Modesto
NON-MOTORIZED TRANSPORTATION MASTER PLAN

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1. INTRODUCTION

The Modesto Non-Motorized Transportation Master Plan provides a blueprint for developing a citywide system of trails, bikeways, and other transportation and recreation facilities for non-motorized users. This document provides an Update to the 1996 Modesto Non-Motorized Transportation Master Plan. As with the 1996 Plan, this Update covers the full range of modes of travel in Modesto without a motor vehicle, including:

- Commute bicycling
- Recreational on-road bicycling
- Recreational off-road bicycling
- Walking
- Running
- Motorized and non-motorized wheelchairs
- Roller and in-line skating
- Skateboarding; and
- Other forms of non-motorized, wheeled transportation

Bicycling is seen as an alternative transportation mode and considered one of the most cost-effective ways to reduce air pollution, traffic congestion, wear on local roads, petroleum consumption, and demand for additional roads. This Plan is intended to provide a blueprint towards making bicycling an integral part of daily life in Modesto.

NON-MOTORIZED IMPROVEMENTS

Although this Plan covers all forms of non-motorized transportation, the discussion of facilities throughout this plan will focus on the two major forms of non-motorized transportation: bicycling and walking.

BICYCLES

Like many communities around the United States, Modesto is experiencing a resurgence in interest in bicycling as a means of transportation. The bicycle is a low-cost and effective means of transportation that is quiet, non-polluting, extremely energy-efficient, versatile, healthy, and fun. Bicycles also offer low-cost mobility to the non-driving public, especially the young.
Bicycling as a means of transportation has been growing in popularity as many communities work to create more balanced transportation systems and reclaim streets from auto dominance. In addition, recent national and local surveys find that bicycling remains an important mode of transportation and recreation, and that more people are willing to cycle more frequently if better bicycle facilities are provided.¹

Modesto stands poised to make major gains in increasing bicycle use, thanks to several factors:

First, Modesto has many of the attributes needed to become bicycle-friendly. This includes a moderate climate, flat terrain, a well-connected downtown street grid, numerous local parks and recreational attractions, geographic proximity to employment and school centers, as well as a population interested in health, environment, and livable neighborhoods. The popularity of recreational bicycling in Modesto can be seen on any weekend with families enjoying the Dry Creek or Hetchy Hetchy bike paths, or with the large bicycle club rides that head out of town to explore Stanislaus County’s rural roads.

This plan addresses bicycles as a transportation mode of travel, defined as any trip that replaces a vehicle trip whether it be for commuting, shopping, traveling to and from school, or to reach a recreational destination.

Second, there is a history of bicycle planning in Modesto, as shown by the 1983 Modesto Bicycle Plan and 1996 Non-Motorized Transportation Master Plan. As bicycle facilities have been developed and more residents have been cycling for recreation, more have been commuting as well. Consequently, more have been advocating for improved cycling facilities. Groups such as the Stanislaus County Bicycle Club have been important advocates of bicycle facilities for both recreation and commuting.

Third, policy support and additional funding have recently been made available for bicycle transportation improvements. This has been true on the local and state level thanks to the 1994 California Bicycle Transportation Act and the 2000 Safe Routes to Schools programs. This has also been the case on the federal level through:

- 1990 Clean Air Act;
- 1991 Inter-Modal Surface Transportation Efficiency Act (ISTEA);
- 1998 Transportation Equity Act for the 21st Century (TEA21); and
- 2003 Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA)

These laws have provided for increased spending on bicycle travel and allow communities more flexibility in spending highway funding on alternative modes, such as bicycling, walking, and transit.

1. Introduction

Already, these laws have led to over a billion dollars in bicycle, trail, and pedestrian projects nationwide, and thousands of miles in new bicycle lanes, sidewalks, multi-use trails and other non-motorized enhancements.

The increased ridership, resulting advocacy, and increased policy and financial support from all government levels have resulted in a desire for significant bicycle transportation improvements. The following Bicycle Transportation Plan is a direct result of these changes and is intended to set a proactive course toward making bicycling an integral part of daily life in Modesto.

PEDESTRIANS

Walking is the oldest and most basic form of human transportation. It is non-polluting, requires little infrastructure, and is integral to the health of individuals and their communities. People who walk know their neighbors and their neighborhood. A community that is designed to support walking is livable and attractive.

Although pedestrians have been valued for their contribution to urban vitality, walking, like bicycling, has not until recently been considered a serious means of transportation. Thanks in part to the passage of the 1991 ISTEA legislation and its companion funding opportunities, this is beginning to change. Communities are beginning to recognize the need and value of developing pedestrian facilities, whether it is to enhance safety, health, or for commuting.

Many of Modesto’s neighborhoods provide a pleasant walking environment. But getting from housing areas to employment of transit by foot can be challenging. Routes that require walking on or crossing multi-lane arterials can discourage pedestrian activity. Opportunities certainly exist for improving the pedestrian system in Modesto, offering residents the option of walking to school, shop, or recreation.

PURPOSE OF THE PLAN UPDATE

Maximize Funding Sources for Implementation. A key reason for Updating the Non-Motorized Transportation Master Plan is to satisfy requirements of the California Bicycle Transportation Account, and other state and federal funding programs for bicycle transportation projects for which Caltrans plays an oversight and review role. In order to qualify for available funding, the State of California requires that applicants have an adopted master plan that includes the following specific elements:

- Estimated number of existing and future bicycle commuters
- Land use identification
- Existing and proposed bikeways
- Existing and proposed bicycle parking facilities
- Existing and proposed multi-modal connections
- Existing and proposed facilities for changing and storing clothes and equipment
1. Introduction

- Bicycle safety and education programs
- Citizen and community participation
- Consistency with transportation, air quality, and energy plans
- Project descriptions and priority listings
- Past expenditures and future financial needs
- A description of public input used to develop the Bicycle Transportation Plan

**Save lives.** Reduce the accident and fatality rate for bicyclists and pedestrians through design standards and guidelines, education, and enforcement.

**Provide needed facilities and services.** Meet the demand and increased use of bicycles and other non-motorized transportation modes as a means of travel around the City. With the Federal Highway Administration’s national goal of doubling bicycling by 2010, the bicycle commute share would increase from 558 adult commuters (2000 census) —approximately 0.75% mode share—to 1,116 adult commuters. Factoring in the potential for children bicycling to school, bicycle-to-transit trips, and other utilitarian trips, Modesto has the potential to increase the bicycle mode share to above one percent, beyond the state and national average.

**Improve the quality of life in Modesto.** Design and build people-friendly streets, sidewalks, paths, trails, and activity centers available to everyone, and support sustainable community development. Reduce traffic congestion, vehicle exhaust emissions, noise, and energy consumption by encouraging healthier and more active forms of travel. Encourage visitors to stop and enjoy Modesto on bicycle and foot.

**Update Existing Plan and Set New Priorities.** Identify existing network needs and recommend projects that will further enhance and improve bicycling and pedestrian conditions in Modesto. Projects identified in the 1996 plan are to be re-evaluated according to priority criteria including connectivity and network needs. New priorities emphasize providing designated bikeways to significant destinations such as downtown and the Amtrak train station, while encouraging increased commuter and recreational usage of safe and direct bikeways.

**Become the “City of Trees and Trails.”** Modesto’s quality of life derives from its rural and agricultural character. While Modesto becomes increasingly urbanized as population and development occur, the presence of tree groves and extensive recreational areas enhance the potential of Modesto ability to grow without threatening the environmental and recreational character that makes Modesto an attractive place to live. The greenway corridors provided of the Dry Creek and Tuolumne River parks provide vital recreational facilities that should be enhanced and expanded.
GOALS AND POLICIES OF PLAN UPDATE

Goals provide the context for the specific objectives and policy actions discussed in the Non-Motorized Transportation Plan Update. The goals provide the long-term vision and serve as the foundation of the plan. Goals are broad statements of purpose that do not provide specific descriptions of the objective, while policy actions provide a bridge between general policies and actual implementation guidelines, which are provided in the following sections.

Goals and Policy Actions of the Updated Non-Motorized Transportation Master Plan are as follows:

Goal 1: Expand and Improve Modesto’s Non-Motorized Transportation Network

Policy 1.1. Complete a network of bikeways, walkways, trails and paths that serve all non-motorized user groups, including commuting, recreation, and utilitarian trips.

Policy 1.2. Seek funding for non-motorized transportation funding through current regional, state and federal funding programs, private funding opportunities such as endowments, corporate sponsorships and benevolent giving, and encourage multi-jurisdictional funding applications.

Policy 1.3. Monitor and evaluate information on collisions involving bicyclists and pedestrians and use this information to assist in remedying existing problem locations.

Policy 1.4. Develop and implement a signed and numbered route system for cross town commuter bicycle routes that serve major employment centers, schools, commercial districts, transit stations and institutions.

Goal 2: Plan for the Needs of Non-Motorized Users

Policy 2.1. Accommodate bicyclists, pedestrians, and other non-motorized users when planning, designing, and developing transportation improvements.

Policy 2.2. Review capital improvement projects to ensure that needs of non-motorized users (including pedestrians, bicyclists, and persons with disabilities) are considered in programming, planning, maintenance, construction, operations, and project development activities.

Policy 2.3. Encourage traffic calming, intersection improvements, or other similar actions that improve safety for pedestrians and bicyclists.

Policy 2.4. Require developers to adhere to the roadway design standards, signage and cross-sections identified in this Non-Motorized Transportation Master Plan.
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Goal 3: Provide for Regular Maintenance of the Non-Motorized Network

Policy 3.1. Develop a program for routine maintenance of bikeway and walkway network facilities including regular sweeping of bikeways and shared use pathways.

Policy 3.2. Include the costs of major maintenance needs of bicycle and pedestrian facilities when calculating the maintenance needs of streets and roadways generally.

Policy 3.3. Require that maintenance funding plan be in place at the time of project construction.

Policy 3.3. Require that repair and construction of transportation facilities minimize disruption to the bicycle and pedestrian environment, or provide alternate routes.

Goal 4. Encourage and Educate Residents of Modesto on Bicycling, Walking and other Non-Motorized Modes

Policy 4.1. Enforcement of pedestrian- and bicycle-related laws by the Modesto Police Department.

Policy 4.2. Develop adult and youth bicycle and pedestrian education and safety programs.

Policy 4.3. Develop and distribute a Trails Map illustrating the citywide non-motorized network and containing tips on bicycling and walking safety.

Policy 4.4. Support programs such as “safe routes to school” maps and “bike trains” or “walking school buses” for elementary students that would encourage more students to walk or bicycle to school

Goal 5: Implement the Non-Motorized Transportation Plan

Policy 5.1. Incorporate the Non-Motorized Transportation Master Plan into the Community Facilities Element of the Modesto Urban Area General Plan

Policy 5.2. Maximize coordination between Stanislaus County, adjacent municipalities, school districts and community organizations to review and comment on bicycle and pedestrian issues of mutual concern

Policy 5.3. Update the Plan periodically as required by Caltrans to reflect new policies and/or requirements for bicycle and pedestrian funding
PLAN CONTENTS

The Modesto Non-Motorized Transportation Master Plan Update is organized as follows:

- Chapter 2, Existing Conditions, provides a description of the existing bicycle and pedestrian conditions in Modesto. The conditions presented include the existing bicycle and trail network and support facilities and programs.

- Chapter 3, Planning and Policy Context, provides an overview of the relevant plan documents from Modesto and Stanislaus County.

- Chapter 3, Needs Analysis, documents the need for bicycle and pedestrian transportation in Modesto, including an overview of existing user groups, commuting statistics, accident data, and opportunities and constraints.

- Chapter 5, Bicycle Improvements, outlines the recommended Class I, II and III bikeway network, as well as bicycle-specific support facilities such as bike lockers. Chapter 5 also includes individual priority project sheets that provide additional data and cross-sections for key projects in the non-motorized transportation system.

- Chapter 6, Pedestrian Improvements, introduces the elements and actions necessary to create a safe, well-designed system of pedestrian facilities in Modesto.

- Chapter 7, Bicycle and Pedestrian Programs, outlines safety, educational and encouragement programs that apply to both bicyclists and pedestrians, as well as all forms of non-motorized transportation.

- Chapter 8, Implementation, provides an overview of the recommended non-motorized system costs, and presents a guide to construction and maintenance funding sources.

- Appendices:
  - Appendix A: Bikeway Planning and Design
  - Appendix B: Projects Identified in Existing Modesto and StanCOG Bicycle Plans
  - Appendix C: Non-Motorized Transportation Master Plan Survey Form
  - Appendix D: Non-Motorized Transportation Master Plan Public Meeting Notice
  - Appendix E: Sample Bicycle Parking Code Language
  - Appendix F: Construction Zone Treatments
  - Appendix G: Bicycle Commute and Air Quality Calculations
2. EXISTING CONDITIONS

This chapter provides a description of existing conditions within the City of Modesto. Information is based on field visits, existing planning documents, aerial photographs, maps, and conversations with City of Modesto, Stanislaus County, and other agency staff.

SETTING

Modesto is located along Highway 99 in the center of the San Joaquin Valley, an agricultural region that extends 300 miles through central California. The city has diverse development, consisting of low- to medium-density residential, commercial and office space, and some industrial land uses. Outside of the urbanized area, agricultural land uses dominate; some of the region’s top commodities include dairy products, almonds, apricots, melons, tomatoes, wine grapes, peaches, walnuts and poultry products. Due to its location on the valley floor, the topography in Modesto is generally flat. The Tuolumne River, a major Sierra drainage that extends from Yosemite National Park before dropping to the valley, passes south of downtown Modesto, and the Stanislaus River extends just north of the city.

With the exception of downtown, the city’s northwest corner, and the commercial and industrial area south of Yosemite Boulevard, Modesto is a city of residential neighborhoods, and the places where people live are dispersed almost evenly throughout the City. Planning for the non-motorized transportation system needs to acknowledge that people live everywhere within the developed fabric of Modesto, and that the non-motorized transportation system should provide equal access to and from all areas of the City.

Since 1996, when the first Non-Motorized Transportation Master Plan was adopted, substantial growth and development has occurred in Modesto. Planning areas of the City that have been developed or are in the process of being developed include Village One, North Beyer, Enterprise Business Park, Carver-Bangs, Pelandale-Snyder, Coffee-Claratina, Northpointe, Hetch-Hetchy, Fairview, Mable, and Empire West. Much of this development has occurred on the north and west sides of the city.

AFFECTED JURISDICTIONS AND AGENCIES

Implementation of the non-motorized network will require cooperation from a number of jurisdictions and agencies that have control over land use decisions within and adjacent to Modesto, including the Stanislaus Council of Governments, Stanislaus County, cities of Ceres, Ripon, Riverbank, Salida and Empire.
City of Modesto
The City of Modesto encompasses a land area of approximately 36 square miles and a population of approximately 203,000. Modesto is the largest city and the seat of Stanislaus County. Modesto is surrounded primarily by unincorporated Stanislaus County lands that are in agricultural use. Modesto is bordered on the south by the City of Ceres, and a portion of the Riverbank Sphere of Influence borders Modesto to the north. Modesto’s sphere of influence extends to Kiernan Avenue on the north.

City of Ceres
The City of Ceres is situated along Highway 99, on the south side of the Tuolumne River. Ceres is a growing community with a population of about 40,000 and a land area of about 7 square miles, surrounded primarily by the agricultural lands of Stanislaus County. Ceres borders the southern edge of Modesto’s urban area.

City of Riverbank
The City of Riverbank is located northeast of Modesto, along the State Highway 108 on the south side of the Stanislaus River. Riverbank is a growing community with a population of about 17,500 and a land area of 3 square miles. Riverbank is surrounded primarily by the agricultural lands of Stanislaus County (on the south side of the river) and San Joaquin County (on the north side of the river). While Riverbank’s street network does not abut Modesto’s urban area, the Modesto planning area does border Riverbank’s sphere of influence along the Stanislaus River.

County of Stanislaus
The County of Stanislaus encompasses a land area of approximately 1,500 square miles and a population of about 500,000. The County has nine incorporated cities: Ceres, Hughson, Modesto, Newman, Oakdale, Patterson, Riverbank, Turlock, and Waterford. Stanislaus County is responsible for land use decisions for all unincorporated areas, which includes several communities such as Salida, La Grange, Knights Ferry, Grayson, and Westley.

Stanislaus Council of Governments
The Stanislaus Council of Governments (StanCOG) is the designated Metropolitan Planning Organization and Regional Transportation Planning Agency for the Stanislaus County area. StanCOG is responsible for the preparation of the area’s Regional Transportation Plan and Federal Transportation Improvement Program, as well as other regional planning activities such as collection of census and demographic information, and regional bicycle and pedestrian planning. The StanCOG Policy Board has the ultimate decision making responsibility and authority for StanCOG. It is comprised of sixteen voting members and one advisory member (Caltrans). Voting members include five representatives from the Stanislaus County Board of Supervisors, three council representatives from the City of Modesto, and one council representative from each of the other eight cities in the County.

Modesto Irrigation District
MID is a multi-purpose public utility district supplying electricity, irrigation and domestic water. Its primary customers are the residents and businesses in California’s Central Valley. MID serves approximately 3,200 irrigation water customers and 64,000 irrigated acres. MID entered the domestic water business in 1994, when it began operations at its Modesto Regional Water Treatment
2. Existing Conditions

Plant, which treats and delivers up to 40 million gallons of surface water each day. Treated water is sold to the City of Modesto for distribution.

Turlock Irrigation District
The Turlock Irrigation District (TID) operates a number of irrigation canals in the southern portion of Modesto. The district owns and operates more than 250 miles of canals stretching from La Grange Dam on the Tuolumne River to the San Joaquin River and serves over 5,800 irrigation customers covering approximately 150,000 acres of farmland. TID also provides retail electricity to customers within its service area. The Tuolumne River is the source of most of the district’s water.

San Francisco Public Utilities Commission
The San Francisco Public Utilities Commission (SFPUC) manages and operates the Hetch Hetchy water system. The Hetch Hetchy system is a 167-mile, gravity-driven network of dams, reservoirs, tunnels, pump stations, aqueducts and pipelines that collects Tuolumne River runoff in the Hetch Hetchy reservoir in Yosemite and transports it to the San Francisco Bay Area. The Hetch Hetchy water line extends through the northwestern quadrant of Modesto as an underground aqueduct within an approximately 100-foot wide easement. Overhead power lines extend along the Hetch Hetchy right-of-way. In addition, a 3-mile paved multi-use path has been constructed within the Hetch Hetchy right-of-way between Sisk Road and Semallon Drive.

Utilities
Various utility lines run above and below ground within Modesto, both along the developed roadway network and in separate easement corridors. These include Pacific Gas & Electric (electricity and natural gas), SBC (telephone and communications lines), Comcast (cable), and others. Installation or maintenance of these utilities, particularly along the roadway network, can cause inconveniences or create hazards for bicyclists and pedestrians.

Union Pacific Railroad
Rail corridors owned by the Union Pacific include the former Southern Pacific main line that parallels SR-99, as well as the former Tidewater Southern rail line that is being converted into the Virginia Corridor trail.

Atcheson, Topeka and Santa Fe Railroad
The Atcheson, Topeka and Santa Fe Railroad owns the rail corridor the runs along the eastern edge of Modesto. Amtrak passenger services operate within the ATSF rail corridor.

California Department of Transportation
The California Department of Transportation (Caltrans) has jurisdiction of the California State Highway system. Designated State Highways within Modesto include State Route 99, a major north-south freeway through the Central Valley, as well as State Routes 108 (McHenry Avenue and connecting streets) and 132 (Yosemite Avenue and Maze Boulevard).
2. Existing Conditions

Local Schools

**Primary and Secondary Schools**

Modesto has four primary school districts: the Modesto City Schools District in the central part of the city, Sylvan School District in the north, Empire School District in the southeast and Stanislaus Union School District in northwest Modesto. Approximately 20 to 25 percent of local traffic during the morning commute hour is now attributable to school-related trips.

**Modesto Junior College**

The Yosemite Community College District includes Modesto Junior College and Columbia College. Modesto Junior College is located in central Modesto, with facilities located on two sites, known as East Campus and West Campus, three miles apart. MJC has an enrollment of approximately 16,000 students.

EXISTING BICYCLE FACILITIES

**DEFINITION OF BIKEWAYS**

The three types of bikeways identified by Caltrans in Chapter 1000 of the Highway Design Manual are as follows. Detailed design guidelines for all three types of bikeways are provided in Chapter 5.

- **Class I Bikeway:** Typically called a “bike path,” a Class I bikeway provides bicycle travel on a paved right-of-way completely separated from any street or highway.

- **Class II Bikeway:** Often referred to as a “bike lane,” a Class II bikeway provides a striped and stenciled lane for one-way travel on a street or highway.

- **Class III Bikeway:** Generally referred to as a “bike route,” a Class III bikeway provides for shared use with pedestrian or motor vehicle traffic and is identified only by signing.

One of the greatest divergences of opinion lies between those who feel paved bike paths, separated from roadways, should be constructed wherever physically possible, versus those who feel more comfortable riding on streets on lanes or routes. This preference is usually based on personal feeling regarding comfort and safety. There are also people who argue whether Class II bike lanes are effective, or conversely, that bike lanes should be installed wherever possible. Bike lanes provide an additional buffer between traffic and sidewalks, aiding pedestrians. When properly designed, bike lanes help improve the visibility of bicyclists. On streets with low traffic volumes and speeds (under 5,000 vehicles per day, 30 mph), bike lanes may not be needed at all. This is based on the potential for serious conflicts being so low that the cost of installing bike lanes is not warranted.

Modesto’s existing bicycle network is shown in **Figure 2-1**. The network consists of both on- and off-street facilities. **Table 2-1** shows the limits and lengths of all existing Class I, II, and III bikeway segments in the city.
Figure 2-1
Existing Bikeways

Source: City of Modesto, Stanislaus County
EXISTING OFF-STREET BIKE PATHS

Hetch-Hetchy Path
The Hetch-Hetchy bike path is a 3.0 mile path that extends along the Hetch-Hetchy power and water right-of way between Sisk Road and Semallon Drive.

Dry Creek Bike Path
The Dry Creek bike path is a 5.5 mile path that extends through Dry Creek Regional Park on the south side of the creek between La Loma Avenue and Claus Road.

Tuolumne River Path
A 2.5 mile segment of bike path has been constructed on the north side of the river in Tuolumne River Regional Park in the vicinity of Modesto City-County Airport.

EXISTING ON-STREET BIKE LANES AND ROUTES

Modesto has a partially completed network of on-street bike lanes and routes, as shown in Figure 2-1. Currently there are approximately 14 miles of bike lanes, 37 miles of bike routes. Several key Class II segments exist, notably on Prescott Road, Tully Road, and Coffee Road. However, other primary north-south and east-west streets have only short Class II segments (such as Claus and Scenic) or lack bike lanes altogether (such as Oakdale). A number of existing Class III cross-town routes exist, connecting neighborhood schools and parks in many places (although the lack of destination signage, noted below, limits the functionality of these routes). The existing network is not evenly distributed geographically, as the entire southwestern quadrant of the city has only one short Class III segment.

Table 2-1
Index of Existing City of Modesto Bikeways

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<th>Name</th>
<th>From</th>
<th>To</th>
<th>Classification</th>
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<td>Sisk</td>
<td>Semallon</td>
<td>I</td>
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<td>Mitchell</td>
<td>I</td>
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<td>Rumble</td>
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## 2. Existing Conditions

<table>
<thead>
<tr>
<th>Name</th>
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<th>Length (mi.)</th>
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<td>Coffee</td>
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<td>Fairmont Rose</td>
<td>Floyd</td>
<td>Keller</td>
<td>III</td>
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<td>Forest Glen Sylvan</td>
<td>Carlton</td>
<td>Sunrise</td>
<td>III</td>
<td>1.04</td>
</tr>
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<td>McHenry</td>
<td>III</td>
<td>1.03</td>
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<td>.09</td>
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<td>Sunrise Roseburg</td>
<td>Fairmont</td>
<td>III</td>
<td>.18</td>
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<tr>
<td>Sunset Center</td>
<td>Sunset</td>
<td>Sierra</td>
<td>III</td>
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<td>Woodbine</td>
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<td>.09</td>
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<td>III</td>
<td>.12</td>
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<td>Ulrich Mills</td>
<td>Ulrich</td>
<td>College</td>
<td>III</td>
<td>.12</td>
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<td>.72</td>
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<td>Wylie</td>
<td>Oakdale</td>
<td>III</td>
<td>.50</td>
</tr>
</tbody>
</table>

Source: City of Modesto, Existing Bicycle System Map, April 2002
SIGNAGE

Implementing a well-designed, attractive, and functional system of network signage greatly enhances bikeway facilities by promoting their presence to both potential and existing users. Currently, Modesto has only a few standard bike route signs. Many local street connections and continuous routes are not identified. Major destinations are not identified. The lack of good directional signage is considered to be a constraint to bicycling in the City. Particularly for Class III bike routes, which may follow curving neighborhood streets and occasionally shift a block or two in either direction, the lack of clear directional signage can be confusing for inexperienced cyclists. Destination signage can further help to clarify routes, particularly in locations where two routes cross. In addition, multi-use paths require additional standardized signs and stencils in order to help manage the multiple user groups.

BICYCLE DETECTOR LOOPS

Bicycle detector loops are sensors that activate traffic signals when a bicyclist positions his/herself where a loop detector is installed, in bicycle or auto travel lanes at signalized intersections. While bicycle detector loops facilitate faster and more convenient bicycle trips, if they are not calibrated properly or stop functioning they can frustrate cyclists waiting for the signal to change, unaware that the loop is not working. The City of Modesto has no bicycle-specific detector loops installed at this time.

BICYCLE PARKING

Bicycle parking is an important component in planning bicycle facilities and encouraging people to use their bicycles for everyday transportation. Bicycles are one of the top stolen items in most communities, with components often being stolen even when the bicycle frame is securely locked to a rack. Because today’s bicycles are often high-cost and valuable items, many people won’t use a bicycle unless they are sure that there is secure parking available at their destination(s). In California, parking facilities are classified as follows:

Class I Parking - Long Term
Class I bicycle parking facilities accommodate bicycles of employees, students, residents, and others expected to park more than two hours. This parking is provided in a secure, weather-protected manner and location. Class I bicycle parking includes a bicycle locker or a secure area like a ‘bike corral’ that may be accessed only by bicyclists. The new “day locker” (bike lid, eLocker, etc.) is a new bicycle locker concept that has gained recent popularity because it requires minimal program administration. These lockers allow for multiple users in the same day, therefore allowing these lockers to function similar to racks.

Class II Parking - Short Term
Class II bicycle parking facilities are best used to accommodate bicycles of visitors, customers, messengers, and others expected to depart within two hours. This parking is provided by bicycle racks, which provide support for the bicycle but do not have locking mechanisms. Racks are relatively low-cost devices that typically hold between two and eight bicycles, allow bicyclists to securely lock their frames and wheels, are secured to the ground, and are located in highly visible areas. Racks should not be designed to damage the wheels by causing them to bend. Bike racks
Existing Conditions

should be located at schools, commercial locations, and activity centers such as parks, libraries, retail locations, and civic centers, or anywhere personal or professional business takes place.

Modesto Bicycle Parking Facilities
Many private employers provide bicycle parking facilities, and both the City of Modesto and Stanislaus County offices in downtown Modesto provide bicycle parking. Most public schools provide bicycle parking facilities, as do both the East and West campuses of Modesto Junior College. Street bicycle racks are installed at various locations in the downtown area, and in other commercial areas. Bicycle racks are also available at the Downtown Transit Center, and at the Amtrak Station.

There are no bicycle parking requirements in the Modesto Municipal Code, and it is up to individual businesses to provide racks for their employees or customers. Merchants can put in a request to the City to have bicycle racks installed outside their business free of charge. Modesto has an unspecified number of bicycle racks available to be installed upon request.

In addition to parking, a number of major employers also provide shower facilities for use by bicyclists and other non-motorized commuters. Table 2-2 contains a list of Modesto’s largest employers, and a summary of whether they provide bicycle racks and showers for their employees.

BIKEWAY SUPPORT FACILITIES
For the purposes of this Plan, bicycle support facilities refer to end-of-trip facilities that would encourage bicyclists to commute to work or other activities that require one to “clean up” after a ride. Typically, these amenities include showers and clothing locker facilities and can be located at places of employment. Such facilities are most often provided by building owners or tenants for use by those that work in the building. Although health clubs provide showers and clothing lockers, they are only available to their members.

Bicycle shops are important for bicyclists making trips between urban areas in the event they suffer an equipment failure and need repair parts or service. Parks and rest stops offer cyclists water, a place to sit or rest, and restroom facilities. Transit transfer stations extend the range cyclist can commute. Locations to shower and change clothes make commuting a more viable alternative.

<table>
<thead>
<tr>
<th>Employer Name</th>
<th>Racks?</th>
<th>Showers?</th>
<th>Number of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modesto City Schools</td>
<td>Yes</td>
<td>No</td>
<td>4,950</td>
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<tr>
<td>ConAgra Foods, Inc.</td>
<td>Yes</td>
<td>Yes</td>
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</tr>
<tr>
<td>E &amp; J Gallo Winery</td>
<td>Yes</td>
<td>Yes</td>
<td>3,000</td>
</tr>
<tr>
<td>Memorial Hospital Association</td>
<td>Yes</td>
<td>No</td>
<td>2,422</td>
</tr>
<tr>
<td>Doctor's Medical Center</td>
<td>Yes</td>
<td>No</td>
<td>2,170</td>
</tr>
<tr>
<td>Modesto Junior College</td>
<td>Yes</td>
<td>No</td>
<td>1,377</td>
</tr>
<tr>
<td>SBC Pacific Bell</td>
<td>Yes¹</td>
<td>No</td>
<td>1,175</td>
</tr>
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</table>
2. Existing Conditions

<table>
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<th>Employer Name</th>
<th>Racks?</th>
<th>Showers?</th>
<th>Number of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Modesto</td>
<td>Yes</td>
<td>Yes</td>
<td>1,174</td>
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<tr>
<td>Gallo Glass Co.</td>
<td>Yes</td>
<td>Yes</td>
<td>800</td>
</tr>
<tr>
<td>Gould Medical Group</td>
<td>Yes</td>
<td>No</td>
<td>784</td>
</tr>
<tr>
<td>The Modesto Bee</td>
<td>Yes</td>
<td>Yes</td>
<td>650</td>
</tr>
<tr>
<td>Sylvan Union School</td>
<td>No</td>
<td>No</td>
<td>645</td>
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<tr>
<td>Modesto Irrigation District</td>
<td>Yes</td>
<td>Yes</td>
<td>410</td>
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<tr>
<td>Foster Farms Dairy</td>
<td>No</td>
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<td>Macy’s</td>
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<td>No</td>
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<td>Doubletree Hotel</td>
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<td>Weyerhaeuser</td>
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<td>No</td>
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Sources:
- Employer List based on City of Modesto Development Office Survey, July 2002
- Rack and Shower information based on Alta Planning + Design telephone survey, May 2003

Notes:
1. Two of three facilities provide bicycle racks

PAST BICYCLE PROGRAM EXPENDITURES

Table 2-3 provides a summary of bicycle program expenditures in Modesto for the past 5 years.

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Year</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Hetch Hetchy Trail Construction (1.5 miles)</td>
<td>2001</td>
<td>$470,000</td>
</tr>
<tr>
<td>Peggy Mensinger Trail Construction (3.0 miles)</td>
<td>2001</td>
<td>$650,000</td>
</tr>
<tr>
<td>Maintenance of signage</td>
<td>2001-2005</td>
<td>$5,000</td>
</tr>
<tr>
<td>Bike Lane striping</td>
<td>2001-2005</td>
<td>$25,000</td>
</tr>
<tr>
<td>Asphalt overlay existing bike lanes</td>
<td>2001-2005</td>
<td>$300,000</td>
</tr>
<tr>
<td>Bike Lane sweeping</td>
<td>2001-2005</td>
<td>$40,000</td>
</tr>
<tr>
<td>Bike trail sweeping</td>
<td>2001-2005</td>
<td>$29,000</td>
</tr>
<tr>
<td>Landscape/irrigation</td>
<td>2001-2005</td>
<td>$31,000</td>
</tr>
<tr>
<td>Policing of Trails</td>
<td>2003-2005</td>
<td>$19,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$1,569,000</strong></td>
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</table>

Source
City of Modesto, 2006

EXISTING PEDESTRIAN FACILITIES

A safe and functional pedestrian environment – one that encourages people to walk – is composed of numerous features that require careful planning, design, and maintenance. Sidewalks and pathways, the most basic elements, need to form a connected network. They need to be wide enough to comfortably accommodate the expected pedestrian volume. Surfaces should be kept as
smooth as possible. Intersections should have well-designed curb ramps on all corners. Marked crosswalks should remain highly visible. Traffic signal phasing should allow adequate time for pedestrians to cross. Finally, the connected network must provide access to destinations that attract pedestrian travel, such as schools and parks, neighborhood shopping, transit stops, libraries, and post offices.

The state of pedestrian facilities in Modesto is variable. Some places have good facilities and some places do not. In many neighborhoods, especially neighborhoods that were not developed as part of more formal subdivisions, or those that are located on the rural periphery, sidewalks are missing altogether. These more incrementally developed areas are often served by narrow roadways with neither shoulders nor sidewalks. Most of the rural roads on the periphery of Modesto have narrow travel lanes and no sidewalks. Adding sidewalks after the fact is difficult: adequate right-of-way is often un-available and many residents feel that sidewalks would not be in keeping with the area’s “rural” character.

Downtown Modesto has a well-developed pedestrian system with wide sidewalks, clearly marked crosswalks, and slower vehicle speeds. Other “strip mall” commercial areas in Modesto often have narrow or discontinuous sidewalks or none at all. Many of these areas were developed along wide arterial streets to accommodate automobile access. The width of these streets requires considerable time for pedestrians to cross, especially younger and older citizens. While nearly all major arterial streets within the urban portions of Modesto have sidewalks, many of these roadways have sidewalks built directly adjacent to travel lanes. High vehicles speeds and the lack of a buffer can make walking on these roadways unpleasant.

FACILITIES FOR THE DISABLED

Persons with disabilities are particularly aware of design features that contribute to improved walking or rolling conditions. The Americans with Disabilities Act (ADA) of 1990 made the country realize the particular needs of physically and mentally impaired individuals. This civil rights act prohibits public entities from designing new facilities or altering existing facilities that are not accessible to people with disabilities. As a result of ADA, curb ramps are a basic component of all new sidewalk construction.

Sidewalk construction, curb ramp design, and other accessibility standards have been developed on a federal level in two documents, the Uniform Federal Accessibility Standards (UFAS) and the Americans with Disabilities Act Accessibility Guidelines (ADAAG). States are given the option to adhere to one of these, but may also adopt more stringent standards than the Federal minimum guidelines. Caltrans conforms to the policies of UFAS and Title 24 of the California Code of Regulations. Title 24, developed by the Division of the State Architect, has some stricter accessibility requirements than UFAS.

Designing pedestrian facilities to accommodate persons with disabilities improves the walking experience for all users. Curb ramps are helpful to parents pushing strollers, delivery persons pulling dollies or carts, and small children on bicycles. Wide sidewalks invite people to stroll side-by-side and enable wheelchairs, bicycles, strollers, and scooters to pass one another without conflict. Smooth surfaces reduce the risk of elderly pedestrians and small children tripping. Therefore,
whenever one is analyzing, planning, or designing pedestrian facilities, accommodating persons with disabilities must be of utmost concern.

As noted above, sidewalk conditions are mixed in Modesto. Newer sidewalks developed since passage of the Americans with Disabilities Act are required to have curb ramps that provide for the safe crossing of persons in wheelchairs. Many older neighborhoods constructed before passage of this law do not have curb ramps. In downtown Modesto, curb cuts have been installed at all intersections. Modesto currently has a program to install curb ramps on older sidewalks within the neighborhoods; the City installs approximately 80 curb ramps per year.

**MULTI-MODAL CONNECTIONS**

Multi-modal refers to the use of two or more modes of transportation in a single trip (i.e., bicycling and riding the bus or train). Improving the bicycle-transit link is an important part of making bicycling a part of daily life in Modesto. Linking bicycles with mass transit, including buses and community shuttle services, overcomes such barriers as lengthy trips, personal security concerns, and riding at night or in poor weather.

Making the multi-modal connection consists of two key elements: providing bicycle parking facilities at bus stops and bike racks on buses. Two other components include improving bikeways that link with transit facilities and stops and encouraging the use of multi-modal programs. Bicycling to transit in lieu of driving benefits the community by reducing air pollution, reducing the demand for parking, reducing energy consumption, and reducing traffic congestion with relatively low investment costs.

Existing multi-modal connections in Modesto are especially important when considering regional trip opportunities. Modesto is increasingly becoming a bedroom community for people who work west of the Altamont, in the Tri-Valley Area (Livermore, Dublin, Pleasanton, San Ramon), the San Jose area, the East Bay, or even San Francisco. While no direct commuter rail connection exists between Modesto and the Bay Area, bus connections are available to the Altamont Commuter Express Train (ACE) and to the Dublin-Pleasanton BART station. Ensuring bicycle access on these bus connections will extend the range of individuals at both ends of the trip.

