.

Aquatic Park has a ten-foot wide asphalt-paved walkway with adjoining gravel jogging path around the lagoon. The Aquatic Park Master Plan also recommends a pedestrian/bicycle bridge across the lagoon near Channing Way that would cut the path around the lagoon in half and provide more access to the west side of the Park.

3.4.2. BERKELEY BICYCLE PLAN

The Bicycle Plan is a policy document that was incorporated into the updated General Plan. The Bicycle Plan was first adopted in 2000 and updated in 2005. The policies and map of the bikeway network were included in the Transportation Element of the General Plan. The policies cover five main areas of importance to bicycle transportation: Planning, Network and Facilities, Education and Safety, Promotion, and Implementation.

The Bicycle Plan identifies several existing and proposed off-street pathways that provide for shared use by pedestrians and bicyclists. These include:

- Santa Fe Right of Way (West Street) path
- 9th Street bikeway extension
- Marina trails
- Bay Trail
- Ohlone Greenway
- Aquatic Park trails
- I-80 Bicycle-Pedestrian Overcrossing

While not pedestrian facilities themselves, on-street bike lanes provide a buffer between pedestrians on the sidewalk and automobiles in the traffic lanes. The Bicycle Plan also identifies a network of existing and proposed on-street bike lanes along Berkeley’s street network.

The installation of signals, lighting, and other streetscape improvements also provide pedestrian amenities. The Bicycle Plan describes potential improvements such as these and can be found in Appendix A, Tables 17 and 18.

3.4.3. SAN PABLO AVENUE PUBLIC IMPROVEMENT PLAN, 2003

The San Pablo Avenue Public Improvements Plan was developed to create a framework for streetscape improvement projects that would complement the growing commercial investment and community uses in the areas adjacent to San Pablo Avenue. San Pablo Avenue is a major regional thoroughfare with multiple transit trunk lines including bus rapid transit. As the corridor develops over time it is important to delineate the character of Berkeley’s segment of San Pablo Avenue to create a place that is both
attractive to visitors as well as neighboring communities. The pedestrian related streetscape improvements called for in the plan will increase safety and accessibility for those living in the neighborhoods that flank San Pablo Avenue on either side. While San Pablo Avenue does not have the pedestrian volumes seen in downtown Berkeley, from the standpoint of equity it is important to consider how these surrounding neighborhoods gain safe access to commercial as well as public resources such as libraries, health clinics and schools.

3.5. OTHER LOCAL PLANS

3.5.1. UNIVERSITY OF CALIFORNIA LONG RANGE DEVELOPMENT PLAN, 2005

The University of California at Berkeley (UC Berkeley) 2020 Long Range Development Plan (LRDP), was approved by the University of California’s Board of Regents in January 2005. The campus is bordered by Hearst Avenue, Gayley Road, Bancroft Way, and Oxford-Fulton Street, although UC Berkeley’s buildings and properties extend well beyond these roadways into the City’s neighborhoods. The campus is served by a comprehensive bicycle and pedestrian network that provides connections to the surrounding neighborhoods. The LRDP calls for significant increases of student housing in the Southside neighborhood and of parking and office space in the Downtown area. As pedestrian volumes increase due to these expansions, campus gateways and adjacent roadways will need modifications to accommodate them. Therefore, according to the LRDP Mitigation Measure TRA-12, “the University shall prepare a strategic pedestrian improvement plan that outlines the expected locations and types of pedestrian improvements that may be desirable to accommodate 2020 LRDP growth.”

3.5.2. ED ROBERTS CAMPUS PLAN - ASHBY BART STATION

Ed Roberts Campus (ERC) is a proposed community-serving transit oriented development with planned facilities to serve as the future site of a disability rights service, advocacy, education, training, and policy center. The Ed Roberts Campus is a non-profit corporation that sponsored a series of public Community Design Workshops in 1998 and presentations to the City’s various Commissions from 2000-2005. The ERC process involved major stakeholders including the City, BART and AC Transit in developing the ultimate site plan and urban design components. The campus will be located on the east side of the Ashby BART Station and will include an integrated mixed-use site with affordable housing, a community center, a health clinic, a playground, a transit center, and improved pedestrian and disabled access to and throughout the BART Station.

Overall, pedestrian related improvements identified in the ERC Plan include:

- **Pedestrian Concourse** connecting the BART station to the below-grade entrance to the ERC and to Adeline Street above via a new public elevator and staircase with bike channels;
- **New Ramp, Staircase, Pedestrian Pathway, Lighting, and Landscaping** through a reconstructed parking lot level with Adeline Street that replaces the existing terraced lot that is unsafe and difficult to patrol;
- **New Pedestrian Plaza, Paratransit Waiting Area and Transit Information Kiosk** at Adeline Street, improved with new pedestrian-scale lighting and street trees; and
- **New Crosswalks** and median improvements on Adeline Street and across a new driveway on Adeline that will move BART vehicular access off residential Woolsey Street and onto Adeline.
In addition, the City of Berkeley applied for a Transportation for Livable Communities funding cycle for a grant to install wayfinding and signage improvements within a quarter mile radius of the site and throughout the BART Station using BART’s new bicycle/pedestrian sign design standards. This grant application also seeks funding to construct the pedestrian concourse between BART and the ERC.

3.6. REGIONAL PLANS

3.6.1. MTC REGIONAL BICYCLE PLAN, 2001

The Metropolitan Transportation Commission (MTC) sponsored the first bicycle plan for the entire nine-county San Francisco Bay Area. The regional bicycle network and lists of priority projects were derived through adopted county plans. The Regional Bicycle Plan identifies the Bay Trail as a shared-use pathway through Berkeley as well as the Ohlone Greenway. These paths are recommended for bicyclists and pedestrians. The Bay Trail outlined in the Regional Bicycle Plan is consistent with the Bay Trail Plan as described later in this section. The Ohlone Greenway is proposed in the Regional Bicycle Plan, and is mostly completed today.

3.6.2. SAN FRANCISCO BAY AREA OZONE ATTAINMENT PLAN FOR THE 1-HOUR NATIONAL OZONE STANDARD, 2001

Although the San Francisco Bay Area has made noteworthy progress towards reducing emissions, the area failed to meet the EPA criteria for one-hour ozone standards in 1999 and 2000. This 2001 plan amends the 1999 plan by revising elements that the EPA disapproves and adding control measures to increase the chances of meeting the one-hour ozone standard in the future. The Plan is part of the California State Implementation Plan.

This update includes five additional transportation control measures (TCMs). Among these is TCM B, the Bicycle/Pedestrian Program, which is the funding of high priority projects listed in countywide bicycle plans. This TCM was implemented with an MTC allocation of $15 million in TDA Article 3 funding starting in fiscal year 2004-2006.

