San Bernardino County NON-MOTORIZED TRANSPORTATION PLAN 2001 UPDATE

Prepared for:
San Bernardino Associated Governments (SANBAG)

With funding from:
Southern California Association of Governments

Alta Transportation Consulting **June 6, 2001**

San Francisco *Portland* *Seattle* *Los Angeles*

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Glossary of Terms

For this plan, it is important to understand the definition or use of the term "bikeway". According to Caltrans, "bikeway" means all facilities that provide for bicycle travel. Therefore, bikeway facilities could include bike paths, bike lanes, bike routes and even support facilities such as parking racks and lockers. Other terms used in this report are presented below.

ADA - Americans with Disabilities Act

ADT - Average Daily Traffic

Bicycle Boulevard - Streets designed to limit or prohibit motor vehicle traffic, using barriers or other design elements, in order to enhance bicycle safety and enjoyment.

Bicycle Facilities - A general term for improvements and provisions made by public agencies to accommodate or encourage bicycling, including bike racks and lockers, bikeways, and showers at employment destinations.

BAC - Bicycle Advisory Committee

Bike Lane - A striped lane for one-way bike travel on a street or highway.

Bike Path - A right of way separate from a street or highway for bicycle travel, typically along rail, water, or utility corridors.

Bike Route - A travelway for bicycles through a community, providing a superior route based on traffic volumes and speeds, street width, directness, and cross-street priority, denoted by signs only.

Bikeway - All facilities developed primarily for use by bicycles.

Class I Bikeway - See Bike Path.

Class II - See Bike Lane.

Class III - See Bike Route.

Clearance, Lateral - Width required for safe passage of a bicycle and emergency and maintenance vehicles as measured on a horizontal plane.

Congestion Management Program - A once state-mandated, now voluntary program recommending the monitoring and mitigation of increased congestion on regional highway routes and transit systems.

CMAQ - Congestion Mitigation and Air Quality (TEA-21 funding program)

CMP - See Congestion Management Program.

FHWA - Federal Highway Administration

Geometry - The vertical and horizontal characteristics of a transportation facility, typically defined in terms of gradient, degrees, super elevation, and travel speed.

Grade Separation - Vertical isolation of travelways through use of a bridge or tunnel so that traffic conflicts are minimized.

Loop Detector - A device placed under the pavement at intersections that can detect a vehicle or bicycle and trigger an actuated or semi-actuated signal to turn green.

Mode Split - Percentage of trips that use a specific form of transportation. A one percent bicycle mode split indicates that one percent of trips are made by bicycle.

MUTCD - Manual of Uniform Traffic Control Devices

NPTS - National Personal Transportation Survey.

PMS - Pavement Management System

Reversion - Process by which bicycle facilities are removed or converted to non-bicycle use (travel or parking lanes) in the future.

Right-of-Way - The right of one vehicle or pedestrian to proceed in a lawful manner in preference to another vehicle or pedestrian. Also, the strip of land over which a transportation facility is built.

Shared Roadway - A type of bikeway (typically a bike route or bike boulevard) where bicyclists and motor vehicles share the same roadway with no striped bike lane.

Sight Distance - A measurement of the cyclist's visibility, unobstructed by traffic or other barriers, along the normal path to the farthest point of the roadway.

STP - Surface Transportation Program (ISTEA funding program)

TAC - Technical Advisory Committee

TCM - Transportation Control Measure

TDA - Transportation Development Act

TDM - See Transportation Demand Management

TEA - Transportation Enhancement Activities

TEA-21 - Transportation Equity Act for the 21st Century

TMA - Transportation Management Agency

Traffic Control Devices - Signs, signals, or other fixtures, whether permanent or temporary, placed on or adjacent to a travelway by authority of a public body having jurisdiction to regulate, warn, or guide traffic.

Traffic Volume - The number of vehicles that pass a specific point for a specific amount of time (hour, day, year).

Transportation Demand Measures (TDM) - Generally refers to policies, programs, and actions that are directed towards increasing the use of high occupancy vehicles (Transit, carpooling, and vanpooling) and the use of bicycling and walking with the express purpose of reducing or limiting vehicle cold starts and miles traveled for congestion and air quality purposes.

VMT - Vehicle Miles Traveled.

VT - Vehicle Trip.

California Bicycle Transportation Act (1994) Requirements, for San Bernardino County Non-motorized Transportation Plan – Index to Location in Document

Required Plan Element	Est. # of existing and future bike commuters	Land use and population density	Existing and proposed bikeways	Existing and proposed bicycle parking facilities
SB 821 citation	***891.2 (a)***	***891.2 (b)***	***891.2 (c)***	***891.2 (d)***
Location of reference within plan	*Table 1 - Demographics of Bicycle Transportation in San Bernardino County (pg. 114)*	*Table 1 - Demographics of Bicycle Transportation in San Bernardino County (Page 114),* *Section 1.4 (pgs 20-31)*	*Plan maps in Appendix, Sections 1.4 (pg 20-31) and 3.2 (pg 48), Table 11 (pg 186)*	*Plan maps in Appendix & Section 1.7 (pg 35)*
Required Plan Element	**Existing and proposed multimodal connections**	**Existing and proposed changing and storage facilities**	**Bicycle safety and education programs**	**Citizen participation**
SB 821 citation	***891.2 (e)***	***891.2 (f)***	***891. 2 (g)***	***891.2 (h)***
Location of reference within plan	*Plan maps in Appendix and Section 1.7 (pg 35)*	*Plan Maps (appendix) and City Descriptions Section 1.4, pgs 20-31), Section 1.7 (pg 135)*	*Table 10 (pg 184)*	*Chapter 7 Plan Adoption and Review (pg 109), Chapter 2.0 (pg 40)*
Required Plan Element	**Consistency with transport, air quality, energy plans**	**Project descriptions and priority listings**	**Past expenditures and future financial needs**	
SB 821 citation	***891.2 (i)***	***891.2 (j)***	***891.2 (k)***	
Location of reference within plan	*Chapter 1, (pg 18) Sections 1.1, 1.2, 1.3 (pg 19) & 1.6 (pg 33)*	*Tables 12-14 (pgs 188-197)*	*Table 7 (pg 178)*	

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INTRODUCTION

Why does San Bernardino County need a Non-motorized Transportation Plan?

San Bernardino County, located in Southern California boasts a wide variety of natural settings including beautiful mountains and vast deserts as well as numerous prominent institutions, local and regional parks, cultural centers and historic landmarks. San Bernardino County and the cities of the San Bernardino Valley are among the fastest growing areas in America, both in population and in the size and diversity of its economy. Residents enjoy a variety of cultural amenities and businesses within each city that provide a wide variety of entertainment and employment opportunities.

Framed by the Los Angeles County on the west, Riverside County to the south and extending to Nevada and Arizona to the east, the County is connected to Los Angeles, San Diego and Orange County by several major transportation corridors. Interstate 10 (San Bernardino Freeway) is the major east-west freeway through the highest density population centers of the valley, while Interstates 15 and 215 connect the valley from Riverside and San Diego to the South, and continue over the Cajon Pass to the cities of the high desert and eventually to Las Vegas. As a major emerging employment center, San Bernardino County's freeways are highly congested during commute hours. Scenic State Highway 38 enters the mountains surrounding the Valley and attracts tourists and residents during the weekends and holiday seasons to Lake Arrowhead, Big Bear Lake and other mountain communities and ski resorts on the famous Rim of the World Highway.

The County is connected to other regional centers by scheduled transit and commuter rail service provided by Metrolink and (to a much lesser degree) by Amtrak. Metrolink serves as an

increasingly important commuter rail service between San Bernardino and Los Angeles, with connecting service south to Riverside and Orange County. Ontario International Airport (ONT) is located in the west valley and is the largest airport in the region with several major expansion projects recently completed. OMNITRANS provides local and express bus service within the County and into adjacent communities.

San Bernardino County has become increasingly known worldwide for its transportation and distribution centers, owing much to its historic role as a crossroads of rail transportation and now also serving the same function for truck transportation. The area is also known for its historic agricultural heritage in citrus and vineyard operations, although today the pressures of growth have severely curtailed agriculture in the Valley.

Why does San Bernardino County need a Comprehensive Bicycle Route Plan?

One reason is the growing popularity of cycling for commuting and recreational purposes in San Bernardino County and the subsequent need to coordinate the numerous bicycle plans among the County's 24 cities to ensure the development of a cohesive, consistent and quality bikeway system throughout the County.

Simply put, both visitors and residents desire to get out of their cars and bicycle along the beautiful valleys, through the mountains and desert, and through diverse urban areas. In order to achieve this goal, the bicycling environment in San Bernardino County must be enhanced. Since bicycling is one of the most popular forms of recreational activity in the United States (with 46% of Americans bicycling for pleasure), we can assume that about 330,000 residents in San Bernardino County bicycle purely for pleasure at least occasionally. Having a planning document that identifies facility priorities will enable local jurisdictions to create an attractive and usable

infrastructure that will enhance the enjoyment and quality of life for the residents of San Bernardino County.

Safety is a primary reason to improve bicycling conditions in San Bernardino County. Concerns for safety are the single greatest reason people don't commute by bicycle, according to a 1991 Lou Harris Poll. Addressing those concerns for bicyclists through physical and program improvements is another major objective of this Comprehensive Bicycle Route Plan.

While existing conditions for bicyclists and pedestrians in San Bernardino are described later in this document, it is clear that the development of facilities that incorporate the needs of non-motorized transportation has not kept up with a rapidly growing demand. Residential and employment growth in the County has boomed over the past twenty years, yet this growth has not consistently provided communities in which walking and bicycling are either encouraged or even accommodated. In many respects, the pedestrian and bicycling environment lag behind many if not most of the other urbanized regions of California.

There are, of course, exceptions to this pattern. New communities such as Rancho Cucamonga have worked closely with developers to create walkable residential areas with an abundance of trails, bicycle facilities and other amenities. Older communities such as Redlands have always had the historical benefit of sidewalks, grid streets, and streets wide enough for bicycles and autos to co-exist.

Today, however, there is a need to re-think the role of streets in our communities – who uses them, how they function, how they are designed. It is now – while the infrastructure of the new century is being designed and constructed – that the needs of all transportation users must be taken into account. Quality is an easier goal to achieve when designed from the beginning – and prohibitively expensive to add after the fact.

For decades, land development throughout the County occurred on the basis that land was plentiful and (in recent years) that low cost development met regional demands. As the supply of inexpensive and easily developable land dwindles, however, attention must focus on the quality as well as the cost of the communities in which the citizens of San Bernardino County reside.

What are the Four Issues that San Bernardino County must address to become a Bicycle-Friendly County?

Safety, access, quality of life, and effective implementation are imperative elements for San Bernardino County's success as a bicycle-friendly county.

Safety is the number one concern of citizens, whether they are avid or casual recreational cyclists or bicycle commuters. Some of the central safety concerns for San Bernardino County residents include high volumes of traffic on major arterials, difficult crossings along busy corridors and at interchanges, narrow and congested roadways with inadequate shoulder width and surfacing for bicycles and curving, steep mountainous roads.

Access for bicyclists to shopping, work, recreation, school, and other destinations are somewhat hampered by heavy traffic on the many arterials of the County, and are further constrained by the barriers represented by the County's freeways. Bicycle travel between cities is also difficult due to discontinuous street patterns. However, transit connections via Metrolink (which allow bicycles on-board) and Omnitrans bus service, which are equipped with bike racks, help to close gaps between cities.

This Plan urges San Bernardino County and its jurisdictions to take measurable steps toward the goal of improving every San Bernardino County citizen's **Quality of Life**, creating a more sustainable environment, reducing traffic congestion, vehicle exhaust emissions, noise, and energy consumption. The

importance of developing a bicycle system that is attractive and inviting is a key element in preserving San Bernardino County as a place where people want to live, work, and visit. The attractiveness of the environment not only invites bicyclists to explore San Bernardino County, but more importantly, a comprehensive bicycle system helps to improve positive feelings about the quality of life in San Bernardino County.

Education, enforcement, engineering, and funding are the basic components of an **Effective Implementation** Program for this Plan. Education must be targeted to the bicyclist as well as to the motorist regarding the rights and responsibilities of the bicyclist and automobile driver. Comprehensive enforcement of existing traffic and parking laws, coupled with the implementation of sound design and engineering principles for bike corridors is also critical. This plan proposes a primary network of north-south and east-west bicycle corridors, supplemented by a network of multi-use paths which follow natural features such as rivers as well as corridors developed for other purposes, such as pipelines, transmission corridors and some rail lines. Finally, this plan proposes an aggressive strategy for obtaining grants and competing for other funding sources in order to realize the physical improvements identified as the highest priorities.

Expected Benefits of the Comprehensive Non-motorized Plan

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

Provide needed facilities and services. Meet the demand for increased use of bicycles as a means of travel around the County. With a goal of doubling bicycling by 2010, the bicycle commute share would increase from 2606 commuters to 5,212 commuters--which at 1.5% of the total commuting population is about 50% higher than the

current national average.

Improve the quality of life in San Bernardino County. Plan and implement bicycle-friendly streets, paths, and activity centers available to everyone, and support sustainable community development. Reduce traffic congestion, vehicle exhaust emissions, noise, and energy consumption by encouraging a healthier and more active form of travel. Encourage visitors to enjoy San Bernardino County on bicycle.

Maximize funding sources for implementation. Equip San Bernardino County to successfully compete for state and federal funding, by meeting the requirements of the California Bicycle Transportation Act and the Transportation Efficiency Act for the 21st Century (TEA-21). Provide a coordinating framework for the cities and agencies in the County to maximize multi-jurisdictional funding opportunities.

Major Recommendations of the Non-Motorized Transportation Plan

The San Bernardino County Non-Motorized Transportation Plan recommends the completion of a comprehensive Countywide Bikeway Network, a refinement in the way bicycle projects in the County are funded, to help cities identify, prioritize, and fund portions of the Countywide bicycle network, and implementation of new programs to be implemented over the 5-10 year life of the Plan. Specific short-to-mid-term projects that are detailed later in this report include:

Project 1 – Santa Ana River Trail

Project 2 – Pacific Electric Inland Empire Trail

Project 3 - San Timoteo Canyon

Project 4 – Riverwalk Trail

Project 5 – Cajon Pass Connector – Rte. 66 Heritage Trail

These projects will require additional feasibility work to determine the best type of improvement to be made, given detailed information on physical and operating conditions. The Plan focuses attention on these locations and corridors, providing the impetus to resolve design and funding issues.

For other projects, the Plan provides more general planning and design guidance that serve as tools to be used by the local agencies and public as the need arises. For example, the Plan provides a detailed school commute corridor approach that can be used by local communities to evaluate and select school commute patterns. In all cases, the recommendations of the Plan are advisory and must be adopted and implemented by local agencies as they see fit.

Numerous programs and smaller projects are also included in the short and mid-term list of recommended projects, and are detailed later in this report, as are specific actions that are needed to implement these projects in the next five (5) to 10 years.

1.0 Plans and Policies

The San Bernardino County Comprehensive Bicycle Route Plan has been created through the diligent efforts of the San Bernardino Associated Governments (SANBAG), the individual cities and agencies, and citizens interested in improving the San Bernardino County bicycling environment. Without the sustained efforts of these people, this Plan would not have been conceived and written.

1.1 Study Area

The primary study area of the Non-Motorized Transportation Plan includes the entire County and all connections into adjacent communities. The focus of the Plan is on a Primary (rather than local) Network of Bikeway corridors for inter-city and regional travel.

1.2 Relationship between this Plan and other Planning Efforts in San Bernardino County

The San Bernardino County Non-motorized Transportation Plan is intended to coordinate and guide the provision of all bicycle-related plans, programs, and projects within the County. As a Countywide Bicycle Plan, it focuses on providing bikeway connections between the incorporated cities, adjacent counties, and major regional destinations within the County. The plan also prioritizes recommended bikeway projects through the study area, and serves as a guide to the incorporated cities regarding bikeway policies and design standards.

<u>San Bernardino County Regional Trails Plan</u>
<u>Metrolink Master Plan</u>
<u>San Bernardino County Bikeways Plan (1976)</u>

<u>San Bernardino County Trails Plan</u>

This adopted plan identifies a regional trail system in San

Bernardino County, including multi-use trails accommodating hikers, equestrians, and bicycles. There is some overlap in multi-use trails between the Comprehensive Bicycle Route Plan and Trails plan, although the Bicycle Plan focuses exclusively on paved trails.

San Bernardino Countywide Transportation Plan (1999)

The San Bernardino County Association of Governments (SANBAG) is in the process of updating the Countywide Transportation Plan. The draft Plan discusses general bicycling issues in the county and states a policy of "Developing and maintaining a bicycle transportation system that encourages the use of bicycles as a safe, efficient, and convenient alternative to the automobile." Recommendations from this Plan would be incorporated into that document.

1.3 City Bikeways and Non-motorized Plans

While bicycling is allowed on all streets and roads except where expressly prohibited on freeways, local jurisdictions have developed bike plans and systems for focused improvements.

SANBAG	1994	Current Regional Bicycle Plan
San Bernardino County	(2/99)	Nine projects and location map
San Bernardino County Parks	(3/99)	Marked route sheets/addenda
Santa Ana River Trail	1990	Master Plan & map
San Bernardino County	1991	Open Space Plan Map
City of Upland	1995	Non-motorized Transportation Plan –
City of Rancho Cucamonga	1991	Trail Implementation Plan & Policies
City of Hesperia	1991	Circulation Plans and trail maps
City of Yucca Valley	1997	Current Bike Route Program
City of Twentynine Palms	1994	City Bicycle Plan
City of Grand Terrace	1998	Maps from Bicycle Plan
City of Chino Hills	1996	Bikeway Master Plan Maps
City of Chino	1998	Misc. Project Info
City of Victorville	1998	Project Information
City of Redlands	1999	General Plan Excerpts
City of Fontana	1999	Parks, Trails and Recreation Master Plan

1.4 Community Profiles

The following profiles the communities in San Bernardino County referenced in this plan:

City of Adelanto

2000 Estimated Population: 15,600 *
2000 Estimated Housing Units: 2,893 *

Adelanto, incorporated in 1970, is located on US Highway 395, in the California High Desert, 35 miles (56KM) north of San Bernardino via Interstate 15. Interstate 15 provides a route north to Nevada and south to the metropolitan Los Angeles and San Diego area.

George Air Force Base, located 5 miles (8km) southeast of the site, is presently in transition to a civilian facility.

Union Pacific, Atchison, Topeka, and Santa Fe, AMTRAK, and the Southern Pacific Railroads serve the area.

Town of Apple Valley

2000 Estimated Population: **57,000 ***
2000 Estimated Housing Units: **14,972 ***

Town of Apple Valley is located in the heart of the Victor Valley in the County of San Bernardino, at an elevation of 3,000 feet. Known as the "High Desert", Apple Valley is located 80 miles northeast of the Los Angeles metropolitan area, 150 miles north of San Diego, and 190 miles south of Las Vegas. The Town has 78 square miles in its incorporated boundaries, and a sphere of influence encompassing 200 square miles.

Current economic development plans include recruiting businesses to the new industrial park surrounding the Apple Valley Airport, and to the commercial locations in Town having the highest potential for development.

City of Barstow

2000 Estimated Population: 23,300 *
2000 Estimated Housing Units: 5,042 *

Barstow is conveniently located at the intersection of Interstates 15 and 40 at the mid-point between Los Angeles and Las Vegas. Barstow has a long history as a switching yard for the Atcheson, Topeka and Santa Fe Railroad (now BNSF), and continues to serve travelers on I-15. In addition, the Fort Irwin Training Center and the Marine Corp Logistic Base employ many local residents.

City of Big Bear Lake

2000 Estimated Population: 6,325 *
2000 Estimated Housing Units: 7,632 *

Big Bear Lake is located on Highway 18 in southwest San Bernardino County. It lies approximately 110 miles northeast of Los Angeles. Situated at 7000 feet in the San Bernardino Mountains along the shores of Big Bear Lake, the city is known for its ski resorts and mountain biking opportunities. The natural beauty and range of outdoor activities attracts up to 50,000 visitors on a peak holiday weekend and has enticed many vacationers to acquire second homes – nearly two-thirds of the city's housing.

The area's two ski resorts are the largest employers in the valley. Film and television production has been an emerging boon to the local economy.

City of Chino

2000 Estimated Population: 66,700 *
2000 Estimated Housing Units: 12,366 *

Situated in the valley of the San Gabriel Mountains, Chino is

easily accessible via the 60 and 71 freeways and located seven miles west of the Ontario International Airport. Chino is referred to as the "Four County City" because it lies where San Bernardino, Orange, Riverside, and Los Angeles Counties meet. The city encompasses 21 square miles and its sphere of influence includes 5,400 acres of the County's Agricultural Preserve which may be annexed by the City.

Chino's motto – *Where Everything Grows* – now illustrates its industrial and residential growth rather than its agricultural heritage. Today there are 375 manufacturers that operate in Chino.

City of Chino Hills

2000 Estimated Population: 60,200 *
2000 Estimated Housing Units: 16,595 *

Chino Hills is one of the fastest growing master planned communities in Southern California, with many miles of pedestrian, bicycle and equestrian trails and facilities.

While most of this development activity in the 1980's and 1990's focused on residential communities, today the city is making a strong effort to incorporate a balance of residential, business park and commercial recreation development.

City of Colton

2000 Estimated Population: 47,350 *
2000 Estimated Housing Units: 9,031 *

Colton also has a history rooted in railroading, having served throughout the 20th century as a main assembly yard for trains of the Southern Pacific and now Union Pacific railroad, and providing access to markets nationwide for the region's citrus industry.

Today, Colton's central location in the San Bernardino Valley continues to support its role in the transportation and distribution of freight.

City of Fontana

2000 Estimated Population: 117,400 *
2000 Estimated Housing Units: 27,470 *

Fontana can be found at the intersection of Interstates 10 (Route 66) and 15 immediately west of the city of San Bernardino. The city lies 50 miles east of downtown Los Angeles is served by Los Angeles' Metrolink rail. The city's main thoroughfare, Sierra Avenue, carries an estimated 48,000 vehicles on a daily basis. It encompasses 56 square miles.

The city's early economy was dominated by steel production and related products. Today, railroad and trucking operations, industrial facilities, and warehousing/distribution centers are prevalent due to the extensive transportation network and favorable geographical location.

City of Grand Terrace

2000 Estimated Population: 13,550 *
2000 Estimated Housing Units: 2,976 *

Grand Terrace is a 3.6 square mile community located just east of Interstate 215 between Blue Mountain and the La Loma Hills. It lies 60 miles east of Los Angeles and six miles south of San Bernardino.

Although only incorporated since 1978, the small town has a long history as an agricultural center due to the construction of the Gage Canal in the early 1900s. Today, however, residents tend to white-collar professionals and the city is proud of the entrepreneurial spirit of its citizens. The City's current marketing strategy includes targeting high-end retailers, high

tech industry, and healthcare services.

City of Hesperia

2000 Estimated Population: 63,600 *
2000 Estimated Housing Units: 16,890 *

Hesperia lies at the intersection of Interstate 15 and U.S. 395. It is positioned 35 miles north of San Bernardino, 90 miles northeast of Los Angeles, and 195 miles south of Las Vegas. The city has always been associated with transportation routes, first along the Mormon Trail and later as a depot on the Atchison, Topeka and Santa Fe Railroad.

Union Pacific/Burlington Northern Santa Fe provides rail freight service and AMTRAK provides passenger rail service. Hesperia is also near the location of the upcoming Southern California Logistics Airport (formerly the George Air Force Base).

City of Highland

2000 Estimated Population: 44,450 *
2000 Estimated Housing Units: 10,939 *

Highland is located between Interstates 10 and 215 along the "Foothill Freeway" (state route 30/330) at the base of the San Bernardino Mountains. It is only six miles northeast of San Bernardino and 65 miles east of Los Angeles. This recently incorporated city is a popular residential community.

Lake Arrowhead (unincorporated)

2000 Estimated Population: 14,000 *
2000 Estimated Housing Units: 10,200 *

The unincorporated community of Lake Arrowhead rests on the

southern shores of Lake Arrowhead surrounded by the San Bernardino National Forest. The area is located along Highway 173, accessible via Highway 18, approximately 90 miles northeast of Los Angeles and 20 miles north of San Bernardino.

Tourism drives the economy of Lake Arrowhead with skiing and eco-tourism generating its popularity. This vacation destination now contains nearly 6,000 homes used as second homes. Peak holiday weekends can boost the population of this small community to 40,000.

City of Loma Linda

2000 Estimated Population: 22,300*
2000 Estimated Housing Units: 3,520*

Loma Linda - Spanish for "pretty hill" - is bounded by the cities of San Bernardino on the north, Redlands on the east, and Colton on the west. Loma Linda is 60 miles east of Los Angeles on Interstate 10.

Loma Linda University Medical Center is a world-renowned medical school that has strengthened the local economy by attracting complementary businesses, as well as a regional Veterans Administration Hospital. The daytime population of 60,000 testifies to its regional attraction.

City of Montclair

2000 Estimated Population: 30,950 *
2000 Estimated Housing Units: 5,171 *

Montclair is positioned 30 miles east of the City of Los Angeles and 30 miles from San Bernardino along the Interstate 10 corridor. This prime location and the fact that more than 240,000 vehicles pass through the city on I-10 every day explain why the city's economy relies heavily upon the retail

industry.

A master planned transportation center, the Montclair Transcenter, serves a wide variety of transportation options. It holds a Metrolink station, a regional transit and bus hub, houses a park-and-ride facility, and provides on-site daycare.

City of Needles

2000 Estimated Population: 5,925 *
2000 Estimated Housing Units: 1,439 *

Needles is located near the California / Arizona border on Interstate 40 and is noted for its location on the original Route 66. It is positioned 250 miles east of Los Angeles, 110 miles south of Las Vegas, and 210 miles west of Flagstaff, AZ.

The city is one of the oldest communities along the Colorado River and still relies heavily upon the river. Havasu National Wildlife Refuge, extending from Needles to Lake Havasu City, AZ, was created by the Parker Dam on the river. Moabi Regional Park is located 11 miles southeast of the city on the Colorado River. These two large recreational areas attract visitors year-round.

City of Ontario

2000 Estimated Population: 151,500 *
2000 Estimated Housing Units: 26,892 *

Incorporated in 1891, Ontario has long been a stronghold in the Inland Empire. Located along Interstate 10 and Route 60, it is 40 miles east of Los Angeles and 25 miles west of San Bernardino.

Ontario International Airport, the fastest growing freight/cargo/mail hub in the western U.S., is a major asset to San Bernardino County with its 28-gate passenger terminal and

hubs for the major express shipping companies. Rail service is provided by the Union-Pacific-Southern Pacific and Burlington Northern-Santa Fe railroads. As a result, the city's largest sectors are distribution/transportation and manufacturing. A new convention center, in conjunction with the airport, will help lure more tourism dollars. Hotel and commercial/retail development also supports growth in the rapidly expanding community.

City of Rancho Cucamonga

2000 Estimated Population: 127,743
2000 Estimated Housing Units: 42,069

Rancho Cucamonga is located near the junction of Interstates 15 and 10, and soon along the eastern leg of the I-210 freeway. At the foot of the San Gabriel Mountains, it lies approximately 37 miles east of Los Angeles and 18 miles west of San Bernardino via Route 66. Los Angeles' Metrolink has a commuter rail station in Rancho Cucamonga, which is the busiest station on the San Bernardino line.

The economy of the city relies on manufacturing and retail, with recent growth in distributing. Plans are underway to create a new shopping district with "Main Street" appeal to offer regional shopping, entertainment, civic, and cultural amenities. Rancho Cucamonga also has one of the more developed trails and walkway plans in San Bernardino County – one more reason why residential growth in this community has expanded rapidly in recent years.

City of Redlands

2000 Estimated Population: 67,800 *
2000 Estimated Housing Units: 15,668 *

Redlands is located on Interstate 10, 65 miles east of Los Angeles. One of the older communities in the Valley, Redlands

for decades was the heart of the regions' citrus industry. Redlands has evolved as one of the cultural centers of the County, and is home to the University of Redlands, the Redlands Bowl summer concert series, restored and preserved Victorian homes, and a vibrant downtown.

Redlands Bicycle Classic, Sunset Loop Stage March, 2000

Redlands is also the host City of the Redlands Bicycle Classic, the most significant multi-day internationally sanctioned bicycle race in America, and home to a growing number of recreational bicyclists.

City of Rialto

2000 Estimated Population: 83,700 *
2000 Estimated Housing Units: 18,586 *

Rialto lies in the western portion of the San Bernardino Valley in the heart of the Inland Empire. Rialto is found along Interstate 10, 60 miles east of Los Angeles and 103 miles north of San Diego. Burlington Northern Santa Fe and the Union Pacific railroads provide freight service to the city while Metrolink offers commuter rail from the downtown station.

Access has led Rialto to a rising industrial presence, aided by the UPS regional headquarters. Location has also led to the development of seven major retail shopping centers in the city.

City of San Bernardino

2000 Estimated Population: 186,400 *
2000 Estimated Housing Units: 36,973 *

As the county seat since 1862 and railroad hub in the late-1880s, San Bernardino has long been an important city in Southern California. The city is located along Interstate 215, 60 miles from Los Angeles and a 20 minute drive from Ontario

International Airport.

San Bernardino is home to California State University, San Bernardino and San Bernardino Valley College.

City of Twentynine Palms

2000 Estimated Population: 15,100 *
2000 Estimated Housing Units: 4,505 *

Twentynine Palms is found along State Highway 62, 57 miles east of Palm Springs, in the Morongo Basin of the Mojave Desert. It encompasses nearly 54 square miles.

The headquarters of Joshua Tree National Park, the Mural Project, and the Marine Corps Air Ground Combat Center are all located in Twentynine Palms. The future is promising for this small community as the filming industry's interest in the area grows and the possibilities for alternative energy research and development are explored.

City of Upland

2000 Estimated Population: 63,374
2000 Estimated Housing Units: 14,464 *

"The City of Gracious Living" is nestled in the foothills of the San Gabriel Mountains. The city can be accessed via Interstates 10 and 15 as well as State Highways 30 and 60. Los Angeles is 45 miles west and Upland is served by Metrolink commuter rail.

The community, incorporated in 1906, has retained the charm of its past in its Town Center area of antique stores, custom shops and fine restaurants. The Thursday evening "Second Avenue Market" is a traditional Farmer's Market and a community institution.

Upland has one of the more developed systems of trails and bicycle facilities in San Bernardino County, focusing on the development of flood control corridor rights of way and the Pacific Electric Inland Empire Trail projects, along with connections to the downtown area and Metrolink station

City of Victorville

2000 Estimated Population: 64,500 *
2000 Estimated Housing Units: 15,840 *

Victorville is found in the High Desert area of San Bernardino County on the edge of the Mojave Desert. Accessible via Interstate 15 and State Highways 18 and 395, Victorville is situated approximately 97 miles northeast of Los Angeles and 47 miles northeast of San Bernardino.

The military is an important contributor to the local economy. The current conversion of the George Air Force Base into the Southern California Logistics Airport has enticed a variety of industries such as manufacturing, aviation, and distribution/warehousing.

City of Yucaipa

2000 Estimated Population: 39,850 *
2000 Estimated Housing Units: 9,831 *

Yucaipa, at the far southeast end of the San Bernardino Valley, incorporated in 1989. It is the home of Crafton Hills Community College, and is near the apple-growing community of Oak Glen, in the high foothills of the San Bernardino Mountains.

Town of Yucca Valley

2000 Estimated Population: 19,200 *
2000 Estimated Housing Units: 6,532 *

Located in the high desert 30 miles north of Palm Springs, Yucca Valley, the Town of Yucca Valley offers residents access to recreation at Joshua Tree National Park, San Bernardino Mountain ski areas and through a growing list of organizations within the community. Yucca Valley is also located close to the U.S. Marine Corps base at Twentynine Palms

1.5 Existing Bikeways and Trails

The existing bikeway system has been influenced and shaped in part by its unique topography. The County is bisected by the coastal mountain ranges that form a division between the desert and valley regions of the County. Historically, each city developed its street grid system focusing on the downtown and local railroad stations, although early surveying work in the County has resulted in a relatively continuous street pattern in the valley. The mountain ranges as well as several major east-west arterials and freeways such as Interstate 10 inhibit fluid north-south bicycle travel. Conversely, the mountain ranges and canyons in the eastern San Bernardino Valley offer challenging and exciting bike rides to the avid recreational bicyclist.

There are relatively few major multi-use trails built throughout the County, although plans for development of the Santa Ana River Trail (Colton-Redlands) and the Pacific Electric Inland Empire Trail (Rancho Cucamonga) have been progressing as of 2000. When completely developed, these two facilities can provide a backbone of facilities that will connect many of the communities in the San Bernardino Valley and provide linkage (via the Santa Ana River Trail) to Riverside and Orange Counties to the Pacific Ocean.

Currently, the County does not have an extensive or well - connected system of bike lanes, and most cities have a system that is comprised primarily of disconnected Class II bike lane and Class III bike route segments. The Cities of Rancho Cucamonga and Ontario have the most extensive network of

bike lanes and paths.

The presence of gaps in the existing bikeway system does not mean that people are not cycling. The bicycling community--ranging from experienced club riders to school children--has developed its own system of streets and routes that provide connectivity and safety for their purposes. Key observations on existing bicycling conditions include:

- There are a wide variety of bicycling environments ranging from hilly, open and mountainous, to quiet, easy, residential to urban and dense with high traffic volumes.

- Foothill Boulevard is a heavily traveled corridor, and as such is difficult for use as an east-west route for bicyclists of moderate to low expertise. Similarly, Foothill, Baseline and other major surface arterials are a barrier to bicycle and pedestrian traffic crossing these corridors.

- Circuitous residential street patterns in many of the cities make direct east-west travel along alternative routes to Foothill Boulevard difficult. Similar patterns of development are prevalent throughout the urbanized areas of the County, resulting in "super-block" development which forces through bicyclists onto the most heavily traveled arterials without acceptable alternative facilities.

- Many streets lack the proper signage needed to direct bicyclists along the bikeway routes through the County. Additionally, signage alerting motorists to cyclists and encouraging them to share the road is lacking.

- There are several secondary streets that can potentially serve as alternatives to the most heavily

traveled arterials along the major north-south and east-west county corridors.

- Many cities have not yet prepared Bicycle Master Plans or developed comprehensive systems of bike lanes and multi-use trails.

- There is generally a shortage of safe and appropriately located bicycle parking facilities at commercial areas and schools.

- There is a general lack of bike lanes and connectivity between bike lanes in many of the cities within the county.

- Access to Metrolink stations is difficult due to high traffic volumes along arterials leading to the stations.

- Bike storage onboard Metrolink is insufficient for potential demand, although a lack of access facilities and promotion have kept current ridership low.

- Several of the major bicycling corridors consist of wide shoulders with striping but do not have stenciling demarking it as an official bicycle lane. These shoulders have often been neglected in street resurfacing projects.

- Freeway on/off ramps along current cycling routes encourage motor vehicles to enter and exit freeways at high speeds while merging across bike lanes or shoulders and pose extreme hazards to cyclists.

Existing bicycle facilities and major activity centers in and around San Bernardino County are shown in Figure 2.

1.6 Relevant Legislation and Policies

Caltrans and San Bernardino Associated Governments (SANBAG) play an oversight and review role for federal funding programs for bicycle projects. The Transportation Equity Act of the 21st Century (TEA-21), a replacement program for the Intermodal Surface Transportation Efficiency Act (ISTEA), provides many of the same programs oriented to bicycles as did ISTEA-- with more money being available. Many of these bicycle funding programs require approval of a Bicycle Master Plan with specified elements in order to qualify for the program. On a state level, according to the California Bicycle Transportation Act (1994), all cities and counties should have an adopted bicycle master plan that contains:

- Estimated number of existing and future bicycle commuters
- Land use and population density
- 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
- 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

In addition to these required elements, the ***Caltrans Highway Design Manual*** contains specific design guidelines that must be adhered to in California. Chapter 1000: Bikeway Planning and Design of the Manual sets the basic design parameters of on-street and off-street bicycle facilities, including mandatory design requirements. On a regional level, both the San Bernardino Associated Governments and South Coast Air Quality Management District (SCAQMD) serve as a review and funding approval role on some bikeway projects.

1.7 Bicycle Parking

Bicycle parking includes bike racks, lockers, and corrals. Racks are low cost devices that typically hold about 2-4 bicycles, allow bicyclists to securely lock their frames and wheels, are secured to the ground, and are located in highly visible areas. Bike lockers are covered storage units that typically accommodate two bicycles per locker (each with its own door and lock), and provide additional security and protection from the elements. Bike racks are most often found in commercial areas where regular commuters can take advantage of the multi-modal connections and feel safe in leaving their bicycles. Bike corrals can be found at schools, stadiums, special events, and other locations, and typically involve a movable fencing system that can safely store numerous bicycles. Security is provided by either locking the enclosure or locating it near other activities so that it can be supervised.

A field review of San Bernardino County revealed the existence of bike racks for bicyclists at parks, schools, and a few locations in commercial areas. Bicycle racks and lockers are provided at most Metrolink stations. Each Metrolink station has from one to three bike racks, or parking for six to twenty bikes.

Bicycle Links to Transit

Every transit operator in San Bernardino County provides for bicycle racks on their buses. Omnitrans is the largest of these operators and serves cities in the San Bernardino Valley. Victor Valley Transit serves the cities and communities of Victorville, Apple Valley, Hesperia and Adelanto. Morongo Valley Transit serves Yucca Valley and Twentynine Palms. The City of Barstow operates its own transit system. Buses on each of these systems are equipped with bicycle racks that facilitate intermodal bicycle-transit trips. These racks can accommodate two bicycles at a time. The Metrolink commuter rail service, connecting the Inland Empire with Los Angeles and Orange counties, allows for at least one of its cars on each train to carry bicycles at all times.

Bicycle Parking Facilities

The Victorville Amtrak station (a new regional "transcenter") currently is equipped with bicycle lockers and racks. Lockers and racks are also provided for the convenience and security of bicyclists at the Montclair and San Bernardino Metrolink Stations. Currently, none of the transit operators provides for stationary bicycle parking facilities at transit centers or stops except for those mentioned above that are also served by Metrolink. The following Metrolink stations have long-term bicycle parking:

- San Bernardino
- Montclair
- Rancho Cucamonga

This plan calls for secure short and long-term bicycle parking at all Metrolink stations.

The City of Grand Terrace has several locations where bicycle parking is provided. Such locations include City Hall, shopping

centers, schools, and places of worship. The cities of Chino and Ontario provide for bicycle parking facilities at their respective city halls

The Pacific Electric Inland Empire Trail project that will traverse the cities of **Upland, Rancho Cucamonga, Fontana,** and **Rialto** will incorporate four to six bicycle rack facilities at designated access points along the length of the path. The exact locations of these future facilities are yet to be determined. Bicycle lockers will also be cited at some of these same locations.

Other cities in the SANBAG region do not have designated bicycle parking facilities. Currently, no city has an official plan to provide for parking facilities in the future. SANBAG could facilitate the addition of parking facilities through its efforts to secure funding for bicycle improvements in the region.

Other Support Facilities

Only the cities of **Grand Terrace** and **Rancho Cucamonga** have provisions for end-of-trip amenities such as showers and changing facilities. These locations are generally reserved for employees and are not available to the general public. No other cities have additional support facilities such as showers and changing rooms in the SANBAG region. The future provision for these amenities is also not found in any official municipal plans. SANBAG could facilitate the funding for these bicycle support facilities in the future with the adoption of this master plan.

Otherwise, bicyclists visiting stores, restaurants, places of employment, and community facilities are largely left to their own devices to temporarily store their bicycles. The lack of secure parking is becoming a major consideration in San Bernardino County and around the country, the result of the increased value of bicycles and relative ease of theft. Most

bicycles today range in value from $350 to well over $2,000. Bicycles are one of the top stolen items in all communities, with components being stolen even when a bicycle is securely locked. Specific recommendations on the bicycle storage type, amount, location, and other details are provided in the ensuing chapters.

1.8 Multi-Modal Connections

Existing multi-modal connections for bicyclists include connections to the Omnitrans bus system and Metrolink commuter rail stations. Omnitrans provides bus service through the entire County, forming connections to Metrolink and **Ontario International Airport**. All Omnitrans buses carry up to two bicycles, including two on the front-mounted bike racks. Metrolink stations provide connections for bicyclists to a majority of San Bernardino cities along the western side of the Valley, as well as employment centers in Los Angeles, Orange, and Riverside Counties. Each Metrolink train has space for 4 bikes in each car. Bicycles must be stowed in a designated bicycle storage area located typically in the wheelchair tie-down area of the railcar. Additionally, many stations provide rental lockers for bicycle storage as mentioned previously.