Local bus service within Modesto is provided by Modesto Area Express (MAX). MAX services operates along major corridors in Modesto, the downtown area, the Amtrak station, Vintage Faire Mall, and to the adjoining cities of Ceres and Salida. All MAX buses are equipped with bicycle racks.

Regional bus service is provided by Stanislaus Regional Transit (START). START buses provide service from Modesto to surrounding cities and towns, including Riverbank, Oakdale, and Turlock. Bus service to Turlock includes a stop at California State University Stanislaus. All START buses are equipped with bicycle racks.
2. Existing Conditions

MAX operates the Modesto ACE Express bus providing direct service from northwest Modesto at
the Stanislaus County Library satellite to the Lathrop/Manteca ACE train station. ACE (Altamont
Commuter Express) provides rail service between Stockton and San Jose via the Altamont Pass,
with intermediate stops including Livermore and Pleasanton. Service to and from the ACE station
is provided only on weekdays during the morning and evening commute periods.

MAX also operates the Modesto BART Express bus providing direct service from the library
satellite to the Dublin/Pleasanton BART station. Service to and from BART is provided only on
weekdays during the morning and afternoon/evening commute periods.

Modesto’s main Transportation Center is located downtown at 1001 9th Street (at J Street). The
ACE Express and BART Express bus stops are located at the Park and Ride lot at the library
satellite. Local bus service in Modesto is provided by Modesto Area Express (MAX). Bicycle racks
are available on all MAX buses.

The Modesto Amtrak Station is located at Held Drive and Briggsmore Road in northeastern
Modesto. This is a full service Amtrak station, with ticket and baggage handling and package express
service available. From the Modesto station, service is provided on Amtrak’s San Joaquin Corridor
to cities including Bakersfield, Fresno, Merced, Stockton, Emeryville and Vallejo. Connecting buses
provide service into the Los Angeles area.

Greyhound inter-city bus service is also available at the downtown Modesto Transportation Center.

ENCOURAGEMENT AND EDUCATION PROGRAMS

Coordinated bicycle safety events can have a positive affect on bicycle ridership because they
address and appease safety concerns of potential riders and teach good riding habits. Without these
programs, a forum does not exist to address safety concerns that are real or perceived.

The City of Modesto sponsors two community events in May to promote bicycle safety, bicycle
commuting, and demonstrate how bicycling can become a viable form of transportation in
decreasing traffic and parking congestion, and help improve air quality. Bike to Work Day is
intended to promote safe bicycle commuting with the City. The event includes three Police escorted
routes, where bicycle police officers will lead commuters from designated locations toward the
downtown area and discuss the rules of the road.

The Family Cycling Festival includes a number of events to promote cycling. Activities include a
bicycle safety check, bicycle rodeo/safety course, bicycle licensing. Bicycle stunt shows and an
amateur criterium race are also being held to attract people to the event.
3. PLANNING AND POLICY CONTEXT

This chapter provides an overview of planning and policy documents of the City of Modesto, Stanislaus County and adjacent jurisdictions and agencies that are relevant to the Non-Motorized Transportation Master Plan. These include the existing City of Modesto Non-Motorized Transportation Master Plan (1996), the Modesto Urban Area General Plan, and the Stanislaus County Regional Bicycle Action Plan.

CITY OF MODESTO

MODESTO NON-MOTORIZED TRANSPORTATION MASTER PLAN (1996)

The City of Modesto adopted a Non-Motorized Transportation Master Plan in July 1996 (1996 Plan). This Non-Motorized Transportation Master Plan Update document serves to formally update the 1996 Plan, in accordance with Caltrans requirements. The stated purpose of the 1996 plan, and by extension this Plan, was to achieve the following goals:

- Address the concerns and interests of the residents of Modesto;
- Increase both commuting and recreational use of bicycles;
- Increase the number if people who choose to commute to work using other than motor vehicles;
- Coordinate the City’s non-motorized transportation plan with those of neighboring cities and Stanislaus County; and
- Address recent State requirements for bicycle and non-motorized transportation planning.

The 1996 Plan discussed existing conditions related to non-motorized travel in Modesto, identified a comprehensive non-motorized transportation network, discussed non-motorized facility types and standards, identified goals, policies and programs for implementation, and identified potential funding sources. The 1996 Modesto Non-Motorized Transportation Master Plan identified the following 10 goals:

1. Continue developing a Citywide non-motorized transportation system that serves the following uses as alternatives to motorized transportation:
   - Commuter Bicyclists
   - Recreational On-Road Bicyclists
   - Recreational Off-Road Bicyclists
   - Walkers
   - Runners
3. Planning and Policy Context

- Wheelchairs
- Skaters
- Skateboarders;

2. Coordinate Modesto’s non-motorized transportation system with the systems of neighboring cities and the County.

3. Link the City’s non-motorized transportation users to major destinations.

4. Establish a regular maintenance and hazard removal program to ensure safe and well-maintained non-motorized transportation facilities.

5. Continue and expand programs that provide and encourage support facilities for non-motorized transportation users.

6. Continue to establish policies encouraging new development patterns that support non-motorized transportation, such as the village concept.

7. Establish strong transit connections for those who use non-motorized transportation, and to accommodate their particular needs on public transit (i.e. bicycle racks on buses).

8. Work with irrigation districts, railroads and other owners of linear right-of-way that have the potential to accommodate non-motorized transportation facilities and thereby to strengthen the City’s non-motorized transportation system.

9. Establish a comprehensive program of community education and feedback related to non-motorized ways of getting about.

10. Seek regular, dedicated local funding for developing the Modesto Non-Motorized Transportation Master Plan, and establish a program to seek regular State and other public development and maintenance funding as available.

To date, the 1996 Non-Motorized Plan has been only partially implemented. Some on-street bike lanes have been striped, and the development of several off-street bike path segments has moved forward since adoption of the 1996 Plan. However, much of the Recommended Long-Term Non-Motorized Transportation System remains to be implemented. Modesto’s existing non-motorized transportation network is discussed in detail in the Existing Conditions section of this Plan Update.

As part of this Updated planning effort, the Long-Term system recommended in the 1996 Plan will be revisited in the context of the development that has occurred in Modesto over the past nine years. The non-motorized network, goals, policies and recommendations of this Updated Non-Motorized Transportation Master Plan, once adopted, will supersede those in the 1996 Plan.

**MODESTO URBAN AREA GENERAL PLAN**

The Modesto Urban Area General Plan, adopted in August 1995 and most recently amended in March 2003, serves as the city’s “blueprint” for future growth. The General Plan is intended to guide the physical development of Modesto to the year 2025. The General Plan contains goals, policies and objectives intended to preserve Modesto’s quality of life while providing direction for the growth of business and industry to meet the needs of future generations. Issues addressed in the General Plan include employment opportunities, defining Modesto’s character, maintaining older
neighborhoods and upgrading unsafe neighborhoods, integrating new neighborhoods into the urban land pattern, reducing automobile traffic impacts, preserving agricultural lands, and environmental concerns. The Modesto General Plan includes eight chapters: Introduction, Community Growth Strategy, Community Development Policies, Housing, Community Services and Facilities, Public Safety Issues, Environmental Resources and Open Space, and General Plan Implementation.

The General Plan provides a set of directives and guidelines regarding bicycle and pedestrian guidelines. Figure 3-1 shows the Adopted Land Use Diagram from the City of Modesto’s General Plan.

Within the introduction, the following is identified under “Overall Goals” of the General Plan:

Transportation and Circulation systems that adequately provide for intra-city and regional transportation needs should be provided. Alternatives to the drive-alone auto mode, such as light rail, mass transit, ride sharing, bicycling, trail systems, and telecommuting should be encouraged to reduce traffic congestion and enhance air quality. The City's transportation planning should be coordinated with regional transportation planning efforts, wherever possible.

Chapter V., Community Services and Facilities, of the General Plan, include the Circulation and Transportation element of the Plan. This element includes the City's transportation diagram, provides for definitions of various roadway classifications, and includes policies related to the development of the transportation network.

Bicycle facilities are noted in the definition of several roadway classifications.

Expressways - This classification defines high volume, access-controlled roadways which do not allow for pedestrian or bicycle movements in the traveled way.

(1) Principal Arterial streets have six travel lanes with no bicycle lanes. The design speed is 45 mph. The typical right-of-way is 114 feet.

(2) Minor Arterial streets have four travel lanes. Minor arterials can provide for bicycle lanes. The design speed is the same as principal arterials. The typical right-of-way is 100 feet.

d. Collector Streets - This classification defines low-traffic-volume streets which can also serve pedestrian and bicycle traffic. Collector streets provide traffic circulation within residential neighborhoods, and commercial and industrial areas. Collector streets distribute trips from the arterials through the area to their ultimate destination and collect traffic from local streets and channel it into the arterial streets. There are two classes of collector streets:

(1) A major collector street is a four-lane facility, with a design speed of 25-35 mph on a typical right-of-way of 84 feet without bicycle lanes or 96 feet with two, 6-foot bicycle lanes.
(2) A minor collector street is a two-lane facility, with a design speed of 25-30 mph on a typical right-of-way of 60 feet without bicycle lanes or 72 feet with two, 6-foot bicycle lanes.

It is important to note that some of the Class II Bike Lane facilities recommended in Chapter 5 of this plan may not be feasible within the roadway buildout cross-sections identified in the Circulation Element of the General Plan. Future feasibility analysis of the ability of specific roadway segments to accommodate bike lanes, given anticipated buildout traffic volumes and lane configurations, will be required for a number of projects. Implementation of these Class II segments will require close coordination between the City's Community & Economic Development, Parks, Recreation & Neighborhoods, and Public Works Departments.

Policies related to non-motorized transportation facilities within the Circulation and Transportation element include the following:

Policy H. Development should be designed in a way that will encourage walking as an alternative mode to the automobile for transportation. Safe and convenient pedestrian facilities should be provided in residential, commercial and other areas when necessary.

Policy I. The use of the bicycle shall be promoted as an alternative mode of transportation. An adequate and safe bicycle system should be provided to connect residential areas with shopping and employment areas in and adjacent to the City for present and future transportation needs. Right-of-way for bicycle usage should be considered in the planning of new streets and in street improvements. Facilities for mode transfer from bicycle to park-and-ride lots, transit, and rail should be considered and provided when necessary.

Chapter V., Community Services and Facilities, of the General Plan, also include the Parks and Open Space element of the General Plan. This element provides policies and standards for development of the park and open space system. Policies related to non-motorized transportation facilities within the Circulation and Transportation element include the following:

Policy E. Dual-use flood control/recreation facilities shall be developed wherever feasible…

Policy F. Dual-use facilities shall be designed and constructed in accordance with the standards and criteria contained in the “Design Standards for Dual Use Flood Control/Recreation Facilities” manual.

City of Modesto Standard Specifications
The City of Modesto Street Standard Specifications set forth standards for design and construction of public and some private infrastructure within the City’s sphere of influence. This document includes detailed specifications for roadways, including cross sections, lane widths, curb and gutter detail, intersection configurations, curb ramp detail, and drainage features.
Bike lanes are shown on specifications for Minor Arterials and Major and Minor Collectors. According to the specification notes for these roadway types, “striping for bike lanes shall be installed unless directed otherwise by the City Traffic Engineer.” Bike lanes are shown to be 6 feet wide in all street specifications. Bike lanes are not shown on specifications for Principal Arterials or Expressways. Some Expressway specifications (e.g. Pelandale) show an 8 foot bike path parallel to the roadway shoulder.

**Modesto Zoning Ordinance**

The City of Modesto Zoning Ordinance contains the following language related to operation of a bicycle:

No person shall propel a bicycle within any sidewalk area in any business district as defined by Section 235 of the Vehicle Code of the State of California. (Modesto Municipal Code 3-2.807)

A bicycle which is licensed pursuant to this chapter may be operated upon all the streets, alleys and public ways of the city, except that no bicycle shall be operated on the sidewalk area in any business district as defined in the California Vehicle Code. (Modesto Municipal Code 3-3.12)

No other bicycle-related language is contained in the zoning ordinance.

**STANISLAUS COUNTY**

**Stanislaus Council of Governments Regional Bicycle Action Plan**

The Stanislaus County Regional Bicycle Action Plan was adopted by the Stanislaus Council of Governments (StanCOG) in July 2001. The plan develops goals, objectives and policies which are intended to implement the Regional Bicycle Transportation Master Plan adopted in 1996. The Bicycle Action Plan is intended to serve as a guide for planning and implementing regional bicycle facilities for transportation purposes. The Plan covers both incorporated cities such as Modesto as well as unincorporated lands under the jurisdiction of Stanislaus County.

The Plan includes a detailed list of potential bicycle facility improvements in Stanislaus County, along with the estimated costs.
4. NEEDS ANALYSIS

This chapter reviews the relationship between bicycle use, commute patterns, demographics, and land use in the City of Modesto. It identifies major activity centers and public facilities where bicyclists may be destined, along with the needs of recreational and commuter bicyclists. A review of the needs of each bicycle user group will help guide the type and routing of the bikeway system.

One of the primary reasons for creating the Non-Motorized Transportation Master Plan is to maximize the number of bicycle commuters in order to help achieve transportation goals such as minimizing traffic congestion and air pollution. In order to set the framework for these benefits, local and national statistics are used as a basis for determining the benefits of an improved and expanded bikeway network for Modesto.

LAND USE AND DEMAND

The concept of “demand” for bicycle facilities can be difficult to comprehend. Unlike automobile use, where historical trip generation studies for different types of land uses permits an estimate of future “demand” for travel, no such methodology exists for bicycling or walking. Land use patterns can help predict demand and are important to bikeway planning because changes in land use (and particularly employment areas) will affect average commute distance, which in turn affects the attractiveness of bicycling as a commute mode. The Modesto bikeway network will connect the neighborhoods where people live to the places they work, shop, recreate, or go to school. An emphasis will be placed on regional bikeway and transit connections centered around the major activity centers in Modesto, including:

- Downtown
- Civic Buildings and Libraries
- Major Employment Centers
- Commercial Districts
- Regional Shopping Centers
- Modesto Junior College (East and West campuses)
- Amtrak Station
- Downtown Transit Center
- Residential Neighborhoods
- Hospitals
COMMUTE PATTERNS

A central focus of presenting commute information is to identify the current “mode split” of people that live and work in Modesto. Mode split refers to the choice of transportation a person selects to move to destinations, be it walking, bicycling, taking a bus, or driving. One major objective of any bicycle facility improvement is to increase the “split” or percentage of people who choose to bike rather than drive or be driven. Every saved vehicle trip or vehicle mile represents quantifiable reductions in air pollution and can help in lessening traffic congestion.

2000 US CENSUS

Journey to work and travel time to work data was obtained from the 2000 US Census for Modesto, Stanislaus County, California, and the United States. Journey to work data is shown in Table 4-1.

<table>
<thead>
<tr>
<th>Mode</th>
<th>United States</th>
<th>California</th>
<th>Stanislaus County</th>
<th>Modesto</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicycle</td>
<td>0.4%</td>
<td>0.8%</td>
<td>0.7%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Drove Alone</td>
<td>75.7%</td>
<td>71.8%</td>
<td>76.8%</td>
<td>78.8%</td>
</tr>
<tr>
<td>Carpool</td>
<td>12.2%</td>
<td>14.6%</td>
<td>15.0%</td>
<td>13.6%</td>
</tr>
<tr>
<td>Public Transit</td>
<td>4.7%</td>
<td>5.1%</td>
<td>1.0%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Walked</td>
<td>2.9%</td>
<td>2.9%</td>
<td>2.4%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Other</td>
<td>4.1%</td>
<td>4.8%</td>
<td>0.7%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

Source: U.S. Census 2000

As shown, about 0.7% of all employed Modesto residents commute primarily by bicycle, which is roughly the same as the national average of 0.4% and California average of 0.8%, and identical to the Stanislaus County average of 0.7%. This indicates that Modesto has a typical bicycling mode split for commuting purposes. It should be noted that the Census data does not give an indication of the number of people who bicycle for recreation or for utilitarian purposes such as shopping.

Travel time to work is shown in Table 4-2. Travel time is important because it can give an indication of the number of potential new bicycle commuters.

<table>
<thead>
<tr>
<th>Mode</th>
<th>United States</th>
<th>California</th>
<th>Stanislaus County</th>
<th>Modesto</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicycle</td>
<td>0.4%</td>
<td>0.8%</td>
<td>0.7%</td>
<td>0.7%</td>
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<td>4.7%</td>
<td>5.1%</td>
<td>1.0%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Walked</td>
<td>2.9%</td>
<td>2.9%</td>
<td>2.4%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Other</td>
<td>4.1%</td>
<td>4.8%</td>
<td>0.7%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

Source: U.S. Census 2000

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Travel time to work is shown in Table 4-2. Travel time is important because it can give an indication of the number of potential new bicycle commuters.

It has been suggested that a reasonable commute time, regardless of mode, is about 30 minutes. Assuming that travel occurs primarily on local roads during peak commute periods, a motor vehicle commute time of 15 minutes or less would be equivalent to about a 30 minute bicycle commute on flat terrain. In other words, converting an under-15 minute motor vehicle commute trip to a bicycle commute trips would still result in a reasonable 30 minute commute time. As shown in Table 4-2, about 36% of Modesto residents have a commute time of 15 minutes or less (most of these trips are drive alone, based on the city’s mode split data). Total Modesto bicycle commuters (558) represent only about 1% of the number residents who live within a 30 minute bicycle ride of their workplace (53,155) – this means there is a substantial number of residents who are taking other modes for these short-distance commutes. While some of these people may be carpooling, taking transit, or walking, based on the fact that nearly 80% of all Modesto residents drive alone to work, it can be
assumed that the majority of these short-distance commuters are driving alone to work. Given this data, there is a substantial opportunity to capture some of the short distance (less than 15 minute) motor vehicle commute trips and convert them to bicycle commute trips.

### Table 4-2

<table>
<thead>
<tr>
<th></th>
<th>United States</th>
<th>California</th>
<th>Stanislaus County</th>
<th>Modesto</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 15 minutes</td>
<td>29.4%</td>
<td>25.3%</td>
<td>35.1%</td>
<td>36.0%</td>
</tr>
<tr>
<td>15 to 29 minutes</td>
<td>36.1%</td>
<td>35.4%</td>
<td>34.9%</td>
<td>36.6%</td>
</tr>
<tr>
<td>30 to 44 minutes</td>
<td>19.1%</td>
<td>20.9%</td>
<td>14.2%</td>
<td>12.3%</td>
</tr>
<tr>
<td>45 to 59 minutes</td>
<td>7.4%</td>
<td>8.2%</td>
<td>4.7%</td>
<td>4.2%</td>
</tr>
<tr>
<td>60 minutes or more</td>
<td>8.0%</td>
<td>10.1%</td>
<td>11.2%</td>
<td>10.4%</td>
</tr>
</tbody>
</table>

Source: U.S. Census 2000

### TRIP REDUCTION AND POTENTIAL AIR QUALITY BENEFITS

Based on available census data on ridership, a rough projection of future bicycle ridership in Modesto along with the trip reduction and air quality benefits can be made. While these projections are only ambitious estimates, they are important to building an argument for investing in bicycle facilities and programs over time. For example, a traffic model is used to project future roadway improvements over time based on a straight-line assumption about auto use, fuel price, and other factors. The projection on bicycle use and benefits differs only in that it forecasts a minor change in modal choice -- not travel behavior – based on a combination of empirical and theoretical data. Research conducted around the U.S. by the U.S. Department of Transportation shows a definitive link between bicycle use and (a) age and (b) the miles of bicycle facilities provided. It is possible to derive a causal relationship from this information.

Modesto lies within the San Joaquin Valley Air Basin, which is regulated by the San Joaquin Valley Air Pollution Control District (Air District). According to the Air District, the air quality in the San Joaquin Valley Basin is among the poorest in the state. On average the Basin exceeds the Federal health-based standards for ground-level ozone 35 to 40 days per year, and exceeds the more stringent California standards for ozone more than 100 days per year. The Basin exceeds the Federal standards for airborne particles (PM10) less than five times annually, and exceeds the more stringent California standards for PM10 an average of 90 to 100 days per year.

Currently, the Basin is classified as extreme non-attainment for the Federal ground-level ozone and PM10 standards. The Basin is classified as severe non-attainment for the California ozone standard and non-attainment for the State PM10 standard. The Stanislaus County portion of the Basin is in attainment for both Federal and State carbon monoxide (CO) standards.

According to the Air District, motor vehicles account for approximately 57 percent of the air pollution in the Basin. Reducing vehicle miles traveled (VMTs) is a key goal of the Air District, and implementing the non-motorized transportation network will help achieve this goal by providing
Modesto residents safe and functional ways to get to work, school, or shopping without using a motor vehicles. The current number of daily bicycle commuters in Modesto is estimated to be 3,965 riders, making a total of 7,931 daily trips and saving an estimated 15,066 VMTs per weekday. With implementation of the non-motorized transportation network by 2020, it is estimated that bicycle commuting will increase to 11,053 daily bicycle riders making 20,105 daily trips and saving an approximately 41,992 VMTs per weekday.

Table 4-3 quantifies the estimated reduction in VMT’s in Modesto following implementation of the non-motorized transportation network, and the estimated reduction in air pollutants based on the best available local and national data. The proposed bikeway system in Modesto will increase the bicycle mode share of trips from less than one percent in 2000 (U.S. Census) to over two percent by 2020. This will result in an estimated decrease of 773 lbs/day of PM10, 2,095 lbs/day of ROG, and 3,048 lbs/day of NOX.

BICYCLE AND PEDESTRIAN SAFETY AND ACCIDENT ANALYSIS

Safety is a major concern of both existing and potential bicyclists. For those who ride, it is typically an on-going concern or even a distraction. For those who don't ride, it is one of the most compelling reasons not to ride. In discussing bicycle safety, it is important to separate out perceived dangers versus actual safety hazards.

Bicycle riding on-street is commonly perceived as unsafe because of the exposure of a lightweight, two-wheeled vehicle to heavier and faster moving automobiles, trucks and buses. Actual accident statistics, however, show that bicyclists face only a marginally higher degree of sustaining an injury than a motorist based on numbers of users and miles traveled. Death rates are essentially the same with bicyclists as with motorists. Bicycle-vehicle accidents are much less likely to happen than bicycle-bicycle, bicycle-pedestrian, or accidents caused by physical conditions. The majority of reported bicycle accidents show the bicyclist to be at fault; generally, these involve younger bicyclists riding on the wrong side of the road or being hit broadside by a vehicle at an intersection or driveway.

Statewide Integrated Traffic Records System (SWITRS) accident data for bicycle and pedestrian collisions was collected for the calendar years 1998, 1999 and 2000 in Modesto, and is presented in Table 4-4.
## Table 4-3

Bicycle Commute and Air Quality Projections

<table>
<thead>
<tr>
<th>Current Commuting Statistics</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>189,460 Source: 2000 US Census</td>
</tr>
<tr>
<td>Number of Employed Persons</td>
<td>74,878 Source: 2000 US Census</td>
</tr>
<tr>
<td>Number of Bicycle-to-Work Commuters</td>
<td>558 Source: 2000 US Census</td>
</tr>
<tr>
<td>Bicycle-to-Work Mode Share</td>
<td>0.75% Calculated from above</td>
</tr>
<tr>
<td>School Children Grades K-8</td>
<td>30,481 2000 US Census, population ages 6-14</td>
</tr>
<tr>
<td>Estimated School Bicycle Commuters</td>
<td>1,524 Calculated based on existing estimates of biking to school</td>
</tr>
<tr>
<td>Number of College Students</td>
<td>11,539 2000 US Census</td>
</tr>
<tr>
<td>Estimated College Bicycle Commuters</td>
<td>231 Calculated based on existing estimates of biking to college</td>
</tr>
<tr>
<td>Average Weekday MAX Ridership</td>
<td>11,600 American Public Transportation Assn.</td>
</tr>
<tr>
<td>Number of Daily Bike-Transit Users</td>
<td>102 Calculated based on existing surveys of bike transit use</td>
</tr>
<tr>
<td>Utilitarian Bicycle Trips</td>
<td>1,550</td>
</tr>
</tbody>
</table>

### Existing Bicycle Commuters

| Total Number of Bicycle Commuters             | 3,965 Total of bike-to-work, transit, school, college and utilitarian bicycle trips. Does not include recreation. |
| Total Daily Bicycle Trips                    | 7,931 Total bicycle commuters x 2 (for round trips)                                               |
| Reduced Vehicle Trips per Weekday            | 5,180 Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children |
| Reduced Vehicle Miles per Weekday            | 15,066 Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren |

### Future Bicycle Commuters

| Number of Future Daily Bicycle Commuters     | 11,053 Estimated using increase to 279% of baseline from 2000 Los Angeles County MTA study |
| Future Total Daily Bicycle Trips             | 22,105 Calculated from above                                                             |
| Future Reduced Vehicle Trips per Weekday     | 14,438 Calculated from above                                                             |
| Future Reduced Vehicle Miles per Weekday     | 41,992 Calculated from above                                                             |
| Future Reduced Vehicle Miles per Year        | 3,794,540 180 days for students, and 256 days for employed persons                      |

### Future Air Quality Benefits

| Reduced PM10 (tons/weekday)                  | 773 (.0184 tons per reduced mile)                                                        |
| Reduced NOX (tons/weekday)                   | 2,095 (.04988 tons per reduced mile)                                                     |
| Reduced ROG (tons/weekday)                   | 3,048 (.0726 tons per reduced mile)                                                      |
| Reduced PM10 (tons/year)                     | 69,820 (.0184 tons per reduced mile)                                                     |
| Reduced NOX (tons/year)                      | 189,271 (.04988 tons per reduced mile)                                                   |
| Reduced ROG (tons/year)                      | 275,484 (.0726 tons per reduced mile)                                                    |

**Notes:**
Sources as noted in the table. For detailed calculations, see “Estimation of Existing Bicycle Usage” spreadsheet provided in the Appendix to this Plan.
Table 4-4
Modesto Bicycle and Pedestrian Collision Summary 1998-2000

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Bicycle Collisions</th>
<th>3 Year Total</th>
<th>Annual Average</th>
<th>Avg. Annual Collisions per 1,000 Population</th>
<th>Relative Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>Fatal 2 Injury 91</td>
<td>275</td>
<td>92</td>
<td>0.49</td>
<td>1.4</td>
</tr>
<tr>
<td>1999</td>
<td>Fatal 1 Injury 70</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>Fatal 1 Injury 110</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Pedestrian Collisions</th>
<th>3 Year Total</th>
<th>Annual Average</th>
<th>Avg. Annual Collisions per 1,000 Population</th>
<th>Relative Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>Fatal 2 Injury 85</td>
<td>250</td>
<td>83</td>
<td>0.44</td>
<td>1.1</td>
</tr>
<tr>
<td>1999</td>
<td>Fatal 4 Injury 79</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>Fatal 2 Injury 78</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
2. 2000 Census population for city of Modesto of 189,460.
3. Relative to California annual average of 0.36 bicycle collisions per 1,000 population for period of 1998-2000.
4. Relative to California annual average of 0.42 pedestrian collisions per 1,000 population for period of 1998-2000.

The Modesto Police Department enforces all traffic laws, for bicycles and motor vehicles as part of their regular duties. They ticket violators as they see them. This includes bicyclists who break traffic laws, as well as motorists who disobey traffic laws and make the cycling environment more dangerous. The level of enforcement depends on the availability of officers. The Police Department also responds to particular needs and problems as they arise.

BICYCLIST NEEDS

The purpose of reviewing the needs of bicyclists is twofold: (a) it is instrumental when planning a system that must serve both commuter and recreational user groups; and (b) it is useful when attempting to quantify future usage and benefits to justify expenditures of resources. According to a nationwide 1991 Lou Harris Poll, it was reported that “...nearly 3 million adults (about one in 60) already commute by bike, and projected the number could rise to 35 million if more bicycle friendly transportation systems existed.” In short, there is a large reservoir of potential bicyclists who don’t ride (or ride more often) simply because they do not feel comfortable using the existing street system and/or don’t have appropriate bicycle facilities at their destination.

Key general observations about bicycling needs in Modesto include:

- Bicyclists are typically separated between experienced and casual riders. The U.S. Department of Transportation identifies thresholds of traffic volumes, speeds, and curb lanes where less experienced bicyclists begin to feel uncomfortable. For example, on an arterial with traffic moving between 30 and 40 miles per hour, less experienced bicyclists require bike lanes while more experienced bicyclists can comfortably use streets with wide curb lanes.
• Casual riders include those who feel less comfortable negotiating traffic. Others such as children and the elderly may have difficulty gauging traffic, responding to changing conditions, or moving rapidly enough to clear intersections. Other bicyclists, experienced or not, may be willing to sacrifice time by avoiding heavily traveled arterials and using quieter side streets. In some cases, casual riders may perceive side streets (or sidewalks) as being safer alternatives than major through routes, when in fact they may be less safe. Other attributes of the casual bicyclist include cycling shorter distances than the experienced rider and unfamiliarity with many of the rules of the road.

• The casual bicyclist will benefit from route markers, bike lanes, wider curb lanes, and educational programs. Casual bicyclists may also benefit from marked routes that lead to parks, museums, historic districts, and other visitor destinations.

• Experienced bicyclists include those who prefer the most direct, through route between origin and destination, and a preference for riding within or near the travel lanes. Experienced bicyclists negotiate streets in much the same manner as motor vehicles, merging across traffic to make left turns, and avoiding bike lanes and shoulders that contain gravel and glass. The experienced bicyclist will benefit from wider curb lanes and loop detectors at signals. The experienced bicyclist who is primarily interested in exercise will benefit from loop routes that lead back to the point of origin.

• Bicycles themselves range in cost from about $200 to over $2,000 for adult models. The most popular bicycle types today are the hybrid or mountain bike. These relatively lightweight bicycles feature wider knobby tires that can handle both on-road and off-road conditions, from 10 to 27 gears, and up-right handlebars. Advanced versions have features such as front and rear shocks to help steady the rider on rough terrain. The “10-speed” bicycles of years past have evolved into a sophisticated ultra-light “road bike” that is used primarily by the serious long distance adult bicyclists. These machines feature very narrow tires that are more susceptible to flats and blowouts from debris on the roadway.

• Who rides bicycles? While the majority of Americans (and Modesto residents) own bicycles, most of these people are recreational riders who ride relatively infrequently. School children between the ages of about 6 and 14 typically make up a large percentage of the bicycle riders today, often riding to school, parks, or other local destinations on a daily basis, weather permitting. The serious adult road bicyclist who may compete in races, “centuries” (100 mile tours) and/or ride for exercise makes up a small but important segment of bikeway users, along with serious off-road mountain bicyclists who enjoy riding on trails and dirt roads. The single biggest adult group of bicyclists is the intermittent recreational rider who generally prefers to ride on pathways or quiet side streets.

RECREATIONAL BICYCLIST NEEDS

The term “recreational” cyclist covers a broad range of skill and fitness levels. Recreational cyclists in Modesto can range from a “roadie” who joins 50 mile group rides on weekends, to a family with young children who occasionally want to ride a couple miles down a quiet bike path, and all levels in between. A cyclist’s level of skill, fitness, and comfort on the road will determine what type of facility they are looking for. The needs of recreational bicyclists must be understood prior to developing a system or set of improvements. While it is not possible to serve every neighborhood
and every need, a good plan will integrate recreational needs to the extent possible. The following points summarize recreational needs:

- Recreational users cover all age groups from children to adults to senior citizens. Each group has their own abilities, interests, and needs.
- Directness of route is typically less important than routes with less traffic conflicts, visual interest, shade, and protection from wind, moderate gradients, or other features.
- People exercising or touring often (though not always) prefer a loop route rather than having to backtrack.

In order to characterize the differences in recreational cyclists, this study breaks this category into two subcategories: “Road Cyclists” and “Casual Cyclists,” acknowledging that these are generalizations and that the average cyclist may have attributes of both user groups.

**Road Cyclists**
Road cyclists are those who will bike almost exclusively on street, because roadways are the type of facility that accommodates their desire for higher speeds, longer distances, and few conflicts with other recreational users. Typical trip distances for the road cyclist can range from 10 miles to over 50 miles. While the average road cyclist would likely prefer to ride on roads with little or no traffic, they are generally comfortable riding in traffic if necessary. To this end, a road cyclist will tend to ride in a manner similar to a motor vehicle (e.g. when approaching traffic signals or making left turns). Road cyclists are typically not seeking a recreational destination along the route, as the ride itself is the recreation. In fact, special cycling clothing and shoes and the lack of a bicycle lock, tends to limit the ability of the road cyclist to park and walk around off the bike.

Due to the relatively narrow width and thin casing of standard road bike tires, road cyclists are often susceptible to flat tires. As such, road cyclists are very concerned about glass, rocks, and other debris on the road or in the shoulder. In addition, loose material on the road such as sand or gravel can cause skinny road tires to lose traction and wash out on curves. Since most road debris tends to end up in the shoulder, road cyclists will tend to move into the travel lane if any debris is present in the shoulder that might cause a flat tire or other hazard. This can sometimes lead to conflicts with motor vehicles, as many motorists don’t understand why a cyclist is riding in the lane if there is a seemingly good shoulder available.

The Stanislaus County Bicycle Club offers a number of regular group rides for road cyclists in the area. Several of these rides depart from Modesto, and head out on rural roads toward Riverbank, Oakdale, Knights Ferry, and other destinations. These cyclists typically want to get out of the urban area as quickly as possible and onto more scenic, low-traffic rural roads that are not interrupted by as many traffic controls, cross-streets, and other potential conflict points.

**Casual Cyclists**
Casual recreational cyclists are those who generally want to ride on off-street bike paths, are seeking a more relaxed cycling experience, and cover shorter trip distances at slower speeds. Casual cyclists will tend to do trips of less than 10 miles in length, and often ride more comfort-oriented bikes,
hybrid or mountain bikes. Casual cyclists may ride as a family group, with children, and because they are more likely to ride with others of varying skill and fitness levels, flat topography is generally desired. Casual cyclists are typically not comfortable riding in traffic, and will avoid riding on busy streets when possible, riding on the sidewalk if necessary. Bike routes that extend through low-traffic residential streets are generally acceptable for casual cyclists, even if they are not the most direct route between destinations. Casual cyclists may load their bikes in their cars and drive to a bike path, and are more likely in need of parking areas. Having recreational amenities and features along the route is more important to the casual cyclists, such as drinking fountains, shaded areas, picnic tables, interpretive signs, and scenic vistas. Recreational destinations are also important for casual cyclists, as they provide a place to stop and get off the bike and walk around. To this end, having secure bike parking at destinations is important.

Modesto currently offers several excellent recreational bicycle routes for different types of bicycle riders. These include bike paths for the less experienced rider such as the Dry Creek Bike Path, Hetch-Hetchy Path, and Tuolumne River Park path. Low-traffic farm roads outside the City limits offer longer distance riders options for multi-hour rides; however cyclists that live in Modesto want good routes to access these roads.

Some of the most obvious deficiencies for bicyclists in Modesto are the lack of public awareness of bicycling opportunities and the lack connectivity to regional recreation destinations and facilities such as parks and rest stops. Many roads within the City lack shoulders or sufficient width for bicyclists, inhibiting some of the less adventuresome riders. Finally, there is demonstrated demand for additional bike paths where families, children, and others can ride closer to home without having to worry about traffic.

One common problem on bike paths or multi-use trails is conflicts between bicyclists, pedestrians, roller bladers, and others. As a bike path begins to exceed 200 people per hour, those conflicts become more of a problem unless the path has adequate width (at least 8 feet), unpaved shoulders for walkers, and adequate signing and enforcement. Regardless of the design and operation, many experienced riders choose not to use bike paths because of the unpredictability of other users. Accident studies have shown that most bicycle-related accidents involve other bicyclists or pedestrians, rather than automobiles. As such, bike paths should be designed to separate users as much as possible and the system should not depend on bike paths for critical connections to serve all riders.

With a favorable climate and topography available to meet the needs of the average rider, as well as the most advanced, recreational riders abound in Modesto. Bicycle clubs such as the Stanislaus Bicycle Club provide both the serious and casual recreational rider the opportunity to ride socially and be guided through the maze of country roads to scenic destinations.

These recreational routes will be used as part of the evaluation criteria for selecting connection points to destinations outside Modesto. Recreational bicyclist needs will be met by planning, designing, and implementing a series of bike routes that connect to adjacent cities in Stanislaus County, as well as increase accessibility to routes that lead outside town and cities away from traffic and congestion.
COMMUTER BICYCLIST NEEDS

As this Non-Motorized Transportation Plan, and available state and federal bicycle funding is primarily focused on commuting cyclists -- those riding to work or school, or for shopping, errands, and other utilitarian trips -- it is important to understand the specific needs of bicycle commuters.

Commuter bicyclists in Modesto range from employees who ride to work to a child who rides to school to people riding to shops. Millions of dollars have been spent attempting to increase the number of people who ride to work or school, with moderate success. Bicycling requires shorter commutes, which runs counter to our many of our nation’s past land use and transportation policies, which effectively encouraged people to live further, and further from where they work. Access to transit helps extend the commute range of cyclists, but transit systems also face an increasingly dispersed live-work pattern that is difficult to serve. Despite these facts, Modesto has a great potential to increase the number of people who ride to work or school because of (a) concentrated employment centers such as downtown and the industrial areas, (b) a favorable, flat topography, (c) a moderate climate, and (d) a high percentage of work trips that are less than 20 minutes.