3.6.3. EAST BAY REGIONAL PARKS DISTRICT MASTER PLAN, 1997

The East Bay Regional Parks District (EBRPD) includes Tilden Park, which is located directly east of the City in the East Bay hills and in Claremont Canyon in the southeast corner of the City. These parks include paved and unpaved multi-use trails. According to the EBRPD Master Plan, EBRPD will continue to plan for and expand the system of paved trails for connecting parklands and major population centers.

3.6.4. EASTSHORE STATE PARK GENERAL PLAN, 2002

The Eastshore State Park General Plan’s purpose is to look at potential development opportunities and, most importantly, management of the park into the future. Eastshore State Park is eight miles long and covers the area along the San Francisco Bay from Emeryville to Albany, including the Berkeley Marina. In Berkeley, Gilman Street, University Avenue, Ashby Avenue, and a bike/pedestrian bridge over I-80 access the Park.
3. Relationship to Other Planning and Policy Documents

The Plan focuses on multimodal access to and around the park with several of the circulation elements suggesting paths to decrease vehicle access in and around the park. The Eastshore State Park General Plan also recommends better Berkeley beach access for pedestrians in the Park and a better connection to the Berkeley bike/pedestrian overcrossing.

3.6.5. BART STATION PLANNING

BART has prepared basic summaries of Planning, Development, Access Improvements, and Reinvestment plans for the three Berkeley BART stations located at Ashby, Berkeley (Downtown) and North Berkeley. The summaries list most recent developments and include the following pedestrian and disability access related components for each station:

Ashby BART – A Comprehensive Station Plan will be completed in the near future to encompass both the east and west sides of the BART station. To date the most complete planning efforts have been led by the Ed Roberts Campus Plan described above. The Station Improvements are described in detail by the ERC Plan. New energy efficient lighting was installed in 2005 throughout the station area.

Downtown Berkeley BART – The summary describes recent transit oriented development projects including the Gaia Building and Berkeley Repertory Theater and the partnership with BART to provide safe access to and from the BART station. In addition, the City of Berkeley completed an Urban Design Plan for the Downtown Berkeley BART Plaza and Transit Area.

3.6.6. AC TRANSIT EVALUATION OF RAPID BUS SERVICE IN THE SAN PABLO AVENUE CORRIDOR, 2005

This report evaluating Rapid Bus Service in the San Pablo Corridor focuses on an evaluation of the rapid system through Alameda and Contra Costa Counties. The report includes bus operations, rider perception of the rapid service and an overall evaluation of the system. One feature of the Rapid Service is branded shelters with unique logos and signs. This report suggests that new riders may have learned about the new service from these branding features.

3.6.7. THE BAY TRAIL PLAN, 1989

The Bay Trail Plan proposes the development of a paved regional hiking and bicycling trail around the perimeter of San Francisco and San Pablo Bays. Approximately 200 miles of the 400-mile trail have been constructed, either as hiking or bicycling paths or as on-street bicycle lanes or routes. The Bay Trail designates a “spine” for a continuous through-route around the Bay and “spurs” for shorter routes to Bay resources. The goals of the Plan include providing connections to existing park and recreation facilities, creating links to existing and proposed transportation facilities, and preserving the ecological integrity of the Bays and their wetlands. The pedestrian network in this plan will ensure connectivity to the Bay Trail.

Along the Bay in Berkeley, the Bay Trail includes a completed segment of the shared bicycle/pedestrian off-street path parallel to I-80. The multi-use path around Cesar Chavez Park, north of the Berkeley Marina, is a Bay Trail Spur, but is currently disconnected from the main Bay Trail. A connection along University Avenue is planned and will be constructed in the summer of 2007. Around the Marina and south around Horseshoe Park is an unimproved trail. This trail is also planned for improvement. Another planned Bay Trail improvement is a formal connection between Albany and Berkeley.
3.6.8. ALAMEDA COUNTYWIDE STRATEGIC PEDESTRIAN PLAN, 2006

The Alameda Countywide Strategic Pedestrian Plan identifies and prioritizes pedestrian related projects, programs and planning efforts which have countywide significance. The plan is used to plan and allocate countywide funding for pedestrian related projects. Areas of importance noted in the plan include San Pablo, Solano, Telegraph, and University Avenues. Transit centers and civic service facilities are also of importance. The plan focuses on access to transit, activity centers and inter-jurisdictional trails.

3.6.9. ALAMEDA COUNTYWIDE BICYCLE PLAN, 2006

The Alameda Countywide Bicycle Plan was adopted by the Alameda County Congestion Management Agency (ACCMA). The Plan was developed by ACCMA, the Alameda County Public Works Department, and an appointed Bicycle Task Force. The Countywide Bicycle Plan identifies shared-use pathways in Berkeley such as the Ohlone Greenway and the Bay Trail. Both are intended for cyclists and pedestrians and are high priority projects in the Countywide Bicycle Plan. High priority projects will be the focus of funding and implementation.

3.7. ROUTINE ACCOMMODATION POLICIES

3.7.1. US DOT’S ACCOMMODATING BICYCLE AND PEDESTRIAN TRAVEL

“Accommodating Bicycle and Pedestrian Travel: A Recommended Approach” is a policy statement that was adopted by the U.S. Department of Transportation (USDOT) in response to the Transportation Equity Act for the 21st Century (TEA-21). USDOT encourages public agencies, professional organizations, advocacy groups, and any other groups involved in transportation issues to adopt this policy to promote bicycling and walking as viable components of the transportation system. The four directives issued in this policy statement address measures to improve bicycle and pedestrian access, convenience and safety in transportation projects. The Policy Statement specifically states that:

Bicycle and pedestrian ways shall be established in all urbanized areas unless one or more of three conditions are met:

- Bicyclists and pedestrians are prohibited by law from using the roadway. In this instance, a greater effort may be necessary to accommodate bicyclists and pedestrians elsewhere within the right of way or within the same transportation corridor.

- The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. Excessively disproportionate is defined as exceeding twenty percent of the cost of the larger transportation project.

- Where scarcity of population or other factors indicate an absence of need.

The policy statement notes that, “the challenge for transportation planners, highway engineers and bicycle and pedestrian user groups, therefore, is to balance their competing interest in a limited amount of right-of-way, and to develop a transportation infrastructure that provides access for all, a real choice of modes, and safety in equal measure for each mode of travel.”
3.7.2. ACCESSIBLE PUBLIC RIGHTS-OF-WAY PLANNING AND DESIGN ALTERATIONS

The Public Rights-Of-Way Access Advisory Committee (PROWAAC), working under the Americans with Disabilities Act, issued the “Accessible Public Rights-of-Way Planning and Design Alterations” report in July 2007. This report is meant to provide practitioners with a guide to improve pedestrian accessibility that recommends design alterations, processes to implement the alterations and design solutions to specific problems.