2.0 Needs Analysis

Three public workshops were held in San Bernardino County on April 24-26, 2001, with the purpose of identifying bicycling and pedestrian needs. Attendees were asked to comment verbally and on surveys. They were also asked to show on large-scale maps of the County their current riding habits and views on bicycling opportunities and constraints in San Bernardino County. Results of the surveys, workshop and subsequent correspondence and field review are presented below. Additional surveys were distributed to bicycle shops, schools, as well as various Transportation Management Agencies throughout the County.

These results plus many individual comments represent a summary and sample of opportunities and constraints in San Bernardino County and have been used to help create a bicycle system and program.

In concert with the goals of bicycle planning, reviewing the needs of bicyclists can be useful in pursuing competitive funding and attempting to quantify future usage and benefits to justify expenditures of resources.

2.1 Commuter and Recreational Bicycle Needs

The purpose of reviewing the needs of recreational and commuter bicyclists is twofold: (a) it is instrumental when planning a system which must serve both user groups and (b) it is useful when pursuing competitive funding and attempting to quantify future usage and benefits to justify expenditures of resources. According to a May 1991 Lou Harris Poll, it was reported that *"...nearly 3 million adults--about one in 60--already commute by bike. This number could rise to 35 million if more bicycle friendly transportation systems existed."* In

short, there is a large reservoir of potential bicyclists in San Bernardino County 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 San Bernardino County 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 require a 14 or 15 foot wide curb lane.

- **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 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, wide 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 wide 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 $350 to over $2,000 for adult models.** The most popular bicycle type today is the hybrid mountain bike or BMX. 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-speeds of years past has evolved into a sophisticated ultra-light 'road bicycle' that is used primarily by the serious long distance adult bicyclists. These expensive machines feature very narrow tires that are more susceptible to flats and blow-outs from debris on the roadway.

- **Who rides bicycles?** While the majority of Americans (and San Bernardino County residents) own bicycles, most of these people are recreational riders who ride relatively infrequently. School children between the ages of about 7 and 12 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 in San Bernardino County is the intermittent recreational rider who generally prefers to ride on pathways or quiet side streets.

2.2 Bicycle Commuter Needs and Benefits

Bicycle Commuter Needs

Commuter bicyclists in San Bernardino County range from employees who ride to work to a child who rides to school. Bicycling requires shorter commutes, which runs counter to most land use and transportation policies that encourage people to live farther and farther 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, San Bernardino County has a great potential to increase the number of people who ride to work or school because of:

(a) the presence of inter-modal transit connections (Metrolink, Omnitrans) that allow bicycles on board thereby extending viable commute distances for the average rider;

(b) moderate density residential neighborhoods with quiet side streets leading to commercial and employment centers;

(c) a mild climate that is favorable throughout most of the year, and

(d) the continual development of the Santa Ana River Trail which provides safe access to several employment centers.

Key bicycle commuter needs in San Bernardino County are summarized below.

- Commuter bicyclists typically fall into one of two categories: (1) adult employees, and (2) younger students (typically ages 7-15).

- Commuter trips range from several blocks to 1 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), riding in darkness, personal safety and security.

- Rather than be directed to side streets, most commuting adult cyclists would prefer to be given bike lanes or wider curb lanes on direct routes.

- Unprotected crosswalks and intersections (no stop sign or signal control) in general are the primary concerns of all bicycle commuters.

- Commuters generally prefer routes where they are required to stop as few times as possible, thereby minimizing delay.

- Many younger students (ages 7-11) use sidewalks for riding to schools or parks, which is legal in many areas, often 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. Students 12 years or older who consistently ride at speeds over 5 mph should be directed to riding on-street wherever possible.

- Students riding the wrong-way on-street are common and account for the greatest number of recorded accidents in California, pointing to the need for safety education.

2.3 Recreational Needs

The needs of recreational bicyclists in San Bernardino County must be understood prior to developing a system or set of improvements. While it is not possible to serve every neighborhood street and every need, a good plan will integrate recreational needs to the extent possible. The following points summarize recreational needs:

- Recreational bicycling in San Bernardino County typically falls into one of three categories: (1) exercise, (2) non-work destination such as a park or shopping, or (3) touring.

- Recreational users range from healthy adults to children 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, protection from wind, moderate gradients, or other features are more important.

- People exercising or touring often (though not always) prefer a loop route rather than having to back-track.

2.4 Crash Analysis

Bicycle-related crashes were collected for the past three years in San Bernardino County. A total of 283 bicycle-related crashes occurred in 1996, 329 in 1997, and 323 in 1998. While the low number of incidents and a variety of other potential factors make it difficult to draw a conclusion from this data, it is apparent that bicycle-related incidents are at the very least stable if not growing. Compared to other communities in California on the number of incidents per 1,000 persons, San Bernardino County's annual rate (0.46 incidents per 1,000 persons) is slightly lower than the average of .67 incidents per 1,000 persons.

To a significant degree, such relatively low numbers may indicate a lack of bicycling than particularly safe facilities or effective safety programs.

3.0 Recommended Bicycle System & Improvements

The recommended system and improvements consists of two distinct components:

- Bicycle System
- Bicycle Programs

Physical improvements to implement a bicycle system are covered in this chapter, while program and implementation recommendations are provided in a following chapter.

3.1 Bicycle System

The recommended bicycle circulation strategy consists of a system of primary routes, lanes, and paths connecting San Bernardino County residents to major regional destinations such as colleges and universities, parks, libraries, business districts, regional shopping centers and major employers. The objective of the primary system is to provide a framework for bicycle travel in the County. It is not meant to supplant local bikeway systems **nor to imply that bicyclists can only use these routes**. The Plan also serves as a resource by recommending multi-jurisdictional projects, ensuring that bikeways connect from city to city, that a consistent set of facilities is provided, and numerous standards and guidelines that can be adopted by each city and jurisdiction as they see fit. Wherever possible, the primary system was developed using city's existing and proposed bikeway network.

It is up to local jurisdictions to adopt and implement the Plan recommendations, many of which coincide with current local plans. The primary system identified in this Plan does not supplant or replace the local bikeway system. The proposed primary bikeway system is shown (broken down into sections of

the County) in Plan Maps 1-9.

The proposed San Bernardino County Bikeway system is characterized by (1) a new system of signage through the primary bicycle corridors (2) enhanced regional connections to bordering counties including Riverside County and Los Angeles County, (3) improved and new pathways to major transit connections (4) new bike lanes and other improvements where feasible, and (5) new bicycle support facilities such as signal detectors and bicycle parking. At a minimum, all bicycle routes identified on the Plan will be Class III bike routes and include intersection protection where needed, wide curb lanes where possible, traffic calming where needed to slow traffic, shoulder striping where feasible, and signing.

The top short-term bikeway projects were selected by SANBAG staff, the public, and bikeway specialists based on their local knowledge and cycling experience, the orientation of funding programs, and the planning criteria outlined in the Master Plan (coverage, connectivity, user groups, implementation, local input, funding sources).

3.2 Creating a Bikeway System

A bikeway system is a network of bicycle routes that, for a variety of reasons including safety and convenience, provide a superior level of service for bicyclists and are targeted for improvements by the County and Cities due to address 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 system. **The primary bikeway system is a tool that allows the County and Cities to focus and prioritize implementation efforts where they will provide the greatest community benefit and serve as a guiding and coordinating tool for Cities and the County as they plan their individual, local bikeways.**

There is an established methodology for selecting a bikeway system for any community. The primary method is 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 typically is through the public workshop format. Three public workshops were held in San Bernardino County on April 24-26, 2001 in Victorville, Upland and Redlands where citizens were asked to identify the routes they regularly ride plus corridors they saw as either opportunities or constraints. The recommendations of the Plan were presented to the public in these workshops where feedback was received on the Plan. In addition, a survey of meeting attendees and users was conducted and responses collected that helped identify the types and locations of improvements designed to meet citizen's needs.

The following criteria are typically used to develop a bicycle system:

- Existing Bicycling Patterns
- Connectivity
- Traffic volumes and travel speeds
- Amount of side conflict (driveways, side streets)
- Curb-to-curb width
- Pavement condition
- Access from residential areas
- Number of destinations served
    - Schools
    - Parks and Shorelines
    - Employment Centers
- Topography
- Integration into the regional system
- Adjacent land use
- On-street parking
- Accident data and safety concerns
- Existing bottlenecks or constraints
- Existing opportunities such as planned roadway improvements

The San Bernardino County bikeway system was developed

focusing on connecting existing segments of bike lanes, addressing routes used by bicyclists, and focusing on specific opportunities and constraints. The street grid pattern offered several distinct through corridors that connect residential areas with activity centers such as downtowns, schools, and parks.

Once a bikeway system has been identified, the greatest challenge is to identify the top segments that will offer the greatest benefit to bicyclists in the next five years. Aside from the criteria used in developing the system as a whole, selection of these top projects is based on:

(1) The number of schools served;
(2) The number of recreational centers served. If the segment is a Class I multi-use trail, the pathway itself may qualify as a recreational destination.
(3) The number of employment centers served;
(4) The number of areas where bicycle safety is addressed, i.e., corridors with high traffic volumes and narrow travel lanes; and
(5) Segments that help overcome existing gaps in the bicycling system.

The top short-term projects (Years 1-10) are described in greater detail below. While these projects represent the highest priority projects on the primary bikeway system, other local bikeways may actually be higher local priorities and may be implemented first in some cases.

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 be refined over time by SANBAG and local agencies as a result of changing bicycling patterns and implementation constraints and opportunities.

3.3 Description of Proposed Bikeway Improvements

Short Term (Years 1-10) Projects

The projects listed in Table 12 have been identified as the top priority short term bikeway projects in San Bernardino County, to be implemented over the next 10 years. The projects were selected by a variety of criteria, and do not include program recommendations that are covered in a separate section (see Sections 4.4-4.8). The criteria used to select the short term projects include (a) staff and Committee recommendations, (b) recommendations gathered through public workshops and surveys, (c) projects already identified by cities or other agencies, (d) completion of the Santa Ana River Trail, (e) overcoming major obstacles, gaps, and constraints, (f) a mixture of commuter and recreational projects, (g) service to (or near) all regional destinations and connections such as Metrolink and Omnitrans stations, and (h) geographic balance and service to all cities. Most of the projects are multi-jurisdictional projects, which meets the spirit and goals of many funding programs. Most of the projects are identified on existing Bikeway Plans by local jurisdictions.

Land Use and Bicycling Demand

Land use patterns, along with several other factors, influence the demand for bicycling as well as bicycling patterns. Land use density may reduce trip distances and encourage cycling. The location of major activity centers such as employment centers, universities, public facilities, transit centers, and regional shopping centers affect the bicycling patterns. The location of these regional centers should also serve as guideposts in the development of a county bikeway system that connects residents to key employment, shopping, recreational, and educational centers.

San Bernardino County has a mixture of high and low density

land use patterns. Cities centered along the spine of the Valley, near Metrolink stations and the Los Angeles County line tend to be higher in density, while those in the desert and transitional areas are lower in density.

Major activity centers in and around the county include;

- Ontario International Airport
- Chaffee College
- Ontario Convention Center
- Ontario Mills
- Cal State San Bernardino
- University of Redlands
- Loma Linda University and Medical Center
- Crafton Hills College
- San Bernardino Valley College
- Glen Helen Regional Park
- Rancho- Guasti Regional Park
- California Speedway
- The Epicenter (Quakes Stadium)
- National Orange Show/Fairgrounds

Major Downtowns

- Ontario
- San Bernardino
- Redlands
- Colton
- Loma Linda
- Fontana
- Rialto
- Yucaipa
- Chino
- Rancho Cucamonga
- Upland
- Montclair

The recommended bikeway system will attempt to connect these major activity centers to residential areas throughout the County.

Traffic and Air Quality Benefits

A key goal of the Non-Motorized Transportation Plan is to maximize the number of bicycle commuters in order to help achieve large transportation goals such as minimizing traffic congestion and air pollution. In order to set the framework for these benefits, national statistics and policies are used as a basis for determining the benefits to San Bernardino County.

- Currently, nearly 3 million adults (about 1 in 60) commute by bicycle. This number could rise to 35 million if adequate facilities were provided (according to a 1991 Lou Harris Poll). Owing to San Bernardino's mild climate, these numbers should be higher.

- The latent "need" for bicycle facilities--versus actual bicyclists--is difficult to quantify; we must rely on evaluation of comparable communities to determine potential usage.

- Mode split refers to the choice of transportation people make whether for work or non-work trips. Currently, the average household in the U.S. generates about 10 vehicle trips per day. Work trips account for less than 30% of these trips on average.

- Using the 1990 U.S. census, about .56% (3,329) of all employed San Bernardino County residents commute primarily by bicycle. This does not include those who ride to work less than 50% of the time, nor does it always include those who may walk or ride to transit and list "transit" as their primary mode.

- Nationally, the mean travel time for adult employed bicycle and pedestrian commuters was 14.2 minutes, which translates roughly into a commute distance of about 3.5 miles for bicyclists.

- The U.S. Department of Transportation in their publication entitled "National Walking and Bicycling Study" (1995) sets as a national goal the doubling of current walk and bicycling mode shares by the year 2010, assuming that a comprehensive bicycle and pedestrian system was in place. This would translate into a commute bicycle mode share of 1.12% or 6,658 commuters in San Bernardino County. Add to this number the number of commuters who bicycle occasionally, bike-to-transit, and students at local schools, and the average number of daily bicyclists in San Bernardino County increases to an estimated 49,773 bicycle commuters by 2010. These bicyclists will be saving an estimated 11,286,200 vehicle trips and 13,632,700 vehicle miles per year.

- The combined benefit of these future bicycle commuters over the next 20 years is an annual reduction of about 1,250,842 lbs. of PM10, 679,999 lbs. of NOX, and 989,734 lbs. of ROG.

Bicycling is one of the most popular forms of recreational activity in the United States, with 46% of Americans bicycling for pleasure. These figures indicate that about 468,693 residents in San Bernardino County do or would like to bicycle for pleasure. If nothing else, this indicates a latent demand for facilities and a potent constituency to push for better facilities.

3.4 Bicycle Parking and Other Support Facilities

A systematic program to improve the quality and increase the quantity of bicycle parking facilities is recommended in the County. The proposed performance standards that could be adopted by local jurisdictions are presented in the following recommendations.

Recommendation #1:

Bike parking should be provided at all public destinations, including parks, schools, business districts, City Halls, and other public facilities. All bicycle parking should be in a safe, secure, covered area (if possible).

Recommendation #2:

All new commercial development or redevelopment in excess of 10,000 gross leasable square feet should be required to provide one approved bicycle storage unit per 30 employees. All bicycle storage should be located in safe, secure, covered areas, be anchored to the ground, and allow bicycles to lock both frame and wheels. Figures 8 and 9 illustrate the recommended Class I (bike locker) and Class II (bike rack) configurations.

Recommendation #3:

Provide a mechanism and guidelines for the installation of bike racks on sidewalks in commercial areas and shopping centers. In general, the racks should be located in close proximity (within 200 feet) for all major generators, be visible, not obstruct pedestrian or vehicular movement, and contribute to the aesthetics of the area.

Recommendation #4:

Bicycle parking for existing non-residential uses should be implemented through one or a combination of the following two methods. (1) Require existing non-residential uses to provide bicycle parking per the requirements described above as part of the building permit process. (2) Subsidize the cost of bicycle parking through grants from public or private sources (see Funding section). Small bicycle 'U-style' racks, with capacity to hold 2-bicycles, should be provided on both sides of the streets in commercial areas at least every 200 feet.

Recommendation #5:

Bike Stations or on demand bike lockers may be appropriate at some locations in San Bernardino County, such as high activity areas in downtowns and at Metrolink stations. Bike Stations™ are staffed storage facilities that also offer repair and rental services, maps, and refreshments on a lease basis to a private operator. On demand lockers use an electronic key system that help avoid vandalism and other abuses at key locations such as Metrolink stations.

Recommendation #6:

Covered, secure bicycle parking at Metrolink Stations should be a priority, with adequate capacity for peak periods. Additional bicycle storage capacity on the trains should also be explored, possibly with new or re-designed cars with additional capacity.

Recommendation #7:

A special program to construct bicycle corrals where needed at all elementary, middle, and high schools in San Bernardino County should be continued and enhanced where needed. These enclosed facilities are locked during school hours, and address the theft and vandalism concerns of students.

Recommendation #8:

A new program, required as part of event permitting, to provide and advertise and promote closed-in secure bicycle corrals at all major special events in the County and cities, to encourage residents and visitors to bicycle rather than attempt to drive should be instituted.

3.5 Bicycle Safety Education Programs

The San Bernardino County Non-Motorized Transportation Plan

provides both physical recommendations (such as bike lanes) and program recommendations. Some of the program recommendations, such as changes in zoning requirements for bicycle parking, have already been covered. A revised County Bicycle Transportation Map will also serve as an educational tool, providing route safety information. This section covers future efforts to educate bicyclists and motorists, and efforts to increase the use of bicycles as a transportation alternative.

Education

Most of the Unified School Districts, Police Departments, and Public Works within the County have a long history of trying to improve safety conditions for bicyclists. Currently, some cities such as San Bernardino have employed groups such as Safe Moves to develop and implement a comprehensive traffic safety program. 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 reported bicycle accident 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.

Motorist education on the rights of bicyclists 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 bicyclists, or why a bicyclist may need to ride in a travel lane if there is no shoulder or it is full of gravel or potholes.

Existing education programs in schools are generally taught once a year to 3rd, 4th, and 5th graders. Curriculum is generally derived from established programs developed by

groups such as the Automobile Club of Southern California, and taught by members of the County of San Bernardino Sheriffs 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 with the exception of periodic classes put together by local bicycle clubs, usually employing a version of the "Effective Cycling" curriculum established by the League of American Bicyclists in the 1970's.

Recommended Program: Expand Current Education Programs

Existing educational programs in the County of San Bernardino schools should be expanded in a cooperative effort between the cities/County and the Unified School Districts, and supported by a secure, regular funding source. A collaboration of School District, Safety, and other Districts and Committees should be encouraged consisting of appointed parents, teachers, administrators, police, an active bicyclist, and public works staff whose task it is to identify problems and solutions, ensure implementation, and submit recommendations to the School Boards or City Councils.

Recommended Program: Develop New Educational Program Materials and Curriculum.

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 procedure for their children. Educational pamphlets for children should be made more readable. Incentive programs to reward good behavior should be developed. Educational programs, and especially on-bike 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)
- the use and importance of bicycle helmets
- how to adjust and maintain a bicycle
- night riding (clothes, lights)
- rules of the road
- riding on sidewalks
- how to negotiate intersections
- riding defensively
- use of hand signals

A standard safety handbook format should be developed incorporating the best elements of those currently in use, and made available to each school on disk so they may be customized as needed. Each school should develop a circulation map of the campus and immediate environs to include in the handbooks, clearly showing the suggested vehicle 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 school children bicyclists. An index of available handbooks, videos, curriculums, and other programs are included in the appendix of this Plan.

"Share the Road" sign on San Timoteo Canyon Road near Redlands

Recommended Program: Develop an Adult Education Program.

Establish an adult bicycle education program through the County Parks and Recreation Department and/or other City/County departments that (a) teaches adults how to ride defensively, (b) how to ride on a variety of city streets, and (c) encourages adults to feel more confident to ride to work or for recreation. Work with local bicycling groups who could provide the training expertise, and possibly lead organized bicycle training sessions, tours, and rides.

Recommended Program: Educate Motorists

Educate motorists about the rights and characteristics of

bicyclists through a variety of means including: (a) making bicycle safety a part of traffic school curriculum in San Bernardino County schools, (b) producing a brochure on bicycle safety and laws for public distribution, (c) enforcing existing traffic laws for both motorists and bicycles, (d) sending an official letter to the Departments of Motor Vehicles recommending the inclusion of bicycle laws in the drivers license exam, and (e) install signs that read "Share the Road" with a bicycle symbol at least every 1,000 feet 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.

3.6 Community and Employer Outreach

Without community support, a bicycle plan lacks the key resources that are needed to ensure implementation over time. While the Public Works Departments within each of the Cities and the County 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--which can help secure financial resources. Involvement by the private sector in raising awareness of the benefits of bicycling and walking range from small incremental activities by non-profit groups, to efforts by the largest employers in the County. Specific programs are described below.

Bicycle Donation Program

A fleet of lender bicycles available to employees to use as a commute alternative can be an effective encouragement tool. The bicycle may be purchased new or obtained from police auctions, repaired, painted and engraved with ID numbers, and made available free of charge to employees. Depending on demand, bicycles may be made available through reservations or on a rotating basis. The bicycles themselves should be lower-end, heavy-duty bicycles that have minimal re-sale value. Employer's responsibilities would be limited to an annual

maintenance inspection and repairs as necessary. The objective of the program is to encourage employees to try bicycling to work as an alternative, without making a major investment. Employers may wish to allow bicycle commuters to leave 15 minutes early from work, or some other type of incentive to encourage use of the bicycles. Each of the Cities in San Bernardino County could initiate their own "Yellow Bike Program" with help from SANBAG, and provide a fleet of 100 lender bicycles to commuters living within their jurisdictions.

Bicycle Clunker and Parts Program, Bicycle Repair Program

This program ties directly into the previous program by obtaining broken, unclaimed, or other bicycles and restoring them to working condition. The program's dual mission is also to train young people (ages 12-18) 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 Adoption

Programs to have local businesses and organizations adopt a pathway similar to the adoption of segments of the Interstate Highway system. Supporters would be identified by small signs located along the pathway, 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. This program may be administered by Parks & Recreation or other groups.

Bike Fairs and Races

The County and Cities are well positioned to capitalize on the growing interest in on-road bicycle races and criteriums. 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, which could bring some additional expenditures into the County.

San Bernardino County is host to perhaps the most significant cycling competition in North America, the Redlands Bicycling Classic. This internationally sanctioned event has been held since 1984, and has become an event that involves not only professional cyclists, but also members of an amazing spectrum of the Redlands and East Valley community in public races, tours, festivals, displays and other special events. The Redlands Bicycle Classic has already become a model for other communities across the United States seeking to revitalize both the social and commercial aspects of their downtowns.

The County and Cities 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 and Cities should also encourage these events to have races and tours that appeal to the less experienced cyclist. For example, in exchange for underwriting part of the costs of a race the Cities or County could require the event promoters to 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 city streets.

Bicycle Facility and Program Web Site

Web sites should be developed and linked to official city and county web pages providing the public with important information. This information should include:

A. Current bikeway maps
B. Copy of county and local bike plans
C. Bicycle parking information
D. Local bicycle groups and advisory committees
E. Safety and educational information

[Additional web site information, including examples of sites from other jurisdictions is located in the Appendix.]

In order to provide consistent and neutral sites, it is recommended that the county and cities maintain their own bicycle web sites, or agree to support a centralized web site.

Employer Incentives

Beyond programs described earlier such as the Bicycle Donation Program, employer incentives to encourage employees to try bicycling or walking to work include sponsoring bike fairs and races, 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 County and Cities may offer incentives to employers to institute these improvements through air quality credits, lowered parking requirements, reduced traffic mitigation fees, or other means.

Bike-to-Work and Bike-to-School Days

In addition to the existing bike-to-work day in San Bernardino County, have local bike-to-work days on a more regular basis and

in combination with other events to help promote bicycling as a commute alternative. Bike-to-work days could be sponsored by the Cities and County, possibly in conjunction with other agencies such as SANBAG. Bike-to-school days could be jointly sponsored with the School District, possibly in conjunction with bicycle education programs.

3.7 School Commute Improvements

Local bicycle improvements needed to school commute corridors vary from community to community. Parents in many communities are reluctant to let their children ride to school out of safety concerns. Unfortunately, this has resulted in additional traffic on local roads and especially near schools - which has increased the very safety concerns many parents have. Schools and local communities may embark on an evaluation of their school commute route by taking the following steps:

A. Form a School Commute or Safety Committee, formed of parents and representatives from the school, local public works department, and the police department. Set objectives and a regular meeting schedule.
B. Conduct a review of existing materials and conditions, including crash/accident data related to bicyclists for the past three years, condition of streets, sidewalks, and crosswalks. Conduct research into what other communities have done, and the research being conducted on a state and national level.
C. Hold a public meeting to address school commuting. Record comments. Ask people to fill out a survey and to record on a map the routes they typically use to get to school.
D. Major constraints in the school commute routes will become apparent through the data collection, field review, and public input process. Ask the public works and police staff for their input into reasonable solutions.
E. Common types of improvements include (a) maps and

educational materials to parents and school children, (b) crossing guards, (c) helmet subsidy programs for students, (d) new designs or restrictions in the school drop off area, (e) new or enhanced bike lanes and sidewalks, (f) new or enhanced crosswalks including enhanced signing and lighting, and (g) instituting a 'walking school bus' system where parents take turns walking in children along established routes.

F. Identify and prioritize improvements in conjunction with local public works department. Identify phased costs and funding needs. Request local matching funds from your local government, and assist local staff in pursuing outside funding as needed. Be sure and have a presence at all Council meetings to demonstrate the public support for such improvements.

3.8 General Planning Recommendations

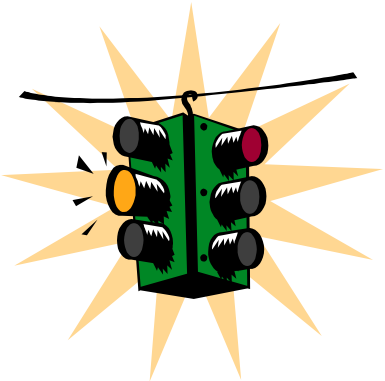
In order to develop a comprehensive local bikeway system within the countywide system, cities and local agencies should develop and maintain bike plans that comply with the State Bicycle Transportation Act, and meet state funding requirements. By adopting this plan, routes shown on this plan would meet State funding requirements. Cities would need to complete their own Bike Plans for local bikeways not shown in this plan.

4.0 The Pedestrian Environment

4.1 Defining a Regional Walkway System

It is often perceived that pedestrian transportation is essentially a local concern, given the length of most pedestrian trips and the manner in which these trips are usually contained within a given area, whether that area is a schoolyard, a shopping center, a college campus or a downtown business district.

At the same time, ISTEA and TEA-21's various program mandates reminds us that regional, state, and federal levels of government all have a stake in making the entire transportation system serve the needs of as broad a group of users as possible. It is often said that pedestrian planning is apart of "alternative transportation planning", yet there is no more basic mode of transportation than getting around on foot. Indeed, no trip involving a car, bus, train, airplane or other mode can even begin without a pedestrian journey taking place. Regional transportation facilities such as airports and train stations must be designed around the needs of the pedestrian if they are to fulfill their mission.



Unfortunately, as American society moved to develop the systems necessary to facilitate popular use of the automobile, many of the values associated with pedestrian transportation have been diminished if not lost. This is not a phenomena unique to Southern California – as highway and street design standards have been solidified over the past fifty years, the problems of lost access, diminished safety and difficult trip making have been repeated across the country.

It is not possible for a single regional plan to either identify all the liabilities and shortcomings of the pedestrian environment or to fund their correction. Many of the issues and concerns are appropriately addressed at the local or even neighborhood level. At the same time, this plan can identify priorities for the use of regionally administered funds to meet common regional needs.

4.2 Goals

For purposes of this plan, the following activities are considered regional priorities for pedestrian planning and project development:

1. Improving pedestrian access to transit;
2. Removing existing barriers to pedestrian travel;
3. Development of regional trails and pathways which provide improved pedestrian access to destinations;
4. Improvement of the pedestrian environment on major regional arterials and at regional activity centers

There are many other pedestrian topics which should be addressed, but as a priority at a more immediate local level of government. Such topics as school walkway and route development, completion of local sidewalk systems, neighborhood traffic calming and neighborhood pathway development should be funded and developed using local funds or with grant sources administered specifically for these purposes.

4.3 Regional Pedestrian Facility Programs

The following program concepts describe potential elements of regionally based pedestrian transportation effort:

Transit Access

One of the most significant regional benefits of improved pedestrian access and safety involves the support of local and

regional transit systems. All transit agencies rely heavily on pedestrians as a core of their ridership base – indeed, public transit is a safety net for those citizens who do not have access to an automobile or drivers license.

It is critical that this core customer base have ready access to transit service, yet in many if not most areas of San Bernardino County, there are few efforts being made to ensue that pedestrians have systems which demonstrate the characteristics of safety, continuity, connectivity and accessibility.

Local transit systems have an interest in working with local jurisdictions to ensure that there is an ADA-compatible access route to all transit stops, including pads adequate in size to accommodate wheelchair loading systems while maintaining a clear walking path.

Local jurisdictions should also work cooperatively with transit agencies to assess walking conditions within 200-400 meters of any transit stop. Most transit patrons are willing to walk at least this distance if facilities are present and safe.

In addition, land use codes can do much to ensure that new development serves the needs of transit. In new residential subdivisions, care should be taken to be sure that pedestrians can walk within a reasonable distance to access local transit service. This can be provided by including “pass-through” pathways between cul-de-sac streets and adjacent arterials. While many residential developments minimize vehicular access in an effort to cut down local “cut-through” traffic, these same developments must maintain exceptional pedestrian access to destinations within and adjacent to the development.

Commercial development also can provide a significantly more amenable environment for pedestrians through careful site planning. Orientation of business entrances to the street can make for a quicker pedestrian trip from transit to destination,

while inclusion of overhangs, shade and shelter near transit stops can make for vastly improved and pleasant waiting times for transit patrons. Many communities encourage development of businesses such as newsstands, coffee shops and cafes near major transit stops and centers to make these facilities more active, safer, and more pleasant.

Removing Existing Barriers to Pedestrian Travel

Projects that correct past actions which have cut off pedestrians from desired destinations is a regionally significant action under this plan. The prototypical example of this situation is the freeway right of way which split a community, or which requires pedestrians (and bicyclists) to route well out of their way to find access across these rights of way.

Examples of actions taken to correct these situations include overpasses and tunnels, although other actions such as the lidding (covering with a structure which may include parks or other community amenities) of a depressed section of roadway can achieve the same results. Development of trails and pathways along freeway rights of way can improve access by cutting travel distances or removing impediments to accessing an existing crossing.

Each of these strategies must be taken in the context of a given site – overpasses which require climbing to clear highway traffic may be prohibitively expensive to build, given increasingly specific access requirements to meet the needs of the disabled. Similar projects which cross depressed sections of highway can provide superb access without ramps or elevators, and open up many destinations within easy walking distance of either end of the bridge.

Development of Regional Trails and Pathways

From the pedestrian perspective, the development of trails and pathways can provide an important supplement to other local

efforts and systems to improve pedestrian facilities. Such facilities, to have a significant pedestrian benefit, must connect numerous destinations and trip origins within reasonable walking distance, provide a unique access not afforded by other street and sidewalk systems, and should be a more pleasant and safer place to walk than other existing alternatives.

Many trails utilize existing corridors, such as abandoned rail lines, power corridors, pipelines and even limited access rights of way. Other communities have built smaller walkways through downtown areas through dedication of a narrow strip easement on one property edge, allowing development of a pathway system to occur over time as properties develop in a business district.

Providing a better pedestrian environment on major regional arterials and at activity centers

Clearly, a number of strong regional and local interests converge at locations with high activity, whether the activity is in the form of auto traffic, pedestrians, or where many businesses and employers locate. From the regional perspective, the improvement of these corridors and districts can assist transit agencies, business development districts and traditional downtowns.

Many examples exist of improvements to Main Street districts throughout the County. Examples can be found on State Street in Redlands, in Yucaipa, in downtown San Bernardino and in Ontario. New business developments seek to create a vibrant, busy sense of place in indoor malls and centers – trying ultimately to replicate the environment of the successful downtown street. Such districts are an important amenity to support regional transit efforts, as concentrations of activity allow transit to effectively serve larger numbers of commuters, shoppers and visitors with a more efficient system.

While there are many examples of pedestrian malls that have been developed in Southern California in the past 40 years, it is

not necessary or obligatory to ban automobiles entirely to create a more attractive downtown or business district. While successful projects such as the 3rd Street Promenade in Santa Monica do exist, similarly successful projects have retained auto access while simultaneously created more (and more pleasant) pedestrian environments through expansion of walkways, introduction of more street level activity, preservation of street trees and shade, and the promotion of activities such as street fairs and farmers markets to create the energy needed to make these districts a commercial as well as transportation success.

4.4 Local Pedestrian Facility Programs

The following are examples of projects and programs suited to local implementation and funding which support the goals of this plan:

Multi-Modal Mindset at the Design Stage

Integration of pedestrian design philosophy requires a comprehensive commitment by numerous agencies, organizations and interests. Such a mindset once established can over time create communities in which pedestrian activity is encouraged rather than merely accommodated.

- Designs of new and retrofitted developments should provide equal accommodation for automobiles, bicycles and pedestrians rather than subordinating the needs of other forms of transportation to the unimpeded flow of vehicular traffic.

- Mixed-use developments with integrated land uses should be encouraged, since they can foster more pedestrian-friendly environments, generate less vehicle trips and create interesting places.

- In line with encouraging new approaches to development, it is suggested that codes might reflect that sidewalks

should be automatically required when it is anticipated that a road will attain a particular threshold with respect to either speeds or vehicle trips per day. In areas that have already been urbanized, completion of local sidewalk systems is an appropriate local priority action.

- A "park once" policy, in which centralized public parking facilities would be built to serve a given area, could be instituted in core areas so as to reduce trips and the number of parking spaces required.

Traffic Calming

Safety has been the primary concern expressed by community members. Measures to calm vehicular traffic could be introduced to address these safety concerns. At many locations, but particularly at schools, more crosswalks may be needed.

Many crosswalks, both new and existing, might be better served by pedestrian-activated flashing lights, assuming they meet established warrants and criteria. This would be particularly appropriate near schools and on heavily traveled streets and boulevards. In short, anything that would mitigate the tendency of drivers to ignore pedestrians would prove useful.

A number of strategies could be introduced to calm traffic speeds, including:

- Street trees
- Speed bumps
- Corner and mid-block curb bulbouts
- Surface treatments
- Narrower streets
- Raised intersections/crosswalks
- Enforcement of existing speed limits.

Sidewalk Plans

Sidewalk plans should be introduced in each jurisdiction to

require adequate and safe sidewalks on all major streets, overpasses and on any route that leads to a school. The sidewalk plans should address the following issues:

- *Physical Condition.* The condition of many sidewalks needs to be improved. Tripping obstacles range from broken and hazardous sidewalk sections to overgrown shrubs and landscaping that block passage.
- *Accessibility.* Many intersections lack curb cuts and ramps for wheelchairs. Additionally, sidewalks need to be widened so as to give them an adequate and comfortable capacity for wheelchairs. As sidewalks are widened and made accessible by the introduction of ramps, utility poles need to be removed so that accessibility is truly achieved.
- *Connectivity.* One jurisdiction made note of the fact that maintenance and improvements to existing urban trail systems would enable residents to make better use of these facilities and access transit stops for travel out of their community. Better connectivity in the framework of the pedestrian facilities can also foster "placemaking" at town centers.
- Signage that makes existing amenities more available to pedestrians.
- Alleviation of congestion at school sites.
- Routes to schools.
- Access to recreation.
- Provision of paths on rural streets in accordance with the California Vehicle Code.

Education and Awareness Building

Awareness of the needs of pedestrians should be incorporated into school programs through the use of pedestrian safety courses. Additionally, education and pedestrian awareness issues should be incorporated into Department of Motor Vehicle driver's license tests. These education materials should also include etiquette rules for road sharing between motor vehicles and other modes of transit.

With additional California state attention being paid to school safe walk route programs, an opportunity exists to educate parents and the general public of the need for greater awareness and concern for the pedestrian environment. Across the country, schools and communities have developed "Walk Your Child to School Day" programs which incorporate local audits of the walking conditions faced not only by school children each day, but by all members of the community as well. These programs have proven effective in focusing community attention on issues ranging from local traffic enforcement, local street design, and the quality of existing pedestrian facilities.

5.0 Design of Bicycle Facilities

This chapter provides details on the recommended design and operating standards for the San Bernardino County Bikeway System.

The Caltrans Design Manual establishes the standards for bicycle facility design within this state. These standards are, for the most part, consistent with the 1999 American Association of State Highway and Transportation Officials (AASHTO) Guidelines for the Development of Bicycle Facilities. The Caltrans standards provide the primary basis for the design recommendations that follow.

5.1 Definitions

The following section summarizes key operating and design definitions:

- Bicycle: A device upon which any person may ride, propelled exclusively by human power through a belt, chain, or gears, and having either two or three wheels in tandem or tricycle arrangement.

- Class I (Shared Use Path): A bikeway physically separated from any street or highway. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users.

- Class II (Bike Lane): A portion of roadway that has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.

- Class III (Bikeway): A generic term for any road, street, path, or way that in some manner is specifically designated for bicycle travel regardless of whether such facilities are designated for the exclusive use of bicycles, or are to be shared with other transportation

modes.

- Signed Shared Roadway or Signed Bike Route: A shared roadway that has been designated by signing as a preferred route for bicycle use. These are Class III facilities under the Caltrans Design Standards.

Graphic descriptions of Shared Use Path, Bike Lane, Bikeway and Signed Shared Roadway are shown in Figure 4.

5.2 Design Recommendations

The following guidelines present the recommended minimum design standards and other recommended ancillary support items for shared use paths, bike lanes, and signed shared roadways. All bikeways should meet minimum Caltrans/AASHTO standards. Where possible, it may be desirable to exceed the minimum standards for bike paths or bike lane widths, signage, lighting and traffic signal detectors. In cases where Caltrans and AASHTO guidelines conflict, Caltrans Design Standards will take precedence.

Design Recommendations – Class I/Shared Use Paths

1. All shared use paths should generally conform to the design recommendation by Caltrans/AASHTO.

2. Multi-use trails and unpaved facilities that serve primarily a recreation rather than a transportation function and will not be funded with federal or state transportation dollars may not need to be designed to Caltrans/AASHTO standards.

3. Shared use path crossings of roadways require preliminary design review. A prototype design is presented in Figure 6. Generally speaking, bike paths that cross roadways with Average Daily Trips (ADTs)

over 20,000 vehicles will require signalization or grade separation.

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

5. Lighting should be provided where the bike path will be used by commuters in the evenings.

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

7. Bike path construction should take into account impacts of maintenance and emergency vehicles on shoulders and vertical requirements.

8. Provide two feet wide unpaved shoulders for pedestrians/runners, or a separate tread way where feasible. Direct pedestrians to right side of pathway with signing and/or stenciling.

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

Design Recommendations – On-street Facilities

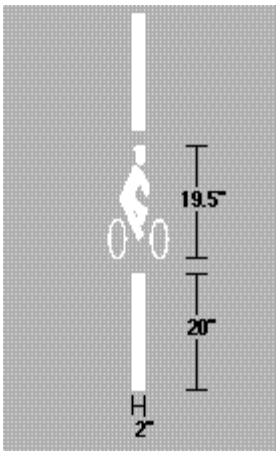
1. All bike lanes should generally conform to the minimum design recommendations in Figure 5.

2. Whenever possible the responsible agency should recommend that wider bike lanes beyond the minimum standard are installed.

3. Intersection and interchange treatment. AASHTO

provides recommended intersection treatments including bike lane 'pockets' and signal loop detectors. The responsible agency should develop a protocol for the application of these recommendations, so that improvements can be funded and made as part of regular improvement projects. Figure 15 (Bike Lanes at Intersections) provides details for recommended intersection treatments.

4. Signal loop detectors that sense bicycles should be considered for all arterial/arterial, arterial/collector, and collector/collector intersections. The location of the detectors should be identified by a stencil of a bicycle and the words 'Bicycle Detector'.



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

6. Bicycle-sensitive loop detectors are preferred over a signalized button specifically designed for bicyclists.

7. 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.

8. Where bottlenecks preclude continuous bike lanes, they should be linked with bikeway route treatments.

Signed shared roadways are typically simply signed routes and don't provide much advantage for bicyclists. With proper selection, signage and other treatments they can add significant

visibility, direction and advantages. Signed shared roadways can become more useful when coupled with such techniques as:

- route, directional, and distance signage
- wide curb lanes
- accelerated pavement maintenance schedules
- new stencils marking the bike routes
- traffic signals timed for cyclists
- traffic calming

In addition to those identified by AASHTO, there are a variety of improvements that will enhance the safety and attraction of streets for bicyclists.

All bikeway signing in San Bernardino County should conform to the signing identified in the Caltrans Design Manual and the AASHTO Guide for the Development of Bicycle Facilities 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 AASHTO and the MUTCD are shown in Table 3 (Bikeway Signing and Marking Standards). A typical signed shared roadway sign is shown in Figure 7, while an example of a customized logo sign as might be used in San Bernardino County is shown as Figure 27.

Local jurisdictions should also provide standard signing at signalized and unsignalized intersections on bikeways, as shown in Figures 31 and 32. Additional warning signs are shown in Figure 12.