For example, bicycle commuters in the City of Davis have reduced peak hour traffic volumes by over 15 percent -- to the point that many downtown streets that would normally be four lanes of traffic (with no bike lanes) have only two traffic lanes and ample room for bicyclists. While Davis may be an anomaly, national surveys have shown that about 20 percent of the adult population would use a bicycle to ride to work at least occasionally if there were a properly designed bikeway system.

Commuter and student destinations in Modesto include downtown, industrial employment areas, office parks, agricultural processing operations, hospitals, elementary, junior high and high schools, and the Modesto Junior College campuses. Targeting bikeway improvements to commuters is important because most roadway congestion and a significant portion of air contaminants occur during the AM and PM periods.

Key commuter needs are summarized below.

- Commuter walking or bicycling typically falls into one of two categories: (1) adult employees, and (2) younger students.
- Commuter trips range from several blocks to one or more miles.
- Commuters typically seek the most direct and fastest route available, with regular adult commuters often preferring to ride on arterials rather than side streets.
- Commute periods typically coincide with peak traffic volumes and congestion, increasing the exposure to potential conflicts with vehicles.
- Places to safely store bicycles are of paramount importance to all bicycle commuters.
- Major commuter concerns include changes in weather (rain and Tule fog), riding in darkness, personal safety and security.
• Rather than be directed to side streets, most commuting cyclists would prefer to be given bike lanes or wider curb lanes on direct routes.

• Unprotected intersections in general are the primary concerns of all bicycle commuters.

• Many younger students use sidewalks for riding to schools or parks, which is acceptable in areas where pedestrian volumes are low and driveway visibility is high. Where on street parking and/or landscaping obscures visibility, sidewalk riders may be exposed to a higher incidence of accidents. Older students who consistently ride at speeds over 10 mph should be directed to riding on street wherever possible.

• Cyclists riding the wrong-way on-street are common and typically account for many recorded accidents, pointing to the need for education

As noted earlier, Modesto, like most of California and the country, currently has a bicycle commute mode split of less than one percent. The National Bicycling and Walking Study adopted by the U.S. Department of Transportation calls for a five-percent bicycle commute mode split by the year 2005.

Commuters and students follow similar paths, which is typically the most direct possible route from origin to destination. For grammar school students, this may consist of residential or collector streets, with few crossings of major arterials. For junior high and high school students, riders may have to cross up to five or six arterials to reach school. For college students and adult commuters, trips are most often under five miles but may be as long as 10 or 15 miles.

Unfortunately, commuters and students need to travel during periods of peak traffic activity, and to destinations that may have high levels of congestion and traffic volumes/speeds. For example, one of the most dangerous parts of a young student’s commute is the drop-off zone in front of their school where dozens of vehicles jockey for position.

Once they have arrived at their destinations, bicycle commuters often find no (or poor) bicycle racks, and no showers or lockers. Rather than providing an incentive for bicyclists, most schools and employers inadvertently discourage bicyclists while continuing to subsidize parking for the automobile.

Commuting bicyclists have very obvious and straightforward needs. They require bike lanes or wider curb lanes along all arterials and collectors, loop detectors at signalized intersections, new signals where school children need to cross busy arterials, adequate maintenance of the pavement, and adequate bicycle storage and showers at their destinations. Any other local or employer based incentive to encourage bicycling to work would help to achieve the five-percent commute goal.

Most commute bicycle trips are under five miles and therefore not regional trips, except for those commuters linking to another mode such as at an Amtrak Station, transit stop, or park and ride lot. Allowing bicycles on other modes such as rail or bus, or providing bicycle lockers at multi-modal stations will help extend the range of the bicycle commuter. Other bicycle commuters will depend on a well-devised local bikeway network produced by a city in its bicycle transportation plan.
These destinations noted above will be used as criteria in the selection of the Updated Non-Motorized Transportation network.

**PEDESTRIAN NEEDS**

Pedestrians in Modesto can be categorized depending on trip types. Pedestrian trip types include those associated with: traveling to work, transit or other multi-modal facilities, school, recreation and entertainment, health and exercise, shopping, social events, personal errands, appointments, and linked trips (for example, running errands on the way to work). Pedestrian needs for different trip types vary. For example, a commuter may desire a well-connected direct route with efficient signal timing, while a recreational pedestrian may be more concerned about the aesthetics of the surroundings. However, all pedestrians have several needs in common, such as safety, connectivity, and accessibility. These are the primary needs that have been identified in Modesto.

Pedestrians can also be grouped into several user classes based on age. Pedestrian systems should generally be designed to accommodate all age groups. Table 4-5 identifies and defines these age groupings.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 0 to 4</td>
<td>• Learning to walk</td>
</tr>
<tr>
<td></td>
<td>• Developing peripheral vision, depth perception</td>
</tr>
<tr>
<td></td>
<td>• Requiring constant parental supervision</td>
</tr>
<tr>
<td>Age 5 to 12</td>
<td>• Increasing independence but still requiring supervision</td>
</tr>
<tr>
<td></td>
<td>• Susceptible to “dart out” or intersection dash</td>
</tr>
<tr>
<td></td>
<td>• Poor depth perception</td>
</tr>
<tr>
<td>Age 13 to 18</td>
<td>• Sense of invulnerability</td>
</tr>
<tr>
<td></td>
<td>• Intersection dash</td>
</tr>
<tr>
<td>Age 19 to 40</td>
<td>• Active, fully aware of traffic environment</td>
</tr>
<tr>
<td>Age 41 to 65</td>
<td>• May be some slowing of reflexes</td>
</tr>
<tr>
<td>Age 65+</td>
<td>• Some street crossing difficulty</td>
</tr>
<tr>
<td></td>
<td>• Some difficulty hearing vehicles approaching from behind</td>
</tr>
<tr>
<td></td>
<td>• Poorer vision</td>
</tr>
<tr>
<td></td>
<td>• High fatality rate</td>
</tr>
</tbody>
</table>

Pedestrian mobility networks should consider persons with disabilities. The Americans with Disabilities Act (ADA) mandates that reasonable accommodation for access should be afforded those who may need such assistance. The specific accommodations needed for West Hollywood are described in more detail in Chapter 6. The City has already incorporated many accommodations, including curb ramps for wheelchair access on sidewalks, audible pedestrian signals for the vision impaired, and smooth surfaces on sidewalks.
Based on field observations and input provided in the public input process, the most critical needs of pedestrians in Modesto include the following.

1. Increase safety and visibility at unsignalized crosswalks
2. Increased enforcement of traffic laws
3. Implementation of a motorist and pedestrian educational campaign
4. Widened sidewalks along some streets
5. Removal of utility poles and other obstacles on sidewalks
6. Improved maintenance of sidewalks and crosswalks

OPPORTUNITIES AND CONSTRAINTS

CANAL RIGHTS-OF-WAY

Modesto has several irrigation canal laterals, linear corridors that provide an opportunity to accommodate off-street non-motorized transportation facilities. The major irrigation laterals within Modesto are under the jurisdiction of the Modesto Irrigation District and the Turlock Irrigation District. These irrigation laterals pass through both urbanized and non-urbanized portions of Modesto. It is within the urbanized areas that the canals provide the greatest opportunity to accommodate bicycle or pedestrian pathways.

A number of irrigation canal rights-of-way were identified in the 1996 Non-Motorized Transportation Master Plan as “Proposed Paths.” These include segments of Laterals Number 1, 2, 3, 4, 5, and 6 that pass within the urbanized portion of Modesto. To date, no trail development has occurred along any irrigation canal rights-of-way within Modesto.

Modesto Irrigation District has been reluctant to allow public bikeway development on the canal rights-of-way, primarily due to concerns about liability, safety, trespassing, vandalism, and disruptions in maintenance. Adjacent landowners may also be opposed to developing a trail on a canal right-of-way that borders their property, due to concerns about safety and trespass and loss of privacy. Many homeowners that live adjacent to canal rights-of-way already use the unpaved maintenance roads along the canal as informal recreational trails, and there is often reluctance to develop these as formal trails due to concerns about bringing more people to an area.

HETCH-HETCHY AQUEDUCT RIGHT-OF-WAY

The Hetch-Hetchy water pipeline, which is operated by the San Francisco Public Utilities Commission, extends diagonally east-west through the northwestern portion of Modesto. The water pipeline supplies water from Hetch-Hetchy Reservoir in Yosemite National Park to the City of San Francisco. The pipeline is below ground through the City of Modesto, on a right-of-way that is approximately 100 feet in width. High-tension power lines are located above ground along the right-of-way.
The Hetch-Hetchy right-of-way was identified in the 1996 Non-Motorized Transportation Master Plan as a Proposed Path across the entire City limits. After reaching an agreement with the City and County of San Francisco, the City of Modesto developed a three-mile Class I bike path along the Hetch-Hetchy right-of-way from Sisk Road to Semallon Drive. The next phase of the Hetchy-Hetchy bike path will extend east to McHenry Avenue, and then beyond to Claribel Road.

**MAIN RAIL LINES**

Two main rail lines pass through Modesto: the Union Pacific Line on the western edge of town that parallel SR-99, and the Atcheson, Topeka and Santa Fe lines that extend along the eastern edge of town. Both lines are main freight rail lines between northern and southern California. Amtrak passenger service runs on the ATSF corridor, stopping at the Modesto Amtrak station off Briggsmore Avenue. As with irrigation canals, linear rail line corridors provide an opportunity to accommodate off-street non-motorized transportation facilities.

The 1996 Non-Motorized Transportation Master Plan shows the ATSF corridor as a Proposed Path. The UP right-of-way is not shown as a proposed path; instead a pathway is shown following SR-99 in this corridor.

As with the canal rights-of-way, railroad operators are often reluctant to allow public bikeway development on along active rail corridors, primarily due to concerns about liability, safety, trespass, vandalism, and disruptions in maintenance. However, numerous bicycle paths have been built alongside active rail lines across the United States. With proper design features, these “rail-with-trails” can serve as excellent transportation and recreational corridors for non-motorized uses. Specific rail-with-trail design issues are discussed in the design guidelines chapter of this Master Plan.

**VIRGINIA CORRIDOR**

The former Tidewater Southern rail corridor, subsequently purchased by Union Pacific railroad, was formally abandoned in 2000. The City of Modesto acquired the corridor, and began planning efforts to develop a recreational trail known as the “Virginia Corridor” trail. Phase II of the Virginia Corridor trail will extend from Roseburg to Orangeburg. In April 2003, the tracks were removed from the Virginia Corridor, and construction of the Phase I is expected to be completed at the end of 2004. Ultimately, the Virginia Corridor trail is expected to extend from Needham Street in downtown Modesto north to Bangs Avenue at the northern City Limit.

**STATE ROUTE 99**

State Route 99 (SR-99) is a major north-south freeway that extends diagonally southeast to northwest through the western portion of Modesto. SR-99 poses a considerable barrier to east-west non-motorized transportation. It provides few crossing locations, and high-speed traffic at the freeway ramps may make it uncomfortable for bicyclists and pedestrians.
SR-99 crossing locations within the city of Modesto are:

- Pelandale Avenue (overcrossing)
- Standiford Avenue (overcrossing)
- Carpenter Road (overcrossing)
- Coldwell Avenue (overcrossing)
- Kansas Avenue (overcrossing)
- Maze Boulevard (overcrossing)
- K Street (overcrossing)
- I Street (overcrossing)
- H Street (overcrossing)
- G Street (overcrossing)
- Sierra Drive (overcrossing)
- Tuolumne Boulevard (undercrossing)
- Zeff Road (undercrossing)
- Crows Landing Road (overcrossing)
- 9th Street (overcrossing)

TUOLUMNE RIVER, DRY CREEK, AND STANISLAUS RIVER CORRIDORS

The Tuolumne and Stanislaus Rivers and Dry Creek present both opportunities and constraints to the development of the non-motorized transportation system. Both the Tuolumne River and Dry Creek have existing parkland and bicycle paths adjacent to their banks. Extending the Tuolumne River bike path system, and connecting to the existing Dry Creek path presents a tremendous recreational opportunity. The Tuolumne River Regional Park Master Plan calls for this pathway to be extended along the river for the entire length of the Park between Carpenter Road and Mitchell Road for a total distance of approximately 7 miles. A connector path to the Dry Creek Bike Path is planned to extend through Beard Brook Park. Constraints to pathway development include existing development adjacent to the river, limited crossing locations, and potential environmental and flooding issues.
PUBLIC OUTREACH

On May 22, 2003, the City of Modesto convened the first of a series of planned workshops to receive community input for its Non-Motorized Transportation Master Plan Update. Fifteen participants attended the meeting. The meeting was facilitated by Bob Ford, Project Coordinator with the Modesto Parks, Recreation and Neighborhoods Department, and a consulting team consisting of representatives from Alta Planning + Design, Inc. (Alta) and Moore Iacofano Goltsman, Inc. (MIG).

Following an introductory slide show describing the project, the meeting was opened to a guided discussion focusing on planning goals, non-motorized transportation elements that are currently working well and those that are performing poorly, and proposed improvements to the City’s non-motorized transportation network and infrastructure. It was emphasized that the scope of the planning be inclusive of multiple modes of non-motorized transit, including pedestrian, bicycle, inline skating, wheelchair and general disability access.

PARTICIPANT DISCUSSION

Comments provided by participants both orally as well as written on comment cards are summarized below.

Goals of the Plan

Participants were asked to describe what their goals were for the Non-Motorized Transportation Master Plan. The following goals were recorded:

- Enhance safety.
- Enhance enforcement and awareness.
- Promote mutual respect between motorized and non-motorized users.
- Improve connectivity of non-motorized routes, both within Modesto and inter-city.
- Establish non-motorized modes as viable transportation/commuting modes.
- Create bike and pedestrian-friendly design for ALL roadways, new and existing.
- Provide adequate improvements.
- Coordinate with regional bike plan.
- Coordinate and cooperate with other planning efforts.
- Integrate non-motorized transportation elements into the City’s General Plan.

What’s Working?

Participants were asked to describe what aspects of the existing Non-Motorized Transportation network in Modesto are working well. The following comments were recorded:
• Curb ramps
• Good surface condition
• Good maintenance, especially re-painted bike lanes
• Right-turn pockets—Great design standard
• Good citywide infrastructure!
• Great community events, e.g. Bike-to-Work Day
• Good downtown bike parking

What’s Not Working?
Participants were then asked to describe what aspects of the existing Non-Motorized Transportation network in Modesto are not working well. The following comments were recorded:

• Lack of coordination and plan implementation—available funds are not being used.
• Lack of bike actuated signals.
• Policy constraints for bikes, especially on arterials—General Plan issue.
• Lack of lane width for cyclists—shoulder space too narrow.
• Lack of safe connections on paths and major routes.
• Inadequate pathway lighting.
• Speeding motorists and an auto-dominated culture.
• Poor safety on major corridors.
• Dangerous linkage points of existing paths, e.g. Benzinger at Scenic.

What Should Be Done?
Finally, participants were asked to describe what aspects of the existing Non-Motorized Transportation network in Modesto are working well. The following comments were recorded:

• Conduct an education campaign.
• Expand access to: 1) parks, 2) schools, 3) downtown/errand-destinations.
• Utilize public utility easements for new trails.
• Capitalize on railroad corridors.
• Develop additional routes and paths, both commuter-oriented and recreational.
• Improve safety at major linkages and intersections.
• Focus on funding strategies for priority projects.
• Recognize and attempt to balance diverse needs.
• Identify pedestrian and bike neighborhood connectors.
• Support citizen advocacy for plan implementation.
• Counterbalance developers’ political influence.
• Provide pedestrian-friendly signalization, especially timing.
• Address disability amenities and infrastructure: additional curb cuts and wheelchair access, ensuring wheelchair inclusivity in planning.
• Ensure adequate street lighting.
• Seek funding through Safe Routes to Schools.
• Install better directional signage, especially at linkages.
• Connect southwest, which is currently blocked by Highway 99 and railroad tracks, with greater community.
• Connect Tuolumne River Regional Park to community.
• Connect Salida to Modesto.
• Apply better trail maintenance.
5. BICYCLE IMPROVEMENTS

The recommended bicycle improvements for the City of Modesto consist of a bikeway network and bicycle support facilities. The recommended bikeway network, which includes Class I bike paths, Class II bike lanes, and Class III bike routes, connects residential neighborhoods in Modesto with schools, parks, community centers, libraries, commercial centers, and other destinations. The recommended bicycle support facilities and programs include parking facilities, sidewalk management practices, and signage programs.

RECOMMENDED BIKEWAY NETWORK

A bikeway network is a system of bikeways that, for a variety of reasons, including safety and convenience, provides a superior level of service for bicyclists and/or is targeted for improvements by the City due to existing deficiencies. It is important to recognize that, by law, bicyclists are allowed on all streets and roads regardless of whether they are a part of the bikeway network. The bikeway network is a tool that allows the City to plan for the future and to focus and prioritize implementation efforts where they will provide the greatest benefit to bicyclists and the community at large.

The established methodology for selecting a bikeway network for any community begins with the primary effort to receive input from the local bicycling community and local staff familiar with the best routes and existing constraints and opportunities. Input can be received through a variety of means, but it is typically received through the public workshop format. Surveys of bicyclists and community members can also serve a valuable role in this process as well.

The following criteria were used to develop the bicycle network:

- Existing Bicycling Patterns - Public workshop participants identified preferred bicycling patterns.
- Connectivity – System connectivity, providing access from one bikeway corridor to the next, is important.
- Traffic volumes and travel speeds - Higher volume and higher speed roads are typically acceptable to more experienced cyclists; lower volume and lower speed roads are typically preferred by the less experienced cyclists.
- Amount of side friction (driveways, side streets) - Bicyclists prefer roads that minimize potential side street conflicts.
- Curb-to-curb width - Bicyclists prefer roads with wider riding areas.
- Pavement condition - Bicyclists prefer smooth roadways.
5. Bicycle Improvements

- Access from residential areas - Corridors that provide access from residential areas are preferred.
- Number of destinations served - Corridors that maximize the number of destinations served, schools, parks, employment centers, and multi-modal terminals such as the Amtrak Station, are preferred.
- Integration into the regional system - Connectivity to the regional system is preferred.
- Adjacent land use - The compatibility with adjacent land uses is important.
- On-street parking - Bicyclists prefer roads that minimize potential conflicts with parked vehicles.
- Incident data and safety concerns - Corridors that maximize safety are preferred.
- Existing opportunities such as planned roadway improvements - Integrating recommended bike facility improvements into planned roadway improvements is preferred.
- Routes with intersection protection and minimal delay - Bicyclists prefer corridors that minimize stopping requirements for the bicyclists while maximizing stopping requirements for conflicting vehicle traffic.

The recommended Modesto bikeway network shown in **Figure 5-1** and **Figures 5-2** focuses on connecting and extending existing segments of the Virginia, Hetch-Hetchy and Tuolumne River Trails, addressing routes used by bicyclists, and focusing on specific opportunities and constraints. The grid arterial/collector street pattern offers several distinct through corridors which connects residential areas with significant destinations such as Downtown Modesto, the Tuolumne River Regional Park, Dry Creek Regional Park, Modesto Junior College’s East and West Campuses, the new Amtrak station near Santa Fe Avenue, schools, and parks. Class III bike routes are proposed on a variety of local routes and regional connecting routes. Bikeway improvements will include intersection enhancement (such as bike lane pockets, loop detectors, and stenciling where needed), wider curb lanes where possible, and enhanced bikeway and directional signage.

New Class I bike paths are proposed to extend the existing Tuolumne River Regional Park Trail, Dry Creek Regional Park Trail, and the Hetch-Hetchy Trail. A new Class I path is proposed along the Union Pacific Railroad line, parallel to 9th Street through downtown. The planned Virginia Corridor Trail along the former Tidewater Southern railroad right-of-way is included as well as a Class I facilities along Briggsmore Avenue, and the Pelandale Extension.

New Class II bike lanes are recommended for Paradise Road, South 9th Street, Crows Landing Road and Needham Avenue Streets to provide access to planned bike routes in Downtown Modesto. Class II bike lanes would also be extended and installed on Scenic Road, Dale Road, Oakdale Road, Carpenter Road and Roselle Avenue. Additional short Class II segments are recommended as necessary.

New Class III bike routes are recommended for nearly all Modesto neighborhoods. These routes increase overall connectivity as well and provide direct connections for local destinations like downtown Modesto, schools and parks.
Figure 5-1
Existing and Proposed Bikeways

Source: City of Modesto, Stanislaus County
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Figure 5-2
Existing and Proposed Bikeways
Downtown
Source: City of Modesto, Stanislaus County
RECOMMENDED BICYCLE PROJECTS

BICYCLE PARKING PROGRAM

Bicycle parking includes standard bike racks, covered lockers, and corrals. Bicycle parking should be installed on public property, or available to private entities on an at-cost basis. Bike racks are provided at many local schools and various other locations in Modesto, but overall the lack of safe and secure bicycle parking is a concern of bicyclists who may wish to ride to work or to shop. Theft and vandalism of bicycles, especially now that bicycles are often worth in excess of $250 to $2,000, is a major impediment to bicycle riding. Showers and lockers are essential end-of-trip facilities, providing comfort and greater security for commuters, and encourage more people to bicycle to work. A systematic program to improve the quality and increase the quantity of bicycle parking facilities should be implemented in Modesto.

RECOMMENDATIONS

Increase Public Bicycle Parking Facilities

Bike racks and lockers should be provided at public destinations, including park-and-ride lots, major bus stops, community centers, parks, and schools. All bicycle parking should be in a safe, secure, covered area (if possible). Commuter locations should provide secure indoor parking, covered bicycle corrals, or Class I bicycle lockers. Bicycle parking on sidewalks in commercial areas should be provided according to specific design criteria, reviewed by merchants and the public, and installed as demand warrants. As a general rule, ‘U’ type racks bolted into the sidewalk are preferred on downtown sidewalks, to be located intermittently and/or at specific bicycle destinations (such as bike shops). A program to fund and install these facilities could begin as a joint-agency project between the City of Modesto and the Stanislaus County Transportation Commission.

Adopt a Bicycle Parking Ordinance

Consider adoption of a bicycle parking ordinance, which will require that bicycle parking facilities be included in all new commercial and office development projects in Modesto. For example, all new commercial development or redevelopment in excess of 40,000 gross leasable square feet should be required to provide one secure indoor bicycle parking space (i.e. in a parking garage or basement) per 10 employees.

The City currently has no requirements for bicycle parking accommodations. This ordinance would be a complement to the public parking program, which would add parking facilities to existing commercial and office locations. A model bicycle parking zoning ordinance is provided in the Appendix to this Plan.

Encourage Provision of Shower and Locker Facilities

Encouraging employers to provide shower and locker facilities for employees should be a component of all commute and traffic demand management programs as those facilities provide for current commuters and may encourage more commuters to ride their bicycles. Several cities have requirements for shower and locker facilities in new and reconstructed developments. For example, the model planning ordinance for the City of San Francisco, provided in the Appendix, requires that new industrial and commercial developments over 10,000 gross square feet in floor area must provide one shower and two clothes lockers.
**Construct Bicycle Corrals at Local Schools**

A special program to construct bicycle corrals where needed at Modesto area schools should be started. A corral is a fenced-in area at a major destination, such as a school or an event, secured either through lock or by an attendant, where bicycles can be securely parked. These simple enclosed facilities are locked from the beginning to the end of school, and address the theft and vandalism concerns of students.

**Provide Valet Bike Parking at Public Events**

A new program to provide closed-in secure bicycle corrals at all major special events, such as summer concerts in the park, should be instituted to encourage residents and visitors to bicycle rather than attempt to drive. The appropriate agency or organization should sponsor this corral and seek volunteers (such as from the Stanislaus County Bicycle Club) to staff the corral during the events.

**Improve Parking at the Amtrak Station and Other Transit Facilities**

A bicycle locker program should be implemented at the Modesto Amtrak Station, downtown transit center, and for all new bike locker installations in the City. Administration procedures should include a program that rents out lockers to an individual for a given period of time for a determined fee. This method of locker administration has been successful in improving safety and preventing people from using the lockers for a purpose other than their intended use.

**SIDEWALK MANAGEMENT**

The use of sidewalks as bicycle facilities is not encouraged by Caltrans, even as a Class III bike route. There are exceptions to this rule. The California Vehicle Code states: “Local authorities may adopt rules and regulations by ordinance or resolution regarding the...operation of bicycles...on the public sidewalks.” (CA VC 21100, Subdiv. H). Caltrans adds in Chapter 1000: “In residential areas, sidewalk riding by young children too inexperienced to ride in the street is common. But it is inappropriate to sign these facilities as bikeways. Bicyclists should not be encouraged (through signing) to ride facilities that are not designed to accommodate bicycle travel.” The key problems to be addressed through design and operational improvements are bicyclists riding at high speeds (over 7-8 mph) and in an unsafe manner (particularly riding in the opposite direction of adjacent vehicle traffic) on sidewalks, rather than younger bicyclists using the sidewalks to reach school. The following actions are recommended to address this problem.

**RECOMMENDATIONS**

**Allow Children to Bicycle on Neighborhood Sidewalks**

Adopt Caltrans recommendations for sidewalk management and specifically allow school children and adults accompanying them to ride bicycles on sidewalks. Consider the use of stencils and signs (supported by a City-adopted resolution) to prohibit bicycle riding on sidewalks in areas where shop or car doors open directly onto sidewalks (sidewalks located within shopping centers, etc.). Also, consider the use of stencils and signs (supported by a City-adopted resolution) to prohibit bicycle riding on sidewalks in areas where there are numerous driveways. Modification of the existing code on bicycle riding on sidewalks should be made to accommodate children riding bicycles with wheels that are more than 20 inches in diameter. Currently, according to municipal code Section 4-3.22
bicycles with wheels larger than this diameter size are strictly prohibited on sidewalks. The code may be better suited to allow bicycling on the sidewalk paths that exist in the City as well as those that will be built in the future.

**Sign and Stencil Potential Conflict Areas as “No Bicycling”**

Signing and stenciling should be used at certain locations as appropriate to prohibit or permit bicycle riding on sidewalks, prohibit bicyclists riding in the opposite direction of vehicle traffic, or require bicyclists to walk their bicycle:

- **a.** In high pedestrian activity areas where there has been a documented bicycle-pedestrian collision pattern (and at the City Traffic Engineer’s discretion), the City should install stenciling or signing (such as “No Bicycling on Sidewalk”). This signing and stenciling would primarily be recommended for commercial areas where the buildings are located directly on the public sidewalk (no setbacks) and people exiting the building have no opportunity to see bicyclists.

- **b.** An option to completely prohibit bicyclists over 12 years old from using sidewalks is to post signs reading “Bicyclists Yield to Pedestrians” with a symbol of a pedestrian on a sidewalk and a bicyclist walking their bicycle next to that figure. This sign may be posted where there have been conflicts in the past.

- **c.** At locations where there are numerous driveways and documented incidents of bicyclists riding in the opposite direction of adjacent vehicle traffic, the city should install signing and stenciling (such as “No Bicycles, Wrong Way” or “No Bicycling this Direction”).

**Shared Bicycle and Pedestrian Sidewalk or Path Facilities**

In areas where there are right-of-way limitations that limit the ability to provide on-street bicycle facilities, or areas where traffic volumes and speeds may warrant an off-street facility, and it may be desirable to provide for combined off-street bicycle and pedestrian facilities. In general, these facilities should be designed to Class I bikeway standards set forth by Caltrans Chapter 1000. For specific locations, it may be desirable to allow bicycle travel on non-Class I facilities (e.g. sidewalks) for short distances. For any facilities expected to be used by both pedestrians and bicyclists should be signed and stenciled to note the multiple use, post a bicycle speed limit, and consider delineating separate pedestrian and bicycle zones to separate user traffic. This recommendation should not be viewed as an overall policy to encourage bicycling on sidewalks in lieu of providing Class II or III on-street facilities, but is simply a tool that the city can use to provide off-street facilities under certain circumstances.

**SIGNING AND STRIPING**

All bikeway signing on public roadways in Modesto should conform to the signing identified in the Caltrans Traffic Manual and/or the Manual on Uniform Traffic Control Devices (MUTCD). These documents give specific information on the type and location of signing for bicycle facilities in the Modesto bikeway network.
5. Bicycle Improvements

RECOMMENDATIONS

Designated Bikeway Signs
The installation of bikeway signs on all designated bicycle facilities is important to heighten motorist awareness and help cyclists find their way. Installing signage is something that can be implemented easily compared to major striping revisions or bike path construction and should be implemented as a priority. An example of where this applies is on Existing Class III Bike Routes where installation of several signs will complete a designated route.

Wayfinding Signage
Wayfinding signage can enhance a bikeway network by providing directional assistance to bicycle facilities and significant local and regional destinations. It is recommended that the City of Modesto design bikeway network directional signage for use on the primary network. This signage program would work as a map on the street, identifying designated routes connecting to key destinations in Modesto (and beyond). The signage may also include mileage information.

PROTECT BICYCLE FACILITIES FROM REMOVAL

RECOMMENDATION: Implement a policy that existing bikeway facilities will not be removed. For example, Class II bike lane facilities will not be removed at a future date to increase motor vehicle capacity without a thorough study analyzing the alternatives.

MULTI-MODAL CONNECTIONS

RECOMMENDATION: Modesto Area Express should continue to equip all transit buses operating within Modesto with bicycle racks. Bicycle travel to transit stops and stations should be enhanced in order to make the transfer between bicycle and transit travel as convenient as possible. Bicycle parking facilities should be considered for implementation at key local transit bus stops. Parking facilities already exist at the downtown transit center and Amtrak station. These facilities should be enhanced with the addition of fully enclosed bicycle lockers.

BICYCLE DETECTOR LOOPS

RECOMMENDATION: At appropriate signalized intersections, install and mark traffic detection loops that are responsive to bicycles. Signal detectors and stencils identifying where bicyclists place their bicycles to trigger signals should be reviewed and approved by the City staff prior to implementation. Specific implementation criteria may include sensitivity, impact of overlay projects, cost, and need. Possible alternatives to signal detectors may include the use of push button signal activators that are well-marked and convenient for bicyclists to use. All signal detectors should be checked regularly to ensure that they are functioning correctly.

CONSTRUCTION ACTIVITIES

RECOMMENDATION: Consider impacts on bicycles while performing construction, maintenance and repair work on roadways and trails.

- Provide suitable construction warning signs for any activities that involve work in a designated bikeway.
5. Bicycle Improvements

- Where necessary, provide detour routes around areas undergoing construction.

Detailed guidelines are provided in the Appendix for accommodating bicycles in construction zones.

RURAL ROADS IMPROVEMENT PROGRAM

Bicycle use on the roads outside of the developed portions of Modesto consists of both recreational and commuting use and will grow as population and urban development increase. Rural roads typically are located outside developed areas and have no (or limited) curbs, gutters, or sidewalks. There are also roadways within the developed areas that may be considered rural roads as well. People cite a variety of problems on rural roads throughout the area, which are packaged into one effective set of program recommendations here. This rural roads improvement program would provide a mechanism to address specific problems at locations along Modesto’s rural roads, which could be addressed through a combination of any of the following ways:

1. Advisory and warning signs
2. Shoulder widening or new shoulders
3. Travel lane re-stripping where excess width available
4. New or improved turnouts
5. Enhanced roadway surface maintenance

Note that bike lanes could be included in this list, but are not commonly used in rural areas due to the large number of required signs and stencils. The City should work with community members, Stanislaus County, and neighboring city staffs to select improvements each year and develop a cost estimate for the appropriate improvements. Some of roadways that would qualify for such improvements may include roadways that extend north from Modesto City Limits to the Stanislaus River, and east of Modesto City Limits.

These improvements should be implemented if deemed feasible, funded and approved by the City of Modesto City Council, Stanislaus County, and the Stanislaus Council of Governments.

OVERVIEW OF PRIORITY PROJECTS

The recommended Modesto bikeway network shown in Figure 5-1 focuses on providing north-south and east-west on-street bikeways and off street paths that facilitate cross-town trips, provide access to major destinations, and provide for regional connectivity.

The section that follows identifies the recommended Priority Projects and provides project sheets that describe the specific elements of each project and some of the primary design and implementation issues. A complete street-by-street listing of the proposed new bikeway facilities with cost estimates is provided in Chapter 8, Implementation.
The following Priority Project sheets are broken down by Class I Bike Paths, Class II Bike Lanes, and Class III Bike Routes, and are listed in alphabetical order—no ranking or order of importance within this priority list is implied. The Modesto City Council is free to implement projects in whatever order is most appropriate, as funding opportunities arise, new development occurs, or right-of-way is acquired. This project list should be viewed as flexible, and may change over time as new opportunities arise.

Depending upon ultimate configuration and timing of development, installation of some Priority Projects may require roadway widening, narrowing or elimination of travel lanes, narrowing or elimination of parking lanes, or acquisition of additional right of way. Additional feasibility or traffic analysis may be required on some project segments prior to implementation.

**LIST OF PRIORITY PROJECTS**

**Class I Bike Paths**
- Briggsmore Class I
- Carpenter Road Class I (south of Maze)
- Dry Creek Extension to Tuolumne River Regional Park Class I
- Hetch Hetchy Class I
- Kiernan/Claribel Class I
- Maze Boulevard Class I
- MJC East West Campus Off-Street Connector Class I
- Modesto and Turlock Irrigation District Lateral Canals Class I
- Pelandale Expressway Class I
- Tuolumne River Trail Class I
- Veneman Class I Connector
- Virginia Corridor Class I

**Class II Bike Lanes**
- Carpenter Road Class II (north of Maze)
- Claus Road Class II
- Coffee to Dry Creek Connector Class II
- Crows Landing Road Class II
- Floyd Avenue Class II and III
- Merle Avenue to Grogan Park Class II and III
Class II, continued
- MJC East West Campus On-Street Connector Class II
- Needham Class II
- Oakdale Road Class II
- Paradise Road Class II
- Roselle/Lakewood Class II
- Scenic Class II
- Sylvan Class II Extension
- Whitmore Avenue Class II
- 12th Street/Virginia Connector Class II/III

Class III Bike Routes
- Conant Avenue/Marsala Way Class III
- Crater Avenue Class III Connector
- Downtown G and H Class III
- Downtown 10th and 11th Class III
- E. Union Avenue/Sylvan Meadows Class III
- Emerald Avenue/Panama Drive/Harris Avenue Class III
- Floyd Avenue Class III
- Miller Avenue Class III
- Mariposa Road Class III
- MLK/Sutter Class III
- Oranegburg/Amtrak Class III
- Riverside to Sutton Park Class III
- Rosemore Avenue Class III
- Santa Cruz Avenue/Covena Avenue Class III
- S. Morton Boulevard/Mono Drive Class III
- Sunrise Dragoo Park Class III
- Snyder Class III
- 14th Street Class II Extension
5. Bicycle Improvements

PRIORITY CLASS I BIKE PATH PROJECTS
5. Bicycle Improvements

PRIORITY PROJECT

BRIGGSMORE AVENUE TRAIL CLASS I

The Briggsmore Avenue Trail would be a major addition to Modesto’s bicycle and pedestrian commuter network, including a connection to the Memorial Medical Center. The trail would follow Briggsmore Avenue and the Modesto Irrigation District Lateral Canal No. 3, providing a major east-west route connecting with two north-south bike lanes, the Virginia Corridor Trail, and the proposed Claus Road Trail. The Briggsmore Avenue Trail would stretch from the intersection of Briggsmore Avenue and Coffee Road at the western terminus and extend east to the city limits, providing access to the Amtrak Station.

Wayfinding signage should be installed along the path, directing bicyclists to other bicycle facilities and significant destinations like the Amtrak Station.
PRIORITY PROJECT

CARPENTER ROAD CLASS I

The Carpenter Road Class I path would provide a north-south connection along Carpenter Road between Maze and Whitmore. This facility would connect to the proposed bike path along Maze, to the proposed Tuolumne River bike path, to the proposed irrigation canal path at Whitmore, and to the proposed Class II bike lanes along Whitmore.

Wayfinding signage should be installed along the Carpenter Road Class I path, directing bicyclists to other bicycle facilities and other significant destinations.
**PRIORIT PROJECT**

**CLAUS ROAD CLASS I**

The Claus Road Class I path would provide a north-south connection along the eastern edge of Modesto. The path would connect Kiernan Avenue in the north with the Class I facility at East Briggsmore Avenue. A Class I bike path is also proposed for Claus road south of E. Briggsmore and to E. Orange. The Claus road Class I path will enable bicyclists to connect to Grogan Park as well as the Irrigation Canal Class I paths and the Amtrak Station by way of E. Briggsmore. The Claus Class I path is also proposed between Creekwood Drive and Yosemite Boulevard at the southeastern part of the city.

