JUNE 1993

SOLANA BEACH BIKEWAY MASTER PLAN

Prepared for the

CITY OF SOLANA BEACH
MARINE SAFETY DEPARTMENT

Prepared by

THE DIKE PARTNERSHIP
Landscape Architecture / Planning

In Collaboration With

O'ROURKE ENGINEERING
Transportation Consultants

ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

The Solana Beach Bikeway Master Plan provides a framework for the planning and development of bicycle programs and safe, convenient bikeway facilities through the year 1999. This document also describes the planning process which led to the Master Plan, including citizen and community involvement.

The major subjects of the Master Plan are as follows:

1.0 INTRODUCTION

Development of a Bikeway Master Plan is required by the City of Solana Beach General Plan. Additionally, the City may qualify for certain State funding through State approval of a Bikeway Master Plan. Master Plan content is based on review criteria established by the California Bikeways Act and the Department of Transportation. "Bikeway Planning and Design," produced by CalTrans, will be used as a guideline for recommendations.

2.0 EXISTING INFLUENCES

The intersection of Lomas Santa Fe Drive and Highway 101 is the second busiest in San Diego County in terms of bicycle activity. Southbound Highway 101 and portions of Lomas Santa Fe Drive west of the freeway are areas of concern. Existing elements and features in Solana Beach which are considered relative to bikeway design decisions include:

Bikeways

Public bike parking

Rest and support facilities

Adjacent bikeways

Community features

On-street motorized vehicle parking

Current city planning

Local and regional long range transportation planning

Citizen and community involvement

The City actively pursued and encouraged citizen participation, providing one bikeway workshop, several public hearings, a community questionnaire, and extensive coverage in local newspapers. Each meeting and special event was well advertised and noticed, with interested groups and individuals receiving special invitations to participate.

3.0 GOALS

The General Plan for the City of Solana Beach offers two bikeway-related goals:

To promote a public transportation system that is safe, convenient, efficient, and meets the identified needs of the Solana Beach community.

To promote safe alternatives to motorized transportation that meet the needs of all City residents.

4.0 MASTER PLAN

Recommendations are presented with respect to both bikeway facilities and bicycle programs, including:

Establish consistent Class II bicycle lanes on both sides of Highway 101.

Improve existing Class II bicycle lanes on Lomas Santa Fe Drive.

Establish Class II bicycle lanes on Stevens Avenue.

Establish a Class III bicycle route on Highland Drive and San Andres Drive.

Develop a destination signage program.

Develop more public bicycle parking.

Install bicycle detectors in major signalization projects.

Maximize transportation interface opportunities with respect to rail transit, bus transit, and park and ride facilities.

Develop bicycle safety and awareness programs.

Designate a city bicycle coordinator.

Establish linkages with bikeway facilities in adjacent communities and with regional routes.

5.0 IMPLEMENTATION

Recommendations are prioritized and probable construction costs are provided. Potential funding sources are identified and discussed. This section will be a working tool for scheduling improvements and obtaining outside funding.

Probable implementation costs for recommendations to be implemented through 1995 are approximately $ 240,000.

Probable costs for recommendations to be implemented from 1995 through 1999 are approximately $ 326,000.

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LIST OF FIGURES AND TABLES

COORDINATION WITH STATE OF CALIFORNIA PLAN REVIEW CRITERIA

The California Bikeways Act outlines elements which must be included in a Master Plan submitted to the State for review. For convenience of review, the requirements are listed along with the corresponding sections in which the requirements are discussed.

ROUTE SELECTION	Refer to Section 2, Part 2.1 "Existing Bikeways and Related Facilities" and Section 4, Parts 4.1 "Existing Bikeways" and 4.2 "Proposed Bikeways".
LAND USE	Refer to Section 1, Part 1.2, "Regional and Local Setting" and Section 2, Part 2.2 "Community Features". A copy of the City's Land Use Plan is included in the Appendix.
TRANSPORTATION INTERFACE	Refer to Section 4, Part 4.6 "Transportation Interface".
CITIZEN AND COMMUNITY INVOLVEMENT	Refer to Section 2, Part 2.6 Citizen and Community Involvement".
FLEXIBILITY AND COORDINATION WITH LONG RANGE TRANSPORTATION PLANNING	Refer to Section 2, Part 2.4 "Local and Regional Long Range Transportation Planning".
LOCAL GOVERNMENT INVOLVEMENT IN PLANNING	Refer to Section 1, Part 1.5 "Relationship to Other Plans" and all of Section 4.
PROVISION FOR REST FACILITIES	Refer to Section 2, Part 2.1 "Existing Bikeways and Related Facilities" and Section 4, Part 4.6 "Transportation Interface".
PROVISION FOR PARKING FACILITIES	Refer to Section 2, Part 2.1 and Section 4, Part 4.4 "Bicycle Parking".

Section 1

INTRODUCTION

This Bikeway Master Plan represents a significant step in the City's on-going effort to provide safe, convenient, and efficient bikeway facilities for the residents of Solana Beach.

Bicycle facilities represent one of many elements which contribute to an effective bikeway system. Also important are elements such as educational programs, enforcement of traffic laws, and commuter incentives. These are addressed in this Master Plan in addition to the discussion of facilities.

The scope of this plan responds to the provisions of the California Bikeways Act, which describes specific requirements to be included in a master plan submitted to the state. This plan includes recommendations for the time period up to the year 2000 in order to relate to the Regional Transportation Management Plan. An update prior to the year 2000 may be necessary dependant upon new legislation, changes in existing conditions, and/or effectiveness of implementation strategies.

1.1 BACKGROUND

Development of a Bikeway Master Plan is an appropriate undertaking for several reasons:

As set forth in the Circulation Element of the City's General Plan, the City shall "...adopt a master plan of bikeways and shall develop and maintain bikeways as needed and feasible."

The City may submit its bikeway master plan to the state for approval. Upon approval, the City becomes eligible to apply for funding from the State's Bicycle Lane Account.

There is a high demand for bikeways and related facilities in Solana Beach and a need to provide safe, effective facilities.

A Master Plan will aid in the improvement of the City's bikeway facilities. An effective bikeway system has many benefits, including: expansion of commuter options, reduction of traffic congestion, reduction of air pollution, increased business opportunities, and expansion of the City's recreation facilities.

1.2 REGIONAL AND LOCAL SETTING

Solana Beach is a coastal Southern California city, rich with natural and recreational resources. It is bounded on the west by the Pacific Ocean. San Elijo Lagoon and the City of Encinitas form the boundary to the north while to the east lies San Diegito Park. San Dieguito River Valley, the City of San Diego, and the City of Del Mar form the southern boundary. Refer to Figure 1 for a map illustrating regional context.

As is the case with many coastal towns, Solana Beach is characterized by dramatic topography. In general, the higher hilltop portions are occupied by residential uses, while commercial, industrial, and business uses have developed along the lower areas and along major vehicular corridors.

Highway 101 is located on the western edge of the City and connects Solana Beach with other coastal cities. Interstate 5 travels north and south through the City, and the only east-west crossing within the city limits is Lomas Santa Fe Drive. An NCTD railway is located adjacent Highway 101 and serves both freight and commuter needs, currently without stopping in Solana Beach. A rail depot is planned for construction by 1994 and will be located downtown near the corner of Lomas Santa Fe Drive and Highway 101. For the average cyclist, UC San Diego is approximately a 30 minute ride to the south, while Oceanside is an hour to the north.

1.3 CITIZEN AND COMMUNITY INVOLVEMENT

An important goal of this Master Plan is to provide recommendations which respond to the real needs and concerns of the residents of Solana Beach. The Master Plan process included and depended on community involvement which was sought in three ways: 1) a community questionnaire containing bikeway related questions was developed and made widely available; 2) a public workshop was held at the City Council chambers specifically to discuss bikeway issues and to administer the questionnaire; 3) public meetings were held during which bikeway findings and recommendations were discussed.

The City actively pursued public participation at all public meetings and hearings, sending invitations to over 40 individuals and groups for each meeting in addition to publishing notices in all local newspapers. Twenty-nine questionnaires were completed by individuals and utilized in this document.

Further information can be found in Section 2 and in the Appendix.

REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM (RTIP)

As described in the RTIP, the 1992-1999 RTIP for the San Diego region is a seven-year program of freeway and expressway, arterial, transit, bikeway, and aviation projects. The projects are recommended for various stages of development during the program period of July 1992 through June 1999. The project listings include the location and description of the proposed work, the project cost, anticipated funding sources and the scheduled year of the work. The development of the RTIP is mandated by state and federal regulations. Member agencies and transportation operators must have their major projects approved in the RTIP in order to qualify or some categories of state and federal transportation funding.

This Master Plan will be used by the City to update Solana Beach projects listed in RTIP.

CONGESTION MANAGEMENT PLAN

The CMP was developed by SANDAG to "define a process to help ensure that a balanced transportation system is developed...". Included in the CMP are transit performance standards and a trip reduction program. The CMP addresses both A.M. and P.M. peak periods, where RAQS addresses only A.M. traffic congestion. Like RAQS, the CMP sets average vehicle ridership goals which may be achieved through a variety of means, including bicycle commuting.

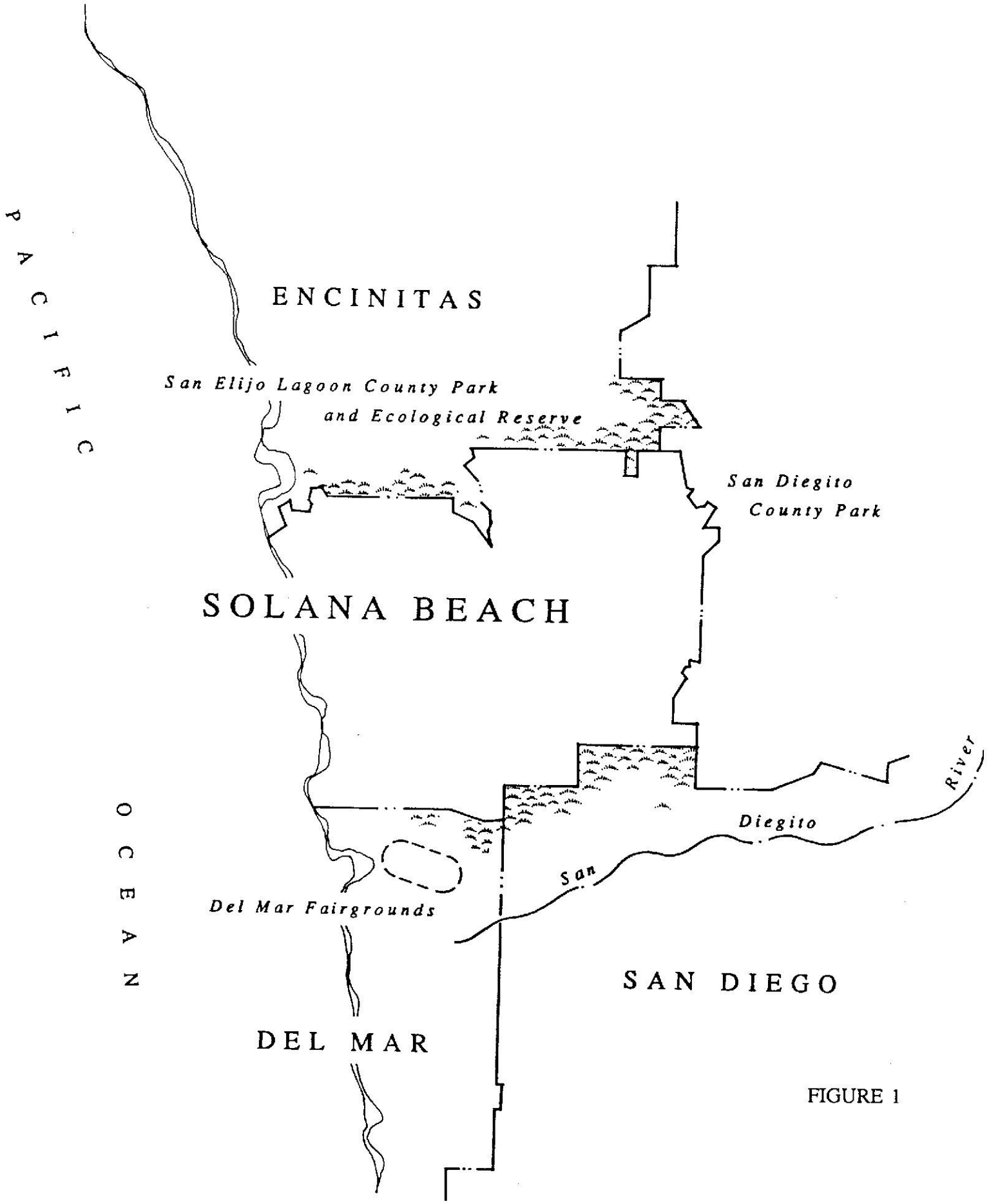

PACIFIC
OCEAN
ENCINITAS
San Elijo Lagoon County Park
and Ecological Reserve
San Diegito
County Park
SOLANA BEACH
Del Mar Fairgrounds
San Diegito River
SAN DIEGO
DEL MAR

FIGURE 1

Section 2

EXISTING INFLUENCES

This section of the Bikeway Master Plan identifies existing elements and features of Solana Beach and discusses their influence on bikeway facilities.

2.1 EXISTING BIKEWAYS AND RELATED FACILITIES

Existing bikeway facilities are illustrated in Figure 2.

EXISTING BIKEWAYS

Two designated bikeways currently exist within Solana Beach:

Lomas Santa Fe Drive provides Class II bike lanes in both east and west directions, linking the City's east boundary with Highway 101. The width of the lanes varies from 5' to 7' in most areas, however lane width is less than 4' under the Interstate 5 overpass and in certain locations west of Rios Avenue. The posted speed limit is 35 mph west of Interstate 5, and 50 mph east of Interstate 5. The condition of the surface is mostly satisfactory east of the overpass but is inconsistent west of and under the overpass.

Highway 101 is described in the City's General Plan as a Class II bikeway in both directions. However the northbound bikeway is separated from the road by an asphalt berm and is often used by pedestrians and jaggers. It is located adjacent to the landscaped portions of the rail right-of-way. The southbound side is highly varied in condition so that in some locations there is no striped lane. The posted speed limit is 45 mph inside City limits, 40 mph outside City limits. Existing widths are summarized in Figure 6.

Both existing bikeways are heavily used by cyclists. According to a 1990 bicycle count study by SANDAG, the intersection of Lomas Santa Fe Drive and Highway 101 is the second busiest in all of San Diego County in terms of bicycle activity. The highest amount of bicycle activity on the study day -- Thursday, October 11, 1990 -- was recorded from 7 - 8 a.m. and 4 - 6 p.m., with an average of 81 cyclists per hour during these times. These two roadways are considered vehicular arterials. Traffic counts and forecasts can be found in the Circulation Element of the General Plan.

BIKE PARKING

Public bike parking facilities exist at La Colonia Park and at Fletcher Cove. These consist of bike racks only and do not include clothing storage facilities.

REST AND SUPPORT FACILITIES

Highway 101 and Lomas Santa Fe Drive west of the freeway are commercial streets and provide a variety of services for cyclists including restaurants, service stations (Lomas Santa Fe Drive), and a bike/triathlete sports shop on Highway 101. Public restrooms are available at La Colonia Park and at Fletcher Cove.

ADJACENT BIKEWAYS

Several bikeways controlled by other agencies exist outside the city limits and connect directly to Solana Beach, including: Highway 101 at both north and south city limits, Lomas Santa Fe Drive to the east, and Via de la Valle to the south. Section 4, "Master Plan", describes important connections to existing and future adjacent bikeways.

2.2 COMMUNITY FEATURES

The Community Features as illustrated in Figure 3 represent existing and future places or facilities within the community that are destinations for the bicyclist. They vary from parks and other public facilities to commercial centers, stores and parking areas. Among the most important of these features in terms of bicycle commuting is the future transit station which will be located at Lomas Santa Fe Drive and Highway 101.

The Master Plan recognizes the importance of these community features and provides the needed bikeway linkages within Solana Beach as well as providing interface linkages for important facilities outside the community such as the San Dieguito River Valley Park and points north and south along the Highway 101 corridor.

The Land Use Plan of the City's General Plan illustrates in a broader sense the community features in terms of land use. This plan can be found in the Appendix of this report.

2.3 ON-STREET MOTORIZED VEHICLE PARKING

On-street parking is significant to bikeways in that it increases the amount of vehicular and pedestrian crossover into the bikeway, thus increasing potential conflicts with cyclists.

On-street parking currently exists along most of the southbound side of Highway 101 with high turnover due to the 2-hour restriction and the type of commercial uses found there. The City of Solana Beach is in the process of preparing a Specific Plan for the Highway 101 corridor which will address on street parking there. No parking is allowed on the northbound side of Highway 101. Parking on Lomas Santa Fe Drive exists only next to the bus stop north of Nardo Avenue and in front of the convenience store just south of Rios Avenue.

Section 4, "Master Plan", describes potential new bikeways for Stevens Avenue, Highland Drive, and San Andres Drive. Parking exists on all of these streets in both directions.

2.4 LOCAL AND REGIONAL LONG-RANGE TRANSPORTATION PLANNING

RAIL TRANSIT

With a stop at Solana Beach, Amtrak will continue to provide passenger service linking San Diego County with Orange County, Los Angeles and national destinations. Currently there are nine trains daily in both directions. Bicycle transport is limited to trains that have baggage cars (currently two trains each way). There is a five dollar charge to transport a bicycle.

The future commuter rail will initially provide six trains daily in each direction, concentrated during the "rush hours". Each car will have four spaces for bicycles, two at each end of the car. The exact procedures for bringing bicycles aboard are not yet established, but according to the NCTD, every reasonable effort to accommodate the cycling commuter will be made. The new train station is scheduled for completion in 1994.

Bicycle lockers will be provided at the new train station for the commuter who elects not to take the bicycle aboard the train. Refer to Section 4, "Master Plan".

BUS TRANSIT

Solana Beach is currently served by NCTD's #301 and #308 bus routes that accommodate bicycles. There will be a bus stop at the future transit station. Additional bus routes accomodating bicycles are not anticipated or planned for at this time.

County Transit System buses stop at many Park and Ride facilities between Oceanside and San Diego. In Solana Beach, these buses stop on San Rodolfo near Lomas Santa Fe Drive.

REGIONAL BIKEWAYS

As it passes through Solana Beach, Highway 101 is designated as a State bikeway. The route extends from the Mexico border to the Oregon border.

Lomas Santa Fe Drive and Via de la Valle are noted as bike routes on the current San Diego Regional Bicycling Map.

SANDAG is currently studying the feasibility of installing a Class I bikeway within the NCTD rail right-of-way between Oceanside and San Diego. When implemented it will provide a unique north/south route largely uninterrupted by grade crossings and relatively safe from auto traffic. This proposed route, however, would not be a substitute for planned bikeways in this Master Plan.

Another important future bike trail that will link to the southern edge of Solana Beach will be the trail system developed as part of the San Dieguito River Regional Park.

Please refer to the County Bikeways Map included in the Appendix.

PARK AND RIDE FACILITIES

There currently are no Park and Ride facilities in Solana Beach. Approximately two miles north (Birmingham Drive) and seven miles south (Carmel Valley Road) there are Park and Ride lots with cycle storage facilities.

PLANS

Refer to Part 1.5, Relationship to Other Plans.

TRANSPORTATION MANAGEMENT ASSOCIATIONS (TMA's)

No TMA's exist for the Solana Beach area.

2.5 CURRENT PLANNING

It is important to understand upcoming public projects in Solana Beach so that bikeway improvements can be coordinated with them. For instance, bikeway improvements in the Fletcher Cove area can be included in the Fletcher Cove project instead of being implemented as a separate project. Bikeway project phasing is described in Section 5, "Implementation".

Current projects planned are illustrated in Figure 4. Relative to bikeways the most significant project is the proposed train station.

2.6 CITIZEN AND COMMUNITY INVOLVEMENT

As indicated in Section 1, "Introduction", citizen involvement was encouraged throughout the Master Plan process. The Appendix contains the list of persons and organizations invited to participate in the July 14 public workshop and the two City Council meetings held in September and January. These special invitations were made in addition to community-wide advertisements.

COMMUNITY QUESTIONNAIRE

As a result of the workshop, twenty-nine questionnaires were completed. While this number of questionnaires does not represent a statistically valid set of responses which can be applied to all of Solana Beach, many findings are interesting and valuable to note. A copy of the questionnaire and a tabulation of answers can be found in the Appendix. A summary discussion of the results is provided below.

Almost all of the respondents ride frequently, two or more times per week.

The respondents ride most often for fitness and recreation, with only about half indicating that they are bicycle commuters.

Respondents ride most often in groups of three or more (62%), or alone (32%).

None of the respondents have used the NCTD bus bike racks.

In response to the question of what factors would cause an increase in bicycling frequency, most indicated increased safety (73%), more bikeways (50%), and workplace showers/lockers (35%). Bicycle parking was a factor for 12% of the respondents.

Dirt and debris in the bikeways (78%), poor motorist driving (62%) and narrow widths (46%) were generally indicated as the biggest problems.

Southbound Highway 101 was frequently indicated as a poor bikeway.

Approximately three-quarters of the respondents listed restrooms as an important bikeway support facility.

About one-third of the respondents indicated interest in utilizing the future commuter depot in combination with cycling more than once per month.

Most of the respondents were 18-34 years of age, and were not Solana Beach residents.

The questionnaire asked for comments from respondents. The comments and their frequency are summarized below:

Areas of expressed concern included: safety (1), paving smoothness (2), conflicts between fast and slow riders (1), conflicts with pedestrians (1), and asphaltic concrete berm condition on northbound Highway 101 (1).

Suggestions or desires indicated include: bicycle detectors (1), increased safety (1), and more bike paths (1).

COMMUNITY WORKSHOP

The community workshop was held as an information gathering session early in the Master Plan process. Findings relating to inventory of existing facilities were presented and discussed. Open discussion was invited regarding any aspect of bikeways. Significant discussion is summarized below:

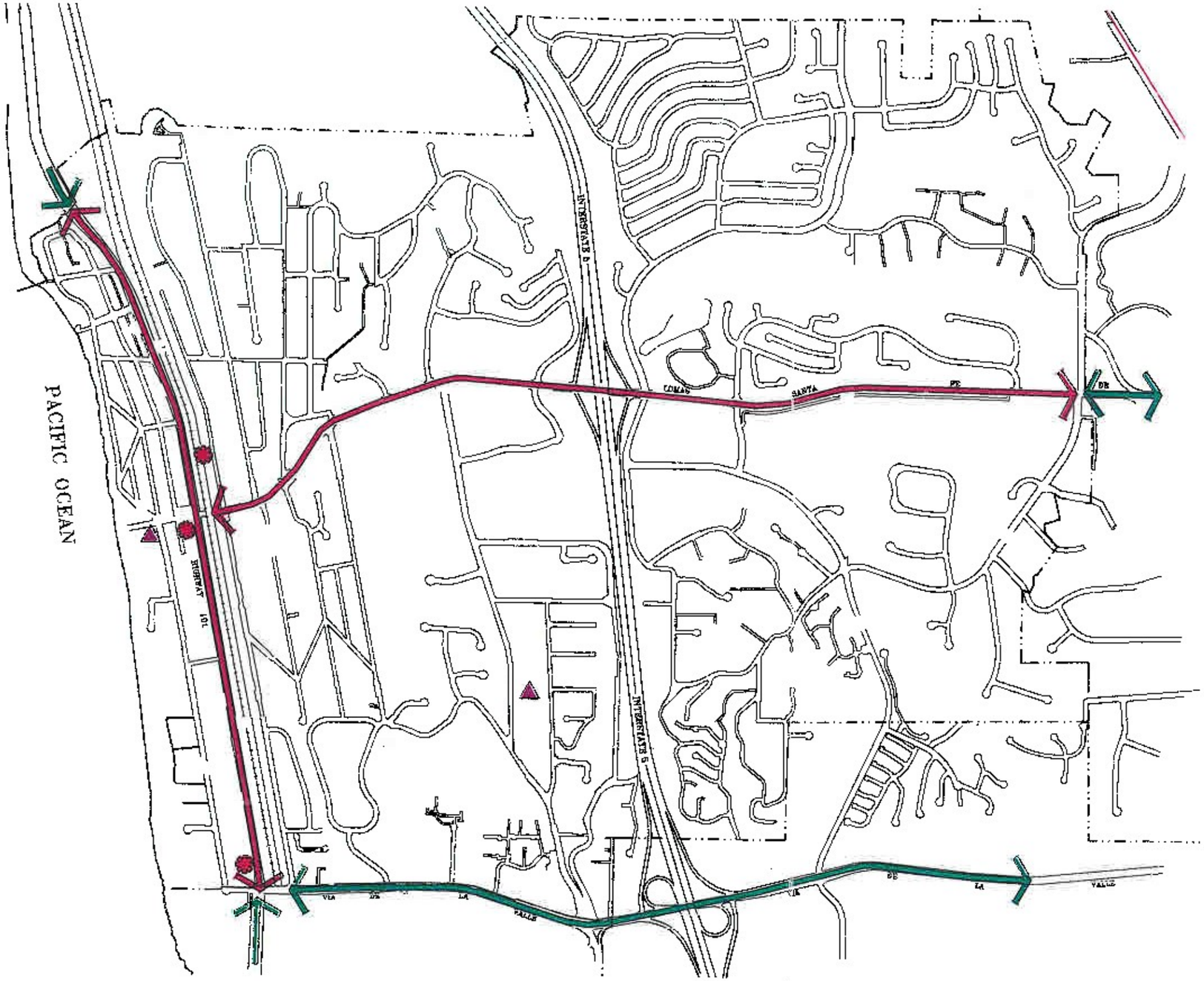
Several residents in attendance expressed their thoughts regarding proposals for new bikeways on Highland Avenue. Of special concern were impacts on existing parkways and on-street automobile parking. Several residents also expressed concern over bicyclist safety in relation to the curving street.

Possibilities for Class I bike paths in Solana Beach were discussed. Generally, bike paths were viewed favorably by attendees.

Several respondants agreed that safety should be a primary focus of the Master Plan.