In addition to the signing, striping and stencils should be considered according to AASHTO standards. This includes striping along bicycle lanes that differentiate the space between the bicyclist and the automobile (See Figure 18). Striping, and other treatments such as colored pavement (see Figure 8), double stripes, and new technologies should be considered for key locations within the County.

Stencils can also be included on shared use paths and bike lane facilities to help cyclists and motorists more easily identify the bike lane or route. AASHTO recommended stencils should be used.

Action

A bicycle signing program is recommended as a high priority project for San Bernardino County. In addition, new technologies and strategies for bicycle striping and stencils should be considered for bicycle lanes and signed shared roadways where deemed appropriate.

5.3 Bicycle Parking

Bicycle Parking is not standardized by any codes. However, there are preferable types of secure bicycle furnishings available on the market. When bicycle parking is being considered the types of bicycle lockers and racks in Figures 13 and 14 are recommended. More specific guidelines to determine bicycle parking capacity and location are suggested in Table 4.

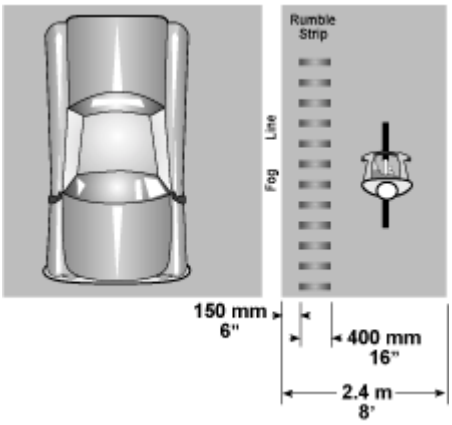
Action

A bicycle parking program is recommended as a high priority project for San Bernardino County. Specific bicycle parking guidelines should be developed to help city staff, developers, and commercial districts determine the types of furnishings and location of bicycle parking.

5.4 Rumble Strips

Rumble strips are provided to alert motorists that they are wandering off the travel lanes onto the shoulder. They are most common on long sections of straight freeways in rural settings, but are also used on sections of two- lane undivided highways. Early designs placed bumps across the entire width of the shoulder, which is very uncomfortable for cyclists.

A newer rumble strip design is more bicycle-friendly: 400 mm (16") grooves are cut into the shoulder, 150 mm (6") from the fog line. On a 2.4 m (8 ft) shoulder, this leaves 1.8 m (6 ft) of usable shoulder for bicyclists.



Bicycle-friendly rumble strip

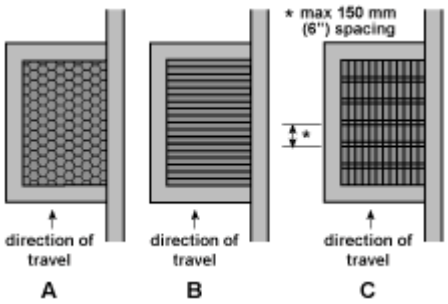
(courtesy Oregon Dept. of Transportation)

Action

The local jurisdictions in cooperation with Caltrans take all necessary measures to ensure that new applications of rumble strips on highways constituting elements of the State bicycle network conform to the design guidelines of this plan, particularly with regard to minimums of shoulder space located outside of the rumble strip. Existing installations not in conformance with these guidelines shall be given additional consideration for correction in any programmatic efforts that result in additional shoulder construction on this network

5.5 Drainage Grates

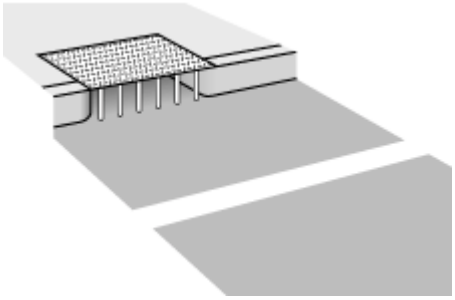
Care must be taken to ensure that drainage grates are bicycle-safe. If not, a bicycle wheel may fall into the slots of the grate causing the cyclist to fall. Replacing existing grates or welding thin metal straps across the grate perpendicular to the direction of is required. These should be checked periodically to ensure that the straps remain in place.



Bicycle safe grates

Note: grates with bars perpendicular to the roadway must not be placed at curb cuts, as wheelchairs could get caught in the slot.

The most effective way to avoid drainage-grate problems is to eliminate them entirely with the use of inlets in the curb face (type CG-3).


Inlet flush in the curb face

If a street-surface grate is required for drainage (types G-1, G-2, CG-1 and CG-2), care must be taken to ensure that the grate is flush with the road surface.

Inlets should be raised after a pavement overlay to within 6 mm (1/4") of the new surface. If this is not possible or practical, the pavement must taper into drainage inlets so they do not cause an abrupt edge at the inlet.

5.6 Extruded Curbs

These create an undesirable condition when used to separate

motor vehicles from cyclists: either one may hit the curb and lose control, with the motor vehicle crossing onto the bikeway or the cyclist falling onto the roadway. At night, the curbs cast shadows on the lane, reducing the bicyclist's visibility of the surface. Extruded curbs make bikeways difficult to maintain and tend to collect debris. They are often hit by motor vehicles, causing them to break up and scatter loose pieces onto the surface.

5.7 Reflectors & Raised Pavement Markers

These can deflect a bicycle wheel, causing the cyclist to lose control. If pavement markers are needed for motorists, they should be installed on the motorist's side of the stripe, and have a beveled front edge. The use of raised pavement markers has been restricted or prohibited by several jurisdictions in recent years, including Washington State. Provisions can be made for their use in certain circumstances, including lane tapers, on uphill edgelines with 50' separation between installations, and where a specific engineering study concludes that the benefit of the installation to correct a demonstrable problem at a given site.

5.8 Sidewalks as Bicycle Facilities

The use of sidewalks as bicycle facilities is not encouraged by AASHTO, even as a Class III bike route. There are exceptions to this rule. While in residential areas, it is true that sidewalk riding by young children too inexperienced to ride in the street is common. With lower bicycle speeds and lower auto speeds, potential conflicts are somewhat lessened, but still exist. 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.

Sidewalks can be used for short distances to make connections between off-street shared use paths and other facilities when

such routing provides safer and more direct access than other available options.

5.9 Roadway Shoulder Evaluation

In areas where roadways have or will be developed with full curb and gutter, the provision of bikeways most often takes the form of striped bike lanes or signed bike routes. On roadways without curb and gutter, which is most often either a county or state road or highway in a rural, unincorporated, or developing area, shoulders provide both a place for bicyclists but also often for pedestrians and a breakdown lane for motor vehicles.

Many roads in the County, especially older roads and those carrying moderate to low traffic volumes, have little or no shoulders. Modern highways and newer roads are typically constructed with shoulders meeting current standards. It is the roadways with no or limited shoulders that present a challenge to local jurisdictions. The major obstacle to retrofitting these roads with adequate shoulders is cost, which in turn is related to:

1. the high number of road miles in the County,
2. the presence of adjacent drainage ditches, utility poles, and other obstacles making construction expensive,
3. lack of right of way, in some cases, and
4. the need to reconstruct roadways to give the shoulder structural integrity.

5.10 Shoulder Width

The width of a new or retrofitted shoulder is, in some cases, different for motor vehicle safety than for bicycle safety. For example, while a 3 meter wide (9.8 feet) shoulder is often preferable for vehicle safety, 1.2 meter (4 feet) wide shoulders are often sufficient for bicycle use. According to AASHTO:

The most important features to provide for bicyclists on roadways are:

1. Paved shoulders
2. Wide outside traffic lane (4.2m minimum) if no shoulder
3. Bicycle-safe drainage grates
4. Adjusting manhole covers to the grade
5. Maintaining a smooth, clean riding surface

The widened shoulder will generally be more accommodating in rural circumstances. Where it is intended that bicyclists ride on shoulders, smooth paved shoulders should be provided and maintained. Shoulder width should be a minimum of four (4) feet wide (1.2 meters) when intended to accommodate bicycle travel. Adding or improving shoulders can often be the best way to accommodate bicyclists in rural areas, and they also benefit motor vehicle traffic.

Shoulders constructed for motor vehicle purposes obviously will also benefit bicyclists. This section addresses the provision of shoulders to benefit bicyclists, which means that they (a) may or may not be constructed as part of a roadway paving or re-paving project, (b) should be on those segments of the State Bicycle System offering the greatest benefit to bicyclists, and (c) will also benefit motorists and therefore not necessarily funded strictly with bicycle funds. In other words, shoulders will always benefit bicyclists and motor vehicles, and should be considered joint projects. Bicycle funds should be used on shoulders where they provide the greatest benefits to bicyclists.

Several other issues are important to address in relationship to shoulder improvements. First, while shoulders can frequently be widened, narrow bridges represent a potentially worse hazard because there is no escape zone for bicyclists or vehicles. Second, while shoulders always benefit bicyclists, they are especially critical in areas where there is limited

motorist visibility, such as around sharp curves, where a vehicle will be surprised to find a bicycle in the roadway. Third, shoulders are always the repository of gravel and debris swept naturally by vehicle traffic, and need to be maintained on a routine basis to be usable by bicyclists. Fourth, in some cases shoulders can be 'created' simply by re-striping the existing pavement, narrowing travel lanes, or shifting lane striping. Finally, in some special circumstances, parallel pathways may supplement (but not replace) shoulders for bicycle traffic.

Wherever possible, new roadway shoulders should be constructed to AASHTO standards. AASHTO identifies a shoulder width of 3 meters (9.8 feet) for roadways with higher traffic volumes. "In difficult terrain and on low-volume highways, (…) the minimum shoulder width of .6 meters (about 2 feet) should be considered and a 1.8 to 2.4 meter width (5.9 feet to 7.8 feet) would be preferable." (p. 338). However, the cost to retrofit many of the state highways in California (and San Bernardino County), especially given the rugged topography and high number of road miles, means that narrower shoulders are a more practical solution. In areas of rugged topography or other constraints, wide shoulders are simply not practical except where there are appreciable traffic volumes. The final decision on shoulder width rests with the reasonable judgment of a licensed engineer.

Any additional shoulder width, even if it is .6 meter (about 2 feet), will benefit bicyclists. In some very constrained areas, or where motor vehicle and bicycle traffic is expected to be low, minimal shoulders between .6 and 1.2 meters (2 and 4 feet) in width are preferable to no shoulders.

Categories of Improvements

While there are a wide variety of roadway settings that have a major impact on cost and feasibility of shoulders, there are four basic categories that describe the range of shoulder improvements. (see Figure 1). It is assumed that all new

roadways or roadways with curb and gutter in developed areas will be developed as bike lanes or signed bike routes.

Type 1: New 1.2 meter (4 feet) wide shoulders. Constructed in relatively level terrain, no right of way needed, minor ditch relocation, and minor utility pole relocation. Includes new sub-base, new striping, pavement, striping, and signing.
Cost: $150,000/mile

Type 2: New 1.2 meter (4 feet) wide shoulders. Constructed in moderate terrain, some moderate cuts and fills, some drainage ditch and utility relocation, new striping, and no right of way required.
Cost: $350,000/mile

Type 3: New .6 to 1.2 meter (2 to 4 feet) wide shoulders. Constructed in rugged terrain, extensive grading, some new retaining wall, new striping, guardrails, no right of way required, and moderate utility and drainage ditch relocation or improvements.
Cost: $700,000/mile

Type 4: Road Reconstruction to 9.6 meters (32 feet) with minimum 1.2 meter (4 feet) wide shoulders. Where a roadway warrants improvements based on traffic volumes or is being re-constructed due to structural deficiencies, the entire roadway will be constructed rather than simply adding shoulders of any width. While this is a costly approach and would probably be funded as part of a larger roadway project, it avoids long term problems with settling between the roadway and shoulder that can pose a hazard to bicyclists. Cost estimate assumes level to moderate terrain, with no right of way required but some utility and drainage ditch relocation.

Cost: $500,000/mile

Cost

Cost is the single limiting factor to constructing roadway shoulders. Cost in turn is directly related to the adjacent terrain, utilities, drainage ditches, and other constraints. While it is possible to develop an "average" shoulder cost for the local jurisdictions, the actual cost can be broken down into four basic categories for more accurate cost estimating. The estimated cost by category is listed identified above.

To develop an average cost for shoulder improvements, some assumptions must be made about the breakdown between the categories listed above. For planning purposes, this is assumed to be:

Type 1:	50%
Type 2:	20%
Type 3:	20%
Type 4:	10%

Given these assumptions, the average shoulder improvement cost per mile is estimated to be $335,000.

Individual cost components are shown in Table 2. As can be seen, cost items such as bridges, earth excavation, and drainage can greatly impact the cost of a specific project.

5.11 Traffic Calming Programs

Traffic calming includes any effort to moderate or reduce vehicle speeds and/or traffic volumes on streets where that traffic has a negative impact on bicycle or pedestrian movement. Because these efforts may impact traffic outside the immediate corridor, study of traffic impacts is typically

required. For example, the City of Berkeley, California instituted traffic calming techniques by blocking access into residential streets. The impact was less traffic on local streets, and more traffic on arterials and collectors. Other techniques include installing traffic circles, intersection islands, partial street closings, 'bulb-out' curbs, pavement treatments, lower speed, signal timing, and narrowing travel lanes.

Many cities in California already have a relatively continuous street grid system with little filtering of through traffic into residential neighborhoods. Traffic circles, roundabouts, and other measures may be considered for residential collector streets where there is a desire to control travel speeds and traffic volumes but not to install numerous stop signs or traffic signals.

Action

Traffic calming alternatives should be considered where traffic speeds are exceedingly high, and when safety is an issue.

5.12 Maintenance

Table 5 can be used to estimate the total annual maintenance cost of the primary bikeway system as it is developed. Most of the maintenance costs are associated with the proposed off-road bike paths, as bike lanes and routes are assumed to be maintained as part of routine roadway maintenance. However, as bicycle lanes do require occasional restriping and other maintenance, a cost of $2000 per mile annually is used based on experience in other cities. This includes costs like sweeping, replacing signs and markings, and street repair. Class I bike path 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.

Maintenance access on the Class I bike path will be achieved using standard city pick-up trucks on the pathway itself. 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. In addition, these same maintenance treatments should be performed on Class II and Class III facilities. These facilities should be prioritized to include an accelerated maintenance plan that is already a part of the City's ongoing street maintenance. A maintenance schedule and checklist is provided in Table 11.

Action

Identify a reliable source of funding to cover all new Class I, II and III bike facility maintenance. All proposed designs should be closely examined to minimize future maintenance costs. In particular, maintenance on Class II and III facilities should be accelerated.

5.13 Security

Security may be an issue along portions of Class I bike paths. The following actions are recommended to address these concerns.

Action

Enforcement of applicable laws on the bike path will be performed by the local Police Department, using both bicycles and vehicles. 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. No additional manpower or equipment is anticipated for Class II or III segments.

5.14 Liability

Liability is a major concern for all local governments. Liability for local agencies implementing and operating new bikeways and

pedestrian facilities should be no different than the liability for new roads, parks, or schools. Local agencies should adhere to the following guidelines to minimize their liability.

1. Use of Design standards.

The designers, builders, and inspectors of a facility should adhere to widely accepted standards governing the design and construction of the trail. A standard of conduct includes adherence to published documents such as safety codes, standards, or guidelines that are sponsored or issued by government agencies or voluntary associations, even though such documents lack the force and effect of law. Provisions of state laws related to transportation facilities, if mandatory, may provide the basis for a finding of negligence per se.

In addition to the Caltrans Design Manual, other applicable or useful reference standards include the Uniform Building Code; the AASHTO Guide for the Development of Bicycle Facilities, for Class I and II Bikeways; Florida Department of Transportations Trail Intersection Design Guidelines, Island Press's "Greenways: A Guide to Planning, Design, and Development," Americans with Disabilities Act (ADA), and the Rail-to-Trails Conservancy's Trails for the 21st Century: A Planning, Design, and Management Manual for Multi-Use Trails.

Careful compliance with applicable laws, regulations, route selection criteria, and design standards should greatly reduce the risk of injury to bicyclists using the bikeway, and also provide strong evidence that the agency used reasonable care.

2. Traffic signals and warning devices.

While California law limits the liability of public entities for failure to install regulatory traffic signals, signage and markings, non-regulatory warning signs must be installed where necessary to warn of dangerous condition, such as an intersection. All signals and warning devices must be adequately

maintained, so as not to invite reliance on a defective warning device.

3. Usage of Professionals.

Facilities that have been reviewed and approved by unregistered or unlicensed professionals may increase liability exposure.

4. Adhere to Maintenance Standards.

Maintenance practice should be consistent along the entire facility, and conform to recognized maintenance practices. The responsible maintenance agency(ies) should have a written procedure to follow to maintain all portions of the facility, including the correction of pre-existing conditions such as drain grates.

5. Monitor Conditions.

The responsible agency(ies) should have an internal mechanism to monitor and respond to actual operating conditions on the facility. This is typically done through the maintenance procedures, a record of field observations and public comments, and an annual accident analysis. Accidents should be reviewed to determine if physical conditions on the bikeway were a contributing cause.

6. Keep Written Records.

Written records of all maintenance activities and procedures, responses to reports of safety hazards, and other regular maintenance requests should be collected and regularly reviewed. While a facility may pass through numerous jurisdictions, it may make sense to have one contact person/department responsible for the entire facility, rather than risk confusion by incidents being reported to the wrong jurisdiction. Mileposts on the route may also help maintenance

and enforcement personnel respond to problems.

7. Correct Hazards.

Trail managers should correct all hazards known by public officials in a timely fashion.

8. Warn of Known Hazards.

Trail users should be warned that the trail is adjacent to an active railroad corridor and to use caution when crossing the tracks or at intersections with roadways.

9. Insurance.

Proper insurance coverage or budgeting for self-insurance to cover potential liability will do much to alleviate concerns.

10. Be Careful With the Word 'Safe'.

Do not make any verbal or written comments that the facility is safe or safer than a non-designated route. For example, a Project Feasibility Report should not make any blanket claims that the facility is safe or safer than comparable routes, however.

11. Do Not Rush to Settle.

Fear that juries will award a plaintiff large sums for damages has made many attorneys eager to settle cases before they come to court. Lawsuits related to bikeways and walkways may be settled more quickly than other types of lawsuits due to the misconception that walking or bicycling are inherently unsafe activities.

Attorneys may feel that a local government has an extra responsibility on designated bikeways or walkways–more than it

does for motor vehicles on roadways for example–to prevent incidents. In fact, there is no evidence that bicycling or walking is inherently more or less safe than other transportation modes such as driving, flying, or other recreational activities such as swimming or playing soccer. This misconception is probably shared by the same public, who must be educated about the facts of bicycling and walking. The same exceptions for user responsibility and facility condition that apply to driving should apply to bicycling or walking. Since by lay bicyclists and pedestrians are allowed on all roadways except were expressly prohibited, and roadway conditions vary widely, a public agency incurs no additional liability by identifying the route on a map or a plan. The net effect or prematurely settling a case is to incrementally reduce the types of improvements that can be offered by local government. In other cases, settling cases prematurely may simply encourage legal actions by others.

6.0 Implementation Strategy

This section identifies strategies on funding and financing proposed bicycle and pedestrian improvements.

6.1 Implementation of Countywide Projects

Some of the primary goals of the San Bernardino County Non-motorized Transportation Plan are to coordinate implementation efforts between jurisdictions, ensure that the County and each local agency receives its fair share of competitive funding, and help prioritize projects so that those projects providing the greatest benefit are implemented in the short term.

This plan recognizes that cooperation between local agencies in the selection of priority projects and the allocation of local funding (such as TDA monies) is critical to ensuring an orderly implementation of an effective bicycle system.

Recommendation:

Short-term projects identified in this plan represent the highest priority bicycle projects currently identified in San Bernardino County. Local available matching funds, such as TDA, should be allocated whenever possible to these projects or to other locally identified projects that meet the funding criteria of the TDA program. The actual schedule for implementation on a year-to-year basis should be determined by:

(a) the readiness of each project in terms of local support;
(b) CEQA approvals;
(c) right-of-way control;
(d) timing with other related improvements; and/or
(e) success in obtaining competitive funding.

SANBAG staff should monitor the short- and mid-term projects identified in this Plan and subsequent updates, and

keep a year-to-year list of projects and their TDA and other local funding allocations. Should a project not be ready or able to utilize its allocation, it may trade with another short-term project. This process eliminates the constant evaluation of new projects and ensures that viable top priority projects have access to matching funding. It provides each city and local agency a five to 10 year schedule so that they may program their resources and feel assured that their project will be implemented in the short term. Each year staff will review the list of projects slated for that year, review the project readiness of each project to be funded, and listen to requests for changes to the sequencing of the projects.

This process does not preclude cities and local agencies from continuing to submit other local projects for consideration for TDA and other funding.

6.2 Implementation of Local Projects

All of the top priority Countywide projects must also be considered local projects, and as such will require local approvals and sponsorship. In addition, communities will want to develop local bikeway and pedestrian projects as well. The steps between the concepts identified in this Plan and final completion vary from project to project, but typically include:

1. Adoption of a Plan by the City Council or Board of Supervisors, either using this Plan with a resolution identifying the appropriate sections, an amended version of this Plan, or a new local Bicycle and Pedestrian Master Plan.
2. Completion of a Feasibility Study, which typically includes preliminary design, environmental analysis, alternatives analysis, related agency coordination, local staff, or by consultants. The final product should yield a preferred design alternative, environmental clearance, and an accurate cost estimate.
3. Approval of the preferred project by the local governing

board, including acceptance of any environmental documentation. Local agency typically must commit to providing 10% of the project cost, and assume responsibility for the cost, operation, and liability for the project.

4. Funding applied for and obtained for the project. Typically, all environmental work must be completed, local approval obtained, and the right-of-way in public control.
5. Completion of final Plans, Specifications, and Estimates (P,S&E). Once completed, bids for construction services can be obtained.
6. Construction of the Project.

6.3 Security

Security may be an issue along portions of the proposed Class I bike paths, bridges, and tunnels. The following actions are recommended to address these concerns.

Action: *Enforcement of applicable laws on bike paths will be performed by the local Police Departments, using both bicycles and vehicles. 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. No additional manpower or equipment is anticipated for Class II or III segments.*

6.4 Funding Overview

There are a variety of potential funding sources including local, state, regional, and federal programs that can be used to construct the proposed bicycle and pedestrian 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. In addition, the majority of the programs require a local match, usually 10-15% of the total project cost.

The recipients of grant funds for many of these programs are then required to monitor the projects for compliance with the program guidelines. Although the pursuit and administration of grant moneys can require a significant amount of staff time, the benefits of the moneys offset the exchange.

Local funding for bicycle and pedestrian projects typically comes from Transportation Development Act (TDA) funding, which is prorated to each County based on a return of gasoline taxes. Local and regional funding programs are potential sources for local matches to state and federal funding programs. State funds can also be used to match funds for Federal dollars.

The key to receiving funds will be to tailor grant requests to meet specific requirements and criteria, leverage grants with matching funds, and demonstrate a serious intent by the jurisdiction to implement and maintain the system. Serious intent would include adoption of the Master Plan, inclusion of bikeway improvements into the Capital Improvements Plan, adoption of recognized design and operating standards, and public support demonstrated through an active Advisory Group.

Funding for many of the programs proposed in this Plan would need to be funded either with local funds, TDA, general fund (staff time), or regional Programs. Unfortunately, most State, and Federal sources do not provide funds for maintenance programs.

A detailed program-by-program breakdown of available funding programs along with the latest relevant information is provided on the following pages. It can be difficult to track program specifics as frequent re-authorization changes program guidelines regularly. Thus it is important to verify program dates and deadlines with the program administrator since specific amounts and deadlines can change from year to year.

6.5 Federal Funding Programs

Transportation Equity Act for the 21st Century (TEA-21)

Federal funding through the TEA-21 program will provide the bulk of outside funding for the Plan's projects. TEA-21 authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 6-year period 1997-2003.

TEA-21 builds on the initiatives established in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), which was the last major authorizing legislation for surface transportation. This new Act combines the continuation and improvement of current programs with new initiatives to meet the challenges of improving safety as traffic continues to increase at record levels, protecting and enhancing communities and the natural environment as we provide transportation, and advancing America's economic growth and competitiveness domestically and internationally through efficient and flexible transportation.

Federal Funding Components and Administration

TEA-21 currently contains three major programs, STP (Surface Transportation Program), TEA (Transportation Enhancement Activities), and CMAQ (Congestion Mitigation and Air Quality Improvement) along with a variety of other smaller programs such as the National Recreational Trails Fund, Section 402(Safety) funds, Scenic Byways funds, and Federal Lands Highway funds.

TEA-21 funding is administered through the state (Caltrans or Resources Agency) and regional governments (San Bernardino Associated Governments). Most, but not all, of the funding programs are transportation versus recreational oriented, with an emphasis on (a) reducing auto trips and (b) providing an inter-modal connection. Funding criteria often includes completion and

adoption of a bicycle/pedestrian master plan, quantification of the costs and benefits of the system (such as saved vehicle trips and reduced air pollution), proof of public involvement and support, CEQA/NEPA compliance, and commitment of some local resources. In most cases, TEA-21 provides matching grants of 80 to 90 percent--but prefers to leverage other moneys at a lower rate.

http://www.fhwa.dot.gov/tea21/index.htm

6.6 State Funding Programs

Local Transportation Fund TDA Article III (SB 821)

Transportation Development Act (TDA) Article III funds are state block grants awarded annually to local jurisdictions for bicycle and pedestrian projects in California and about $700,000 for San Bernardino County. These funds originate from the state gasoline tax and are distributed to counties based on population, with a competitive process administered by SANBAG for local jurisdictions.

Clean Air Funds

AB 434 funds are available for clean air transportation projects, including bicycle and pedestrian projects, in California. Please check your local Air Pollution Control District (Southern California Air Quality Management District or the Mojave Desert Air Quality Management District) for attainment and funding status.

State 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. The

state legislature authorized $7.2 million per year for the next five fiscal years (2001-2006), approximately 6 million dollars over the amount of the previous authorization. The program has been set to drop back to $5 million per cycle after 2006.

http://www.dot.ca.gov/hq/LocalPrograms/

Safe Routes to School (AB 1475)

The Safe Routes to School program is a newly created state program using funds from the Hazard Elimination Safety program from TEA-21. This new program for 2000 is meant to improve school commute routes by eliminating barriers to bicycle and pedestrian travel through rehabilitation, new projects, and traffic calming. A local match of 11.5% is required for this competitive program, which will allocate $18 million statewide annually. Planning grants are not available through this program.

http://www.dot.ca.gov/hq/LocalPrograms/saferoute.htm

6.7 Local Funding Programs & Methods

New Construction

Future road widening and construction projects are one means of providing bike lanes and pedestrian infrastructure. To ensure that roadway construction projects provide bike lanes where needed, appropriate and feasible, it is important that an effective review process is in place so that new roads meet the standards and guidelines presented in this master plan.

Environmental Review

Impacts to bicycle and pedestrian circulation and safety should be analyzed in all CEQA documents in the County with appropriate mitigations identified as needed. This mechanism represents a significant opportunity to gain non-motorized

improvements as a component of new transportation projects.

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 or pedestrian improvements that will encourage residents to bicycle or walk rather than drive. In-lieu parking fees may be used to help construct new or improved bicycle parking. Establishing a clear nexus or connection between the impact fee and the project's impacts is critical in avoiding a potential lawsuit.

Mello-Roos Community Facilities Act

Bike paths, lanes, and pedestrian facilities can be funded as part of a local assessment or benefit district. Defining the boundaries of the benefit district may be difficult unless the facility is part of a larger parks and recreation or public infrastructure program with broad community benefits and support.

http://mello-roos.com/pdf/mrpdf.pdf

Other Revenue Sources

Local sales taxes, fees, and permits may be implemented, requiring a local election. Volunteer programs may substantially reduce the cost of implementing some of the proposed pathways. Use of groups such as the California Conservation Corp (who offers low cost assistance) will be effective at reducing project costs. Local schools or community groups may use the bikeway or pedestrian project as a project for the year, possibly working with a local designer or engineer. Work parties may be formed to help clear the right of way where needed. A local construction company may donate or discount services. A

challenge grant program with local businesses may be a good source of local funding, where corporations 'adopt' a bikeway and help construct and maintain the facility.

Other opportunities for implementation will appear over time that may be used to implement the system.

6.8 Financing

Proposed improvements and programs to be developed over the next 20 years in San Bernardino County continue to require analysis to determine the annual financing requirements, and to allow the County to budget its resources and target funding applications. It is important to note that the majority of funding for bicycle projects is expected to be derived from Federal sources. These funding sources are extremely competitive, and require a combination of sound applications, local support, and lobbying on the regional and state level.

San Bernardino County has historically invested relatively little annually in bicycle facilities. Most of these investments have been in the form of simultaneous development of bicycle lanes as part of road improvement projects at the local level.

6.9 Funding Program Specifics

Federal Funding

Transportation Equity Act for the 21st Century (TEA-21)

Both houses of Congress adopted TEA-21 on May 22, 1998. The follow-up to ISTEA, TEA-21 offers some important funding opportunities.

1. The Surface Transportation Program (STP) was amended as follows:

- $92,010,648 available to San Bernardino County, FY

1997/98 through 2003/04

- Bicycle and pedestrian projects remain eligible, and must complete with other modes.
- Sidewalk improvements to comply with the Americans with Disabilities Act (ADA) are now eligible for Surface Transportation Program funds.
- 11.5% local match
- Dollars are allocated on a competitive basis to SANBAG to prioritize projects – Caltrans administers funding.

2. The National Highway System (NHS) program was amended as follows:

- Pedestrian projects may now be funded with NHS funds.
- NHS funds may now be used on bicycle and pedestrian projects within Interstate corridors.
- Administered by Caltrans

3. The Transportation Enhancement Activities (TEA) program was amended as follows:

- $16,192,314 available for San Bernardino County, through both Caltrans and SCAG. Dollars are allocated to SANBAG for prioritization, while Caltrans administers funding.
- Bicycle and pedestrian safety and education programs
- Tourist and welcome centers
- Environmental mitigation to provide wildlife corridors
- Requirement that each project be directly transportation related.
- Eighty-percent Federal matching requirement applies only to total non-Federal share rather than total project cost.

4. The Congestion Mitigation and Air Quality Improvements (CMAQ) program was amended as follows:

- $111,893,637 available to San Bernardino County, FY 1997/98 through 2003/04, divided between Mojave

Desert and South Coast Air Quality Districts.

- Bicycle and pedestrian project eligibility remains essentially the same, and must complete with other modes.
- 11.5% local match required.

5. The Recreational Trails Program was amended as follows:

- $270 million dollars available nationwide over the next six years
- Bicycle project eligibility remains essentially the same

6. Transportation for Livable Communities (TLC)

- $9 million/year available regionwide
- Capital and planning grants to enhance a community's overall quality of life.
- 11.5% local match required.

7. The Hazard Elimination Program was amended as follows:

- Now can be used for bicycling and walking hazards
- Definition of a "public road" now extended to include bikeways, pathways, and traffic calming measures.

8. A new category, Transit Enhancements Program, was created that call for transit agencies in urbanized areas over 200,000 population to use one percent of their Urban Formula Funds for Transit Enhancements Activities. Up to 50 million dollars per year may be available for pedestrian access, walkways, bicycle access, bike storage facilities, and bike-on-bus racks. Most notably, the program calls for 95 percent Federal/five percent local match.

9. Scenic Byway, bridge repair, transit, safety (non-construction), and Federal Lands programs all remain essentially the same under TEA-21, with the amounts either the same or increasing from ISTEA.

10. Planning provisions for states and MPO's have been streamlined, with bicycle and pedestrian needs to be given due consideration in the development of comprehensive transportation plans. Specific policies include directives to not approve any project or regulatory action that will have an adverse impact on non-motorized safety, unless a reasonable alternative route is provided or already exists.

11. When state or local regulations permit, allow use of bicycle facilities by electric bicycles and motorized wheelchairs.

12. Railway-highway crossings should consider bicycle safety.

13. A new Surface Transportation-Environment Cooperative Research Program is established for funding non-motorized research.

14. In collaborative effort, AASHTO, ITE, and other groups established new bicycle design guidelines, the updated AASHTO Green Book.

A detailed program-by-program of available funding programs along with the latest relevant information is provided on the following pages. Specific amounts and deadlines are not yet identified for some of the TEA-21 programs.

7.0 Plan Adoption & Review

This brief section addresses steps local jurisdictions can take for certification of local non-motorized transportation plans and projects consistent with the plan:

Until recently Caltrans has not developed a standard policy about how County Bike Plans can be used by local jurisdictions to meet Bicycle Transportation Account (BTA) requirements. Rick Blunden, former Chief of the Caltrans Bike Unit, and subsequent Caltrans personnel including Ken McGuire of Caltrans, have been fairly consistent in their approach to this matter.

There are basically 3 options for a local agency (including a county, town, city) to qualify for BTA funding. First, the agency can complete their own local plan. Second and third, they could (a) use the County Plan provided to each agency on CD to create a local Bicycle Master Plan or (b) to adopt the County Plan with specific caveats and additional information to make it relevant to that community. Caltrans supports this position as it relates to using County Plans for cities and towns.

The steps to provide the additional level of detail often required for a local agency over and above what is possible to provide in a County Plan are outlined below.

1. **Land use map.** Include the most recent copy of your land use map from your General Plan in your application.

2. **Existing and proposed bicycle transport and parking facilities in connection with other modes.** The County Plan typically provides a countywide summary of both of these items. You may wish to supplement this with a paragraph describing the general extent of bicycle parking in your community, and the presence of any multi-modal terminals (but excluding bus stops except where they are transfer points).

3. **Existing and proposed facilities for changing clothes.** This is impossible to define in a County Plan, although most County Plans identify recommendations for future changing facilities and showers. According to Rick Blunden, who preceeded Ken McGuire at Caltrans, all they meant by this requirement was the identification of any schools, parks, or other public locations where bicyclists may be able to change their clothes and possibly shower. They did not intend it to include private showering or changing facilities. You may wish to write a paragraph describing existing parks, schools, or other public facilities that have changing or shower facilities.

4. **Past expenditures.** Provide a simple estimate of the past annual amounts spent on bicycle facilities in your community, including TDA, regional, State, and Federal grants.

Appendices: Tables, Figures, and Maps

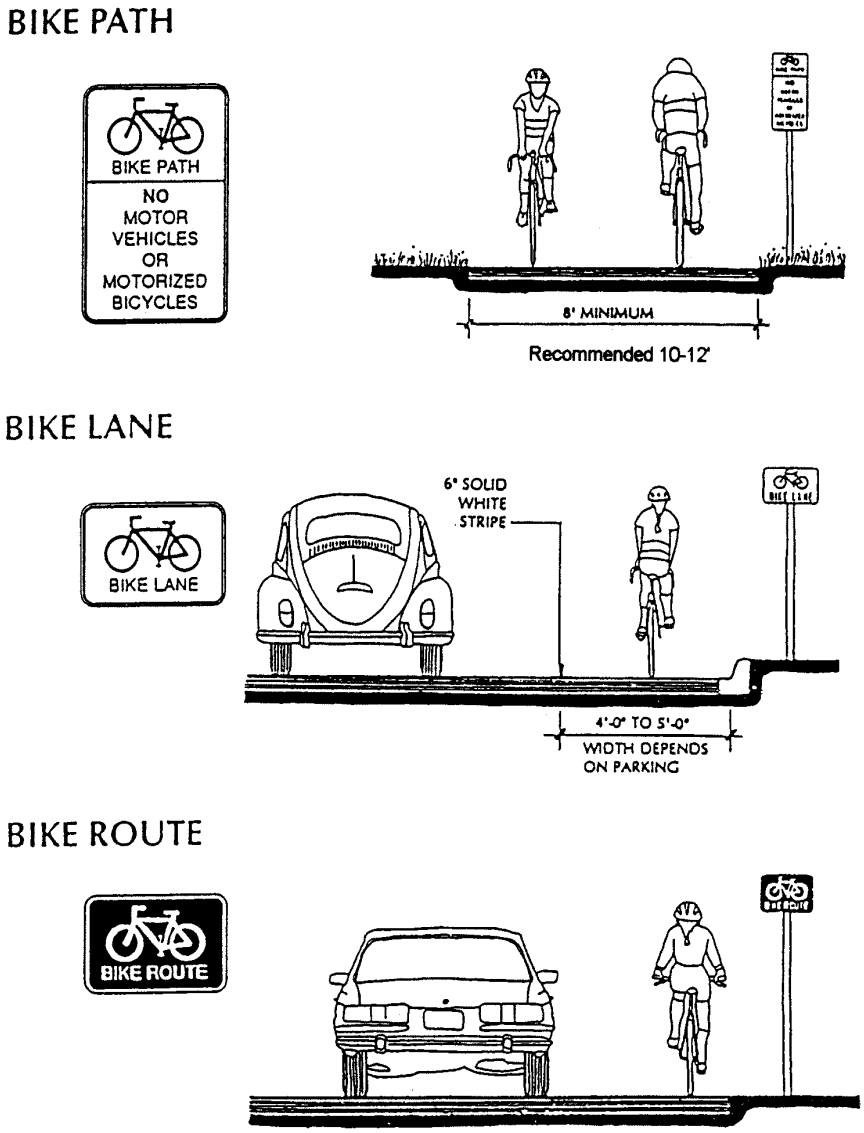


Figure 1: **Class I Bike Path, Class II Bike Lane, Class III Bike Route**

Table 1 provides a detailed summary of bicycle demand and benefits.

Table 1 Demographics and Bicycle Transportation in San Bernardino County	
Population (1998 DOF estimate)	1,660,200
Land Use Area	20,062 sq. miles
Population Density	83.2 persons/sq. mile
Estimated San Bernardino County Residents who would like to Bicycle for Pleasure	329,076
Current Bicycle Commute Mode Share (1990)	3,098 (0.55%)
Future Bicycle Commute Mode Share	1.1%
School-related bicycle commuters (20% of 7 to 14 year olds)	10,801
Total future bicycle commuters	135,273
Reduced Vehicle Trips/Year	11,286,200
Reduced Vehicle Miles/Year	19,412,781
Reduced PM10/lbs./Year	357,195
Reduced NOX/lbs./Year	968,310
Reduced ROG/lbs./Year	1,409,368

1 Assume 7 mile average round trip, and average of 200 commute days/year bike/walk commute for adult commuters and 100 commute days/year for students.

Table 2

San Bernardino County Mode Split and Demographics by City

(Source: 1990 U.S. Census)

Jurisdiction	1990 Population	1990 Employed	Travel Time < 9 minutes	# Bike Commuters	School Children (6-14)	College Population	*# Daily Bike/Transit Users
Adelanto	8517	2690	824	130	1448	436	0
Apple Valley	46079	18340	2290	64	7200	2523	0
Barstow	21454	8830	2484	26	3334	1401	3
Big Bear Lake	5351	2394	1020	42	620	287	0
Chino	59682	42690	3273	169	8323	5112	69
Chino Hills	27608	14655	669	9	4328	2816	4
Colton	40213	17023	2580	137	5991	3057	56
Fontana	87535	35909	3860	126	15016	5129	52
Grand Terrace	10946	5609	812	0	1535	858	0
Hesperia	50418	18203	2177	47	8657	2362	0
Highland	34439	14682	1350	45	5229	2263	18
Loma Linda	17400	7907	2512	88	1930	2485	36
Montclair	28434	17649	1354	116	4410	1754	48
Needles	5191	1798	974	7	833	192	0
Ontario	133179	59214	5983	463	21018	7486	188
Rancho Cucamonga	101409	4994	4861	142	16276	8817	89
Redlands	60394	28374	5609	213	8276	5991	86
Rialto	72388	29471	2634	49	12929	3983	21
San Bernardino	164164	61507	7952	356	24801	10875	154
Twenty-Nine Palms	11821	4762	904	25	1679	731	0
Upland	63374	31781	3649	115	8459	6002	59
Victorville	40759	15204	2250	34	6277	2446	0
Yucaipa	32824	12619	1922	86	4121	1616	0
Yucca Valley	13701	4529	1173	35	1560	596	0

*Uses recent bike on transit data from transit agencies. Assumes the proportion of bike/transit users reflects the proportion of bicycle commuters in each city

Table 3

Calculated Air Quality Benefits of Plan Implementation

Factor	Value	Source or Derivation
Population	1,689,300	2000 US Census or California Department of Finance
# of Employed Persons	568,018	1990 US Census extrapolated consistent with population growth
# Bicycle-to-Work Commuters	3,098	1990 US Census extrapolated consistent with population growth
Bicycle-to-Work Mode Share	0.55%	calculated from above
Population: Ages 6-14 years	216,021	1990 US Census extrapolated consistent with population growth
# of College Students	98,166	1990 US Census extrapolated consistent with population growth
# of Daily Bike-Transit Users	883	local transit agency
Total # of Bicycle Commuters	14,881	assumes 5% of school students and 10% of college students commute by bicycle - from national studies and estimates
# Miles Ridden by Bicycle Commuters per Weekday	48,485	work commuters (including bike-transit users) x 7 miles + college and school students x 1 mile (round trip)
# of Future Daily Bicycle Commuters	135,273	estimated using increase to 279% of baseline from 2000 LACMTA study by Alta
Future # Miles Ridden by Bicycle Commuters per Weekday	175,273	calculated from above
Reduced Vehicle Miles per Weekday	126,788	calculated from above
Reduced PM10 (lbs/weekday)	2,332.90	(.0184 tons per reduced mile)
Reduced NOX (lbs/weekday)	6,324.19	(.04988 tons per reduced mile)
Reduced ROG (lbs/weekday)	9,204.81	(.0726 tons per reduced mile)
Reduced Vehicle Miles per Year	19,412,781	180 days for students, and 256 days for employed persons
Reduced PM10 (lbs/year)	357,195	(.0184 tons per reduced mile)
Reduced NOX (lbs/year)	968,310	(.04988 tons per reduced mile)
Reduced ROG (lbs/year)	1,409,368	(.0726 tons per reduced mile)

Project #1:
Santa Ana River Trail

City(ies): San Bernardino, Grand Terrace, Colton, Redlands, Highland

Primary Responsibility:	**San Bernardino County Parks**
Right-of-Way Control:	**Army Corps of Engineers, Cities, Caltrans**
Required Studies/Actions:	**Environmental Studies, Master Plan/Design,**
Cost:	**$560,000 (PSE Phase)**

The San Bernardino County segment of the Santa Ana River Trail will, when completed, represent the fulfillment of a vision over thirty years in the making. The trail will provide a continuous corridor from the San Bernardino Mountains to the Pacific Ocean at Huntington Beach, serving not only the San Bernardino County cities listed above, but communities in Riverside and Orange Counties as well.