3.7.3. CALTRANS DEPUTY DIRECTIVE 64

In 2002, Caltrans adopted a policy directive—Deputy Directive 64 (DD-64)—related to non-motorized travel that reads:

“The Department fully considers the needs of non-motorized travelers (including pedestrians, bicyclists and persons with disabilities) in all programming, planning, maintenance, construction, operations and project development activities and products. This includes incorporation of the best available standards in all the Department’s practices. The Department adopts the best practice concepts in the US DOT Policy Statement on Integrating Bicycling and Walking into Transportation Infrastructure.”

It is not clear what the effect of these policy directives have on the planning, design and funding of new transportation facilities. Although the USDOT policy encourages agencies and organizations to adopt this position, it does not state the possible repercussions if it is not embraced. Similarly, it is not certain how the Caltrans policy directive would apply to local jurisdictions or to streets that are not classified as “highways.” Nonetheless, these policies reflect the growing concern that public agencies have shown to accommodate the needs of pedestrians and bicyclists in the design and operation of the transportation system.

3.7.4. ASSEMBLY CONCURRENT RESOLUTION 211 (ACR 211)

ACR 211 passed the California State Assembly on Bike-to-Work Day in August 2002. The Resolution calls for “Integrating walking and biking into transportation infrastructure,” and further encourages all cities and counties in California to implement the policies of DD-64 and the USDOT design guidance document when building local transportation infrastructure.

3.7.5. ROUTINE ACCOMMODATION OF BICYCLISTS AND PEDESTRIANS IN THE BAY AREA, 2006

This report by MTC makes eleven recommendations for increasing the routine consideration of bicycle and pedestrian facilities in the future. Recommendations are divided into four categories: policy, project planning and design, funding and review, and training. The recommendations state that regionally funded projects must consider routine accommodations for bicyclists and pedestrians during design and planning stages.

MTC and the Bay Area’s Congestion Management Agencies will help ensure that this occurs with the use of a routine accommodations checklist for new projects. The checklist asks agencies applying for grants to document how needs of bicyclists and pedestrians were considered in the planning and design of the project. Where sponsors do not consider non-motorized transportation, applicants must explain why they were excluded. Alameda County will provide the documented checklists to the Bicycle/Pedestrian Advisory Committee for review. Therefore, when Alameda County and Berkeley are making transportation improvements within Berkeley with regional funds, they must consider the pedestrian
improvements outlined in the Berkeley Pedestrian Plan. To account for added pedestrian and bicycle facilities improvements, additional monies may need to be identified and the timelines for the street projects may need to be extended due to additional design requirements.
CHAPTER 4
EXISTING PEDESTRIAN NETWORK

Berkeley is already considered to be a very walkable city. Much of Berkeley’s existing pedestrian network can be traced back to the City’s historic urban development patterns. Berkeley’s street grid was developed in an era in which the streetcar was the main mode of transportation, and the short, regular blocks provided excellent pedestrian access to commuter rail corridors located along streets such as San Pablo Avenue, Shattuck Avenue, Sacramento Street, Adeline Street, University Avenue, and Telegraph Avenue. In the hills, where the street grid is curving and irregular, stairs and pathways provided access downhill to the streetcar lines. To this day, Berkeley’s neighborhoods retain much of their distinctive character and walkability. With a busy downtown and a major university, well-defined neighborhoods and shopping districts, parks, schools, pathways, transit centers, and civic facilities, Berkeley has many vibrant areas of pedestrian activity.

4.1. PEDESTRIAN NETWORK INVENTORY

The most basic elements of the pedestrian network are sidewalks, pathways, crosswalks, and curb ramps. Sidewalks provide a space for pedestrian activity completely separated from motor vehicle traffic. Pathways also provide a separation from motor vehicle traffic, although pedestrians may have to share pathways with bicyclists and other non-motorized users. Crosswalks provide a legal extension of the sidewalk across a roadway, and curb ramps provide a transition between the raised sidewalk and the crosswalk for persons using mobility assistance devices. These elements should form a connected network to be functional, safe, and encourage people to walk. Four maps of the existing Berkeley Pedestrian Network are shown on Figures 4-1, 4-2, 4-3, and 4-4.

As part of this Pedestrian Master Plan, a citywide inventory of sidewalks, pathways, crosswalks, and curb ramps was conducted. The majority of inventory data were collected through a process of “feature extraction” from video imagery taken of the City’s entire roadway network from which the presence/absence of sidewalks, crosswalks, and curb ramps could be determined and geographically referenced into a Geographic Information System (GIS) database. The video feature extraction was supplemented with review of city right-of-way record maps which provided additional information on sidewalk widths, buffers (planting strip widths), and setbacks from adjacent property lines which was added into the GIS database. Finally, field work was conducted to spot-check the feature extraction results for accuracy and to conduct detailed follow-up surveys of areas where sidewalks were lacking. This section summarizes the results of the inventory for the basic pedestrian network elements.

1 The term “pedestrian” refers to a person moving from place to place, on foot and/or with the use of an assistive mobility device (when that person has a disability and/or medical condition). “Walking” or “to walk” are the terms used to describe this movement of a pedestrian.
Figure 4-1: Pedestrian Network Northeast Berkeley
Figure 4-2: Pedestrian Network Southeast Berkeley
Figure 4-3: Pedestrian Network Southwest Berkeley
Figure 4-4: Pedestrian Network Northwest Berkeley

Data Source: City of Berkeley. Geographic Information System Division 2008
4. Existing Pedestrian Network

4.1.1. SIDEWALKS

4.1.1.1. PRESENCE OR ABSENCE

The City has approximately 400 miles of sidewalks, counting sidewalks on both sides of each street separately. According to GIS data confirmed by field checking, sidewalks are present in all but approximately 40 miles of the potential pedestrian network. (The potential pedestrian network is defined as both sides of any street within Berkeley excluding freeways). **Figures 4-1 through 4-4** show the presence and absence of sidewalks throughout the city. Almost the entire city has sidewalks except for two sections: the residential areas in the north Berkeley hills; and sections of northwest Berkeley’s industrial area.

The residential areas within the Berkeley hills have the greatest concentration of streets lacking sidewalks. However, these areas are served by a network of 160 pathways creating a total of 5.2 miles of pathways. The lack of sidewalks in the hills results from limited developable land area. The topographic constraints of steep hills and slopes results in many narrow streets where it is often difficult for two cars to pass with vehicles parked on either side. Residents in these areas typically walk in the streets and feel safe enough to do so because vehicle traffic is greatly reduced and slowed by the curves and width of the roadway.

A section of northwest Berkeley bounded by San Pablo Avenue, Cedar Street, Sixth Street, and Gilman Street also has many missing sidewalk segments, a vestige of a previous era when this was primarily an industrial area. The gaps are typically within a block rather than entire blocks. Plans are currently being developed by the Public Works Department to install ADA compliant pedestrian facilities in this area. The discontinuous sidewalk network in West Berkeley is a result of changing land uses within the area. West Berkeley historically had a higher concentration of heavy industrial uses and is slowly transforming to light industrial and office uses. As industrial land is redeveloped, sidewalks adjacent to these properties are added or improved. This results in a discontinuous network as the remaining properties which have not upgraded also have not provided for sidewalks.