Facilities to be included in the future rail depot were discussed.

At the end of the workshop, questionnaires were distributed to attendees.



LEGEND

CITY OF SOLANA BEACH CLASS II BIKE LANE

ADJACENT CLASS II BIKE LANE

BIKE BUS STOP

PUBLIC BICYCLE PARKING

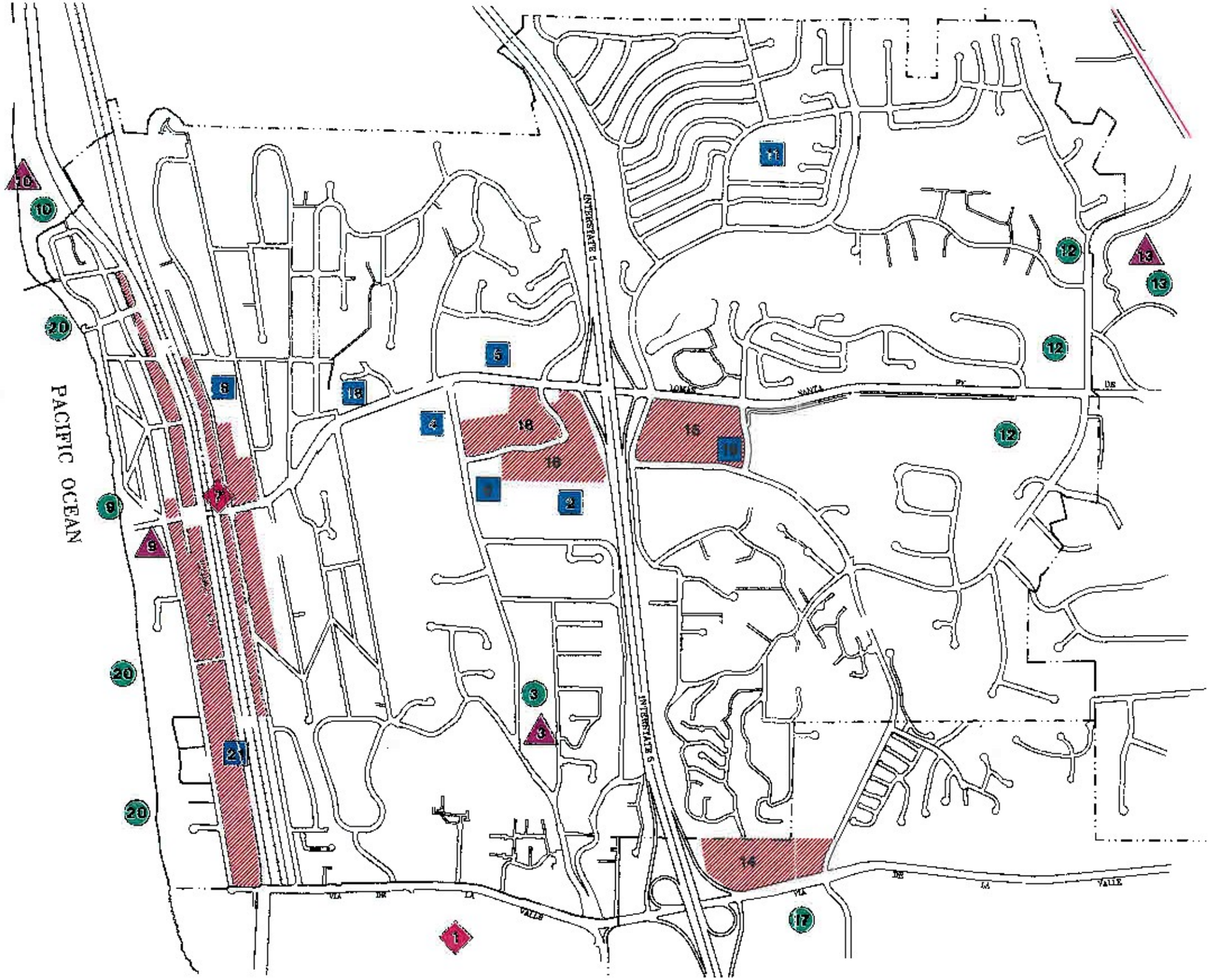
SOLANA BEACH BIKEWAY MASTER PLAN

City of Solana Beach

THE DIKE PARTNERSHIP O'ROURKE ENGINEERING

FIGURE 2
EXISTING BIKEWAYS AND RELATED FACILITIES

0 400' 800' 1200'



10 PARK/RECREATION

INSTITUTIONAL

19 SPECIAL FACILITY

10 PUBLIC BIKE PARKING/STAGING

COMMERCIAL/RETAIL CENTER

1. DEL MAR FAIRGROUNDS AND TRACK
2. SANTA FE CHRISTIAN SCHOOL
3. LA COLONIA PARK
4. EARL WARREN JR. HIGH SCHOOL
5. SKYLINE ELEMENTRY SCHOOL
6. CITY HALL
7. FUTURE TRAIN DEPOT LOCATION
8. CHILD DEVELOPMENT CENTER
9. FLETCHER COVE
10. SOUTH CARDIFF STATE BEACH
11. SOLANA VISTA ELEMENTRY SCHOOL
12. LOMAS SANTA FE GOLF COURSE
13. SAN DIEGUITO PARK
14. FLOWER HILL SHOPPING CENTER
15. LOMAS SANTA FE PLAZA
16. SOLANA BEACH TOWN CENTER
17. SAN DIEGUITO LAGOON OPEN SPACE
18. FIRE DEPARTMENT
19. LIBRARY
20. BEACH ACCESS
21. FUTURE CITY HALL LOCATION

SOLANA BEACH BIKEWAY MASTER PLAN

City of Solana Beach

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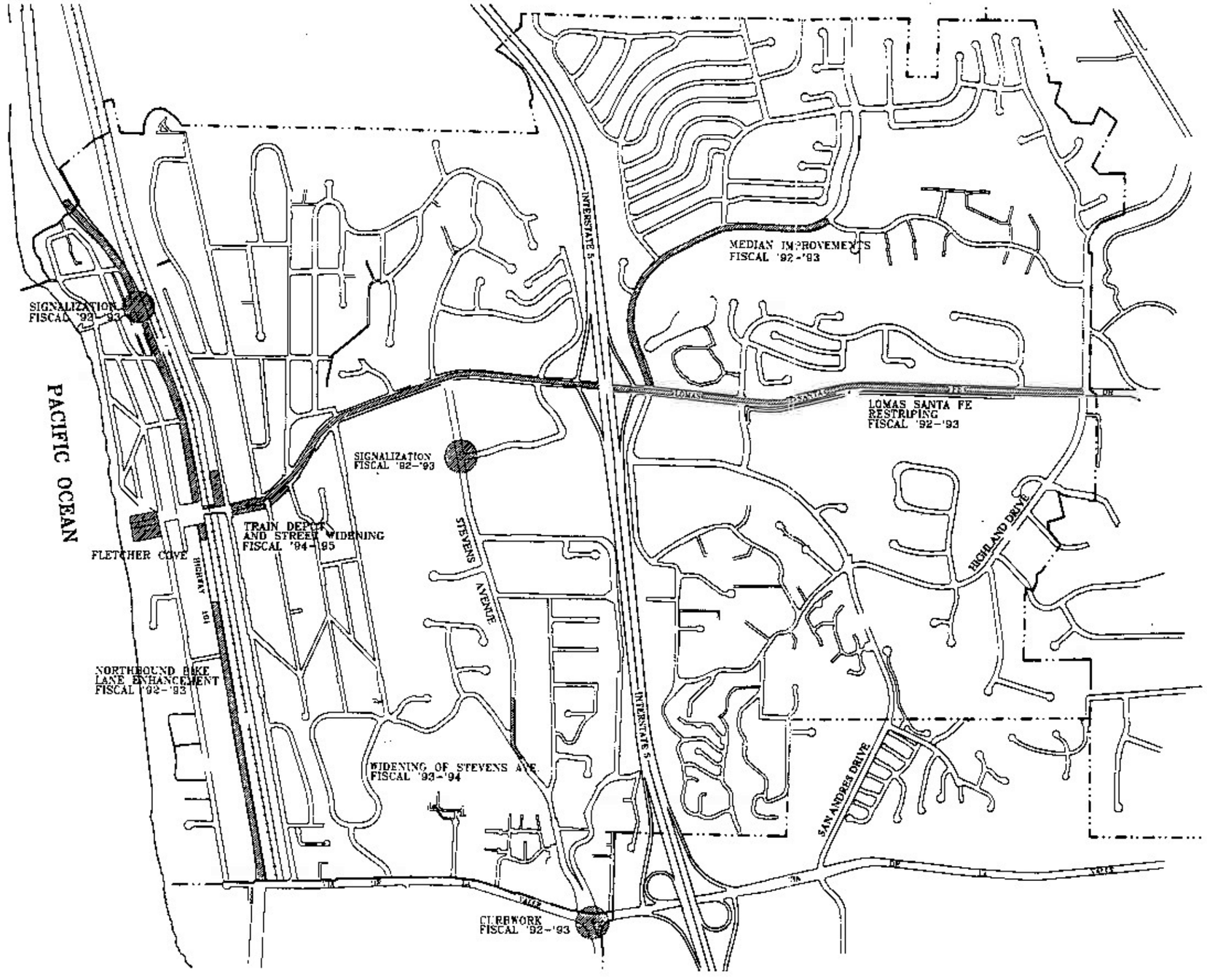
FIGURE 3

COMMUNITY FEATURES

0 400' 800' 1200'



LEGEND

APPROXIMATE LOCATION OF IMPROVEMENTS

SOLANA BEACH BIKEWAY MASTER PLAN

City of Solana Beach

THE DIKE PARTNERSHIP O'ROURKE ENGINEERING

FIGURE 4

CURRENT PLANNING

0 400' 800' 1200'

Section 3

GOALS

This section of the Master Plan outlines general goals and statements which will drive design decisions relating to the recommendations of Section 4, Master Plan.

The following two goals are found in the Circulation Element of the City's General Plan:

Goal 3.2 To promote a public transportation system that is safe, convenient, efficient, and meets the identified needs of the Solana Beach community.

Goal 3.3 To promote safe alternatives to motorized transportation that meet the needs of all city residents.

The following additional statements further clarify general objectives of this Master Plan and can be considered to be contained within the general goals above:

Bikeways should *link significant Solana Beach destinations* together.

Bikeway design should achieve the *highest level of service* with resources available to increase the safety, convenience, and efficiency of the entire system.

Bikeways within Solana Beach must *connect with bikeways* adjacent Solana Beach.

Bikeways and bicycle programs must *maximize transportation interface* opportunities.

Bikeway improvements should be *implemented in a logical, efficient manner.*

Reduction of air pollution, expanding roadway capacity, reducing roadway noise, increasing exposure to businesses, and increasing health benefits are some of the motivating benefits of increased cycling.

Safe, efficient and convenient bikeway facilities are *positive city amenities* and contribute to the attractiveness, desirability and vitality of a community.

Section 4

MASTER PLAN

This section presents the components of a comprehensive plan to meet bikeway facility needs of Solana Beach through the year 2000. The plan includes both facility improvements and program recommendations, and is based on community input, established goals and objectives, and criteria established by the State of California.

Refer to Figure 5 for an illustration of many of the proposed facility improvements.

4.1 EXISTING BIKEWAYS

Two bikeways exist within the City boundaries. These will remain, with improvements and modifications as described below.

LOMAS SANTA FE DRIVE

It is recommended that the following proposals be implemented:

4.1a Provide, at minimum, six foot (6') wide bike lanes along both sides of Lomas Santa Fe Drive between the outside traffic lane and the curb or parking area.

Create six foot to eight foot (6'-8') wide bike lanes by establishing consistent fourteen foot (14') wide outside traffic lanes. This is in excess of the standard four foot (4') minimum width due to the speed of vehicular traffic, hill conditions, and expected heavy bicycle use. This is a matter of restriping and may be implemented at the time of the next resurfacing project on Lomas Santa Fe Drive. Refer to Figure 7.

4.1b Pursue the alteration of slopes under the Interstate 5 overpass to establish bike lanes on both sides of the street.

Refer to Figure 7.

A temporary alternative approach, though not ideal, is to restripe the pavement under the overpass, reduce widths of the traffic lanes to the minimum acceptable, and establish new bike lanes on both sides which meet State standards (minimum 3' from edge of gutter). This would result in bike lanes in this segment which are narrower than the lanes on the rest of Lomas Santa Fe Drive. This change should be accompanied by appropriate signs which warn vehicle motorists and cyclists of a narrow bike lane.

4.1c Establish, at minimum, a six foot (6') wide bike lanes on Lomas Santa Fe Drive west of Rios Avenue as part of the future train station project.

Street improvements are planned as part of the train station project, from Highway 101 to Cedros Avenue on the north side, and from Cedros Avenue to Rios Avenue on the south side. This presents an opportunity to provide appropriate bike lanes and intersection striping in an area which is currently non-conforming. The goal is to emphasize convenient and safe bicycle access to the train station and to the bikeways on Highway 101. Plans which illustrate on-site and off-site train station improvements should be evaluated in terms of bicycle accessibility as they are developed.

4.1d Repair and/or modify paving irregularities within bikeways.

Under the overpass and along the eastbound side of Lomas Santa Fe west of Highland Drive are bumps and grooves which must be addressed. In general, the bikeways should be carefully examined for paving irregularities and action taken to smooth the surface as part of ongoing maintenance. Surfaces should be repaired to meet State guidelines.

In at least one location just west of the overpass on the eastbound side, a low manhole cover is causing a depression in the pavement within the bike lane.

State guidelines for paving smoothness can be found in the Appendix of this report.

4.1e Restripe intersections to conform with State guidelines.

Bicycle striping at several intersections does not currently conform to State standards and should be modified. At driveways where vehicles can be expected to cross the bike lane, bike lane striping should be dashed to alert the cyclist.

State guidelines for striping of bike lanes in intersections can be found in the Appendix of this report.

4.1f Provide appropriate bicycle detectors at signalized intersections.

The Bicycle Committee of the San Diego Association of Governments requires that detectors be installed during any significant signalization project. Refer to Part 4.5 of this section for additional information.

HIGHWAY 101

It is recommended that the following proposals be implemented on Highway 101.

4.1g Establish, at minimum, a six foot (6') wide class II bike lane on the southbound side of the highway.

Refer to Figure 5 and 6 for a description of the existing conditions and proposals for each segment of Highway 101.

A six foot (6') bike lane can be achieved in most segments by restriping existing outside traffic and bicycle lanes. A consistent fourteen foot (14') wide outside vehicular traffic lane should be established to replace current varying widths. This will result in a bike lane which varies from six foot (6') to fourteen foot (14') in width. For the short segment where the bike lane may be fourteen foot (14') wide, it is recommended that the standard bike lane pavement sign be utilized to discourage vehicular use. State guidelines for minimum bike lane width where parking stalls are marked is five foot (5').

Currently, within segments 'D' and 'E' (Cliff Street to 236 PCH) on-street parking and two vehicular traffic lanes fully occupy available street pavement on the southbound side, leaving insufficient space for a striped bike lane. Options for creating space for a bike lane can be addressed when more information is available regarding impacts of the rail station construction, especially in relation to the temporary rail alignment. Options may include: 1) modification of the median curb on the southbound side 2) locating the bike lane where on-street parking currently exists, pending future on-street parking studies 3) modification of outside curb and sidewalk areas, pending future studies, and 4) consideration of restricted vehicular parking during peak bicycle commuter hours.

Within segment 'B' just south of Ocean Street, three to four on-street parking spaces should be relocated or eliminated to allow for an acceptable width for bicycles and vehicular traffic. Currently in this segment, there is twenty one feet (21') separating the curb from the inside (median) traffic lane -- barely enough for parking and vehicular traffic alone. Elimination of parking will allow for the bike lane to be continuous through this short segment.

4.1h Establish, at minimum, a six foot (6') wide class II bike lane on the northbound side of Highway 101 between the outside vehicular traffic lane and the asphalt berm.

Refer to Figure 7 for an illustration of this recommendation.

Currently the existing bikeway, separated from the highway by an asphalt berm, is used by pedestrians and some cyclists in both north and southbound

directions. The width of this area is eight feet (8') and does not conform to State guidelines regarding shared use for pedestrians and two-way bike traffic. As might be expected, many cyclists ride outside of the separated area on the road even without a striped bike lane there.

This recommendation would allow the eight foot (8') wide separated area to remain for the use of pedestrians and other non-motorized transportation, but would encourage most of the bike traffic to use the six foot (6') wide striped bike lane.

4.1i Ensure appropriate connections to the future train station.

Preliminary design drawings for the train station include pedestrian overpass connections from Highway 101 to the train station site over the railway. As plans for the train station continue to be developed, provisions for the inclusion of cyclists on these overpasses should be considered. Additionally, as the intersection of Lomas Santa Fe Drive and Highway 101 is further studied relative to the possible grade separation at the train station, on-street bikeways should be included.

4.1j Provide appropriate bicycle detectors at signalized intersections.

The Bicycle Committee of the San Diego Association of Governments requires that detectors be installed during any significant signalization project. Refer to Part 4.5 of this section for additional information.

4.2 NEW BIKEWAYS

It is the recommendation of this Master Plan that new bikeways be established in two locations: 1) at Stevens Avenue between Lomas Santa Fe Drive and Via de la Valle; and 2) at Highland Drive/San Andres Drive between Lomas Santa Fe Drive and the southern city boundary. These locations are illustrated in Figure 5.

These two proposed bikeways are also recommended by the Circulation Element of the City's General Plan.

All new bikeways should meet or exceed State guidelines as described in "Bikeway Planning and Design" found in the Appendix of this report.

STEVENS AVENUE/VALLEY AVENUE

Stevens Avenue represents a significant opportunity for an alternative north/south bikeway within the City. The roadway is fairly flat, with commercial, residential, and office uses along its length. A significant portion of the City's high density residential units are located on or near Stevens Avenue (refer to the Land Use Plan in the Appendix). The Del Mar Fairgrounds, the future San Dieguito Regional Park, and the City of Del Mar's Class II bikeway on Via de la Valle lie at the southern end of Stevens Avenue. Moreover, there is a community recreation facility, La Colonia Park, located midway along Stevens Avenue. The recommendation for Stevens Avenue is as follows:

4.2a Establish class II bike lanes on Stevens Avenue in both directions.

Stevens Avenue is designated as a commercial collector in the Circulation Element of the City's General Plan, with an ultimate right-of-way width of eighty four feet (84'). This does not take bike lanes into consideration. To provide a minimum width bike lane (5' clear of marked stalls, 4' clear of unmarked stalls), the typical commercial collector standard should be reconsidered. Options include reducing the number of vehicular traffic lanes, reducing traffic lane widths, eliminating parking on one side, reducing sidewalk width, or a combination of these.

Bike lanes should be established on Stevens Avenue and Valley Avenue in a manner providing continuous, unbroken bike lanes. Since these roadways are not yet built to ultimate width in certain segments, it is recommended that no bike lanes be established until the entire length can accommodate bike lanes meeting State minimum standards. However, consideration should be given to the benefits of incremental implementation in relation to future on-street parking issues.

HIGHLAND DRIVE/SAN ANDRES DRIVE

Highland Drive is an important potential bikeway for a number of reasons: 1) it will serve as a connection to the County's future Class III bike route on El Camino Real; 2) it is scenic; 3) it provides a north/south bikeway opportunity east of the freeway; 4) it will provide a connection to important commercial and open space uses; 5) it connects two Class II bike lanes within the City; and 6) it leads to an NCTD bike bus stop in Flower Hill Shopping Center. Although San Andres Drive is steep and will likely not be highly utilized by beginning or occasional cyclists, this route has merit from a bicycle commuter and training ride standpoint. Recommendations include:

4.2b Establish a Class III bike route along Highland Drive between Lomas Santa Fe Drive and San Andres Drive and along San Andres Drive from Highland Drive to the southern City boundary.

Class III bike routes are designated by signs only and are not striped on the pavement. There is no need to modify existing street conditions with respect to parking or road width.

State guidelines indicate that it is desirable to provide a short length of striped Class II bike lane just south of Lomas Santa Fe Drive as a transition from the Class II bike lane proposed for Highland Drive north of Lomas Santa Fe Drive. This would avoid conditions where a cyclist is looking for a bike lane on the other side of the intersection as he or she is crossing the intersection. Additionally, appropriate signs must be installed as bike lanes end or begin.

4.2c Establish Class II bike lanes on both sides of Highland Drive between Lomas Santa Fe Drive and the northern City boundary.

This segment provides a connection to the future Class III bike route north of the City on El Camino Real. It also completes the connection from bike lanes on Lomas Santa Fe Drive to San Dieguito Park.

NEW ADJACENT BIKEWAYS

Several bikeways are planned by other agencies to be constructed in and around Solana Beach, including:

The Coastal Corridor, a Class I bike path running primarily within the rail right-of-way, is being studied by SANDAG.

The County plans to designate *El Camino Real* as a Class III bike route northeast of the City Limits.

A Class I bike path is planned for the *San Dieguito River Regional Park.*

4.2d Establish convenient linkages to new adjacent bikeways.

The linkage to El Camino Real will be provided with implementation of the proposed Class II bike lanes on Highland Drive north of Lomas Santa Fe Drive.

The future Class I bike path in the San Dieguito Regional Park occurs outside the boundaries of Solana Beach. It is anticipated that the cities of Del Mar and/or San Diego will allow for bike access from bikeways on Via de la Valle.

Local bikeway linkages to the Coastal Corridor shouldinlcude a connection near Lomas Santa Fe Drive and a connection near Via de la Valle. These represent the east/west bikeways.

Please refer to Figure 5 for an illustration of these bikeways.

4.3 SIGNS

REGULATORY SIGNS

Many standard roadway signs, such as speed limit and warning signs, apply to both motorists and bicyclists. In addition to those, State guidelines (Topic 1004) require that bikeways include standard signs and pavement markings as summarized below.

The following State requirements apply generally to all *Class II bicycle lanes:*

Bike lanes signs (R81) shall be placed at the beginning of all bike lanes, on the far side of every arterial street intersection, at all major changes in direction, and at maximum half-mile intervals.

Where parking is not permitted a "No Parking" sign (R26) can occur with the bike lane sign. Additionally, when lanes begin or end, supplemental signs such as "Begin" (R81A) and "End" (R81B) should be used.

Bike lanes pavement markings shall be placed on the far side of each intersection, and may be placed at other locations as desired.

Pavement striping shall be in accordance with Figure 1004.3 of State guidelines.

Thermoplastic paint shall not be used for pavement marking, as the paint surface becomes slippery when wet.

The following State requirement applies generally to all *Class III bicycle routes:*

Bike route signs (G93) are to be placed periodically along the route. At changes in direction (such as the corner of Highland Drive and San Andres Drive) the G93 sign is supplemented by a G33 directional arrow.

State guidelines include sign requirements for *Class I bike paths* but these are not summarized in this report because no Class I bike paths are proposed which are under City jurisdiction.

4.3a It is recommended that bikeways be reviewed on a frequent on-going basis and non-conforming conditions corrected.

DIRECTIONAL SIGNS

Directional signs indicating major elements of the City can be of benefit to both vehicular motorists and bicyclists. Confusion is eliminated and the chances of wrong turns reduced. The roadway is therefore more convenient and usable.

4.3b It is recommended that the City develop and implement a directional sign program which would serve both vehicular motorists and bicyclists.

Such a program could result in signs which are functional and sensitive to visitors' needs. They should be appropriate in character to Solana Beach and consistent with the City sign ordinance. Alternatively, standard bike route signs (G93) carrying destination messages may be used along bike routes and along bike lanes in addition to the bike lanes sign (R81).

It is recommended that the following facilities or areas be considered for identification with directional signs:

The Plaza Shopping District

Highway 101

Beach Access Points

City Hall/Civic Center

San Dieguito Park

Del Mar Fairgrounds

Cardiff State Beach

San Dieguito River Regional Park

La Colonia Park

The Train Station (future)

Fletcher Cove

U.S. Post Office

4.4 BICYCLE PARKING

The provision and development of bicycle parking in Solana Beach is divided into two categories for the purposes of this Master Plan: public-provided and private sector provided.

Design issues and considerations pertaining to both categories are addressed below:

Consideration should be given to both short term and long term bicycle parking.

An example of long term parking would be a secure parking space or storage facility for a commuter who may want to leave a bicycle for several hours or for overnight. Enclosed and lockable lockers, attendant supervised areas, or an interior lockable space would be appropriate for long term parking.

Short term parking would be defined as parking for a few minutes or a few hours. Stationary bicycle security devices (racks, bollards, etc.) should be provided to conveniently and safely support the bicycle. The device should be lockable or should accept locks provided by the cyclist.

Bicycle parking space design should comply with in the City of Solana Beach Offstreet Parking Design Manual, and should be located as close as possible to the building entry in a highly visible area. A sign indicating "Bicycle Parking" should be included.

"Commuter Computer", a component of the CalTrans District 11 Ridesharing Program (619/231-BIKE), offers a bicycle locker and security device program. Security devices (bike "loops") and lockers are provided, installed, and managed by Commuter Computer at no cost to the public agency requesting the service. These same devices are offered to private companies and businesses through a loan program.

With regard to bicycle lockers, coin or token operated models tend to be more flexible and useful than lockers which open via keys assigned to individuals.

The Short Term Bicycle Parking Requirements (Table 2) serves as a guideline for establishing requirements based on the type of use. It is recommended that the need for long term bicycle storage devices be evaluated on a case-by-case basis in addition to the requirements for short term parking.

PUBLIC BICYCLE PARKING

To encourage and facilitate bicycle commuting, bike parking should be available at public facilities. This includes facilities which are controlled by the City (parks, City Hall, etc.) and facilities which are within the City but controlled by other agencies (Sheriff, schools, etc.)

4.4a It is recommended that the City provide and/or coordinate bicycle parking at public facilities.

At parks and beach access points where access does not depend on automobile parking, the number of bicycle security devices needed will be dependent upon the number of visitors. An estimate based on observations of bicycle parking patterns should be made for each location and the amount increased if warranted.