Wayfinding signage should be installed along the Claus Road Class I path, directing bicyclists to other bicycle facilities and other significant destinations.
PRIORITY PROJECT

DRY CREEK EXTENSION TO TUOLUMNE RIVER REGIONAL PARK
CLASS I

The Dry Creek Class I trail extension will connect Dry Creek Regional Park and Kewin Park with Downtown Modesto and the Tuolumne River Regional Park. The existing Dry Creek Trail terminates at Kewin Park on the trail’s western end. Extending the trail further west will connect Downtown with the recreation areas in the east, along the Tuolumne River. The extension of the Dry Creek Trail will require crossing the river, possibly at La Loma, as well as crossing Yosemite Boulevard. Additional feasibility study may be required to identify the best possible alignment for the trail extension, as well as any segments which may need to be Class II or III.

Wayfinding signage should be installed along the Dry Creek Extension, directing bicyclists to other bicycle facilities, as well as significant destinations like the Tuolumne River Regional Park.
PRIORITI PROJECT

HETCH-HETCHY BICYCLE TRAIL EXTENSION CLASS I

The existing Hetch-Hetchy Class I Bicycle trail travels for approximately 3 miles within the Hetch-Hetchy utility corridor from Sisk Road to Semallon Drive, where it intersects with the proposed Virginia Corridor Trail right-of-way. The next phase of the Hetch-Hetchy Trail would extend another mile northeast, across McHenry Avenue to Claratina Avenue. The extension to Claratina Avenue has been estimated to cost about $500,000. The Hetch-Hetchy Trail could then be extended beyond the current Modesto City Limits to the Modesto “Sphere of Influence” Limits at Claribel Road, just east of Oakdale Road. The Hetch-Hetchy Trail currently connects with existing and proposed bicycle network facilities on Standiford Road, Tully Road and Coffee Road.

Wayfinding signage should be installed along the trail, directing bicyclists to other bicycle facilities and significant destinations.

Class I facilities provide safe and enjoyable access for a variety of users that may use the path for both recreation and commute purposes.
PRIORIT PROJECT

KIERNAN AVENUE/CLARIBEL ROAD CLASS I

The Kiernan Avenue/Claribel Road Class I facility would form a northern boundary for the City of Modesto’s bicycle network. The path would extend from Highway 99 to the west and Claus Road to the east. This project would also connect with proposed facilities where Kiernan Avenue/Claribel Road intersects with the Virginia Corridor Trail, the Hetch-Hetchy Trail, Tully Road, Coffee Road, and Oakdale Road. Because Kiernan Avenue/Claribel Road form State Highway 219, negotiations with Caltrans regarding use of the right-of-way would be necessary.

Wayfinding signage should be installed along the path, directing bicyclists to other bicycle facilities and significant destinations.

A Class I Trail along Kiernan Avenue would form the northern boundary of the Modesto Bicycle Network, while providing trail that would extend almost the entire east-west length of the City.
PRIORITY PROJECT

MAZE BOULEVARD CLASS I

The Maze Boulevard Class I path would run from 6th Street in the east to Dakota Avenue in the west. The path would provide connections from Downtown Modesto to the Rosemore Class III route which feeds into Modesto Junior College West. The Class I path would be located on the north side of Maze Boulevard.

Wayfinding signage should be installed along the Maze Boulevard Class I path, directing bicyclists to other bicycle facilities as well as significant destinations like Downtown Modesto.

Maze Boulevard has a wide existing shoulder that can accommodate the installation of bicycle lanes on most segments of the roadway. This facility will provide a connection to Modesto’s westernmost areas.
PRIORITY PROJECT

MJC EAST-WEST CAMPUS OFF-STREET CONNECTOR CLASS I

The East and West Modesto Junior College (MJC) Campuses are separated by major roads, SR-99, and the active Union Pacific Railroad line. Classes may be taken at both campuses, and many students and instructors currently drive between campuses, which has led to roadway congestion and parking problems. A designated bicycle facility between the campuses will enhance the safety of bicyclists going between campuses and may encourage bicycle commuter trips instead of auto trips, thus reducing the demand on local roads and parking.

An Off-Street campus connector could be developed utilizing the Union Pacific Railroad right-of-way for a Class I rail-with-trail facility. A campus connection could be made using the rail-with-trail facility by facilitating access from the West Campus to the trail via Brink Avenue. The Class I rail-with-trail would extend along the western portion of the Union Pacific right-of-way from Brink Avenue south to Coldwell Avenue. At Coldwell Avenue, the MJC connector route would transition to on-street bikeways to the East Campus.

Wayfinding signage should be installed along the path, directing bicyclists to other bicycle facilities and destinations like MJC East and West.
5. Bicycle Improvements

PRIORITY PROJECT

MODESTO AND TURLOCK IRRIGATION DISTRICT LATERAL CANALS CLASS I

Modesto and Turlock Irrigation District canals traverse Modesto providing potential for Class I paths. The lateral canals are flanked by existing service roads that could provide essential off-street connections running east-west across Modesto. The service roads may be enhanced for multiple uses through paving, or may remain in their existing unpaved state. In order to develop Class I paths along the irrigation canals, the Modesto and Turlock Irrigation Districts must enter into agreements with the City of Modesto permitting access along the service roads. The City may pursue an easement with the Irrigation Districts to ensure the legal use of their canal service roads by the public. The Modesto and Turlock Irrigation District Canals that have been identified as potential Class I paths are:

- Modesto Irrigation District Lateral Canal No. 1
- Modesto Irrigation District Lateral Canal No. 2
- Modesto Irrigation District Lateral Canal No. 3
- Modesto Irrigation District Lateral Canal No. 4
- Modesto Irrigation District Lateral Canal No. 5
- Modesto Irrigation District Lateral Canal No. 6/Modesto Main Canal
- Modesto Irrigation District Lateral Canal No. 7
- Turlock Irrigation District Lateral Canal No. 1

Wayfinding signage should be installed along the canals, directing bicyclists to other bicycle facilities as well as significant destinations.
PRIORIT Y PROJECT

PELANDALE AVENUE EXPRESSWAY CLASS I

The Pelandale Avenue Expressway Class I facility would provide a bicycle path along the northern Modesto city limits and would connect to the proposed Hetch-Hetchy Aqueduct bicycle trail extension. The Pelandale Avenue Expressway path would also intersect with existing bicycle facilities on Tully Road, Coffee Road and Beyer Park Drive. The Path would span from SR-99 in the west, following the development of Pelandale Avenue Expressway, to eastern Modesto.

Wayfinding signage should be installed along the Pelandale Avenue Expressway Class I path, directing bicyclists to other bicycle facilities and significant destinations.

Segments of this project are recommended in the Stanislaus County Regional Bicycle Action Plan.
Tuolumne River Regional Park is one of Modesto’s most valuable recreational assets. The Tuolumne River Regional Park includes several developed park sites along the Tuolumne River in southern Modesto. The City developed a Master Plan to provide for connections and additional recreational development within the Park. As part of the Master Plan, a Class I trail system was added. The setting is scenic and removed from traffic, inviting a diverse range of users from all ages and skill levels. An expansion of the facility may even benefit commuters as the trail would stretch from east to west almost the entire width of southern Modesto, connecting the chain of parks along the Tuolumne River. The existing Class I Trail runs within the Tuolumne River Regional Park from Mitchell Road to Tioga Drive. This project proposes to extend the trail westward along the entire north bank of the Tuolumne River within Modesto, from Mitchell Road to Carpenter Road.

Wayfinding signage should be installed along the trail, directing bicyclists and other users to other bicycle and trail facilities as well as significant destinations such as Downtown Modesto.
PRIORITY PROJECT

VENEMAN CLASS I CONNECTOR

The Veneman Class I Connector links Veneman Avenue with the Class II facility along Standiford Avenue in northwest Modesto. This Class I connector also provides a connection with the Lateral Canal No. 7 Class I facility, enabling users of the canal path to transition onto city streets at this point.

Wayfinding signage should be installed along the Veneman Class I Connector, directing bicyclists to other bicycle facilities as well as significant destinations like the Vintage Faire Mall.
PRIORITY PROJECT

VIRGINIA CORRIDOR TRAIL CLASS I

This project would provide for a major 4-mile north-south Class I trail through the heart of Modesto along the former Tidewater Southern rail corridor. The project is to be implemented in seven phases. Phases I-IV include intersection improvements and trail installation from Needham Street to Granger Avenue, and are scheduled to be completed in 2005. From Granger Avenue, the trail will extend north along the former railroad right-of-way to just south of Bangs Avenue in north Modesto. Providing a connection between central and north Modesto to the downtown district and the Tuolumne River and Dry Creek trail system, the Virginia Corridor Trail has the potential of becoming a major commute route for bicyclists and pedestrians. Providing this alternative route may reduce vehicle traffic on the north-south roadways such as McHenry Avenue. The project includes the construction of pedestrian bridges over three major streets: Briggsmore, Standiford, and Pelandale Avenues. The Virginia Corridor Trail proposal is a product of an existing City of Modesto Master Plan.

Wayfinding signage should be installed along the Virginia Corridor Trail, directing bicyclists and other users to other bicycle and trail facilities as well as significant destinations.
5. Bicycle Improvements

PRIORITy CLASS II BIKE LANE PROJECTS
PRIORITY PROJECT

CARPENTER ROAD CLASS II

Currently Modesto has only one bicycle route west of SR-99. Carpenter Road is a major north-south arterial in the western part of the City, connecting Tuolumne River Regional Park with the West Campus of Modesto Junior College. The Carpenter Road Class II would provide a connection from Maze Boulevard north to the MJC West Campus at Blue Gum (overlapping with a segment of the MJC Campus Connector On-Street Route).

Wayfinding signage should be installed directing bicyclists to the two MJC campuses, as well as other bicycle facilities and significant destinations. “Bike Lane” signage and pavement stencils should be installed at the beginning and end of every block.

There is a short segment of Carpenter Road that features an existing bicycle lane just south of the MJC West campus. The bicycle lane would be extended all the way to Paradise Road.
PRIORITIY PROJECT

COFFEE ROAD TO DRY CREEK TRAIL CONNECTOR CLASS II

Currently, the existing bicycle lanes on Coffee Road terminate north of Scenic Drive. On the south side of Scenic Drive there is a vacant lot with a trail entry that connects to the bicycle and pedestrian trail that in Dry Creek Regional Park. The City has plans for a trailhead parking lot in this location. The Coffee Road to Dry Creek Trail Connector would provide a clear, safe and efficient connection from the bike lanes on Coffee Road to the creek crossing. This project would require extending the Class II lanes on Coffee Road to the intersection with Scenic Drive, installing a bike lane pocket between the right and left turn lanes, installing wayfinding signage to direct bicyclists and pedestrians where to cross Scenic Drive from Coffee Road, installing new loop-detector signal actuators in the pavement. There are two existing push-button crossing signal devices (one is shown in lower left corner of photo below), but these are poorly marked and should placed in a more convenient location.

This connector project should also include an effort by the City to work with landowner of the vacant lot to enhance the trail entry by installing signage and landscaping appropriate for a designated trailhead. If right-of-way is available, a small trailhead parking lot should be provided.

Wayfinding signage should be installed along the route, directing cyclists to other bicycle facilities as well as significant destinations. “Bike Lane” signage and stenciling should be installed.

A designated and safe crossing at the intersection of Coffee Road and Scenic Drive is needed. In addition, the vacant lot adjacent to the Dry Creek Trail entry should be designed as a developed as an attractive and formal entry.
5. Bicycle Improvements

PRIORIT Y PROJECT

CROWS LANDING ROAD CLASS II

The Crows Landing Road Class II Facility project would provide Class II bike lanes on Crows Landing from Whitmore Avenue to SR-99. This project would link to proposed bike lanes on Whitmore, and proposed bike paths along the Tuolumne River and along the Union Pacific Railroad right-of-way.

Wayfinding signage should be installed directing bicyclists other bicycle facilities and significant destinations. “Bike Lane” signage and pavement stencils should be installed at the beginning and end of every block.
5. Bicycle Improvements

PRIORITIZED PROJECT

FLOYD AVENUE CLASS II AND III

The Floyd Avenue Class II and III route provides an east-west connection in the northeastern part of Modesto. The route connects Fine Avenue on the eastern edge of the City with McHenry Avenue (SR 108) at its western terminus. Class II bike lanes are recommended on Floyd Avenue from Fine to Oakdale. From Oakdale to McHenry, a Class III bike route is recommended. The Floyd Avenue Class II/III route provides access to Sylvan Elementary School and Somerset Middle School. Grogan, Ustach and Basin Parks can be accessed via Floyd Avenue in conjunction with the connecting Class III Merle Avenue to Grogan Park route.

Wayfinding signage should be installed along the route, directing bicyclists to other bicycle facilities and significant destinations, such as the Grogan Park and the Amtrak Station. “Bike Lane” and “Bike Route” signage, as appropriate, should also be installed every quarter-mile and at signalized intersections.
5. Bicycle Improvements

PRIORITIY PROJECT

MERLE AVENUE TO GROGAN PARK CLASS II AND III

The Merle Avenue to Grogan Park Class II and III route begins as a bike route along Celeste Way at Rose Avenue. The route travels east to Oakdale Road and continues as a Class II bike lane to Fine Avenue where it shifts orientation to travel north to Grogan Park by way of Kodiak Drive and Litt Road. The Merle Avenue route features an additional branch, along Lincoln Oak Drive to Kodiak Drive and Bear Cub Lane, which connects cyclists to Orchard Park and Ustach and Basin Parks. Access is provided to Orchard Elementary School and Elizabeth Ustach Middle School by way of the Route. The Merle Avenue to Grogan Park route connects to proposed Class II routes along Lakewood Avenue and Oakdale Road, as well as existing neighborhood Class III routes at Rose Avenue and Celeste Way. Cyclists may use the Merle Avenue to Grogan Park route to connect to the Amtrak Station via Class II routes and the existing East Orangeburg Class III route with proposed Amtrak connection segment.

Wayfinding signage should be installed along the Merle Avenue to Grogan Park route, directing bicyclists to other bicycle facilities and significant destinations, such as the Grogan Park and the Amtrak Station. “Bike Lane” and “Bike Route” signage, as appropriate, should also be installed every quarter-mile and at signalized intersections.
PRIORITY PROJECT

MJC EAST-WEST CAMPUS ON-STREET CONNECTOR CLASS II

The East and West Modesto Junior College Campuses are separated by major roads, SR-99, and the active Union Pacific Railroad line. Classes may be taken at both campuses, and many students and instructors currently drive between campuses, which has led to roadway congestion and parking problems. A designated bicycle facility between the campuses will enhance the safety of current bicyclists going between campuses and may encourage bicycle commutes instead of auto trips, thus reducing the demand on local roads and parking.

The implementation of the MJC Connector route would involve the development of new Class II bike lanes on Coldwell/Woodland extending west from the East Campus, and new Class II bike lanes on Carpenter north from Woodland to the West Campus.

This proposed route is not an ideal campus connector primarily due to the steep and somewhat narrow Woodland Avenue/Highway 99 overpass. It does not appear that sufficient width exists for Class II lanes on the overcrossing; therefore appropriate warning signage will be necessary at this constrained location. Wayfinding signage directing bicyclists to the campuses and other bicycle facilities should be installed as well as “Bike Route” signage (MUTCD D11-1) on every block.

As a long-term project, it is recommended that an Off-Street campus connector be developed utilizing the UP Railroad right-of-way for a Class I rail-with-trail facility. This project is discussed in more detail under MJC East-West Campus Off-Street Connector.

Segments of this project are recommended in the Stanislaus County Regional Bicycle Action Plan.

This railroad crossing is on Woodland Avenue just west of 9th Avenue. Bicyclists currently use Woodland because it is one of the only at-grade crossings of the railroad in the northern part of Modesto.
PRIORITY PROJECT

NEEDHAM CLASS II

Located near the SR-99 corridor in eastern Modesto, the Needham Class II facility connects Downtown Modesto with other areas in the east. The facility also enables bicyclists to access Modesto Junior College East, using the Class II spur along College Avenue. The facility connects to other Class III facilities in the Downtown area at 11th and 12th Streets. Traveling south on 12th Street, bicyclists may rejoin 9th Street after H Street.

“Bike Lane” pavement stencils and signage should be installed at the beginning and end of every block. Wayfinding signage should also be installed directing bicyclists to other bicycle facilities and significant destinations, particularly where the route shifts.
5. Bicycle Improvements

**PRIORITY PROJECT**

**OAKDALE ROAD CLASS II**

The Oakdale Road Class II Facility project would provide north-south bicycle lanes from Sylvan Avenue to Kiernan Avenue. The Oakdale Road lanes would connect to three proposed east-west bike paths, as well as the existing and proposed facilities on Standiford Avenue. Class II bicycle lanes on Oakdale Road would be installed by removing the outside northbound travel lane for some segments, or removing the midblock left turn lane for other segments. In both instances the bicycle lane would be dropped at the approach to the intersection to accommodate for the turning movement. In the long-term, it is recommended that the road be widened in northern stretches of Oakdale where the unpaved shoulder ranges from 5 – 10 feet wide.

Wayfinding signage directing bicyclists to other bicycle facilities and significant destinations should be installed. In addition, “Bike Lane” signage and pavement stencils should be installed at the beginning and end of every block.

This project is recommended in the Stanislaus County Regional Bicycle Action Plan.

*Bicycle lanes on Oakdale would be installed by removing a travel lane or the midblock left turn lane. At intersections, the bike lanes would be dropped to accommodate for right or left turn lanes as needed.*
PRIORITY PROJECT

PARADISE ROAD CLASS II

Currently Modesto has only one bicycle route west of SR-99. Paradise Road is a major arterial connecting from the southwest corner of the city into Downtown at 1st and H Streets. The Paradise Road Class II would continue the G and H Street bike routes in a southwesterly direction, connecting to Carpenter Road.

Wayfinding signage should be installed directing bicyclists to other bicycle facilities and significant destinations. “Bike Lane” signage and pavement stencils should be installed at the beginning and end of every block.

Segments of this project are recommended in the Stanislaus County Regional Bicycle Action Plan.

Paradise Road features mixed-residential, public and commercial land uses and will provide a vital bicycle facility for southwestern Modesto.
5. Bicycle Improvements

PRIORITY PROJECT

ROSELLE/LAKEWOOD CLASS II

There are currently no bicycle facilities provided in a portion of northeastern Modesto. The Roselle/Lakewood Class II lanes would connect the northeastern area of Modesto bounded by Oakdale, Claus, Kiernan, and Scenic. This project would include a Class II route on Roselle Avenue between Scenic and Kiernan. This Class II segment would provide a connection to several east west facilities.

“Bike Lane” pavement stencils and signage should be installed at the beginning and end of every block. Wayfinding signage should also be installed directing bicyclists to other bicycle facilities and significant destinations.

Segments of this project are recommended in the Stanislaus County Regional Bicycle Action Plan.

This section of Lakewood/Roselle could accommodate bicycle lanes by narrowing the northbound auto travel lane. Narrowing the travel lane will also help to reduce speed in this segment, enhancing the safety of school children.
PRIORITY PROJECT

SCENIC DRIVE CLASS II

The Scenic Drive Class II Facility project would provide bicycle lanes from Spring Creek Drive to Claus Road. The Scenic Drive lanes would provide a valuable connection toward downtown for commuters from the central eastern neighborhoods of Modesto. There is an existing Class II bike lane on Scenic Drive that runs between Springcreek Drive and Sonoma Avenue. The Class II Bike lanes on Scenic may be installed by narrowing the two outside lanes in each direction.

Wayfinding signage directing bicyclists to other bicycle facilities and significant destinations should be installed. In addition, “Bike Lane” signage and pavement stencils should be installed at the beginning and end of every block.

This project is recommended in the Stanislaus County Regional Bicycle Action Plan.
PRIORITy PROJECT

SYLVAN AVENUE EXTENSION CLASS II

The Sylvan Avenue Class II Facility project would provide an extension of the existing Class II bike lanes on Sylvan Avenue from Oakdale Road to Claus Road. This project would provide a continuation of one of the major east-west connectors in the northern part of the city, and connect to the proposed Class II facilities on Roselle and Claus.

Wayfinding signage should be installed directing bicyclists other bicycle facilities and significant destinations. “Bike Lane” signage and pavement stencils should be installed at the beginning and end of every block.

The proposed extension of Class II facilities on Standiford/Sylvan Road would require widening the western segment of Sylvan Road, as shown above, just west of the Sylvan Road and Claus Road intersection.
PRIORITY PROJECT

WHITMORE AVENUE CLASS II

The Whitmore Avenue Class II Facility project would provide Class II bike lanes on Whitmore Avenue from S. Carpenter Road to SR-99. This project would link to a proposed bike path on S. Carpenter, proposed bike lanes on Crows Landing, and a proposed bike route on Ustick and Dallas connecting to a future bike/ped bridge over the Tuolumne River.

Wayfinding signage should be installed directing bicyclists other bicycle facilities and significant destinations. “Bike Lane” signage and pavement stencils should be installed at the beginning and end of every block.
PRIORITY PROJECT

12TH STREET/VIRGINIA CONNECTOR CLASS II AND III

The 12th Street/Virginia Connector Class II facility provides a link to the Class I Virginia Corridor Trail, running north-south in Downtown Modesto. The Class II bike lanes on Virginia Street and Class III bike route on 12th Street would enable bicyclists to travel from northern Modesto to Downtown via the Virginia Corridor Trail. The Connector will provide a link to Downtown and other bicycle facilities from the Class I trail. The 12th Street/Virginia facility would link to east west corridors at Needham, and at H and G Streets via J and 9th Streets.

Wayfinding signage should be installed directing bicyclists other bicycle facilities and significant destinations. “Bike Lane” signage and pavement stencils should be installed at the beginning and end of every block.
5. Bicycle Improvements

PRIORITY CLASS III BIKE ROUTE PROJECTS
PRIORITY PROJECT

CONANT AVENUE/MARSALA WAY CLASS III

The Conant Avenue/Marsala Way Class III route provides a north-south connection between Snyder Avenue and Sisk Road. The route connects from Conant Avenue to Marsala Avenue along Veneman Avenue. This route features numerous connections to existing and proposed neighborhood routes traveling west to Vintage Faire Mall, or east to other destinations in northern Modesto. The Conant Avenue/Marsala Way route also provides access to Josephine Chrysler Elementary School and Prescott Senior Elementary School, via W. Rumble Street.

Wayfinding signage should be installed along the Conant Avenue/Marsala Way route, directing bicyclists to other bicycle facilities and significant destinations, such as neighborhood schools and Vintage Faire Mall. “Bike Route” signage should also be installed every quarter-mile and at signalized intersections.
5. Bicycle Improvements

PRIORITIZED PROJECT

CRATER AVENUE CLASS III CONNECTOR

The Crater Avenue Class III connector route features two north-south legs that connect from Whitmore Avenue in the south to the Tuolumne River at the north: Dallas Street and Ustick Road, connected by Crater Avenue running east-west along the Tuolumne River. A proposed connection to the Tuolumne River Regional Park and new bicycle/pedestrian bridge near the intersection of Crater Avenue and Dallas Street will provide residents of this southeastern Modesto neighborhood with an additional connection to downtown, via the Sutter/MLK Class III route.

Wayfinding signage should be installed along the Whitmore Avenue/Crater Avenue route, directing bicyclists to other bicycle facilities and significant destinations, such as the Tuolumne River Regional Park, Downtown Modesto, and the Dryden Park Municipal Golf Course. “Bike Route” signage should also be installed every quarter-mile and at signalized intersections.
PRIORITY PROJECT

DOWNTOWN G AND H STREETS CLASS III

The Downtown G and H Streets Class III facilities project would provide bicycle routes in downtown Modesto, an area currently lacking in such facilities. The proposed routes would run on G and H Streets from First to Burney Streets. G and H Streets are parallel, one-way couplets that would provide commuter access to the Library, City Hall, Modesto Police station, Employment Development Division building, and the County Office of Education, as well as the nearby Modesto Convention Center. The routes would also connect to the existing bicycle routes on La Loma Avenue and Kimble Street at the northern end of the proposed segment. The southern terminus of the proposed segments would be at the intersections of G and H Streets at First Street, in front of Modesto High School.

“Bike Route” signage should be installed every quarter mile and at signalized intersections. Wayfinding signage should also be installed directing bicyclists to other bicycle facilities and significant destinations.

This project is identified in the Stanislaus County Regional Bicycle Action Plan.
PRIORIT PROJECT

DOWNTOWN 11TH AND 10TH STREETS CLASS III

The Downtown 11th and 10th Street Class III facility project would provide a north-south bike route facility through downtown Modesto. The proposed routes would begin on 11th Street at Needham, providing a connection to the on-street MJC East-West Campus connector lanes. From Needham, bike routes would extend south along 11th street to J Street. At J Street, the through-route would shift one block west to 10th Street. The bike routes would continue south on 10th Street, connecting to the Tuolumne River Regional Gateway Park.

“Bike Route” signage should be installed every quarter mile and at signalized intersections. Wayfinding signage should also be installed directing bicyclists to other bicycle facilities and significant destinations, particularly where the route shifts from 11th to 10th Streets.
5. Bicycle Improvements

PRIORITY PROJECT

EAST UNION AVENUE/SYLVAN MEADOWS DRIVE CLASS III

Running east-west, the East Union Avenue/Sylvan Meadows Drive Class III route provides a cross-town connection for cyclists in northern Modesto who desire an alternative to existing Class II lanes along Sylvan and Standiford Avenues. The route begins on Palmilla at Tully Drive, heads south on Wesson Ranch Road, turns east along E. Union, south along Dragoon Park and finally east along Sylvan Meadows, terminating at Palmwood Drive. The route provides a connection between Coffee and Tully Roads, on neighborhood streets, and provides access to Stockard Coffee Elementary School and Fred C. Beyer High School. Cyclists can connect with the proposed Snyder Class III route to access destinations in the vicinity of State Route 99.

Wayfinding signage should be installed along the East Union Avenue/Sylvan Meadows Drive route, directing bicyclists to other bicycle facilities and significant destinations, such as Fred C. Beyer High School and Vintage Faire Mall. “Bike Route” signage should also be installed every quarter-mile and at signalized intersections.
5. Bicycle Improvements

PRIORITY PROJECT

EMERALD AVENUE/PANAMA DRIVE/HARRIS AVENUE CLASS III

The Emerald Avenue/Panama Drive/Harris Avenue Class III route travels north-south from Rouse Avenue to Coldwell Avenue by way of Harris Avenue, Alcamo Avenue, Panama Drive and Emerald Avenue. The route provides connections to the Sutter/MLK Class III route via Rouse Avenue. The Emerald Avenue route will enable north-south travel, via Coldwell and Carpenter, from Modesto Junior College West to Tuolumne River Regional Park and the Dryden Park Municipal Golf Course, via the Sutter/MLK route. The Emerald Avenue route jogs at several points and will require adequate signage to lead cyclists through these intersections. The Emerald Avenue route also meets the proposed Paradise Avenue Class II lanes, providing connections to locations downtown. The Emerald Avenue route also has a branch running east-west along Beverly Drive. Several schools may be accesses via the Emerald Avenue route in conjunction with the Sutter/MLK route. They include: Franklin Elementary School, Mark Twain Junior High School, Peter Johansen High School and Robertson Road Elementary School.

Wayfinding signage should be installed along the Emerald Avenue/Panama Drive/Harris Avenue route, directing bicyclists to other bicycle facilities and significant destinations, such as the Tuolumne River Regional Park, Downtown Modesto, and Modesto Junior College West. “Bike Route” signage (MUTCD D11-1) should also be installed every quarter-mile and at signalized intersections.
PRIORITY PROJECT

MILLER AVENUE CLASS III

Beginning at the intersection of Santa Cruz Avenue in the west, Miller Avenue runs east to meet San Ignacio Avenue, Haddon Avenue and Poppypatch Drive, terminating at Melbourne Drive. At many points along the route, cyclists may jog north to intersect the existing Riverside Park/Sutton Community Park Class III route, providing connections to both parks and the Creekside Golf Course. The Miller Avenue Class III route provides access to Capistrano Elementary School along Poppypatch Drive.

Wayfinding signage should be installed along the Miller Avenue route, directing bicyclists to other bicycle facilities and significant destinations, such as Dry Creek Regional Park and Sutton Community Park. “Bike Route” signage should also be installed every quarter-mile and at signalized intersections.
PRIORITITY PROJECT

MARÍPOSA ROAD CLASS III

The Mariposa Road Class III routes provide connectivity throughout the southeast corner of Modesto. They span from Codoni Avenue in the east to Mitchell Road, abutting the Modesto City-County Airport in the west. The route provides an east-west connection along Finch Road, as well as north-south links along South Riverside Drive, Mariposa Road and Garner Road. South Riverside Drive connects the Mariposa Road route with destinations like the Creekside Golf Course and Dry Creek Regional Park. The Mariposa Road route also connects with other Class II and III facilities which link bicyclists with Downtown Modesto, like the South Morton/Mono Drive Route and La Loma Avenue.

Wayfinding signage should be installed along the route, directing bicyclists to other bicycle facilities and significant destinations. “Bike Route” signage should also be installed every quarter-mile and at signalized intersections.
5. Bicycle Improvements

PRIORITY PROJECT

MARTIN LUTHER KING/SUTTER CLASS III

The Martin Luther King/Sutter Class III Facility project would complement the proposed Maze Road and Paradise Avenue facilities in providing north-south connections to southwest Modesto. The Martin Luther King/Sutter bicycle route would run from Maze Boulevard south to Robertson Road, providing access to the Tuolumne River Regional Park. A connection west into Downtown Modesto could be made at California or Paradise to the G and H Street Facilities.

Wayfinding signage should be installed, directing bicyclists to other bicycle facilities and significant destinations, such as Tuolumne River Regional Park. “Bike Route” signage should also be installed, at a minimum, every quarter-mile and at each signalized intersection.

Segments of this project recommended by the Stanislaus Regional Bicycle Action Plan.

A Class III bicycle route on Sutter/MLK would connect the southwestern Modesto neighborhoods and parks
The new Amtrak station near Santa Fe Avenue provides a regional transportation link for the commuters and visitors of Modesto. Currently, there are no existing bicycle facilities that extend east of Claus Road. This project would provide a valuable connection to the Amtrak station by extending the existing Class III facility on Orangeburg Road. The existing Orangeburg Road route, which currently ends at Claus Road, would be extended east of Claus Road to Held Drive. The route would then turn north onto Held Drive, and cross Briggsmore Avenue and terminate at the Amtrak station access driveway. This proposed route would also connect to the proposed Class I bicycle facilities on Claus Road as well as the proposed Class I facility on Briggsmore Avenue which would terminate at the Amtrak station as well.

Additional design requirements for this project would include enhancing the crossing of Claus Road, with bicycle crossing warning signage, as well as wayfinding signage directing bicyclists to the Amtrak Station. A bicycle loop-detector or push-button signal activation device would be installed to facilitate the crossing of Briggsmore Avenue.

The Amtrak station in eastern Modesto is currently not connected to the Modesto bicycle network. Both the proposed Class III route on Orangeburg and the proposed Class I trail along Briggsmore would provide a network connection to the station from other parts of Modesto.
PRIORITIZED PROJECT

RIVERSIDE TO SUTTON PARK CLASS III

The Riverside to Sutton Community Park Class III facility would provide a neighborhood route connecting Riverside Park to Sutton Community. The proposed route would begin at the Encina Avenue route that terminates at Riverside Park on Riverside Drive. The route would extend east on El Pasado Drive, Penny Lane, Mechalys Way, Creekwood Drive and finally south on Norseman Drive to the park entrance. This facility would connect to three different schools – Capistrano Elementary, Bernard L. Hughes Elementary and Peter Johansen High School, and fills a need for a residential area without an existing facility.

Wayfinding signage should be installed along the route to direct bicyclists to other bicycle facilities as well as significant destinations, such as parks. “Bike Route” signage and stenciling should be installed at least every quarter-mile and at signalized intersections.
PRIORITY PROJECT

ROSEMONE AVENUE CLASS III

The Rosemore Avenue Class III route provides a north-south neighborhood connection to Modesto Junior College West and Stanislaus County Center No. 5. Where Rosemore Avenue meets Modesto Junior College West, cyclists can transition onto Class II lanes along Blue Gum Avenue which connect Modesto Junior College West with the eastern part of Modesto via additional Class II bike lanes.

Wayfinding signage should be installed along the Rosemore Avenue route, directing bicyclists to other bicycle facilities and significant destinations, such as Modesto Junior College West and Stanislaus County Center No. 5. “Bike Route” signage should also be installed every quarter-mile and at signalized intersections.
PRIORITY PROJECT

SANTA CRUZ AVENUE/COVENA AVENUE CLASS III

Running north-south, Santa Cruz Avenue and Covena Drive connect Dry Creek Regional Park and the Dry Creek Bike Trail to Legion Park. The reach of existing Class III facilities along Covena Drive is extended by linking the route to Santa Cruz Avenue by way of Miller Avenue. The existing bridge over Dry Creek allows cyclists to connect to existing Class II lanes on Coffee Road to the north. A proposed crossing over the Tuolumne River will enable cyclists to access Mancini Park and the City of Ceres to the south. The Santa Cruz Avenue/Covena Avenue route connects the South Morton Boulevard/Mono Drive Route to the Miller Avenue Route, providing east-west Class III connections to Downtown Modesto and the Creekside Golf Course.

Wayfinding signage should be installed along the Santa Cruz Avenue/Covena Avenue route, directing bicyclists to other bicycle facilities and significant destinations, such as the Legion Park, Downtown Modesto, and the Dry Creek Regional Park and Bike Trail. “Bike Route” signage should also be installed every quarter-mile and at signalized intersections.
PRIORITY PROJECT

SOUTH MORTON BOULEVARD/MONO DRIVE CLASS III

The South Morton Boulevard/Mono Drive Class III route provides an east-west connection, via the Santa Cruz/Covena and Miller Avenue routes, from eastern Modesto to locations downtown. The route abuts Beard Brook Park, home of the Modesto Children’s Park, and crosses Dry Creek at Gilmore Avenue.

Wayfinding signage should be installed along South Morton Boulevard/Mono Drive route, directing bicyclists to other bicycle facilities and significant destinations, such as the Tuolumne River Regional Park and Downtown Modesto. “Bike Route” signage should also be installed every quarter-mile and at signalized intersections.
PRIORITIY PROJECT

SUNRISE - DRAGOO PARK CLASS III

The Sunrise – Dragoo Park Class III facility project would provide a north-south bicycle route that would fill a north-south residential neighborhood gap in the existing bicycle network. The bike route would run on Sunrise Avenue from the intersection with E. Roseburg Avenue, onto Sheffield Lane, then onto Claremont Drive and then Dragoo Park Drive. The route’s northern terminus would be at the end of Dragoo Park Drive, adjacent to the Coralwood Mobile Home Community. This facility would connect to the existing Class III facilities on E. Roseburg, Tokay Avenue, and Rumble Road. The proposed route would also connect to the existing Class II facilities on E. Orangeburg and Sylvan Road.

The proposed route would require the installation of “Bike Route” signage at the beginning and end of each block. In addition, wayfinding signage to significant destinations and other bicycle facilities should be installed.
PRIORITY PROJECT

SNYDER CLASS III

The proposed Snyder Class III route would provide a valuable east-west connection from Tully Road to Sisk Road near the western border of Modesto, adjacent to the Vintage Faire Mall and State Highway 99. This route would provide a designated facility for commuters and would also provide a neighborhood route that would connect residential areas and two neighborhood parks. The route would extend west on Snyder Avenue from Tully Road, past McKinney Colony Park and Mildred Perkins Park, then branch onto Blue Bird Drive. The route on Blue Bird would go north and terminate at Pelandale Avenue, connecting to the proposed Pelandale Avenue Class I facility. The route would also go south on Blue Bird to Setrok Drive. The route would go west onto Setrok Drive, then south onto Gagos Drive, then west onto Vintage Drive and then South onto Sullivan Court to Sisk Road. The proposed facility would also pass by Mildred Perkins Elementary School.

Wayfinding signage should be installed directing bicyclists to other bicycle facilities and significant destinations. “Bike Route” signage should be installed at least every quarter-mile and at signalized intersections.
PRIORITY PROJECT

14TH STREET CLASS III

The proposed 14th Street Class III Bike Route facility would provide a northwest-southeast route through downtown. It would connect from Yosemite at D Street, northwest to Needham Street.

“Bike Route” signage should be installed at the beginning and end of every block. Wayfinding signage should also be installed directing to other bicycle facilities and significant destinations.

This project is recommended in the Stanislaus County Regional Bicycle Action Plan.
6. PEDESTRIAN IMPROVEMENTS

This section introduces the elements and actions necessary to create a safe, well-designed system of pedestrian facilities. The City of Modesto may consider the standards provided here when planning all construction or redevelopment of pedestrian facilities. By following these guidelines and recommendations, the City can implement a cohesive strategy providing facilities that are consistent in terms of safety and design that match the City’s pedestrian infrastructure needs and goals.

PEDESTRIAN NEEDS

A safe and functional pedestrian environment – one that may encourage people to walk and accommodates citizens with mobility impairments – is composed of numerous features that require careful planning, design, and maintenance. In addition, it is important to provide access to destinations that attract pedestrian travel, such as schools and parks, neighborhood shopping, transit stops, libraries, post offices, and other public facilities. Features of a safe and functional pedestrian network include:

- Sidewalks and pathways that connect origins and destinations, and are wide enough to comfortably accommodate the expected pedestrian volume;
- Surfaces that are as smooth as possible to prevent any difficulties that may confront those using assisted mobility devices;
- Intersections should have well-designed curb ramps on all corners;
- Marked crosswalks should be and remain highly visible through design and maintenance;
- Traffic signal phasing should allow adequate time for pedestrians to cross;
- Streetlights may be needed in some locations to improve visibility of nighttime crossings; and
- Regular maintenance of encroaching vegetation or other obstacles that may impede visibility and mobility.