4.1.1.2. SIDEWALK WIDTHS

Over 95 percent of the City’s sidewalks are six feet wide. This includes the majority of the City’s neighborhood residential and collector streets. The downtown areas have the widest sidewalks at up to 10 feet along the major streets, with University Avenue and Shattuck Avenue the most notable examples. Other areas with wider sidewalks are Fourth Street, a major shopping district in West Berkeley, as well as the streets near the UC Berkeley campus. The other major streets throughout the city, including San Pablo Avenue, Telegraph Avenue, College Avenue, Sacramento Street, Cedar Street, and Gilman Street, have sidewalks between four and six feet wide.

Most of the City’s sidewalks have planter strips (buffer strips) between the sidewalk and the curb. The average width of planter strips is four feet. This effectively creates a pedestrian zone of eight to ten feet wide. Although planter strips are not for through travel, they provide a crucial function of buffering pedestrians from vehicular traffic, provide an area for street trees which provide shade, and create visual interest at a pedestrian scale which can provide positive encouragement for walking.

4.1.1.3. CONDITION OF SIDEWALKS

The condition of sidewalks was documented in a street tree inventory collected five years ago. The tree inventory was primarily intended to survey street tree location, species and condition, but also included information on tree root uplifting, buckling, and other sidewalk damage associated with tree roots. Other than the tree inventory data, there is no other citywide database on the condition of sidewalks.
The tree inventory classifies sidewalk damage into three categories: Major Damage, Minor Damage and Patch. Because several inconsistent methods were used to observe the condition, summary statistics are not available.

### 4.1.2. CROSSWALKS

When discussing pedestrian safety, roadway crossings are locations of highest concern because they are where the pedestrian environment interfaces with the motor vehicular environment and thus where conflicts are most likely to occur. Pedestrian exposure to motor vehicle traffic at crossings directly affects safety, especially for older persons and children who may not be able to cross streets quickly or discern (or be seen by) on-coming motor vehicle traffic. Selecting appropriate marked crosswalk locations and providing visible markings and warning signage are important for increasing visibility of pedestrians.

The crosswalk inventory provides information on the following attributes of all marked crosswalks in Berkeley:

- Color: White, Yellow (school zones)
- Condition: New, Fair, Worn
- Marking type: Transverse (standard parallel lines), Ladder
- Width: Measurement in feet

There are a total of 2,099 marked crosswalks within Berkeley. Of these crosswalks, 74 percent are white crosswalks with standard double parallel line configuration and 12 percent are yellow with standard double parallel line configuration surrounding schools. The remaining 14 percent are ladder high visibility crosswalks: 12 percent of this configuration style is white and the remaining two percent is yellow in areas surrounding schools. Of the existing crosswalks, the condition of the crosswalks can be described as 853 (41 percent) in “new” condition, 674 (32 percent) in “fair” condition, and 574 (27 percent) in “worn” condition. New condition crosswalks are primarily located along major streets. Fair and worn crosswalks are dispersed throughout the city.

### 4.1.3. CURB RAMPS

Properly designed curb ramps are key accessibility features as they allow mobility impaired individuals to ramp down to the street level and back up with the least amount of effort and exposure to vehicle traffic. The curb ramp inventory provides information on the type and location of curb ramps. Berkeley has two types of curb ramps: apex (or diagonal, where a single diagonal ramp is provided at each corner) and perpendicular (two ramps are provided at each corner, each oriented directly toward the crosswalk). The angle of the curb ramp is determined by the direction of the ramp with respect to the nearest flow of traffic. Diagonal ramps require crosswalks to include a four foot buffer to allow a person using a wheelchair to turn the chair towards the path of travel after ramping down. These curb ramps are appropriate for areas where there is not enough room to provide perpendicular curb ramps. Perpendicular curb ramps situate a person using a wheelchair in the direction of the crosswalk so that there is no need to correct the direction of travel upon ramping down. Of the approximately 4,500 existing curb ramps in Berkeley, 79 percent are apex ramps, 17 percent are perpendicular ramps, and the remaining 4 percent are mid-block ramps, which are also considered to be perpendicular.

The curb ramp data also include the presence and absence of truncated domes. Truncated domes are tactile surfaces that indicate to visually impaired pedestrians that they are leaving the sidewalk and entering the roadway. Of the 4,500 existing curb ramps in Berkeley, only about seven percent have
4. Existing Pedestrian Network

truncated domes. Ramps with truncated domes are located primarily on major streets such as San Pablo Avenue, University Avenue, Shattuck Avenue, Claremont Avenue, and Solano Avenue.

4.1.4. PATHWAYS

There are 160 individual pathways throughout the Berkeley Hills totaling approximately five miles. The pathways in this inventory include stairways and lanes. These pathways provide supplemental connectivity between the narrow, winding streets that parallel the contours of the hills. The pathways were designed to provide access to commuter trains which historically ran along Arlington Avenue and Shattuck Avenue to the top of Solano Avenue. They also connect to parks, schools and neighborhood commercial nodes providing a pleasant off-street alternative pedestrian network. Many of the streets in the hills lack sidewalks due to constrained roadway widths; however, absent major through-traffic, streets interspersed with pathways are adequate for walking. Most of the paths are concentrated in the north Berkeley Hills east of Colusa Avenue, The Alameda and Euclid Avenue. There are a few small clusters of pathways in the south Berkeley Hills in the area bounded by Claremont Avenue and Tunnel Road, two paths between Russell Street and Avalon Avenue, as well as a few paths providing east-west access between Panoramic Way and Arden Avenue. While pathways are an important component of the pedestrian environment in the Berkeley hills, the vast majority of them are not ADA compliant and are not providing full mobility for users in these areas.

4.1.4.1. OHLONE GREENWAY

The Ohlone Greenway, a multi-city, multi-use trail constructed over twenty years ago, extends from El Cerrito through Albany to Berkeley along the BART right-of-way. The Greenway is 8-10 feet wide in most sections and lacks the unpaved shoulders required of a formal multi-use pathway. The northern portions of the Greenway are situated beneath the elevated BART line. The 1.5 miles of the Greenway located within Berkeley are mostly above the underground portion of the BART line (BART descends underground just south of Gilman Street). The BART right-of-way between Gilman Street and Milvia Street is occupied by a string of parks, public art sculptures, community gardens, tennis and basketball courts, dog parks, and playing fields, with the North Berkeley BART station located at about the midpoint. The Greenway provides an off-street pedestrian/bicycle thoroughfare that links these facilities and provides access through the north and central parts of the city, ending in the south within blocks of the UC Berkeley campus and Downtown Berkeley. At the north end of Berkeley, it connects to the Westbrae neighborhood commercial district and continues on toward lower Solano Avenue in Albany.