Current design projects are underway for the segment of the trail from Colton to Alabama Street in Redlands. Future design and feasibility work should consider the extension of the trail further east, as well as examine means of extending the benefit of the corridor through connecting trail linkages to adjacent communities and to other proposed or potential trail corridors in the region such as the Pacific Electric Inland Empire Trail and the possible San Timoteo Creek Trail, as well as to nearby transit facilities and employment centers.

Site of proposed Santa Ana River Trail in Colton

Project #2:
Pacific Electric Inland Empire Trail

City(ies): **Rancho Cucamonga, Fontana, Colton, Rialto, Claremont, Montclair & Upland**

Primary Responsibility:	**Public Works of Cities Listed Above**
Right-of-Way Control:	**Cities listed**
Required Studies/Actions:	**Feasibility Study, CEQA, Design**
Cost:	**$1.5 Million**

The Pacific Electric Inland Empire Trail utilizes the former route of the Southern pacific Railroad and the Pacific Electric Interurban Railway. Currently in design and development over parts of its seven-mile length, the trail will, when completed, provide a greatly needed east/west separated pathway corridor in the western San Bernardino Valley. The facility links residential areas with commercial districts, downtowns, other north/south trail systems (particularly near Rancho Cucamonga and Upland) and to Metrolink and other transit transfer facilities.

Pacific Electric Line in Upland – site of proposed Class I shared use path

Project #3:
San Timoteo Canyon Feasibility Study

City(ies): Redlands, Loma Linda

Primary Responsibility: **Public Works of Cities Listed Above**
Right-of-Way Control: **Cities, Corps of Engineers, Union Pacific Railroad**
Required Studies/Actions: **Feasibility Study**
Cost: **$50,000 (feasibility only)**

For many years, San Timoteo Canyon Road south of Redlands has been one of the most popular locations for recreational bicycling in San Bernardino County. The combination of low traffic volumes, scenic vistas, and varying terrain has made this area popular for tourists, racers, and fitness riders alike.

Recent growth in the Moreno Valley area has increased traffic volumes in the Canyon significantly in the past twenty years, particularly between Barton Road and Redlands Boulevard (Riverside County). Local jurisdictions have responded to the concerns of bicyclists by posting advisory signs for drivers to "Share the Road", but more recently public discussions have focused on the advantages and disadvantages of improving or expanding the road to accommodate more traffic.

This plan anticipates that such a discussion and subsequent action will significantly impact safety for bicyclists in the canyon. Accordingly, it is proposed that as a component of any road expansion plan for San Timoteo Canyon Road, consideration also be given to the development of bicycling facilities in the corridor. The actions could be as simple as preservation or expansion of road shoulders, and could also examine the feasibility of development of a shared use pathway following San Timoteo Creek parallel to the road and the Union Pacific Railroad. Such a study will need to examine closely the ability to adequately buffer a trail from both the railroad operations on the very busy UP mainline as well as protect adjacent agricultural and residential properties.

San Timoteo Creek, near the Riverside County Line at Live Oak Canyon Road

San Timoteo Canyon Road southeast of Redlands

San Timoteo Creek, Looking West from San Timoteo Canyon Road

Images of San Timoteo Canyon and San Timoteo Canyon Road

Project #4:
Riverwalk Trail

City(ies): Victorville

Primary Responsibility:	**Public Works of Cities Listed Above**
Right-of-Way Control:	**Cities**
Required Studies/Actions:	**Preliminary Design, Design**
Cost:	**$220,000**

Victorville boasts clean air, excellent weather, a high quality school system with 25 educational institutions, affordable real estate, and a skilled labor force. This high quality environment has brought people and businesses to the area and Victorville has experienced substantial growth over the past two decades. The 65,000 residents enjoy the desert environment and the small town life style Victorville has to offer.

The Mojave Riverwalk project is well timed to meet the growing demands from the community and is fitting with the life style of its residents. The Mojave Riverwalk represents the most significant undertaking the City of Victorville could pursue that will benefit the livability and quality of life of the citizens of Victorville and Apple Valley for generations to come. The Mojave Riverwalk is a legacy project that will lead to expansions to the north and south, linking neighborhoods and communities together along a unique environmental resource, the Mojave River.

View from Mojave River Corridor

The route the trail will traverse is diverse, paralleling the riparian corridor of the Mojave River, passing along unique geologic formations in Rockview Park, historic cultural resources in downtown Victorville, wildlife habitats in the Mojave Narrows Regional Park, the residential community of Spring Valley Lake, and the campus of Victor Valley College. The river and riparian zone attract wildlife and offer unparalleled educational opportunities that can be utilized by the schools within easy travel distance of the Riverwalk. The trail will provide an excellent alternative transportation route, linking neighborhoods to the downtown Transit Center, to schools, recreation areas, and commercial centers.

Project #5:
Cajon Pass Connector – Rte. 66 Heritage Trail

City(ies): San Bernardino County

Primary Responsibility:	**Public Works**
Right-of-Way Control:	**County, Caltrans, BNSF Railroad**
Required Studies/Actions:	**Feasibility Study**
Cost:	**$50,000**

Cajon Pass is one of the most significant and historic transportation corridors in America – from its use by native peoples to the Mormon immigration to San Bernardino in the mid nineteenth century to its emergence as a railroad and highway lifeline to Southern California – Cajon Pass has for decades been the gateway to Southern California. Today, the old US Highway Route 66 still exists in the pass – underused, but still a resource for citizens who watch trains and who wish to reminisce about the glory days of the "mother road".

Currently, only half of the old divided highway is still in use as a county road. The other half remains paved but inaccessible to motorized traffic. It would be possible to convert the unutilized half of old Route 66 as a shared use path for bicyclists and pedestrians to use to travel to the summit of the Pass.

It is currently not possible for bicyclists and pedestrians to completely cross the Pass without having to use the shoulders of I-15. Any feasibility study on the conversion of Route 66 should examine the costs and legal obstacles to making a shared use path connection for the short distance from the end of the existing highway to State Route 138 for the approximately 1 mile gap without highway access.

Old Route 66 near Cajon Summit, showing existing and abandoned road surfaces

Another view of the old Route 66, showing the active road to the right of the median, and a paved surface suitable for bicycling abandoned to the left.

Project #6: Transit Access Improvements

Agencies): Metrolink, Omnitrans

Primary Responsibility:	**Agencies Listed Above**
Right-of-Way Control:	**Cities, Caltrans, Transit Agencies**
Required Studies/Actions:	**Preliminary Design, Design**
Cost:	**$1,000,000 annually**

This plan identifies transit access improvements for bicyclists and pedestrians as an area of regional significance to the development of greater opportunities for achieving greater non-motorized transportation activity in San Bernardino County. Other transit agencies in the United States have accomplished significant gains in ridership through the development of better facilities to and at transit transfer centers and rail stations.

Such programs and facilities could include improved parking for bicycles at key locations on the County's transit network, development of wayfinding (signing) programs to guide bicyclists to these sites, development of access paths and trails to provide more convenient access to transit, and other efforts designed to reduce the real and perceived barriers to safe non-motorized access to transit services in San Bernardino County.

Bicycle lockers at the San Bernardino Metrolink station

Project #7: Bicycle Parking Program

City(ies): Countywide

Primary Responsibility: Public Works of Cities
Right-of-Way Control: Cities,
Required Studies/Actions: Design and Installation
Cost: $750,000

This proposed program would establish funding for local projects that improve the quantity and quality of bicycle parking facilities at locations throughout the County. This would be a companion program to the Transit Access Improvement project listed earlier, in that it focuses on facilities at the ends of a trip rather than those used during a trip.

Those regions across the country that have successfully increased the mode split for bicycling (Seattle, Portland, Denver, San Francisco) have started that process through an aggressive effort to provide convenient, accessible parking facilities throughout the community. The range of facilities is extensive, from simple installations of small racks on sidewalks in business districts to lockers at educational and employment centers to large staffed facilities such as the Long Beach Bikestation shown below.

Project #8: Shoulder Improvements (Countywide)

City(ies): All
Primary Responsibility: Cities, Caltrans, San Bernardino County Listed Above
Right-of-Way Control: Cities, Caltrans
Required Studies/Actions: Feasibility Study, Design
Cost: $300,000

In many cases across the county, roads may be made significantly more accommodating for bicyclists through the provision of adequate paved shoulders. Such efforts can and should be accommodated through normal maintenance and pavement management programs of individual jurisdictions, although some retrofit projects can return immediate benefit for relatively little cost, or can open up a road currently considered suitable only for experienced bicyclists.

In the example shown below, Sand Canyon Road near Yucaipa can currently accommodate shoulders of sufficient width to encourage bicycling to Crafton Hills Community College. As can be seen in the photo, funds could be used to restripe the existing paved surface to develop adequate shoulders on both sides of the road without the more significant expense of paving new shoulders.

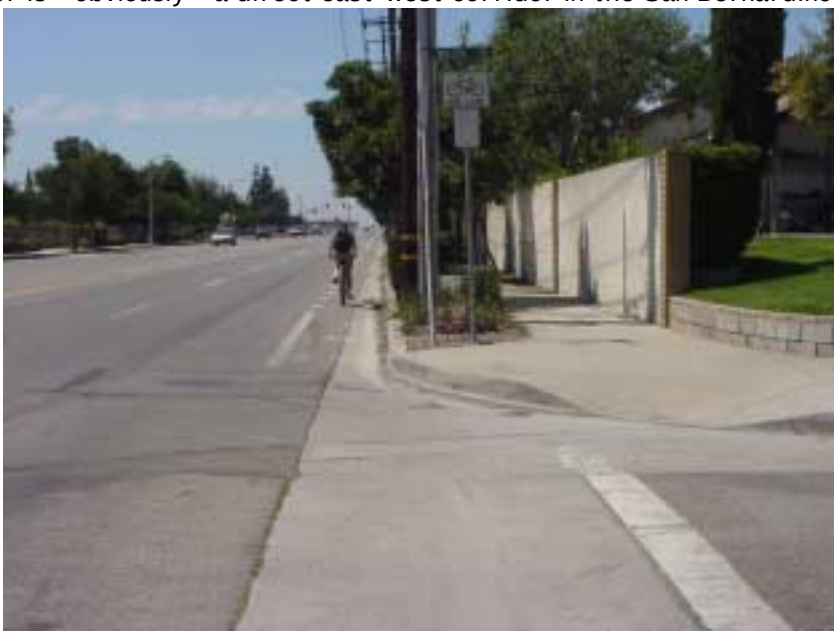
Sand Canyon Road near Crafton Hills College in Yucaipa. Photo shows a road that can be restriped to allow for shoulders on both sides of road, especially for climbing bicyclists. Note the pavement "lip" at the edge pf the shoulder and travel lane – this can represent a hazard to bicyclists

Other Photos of Potential Projects and Sites of Interest to Non-motorized Transportation in San Bernardino County

Historic Santa Fe "Kite-Shaped Track", looking east with Mt. San Bernardino and Mt. San Gorgonio in distance

The Zanja irrigation channel near Crafton, with piers of old Southern Pacific rail line in foreground

Baseline Avenue as seen from Highland, looking west towards Los Angeles County. Bikelanes exist here and in Rancho Cucamonga, but conditions elsewhere are not so supportive of bicycling. The corridor is – obviously – a direct east-west corridor in the San Bernardino Valley.



Bikelane in Rancho Cucamonga – technically of legal width, but width of gutter pan makes the riding surface very narrow and impractical for all but the most experienced bicyclist.

Class III Bike Route in Chino (Benson Avenue) – outside lane has adequate width to allow lane sharing by bikes and cars. This is an acceptable alternative to bike lanes in constrained areas

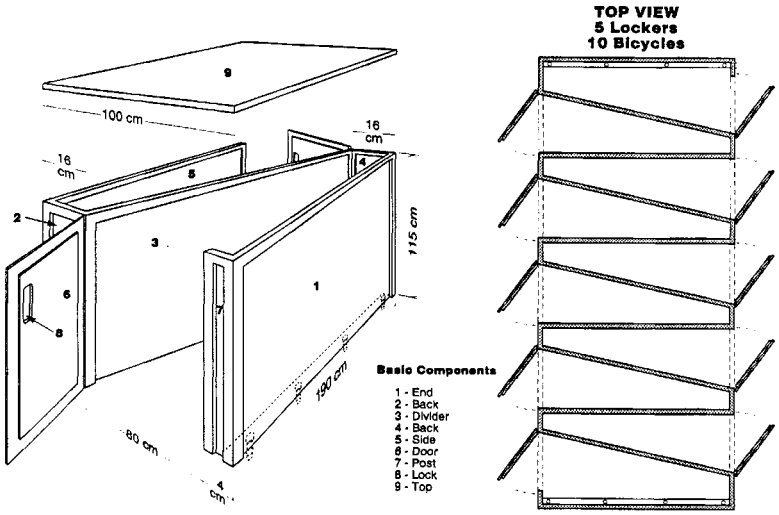
Bikelanes on Chino Avenue in Chino. The lane is configured to allow on-street parking adjacent to the bikelane. Current striping standards would allow a second stripe adjacent to the actual parking area.

Location for proposed Class I shared use trail on Cucamonga Creek in Rancho Cucamonga

Existing trail along Demens Channel in Rancho Cucamonga

Existing Class I trail on Southern California Edison ROW in Fontana.
The facility is not built to current design standards

Figure 2: Class I Bike Locker Designs



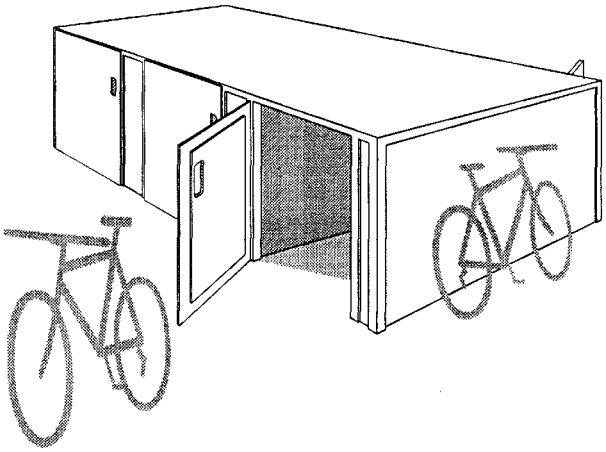
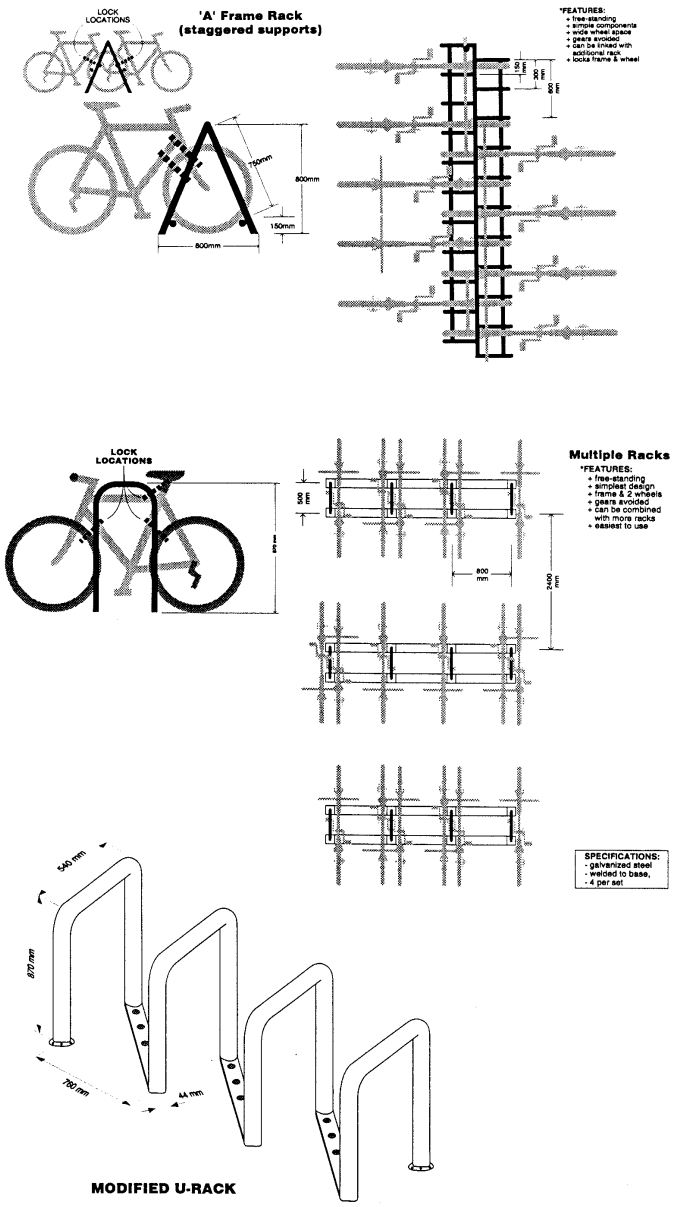


Figure 3: Class II Bike Rack Designs



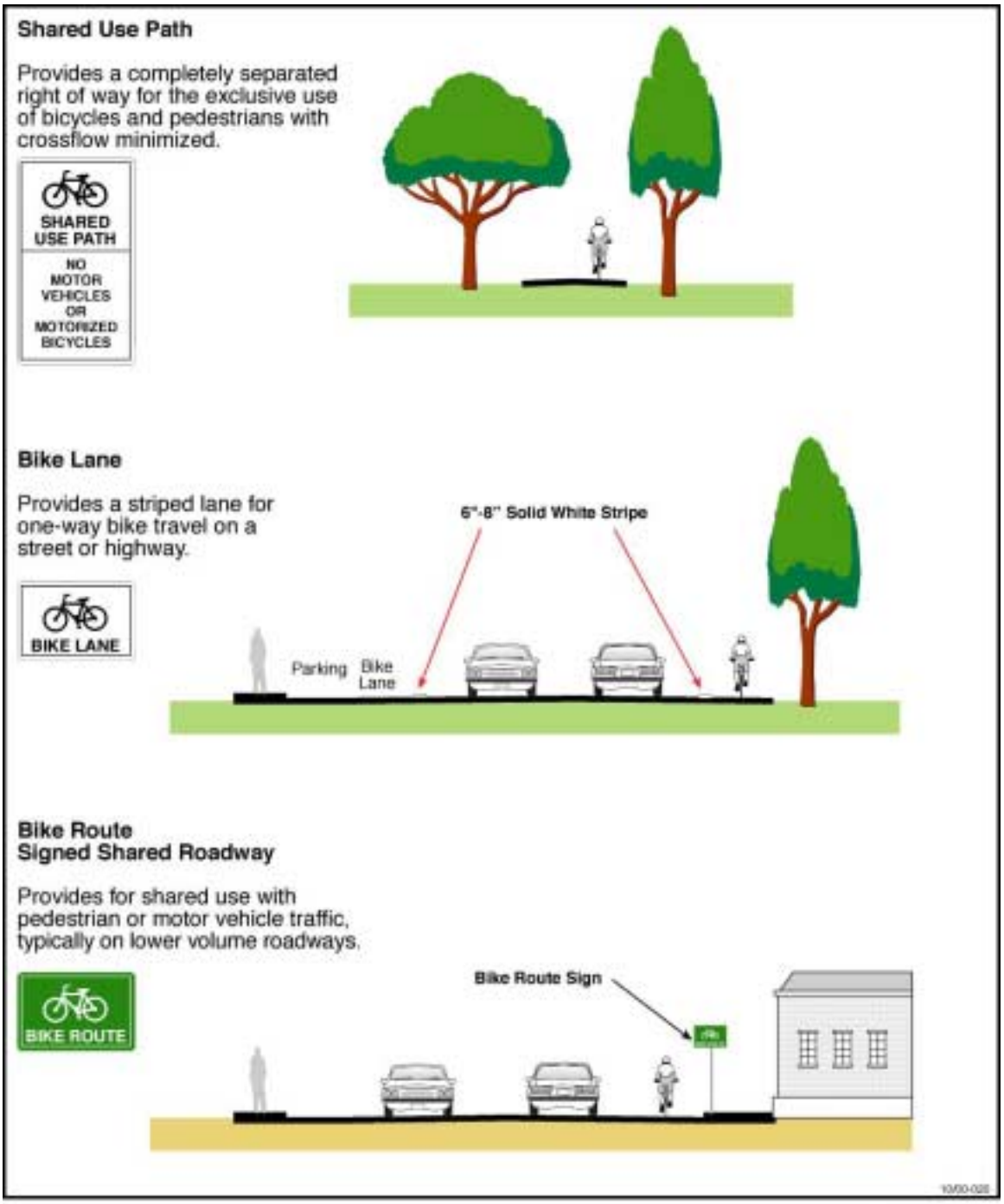


Figure 4 General Bikeway Classifications

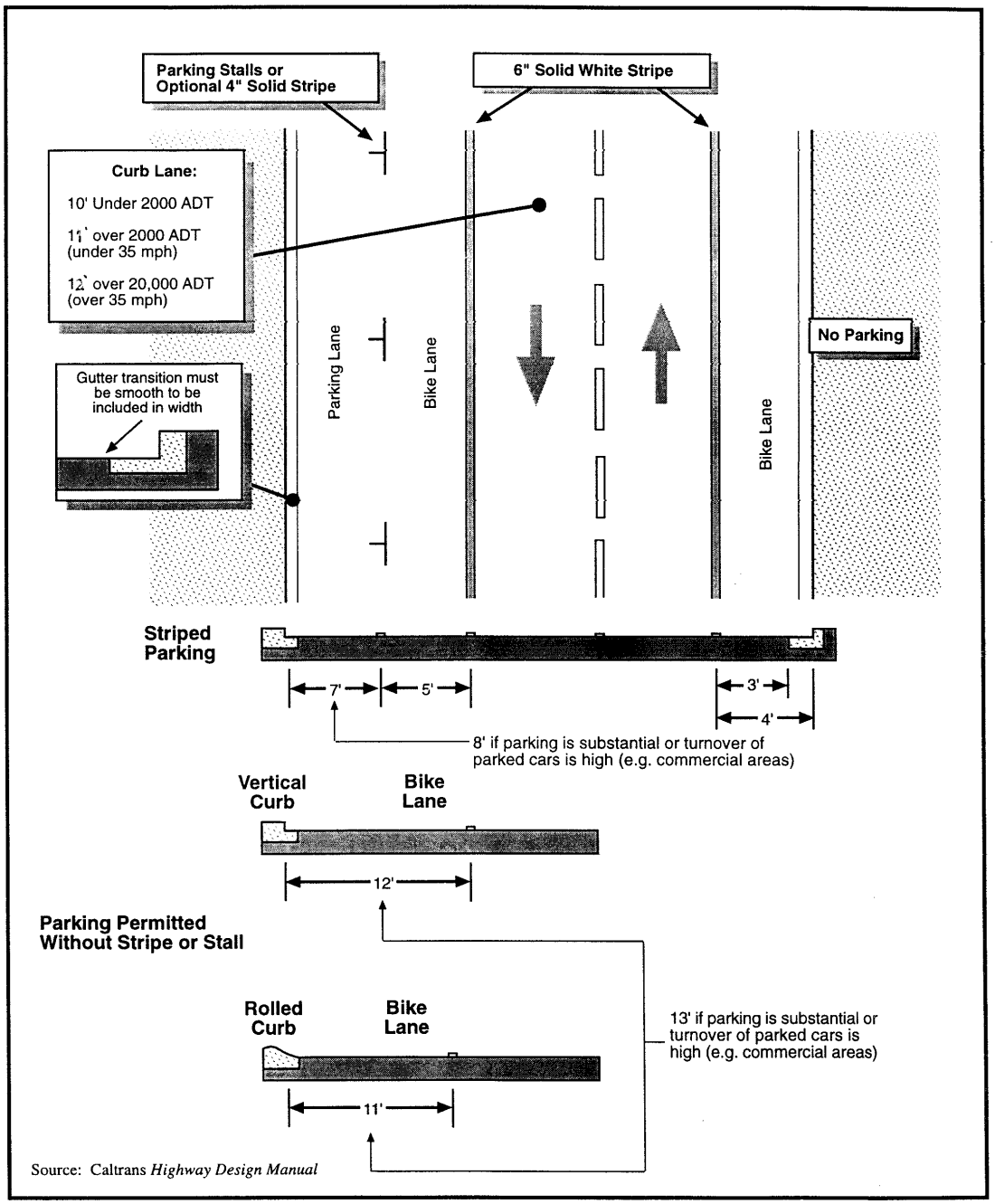


Figure 5 Bike Lane Cross Sections

Table 4 – Recommended Signing and Marking

Item	Location	Color	AASHTO Designation	MUTCD Designation
No Motor Vehicles	Entrances to trail	B on W	R44A	R5-3
Use Ped Signal/Yield to Peds	At crosswalks; where sidewalks are being used	B on W	N/A	R9-5 R9-6
Bike Lane Ahead: Right Lane Bikes Only	At beginning of bike lanes	B on W	N/A	R3-16 R3-17
STOP, YIELD	At trail intersections with roads and Coastal Bikeways	W on R	R1-2	R1-1 R1-2
Bicycle Crossing	For motorists at trail crossings	B on Y	W79	W11-1
Bike Lane	At the far side of all arterial intersections	B on W	R81	D11-1
Hazardous Condition	Slippery or rough pavement	B on Y	W42	W8-10
Turns and Curves	At turns and curves which exceed 20 mph design specifications	B on Y	W1,2,3 W4,5,6,14 W56,57	W1-1,2 W1-4,5 W1-6
Trail Intersections	At trail intersections where no STOP or YIELD required, or sight lines limited	B on Y	W7,8,9	W2-1, W2-2 W2-3, W2-3 W2-4, W2-5
STOP Ahead	Where STOP sign is obscured	B,R on Y	W17	W3-1
Signal Ahead	Where signal is obscured	B,R,G	YW41	W3-3
Bikeway Narrows	Where bikeway width narrows or is below 8'	B on Y	W15	W5-4
Downgrade	Where sustained bikeway gradient is above 5%	B on Y	W29	W7-5
Pedestrian Crossing	Where pedestrian walkway crosses trail	B on Y	W54	W11A-2
Restricted Vertical Clearance	Where vertical clearance is less than 8'6"	B on Y	W47	W11A-2
Railroad Crossing	Where trail crosses railway tracks at grade	B on Y	W47	W10-1
Directional Signs (i.e. Cal State LB, Downtown, Train Station, etc.	At intersections where access to major destinations is available	W on G	G7 G8	D1-1b(r/l) D1-1c
Right Lane Must Turn Right; Begin Right Turn Here, Yield to Bikes	Where bike lanes end before intersection	B on W	R18	R3-7 R4-4
Multi-purpose Trail: Bikes Yield to Pedestrians	All trail entrances	n/a	n/a	n/a
Bikes Reduce Speed & Call Out Before Passing	Every 2,000 feet	B on W	n/a	n/a
Trail Closed: No Entry Until Made Accessible & Safe for Public Use	Where trail or access points closed due to hazardous conditions	n/a	n/a	n/a
Speed Limit Signs	Near trail entrances: where speed limits should be reduced 20 mph	B on W	n/a	n/a

Figure 6 Typical Signed Shared Route Signing

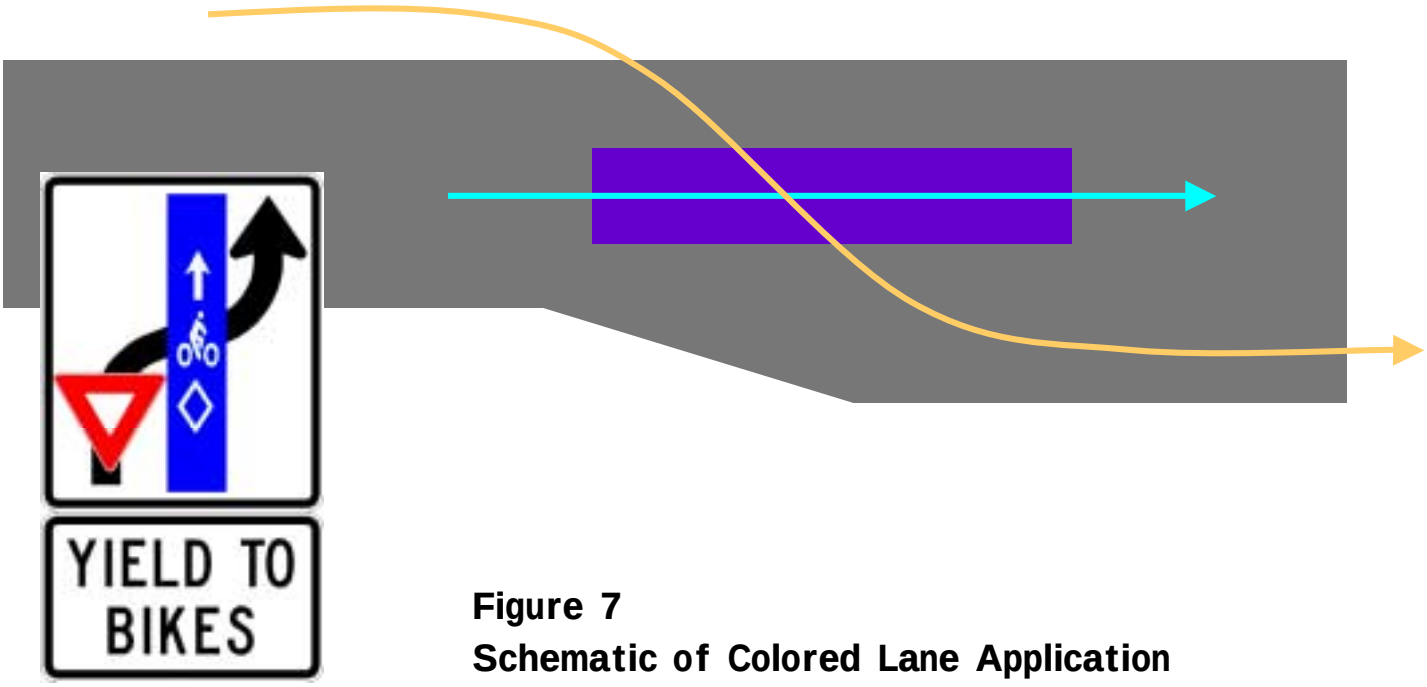


Figure 7
Schematic of Colored Lane Application

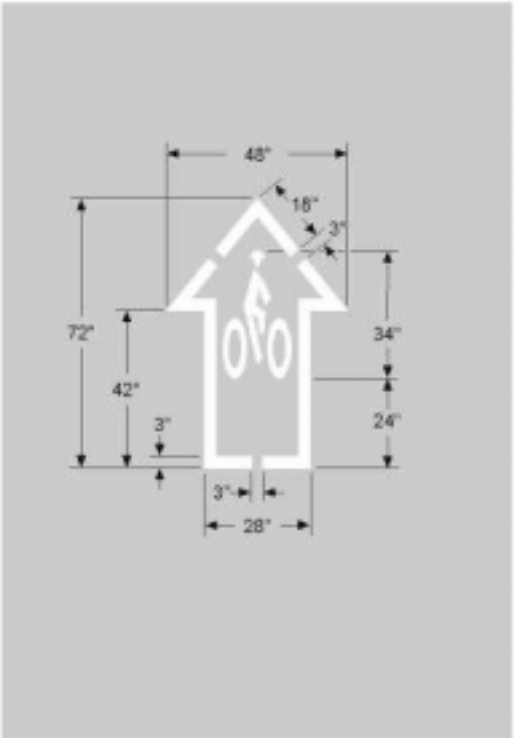


Figure 8
Schematic of Pavement Stencil in use in San Francisco and Denver for Shared Lanes

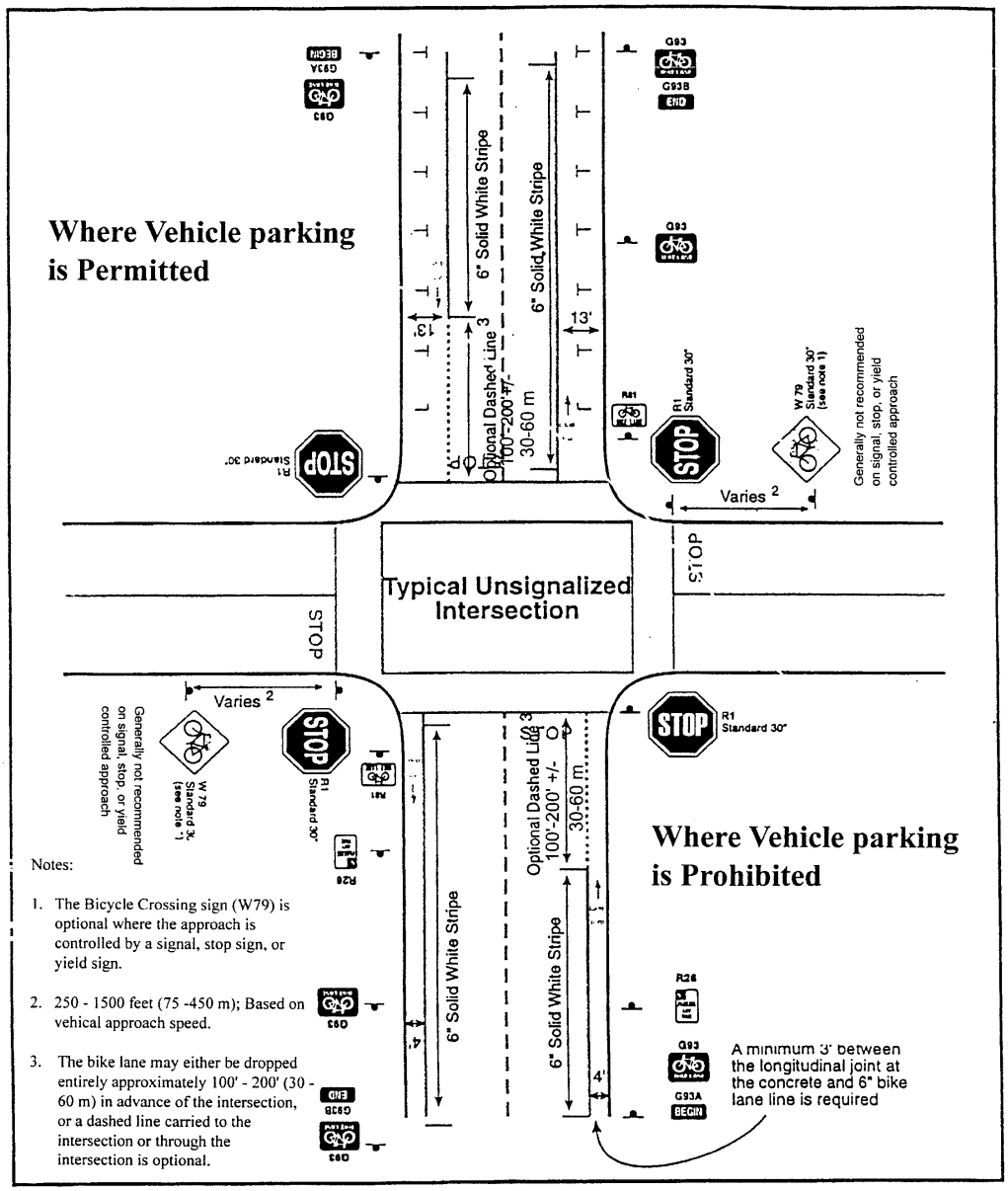


Figure 9 Signing at Unsignalized Intersections

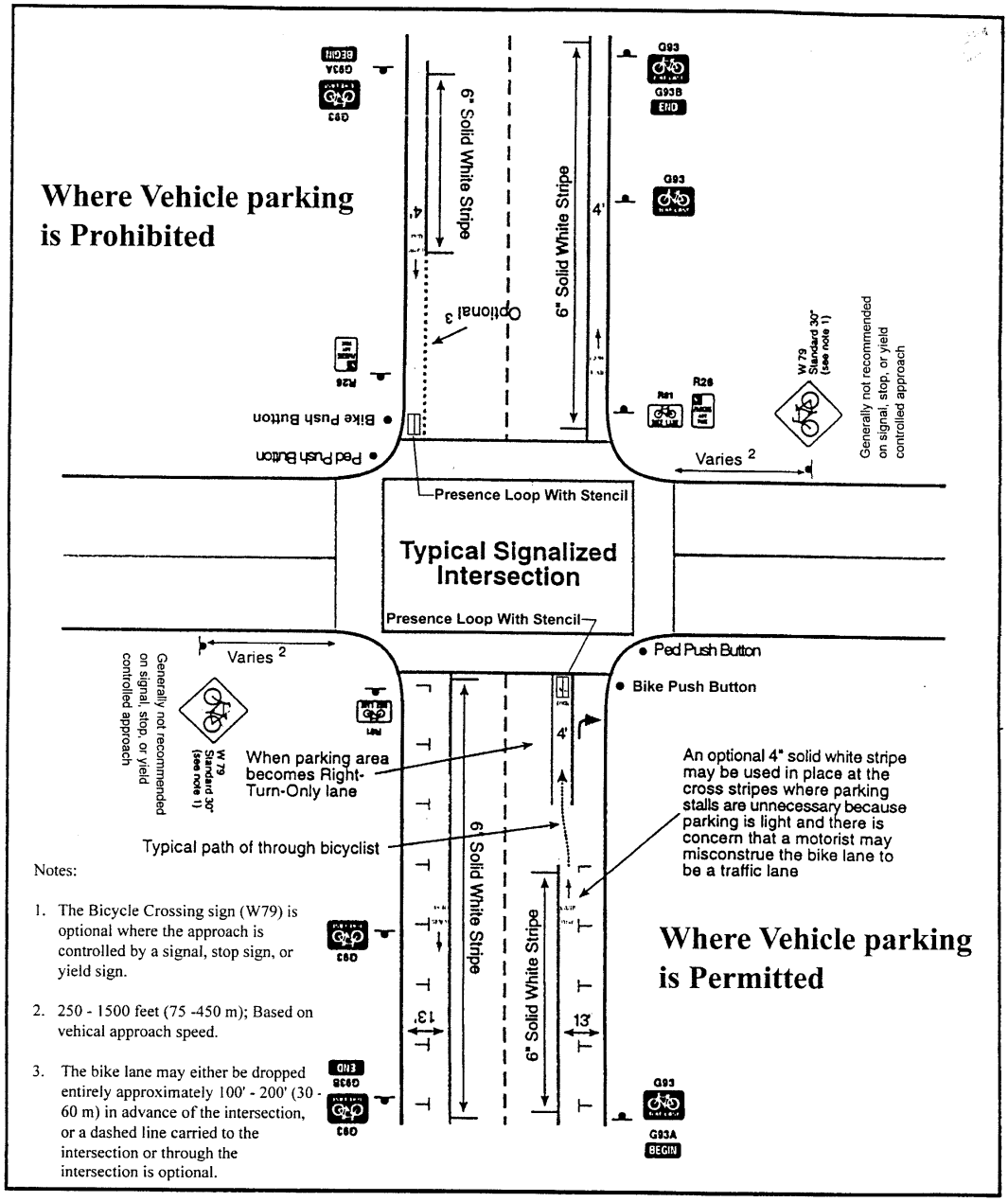


Figure 10 Signing at Signalized Intersections

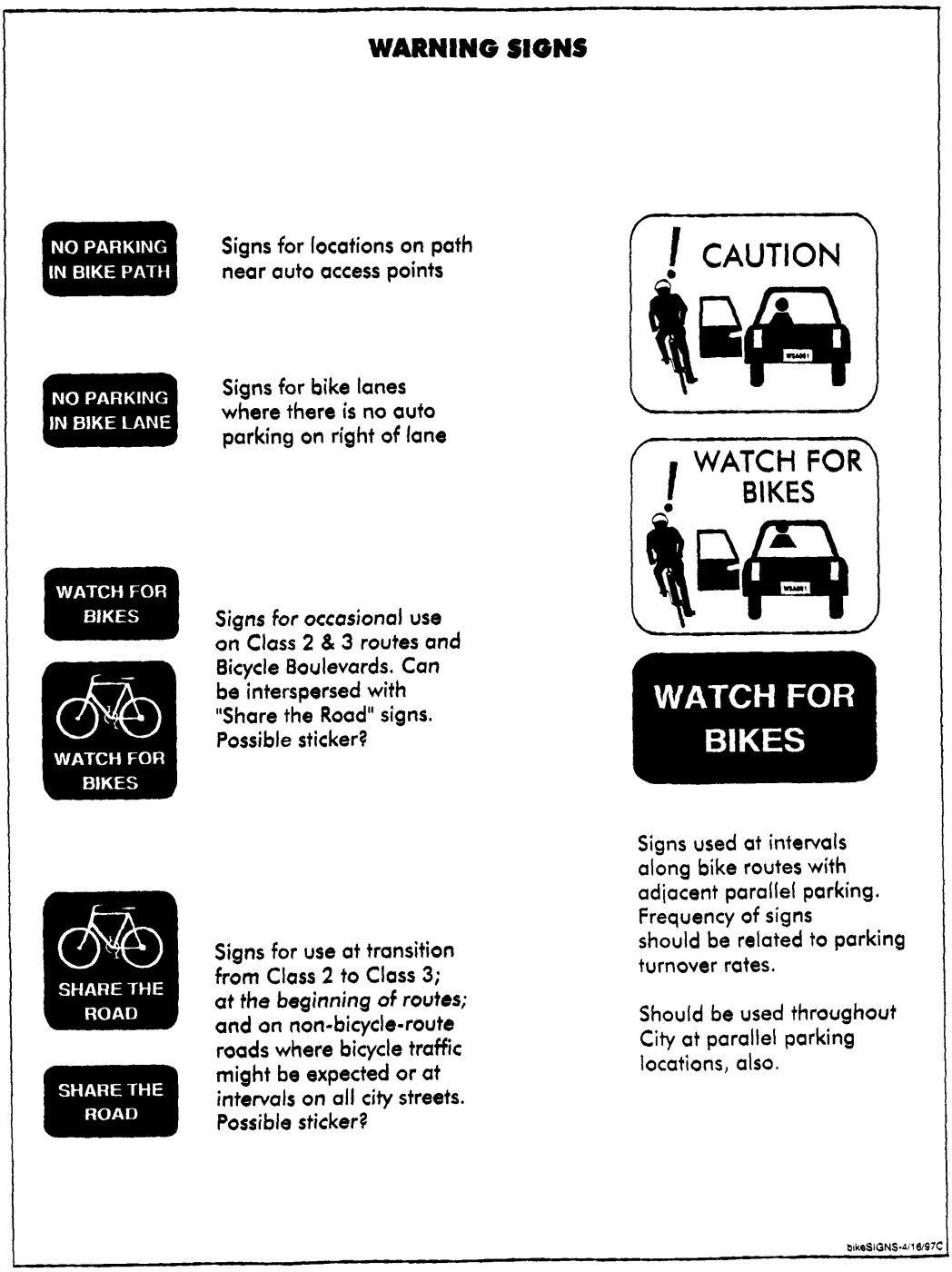


Figure 11 Warning Signs

Table 5 Recommended Guidelines for Bicycle Parking Locations and Quantities

Land Use or Location	Physical Location	Type of Parking	Bicycle Capacity
City Park	Adjacent to restrooms, picnic areas, fields, and other attractions	A Frame, Ribbon or Spiral Rack	8 bicycles per acre
City Schools	Near office entrance with good visibility	A Frame, Ribbon or Spiral Racks in fenced area	8 bicycles per 40 students
Public Facilities (City Hall, libraries, community centers)	Near main entrance with good visibility	U, Staple, Spiral or Ribbon Rack	8 bicycles per location
Commercial, Retail and Industrial Developments over 10,000 gross square feet	Near main entrance with good visibility	U, Staple, Spiral or Ribbon Rack	1 bicycle per 15 employees or 8 bicycles per 10,000 gross square feet
Shopping Centers over 10,000 gross square feet	Near main entrance with good visibility	U, Staple, Spiral, or Ribbon Rack	8 bicycles per 10,000 gross square feet
Commercial Districts	Near main entrance with good visibility Not to obstruct auto or pedestrian movement	U or Staple	2 bicycles every 200 feet
Transit Stations	Near platform or security guard	Enclosed Lockers	1 bicycle per 30 parking spaces

Recommended Locations

Prohibited Locations	4 Feet Minimum Distance From	5 Feet Minimum Distance From
Red zones, blue zones, bus zones, white zones, corners	Parking meters, newspaper boxes, trees, sign posts, light poles and public telephones.	Wheelchair ramps, driveways fire hydrants, fire escapes, and doorways.