AMERICANS WITH DISABILITIES ACT OF 1990

Persons with disabilities are particularly sensitive to design features that contribute to improved walking or rolling conditions. The Americans with Disabilities Act (ADA) of 1990 requires recognition of the particular needs of physically and mentally impaired individuals. This civil rights act prohibits public entities from designing new facilities or altering existing facilities that are not accessible to people with disabilities. As a result of ADA, curb ramps, for example, are a basic component of all sidewalk construction.
Sidewalk construction, curb ramp design, and other accessibility standards have been developed on a federal level in two documents, the Uniform Federal Accessibility Standards (UFAS) and the Americans with Disabilities Act Accessibility Guidelines (ADAAG). States are given the option to adhere to one of these, but may also adopt more stringent standards than the Federal minimum guidelines. Caltrans conforms to the policies of UFAS and Title 24 of the California Code of Regulations. Title 24, developed by the Division of the State Architect, has some stricter accessibility requirements than UFAS. In 2001, the Federal Highway Administration released Designing Sidewalks and Trails for Access, Part II, Best Practices Design Guide to provide the most up-to-date guidance on the design and construction of accessible pedestrian facilities.

Designing pedestrian facilities to accommodate persons with disabilities improves the walking experience for all users. Whenever one is analyzing, planning, or designing pedestrian facilities, accommodating persons with disabilities should be a priority that sets the standard for design. For example, curb ramps are helpful to parents pushing strollers, delivery persons pulling dollies or carts, and small children on bicycles. Wide sidewalks invite people to stroll side-by-side and enable wheelchairs, bicycles, strollers, and scooters to pass others with minimal conflict. Smooth surfaces reduce the risk of interfering with mobility devices such as walkers, as well as reduce the risk of elderly pedestrians and small children tripping.

**EXISTING PEDESTRIAN FACILITIES**

The state of pedestrian facilities in Modesto is extremely variable. Some areas of the city have good facilities and some do not. Some residential neighborhoods and parts of downtown have well-connected and well-maintained sidewalks, paths, and crosswalks. However, many of Modesto’s commercial and residential subdivisions developed over the last 50 years may have been built without sidewalks or without adequate concern paid to pedestrian needs. These developments were designed for motor vehicle access and sidewalks may have been deemed less important. Other areas may have been developed without sidewalks in an attempt to preserve a “country living” quality at a time when Modesto was less populated.

In many neighborhoods, especially neighborhoods that were not developed as part of more formal subdivisions, sidewalks may be missing altogether. The areas developed incrementally are often served by narrow roadways with neither shoulders nor sidewalks. Adding sidewalks after the fact is difficult: adequate right-of-way is often unavailable or difficult to develop. Residents have often “adopted” undeveloped right-of-way and have incorporated it into their front yards.

**RECOMMENDED IMPROVEMENTS**

The following actions can help create the safe, direct, and well-connected system of facilities needed to encourage more Modesto residents to walk.

**IMPROVE SIDEWALKS**

The sidewalk is the most obvious element of the pedestrian network. The sidewalk must have a clear path wide enough to accommodate the widest mobility device as well as the expected volume of pedestrian traffic. This “clear zone” must be free of street furniture, signposts, sandwich boards,
and any other obstructions. In most residential neighborhoods in Modesto, a five-foot sidewalk would provide enough space for two people to walk side by side. Sidewalks along arterial or major streets should have wider sidewalks, especially if the sidewalk abuts the curb, to provide increased distance between pedestrians and vehicles. Where adjoining businesses or other destinations would attract more pedestrians, the sidewalks should be about seven feet wide to accommodate wheelchairs traveling side-by-side, or two people walking together while passing a third. Where even higher pedestrian use is expected, such as downtown, on shared-use paths, or around schools, community centers, and parks, 10 to 12 feet is preferable.

**IMPROVE PEDESTRIAN CROSSINGS**

Safe and clearly marked street crossings are critical parts of a pedestrian network. Crossings, the most challenging aspect of pedestrian travel, are where nearly all pedestrian/motorist collisions occur. One method to improve pedestrian safety is to shorten the crossing distance. Pedestrian refuge islands, curb extensions, reducing curb return radii, and eliminating a travel lane are popular measures used to reduce the width of the intersection. Another way to increase pedestrian safety is by using devices to warn motorists of the presence of pedestrians, such as signs, signals, lights, and lighted crosswalks. Removing sight obstructions, such as parked cars, trees, and signs also improves visibility.

Traffic signal timing is an important aspect of pedestrian crossing safety. Some pedestrians, especially people with mobility impairments and the elderly, need additional crossing time. Longer crossing times should be considered in areas expected to serve slower pedestrians, such as near retirement homes. However, increased pedestrian crossing time must be balanced with traffic flow operation such that the increased crossing time does not come at the expense of excessively long wait times, which can cause pedestrians to grow impatient and cross during gaps in traffic. Pedestrian actuated signals are an option to respond to pedestrian crossing demand. Some conditions may require more extreme treatments. For instance, pedestrians are restricted from crossing some intersections due to the complexity of the turning movements or poor visibility. A special bicycle / pedestrian overcrossing or undercrossing may be constructed to overcome such restrictions or to cross a large barrier, such as an interstate highway or major arterial roadway. However, these treatments are generally reserved for unusual situations as they are very expensive.

On long blocks in pedestrian districts or near schools, a mid-block crossing may be justified. These crossings must be well designed and highly visible to avoid conflicts.

**PROVIDE SIDEWALK BUFFERS**

The level of comfort a pedestrian experiences while walking on a sidewalk can be enhanced with a planting strip or a buffer zone. Extra space between the sidewalk and the curb protects pedestrians from being hit by opening car doors or splashed by water accumulated at the side of the roadway. Sidewalk buffers may also increase the sense of safety while walking beside heavy or fast traffic. Buffer space can be used for streetscape improvements, further enhancing the attractiveness of a corridor for all users, or as space for other corridor amenities such as poles and signs. Buffers should be two to four feet along residential streets and four to six feet along arterial or major streets.
ENSURE CONNECTIVITY

Modern developments, whether commercial and industrial projects or residential subdivisions, can present connectivity challenges for pedestrians. They may be separated from neighboring land uses by barriers like walls, and are typically planned with limited access points. For instance, people must often walk hundreds of feet out of their way to a collector street to reach the entrance of a neighboring subdivision. By including short, direct pedestrian connections between adjoining land uses, jurisdictions can make walking (and bicycling) more attractive. These connections between adjacent land uses along access easements provide “short-cuts” not available to motorists.

IMPROVE THE STREETSCAPE

In some areas, a higher level of attention to the details of the pedestrian environment is justified by expected high pedestrian use and to encourage pedestrian activity. Streets where the elements are scaled to human size rather than vehicle size are attractive to pedestrians. Streetscape improvements such as public art, benches, drinking fountains, trash receptacles, special transit shelters, and pedestrian-scaled lighting fixtures are amenities that help balance the pedestrian-motorist environment.

ALTERNATIVE SIDEWALK MATERIALS

To meet ADA requirements, a walkway must be firm, stable, and slip-resistant. Portland cement concrete is the most widely used sidewalk material for its versatility and durability. When properly maintained, it can last one hundred years. Asphalt is an alternative to concrete that is usually less expensive, but requires more maintenance and lasts only about 40 years. Brick, aggregate, and cobblestone are other materials that are used, often for their decorative properties. These are more costly and may not be as smooth or slip resistant. However, they can be visually appealing and are often used for sidewalk borders or buffer zones. Unpaved trails can still meet ADA requirements with materials like decomposed granite, packed soil, and other natural surfaces with proper base material preparation. Soil stabilizers can also be applied to bind soil or aggregates into a hardened, durable surface.

ILLUMINATION

Good lighting is one key to pedestrian safety, especially at intersections. Lighting pedestrian facilities also increases the comfort and perception of personal security, thereby influencing route choice and their decision whether or not to walk. In commercial areas, local businesses can help by keeping front windows lit, which not only provides lighting to passersby but also encourages after-hours window-shopping. Walnut Creek in Contra Costa County has a lamppost adoption program that grew out of the Downtown Enhancement and Street Lighting Project. Individual contributions help to fund the replacement cobra-style streetlights with “old town” decorative pedestrian lighting. However, in residential areas, the brightness and style must be tailored to the neighborhood experience.

LANDSCAPING AND STREET TREES

Landscaping and street trees enhance the walking experience and provide shade. Upward branching trees and low growing shrubs are ideal selections to provide shade without blocking visibility. Care must be given to selecting trees with root structures that will not damage sidewalks. Also, trees and
shrubs must be trimmed near and above sidewalks to avoid creating hazards for the visually impaired. Trees must also be planted and trimmed so that they do not block pedestrian lighting.

**ADJOINING DESIGN**

Pedestrian facilities can attract greater use where they are adjoined by buildings and spaces that provide pleasing and interesting views. In downtown areas, vibrant, changing window displays instead of blank walls and covered windows or parking lots create a more engaging, and thus more attractive, environment. Sidewalks that are bordered by a “streetwall” of welcoming storefronts can persuade people to walk from place to place, creating both more pedestrian and economic activity. Limiting the amount of parking along sidewalks or providing buffers between parking and sidewalks can also help define the pedestrian sphere.

**APPLY TRAFFIC CALMING**

Over the past several years, “traffic calming” has grown in popularity as a technique to improve both bicycle and pedestrian safety, especially in residential areas. Traffic calming devices are installed to slow motorists, increase awareness of bicyclists and pedestrians around them, reduce cut-through traffic, and reduce the impacts of higher speed collisions. Common traffic calming devices are described here.

- **Traffic circles** force motorists approaching an intersection from all directions to slow down. This allows more opportunity for pedestrians to cross the street.

- **Curb bulb-outs, chokers, and neckdowns** reduce the width of the street, thus decreasing the crossing distance for pedestrians and slowing motor vehicular traffic.

- **Diagonal diverters** prohibit through traffic by forcing motorists to turn at intersections. The diverter is typically designed to allow bicycle and pedestrian through movement. A partial diverter can limit traffic access in one direction but allow through traffic in the opposite direction. These diverters also narrow the crossing distance for pedestrians. Street closures are a form of a traffic diverter that should only be utilized in extreme cases.

- **Speed humps** are raised asphalt devices that force automobiles to slow down or risk damage to the vehicle. Well-designed humps work well for bicyclists. Raised intersections and raised crosswalks serve a similar purpose while boosting pedestrian awareness.

- **Narrower streets** affect motorist behavior in a psychological manner. If the driving space is perceived as narrow, motorists will react by driving more carefully. Narrowing the street – or the motorist’s field of vision – can be achieved in a number of ways: street trees, striping (bike lanes), contrasting pavement or texture on the roadway edges, and on-street parking.

Many cities around the country have created neighborhood traffic plans that involve residents and city staff working together to find solutions to cut-through traffic, speeding vehicles, and neighborhood safety problems. Traffic calming devices typically are used to accomplish the goals articulated by the neighborhood residents.
IDENTIFY AND IMPROVE PEDESTRIAN DISTRICTS

Pedestrian districts are areas of dense land use and intense, or potentially intense, pedestrian activity. They are often formed and classified in land use plans and come with strict pedestrian-friendly design requirements. Downtowns, neighborhood retail hubs, transit-oriented developments, college campuses and surrounding areas, mixed-use developments, and strip retail centers can all be classified as pedestrian districts. It is recommended that City of Modesto identify pedestrian districts that meet or could meet specified criteria. Once designated, the City should establish specific policies and design guidelines for these districts. The General Plan would provide the basic policy direction and the designation of each district. Specific plans or an area redevelopment plan may serve as a vehicle for outlining detailed improvements to the pedestrian environment as well as improvements that support the health and viability of businesses and other activities within the district. Changes to local zoning and subdivision standards may be made to provide alternative development standards within pedestrian districts. Finally, the City of Modesto can use these plans and policies, as well as surveys of streets within their control, to identify improvements and include them within capital improvements programs.

PEDESTRIAN IMPROVEMENT PROJECTS

While the average bicycle trip is less than two miles in length, pedestrian trips average less than one-half mile. Highly localized improvements such as curb ramps or sidewalk linkages to transit are more important than a regional pedestrian network. Therefore, recommended pedestrian projects and programs consist of improvement packages that can be implemented in specific areas or on specific corridors by local agencies. In some cases, projects listed as a bikeway improvement, specifically bike paths or shared use trails, are pedestrian facilities as well. Two basic pedestrian enhancement types are presented in this plan: Americans with Disabilities Act (ADA) Improvements and Pedestrian Districts.

Pedestrian Districts

Local communities wishing to enhance the pedestrian environment in local commercial areas, employment areas, and downtowns may establish a “pedestrian district.” Designating these districts would allow for more innovative treatments of the public right-of-way, focus improvements in targeted areas, and promote walking as the primary mode of transportation. Pedestrian districts should be linked to the city’s bicycle network, and include support facilities like bicycle racks to encourage people to bicycle to the district, lock up their bike, and walk around.

Identifying pedestrian districts can occur during the General Plan process, perhaps as part of the Circulation Element, and identified on land use maps. Other possible methods to enhance or create pedestrian districts include the following.

**Subdivision requirements** for new developments may call for mixed uses, narrower streets, shorter blocks, and additional emphasis on the pedestrian environment.

**Overlay districts** place requirements and regulations in addition to the base zoning requirements in specific areas to achieve goals. Pedestrian overlay districts could be applied to downtowns, areas surrounding college campuses, and transit centers to require additional pedestrian amenities and
encourage pedestrian activity. These districts may also include exemptions to level of service standards.

**Land Use** is the most critical aspect of a successful pedestrian district. The area should be zoned to encourage a dense mix of residential and commercial uses and discourage more auto-oriented uses such as fast food restaurants with drive-up windows and auto dealerships or repair shops. This strategy makes it more convenient to walk to many destinations for work, leisure, or running daily errands within a relatively small area. A mix of uses can also instigate round-the-clock activity.

The **Plan Area** must be large enough to promote a relatively substantial amount of development and land use mix but not so large that people may feel compelled to drive to reach destinations within the district. The Portland (OR) Pedestrian Plan recommends an area no less than 600 feet and no more than one mile in any direction.

**Specific Plans** provide an overall and detailed plan for land uses and development within a more circumscribed part of a community. The specific plan lays out design guidelines and improvements within the public right-of-way, including pedestrian improvements and can be the basis for assessment districts used to finance these improvements.

**Design guidelines** can be created to ensure new public and private development meets certain design standards and provide necessary pedestrian amenities.

Convenient and frequent **Transit** connections provide attractive alternatives to driving and broaden the realm one can travel without a vehicle. Similarly, a pedestrian district should welcome bicycles by providing ample parking and bikeways throughout the district to encourage non-motorized movement.

**Assessment Districts, Community Facilities Districts, and similar funding mechanisms** require property owners to pay a fee to cover special improvements such as landscaping, lighting or maintenance. To delineate a pedestrian district, jurisdictions should locate areas that meet, or could meet, most of the following characteristics:

The visual interest of **Building Facades** is important for pedestrians. Every effort should go into avoiding blank walls, plated glass, vacant lots, etc. and encouraging window displays, sidewalk cafes, art work, and interesting architectural design elements that help create a sense of place and welcoming environment.

All **Roadways** within the district should contain safe, convenient and connected facilities so that pedestrians feel welcomed. Wide, unobstructed sidewalks should be built on both sides of each street, and curb extensions, street trees, lighting, and improved crosswalks should be provided. Traffic calming devices, lower speed limits, narrowed travel lanes, traffic signals timed to walking speeds, and similar improvements lessen the conflicts between pedestrians and automobiles.

**Parking Lots** should not dominate views from the sidewalk. Surface parking should be screened from the right-of-way by walls or fences and landscaping. However, for security reasons, the
screening should be at a height (3 to 4 feet) that permits visibility from the sidewalk. When possible, parking garages should have commercial uses on the ground level for continuity of the district. Parking should be allowed on the street to provide more protection for pedestrians from traffic and to serve as a form of traffic calming. Direct pedestrian connections should be provided to parking lots and walking routes should be well-lit when passing between buildings and along pathways within parking lots.

**Pedestrian Accessibility Projects**

Title II of the Americans with Disabilities Act (ADA) and the U.S. Access Board have developed guidelines for constructing new and altered “accessible” infrastructure for persons of all abilities. Local agencies that plan and construct pedestrian facilities should be kept informed of the latest recommendations. Several projects and programs can address accessibility needs.

First, agencies are advised to analyze current design standards and policies to ensure they meet or exceed current recommended standards. Sidewalk width, ramp construction (including coloration, tactile warning, and placement), crosswalk markings, pavement materials, driveway approaches, pedestrian signals (including audible signals), and signal timing are among the most basic elements that directly affect pedestrian and wheelchair mobility.

Second, the City of Modesto and other local agencies should prepare assessments of the pedestrian facilities in their jurisdiction and develop a plan to correct deficient facilities. Locations to receive priority for improvements include institutions that serve people with disabilities, hospitals, senior centers, nursing homes and assisted living centers, downtowns, civic centers, public buildings, parks, community facilities, and transit routes and stations. Some cities have developed programs that serve individual requests. For instance, if a child in a wheelchair cannot easily travel to school, gaps in the sidewalk system are closed and curb ramps installed. This demands a great deal of commitment on the part of the City and assorted agencies, but is invaluable to the public. The City of Modesto may identify a lump sum amount in their capital improvement program (CIP) to address these special requests.
7. BICYCLE AND PEDESTRIAN SUPPORT PROGRAMS

Support Programs are an important component of the Non-Motorized Transportation system, as they further improve safety and convenience for bicyclists and pedestrians.

SAFE ROUTES TO SCHOOL

This Plan has identified a number of routes that will benefit schoolchildren that walk or bicycle to school. Identifying and improving school routes is one of the most effective means of reducing AM traffic congestion and addressing existing safety problems. Most effective school commute programs are joint efforts of the school district(s) and City, with parent organizations adding an important element.

RECOMMENDATION

Develop a Safe Routes to School Program

Safe Routes to School (SR2S) programs are growing in popularity nationwide. SR2S programs are often designed to decrease traffic and pollution and increase the health of children and the community at large. The programs promote walking and bicycling to school through educational efforts and incentives that stress safety and fun for the participants. SR2S programs also address the safety concerns of parents by encouraging greater enforcement of traffic laws, educating the public, and exploring ways to create safer streets.

The basic components of a SR2S program include:

- **Encouragement** – school commute events and frequent commuter contests are used to encourage participation.
- **Education** – students are taught safety skills and educational campaigns aimed at drivers are developed.
- ** Enforcement** – various techniques are employed to ensure traffic laws are obeyed.
- **Engineering** – infrastructure improvements are constructed to improve the safety of school commute routes.

**Why Do We Need SR2S?**

The purpose of a SR2S program is to identify and improve school commute routes, to increase the number of students who walk and/or bicycle to school, to lessen traffic congestion, and to improve health. Walking and biking to school can be healthy alternatives to being driven, and can provide a sense of independence for children who may otherwise be restricted by school bus or parents' schedules.
What Are the Benefits of a SR2S Program?

The primary benefit of implementing a SR2S program is the resulting increase in safety for children walking and riding bicycles to school. A comprehensive strategy based on a cooperative effort between school officials, parents, residents and city planning staff will ensure that specific school-related traffic calming projects and pedestrian and bicycle improvements will become priority projects eligible for State, Federal or other grant funding. The involvement of various stakeholders throughout the Safe Routes process increases the likelihood for implementation of needed safety improvements. While the primary focus of a SR2S program is improving safety for children walking and biking to school, these safety benefits can extend to all age and activity groups. In addition to safety enhancements, a SR2S program helps integrate physical activity into the everyday routine of school children. Health concerns related to sedentary lifestyles have become the focus of efforts both statewide and nationally to reduce health risks associated with being overweight. Identifying and improving routes for children to safely walk and bicycle to school is one of the most cost effective means of reducing weekday morning traffic congestion and can help reduce auto-related pollution.

SR2S Program Outline

School commute projects need to be developed in a traditional planning process that includes (a) school administrators and teachers, (b) local PTA’s and other groups, (c) neighborhood groups and the public, (d) police departments, and (e) County public works department. The planning process can be accomplished by these groups using the step-by-step process outlined below, or by enlisting professional services.

1. Form a School Commute Task Force composed of representatives from the school district, public works and law enforcement agencies, the local neighborhood, parent-teachers or other similar group, and the school itself.

2. Set objectives and a reasonable schedule for this Task Force to accomplish its goals.

3. Determine the preferred basic school commute routes to the school based on (a) parent and student input, (b) a survey of parent and student community patterns, (c) public works and law enforcement input, and (d) observations of actual commuting patterns.

4. Are there any efforts to guide students who wish to walk or bicycle to school? Does the school provide a map of recommended routes?

5. Does the school wish to encourage more students to walk or bicycle to school? While there is a perception of safety being a concern, statistics show that walking and bicycling are just as safe as driving. Yet many parents insist on driving their children even a few blocks to school—thus contributing to the traffic congestion.

6. Study the parking lot and drop off areas of the school. Is there a pattern where students are walking between cars or through parking lots or drop off areas to reach the school? Are there management efforts to get parents to follow any specific drop-off protocol?

7. Are there adequate sidewalks and bike lanes on the streets directly serving the school? Are there school access points which encourage students to cross midblock or at other less desirable locations?
8. Where are the first major street crossings on the main school commute routes? Many accidents occur at these intersections. Are they signalized? Is the signal timing adequate even for younger students? Are there crossing guards?

9. Are there any locations where students are crossing major or minor streets at midblock or unprotected locations, i.e., no stop signs or signals? Because children are sometimes hard to see and have difficulty in gauging vehicle speed, these locations can be the focus of improvements.

10. Do students have to cross intersections that have very wide turning radii, where vehicles can accelerate and merge while turning? These are problematic because drivers are focused to their left at merging traffic rather than in front at crosswalks.

11. Do all intersections have properly designed crosswalks? The crosswalks should be located so that students can wait safely on the sidewalk prior to seeing if they can cross. Is there adequate visibility and lighting given the speed of traffic? Are there adequate warning signs in advance of the crosswalk?

12. What are the 85th percentile speeds of traffic on the major school commute corridors? Are they significantly above or below the posted speed limits? When was the last speed survey conducted? What is the level of police enforcement, and does it occur only at the beginning of the school year? It is possible to lower speed limits near schools. In other locations, it may be necessary to make physical changes, such as narrowing travel lanes, to slow traffic. It may also be preferable to accept slightly more congestion on a two-lane street, and have slower speeds, than have free flowing high-speed traffic on a four-lane street.

13. School Commute Projects involve numerous often-small incremental changes to sidewalks and roadways, such as adjustments to signal timing or new signing or lighting. In other cases, innovative lighted crosswalk treatments or even grade separation may be warranted. Working with the Task Force will help a school determine the best mix of improvements suitable for each corridor, and compatible with local traffic conditions.

14. A more detailed evaluation methodology, which rates improvements and corridors according to objective criteria, has been developed and is available for use by local schools. However, it may require the services of specialists who understand traffic safety and engineering.

15. Once the improvements have been identified, a preliminary design or plan must be completed which describes the project and its cost. For example, a crosswalk improvement would need to be designed so that it can be reviewed and approved by the appropriate agency. Again, a professional may be engaged for this effort.

16. With a plan and cost estimate, the project still needs a sponsor. Typically this would be the public works department, who are best connected to available funding sources and familiar with the State and Federal procedures necessary to obtain funding. The project sponsor will need an official authorization, and confirmation that (a) the right-of-way is publicly owned, (b) staff have reviewed and approved the project, and (c) no negative impacts have been identified. With this in hand, the project sponsor can seek funding, which usually requires a 10% or greater matching amount.

17. Programs that may be implemented include a “Walking School Bus Program”, which involves parents taking turns walking (or bicycling) with groups of children to school. Other innovative programs are identified in Marketing, Education, and Support Programs.
EDUCATION PROGRAMS

The local school districts, Modesto Police Department, and City departments have a long history of trying to improve safety conditions for bicyclists and pedestrians. Unfortunately, the lack of education for bicyclists, especially younger students, continues to be a leading cause of accidents. For example, the most common type of bicycle accident reported in California involves a younger person (between 8 and 16 years of age) riding on the wrong side of the road in the evening hours. Studies of accident locations around California consistently show the greatest concentration of accidents is directly adjacent to elementary, middle, and high schools. Many less-experienced adult bicyclists are unsure how to negotiate intersections and make turns on city streets.

Bicycle education programs in schools are typically taught once a year to third, fourth and fifth graders. Curriculum is generally derived from established programs developed by groups such as the California State Automobile Association, and taught by members of the police department. Budget cuts, demands on students’ time, and liability concerns limit the extent of bicycle education to school children. Formal adult bicycle education is virtually non-existent.

Pedestrian education programs are rare, but important as well. School children need to understand how to safely cross the road (e.g. scanning for cars), where the best places to cross are, never to cross behind a bus or car, etc. Pedestrian education should be taught as early as first grade, and continue through third grade.

RECOMMENDATIONS

School Children Bicycle and Pedestrian Education

Existing school education programs should be expanded in a cooperative effort between the City and local school districts, and supported by a secure, regular funding source. A joint City/school district Safety Committee should be formed consisting of appointed parents, teachers, student representatives, administrators, police, active bicyclists and Transportation Department staff whose task it is to identify problems and solutions, ensure implementation, and submit recommendations to the School Boards or City Council. This effort will be complementary to the physical improvements recommended in the Safe Routes to School Program priority project.

Education materials should be expanded to promote the benefits of bicycling, the need for education and safety improvements, the most recent educational tools available in the country (including the use of low-cost safety videos), and directives to parents on the proper school drop-off/pick-up procedures for their children. Educational pamphlets for children should be made more readable. Incentive programs to reward good behavior should be developed. Educational programs, especially on-bike and on-street pedestrian training should be expanded to more grades and for more hours per year. Education curriculum should, at a minimum, cover the following lessons:

- On-bike training or bicycle “rodeos”
- Use and importance of bicycle helmets
7. Bicycle and Pedestrian Support Programs

- How to adjust and maintain a bicycle
- Night riding (clothes, lights)
- Rules of the road
- Riding on sidewalks
- How to negotiate intersections
- Riding and walking defensively
- Use of hand signals
- Seatbelt safety

**Adult Bicycle Education**

Establish an adult bicycle education program through Modesto’s bicycling organizations such as the Stanislaus County Bicycle Club, in cooperation with local bike shops and the Parks, Recreation and Neighborhoods Department and/or other City departments. This program should (a) teach adults how to ride defensively, (b) teach adults how to ride on a variety of city and county streets, and (c) encourage adults to feel more confident to ride to work or for utilitarian and recreational trips. Work with local bicycling groups who could provide the training expertise, and possibly lead organized bicycle-training sessions, tours and rides.

**Provide Safety Handbook**

A standard safety handbook format should be developed incorporating the best elements of those currently in use, and made available to each school district on disk to they may be customized as needed. Schools should develop a circulation map of the campus and immediate neighborhood showing the preferred circulation and parking patterns and explaining in text the reason behind the recommendations. This circulation map should also be a permanent feature in all school newsletters. Bicycle helmet subsidy programs are available in California and should be used to provide low-cost approved helmets for all schoolchildren bicyclists.

**Educate Motorists**

Motorist education on the rights of bicyclists and pedestrians is virtually non-existent. Many motorists mistakenly believe, for example, that bicyclists do not have a right to ride in travel lanes and that they should be riding on sidewalks. Many motorists do not understand the concept of “sharing the road” with cyclists, or why a bicyclist may need to ride in a travel lane if there is no shoulder or it is full of gravel, glass, or potholes. Educate motorists about the rights and characteristics of bicyclists and pedestrians through a variety of means including:

- Making bicycle safety a part of traffic school curriculum.
- Producing a brochure on bicycle safety and laws for public distribution.
- Enforcing existing traffic laws for both motorists and bicycles.
7. Bicycle and Pedestrian Support Programs

- Sending an official letter to the Department of Motor Vehicles recommending the inclusion of bicycle laws in the drivers license exam.
- Developing and holding bicycle and pedestrian planning and design training for all transportation engineers and planners in the City of Modesto.
- Working with contractors, subcontractors and City maintenance and utility crews to ensure they understand the needs of bicyclists and follow standard procedures when working on or adjacent to roadways.
- Working with towing companies and emergency clean up crews so they better understand the needs of bicycles.
- Installing signs that read ‘Share the Road’ with a bicycle symbol along all routes of the proposed primary system where bike lanes are not feasible, travel lanes are under 14 feet wide, and ADTs exceed 10,000.

ENCOURAGEMENT PROGRAMS

Without community support, a bicycle/pedestrian plan lacks the key resources that are needed to ensure implementation over time. While the Modesto Public Works Department may be responsible for designing and constructing physical improvements, strategies for community involvement will be important to ensure broad-based support – which translates into political support – to help secure financial resources. Involvement by the private sector in raising awareness of the benefits of bicycling and walking can range from small incremental activities by non-profit groups, to efforts by the largest employers in the City. Specific programs are described below.

RECOMMENDATIONS

Facilitate the Development of Incentive Programs

Employer incentives to encourage employees to try bicycling or walking to work include providing bicycle lockers and shower facilities, and offering incentives to employees who commute by bicycle or walk by allowing for more flexible arrival and departure times, and possibly paying for transit or taxis during inclement weather. The City may offer incentives to employers to institute these improvements through air quality credits, lowered parking requirements, reduced traffic mitigation fees, or other means. Other efforts should include:

- Develop, promote and publicize bicycle commuter services, such as bike shops selling commute gear, bikes-on-transit policy, and regular commute rides.
- Implement a Bicycle Friendly Businesses Program.
- Create an annual commuter challenge for local businesses.
- Create events such as “bicycle to the grocery store” days, when cyclists get vouchers for, or coupons off items in the store, or “walk to the movies” days, when cyclists and pedestrians receive free popcorn or a discount on a movie or refreshments.
7. Bicycle and Pedestrian Support Programs

- Create public service announcements on radio and TV to promote the health and livability benefits of bicycling and walking, as well as the detrimental effect of excessive motor vehicle use (e.g. air pollution, traffic noise, congestion).
- Work with Parks, Recreation and Neighborhoods Department to deliver a “benefits of bicycling and walking message” to youth that are working on water, air, and general pollution activities.
- Hold an annual community event to encourage residents to replace one car trip a week with a bicycle trip.
- Promote and publicize new and existing education and encouragement efforts by community groups and businesses.
- Support planning and implementation of an annual mass bicycling ride in Modesto to attract new riders, showcase the city, and demonstrate the benefits of bicycling.
- Develop and implement a public education campaign to encourage bicycling and walking, such as ads on movie screens, city bench, bicycle locker and billboard advertising, and videos on cable access television.
- Develop measures to reduce bicycle theft such as a registration program, subsidized locks, and training for proper locking techniques.

Bicycle Clunker and Parts Program, Bicycle Repair Program

This program involves obtaining broken, stolen, or other bicycles and restoring them to working condition. The program’s dual mission is also to train young people (ages 12 to 18) how to repair bicycles as part of a summer jobs training effort. Bicycles are an excellent medium to teach young people the fundamentals of mechanics, safety, and operation. Young people can use these skills to maintain their own bicycles, or to build on related interests. The program is often staffed by volunteers from local cycling organizations and bicycle shops, who can help build an interest in bicycling as an alternative to driving. The seed money to begin this program often comes from a local private funding source. The proposal submitted to this source should clearly outline the project objectives, operating details, costs, effectiveness evaluation, and other details. The bicycles themselves could be derived from unclaimed stolen bicycles from the police department, or from donated bicycles. The program will need to qualify as a Section 501c(3) non-profit organization to offer tax deductions.

Community Trail Adoption

Programs to have local businesses and organizations “adopt” a Class I pathway similar to the adoption of segments of the Interstate Highway system. Small signs located along the pathway would identify supporters, acknowledging their contribution. Support would be in the form of an annual commitment to pay for the routine maintenance of the pathway, which in general costs about $8,500 per mile. Parks, Recreation and Neighborhoods, or local groups, may administer this program. Other funding mechanisms for Class I facility maintenance programs are discussed in Chapter 8, Implementation.
**Bike-to-Work and Bike-to-School Days**

The City should continue to hold an annual Bike-to-Work day in May, in conjunction with the California bike-to-work week activities. Continued police presence in the Bike-to-Work Day activities through escorted routes should be continued, as should city staff presence at “energizer” stations along the route. Local Bike-to-School days could be jointly sponsored with the School Districts, possibly in conjunction with bicycle education programs.

**Bike and Walking Fairs and Races**

Hosting bike fairs and races in Modesto helps to raise the profile of bicycling in the area. The local Family Cycling Festival held in May includes a number of events to promote cycling. Activities include a bicycle safety check, bicycle rodeo/safety course, bicycle licensing. Bicycle stunt shows and an amateur criterium race are also being held to attract people to the event.

Events would need to be sponsored by local businesses, and involve some promotion, insurance, and development of adequate circuits for all levels of riders. It is not unusual for these events to draw up to 1,000 riders and walkers, which could bring some additional expenditures into the area. The City can assist in developing these events by acting as a co-sponsor, and expediting and possibly underwriting some of the expense of, for example, police time. The County should also encourage these events to have races and tours that appeal to the less experienced cyclist. For example, in exchange for local governments underwriting part of the costs of a race, the event promoters could hold a bicycle repair and maintenance workshop for kids, short fun races for kids, and/or a tour of the route lead by experienced cyclists who could show less experienced riders how to safely negotiate County streets.

The City should continue to support the Family Cycling Festival by offering permits, financial assistance and staff time during the festival for the bicycle safety events and to staff informational booths.

**Bicycle Facilities Map**

Updating Modesto’s bicycle facilities map will be the primary tool for showing bicyclists all of the designated bikeways in Modesto. The map should also show significant destinations, the location of bicycle parking facilities, and bicycle facilities in adjacent communities (e.g. Ceres). The location of bike shops may also be shown (advertising by bike shops on the map can help to offset the printing costs). The map should be distributed as widely as possible at locations such as city offices, libraries, schools, bike shops and other recreational retail outlets, and Modesto Junior College. The map should clearly show the type of facility (path, lane, or route), as well as include basic safety information.

**BIKEWAY AND PATHWAY SECURITY**

The Modesto Police Department should continue to perform enforcement of applicable laws on bike paths, depending on available resources and priorities. Enforcement of vehicle statutes relating to bicycle operation will be enforced on Class II and Class III bikeways as part of the department’s normal operations.
RECOMMENDATIONS

Increase Safety and Security Through Proper Design and Maintenance

The following recommendations emphasize safety and security through design and maintenance efforts. These actions should be incorporated into the planning and development process of all bicycle facilities.

- Adhere to the established design, operation, and maintenance standards presented in this Non-Motorized Transportation Master Plan.
- Supplement these standards with the sound judgment of professional planners, public safety officials and engineers.
- Maintain adequate recording and response mechanisms for reported safety and maintenance problems.
- Provide regular police patrols to the extent needed.
- Promote measures to reduce bicycle theft such as a registration program, subsidized locks, and training for proper locking techniques.
- Thoroughly research the causes of each reported accident within the City of Modesto’s non-motorized network. Respond to accident investigations with appropriate design or operation improvements.

MAINTENANCE

Modesto’s Non-Motorized Transportation network needs regular maintenance. Typical tasks include repairing damaged and potholed roadway surfaces and clearing plant overgrowth. Bike lanes and bike routes should have regular sweeping to clear debris. Although these latter aspects are generally associated with routine roadway maintenance, special attention to bikeway safety and usability is important and can mean additional costs are incurred. The typical maintenance program for bicycle facilities is provided in Table 7-1.