4.1.4.2. SAN FRANCISCO BAY TRAIL

The San Francisco Bay Trail is a regional effort to provide a continuous multi-use path around San Francisco and San Pablo Bays. The goal of the trail network is to provide public access to the bay’s shore, in addition to augmenting facilities for recreation and commuting. The 7.3-mile Bay Trail segment in Berkeley is located west of Interstate 80 along the West Frontage Road. The trail enters Berkeley from Emeryville and ends at Gilman Street. The Berkeley segment of the Bay Trail can be accessed via the I-80 pedestrian/bicycle bridge, which crosses the freeway just south of University Avenue. The City of Berkeley is currently designing a spur trail segment that would lead from the pedestrian/bike bridge out to the facilities of the Berkeley Marina. At the north end, a proposed two-mile segment is needed to close the gap between Gilman Street and the Albany Bulb, around Golden Gate Fields.
4. Existing Pedestrian Network

4.1.4.3. SANTA FE RIGHT-OF-WAY

The Santa Fe right-of-way is a historic railroad corridor running north-south through Berkeley, located between San Pablo Avenue and Sacramento Street. The corridor generally extends from Cedar Street (at the Ohlone Greenway) south to Russell Street (where it meets Sacramento Street). Portions of the corridor have been developed over the years with parks (Strawberry Creek Park), a community garden, and other uses, but much of the right-of-way has been planned for a multi-use trail development. In 2006, a major segment of this multi-use trail was constructed between University Avenue and Virginia Street, including a mid-block pedestrian signalized crossing of University Avenue. This segment includes a 10-foot wide paved trail with two-foot decomposed granite shoulders on either side, pedestrian scale lighting and emergency call boxes. Planned extensions will connect this segment to Strawberry Creek Park on the south and to the Ohlone Greenway at Cedar Rose Park on the north.

4.2. TRAFFIC SIGNALS

Traffic signals are often described in the context of the motorized vehicle network, but they are a key piece of the pedestrian infrastructure as they direct pedestrian traffic to move in conjunction with vehicle traffic. Over time traffic signals have evolved to include pedestrian-oriented components such as pedestrian signal heads and actuator buttons, countdown displays and audible signals. Figure 4-5, Pedestrian Traffic Signals and Type shows the pedestrian signals in Berkeley. All but eight of the City’s 145 signalized intersections have pedestrian heads, which show the WALK and DON’T WALK symbols to indicate when to cross. Traffic signals are located at all major/major street intersections and most major/collector street intersections.

The most common enhancements to pedestrian signal heads are a countdown portion of a signal or a signal that emits audible sounds. Thirty of the City’s signalized intersections include a countdown portion, allowing pedestrians to assess the time available to complete the street crossing. The countdown signals are only located along the busiest vehicular intersections. There is also a subset of pedestrian signals that include audible “chirp” and “beep” sounds that alert visually impaired pedestrians to the pedestrian crossing phase of a signalized intersection. There are 25 intersections that include audible signals. These signals are particularly beneficial to the sight-impaired as the sounds generated by the signals are standardized so that across jurisdictional boundaries a chirping versus beeping pair of signals across an intersection will indicate the north-south or east-west direction of the crossing. About half of the audible signals are located at intersections that also include countdown features.
Figure 4-5
Pedestrian Traffic Signals and Type
4.3. TRAFFIC CALMING

While this is not a traffic calming plan, traffic calming is very closely related to pedestrian planning because the incidence and severity of vehicle-pedestrian collisions are highly correlated with vehicle speeds. Berkeley’s General Plan Policy T-20 and Policy 1.4 of this Pedestrian Master Plan address traffic calming. The goal of traffic calming is to slow down vehicle speeds, and by doing so traffic calming serves to make the street environment safer and more pleasant for pedestrians. The following traffic calming measures are part of the motorized vehicle network, however the installation of these facilities directly benefit the pedestrian environment by reducing the volume and speed of vehicle traffic on residential streets. Figure 4-6, Traffic Calming and Infrastructure shows the improvements that slow vehicle traffic in Berkeley. Following is a description of Berkeley traffic calming measures and their distribution throughout the city.

4.3.1. SPEED HUMPS

There are 156 speed humps installed throughout the city. Speed humps are typically installed along concentrated street segments or neighborhoods. Speed humps typically are set at a maximum of 300 feet apart with two per block. The City of Berkeley has also been testing “speed cushions” which are modified speed humps that allow emergency and other wide vehicles’ tires to pass through slots in the humps rather than over the hump itself. The City has collected and analyzed data on the effectiveness of the speed cushions and their suitability for use in Berkeley. A report to Council was presented in December of 2009. Appendix B: Pedestrian Design Guidelines has additional information on speed humps and other traffic calming devices.

4.3.2. TRAFFIC CIRCLES

Traffic circles are located in intersections throughout the southern and western areas of the City. There were 62 traffic circles at the start of the plan process, with many additional traffic circles being constructed through the duration of the plan. Most of the traffic circles are along Blake, Carleton, Fulton, Ellsworth, Stuart, Parker, and Woolsey and California Streets. California Street has the most traffic circles of any street in the city. Traffic circles are accepted by the Berkeley Fire Department, provided the department has approval over the design.

4.3.3. TRAFFIC DIVERTERS

Traffic diverters, like traffic circles, are mostly located in the southern, central and western portions of the city. The diverters complement the use of traffic circles and speed humps. There are a total of 84 traffic diverters. The type of diverter varies from landscaped barriers to wide planter-type bollards. The diverters are completely permeable to pedestrians and bicycles but not to motor vehicles. There is a mixture of full diverters and semi-diverters which allow motor vehicle traffic through in one direction. A majority of diverters are located along streets surrounding the east-west portion of the Ohlone Greenway that parallels Ohlone Park and along streets feeding to Ashby Avenue.
Figure 4-6
Traffic Calming and Infrastructure
4.4. PUBLIC TRANSPORTATION

There are multiple public transportation providers in Berkeley. They include AC Transit, BART, Amtrak, and shuttles and paratransit service. The major routes and stops are shown in Figure 4-7, Transit Stops & Routes and described in the following sections.

4.4.1. AC TRANSIT

The City of Berkeley is served by 35 different AC Transit bus routes. The bus service corridors follow all major and collector streets in Berkeley, including major cross-town corridors such as San Pablo Avenue, Shattuck Avenue, Adeline Street, Martin Luther King Jr. Boulevard, Sacramento Avenue, Sixth/Seventh Streets, Hopkins Street, Arlington Avenue, Cedar Avenue, Dwight Way, Ashby Avenue, Telegraph Avenue, and College Avenue. According to the Berkeley General Plan, all Berkeley residents live within ¼ mile of a bus stop. Sample weekday counts conducted between 2004 and 2005, as provided by AC Transit, show that 21,000 daily bus riders board at bus stops in Berkeley, an estimated 16,000 of whom did not have automobile access and most likely walked to a stop.