In commercial/retail districts, the City should pursue opportunities to provide public bicycle security devices. These should occur in public parking lots (10-15% of automobile spaces) and also along retail streets within the ROW where feasible. On retail streets, an estimate must be made for required devices and increased if warranted based on observations of parking patterns.

For public schools, the City should contact the school district and encourage coordination with CalTrans to obtain free bicycle lockers for teachers and staff.

For the future train station, the City should coordinate with NCTD to provide bicycle lockers or other long term storage facilities, at least in quantities equal to 10% of the number of automobile spaces per the Solana Beach Zoning Ordinance. Additional space should be provided for future expansion, if warranted.

For public and government buildings for which automobile parking is provided, the following table can be used as a guideline. Special consideration should be given to long term bicycle parking at these facilities for use by City staff.

TABLE 1: PUBLIC BICYCLE PARKING

Type of Use	Minimum % of Auto Parking	Long Term Parking Minimum % of Bike Parking	Short Term Parking Minimum % of Bike Parking
City Hall Offices	15%	60%	20%
Libraries	20%	10%	60%
Fire, Police, Sheriff Departments	10%	80%	10%

Source: Adapted from Draft Bicycle Master Plan, City of Santa Monica

PRIVATE SECTOR BICYCLE PARKING

The Solana Beach Zoning Ordinance requires that "General commercial and office uses with ten (10) or more parking spaces shall provide at least one (1) bicycle parking space per ten (10) full automobile spaces." Different types of businesses will have different bicycle commuter patronage. Therefore the table which follows can serve as a refinement to the Zoning Ordinance and may be more applicable:

TABLE 2: SHORT TERM BICYCLE PARKING REQUIREMENTS

Type of Use	% of Auto Requirements
General Office	10%
Banks, Savings and Loan Institutions	15%
Hospitals and Medical Centers, Medical, Dental, and Veterinary Offices	5%
Retail	10%
Manufacturing, Warehousing	10%
Restaurant	10%
Hotels, Motels	5%
Child Care, Preschools	5%
Private Schools and Colleges	20%
Auditoriums, Museums, Galleries, Stadiums, Theaters	10%
Bowling Alleys, Billiard Parlors, Skating Rinks, Assembly Halls	15%
Health Clubs and Studios	10%

Source: Adapted from Draft Bicycle Master Plan, City of Santa Monica

As required by the South Coast Air Quality Management District, companies will need to address employee commuting patterns, working towards increasing ridership in each car. Companies may elect to approach this issue by promoting bicycle commuting. In these cases, the provision of long term bicycle parking and/or storage facilities will be important. The company may provide appropriate facilities or participate in a locker loan program available through CalTrans District 11 Ridesharing Program.

4.4b It is recommended that the City consider incorporation of Table 2 into the Zoning Ordinance

4.4c It is recommended that the City conduct an awareness program to promote bicycle commuting, and include information regarding bicycle parking.

4.5 BICYCLE DETECTORS

The primary purpose of the bicycle loop detector is to recognize a bicycle at an intersection when it cannot be detected by the vehicle loop detectors. A low volume of vehicular traffic at an intersection increases the need for the installation of a bicycle loop. If a large number of vehicles are waiting at any particular leg of an intersection, a "call" will be placed to the controller for that leg by the vehicle detector. At that time bicycles, as well as vehicles, will be permitted to move through the intersection. The newer inductive loop detectors offer enough sensitivity to detect bicycles when no vehicles are waiting at an approach. To achieve this benefit, the loops must extend into the bikelane.

Vehicular volumes at intersections in Solana Beach are high enough not to cause bicyclists extreme delays. However, the City of Solana Beach wishes to include bicycle detectors in major signalization projects to conform to SANDAG requirements. According to a report done in April 1992 by the City of Santee, a small multi-quadruple loop design that covers most of the bicycle lane is an example of an efficient loop detector. Four loops and one detector are used for each approach on a four legged intersection.

Methods of creating awareness of detector availability should be considered, including pavement markings and mounted signs.

4.6 TRANSPORTATION INTERFACE

Effective links to and coordination with other modes of transportation will increase the viability of bicycle commuting for many. Commutes that may be too long or otherwise undesirable for bicycling alone may be more palatable if combined with bus, rail or park-and-ride options. Recommendations regarding coordination with transportation facilities within Solana Beach are described below.

FUTURE TRAIN STATION

The train station is planned for construction in 1994-95 on the north side of Lomas Santa Fe Drive between Cedros Avenue and the existing railway. It will be of great benefit to commuters in the area and is described in Part 3.4, "Local and Regional Long-Range Transportation Planning". The City of Solana Beach will promote use of the train station by bicycling commuters through coordination with the railway agency, and:

4.6a Request that long term bicycle parking be provided, at least 10% of the number of automobile spaces with room for expansion in the future if necessary.

4.6b Request that changing facilities be made available, including showers and clothes lockers.

4.6c Request that bicycle support facilities be made available including refreshments, bicycle maintenance products and services, air for tires, telephones, and the like.

4.6d Request that the site's design consider and encourage safe and convenient access by bicyclists.

4.6e Request that special incentives, such as reduced train fares, be made available to bicycling commuters.

BUS FACILITIES

Currently, buses with bike racks will stop at three locations in Solana Beach. Refer to Figure 2, "Existing Bikeways and Related Facilities" for approximate locations. All are located on Highway 101 and are parts of routes 301 and 308. Route 301 runs north/south between the Oceanside Transit Center and University Town Center passing UC San Diego. Route 308 runs east/west between the coast and the Escondido Transit Center. Route 308 also stops at Flower Hill Shopping Center.

Bike rack usage is low, as indicated by the community questionnaire and confirmed by NCTD.

County Transit System buses stop on San Rodolfo Drive near Lomas Santa Fe Drive. For recommendations regarding this interface, see "Park and Ride Facilities" below.

It is recommended that bus bike rack usage be encouraged as follows:

4.6f Coordinate with NCTD and CTS in the development of enhanced bus stops where buses with bike racks are scheduled to stop.

These bus stops (and all others if feasible) should be made more comfortable and usable by providing amenities such as shelter; buffers from heavy traffic; drinking water, and convenience products (refreshments, magazines, etc.). It may be possible to incorporate some of these elements in the overall planning of the future train station facility. If so, long term bicycle parking for bus patrons could be provided at the train station.

4.6g Coordinate with NCTD to provide a bicycle bus stop near the corner of Stevens Avenue and Lomas Santa Fe Drive.

Route 308 travels on Lomas Santa Fe between Stevens Avenue and Highway 101 and on Stevens Avenue between Lomas Santa Fe Drive and Via de la Valle. This corner is more near the center of town and will be at the intersection of two bikeways. For commuters coming from higher parts of town east of Rios Avenue and heading in any direction, this proposed bicycle bus stop would make it possible to avoid some uphill climbs on return trips.

PARK AND RIDE FACILITIES

Currently, no park and ride facilities exist within Solana Beach. The nearest is approximately two miles to the north at the corner of Birmingham and Interstate 5. Another exists seven miles to the south on Carmel Valley Road. Both may be reached by bicycle via Highway 101. As indicated in the Regional Bicycling Map, both have bicycle security devices.

County Transit System buses stop at many Park and Ride Facilities along Interstate 5 between Oceanside and San Diego. In Solana Beach, the buses stop on San Rodolfo Drive with riders utilizing shopping center parking spaces. There are no long term bicycle parking facilities. According to the Commuter Computer Program Director, Caltrans is interested in developing a Park and Ride Facility near the intersection of Interstate 5 and Lomas Santa Fe Drive. This would be of benefit to bicycle commuters who wish to utilize both bicycle and bus in their commute to San Diego or points north of San Diego. He also indicates that the County is interested in maintaining operation of this system even after construction of the train station downtown. Therefore, it is the recommendation of this Master Plan that:

4.6h The City should coordinate with Caltrans for the development of a Park and Ride Facility near the intersection of Lomas Santa Fe Drive and Interstate 5 which would include long-term bicycle storage/locker facilities.

4.7 PROGRAMS

Education and awareness programs should complement facility improvement to enhance bicycle safety and convenience. It is assumed that increased safety and knowledge will translate into increased confidence and increased use. Three program aspects are discussed in this part: Safety Education, Awareness, and Commuter Incentives.

SAFETY EDUCATION

Safety education programs should target both bicycle commuters (employees, businesspersons, shoppers, and students) and recreational cyclists. Emphasis should focus on riding on the street, using helmets, using lights at night, and selecting routes.

Solana Beach has a representative on SANDAG's bicycle safety committee. Currently, the Automobile Club of Southern California visits schools in Solana Beach each year to present bicycle safety and maintenance information. While worthwhile, other programs are available which are more effective and broader based.

4.7a It is recommended that the City of Solana Beach pursue regular bicycle safety programs which will target a broad range of cyclists.

There are many bicycle safety programs from which to choose. Organizations providing custom seminars, events or workshops include:

Safe Moves (310/399-4805), which provides a wide variety of programs for children and adults regarding multimodal transportation, bicycle safety, and the like. Safe Moves is a non-profit organization.

The Human Powered Transit Association is a non-profit organization which targets the adult bicycle commuter.

Additionally, school teachers or City staff may be trained to teach bicycle safety and awareness.

AWARENESS

The City can promote bicycle safety and use by providing messages, announcements, and advertisements in appropriate locations. Awareness efforts could include:

Development of a *safety program booklet* or map which lists safety tips and which would describe Solana Beach routes and facilities.

Dissemination of *messages* regarding helmet usage on: bus billboards, bus benches, park and recreation brochures, car bumper stickers, school bulletin boards, local radio shows, traffic signs, library bulletin boards, train station bulletin boards, and the like.

Development and/or purchase of a *safety video* available at the library.

These kinds of public service messages should be coordinated with regional entities that may have programs or materials available for use. Regional agencies include the San Diego Regional Bicycle Safety Committee (619/595-5325) and "Commuter Computer" through the Caltrans District 11 Ridesharing Program (619/231-BIKE).

COMMUTER INCENTIVES

In addition to providing bicycle facilities which are safe, efficient, and convenient for bicycle commuters, the City can provide special incentives for encouraging bicycle commuting, such as:

Bike-to-Work Week. "Commuter Computer" (CalTrans District 11 RideSharing Program) can participate with the City in promoting and implementing this event in which commuters receive T-shirts, prizes, and refreshments for using their bicycles.

"Commuter Computer" and the South Coast Air Quality Management District already have programs to reach large companies employing 50 or more persons. Therefore, it may be beneficial to develop a program which contacts smaller companies and provides information regarding the benefits of bicycle commuting.

BICYCLE COORDINATOR

A very important part of the bicycle program in Solana Beach will be the participation of a designated person whose responsibility it is to implement this Master Plan and generally promote bicycle usage. This person may have other non-bike responsibilities as well, but would take on the following bicycle program tasks:

Would be "in the loop" regarding street projects or large developments and would be able to discuss bicycle issues in terms of project design.

Would be the City contact for bikeways issues and could answer questions from the public or from other agencies.

Would have bikeway information available for distribution.

Would coordinate and promote bikeway programs, incentives, and awareness events.

Would organize and pursue funding sources for bikeway projects and bicycle programs.

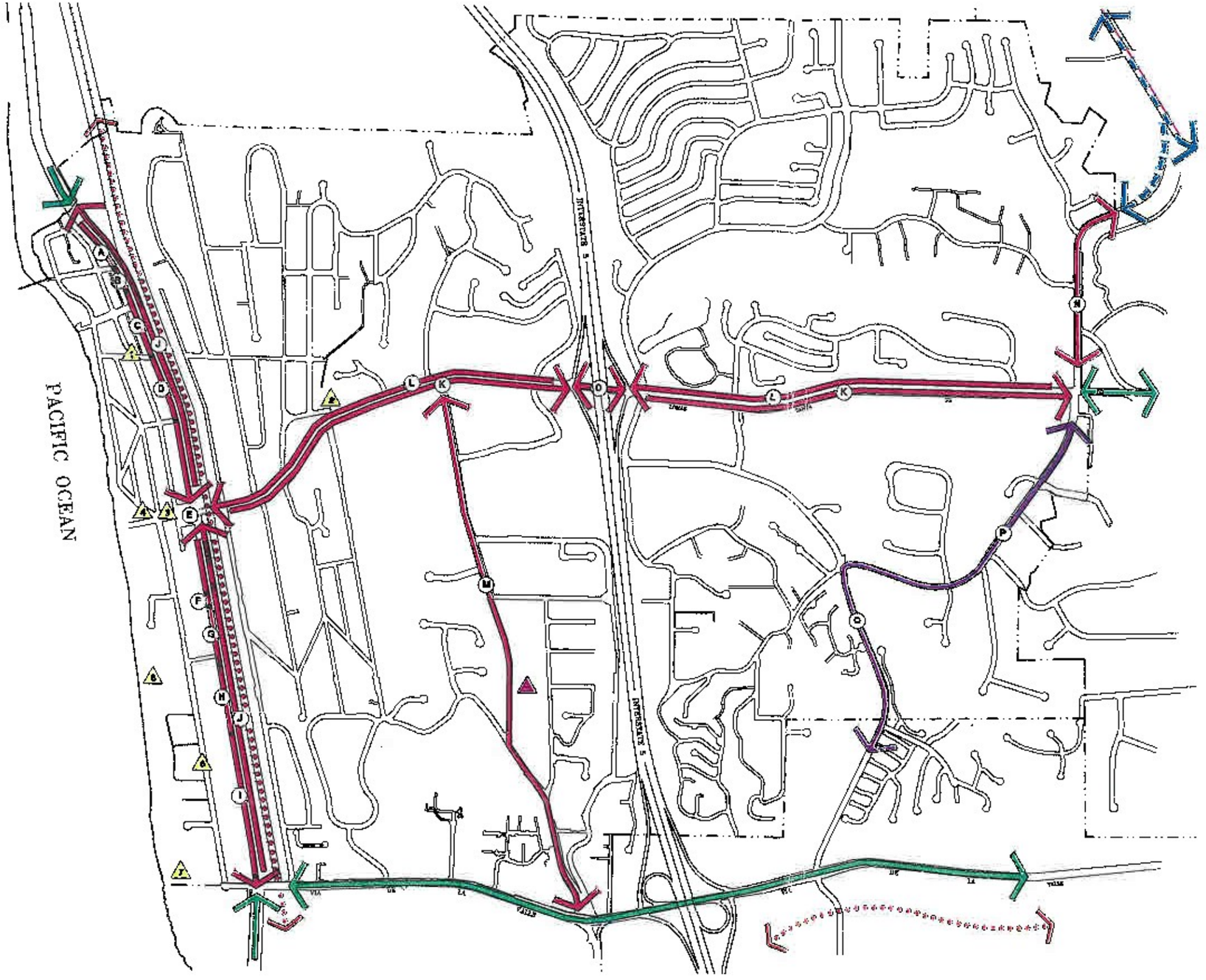
Would participate on SANDAG's bicycle facilities committee and other regional transportation groups involved in funding programs and transportation planning.

4.7b It is recommended that the City designate one staff person as having responsibilities of the City Bicycle Coordinator.

4.8 MAINTENANCE

By designating bikeway routes in Solana Beach, the City is indicating that the cyclist can expect these routes to be maintained in a manner appropriate to the needs of cyclists. This means that signs, pavement markings, barriers and the like will be kept in effective condition and that the bikeway surfaces will be maintained. Roadway dirt, debris, and potholes could affect cyclists to a greater extent than cars, so it may be necessary to clean and repair streets with bikeways more often than those streets without bikeways. Respondents to the community questionnaire most often listed dirt or debris in the roadway as a significant concern.

4.8a It is recommended that the City establish a procedure for regular review of bikeway elements to evaluate their condition and maintenance levels.



LEGEND

- CITY OF SOLANA BEACH CLASS II BIKE LANE
- CITY OF SOLANA BEACH CLASS III BIKE LANE
- ADJACENT CLASS II BIKE LANE
- FUTURE CLASS I BIKE LANE
- FUTURE CLASS II BIKE LANE
- EXISTING PUBLIC BIKE PARKING
- PROPOSED PUBLIC BIKE PARKING DEVELOPED BY CITY OF SOLANA BEACH

1 TIDE BEACH PARK
2 FIRE STATION
3 PLAZA REDEVELOPMENT
4 FLETCHER COVE
5 NORTH SEASCAPE SURF PARK
6 FUTURE CITY HALL
7 DEL MAR SHORES BEACH PARK

SOLANA BEACH BIKEWAY MASTER PLAN

City of Solana Beach

THE DIKE PARTNERSHIP O'ROURKE ENGINEERING

MASTER PLAN

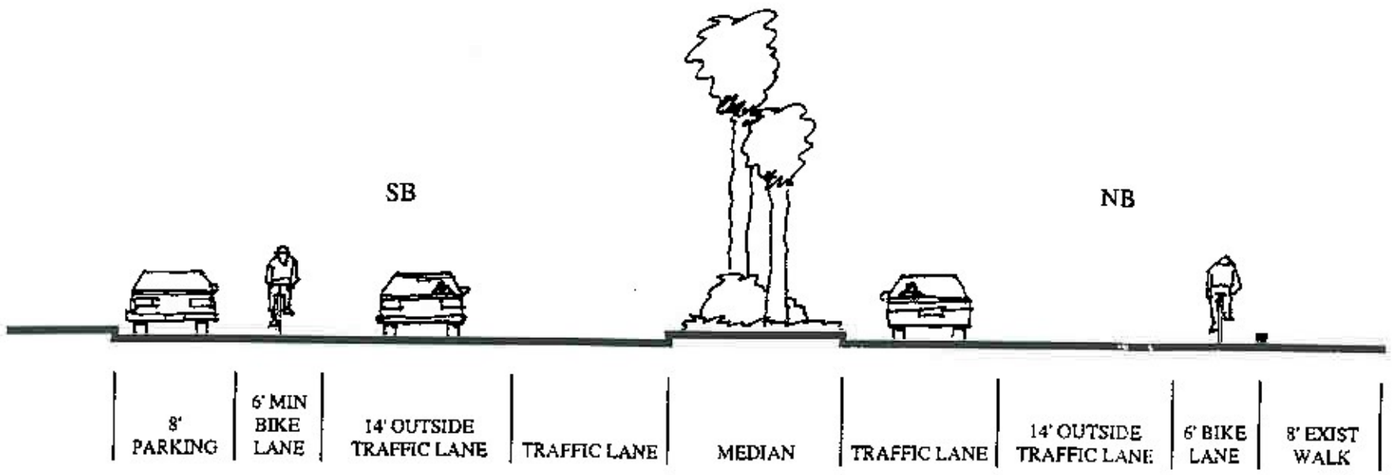
LOCATION			PARKING		BIKE LANE		CURB LANE		COMMENTS
CLASS II SEGMENTS			EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED	
A	SOUTHBOUND HWY 101	SB 101 NORTH OF OCEAN ST.	8'	8'	4'-6"	7'-6"	17'	14'	RESTRIPE
B		SB 101 SOUTH OF OCEAN ST.	8'	NONE	NONE	7'	13'	14'	ELIMINATE 3-4 PARKING SPACES
C		SB 101 NORTH OF CLIFF ST.	7'-6"	8'	4'6"	14'-6"	24'	14'	DELETE 11' WIDE GAP
D		SB 101 FROM CLIFF TO ESTRELLA ST.	8'	8'	NONE	6'	11'-13'	14'	REALIGN EXISTING MEDIAN CURBS OPTION: DELETE PARKING
E		SB 101 FROM ESTRELLA ST. TO 236 PCH	8'	8'	NONE	6'	15'	14'	REALIGN EXISTING MEDIAN CURBS
F		SB 101 BETWEEN 236 PCH AND 263 PCH	OFF-STREET	AS IS	4'	9'-6"	19'-6"	14'	RESTRIPE
G		SB 101 AT DAHLIA DR.	13'-6"	8'	NONE	8'-6"	17'	14'	RESTRIPE
H		SB 101 SOUTH OF DAHLIA DR.	NONE	NONE	5'	6'	15'	14'	RESTRIPE
I		SB 101 NORTH OF VIA DE LA VALLE	10'-14'	8'	4'-6"	6'-6"- 10'-6"-	14'	14'	RESTRIPE
J		NB 101 FROM VIA DE LA VALLE TO CITY LIMITS	NONE	NONE	8' CLASS I	8' CLASS II	-	-	BERM REMAINS TO SEPARATE BIKE LANE AND PROMENADE - SEE SECTION
K		EB LOMAS SANTA FE DR.	INFREQ.	NONE	5'+/-	6'-7'	14'-15'	14'	RESTRIPE
L		WB LOMAS SANTA FE DR.	NONE	NONE	5'+/-	6'-7'	14'-15'	14'	RESTRIPE
M		NB/SB STEVENS BETWEEN LOMAS SANTA FE DR. AND VIA DE LA VALLE	VARIES	8'	NONE	4'	-	-	IMPLEMENT WHEN STREET IS WIDENED ALONG ENTIRE LENGTH
N		NB/SB HIGHLAND DR. BETWEEN LOMAS SANTA FE DR. AND NORTH CITY LIMITS	VARIES	8'	NONE	5'	-	-	
O		EB/WB LOMAS SANTA FE DR. AT INTERSTATE OVERPASS	NONE	NONE	NONE	5'	-	-	MODIFY SLOPE, ADD RET. WALL TO ALLOW BIKE LANE & SIDEWALK BEHIND BRIDGE COLUMNS
CLASS III SEGMENTS									
P		NB/SB HIGHLAND DR. BETWEEN LOMAS SANTA FE DR. AND SAN ANDRES DR.	YES	YES	N/A	N/A	-	-	BIKE ROUTE SIGNS ONLY
Q		NB/SB SAN ANDRES DR. BETWEEN HIGHLAND DR. AND SOUTH CITY LIMITS	YES	YES	N/A	N/A	-	-	BIKE ROUTE SIGNS ONLY

SOLANA BEACH BIKEWAY MASTER PLAN

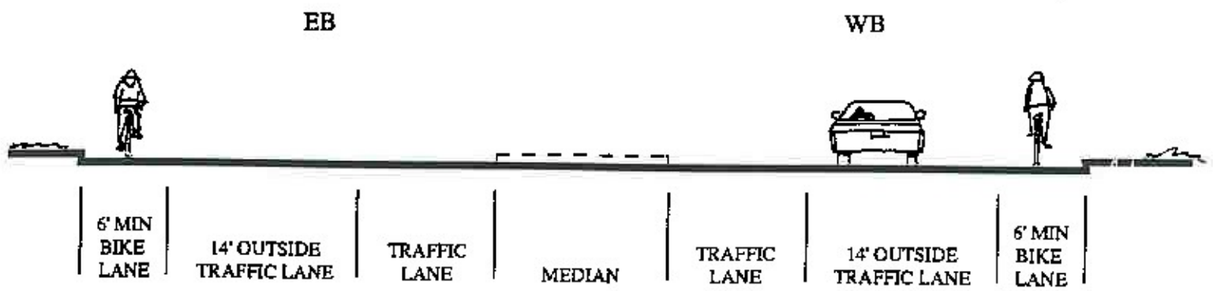
City of Solana Beach

FIGURE 6
MATRIX

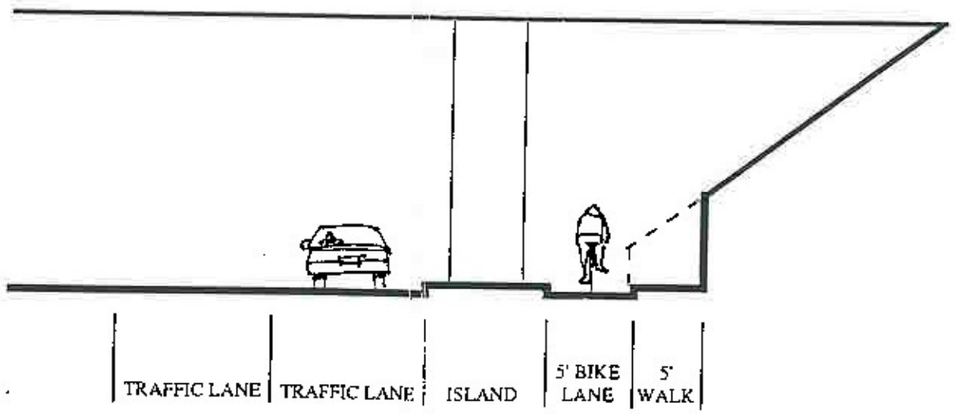
THE DIKE PARTNERSHIP O'ROURKE ENGINEERING



PROPOSED TYPICAL SECTION ON HIGHWAY 101



PROPOSED TYPICAL SECTION ON LOMAS SANTA FE



PROPOSED SECTION -- LOMAS SANTA FE DRIVE AT FREEWAY OVERPASS

SOLANA BEACH BIKEWAY MASTER PLAN

City of Solana Beach

THE DIKE PARTNERSHIP O'ROURKE ENGINEERING

FIGURE 7
SECTIONS

Section 5

IMPLEMENTATION

This section provides a working tool for the City in the implementation of recommendations presented in Section 4, Master Plan. Three key components of program implementation are presented: costs, phasing, and funding.

5.1 IMPLEMENTATION COSTS AND PROJECT PHASING

The recommendations of the previous section are prioritized herein and are generally categorized into two phases based on conformance with the following criteria.

Phase One items should be implemented within two years (by 1995) and meet one or more of the following criteria:

The improvement mitigates existing safety concerns (top priority).

The improvement is easily achievable.

The improvement would positively affect a large number of people in a significant way.

The improvement can be scheduled as part of other planned improvements implemented prior to 1995.

Phase Two items should be implemented within seven years (by 2000) and meet the following criteria:

The improvement improves conditions for bicycle commuting and does not meet Phase One criteria.

Following are tables prepared to illustrate phasing of recommendations and approximate probable construction costs. Construction costs are in 1992 dollars. Items are keyed to Section 4 subsections.