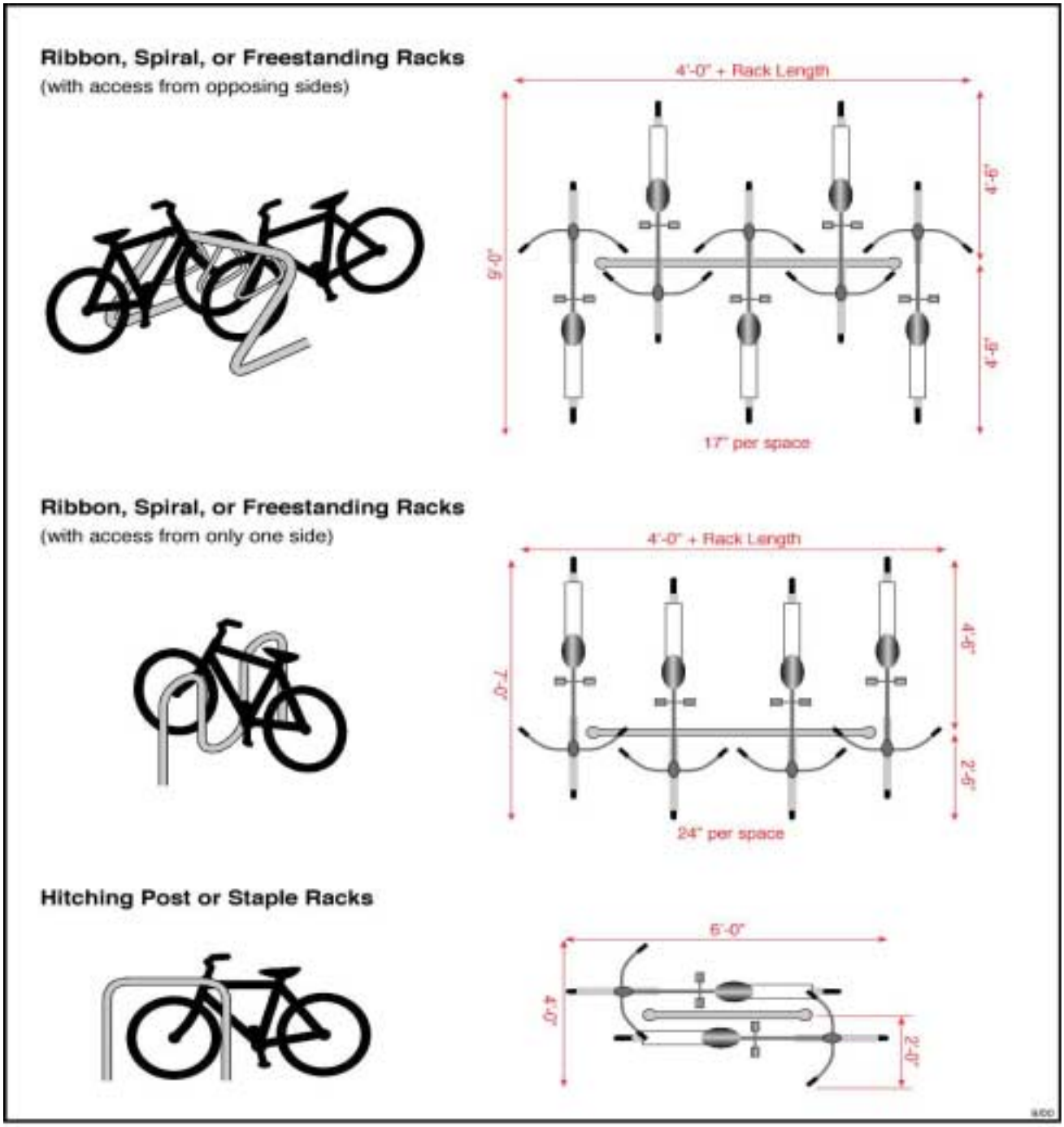


Figure 12 Dimensions of Commonly Used Bicycle Racks

Table 6
Bikeway Maintenance Check List and Schedule

Item	Frequency
Sign Replacement/Repair	1 - 3 years
Pavement Marking Replacement	1 - 3 years
Tree, Shrub & grass trimming/fert.	5 months - 1 year
Pavement sealing/potholes	5 - 15 years[1]
Clean drainage system	1 year
Pavement sweeping	Weekly-Monthly/As needed
Shoulder and grass mowing	Weekly/As needed
Trash disposal	Weekly/As needed
Lighting Replacement/Repair	1 year
Graffiti removal	Weekly-Monthly/As needed
Maintain Furniture	1 year
Fountain/restroom cleaning/repair	Weekly-Monthly/As needed
Pruning	1 - 4 years
Bridge/Tunnel Inspection	1 year
Remove fallen trees	As needed
Weed control	Monthly/As needed
Remove snow and ice	Weekly/As needed
Maintain emergency telephones, CCTV	1 year
Maintain irrigation lines	1 year
Irrigate/water plants	Weekly-Monthly/As needed