Major corridors with trunk service, such as San Pablo, have key bus stops that provide transfer points to other corridor lines, such as those serving University Avenue. The City of Berkeley, in conjunction with AC transit, has a franchise agreement with Clear Channel Outdoor, Inc. to provide and maintain bus shelters throughout the city.
4. Existing Pedestrian Network

Figure 4-7
Transit Stops & Routes
4.4.2. BART

The Bay Area Rapid Transit (BART) system has three stations located in Berkeley. According to a 1999 BART Station Profile Study, just over 8,500 people in total walked to these three stations on a daily basis.

The Downtown Berkeley BART Station is located in the heart of downtown Berkeley at Shattuck Avenue and Center Street. There are multiple entrances providing excellent pedestrian access along the sidewalks on Shattuck Avenue between Addison Street and Allston Way. The Downtown BART station, which also serves the nearby UC Berkeley campus, has four times more commuters walking to the station than either the North Berkeley or Ashby BART Stations.

The North Berkeley station is located on the west side of Sacramento Street on the block between Delaware, Virginia and Acton Streets. The station entrance is located directly in the center of the site, and surrounded by surface parking on all sides. Pedestrian access to the station is constrained by the parking areas and high traffic volumes along Sacramento Street. The intersection of Virginia Street and Acton Street has a diagonal traffic diverter preventing parking lot traffic from using the local streets. The station can also be accessed via the Ohlone Greenway route, which connects to the northwest and southeast corners of the site.

The Ashby BART station is situated on the block bounded by Ashby Street, Adeline Street and Martin Luther King Jr. Way, with an additional parking area located along Woolsey on the east side of Adeline. The station entrance itself is underneath Adeline Street, accessed via the parking lots on either side of Adeline. Direct access is provided via stairs and elevators on Adeline as well. The major street corridors adjacent to the station all have high traffic volumes and speeds. While the Ashby BART Station does not have as high of a walking access mode share as the downtown station, it is slightly greater than the North Berkeley BART Station.

4.4.3. AMTRAK CAPITOL CORRIDOR

The City of Berkeley has one train stop along the Amtrak Capitol Corridor route. The Capitol Corridor rail service extends from Auburn to San Jose, with stops including Sacramento, Davis, Richmond BART station, Oakland’s Jack London Square, Fremont, and San Jose Diridon station. The City of Berkeley recently completed construction of major station improvements and amenities at the Berkeley Rail Stop, located at Third Street and University Avenue in West Berkeley, beneath the University Avenue overpass. The station improvements included a new station platform, addition of lighting, seating, sidewalks and curb ramps, and reconfiguration of bus stops and bus circulation. The Capitol Corridor provides a total of 16 trains every day in either direction. The schedule provides for about one train an hour from 6:00 a.m. to 10:00 p.m. on weekdays.

4.4.4. SHUTTLES

In addition to public transit, there are a variety of shuttle services which require the same pedestrian accessibility as AC Transit stops. Some of these systems include the West Berkeley Shuttle, which connects the Ashby BART station with employment areas along 7th Street in West Berkeley; BearTransit, the UC Berkeley shuttle system that has five daytime routes and a nighttime safety shuttle serving the campus area; and the Lawrence Berkeley Laboratory shuttles.
4. Existing Pedestrian Network

4.4.5. PARATRANSIT

City of Berkeley Paratransit Services provides transit services to persons with disabilities and those 70 years of age or older. Access to transportation is no less vital to senior citizens and those with disabilities, and some residents have difficulty using AC transit buses or BART trains and stations. Berkeley Paratransit Services provides four programs to enhance access to different transportation services.

Table 4-1
Berkeley Paratransit Services and Eligibility

<table>
<thead>
<tr>
<th>Program</th>
<th>Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Taxi Scrip Program</strong></td>
<td>Eligibility: Those certified by East Bay Paratransit as disabled or 70 years of age or over AND whose incomes are not more than 30 percent of the Area Median Income.</td>
</tr>
<tr>
<td><strong>Wheelchair-Van Program</strong></td>
<td>Eligibility: Those who travel by wheelchair and are certified by East Bay Paratransit as requiring “wheelchair-lift” service, irrespective of income level.</td>
</tr>
<tr>
<td><strong>East Bay Paratransit Tickets</strong></td>
<td>Eligibility: Limited to providing transportation services to people who meet criteria established in the Americans with Disabilities Act.</td>
</tr>
<tr>
<td><strong>Medical Return Transportation Improvement Program (MrTrip)</strong></td>
<td>Eligibility: Those participants in the Taxi Scrip Program or the Wheelchair-Van Program.</td>
</tr>
</tbody>
</table>
CHAPTER 5
PEDESTRIAN TRAVEL, DEMAND AND SAFETY

We are all pedestrians\(^1\) at some point during the day, whether or not we walk the entire way to a destination, walk to transit, or simply walk from our car into a building. One goal of this plan is to evaluate current and future pedestrian travel and demand patterns in Berkeley. Studying current travel patterns answers the question of where people are walking today: Who is walking? Where are their destinations? What is the purpose of their trip? Predicting future demand is a way of identifying areas of the city that could support high levels of pedestrian activity, even if those levels do not currently exist today. Related to travel and demand is the issue of pedestrian safety, looking at where and why pedestrian collisions are occurring in the city.

A variety of data sources are used in this analysis, including US Census data, pedestrian count data and collision records. This data, combined with information received from the public during the public outreach process, can help the City identify areas to focus on for making pedestrian improvements. Analyzing this information helps us to develop recommendations for pedestrian improvements, with the goals of improving safety, comfort and convenience for those who are currently walking, and making walking a more attractive choice for everyone.

5.1. PEDESTRIAN DEMOGRAPHICS

5.1.1. PEDESTRIAN COMMUTE DATA

Information on the number of pedestrian commuters in Berkeley comes from the 2000 US Census Journey to Work data. A central focus of presenting commute information is to identify the current “mode split” of people that live and work in Berkeley. Mode split refers to the choice of transportation a person selects to move to destinations, be it walking, public transit, bicycling, driving alone, or carpooling.