TABLE 3: COSTS AND PROJECT PHASING

PHASE ONE PROJECTS (1993-1994)

ITEM	DESCRIPTION	COMMENTS	APPROX. IMP COSTS
4.1a	6'-8' wide bicycle lanes on Lomas Santa Fe Drive.	Can be implemented at time of next restriping project. Cost is for amount over and above routine restriping (scheduled for fiscal 93-94)	$20,000
4.1c	6' wide bicycle lanes on Lomas Santa Fe Drive west of Rios Avenue.	Part of train station project.	---
4.1d	Repair paving irregularities on Lomas Santa Fe Drive.	Can be implemented at time of next restriping project (scheduled for fiscal 93-94).	$10,000
4.1e	Intersection restriping on Lomas Santa Fe Drive.	Can be implemented at time of next restriping project (scheduled for fiscal 93-94). Cost shown is for over and above routine maintenance.	$ 5,000
4.1g	6'-14' wide bicycle lanes on southbound Highway 101.	Curb demo, curb construction, A.C. patching, restriping, signs.	$100,000
4.1h	6' wide Class II bicycle lane on northbound Highway 101.	Striping and signs.	$10,000
4.1i	Connections to future depot facility.	Part of train station project.	---
4.1j	Bicycle detectors at LSF Drive and Highway 101.	Implemented as part of future train station project.	$ 6,000
4.2b	Class III bicycle route on Highland and San Andres Dr.	Signs	$ 3,000
4.3a	Ongoing sign review and correction.		$ 4,000
4.4a	Bicycle parking at public facilities.	Contact District 11 for free program.	---
4.4b	Zoning Ordinance amendment.		---
4.4c	Safety and Awareness program.	See recommendation 4.7a.	---

4.5a	Bicycle detectors with signalization projects.	Costs shown are for costs, over and above standards signalization improvements. Two signalization projects are assumed in Phase One.	$ 4,000
4.6a-e	Coordination with Rail Depot project.	Part of depot project	---
4.6h	New bus stop.		$ 5,000
4.7a	Safety and awareness programs.	Costs dependent upon selection.	$10,000 per year
4.7b	Bicycle, coordination responsibilities.	It is assumed that these duties demand 30% of one staff person's time.	$20,000 per year
4.8a	Maintenance review.	Incorporate into regular staff duties.	---
4.9b	Increased maintenance.		$ 5,000 per year

PHASE TWO PROJECTS (1995-1999)

ITEM	DESCRIPTION	COMMENTS	APPROX. IMP COSTS
4.1b	Interstate 5 overpass slope modification.		$150,000
4.1c	Bicycle lanes on Lomas Santa Fe Drive west of Rios Ave.	Part of train station project.	---
4.1f	Bicycle detectors at signalization projects.	Assume 3 signalization projects from 1995 through 1999.	$18,000
4.2a	Class II bicycle lanes on Stevens Avenue.	Implemented when Stevens Avenue achieves ultimate width. Cost shown is for signage and striping.	$ 6,000
4.2c	Class II bicycle lanes on Highland Drive north of Lomas Santa Fe Drive.	Should be implemented sooner if Highland Drive is widened all the way to El Camino Real. Cost shown is for signs and striping.	$ 2,000

4.3a	Ongoing signage review and correction.		$ 6,000
4.3b	Directional sign program.	Variable, depending on design.	$4,000 - $16,000
4.6f	Enhanced bus stops.	Variable, depending on design and agreement with NCTD. Cost shown assumes four enhanced stops.	$24,000
4.6h	Park and Ride Facility.	Funded by Caltrans	---
4.7b	Bicycle Coordination Responsibilities	30% position	$20,000 per year

UNIT COSTS

The following table presents unit costs used as a basis for generating probable project costs above.

Concrete curb demolition	7.00 LF
Retaining wall demolition (3' height)	7.00 LF
Concrete sidewalk demolition	2.00 LF
Pavement striping sandblast	.45 LF
Pavement striping	.20 LF
PC concrete curb construction	10.00 LF
PC concrete sidewalk	3.00 SF
Retaining wall (7' height)	50.00 LF
AC pavement patch	1.50 SF
Bicycle detection system	6,000.00 per intersection

5.2 FUNDING SOURCES

The role of bicycling in our communities is expanding. The benefits of bicycle commuting are substantial, especially as they relate to the management of traffic congestion, the control of air pollution, and the conservation of resources. Acknowledgement of these benefits has led to a wide variety of programs that offer funding mechanisms for qualifying bikeways projects.

FEDERAL PROGRAMS

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 discusses creation of a national intermodal transportation system involving "all forms of transportation in a unified, interconnected manner". The ISTEA offers several opportunities to enhance bicycle and pedestrian facilities. Programs pertaining to bicycle enhancements are described below.

NATIONAL HIGHWAYS SYSTEM FUNDS (Under ISTEA)

Administration:	Through the State after SANDAG and Caltrans processing and inclusions in RTIP and STIP
Project Types:	Bicycle and pedestrian facilities on land adjacent to any highway on the National Highway System. Facilities must be principally for transportation rather than recreation. Some segments of PCH are being considered for inclusion in the NHS.
Funding:	Federal share of project's costs is 80%, with 20% from State or local sources.

SURFACE TRANSPORTATION PROGRAM FUNDS (Under ISTEA)

Administration:	Through the State after SANDAG and Caltrans processing and inclusions in RTIP and STIP
Project Types:	Construction of bicycle and pedestrian facilities, and non-construction projects (programs, services, etc.) related to safe bicycle use. Facilities must be principally for transportation rather than recreation. The "Transportation Enhancement Activities Program" is for "over-and-above normal" transportation projects and will distribute 200 million to California over the next six years.
Funding:	Federal share of project's costs is 80%, with 20% from State or local Sources.

CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM FUNDS (CMAQ)(Under ISTEA)

Administration: Through the State after SANDAG and Caltrans processing and inclusion in RTIP and STIP

Project Types: Construction of bicycle and pedestrian facilities, and non-construction projects (programs, services, etc.) related to safe bicycle use. Facilities must be principally for transportation rather than recreation.

Funding: Federal share of projects costs is 80%, with 20% from State or local sources.

SCENIC BYWAYS PROGRAM FUNDS (Under ISTEA)

Administration: Through the State after SANDAG and Caltrans processing and inclusion in RTIP and STIP

Project Types: Construction of bicycle and pedestrian facilities related to safe bicycle use along the highway.

Funding: Federal share of project costs is 80%, with 20% from State or local sources.

STATE PROGRAMS

TRANSPORTATION DEVELOPMENT ACT (LTF)

Administration: Through SANDAG to counties and cities.

Project Types: Safety education, design and construction of bicycle and pedestrian projects.

Funds Available: Varies according to sales tax receipts. Approximately $1.2 million for bikeway projects in the San Diego County area. This program funded the development of the Solana Beach Bikeway Master Plan.

Application Period: Due February 1, annually.

BICYCLE LANE ACCOUNT

Administration:	CalTrans District 11.
Project Types:	Design and construction of bikeways.
Funds Available:	$360,000 for projects generally, another $360,000 for projects on state highways (such as Highway 101)
Application Period:	Annually

PROPOSITION 116

Administration:	California Transportation Commission.
Project Types:	Bicycle commuting projects.
Funds Available:	None available for Solana Beach. $20 million was to have been available over a five year plan extending through 1996, but high demand has used up funds. Another $73 million is available for rural projects.
Application Period:	November 20

ENVIRONMENTAL MITIGATION FUNDS

Administration:	State Resource Agency
Project Types:	Mitigation projects where bikeways may be components.

COASTAL CONSERVANCY FUNDS

Administration:	Coastal Conservancy
Project Types:	Coastal access projects.
Funds Available:	Varies, approximately $1 million.

REGIONAL PROGRAMS

PROPOSITION A

Administration:	SANDAG
Project Types:	Bikeway projects.
Funds Available:	Approximately $1 million per year.
Application Period:	February 1

ASSEMBLY BILL 2766

Administration:	Air Pollution Control Board
Project Types:	Air pollution reduction projects related to alternate modes of transportation.
Funds Available:	Varies with motor vehicle registration fees, approximately $3 million per year for all projects.
Application Period:	Summer of 1993

COMMUTER COMPUTER

Administration:	CalTrans District 11
Project Types:	Bicycle locker and security device projects.
Funds Available:	Lockers and security devices will be provided, installed, and maintained for public agencies at no cost to the requesting agency. Commuter Computer also offers a locker loan program to private sector entities.
Application Period:	On-going

Section 6

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BIKEWAY PLANNING AND DESIGN

CALIFORNIA DEPARTMENT OF TRANSPORTATION

BIKEWAY PLANNING AND DESIGN

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FOREWORD

Purpose

This publication was assembled by the Office of Project Planning and Design, Division of Project Development for the benefit of those whose primary mission is the planning and design of bicycle facilities. The contents of this publication have been reproduced from the Highway Design Manual (essentially chapters 80 and 1000 in their entirety, and various other Tables, Figures, etc. which are referenced in chapters 80 and 1000).

The contents have been selected and assembled to function independently of the Highway Design Manual (HDM), so that the reader/user of this publication need not obtain the entire Highway Design Manual.

This publication establishes uniform policies and procedures to carry out the highway design functions of the California Department of Transportation (Caltrans). It is neither intended as, nor does it establish, a legal standard for these functions.

Many of the instructions given herein are subject to amendment as conditions and experience seem to warrant. Special situations may call for variation from requirement, subject to Office of Project Planning and Design approval, or such other approval as may be specifically provided for.

Scope

This publication is not a textbook or a substitute for engineering knowledge, experience, or judgment. It includes techniques as well as graphs and tables not ordinarily found in textbooks. These are intended as aids in the quick solution of field and office problems. Except for new developments, no attempt is made to detail basic engineering techniques; for these, standard textbooks should be used.

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Topic 81 - Project Development Overview

Index 81.1 - Philosophy

The Project Development process seeks to provide a degree of mobility that is in balance with other values. Social, economic, and environmental effects must be considered fully along with technical issues in the development of transportation projects so that final decisions are made in the best overall public interest, with attention to such considerations as:

(a) Need for safe and efficient transportation.

(b) Attainment of community goals and objectives.

(c) Needs of low mobility and minority groups.

(d) Costs of eliminating or minimizing adverse effects on natural resources, environmental values, public services, aesthetic values, and community and individual integrity.

(e) Planning based on realistic financial estimates.

(f) The cost, ease, and safety of maintaining whatever is built.

Proper consideration of these items requires that a facility be viewed from the different perspectives of the user, the nearby community, and larger statewide interests. For the user, efficient travel and safety are paramount concerns. At the same time, the community often is more concerned about local aesthetic, social, and economic impacts. The general population, however, tends to be interested in how successfully a project functions as part of the overall transportation system and how large a share of available capital resources it consumes. Therefore, individual projects must be selected for construction on the basis of both overall system benefits and community goals, plans, and values.

Decisions must also emphasize different transportation modes working together effectively.

The goal is to increase highway mobility and safety in a manner that is compatible with, or which enhances, adjacent community values and plans.

Topic 82 - Application of Standards

82.1 Highway Design Manual Standards

(1) General. The highway design criteria and policies in this manual provide a guide for the engineer to exercise sound judgment in applying standards, consistent with the above Project Development philosophy, in the design of projects.

The design standards used for any project should equal or exceed the minimum given in the Manual to the maximum extent feasible, taking into account costs, traffic volumes, traffic and safety benefits, right of way, socioeconomic and environmental impacts, etc. The philosophy provides for use of lower standards when such use best satisfies the concerns of a given situation. Because design standards have evolved over many years, many existing highways do not conform fully with current standards. It is not intended that current manual standards be applied retroactively to all existing State highways; such is neither warranted nor economically feasible. However, when warranted, upgrading of existing roadway features such as guardrail, lighting, superelevation, roadbed width, etc., should be considered, either as independent projects or as part of larger projects.

In addition to the design standards in this manual, the Traffic Manual contains standards relating to signs, delineation, barrier systems, signals, and lighting.

(2) Approvals. **To promote uniform practice on a statewide basis, design standards lower than mandatory standards indicated herein shall require approval from the Chief, Office of Project Planning and Design.**

The Chief, OPPD has delegated this approval authority to the Project Development

Coordinators. The Coordinator for a District normally will review and approve exceptions to mandatory design standards or, at the Coordinator's discretion, the District may be required to submit a written request to the Chief, OPPD, for approval of the nonstandard feature.

82.2 Use of FHWA and AASHTO Standards and Policies

The standards in this manual generally conform to the standards and policies set forth in the AASHTO publication, "A Policy on Geometric Design of Highways and Streets" (1984) and "A Policy on Design Standards-Interstate System" (1988), together with other AASHTO and FHWA documents cited in 23 CFR Ch. 1, Part 625, Appendix A. These two documents, plus a third AASHTO publication focused on creating safer roadsides, "Roadside Design Guide" (1988), contain most of the current AASHTO policies and standards, and are approved references to be used in conjunction with this manual. AASHTO policies and standards, which are established as nationwide standards, do not always satisfy California conditions. When standards differ, the instructions in this manual govern, except when necessary for FHWA project approval (Index 108.3, Coordination with the FHWA).

82.3 Mandatory and Advisory Standards

In this manual design standards are ranked in order of importance in development of a safe State highway system operating at selected levels of service commensurate with projected traffic volumes and highway classification.

(1) Mandatory Standards. Mandatory design standards are those considered most essential to achievement of overall design objectives. Many pertain to requirements of law or regulations such as those embodied in the FHWA's 13 controlling criteria (Index 108.3), bikeways (Chapter 1000), soundwalls (Chapter 1100), etc. Mandatory standards use the word "shall" and are printed in **Boldface** type (see Table 82.3A).

(2) Advisory Standards. Advisory design standards are important also, but allow greater flexibility in application to accommodate design constraints or be compatible with local conditions on resurfacing or rehabilitation projects. Advisory standards use the word "should" and are indicated by Underlining (see Table 82.3B).

(3) Permissive Standards. All standards other than mandatory or advisory, whether indicated by the use of "should" or "may", are permissive with no requirement for application intended.

(4) Mandatory Procedural Requirements. Required procedures and policies for which Caltrans is responsible, relating to project clearances, permits, licenses, required tests, documentation, value engineering, etc., are indicated by use of the word "must". Procedures and actions to be done by others (subject to notification by Caltrans), or statements of fact are indicated by the word "will".

As stated in Index 82.1 above, authority to approve exceptions from mandatory design standards has been delegated to the Project Development Coordinators in OPPD. Authority to approve exceptions from advisory design standards has similarly been delegated to the District Directors. Proposals for exceptions from advisory standards should be discussed with the Project Development Coordinators during development. Responsibility for establishment of procedures for review, documentation, and long term retention of approved exceptions from advisory design standards is delegated to the Districts, also.

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BIKEWAY PLANNING AND DESIGN

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"Bikeway" means all facilities that provide primarily for bicycle travel.

(1) Class I Bikeway (Bike Path). Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with cross-flow minimized.

(2) Class II Bikeway (Bike Lane). Provides a striped lane for one-way bike travel on a street or highway.

(3) Class III Bikeway (Bike Route). Provides for shared use with pedestrian or motor vehicle traffic.

More detailed definitions are contained in Section 2373 of the Streets and Highways Code.

1001.2 Streets and Highways Code References

(a) Section 157--Severance of a major bicycle route by freeway construction.

(b) Section 157.2--Incorporation of bicycle facilities in the design of freeways.

(c) Chapter 8--California Bikeways Act.

(d) Section 2374--Caltrans to establish design criteria for bikeways.

(e) Section 2376--Local agencies must comply to the criteria established by Caltrans.

(f) Section 2381--Use of abandoned right of way as a bicycle facility.

1001.3 Vehicle Code References

(a) 21100(H)--Operation of bicycles on sidewalks.

(b) 21207.5--Prohibition of motorized bicycles on Class I and II bikeways.

(c) 21208--Mandatory use of bike lanes by bicyclists.

(d) 21210--Bicycle parking.

(e) 21960--Use of freeway shoulders by bicyclists.

Topic 1002 - General Planning Criteria

1002.1 Introduction

Bicycle travel can be enhanced by improved maintenance and by upgrading existing roads used regularly by bicyclists, regardless of whether or not bikeways are designated. This effort requires increased attention to the right-hand portion of roadways where bicyclists are expected to ride. On new construction, and major reconstruction projects, adequate width should be provided to permit shared use by motorists and bicyclists. **On resurfacing projects, the entire paved shoulder and traveled way shall be resurfaced. When adding lanes or turn pockets, a minimum 4-foot shoulder shall be provided (see Table 302.1).** When placing a roadway edge stripe, sufficient room outside the stripe should be provided for bicyclists. When considering the restriping of roadways for more traffic lanes, the impact on bicycle travel should be assessed. These efforts, to preserve or improve an area for bicyclists to ride, can benefit motorists as well as bicyclists.

1002.2 The Role of Bikeways

Bikeways are one element of an effort to improve bicycling safety and convenience - either to help accommodate motor vehicle and bicycle traffic on shared roadways, or to complement the road system to meet needs not adequately met by roads.

Off-street bikeways in exclusive corridors can be effective in providing new recreational opportunities, or in some instances, desirable commuter routes. They can also be used to close gaps where barriers exist to bicycle travel (e.g., river crossing). On-street bikeways can serve to enhance safety and convenience, especially if other commitments are made in conjunction with establishment of bikeways, such as: elimination of parking or increasing roadway width, elimination of surface irregularities and roadway obstacles, frequent street sweep-

ing, establishing intersection priority on the bike route street as compared with the majority of cross streets, and installation of bicycle-sensitive loop detectors at signalized intersections.

1002.3 The Decision to Develop Bikeways

The decision to develop bikeways should be made with the knowledge that bikeways are not the solution to all bicycle-related problems. Many of the common problems are related to improper bicyclist and motorist behavior and can only be corrected through effective education and enforcement programs. The development of well conceived bikeways can have a positive effect on bicyclist and motorist behavior. Conversely, poorly conceived bikeways can be counterproductive to education and enforcement programs.

1002.4 Selection of the Type of Facility

The type of facility to select in meeting the bicycle need is dependent on many factors, but the following applications are the most common for each type.

(1) Shared Roadway (No Bikeway Designation). Most bicycle travel in the State now occurs on streets and highways without bikeway designations. This probably will be true in the future as well. In some instances, entire street systems may be fully adequate for safe and efficient bicycle travel, and signing and striping for bicycle use may be unnecessary. In other cases, routes may be unsuitable for bicycle travel, and it would be inappropriate to encourage additional bicycle travel by designating the routes as bikeways. Finally, routes may not be along high bicycle demand corridors, and it would be inappropriate to designate bikeways regardless of roadway conditions (e.g., on minor residential streets).

Many rural highways are used by touring bicyclists for intercity and recreational travel. In most cases, it would be inappropriate to designate the highways as bikeways because of the limited use and the lack of continuity with other bike routes. However, the development and maintenance of 4-foot paved roadway shoulders with a standard 4-inch edge stripe can significantly improve the safety and convenience for bicyclists and motorists along such routes.

(2) Class I Bikeway (Bike Path). Generally, bike paths should be used to serve corridors not served by streets and highways or where wide right of way exists, permitting such facilities to be constructed away from the influence of parallel streets. Bike paths should offer opportunities not provided by the road system. They can either provide a recreational opportunity, or in some instances, can serve as direct high-speed commute routes if cross flow by motor vehicles can be minimized. The most common applications are along rivers, ocean fronts, canals, utility right of way, abandoned railroad right of way, within college campuses, or within and between parks. There may also be situations where such facilities can be provided as part of planned developments. Another common application of Class I facilities is to close gaps to bicycle travel caused by construction of freeways or because of the existence of natural barriers (rivers, mountains, etc.).

(3) Class II Bikeway (Bike Lane). Bike lanes are established along streets in corridors where there is significant bicycle demand, and where there are distinct needs that can be served by them. The purpose should be to improve conditions for bicyclists in the corridors. Bike lanes are intended to delineate the right of way assigned to bicyclists and motorists and to provide for more predictable movements by each. But a more important reason for constructing bike lanes is to better accommodate bicyclists through corridors where insufficient room exists for safe bicycling on existing streets. This can be accomplished by reducing the number of lanes, or prohibiting parking on given streets in order to delineate bike lanes. In addition, other things can be done on bike lane streets to improve the situation for bicyclists, that might not be possible on all streets (e.g., improvements to the surface, augmented sweeping programs, special signal facilities, etc.). Generally, stripes alone will not measurably enhance bicycling.

If bicycle travel is to be controlled by delineation, special efforts should be made to assure that high levels of service are provided with these lanes.

In selecting appropriate streets for bike lanes, location criteria discussed in the next section should be considered.

(4) Class III Bikeway (Bike Route). Bike routes are shared facilities which serve either to:

(a) Provide continuity to other bicycle facilities (usually Class II bikeways); or

(b) Designate preferred routes through high demand corridors.

As with bike lanes, designation of bike routes should indicate to bicyclists that there are particular advantages to using these routes as compared with alternative routes. This means that responsible agencies have taken actions to assure that these routes are suitable as shared routes and will be maintained in a manner consistent with the needs of bicyclists. Normally, bike routes are shared with motor vehicles. The use of sidewalks as Class III bikeways is strongly discouraged.

It is emphasized that the designation of bikeways as Class I, II and III should not be construed as a hierarchy of bikeways; that one is better than the other. Each class of bikeway has its appropriate application.

In selecting the proper facility, an overriding concern is to assure that the proposed facility will not encourage or require bicyclists or motorists to operate in a manner that is inconsistent with the rules of the road.

An important consideration in selecting the type of facility is continuity. Alternating segments of Class I and Class II (or Class III) bikeways along a route are generally incompatible, as street crossings by bicyclists are required when the route changes character. Also, wrong-way bicycle travel will occur on the street beyond the ends of bike paths because of the inconvenience of having to cross the street.

Topic 1003 - Design Criteria

1003.1 Class I Bikeways

Class I bikeways (bike paths) are facilities with exclusive right of way, with cross flows by motorists minimized. Section 2373 of the Streets and Highways Code describes Class I bikeways as serving "the exclusive use of bicycles and pedestrians". However, experience has shown that if significant pedestrian use is anticipated, separate facilities for pedestrian are necessary to minimize conflicts.

Sidewalk facilities are not considered Class I facilities because they are primarily intended to serve pedestrians, generally cannot meet the design standards for Class I bikeways, and do not minimize motorist cross flows. See Index 1003.3 for discussion relative to sidewalk bikeways.

By State law, motorized bicycles ("mopeds") are prohibited on bike paths unless authorized by ordinance or approval of the agency having jurisdiction over the path. Likewise, all motor vehicles are prohibited from bike paths. These prohibitions can be strengthened by signing.

(1) Widths. **The minimum paved width for a two-way bike path shall be 8 feet. The minimum paved width for a one-way bike path shall be 5 feet. A minimum 2-foot wide graded area shall be provided adjacent to the pavement (see Figure 1003.1A).** A 3-foot graded area is recommended. Where the paved width is wider than the minimum required, the graded area may be reduced accordingly; however, the graded area is a desirable feature regardless of the paved width. Development of a one-way bike path should be undertaken only after careful consideration due to the problems of enforcing one-way operation and the difficulties in maintaining a path of restricted width.

Where heavy bicycle volumes are anticipated and/or significant pedestrian traffic is expected, the paved width of a two-way path should be greater than 8 feet, preferably 12 feet or more. Dual use by pedestrians and bicycles is undesirable, and the two should be separated wherever possible. Another important factor to consider in determining the appropriate width is that bicyclists will tend to ride side by side on bike paths, necessitating more width for safe use.

Experience has shown that paved paths less than 12 feet wide sometimes break up along the edge as a result of loads from maintenance vehicles.

Where equestrians are expected, a separate facility should be provided.