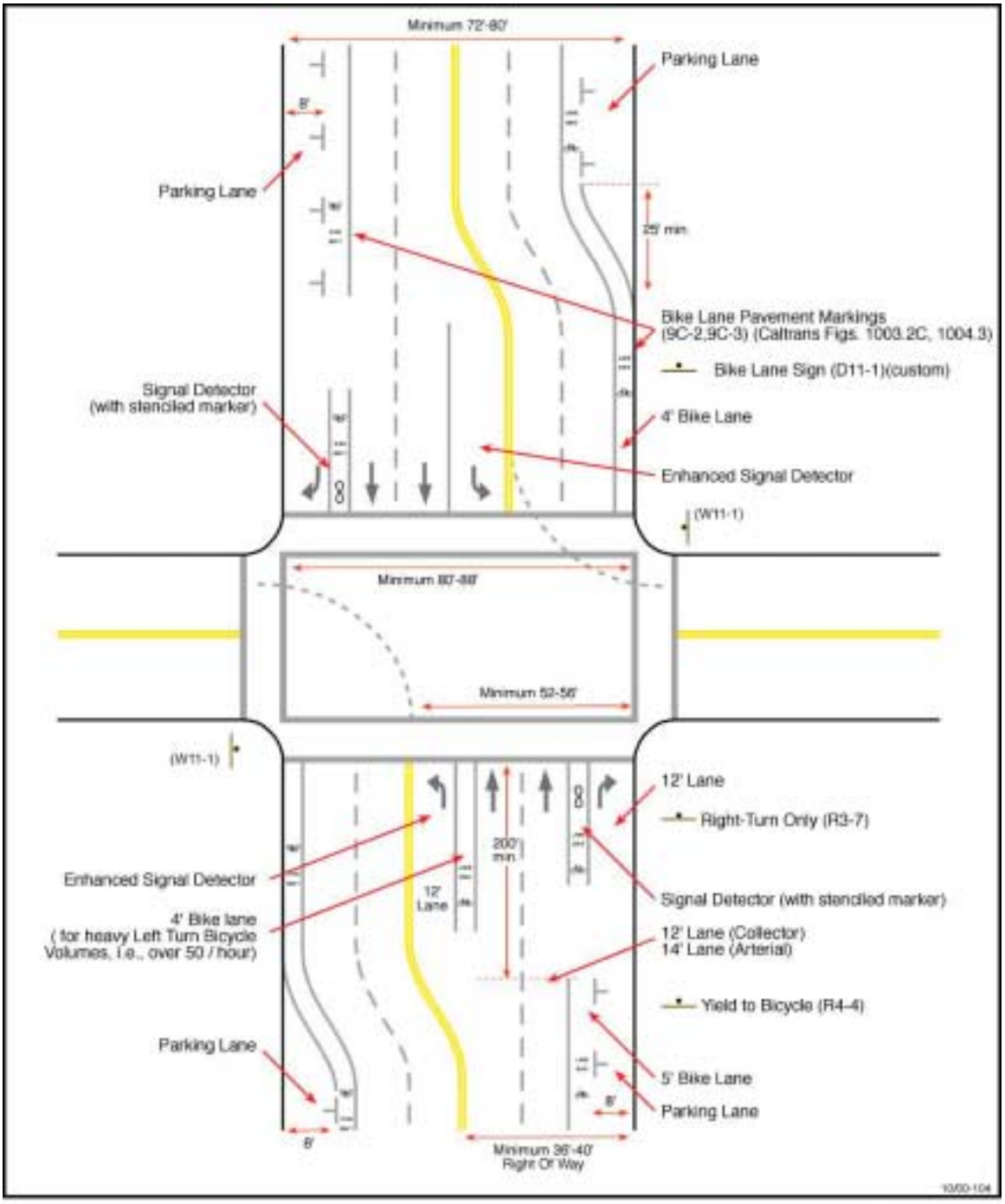


Figure 13 Bike Lane Intersection Design

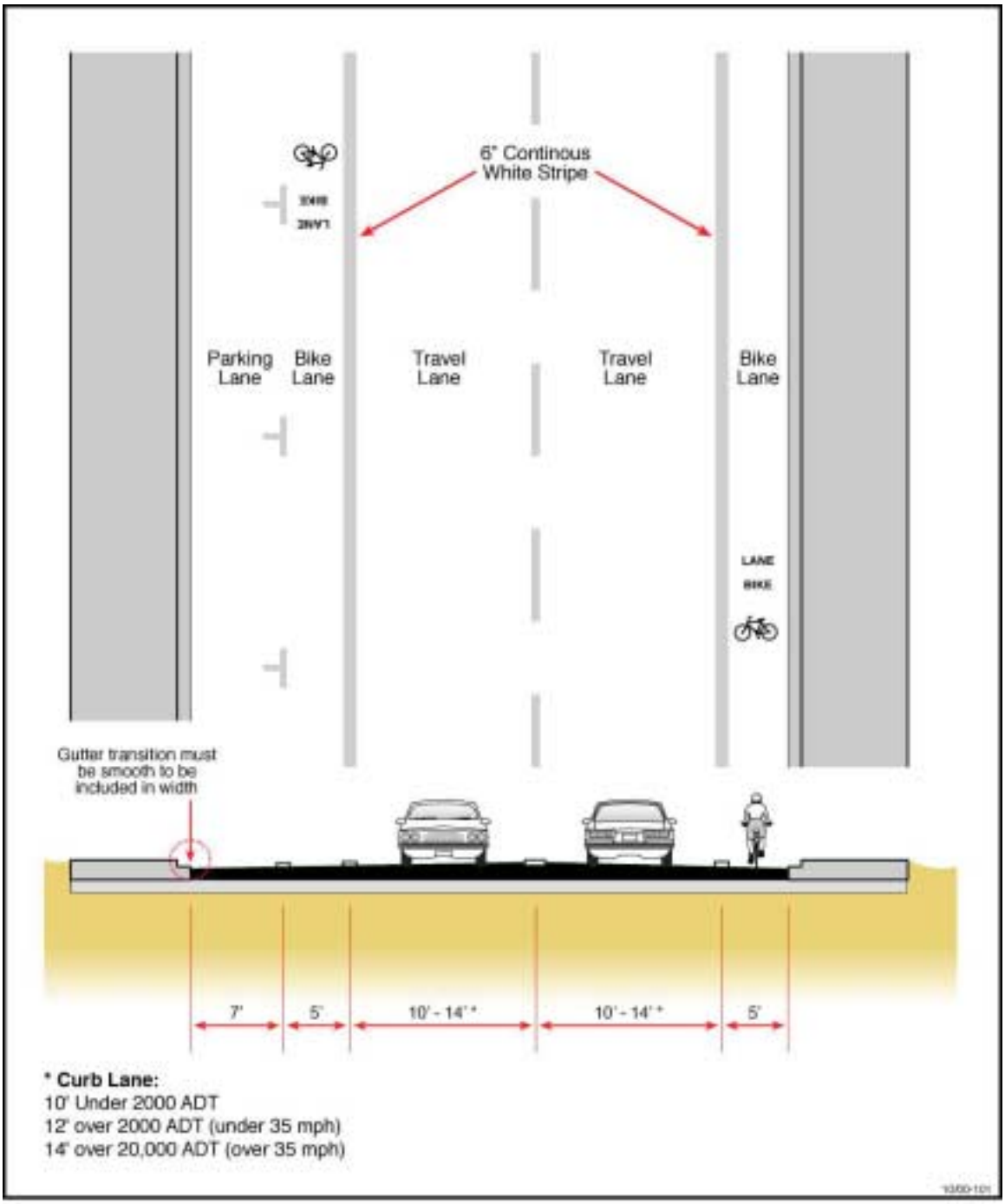


Figure 14 Typical Bike Lane Installation

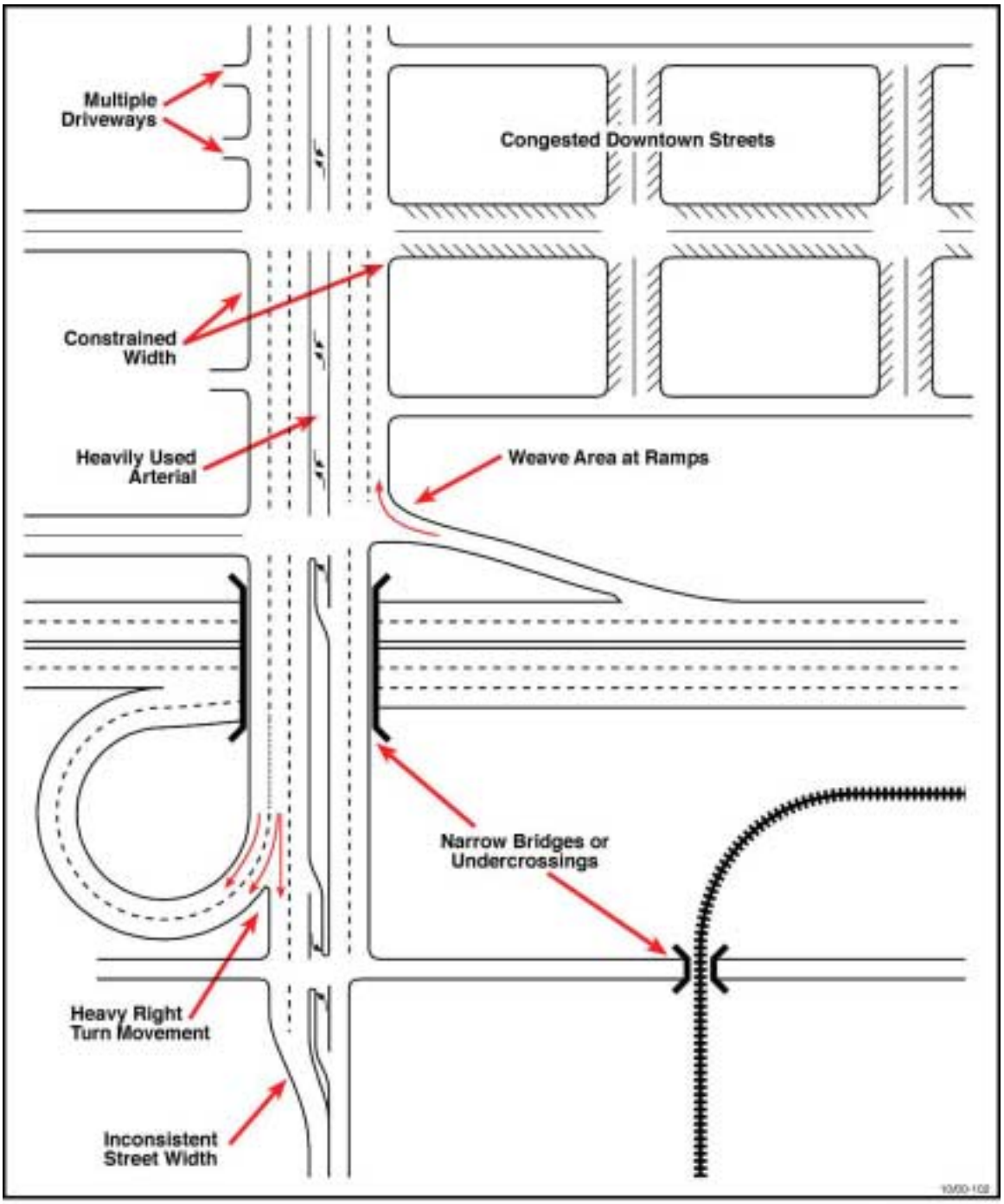


Figure 15 Bike Lane Constraints

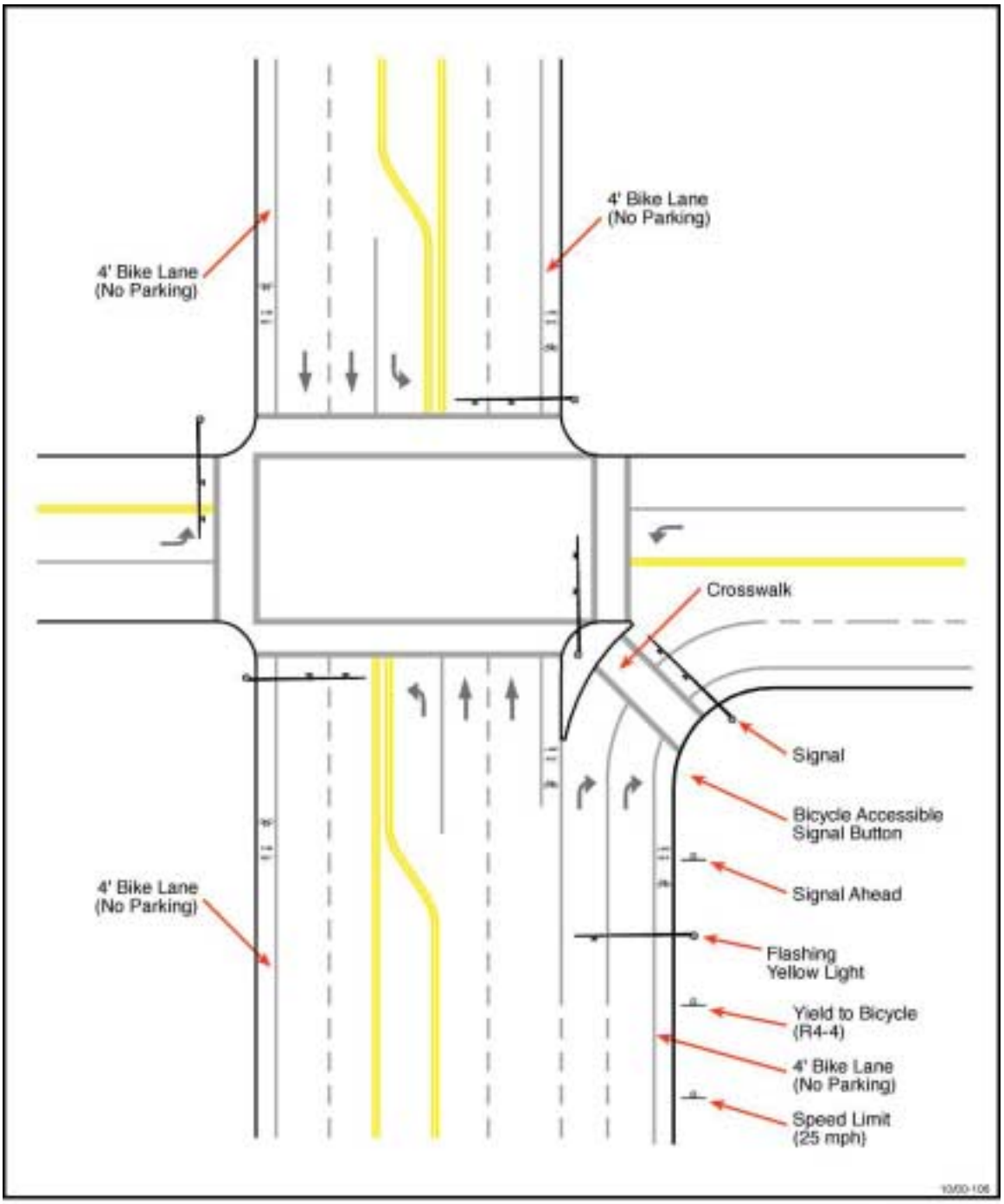


Figure 16 Bike Lanes at High Volume Intersections

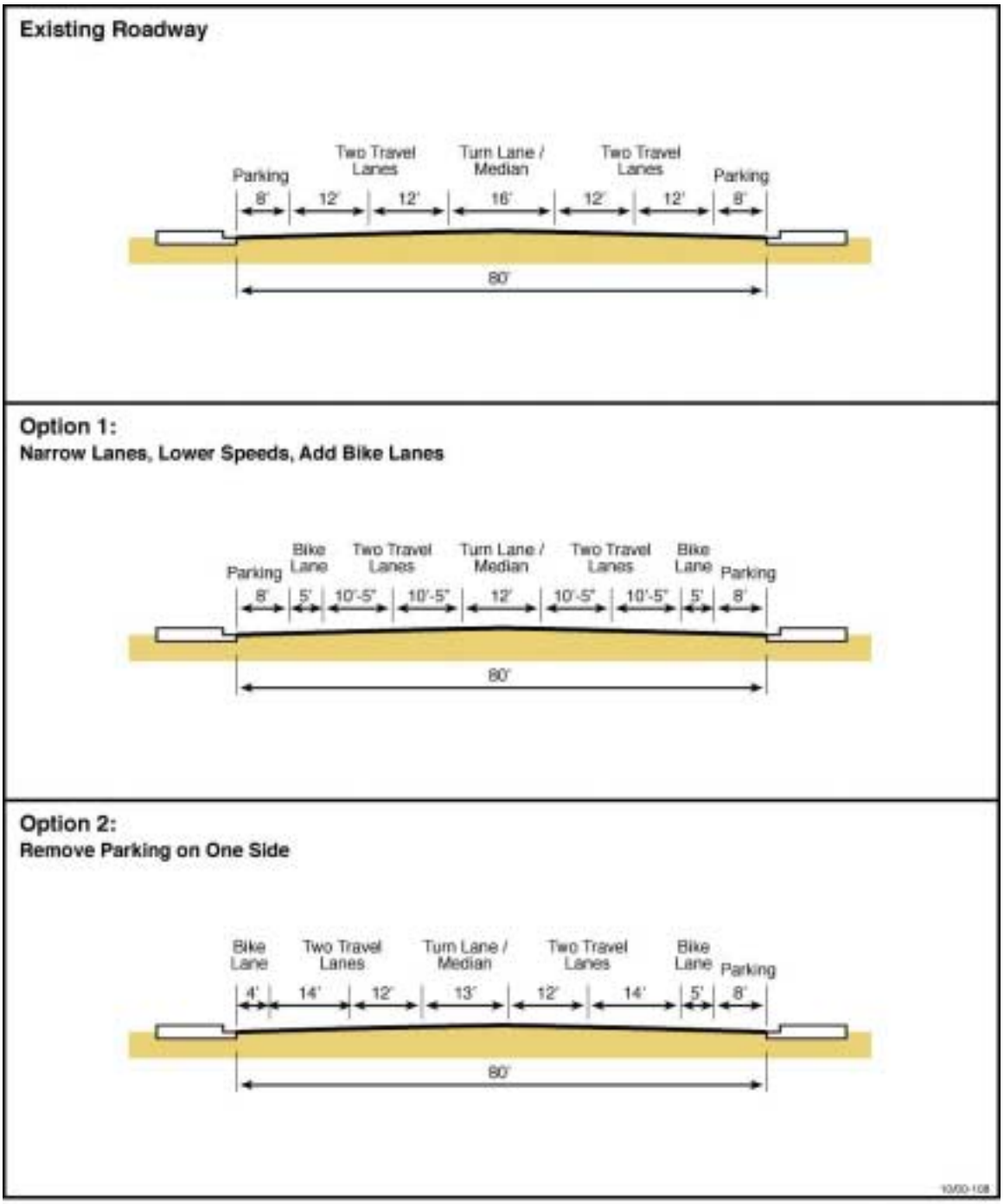


Figure 17 **Bikeway Implementation on 80 Foot Arterials**

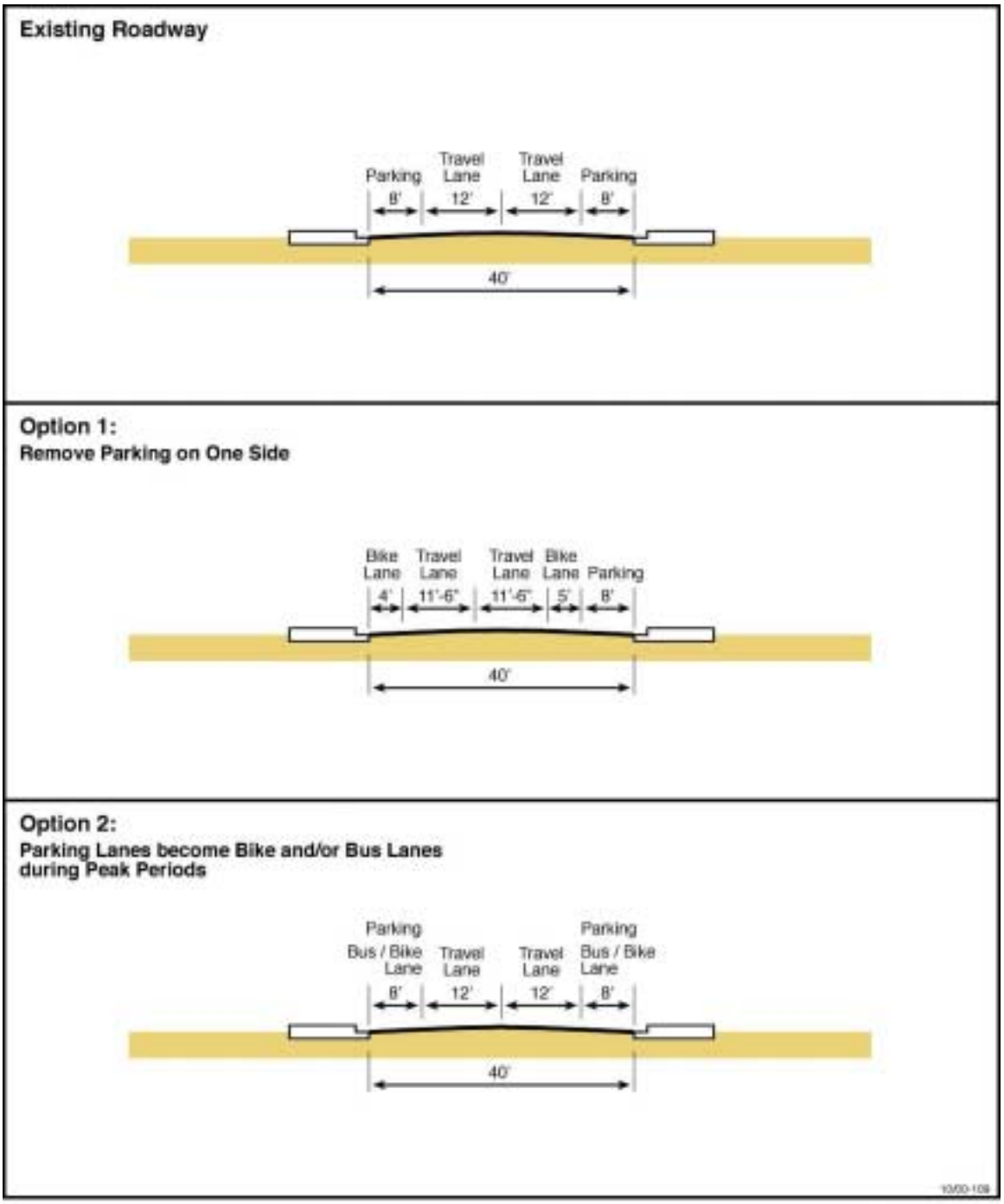


Figure 18 Bikeway Implementation on 40 Foot Collectors

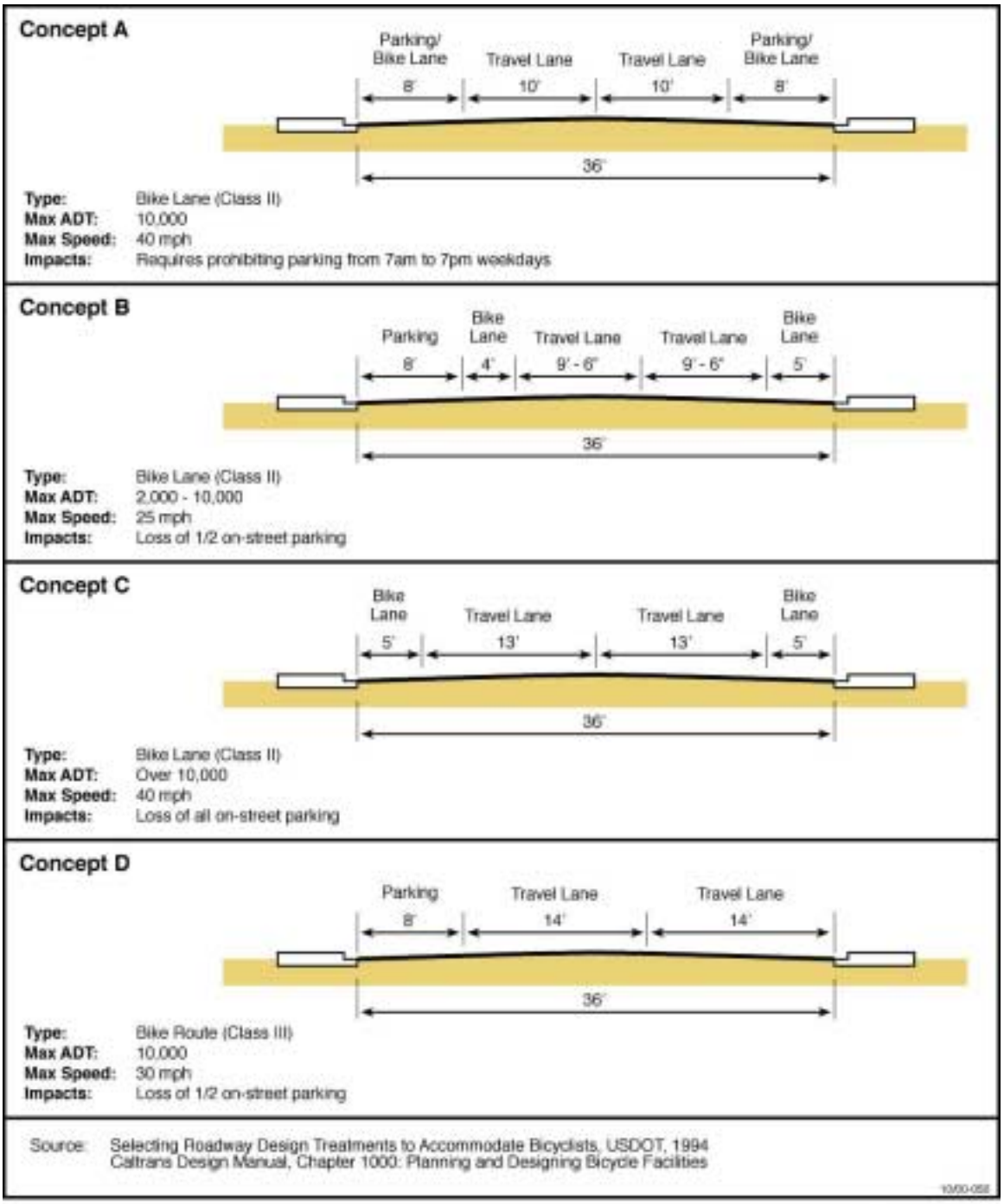


Figure 19 Bicycle Improvement Options for a 36 Foot Street

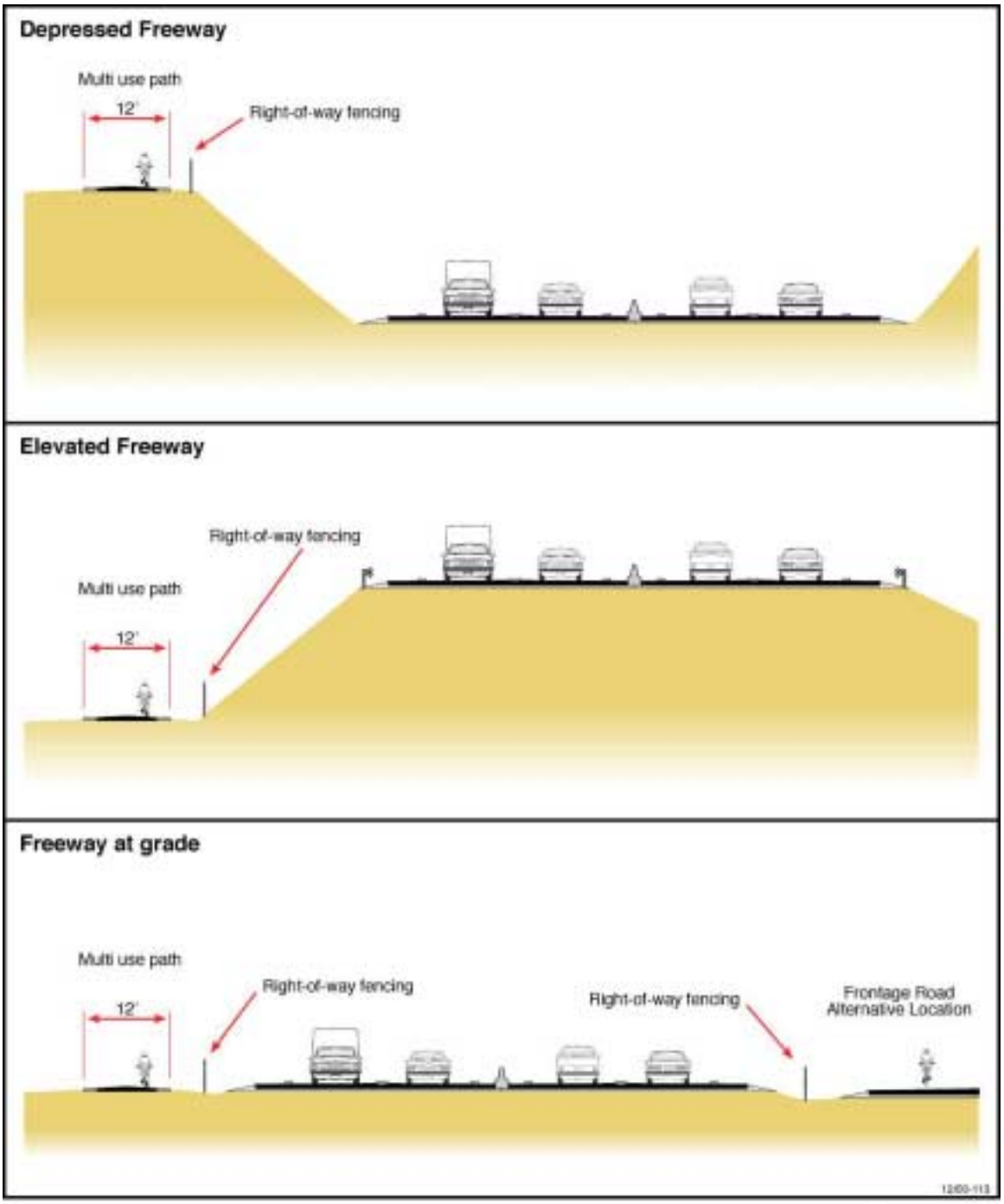


Figure 20 Shared Use Path with Freeway

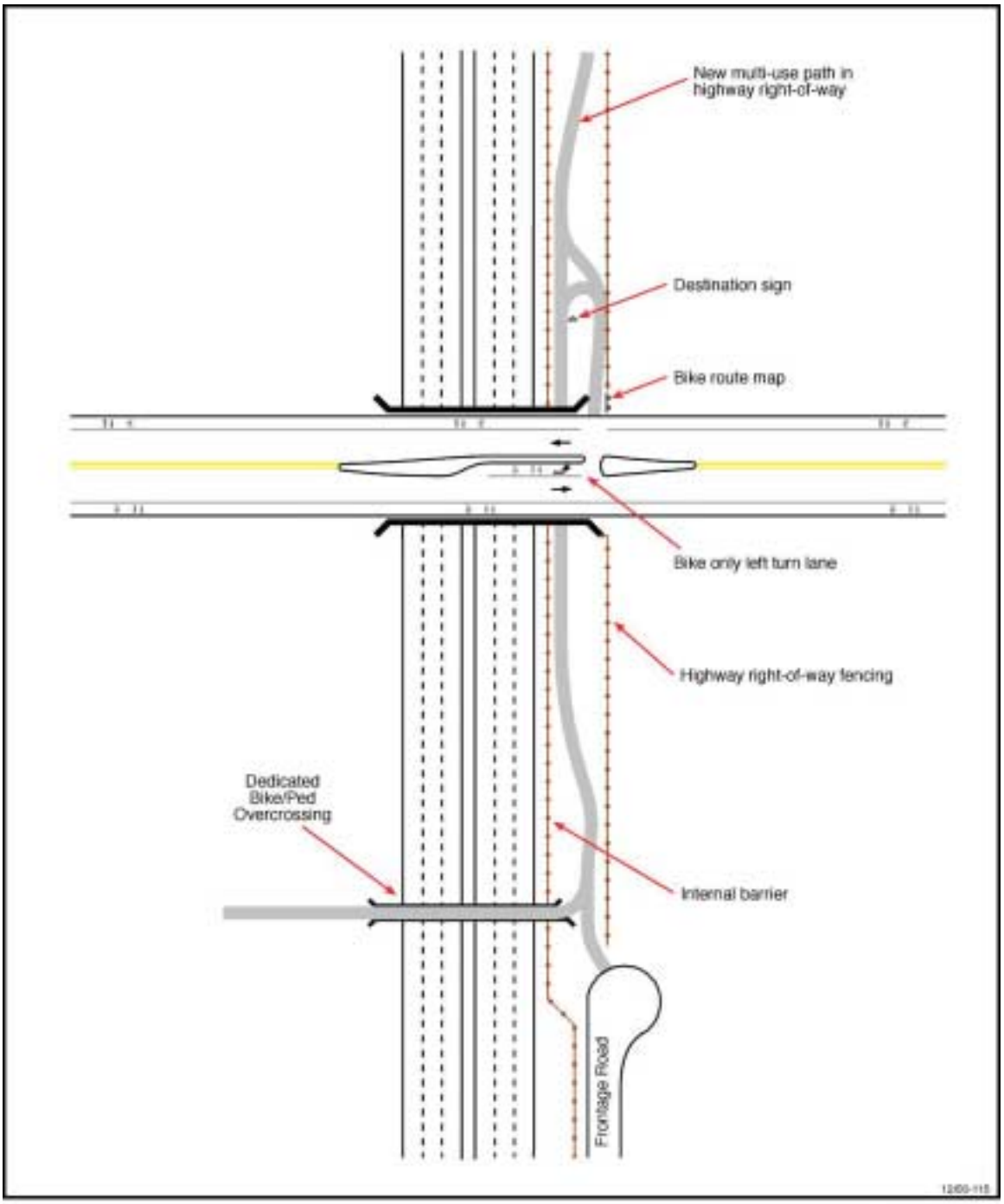


Figure 21 Shared Use Path at Undercrossing

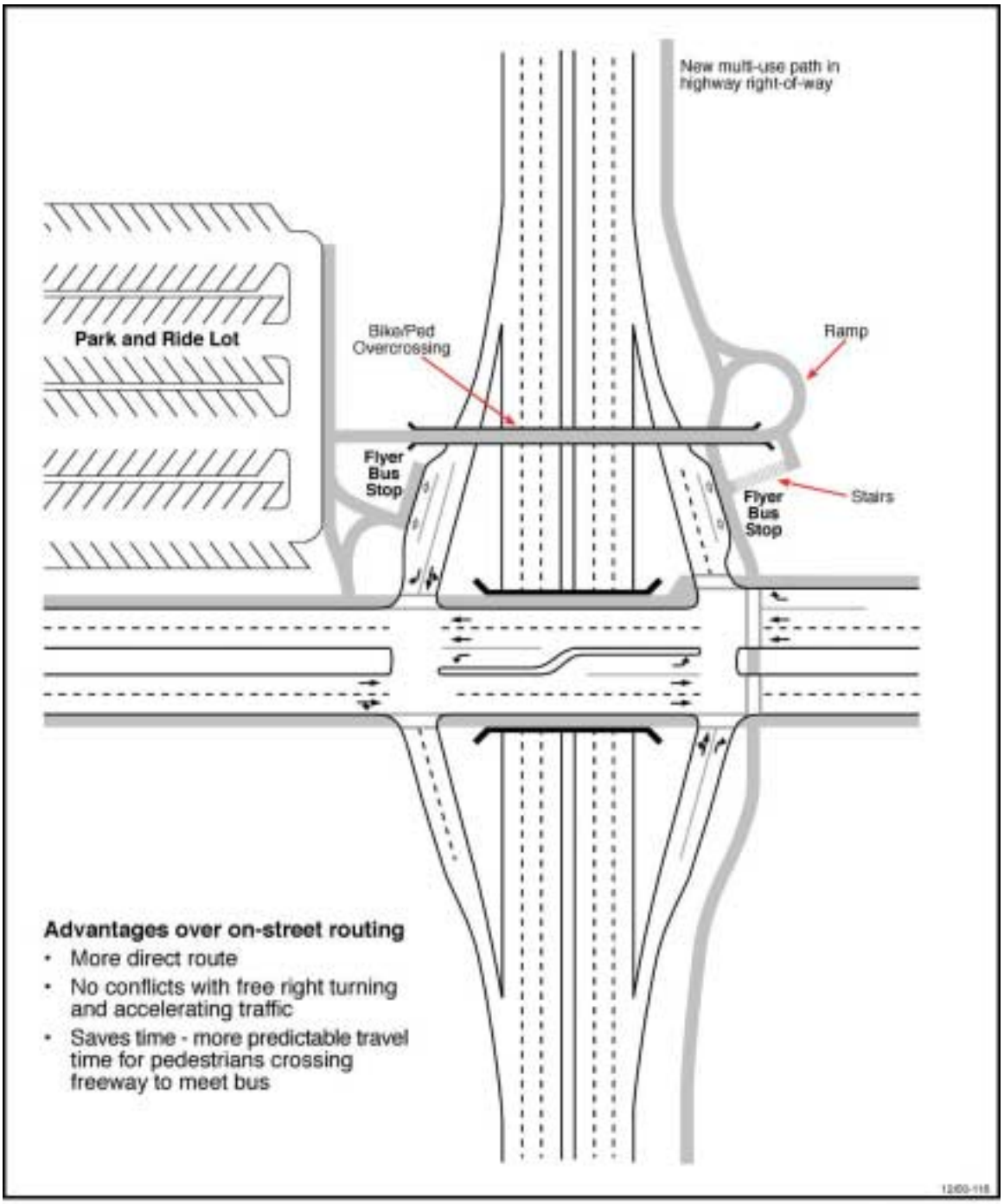


Figure 22 Shared Use Path – Access to Transit

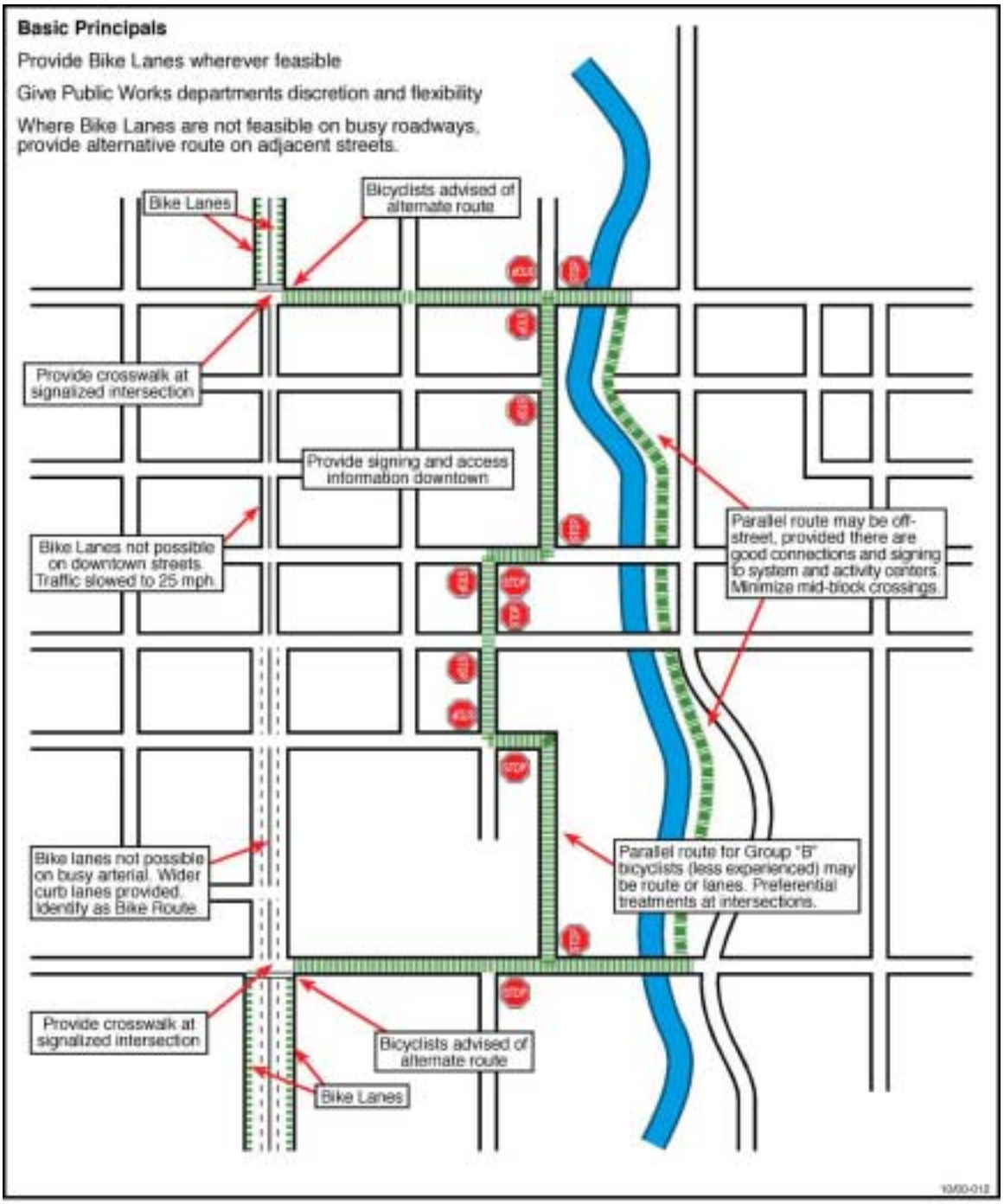


Figure 23 Bike Lanes Versus Bike Routes

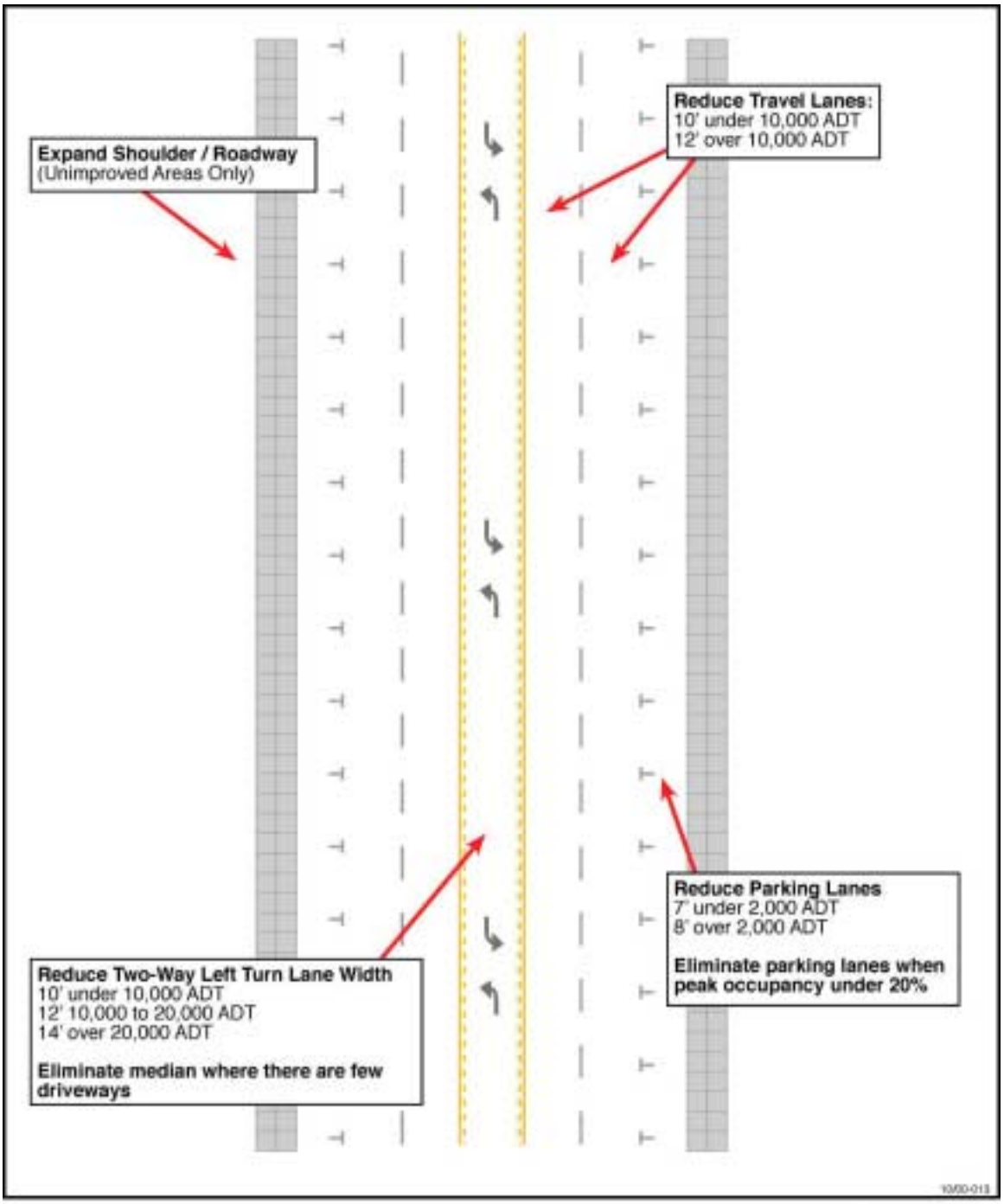


Figure 24 Installing Bike Lanes on Constrained Streets

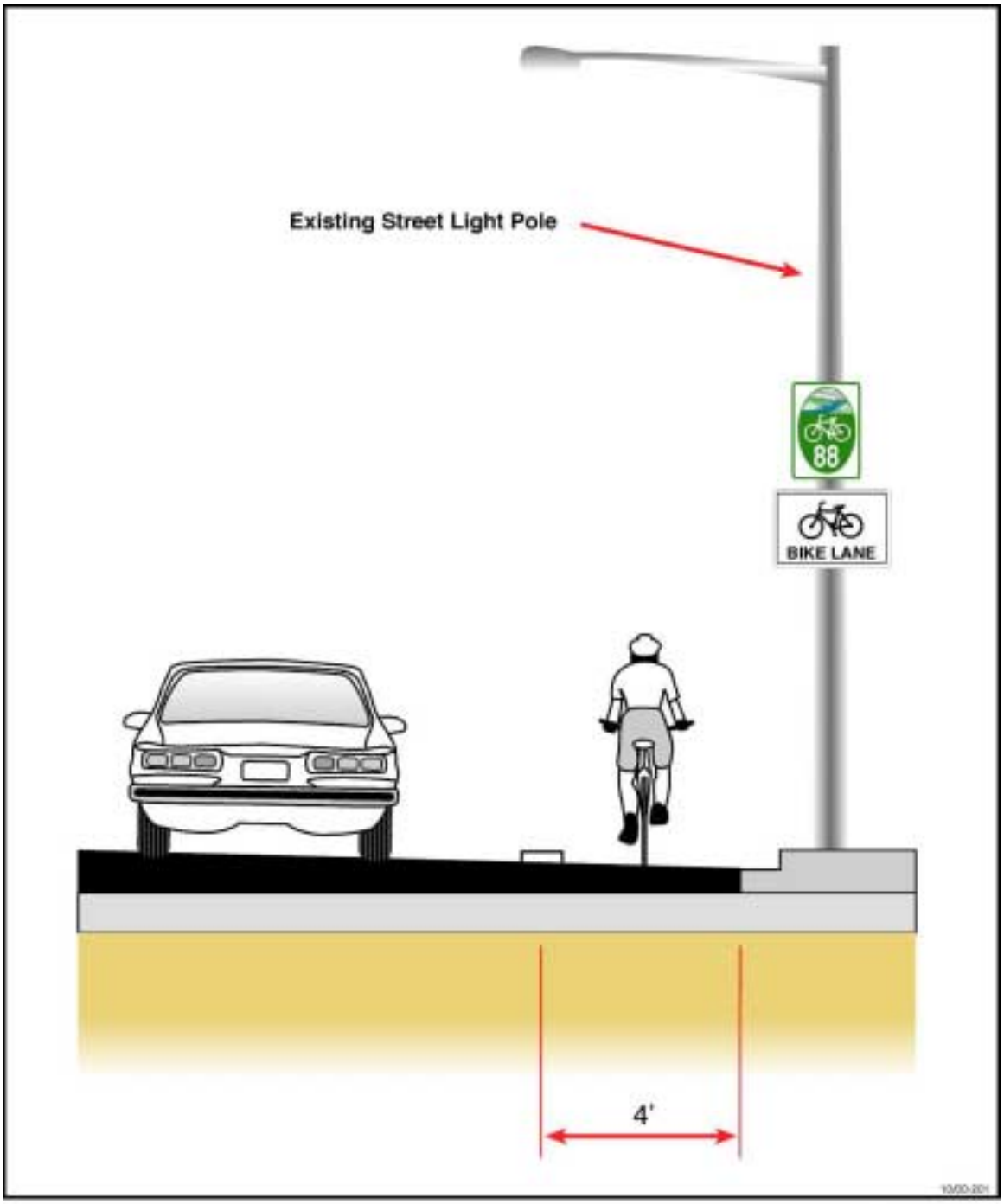


Figure 25 Bike Lane Signage with Customized Logo

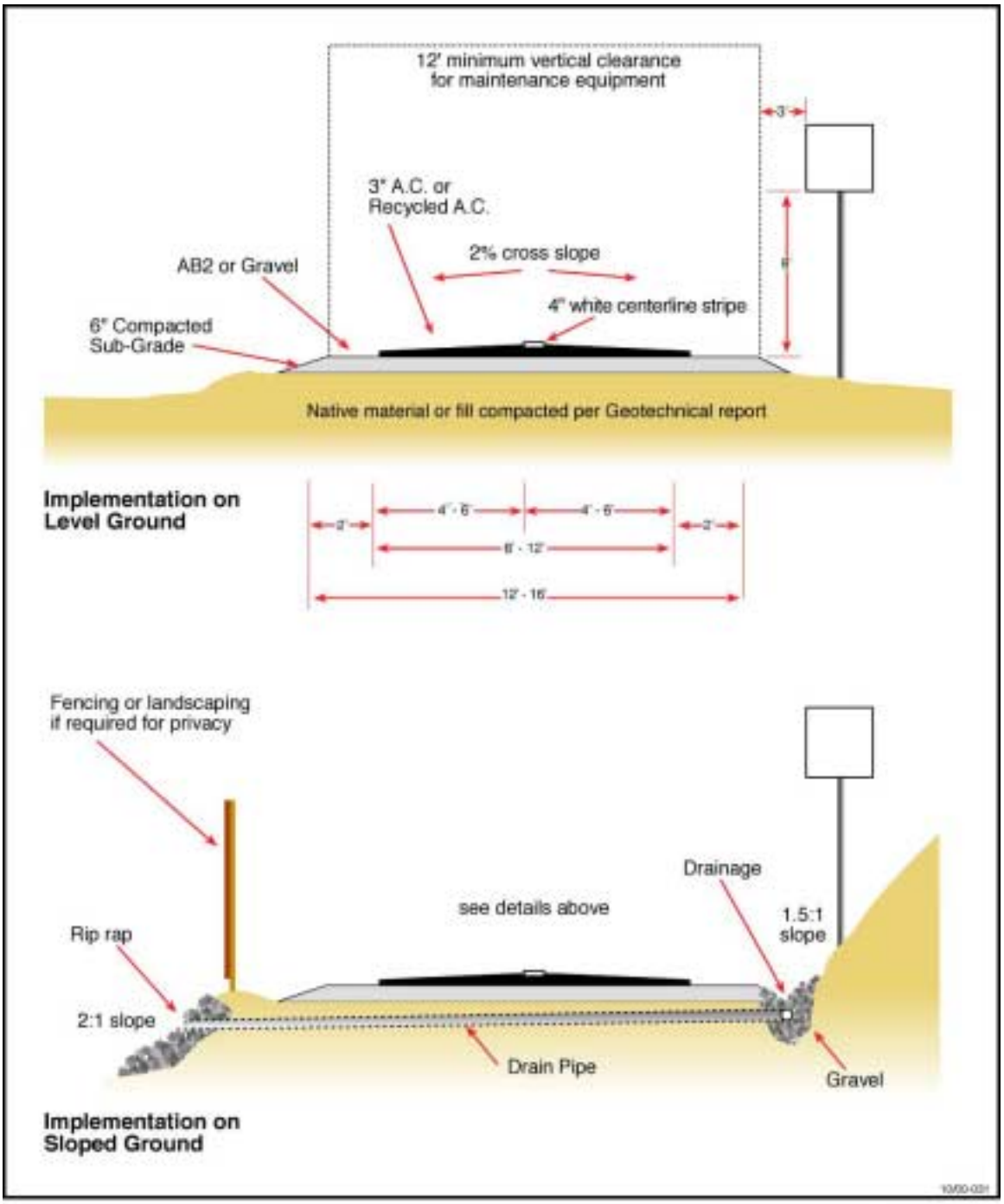


Figure 26 **Typical Shared Use Path Cross-Section**

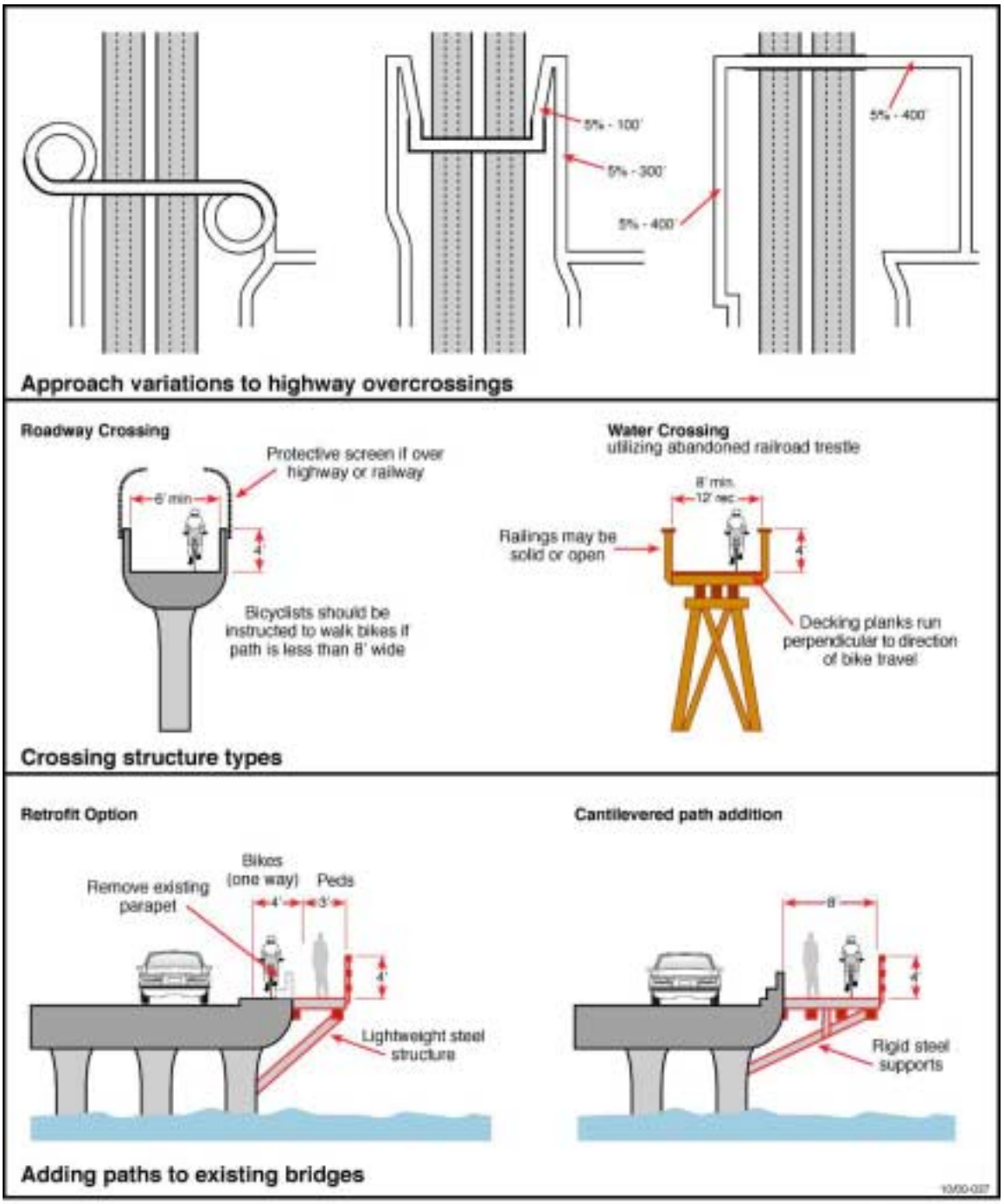


Figure 27 **Overcrossings**

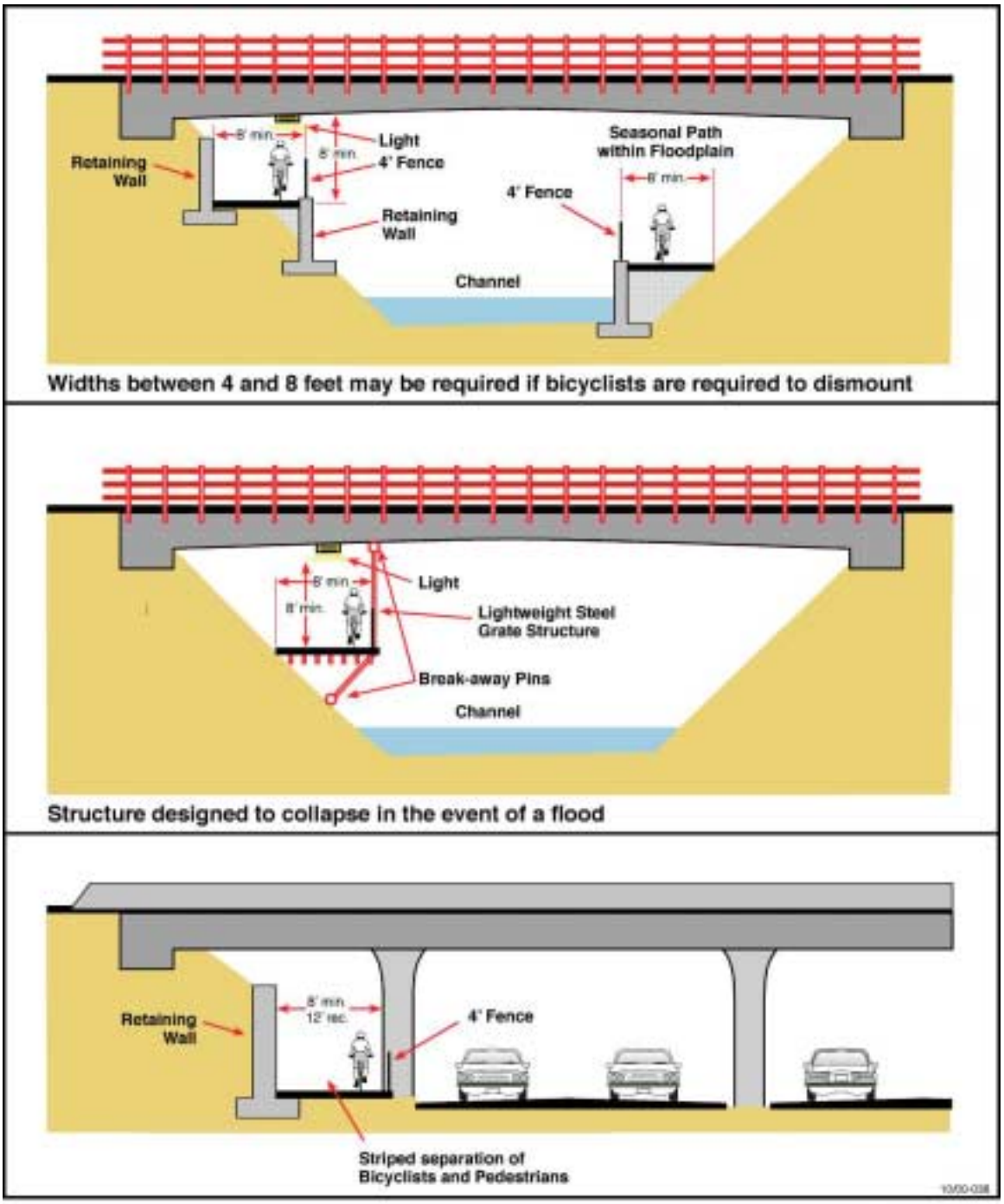


Figure 28 Undercrossings

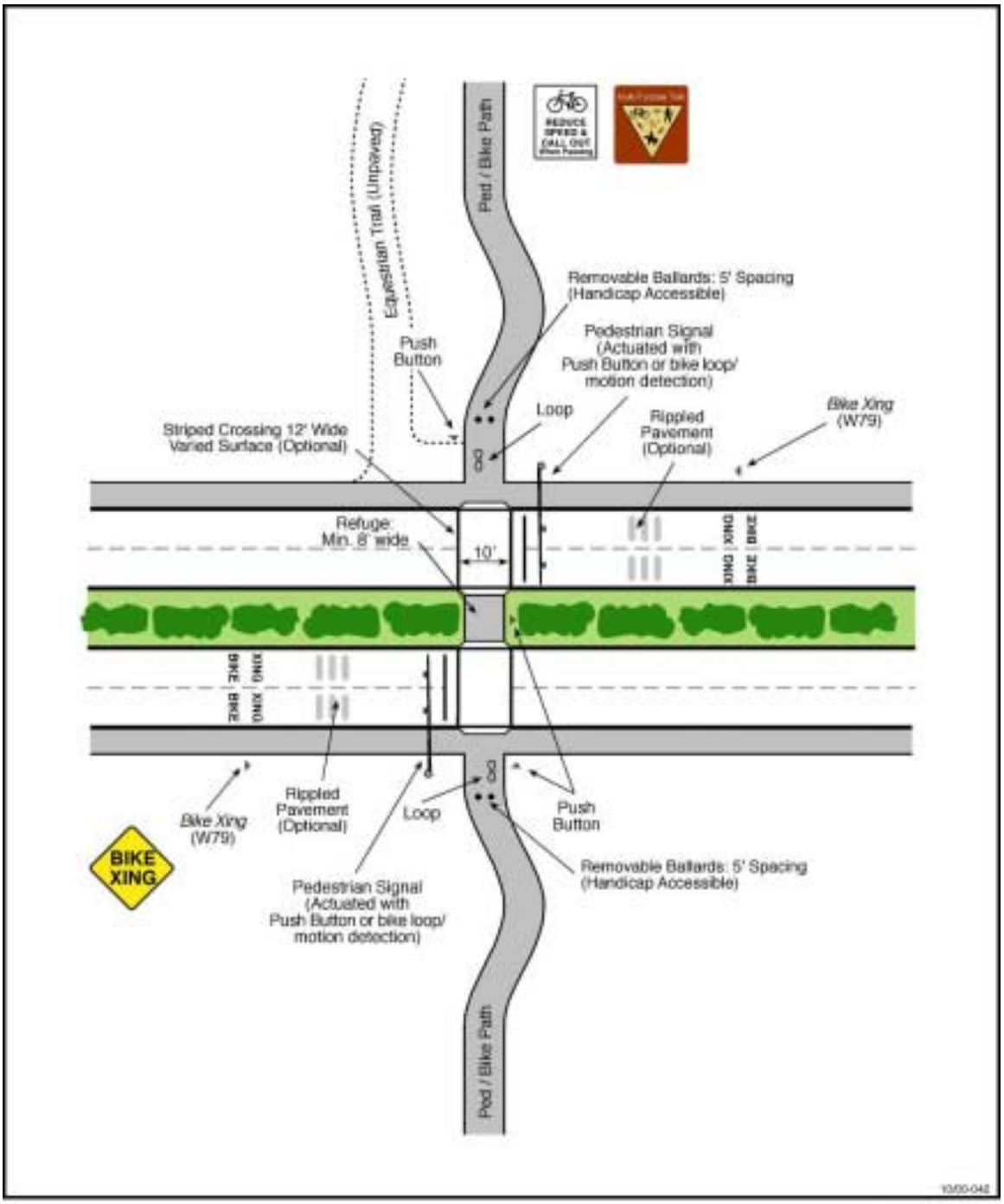


Figure 29 Shared Use Path Unsignalized Crossing Prototype

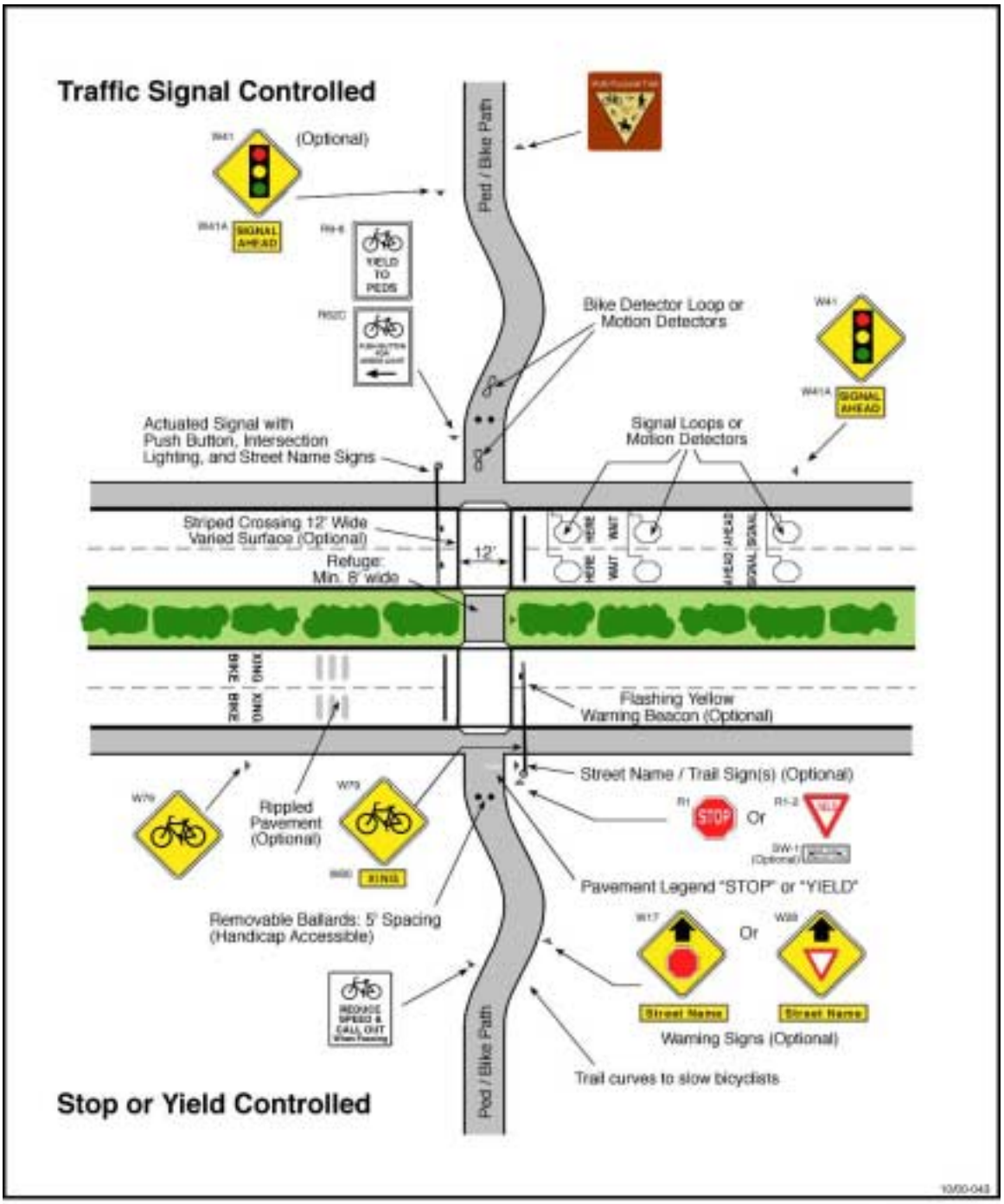


Figure 30 Shared Use Path Signalized Crossing Prototype

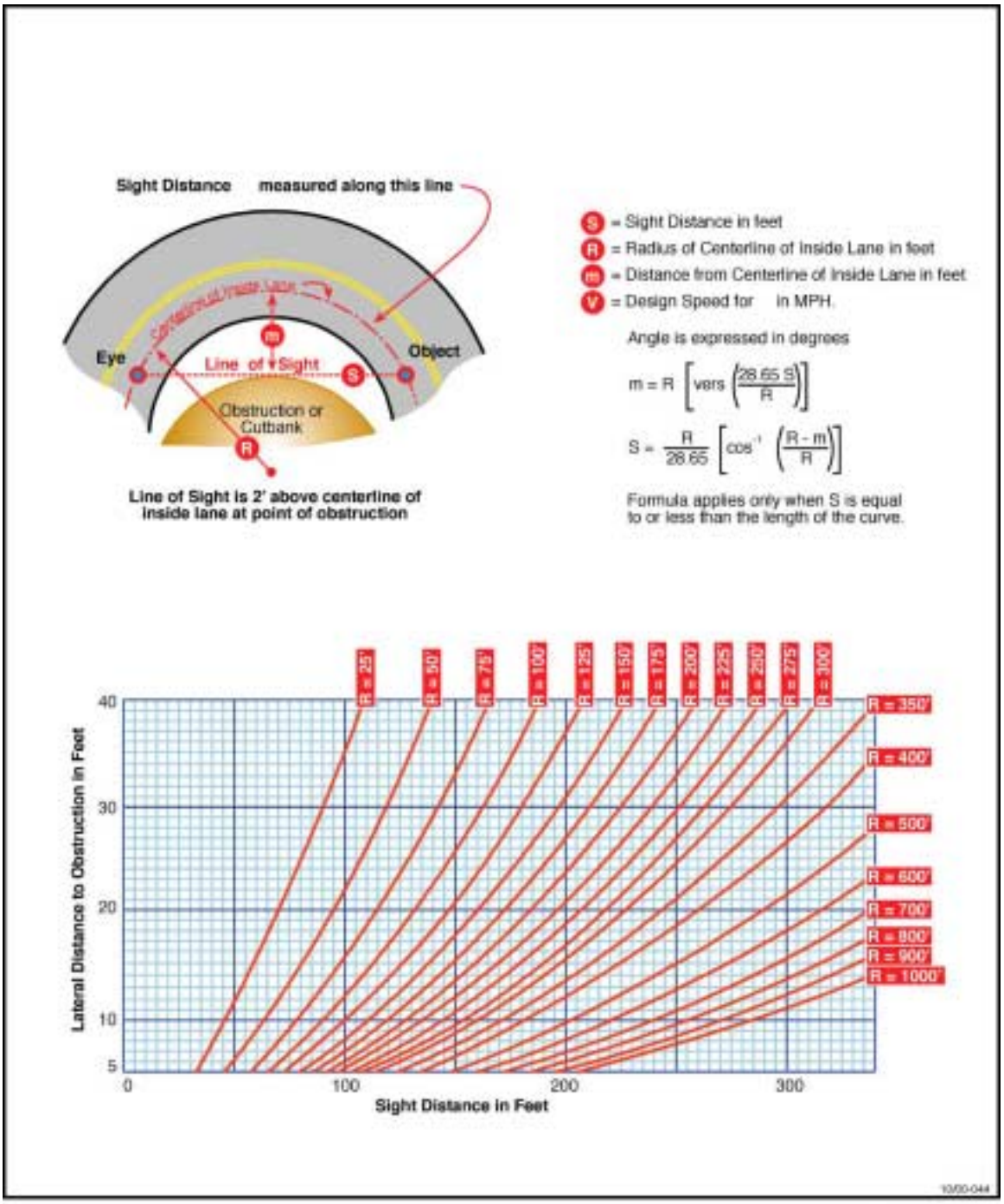


Figure 31 Shared Use Path Sight Distances

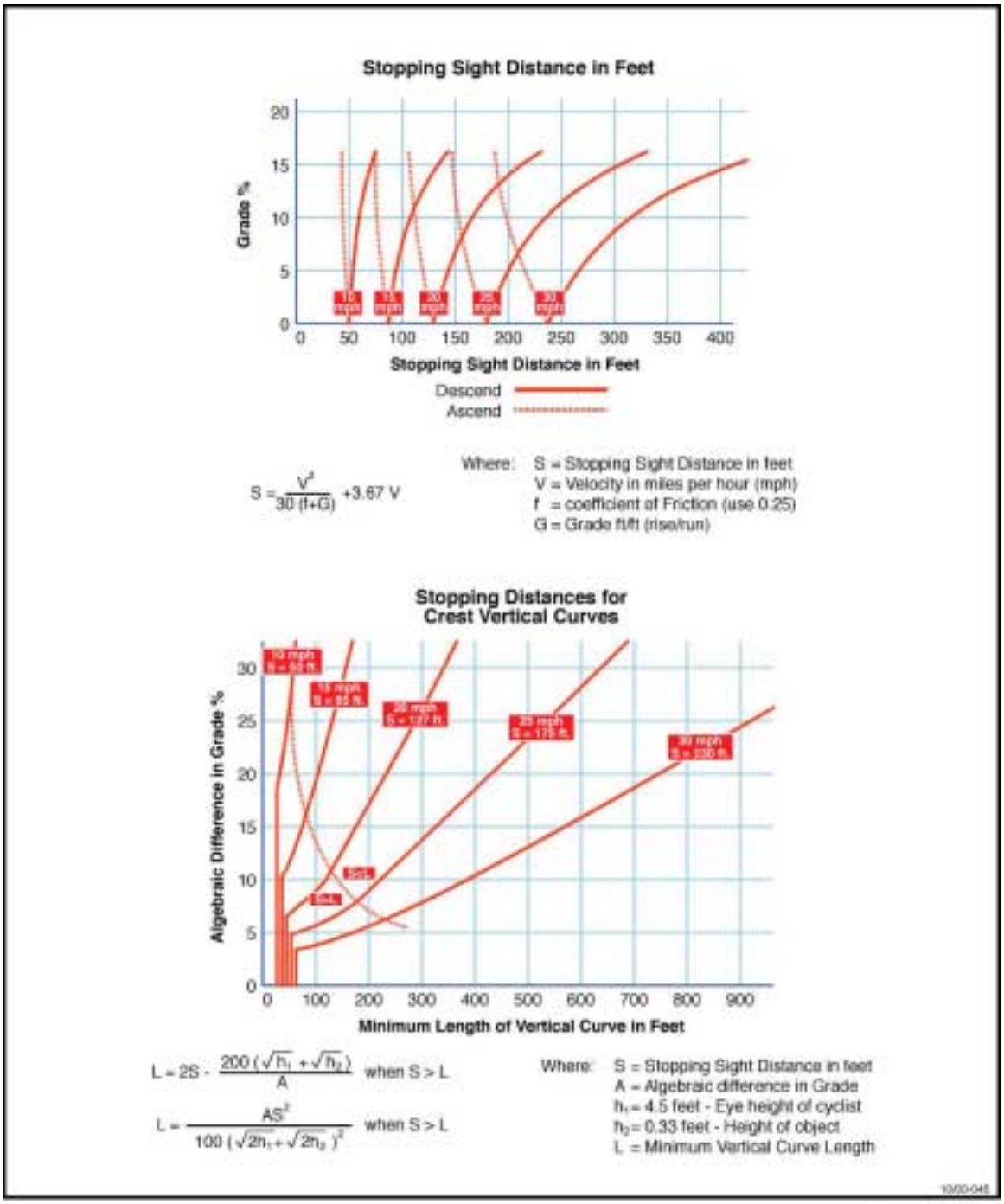


Figure 32 Shared Use Path Curve Radii

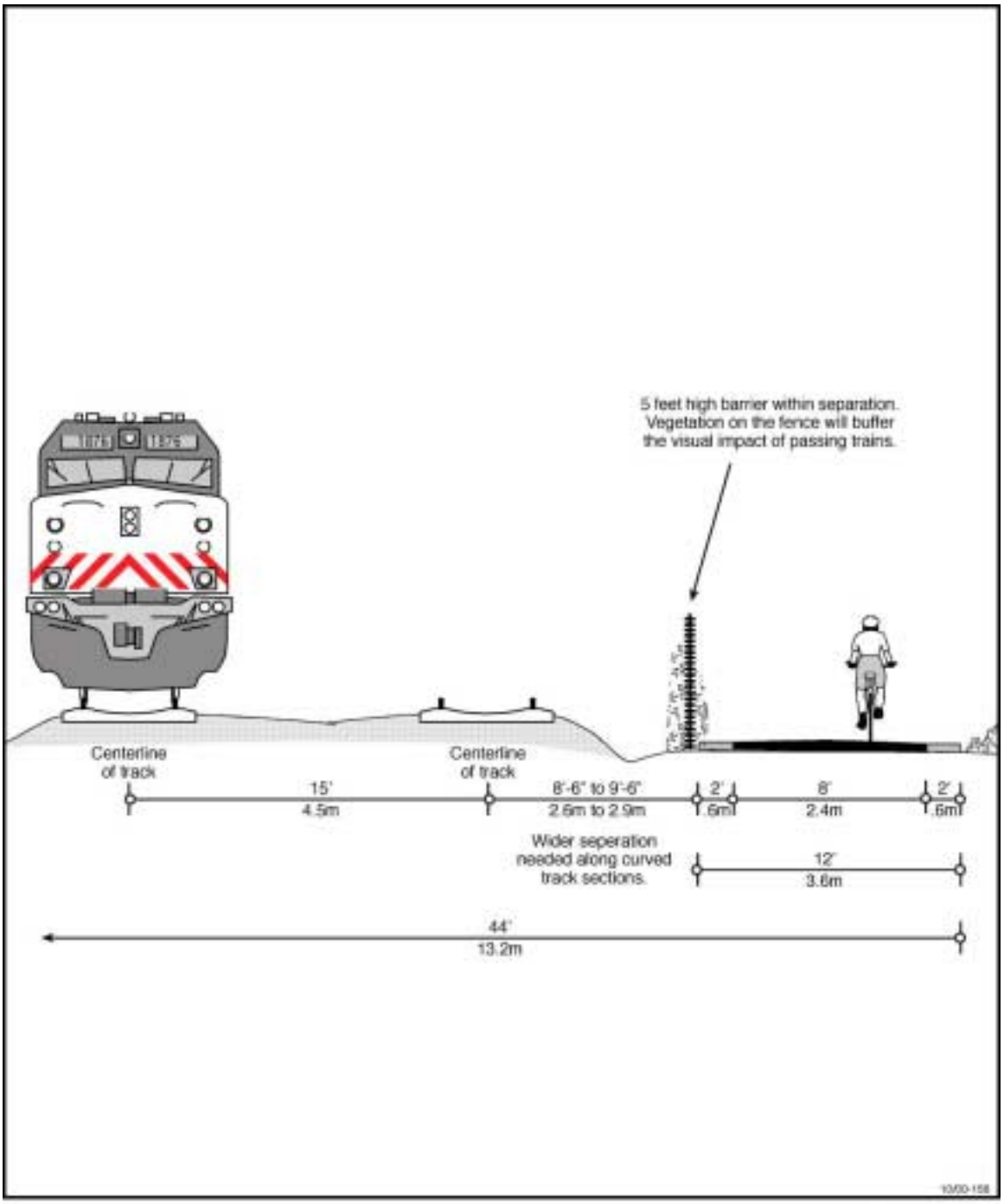


Figure 33 Minimum "Rail with Trail" Separation
(source: Caltrans and Public Utilities Commission of California)

Table 7 Projects and Funding Source By Jurisdiction

Jurisdiction	Funding Source (TDA = Transportation Development Act Article 3; TEA =Transportation Enhancement Activities)		Project
Adelanto			
Apple Valley	TDA	$198,000	Navajo Rd. Class I
	TDA	$34,527	Yucca Loma Class I
Barstow	TDA	$35,492	Main St. and Rimrock Rd. Class II
Big Bear Lake	none		
Chino	Proposition 116	$430,000	Citywide bikeway network
	TDA	$450,000	bike lanes on Edison Ave., Cypress Ave. and Chino Ave.
	TEA	$435,000	Class I and II on Central Ave.
Chino Hills	none		
Colton			
Fontana	TDA	$782,831	Pacific Electric Trail
Grand Terrace	TDA	$370,000	Phase I: bike lanes on Barton Rd., Mt. Vernon Ave. and Main St. including staging areas
	TDA	$200,000	Phase II: bike lanes on Barton Rd., Mt. Vernon Ave. and Main St. including staging areas
	TDA	$80,000	Phase II: bike lanes on Barton Rd., Mt. Vernon Ave. and Main St. including staging areas
Hesperia	none		
Highland	TDA	$20,000	Central Avenue sidewalk
Loma Linda	none		
Montclair	none		
Ontario	none		
Rancho Cucamonga	general fund	$50,000	Access to regional trail
	air quality improvement grant	$196,050	Various bike trails
	air quality improvement grant	$4,800	2 bike routes
Redlands	none		
Rialto	none		
San Bernardino	TDA	$120,000	Kendall Dr.

	TEA	$115,000	40th St.
San Bernardino County	TEA	$2,774,652	Santa Ana River bike path
Twenty-Nine Palms	TDA	$3,779	Class I on Mesquite Springs
	TDA	$54,214	Class I on Mt. View
	TDA	$1,756	Class I on Two Mile Rd., Utah Rd., El Paseo and Bagley
	TDA	$110,078	Class I on Two Mile Rd., Utah Rd., El Paseo and Bagley
Upland	TEA	$1.8 million	bike path
Victorville	TEA	$2,212,643	Riverwalk Trail bike path
Yucaipa	TDA	$180,000	Bryant St.
Yucca Valley	none		

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Table 8 - Bicycle Accidents 1997-1999 Relative to California Averages

Jurisdiction	Number of Bicycle Involved Collisions 1997 (SWITRS 1997 Report)		Number of Bicycle Involved Collisions 1998 (SWITRS 1998 Report)		Number of Bicycle Involved Collisions 1999 (SWITRS 1999 Report)		Total # of Bicycle Collisions for 3 Years	Average # of Bicycle Collisions per Year	2000 Est. Population	Accidents per 1000 people/yr.	Index (state avg. of 0.37/1000)
	Fatality	Injury	Fatality	Injury	Fatality	Injury					
Adelanto	0	3	0	1	0	1	5	1.7	15,602	0.11	0.29
Apple Valley	1	5	1	7	1	4	19	6.3	56,980	0.11	0.30
Barstow	0	9	0	6	0	7	22	7.3	23,290	0.31	0.85
Big Bear Lake	1	5	0	4	0	0	10	3.3	6,329	0.53	1.42
Chino	0	26	0	19	2	21	68	22.7	66,740	0.34	0.92
Chino Hills	0	2	0	3	0	6	11	3.7	60,236	0.06	0.16
Colton	0	9	0	10	0	10	29	9.7	47,333	0.20	0.55
Fontana	0	31	0	34	1	22	88	29.3	117,395	0.25	0.68
Grand Terrace	0	2	0	0	0	0	2	0.7	13,537	0.05	0.13
Hesperia	0	10	1	3	0	10	24	8.0	63,589	0.13	0.34
Highland	0	8	0	4	0	8	20	6.7	44,469	0.15	0.41
Loma Linda	0	1	0	0	0	3	4	1.3	22,299	0.06	0.16
Montclair	0	16	1	10	0	17	44	14.7	30,943	0.47	1.28
Needles	0	1	0	1	0	0	2	0.7	5,929	0.11	0.30
Ontario	0	38	0	40	1	56	135	45.0	151,488	0.30	0.80
Rancho Cucamonga	1	12	1	12	0	7	33	11.0	125,585	0.09	0.24
Redlands	0	28	1	16	0	10	55	18.3	67,771	0.27	0.73
Rialto	0	22	0	17	0	19	58	19.3	83,666	0.23	0.62
San Bernardino	1	60	1	64	1	54	181	60.3	186,351	0.32	0.88
Twenty-Nine Palms	0	0	0	2	0	4	6	2.0	15,091	0.13	0.36
Upland	2	44	0	24	0	25	95	31.7	68,795	0.46	1.24
Victorville	1	10	0	5	1	5	22	7.3	64,455	0.11	0.31
Yucaipa	0	6	0	8	0	6	20	6.7	39,838	0.17	0.45
Yucca Valley	0	3	1	4	0	3	11	3.7	19,222	0.19	0.52
Unincorporated	3	51	1	50	0	64	169	56.3	292,348	0.19	0.52
TOTAL	10	402	8	344	7	362	1133	377.7	1,689,281	0.22	0.60

Table 9 Bicycle/Pedestrian Safety Programs in San Bernardino County

Jurisdiction	Active Safety Education Program	Bicycle Safety Education Program Descriptions
Adelanto	No response	No response
Apple Valley	no	
Barstow	no	
Big Bear Lake	no	
Chino	yes	No response
Chino Hills	no	
Colton	yes	Safe Moves trains school children.
Fontana	No response	No response
Grand Terrace	yes	No response
Hesperia	yes	Has been operating at least 4 years. It includes people of all ages -- 6 thru adult, but adults accompany Children. There are two programs operated by the San Bernardino County Sheriffs. 1) Bicycle rodeos: include videos, coloring books, and safety information pamphlets. There are 12 instructors and 15 attendees at a time. The rodeos last 30-45 minutes total. They reach approximately 2,000 per year. 2) There are booths at fairs and other events. The booths have bike registration and helmet giveaways. The number of bicycle accidents has remained statistically in the same range and is insignificant to ascertain the success of the education effort.
Highland	No response	No response
Loma Linda	no	
Montclair	yes	The Montclair Police Department has a program that teaches bicycle and pedestrian safety education. The attendees range in age from 6 to 35, however, adults are primarily either parents or violators who take class to avoid fines. The program has been running for 2-1/2 years. The curriculum includes application of laws (including helmet use), bike safety and rider awareness. The trainers are police specializing in Accident Reconstruction. There are two sessions per month. The number of bicycle accidents --
Needles	no	
Ontario	yes	A program has been operating for over 12 years. It is taught by the Southern California Auto Club and the California Crime Prevention Officers Association. The program is taught in schools, to Boy and Girl Scouts, church groups and neighborhood groups by request. All of the attendees are children. The program reaches thousands every year. The class lasts one hour. The curriculum covers rules of road, safety/helmets and bike maintenance. The number of bicycle accidents has increased but is statistically insignificant to ascertain the success of the education effort.
Rancho Cucamonga	no	

Redlands	yes	No response
Rialto	no	
San Bernardino	yes	There is no bicycle safety education program that is taught on a regular basis, but one that operates on request. The San Bernardino Police teaches the course. It has been in place 4 years. Generally it is given two to three time per year at elementary schools. There are approximately 500 total attendees per year. The curriculum covers bicycling rules, helmet laws and usage, bike inspection. It lasts for about one hour and is taught by two to three police officers that have had training for bicycle patrol. The number of bicycle accidents has remained statistically in the same range and is insignificant to ascertain the success of the education effort.
Twenty-Nine Palms	no	
Upland	no	
Victorville	no	
Yucaipa	yes	The Yucaipa Police Department Community Service people teach bicycle safety education. It has been taught for two years. This past year they had 126 attendees, all aged 7 to 12. The program is conducted as a bicycle safety fair and rodeo. Bicycles are inspected and registered. They show a video. Each session lasts 3 to 4 hours. It is done annually with cooperation of the San Bernardino County Sheriffs. The curriculum includes a basic rodeo and presentations. Free helmets are given out. The number of bicycle accidents has remained statistically in the same range and is insignificant to ascertain the success of the education effort.
Yucca Valley	yes	No response

Table 10 – Existing Bicycle Facilities by Type and Jurisdiction

Class	Name	Cities/Communities	From	To
1	Navajo Rd	Apple Valley	Hwy 18	Ottawa Rd
1	Navajo Rd	Apple Valley	Nisqually Rd	Tussing Ranch Rd
1	Ocotillo Wy	Apple Valley	Cholla Rd	Pioneer Rd
1	Yucca Loma Rd	Apple Valley	Havasu Rd	Algonquin Rd
2	Benson Ave	Chino	Philadelphia St.	Schaefer Ave
2	Chino Ave	Chino	Chino Valley FWY	Euclid Ave
2	Cypress Ave	Chino	Schaefer Ave	Edison Avenue
2	Eucalyptus Ave	Chino	Bluebell Drive	Central Ave
2	Monte Vista Way	Chino	Philadelphia St.	Chino Hills Parkway
2	Schaefer Ave	Chino	Chino Valley FWY	Cypress Ave
1	Edison Right-of-Way	Fontana	Rancherias Dr	Locust Ave
1	Path 3 (NW Fontana)	Fontana	Cherry Ave	Sierra Ave
2	Barton Rd	Grand Terrace	Mt. Vernon Ave	Colton City Limit
2	Mt. Vernon Ave	Grand Terrace	Main St	Barton Rd
2	E Avenue	Hesperia	Peach Ave	Olive St
2	G Avenue	Hesperia	Olive St	Lime St
2	Olive St	Hesperia	E Avenue	G Avenue
2	Peach Ave	Hesperia	Bear Valley Rd	E Avenue
2	Anderson St	Loma Linda	Redlands Blvd	La Mar Rd
2	Barton Rd	Loma Linda	Benton St	Barton Frontage Rd
3	Benton St	Loma Linda	Shepardson Dr	Barton Rd
2	Mountain View Ave	Loma Linda	Barton Rd	Beaumont Ave
2	Shepardson Dr	Loma Linda	St. Mound St	Benton St
2	St. Mound St	Loma Linda	Anderson St	Shepardson Dr
1	Creekside Dr	Ontario	Deer Creek Lp	Lytle Creek Lp
1	Deer Creek Loop	Ontario		
1	Edison Right-of-Way	Ontario	Riverside Dr	Archibald Ave
3	Grove Ave	Ontario	4th Street	Ontario Blvd
3	I Street	Ontario	Benson Ave	Grove Ave
1	Lytle Creek Loop	Ontario		
1	Mission Blvd	Ontario	Ontario Blvd	Walker Ave
3	Ontario Blvd	Ontario	Grove Ave	Mission Blvd
1	Path 1	Ontario	Deer Creek Lp	Riverside Dr
1	Philadelphia St	Ontario	Walker Ave	Cucamonga Creek
1	Riverside Dr	Ontario	Turner Ave	Milliken Ave
1	Walker Ave	Ontario	Mission Blvd	Philadelphia St
2	4th Street	Ontario, Rancho Cucamonga	Cucamonga Creek	Etiwanda Ave
3	Archibald Ave	Rancho Cucamonga	La Colina Dr	4th Street
3	Banyan St	Rancho Cucamonga	Cucamonga Creek	Archibald Ave
2	Baseline Rd	Rancho Cucamonga	Cucamonga Creek	Rochester Ave

3	Church St	Rancho Cucamonga	Haven Ave	Milliken Ave
1	Cucamonga Creek	Rancho Cucamonga	Marble Ave	Carnelian Ave s/o Vivero
1	Demens Creek	Rancho Cucamonga	Goosneck Ave	Cucamonga Creek
1	Etiwanda Ave	Rancho Cucamonga	Highland Ave	Baseline Rd
2	Foothill Blvd	Rancho Cucamonga	Baker Ave	Etiwanda Ave
3	Haven Ave	Rancho Cucamonga	Tackstem Dr	4th Street
3	Lemon Ave	Rancho Cucamonga	Archibald Ave	Haven Ave
3	Milliken Ave	Rancho Cucamonga	Summit Ave	4th Street
1	Path 2	Rancho Cucamonga	Church St	Terra Vista Pkwy
3	Terra Vista Pkwy	Rancho Cucamonga	Church St	Church St
2	Victoria Park Ln	Rancho Cucamonga	Fairmont Wy	Baseline Rd
1	Wilson Ave	Rancho Cucamonga	Rochester Ave	Etiwanda Ave
2	Kendall Dr	San Bernardino	Palm Ave	40th Street
2	Northpark Blvd	San Bernardino	University Pkwy	Electric Ave
2	University Pkwy	San Bernardino	Cajon Blvd	Northpark Blvd
2	Aztec Ave	Twentynine Palms	Luckie Ave	Utah Tr
2	Bagley Ave.	Twentynine Palms	El Paseo Drive	Two Mile Road
2	El Paseo Drive	Twentynine Palms	Mesquite Springs Rd	Bagley Ave
2	Joe Davis Drive	Twentynine Palms	Luckie Ave	Utah Trail