Table 5-1
Berkeley Journey to Work Mode Split in Percent

<table>
<thead>
<tr>
<th>Mode</th>
<th>Berkeley</th>
<th>Alameda County</th>
<th>California</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walked</td>
<td>16.0</td>
<td>3.3</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Public Transit</td>
<td>19.9</td>
<td>11</td>
<td>5.3</td>
<td>4.9</td>
</tr>
<tr>
<td>Bicycle</td>
<td>6.0</td>
<td>1.3</td>
<td>0.9</td>
<td>0.4</td>
</tr>
<tr>
<td>Drove Alone</td>
<td>46.4</td>
<td>68.8</td>
<td>74.7</td>
<td>78.2</td>
</tr>
<tr>
<td>Carpool</td>
<td>10.3</td>
<td>14.3</td>
<td>15.1</td>
<td>12.6</td>
</tr>
<tr>
<td>Other</td>
<td>1.4</td>
<td>1.3</td>
<td>1.1</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Source: U.S. Census 2000

\(^1\) The term “pedestrian” refers to a person moving from place to place, on foot and/or with the use of an assistive mobility device (when that person has a disability and/or medical condition). “Walking” or “to walk” are the terms used to describe this movement of a pedestrian.
5. Pedestrian Travel, Demand and Safety

Berkeley has the highest walking rate of all cities in Alameda County: 16 percent of workers in Berkeley walk to work on a daily basis, compared to the national, state and county average of approximately 3 percent. Berkeley also has one of the highest proportions of workers commuting to work using public transit, 20 percent compared to national and state averages of around 5 percent and an Alameda County average of 11 percent. Berkeley also has the highest number of bicycle commuters in the County, with a total of 6.0 percent who bicycle to work every day, compared to the county and state average of around 1% and the national average of less than half percent.

In addition to mode of travel to work, the US Census provides information on the number of households in an area with no vehicle available. The number of car-free households is an important indicator of the number of people who are walking and using transit out of necessity. In Berkeley, 17 percent of households are car-free, compared to 10 percent at the national, state and county levels.

5.1.2. POPULATIONS OF PEDESTRIAN EMPHASIS

Certain populations are more likely to depend on pedestrian infrastructure. Children and teenagers getting to and from school have historically had a very high walking rate, although this has been declining in recent years as more parents drive their children to school. Students at UC Berkeley are another group that has high walking rates, since many students do not own vehicles. Those who are disabled may lack motorized transportation options and as a result are also more dependent on transit and pedestrian aspects of the transportation network. Senior citizens may also lack access to vehicles or the ability to drive and rely heavily on transit and pedestrian mobility options.

As illustrated in Table 5-2, the percent of Berkeley’s population in the 16 and under age group is almost 10 percent less than the countywide percentage. Conversely, the percent of Berkeley’s population in the 17 to 64 age group is 10 percent greater than the countywide percentage. Differences in these age groups’ population in Berkeley and the County can partly be explained by the presence of 33,000 UC Berkeley graduate and undergraduate students, most fitting into the 17 to 64 age group.

The percent of residents in the 65 and older age group is similar in Berkeley (10.3 percent) and Alameda County (10.4 percent). Berkeley has a proportionally greater share of disabled residents than does the County.

### Table 5-2
Berkeley Population Age Distribution and Disabled Population

<table>
<thead>
<tr>
<th>Residents</th>
<th>Berkeley</th>
<th>Percentage of Total City Population</th>
<th>Countywide</th>
<th>Percentage of Total County Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 and under</td>
<td>13,593</td>
<td>13.2</td>
<td>622,927</td>
<td>23.1</td>
</tr>
<tr>
<td>17 to 64</td>
<td>78,616</td>
<td>76.5</td>
<td>1,792,264</td>
<td>66.5</td>
</tr>
<tr>
<td>65+</td>
<td>10,534</td>
<td>10.3</td>
<td>281,514</td>
<td>10.4</td>
</tr>
<tr>
<td>Total</td>
<td>102,743</td>
<td>100.0</td>
<td>2,696,705</td>
<td>100.0</td>
</tr>
<tr>
<td>Disabled</td>
<td>8,884</td>
<td>8.6</td>
<td>130,307</td>
<td>4.80</td>
</tr>
</tbody>
</table>

*Source: U.S. Census 2000*
5.2. PEDESTRIAN DEMAND MODEL

Space Syntax, a UK-based planning firm specializing in ‘space-based’ modeling, developed two pedestrian forecasting models for the Berkeley Pedestrian Plan. The first model is a tool to help determine areas in Berkeley where there is the greatest pedestrian activity and the primary factors influencing this activity. The second model is a collision exposure model, demonstrating how consideration of both pedestrian and vehicular traffic volumes affect pedestrian risk in Berkeley.

These models and their findings are explained in this section after a review of the qualitative baseline analysis, focusing on urban structure, land use and pedestrian movement. Data from the qualitative baseline analysis was used to create the two forecasting models.

A complete summary of the qualitative baseline analysis and the forecasting models are summarized in the Space Syntax report “Walkability, Movement and Safety for the City of Berkeley” that is included in Appendix D.

5.2.1. QUALITATIVE BASELINE ANALYSIS

The qualitative baseline analysis is divided into three categories: urban structure, land use and pedestrian movement. These three categories comprise an inventory of existing conditions in Berkeley that are input into the two models.

5.2.1.1. URBAN STRUCTURE

Urban structure is the framework of routes and public open spaces that connect locally to the wider context. There are five components to the urban structure category. They are: block size, directionality of street layout, street connectivity, accessibility to the street network, and the accessibility of the pedestrian system. Figure 5-1, Block Size, is a graphic example of one of the inputs under the urban structure category.

5.2.1.2. LAND USE

Land use is the location and distribution of various trip origins and destinations in Berkeley. The land uses included in the baseline analysis are: parks, schools, healthcare centers, libraries (as shown in Figure 5-2, Walking Distance to Libraries), community centers, major retail locations, neighborhood retail, office buildings, high density residential units, transit stops, and BART stations. These land uses were analyzed using their relative proximity to the surrounding areas in Berkeley.
5. Pedestrian Travel, Demand and Safety

Figure 5-1
Block Size

Source: Space Syntax

Figure 5-2
Walking Distance to Libraries

Source: Space Syntax
5.2.1.3. PEDESTRIAN MOVEMENT

The City of Berkeley conducts regular vehicular traffic counts as part of its transportation planning activities. In many cases, these vehicle counts include pedestrian counts. A summary of these data sheets was conducted as part of assessing baseline pedestrian activity in Berkeley. The existing pedestrian count data spans from 1997 to 2005. There are a total of 685 data sheets representing over 200 intersections in Berkeley. The data sheets report pedestrian volumes for each crosswalk within an intersection, and in some cases, they also report pedestrian direction of travel in crosswalks.

Pedestrian counts included in the data sheets were collected over a variety of days and times. Counts were collected across varying days of the week, both weekdays and weekends, and throughout the year. Times of day for counts vary among mornings, midday and evening peak hours. Count times are site specific, but generally, morning peak hours are from 7:00 to 9:00 A.M., midday peak hours are from 12:00 P.M. to 2:00 P.M., and evening peak hours are from 4:00 to 6:00 P.M.

Of the City’s pedestrian counts, 64 of them were used for the final sample for the models. This was a random sample that includes counts at mid-day from a number of different months spanning over the nine year period. Mid-day counts often give a more accurate measure of general movement patterns in a city like Berkeley. Preliminary data analysis found that the mid-day peak movement provided the most informative picture of the largest area of the city. Morning and evening peaks can be higher in total volume but are often highly constrained around transit stops and parking locations, giving an inaccurate picture of overall movement patterns in a city. Figure 5-3, Pedestrian Movement Count Locations shows the count sites included in the analyses.