Figure 1003.1A

Two-way Bike Path on Separate Right of Way

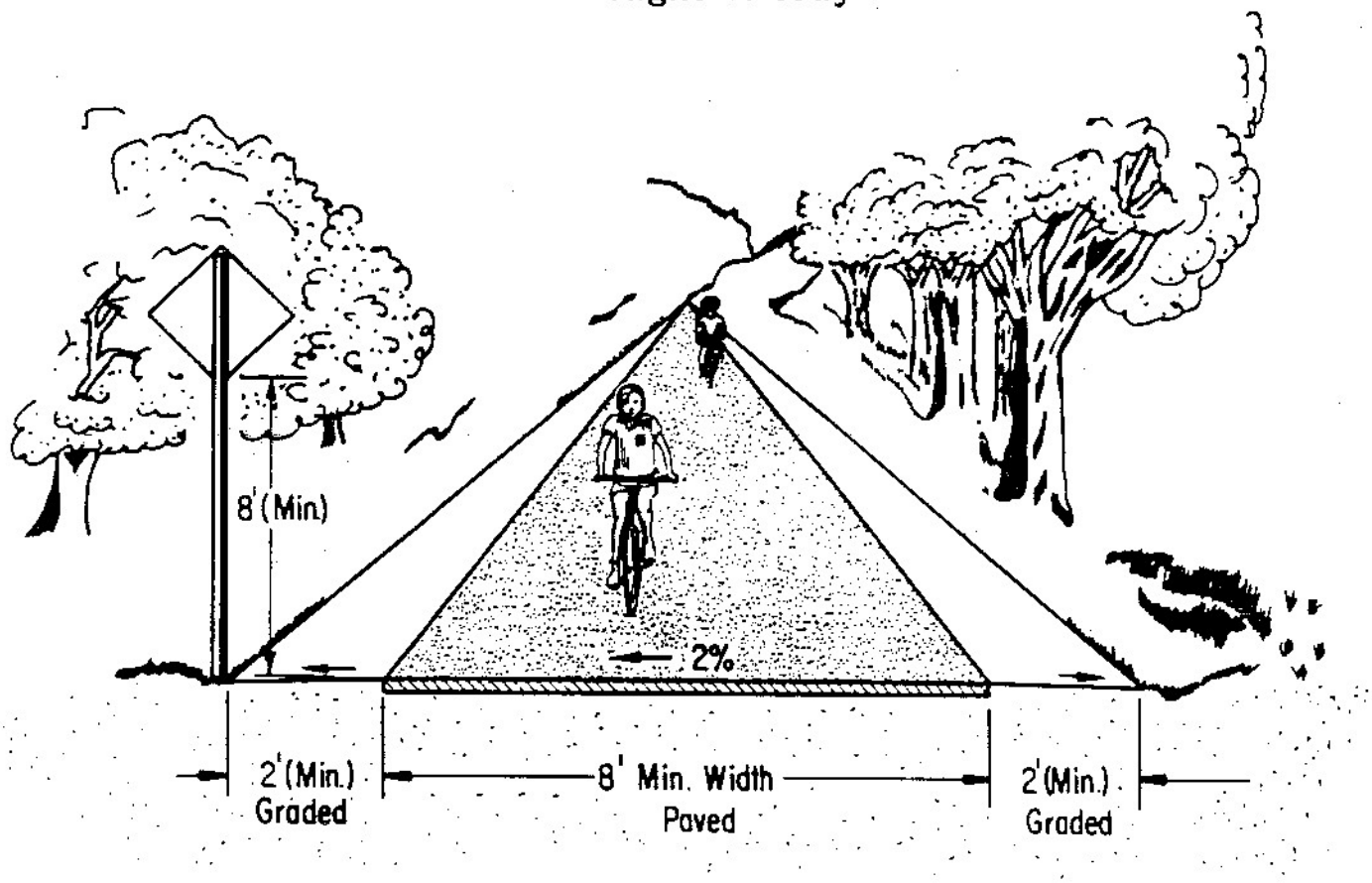
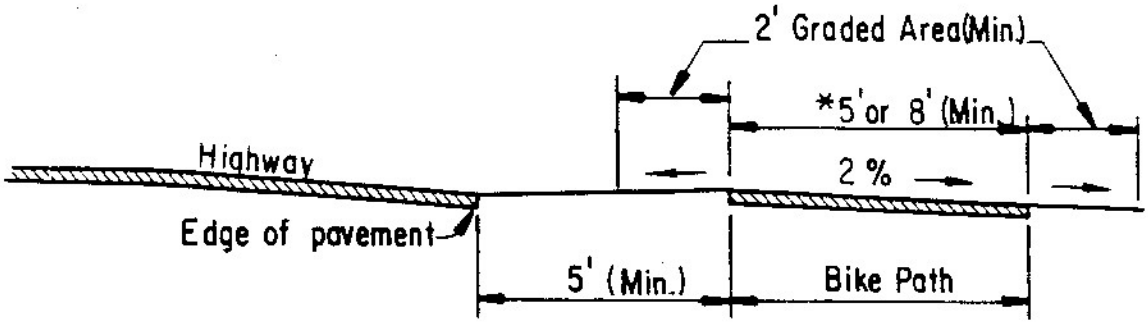


Figure 1003.1B

Typical Cross Section of Bike Path Along Highway



*One-Way: 5' Minimum Width
Two-Way: 8' Minimum Width

(2) Clearance to Obstructions. **A minimum 2-foot horizontal clearance to obstructions shall be provided adjacent to the pavement (see Figure 1003.1A).** A 3-foot clearance is recommended. Where the paved width is wider than the minimum required, the clearance may be reduced accordingly; however, an adequate clearance is desirable regardless of the paved width. If a wide path is paved contiguous with a continuous fixed object (e.g., block wall), a 4-inch white edge stripe, 1-foot from the fixed object, is recommended to minimize the likelihood of a bicyclist hitting it. **The clear width on structures between railings shall be not less than 8 feet.** It is desirable that the clear width of structures be equal to the minimum clear width of the path (i.e., 12 feet).

The vertical clearance to obstructions across the clear width of the path shall be a minimum of 8 feet.

(3) Striping and Signing. A yellow centerline stripe may be used to separate opposing directions of travel. A centerline stripe is particularly beneficial in the following circumstances:

(a) Where there is heavy use;

(b) On curves with restricted sight distance; and,

(c) Where the path is unlighted and nighttime riding is expected. (Refer to Topic 1004 for signing and striping details.)

(4) Intersections with Highways. Intersections are a prime consideration in bike path design. If alternate locations for a bike path are available, the one with the most favorable intersection conditions should be selected.

Where motor vehicle cross traffic and bicycle traffic is heavy, grade separations are desirable to eliminate intersection conflicts. Where grade separations are not feasible, assignment of right of way by traffic signals should be considered. Where traffic is not heavy, stop or yield signs for bicyclists may suffice.

When crossing an arterial street, the crossing should either occur at the pedestrian crossing, where motorists can be expected to stop, or at a location completely out of the influence of any intersection to permit adequate opportunity for bicyclists to see turning vehicles. When crossing at midblock locations, right of way should be assigned by devices such as yield signs, stop signs, or traffic signal which can be activated by bicyclists. Even when crossing within or adjacent to the pedestrian crossing, stop or yield signs for bicyclists should be placed to minimize potential for conflict resulting from turning autos. Where bike path signs are visible to approaching auto traffic, they should be shielded to avoid confusion. In some cases, Bike Xing signs may be placed in advance of the crossing to alert motorists. Ramps should be installed in the curbs, to preserve the utility of the bike path.

(5) Separation Between Bike Paths and Highways. A wide separation is recommended between bike paths and adjacent highways (see Figure 1003.1B). **Bike paths closer than 5 feet from the edge of the traveled way shall include a physical barrier to prevent bicyclists from encroaching onto the highway.** Suitable barriers could include chain link fences or dense shrubs. Low barriers (e.g., dikes, raised traffic bars) next to a highway are not recommended because bicyclists could fall over them and into oncoming automobile traffic. In instances where there is danger of motorists encroaching into the bike path, a positive barrier (e.g., concrete barrier, steel guardrailing) should be provided. See Index 1003.6 for criteria relative to bike paths carried over highway bridges.

Bike paths immediately adjacent to streets and highways are not recommended. They should not be considered a substitute for the street, because many bicyclists will find it less convenient to ride on these types of facilities as compared with the streets, particularly for utility trips.

(6) Bike Paths in the Median of Highways. As a general rule, bike paths in the median of highways are not recommended because they require movements contrary to normal rules of the road. Specific problems with such facilities include:

(a) Bicyclist right turns from the center of roadways are unnatural for bicyclists and confusing to motorists.

(b) Proper bicyclist movements through intersections with signals are unclear.

(c) Left-turning motorists must cross one direction of motor vehicle traffic and two di-

rections of bicycle traffic, which increases conflicts.

(d) Where intersections are infrequent, bicyclists will enter or exit bike paths at midblock.

(e) Where medians are landscaped, visual relationships between bicyclists and motorists at intersections are impaired.

For the above reasons, bike paths in the median of highways should be considered only when the above problems can be avoided.

(7) Design Speed. The proper design speed for a bike path is dependent on the expected type of use and on the terrain. **The minimum design speed for bike paths shall be 20 mph except as noted in the table below.**

Type of Facility	Design Speed (mph)
Bike Paths with Mopeds Prohibited	20
Bike Paths with Mopeds Permitted	30
Bike Paths on Long Downgrades (steeper than 4%, and longer than 500 ft.)	30

Installation of "speed bumps" or other similar surface obstructions, intended to cause bicyclists to slow down in advance of intersections, shall not be used. These devices cannot compensate for improper design.

(8) Horizontal Alignment and Superelevation. Minimum recommended curve radii and superelevations for various design speeds are shown on Figure 1003.1C. When minimum curve radii are selected, increased pavement width on the inside of the curve is recommended to compensate for bicyclist lean.

A straight 2% cross slope is recommended on tangent sections. Superelevations steeper than 2% should be avoided on bike paths expected to have adult tricycle traffic.

(9) Stopping Sight Distance. Figure 1003.1D indicates the minimum stopping sight distances for various design speeds and grades. For two-way bike paths, the descending direction will control the design.

(10) Length of Crest Vertical Curves. Figure 1003.1E indicates the minimum lengths of crest vertical curves for varying design speeds.

(11) Lateral Clearance on Horizontal Curves. Figure 1003.1F indicates the minimum clearances to line of sight obstructions for horizontal curves. The required lateral clearance is obtained by entering Figure 1003.1F with the stopping sight distance from Figure 1003.1D and the proposed horizontal curve radius.

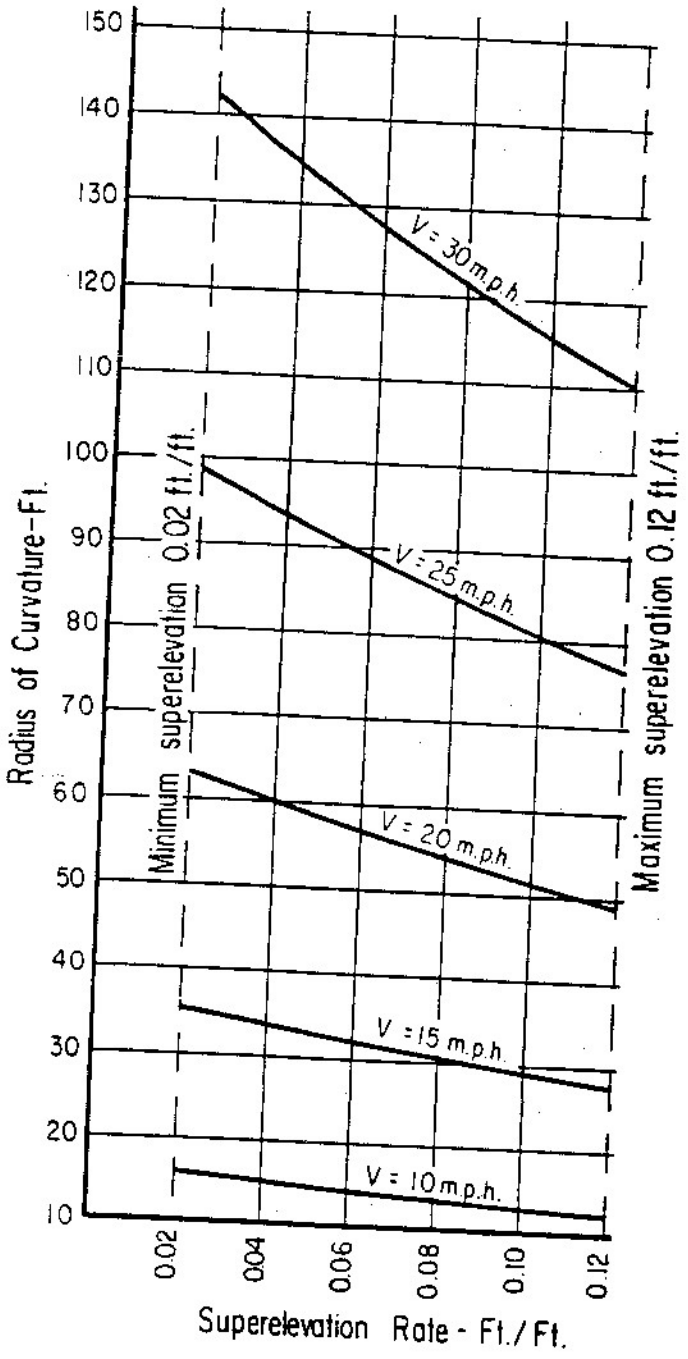
(12) Grades. Bike paths generally attract less skilled bicyclists, so it is important to avoid steep grades in their design. Bicyclists not physically conditioned will be unable to negotiate long, steep uphill grades. Since novice bicyclists often ride poorly maintained bicycles, long downgrades can cause problems. For these reasons, bike paths with long, steep grades will generally receive very little use. The maximum grade rate recommended for bike paths is 5%. It is desirable that sustained grades be limited to 2% if a wide range of riders is to be accommodated. Steeper grades can be tolerated for short segments (e.g., up to about 500 feet). Where steeper grades are necessitated, the design speed should be increased and additional width should be provided for maneuverability.

(13) Structural Section. The structural section of a bike path should be designed in the same manner as a highway, with consideration given to the quality of the basement soil and the anticipated loads the bikeway will experience. Principal loads will normally be from maintenance and emergency vehicles. Expansive soil should be given special consideration and will probably require a special structural section. A minimum pavement thickness of 2 inches of asphalt concrete is recommended. Type "A" or "B" asphalt concrete (as described in Department of Transportation Standard Specifications), with 1/2-inch maximum aggregate and medium grading is recommended. Consideration should be given to increasing the asphalt content to provide increased pavement life. Consideration should also be given to sterilization of basement soil to preclude possible weed growth through the pavement.

(14) Drainage. For proper drainage, the surface of a bike should have a cross slope of 2%. Sloping in one direction usually simplifies longitudinal drainage design and surface construction, and accordingly is the preferred

Figure 1003.1C

Curve Radii & Superelevations

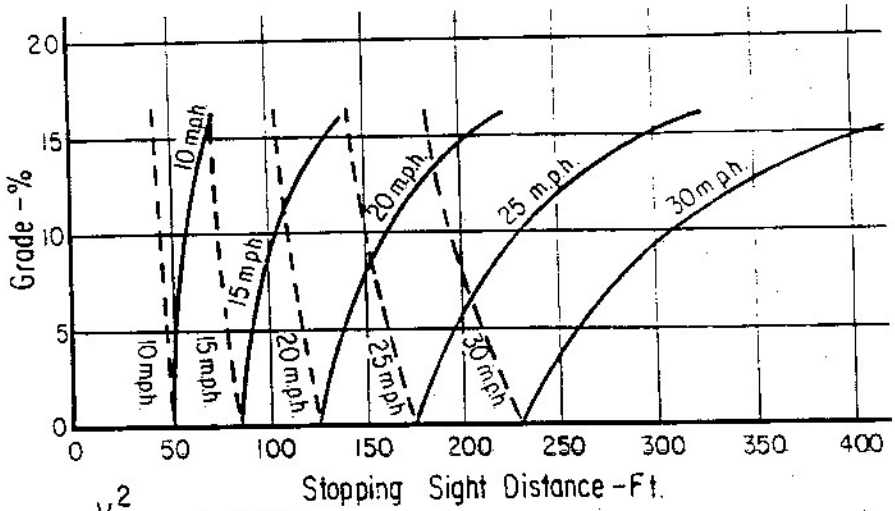


plot of: $\frac{V^2}{gR} = \frac{\tan\theta + f}{1 - f\tan\theta}$

where: V = velocity, ft./sec.
g = acceleration due to gravity, ft./sec.^{2}
R = radius of curvature, ft.
f = coefficient of friction on dry pavement = 0.4 (based on maximum 20° lean)
tan θ = superelevation rate, ft./ft.

Figure 1003.1D

Stopping Sight Distance

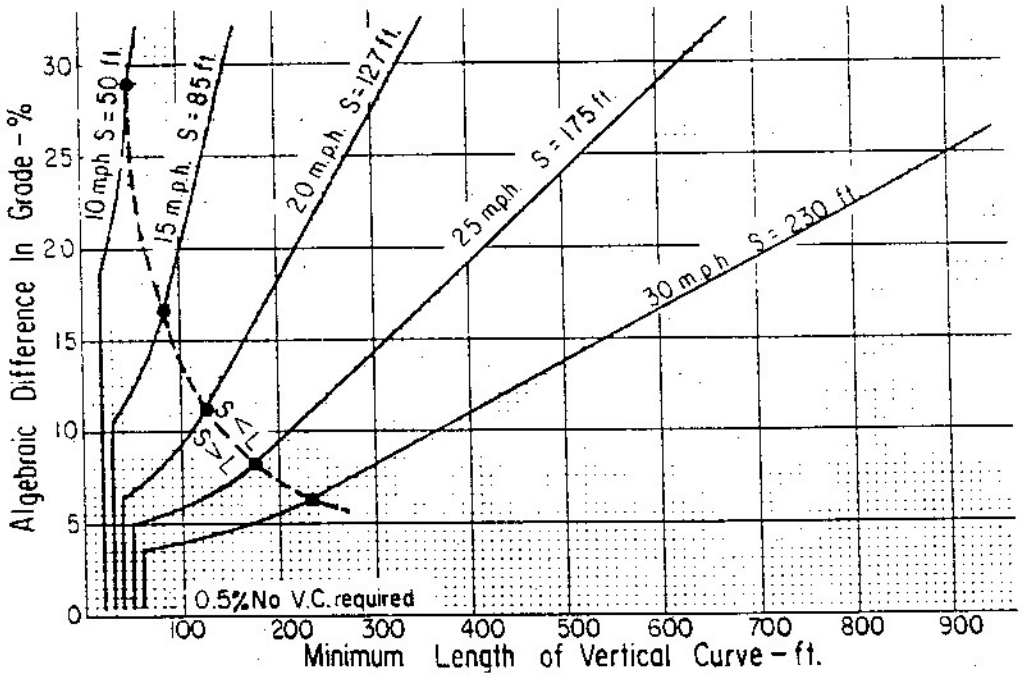


$$S = \frac{V^2}{30(f \pm G)} + 3.67\,V$$

where: S = stopping sight distance, ft.
V = velocity, mph.
f = coefficient of friction (use 0.25)
G = grade ft./ft. (rise/run)

Descend ——————
Ascend - - - - - -

Sight Distances for Crest Vertical Curves



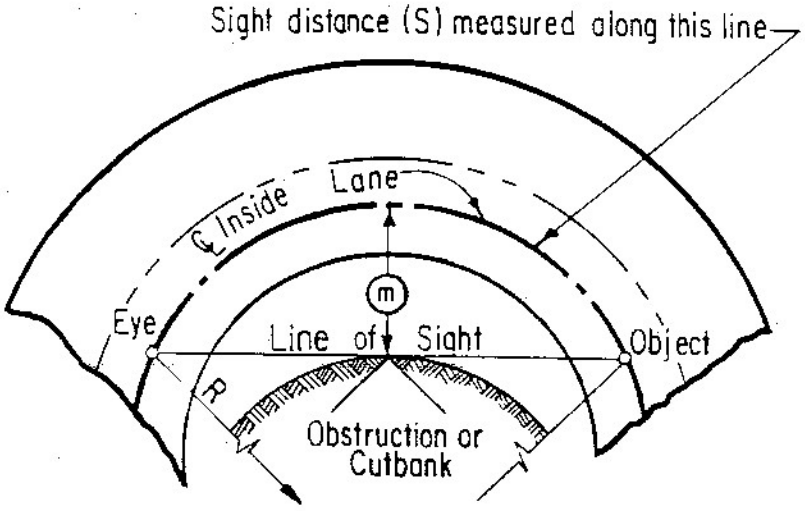
$$L = 2S - \frac{200\left(\sqrt{h_1} + \sqrt{h_2}\right)^2}{A} \quad \text{when } S > L$$

$$L = \frac{AS^2}{100\left(\sqrt{2h_1} + \sqrt{2h_2}\right)^2} \quad \text{when } S < L$$

where: S = Stopping sight distance.
A = Algebraic difference in grade.
h_1 = 4 1/2 ft. - eye height of cyclist.
h_2 = 1/3 ft. - height of object.
L = Minimum vertical curve length.

Figure 1003.1F

Lateral Clearances on Horizontal Curves



Line of sight is 2.0' above ℄ inside lane at point of obstruction.

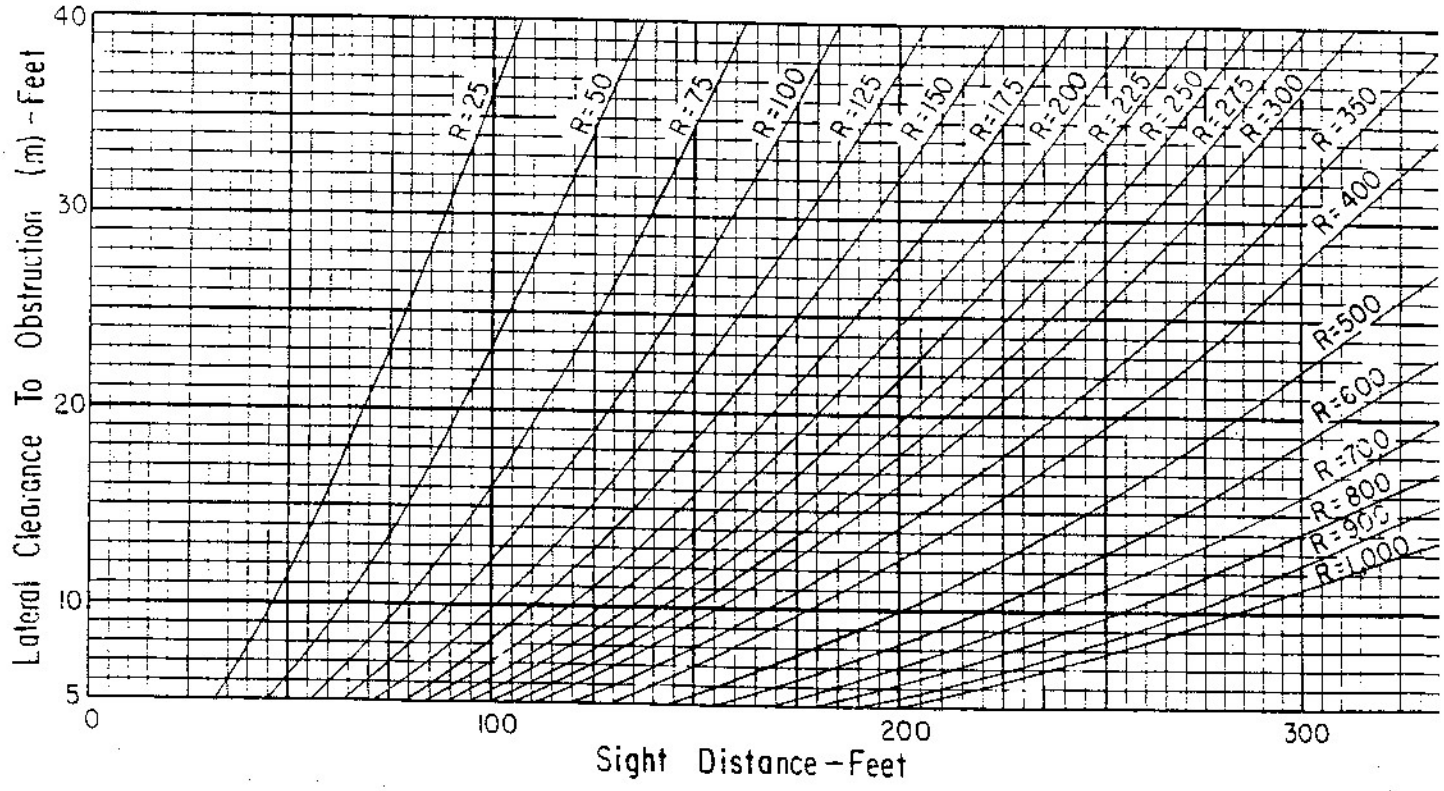
S = Sight distance in feet.
R = Radius of ℄ inside lane in feet.
M = Distance from ℄ inside lane in fee
V = Design speed for S in M.P.H.

Angle is expressed in degrees

$$m = R\left[\text{vers}\left(\frac{28.65S}{R}\right)\right]$$

$$S = \frac{R}{28.65}\left[\cos^{-1}\left(\frac{R-m}{R}\right)\right]$$

Formula applies only when S is equal to or less than length of curve.



practice. Ordinarily, surface drainage from the path will be adequately dissipated as it flows down the gently sloping shoulder. However, when a bike path is constructed on the side of a hill, a drainage ditch of suitable dimensions may be necessary on the uphill side to intercept the hillside drainage. Where necessary, catch basins with drains should be provided to carry intercepted water across the path.

Culverts or bridges are necessary where a bike path crosses a drainage channel.

(15) Barrier Posts. It may be necessary to install barrier posts at entrances to bike paths to prevent motor vehicles from entering. When locating such installations, care should be taken to assure that barriers are well marked and visible to bicyclists, day or night (i.e., install reflectors or reflectorized tape).

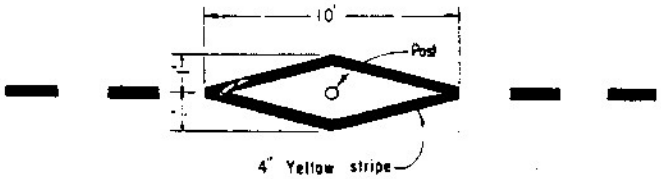
Striping an envelope around the barriers is recommended (see Figure 1003.1G). If sight distance is limited, special advance warning signs or painted pavement warnings should be provided. Where more than one post is necessary, a 5-foot spacing should be used to permit passage of bicycle-towed trailers, adult tricycles, and to assure adequate room for safe bicycle passage without dismounting. Barrier post installations should be designed so they are removable to permit entrance by emergency and service vehicles.

Generally, barrier configurations that preclude entry by motorcycles present safety and convenience problems for bicyclists. Such devices should be used only where extreme problems are encountered.

1003.2 Class II Bikeways

Class II bikeways (bike lanes) for preferential use by bicycles are established within the paved area of highways. Bike lane stripes are intended to promote an orderly flow of traffic, by establishing specific lines of demarcation between areas reserved for bicycles and lanes to be occupied by motor vehicles. This effect is supported by bike lane signs and pavement markings. Bike lane stripes can increase bicyclists' confidence that motorists will not stray into their path of travel if they remain within the bike lane. Likewise, with more certainty as to where bicyclists will be, passing motorists are less apt to swerve toward opposing traffic in making certain they will not hit bicyclists.

Figure 1003.1G
Barrier Post Striping



Class II bike lanes shall be one-way facilities. Two-way bike lanes (or bike paths that are contiguous to the roadway) are not permitted, as such facilities have proved unsatisfactory.

(1) Widths. Typical Class II bikeway configurations are illustrated in Figure 1003.2A and are described below:

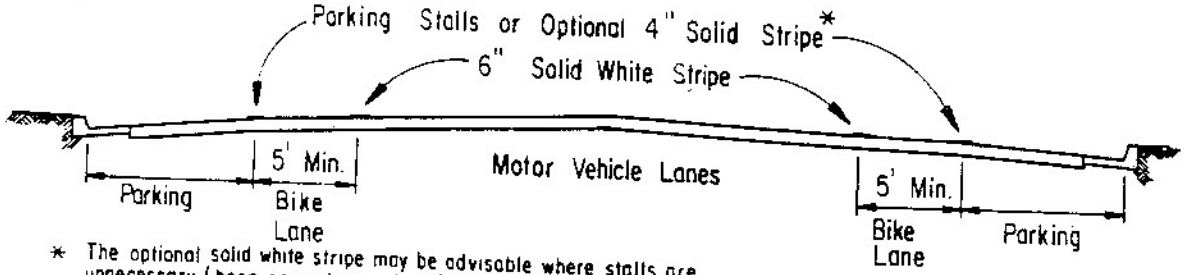
(a) Figure 1003.2A-1 depicts bike lanes on an urban type curbed street where parking stalls (or continuous parking stripes) are marked. Bike lanes are located between the parking area and the traffic lanes. Minimum widths are as shown.