2	Luckie Ave	Twentynine Palms	Two Mile Rd	Joe Davis Dr
2	Mesquite Springs Rd	Twentynine Palms	Two Mile Rd	El Paseo Dr
2	Two Mile Road	Twentynine Palms	Mesquite Springs Rd	Utah Trail
2	Utah Trail	Twentynine Palms	Aztec Ave	Joe Davis Drive
1	Deakin Ave	Upland	24th Street	Mildura Ave
1	Mildura Ave	Upland	Mountain Ave	Benson Ave
2	Bear Valley Rd	Victorville, Hesperia	Peach Ave	Mojave River
2	Bryant St	Yucaipa	Date Ave	Avenue E
2	California St	Yucaipa	Yucaipa Blvd	Avenue F

Table 12 First Priority Bicycle Facilities

Class	Name	Cities/Communities	From	To	Mileage	Destinations
2or3	Hwy 395	Adelanto	El Mirage Rd	Palmdale Rd	6.50	
2or3	Apple Valley Rd	Apple Valley	Hwy 18	Yucca Loma Rd	3.50	
2or3	Hwy 18	Apple Valley	Mojave River	Joshua Rd	8.50	
1	Yucca Loma Rd	Apple Valley	Mojave River	Apple Valley Rd	0.50	
2or3	Barstow Rd	Barstow	Main St	1 mile s/o Rimrock Rd	2.50	Barstow College
2or3	Main St	Barstow	Sweeten Ln	Montara Rd	8.50	Downtown
2or3	Montara Rd	Barstow	Main St	Rimrock Rd	0.75	
2or3	Rimrock Rd	Barstow	Barstow Rd	Montara Rd	1.50	
2or3	Grand Ave	Chino	Chino Valley Fwy	Pipeline Ave	0.50	
2or3	Edison Ave	Chino	Pipeline Ave	Central Ave	1.50	
2or3	Walnut Ave	Chino, Ontario	San Antonio Wash	Vineyard Ave	6.75	
2or3	Barton Rd	Colton, Loma Linda	Grand Terrace City Limit	Benton St	3.00	Loma Linda University
1	Santa Ana River	Colton, San Bernardino, Redlands	Riverside County Line	Greenspot Rd	18.00	
1	Edison Right-of-Way	Fontana	Sierra Ave	San Sevaine Creek	6.50	
2or3	Sierra Ave	Fontana	Lytle Creek Rd	Riverside County Line	10.25	Fontana Metrolink Station
2or3	Jurupa Ave	Fontana, Bloomington, Rialto	Locust Ave	Riverside Ave	2.25	
2or3	Barton Rd	Grand Terrace	Michigan Ave	Mt. Vernon Ave	0.50	
2or3	Commerce Wy	Grand Terrace	Michigan Ave	Main St	1.00	
2or3	Michigan Ave	Grand Terrace	Barton Rd	Commerce Wy	0.25	
2or3	3rd Avenue	Hesperia	Bear Valley Rd	Lime St	4.50	
2or3	Lime St	Hesperia	Cottonwood Ave	G Avenue	2.75	
2or3	Main St	Hesperia	Hwy 395	Mojave River	9.50	Downtown
2or3	Boulder Ave	Highland	Baseline St	Orange St	1.50	
2or3	Orange St	Highland, Redlands	Boulder Ave	Citrus Ave	3.25	
1	San Timoteo Creek	Loma Linda, Redlands	Barton Rd	Riverside County Line	4.75	
2or3	Barton Rd	Loma Linda, Redlands	Barton Frontage Rd	Brookside Ave	2.00	
2or3	Orchard St	Montclair	San Antonio Wash	Benson Ave	1.75	
2or3	Campus Ave	Ontario	Philadelphia St	Riverside Dr	1.00	
1	Cucamonga Creek	Ontario	Jurupa Ave	Riverside County Line	5.00	
2or3	5th Street	Ontario	Euclid Ave	Sultana Ave	0.25	
2or3	G Street	Ontario	Benson Ave	Vineyard Ave	4.00	
2or3	Haven Ave	Ontario	4th Street	Inland Empire Blvd	0.50	

2or3	Inland Empire Blvd	Ontario	Vineyard Ave	Milliken Ave	2.50	Ontario Mills Mall
2or3	Ontario Mills Pkwy	Ontario	Milliken Ave	Etiwanda Ave	2.75	Ontario Mills Mall
2or3	Philadelphia St	Ontario	Sultana Ave	Campus Ave	0.25	
1	Riverside Dr	Ontario	Fern Ave	Turner Ave	4.00	
2or3	Sultana Ave	Ontario	5th Street	Philadelphia St	3.25	Downtown
2or3	Jurupa Ave	Ontario, Fontana	Cucamonga Creek	Calabash Ave	5.50	
2or3	Baseline Rd	R Cuc, Fontana, Rialto, Sn Bdo, Highland	Rochester Ave	Boulder Ave	20.00	
1	Deer Creek	Rancho Cucamonga	Haven Ave	4th Street	6.75	
1	San Sevaine Creek	Rancho Cucamonga, Fontana	Summit Ave	Riverside County Line	8.50	
1	Cucamonga Creek	Rancho Cucamonga, Ontario	Carnelian Ave s/o Vivero	Inland Empire Blvd	2.75	
2or3	5th Avenue	Redlands	Redlands Blvd	Sand Canyon Rd	2.25	
2or3	Brookside Ave	Redlands	Barton Rd	Citrus Ave	1.00	
2or3	Church St	Redlands	Santa Ana River	Redlands Blvd	2.25	
2or3	Citrus Ave	Redlands	Brookside Ave	Church St	0.75	
2or3	Highland Ave	Redlands	Redlands Blvd	Ford St	0.50	
2or3	Redlands Blvd	Redlands	Highland Ave	Ford St	0.50	
2or3	Riverside Ave	Rialto, Colton	Sierra Ave	Riverside County Line	13.00	Rialto Metrolink Station
2or3	3rd Street	San Bernardino	Mt. Vernon Ave	4th Street	0.50	San Bernardino Amtrak/Metrolink Station
2or3	4th Street	San Bernardino	3rd Street	Arrowhead Ave	0.50	Carousel Mall, Downtown
2or3	5th Street	San Bernardino	Arrowhead Ave	Waterman Ave	0.50	Downtown
2or3	Arrowhead Ave	San Bernardino	4th Street	5th Street	0.25	Downtown
2or3	Electric Ave	San Bernardino	40th Street	Mountain View Ave	0.50	
2or3	Mountain View Ave	San Bernardino	Electric Ave	5th Street	3.75	Downtown
2or3	Waterman Ave	San Bernardino	5th Street	Barton Rd	4.00	
2or3	Adobe Rd	Twentynine Palms	Valle Vista Rd	Twentynine Palms Hwy	4.00	
1	Creek Trail	Twentynine Palms	Larrea Ave	Utah Tr	3.25	
2or3	Twentynine Palms Hwy	Twentynine Palms	western City Limit	Utah Tr	9.00	
2or3	Utah Tr	Twentynine Palms	Twentynine Palms Hwy	s/o Starlight Dr	4.00	
2or3	Baseline Rd	Upland	LA County Line	Rcho Cucamonga City Limit	4.00	
2or3	Monte Vista Ave	Upland, Montclair, Chino	LA County Line	Philadelphia St	5.25	Montclair Plaza, Metrolink Station
1	San Antonio Wash	Upland, Montclair, Chino, Chino Hills	24th Street	Riverside County Line	18.00	Montclair Plaza

2or3	Benson Ave	Upland, Montclair, Ontario	Mountain Ave	G Street	5.25	
2or3	Euclid Ave	Upland, Ontario	24th Street	5th Street	4.00	Upland Metrolink Station
1	Rail Trail	Upland, Rch Cucamonga, Fontana, Rialto	LA County Line	Riverside Ave	4.25	Montclair, Upland, Fontana, Rialto Station
2or3	7th Street	Victorville	I-15 Fwy	D Street	3.00	Amtrak Station, Downtown
2or3	Avenue D	Victorville	7th Street	Mojave River	0.50	Amtrak Station, Downtown
2or3	Hesperia Rd	Victorville	D Street	Bear Valley Rd	5.00	Downtown
2or3	Palmdale Rd	Victorville	Hwy 395	I-15 Fwy	4.00	
1	Mojave River	Victorville, Spring Valley Lakes	Hwy 18	Bear Valley Rd	5.00	
2or3	12th Street	Yucaipa	Yucaipa Blvd	Avenue E	0.50	
2or3	Avenue E	Yucaipa	12th Street	Bryant St	3.00	
2or3	Bryant St	Yucaipa	Mill Creek Rd	Date Ave	3.00	
2or3	Bryant St	Yucaipa	Avenue E	Wildwood Canyon Rd	0.75	
2or3	Sand Canyon Rd	Yucaipa	5th Avenue	Yucaipa Blvd	1.75	Crafton Hills College
2or3	Yucaipa Blvd	Yucaipa	Outer Hwy S.	Bryant St	5.00	
2or3	Apache Tr	Yucca Valley	Sunnyslope Dr	Onaga Tr	1.00	
2or3	Old Woman Springs Rd	Yucca Valley	Sunnyslope Dr	Paxton Rd	0.50	
2or3	Paxton Rd	Yucca Valley	Old Woman Springs Rd	Twentynine Palms Hwy	1.50	
2or3	Sunnyslope Dr	Yucca Valley	Apache Tr	Old Woman Springs Rd	1.50	
2or3	Twentynine Palms Hwy	Yucca Valley	w/o Shaftner Ave	Pioneertown Rd	2.00	
2or3	Twentynine Palms Hwy	Yucca Valley	Paxton Rd	Yucca Mesa Rd	1.00	

Table 13 Second Priority Bicycle Projects

Class	Name	Cities/Communities	From	To
2or3	Air Expwy	Adelanto, Victorville	Hwy 395	Village Dr
1	Bear Valley Rd	Apple Valley	Mojave River	Central Rd
2or3	Corwin Rd	Apple Valley	Hwy 18	Waalew Rd
2or3	Mesquite Rd	Apple Valley	Thunderbird Rd	Pah-Ute Ave
2or3	Seneca Rd	Apple Valley	Riverside Dr	Rancherias Rd
2or3	Waalew Rd	Apple Valley	Corwin Rd	Central Rd
1	Mojave River	Apple Valley, Hesperia	Bear Valley Rd	Arrowhead Lake Rd
1	California Aqueduct	Baldy Mesa, Victorville, Hesperia	Los Angeles County Line	Lake Silverwood
2or3	Muriel Dr	Barstow	Virginia Wy	Rimrock Rd
2or3	Rimrock Rd	Barstow	P Street	Barstow Rd
2or3	Roberta St	Barstow	Virginia Wy	Main St
2or3	Virgninia Wy	Barstow	Barstow Rd	Roberta St
2or3	Carbon Canyon Rd	Chino Hills	Orange County Line	Chino Hills Pkwy
2or3	Chino Hills Pkwy	Chino Hills	Carbon Canyon Rd	Central Ave
1	Reche Creek	Colton	Santa Ana River	Riverside County Line
2or3	Fairway Dr	Colton, San Bernardino	Mt. Vernon Ave	E Street
2or3	Mt. Vernon Ave	Colton, San Bernardino	Highland Ave	Valley Blvd
2or3	Cherry Ave	Fontana	San Bernardino Ave	Valley Blvd
2or3	San Bernardino Ave	Fontana	Etiwanda Ave	Cherry Ave
2or3	Valley Blvd	Fontana, Rialto, Colton	Cherry Ave	Mt. Vernon Av3e
1	Gage Canal	Grand Terrace	Grand Terrace Rd	Main St
2or3	11th Street	Hesperia	Bear Valley Rd	Lime St
2or3	Central Rd	Hesperia	Waalew Rd	Ocotillo Wy
2or3	Boulder Ave	Highland	Highland Ave	Baseline St
2or3	Greenspot Rd	Highland	Church St	Santa Ana River
2or3	Alabama Ave	Highland, San Bernardino, Redlands	3rd Street	Barton Rd
2or3	San Bernardino St	Montclair	Los Angeles County Line	Benson Ave
2or3	Mission Blvd	Montclair, Ontario	Los Angeles County Line	Riverside County Line
2or3	4th Street	Ontario	Benson Ave	Grove Ave
2or3	Euclid Ave	Ontario, Chino	5th Street	Chino Valley Fwy
2or3	Highland Ave	Rcho Cucamonga, Fontana, Rialto, San Berdo, Highland	Haven Ave	Boulder Ave
2or3	Alessandro Rd	Redlands	Crescent Ave	Sunset Dr S
2or3	Crescent Ave	Redlands	San Jacinto St	Alessandro Rd
2or3	Cypress Ave	Redlands	Terracina Blvd	San Mateo St
2or3	Ford St	Redlands	Redlands Blvd	Sunset Dr N
2or3	Highland Ave	Redlands	San Mateo St	San Jacinto St
2or3	San Jacinto St	Redlands	Highland Ave	Crescent Ave
2or3	San Mateo St	Redlands	Tennessee Ave	Highland Ave
2or3	Sunset Dr N	Redlands	Ford St	Alta Vista Dr

2or3	Sunset Dr S	Redlands	Alessandro Rd	Alta Vista Dr
2or3	Tennessee Ave	Redlands	Pine Ave	San Mateo St
2or3	Terracina Blvd	Redlands	Barton Rd	Cypress Ave
2or3	Colton Ave	Redlands, Mentone	Redlands Blvd	Crafton Ave
2or3	Alta Vista Dr	Redlands, Yucaipa	Sunset Dr S	Outer Hwy S
2or3	Cedar Ave	Rialto, Bloomington	Baseline Rd	Riverside County Line
2or3	5th Street	San Bernardino	Rancho Ave	Arrowhead Ave
2or3	E Street	San Bernardino	Fairway Dr	Hunts Ln
2or3	Rim of the World Hwy	San Bernardino	Waterman Ave	City Limit
2or3	Waterman Ave	San Bernardino	Sierra Wy	5th Street
2or3	Hunts Ln	San Bernardino, Colton	E Street	Redlands Blvd
2or3	5th Street	San Bernardino, Highland	Waterman Ave	Church St
2or3	Palm Ave	San Bernardino, Highland	Highland Ave	3rd Street
2or3	Redlands Blvd	San Bernardino, Loma Linda, Redlands	Hunts Ln	Colton Ave
2or3	Foothill Blvd	Upland	Los Angeles County Line	Grove Ave
2or3	Central Ave	Upland, Montclair, Chino	Foothill Blvd	Chino Valley Fwy
2or3	19th Street	Upland, Rancho Cucamonga	Euclid Ave	Haven Ave
2or3	Foothill Blvd	Upland, Rancho Cucamonga, Fontana, Rialto, San Berdo	Los Angeles County Line	Rancho Ave
2or3	Highway 395	Victorville	Palmdale Rd	Joshua St
2or3	Village Dr	Victorville	Air Expwy	Mojave Dr
2or3	Bear Valley Rd	Victorville, Hesperia	Hwy 395	Peach Ave
2or3	Twentynine Palms Hwy	Yucca Valley	Deer Tr	Paxton Rd
2or3	Twentynine Palms Hwy	Yucca Valley, Twentynine Palms	Contenta Rd	Lee Dr

Table 13 - Third Priority Bicycle Projects

Class	Name	Cities/Communities	From	To
2or3	El Mirage Rd	Adelanto	Los Angeles County Line	Hwy 395
2or3	Palmdale Rd	Adelanto, Victorville	Los Angeles County Line	Hwy 395
2or3	Alembic Rd	Apple Valley	Proposed Road 2	Stoddard Wells Rd
2or3	Apple Valley Rd	Apple Valley	Yucca Loma Rd	Bear Valley Rd
2or3	Apple Valley Rd	Apple Valley	Falchion Rd	Hwy 18
2or3	Cahuilla Rd	Apple Valley	Navajo Rd	Joshua Rd
1	Dale Evans Pkwy	Apple Valley	Falchion Rd	Corwin Rd
1	Falchion Rd	Apple Valley	Apple Valley Rd	Dale Evans Pkwy
2or3	Havasu Rd	Apple Valley	Mandan Rd	Ivanpah Rd
2or3	Juniper Rd	Apple Valley	Bear Valley Rd	Ocotillo Wy
2or3	Kiowa Rd	Apple Valley	Rock Springs Rd	Ocotillo Wy
2or3	Mesquite Rd	Apple Valley	Meadow Ln	Pah-Ute Ave
2or3	Navajo Rd	Apple Valley	Waalew Rd	Thunderbird Rd
2or3	Ocotilla Rdq	Apple Valley	Thunderbird Rd	Meadow Ln
2or3	Ocotillo Wy	Apple Valley	Kiowa Rd	Navajo Rd
2or3	Ocotillo Wy	Apple Valley	Allegre Vista Rd	Central Rd
2or3	Poppy Rd	Apple Valley	Juniper Rd	Navajo Rd
2or3	Proposed Road 2	Apple Valley	Mojave Fwy I-15	Dale Evans Pkwy
2or3	Rancherias Rd	Apple Valley	Thunderbird Rd	Yucca Loma Rd
2or3	Rincon Rd	Apple Valley	Seneca Rd	Bear Valley Rd
2or3	Riverside Dr	Apple Valley	Symeron Rd	Nowata Rd
2or3	Roundup Wy	Apple Valley	Kiowa Rd	Central Rd
2or3	Sahale Ln	Apple Valley	Nowata Rd	Havasu Rd
2or3	Sitting Bull Rd	Apple Valley	Apple Valley Rd	Mesquite Rd
2or3	Tao Rd	Apple Valley	Proposed Road 2	Corwin Rd
2or3	Tuscola Rd	Apple Valley	Apple Valley Rd	Symeron Rd
2or3	Tussing Ranch Rd	Apple Valley	Mojave River	Central Rd
2or3	Waalew Rd	Apple Valley	Corwin Rd	Central Rd
2or3	Highway 395	Atolia, Kramer, Adelanto	Kern County Line	El Mirage Rd
2or3	Baldy Mesa Rd	Baldy Mesa	Santa Fe Fire Rd	LADWP Right-of-Way
2or3	Main St	Baldy Mesa, Phelan	Hwy 138	Hwy 395
2or3	LADWP Right-of-Way	Baldy Mesa, Victorville	Air Expwy	Baldy Mesa Rd
2or3	1st Street	Barstow	Main St	Irwin Rd
2or3	Boca Flats Rd	Barstow	Old Hwy 58	Yucca Ave
2or3	Irwin Rd	Barstow	s/o Bishop Rd	1st Street
2or3	L Street	Barstow	Main St	Rimrock Rd
2or3	P Street Proposed Extension	Barstow	Linda Vista Rd	Proposed Road 1
1	Path 4	Barstow	Main St	Lenwood Rd
2or3	Proposed Road 1	Barstow	Lenwood Rd	Nebo St