Figure 5-3
Pedestrian Movement Count Locations

Source: Space Syntax
5. Pedestrian Travel, Demand and Safety

5.2.2. PEDESTRIAN VOLUME MODEL

Space Syntax used the qualitative baseline analysis and combined it with a hierarchy of Berkeley’s walking routes. The results suggest that pedestrians avoid intersections with high vehicle volumes. In terms of origins/destinations, pedestrian movement was clustered around downtown Berkeley, specifically near the BART station, and near the entrances to UC Berkeley. As distance increases away from these centers, the model showed that land uses such as parks, libraries, and schools were not significant factors for increasing pedestrian movement during the mid-day peak hours. School schedules and resulting travel patterns create morning and afternoon pedestrian peaks around schools. Because this model uses mid-day pedestrian volumes it may not have adequately accounted for school area pedestrian activity.

Figure 5-4, Foreasted Mid-Day Peak Movement Levels, shows, as stated, the result of the spatial model that utilized a combination of urban structure, land use and pedestrian count data. The colors indicate the forecasted pedestrian volumes as predicted by the pedestrian volume model. Not surprisingly, the highest forecasted volumes are in Downtown Berkeley, on the south side of the UC Berkeley campus particularly along Telegraph, on the north side of campus particularly along Euclid, along University Avenue in the vicinity of San Pablo Avenue, and adjacent to the Ashby BART station. The highest forecasted peak volumes, shown in red, are in the Central Business District (CBD) and south side of the campus, where volumes in excess of 2,000 people per hour are forecast for the mid-day period. This is about 10 times greater than the volumes expected in locations such as Ashby BART or University/San Pablo Avenues, which are forecast to experience peak volumes of around 250 persons per hour. For most of the local streets in Berkeley that don’t have commercial land uses, expected peak pedestrian volumes are around 50 persons per hour.

Figure 5-4
Forecasted Mid-Day Peak Movement Levels

Source: Space Syntax
5.2.3. PEDESTRIAN SAFETY AND EXPOSURE ANALYSES

The City of Berkeley maintains a geographic database of pedestrian collision locations with data provided by the Statewide Integrated Traffic Records System (SWITRS). Between January 1997 and December 2007, there were 1,253 pedestrian collisions, or an average of 114 per year. Figure 5-5, Pedestrian/Vehicle Collisions between 1997 and 2007, shows an overall decreasing number of collisions over the eleven-year period. The Space Syntax pedestrian safety and exposure analysis uses SWITRS data from a seven year period, between January 1997 and December 2004.

Locations of these recorded collisions are throughout the City of Berkeley with concentrations near downtown Berkeley and at major intersections as Figure 5-6, Collisions Per Junction shows. Major streets in Berkeley were also found to have higher concentrations of pedestrian collisions, including University Avenue, Ashby Avenue, San Pablo Avenue, Martin Luther King Jr. Way, and Telegraph Avenue.

Figure 5-5
Pedestrian/Vehicle Collisions between 1997 and 2007
Based on the collision data available from the City of Berkeley at the time of analysis\(^2\) and the pedestrian volume information presented in Figure 5-4, a pedestrian “exposure” analysis was performed. The term exposure originated in the public health field, and is defined as a person’s rate of contact with a potentially harmful agent. Applied to transportation planning, pedestrian exposure is defined as a pedestrian’s rate of contact with potentially harmful vehicular traffic. This exposure analysis was performed to show in more detail the locations and factors involved with these collision trends.

The concept of exposure is important for evaluating pedestrian risk, rather than relying strictly on the absolute number of collisions at specific locations. For example, Intersection A experiences 10 collisions per year, with an average annual pedestrian volume of 10,000 pedestrians per year. Intersection B experiences 20 collisions per year, but has an average annual pedestrian volume of 100,000 pedestrians per year. While intersection B has a higher absolute number of collisions (10 more collisions than Intersection A), dividing the annual number of collisions by the pedestrian volume (exposure) gives a measurement of relative risk between the two locations. This reveals that Intersection A experiences 0.001 annual collisions per pedestrian, while Intersection B experiences 0.0002 annual collisions per pedestrian. This approach demonstrates that Intersection A is actually a higher pedestrian risk by volume, experiencing five times the likelihood of a pedestrian collision than Intersection B. This type of analysis was performed in Berkeley and is described in the subsequent sections based on collisions per pedestrian volumes and collisions per traffic volumes.

\(^2\) The collision data available at the time of analysis includes collisions from January 1997 through December 2004.
5.2.3.1. COLLISIONS COMPARED WITH PEDESTRIAN VOLUMES

Figure 5-7, Collisions Compared with Pedestrian Volumes, effectively merges Figures 5-4 and 5-6, showing the average number of collisions per the number of pedestrians using that intersection. This reveals a different picture than mapping annual or total collisions alone – one which more accurately displays pedestrian risk in the City of Berkeley as a function of the use of each intersection.

It can be seen there is a higher incidence of risk at major street crossings, with a marked decrease at intersections within the residential portions of the city. All major concentrations of risk are found at major junctions outside of the city center. The areas around the downtown and to the south of the University, although bearing a significant number of collisions, were actually found to be less risky due to the large volumes of pedestrian traffic in these areas. Key areas of pedestrian risk, as measured by collisions per person, are highlighted in pink.

5.2.3.2. COLLISIONS COMPARED WITH TRAFFIC FLOW

Another way of estimating pedestrian risk of collision is by dividing the number of annual collisions by average daily traffic. This approach, shown in Figure 5-8, Collisions Compared with Traffic Flow, shows that the highest values of collisions by traffic are primarily not at intersections with the most pedestrian collisions. Locations with the greatest risk are either in areas where there are low pedestrian volumes and low traffic volumes or where there are high pedestrian volumes and high traffic volumes. The larger circles represent the annual number of collisions per junction by average daily traffic.
5.2.3.3. RESULTS AND FUTURE USES OF THE PEDESTRIAN EXPOSURE ANALYSIS

The pedestrian exposure analysis described was an important product of the Berkeley Pedestrian Master Plan process. Where in the past the City relied primarily on the absolute collision numbers available from SWITRS to evaluate pedestrian safety, City transportation planning and engineering staff now have a citywide summary of relative pedestrian risk based on pedestrian and vehicle volumes. This exposure data shows some unique patterns of pedestrian risk that are not apparent when looking simply at the SWITRS data. As an immediate step, the results of the exposure analysis were used as one of the factors in identifying and prioritizing pedestrian improvements as part of this Pedestrian Master Plan. In the future, the City will continue to revisit the pedestrian exposure analysis on a regular basis to ensure that they are tracking and addressing locations that have the highest pedestrian risk.