Bike lanes shall not be placed between the parking area and the curb. Such facilities increase the conflict between bicyclists and opening car doors and reduce visibility at intersections. Also, they prevent bicyclists from leaving the bike lane to turn left and cannot be effectively maintained.

(b) Figure 1003.2A-2 depicts bike lanes on an urban-type curbed street, where parking is permitted, but without parking stripe or stall marking. Bike lanes are established in conjunction with the parking areas. **As indicated, 11 feet or 12 feet (depending on the type of curb) shall be the minimum width of the bike lane where parking is permitted.** This type of lane is satisfactory where parking is not extensive and where turnover of parked cars is infrequent.

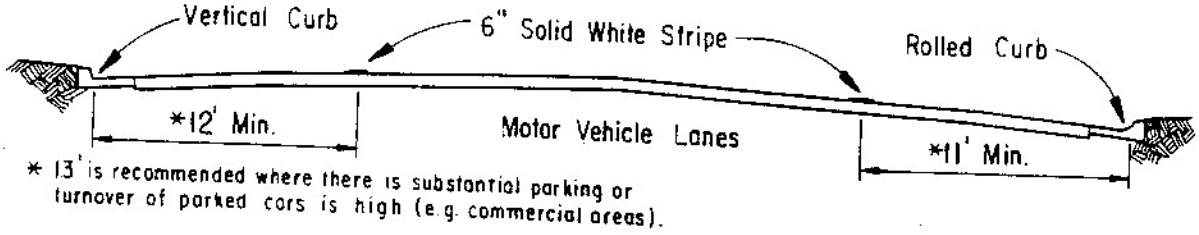
Figure 1003.2A

Typical Bike Lane Cross Sections (On 2-lane or Multilane Highways)



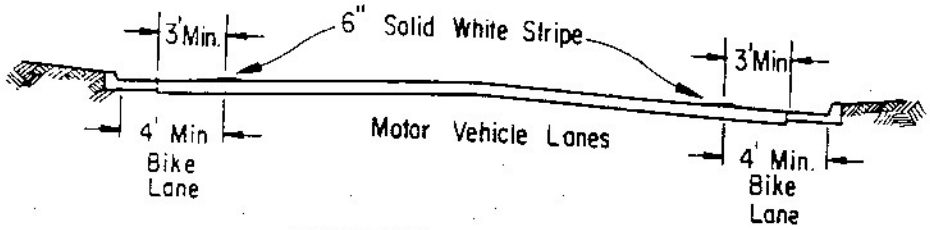
* The optional solid white stripe may be advisable where stalls are unnecessary (because parking is light) but there is concern that motorists may misconstrue the bike lane to be a traffic lane.

(1) STRIPED PARKING

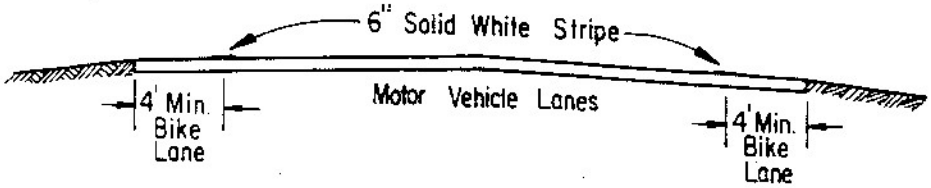


* 13' is recommended where there is substantial parking or turnover of parked cars is high (e.g. commercial areas).

(2) PARKING PERMITTED WITHOUT PARKING STRIPE OR STALL



(3) PARKING PROHIBITED



(4) TYPICAL ROADWAY IN OUTLYING AREAS PARKING RESTRICTED

However, if parking is substantial or turnover of parked cars is high, additional width is recommended.

(c) Figure 1003.2A-3 depicts bike lanes along the outer portions of an urban type curbed street, where parking is prohibited. This is generally the most desirable configuration for bike lanes, as it eliminates potential conflicts resulting from auto parking (e.g., opening car doors). **Minimum widths shall be as shown. Both minimums shall be achieved. With a normal 2-foot gutter, the minimum bike lane width shall be 5 feet.** The intent is to provide a minimum 4-foot wide bike lane, but with at least 3 feet between the traffic lane and the longitudinal joint at the concrete gutter, since the gutter reduces the effective width of the bike lane for two reasons. First, the longitudinal joint may not always be smooth, and may be difficult to ride along. Secondly, the gutter does not provide a suitable surface for bicycle travel. Where gutters are wide (say, 4 feet), an additional 3 feet must be provided because bicyclists should not be expected to ride in the gutter. Wherever possible, the width of bike lanes should be increased to 6 to 8 feet to provide for greater safety. Eight-foot bike lanes can also serve as emergency parking areas for disabled vehicles.

Striping bike lanes next to curbs where parking is prohibited only during certain hours shall be done only in conjunction with special signing to designate the hours bike lanes are to be effective. Since the Vehicle Code requires bicyclists to ride in bike lanes where provided (except under certain conditions), proper signing is necessary to inform bicyclists that they are required to ride in bike lanes only during the course of the parking prohibition. This type of bike lane should be considered only if the vast majority of bicycle travel would occur during the hours of the parking prohibition, and only if there is a firm commitment to enforce the parking prohibition. Because of the obvious complications, this type of bike lane is not encouraged for general application.

Figure 1003.2A-4 depicts bike lanes on a highway without curbs and gutters. This location is in an undeveloped area where infrequent parking is handled off the pavement. This can be accomplished by supplementing the bike lane signing with R25 (park off pavement) signs, or R26 (no parking) signs. **Minimum widths shall be as shown.** Additional width is desirable, particularly where motor vehicle speeds exceed 40 mph.

The typical motor vehicle lane width next to a bike lane is 12 feet. There are situations where it may be necessary to reduce the width of motor vehicle lanes in order to stripe bike lanes. In determining the appropriateness of narrower motor vehicle lanes, consideration should be given to factors such as motor vehicle speeds, truck volumes, alignment, and sight distance. Where favorable conditions exist, motor vehicle lanes of 11 feet may be feasible.

Bike lanes are not advisable on long, steep downgrades, where bicycle speeds greater than 30 mph are expected. As grades increase, downhill bicycle speeds will increase, which increases the problem of riding near the edge of the roadway. In such situations, bicycle speeds can approach those of motor vehicles, and experienced bicyclists will generally move into the motor vehicle lanes to increase sight distance and maneuverability. If bike lanes are to be striped, additional width should be provided to accommodate higher bicycle speeds.

If the bike lanes are to be located on one-way streets, they should be placed on the right side of the street. Bike lanes on the left side would cause bicyclists and motorists to undertake crossing maneuvers in making left turns onto a two-way street.

(2) Striping and Signing. Details for striping and signing of bike lanes are included under Topic 1004.

Raised barriers (e.g., raised traffic bars and asphalt concrete dikes) or raised pavement markers shall not be used to delineate bike lanes. Raised barriers prevent motorists from merging into bike lanes before making right turns, as required by the Vehicle Code, and restrict the movement of bicyclists desiring to enter or exit bike lanes. They also impede routine maintenance. Raised pavement markers increase the difficulty for bicyclists when entering or exiting bike lanes, and discourage motorists from merging into bike lanes before making right turns.

Bike lane stripes should be placed a constant distance from the outside motor vehicle lane. Bike lanes with parking permitted (11 ft to 13 ft between the bike lane line and the curb) should not be directed toward the curb at intersections or localized areas where parking is prohibited. Such a practice prevents bicyclists from following a straight course. Where transitions from one type of bike lane to another are necessary, smooth tapers should be provided.

(3) Intersection Design. Most auto/bicycle accidents occur at intersections. For this reason, bikeway design at intersections should be accomplished in a manner that will minimize confusion by motorists and bicyclists, and will permit both to operate in accordance with the normal rules of the road.

Figure 1003.2B illustrates a typical intersection of multilane streets, with bike lanes on all approaches. Some common movements of motor vehicles and bicycles are shown. A prevalent type of accident involves straight-through bicycle traffic and right-turning motorists. Left-turning bicyclists also have problems, as the bike lane is on the right side of the street, and bicyclists have to cross the path of cars traveling in both directions. Some bicyclists are proficient enough to merge across one or more lanes of traffic, to use the inside lane or left-turn lane provided for motor vehicles. However, there are many who do not feel comfortable making this maneuver. They have the option of making a two-legged left turn by riding along a course similar to that followed by pedestrians, as shown in the diagram. Young children will oftentimes prefer to dismount and change directions by walking their bike in the crosswalk.

At intersections where there is a bike lane and traffic-actuated signal, installation of bicycle-sensitive detectors within the bike lane is desirable. Push button detectors are not as satisfactory as those located in the pavement because the cyclist must stop to actuate the push button. It is also desirable that detectors in left-turn lanes be sensitive enough to detect bicycles (see Chapter 9 of the Traffic Manual and Standard Plans for bicycle-sensitive detector designs).

At intersections (without bike lanes) with significant bicycle use and a traffic-actuated signal, it is desirable to install detectors that are sensitive enough to detect bicycles.

Figure 1003.2C illustrates recommended striping patterns for bike lanes crossing a motorist right-turn-only lane. When confronted with such intersections, bicyclists will have to merge with right-turning motorists. Since bicyclists are typically traveling at speeds less than motorists, they should signal and merge where there is sufficient gap in right-turning traffic, rather than at any predetermined location. For this reason, it is recommended that either all delineation be dropped at the approach of the right-turn lane (or off-ramp), or that a single, dashed bike-lane line be extended at a flat angle across the right-turn lane. A pair of parallel lines (delineating a bike lane crossing) to channel the bike merge is not recommended, as bicyclists will be encouraged to cross at a predetermined location, rather than when there is a safe gap in right-turning traffic. Also, some bicyclists are apt to assume they have the right of way, and may not check for right-turning motor vehicle traffic.

A dashed line across the right-turn-only lane is not recommended on extremely long lanes, or where there are double right-turn-only lanes. For these types of intersections, all striping should be dropped to permit judgment by the bicyclists to prevail. A Bike Xing sign may be used to warn motorists of the potential for bicyclists crossing their path.

1003.3 Class III Bikeways

Class III bikeways (bike routes) are intended to provide continuity to the bikeway system. Bike routes are established along through routes not served by Class I or II bikeways, or to connect discontinuous segments of bikeway (normally bike lanes). Class III facilities are shared facilities, either with motor vehicles on the street, or with pedestrians on sidewalks, and in either case bicycle usage is secondary. Class III facilities are established by placing Bike Route signs along roadways.

Minimum widths for Class III bikeways are not presented, as the acceptable width is dependent on many factors, including the volume and character of vehicular traffic on the road, typical speeds, vertical and horizontal alignment, sight distance, and parking conditions.

Figure 1003.2B

Typical Bicycle/Auto Movements at Intersections of Multilane Streets

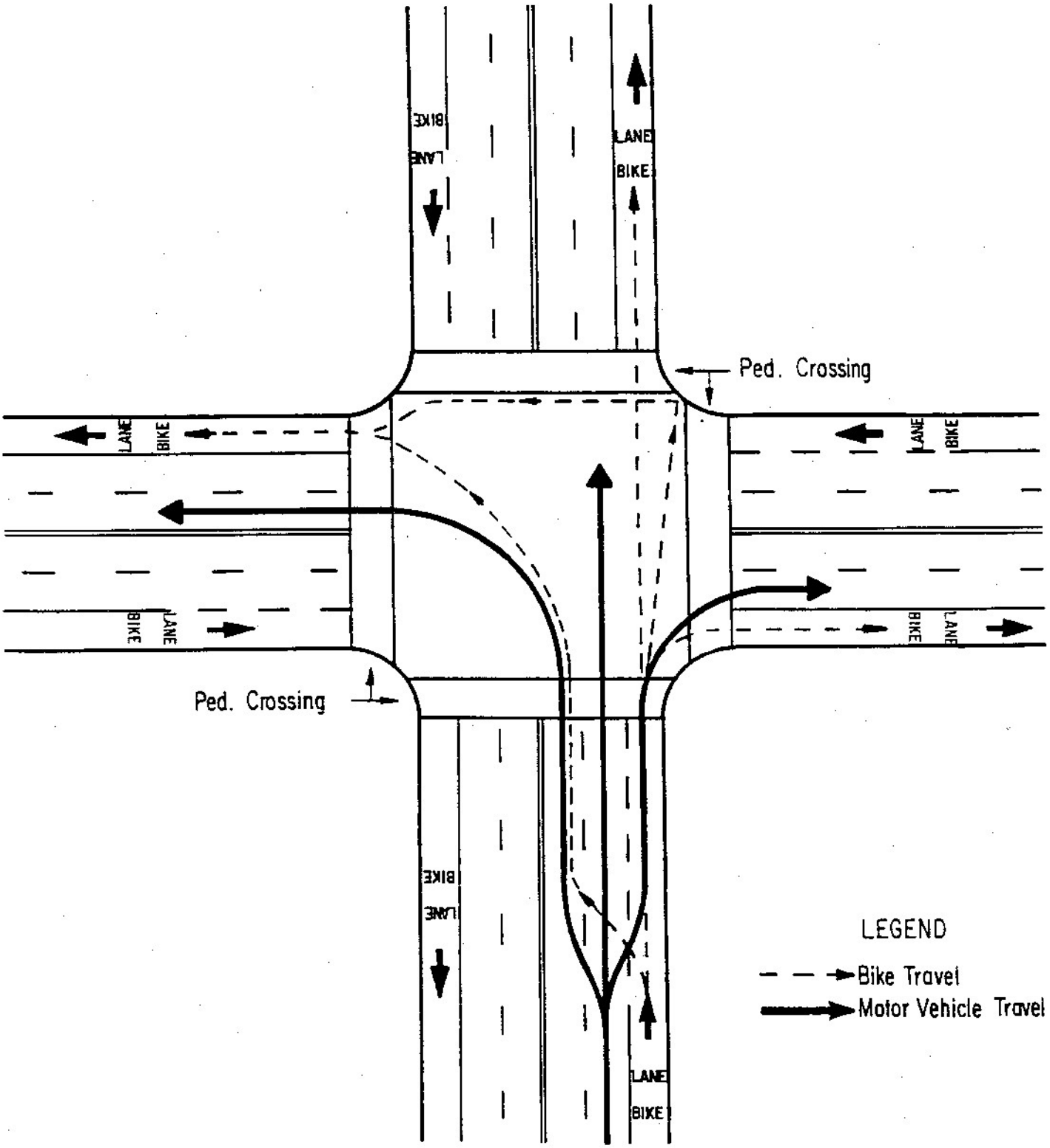
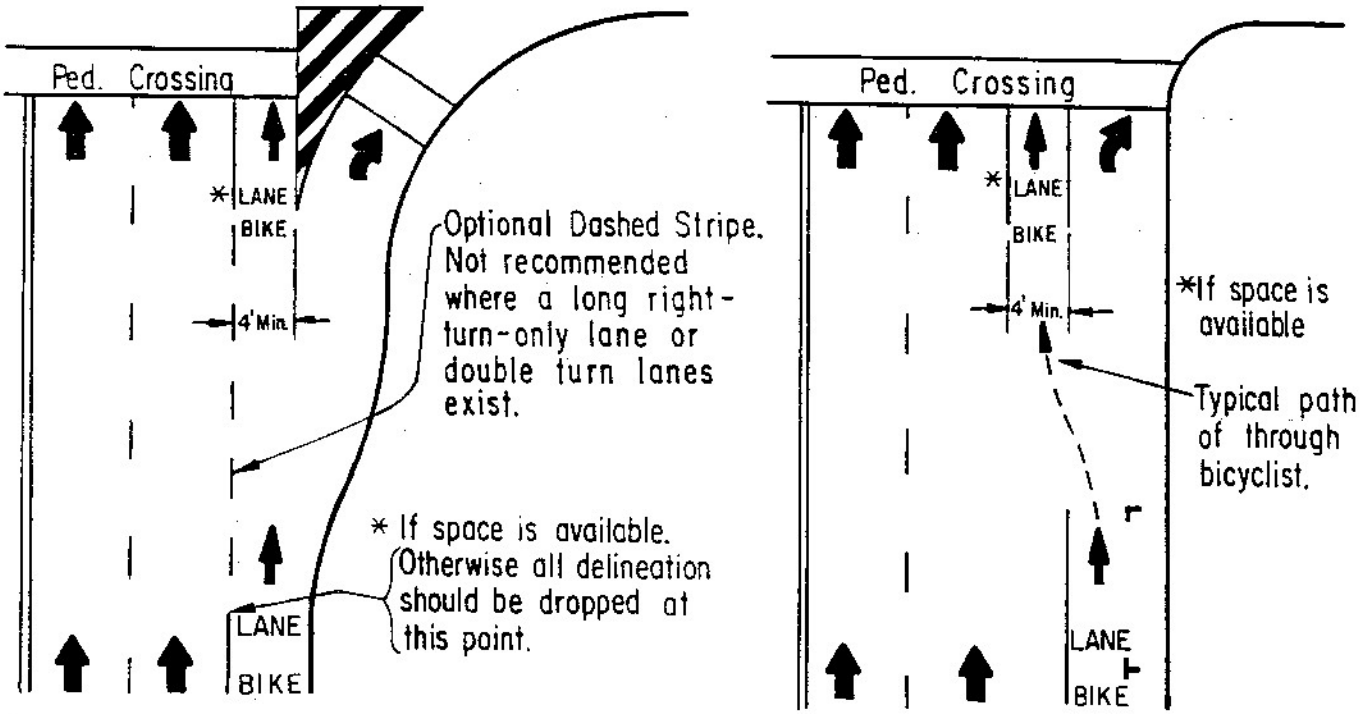


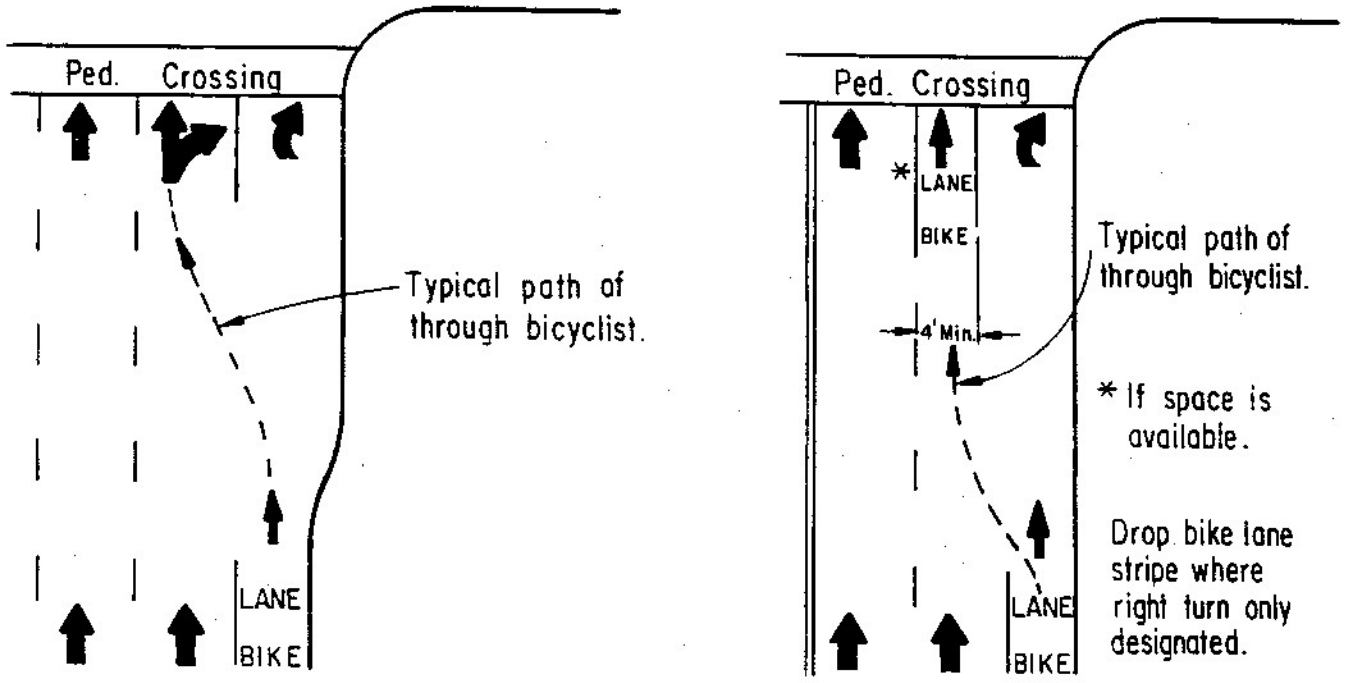
Figure 1003.2C

Bike Lanes Approaching Motorist Right-turn-only Lanes



RIGHT-TURN-ONLY LANE

PARKING AREA BECOMES RIGHT-TURN-ONLY LANE



OPTIONAL DOUBLE RIGHT-TURN-ONLY LANE

RIGHT LANE BECOMES RIGHT-TURN-ONLY LANE

Since bicyclists are permitted on all highways (except prohibited freeways), the decision to sign the route should be based on the advisability of encouraging bicycle travel on the route and other factors listed below.

(1) On-street Bike Route Criteria. To be of benefit to bicyclists, bike routes should offer a higher degree of service than alternative streets. Routes should be signed only if some of the following apply:

(a) They provide for through and direct travel in bicycle-demand corridors.

(b) Connect discontinuous segments of bike lanes.

(c) An effort has been made to adjust traffic control devices (stop signs, signals) to give greater priority to bicyclists, as compared with alternative streets. This could include placement of bicycle-sensitive detectors on the righthand portion of the road, where bicyclists are expected to ride.

(d) Street parking has been removed or restricted in areas of critical width to provide improved safety.

(e) Surface imperfections or irregularities have been corrected (e.g., utility covers adjusted to grade, potholes filled, etc.).

(f) Maintenance of the route will be at a higher standard than that of other comparable streets (e.g., more frequent street sweeping).

(2) Sidewalk Bikeway Criteria. In general, the designated use of sidewalks (as a Class III bikeway) for bicycle travel is unsatisfactory.

It is important to recognize that the development of extremely wide sidewalks does not necessarily add to the safety of sidewalk bicycle travel, as wide sidewalks will encourage higher speed bicycle use and can increase potential for conflicts with motor vehicles at intersections, as well as with pedestrians and fixed objects.

Sidewalk bikeways should be considered only under special circumstances, such as:

(a) To provide bikeway continuity along high speed or heavily traveled roadways having inadequate space for bicyclists, and uninterrupted by driveways and intersections for long distances.

(b) On long, narrow bridges. In such cases, ramps should be installed at the sidewalk approaches. If approach bikeways are two-way, sidewalk facilities should also be two-way.

Whenever sidewalk bikeways are established, a special effort should be made to remove unnecessary obstacles. Whenever bicyclists are directed from bike lanes to sidewalks, curb cuts should be flush with the street to assure that bicyclists are not subjected to problems associated with crossing a vertical lip at a flat angle. Also curb cuts at each intersection are necessary, as well as bikeway yield or stop signs at uncontrolled intersections. Curb cuts should be wide enough to accommodate adult tricycles and two-wheel bicycle trailers.

In residential areas, 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. Nevertheless, this type of sidewalk bicycle use is accepted. 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.

(3) Destination Signing of Bike Routes. For Bike Route signs to be more functional, supplemental plates may be placed beneath them when located along routes leading to high demand destinations (e.g., "To Downtown"; "To State College"; etc.-- see Figure 1004.4 for typical signing).

There are instances where it is necessary to sign a route to direct bicyclists to a logical destination, but where the route does not offer any of the above listed bike route features. In such cases, the route should not be signed as a bike route; however, destination signing may be advisable. A typical application of destination signing would be where bicyclists are directed off a highway to bypass a section of freeway. Special signs would be placed to guide bicyclists to the next logical destination. The intent is to direct bicyclists in the same way as motorists would be directed if a highway detour was necessitated.

1003.4 Bicycles on Freeways

In some instances, bicyclists are permitted on freeways. Seldom would a freeway be signed or striped as a bikeway, but it can be opened for use if it meets certain criteria. Essentially, the criteria involve assessing the safety and convenience of the freeway as compared with available alternate routes. If a reasonable alternate route exists, it would normally be unnecessary to open the freeway. However, if the alternate route is inconvenient (e.g., it involves substantial out of direction travel) and/or is considered unsuitable for bicycle travel (e.g., high-speed traffic, no paved shoulders, poor sight distance, etc.), the freeway may be a better alternative for bicyclists. However, a freeway should not be opened to bicycle use if it is determined to be incompatible (e.g., narrow lanes, no shoulders, freeway-to-freeway interchanges, etc.). Normally, freeways in urban areas will have characteristics that make it infeasible to permit bicycle use. Where no reasonable alternative exists within a freeway corridor, development of a separate bike path should be considered if dictated by demand.

When bicyclists are permitted on segments of freeway, it will be necessary to modify and supplement freeway regulatory signs, particularly those at freeway ramp entrances (see Chapter 4 of the Traffic Manual).

1003.5 Multipurpose Recreational Trails

In some instances, it may be appropriate for recreational agencies to develop multipurpose recreational trails - for hikers, joggers, equestrians, bicyclists, etc. Many of these trails will not be paved and will not meet the standards for Class I bikeways. As such, these facilities should not be signed as bikeways. Rather, they should be designated as recreational trails (or similar designation), along with regulatory signing to restrict motor vehicles, as appropriate. If recreational trails are to serve primarily bicycle travel, they should be developed in accordance with standards for Class I bikeways.

1003.6 Miscellaneous Bikeway Criteria

The following are miscellaneous bikeway criteria which should be followed to the extent pertinent to Class I, II and III bikeways. Some, by their very nature, will not apply to all classes of bikeway. Many of the criteria are important to consider on any highway where bicycle travel is expected, without regard to whether or not bikeways are established.