2or3	Soap Mine Rd	Barstow	Old Hwy 58	Webster Rd
2or3	Yucca Ave	Barstow	Boca Flats Rd	Main St
2or3	P Street	Barstow	Rimrock Rd	Linda Vista Rd
2or3	Barstow Rd (Hwy 247)	Barstow, Lucerne Valley	Proposed Road 1	Old Woman Springs Rd
2or3	National Trails Hwy	Barstow, Silver Lakes, Victorville	Hinkley Rd	7th Street
2or3	Greenspot Blvd	Big Bear City	Big Bear Blvd	e/o Lake Williams Dr
2or3	Greenway Dr	Big Bear City	North Shore Dr	Big Bear Blvd
2or3	Pine Knot Blvd	Big Bear Lake	Village Dr	Big Bear Blvd
2or3	Stanfield Cutoff	Big Bear Lake	North Shore Dr	Big Bear Blvd
2or3	Village Dr	Big Bear Lake	Big Bear Blvd	Pine Knot Blvd
2or3	Big Bear Blvd	Big Bear Lake, Big Bear City	Rim of the World Hwy	Greenspot Blvd
2or3	North Shore Dr	Big Bear Lake, Big Bear City	Rim of the World Hwy	n/o Cactus Rd
2or3	Cajon Blvd	Cajon Junction	Kenwood Rd	Santa Fe Fire Rd/Cleghorn Rd
2or3	Santa Fe Fire Rd	Cajon Junction	Cajon Blvd	Baldy Mesa Rd
2or3	Mojave Fwy I-15	Cajon Junction, Baldy Mesa	Kenwood Rd	Hwy 395
1	I-15 Corridor	Cajon Summit, Baldy Mesa, Hesperia, Victorville	Cajon Summit	Bear Valley Rd
2or3	Cypress Ave	Chino	Walnut Ave	Edison Ave
2or3	Fern Ave	Chino	Riverside Dr	Eucalyptus Ave
2or3	San Antonio Ave	Chino	Riverside Dr	Edison Ave
2or3	Telephone Ave	Chino	Edison Ave	Eucalyptus Ave
2or3	Philadelphia St	Chino, Ontario	Los Angeles County Line	Sultana Ave
2or3	La Cadena Dr	Colton, Grand Terrace	Valley Blvd	Riverside County Line
2or3	Alder Ave	Fontana	Randall Ave	Baseline Rd
2or3	Ceres Ave	Fontana	Citrus Ave	Randall Ave
1	Declez Channel	Fontana	Edison Right-of-Way	Riverside County Line
1	Edison Right-of-Way	Fontana	Rancherias Dr	San Sevaine Creek
1	Highland Ave	Fontana	Edison Right-of-Way	Beech Ave
2or3	Juniper Ave	Fontana	Baseline Rd	San Bernardino Ave
2or3	Jurupa Ave	Fontana	Calabash Ave	Locust Ave
2or3	Mango Ave	Fontana	Valencia Ave	Alder Ave
2or3	Merrill Ave	Fontana	Mango Ave	Alder Ave
2or3	Oleander Ave	Fontana	Valencia Ave	Ceres Ave
2or3	Randall Ave	Fontana	Citrus Ave	Alder Ave
2or3	San Bernardino Ave	Fontana	Cypress Ave	Juniper Ave
2or3	Valencia Ave	Fontana	Oleander Ave	Mango Ave
2or3	7th Avenue	Hesperia	Lime St	Farmington St
1	Arrowhead Lake Rd	Hesperia	Ranchero St	Welsh Rd
2or3	Arrowhead Lake Rd	Hesperia	Path 5	Ranchero St

2or3	Escondido Ave	Hesperia	California Aqueduct	Ranchero St
2or3	Farmington St	Hesperia	7th Avenue	California Aqueduct
2or3	Kingston Ave	Hesperia	Fairburn St	Ranchero St
2or3	Lemon St	Hesperia	Timberlane Ave	Mojave River
2or3	Live Oak St	Hesperia	Mariposa Rd	Maple Ave
2or3	Live Oak St	Hesperia	Timberlane Ave	Choiceana Ave
2or3	Maple Ave	Hesperia	Mariposa Rd	Ranchero St
2or3	Mariposa Rd	Hesperia	Maple Ave	Sequoia Ave
2or3	Mojave St	Hesperia	Mariposa Rd	7th Avenue
1	Path 5	Hesperia	California Aqueduct	Arrowhead Lake Rd
1	Path 6	Hesperia	California Aqueduct	Ranchero St
1	Path 7	Hesperia	California Aqueduct	Arrowhead Lake Rd
2or3	Peach Ave	Hesperia	E Avenue	Ranchero St
1	Ranchero St	Hesperia	Mojave Fwy I-15	Arrowhead Lake Rd
2or3	Sequoia Ave	Hesperia	Mariposa Rd	3rd Avenue
2or3	Smoke Tree Ave	Hesperia	E Avenue	Timberlane Ave
2or3	Summit Valley Rd	Hesperia	Hwy 138	California Aqueduct
2or3	Timberlane Ave	Hesperia	Lemon St	Main St
2or3	Rock Springs Rd	Hesperia, Apple Valley	Main St	Kiowa Rd
2or3	Highway 58	Hinkley	Hinkley Rd	Old Hwy 58
2or3	Hinkley Rd	Hinkley, Barstow	Hwy 58	Main St
2or3	Lenwood Rd	Hinkley, Lenwood, Barstow	Community Blvd	High Point Pkwy
2or3	Old Highway 58	Hinkley, Lenwood, Barstow	Hwy 58	Soap Mine Rd
2or3	Park Blvd	Joshua Tree	Twentynine Palms Hwy	Alta Loma Dr
2or3	Quail Springs Rd	Joshua Tree	Alta Loma Dr	Joshua Tree Nat'l Park
2or3	Highway 173	Lake Arrowhead	Hwy 138	Rim of the World Hwy (Hwy 18)
2or3	Community Blvd	Lenwood	Valley Wells Rd	Old Hwy 58
2or3	Main St	Lenwood, Barstow	Hinkley Rd	Country Club Dr
2or3	California St	Loma Linda	Redlands Blvd	Barton Rd
2or3	University Ave	Loma Linda	Barton Rd	Campus St
2or3	Old Woman Spr Rd (Hwy 247)	Lucern Valley, Landers, Yucca Valley	Barstow Rd	Paxton Rd
2or3	Crafton Ave	Mentone	Mentone Blvd	5th Avenue
2or3	Mentone Blvd	Mentone	Crafton Ave	Amethyst St
2or3	Opal Ave	Mentone, Redlands	Santa Ana River	Colton Ave
2or3	Pipeline Ave	Montclair, Chino	Grand Ave (Montclair)	Schaefer Ave
2or3	5th Street	Ontario	Benson Ave	Euclid Ave
2or3	5th Street	Ontario	Sultana Ave	Berlyn Ave
2or3	6th Street	Ontario	Berlyn Ave	Grove Ave
2or3	6th Street	Ontario	Baker Ave	Cucamonga Creek
2or3	Airport Blvd	Ontario	Archibald Ave	Commerce Pkwy
1	Archibald Ave	Ontario	Riverside Dr	Riverside County Line
2or3	Archibald Ave	Ontario	Jurupa Ave	Riverside Dr
2or3	Archibald Ave	Ontario	4th Street	Airport Blvd

2or3	Baker Ave	Ontario	Walnut Ave	Riverside Dr
2or3	Baker Ave	Ontario	8th Street	4th Street
2or3	Berlyn Ave	Ontario	5th Street	6th Street
1	Campus Ave	Ontario	Riverside Dr	Edison Right-of-Way Path
2or3	Commerce Pkwy	Ontario	Airport Blvd	Jurupa Ave
2or3	Cypress Ave	Ontario	Francis St	Philadelphia St
1	Edison Ave	Ontario	Euclid Ave	Grove Ave
1	Edison Right-of-Way Path	Ontario	Euclid Ave	Cucamonga Creek
1	E-W Path 8	Ontario	Grove Ave	Cucamonga Creek
1	E-W Path 9	Ontario	Edison Ave e/o Walker Ave	Hamner Ave
2or3	Fern Ave	Ontario	Phillips Blvd	Philadelphia St
2or3	Francis St	Ontario	San Antonio Ave	Cypress Ave
1	Grove Ave	Ontario	Riverside Dr	Eucalyptus Ave
2or3	Grove Ave	Ontario	4th Street	8th Street
1	Haven Ave	Ontario	Riverside Dr	E-W Path 9
1	N-S Path 10	Ontario	Riverside Dr	E-W Path 8
1	N-S Path 11	Ontario	E-W Path 8	Riverside County Line
2or3	Philadelphia St	Ontario	Cucamonga Creek	Archibald Ave
2or3	Phillips Blvd	Ontario	Fern Ave	Campus Ave
2or3	San Antonio Ave	Ontario	San Bernardino Fwy	Francis St
2or3	San Antonio Ave	Ontario	5th Street	G Street
2or3	Sultana Ave	Ontario	5th Street	San Bernardino Fwy
2or3	Turner Ave	Ontario	Pomona Fwy	Riverside Dr
1	Vineyard Ave	Ontario	Riverside Dr	s/o Eucalyptus Ave
1	Walker Ave	Ontario	Edison Right-of-Way Path	s/o Eucalyptus Ave
2or3	8th Street	Ontario, Rancho Cucamonga	Grove Ave	Cucamonga Creek
2or3	Sheep Creek Rd	Phelan	El Mirage Rd	Hwy 138
2or3	Highway 138	Pinon Hills, Phelan, Cajon Junction	Los Angeles County Line	Hwy 173
2or3	Banyan St	Rancho Cucamonga	Haven Ave	Day Creek
2or3	Beryl St	Rancho Cucamonga	Banyan St	Baseline Rd
2or3	Church St	Rancho Cucamonga	Hellman Ave	Haven Ave
2or3	Church St	Rancho Cucamonga	Milliken Ave	East Ave
1	Day Creek	Rancho Cucamonga	Banyan St	4th Street
2or3	East Ave	Rancho Cucamonga	Summit Ave	Baseline Rd
2or3	Hillside Rd	Rancho Cucamonga	Cucamonga Creek	Haven Ave
2or3	Stadium Pkwy Extension	Rancho Cucamonga	Rochester Acve	Day Creek
2or3	Victoria park Ln	Rancho Cucamonga	Baseline Rd	Church St
2or3	Wilson Ave	Rancho Cucamonga	Haven Ave	Hanley Ave
2or3	Cherry Ave	Rancho Cucamonga, Fontana	Summit Ave	San Bernardino Ave
2or3	Summit Ave	Rancho Cucamonga, Fontana	Cherry Ave	Ontario Fwy I-15
2or3	Etiwanda Ave	Rancho Cucamonga, Fontana, Ontario	Baseline Rd	Riverside County Line

2or3	Alessandro Rd	Redlands	Sunet Dr S	San Timoteo Canyon Rd
2or3	Brockton Ave	Redlands	Church St	Dearborn St
2or3	Center St	Redlands	Highland Ave	Crescent Ave
2or3	Crescent Ave	Redlands	San Mateo St	Center St
2or3	Fern Ave	Redlands	San Mateo St	Redlands Blvd
2or3	Florida St	Redlands	Greenspot Rd	Garnet St
2or3	Greenspot Rd	Redlands	Santa Ana River	Florida St
2or3	Highland Ave	Redlands	Dearborn St	Lincoln St
2or3	Lincoln St	Redlands	Brockton Ave	Highland Ave
1	Rail Trail	Redlands	Orange St	Wabash St
1	Redlands Blvd	Redlands	Cypress Ave	Highland Ave
2or3	San Bernardino Ave	Redlands	Mountain View Ave	Church St
2or3	San Timoteo Canyon Rd	Redlands	Barton Rd	Riverside County Line
2or3	State St	Redlands	New York St	Texas St
2or3	Texas St	Redlands	San Bernardino Ave	State St
2or3	Garnet St	Redlands, Mentone	Florida St	Mill Creek Rd
2or3	Mill Creek Rd	Redlands, Mentone, Yucaipa	Amethyst St	Bryant St
2or3	Live Oak Canyon Rd	Redlands, Yucapia	San Timoteo Canyon Rd	I-10 Fwy
1	East Twin Creek, Twin Creek	San Bernardino	40th Street	Santa Ana River
2or3	40th Street	San Bernardino	Kendall Dr	Mountain Ave
2or3	Rim of the World Hwy	San Bernardino, Crestline	San Bernardino City Limit	e/o Hwy 138
2or3	Tippecanoe Ave	San Bernardino, Highland, Loma Linda	5th Street	Redlands Blvd
2or3	Adobe Rd	Twentynine Palms	USMC Main Gate	Valle Vista Rd
2or3	Amboy Rd	Twentynine Palms	Utah Tr	?
2or3	Baseline Rd	Twentynine Palms	w/o Utah Tr	Sherman Hoyt Ave
2or3	Cactus Dr	Twentynine Palms	Split Rock Ave	Adobe Rd
2or3	Indian Tr	Twentynine Palms	Mesquite Springs Rd	Adobe Rd
2or3	Morongo Rd	Twentynine Palms	Sunnyslope Dr	Sullivan Rd
1	National Park Dr	Twentynine Palms	Twentynine Palms Hwy	alignment shift
2or3	National Park Dr	Twentynine Palms	alignment shift	Utah Tr
2or3	Split Rock Ave	Twentynine Palms	El Paseo Dr	Cactus Dr
2or3	Sullivan Rd	Twentynine Palms	Morongo Rd	Adobe Rd
2or3	Sunnyslope Dr	Twentynine Palms	Morongo Rd	Mesquite Springs Rd
2or3	Twentynine Palms Hwy	Twentynine Palms	Utah Tr	?
2or3	Two Mile Rd	Twentynine Palms	Sunrise Rd	Morongo Rd
2or3	Utah Tr	Twentynine Palms	City Limit	Riverside County Line
2or3	Utah Tr	Twentynine Palms	Valle Vista Rd	Aztec Ave
2or3	Valle Vista Rd	Twentynine Palms	Adobe Rd	Utah Tr
2or3	9th Street	Upland	Euclid Ave	Campus Ave
2or3	Arrow Hwy	Upland	Los Angeles County Line	Grove Ave

2or3	Campus Ave	Upland	24th Street	San Bernardino Fwy
2or3	Air Expwy	Victorville	Village Dr	National Trails Hwy
2or3	Mariposa Rd	Victorville	Bear Valley Rd	Palmdale Rd
2or3	Mojave St	Victorville	Hwy 395	Amargosa Rd
2or3	13th Street	Yucaipa	Avenue E	Oak Glen Rd
2or3	2nd Street	Yucaipa	Avenue H	County Line Rd
2or3	3rd Street	Yucaipa	Yucaipa Blvd	Wildwood Canyon Rd
2or3	6th Street	Yucaipa	Yucaipa Blvd	Wildwood Canyon Rd
2or3	8th Street	Yucaipa	Yucaipa Blvd	Colorado St
2or3	Avenue H	Yucaipa	2nd Street	Holmes St
2or3	Calimesa Blvd	Yucaipa	Oak Glen Rd	Riverside County Line
2or3	Colroado St	Yucaipa	Oak Glen Rd	Wildwood Canyon Rd
2or3	County Line Rd	Yucaipa	Calimesa Blvd	Bryant St
2or3	Dunlap Blvd	Yucaipa	Avenue E	Oak Glen Rd
2or3	Oak Glen Rd	Yucaipa	I-10 Fwy	Riverside County Line
2or3	Outer Hwy S	Yucaipa	Yucaipa Blvd	Live Oak Canyon Rd
2or3	Wildwood Canyon Rd	Yucaipa	Colorado St	Oak Glen Rd
2or3	Carmelita Cir	Yucca Valley	Santa Barbara Dr	Carmelita Cir
2or3	Contenta Rd	Yucca Valley	Yucca Tr	Buena Vista Dr
2or3	Deer Tr	Yucca Valley	Twentynine Palms Hwy	Onaga Tr
2or3	Joshua Ln	Yucca Valley	Onaga Tr	City Limit
2or3	Old Woman Spr Rd (Hwy 247)	Yucca Valley	Sunnyslope Dr	Twentynine Palms Hwy
2or3	Onaga Tr	Yucca Valley	Deer Tr	Palomar Ave
2or3	Palomar Ave	Yucca Valley	Yucca Tr	Joshua Ln
2or3	Pioneertown Rd	Yucca Valley	City Limit	Twentynine Palms Hwy
2or3	Santa Barbara Dr	Yucca Valley	Joshua Ln	Carmelita Cir
2or3	Yucca Tr	Yucca Valley	Palomar Ave	Contenta Rd

Specific Comments from Public Workshops included:

Victorville

1.) Promote bicycling – (i.e. school programs, recreational rides, etc)
2.) Create safer bike routes
3.) Educate cyclists and motorists
4.) Educate on safety – wearing helmets, etc.
5.) Create awareness of bicycle issues to public
6.) Roadway improvements – keep roads/facilities up
7.) Public education on cyclist rights/motorists rights – learning to use roadway facilities together.
8.) Educate public on rules for riding on state highways
9.) Rest areas – staging areas for bikes
10.) Bike trails on SR 18 between Victorville and apple valley
11.) Navajo Rd. not rideable
12.) Central Avenue has no shoulders
13.) Make frontage rds. bikeable (Mariposa and Amargosa)
14.) Make Hesperia rd., 7th Ave., Bear Valley rd. and Main St. bikeable
15.) Use National Trails Highway as bike facility
16.) Make bike lanes/facilities connect to Amtrak station

Upland

1.) No safe rtes. to bicycle
2.) Interested in Pacific Electric Inland Empire trail being completed
3.) More Class I facilities
4.) Upland council member interested in making bike/ped facilities more accessible
5.) Safer roads-keeping roads maintained and wide enough shoulders
6.) Motorist educated on bicycling – should have specific testing on bicycle rights, etc. on DMV tests.
7.) Educate motorists to respect cyclists
8.) Incorporate trails to tie into regional trails – countywide
9.) Regional rtes. from mountains to ocean
10.) Pacific Electric Inland Empire Trail – interest
11.) Educate staff and local officials regarding bike/ped facilities

12.) Educate or mandate companies building commercial and residential to add bike/ped facilities
13.) Ontario airport should have bike facilities – tie routes into airport area

Redlands

1.) Commuter corridors
2.) Regional Bike links
3.) Promote bike education/safety
4.) Map recreational bike facilities – trail locations
5.) Create Community partnership – recreational events, with community and local governments
6.) Regional connections/safety issues associated with cycling
7.) Better bike rtes./trails
8.) Better regional rtes.
9.) Local government support of bicycle routes/creation of

Bicycle Survey Results

Number of Responses		47
Preference for On-street vs. Off-street Facilities:		
	On-Street	41%
	Off-street	26%
	Local Streets	32%
		100%
Bicycling Levels:		
	1x or more per day	40%
	1-6x/week	50%
	1-3x/month	0%
	Very rarely	5%
	Never	5%
		100%
Trip Purpose:	(responses can add over 100%)	
	Recreation	60%

Shopping	20%
Work Commute	28%
School	10%

Number One Reason Why You Don't Ride More Often:

No reason	0%
Safety	26.7%
Lack of places to ride	35.7%
Lack of storage	17.6%
Weather/darkness	12.5%
Need access to car	7.5%
	100%

Priority Improvements:

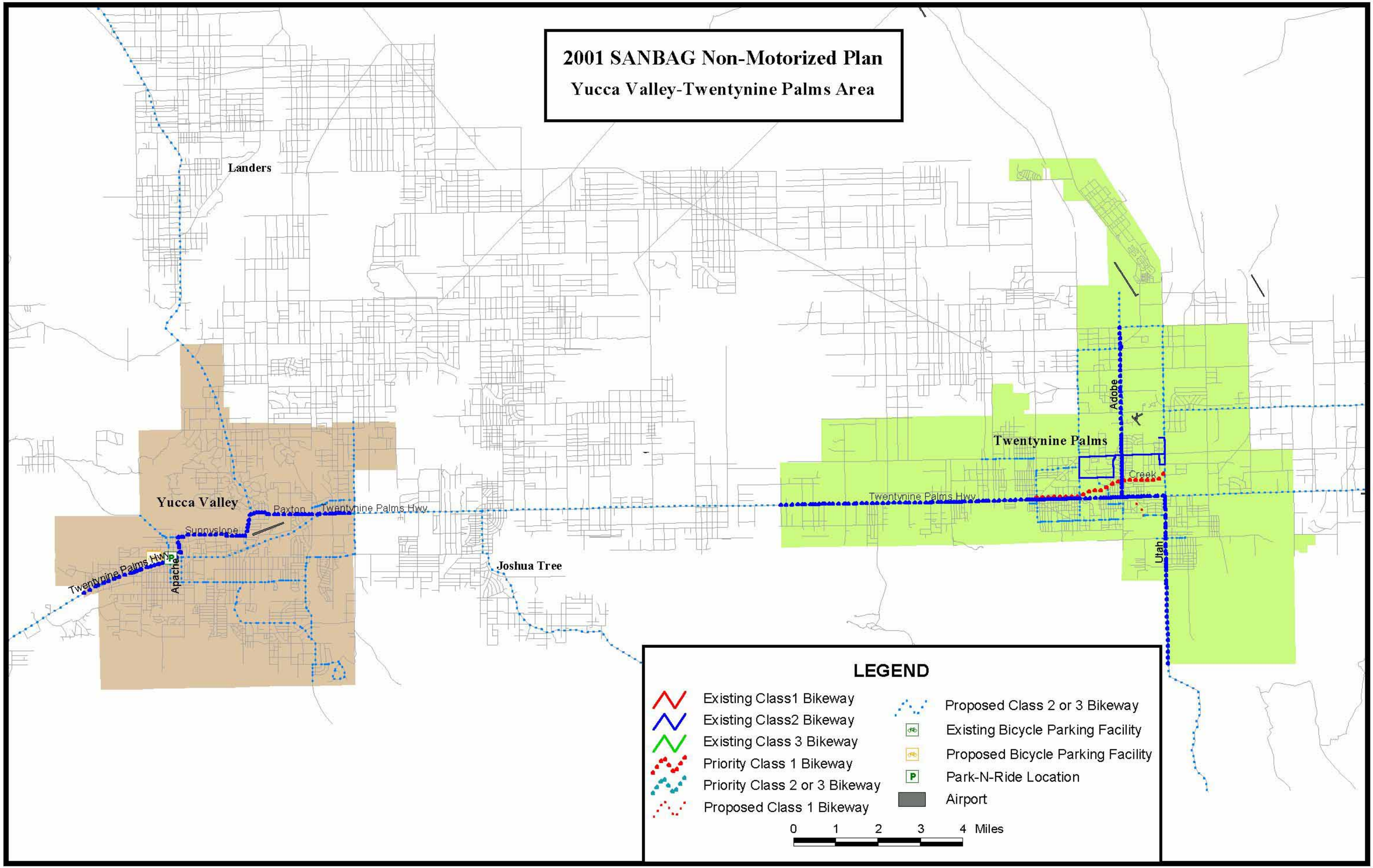
- Add shoulders when road work is done
- Driver Education
- More bike parking commercial areas & downtowns
- Improve (smooth and widen) road
- More Bike Lanes
- Parallel Bike Path along Metrolink
- More Signage (share-the-road, directional, watch for bikes)
- Access to Metrolink
- Law enforcement of bike laws
- Extend Santa Ana River Trail
- Improve safety of freeway on/off ramps and interchanges for bikes
- More bike parking at Metrolink stations
- Better Connectivity of Bike Lanes
- Safe Access to Ontario Airport
- Bike Lanes on Barton Road
- Bike paths to parks
- More bike commuter incentive programs
- Improve I-215/10 Interchange
- Increase bike capacity on Metrolink

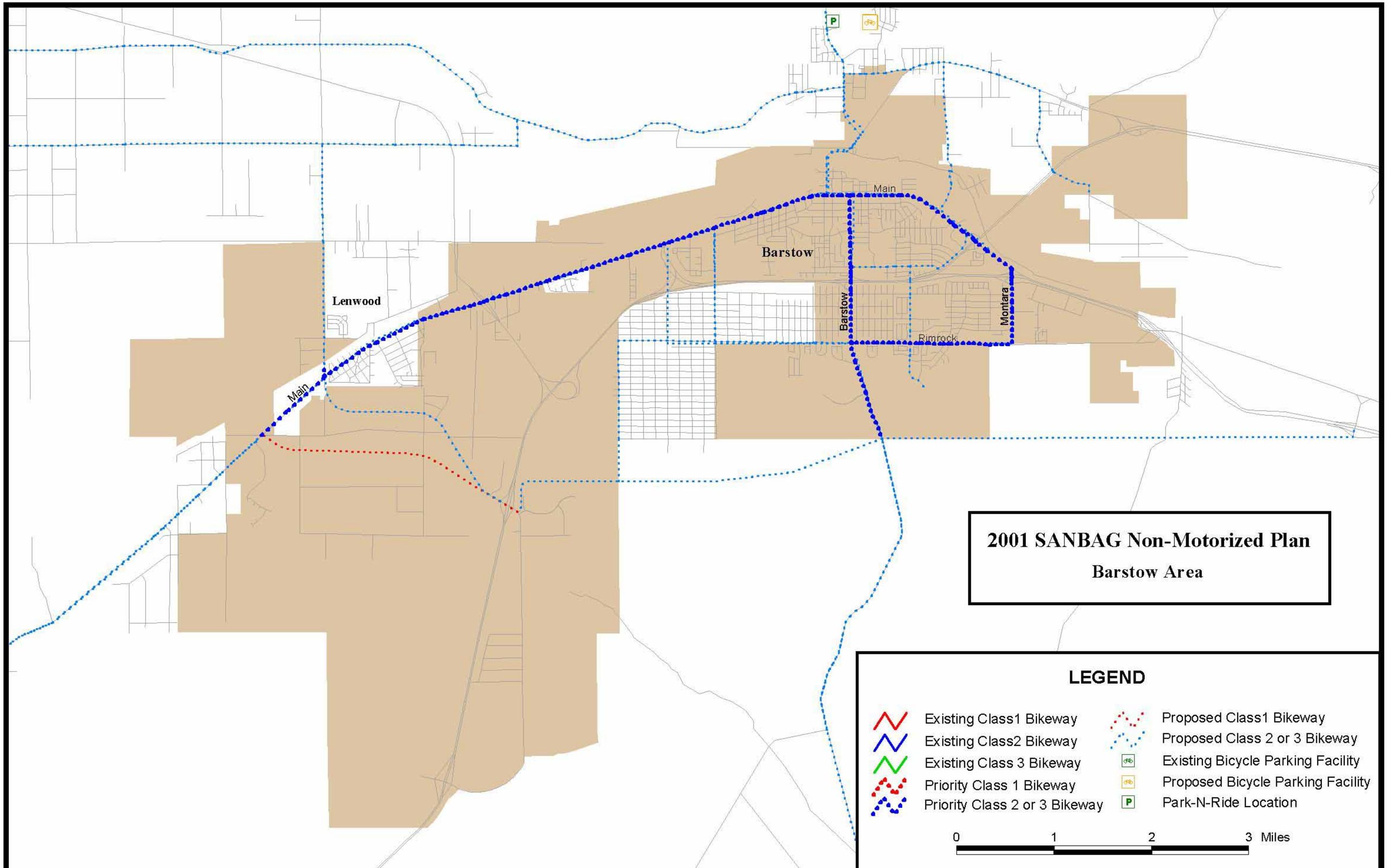
Popular Routes

- Reche Canyon Road
- Barton Road – Redlands to Colton via Loma Linda
- San Timoteo Canyon Road
- Live Oak Canyon Road
- Santa Ana River Trail (Orange and Riverside Counties)
- Cajon Pass
- Flood Control Paths in Rancho Cucamonga, Upland
- SR 38 to Big Bear Lake
- Bear Valley Road
- SR 18 - Victorville

2001 SANBAG Non-Motorized Plan

Yucca Valley-Twentynine Palms Area




Barstow
Lenwood
Main
Main
Barstow
Montara
Rimrock
2001 SANBAG Non-Motorized Plan
Barstow Area
LEGEND
Existing Class1 Bikeway
Existing Class2 Bikeway
Existing Class 3 Bikeway
Priority Class 1 Bikeway
Priority Class 2 or 3 Bikeway
Proposed Class1 Bikeway
Proposed Class 2 or 3 Bikeway
Existing Bicycle Parking Facility
Proposed Bicycle Parking Facility
Park-N-Ride Location
0
1
2
3 Miles

2001 SANBAG Non-Motorized Plan

San Bernardino Mountains Area

Hesperia

Lucerne Valley

Crestline

Lake Arrowhead

Running Springs

Big Bear Lake

Big Bear City

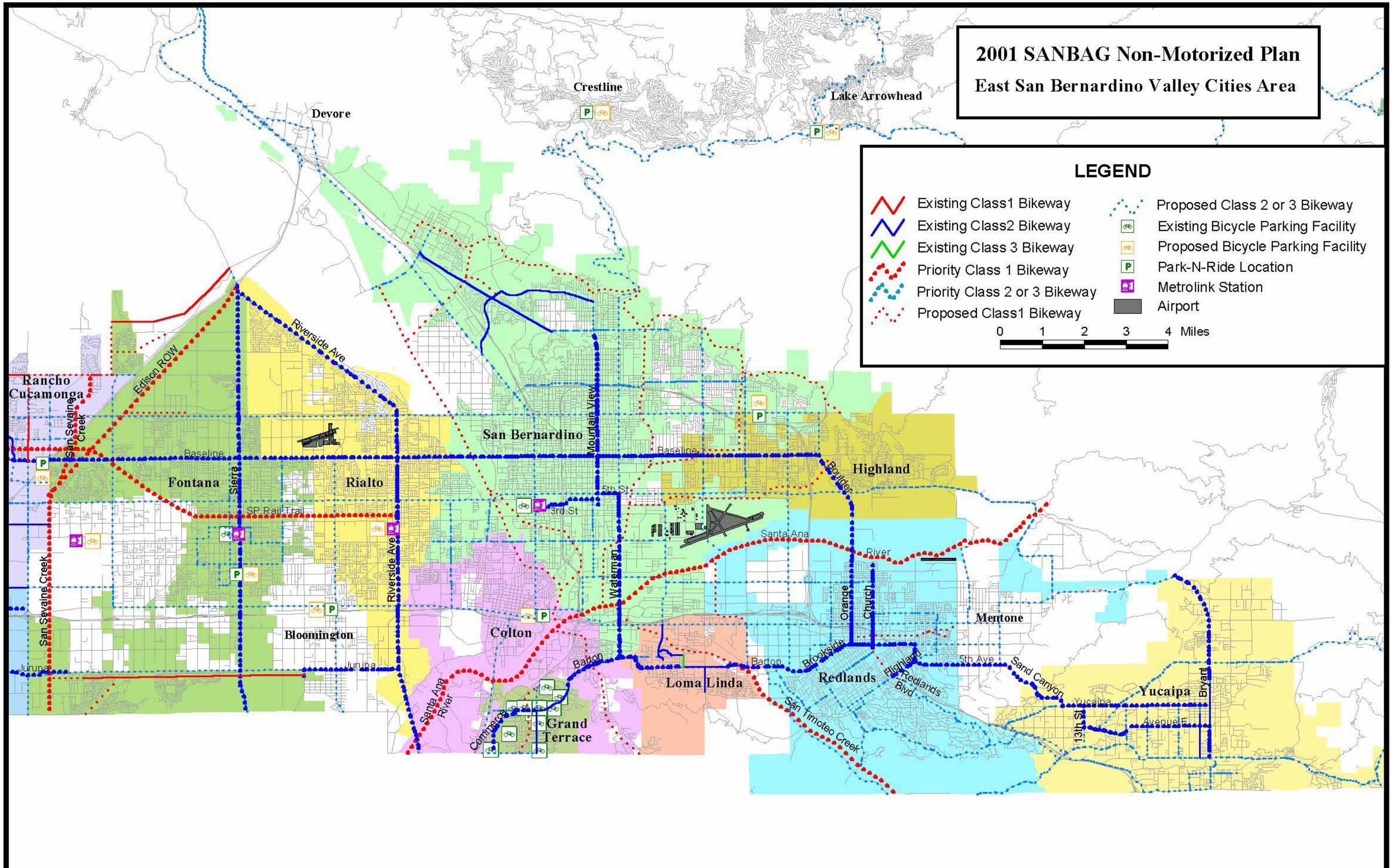
San Bernardino

Highland

LEGEND

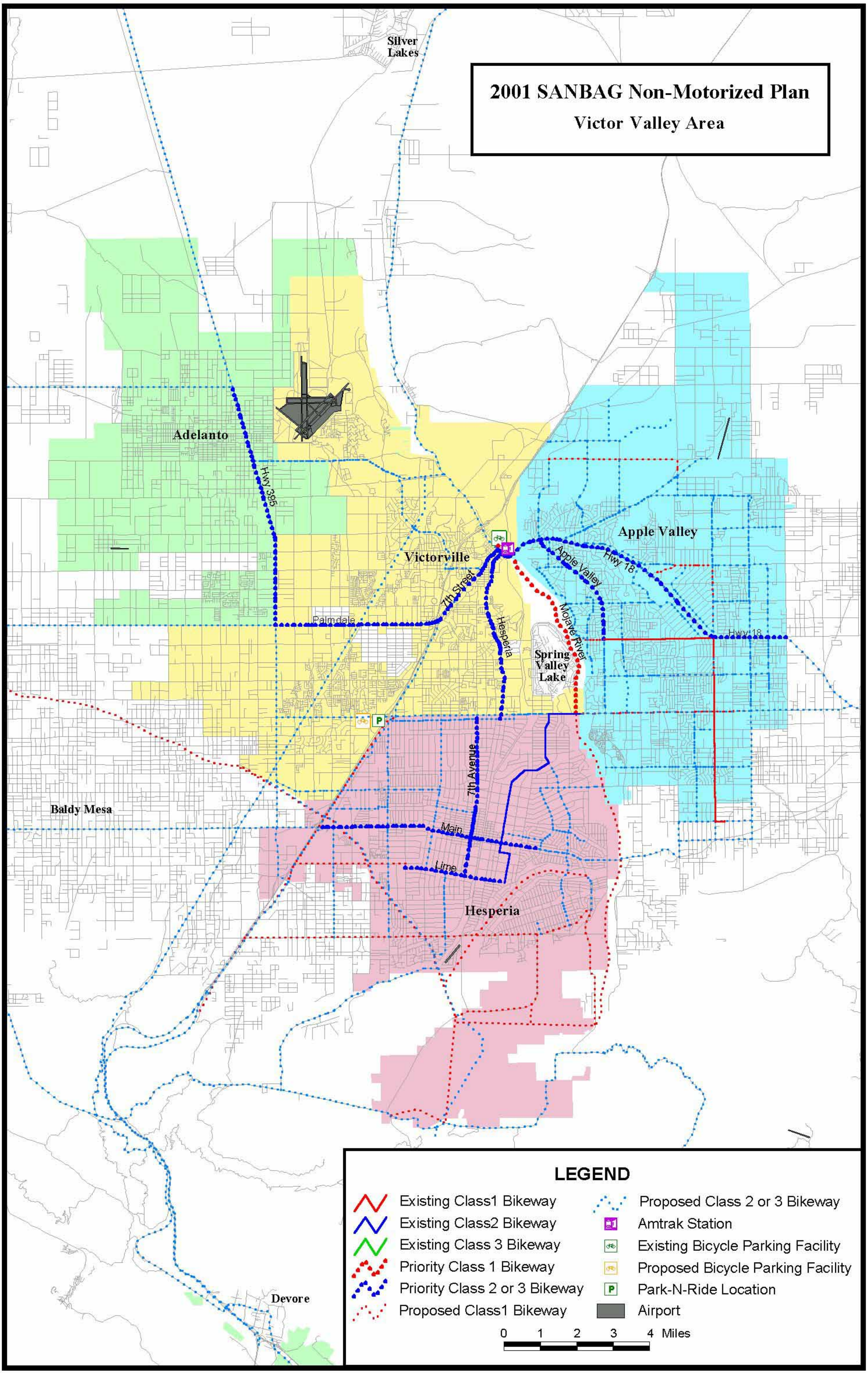
- Existing Class1 Bikeway
- Existing Class2 Bikeway
- Existing Class 3 Bikeway
- Priority Class 1 Bikeway
- Priority Class 2 or 3 Bikeway
- Proposed Class 1 Bikeway
- Proposed Class 2 or 3 Bikeway
- Existing Bicycle Parking Facility
- Proposed Bicycle Parking Facility
- Park-N-Ride Location
- Airport

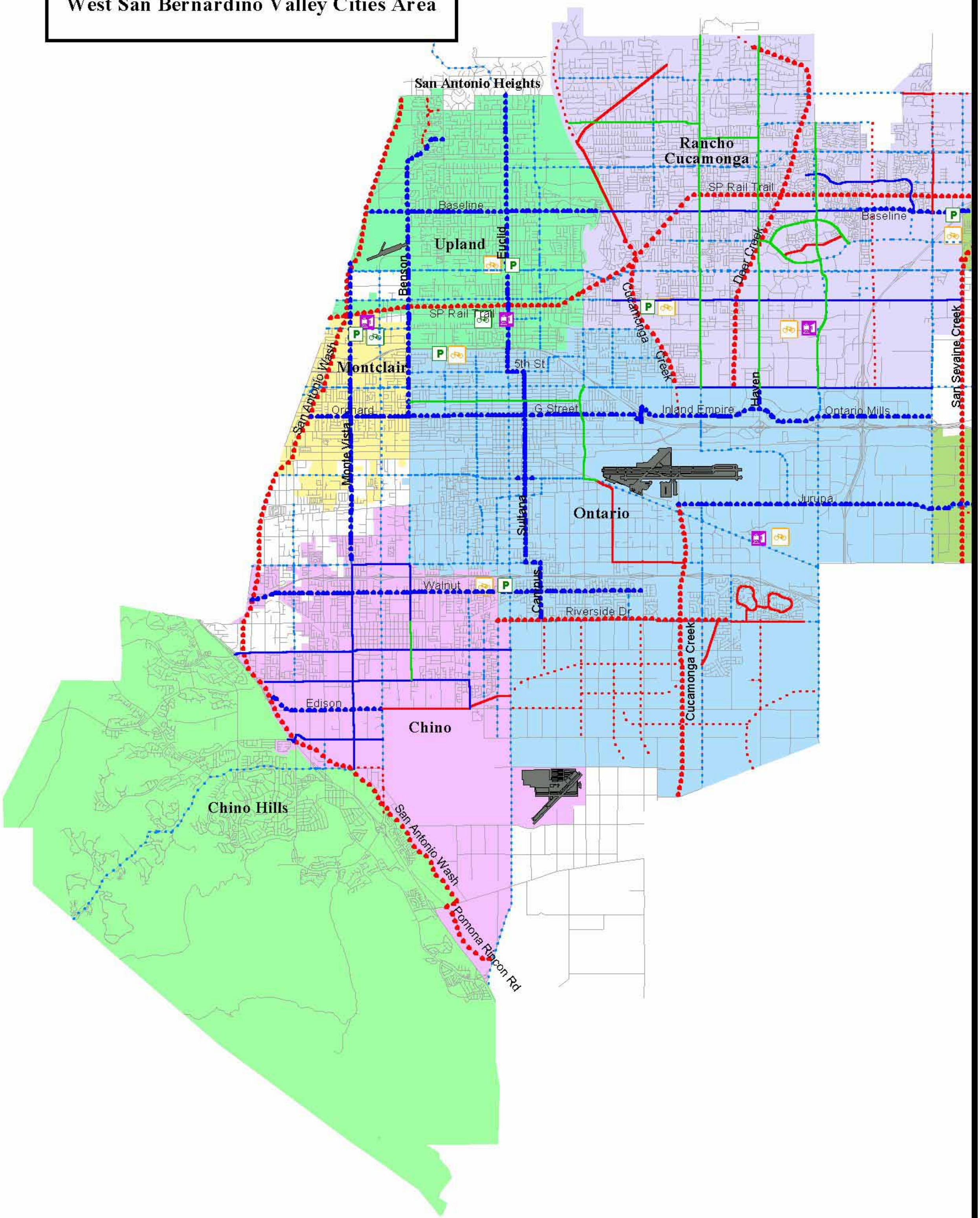
0 2 4 6 Miles


2001 SANBAG Non-Motorized Plan
East San Bernardino Valley Cities Area
LEGEND
Existing Class1 Bikeway
Existing Class2 Bikeway
Existing Class 3 Bikeway
Priority Class 1 Bikeway
Priority Class 2 or 3 Bikeway
Proposed Class1 Bikeway
Proposed Class 2 or 3 Bikeway
Existing Bicycle Parking Facility
Proposed Bicycle Parking Facility
Park-N-Ride Location
Metrolink Station
Airport
0 1 2 3 4 Miles
Crestline
Lake Arrowhead
Devore
Rancho Cucamonga
Fontana
Rialto
San Bernardino
Highland
Bloomington
Colton
Loma Linda
Redlands
Mentone
Yucaipa
Grand Terrace
Edison ROW
Riverside Ave
San Sevaine Creek
Baseline
SP Rail Trail
Sierra
Mountain View
5th St
3rd St
Boulder
Santa Ana
River
Waterman
Orange
Church
Juruna
Barton
Brookside
Highland
Redlands Blvd
5th Ave
Sand Canyon
Santa Ana River
Commerce
San Timoteo Creek
13th St
Avenue F
Bryant

2001 SANBAG Non-Motorized Plan

Victor Valley Area



2001 SANBAG Non-Motorized Plan

West San Bernardino Valley Cities Area