RECOMMENDATIONS

Develop a Funding Source for Trail Maintenance

Funding for bicycle and trail facility maintenance can often be difficult to identify. Most regional and State funding sources earmark the funds for capital improvement, or the building of new facilities, not for ongoing maintenance costs. There are several methods of securing funding for maintenance outside of the use of General Fund money. Several cities have employed successful “Adopt-a-Trail” programs, the implementation of “recreational fees” on the purchase of recreational equipment in the city, or other fundraising activities. The funding could be used to develop a bicycle and pedestrian maintenance request system. Additional discussion of maintenance funding is provided in Chapter 8, Implementation.
## Table 7-1

### Maintenance Program for Bicycle Facilities

<table>
<thead>
<tr>
<th>Item</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sign replacement/repair</td>
<td>1-3 years</td>
</tr>
<tr>
<td>Trail pavement marking replacement</td>
<td>1-3 years</td>
</tr>
<tr>
<td>On-Street pavement marking replacement</td>
<td>1-3 years</td>
</tr>
<tr>
<td>Planted tree, shrub, &amp; grass trimming/fertilization</td>
<td>5 months-1 year</td>
</tr>
<tr>
<td>Pavement sealing/potholes</td>
<td>5-15 years/30-40 years for concrete</td>
</tr>
<tr>
<td>Clean drainage system</td>
<td>Annual</td>
</tr>
<tr>
<td>Pavement sweeping</td>
<td>Monthly</td>
</tr>
<tr>
<td>Shoulder mowing and weed removal</td>
<td>Bi-Annual – Fall/Spring</td>
</tr>
<tr>
<td>Trash disposal</td>
<td>As needed, twice a week</td>
</tr>
<tr>
<td>Inspect bridge abutments and structures</td>
<td>After each storm</td>
</tr>
<tr>
<td>Graffiti removal</td>
<td>Weekly</td>
</tr>
<tr>
<td>Maintain furniture</td>
<td>1 year</td>
</tr>
<tr>
<td>Restroom cleaning/repair</td>
<td>Weekly</td>
</tr>
<tr>
<td>Pruning to maintain vertical clearance</td>
<td>1-4 years</td>
</tr>
<tr>
<td>Remove fallen trees</td>
<td>As needed (on trail only)</td>
</tr>
<tr>
<td>Weed control</td>
<td>Monthly</td>
</tr>
<tr>
<td>Maintain emergency telephones</td>
<td>1 year</td>
</tr>
<tr>
<td>Maintain irrigation lines/replace sprinklers</td>
<td>1 year</td>
</tr>
<tr>
<td>Irrigate/water plants</td>
<td>Weekly - as required during establishment growth period</td>
</tr>
<tr>
<td>Fencing</td>
<td>Monthly</td>
</tr>
</tbody>
</table>

### Marketing the Master Plan

The success of the Modesto Non-Motorized Transportation Master Plan depends largely on the community’s acceptance and promotion of the Plan’s contents. In addition, City departments and commissions should incorporate the policies, objectives, and spirit of the Master Plan into their respective projects and responsibilities. The following are steps that will help ensure that the Plan becomes a living document, helping shape Modesto’s future.

- Distribute copies of the Plan to the Community and Economic Development, Engineering and Transportation, and Parks, Recreation and Neighborhoods Departments.
- Distribute copies of the Plan to members of the Planning Commission, Tuolumne River Regional Park Citizens Advisory Committee, and other appropriate citizen advisory groups.
- Ensure that Plan implementation involves cooperation among the Modesto Parks, Recreation and Neighborhoods Department, Engineering and Transportation Department, Stanislaus County, local school districts, private sponsors, the Stanislaus County Bicycle Club, and community groups.
- Provide copies of the Modesto Bicycle facilities map to schools, bicycle and recreational groups, transit agencies, Modesto Junior College, and bicycle shops in Modesto.
8. IMPLEMENTATION

This chapter identifies steps towards implementation of the proposed facilities and programs of this plan, the estimated costs for the proposed improvements and maintenance, strategies on funding and financing, and a guide for recommended maintenance program.

IMPLEMENTATION PROCESS

The steps between the network improvements and concepts identified in this Plan and the final completion of the improvements will vary from project to project, but typically include:

1. Adoption of the Modesto Non-Motorized Master Plan Update by the Modesto City Council (and incorporation into City’s General Plan).
2. Preparation of a Feasibility Study involving a conceptual design (with consideration of possible alternatives and environmental issues) and cost estimate for individual projects.
3. Secure, as necessary, outside funding and any applicable environmental approvals.
4. Approval of the project by the local planning body (if applicable) and the City Council, including the commitment by the latter to provide for any unfunded portion of the cost.
5. Completion of final plans, specifications and estimates, advertising for bids, receipt of bids and award of contract(s).
6. Construction of Project.

Once a Non-Motorized transportation system has been identified, the greatest challenge is to identify the top projects that will offer the greatest benefit to bicyclists and pedestrians in the next five years. Aside from the criteria used in developing the system as a whole, selection of the high priority projects is based on (a) cost and construction feasibility given existing traffic, safety, and environmental constraints, (b) need and benefit, and (c) strength of the project as measured by specific funding criteria. Finally, it is important to remember that the bikeway system and the top projects are flexible concepts that serve as guidelines to those responsible for implementation. The system and segments themselves will change over time as a result of changing bicycling patterns and implementation constraints and opportunities.

SYSTEM CONSTRUCTION COST BREAKDOWN

A breakdown of cost estimates for construction of the proposed network provided by this plan is presented in Table 8-1 below. The total cost of the recommended projects is estimated to be about $54 million. It is important to note the two following assumptions about the cost estimates. First, all cost estimates are highly conceptual, since there is no feasibility or preliminary design completed, and second, the costs do not include the feasibility study costs.
8. Implementation

All the projects are recommended to be implemented over the next two to twenty years, or as funding is available. The more expensive projects, such as the Class I facilities, may take longer to implement. In addition, many funding sources are highly competitive, and therefore impossible to determine exactly which projects will be funded by which funding sources. Timing of projects is also something difficult to pinpoint exactly, due to the dependence on competitive funding sources and, timing of roadway and development, and the overall economy.

The projects listed above may be funded through various sources. The funding section below outlines some of the local, regional, state and federal funding methods and resources for non-motorized transportation projects.

Table 8-1
Recommended Non-Motorized Transportation System Cost Estimates

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<tr>
<th>NAME</th>
<th>START</th>
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<th>PROPOSED CLASS</th>
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<th>Cost ($)</th>
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### 8. Implementation

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### Implementation

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### 8. Implementation

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<tr>
<th>NAME</th>
<th>START</th>
<th>END</th>
<th>PROPOSED CLASS</th>
<th>LENGTH (MI.)</th>
<th>Cost ($)</th>
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* Cost per mile: Class I = $550,000 / Class II = $30,000 / Class III = $5,000
** Canal “Start” and “End” noted as nearest street.

### CONSTRUCTION FUNDING SOURCES

There are a variety of potential funding sources including local, state, regional, and federal funding programs that can be used to construct the proposed bicycle improvements. Most of the Federal, state, and regional programs are competitive and involve the completion of extensive applications with clear documentation of the project need, costs, and benefits. Local funding for bicycle projects typically come from Transportation Development Act (TDA) funding, which is prorated to each County based on the return of gasoline taxes. Many of the projects and programs would need to be funded either with TDA, general fund (staff time), and regional, State and Federal sources. The primary funding sources are described below, and listed in Table 8-2 at the end of this section.

### FEDERAL FUNDING SOURCES

The primary federal source of surface transportation funding—including bicycle and pedestrian facilities—is SAFETEA-LU, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A
Legacy for Users. SAFETEA-LU is the fourth in a series of Federal transportation funding bills. The $286.5 billion SAFETEA-LU bill was passed in 2005 and authorizes Federal surface transportation programs for the five-year period between 2005 and 2009.

SAFETEA-LU funding is administered through the State (Caltrans and Resources Agency) and regional planning agencies. Most, but not all, of these funding programs are oriented toward transportation versus recreation, with an emphasis on reducing auto trips and providing inter-modal connections. Specific funding programs under SAFETEA-LU include:

**Congestion Mitigation and Air Quality (CMAQ)** — Funds projects that are likely to contribute to the attainment of national ambient air quality standards. Funds are available for projects and programs in areas that have been designated in non-attainment or maintenance for ozone, carbon monoxide or particulate matter. Since the Bay Area is in attainment of national air quality standards for all pollutants except ozone, future Bay Area eligibility for CMAQ allocations is currently being determined.

**Recreational Trails Program** — $370 million nationally through 2009 for non-motorized trail projects.

**Safe Routes to School Program** — A new program with $612 million nationally through 2009.

**Transportation, Community and System Preservation Program** — $270 million nationally over five years (2006-2011) reserved for transit oriented development, traffic calming and other projects that improve the efficiency of the transportation system, reduce the impact on the environment, and provide efficient access to jobs, services and trade centers.

**Federal Lands Highway Funds** — Federal Lands Highway funds may be used to build bicycle and pedestrian facilities in conjunction with roads and parkways at the discretion of the department charged with administration of the funds. The projects must be transportation-related and tied to a plan adopted by the State and MPO. Approximately $1 billion dollars are available nationally for Federal Lands Highway Projects through 2009.

**STATEWIDE FUNDING SOURCES**

The State of California uses both federal sources (such as the Recreational Trails Program) and its own budget to fund pedestrian projects and programs. In some cases, such as Safe Routes to School, Office of Traffic Safety, and Environmental Justice grants, project sponsors apply directly to the State for funding. In others, such as Bay Trail grants, sponsors apply to a regional agency.

**Bicycle Transportation Account**

The State Bicycle Transportation Account (BTA) is an annual statewide discretionary program that is available through the Caltrans Bicycle Facilities Unit for funding bicycle projects. Available as grants to local jurisdictions, the emphasis is on projects that benefit bicycling for commuting purposes. Due to the passage of AB1772 in the year 2000, the BTA had $7.2 million
available between 2000 and 2005. Following the year 2005, the fund dropped to $5 million per year. In funding cycle 2007/2008, there are $5 million in statewide BTA funds available. The local match must be a minimum of 10% of the total project cost.

**Recreational Trails Program (RTP)**

The Recreational Trails Program provides funds to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other non-motorized as well as motorized uses. In California, RTP funds are administered by the California State Parks Department. $3.3 million statewide was available in fiscal year 2006. Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails;
- Purchase and lease of trail construction and maintenance equipment;
- Construction of new trails;
- Acquisition of easements or property for trails; and
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State's funds).

**Land and Water Conservation Fund**

The Land and Water Conservation Fund is a federal program that provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. The Fund is administered by the California State Parks Department and has been reauthorized until 2015. Cities, counties and districts authorized to acquire, develop, operate and maintain park and recreation facilities are eligible to apply. Applicants must fund the entire project, and will be reimbursed for 50 percent of costs. Property acquired or developed under the program must be retained in perpetuity for public recreational use. The grant process for local agencies is competitive, and forty percent of grants are reserved for Northern California. In 2006, approximately $480,000 is available for projects in Northern California.

**Safe Routes to School (SR2S)**

In September 2004, with the passage of SB 1087 (Soto), the State extended Safe Routes to School legislation for three additional years. The bill is scheduled to sunset on January 1, 2008. This program is meant to improve the safety of walking and cycling to school and encourage students to walk and bicycle to school through identification of existing and new routes to school and construction of pedestrian and bicycle safety and traffic calming projects. Caltrans is currently evaluating California’s SR2S funding, in light of the new federal SR2S Program. Recent SAFETEA-LU legislation, which requires each state's Department of Transportation to designate a SR2S Coordinator, also contains a SR2S program. As of this printing, whether or not these programs will be combined in California or will remain autonomous has not been determined. Therefore, the amount of funds available is unknown at this point.
**Environmental Justice: Context Sensitive Planning Grants**
The Caltrans-administered Environmental Justice: Context Sensitive Planning Grants Program funds planning activities that assist low-income, minority, and Native American communities in becoming active participants in transportation planning and project development. Grants are available to transit districts, cities, counties, and tribal governments. This grant is funded by the State Highway Account at $1.5 million annually state-wide. Grants are capped at $250,000.

**Office of Traffic Safety (OTS) Grants**
The California Office of Traffic Safety distributes federal funding apportioned to California under the National Highway Safety Act and SAFETEA-LU. Grants are used to establish new traffic safety programs, expand ongoing programs to address deficiencies in current programs. Bicycle and pedestrian safety are included in the list of traffic safety priority areas. Eligible grantees are: governmental agencies, state colleges and state universities, local city and county government agencies, school districts, fire departments, and public emergency services providers. Grant funding cannot replace existing program expenditures, nor can traffic safety funds be used for program maintenance, research, rehabilitation, or construction. Grants are awarded on a competitive basis, and priority is given to agencies with the greatest need. Evaluation criteria to assess need include: potential traffic safety impact, collision statistics and rankings, seriousness of problems, and performance on previous OTS grants. OTS expects to have $56 million in funding available statewide for FY 2006/07.

**California Center for Physical Activity Grant Program**
The California Center for Physical Activity runs several programs related to walking and offers small grants to public health departments. Grants are in the amount of $4,999 dollars or less and are offered intermittently.

**LOCAL FUNDING SOURCES**

**TDA Article 3**
Transportation Development Act (TDA) Article 3 funds are available for transit, bicycle and pedestrian projects in California. According to the Act, pedestrian and bicycle projects are allocated two percent of the revenue from a ¼ cent of the general state sales tax, which is dedicated to local transportation. These funds are collected by the State, returned to each county based on sales tax revenues, and typically apportioned to areas within the county based on population. Eligible pedestrian and bicycle projects include: construction and engineering for capital projects; maintenance of bikeways; bicycle safety education programs; and development of comprehensive bicycle or pedestrian facilities plans. A city or county is allowed to apply for funding for bicycle or pedestrian plans not more than once every five years. These funds may be used to meet local match requirements for federal funding sources.

**NON-TRADITIONAL FUNDING SOURCES**

**Integration into Larger Projects**
California State’s “routine accommodation” policies require Caltrans to design, construct, operate, and maintain transportation facilities using best practices for pedestrians and bicyclists. Local jurisdictions can begin to expect that some portion of bicycle and pedestrian project costs, when they are built as part of larger transportation projects, will be covered in project construction.
baskets. This applies to Caltrans and other transportation facilities, such as new transit stations and stops.

**Community Development Block Grants**

The CDBG program provides money for streetscape revitalization, which may be largely comprised of bicycle and pedestrian improvements. Federal Community Development Block Grant Grantees may use CDBG funds for activities that include (but are not limited to): acquiring real property; building public facilities and improvements, such as streets, sidewalks, and recreational facilities; and planning and administrative expenses, such as costs related to developing a consolidated Plan and managing CDBG funds. In some cities, CDBG funds have also been used to find crossing guards, called “Safe Walk to School Monitors.” $526 million in CDBG funds were distributed statewide in 2004/05.

**REQUIREMENTS FOR NEW DEVELOPMENT**

**Mello-Roos Community Facilities Districts and Assessment Districts**

Bike paths and bike lanes can be funded as part of a local community facilities district, assessment or benefit district. This may be a specific district for funding bicycle facilities, or may be combined with larger parks and recreation or other public infrastructure districts.

**New Construction**

Future road widening and construction projects are a means of providing bicycle facilities. To ensure that roadway construction projects provide facilities where needed and feasible, it is important that an effective review process be in place so that new roads meet the standards and guidelines presented in the County’s Bicycle Transportation Plan.

**Impact Fees**

Another potential local source of funding is developer impact fees, typically tied to trip generation rates and traffic impacts produced by a proposed project. A developer may reduce the number of trips (and hence impacts and cost) by paying for on- and off-site bikeway improvements that will encourage residents to bicycle rather than drive. Potential impact fees must be reasonably related to and roughly proportional to the impact that the fees are designed to address.

**San Joaquin Valley Air Pollution Control District**

The San Joaquin Valley Air Pollution Control District (SVAPCD) is in the process of reviving funding opportunities for the construction of bicycle facilities. The SVAPCD established an air quality mitigation fee program in 2006, which will help fund projects to improve air quality in the district including bicycle projects.
### Table 7-5

**Funding Sources**

<table>
<thead>
<tr>
<th>Grant Source</th>
<th>Application Deadline</th>
<th>Agency</th>
<th>Program Funds Available</th>
<th>Matching Requirement</th>
<th>Eligible Applicants</th>
<th>Commute</th>
<th>Recreation</th>
<th>Safety/Education</th>
<th>Comments/Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal Funding</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal Lands Highways Funds</td>
<td></td>
<td>FHWA</td>
<td>$1 billion dollars total nationwide through 2009</td>
<td>None</td>
<td>State</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Project must appear in STIP. Contact California Division, FHWA <a href="http://www.fhwa.dot.gov/cadiv/directory.htm">http://www.fhwa.dot.gov/cadiv/directory.htm</a></td>
</tr>
<tr>
<td>Transportation and Community and System Preservation Program (TCSP)</td>
<td>Varies</td>
<td>FHWA</td>
<td>$61.25 million annually nationwide through 2008/10</td>
<td>20% local match</td>
<td>state, local, MPOs</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>Projects that improve system efficiency, reduce environmental impacts of transportation, etc. Contact Kenneth Petty TCSP Program Officer, Office of Planning phone: (202) 366-6654 <a href="http://www.fhwa.dot.gov/tcsp/pi_tcsp.htm">http://www.fhwa.dot.gov/tcsp/pi_tcsp.htm</a></td>
</tr>
<tr>
<td><strong>State Funding</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California Center for Physical Activity Grant Program</td>
<td>Ongoing</td>
<td>Department of Health Services</td>
<td>Up to $4,999 per grantee</td>
<td>None</td>
<td>Public Health Departments</td>
<td>X</td>
<td></td>
<td></td>
<td>For pedestrian encouragement programs Contact: Lisa Cirill, Acting Chief <a href="mailto:lcirill@dhs.ca.gov">lcirill@dhs.ca.gov</a> 916.552-9943</td>
</tr>
<tr>
<td>Environmental Enhancement and Mitigation Program</td>
<td>Currently suspended (as of mid-2006)</td>
<td>State Resources Agency, Caltrans</td>
<td>$10 million statewide</td>
<td>Not required but favored</td>
<td>local, state and federal government</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Projects that mitigate environmental impacts of planned transportation projects; can include acquisition or development of roadside recreational facilities. Contact</td>
</tr>
</tbody>
</table>

**Acronyms:**
- AQMD - Air Quality Management District
- Caltrans - California Department of Transportation
- CMAQ - Congestion Management and Air Quality
- CTC - California Transportation Commission
- FHWA - Federal Highway Administration
- STANCOG – Stanislaus Council of Governments
- RTPA - Regional Transportation Planning Agency
- State DPR - California Department of Parks and Recreation (under the State Resources Agency)
- SAFETEA – Safe, Accountable, Flexible, Efficient Transportation Equity Act of 2003

**Jurisdictions for City of Modesto, California:**
- Caltrans - Caltrans District 10
### 8. Implementation

<table>
<thead>
<tr>
<th>Grant Source</th>
<th>Application Deadline</th>
<th>Agency</th>
<th>Program Funds Available</th>
<th>Matching Requirement</th>
<th>Eligible Applicants</th>
<th>Commute</th>
<th>Recreation</th>
<th>Safety/ Education</th>
<th>Comments/Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>(EEMP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>non-profit agencies</td>
<td></td>
<td></td>
<td></td>
<td>Carolyn Dudley, State Resources Agency, (916) 653-5656</td>
</tr>
<tr>
<td>Environmental Justice Grants: Context Sensitive Planning</td>
<td>October 14</td>
<td>Caltrans</td>
<td>$1.5 million statewide</td>
<td>10% local</td>
<td>MPA, RPTA, city, county, tribal govts, transit districts</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Funds activities that include low-income and minority communities in transportation planning and project development. Contact Norman Dong at <a href="mailto:norman_dong@dot.ca.gov">norman_dong@dot.ca.gov</a> or (916) 651-6889.</td>
</tr>
<tr>
<td>Land and Water Conservation Fund (LCWF)</td>
<td>May 1</td>
<td>California DPR</td>
<td>$480,000 for Northern California (2006)</td>
<td>50% match</td>
<td>Cities, counties, park districts</td>
<td></td>
<td>X</td>
<td></td>
<td>Recreational trails are eligible for funding. Applicants must fund the entire project, and will be reimbursed for 50% of costs.</td>
</tr>
<tr>
<td>Office of Traffic Safety Grants</td>
<td>Jan. 31</td>
<td>Office of Traffic Safety</td>
<td>$56 million statewide (FY 2006/07)</td>
<td>None</td>
<td>Governmental agencies, state colleges, and state universities, local city and county government agencies, school districts, fire departments, and public emergency services providers</td>
<td></td>
<td></td>
<td>X</td>
<td>Grants are used to mitigate traffic safety program deficiencies, expand ongoing activity, or develop a new program. Grant funding cannot replace existing program expenditures, nor can traffic safety funds be used for program maintenance, research, rehabilitation, or construction. Contact OTS Regional Coordinator Lisa Dixon at, (916) 262-0978 or <a href="mailto:ldixon@ots.ca.gov">ldixon@ots.ca.gov</a></td>
</tr>
<tr>
<td>Recreational Trails Program (RTP)</td>
<td>Oct. 1</td>
<td>State DPR</td>
<td>$3.3 million statewide (FY 2006)</td>
<td>20% match</td>
<td>jurisdictions special districts, non profits with mgmt responsibilities over the land</td>
<td></td>
<td></td>
<td>X</td>
<td>For recreational trails to benefit bicyclists, pedestrians, and other users; contact State Dept. of Parks &amp; Rec., Statewide Trails Coordinator, (916) 653-8803</td>
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<tr>
<td>Safe Routes to School (AB 1475/SB1087)</td>
<td>May 31</td>
<td>Caltrans</td>
<td>Statewide amount unclear as of mid-2006</td>
<td>11.5% min.</td>
<td>city, county</td>
<td></td>
<td>X</td>
<td>X</td>
<td>Primarily construction program to enhance safety of pedestrian and bicycle facilities. Contact Caltrans District 10, (209) 948-7543</td>
</tr>
</tbody>
</table>
### 8. Implementation

<table>
<thead>
<tr>
<th>Grant Source</th>
<th>Application Deadline</th>
<th>Agency</th>
<th>Program Funds Available</th>
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<th>Recreation</th>
<th>Safety/Education</th>
<th>Comments/Contact Information</th>
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<tr>
<td><strong>Local Funding</strong></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation Development Act (TDA) Article 3</td>
<td>January</td>
<td>STANCOG</td>
<td>-</td>
<td>--</td>
<td>city, county</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Allocated by STANCOG</td>
</tr>
<tr>
<td><strong>Nontraditional Sources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Community Development Block Grants</td>
<td>Varies</td>
<td>HUD</td>
<td>$526 million statewide (2004/05)</td>
<td>None, but may be used as evaluation criteria</td>
<td>Public entities and 501(c)(3) non-profits and tax-exempt faith-based religious orgs</td>
<td></td>
<td></td>
<td></td>
<td>Primarily for community revitalization, but may be used to fund streetscape improvements, to eliminate slum and blight in low- and moderate-income areas.</td>
</tr>
<tr>
<td>Mello-Roos Community Facilities Act</td>
<td>None</td>
<td>Various Public Agencies</td>
<td>Varies</td>
<td>None</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Primarily used to fund public services such as libraries and fire departments, but may fund pedestrian infrastructure.</td>
</tr>
</tbody>
</table>
SYSTEM MAINTENANCE COSTS

Many of Modesto’s bicycling and walking paths need maintenance attention, such as fixing broken asphalt and clearing plant overgrowth. Bike lanes need regular sweeping to clear debris. The total annual maintenance cost of the primary non-motorized system is estimated to be about $925,000 per year when it is fully implemented. Class I bike path and sidewalk maintenance costs are based on $8,500 per mile, which covers labor, supplies, and amortized equipment costs for weekly trash removal, monthly sweeping, and bi-annual resurfacing and repair patrols. Other maintenance costs include bike lane line and crosswalk restriping, sweeping debris, and tuning signals for bicycle and pedestrian sensitivity. Although these latter aspects are generally associated with routine roadway maintenance, special attention to bikeway and walkway safety and usability is important and can mean additional costs are incurred. Table 8-3 provides cost estimates for the operation and maintenance of the recommended bicycle programs and the complete recommended bikeway network.

Maintenance access on the Class I bike paths may be achieved using standard City pickup trucks on the pathways. Sections with narrow widths or other clearance restrictions should be clearly marked. Class I bike path maintenance includes cleaning, resurfacing and restriping the asphalt path, repairs to crossings, cleaning drainage systems, trash removal, and landscaping. Underbrush and weed abatement should be performed once in the late spring and again in mid-summer.

Table 8-3
Operations and Maintenance Cost Estimates

<table>
<thead>
<tr>
<th>Facility/Program</th>
<th>Unit Cost ($)</th>
<th>Unit Description</th>
<th>Units</th>
<th>Cost ($)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I Maintenance</td>
<td>8,500</td>
<td>Miles/Year</td>
<td>93.2</td>
<td>792,200</td>
<td>See Table 7-1 Repainting lane stripes and stencils, sign replacement as needed</td>
</tr>
<tr>
<td>Class II Maintenance</td>
<td>2,000</td>
<td>Miles/Year</td>
<td>66.4</td>
<td>132,800</td>
<td>Safety programs taught in 3rd/4th grades</td>
</tr>
<tr>
<td>Bicycle Education Safety Grants</td>
<td>10,000</td>
<td>Year</td>
<td>10</td>
<td>100,000</td>
<td>Updated safety materials</td>
</tr>
<tr>
<td>Bicycle Education Safety Materials</td>
<td>5,000</td>
<td>Every 5 years</td>
<td>4</td>
<td>20,000</td>
<td></td>
</tr>
<tr>
<td>Safe Routes to School Program</td>
<td>5,000</td>
<td>Year</td>
<td>10</td>
<td>50,000</td>
<td>Safety Coordination</td>
</tr>
<tr>
<td>Bike Fairs/Races Employer</td>
<td>2,500</td>
<td>Year</td>
<td>10</td>
<td>25,000</td>
<td>Coordination</td>
</tr>
<tr>
<td>Incentives Bike-to-Work Days</td>
<td>2,500</td>
<td>Year</td>
<td>10</td>
<td>25,000</td>
<td>Coordination</td>
</tr>
</tbody>
</table>

Note: Costs incurred for maintenance of Class III facilities would be for sign replacement as needed (usually 3 – 5 years).
8. Implementation

MAINTENANCE FUNDING

There are two general categories of recommended alternative, or non-general fund-based, methods for generating funds to cover regular trail maintenance costs. A brief description and examples of different methods are provided below. It is recommended that each method be carefully considered in terms of viability, including the necessary staff resources that may be required, as well as the potential base of public and private support. In addition, it is likely that more than one strategy will be necessary to adequately fund the trail maintenance program.

TAX AND FEE STRATEGIES

The first category of programs is fee or tax-based strategies that can raise the most revenue but also potentially be more politically difficult to implement. These revenue generating methods may include assessing a citywide tax or designating a local community facilities district tax or benefit assessment district fee.

Community Facilities Districts
Community Facilities Districts (CFDs) are mechanisms by which a specified district of property owners may vote to assess themselves a fee for the purpose of financing maintenance of open space, street medians, right-of-way, non-motorized facilities, street lighting, security, flood control and drainage. CFDs are usually implemented as part of new subdivision development but may also be organized by neighborhood groups or property owner associations.

Developer Impact Fees
Developer Impact Fees may be assessed on developers as part of development permits and/or impact mitigation requirements. The onetime impact fees are onetime fees that may be imposed on development activities for public goods and services associated with the development project, but provided for by the developer. The construction or improvement of water and sewer lines, streets and bridges, and parks and recreational facilities are some examples of typical projects funded through impact fees. In Modesto, the City may designate impact fees for new developments to cover costs of adjacent trail facilities.1

Sales Tax
Sales taxes must be approved by a 2/3 vote and can be earmarked for specific projects. Besides covering all general retail sales, sales taxes can also be imposed on purchases of specific items such as gasoline, motor vehicles, alcohol and tobacco. Sales taxes are attractive to local communities for at least two reasons: they are relatively easy to collect, and, although they fluctuate with the economy, they provide a constant revenue stream ideal for covering regular maintenance costs.

VOLUNTEER AND DONATION PROGRAMS

The second category of sources for trail maintenance funding covers the broad range of volunteer and donation strategies. These range from Adopt-a-Trail programs to special events geared towards fundraising.

1 http://www.tpl.org/tier3_cdl.cfm?content_item_id=1061&folder_id=825
8. Implementation

Adopt-a-Trail
Adopt-A-Trail programs vary in structure and goals but are primarily geared towards maintenance funding and are volunteer and donor-based. The Salida, Colorado Trail System's “Adopt-a-Trail” program, whose purpose has been both maintenance and beautification, has been extremely successful, to the extent that the nine original maintenance sections have been subdivided in order to accommodate all those who want to participate. Volunteers included the Boy Scouts, an agency for the developmentally handicapped, two businesses, a church, a bank, and the Cystic Fibrosis Association. The City of Modesto is already considering an adopt-a-trail program to acquire funding for portions of the Virginia Corridor Trail.

Special Events
Another volunteer and donation-based method includes hosting special events to draw charitable support from location businesses. Special events may include Bike to Work days, auctions and raffles, or other such events that may be held once or twice a year. In the Bay Area, these types of events are often organized by local bicycling or recreational groups in partnerships with city governments and rely on charitable sponsorship by businesses providing refreshments and equipments. Not only do these events raise money through auctions and raffles, but they also serve as an opportunity to encourage more citizens to enjoy bicycling or other alternative modes of transportation and to provide educational information on safety.

Volunteer Services
Volunteer organizations can work in partnership with the local government to maintain portions of trail systems. In California, the California Conservation Corps (CCC) can be utilized as a low-cost source of labor for maintaining trails. The CCC provides meaningful work and educational opportunities to assist young men and women by working together to protect and enhance California's environment, human resources and communities. The program is organized to provide corps members and services depending upon the project requirements. A crew usually consists of 10 to 15 young men and women; a staff supervisor who directs the crew; a vehicle, and basic tools.

In some cases, local recreational groups can help to maintain the trail, using a portion of membership dues to pay for volunteer trail maintenance activities. Other examples of volunteer and donor-based funding initiatives may include the creation of an annual award that recognizes outstanding local businesses or corporations that donate time and/or money in the maintenance of trails. The award may be an incentive for businesses to contribute. Placing corporate logos on signage and other amenities donated by businesses may also be an incentive for them to contribute.

Bicycle and other recreational equipment shops can also get involved in recruiting volunteers for trail maintenance. One bike shop in Colorado encourages trail volunteers by putting the name of a volunteer in a jar each day that person volunteers. At the end of the year, they draw a name from the jar and give them a mountain bike.

Small Business and Corporate Giving
Trail maintenance funding programs are considered under the heading of small business and corporate gifts. These programs are based on corporate sponsorship that may require promotion of the donating company by, for example, placing the corporate logos on trail signs. Other examples of small business donations and corporate giving include the provision of maintenance supplies,
volunteered labor provided by a firm, and donations to be included in raffle and auction events. One example of creative corporate giving occurred in Leadville, Colorado, where a local microbrewery created the Mineral Belt Pale Ale beer named after the local Mineral Belt recreational trail. A portion of the sales of the Pale Ale goes towards maintenance costs for the trail.

Recreational Fees and Sales
User fees may be considered the most direct form of revenue generation for trail maintenance, because the users of the facility are required to pay an annual fee to in order to use trail. However, unless the facility is heavily used, user fees are not likely to be viable in Modesto for at least three reasons. First, the trails in Modesto will likely be used mostly by commuters and occasional recreational users that will not add up to a number significant for fundraising. Second, fees may dissuade potential trail users from using the facility, conflicting with the City’s goal of encouraging more riders. And third, the enforcement measures necessary to ensure user-permit compliance would impose an additional cost on the city.

Other Fundraising Examples
The following additional trail maintenance fundraising examples were provided by the American Trails national organization.2

- In Durango, Colorado, the Animas River Trail was supported by part of a 1/2 cent sales tax increase. City voters approved the tax to fund a new recreation center as well as the trail and greenway rehabilitation along the river.

- The Carolina Heartlands Rail-Trail received help from the North Carolina Corrections Department. Between 20 and 90 inmates a day worked on clearing trees, brush, and trash from the right-of-way. The young crews, mostly first-time offenders in a bootcamp-style program, tackled the 12.5 miles between Wadesboro and McFarlan.

- Bike suspension maker RockShox provides many $250 grants for volunteer trail projects. One example is the Discovery Program of Orange, VA, which will use the funds to construct a beginner mountain bike trail, renovate a section of existing trail, and conduct a trail study that will provide recommendations to local land managers. Participants include Prospect Heights Middle School and the Walnut Creek Park Trail Volunteers.

- Trails4All in Orange County, CA, has started a program to raise funds to support volunteer trail projects. Stores sell the “EnviroDollar Coupons” and some stores also match donations. Participating stores are listed in the Trails4All newsletter and their employees can win raffle items for supporting the program. Trails4All also helps stores set up a “Trails Advocacy Department” with trail maps, sign samples, rules-of-the-trail, etc.

- Cyclists can sponsor a mile of the Great Divide Mountain Bike Route from Canada to Mexico. The Trailblazer Fund of Adventure Cycling is raising funds for trail development at $100 a mile.

- “Gift catalogues” are one way to publicize the many ways that trail projects need money. Gift catalogues have been used by at least three trail organizations: the Eagle County Trail System and the Cache La Poudre River Trail in Colorado, and the Wood River Trails in

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2 http://www.americantrails.org/resources/funding/TipsFund.html
Idaho. Contributors can purchase drinking fountains, interpretive signs, trees, wildflowers, or give to the endowment fund. You can also buy a foot of paved trail for $100 or a mile of parallel equestrian trail for $5,000. Those who would like to make a bigger impact can also restore an old railroad trestle for $30,000 or build a serious missing link of trail for $75,000.

- Rail trails may end up with some saleable materials to finance construction and maintenance. The Old Creamery Trail between Vinton and Dysart, Iowa, offered railroad ties for landscaping for a “reasonable donation” to the trail fund.

- In Colorado’s San Luis Valley, the Juvenile Restitution Program has become a key source of labor for trail projects. Mountain Trails Youth Ranch supervises the young people, who have committed crimes and are required to earn money owed for damages. Several community agencies and the State Off-Highway Vehicle Program combine to support the program.

- Some bicycle shops in the Ketchum/Sun Valley, Idaho area organized a system which they liken to “self-taxation.” The dealers agreed that each would donate five dollars for every bicycle sold, and 25¢ for every rental of a bicycle or in-line skate. The money went to either the USFS trails, or to a paved bike path system which runs throughout the resort area -- with the customer making the choice. The dealer program has now operated for three years (only during the three months of summer when cash flow is high) and has raised about $3,000 each year.
8. Implementation

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APPENDIX A: BIKEWAY PLANNING AND DESIGN

This chapter provides basic bikeway planning and design requirements and recommendations for use in developing the Modesto bikeway system and support facilities.

BIKEWAY CLASSIFICATION DESCRIPTIONS

According to Caltrans, the term “bikeway” encompasses all facilities that provide primarily for bicycle travel. Caltrans has defined three types of bikeways in Chapter 1000 of the Highway Design Manual: Class I, Class II, and Class III. Descriptions and general design guidelines are presented below. The sources used for these design recommendations were Caltrans’ Highway Design Manual and AASHTO’s Guide for the Development of Bicycle Facilities. Figure A-1 provides an illustration of the three types of bicycle facilities.

CLASS I BIKEWAY

Typically called a “bike path” or “shared use path,” a Class I bikeway provides bicycle travel on a paved right-of-way completely separated from any street or highway. The recommended width of a shared use path is dependent upon anticipated usage:

- 8’ (2.4 m) is the minimum width for Class I facilities
- 8’ (2.4 m) may be used for short neighborhood connector paths (generally less than one mile in length) due to low anticipated volumes of use
- 10’ (3.0 m) is the recommended minimum width for a typical two-way bicycle path
- 12’ (3.6 m) is the preferred minimum width if more than 300 users per peak hour are anticipated, and/or if there is heavy mixed bicycle and pedestrian use

A minimum 2’ (0.6 m) wide graded area must be provided adjacent to the path to provide clearance from trees, poles, walls, guardrails, etc. On facilities with expected heavy use, a yellow centerline stripe is recommended to separate travel in opposite directions. Figure A-2 illustrates a typical cross-section of a Class I multi-use path.
Appendix A: Bikeway Planning and Design

Shared Use Path – Class I
Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow minimized.

Bike Lane – Class II
Provides a striped lane for one-way bike travel on a street or highway.

Bike Route – Class III
Signed Shared Roadway
Provides for shared use with pedestrian or motor vehicle traffic, typically on lower volume roadways.

FIGURE A-1 Bicycle Facility Types
FIGURE A-2 Class I Facility Cross-Section
ADDITIONAL DESIGN RECOMMENDATIONS:

1. Shared use trails and unpaved facilities that serve primarily a recreation rather than a transportation function and will not be funded with federal transportation dollars may not need to be designed to Caltrans standards. However, state and national guidelines have been created with user safety in mind and should be followed as appropriate. Wherever any trail facility intersects with a street, roadway, or railway, standard traffic controls should always be used.

2. Class I bike path crossings of roadways require preliminary design review. Generally speaking, bike paths that cross roadways with average daily trips (ADTs) over 20,000 vehicles will require signalization or grade separation.

3. Landscaping should generally be low water consuming native vegetation and should have the least amount of debris.

4. Lighting should be provided where commuters will use the bike path in the evenings.

5. Barriers at pathway entrances should be clearly marked with reflectors and be ADA accessible (minimum five feet clearance).

6. Bike path construction should take into account impacts of maintenance and emergency vehicles on shoulders and vertical and structural requirements. Paths should be constructed with adequate sub grade compaction to minimize cracking and sinking.

7. All structures should be designed to accommodate appropriate loadings. The width of structures should be the same as the approaching trail width, plus minimum two-foot wide clear areas.

8. Where feasible, provide two-foot wide unpaved shoulders for pedestrians/runners, or a separate treadmill.

9. Direct pedestrians to the right side of pathway with signing and/or stenciling.

10. Provide adequate trailhead parking and other facilities such as restrooms and drinking fountains at appropriate locations.