(1) Bridges. Bikeways on highway bridges must be carefully coordinated with approach bikeways to make sure that all elements are compatible. For example, bicycle traffic bound in opposite directions is best accommodated by bike lanes on each side of a highway. In such cases, a two-way bike path on one side of a bridge would normally be inappropriate, as one direction of bicycle traffic would be required to cross the highway at grade twice to get to and from the bridge bike path. Because of the inconvenience, many bicyclists will be encouraged to ride on the wrong side of the highway beyond the bridge termini.

The following criteria apply to a two-way bike path on one side of a highway bridge:

(a) The bikeway approach to the bridge should be by way of a separate two-way facility for the reason explained above.

(b) **A physical separation, such as a chain link fence or railing, shall be provided to offset the adverse effects of having bicycles traveling against motor vehicle traffic.** The physical separation should be designed to minimize fixed end hazards to motor vehicles and if the bridge is an interchange structure, to minimize sight distance restrictions at ramp intersections.

It is recommended that bikeway bridge railings or fences placed between traffic lanes and bikeways be at least 4.5 feet high to minimize the likelihood of bicyclists falling over the railings. Standard bridge railings which are lower than 4.5 feet can be retrofitted with lightweight upper railings or chain link fence suitable to restrain bicyclists.

Separate highway overcrossing structures for bikeway traffic shall conform to Caltrans' standard pedestrian overcrossing design loading of 85 pounds per square foot. The minimum clear width shall be the paved width of the approach bikeway. If pedestrians are to use the structure, additional width is recommended.

(2) Surface Quality. The surface to be used by bicyclists should be smooth, free of potholes,

and the pavement edge uniform. For rideability on new construction, the finished surface of bikeways should not vary more than 0.02 foot from the lower edge of an 8-foot long straight edge when laid on the surface in any direction.

Table 1003.6

Direction of Travel	Grooves[1]	Steps[2]
Parallel to travel	No more than 1/2" wide	No more than 3/8" wide
Perpendicular to travel	---	No more than 3/4" high

(1) Groove--A narrow slot in the surface that could catch a bicycle wheel, such as a gap between two concrete slabs.

(2) Step--A ridge in the pavement, such as that which might exist between the pavement and a concrete gutter or manhole cover; or that might exist between two pavement blankets when the top level does not extend to the edge of the roadway.

Table 1003.6 indicates the recommended bikeway surface tolerances for Class II and III bikeways developed on existing streets to minimize the potential for causing bicyclists to lose control of their bicycle (Note: Stricter tolerances should be achieved on new bikeway construction.)

(3) Drainage Grates, Manhole Covers, and Driveways. Drainage inlet grates, manhole covers, etc., on bikeways should be designed and installed in a manner that provides an adequate surface for bicyclists. They should be maintained flush with the surface when resurfacing.

Drainage inlet grates on bikeways shall have openings narrow enough and short enough to assure bicycle tires will not drop into the grates (e.g., reticuline type), regardless of the direction of bicycle travel. Where it is not immediately feasible to replace existing grates with standard grates designed for bicycles, 1 inch x 1/4 inch steel cross straps should be welded to the grates at a spacing of 6 inches to 8 inches on centers to reduce the size of the openings adequately.

Corrective actions described above are recommended on all highways where bicycle travel is permitted, whether or not bikeways are designated.

Future driveway construction should avoid construction of a vertical lip from the driveway to the gutter, as the lip may create a problem for bicyclists when entering from the edge of the roadway at a flat angle. If a lip is deemed necessary, the height should be limited to 1/2 inch.

(4) At-grade Railroad Crossings and Cattle Guards. Whenever it is necessary to cross railroad tracks with a bikeway, special care must be taken to assure that the safety of bicyclists is protected. The bikeway crossing should be at least as wide as the approaches of the bikeway. Wherever possible, the crossing should be straight and at right angles to the rails. For on-street bikeways where a skew is unavoidable, the shoulder (or bike lane) should be widened, if possible, to permit bicyclists to cross at right angles (see Figure 1003.6A). If this is not possible, special construction and materials should be considered to keep the flangeway depth and width to a minimum. Pavement should be maintained so ridge buildup does not occur next to the rails. In some cases, timber plank crossings can be justified and can provide for a smoother crossing. Where hazards to bicyclist cannot be avoided, appropriate signs should be installed to warn bicyclists of the danger.

All railroad crossings are regulated by the California Public Utilities Commission (CPUC). All new bike path railroad crossings must be approved by the CPUC. Necessary railroad protection will be determined based on a joint field review involving the applicant, the railroad company, and the CPUC.

The presence of cattle guards along any roadway where bicyclists are expected should be clearly marked with adequate advance warning.

(5) Hazard Markings. Vertical barriers and obstructions, such as abutments, piers, and other features causing bikeway constriction, should be clearly marked to gain the attention of approaching bicyclists. This treatment should be used only where unavoidable, and is by no means a substitute for good bikeway design. An example of a hazard marking is shown

in Figure 1003.6B. Signs, reflectors, diagonal black and yellow markings, or other treatments will be appropriate in other instances to alert bicyclists to potential hazards.

(6) Lighting. Bikeway lighting should be considered along routes where nighttime riding is expected. This is particularly important for bike paths serving as commuter routes, such as paths leading to colleges. Adequate lighting is also important at bike path crossings of streets and for underpasses. Normally, on-street bikeways will be adequately lighted if street lights exist.

Topic 1004 - Uniform Signs, Markings and Traffic Control Devices

1004.1 Introduction

Per Section 2376 of the Streets and Highways Code, uniform signs, markings, and traffic control devices shall be used. As such this section is mandatory, except where permissive language is used. See the Traffic Manual for detailed specifications.

1004.2 Bike Path (Class I)

An optional 4-inch yellow stripe may be placed to separate opposing directions of travel. A 3-foot stripe with a 9-foot space is the recommended striping pattern, but may be revised, depending on the situation.

Standard regulatory, warning, and guide signs used on highways may be used on bike paths, as appropriate (and may be scaled down in size). Special regulatory, warning, and guide signs may also be used to meet specific needs.

White painted word (or symbol) warning markings on the pavement may be used as an effective means of alerting bicyclists to approaching hazards, such as sharp curves, barrier posts, etc.

1004.3 Bike Lanes (Class II)

Bike lanes require standard signing and pavement markings as shown on Figure 1004.3.

The R81 bike lane sign shall be placed at the beginning of all bike lanes, on the far side of every arterial street intersection, at all major changes in direction, and at maximum half-mile intervals.

Bike lane pavement markings shall be placed on the far side of each intersection, and may be placed at other locations as desired.

Raised pavement markers or other raised barriers shall not be used to delineate bike lanes. Also, thermoplastic paint shall not be used for pavement marking, as the paint surface is extremely slippery when wet.

The G93 Bike Route sign may also be used along bike lanes, but its primary purpose should be to provide directional signing and destination signing where necessary. A proliferation of Bike Route signs along signed and striped bike lanes serves no useful purpose.

Many signs on the roadway also will apply to bicyclists in bike lanes. Standard regulatory, warning, and guide signs used specifically in conjunction with bike lanes are shown in Chapter 4 of the Traffic Manual.

1004.4 Bike Routes (Class III)

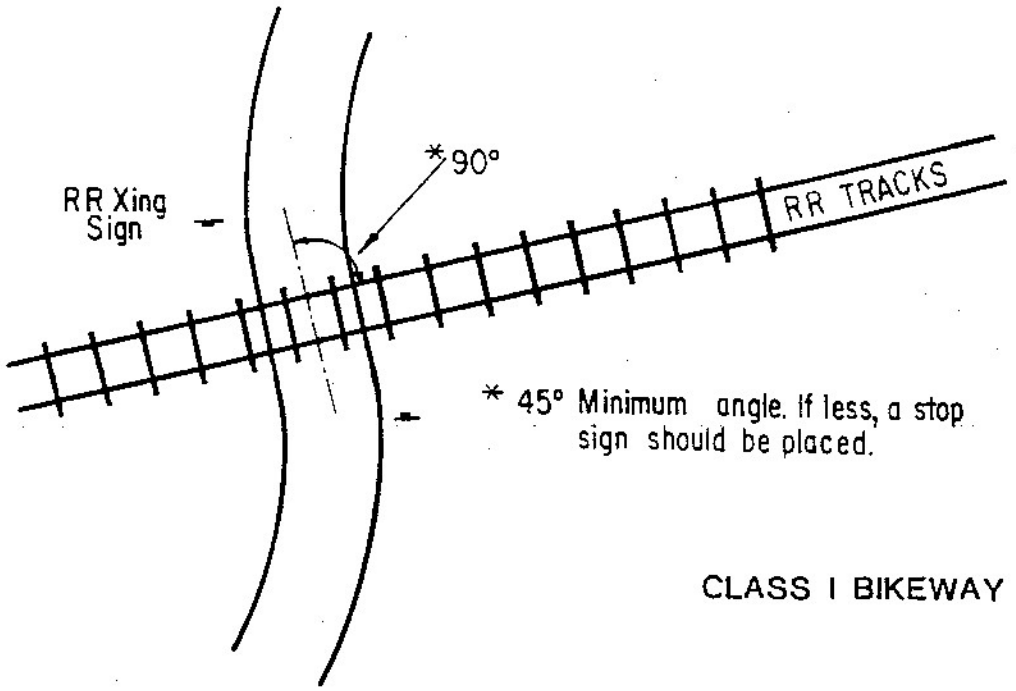
Bike routes are shared routes and do not require pavement markings. In some instances, a 4-inch white edge stripe separating the traffic lanes from the shoulder can be helpful in providing for safer shared use. This practice is particularly applicable on rural highways, and on major arterials in urban areas where there is no vehicle parking.

Bike routes are established through placement of the G93 Bike Route sign. Bike route signs are to be placed periodically along the route. At changes in direction, the bike route signs are supplemented by G33 directional arrows. Typical bike route signing is shown on Figure 1004.4. The figure shows how destination signing, through application of a special plate, can make the Bike Route sign more functional for the bicyclist. This type of signing is recommended when a bike route leads to a high demand destination (e.g., downtown, college, etc.).

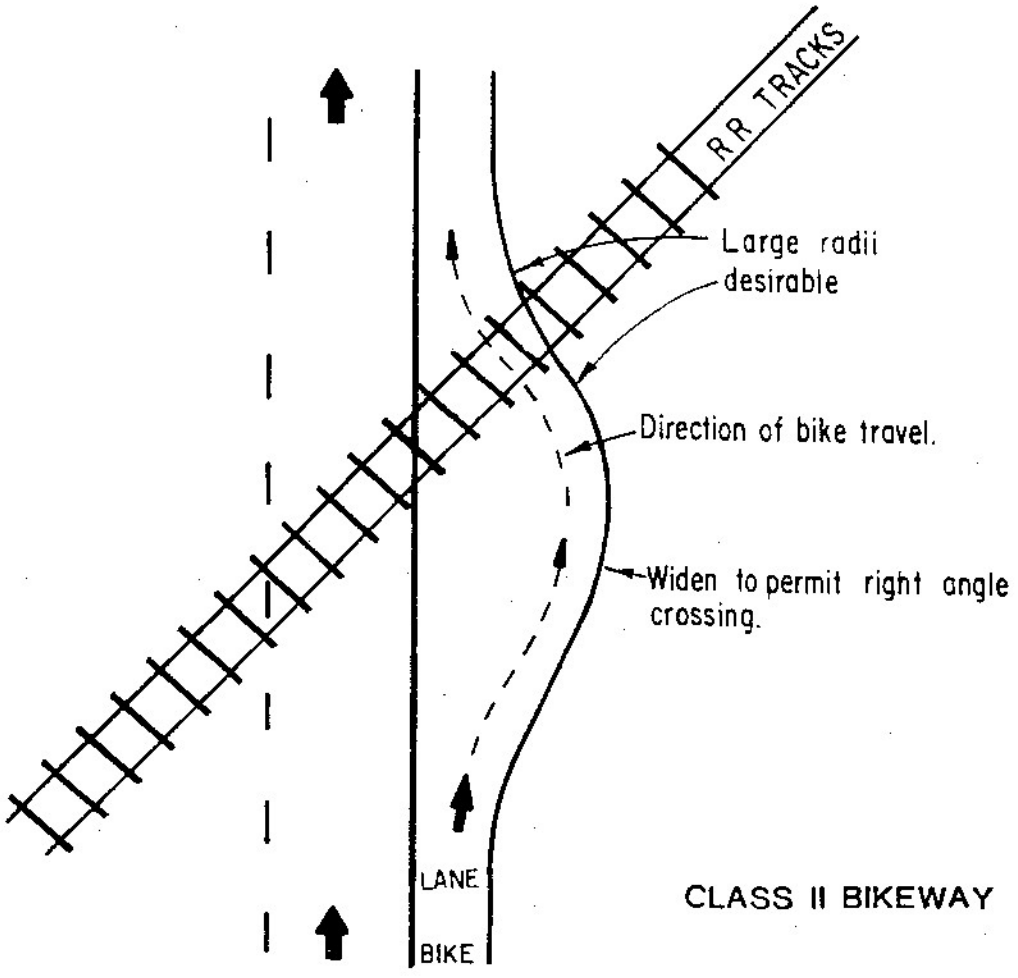
Many signs on the roadway also will apply to bicyclists. Standard warning and guide signs used specifically in conjunction with bike routes are shown in Chapter 4 of the Traffic Manual.

Figure 1003.6A

Railroad Crossings



CLASS I BIKEWAY



CLASS II BIKEWAY

Figure 1003.6B

Hazard Markings

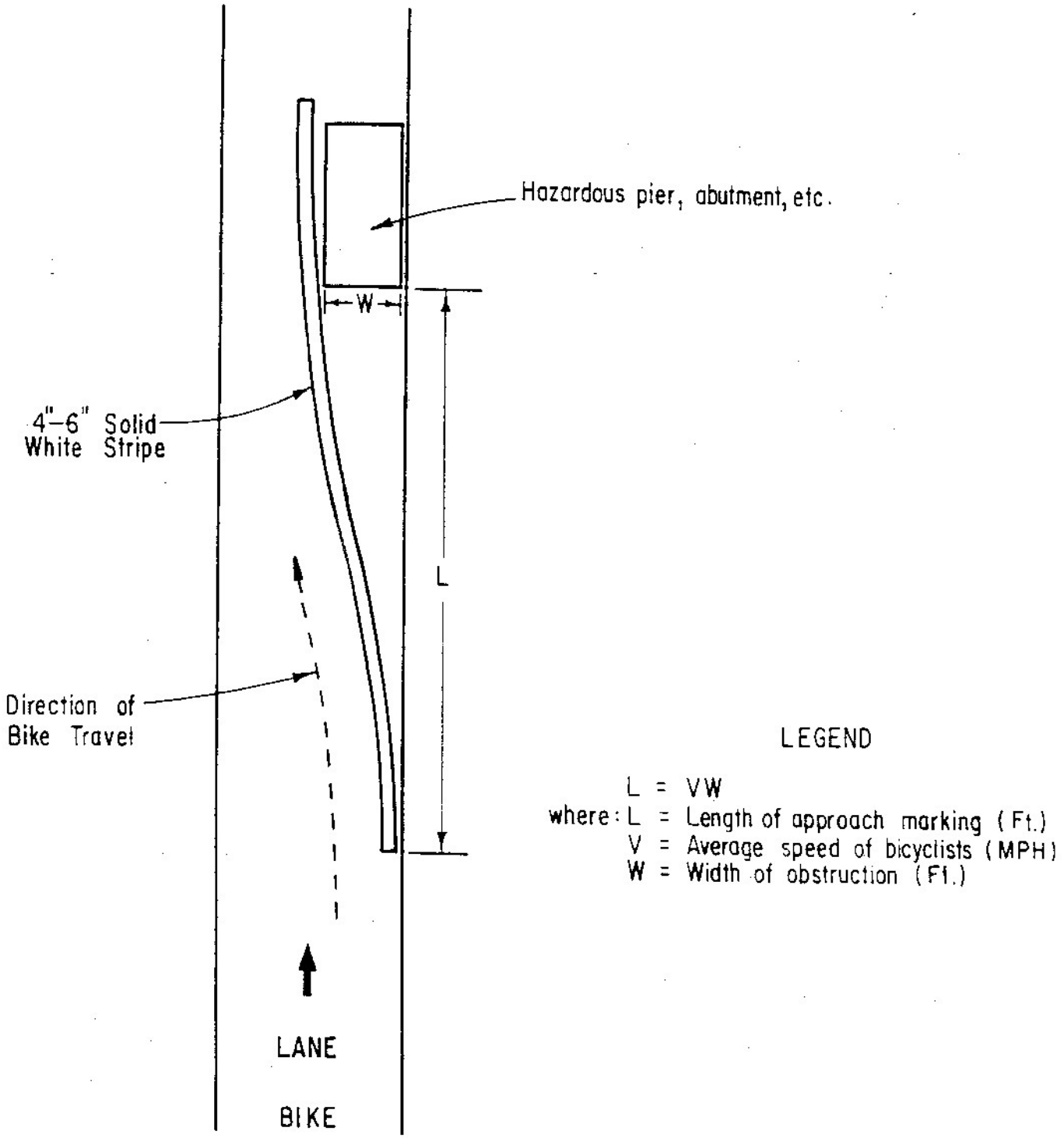
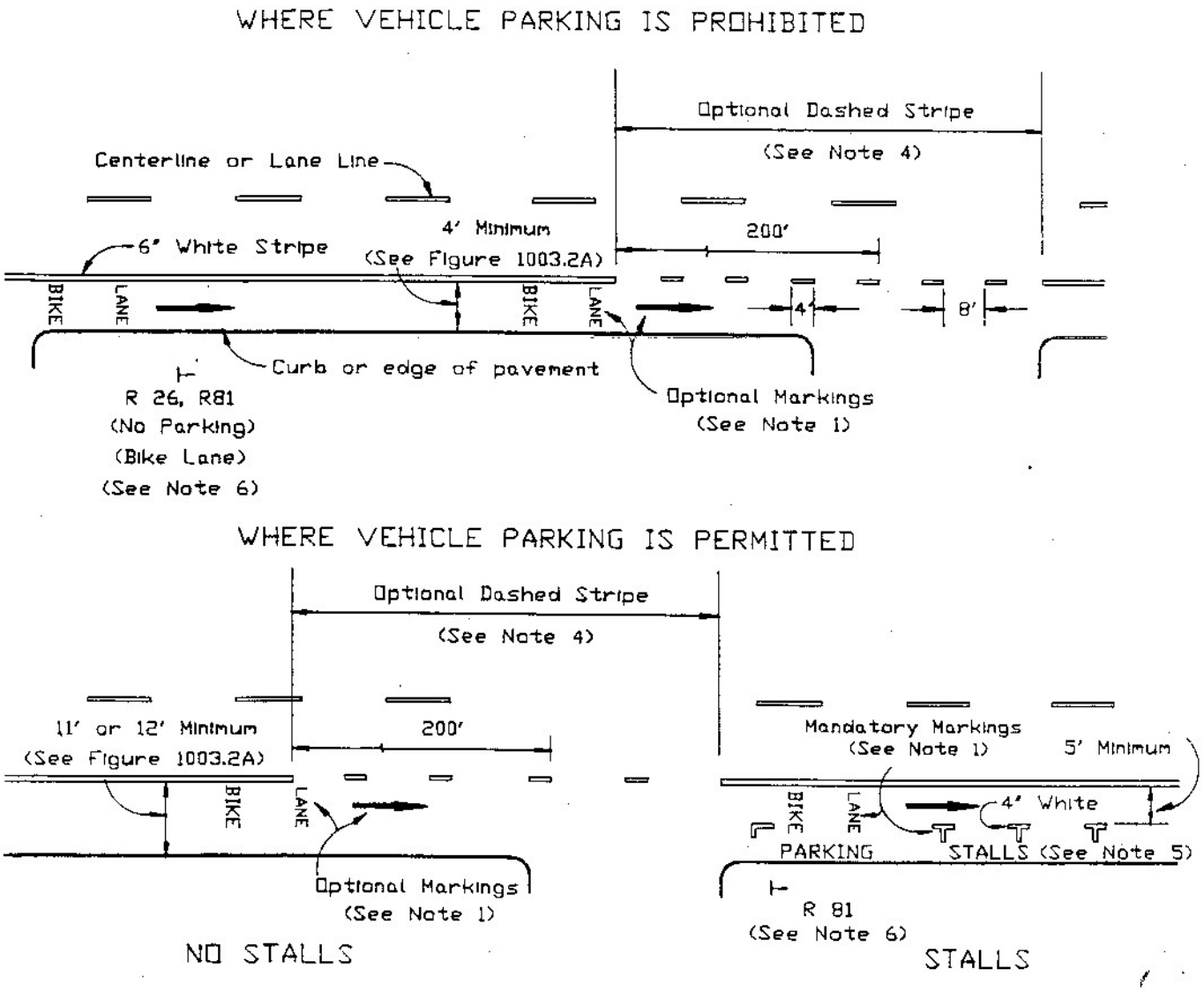


Figure 1004.3

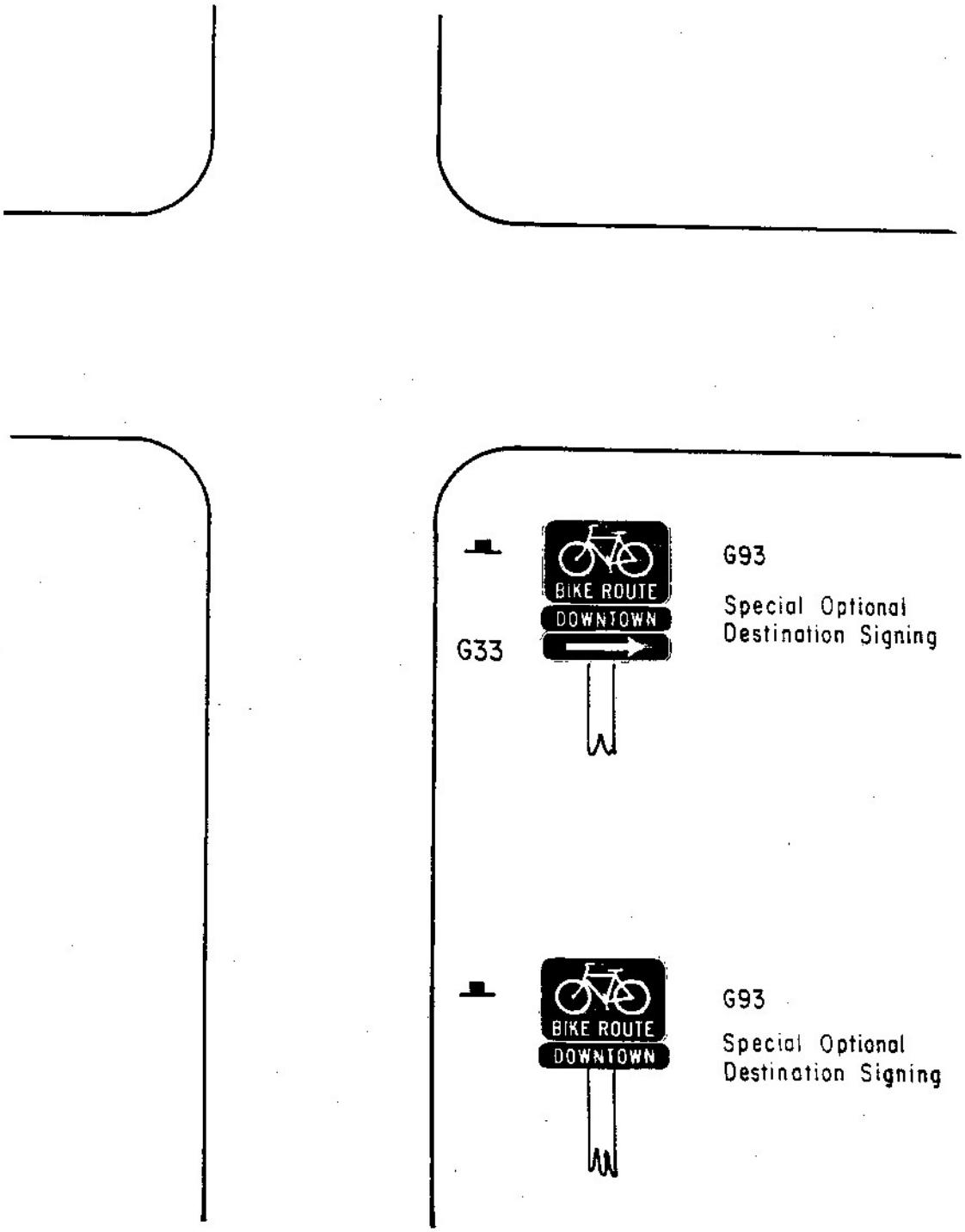
Bike Lane Signs and Markings



NOTES:

1. The Bike Lane pavement markings shall be placed on the far side of each intersection, and may be placed at other locations as desired.
2. The use of the bicycle symbol pavement marking to supplement the word message is optional.
3. The G93 Bike Route sign may be placed intermittently along the bike lane if desired.
4. The bike lane line may either be dropped entirely, 200' in advance of the intersection, or a dashed line carried to the intersection or through the intersection.
5. In areas where parking stalls are not necessary (because parking is light), it is permissible to paint a 4" solid white stripe to fully delineate the bike lane. This may be advisable where there is concern that motorists may misconstrue the bike lane to be a traffic lane.
6. The R81 bike lane sign shall be placed at the beginning of all bike lanes, on the far side of every arterial street intersection, at all major changes in direction, and at maximum half-mile intervals.

Figure 1004.4
Bike Route Signing



NOTE: The G93 Bike Route signs shall be placed at all points where the route changes direction and periodically as necessary.

Table 302.1

Standard for Paved Shoulder Width

	Paved Shoulder Width (ft) Left	Right
Freeways & Expressways		
4 lanes(8)	5	10
6 or more lanes(8)	10	10
Separate roadways	(1)	10
Auxiliary lanes	--	10
Freeway-to-freeway connections	5	10(2)
Ramp	2 or 4(3)	8(4)
Multilane undivided	--	10
Conventional Highways		
Multilane divided	(5)	8
Multilane undivided	--	8
2-lane	--	(6)
Slow-moving vehicle lane	--	4(7)

(1) Use widths above. See Fig. 305.6 for slope treatment in median.

(2) A single lane connection over 1500 feet in length should be widened to 2 lanes with 5-foot shoulders.

(3) 4 feet preferred in urban areas.

(4) A single lane ramp transition to 2 lanes should have (in the 2-lane section) 2-foot shoulders in rural areas. In urban areas 4-foot shoulders are preferred. See Index 504.8.

(5) Use 5 feet for 4-lanes and 8 feet for 6 or more lane facilities. May be reduced to 2 foot offset for curbed medians in urban areas where design speed is 45 mph or less (Index 209.3).

(6) See Table 307.2 and 307.3, respectively for minimum shoulder widths for new construction and for RRR projects on 2-lane highways.

(7) On right side of climbing or passing lane section only.

(8) Both directions. See Definitions, Index 62.1.

CHAPTER 200
GEOMETRIC DESIGN AND STRUCTURE STANDARDS

Topic 209 - Curbs and Gutters

209.3 Position of Curbs

The general policy for positioning curbs is to provide the same unobstructed roadbed width at intersections and median openings as is normally provided between such points. All dimensions (offsets) to curbs are from the near edge of traveled way to the inside face of curb at gutter grade.

(1) Through Lanes. Minimum curb offsets, right and left, should be normal width of the outside (right) and inside (median) shoulder, respectively, as set forth in Table 302.1.

(2) Channelization. Island curbs used to channelize intersection traffic movements should be positioned as described in Index 405.4.

(3) Separate Turning Lanes. Curb offsets to the right of right turn lanes in urban areas may be reduced to 2 feet. No curb offset is required to the left of left turn lanes in urban areas.

(4) Median Openings. Median openings (Figure 405.5) should not be curbed unless necessary to delineate areas occupied by traffic signal posts. Mountable B4 curbs should be used in these special cases.

(5) Urban Arterial Highways. Continuous median curb offsets may be reduced to 2 feet when necessary to match local agency standards on conventional divided highways in urban areas when design speed is equal to or less than 45 mph.

CHAPTER 300
GEOMETRIC CROSS SECTION

307.2 Two-lane Cross Sections for New Construction

Table 307.2

Shoulder Widths for Two-lane Roadbed New Construction Projects

Two-way ADT (Design Year)	Shoulder Width (ft)
Less than 400	2(1) or 4(2)
400 - 1500	6
Over 1500	8

(1) Requires FHWA exception

(2) Bridge width is to be 32 feet minimum (see Index 208.1).

307.3 RRR Criteria for 2-lane Highways

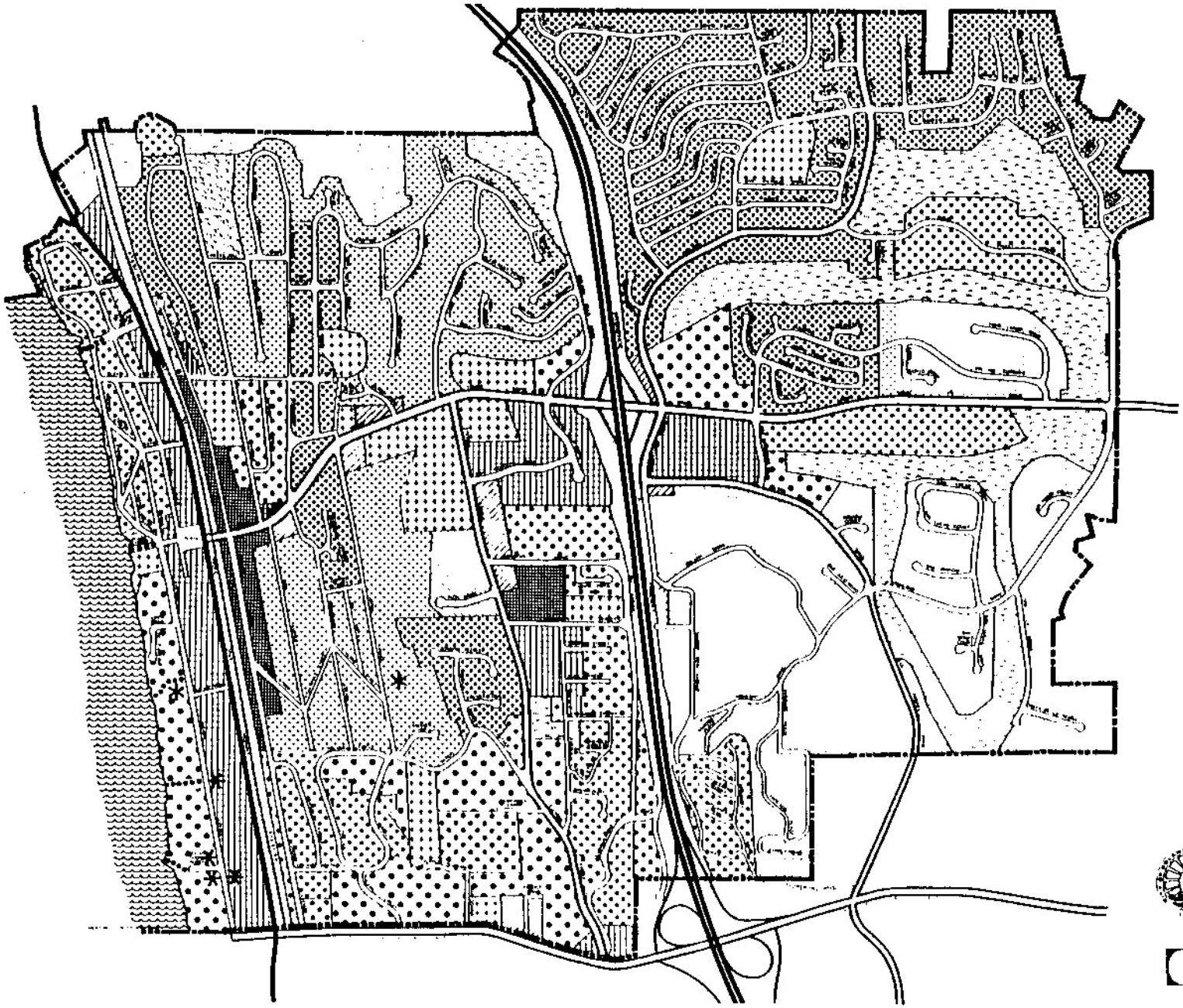
Table 307.3

RRR Width Standards for Bridges and Roadbeds

Current ADT	Bridge Widened	In-Place Bridge Min. & Roadbed Desirable Min. (ft)	Roadbed Min. (ft)
0-250	32	24	24
250-400	32	26	24
400-1000	32	28	24
1000-3000	36	32	24
3000-6000	40	36	28
Over 6000	40	40	32

Bridge width is defined as the clear width between curbs or rails, whichever is lesser. Roadbed is defined as the traveled way plus usable shoulders.

LAND USE PLAN



LEGEND

- ESTATE (0-2 DU/AC)
- LOW RESIDENTIAL (3 DU/AC)
- LOW-MEDIUM RESIDENTIAL (4 DU/AC
- MEDIUM RESIDENTIAL (5-7 DU/AC)
- MEDIUM-HIGH RESIDENTIAL (8-12 DU
- HIGH RESIDENTIAL (13-20 DU/AC)
- SPECIAL COMMERCIAL
- LIGHT COMMERCIAL
- COMMERCIAL
- LIGHT INDUSTRIAL
- OFFICE/PROFESSIONAL
- PUBLIC/INSTITUTIONAL
- RIGHT-OF-WAY (I-5 AND RAILROAD)
- AGRICULTURE
- OPEN SPACE/RECREATION
- BEACH ACCESS
- PUBLIC PARKING AREA
- OPEN SPACE/RECREATION/LOW RESIDENTIAL (3 DU/AC)

Adopted November 21, 1988

Land Use Plan

SOLANA BEACH GENERAL PLAN

CITY OF SOLANA BEACH

0 500 1000 1500

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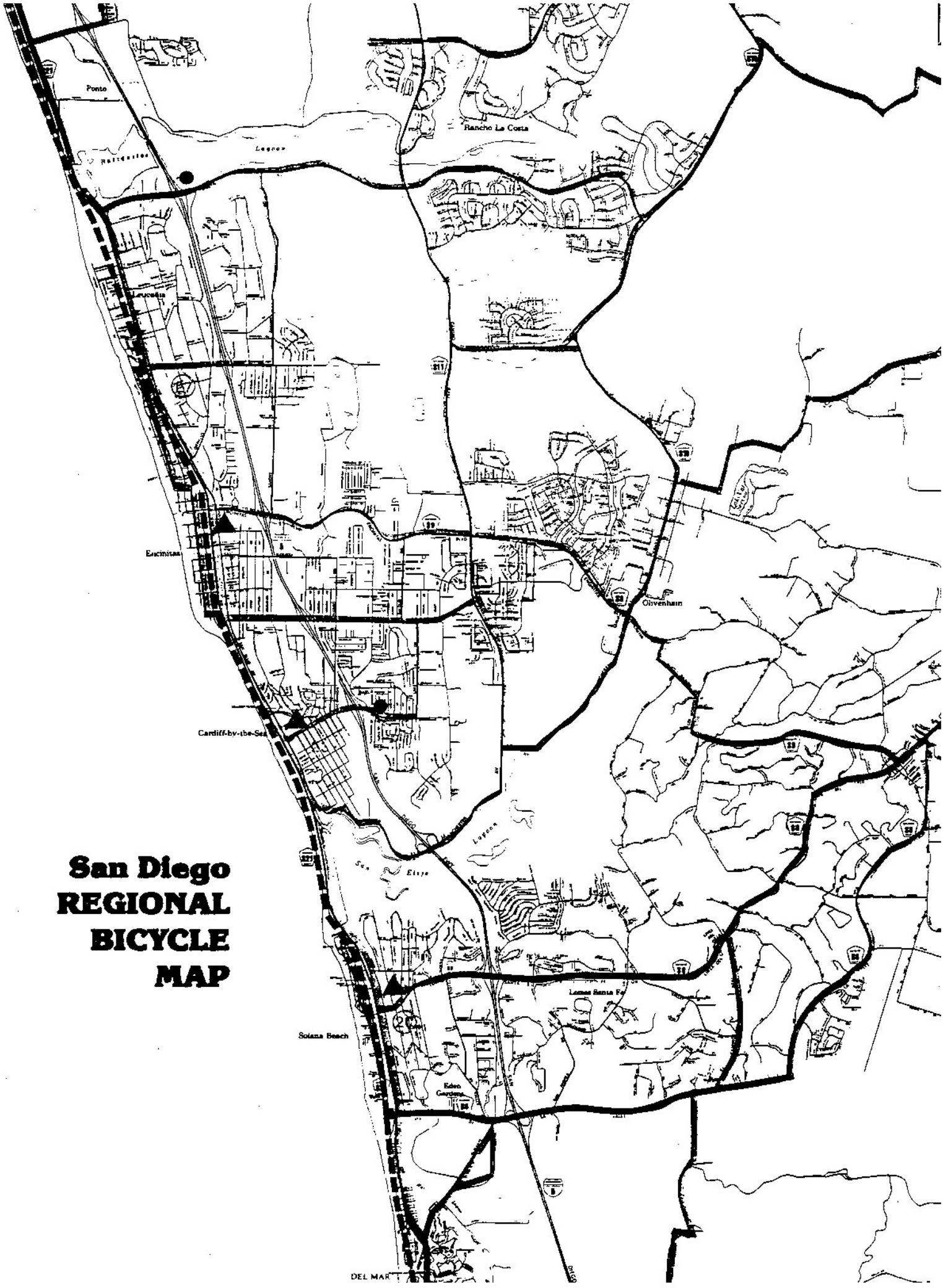
2

REGIONAL BICYCLING MAP
(Solana Beach Portion)



San Diego REGIONAL BICYCLE MAP

COMMUNITY QUESTIONNAIRE

COMMUNITY QUESTIONNAIRE

The City of Solana Beach would like to thank you for participating in this Master Plan effort. This questionnaire is designed to allow you to express and document your ideas and concerns regarding bikeway issues. Your comments are valued and will be considered throughout the planning process.

Since we are early in the Master Plan process, comments received at this time are timely and important. If you would like to make additional comments at a later date, please feel free to do so by letter or by attending subsequent public meetings.

1. HOW FREQUENTLY DO YOU RIDE?

(28) Two or more times per week
(1) About once per week
( ) About once per month
( ) Less than once per month

2. FOR WHAT PURPOSES DO YOU RIDE?

(26) Fitness
(24) Recreation
(8) Shopping and errands
(13) Commuting

3. WHEN YOU RIDE WITHIN THE CITY OF SOLANA BEACH WHICH TYPE(S) OF BIKEWAY DO YOU TEND TO UTILIZE?

(23) Designated bikeways
(13) Unmarked, undesignated routes

4. GENERALLY, WHAT ARE YOUR FAVORED DESTINATIONS WHEN YOU RIDE?

(11) Work
(2) School
(10) Park or beach
(6) Market, stores
(16) None (loop rides)
(8) Other (backroads, training rides, coffee shops)

5. DURING WHAT TIME OF DAY DO YOU GENERALLY RIDE?

(21) Mornings
(12) Afternoons
(16) Evenings
(21) Weekends
(17) Weekdays

6. DO YOU TEND TO RIDE SINGLY OR IN GROUPS?

(10) Ride alone most often
(2) Ride with a friend most often
(19) Ride in groups (three or more) most often

7. HOW OFTEN TO DO YOU UTILIZE THE BIKE RACKS MOUNTED ON CITY (NCTD) BUSES?

( ) Often
( ) Infrequently
(28) Never
(1) Wasn't aware they existed

8. WHICH FACTOR(S) WOULD CAUSE YOU TO INCREASE YOUR FREQUENCY OF BICYCLING?

(21) Increased safety on the roads
(3) Designated safe bicycle parking
(10) Showers and lockers at the workplace
(2) Finding others willing to ride along
(16) More designated bikeways
(2) More local organized rides
(2) Other (cleaner roads/more time)

9. WHAT DO YOU CONSIDER TO BE SIGNIFICANT PROBLEMS FOR BIKEWAYS IN GENERAL?

(14) Widths too narrow
(8) Intersections difficult to cross
(4) Bikeways not clearly marked
(16) Poor driving by motorists
(5) Slow cyclists
(2) Fast cyclists
(8) Pedestrians
(21) Dirt or debris in bikeway
(12) Not enough designated bikeways
(8) Other (bumpy/poor roads)
(1) Other (vehicles in bike lanes)
(1) Other (southbound Hwy 101)

10. OVERALL, HOW WOULD YOU RATE THE QUALITY OF THE EXISTING CITY BIKEWAYS (101, LOMAS SANTA FE DRIVE)?

(1) Excellent
(15) Good
(10) Fair
(6) Poor (101 west side)
( ) No opinion

11. IN ADDITION TO EXISTING CITY BIKEWAYS (101, LOMAS SANTA FE DRIVE), PLEASE IDENTIFY STREETS WHICH YOU FEEL SHOULD BE CONSIDERED FOR NEW BIKEWAYS (USE MAP ON REVERSE).

12. WHAT TYPES OF FACILITIES DO YOU THINK ARE IMPORTANT TO HAVE ALONG BIKEWAYS TO PROVIDE SERVICES TO BICYCLISTS?

(2) Auto service stations
( ) Fast food restaurants
(7) Convenience markets
(21) Public restrooms
(2) Public showers
(8) Public bike parking
(6) Restaurants
( ) General retail stores
(13) Bicycle shops
(6) other (drinking fountains, health stores, outdoor coffee shops)

13. ASSUMING THAT THE FUTURE DOWNTOWN TRANSIT DEPOT HAS FACILITIES FOR BICYCLISTS, HOW OFTEN WOULD YOU CONSIDER COMMUTING BY BICYCLE TO THE DEPOT FOR TRANSPORTATION BY RAIL OR BUS ELSEWHERE?

(4) Each work day
(4) Once or twice per week
(2) Once or twice per month
(13) Less than once per month

14. ARE YOU A SOLANA BEACH RESIDENT?

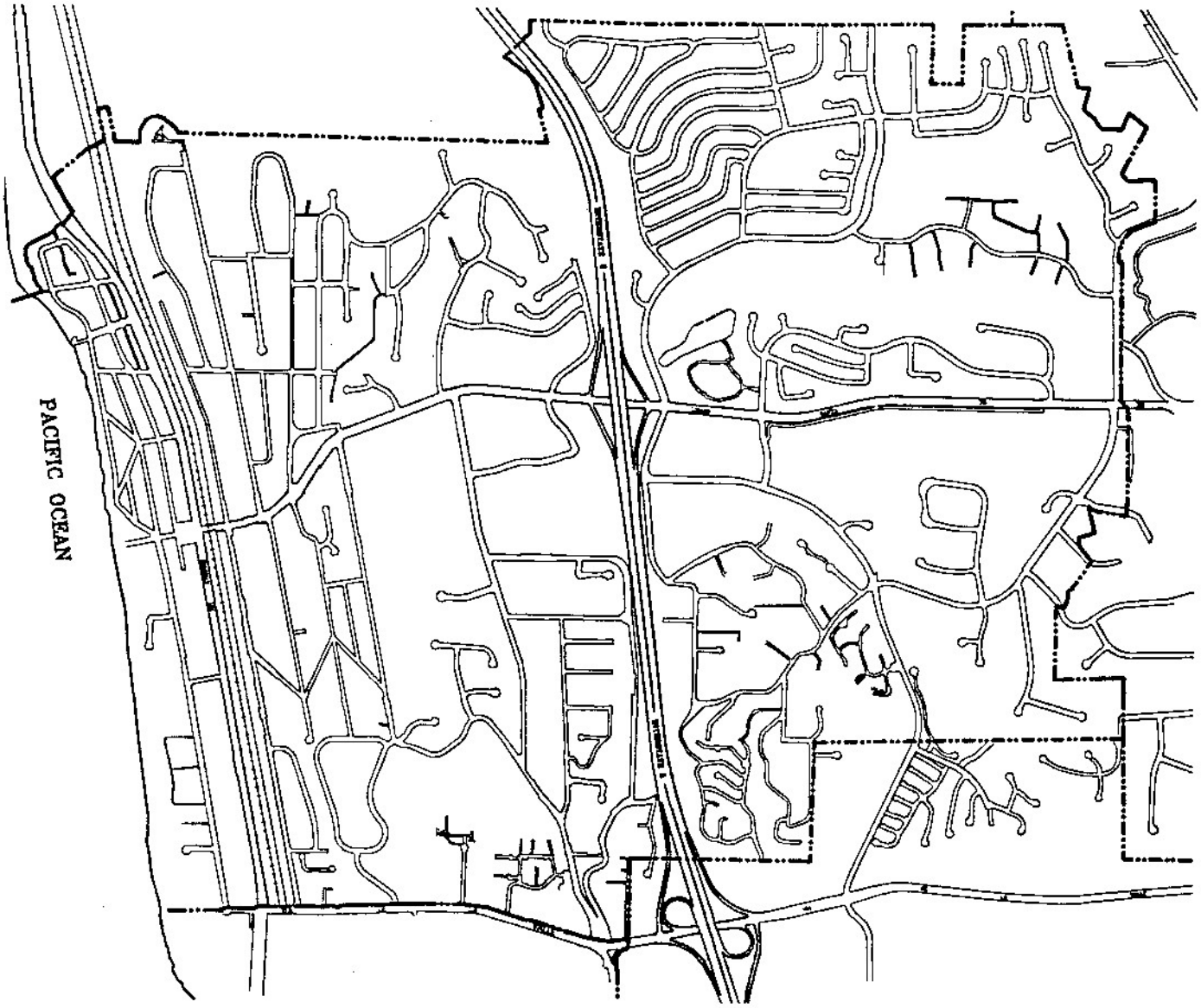
(8) Yes
(21) No

15. PLEASE INDICATE YOUR AGE GROUP.

( ) 0 - 4 years
(2) 5 - 17 years
(16) 18 - 34 years
(11) 35 - 54 years
(2) 55 - 69 years
( ) over 70 years old

(Please see reverse side.)

16. DO YOU HAVE FURTHER COMMENTS OR CONCERNS?



SANDAG BICYCLE COUNTS

ZIP CODE = 92024

SITE NO. 819 LOMAS SANTA FE DR AND PACIFIC HIGHWAY

DATE: 10-11-90 DAY: THUR

HOURS	ADULT	MOPED	CHILD	TOTAL
600 - 700	16	0	1	17
700 - 800	95	1	1	97
800 - 900	54	1	2	57
1500 - 1600	44	9	2	55
1600 - 1700	69	3	5	77
1700 - 1800	63	4	4	71
PERCENTAGE OF	91.2	4.8	4.0	
HOURLY AVG CNT	56.8	3.0	2.5	62.3

	ENTERING INTERSECTION	LEAVING INTERSECTION
LOMAS SANTA FE DR		
EASTBOUND	28	68
WESTBOUND	99	27
PACIFIC HIGHWAY		
NORTHBOUND	141	152
SOUTHBOUND	150	127

CITY BICYCLE MASTERPLAN WORKSHOP - Mailing List

Jim Ellis, President
Solana Beach Chamber of Commerce
210 W. Plaza
P. O. Box 623
Solana Beach, CA 92075

Laura M. Failla
S. D. Bicycle Coalition
P. O. Box 8653
S. D., CA 92102-0653

Teri Elmore
Amer. Youth Hostels
335 W. Beech St.
S. D., CA 92101

Milt Olsen
S. D. Wheelmen
4296 Hawk St.
S. D., CA 92103

7-1-92
LIST OF
PEOPLE &
GROUPS
NOTICED
ADL

N. County Cycle Club
Ben Hatfield
1832 Fairway Circle Dr.
Lake San Marcos, CA 92069

Les Howitt
S. D. Wheelmen
4282 Robbins St.
S. D.,CA 92122

Jim Baross
S.D. Bicycle Coalition
P. O. Box 8653
S. D., CA 92102-0653

S. D. Bicycle Coalition
David Phears
8190 E. Mira Mesa Blvd., #352
S.D., CA 92126

Jerry Neben
NCTD
311 S. Tremont
Oceanside, CA 92054

Sierra Club
Sandy Sanders
3502 1st Ave., #2
S.D., CA 92103

Triathlon Club of San Diego
P. O. Box 84211
San Diego, CA 92138

Solana Trade Center
David Hodges
143 S. Cedros Ave.
Solana Beach, CA 92075

Stuart Schillinger
City of Encinitas
527 Encinitas Blvd
Encinitas, CA 92024

Rick Blundin
Cal Trans
Office of Bicycle Facilities
1120 R St.
P. O. Box 942874
Sacremento, CA 94274

Barbara Simmons
S.D.Co Dept. of Parks and Rec.
5201 Ruffin Rd., Suite D
S. D., CA 92123

Elaine Tippett
Solana Beach Chamber of Commerce
P. O. Box 623
Solana Beach, CA 92075

Michael E. Jackson,
Bicycle Coordinator
City of S. D.
Engineering Dept.
City Operations Bldg.
1222 1st Ave., M.S. 503
S.D., CA 92101

AttnL Bob Babbitt
Competitor Magazine
214 S. Cedros Ave.
214 S. Cedros Ave.
Solana Beach, CA 92075

Robert M. Irish Inc.
437 S. Hwy 101, Suite 404
Solana Beach, CA 92075

The Lomas Santa Fe Group
Teresa Williams
265 Santa Helena, Suite 200
Solana Beach, CA 92075

CITY BICYCLE MASTERPLAN WORKSHOP - Mailing List (continued)

Fleet Palmer
Cal Trans
District 11
P. O. Box 85406
S. D., CA 92186-5406

Jack McGoldrick
C.O.O.S.A.
5555 S. Sierra Ave.
c/o Seascape Sur H.O.A.
Solana Beach, CA 92075

Karel Hanson
S. D. Co. Dept. of Public Works
5555 Overland Blvd., Bldg. 6
M. S. 0340
S. D., CA 92123

S.H.A.G.
c/o Archie McLerran
1315 San Lucas Ct.
Solana Beach, CA 92075

City of Del Mar
Rusty Powell, City Engineer
1050 Camino Del Mar
Del Mar, CA 92014

Legally advertised in
Blade-Citizen on
7-1-92/7-8-92

Press releases mailed to
8 local newspapers

Notices placed in bulletin
boards of all public bldgs.
in City.

Mort August,
City Engineer

Ray Renteria,
City Public Works
Department

City Traffic
Commission

City Parks and
Recreation Commission

Michael Huse,
City Manager

Daryle Mitchell,
Senior Planner
Community Develop.
Department

Sillstrop Realty
Joe Sillstrop
125 N. Acacia Ave.
Suite 101
Solana Beach, CA 92075

Banner flown in
Solana Beach Plaza

Sister Karen Ann Dey, Principal
Saint James Academy School
623 S. Nardo Ave.
Solana Beach, CA 92075

Dr. Raymond D. Edman
Solana Beach School District
309 N. Rios Ave.
Solana Beach, CA 92075

Dr. H. Deon Holt, President-Superintendent
Mira Costa College
Mira Costa College District
One Barnard Dr.
Oceanside, CA 92056

S.H.A.G.
c/o Walter Allington
1373 Camino Teresa
Solana Beach, CA 92075

Attn: Michael Carey
Lomas Santa Fe Country Club
P. O. Box 1007
Solana Beach, CA 92075

William Berrier, Superintendent
San Dieguito Union High School District
710 Encinitas Blvd., Suite 205
Encinitas, CA 92024

Marcia Meyn
612 Santa Carina
Solana Beach, CA 92075

Joe Sillstrop
125 N. Acacia Ave.
Suite 101
Solana Beach, CA 92075

Sgt. Doug De Jardine
S. D. Co. Sheriff's Dept.
175 N. El Camino Real
Encinitas, CA 92024

Marsha Prince
631 Solana Glen Ct.
Solana Beach, CA 92075

Luanna Fratzke
805 Valley Ave., Apt. 150
Solana Beach, CA 92075

Jeffrey H. Woodcock, Headmaster
Santa Fe Christian Schools
838 Academy Drive
Solana Beach, CA 92075

Mr. Andy Mauro, Acting Supt.
22nd Agricultural Dist.
2260 Jimmy Durante Blvd.
Del Mar, CA 92014