CLASS II BIKEWAY

Often referred to as a “bike lane,” a Class II bikeway provides a striped and stenciled lane for one-way travel on either side of a street or highway. Figure A-3 shows a typical Class II cross-section. To provide bike lanes along corridors where insufficient space is currently available, extra room can be provided by removing a traffic lane, narrowing traffic lanes, or prohibiting parking. The width of the bike lanes vary according to parking and street conditions:

- 4’ (1.2 m) minimum if no gutter exists, measured from edge of pavement
- 5’ (1.5 m) minimum with normal gutter, measured from curb face; or 3’ (0.9 m) measured from the gutter pan seam
- 5’ (1.5 m) minimum when parking stalls are marked
- 11’ (3.3 m) minimum for a shared bike/parking lane where parking is permitted but not marked on streets without curbs; or 12’ (3.6 m) for a shared lane adjacent to a curb face
FIGURE A-3  Class II Facility Cross-Section

* Curb Lane:
10' Under 2000 ADT
12' over 2000 ADT (under 35 mph)
14' over 20,000 ADT (over 35 mph)
**ADDITIONAL DESIGN RECOMMENDATIONS:**

1. Whenever possible, the Department of Public Works should recommend that wider bike lanes beyond the minimum standard be installed.

2. Intersection and interchange treatment – Caltrans provides recommended intersection treatments in Chapter 1000 including bike lane “pockets” and signal loop detectors. The Department of Public Works should develop a protocol for the application of these recommendations, so that improvements can be funded and made as part of regular improvement projects.

3. Signal loop detectors, which sense bicycles, should be considered for all arterial/arterial, arterial/collector, and collector/collector intersections. A stencil of a bicycle and the words “Bicycle Loop” should identify the location of the detectors.

4. When loop detectors are installed, traffic signalization should be set to accommodate bicycle speeds.

5. Bicycle-sensitive loop detectors are preferred over a signalized button specifically designed for bicyclists (see discussion of loop detectors, below).

6. Bike lane pockets (min. 4’ wide) between right turn lanes and through lanes should be provided wherever available width allows, and right turn volumes exceed 150 motor vehicles/hour.

7. Where bottlenecks preclude continuous bike lanes, they should be linked with Class III route treatments.

8. A bike lane should be delineated from motor vehicle travel lanes with a solid 6” white line, per MUTCD. Along major arterials, wider white lines, double white lines, or a painted buffer zone may be used to further delineate the bike lane from motor vehicle travel lanes.

9. Word and symbol pavement stencils should be used to identify bicycle lanes, as per Caltrans and MUTCD specifications.

Installing bike lanes may require more attention to continuous maintenance issues. Bike lanes tend to collect debris as vehicles disperse gravel, trash, and glass fragments from traffic lanes to the edges of the roadway. Striping and stenciling will need periodic replacing.

Poorly designed or placed drainage grates can often be hazardous to bicyclists. Drainage grates with large slits can catch bicycle tires. Poorly placed drainage grates may also be hazardous, and can cause bicyclists to veer into the auto travel lane.

**CLASS III BIKEWAY**

Generally referred to as a “bike route,” a Class III bikeway provides routes through areas not served by Class I or II facilities or to connect discontinuous segments of a bikeway.
Appendix A: Bikeway Planning and Design

Class III facilities can be shared with either motorists on roadways or pedestrians on a sidewalk (not advisable) and is identified only by signing. There are no recommended minimum widths for Class III facilities, but when encouraging bicyclists to travel along selected routes, traffic speed and volume, parking, traffic control devices, and surface quality should be acceptable for bicycle travel. A wide outside traffic lane (14") is preferable to enable cars to safely pass bicyclists without crossing the centerline.

INTERSECTION CONSIDERATIONS

Intersections represent one of the primary collision points for bicyclists. Generally, the larger the intersection, the more difficult it is for bicyclists to cross. Oncoming vehicles from multiple directions and increased turning movements make it difficult for motorists to see non-motorized travelers.

Most intersections do not provide a designated place for bicyclists. Bike lanes and pavement markings often end before intersections, causing confusion for bicyclists. Loop and other detectors, such as video, often do not detect bicycles.

Bicyclists wanting to make left turns can face quite a challenge. Bicyclists must either choose to behave like motorists by crossing travel lanes and seeking refuge in a left-turn lane, or they act as pedestrians and dismount their bikes, push the pedestrian walk button located on the sidewalk, and then cross the street in the crosswalk. Bicyclists traveling straight also have difficulty maneuvering from the far right lane, across a right turn lane, to a through lane of travel. Furthermore, motorists often do not know which bicyclist movement to expect.

Changing how intersections operate also can help make them more “friendly” to bicyclists. Improved signal timings for bicyclists, bicycle-activated loop detectors, and camera detection make it easier and safer for cyclists to cross intersections.

Figure A-4 is an example of an intersection that provides bike lanes at critical locations at intersections.
FIGURE A-4  Bike Lanes at Intersection
BICYCLE LOOP DETECTORS

The purpose of bicycle loops is to detect bicyclists waiting at intersections, and to give cyclists extra green time (e.g., five seconds) before the light turns yellow to make it through the light. Current and future loops that are sensitive enough to detect bicycles should have pavement markings to instruct cyclists how to trip them. Common loop detector types are shown in Figure A-5 below:

![Figure A-5]

**Quadrupole Loop**
- Detects most strongly in center
- Sharp cut-off sensitivity
- Used in bike lanes

**Diagonal Quadrupole Loop**
- Sensitive over whole area
- Sharp cut-off sensitivity
- Used in shared lanes

**Standard Loop**
- Detects most strongly over wires
- Gradual cut-off
- Used for advanced detection

From: Implementing Bicycle Improvements at the Local Level, FHWA, 1998, page 70.

BIKE BOX

A bike box is a relatively new innovation to improve turning movements for bicyclists without requiring cyclists to merge into traffic to reach the turn lane or use crosswalks as a pedestrian. Bike boxes are essentially extensions of bike lanes at intersections that allow bicyclists to position themselves ahead of motor vehicles stopped at a traffic signal. The bike box is formed by pulling the stop line for vehicles back from the intersection, and adding a stop line for bicyclists immediately behind the crosswalk. When a traffic signal is red, a bicyclist can move into this “box” ahead of the cars to make himself more visible, or to move into a more comfortable position to make a turn. Bike boxes have been used in Cambridge, MA; Eugene, OR; and European cities.

UNDERCROSSINGS

Figure A-6 illustrates basic design standards for undercrossings.
Figure A-6 Undercrossing Design Guidelines
Some design considerations with undercrossings:

- Must have adequate lighting and sight distance for safety
- Must have adequate over-head clearance of at least 3.1 m (10 ft)
- Tunnels should be a minimum 4.3 m (14 ft) for several users to pass one another safely; a 3.0 m x 6.0 m (10 ft x 20 ft) arch is the recommended standard
- “Channeling” with fences and walls into the tunnel should be avoided for safety reasons
- May require drainage if the sag point is lower than the surrounding terrain

**SIGNAGE**

Implementing a well-planned and attractive system of signing can greatly enhance bikeway facilities by signaling their presence and location to both motorists and existing and potential bicycle users. By leading people to city bikeways and the safe and efficient transportation they offer to local residents and visitors to the county, effective signage can encourage more people to bicycle.

**STANDARD SIGNAGE**

All bikeway signing should conform to the signing identified in the Caltrans Traffic Manual and/or the Manual on Uniform Traffic Control Devices (MUTCD). These documents give specific information on the type and location of signing for the primary bike system. A list of bikeway signs from Caltrans and the MUTCD is shown in Table A-1.

Figures A-7, A-8, A-9, and A-10 illustrate a number of examples of bikeway signage.

In general, the sizes of signs used on bicycle paths are smaller than those used on roadways. Table 9B-1 of the MUTCD lists minimum sign sizes for both path and roadway bicycle facilities. If the sign applies to drivers and bicyclists, then the larger size used for conventional roads shall apply.
## Table A-1
Recommended Signing and Marking

<table>
<thead>
<tr>
<th>Item</th>
<th>Location</th>
<th>Color</th>
<th>Caltrans Designation</th>
<th>MUTCD Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Motor Vehicles</td>
<td>Entrances to trail</td>
<td>B on W</td>
<td>R44A</td>
<td>R5-3</td>
</tr>
<tr>
<td>Use Ped Signal / Yield to Peds</td>
<td>At crosswalks; where sidewalks are being used</td>
<td>B on W</td>
<td>N/A</td>
<td>R9-5, R9-6</td>
</tr>
<tr>
<td>Bike Lane Ahead: Right Lane Bikes Only</td>
<td>At beginning of bike lanes</td>
<td>B on W</td>
<td>N/A</td>
<td>R3-16, R3-17</td>
</tr>
<tr>
<td>STOP, YIELD</td>
<td>At trail intersections with roads</td>
<td>W on R</td>
<td>R1-2</td>
<td>R1-1, R1-2</td>
</tr>
<tr>
<td>Bicycle Crossing</td>
<td>For motorists at trail crossings</td>
<td>B on Y</td>
<td>W79</td>
<td>W11-1</td>
</tr>
<tr>
<td>Bike Lane</td>
<td>At the far side of all arterial intersections</td>
<td>B on W</td>
<td>R81</td>
<td>D11-1</td>
</tr>
<tr>
<td>Hazardous Condition</td>
<td>Slippery or rough pavement</td>
<td>B on Y</td>
<td>W42</td>
<td>W8-10</td>
</tr>
<tr>
<td>Turns and Curves</td>
<td>At turns and curves which exceed 20- mph</td>
<td>B on Y</td>
<td>W1, 2, 3, 4, 5,</td>
<td>W1-1, W1-2, W1-4, W1-5, W1-6</td>
</tr>
<tr>
<td></td>
<td>design specifications</td>
<td></td>
<td>6, 14, 56, 57</td>
<td></td>
</tr>
<tr>
<td>Trail Intersections</td>
<td>At trail intersections where no STOP or</td>
<td>B on Y</td>
<td>W7, 8, 9</td>
<td>W2-1, W2-2, W2-3, W2-4, W2-5</td>
</tr>
<tr>
<td></td>
<td>YIELD required, or sight lines limited</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STOP Ahead</td>
<td>Where STOP sign is obscured</td>
<td>B, R</td>
<td>W17</td>
<td>W3-1</td>
</tr>
<tr>
<td>Signal Ahead</td>
<td>Where signal is obscured</td>
<td>B, R, G</td>
<td>W41</td>
<td>W3-3</td>
</tr>
<tr>
<td>Bikeway Narrows</td>
<td>Where bikeway width narrows or is below 8'</td>
<td>B on Y</td>
<td>W15</td>
<td>W5-4</td>
</tr>
<tr>
<td>Downgrade</td>
<td>Where sustained bikeway gradient is above 5%</td>
<td>B on Y</td>
<td>W29</td>
<td>W7-5</td>
</tr>
<tr>
<td>Pedestrian Crossing</td>
<td>Where pedestrian walkway crosses trail</td>
<td>B on Y</td>
<td>W54</td>
<td>W11A-2</td>
</tr>
<tr>
<td>Restricted Vertical Clearance</td>
<td>Where vertical clearance is less than 8'6”</td>
<td>B on Y</td>
<td>W47</td>
<td>W11A-2</td>
</tr>
<tr>
<td>Railroad Crossing</td>
<td>Where trail crosses railway tracks at grade</td>
<td>B on Y</td>
<td>W47</td>
<td>W10-1</td>
</tr>
<tr>
<td>Directional Signs</td>
<td>At intersections where access to major</td>
<td>W on G</td>
<td>G7, G8</td>
<td>D1-1b(r/l), D1-1-c</td>
</tr>
<tr>
<td></td>
<td>destinations is available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right Lane Must Turn Right; Begin Right</td>
<td>Where bike lanes end before intersection</td>
<td>B on W</td>
<td>R18</td>
<td>R3-7, R4-4</td>
</tr>
<tr>
<td>Turn Here; Yield to Bikes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Note:
1. The Bicycle Crossing sign (W79) is optional where the approach is controlled by a signal, stop sign, or yield sign.
2. 25-1,500 feet (75-400m); based on vehicle approach speed.
3. The bike lane may either be dropped entirely approximately 100-200' (30-60m) in advance of the intersection, or a dashed line carried to or through the intersection is optional.

Generally not recommended on signal, stop, or yield controlled approach.

An optional 4' solid white stripe may be used in place at the cross stripes where parking stalls are unnecessary because parking is tight and there is a concern that a motorist may misconstrue the bike lane to be a traffic lane.

FIGURE A-7
Typical Signing
At a Signalized Intersection
State of California - Department of Transportation
Code: SG45
MUTCD Number: None

Unique logo or words for any jurisdiction

88

<table>
<thead>
<tr>
<th>Sign Size</th>
<th>Dimensions (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 x 18</td>
<td>A 12 B 18 C 1/4 D 1/4 E 1-1/2 F 10 G 16 H 1/4 J 4 K 3/4 L 4-1/2 M 4D N 1-3/4</td>
</tr>
<tr>
<td>18 x 24</td>
<td>A 18 B 24 C 3/8 D 1/2 E 1-1/2 F 15 G 21 H 1/2 J 5 K 1 L 6 M 5D N 2-1/2</td>
</tr>
</tbody>
</table>

Colors
Border and Legend - Green (Reflective)
Background - White (Reflective)

FIGURE A-8  Caltrans Customized Bikeway Signs
Mid-Block Stickers
Small inexpensive self-adhesive versions of basic route sign without route number. Can be plastered mid-block on existing poles, etc. Might also be used as an interim route signage between intersections until funding can be secured.

FIGURE A-9
Various Bikeway Informational Signs
**Appendix A: Bikeway Planning and Design**

**FIGURE A-10**

**Bikeway Warning Signs**

- **Begin Right Turn Lane**
  - R4-4: Sign for use where right turn only lane begins and bicyclists must merge across.

- **No Parking Any Time**
  - R26 (CA): Signs for bike lanes where there is no auto parking on right of lane.

- **Bikeway Narrows**
  - W5-2: Signs for use at bridge or undercrossing locations where roadway width is constrained and Class II bicycle lanes may be dropped.

- **Narrow Bridge**
  - W5-4A: Signs for use at transition from Class II to Class III, at the beginning of routes, and on non-bicycle-route roads where bicycle traffic might be expected, or at intervals on all city streets.

- **Share the Road**
  - W11-1

- **Watch for Bikes**
  - W16-1: Signs for use at intervals along bike routes with adjacent parallel parking. Frequency of signs should be related to parking turnover rates. Should be used throughout city at parallel parking locations, also.

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Modesto Non-Motorized Transportation Master Plan
DRAFT
A-17
OTHER SIGNAGE

Innovative signing is often developed to increase bicycle awareness and improve visibility. Signs to be installed on public roadways in California must be approved by Caltrans’ California Traffic Control Devices Committee. New designs can be utilized on an experimental basis with Caltrans approval.

San Francisco was the first city in California to use the approved customized bike route logo sign. Jurisdictions may choose a graphic of their choice for the upper third portion of the sign and a numbering system, similar to the highway numbering system, can be used in the lower third. Some considerations for the use of directional signage:

- Use signs sparingly, primarily at intersections and junctions with other bicycle routes
- A consistent and recognizable logo, arrows and a destination should be on the sign to clearly direct bicyclists
- Bicycle route signs should be accompanied with destination and direction plaques

The new “Share the Road” sign, adopted by the California Traffic Control Devices Committee in 1999, is designed to advise motorists that bicyclists need to share narrow roadways with motor vehicles. This sign has been installed throughout Marin County.

Interest has been generated over the “Bikes Allowed Use of Full Lane” sign. These words, taken directly from the California Vehicle Code (CVC 21202), remind motorists of the rights of bicyclists on the roadway. Cities may consider using this sign as an experiment as it has not yet been approved by the California Traffic Control Devices Committee.

PAVEMENT MARKINGS

The Manual on Uniform Traffic Control Devices (MUTCD) provides guidance for lane delineation, intersection treatments, and general application of pavement wording and symbols for on-road bicycle facilities and off-road paths. In addition to those presented in the MUTCD, the following experimental pavement markings may be considered.

SHARED LANE MARKINGS

Recently, “shared lane marking” stencils, an additional treatment for Class III facilities, have been introduced in various cities to emphasize the share-the-lane concept. The stencil can serve a number of purposes, such as making motorists aware of bicycles potentially in their lane, showing bicyclists the direction of travel, and, with proper placement, reminding bicyclists to bike further from parked cars to prevent “dooring” collisions. The City of Denver has effectively used the “bike-in-house” shared marking treatment (shown in photo on previous page) for several years, and San Francisco recently tested
two designs of the shared lane marking stencil for use on Class III facilities where lanes are too narrow for sharing. Based on the results of the San Francisco study, the California Traffic Control Devices Committee (CTCDC) recommended in August 2004 that the “Chevron Bicycle Symbol” design of the Shared Lane Marking be adopted by Caltrans as a standard traffic control device in California. The “Chevron” marking design recommended by the CTCDC is shown below in Figure A-11. Figure A-12 illustrates the recommended on-street Shared Lane Marking stencil installation.

Guidance language recommended by the CTCDC for use of the Shared Lane Marking is as follows:

**Support:**
The Shared Lane Marking is intended to improve the positioning of bicyclists on roadways with significant bicycle usage and parked vehicles where the curb lanes are too narrow for motorists and bicyclists to travel side by side within the lane.

**Option:**
The Shared Lane Marking may be used in shared lanes to improve bicyclists’ positioning on roadways, encourage cycling in the correct direction, discourage cycling on sidewalks, and to decrease motor vehicle/bicycle conflicts by informing motorists where to expect cyclists, especially on urban and suburban roadways with narrow curb lanes.

**Standard:**
If used, the Shared Lane Marking shall be placed so that its center is a minimum of 3.4 meters (11 feet) from the curb face with on-street parking.

On street with no on-street parking, the marking should be placed so that it directs cyclists away from conditions alongside the curb face edge that compromise cyclists’ safety, such as drain grates and longitudinal gutter joints. If used, the Shared Lane Marking generally should be spaced at 75 meter (250 foot) intervals.

**Option:**
The spacing may be increased or decreased based on judgment. On streets with downgrades, higher speeds, or wide parked vehicles, the distance from the curb lane may be increased beyond 3.4 meters (11 feet).
FIGURE A-12  Shared Lane Marking Installation

Center of Shared Lane Marking
Minimum 11'-0" from Curb

Approximate Parked Passenger Vehicle Width from Curb

9' - 6"

Approximate Door Open Width from Curb

7"
COMBINED BICYCLE/RIGHT TURN LANE

In this innovative treatment, a standard-width bicycle lane is installed on the left side of the dedicated right-turn lane. A dashed stripe provides the bicycle portion and the right-turn portion of the lane. This installation should be used on roadways where there is not enough room to provide a standard-width bicycle lane and a standard-width dedicated right-turn lane. These facilities are currently used in Eugene, Oregon.

Some considerations for the implementation of combined bicycle/right turn lanes:

- Average vehicle speeds < 48 km/h (30 mi/h)
- Install a sign to instruct motorists and bicyclists how to use the facility
- Stripe and sign bicycle lane pavement markings in the turn lane to position and guide bicyclists in the right-turn lane

The photos above show the operation of a combined bicycle/right turn lane, along with the signage instructing motorists and bicyclists how to properly use the facility.

BICYCLE PARKING

As more bikeways are constructed and bicycle usage grows, the need for bike parking will climb. Long-term bicycle parking at transit stations and work sites, as well as short-term parking at shopping centers and similar sites, both can support bicycling. Bicyclists have a significant need for secure long-term parking because bicycles parked for longer periods are more exposed to weather and theft, although adequate long-term parking rarely meets demand.

BICYCLE RACKS

When choosing bike racks, there are a number of things to keep in mind:

- The rack element (part of the rack that supports the bike) should keep the bike upright by supporting the frame in two places without the bicycle frame touching the rack. The rack should allow one or both wheels to be secured.
- Position racks so there is enough room between adjacent parked bicycles. If it becomes too difficult for a bicyclist to easily lock his or her bicycle, he or she may park it elsewhere and the
bicycle capacity is lowered. A row of inverted “U” racks should be situated on 30” minimum centers.

- Empty racks should not pose a tripping hazard for visually impaired pedestrians. Position racks out of the walkway’s clear zone.
- When possible, racks should be in a lighted, high visibility, covered area protected from the elements. Long-term parking should always be protected.

Table A-2 provides basic guidelines on the ideal locations for parking at several key activity centers as well as an optimum number of parking spaces.

Sample bicycle parking ordinance language is provided in the Appendix of this Plan, which outlines minimum bicycle parking standards for various land uses. This language can serve as a template for the City of Modesto in creating a bicycle parking ordinance for inclusion in the zoning code.

### Table A-2

**Recommended Guidelines for Bicycle Parking Locations and Quantities**

<table>
<thead>
<tr>
<th>Land Use or Location</th>
<th>Physical Location</th>
<th>Bicycle Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Park</td>
<td>Adjacent to restrooms, picnic areas, fields, and other attractions</td>
<td>8 bicycles per acre</td>
</tr>
<tr>
<td>City Schools</td>
<td>Near office entrance with good visibility</td>
<td>8 bicycles per 40 students</td>
</tr>
<tr>
<td>Public Facilities (city hall, libraries, community centers)</td>
<td>Near main entrance with good visibility</td>
<td>8 bicycles per location</td>
</tr>
<tr>
<td>Commercial, retail and industrial developments over 10,000 gross square feet</td>
<td>Near main entrance with good visibility</td>
<td>1 bicycle per 15 employees or 8 bicycles per 10,000 gross square feet</td>
</tr>
<tr>
<td>Shopping Centers over 10,000 gross square feet</td>
<td>Near main entrance with good visibility</td>
<td>8 bicycles per 10,000 gross square feet</td>
</tr>
<tr>
<td>Commercial Districts</td>
<td>Near main entrance with good visibility; not to obstruct auto or pedestrian movement</td>
<td>2 bicycles every 200 feet</td>
</tr>
<tr>
<td>Transit Stations</td>
<td>Near platform or security guard</td>
<td>1 bicycle per 30 parking spaces</td>
</tr>
</tbody>
</table>

### ATTENDED BICYCLE PARKING FACILITIES

Attended bike parking is analogous to a coat check – your bike is securely stored until you need it in a supervised location. An organization called The Bikestation® Coalition is promoting enhanced attended parking at transit stations.
The Bikestation® concept is now in use in Palo Alto and Berkeley in the Bay Area. Bikestations® offer secured valet bicycle parking near transit centers. What makes Bikestations® distinctive are the other amenities that may be offered at the location – bicycle repair, cafes, showers and changing facilities, bicycle rentals, licensing, etc. Bikestations® become a virtual one-stop-shop for bicycle commuters.

Attended bicycle parking can be offered at some special events. For example, the Marin County Bicycle Coalition sponsors valet parking at many festivals in the county, the Sonoma County Bicycle Coalition sponsors valley parking at the downtown Santa Rosa Farmer’s Market, and secured bicycle parking is offered at Pac Bell Park in San Francisco.
APPENDIX B: PROJECTS IDENTIFIED IN EXISTING MODESTO AND STANCOG BICYCLE PLANS

CITY OF MODESTO NON-MOTORIZED TRANSPORTATION MASTER PLAN (1996)

Table B-1 below lists the recommended bicycle facility projects identified in the 1996 Non-Motorized Transportation Master Plan.

Table B-1
Modesto Non-Motorized Transportation Master Plan (1996) Recommended Bicycle Facilities

<table>
<thead>
<tr>
<th>Name</th>
<th>Start</th>
<th>End</th>
<th>Proposed Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATSF Railroad ROW</td>
<td>Claribel</td>
<td>Tuolumne River Path</td>
<td>I</td>
</tr>
<tr>
<td>Carpenter</td>
<td>Woodland</td>
<td>Brink</td>
<td>I</td>
</tr>
<tr>
<td>Carpenter (Redeveloped)</td>
<td>Whitmore</td>
<td>Coldwell</td>
<td>I</td>
</tr>
<tr>
<td>Crows Landing</td>
<td>7th</td>
<td>Whitemore</td>
<td>I</td>
</tr>
<tr>
<td>Dakota</td>
<td>Pelandale Extension</td>
<td>Southern Boundary</td>
<td>I</td>
</tr>
<tr>
<td>Dry Creek Path</td>
<td>Brookway Park</td>
<td>Brookway Park</td>
<td>I</td>
</tr>
<tr>
<td>Dry Creek Path</td>
<td>Beard Brook Park</td>
<td>Beard Brook Park</td>
<td>I</td>
</tr>
<tr>
<td>Dry Creek Path</td>
<td>Beard Brook Park</td>
<td>Tuolumne River</td>
<td>I</td>
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<tr>
<td>Hetch-Hetchy Aqueduct ROW</td>
<td>Semallon</td>
<td>Claribel</td>
<td>I</td>
</tr>
<tr>
<td>Highway 99</td>
<td>Northern Boundary</td>
<td>Southern Planning</td>
<td>I</td>
</tr>
<tr>
<td>Kiernan/Claribel</td>
<td>Planned Connection to Dakota</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Maze</td>
<td>Western Boundary</td>
<td>Sutter</td>
<td>I</td>
</tr>
<tr>
<td>Morton ROW</td>
<td>Jennie</td>
<td>Yosemite</td>
<td>I</td>
</tr>
<tr>
<td>Pelandale Extension</td>
<td>Dale</td>
<td>Northern Boundary</td>
<td>I</td>
</tr>
<tr>
<td>Pelandale Extension/Hwy 99 Crossing</td>
<td>Salida/Dakota/Brink</td>
<td>Blue Bird</td>
<td>I</td>
</tr>
<tr>
<td>Stanislaus River Path</td>
<td>Dale</td>
<td>Western Boundary</td>
<td>I</td>
</tr>
<tr>
<td>Sutter</td>
<td>Tuolumne River Park</td>
<td>Ustick</td>
<td>I</td>
</tr>
<tr>
<td>Tuolumne River Park Path</td>
<td>Existing Path Terminus</td>
<td>Municipal Golf Course</td>
<td>I</td>
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<tr>
<td>Tuolumne River Park Path</td>
<td></td>
<td>Southern Planning Boundary</td>
<td>I</td>
</tr>
<tr>
<td>Tuolumne River Park Path</td>
<td>Mitchell</td>
<td>East Planning Boundary</td>
<td>I</td>
</tr>
<tr>
<td>UP ROW</td>
<td>9th</td>
<td>Northern Boundary</td>
<td>I</td>
</tr>
<tr>
<td>Utility ROW</td>
<td>Parker</td>
<td>Garst</td>
<td>I</td>
</tr>
<tr>
<td>Whitmore</td>
<td>Morse Extension</td>
<td>Morgan</td>
<td>I</td>
</tr>
<tr>
<td>Yosemite</td>
<td>Sutton Park</td>
<td>Eastern Boundary</td>
<td>I</td>
</tr>
<tr>
<td>7th</td>
<td>H</td>
<td>Crows Landing</td>
<td>II</td>
</tr>
<tr>
<td>9th</td>
<td>Coldwell</td>
<td>Irrigation Lateral 4/5</td>
<td>II</td>
</tr>
<tr>
<td>Beckwith</td>
<td>Brink Extension</td>
<td>Western Boundary</td>
<td>II</td>
</tr>
<tr>
<td>Beverly</td>
<td>Dakota</td>
<td>Paradise</td>
<td>II</td>
</tr>
<tr>
<td>Brighton</td>
<td>Tuolumne River</td>
<td>Coffee</td>
<td>II</td>
</tr>
<tr>
<td>Name</td>
<td>Start</td>
<td>End</td>
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<tr>
<td>------------------</td>
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### STANCOG REGIONAL BICYCLE ACTION PLAN (2001)

Table B-2 below lists the recommended bicycle facility projects located within the jurisdiction of the City of Modesto that were identified in the Stanislaus Council of Governments’ (StanCOG) Regional Bicycle Action Plan, adopted in 2001. The bikeways recommended in the StanCOG were not identified as multi-use trails, lanes, or routes. In addition, it should be noted that some cost estimates provided seem low and are not described, in terms of the methodology used to determine the estimates. Facilities with two costs listed are likely for optional Class III and Class II facilities.

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StanCOG Regional Bicycle Action Plan Recommended Bicycle Facilities

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### Appendix B: Projects Identified In Existing Modesto and StanCOG Bicycle Plans

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<td>1,000/20,000+</td>
</tr>
<tr>
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<td>Bodem</td>
<td>Coffee</td>
<td>0.6</td>
<td>3,000/60,000+</td>
</tr>
<tr>
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<td>Coffee</td>
<td>Rose</td>
<td>0.5</td>
<td>2,500/50,000+</td>
</tr>
<tr>
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<td>Rose</td>
<td>Oakdale</td>
<td>0.5</td>
<td>2,500/50,000+</td>
</tr>
<tr>
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<td>Oakdale</td>
<td>McGuire</td>
<td>0.2</td>
<td>1,000/20,000+</td>
</tr>
<tr>
<td>Standiford</td>
<td>Dale</td>
<td>future Brink Road</td>
<td>0.5</td>
<td>2,500/50,000+</td>
</tr>
<tr>
<td>Dale</td>
<td>Coldwell</td>
<td>Briggsmore</td>
<td>1.0</td>
<td>100,000</td>
</tr>
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<td>Floyd</td>
<td>Sylvan</td>
<td>0.7</td>
<td>70,000</td>
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<td>N. Rosebrook</td>
<td>200’ s/o Talbot</td>
<td>0.2</td>
<td>20,000</td>
</tr>
<tr>
<td>Roselle</td>
<td>Sylvan</td>
<td>MID Lateral</td>
<td>1.9</td>
<td>190,000</td>
</tr>
<tr>
<td>Sisk</td>
<td>Pelandale</td>
<td>Pirrone</td>
<td>0.5</td>
<td>50,000</td>
</tr>
<tr>
<td>9th</td>
<td>Needham</td>
<td>Tully</td>
<td>0.2</td>
<td>&gt;20,000</td>
</tr>
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</table>
APPENDIX C: NON-MOTORIZED TRANSPORTATION
MASTER PLAN SURVEY FORM
Thank you for taking the time to complete this survey on bicycling and walking conditions in Modesto. The goal of the Non-Motorized Transportation Master Plan Update is to make Modesto a safer and more enjoyable place for you and your children to walk and bicycle to work, to school, or for recreation. The “bikeability” and “walkability” checklists on the following pages are your chance to share your experiences walking and biking the streets, paths, and sidewalks of Modesto, and to help us to pinpoint areas that need improvement. Is your neighborhood a good place to walk or bike? Tell us why!

Before completing the checklists, please tell us a little about yourself:

Name: ___________________________________________ Age: _______ Sex: _______

Address: ___________________________________________ email: _______________________

Do you have children that walk or bike to school? □ Yes □ No School: _______________________

1. Reasons for bicycling or walking (check all that apply)
   □ Recreation (please describe, e.g. walking, jogging, cycling on paths, road club rides, etc.)
   □ Commute to school
   □ Commute to work
   □ Shopping
   Other: ___________________________________________

2. In good weather months, how often do you bicycle or walk in Modesto?
   □ Every day
   □ Once a month
   □ Two to four times a week
   □ Never
   □ Once a week

3. Which of these phrases best describes you?
   □ A beginner rider who prefers to stick to the bike path or trail
   □ An intermediate rider who is not really comfortable riding in most traffic situations
   □ An advanced, confident rider who is comfortable riding in most traffic situations

Completed checklists can be turned in at the public meeting, or can be mailed to:

Bob Ford
City of Modesto Parks, Recreation & Neighborhoods Department
1010 Tenth Street, Suite 4400
Modesto, CA 95353
Phone: (209) 577-5437 Fax: (209) 579-5077

Please feel free to take additional surveys for your friends and family members.
“Bikeability” Checklist

Origin/destination of bike ride(s) or route(s) (be specific): ____________________________________________________________

________________________________________________________

1. Did you have a place to bicycle safely?

a) On the road, sharing the road with motor vehicles

☐ Yes  ☐ Some problems (please note location):
☐ No space for bicyclists to ride
☐ Bicycle lane or paved shoulder disappeared
☐ Heavy and/or fast moving traffic
☐ Parked cars opening doors or parking in bikeways
Other problems: ________________________________________________________________

Problem Locations: ____________________________________________________________

______________________________________________________________________________

b) On an off-road path or trail, where motor vehicles are not allowed?

☐ Yes  ☐ Some problems:
☐ Path ended abruptly
☐ Path didn't go where I wanted to go
☐ Path intersected with roads that were difficult to cross
Other problems: ________________________________________________________________

Problem Locations: ____________________________________________________________

______________________________________________________________________________

2. How was the surface that you rode on?

☐ Good  ☐ Some problems, the road or path had:
☐ Potholes
☐ Debris (e.g. broken glass, sand, gravel)
☐ Dangerous drain grates, utility covers, or metal plates
☐ Slippery surfaces when wet (e.g. construction places, road markings)
Other problems: ________________________________________________________________

Problem Locations: ____________________________________________________________

______________________________________________________________________________
3. How were the intersections you rode through?

☐ Good  ☐ Some problems:
☐ Had to wait too long to cross intersections  ☐ Couldn’t see crossing traffic
☐ Signal didn’t give me enough time to cross the road  ☐ Signal didn’t change for a bicycle
☐ Unsure where or how to ride through intersection

Other problems: ____________________________________________

Problem Locations: ____________________________________________

4. Did drivers behave well?

☐ Yes  ☐ Some problems, drivers:
☐ Drove too fast  ☐ Passed me too close
☐ Did not signal  ☐ Harassed me
☐ Cut me off  ☐ Ran red lights or stop sign

Other problems: ____________________________________________

Problem Locations: ____________________________________________

Ideas for educating drivers about sharing the road and respecting bicyclists: ________________________________

5. Was it easy for you to use your bike?

☐ Yes  ☐ Some problems:
☐ No maps, signs, or road markings to help me find my way  ☐ Hard to find a direct route I liked
☐ No safe or secure place to leave my bicycle at my destination  ☐ Had to ride on too many busy streets
☐ No way for me to take my bicycle with me on the bus or train

Other problems: ____________________________________________

Problem Locations: ____________________________________________
“Walkability” Checklist

Origin/destination of walking route(s) (be specific):


1. Did you have a place to walk safely?

☐ Yes  ☐ Some problems:
☐ Sidewalks or paths started and stopped  ☐ Sidewalks were broken or cracked
☐ No sidewalk, paths, or shoulders  ☐ Too much traffic
☐ Sidewalks were blocked with poles, signs, shrubbery, dumpsters, etc.

Other problems:__________________________________________________________

Problem Locations:______________________________________________________

2. Was it easy to cross streets?

☐ Yes  ☐ Some problems:
☐ Road was too wide  ☐ Traffic signals made us wait too long
☐ Traffic signals did not give us enough time to cross  ☐ Parked cars blocked our view of traffic
☐ Needed crosswalks or traffic signals  ☐ Trees or plants blocked our view of traffic
☐ Needed curb ramps or ramps needed repair  ☐ Needed “pedestrian walk” signal
☐ Needed safety median island  ☐ Needed “Watch for Pedestrian” sign

Other problems:________________________________________________________

Problem Locations:______________________________________________________

3. Was it easy to follow safety rules? Could you and your child:

☐ Yes  ☐ No  Cross at crosswalks where you could see and be seen by drivers?
☐ Yes  ☐ No  Stop and look left, right and left again before crossing streets?
☐ Yes  ☐ No  Walk on sidewalks or shoulders facing traffic where there were no sidewalks?
☐ Yes  ☐ No  Cross with the light?

Location of problems:____________________________________________________

Non-Motorized Transportation Master Plan Update
Bikeability and Walkability Survey
4. Did drivers behave well?

☐ Yes    ☐ Some problems, drivers:
☐ Backed out of driveways without looking    ☐ Turned into people crossing the street
☐ Did not yield to people crossing the street    ☐ Drove too fast
☐ Sped up to make it through traffic lights or drove through lights

Other problems: ________________________________________________________________

Problem Locations:________________________________________________________________

Ideas for educating drivers about sharing the road and respecting pedestrians:

______________________________________________________________________________

5. Was your walk pleasant?

☐ Yes    ☐ Some unpleasant things:
☐ Needed more trees, grass or flowers    ☐ Too much traffic nearby
☐ Too many intersections or roads to cross    ☐ Too noisy
☐ Needed more interesting sights along the way (e.g. shops, cafes, parks, bookstores)

Other problems: ________________________________________________________________

Problem Locations:________________________________________________________________

______________________________________________________________________________

The Modesto Bikeability and Walkability checklists were adapted from checklists developed by the Pedestrian and Bicycle Information Center. For more information, go to www.bicyclinginfo.org.
APPENDIX D: NON-MOTORIZED TRANSPORTATION
MASTER PLAN PUBLIC MEETING NOTICE
You are invited to attend a

Community Workshop

on Modesto’s Bicycle and Pedestrian Network

Modesto is updating its official non-motorized transportation plan. The plan will identify ways to refine and expand the existing bicycle and pedestrian network, connect gaps in the system, and improve problem areas. Come share your ideas for a more bicycle and pedestrian friendly city.

• Discuss what pieces of the existing bicycle and pedestrian network are working, what pieces are not working, and what is missing

• Identify trails, streets, and intersections that need improvements

• Rate the "bikeability" and "walkability" of your neighborhood

• Tell us how to make Modesto a safer place for you and your children to walk and bike to work, to school or for recreation.

Thursday, May 22, 2003 • 7:00-9:00 p.m.
Beard Elementary School Cafeteria
915 Bowen Avenue, Modesto

For more information on this workshop, please contact: Bob Ford
City of Modesto Parks, Recreation & Neighborhoods Department
209-577-5437 • bford@modestogov.com
This appendix provides sample bicycle parking code language taken from the City of San Francisco Planning Code. It is recommended that the City of Modesto pass a bicycle parking ordinance to include similar language in their zoning code. While the San Francisco bike parking code may be longer and more detailed than needed by a city with less commercial density such as Modesto, it is a useful example because it discusses parking requirements per building square footage, and includes provisions such as shower and locker requirements for commercial and industrial buildings (Section 155.3).


SEC. 155.1. BICYCLE PARKING REQUIREMENTS FOR CITY-OWNED AND LEASED BUILDINGS.

In all City-owned and leased buildings, regardless of whether off-street parking is available, the responsible city official, as defined in Section 155.1(a)(11) below, shall provide bicycle parking according to the schedule in Section 155.1(c) below, except as otherwise provided in Section 155.2. The provisions of this Section shall not apply in any case where the City occupies property as a tenant under a lease the term of which does not exceed six months. In the event that a privately owned garage, as defined in Section 155.2, is in a building in which the City leases space, Section 155.2 and not this Section shall apply. All required bicycle parking shall conform to the requirements of Sections 155.1(b) (Location of Facilities) and 155.1(c) (Number of Spaces) set forth below:

(a) Definitions.

(1) **Locker.** A fully enclosed, secure and burglar-proof bicycle parking space accessible only to the owner or operator of the bicycle.

(2) **Check-In Facility.** A location in which the bicycle is delivered to and left with an attendant with provisions for identifying the bicycle's owner. The stored bicycle is accessible only to the attendant.

(3) **Monitored Parking.** A location where Class 2 parking spaces are provided within an area under constant surveillance by an attendant or security guard or by a monitored camera.

(4) **Restricted Access Parking.** A location that provides Class 2 parking spaces within a locked room or locked enclosure accessible only to the owners of bicycles parked within.

(5) **Personal Storage.** Storage within the view of the bicycle owner in either the operator's office or a location within the building.
(6) **Class 1 Bicycle Parking Space(s).** Facilities which protect the entire bicycle, its components and accessories against theft and against inclement weather, including wind-driven rain. Examples of this type of facility include (1) lockers, (2) check-in facilities, (3) monitored parking, (4) restricted access parking, and (5) personal storage.

(7) **Class 2 Bicycle Parking Space(s).** Bicycle racks which permit the locking of the bicycle frame and one wheel to the rack and, which support the bicycle in a stable position without damage to wheels, frame or components.

(8) **Director.** Director of the Department of City Planning.

(9) **Landlord.** Any person who leases space in a building to the City. The term “landlord” does not include the City.

(10) **Employees.** Individuals employed by the City and County of San Francisco.

(11) **Responsible City Official.** The highest ranking City official of an agency or department which has authority over a City-owned building or parking facility or of an agency or department for which the City is leasing space.

(12) **Person.** Any individual, proprietorship, partnership, joint venture, corporation, limited liability company, trust, association, or other entity that may enter into leases.

(b) **Location of Facilities.**

(1) At locations where the majority of parking spaces will be long-term (e.g., occupied by building employees for eight hours or more), at least ½ of the required bicycle parking spaces shall be Class 1 spaces. The remaining spaces may be Class 2 spaces. The Director may approve alternative types of parking spaces that provide an equivalent measure of security.

(2) **Alternative Locations.** In the event that compliance with Section 155.1(b)(1) may not be feasible because of demonstrable hardship, the responsible city official may apply to the Director for approval of an alternative storage location. In acting upon such applications, the Director shall be guided by the following criteria: Such alternative facilities shall be well-lighted and secure. The entrance shall be no more than 50 feet from the entrance of the building, unless there are no feasible locations within a 50 foot zone that can be provided without impeding sidewalk or pedestrian traffic. However, in no event shall an alternative location be approved that is farther from the entrance of the building than the closest automobile parking space.

(3) **Exemptions.** If no feasible alternative parking facility exists nearby which can be approved pursuant to Section 155.1(b)(1) or (2) or, securing an alternative location would be unduly costly and pose a demonstrable hardship on the landlord, or on the City, where the City owns the building, the Director may issue an exemption. In order to obtain an exemption, the responsible City official shall certify to the Director in writing that the landlord, or the City, where the City owns the building, will not prohibit bicycle operators from storing bicycles within their office space, provided that they are stored in such a way that the Fire Code is not violated and that the normal business of the building is not disrupted.
Appendix E: Sample Bicycle Parking Ordinance Language

(c) Required Number of Bicycle Parking Spaces.

(1) Class 1 Bicycle Parking Spaces. The following standards shall govern the number of Class 1, long-term, bicycle parking spaces a responsible City official must provide:

(A) In buildings with one to 20 employees, at least two bicycle parking spaces shall be provided.

(B) In buildings with 21 to 50 employees, at least four bicycle parking spaces shall be provided.

(C) In buildings with 51 to 300 employees, the number of bicycle parking spaces provided shall be equal to at least five percent of the number of employees at that building, but in no event shall fewer than five bicycle spaces be provided.

(D) In buildings with more than 300 employees, the number of bicycle parking spaces provided shall be equal to at least three percent of the number of employees at that building but in no event shall fewer than 16 bicycle parking spaces be provided.

(2) In addition to the Class 1 bicycle parking spaces required above, a responsible City official shall also provide Class 2 bicycle parking spaces according to the below enumerated schedule:

(A) In buildings with one to 40 employees, at least two bicycle parking spaces shall be provided.

(B) In buildings with 41 to 50 employees, at least four bicycle parking spaces shall be provided.

(C) In buildings with 51 to 100 employees, at least six bicycle parking spaces shall be provided.

(D) In buildings with more than 100 employees, at least eight bicycle parking spaces shall be provided. Wherever a responsible City official is required to provide eight or more Class 2 bicycle parking spaces, at least 50 percent of those parking spaces shall be covered.

(3) In public buildings where the City provides a public service to members of the public who are patrons or users of the buildings, such as libraries, museums, and sports facilities, the responsible City official shall provide the number of bicycle parking spaces as set out in Section 155.1(c)(1) and (2), except that the average patron load in a building during peak use hours as determined by the Director, rather than the number of employees, shall determine the number of spaces required. This Section shall not apply where a public building has a “garage” (as such term is defined in Section 155.2(a)) that is open to the general public, in which case Section 155.2 shall apply.

(4) The Director shall annually survey the amount, location, and usage of provided bicycle parking spaces in all buildings subject to the requirements of this Section in order to ascertain whether current requirements are adequate to meet demand for such parking spaces. If current requirements are inadequate, the Director shall draft and submit to the Board of Supervisors proposed legislation that would remedy the deficiency.
(5) **Reductions.** The Director may grant a reduction from the number of bicycle parking spaces required by this Section where the applicant shows based upon the type of patronage, clientele, or employees using the building that there is no reason to expect a sufficient number of bicycle-riding patrons, clientele or employees to justify the number of spaces otherwise required by the Section.

(d) **Layout of Spaces.** Class 1 and Class 2 bicycle parking spaces or alternative spaces approved by the Director shall be laid out according to the following:

1. An aisle or other space to enter and leave the facility shall be provided. The aisle shall provide a width of five feet to the front or rear of a standard six-foot bicycle parked in the facility.

2. Each bicycle parking space shall provide an area at least two feet wide by six feet deep. Vertical clearance shall be at least 78 inches.

3. Bicycle parking shall be at least as conveniently located as the most convenient nondisabled car parking. Safe and convenient means of ingress and egress to bicycle parking facilities shall be provided. Safe and convenient means include, but are not limited to stairways, elevators and escalators.

4. Bicycle parking and automobile parking shall be separated by a physical barrier or sufficient distance to protect parking bicycles from damage.

5. Class 2 bicycle racks shall be located in highly visible areas to minimize theft and vandalism.

6. Where Class 2 bicycle parking areas are not clearly visible to approaching bicyclists, signs shall indicate the locations of the facilities.

7. The surface of bicycle parking spaces need not be paved, but shall be finished to avoid mud and dust.

8. All bicycle racks and lockers shall be securely anchored to the ground or building structure.


(g) **Miscellaneous Requirements.**

4. Buildings with existing traditional-type racks which support only one wheel shall have two years from the effective date of this Section to replace them with conforming racks.

**SEC. 155.3. SHOWER FACILITIES AND LOCKERS REQUIRED IN NEW COMMERCIAL AND INDUSTRIAL BUILDINGS AND EXISTING BUILDINGS UNDERGOING MAJOR RENOVATIONS.**

(a) **Definitions.**
Appendix E: Sample Bicycle Parking Ordinance Language

(1) **New Building.** A commercial or industrial building for which a building permit is issued at least six months after the effective date of this legislation.

(2) **Major Renovations.** Any construction or renovation project (i) for which a building permit is issued commencing at least six months after the date of enactment of this legislation (ii) which involves an enlargement of an existing public or privately owned commercial or industrial building, and (iii) which has an estimated cost of at least $1,000,000.00. For purposes of this Section, the term “enlargement” shall mean an increase in the square footage of the ground story of a building.

(3) The term “commercial building” shall include, but is not limited to, public or privately owned buildings containing employees working for City government agencies or departments.

(b) **Requirements for New Buildings and Buildings With Major Renovations.** New buildings and buildings with major renovations shall provide shower and clothes locker facilities for short-term use of the tenants or employees in that building in accordance with this Section. Where a building undergoes major renovations, its total square footage after the renovation is the square footage that shall be used in calculating how many, if any, showers and clothes lockers are required.

(c) For new buildings and buildings with major renovations whose primary use consists of medical or other professional services, general business offices, financial services, City government agencies and departments, general business services, business and trade schools, colleges and universities, research and development or manufacturing, the following schedule of required shower and locker facilities applies:

(1) Where the gross square footage of the floor area exceeds 10,000 square feet but is no greater than 20,000 square feet, one shower and two clothes lockers are required.

(2) Where the gross square footage of the floor area exceeds 20,000 square feet but is no greater than 50,000 square feet, two showers and four clothes lockers are required.

(3) Where the gross square footage of the floor area exceeds 50,000 square feet, four showers and eight clothes lockers are required.

(d) For new buildings and buildings with major renovations whose primary use consists of retail, eating and drinking or personal services, the following table of shower and locker facilities applies:

(1) Where the gross square footage of the floor area exceeds 25,000 square feet but is no greater than 50,000 square feet, one shower and two clothes lockers are required.

(2) Where the gross square footage of the floor area exceeds 50,000 square feet but is no greater than 100,000 square feet, two showers and four clothes lockers are required.

(3) Where the gross square footage of the floor area exceeds 100,000 square feet, four showers and eight clothes lockers are required.
Appendix E: Sample Bicycle Parking Ordinance Language

(c) **Exemptions.** An owner of an existing building subject to the requirements of this Section shall be exempt from Subsections (e) and (d) upon submitting proof to the Director of the Department of City Planning that the owner has made arrangements with a health club or other facility, located within a four-block radius of the building, to provide showers and lockers at no cost to the employees who work in the owner's building.

(f) **Exclusion for Hotels, Residential Buildings and Live/Work Units.** This Section shall not apply to buildings used primarily as hotels or residential buildings. In addition, this Section shall not apply to “live/work units” as defined in Section 102.13 of the San Francisco Planning Code.

(g) **Owners of Existing Buildings Encouraged to Provide Shower and Clothes Locker Facilities.** The City encourages private building owners whose buildings are not subject to this Section to provide safe and secure shower and clothes locker facilities for employees working in such buildings.

(h) The Department of City Planning may establish more definitive requirements for shower and locker facilities in accordance with this Section. (Added by Ord. 343-98, App. 11/19/98)

**SEC. 155.4. BICYCLE PARKING REQUIRED IN NEW AND RENOVATED COMMERCIAL BUILDINGS.**

(a) **Definitions.**

(1) All definitions set forth in Section 155.1(a) and Section 155.3(a) are incorporated into this Section.

(2) **New Commercial Building.** A commercial or industrial building for which a building permit is issued on or at least six months after the effective date of this Section.

(3) **Major Renovation.** Any construction or renovation project (i) for which a building permit is issued commencing on or at least six months after the effective date of this Section (ii) which involves an enlargement of an existing commercial building and (iii) which has an estimated construction cost of at least $1,000,000.00.

(b) **Requirements for New Commercial Buildings and Commercial Buildings with Major Renovations.** New commercial buildings and commercial buildings with major renovations, as a condition of approval, shall provide bicycle parking in that building in accordance with this Section. Where a building undergoes major renovations, its total square footage after the renovation shall be used in calculating how many, if any, bicycle parking spaces are required.

(c) **Types of Bicycle Parking.** New commercial buildings and commercial buildings with major renovations shall offer either Class 1 bicycle parking, as defined in Section 155.1(a)(6), or Class 2 bicycle parking, as defined in Section 155.1(a)(7), or a combination of Class 1 and Class 2 bicycle parking.

(d) **Bicycle Parking Spaces - Professional Services.** For new commercial buildings and commercial buildings with major renovations whose primary use consists of medical or other
professional services, general business offices, financial services, general business services, business and trade schools, colleges and universities, research and development or manufacturing, the following schedule of required bicycle parking applies:

(1) Where the gross square footage of the floor area exceeds 10,000 square feet but is no greater than 20,000 feet, 3 bicycle spaces are required.

(2) Where the gross square footage of the floor area exceeds 20,000 square feet but is no greater than 50,000 feet, 6 bicycle spaces are required.

(3) Where the gross square footage of the floor area exceeds 50,000 square feet, 12 bicycle spaces are required.

(4) Bicycle Parking Spaces—Retail. For new commercial buildings and commercial buildings with major renovations whose primary use consists of retail, eating and drinking or personal service, the following schedule of required bicycle parking applies:

(1) Where the gross square footage of the floor area exceeds 25,000 square feet but is no greater than 50,000 feet, 3 bicycle spaces are required.

(2) Where the gross square footage of the floor area exceeds 50,000 square feet but is no greater than 100,000 feet, 6 bicycle spaces are required.

(3) Where the gross square footage of the floor area exceeds 100,000 square feet, 12 bicycle spaces are required.

(f) Notice of Bicycle Parking. New commercial buildings and commercial buildings with major renovations subject to this Section must provide adequate signs or notices to advertise the availability of bicycle parking.

(g) Layout of Spaces. Owners of new commercial buildings and commercial buildings with major renovations subject to this Section are encouraged to follow the requirements set forth in Section 155.1(d) (Layout of Spaces) in installing Class 1 and Class 2 bicycle parking.

(h) Owners of Existing Buildings Encouraged to Provide Bicycle Parking Spaces. The City encourages building owners whose buildings are not subject to this Section to provide bicycle parking spaces in such buildings.

(i) Exemption. Where a new commercial building or building with major renovations includes residential uses, the building’s total non-residential square footage shall be used in calculating how many, if any, bicycle parking spaces are required.

(j) This Section shall not be interpreted to interfere with the Department of Planning's authority to require more than the minimum bicycle parking spaces required by this Section as a condition of approval of a project, where appropriate.

(k) For the purposes of this Section, commercial shall mean commercial and industrial.

(Added by Ord. 193-01, File No. 010488, App. 9/7/2001)
APPENDIX F: CONSTRUCTION ZONE TREATMENTS

Construction zones are difficult environments in which to manage traffic. Priorities exist to maintain vehicular traffic flow, to maintain transit service at an acceptable level, to maintain pedestrian access to businesses and the street, and to maintain bicycle traffic flow to minimize inconveniences to riders. Oftentimes, issues related to bicycles are overlooked in construction zones. Some of these issues are discussed here. They include the following.

- Lane Closures
- Signage
- Pavement Smoothness and Compaction
- Enforcement of Guidelines and Inspection
- Trenching and Plate Use
- Gutter-to-Pavement Transition
- Drainage Grate Guidelines

The purpose of this is to provide planning level guidance for the accommodation of bicycles in construction zones. This guidance is based on national and state sources. Actual treatments for treating bicycles in construction zones is dealt with in traffic management plans submitted by contractors to the City. Contractors and the City can use this document to assist them with specific traffic control measures in each construction zone. All traffic control measures in construction zones must follow the current version of the Modesto Standard Specifications.

LANE CLOSURES

The needs of bicyclists are often neglected when roadway lanes are closed for construction activities. Guidelines should consider the needs of bicyclists and motorists since both are roadway users. Accommodating bicycle space during a lane closure is typically considered only when a bikeway facility (such as a bicycle lane) is affected by construction activities. Wherever bicycles are allowed, measures should be taken to provide for the continuity of a bicyclist’s trip through a lane closure. The most important consideration is to maintain adequate width of travel lanes to accommodate bicycle travel. Where bike lanes exist, it may be possible to carry the bike lane through the construction zone. A second option is to provide a wide outside lane through the construction zone for shared use by motor vehicles and bicycles. When necessary, bicycles share a standard travel lane (12 feet) with motor vehicles through a construction zone. Only in rare cases would bicycles be detoured to another street when travel lanes remain open on the street under construction.
Appendix F: Construction Zone Treatments

A complete road closure affects bicyclists in a similar manner as motorists. If an entire roadway segment is closed for construction activities, a sufficient detour route should be provided for all modes of travel. The implementation of these detour routes, however, should take into consideration attributes of alternative routes as they pertain to bicycles versus motor vehicles. The same detour route may not be suitable for both modes. For example, a motorist detour may traverse several hills on a major thoroughfare. A bicycle detour might be provided on another set of streets that minimizes changes in elevation that impact bicyclists more than motorists. Maintaining a direct route should be a primary goal when bicycles are detoured.

GUIDELINES

In order to accommodate bicyclists through various lane closures and detours, the following guidelines are recommended. These are based on sources including, the Manual for Uniform Traffic Control Devices (MUTCD), the Caltrans Traffic Control Manual, the Caltrans Highway Design Manual, and the Guide for the Development of Bicycle Facilities published by the American Association of State Highway and Transportation Officials (AASHTO).

- Continuing a bike lane through a construction zone
  - Efforts shall be made to re-create the bike lane to the left of the construction zone if enough space exists to do so. The standard width of a bike lane is five feet.
  - Standard construction zone signs (see MUTCD) are part of the recommended design, including:
    - W21-4A Road Work Ahead
    - W20-5 Right Lane Closed
    - W4-2 Lane Shift, Left Sign
    - W11-1 Bicycle Warning Sign
    - W16-1 Share The Road
  - The bicycle warning sign is recommended in combination with W4-2 and again in combination with W16-1. This effectively warns motorists of the presence of bicycles at the lane drop and again where the work zone begins.
  - Construction barrels equipped with flashers delineate the edge of the construction zone and also indicate the outer edge of the bike lane.

- Transitioning a bike lane to a wide travel lane in a construction zone
  - Where there is insufficient space to carry a bike lane through a construction zone, a wide travel lane adjacent to the construction zone should be considered. The travel lane width should be 14 to 15 feet. Bicycles share the travel lane with motor vehicles.
  - Figure 9.2 illustrates the design of a transition of a bike lane to a wide travel lane in a construction zone. In the example one of two travel lanes in the same direction is closed for construction on a 30 mph street.
Standard construction zone signs (see MUTCD) are part of the recommended design, including:

- W21-4A  Road Work Ahead
- W20-5  Right Lane Closed
- W4-2  Lane Shift, Left Sign
- W11-1  Bicycle Warning Sign
- W16-1  Share The Road

- The bicycle warning sign is recommended in combination with W4-2 and again in combination with W16-1. This effectively warns motorists of the presence of bicycles at the lane drop and again where the work zone begins.

- Construction barrels equipped with flashers delineate the edge of the construction zone and also indicate the outer edge of the bike lane. The barrels delineating the outer bike lane edge do not carry through the work zone.

- Transitioning a bike lane to a standard travel lane in a construction zone

- Where there is insufficient space to provide a wide travel lane adjacent to the construction zone, then a standard 12-foot wide travel lane should be provided. Bicycles share the travel lane with motor vehicles. The rules of overtaking and passing apply in this case as in similar situations where only one travel lane is provided in one direction.

- Figure 9.3 illustrates the design of a transition of a bike lane to a standard travel lane in a construction zone. In the example one of two travel lanes in the same direction is closed for construction on a 30 mph street.

- Standard construction zone signs (see MUTCD) are part of the recommended design, including:

- W21-4A  Road Work Ahead
- W20-5  Right Lane Closed
- W4-2  Lane Shift, Left Sign
- W11-1  Bicycle Warning Sign
- W16-1  Share The Road

- The bicycle warning sign is recommended in combination with W4-2 and again in combination with W16-1. This effectively warns motorists of the presence of bicycles at the lane drop and again where the work zone begins.

- Construction barrels equipped with flashers delineate the edge of the construction zone and also indicate the outer edge of the bike lane. The barrels delineating the outer bike lane edge do not carry through the work zone.

- For a complete roadway closure
A sufficient detour route shall be outlined with adequate signage similar to that provided for motor vehicle traffic.

Consideration should be given to alternative detour routes that minimize vertical transitions and situations where bicyclist safety may be an issue.

A bicycle detour route different from the one outlined for motor vehicle traffic may be appropriate in cases where significant grades or levels of traffic and/or traffic speeds make the route less than desirable for the average bicyclist.

Signage specific to bicyclists shall be installed on the detour route to ensure proper guidance through the roadway closure.

SIGNAGE

Signage is a critical component of construction activities. Due to the temporary nature of roadway work, information regarding temporary detours and reduced capacity do not appear on conventional maps. Aside from public notification through various media, roadside signage and signals are the only methods a public agency has to notify road users of construction activities. Therefore, signage is crucial in order to successfully manage traffic flow for motorists, pedestrians, and bicyclists.

Signage alerting roadway users of construction activities can provide for motorists and bicyclists alike. However, signage specific for bicyclists should be employed if the circumstances warrant it. Such circumstances may include a detour route that is different for bicyclists and motorists, loss of a bike lane, or reductions in the travel way width that require bicyclists to share a travel lane with motor vehicles.

Another issue with signage is its placement along a roadway. It is often the case that typical orange construction signs, which are large compared to the size of a bicycle, are placed either squarely in a bike lane or in the riding area of a wide curb lane. Sign placement should be made with bicyclists and pedestrians in mind. Because many sidewalks are directly adjacent to the roadway, placing signage on sidewalks would obstruct the pedestrian pathway and may not be visible to motorists. Sign placement can be a tricky issue when construction activities take place.

GUIDELINES

- The City shall place signage related to construction activities in a location that does not obstruct the path of bicycles or pedestrians, including bicycle lanes, wide curb lanes, or sidewalks.

- Signage related to bicycle travel shall be included on all bikeways where construction activities occur. Signage shall also be provided on all other roadways where bicycle travel is likely to occur.

- Signage that increases motorist awareness of bicyclists through construction zones shall be used wherever possible on bikeways and other roadways on which bicyclists travel.
• Recommended signage to be used include the following signage now being used in the City of Denver, Colorado and the County of Clark, Nevada, respectively. These signs are not found in MUTCD or Caltrans manuals:

![Signage Examples]

Among others, signs that may be used in coordination with construction activities include those found on the following page. These include standard signage from the Caltrans Traffic Control Manual, and the Manual of Uniform Traffic Control Devices. Some of these signs may be used in conjunction with one another in order to enhance the visibility of and provide enhanced guidance to bicyclists through construction zones and detours.

ROADWAY SMOOTHNESS AND COMPACTION

Roadway surface is a critical issue for bicyclists. As mentioned previously, bicycles are much more sensitive to subtle changes in roadway surface than are motor vehicles. Various pavement materials are used to pave roadways, and some are smoother than others. Compaction is also an important issue after trenches and other construction holes are filled. Uneven settlement after trenching can affect the roadway space nearest the curb where bicycles travel. Sometimes compaction is not achieved to a satisfactory level, and an uneven pavement surface can result due to settling over the course of days or weeks.

GUIDELINES

• On new construction, the finished surface of bikeways should not vary more than 6 mm from the lower edge of a 2.4 m long straight edge when laid on the surface in any direction.

• The surface of a roadway open to bicycle travel should be smooth, free of potholes, and the pavement edge uniform.

• Pavement shall be maintained so ridge buildup does not occur at the gutter-to-pavement transition or adjacent to railway crossings.

• City officials should inspect the pavement two to four months after trenching construction activities are completed to ensure that excessive settlement did not occur.
ENFORCEMENT OF GUIDELINES AND INSPECTION

Regulations and policies are only as good as the enforcement that accompanies them. Sometimes inspections do not occur during construction and/or after construction is completed. Insufficient resources can affect the ability of a municipality to conduct proper inspections. In order to ensure that proper construction procedures are followed, it is imperative that inspectors are used to field inspect construction sites while construction activities are occurring and again once they have been completed. When roadway surfaces are not inspected, the surface may be left in an unacceptable condition, such as in an uneven or concave fashion, for months or years. Because these conditions are more likely to occur in the portion of the roadway where bicyclists travel, it is a critical issue for bicyclists.

One of the most important issues related to construction activities is enforcement. Often it is difficult to manage a team of contractors and subcontractors on a given project. The contractor is responsible for the subcontractors’ work, and the public agency has very little interaction with subcontractors. The only way for an agency to ensure that procedures and guidelines are being followed is through periodic inspection. Some contractors neglect to draft a traffic control plan and/or implement one as required. Enforcement is certainly a key issue to ensure that proper regulations are followed during construction activities.

GUIDELINES

- A traffic control plan that adequately addresses the needs of bicycle traffic through a construction zone shall be made and approved by the City Engineering and Transportation Division prior to the start of construction.
- Inspection shall be made at all sites during construction activities on bikeways and on city streets to ensure that the traffic control plan is being followed.
- Inspection shall be made of the construction site immediately after construction is completed.
- If settling is likely to occur once construction is ended, such as with trenching activities, the City shall inspect the pavement surface quality two to four months after construction activities cease in order to ensure that excessive settlement did not occur.
- The City should ensure adequate staff and budget for inspection and monitoring of construction activities as they affect bicycle traffic on bikeways and all other roadways where bicycle travel is permitted.

TRENCHING AND PLATE USE

Recent years have seen the installation of fiber-optic cable under many city streets. The primary method used to perform this type of work is trenching, which involves cutting a one- to two-foot wide trench. This activity often takes place near the curb of roadways in order to minimize the disruption to automobile traffic. However, the common practice maximizes disruptions to bicycle
traffic since bicycle travel predominantly takes place near the curb. Bike lane facilities can also be disrupted because they are located near the curb and away from vehicle travel lanes.

When plates are used to cover open trenches, they are typically not flush with the pavement and have a one- to two-inch vertical transition on the edges. This can puncture a hole in a narrow bicycle tire and can cause the bicyclists to lose control due to the shock of the vertical transition. Also, coordination among different trenching entities is a significant problem. Trenching performed by different City departments, utility companies, telecommunication companies, and others sometimes creates a situation where a street segment may be trenched several times over the course of a year. Coordination to prevent the duplication of trenching activities is a problem, especially for bicyclists whose riding space is often interrupted during trenching activities.

When activities such as this take place, bicycle travel is negatively affected, but no noticeable difference has occurred to motorists. Bicyclists often are left to their own devices to merge with vehicles in the adjacent travel lane. The interim condition of the trenches during non-construction hours is also of concern because of the impact on bicyclist travel. Although the common practice is to use steel plates during non-construction hours, these plates can be slippery, especially when wet. Slippage can be a significant problem for bicyclists riding over steel plates in any weather.

GUIDELINES

- Steel plates used as a temporary measure during construction activities shall not have a vertical edge greater than 10 mm without a temporary asphalt lip to accommodate bicyclists riding over them.
- The City should consider using non-skid steel plates with no raised steel bar on top.
- Wherever possible, the City should use in-laid steel plates that are flush with the surrounding pavement surface in order to minimize or eliminate the vertical transition between plates and the pavement for bicyclists.
- Steel plates shall be used only as a temporary measure during construction and shall not be used for extended periods of time.

GUTTER-TO-PAVEMENT TRANSITION

As mentioned earlier in this document, the path of travel for bicyclists is most often near the curb of a given roadway. On streets with concrete curb and gutter, one to two feet of this curbside area is typically devoted to the gutter pan, where water collects and drains into catch basins. On many streets, the path of the bicyclist is near the transition between the gutter pan and the edge of pavement. It is at this location that water can erode the transition, creating potholes and a rough surface for travel.

Many streets’ pavements do not meet flush with the gutter, creating a vertical transition between these two segments of the roadway. This area can buckle over time and create a hazardous
environment to ride in for bicyclists. Since it is the most likely place for bicyclists to ride on the roadway, this issue is significant for bicycle travel.

GUIDELINES

- Gutter-to-pavement transitions should have no more than a 10 mm vertical transition.
- Pavement transitions should be examined during every roadway project for new construction, maintenance activities, and construction project activities that occur in streets.

DRAINAGE GRATES

Drainage grates are encountered in the gutter area near the curb of a roadway. This area is where most bicycle travel occurs. Drainage grates typically have some kind of slots through which water drains into the municipal wastewater system. Many grates are designed with linear parallel bars spread wide enough for a tire to become caught in so that if a bicycle were to ride on them, the front tire would become caught and fall through the slot. This would cause the rider of the bicycle to tumble over the handlebars and sustain potentially serious injuries. Drainage grates are often wider than the gutter making avoiding them difficult and sometimes dangerous pushing bicyclists out into the vehicle traffic lane.

GUIDELINES

- The City shall require that all new drainage grates be bicycle-friendly. These include grates that have horizontal slats on them so that bicycle tires do not fall through the vertical slats.
- A program to inventory all existing drainage grates should be implemented. Grates that are not bicycle-friendly should be replaced or reset citywide.
APPENDIX G: BICYCLE COMMUTE AND AIR QUALITY CALCULATIONS
<table>
<thead>
<tr>
<th>Employed Adults, 16 Years and Older</th>
<th>Input</th>
<th>Calculated Totals</th>
<th>Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 2000 Population /1</td>
<td>189,460</td>
<td></td>
<td>U.S. Census or other source</td>
</tr>
<tr>
<td>b. 2000 Employed Persons /1</td>
<td>74,878</td>
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<td>U.S. Census or other source</td>
</tr>
<tr>
<td>c. 2000 Bicycle Commute Share /1</td>
<td>9,283</td>
<td></td>
<td>U.S. Census or other source</td>
</tr>
<tr>
<td>d. Travel Time Less Than 9 Minutes /1</td>
<td>558</td>
<td></td>
<td>U.S. Census or other source</td>
</tr>
<tr>
<td>e. 2000 est. Bicycle Commuters /1</td>
<td></td>
<td></td>
<td>U.S. Census or other source</td>
</tr>
<tr>
<td>School Children</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>f. 2000 Population, Ages 6-14 /1 (K-8)</td>
<td>30,481</td>
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<td>U.S. Census or other source</td>
</tr>
<tr>
<td>g. 1990 Bicycle Commute Share /2</td>
<td>5%</td>
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<td>Default or local surveys</td>
</tr>
<tr>
<td>h. 2000 est. Bicycle School Commuters /3</td>
<td>1,524</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. 2000 College Population /1</td>
<td>11,539</td>
<td></td>
<td>U.S. Census or other source</td>
</tr>
<tr>
<td>j. 1990 Bicycle Commute Share /4</td>
<td>2%</td>
<td></td>
<td>Default or local surveys</td>
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<tr>
<td>k. 2000 est. Bicycle College Commuters /5</td>
<td>231</td>
<td></td>
<td>Default or local surveys</td>
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<tr>
<td>Bike-Transit Users</td>
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</tr>
<tr>
<td>l. average daily transit/rail boardings /6</td>
<td>11,600</td>
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<td>Local transit agency</td>
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<tr>
<td>m. potential bike-transit boardings /7</td>
<td>102</td>
<td></td>
<td>Local transit agency or default</td>
</tr>
<tr>
<td>n. new bicycle commuters /8</td>
<td>63%</td>
<td></td>
<td>Local transit agency or default</td>
</tr>
<tr>
<td>Utilitarian (non work or school) Trips</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>m. percent of work/school bicycle trips /9</td>
<td>174%</td>
<td></td>
<td>Local surveys or default</td>
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<tr>
<td>n. estimated bicycle utility riders /10</td>
<td>1,550</td>
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<td></td>
</tr>
<tr>
<td>l. Total Estimated Daily Bicycle Ridership (excl. recreation)</td>
<td>3,966</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m. Average Two-Way Travel Length (Miles)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r1. Adults/College Students /11</td>
<td>8</td>
<td></td>
<td>Local surveys or default</td>
</tr>
<tr>
<td>r2. School Children /12</td>
<td>1</td>
<td></td>
<td>Local surveys or default</td>
</tr>
<tr>
<td>n. Replaced Vehicle Trips</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n1. Adults /13</td>
<td>73%</td>
<td></td>
<td>Local surveys or default</td>
</tr>
<tr>
<td>n2. Students /14</td>
<td>53%</td>
<td></td>
<td>Local surveys or default</td>
</tr>
<tr>
<td>o. Reduced Vehicle Trips /15</td>
<td>5,180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p. Reduced Vehicle Miles /16</td>
<td>15,066</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes and Sources:
/1 2000 U.S. Census and estimates utilizing 1990 percentages.
/2 Lamorinda School Commute Study (Fehr & Peers Associates, 1995) and San Diego County School Commute Study (1990).
/3 Estimated school children who commute by bicycle, as of 1990.
/4 National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995. Review of bicycle commute share in seven university communities (5%) – Reduced based on Community College and size of
/5 Estimated college students who commute by bicycle, as of 1990.
/6 American Public Transportation Assn. Statistics, first quarter 2002
/7 RTD (Denver) Bike-n-Ride Survey, December 1999 (1.4% of total boardings).
/8 Ibid (63% of bike boardings represent new bike commuters).
/9 National Bicycling & Walking Study, Case Study No. 1, p. 16.
/10 total work, college, and transit bicycle users times 174 percent.
/12 Ibid.
/13 Ibid.
/14 Ibid.
/15 Calculated reduced vehicle trips based on assumptions and sources stated above.
/16 Calculated reduced vehicle miles based on assumptions and sources stated above.
### Studies of Other Cities:

<table>
<thead>
<tr>
<th>Study Cities:</th>
<th>v. Corridor Increases</th>
<th>x. System Completion</th>
<th>y. Adjusted Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Portland /17</td>
<td>137%</td>
<td>50%</td>
<td>274%</td>
</tr>
<tr>
<td>City of San Francisco /18</td>
<td>61%</td>
<td>20%</td>
<td>305%</td>
</tr>
<tr>
<td>City of Seattle /19</td>
<td>90%</td>
<td>35%</td>
<td>257%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td></td>
<td><strong>279%</strong></td>
</tr>
</tbody>
</table>

### Projected Increases in Your Community

<table>
<thead>
<tr>
<th></th>
<th>Current (2000)</th>
<th>Buildout</th>
<th>Increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>q. Bicycle Commute Mode Share /20</td>
<td>0.75%</td>
<td>2.08%</td>
<td>1.33%</td>
</tr>
<tr>
<td>r. Total Daily Bicycle Commuters /21</td>
<td>3,966</td>
<td>11,053</td>
<td>7,087</td>
</tr>
<tr>
<td>s. Total Daily Bicycle Trips /22</td>
<td>7,931</td>
<td>22,105</td>
<td>14,174</td>
</tr>
<tr>
<td>t. Reduced Daily Vehicle Trips /23</td>
<td>5,180</td>
<td>14,438</td>
<td>9,258</td>
</tr>
<tr>
<td>u. Reduced Daily Vehicle Miles /24</td>
<td>15,066</td>
<td>41,992</td>
<td>26,926</td>
</tr>
</tbody>
</table>

Notes and Sources:

/17 Before and after bicycle counts conducted by the City of Portland.
/18 Before and after bicycle counts conducted by the City of San Francisco.
/19 Based on preference survey study conducted by Stuart Goldsmith for the City of Seattle.
/17-19 Corridor increases refers to the average increase in bicycling in the corridors in each city, before and after bikeways were installed. System completion refers to the percent completion of the bikeway network in each city. Adjusted increase reflects the projected amount of bicycling that will occur when the system is completed, based on studies of communities with completed or nearly completed bikeway systems (National Bicycling & Walking Study, Study No. 1, 1995). This translates into an average 279% increase upon system completion.
/20 Current bicycle commute mode share from U.S. census for LA County (.63%), adjusted to potential mode share when system is 100% complete (1.76%), and the increment (1.13%).
/21 Same as above except that it shows total bicycle commuters (school and college students).
/22 Total commuters from previous line times 2 (each commuter makes 2 trips)
/23 Total reduced trips by category (adult employed, students), times 279% increase (see notes 10-14).
/24 Total reduced vehicle miles by category (adult employed, students), times 279% increase (see notes 10-14)